

TABLE OF CONTENTS

	<u>Pages</u>
NOTICE TO BIDDERS	2
INFORMATION FOR BIDDERS	31
QUALIFICATIONS OF BIDDERS	1
FORM OF PROPOSAL	18
FORM - CERTIFICATION OF NON-SEGREGATED FACILITIES	1
FORM - CERTIFICATION BY BIDDER REGARDING EQUAL EMPLOYMENT OPPORTUNITY	1
FORM OF CONTRACT	33
SUPPLEMENTARY GENERAL CONDITIONS	24

DETAILED SPECIFICATIONS - CONTRACT 2-COLLECTING SEWERS

<u>SPECIAL CONDITIONS</u>	8
<u>Item Nos.</u>	
1.101, 1.102, etc. Asbestos Cement Pipe Sewers	3
1.201; 1.202, etc. PVC Pipe Sewers	3
1.301, 1.302, etc. ABS Composite Sewer Pipe	4
1.401; 1.402, etc. F.&I. Cast Iron and/or Ductile Iron Pipe	3
1.601; 1.602, etc. F.&I. PVC Pressure Sewers	3
1.701; 1.702, etc. F.&I. Copper Pipe	1
2.01 Manholes	3
2.20 Pressure Sewer Cleanout Chamber	2

TABLE OF CONTENTS

<u>DETAILED SPECIFICATIONS (continued)</u>		<u>Pages</u>
<u>Item Nos.</u>		
2.50; 2.51, etc.	Lampholes	1
2.90	Painting Concrete Manhole Interiors	1
2.95	Watertight Locking Manhole Frames and Covers	1
3.01; 3.02, etc.	Installation of Wye Branches	1
3.21; 3.22, etc.	Tapping Sleeves and Valves	1
3.51; 3.52, etc.	F.&I. Double Gate Valves and Boxes	2
4.01; 4.02, etc.	F.&I. Corporation Stops	1
4.1; 4.2, etc.	Inside Drop Manhole Connections	1
4.51; 4.52, etc.	F.&I. Curb Stops and Curb Boxes	1
5.1; 5.2, etc.	Installing Pipe Risers	1
7	Foundation Stone or Gravel	1
8	Sheeting & Bracing, Left in Place	1
9	Foundation Lumber	1
10	Additional Earth Excavation	1
11, 12, 13	Additional First, Second, and Third Class Concrete	1
14	Additional Metal Reinforcing	1
15	Gravel Backfill	2
16	Selected Backfill	1

TABLE OF CONTENTS

<u>DETAILED SPECIFICATIONS (continued)</u>		<u>Pages</u>
<u>Item Nos.</u>		
17.1; 17.2, etc.	Restoring Pavement, Driveways, Sidewalks, Curbing, Gutters, etc.	4
18	Rock Excavation	2
19	Foundation Concrete	1
19.1; 19.2, etc.	Granular Bedding	1
20	Soil Cement Backfill	1
21	Earth Embankment	1
23.01; 23.02, etc.	F. & I. Casing Pipes	3
23.51; 23.52, etc.	F. & I. Corrugated Metal Sleeve Pipes	2
24	Retainer Clamps, Tie Rods and Retainer Glands	2
25.1; 25.2, etc.	F. & I. Place Rip-Rap	2
26.1; 26.2, etc.	Corrugated Metal Pipe Culvert	1
27	Miscellaneous Iron and Steel	2
29	Pipeline Markers	1
30	Installation of Grinder Pumps	4
31	F. & I. Cast Iron Pipe Fittings	1
32.2; 32.3, etc.	Environmental Protection and Restoration	14
34.1; 34.2, etc.	Tree Removal	1
35.1; 35.2, etc.	Factory-Built Pumping Stations	16
36	Project Sign	3
37	Air Valve Manhole	1

TABLE OF CONTENTS

Pages

DETAILED SPECIFICATIONS

CONTRACT NO. 2E - ELECTRICAL WORK 8

DETAILED SPECIFICATIONS

CONTRACT NO. 2P - FURNISHING GRINDER PUMPS

SPECIAL CONDITIONS 5

Item No

1 - Furnishing Grinder Pumps 12

TABLE OF CONTENTS

	<u>Pages</u>
<u>GENERAL SPECIFICATIONS</u>	
Section 1	Clearing and Grubbing 1
2	Excavation, Backfill and Embankment 5
3	First, Second, and Third Class Concrete 11
4	Metal Reinforcement 2
5	Trench Excavation and Backfill 8
6	Pumping, Bailing, Draining and Cofferdams 1
7	Installation of Cast Iron Water Mains 12
8C	Installation of Clay Sewer Pipe 5
10	Valves and Gates 2
13	Miscellaneous Iron and Steel 5
24	Storing and Spreading Topsoil 1
25	Seeding 2

<u>GENERAL CLAUSES</u>	6

NOTICE TO BIDDERS

BETHLEHEM SEWER DISTRICT
TOWN OF BETHLEHEM

ALBANY COUNTY

NEW YORK

CONTRACT NO. 2 -COLLECTING SEWERS
AND/OR
CONTRACT NO. 2E-ELECTRICAL WORK
AND/OR
CONTRACT NO. 2P-FURNISHING GRINDER PUMPS

USEPA-NYSDEC C-36-1096

Sealed proposals for the Bethlehem Sewer District of the Town of Bethlehem, Albany County, New York for Construction of the following work:

Contract No. 2 Construction of approximately 24,000 feet of 8" diameter gravity sewers and approximately 11,500 feet of small diameter pressure sewers and appurtenances including the installation of approximately 63 grinder pumps furnished by others, and the construction of three sewage pumping stations and ductile iron force mains, and

Contract No. 2E Furnish electrical work for three sewage pumping stations, and

Contract No. 2P Furnishing of approximately 90 grinder pump units, complete with electric motor drives, controls, basins and other miscellaneous equipment

will be received by the Town Board of the Town of Bethlehem, New York, at its office in the Town Hall, 445 Delaware Avenue, Delmar, New York, until 2:00 p.m. (local time) on Tuesday, March 23, 1982, and at that time and place will be publicly opened and read aloud.

Plans and Specifications for the proposed work are on file and are now publicly exhibited at the Office of the Town Clerk, 445 Delaware Avenue, Delmar, New York, and at the Office of J. Kenneth Fraser and Associates, P.C., Consulting Engineers, 620 Washington Avenue, Rensselaer, New York. Copies of said plans and specifications can be obtained at either of the above addresses.

A deposit of \$50.00 will be required for each set of plans and specifications furnished to prospective bidders, which sum will be refunded only to those submitting a formal bid, if said plans are returned in good condition within thirty (30) days after the award of the contract. If additional sets of plans and specifications have been obtained, one-half the amount of the deposit will be refunded upon the return, in good condition, of each additional set. Refunds will not be made to non-bidders or materialmen.

Each proposal must be accompanied by a certified check in the sum of five percent (5%) of the amount of the bid, drawn upon a National or State Bank or Trust Company, to the order of Thomas V. Corrigan, Supervisor of the Town of Bethlehem, New York, or a bond with sufficient sureties in a penal sum equal to five percent (5%) of the bid, conditioned that if his bid is accepted, he will enter into a contract for the same and that he will execute such further security as may be required for the performance of the contract. A separate Performance and Payment Bond, each equal to one hundred percent (100%) of the contract amount will be required of the successful bidder, and the bonds shall be satisfactory to the Town Board.

The Contractor shall not include in his bid sales and compensating use taxes on the cost of materials which are to be incorporated into the work.

Bidders on this work will be required to comply with the President's Executive Orders No. 11246 and No. 11375, which pertain to non-discrimination in employment.

Any Contract or contracts awarded under this Invitation for Bids are expected to be funded in part by a grant from the United States Environmental Protection Agency. Neither the United States nor any of its departments, agencies or employees is or will be a party to this invitation for Bids or any resulting contract. This procurement will be subject to regulations contained in 40 CFR 35.936, 35.938, and 35.939.

The successful Bidder must comply fully with the requirements, terms and conditions of the U. S. Environmental Protection Agency, Region 2 Minority Business Enterprise (MBE) requirements and the statement of EPA policy of December 26, 1978. The successful bidder will make good faith efforts to subcontract at least 12 percent of the total value to MBE.

The bidder to whom the contract may be awarded shall attend at the said opening place of the said bids, with the sureties offered by him, within seven (7) days after the date of notification of the acceptance of his proposal, and there sign the contract for the work in triplicate. In case of his failure to do so, or in case of his failure to give further security as herein prescribed, the bidder will be considered as having abandoned the same, and the certified check or other bid security accompanying his proposal shall be forfeited to the Town.

The Town Board of the Town of Bethlehem reserves the right to waive any informalities in or to reject any or all bids submitted.

By Order of the Town Board of the Town of Bethlehem, New York.

(Signed) Marion T. Camp
Town Clerk

DATED: February 10, 1982

INFORMATION FOR BIDDERS

BETHLEHEM SEWER DISTRICT
TOWN OF BETHLEHEM

ALBANY COUNTY

NEW YORK

CONTRACT NO. 2 -COLLECTING SEWERS

AND/OR

CONTRACT NO. 2E-ELECTRICAL WORK

AND/OR

CONTRACT NO. 2P-FURNISHING GRINDER PUMPS

USEPA-NYSDEC C-36-1096

The Town Board of the Town of Bethlehem (herein called the "Owner") acting for and in behalf of The Bethlehem Sewer District, will receive sealed proposals for construction of Contract No. 2 -Collecting Sewers, Contract No. 2E-Electrical Work, and Contract No. 2P-Furnishing Grinder Pumps, in accordance with the preceding Notice to Bidders.

Preparation of Bid

Proposals shall be made on the blank Form of Proposal accompanying this notice. Any proposal containing bids not asked for, or which is otherwise not in conformity with this notice, may be rejected. Each proposal must contain the full name of every person, firm or corporation interested in the same, and the addresses of the person or firm, or the president and secretary of the corporation bidding.

All proposals and the certified check or bid bond must be placed in a sealed envelope marked, "Contract No. 2 and/or Contract No. 2E and/or Contract No. 2P, Bethlehem Sewer District, Town of Bethlehem, New York", but otherwise unmarked.

All contractors shall leave their names and correct mailing addresses upon receipt of the plans and specifications.

The attention of all prospective bidders is called to the Form of Proposal following this Information for Bidders. The Form of Proposal must not be detached from these documents.

Each bidder shall fill out in ink, in the space provided, his unit price or lump sum bid, as the case may be, for each item in said Form of Proposal, for which he is submitting a bid.

No bid will be considered which does not include bids for all items in the proposal.

Bids for each contract will be compared by total amounts, said total amounts being either the lump sum amount bid for each contract, or said amount being the sum of the products of quantities multiplied by the unit price bid for unit price items. Consideration will be given in making the award to the unit prices bid for contingent items, if any. In case of discrepancies between the unit price bid and the extended total, the unit price will govern, and in case of discrepancies between words and figures, the words shall govern.

Attention is called to the Offer of Surety and Certificate of Surety following the Form of Proposal, which must be filled in by the bidders before submitting their bids, when the bid is accompanied by a certified check.

Bid Security

Each proposal from a Contractor shall be accompanied by a separate five percent (5%) bid bond or certified check on a solvent bank of the State of New York. Such check shall be made payable to Thomas V. Corrigan, Supervisor, Town of Bethlehem New York, and the amount thereof shall be the measure of liquidated damages which the District may sustain by the failure, neglect or refusal of the bidder to execute and deliver the contract, should the contract be awarded to him. The checks of all unsuccessful bidders will be returned upon the rejection of bids or the awarding of the contract; also, the check of the successful bidder will be returned upon the execution of the contract and the furnishing of the required bonds.

Stipulations in Contract

The attention of prospective bidders is called to the following stipulations in the contract:

Article X which permits increases and decreases up to the amount of 15% of the total bid price in dollars and cents.

Article XV giving the contract time. The work under this contract must be fully completed and in operation not later than 365 calendar days after notification to proceed with the work.

Article XVI relating to the fixed and liquidated damages for failure to complete the contract within the time limit; \$200.00 per calendar day for this contract.

Article XXVI regarding insurance requirements. Under paragraph (4), Fire insurance in the name of the Owner is required under this contract only for the full value bid for three pumping stations per the Contractor's bid Proposal under Contract No. 2.

Examination of Documents and Site

Bidder shall carefully examine the documents and the construction site to obtain first-hand knowledge of existing conditions. Contractors will not be given extra payments for conditions which can be determined by examining the site and documents.

Addenda and Interpretations

No interpretation of the meaning of the plans, specifications or other pre-bid documents will be made to any bidder orally. Every request for such interpretation should be in writing addressed to J. Kenneth Fraser and Associates, P.C., at 620 Washington Avenue, Rensselaer, New York and to be given consideration must be received at least five days prior to the date fixed for the opening of bids. Any and all such interpretations and any supplemental instructions will be in the form of written addenda to the specifications which, if issued, will be mailed by certified mail with return receipt requested to all prospective bidders (at the respective addresses furnished for such purposes), not later than three (3) days prior to the date fixed for the opening of bids. Failure of any bidder to receive any such addendum or interpretation shall not relieve such bidder from any obligation under his bid as submitted. All addenda so issued shall become part of the contract documents.

Conditions of Work

The Owner will not be responsible in any manner for verbal answers to any inquiries regarding the meaning of the drawings or the specifications given prior to the awarding of the contract. Bidders are required to submit their proposal upon the following express conditions which shall apply to and become part of every bid received; bidders must satisfy themselves by a personal examination of the location of the proposed work, and by such other means as they may deem necessary, as to the actual quantities required for the construction. The prices bid shall include every and all costs for the construction complete between the limits indicated on the plans and/or set out in the specifications.

Each bidder must inform himself fully of the conditions relating to the construction of the project and the employment of labor thereon. Failure to do so will not relieve a successful bidder of his obligation to furnish all material and labor necessary to carry out the provisions of his contract. Insofar as possible, the Contractor, in carrying out his work, must employ such methods or means as will not cause any interruption of or interference with the work of any other contractor.

Qualifications of Bidders

Immediately preceding the Proposal is a page entitled "Qualifications of Bidders", which shall be filled in by the bidder and wherein the bidder shall state certain references with regard to work of the same type that has been performed by him in recent years.

The Owner may make such investigations as he deems necessary to determine the ability of the bidder to perform the work, and the bidder shall furnish to the Owner all such information and data for this purpose as the Owner may request. The Owner reserves the right to reject any bid if the evidence submitted by, or investigation of, such bidder fails to satisfy the Owner that such bidder is properly qualified to carry out the obligations of the contract and to complete the work contemplated therein. Conditional bids will not be accepted.

Liquidated Damages for Failure to Enter into Contract

The bidder to whom the contract may be awarded shall attend at the said opening place of the said bids, with the sureties offered by him, within seven days after the date of notification of the acceptance of his proposal, and there sign the contract for the work in triplicate. In case of his failure to do so, or in case of his failure to give the further security as herein prescribed, the bidder will be considered as having abandoned the same and the certified check or other bid security accompanying his proposal shall be forfeited to the Owner.

Security for Faithful Performance

Before the execution of the said contract, the successful bidder thereon shall furnish a separate performance and a separate payment bond, each in the sum of 100% of the prices named therein, conditioned upon the faithful performance of all terms, covenants and conditions of such contract, with a surety company authorized to do business in the State of New York, as surety. The Bond Forms covering both performance and labor and material, required under this contract are attached to these specifications. The bond shall be maintained in full force for a period of twelve months after date of final certificate as a guarantee that the Contractor will make good any faults or defects in the work arising from improper or defective workmanship or materials which may appear during that period.

Withdrawal of Bid

The Owner may consider informal any bid not prepared and submitted in accordance with the provisions hereof and may waive any informalities or reject any and all bids. Any bid may be withdrawn prior to the above scheduled time for the opening of bids or authorized postponement thereof. Any bid received after the time and date specified shall not be considered. No bidder may withdraw a bid within 45 days after the actual date of the opening thereof.

Laws and Regulations

The bidder's attention is directed to the fact that all applicable state laws, municipal ordinances, and the rules and regulations of all authorities having jurisdiction over construction of the project shall apply to the contract throughout and they will be deemed to be included in the contract the same as though herein written out in full.

Exemption from State and Local Taxes

It is the intention of these contract documents to exempt the Owner and the Contractor from having to pay State and local Sales and Compensating Use taxes on materials to be incorporated in the work. The bidder's attention is directed to Sales Tax Information Letter No. 40, dated 8/28/74, regarding Exempt Organization Contracts, issued by the State of New York, Department of Taxation and Finance-Sales Tax Bureau. The unit prices and lump sum prices submitted by the bidder in the Form of Proposal shall include all New York State and local taxes required to be paid by the Contractor, except those Sales and Compensating Use Taxes exempted by Chapters 513 and 514 of the Laws of 1974, as explained in detail in the aforementioned Sales Tax Information Letter No. 40.

The Owner is an exempt organization and is therefore exempt from payment of Sales and Compensating Use taxes of the State of New York, and of cities, counties, and other subdivisions of the State, on all materials and supplies to be incorporated in the project pursuant to the provisions of this contract. These taxes apply to: (1) materials incorporated in the work, such as equipment, pipe, manholes, stone, gravel, concrete, paving, etc.; and (2) materials and furnishings for the project which are not incorporated therein, but are later sold and transferred to the Owner, such as chairs, desks, drapes, and movable tangible personal property.

This exemption does not, however, apply to equipment rentals, tools, supplies for equipment and other items purchased or rented by the Contractor for his use in performing the contract and not incorporated into the work.

Nothing stated under this heading is intended or shall be construed as relieving the Contractor from his obligations under any of the other provisions of this contract.

Method of Award-Lowest Qualified Bidder

The Owner reserves the right to waive any informalities in, or to reject any or all bids submitted or to accept the bid and award the contract to the lowest qualified responsible formal bidder therefor.

Obligation of Bidder

At the time of the opening of bids, each bidder will be presumed to have inspected the site and to have read and to be thoroughly familiar with the plans and contract documents (including all addenda). The failure or omission of any bidder to examine any form, instrument or documents shall in no way relieve any bidder from any obligation in respect of his bid.

Buy American Provision

The bidder's attention is called to the "Buy American" provisions of the Supplemental General Conditions.

Non-Discrimination in Employment

Contracts for work under this proposal will obligate the contractors and subcontractors not to discriminate in employment practices.

Bidders must submit with their initial bid a signed statement as to whether they have previously performed work subject to the President's Executive Order No. 10925, No. 11114 or No. 11246 (as amended by E.O. No. 11375). Bidders must, if requested, submit a compliance report concerning their employment practices and policies in order to maintain their eligibility to receive the award of the contract.

Successful bidders must, if requested, submit a list of all subcontractors who will perform work on the project and written signed statements from authorized agents of the labor pools with which they will or may deal for employees on the work together with supporting information to the effect that said labor pools' practices and policies are in conformity with the Executive Order No. 11246 and No. 11375 and that said labor pools will affirmatively cooperate in or offer no hindrance to the recruitment, employment and equal treatment of employees seeking employment and performing work under the contract, or a certification as to what efforts have been made to secure such statements when such agents or labor pools have failed or refused to furnish same prior to the award of the contract.

Successful bidders must be prepared to comply in all respects with the non-discrimination provisions to be found in the Labor Standards Provisions for Federally Assisted Construction Contracts which are included in the Supplemental General Conditions.

Non-Segregated Facilities

- a. A Certification of Non-Segregated Facilities as required by the May 09, 1967 Order (32 F.R. 7439, May 19, 1967) on elimination of Segregated Facilities, by the Secretary of Labor, must be submitted prior to the award of a federally assisted construction contract exceeding \$10,000.
- b. Contractors receiving federally assisted construction contract awards exceeding \$10,000 will be required to provide for the forwarding of the following notice to prospective subcontractors for supplies and construction contracts where the subcontracts exceed \$10,000:

"NOTICE TO PROSPECTIVE SUBCONTRACTORS OF REQUIREMENT FOR CERTIFICATIONS OF NONSEGREGATED FACILITIES".

- a. A Certification of Non-segregated Facilities as required by the May 09, 1967 Order (32 F.R. 7439, May 19, 1967) on Elimination of Segregated Facilities, by the Secretary of Labor, must be submitted prior to the award of a subcontract exceeding \$10,000.
- b. Contractors receiving subcontract awards exceeding \$10,000 will be required to provide for the forwarding of this notice to prospective subcontractors for supplies and construction contracts where the subcontracts exceed \$10,000.

Preconstruction Conference

The Contractor shall be prepared to attend a preconstruction conference after execution of the contract and prior to the beginning of construction, at which representatives of New York State and of the Owner will be present, to discuss performance of the work under this contract.

Access to Project Site and Records

The Contractor shall maintain books, records, documents and other evidence, in accordance with appropriate accounting procedures and practices, directly pertinent to the performance of the work under this contract until the expiration of three years from the date of final payment. The Owner, the United States Environmental Protection Agency, the Comptroller General of the United States, or any of their duly authorized representatives shall have access to any such books, documents, papers and records for the purpose of making audit, examination, excerpts and transcriptions. The Contractor shall preserve and make such records available during said three-year period. The Contractor's facilities and records shall also be subject at all reasonable times to inspection and audit by said agencies or representatives during the period of performance of the contract work.

Representatives of the United States Environmental Protection Agency and of the State shall have access to the work wherever it is in preparation or progress and the Contractor shall provide proper facilities for such access and inspection.

Repairs for One Year

The bidder's attention is called to the requirements of the contract whereby the Contractor guarantees the work for one year after submission of the certificate of completion and for the furnishing of municipal bonds in the sum of five percent (5%) of the amount of the contract.

Responsibility of Contractor

Attention is here particularly directed to the provisions of the contract whereby the Contractor shall be responsible for any loss or damage that may happen to the work or any part thereof during its progress; and also whereby the Contractor shall make good any defects or faults that may occur during the progress of the work or within twelve (12) months after its completion and acceptance. He shall indemnify and save harmless the Owner from any damages or costs to which it may be put by reason of injury to the person or property of another resulting from negligence or carelessness in the performance of the work under this contract.

Equal Opportunity Requirements in Areas Outside of Hometown and Imposed Plan Areas

Bidders are advised that:

- a. Any contract or subcontract resulting from this bid invitation is subject to Executive Order No. 11246; and
- b. By the submission of a bid, each bidder acknowledges that he understands and agrees to be bound by the Equal Opportunity requirements of EPA regulations (40 CFR Part 8, particularly subpart 8.4(b) which shall be applicable throughout the performance of work under any contract awarded pursuant to this solicitation. Each bidder agrees that if awarded a contract, it will similarly bind contractually each subcontractor. In implementation of the foregoing policies, each bidder further understands and agrees that if awarded a contract, it must engage in affirmative action directed at promoting and insuring Equal Employment Opportunity in the work force used under the contract (and that it must require contractually the same effort of all subcontractors whose subcontracts exceed \$100,000). The bidder understands and agrees that "affirmative action" as used herein shall constitute a good faith effort to achieve and maintain minority employment in each trade in the on-site work force used on the project.

- c. Each prime contractor and subcontractor shall include by reference the EEO clause and applicable Bid Conditions in all advertisements or other solicitations for bids, and shall include the EEO clause and applicable Bid Conditions in all contracts; and
- d. Each prime contractor and subcontractor must provide written notice to each subcontractor of the specific reporting and recordkeeping requirements under the EEO clause and applicable Bid Conditions. Upon award of a subcontract, each contractor shall immediately notify the compliance agency of the contract number, the subcontractor's name, dollar amount of contract, estimated start and completion dates, and the crafts which will perform work under the subcontract.

Bidders are requested to submit with their bids:

- a. An executed certificate as to non-segregated facilities in accordance with the attached form; and
- b. An executed certificate as to prior participation in contracts subject to E.O. 11246 in accordance with the attached form.

Compliance with Federal Requirements
for Construction Grants

Following hereto and made a part of the Information for Bidders, are Sections 35.936, 35.938 and 35.939 of Subpart E - Grants for Construction of Treatment Works - Federal Water Pollution Control Act Amendments of 1972.

the grantee has submitted adequate evidence of timely development of its system of industrial cost recovery nor shall the Regional Administrator pay more than 80 percent of the Federal share unless he has approved the system.

(2) Payments of grantees held under paragraph (a)(1) of this section shall be released after April 25, 1978. However, the grantee shall obtain approval of its industrial cost recovery system by June 30, 1979, or no further payments will be made until the system is approved.

(b) *Step 3 grant assistance awarded after April 24, 1978, but before July 1, 1979.* The grantee must obtain approval of its industrial cost recovery system under these regulations, except for the ordinance and rates, before July 1, 1979. The Regional Administrator shall not make any payments on these grants and shall not award any new step 3 grants to the same grantee after June 30, 1979. If the industrial cost recovery system, except for the ordinance and rates, has not been approved. The grantee shall enact the ordinance required under § 35.928-1(h) and submit the ordinance and industrial cost recovery system rates to the Regional Administrator who must approve the ordinance before the treatment works are placed in operation.

(c) *Step 3 grant assistance awarded after June 30, 1979.* The grantee must obtain the Regional Administrator's approval of the industrial cost recovery system under these regulations, except for the ordinance and rates, before grant award. The grantee shall enact the ordinance required under § 35.928-1(h) and submit the ordinance and industrial cost recovery system rates to the Regional Administrator who must approve the ordinance before the treatment works are placed in operation.

§ 35.935-16 Sewer use ordinance and evaluation/rehabilitation program.

(a) The grantee must obtain the approval of the Regional Administrator of its sewer use ordinance under § 35.927-4.

(b) Except as provided in paragraphs (c) and (d) of this section, the Regional Administrator shall not pay more than 80 percent of the Federal share of any step 3 project unless he has approved the grantee's sewer use ordinance and the grantee is complying with the sewer system evaluation and rehabilitation schedule incorporated in the grant agreement under § 35.927-5.

(c) In projects where segmenting of an operable treatment works has occurred, the Regional Administrator shall not pay more than 80 percent of the Federal share of the total of all interdependent step 3 segments unless

he has approved the grantee's sewer use ordinance and the grantee is complying with the sewer system evaluation and rehabilitation schedule incorporated in the grant agreement under § 35.927-5.

(d) In multiple facility projects where an element or elements of the treatment works are operable components and have been completely constructed and placed in operation by the grantee, the Regional Administrator shall not make any additional step 3 payment unless he has approved the grantee's sewer use ordinance and the grantee is complying with the sewer system evaluation and rehabilitation schedule incorporated in the grant agreement under § 35.927-5.

§ 35.935-17 Training facility.

If assistance has been provided for the construction of a treatment works required to train and upgrade waste treatment personnel under §§ 35.930-1(b) and 35.929-3(e), the grantee must operate the treatment works as a training facility for a period of at least 10 years after construction is completed.

§ 35.935-18 Value engineering.

A grantee must comply with the applicable value engineering requirements of § 35.926.

§ 35.935-19 Municipal pretreatment program.

The grantee must obtain approval by the Regional Administrator of the municipal pretreatment program in accordance with part 403 of this chapter. Prior to granting such approval, the Regional Administrator shall not pay more than 90 percent of the Federal share of any step 3 project or cost of step 3 work under a step 2+3 project awarded after October 1, 1978, except that for any such grant assistance awarded before December 31, 1980, the Regional Administrator may continue grant payments if he determines that significant progress has been made (and is likely to continue) toward the development of an approvable pretreatment program and that withholding of grant payments would not be in the best interest of protecting the environment.

§ 35.935-20 Innovative processes and techniques.

If the grantee receives 85-percent grant assistance for innovative processes and techniques, the following conditions apply during the 5-year period following completion of construction:

(a) The grantee shall permit EPA personnel and EPA designated contractors to visit and inspect the treatment works at any reasonable time in

order to review the operation of the innovative processes or techniques.

(b) If the Regional Administrator requests, the grantee will provide EPA with a brief written report on the construction, operation, and costs of operation of the innovative processes or techniques.

§ 35.936 Procurement.

(a) §§ 35.936 through 35.939 set forth policies and minimum standards for procurement of architectural or engineering services as defined in § 35.937 and construction contracts as described in § 35.938 by grantees under all steps of grants for construction of treatment works. Acquisition of real property shall be conducted in accordance with part 4 subpart F of this chapter. Other procurements of goods and services shall be conducted in accordance with the provisions of part 33 of this subchapter.

(b) This subpart does not apply to work beyond the scope of the project for which grant assistance is awarded (i.e., ineligible work).

§ 35.936-1 Definitions.

As used in §§ 35.936 through 35.939, the following words and terms shall have the meaning set forth below. All terms not defined herein shall have the meaning given to them in § 30.435 of this subchapter, and in § 35.905.

(a) *Grant agreement.* The written agreement and amendments thereto between EPA and a grantee in which the terms and conditions governing the grant are stated and agreed to by both parties under § 30.345 of this subchapter.

(b) *Subagreement.* A written agreement between an EPA grantee and another party (other than another public agency) and any tier of agreement thereunder for the furnishing of services, supplies, or equipment necessary to complete the project for which a grant was awarded, including contracts and subcontracts for personal and professional services, agreements with consultants and purchase orders, but excluding employment agreements subject to State or local personnel systems. (See §§ 35.937-12 and 35.938-9 regarding subcontracts of any tier under prime contracts for architectural or engineering services or construction awarded by the grantee—generally applicable only to subcontracts in excess of \$10,000.)

(c) *Contractor.* A party to whom a subagreement is awarded.

(d) *Grantee.* Any municipality which has been awarded a grant for construction of a treatment works under this subpart. In addition, where appropriate in §§ 35.936 through 35.939, grantee may also refer to an applicant for a grant.

§ 35.936-2 Grantee procurement systems; State or local law.

(a) *Grantee procurement systems.* Grantees may use their own procurement systems and procedures which meet applicable requirements of State, territorial, or local laws and ordinances to the extent that these systems and procedures do not conflict with the minimum requirements of this subchapter.

(b) *State or local law.* The Regional Administrator will generally rely on a grantee's determination regarding the application of State or local law to issues which are primarily determined by such law. The Regional Administrator may request the grantee to furnish a written legal opinion adequately addressing any such legal issues. The Regional Administrator will accept the grantee's determination unless he finds that it does not have a rational basis.

(c) *Preference.* State or local laws, ordinances, regulations or procedures which effectively give local or in-State bidders or proposers preference over other bidders or proposers shall not be employed in evaluating bids or proposals for subagreements under a grant.

§ 35.936-3 Competition.

EPA's policy is to encourage free and open competition appropriate to the type of project work to be performed.

§ 35.936-4 Profits.

Only fair and reasonable profits may be earned by contractors in subagreements under EPA grants. See § 35.937-7 for discussion of profits under negotiated subagreements for architectural or engineering services, and § 35.938-5(f) for discussion of profits under negotiated change orders to construction contracts. Profit included in a formally advertised, competitively bid, fixed price construction contract awarded under § 35.938 is presumed reasonable.

§ 35.936-5 Grantee responsibility.

(a) The grantee is responsible for the administration and successful accomplishment of the project for which EPA grant assistance is awarded. The grantee is responsible for the settlement and satisfaction of all contractual and administrative issues arising out of subagreements entered into under the grant (except as § 35.936-6 provides) in accordance with sound business judgment and good administrative practice. This includes issuance of invitations for bids or requests for proposals, selection of contractors, award of contracts, protests of award, claims, disputes, and other related procurement matters.

(b) With the prior written approval of the Regional Administrator, the grantee may retain an individual or

firm to perform these functions. Such an agent acts for the grantee and is subject to the provisions of this subpart which apply to the grantee.

(c) In accordance with § 35.970, a grantee may request technical and legal assistance from the Regional Administrator for the administration and enforcement of any contract related to treatment works that are assisted by an EPA grant. The Regional Administrator's assistance does not release the grantee from those responsibilities identified in paragraph (a) of this section.

§ 35.936-6 EPA responsibility.

Generally, EPA will only review grantee compliance with Federal requirements applicable to a grantee's procurement. However, where specifically provided in this chapter (e.g., §§ 8.8(j) and 35.939), EPA is responsible for determining compliance with Federal requirements.

§ 35.936-7 Small and minority business.

Grantees shall make positive efforts to use small business and minority-owned business sources of supplies and services. Such efforts should allow these sources the maximum feasible opportunity to compete for subagreements to be performed using Federal grant funds.

§ 35.936-8 Privity of contract.

Neither EPA nor the United States shall be a party to any subagreement (including contracts or subcontracts), nor to any solicitation or request for proposals. (See §§ 35.937-9(a), 35.938-4(c)(5), and appendixes C-1 and C-2 to this subpart for the required solicitation statement and contract provisions.) However, in accordance with § 35.970 the Regional Administrator, if a grantee requests, may provide technical and legal assistance in the administration and enforcement of any contract related to treatment works for which an EPA grant was made.

§ 35.936-9 Disputes.

Only an EPA grantee may initiate and prosecute an appeal to the Administrator under the disputes provision of a grant with respect to its subagreements (see subpart J of part 30 of this subchapter). Neither a contractor nor a subcontractor may prosecute an appeal under the disputes provisions of a grant in its own name or interest.

§ 35.936-10 Federal procurement regulations.

Regulations applicable to direct Federal procurement shall not be applicable to subagreements under grants except as stated in this subchapter.

§ 35.936-11 General requirements for subagreements.

Subagreements must:

(a) Be necessary for and directly related to the accomplishment of the project work;

(b) Be in the form of a bilaterally executed written agreement (except for small purchases of \$10,000 or less);

(c) Be for monetary or in-kind consideration; and

(d) Not be in the nature of a grant or gift.

§ 35.936-12 Documentation.

(a) Procurement records and files for purchases in excess of \$10,000 shall include the following:

(1) Basis for contractor selection;

(2) Justification for lack of competition if competition appropriate to the type of project work to be performed is required but is not obtained; and

(3) Basis for award cost or price.

(b) The grantee or contractors of the grantee must retain procurement documentation required by § 30.805 of this subchapter and by this subpart, including a copy of each subagreement, for the period of time specified in § 30.805. The documentation is subject to all the requirements of § 30.805. A copy of each subagreement must be furnished to the project officer upon request.

§ 35.936-13 Specifications.

(a) *Nonrestrictive specifications.* (1) No specification for bids or statement of work in connection with such works shall be written in such a manner as to contain proprietary, exclusionary, or discriminatory requirements other than those based upon performance, unless such requirements are necessary to test or demonstrate a specific thing or to provide for necessary interchangeability of parts and equipment, or at least two brand names or trade names of comparable quality or utility are listed and are followed by the words "or equal." If brand or trade names are specified, the grantee must be prepared to identify to the Regional Administrator or in any protest action the salient requirements (relating to the minimum needs of the project) which must be met by any offeror. The single base bid method of solicitation for equipment and parts for determination of a low, responsive bidder may not be utilized. With regard to materials, if a single material is specified, the grantee must be prepared to substantiate the basis for the selection of the material.

(2) Project specifications shall, to the extent practicable, provide for maximum use of structures, machines, products, materials, construction methods, and equipment which are readily available through competitive procurement, or through standard or

proven production techniques, methods, and processes, except to the extent that innovative technologies may be used under § 35.908 of this subpart.

(b) *Sole source restriction.* A specification shall not require the use of structures, materials, equipment, or processes which are known to be available only from a sole source, unless the Regional Administrator determines that the grantee's engineer has adequately justified in writing that the proposed use meets the particular project's minimum needs or the Regional Administrator determines that use of a single source is necessary to promote innovation (see § 35.908). Sole source procurement must be negotiated under § 33.500 et seq., including full cost review.

(c) *Experience clause restriction.* The general use of experience clauses requiring equipment manufacturers to have a record of satisfactory operation for a specified period of time or of bonds or deposits to guarantee replacement in the event of failure is restricted to special cases where the grantee's engineer adequately justifies any such requirement in writing. Where such justification has been made, submission of a bond or deposit shall be permitted instead of a specified experience period. The period of time for which the bond or deposit is required should not exceed the experience period specified.

(d) *Buy American.* (1) *Definitions.* As used in this subpart, the following definitions apply:

(i) "Construction material" means any article, material, or supply brought to the construction site for incorporation in the building or work.

(ii) "Component" means any article, material, or supply directly incorporated in construction material.

(iii) "Domestic construction material" means an unmanufactured construction material which has been mined or produced in the United States, or a manufactured construction material which has been manufactured in the United States if the cost of its components which are mined, produced, or manufactured in the United States exceeds 50 percent of the cost of all its components.

(iv) "Nondomestic construction material" means a construction material other than a domestic construction material.

(2) *Domestic preference.* Domestic construction material may be used in preference to nondomestic materials if it is priced no more than 6 percent higher than the bid or offered price of the nondomestic materials including all costs of delivery to the construction site, any applicable duty, whether or not assessed. Computations will

normally be based on costs on the date of opening of bids or proposals.

(3) *Waiver.* The Regional Administrator may waive the Buy American provision based upon those factors that he considers relevant, including:

(i) Such use is not in the public interest;

(ii) The cost is unreasonable;

(iii) The Agency's available resources are not sufficient to implement the provision, subject to the Deputy Administrator's concurrence;

(iv) The articles, materials, or supplies of the class or kind to be used or the articles, materials, or supplies from which they are manufactured are not mined, produced, or manufactured in the United States in sufficient and reasonably available commercial quantities or satisfactory quality for the particular project; or

(v) Application of this provision is contrary to multilateral government procurement agreements, subject to the Deputy Administrator's concurrence.

(4) *Contract provision.* Notwithstanding any other provision of this subpart, bidding documents and construction contracts for any step 3 project for which the Regional Administrator receives an application after February 1, 1978, shall contain the "Buy American" provision which requires use of domestic construction materials in preference to nondomestic construction materials.

(5) *Substitution.* If a nondomestic construction material or component is proposed for use, a bidder or contractor may substitute an approved domestic material or component (at no change in price), if necessary to comply with this subsection.

(6) *Procedures.* The Regional Administrator may use the appropriate procedures of § 35.939 in making the determinations with respect to this subsection. He shall generally observe the Buy American procedures, regulations, precedents, and requirements of other Federal departments and agencies.

§ 35.936-14 Force account work.

(a) A grantee must secure the project officer's prior written approval for use of the force account method for (1) any step 1 or step 2 work in excess of \$10,000; (2) any sewer rehabilitation work in excess of \$25,000 performed during step 1 (see § 35.927-3(a)); or (3) any step 3 work in excess of \$25,000; unless the grant agreement stipulates the force account method.

(b) The project officer's approval shall be based on the grantee's demonstration that he possesses the necessary competence required to accomplish such work and that (1) the work can be accomplished more economically by the use of the force account

method, or (2) emergency circumstances dictate its use.

(c) Use of the force account method for step 3 construction shall generally be limited to minor portions of a project.

§ 35.936-15 Limitations on subagreement award.

No subagreement shall be awarded:

(a) To any person or organization which does not meet the responsibility standards in § 30.340-2 (a) through (d) and (g) of this subchapter;

(b) If any portion of the contract work not exempted by § 30.420-3(b) of this subchapter will be performed at a facility listed by the Director, EPA Office of Federal Activities, in violation of the antipollution requirements of the Clean Air Act and the Clean Water Act, as set forth in § 30.420-3 of this subchapter and 40 CFR part 15 (Administration of the Clean Air Act and the Federal Water Pollution Control Act with respect to Federal contracts, grants, or loans); or

(c) To any person or organization which is ineligible under the conflict of interest requirements of § 30.420-4 of this subchapter.

§ 35.936-16 Code or standards of conduct.

(a) The grantee must maintain a code or standards of conduct which shall govern the performance of its officers, employees, or agents in the conduct of project work, including procurement and expenditure of project funds. The grantee's officers, employees, or agents shall neither solicit nor accept gratuities, favors, or anything of monetary value from contractors or potential contractors. The grantee must avoid personal or organizational conflicts of interest or noncompetitive procurement practices which restrict or eliminate competition or otherwise restrain trade.

(b) To the extent permissible by State or local law or formal institutional requirements and procedures, the standards shall provide for penalties, sanctions, or other adequate disciplinary actions to be instituted for project-related violations of law or of the code or standards of conduct by either the grantee officers, employees, or agents, or by contractors or their agents.

(c) The grantee must inform the project officer in writing of each serious allegation of a project-related violation and of each known or proven project-related violation of law or code or standards of conduct, by its officers, employees, contractors, or by their agents. The grantee must also inform the project officer of the prosecutive or disciplinary action the grantee takes, and must cooperate with Federal officials in any Federal prosecutive or disciplinary action. Under § 30.245

RULES AND REGULATIONS

of this subchapter, the project officer must notify the Director, EPA Security and Inspection Division, of all notifications from the grantee.

(d) EPA shall cooperate with the grantee in its disciplinary or prosecutive actions taken for any apparent project-related violations of law or of the grantee's code or standards of conduct.

§ 35.936-17 Fraud and other unlawful or corrupt practices.

All procurements under grants are covered by the provisions of § 30.245 of this subchapter relating to fraud and other unlawful or corrupt practices.

§ 35.936-18 Negotiation of subagreements.

(a) Formal advertising, with adequate purchase descriptions, sealed bids, and public openings shall be the required method of procurement unless negotiation under paragraph (b) of this section is necessary to accomplish sound procurement.

(b) All negotiated procurement shall be conducted in a manner to provide to the maximum practicable extent open and free competition appropriate to the type of project work to be performed. The grantee is authorized to negotiate subagreements in accordance with the applicable procedures of this subchapter (see §§ 35.937 et seq. and 35.500 et seq.) if any of the following conditions exist:

(1) Public exigency will not permit the delay incident to formally advertised procurement (e.g., an emergency procurement).

(2) The aggregate amount involved does not exceed \$10,000 (see § 35.936-19 for small purchases).

(3) The material or service to be procured is available from only one person or entity. If the procurement is expected to aggregate more than \$10,000, the grantee must document its file with a justification of the need for noncompetitive procurement, and provide such documentation to the project officer on request.

(4) The procurement is for personal or professional services (including architectural or engineering services) or for any service that a university or other educational institution may render.

(5) No responsive, responsible bids at acceptable price levels have been received after formal advertising, and, with respect to procurement under § 35.938-4, the Regional Administrator's prior written approval has been obtained.

(6) The procurement is for materials or services where the prices are established by law.

(7) The procurement is for technical items or equipment requiring standardization and interchangeability of parts with existing equipment.

(8) The procurement is for experimental, developmental or research services.

§ 35.936-19 Small purchases.

(a) A small purchase is the procurement of materials, supplies, and services when the aggregate amount involved in any one transaction does not exceed \$10,000. The small purchase limitation of \$10,000 applies to the aggregate total of an order, including all estimated handling and freight charges, overhead, and profit to be paid under the order. In arriving at the aggregate amount involved in any one transaction, all items which should properly be grouped together must be included. Reasonable competition shall be obtained.

(b) Subagreements for small purchases need not be in the form of a bilaterally executed written agreement. Where appropriate, unilateral purchase orders, sales slips, memoranda of oral price quotations, and the like may be used to minimize paperwork. Retention in the purchase files of these documents and of written quotations received, or references to catalogs or printed price lists used, will suffice as the record supporting the price paid.

§ 35.936-20 Allowable costs.

(a) Incurring costs under subagreements which are not awarded or administered in compliance with this part or Part 33 of this subchapter, as appropriate, shall be cause for disallowance of those costs.

(b) Appropriate cost principles which apply to subagreements under EPA grants are identified in § 30.710 of this subchapter. Under that section, the contractor's actual costs, direct and indirect, eligible for Federal participation in a cost reimbursement contract shall be those allowable under the applicable provisions of 41 CFR 1-15.2 (Principles and Procedures for Use in Cost-Reimbursement Type Supply and Research Contracts With Commercial Organizations) and 1-15.4 (Construction and Architect-Engineer Contracts).

(c) Reasonable costs of compliance with the procurement and project management requirements of these regulations are allowable costs of administration under the grant. Costs of announcement, selection, negotiation, and cost review and analysis in connection with procurement of architectural or engineering services are allowable, even when conducted before award of the grant. Legal and engineering costs which a grantee is required to incur in a protest action under § 35.939 are allowable.

§ 35.936-21 Delegation to State agencies; certification of procurement systems.

(a) Under § 35.912 and subpart F of this part, the Regional Administrator may delegate authority to a State agency to review and certify the technical and administrative adequacy of procurement documentation required under these sections.

(b) If a State agency believes that State laws which govern municipal procurement include the same requirements or operate to provide the same protections as do §§ 35.936, 35.937 and 35.938, the State may request the Administrator to approve the State system instead of the procedures of these sections. EPA shall review the State system to determine its adequacy.

(c) If a State agency determines that an applicant's procurement ordinances or applicable statutes include the same requirements or operate to provide the same protections as do §§ 35.936, 35.937 and 35.938, the State may certify (accompanied by appropriate documentation) the adequacy of the municipality's ordinances and statutes and request the Administrator to approve the municipality's system instead of the procedures of these sections. EPA shall conduct or may request the State to conduct a review of the municipality's system to determine its adequacy.

§ 35.936-22 Bonding and insurance.

(a) On contracts for the building and erection of treatment works or contracts for sewer system rehabilitation exceeding \$100,000, each bidder must furnish a bid guarantee equivalent to 5 percent of the bid price. In addition, the contractor awarded a construction contract for the building and erection of treatment works or sewer system rehabilitation must furnish performance and payment bonds, each of which shall be in an amount not less than 100 percent of the contract price. Construction contracts less than \$100,000 shall be subject to State and local requirements for bid guarantees, performance bonds, and payment bonds. For contracts or subcontracts in excess of \$100,000 the Regional Administrator may authorize the grantee to use its own bonding policies and requirements if he determines, in writing, that the Government's interest is adequately protected.

(b) Contractors should obtain such construction insurance (e.g., fire and extended coverage, workmen's compensation, public liability and property damage, and "all risk" builder's risk or installation floater coverage) as is required by State or local law or the grantee or as is customary and appropriate. Under the Flood Disaster Protection Act of 1973, a contractor must purchase flood insurance to cover his risk of loss if the grantee has not pur-

chased the insurance (see § 30.405-10 of this subchapter).

§ 35.937 Subagreements for architectural or engineering services.

(a) *Applicability.* Except as § 35.937-2 otherwise provides, the provisions of §§ 35.937 through 35.937-11 apply to all subagreements of grantees for architectural or engineering services where the aggregate amount of services involved is expected to exceed \$10,000. The provisions of §§ 35.937-2, 35.937-3, and 35.937-4 are not required, but may be followed, where the population of the grantee municipality is 25,000 or less according to the most recent U.S. census. When \$10,000 or less of services (e.g., for consultant or consultant subcontract services) is required, the small purchase provisions of § 35.936-19 apply.

(b) *Policy.* Step 1, step 2, or administration or management of step 3 project work may be performed by negotiated procurement of architectural or engineering services. The Federal Government's policy is to encourage public announcement of the requirements for personal and professional services, including engineering services. Subagreements for engineering services shall be negotiated with candidates selected on the basis of demonstrated competence and qualifications for the type of professional services required and at fair and reasonable prices. All negotiated procurement shall be conducted in a manner that provides to the maximum practicable extent, open and free competition. Nothing in this subpart shall be construed as requiring competitive bids or price competition in the procurement of architectural or engineering services.

(c) *Definitions.* As used in §§ 35.937 through 35.937-11 the following words and terms mean:

(1) *Architectural or engineering services.* Those professional services associated with research, development, design and construction, alteration, or repair of real property, as well as incidental services that members of these professions and those in their employ may logically or justifiably perform, including studies, investigations, surveys, evaluations, consultations, planning, programing, conceptual designs, plans and specifications, cost estimates, inspections, shop drawing reviews, sample recommendations, preparation of operation and maintenance manuals, and other related services.

(2) *Engineer.* A professional firm or individual engaged to provide services as defined in paragraph (c)(1) of this section by subagreement under a grant.

§ 35.937-1 Type of contract (subagreement).

(a) *General.* Cost-plus-percentage-of-cost and percentage-of-construction-cost contracts are prohibited. Cost reimbursement, fixed price, or per diem contracts or combinations of these may be negotiated for architectural or engineering services. A fixed price contract is generally used only when the scope and extent of work to be performed is clearly defined. In most other cases, a cost reimbursement type of contract is more appropriate. A per diem contract may be used if no other type of contract is appropriate. An incentive fee may be used if the grantee submits an adequate independent cost estimate and price comparison under § 35.937-6.

(b) *Cost reimbursement contracts.* Each cost reimbursement contract must clearly establish a cost ceiling which the engineer may not exceed without formally amending the contract and a fixed dollar profit which may not be increased except in case of a contract amendment to increase the scope of work.

(c) *Fixed price contracts.* An acceptable fixed price contract is one which establishes a guaranteed maximum price which may not be increased unless a contract amendment increases the scope of work.

(d) *Compensation procedures.* If, under either a cost reimbursement or fixed price contract, the grantee desires to use a multiplier type of compensation, all of the following must apply:

(1) The multiplier and the portions of the multiplier allocable to overhead and allocable to profit have been specifically negotiated;

(2) The portion of the multiplier allocable to overhead includes only allowable items of cost under the cost principles of 41 CFR 1-15.2 and 1-15.4;

(3) The portions of the multiplier allocable to profit and allocable to overhead have been separately identified in the contract; and

(4) The fixed price contract includes a guaranteed maximum price for completion of the specifically defined scope of work; the cost reimbursement contract includes a fixed dollar profit which may not be increased except in case of a contract amendment which increases the scope of work.

(e) *Per diem contracts.* A per diem agreement expected to exceed \$10,000 may be utilized only after a determination that a fixed price or cost reimbursement type contract is not appropriate. Per diem agreements should be used only to a limited extent, e.g., where the first task under a step 1 grant involves establishing the scope and cost of succeeding step 1 tasks, or for incidental services such as expert testimony or intermittent professional

or testing services. (Resident engineer and resident inspection services should generally be compensated under paragraph (b) or (c) of this section.) Cost and profit included in the per diem rate must be specifically negotiated and displayed separately in the engineer's proposal. The contract must clearly establish a price ceiling which may not be exceeded without formally amending the contract.

§ 35.937-2 Public notice.

(a) *Requirement.* Adequate public notice as paragraphs (a)(1) or (a)(2) of this section provide, must be given of the requirement for architectural or engineering services for all subagreements with an anticipated price in excess of \$25,000 except as paragraph (b) of this section provides. In providing public notice under paragraphs (a)(1) and (a)(2) of this section, grantees must comply with the policies in §§ 35.936-2(c), 35.936-3, and 35.936-7.

(1) *Public announcement.* A notice of request for qualifications should be published in professional journals, newspapers, or publications of general circulation over a reasonable area and, in addition, if desired, through posted public notices or written notification directed to interested person, firms, or professional organizations inviting the submission of statements of qualifications. The announcement must clearly state the deadline and place for submission of qualification statements.

(2) *Prequalified list.* As an alternative to publishing public notice as in paragraph (b) of this section, the grantee may secure or maintain a list of qualified candidates. The list must:

(i) Be developed with public notice procedures as in paragraph (a)(1) of this section;

(ii) Provide for continuous updating; and

(iii) Be maintained by the grantee or secured from the State or from a nearby political subdivision.

(b) *Exceptions.* The public notice requirement of this section and the related requirements of §§ 35.937-3 and 35.937-4 are not applicable, but may be followed, in the cases described in paragraphs (b)(1) through (b)(3) of this section. All other appropriate provisions of this section, including cost review and negotiation of price, apply.

(1) Where the population of the grantee municipality is 25,000 or less according to the latest U.S. census.

(2) For step 2 or step 3 of a grant, if:

(i) The grantee is satisfied with the qualifications and performance of an engineer who performed all or any part of the step 1 or step 2 work;

(ii) The engineer has the capacity to perform the subsequent steps; and

(iii) The grantee desires the same engineer to provide architectural or

cost-of-cost contracts (see § 35.937-1, and

(8) Applicable subagreement clauses (see appendix C-1, clauses 9, 17, 18; note clause 10).

(c) The applicable provisions of this subpart shall apply to lower tier subagreements where an engineer acts as an agent for the grantee under a management subagreement (see § 35.936-5(b)).

(d) If an engineer procures items or services (other than architectural or engineering services) which are more appropriately procured by formal advertising or competitive negotiation procedures, the applicable procedures of § 35.938 or of Part 33 shall be observed.

§ 35.938 Construction contracts (subagreements) of grantees.

§ 35.938-1 Applicability.

This section applies to construction contracts (subagreements) in excess of \$10,000 awarded by grantees for any step 3 project.

§ 35.938-2 Performance by contract.

The project work shall be performed under one or more contracts awarded by the grantee to private firms, except for force account work authorized by § 35.936-14.

§ 35.938-3 Type of contract.

Each contract shall be a fixed price (lump sum or unit price or a combination of the two) contract, unless the Regional Administrator gives advance written approval for the grantee to use some other acceptable type of contract. The cost-plus-percentage-of-cost contract shall not be used in any event.

§ 35.938-4 Formal advertising.

Each contract shall be awarded after formal advertising, unless negotiation is permitted in accordance with § 35.936-18. Formal advertising shall be in accordance with the following:

(a) *Adequate public notice.* The grantee will cause adequate notice to be given of the solicitation by publication in newspapers or journals of general circulation beyond the grantee's locality (statewide, generally), inviting bids on the project work, and stating the method by which bidding documents may be obtained or examined. Where the estimated cost of step 3 construction is \$10 million or more, the grantee must generally publish the notice in trade journals of nationwide distribution. The grantee should, in addition, solicit bids directly from bidders if it maintains a bidders list.

(b) *Adequate time for preparing bids.* Adequate time, generally not less than 30 days, must be allowed between the date when public notice under para-

graph (a) of this section is first published and the date by which bids must be submitted. Bidding documents (including specifications and drawings) shall be available to prospective bidders from the date when such notice is first published.

(c) *Adequate bidding documents.* The grantee shall prepare a reasonable number of bidding documents (invitations for bids) and shall furnish them upon request on a first-come, first-served basis. The grantee shall maintain a complete set of bidding documents and shall make them available for inspection and copying by any party. The bidding documents shall include:

(1) A complete statement of the work to be performed, including necessary drawings and specifications, and the required completion schedule. (Drawings and specifications may be made available for inspection and purchase, instead of being furnished.);

(2) The terms and conditions of the contract to be awarded;

(3) A clear explanation of the method of bidding and the method of evaluation of bid prices, and the basis and method for award of the contract;

(4) Responsibility requirements or criteria which will be employed in evaluating bidders;

(5) The following statement:

Any contract or contracts awarded under this invitation for bids are expected to be funded in part by a grant from the U.S. Environmental Protection Agency. Neither the United States nor any of its departments, agencies or employees is or will be a party to this invitation for bids or any resulting contract. This procurement will be subject to regulations contained in 40 CFR 35.936, 35.938, and 35.939;

and

(6) A copy of §§ 35.936, 35.938, and 35.939.

(d) *Sealed bids.* The grantee shall provide for bidding by sealed bid and for the safeguarding of bids received until public opening.

(e) *Addenda to bidding documents.* If a grantee desires to amend any part of the bidding documents (including drawings and specifications) during the period when bids are being prepared, the addenda shall be communicated in writing to all firms which have obtained bidding documents in time to be considered before the bid opening time.

(f) *Bid modifications.* A firm which has submitted a bid shall be allowed to modify or withdraw its bid before the time of bid opening.

(g) *Public opening of bids.* The grantee shall provide for a public opening of bids at the place, date and time announced in the bidding documents.

(h) *Award to the low, responsive, responsible bidder.* (1) After bids are

opened, the grantee shall evaluate them in accordance with the methods and criteria set forth in the bidding documents.

(2) The grantee may reserve the right to reject all bids. Unless all bids are rejected for good cause, award shall be made to the low, responsive, responsible bidder.

(3) If the grantee intends to make the award to a firm which did not submit the lowest bid, he shall prepare a written statement before any award, explaining why each lower bidder was deemed nonresponsive or nonresponsible, and shall retain it in his files.

(4) State or local laws, ordinances, regulations or procedures which are designed or which operate to give local or in-State bidders preference over other bidders shall not be employed in evaluating bids.

(5) If an unresolved procurement review issue or a protest relates only to award of a subcontract or procurement of a subitem under the prime contract, and resolution of that issue or protest is unduly delaying performance of the prime contract, the Regional Administrator may authorize award and performance of the prime contract before resolution of the issue or protest, if the Regional Administrator determines that:

(i) Resolution of the protest—

(A) Will not affect the placement of the prime contract bidders; and

(B) Will not materially affect initial performance of the prime contract; and that

(ii) Award of the prime contract—

(A) Is in the Government's best interest;

(B) Will not materially affect resolution of the protest; and

(C) Is not barred by State law.

(6) The grantee shall not reject a bid as nonresponsive for failure to list or otherwise indicate the selection of a subcontractor(s) or equipment, unless the grantee has unambiguously stated in the solicitation documents that such failure to list shall render a bid nonresponsive and shall cause rejection of a bid.

§ 35.938-5 Negotiation of contract amendments (change orders).

(a) *Grantee responsibility.* Grantees are responsible for negotiation of construction contract change orders. This function may be performed by the grantee directly or, if authorized, by his engineer. During negotiations with the contractor the grantee shall:

(1) Make certain that the contractor has a clear understanding of the scope and extent of work and other essential requirements;

(2) Assure that the contractor demonstrates that he will make available or will obtain the necessary personnel, equipment and materials to accom-

plish the work within the required time; and

(3) Assure a fair and reasonable price for the required work.

(b) *Changes in contract price or time.* The contract price or time may be changed only by a change order. When negotiations are required, they shall be conducted in accordance with paragraph (c) or (d) of this section, as appropriate. The value of any work covered by a change order or of any claim for increase or decrease in the contract price shall be determined by the method set forth in paragraphs (b)(1) through (b)(3) of this section which is most advantageous to the grantee.

(1) *Unit prices.*

(i) Original bid items. Unit prices previously approved are acceptable for pricing changes of original bid items. However, when changes in quantities exceed 15 percent of the original bid quantity and the total dollar change of that bid item is significant, the grantee shall review the unit price to determine if a new unit price should be negotiated.

(ii) New items. Unit prices of new items shall be negotiated.

(2) A lump sum to be negotiated.

(3) Cost reimbursement—the actual cost for labor, direct overhead, materials, supplies, equipment, and other services necessary to complete the work plus an amount to be agreed upon to cover the cost of general overhead and profit to be negotiated.

(c) For each change order not in excess of \$100,000 the contractor shall submit sufficient cost and pricing data to the grantee to enable the grantee to determine the necessity and reasonableness of costs and amounts proposed, and the allowability and eligibility of costs proposed.

(d) For each change order in excess of \$100,000, the contractor shall submit to the grantee for review sufficient cost and pricing data as described in paragraphs (d)(1) through (d)(6) of this section to enable the grantee to ascertain the necessity and reasonableness of costs and amounts proposed, and the allowability and eligibility of costs proposed.

(1) As a minimum, proposed change order costs shall be presented on EPA Form 5700-41 on which the contractor shall certify that proposed costs reflect complete, current, and accurate cost and pricing data applicable to the date of the change order.

(2) In addition to the specific elements of cost, the estimated amount of profit shall be set forth separately in the cost summary for fixed price change orders and a specific total dollar amount of profit will be set forth separately in the cost summary for cost reimbursement change orders.

(3) The grantee may require more detailed cost data than the form requires in order to substantiate the reasonableness of proposed change order costs. EPA normally requires more detailed documentation only when the contractor is unable to certify that proposed change order cost data are complete, current, and accurate. EPA may, on a selected basis, perform a detailed cost analysis on any change order.

(4) Appropriate consideration should be given to § 30.710 of this subchapter which contains general cost principles which must be used for the determination and allowability of costs under grants. The contractor's actual costs, direct and indirect, allowable for Federal participation shall be determined in accordance with the terms and conditions of the contract, this subpart and the cost principles included in 41 CFR 1-15.2 and 1-15.4. Examples of costs which are not allowable under those cost principles include, but are not limited to, entertainment, interest on borrowed capital and bad debts.

(5) For costs under cost reimbursement change orders, the contractor shall have an accounting system which accounts for such costs in accordance with generally accepted accounting principles. This system shall provide for the identification, accumulation and segregation of allowable and unallowable change orders. Allowable change order costs shall be determined in accordance with paragraph (d)(4) of this section. The contractor must propose and account for such costs in a manner consistent with his normal accounting procedures.

(6) Change orders awarded on the basis of review of a cost element summary and a certification of complete, current, and accurate cost and pricing data shall be subject to downward renegotiation or recoupment of funds where subsequent audit substantiates that such certification was not based on complete, current and accurate cost and pricing data and on costs allowable under the appropriate FPR cost principles (41 CFR 1-15.2 and 1-15.4) at the time of change order execution.

(e) *EPA review.* In addition to the requirements of §§ 35.935-10 (copies of contract documents) and 35.935-11 (project changes), the grantee shall submit, before the execution of any change order in excess of \$100,000, to the EPA Project Officer for review:

(1) The cost and pricing data the contractor submitted;

(2) A certification of review and acceptance of the contractor's cost or price; and

(3) A copy of the proposed change order.

(f) *Profit.* The objective of negotiations shall be the exercise of sound business judgment and good adminis-

trative practice including the determination of a fair and reasonable profit based on the contractor's assumption of risk and input to total performance and not merely the application of a predetermined percentage factor. For the purpose of negotiated change orders to construction contracts under EPA grants, profit is defined as the net proceeds obtained by deducting all allowable costs (direct and indirect) from the price. The grantee should review the estimate or profit as he reviews all other elements of price.

(g) *Related work.* Related work shall not be split into two amendments or change orders merely to keep it under \$100,000 and thereby avoid the requirements of paragraph (d) of this section. For change orders which include both additive and deductive items:

(1) If any single item (additive or deductive) exceeds \$100,000, the requirements of paragraph (d) of this section shall be applicable.

(2) If no single additive or deductive item has a value of \$100,000, but the total price of the change order is over \$100,000, the requirements of paragraph (d) of this section shall be applicable.

(3) If the total of additive items of work in the change order exceeds \$100,000, or the total of deductive items of work in the change order exceeds \$100,000, and the net price of the change order is less than \$100,000, the requirements of paragraph (d) of this section shall apply.

§ 35.938-6 Progress payments to contractors.

(a) *Policy.* EPA policy is that, except as State law otherwise provides, grantees should make prompt progress payments to prime contractors and prime contractors should make prompt progress payment to subcontractors and suppliers for eligible construction, material, and equipment costs, including those of undelivered specifically manufactured equipment, incurred under a contract under an EPA construction grant.

(b) *Conditions of progress payments.* For purposes of this section, progress payments are defined as follows:

(1) Payments for work in place.

(2) Payments for materials or equipment which have been delivered to the construction site, or which are stockpiled in the vicinity of the construction site, in accordance with the terms of the contract, when conditional or final acceptance is made by or for the grantee. The grantee shall assure that items for which progress payments have been made are adequately insured and are protected through appropriate security measures. Costs of such insurance and security are al-

allowable costs in accordance with § 35.940.

(3) Payments for undelivered specifically manufactured items or equipment (excluding off-the-shelf or catalog items), as work on them progresses. Such payments must be made if provisions therefor are included in the bid and contract documents. Such provisions may be included at the option of the grantee only when all of the following conditions exist:

(i) The equipment is so designated in the project specifications;

(ii) The equipment to be specifically manufactured for the project could not be readily utilized on nor diverted to another job; and

(iii) A fabrication period of more than 6 months is anticipated.

(c) *Protection of progress payments made for specifically manufactured equipment.* The grantee will assure protection of the Federal interest in progress payments made for items or equipment referred to in paragraph (b)(3) of this section. This protection must be acceptable to the grantee and must take the form of:

(1) Securities negotiable without recourse, condition or restrictions, a progress payment bond, or an irrevocable letter of credit provided to the grantee through the prime contractor by the subcontractor or supplier; and,

(2) For items or equipment in excess of \$200,000 in value which are manufactured in a jurisdiction in which the Uniform Commercial Code is applicable, the creation and perfection of a security interest under the Uniform Commercial Code reasonably adequate to protect the interests of the grantee.

(d) *Limitations on progress payments for specifically manufactured equipment.* (1) Progress payments made for specifically manufactured equipment or items shall be limited to the following:

(i) A first payment upon submission by the prime contractor of shop drawings for the equipment or items in an amount not exceeding 15 percent of the contract or item price plus appropriate and allowable higher tier costs; and

(ii) Subsequent to the grantee's release or approval for manufacture, additional payments not more frequently than monthly thereafter up to 75 percent of the contract or item price plus appropriate and allowable higher tier costs. However, payment may also be made in accordance with the contract and grant terms and conditions for ancillary onsite work before delivery of the specifically manufactured equipment or items.

(2) In no case may progress payments for undelivered equipment or items under paragraph (d)(1)(i) or (d)(1)(ii) of this section be made in an amount greater than 75 percent of the

cumulative incurred costs allocable to contract performance with respect to the equipment or items. Submission of a request for any such progress payments must be accompanied by a certification furnished by the fabricator of the equipment or item that the amount of progress payment claimed constitutes not more than 75 percent of cumulative incurred costs allocable to contract performance, and in addition, in the case of the first progress payment request, a certification that the amount claimed does not exceed 15 percent of the contract or item price quoted by the fabricator.

(3) As used in this section, the term "costs allocable to contract performance" with respect to undelivered equipment or items includes all expenses of contract performance which are reasonable, allocable to the contract, consistent with sound and generally accepted accounting principles and practices consistently applied, and which are not excluded by the contract.

(e) *Enforcement.* A subcontractor or supplier which is determined by the Regional Administrator to have frustrated the intent of the provisions regarding progress payments for major equipment or specifically manufactured equipment through intentional forfeiture of its bond or failure to deliver the equipment may be determined nonresponsible and ineligible for further work under EPA grants.

(f) *Contract provisions.* Where applicable, appropriate provisions regarding progress payments must be included in each contract and subcontract. Grantees must use clauses acceptable to the EPA Regional Administrator.

(g) *Implementation.* The foregoing progress payments policy should be implemented in invitations for bids under step 3 grants. If provision for progress payments is made after contract award, it must be for consideration that the grantee deems adequate.

§ 35.938-7 Retention from progress payments.

(a) The grantee may retain a portion of the amount otherwise due the contractor. Except as State law otherwise provides, the amount the grantee retains shall be limited to the following:

(1) Withholding of not more than 10 percent of the payment claimed until work is 50 percent complete;

(2) When work is 50 percent complete, reduction of the withholding to 5 percent of the dollar value of all work satisfactorily completed to date, provided that the contractor is making satisfactory progress and there is no specific cause for greater withholding;

(3) When the work is substantially complete (operational or beneficial occupancy), the withheld amount shall

be further reduced below 5 percent to only that amount necessary to assure completion.

(4) The grantee may reinstate up to 10 percent withholding if the grantee determines, at its discretion, that the contractor is not making satisfactory progress or there is other specific cause for such withholding.

(5) The grantee may accept securities negotiable without recourse, condition or restrictions, a release of retainage bond, or an irrevocable letter of credit provided by the contractor instead of all or part of the cash retainage.

(b) The foregoing retention policy shall be implemented with respect to all step 3 projects for which plans and specifications are approved after March 1, 1976. Appropriate provision to assure compliance with this policy must be included in the bid documents for such projects initially or by addendum before the bid submission date, and as a special condition in the grant agreement or in a grant amendment. For all previous active projects, the grantee may implement the foregoing policy through contract amendment upon written request to the grantee by the contractor upon consideration that the grantee deems adequate.

(c) Under § 30.620-3 of this subchapter, a grantee who delays disbursement of grant funds will be required to credit to the United States all interest earned on those funds.

§ 35.938-8 Required construction contract provisions.

Each construction contract must include the "Supplemental General Conditions" set forth in appendix C-2 to this subpart.

§ 35.938-9 Subcontracts under construction contracts.

(a) The award or execution of subcontracts by a prime contractor under a construction contract awarded to the prime contractor by the grantee, and the procurement and negotiation procedures used by prime contractors in awarding or executing subcontracts are not required to comply with any of the provisions, selection procedures, policies or principles set forth in § 35.936 or § 35.938 except those specifically stated in this section. In addition, the bid protest procedures of § 35.939 are not available to parties executing subcontracts with prime contractors except as specifically provided in that section.

(b) The award or execution of subcontracts by a prime contractor under a formally advertised, competitively bid, fixed price construction contract awarded to the prime contractor by the grantee, and the procurement and negotiation procedures used by such prime contractors in awarding or ex-

*For projects within New York State paragraph 35.938-7(a)(5) is amended to read the grantee may accept only bonds or notes of the United States of America, New York State or political subdivision thereof in lieu of all or part of the cash retainage

cuting such subcontracts must comply with the following:

- (1) § 35.936-2 (Grantee procurement systems; State or local law);
- (2) § 35.936-7 (Small and minority business);
- (3) § 35.936-13 (Specifications);
- (4) § 35.936-15 (Limitations on subagreement award);
- (5) § 35.936-17 (Fraud and other unlawful or corrupt practices);
- (6) § 35.938-5(d) (Negotiation of contract amendments); and
- (7) Applicable subagreement clauses (see appendix C-2, clauses 8, 10, 14, 15, 16; note clause 11).

(c) The award of subcontracts under construction contracts not described above in paragraph (b) of this section and the procurement and negotiation procedures of prime contractors on contracts not meeting that description must comply with paragraphs (b)(1) through (b)(4) of this section as well as the principles of § 35.938-5.

§ 35.939 Protests.

(a) *General.* A protest based upon an alleged violation of the procurement requirements of §§ 35.936 through 35.938-9 of this subpart may be filed against a grantee's procurement action by a party with an adversely affected direct financial interest. Any such protest must be received by the grantee within the time period in paragraph (b)(1) of this section. The grantee is responsible for resolution of the protest before the taking of the protested action, in accordance with paragraph (d) of this section, except as otherwise provided by paragraph (j) or (k) or § 35.938-4(h)(5). The Regional Administrator will review grantee protest determinations in accordance with paragraph (e) of this section, if a timely request for such review is filed under paragraph (b)(2) of this section. In the case of protests which he determines are untimely, frivolous, or without merit, the Regional Administrator may take such actions as are described in paragraphs (f)(7), (l)(2), and (k) of this section.

(b) *Time limitations.* (1) A protest under paragraph (d) of this section should be made as early as possible during the procurement process (for example, immediately after issuance of a solicitation for bids) to avoid disruption of or unnecessary delay to the procurement process. A protest authorized by paragraph (d) of this section must be received by the grantee within 1 week after the basis for the protest is known or should have been known, whichever is earlier (generally, for formally advertised procurement, after bid opening, within 1 week after the basis for the protest is, or should have been, known).

(i) However, in the case of an alleged violation of the specification require-

ments of § 35.936-13 (e.g., that a product fails to qualify as an "or equal") or other specification requirements of this subpart, a protest need not be filed prior to the opening of bids. But the grantee may resolve the issue before receipt of bids or proposals through a written or other formal determination, after notice and opportunity to comment is afforded to any party with a direct financial interest.

(ii) In addition, where an alleged violation of the specification requirements of § 35.936-13 or other requirements of this subpart first arises subsequent to the receipt of bids or proposals, the grantee must decide the protest if the protest was received by the grantee within 1 week of the time that the grantee's written or other formal notice is first received.

(2) A protest appeal authorized by paragraph (e) of this section must be received by the Regional Administrator within 1 week after the complainant has received the grantee's determination.

(3) If a protest is mailed, the complaining party bears the risk of nondelivery within the required time period. It is suggested that all documents transmitted in accordance with this section be mailed by certified mail (return receipt requested) or otherwise delivered in a manner which will objectively establish the date of receipt. Initiation of protest actions under paragraphs (d) or (e) of this section may be made by brief telegraphic notice accompanied by prompt mailing or other delivery of a more detailed statement of the basis for the protest. Telephonic protests will not be considered.

(c) *Other initial requirements.* (1) The initial protest document must briefly state the basis for the protest, and should—

(i) Refer to the specific section(s) of this subpart which allegedly prohibit the procurement action;

(ii) Specifically request a determination pursuant to this section;

(iii) Identify the specific procurement document(s) or portion(s) of them in issue; and

(iv) Include the name, telephone number, and address of the person representing the protesting party.

(2) The party filing the protest must concurrently transmit a copy of the initial protest document and any attached documentation to all other parties with a direct financial interest which may be adversely affected by the determination of the protest (generally, all bidders or proposers who appear to have a substantial and reasonable prospect of receiving an award if the protest is denied or sustained) and to the appropriate EPA Regional Administrator.

(d) *Grantee determination.* (1) The grantee is responsible for the initial resolution of protests based upon alleged violations of the procurement requirements of this subpart.

(2) When the grantee receives a timely written protest, he must defer the protested procurement action (see paragraph (h) of this section) and:

(i) Afford the complaining party and interested parties an opportunity to present arguments in support of their views in writing or at a conference or other suitable meeting (such as a city council meeting).

(ii) Inform the complainant and other interested parties of the procedures which the grantee will observe for resolution of the protest;

(iii) Obtain an appropriate extension of the period for acceptance of the bid and bid bond(s) of each interested party, where applicable; failure to agree to a suitable extension of such bid and bid bond(s) by the party which initiated the protest shall be cause for summary dismissal of the protest by the grantee or the Regional Administrator; and

(iv) Promptly deliver (preferably by certified mail, return receipt requested, or by personal delivery) its written determination of the protest to the complaining party and to each other participating party.

(3) The grantee's determination must be accompanied by a legal opinion addressing issues arising under State, territorial, or local law (if any) and, where step 3 construction is involved, by an engineering report, if appropriate.

(4) The grantee should decide the protest as promptly as possible—generally within 3 weeks after receipt of a protest, unless extenuating circumstances require a longer period of time for proper resolution of the protest.

(e) *Regional Administrator review.*

(1) A party with a direct financial interest adversely affected by a grantee determination made under paragraph (d) with respect to a procurement requirement of this subpart may submit a written request to the Regional Administrator for his review of such determination. Any such request must be in writing, must adequately state the basis for the protest (including reference to the specific section(s) of this subpart alleged to prohibit the procurement action), and must be received by the Regional Administrator within 1 week after the complaining party has received the grantee's determination of the protest. A copy of the grantee's determination and other documentation in support of the request for review shall be transmitted with the request.

(2) The Regional Counsel or his delegate will afford both the grantee and the complaining party, as well as any

RULES AND REGULATIONS

other party with a financial interest which may be adversely affected by determination of the protest, an opportunity to present arguments in support of their views in writing or at a conference at a time and place convenient to the parties as determined by the Regional Counsel or his delegee, and he shall thereafter promptly submit in writing his report and recommendations (or recommended determination) concerning the protest to the Regional Administrator.

(3) Any such conference should be held within not more than 10 days after receipt of the request for review and the report should be transmitted to the Regional Administrator within 10 days after the date set for receipt of the participants' written materials or for the conference. The Regional Administrator should transmit his determination of the protest with an adequate explanation thereof to the grantee and simultaneously to each participating party within 1 week after receipt of the report and recommendations. His determination shall constitute final agency action, from which there shall be no further administrative appeal. The Regional Counsel may extend these time limitations, where appropriate.

(4) The Regional Administrator may review the record considered by the grantee, and any other documents or arguments presented by the parties, to determine whether the grantee has complied with this subpart and has a rational basis for its determination.

(5) If a determination is made by the Regional Administrator which is favorable to the complainant, the grantee's procurement action (for example, contract award) must be taken in accordance with such determination.

(f) *Procedures.* (1) Where resolution of an issue properly raised with respect to a procurement requirement of this subpart requires prior or collateral resolution of a legal issue arising under State or local law, and such law is not clearly established in published legal decisions of the State or other relevant jurisdiction, the grantee or Regional Administrator may rely upon:

(i) An opinion of the grantee's legal counsel adequately addressing the issue (see § 35.938-2(b));

(ii) The established or consistent practice of the grantee, to the extent appropriate; or

(iii) The law of other States or local jurisdictions as established in published legal decisions; or

(iv) If none of the foregoing adequately resolve the issue, published decisions of the Comptroller General of the United States (U.S. General Accounting Office) or of the Federal courts addressing Federal require-

ments comparable to procurement requirements of this subpart.

(2) For the determination of Federal issues presented by the protest, the Regional Administrator may rely upon:

(i) Determinations of other protests decided under this section, unless such protests have been reversed; and

(ii) Decisions of the Comptroller General of the United States or of the Federal courts addressing Federal requirements comparable to procurement requirements of this subpart.

(3) The Regional Counsel may establish additional procedural requirements or deadlines for the submission of materials by parties or for the accomplishment of other procedures. Where time limitations are established by this section or by the Regional Counsel, participants must seek to accomplish the required action as promptly as possible in the interest of expediting the procurement action.

(4) A party who submits a document subsequent to initiation of a protest proceeding under paragraph (d) or (e) of this section must simultaneously furnish each other party with a copy of such document.

(5) The procedures established by this section are not intended to preclude informal resolution or voluntary withdrawal of protests. A complainant may withdraw its appeal at any time, and the protest proceeding shall thereupon be terminated.

(6) The Regional Administrator may utilize appropriate provisions of this section in the discharge of his responsibility to review grantee procurement under 40 CFR 35.935-2.

(7) A protest may be dismissed for failure to comply with procedural requirements of this section.

(g) *Burden of proof.* (1) In proceedings under paragraphs (d) and (e) of this section, if the grantee proposes to award a formally advertised, competitively bid, fixed price contract to a party who has submitted the apparent lowest price, the party initiating the protest will bear the burden of proof in the protest proceedings.

(2) In the proceedings under paragraph (e) of this section—

(i) If the grantee proposes to award a formally advertised, competitively bid, fixed-price contract to a bidder other than the bidder which submitted the apparent lowest price, the grantee will bear the burden of proving that its determination concerning responsiveness is in accordance with this subchapter; and

(ii) If the basis for the grantee's determination is a finding of nonresponsibility, the grantee must establish and substantiate the basis for its determination and must adequately establish that such determination has been made in good faith.

(h) *Deferral of procurement action.* Upon receipt of a protest under paragraph (d) of this section, the grantee must defer the protested procurement action (for example, defer the issuance of solicitations, contract award, or issuance of notice to proceed under a contract) until 10 days after delivery of its determination to the participating parties. (The grantee may receive or open bids at its own risk, if it considers this to be in its best interest; and see § 35.938-4(h)(5).) Where the Regional Administrator has received a written protest under paragraph (e) of this section, he must notify the grantee promptly to defer its protested procurement action until notified of the formal or informal resolution of the protest.

(i) *Enforcement.* (1) Noncompliance with the procurement provisions of this subchapter by the grantee shall be cause for enforcement action in accordance with one or more of the provisions of § 35.965 of this subpart.

(2) If the Regional Administrator determines that a protest prosecuted pursuant to this section is frivolous, he may determine the party which prosecuted such protest to be nonresponsible and ineligible for future contract award (see also paragraph (k) of this section).

(j) *Limitation.* A protest may not be filed under this section with respect to the following:

(1) Issues not arising under the procurement provisions of this subchapter; or

(2) Issues relating to the selection of a consulting engineer, provided that a protest may be filed only with respect to the mandatory procedural requirements of §§ 35.937 through 35.937-9;

(3) Issues primarily determined by State or local law or ordinances and as to which the Regional Administrator, upon review, determines that there is no contravening Federal requirement and that the grantee's action has a rational basis (see paragraph (e)(4) of this section).

(4) Provisions of Federal regulations applicable to direct Federal contracts, unless such provisions are explicitly referred to or incorporated in this subpart;

(5) Basic project design determinations (for example, the selection of incineration versus other methods of disposal of sludge);

(6) Award of subcontracts or issuance of purchase orders under a formally advertised, competitively bid, lump-sum construction contract. However, protest may be made with respect to alleged violation of the following:

(i) Specification requirements of § 35.938-13; or

(ii) Provisions of this subpart applicable to the procurement procedures,

negotiation or award of subcontracts or issuance of purchase orders under §§ 35.937-12 (subcontracts under subagreements for architectural or engineering services) or § 35.938-9 (subcontracts under construction contracts).

(k) *Summary disposition.* The Regional Administrator may summarily dismiss a protest, without proceedings under paragraphs (d) or (e) of this section, if he determines that the protest is untimely, frivolous or without merit—for example, that the protested action of the grantee primarily involves issues of State or local law. Any such determination shall refer briefly to the facts substantiating the basis for the determination.

(l) *Index.* The EPA General Counsel will publish periodically as a notice document in the FEDERAL REGISTER an index of Regional Administrator protest determinations. (See, e.g., 43 FR 29085, July 5, 1978.)

§ 35.940 Determination of allowable costs

The grantee will be paid, upon request in accordance with § 35.945, for the Federal share of all necessary costs within the scope of the approved project and determined to be allowable in accordance with § 30.705 of this chapter, this subpart, and the grant agreement.

§ 35.940-1 Allowable project costs.

Allowable costs include:

- (a) Costs of salaries, benefits, and expendable material the grantee incurs for the project, except as provided in § 35.940-2(g);
- (b) Costs under construction contracts;
- (c) Professional and consultant services;
- (d) Facilities planning directly related to the treatment works;
- (e) Sewer system evaluation (§ 35.927);
- (f) Project feasibility and engineering reports;
- (g) Costs required under the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (42 U.S.C. 4621 et seq., 4651 et seq.), and part 4 of this chapter;
- (h) Costs of complying with the National Environmental Policy Act, including costs of public notices and hearings;
- (i) Preparation of construction drawings, specifications, estimates, and construction contract documents;
- (j) Landscaping;
- (k) Removal and relocation or replacement of utilities, for which the grantee is legally obligated to pay;
- (l) Materials acquired, consumed, or expended specifically for the project;
- (m) A reasonable inventory of laboratory chemicals and supplies necessary to initiate plant operations;

(n) Development and preparation of an operation and maintenance manual;

(o) A plan of operation, in accordance with guidance issued by the Administrator;

(p) Start-up services for new treatment works, in accordance with guidance issued by the Administrator;

(q) Project identification signs (§ 30.625-3 of this chapter);

(r) Development of a municipal pretreatment program approvable under part 403 of this chapter, and purchase of monitoring equipment and construction of facilities to be used by the municipal treatment works in the pretreatment program;

(s) Costs of complying with the procurement requirements of these regulations (see § 35.936-20).

§ 35.940-2 Unallowable costs.

Costs which are not necessary for the construction of a treatment works project are unallowable. Such costs include, but are not limited to:

- (a) Basin or areawide planning not directly related to the project;
- (b) Bonus payments not legally required for completion of construction before a contractual completion date;
- (c) Personal injury compensation or damages arising out of the project, whether determined by adjudication, arbitration, negotiation, or otherwise;
- (d) Fines and penalties due to violations of, or failure to comply with, Federal, State, or local laws;
- (e) Costs outside the scope of the approved project;
- (f) Interest on bonds or any other form of indebtedness required to finance the project costs;
- (g) Ordinary operating expenses of local government, such as salaries and expenses of a mayor, city council members, or city attorney, except as provided in § 35.940-4;
- (h) Site acquisition (for example, sewer rights-of-way, sewage treatment plantsite, sanitary landfills and sludge disposal areas) except as otherwise provided in § 35.940-3(a);
- (i) Costs for which payment has been or will be received under another Federal assistance program;
- (j) Costs of equipment or material procured in violation of § 35.938-4(h);
- (k) Costs of studies under § 35.907 (d)(6) and (d)(7) when performed solely for the purpose of seeking an allowance for removal of pollutants under part 403 of this chapter;
- (l) Costs of monitoring equipment used by industry for sampling and analysis of industrial discharges to municipal treatment works;
- (m) Construction of privately-owned treatment works, including pretreatment facilities, except as authorized by section 201(h) of the Act and § 35.918;

(n) Preparation of a grant application, including a plan of study.

§ 35.940-3 Costs allowable, if approved.

Certain direct costs are sometimes necessary for the construction of a treatment works. The following costs are allowable if reasonable and if the Regional Administrator approves them in the grant agreement.

(a) Land acquired after October 17, 1972, that will be an integral part of the treatment process, or that will be used for ultimate disposal of residues resulting from such treatment (for example, land for spray irrigation of sewage effluent).

(b) Land acquired after December 26, 1977, that will be used for storage of treated wastewater in land treatment systems before land application.

(c) Land acquired after December 26, 1977, that will be used for composting or temporary storage of compost residues which result from wastewater treatment, if EPA has approved a program for use of the compost.

(d) Acquisition of an operable portion of a treatment works. This type of acquisition is generally not allowable except when determined by the Regional Administrator in accordance with guidance issued by the Administrator.

(e) Rate determination studies required under § 35.925-11.

(f) A limited amount of end-of-pipe sampling and associated analysis of industrial discharges to municipal treatment works as provided in § 35.907(f).

§ 35.940-4 Indirect costs.

Indirect costs shall be allowable in accordance with an indirect cost agreement negotiated and incorporated in the grant agreement. An indirect cost agreement must identify those cost elements allowable under § 35.940-1. Where the benefits derived from indirect services cannot be readily determined, a lump sum for overhead may be negotiated if EPA determines that this amount will be approximately the same as the actual indirect costs.

§ 35.940-5 Disputes concerning allowable costs.

The grantee should seek to resolve any questions relating to cost allowability or allocation at its earliest opportunity (if possible, before execution of the grant agreement). Final determinations concerning the allowability of costs shall be conclusive unless appealed within 30 days in accordance with the "Disputes" provisions of part 30, subpart J, of this subchapter.

§ 35.945 Grant payments.

The grantee shall be paid the Federal share of allowable project costs incurred within the scope of an approved project and which are current

Compliance with Federal Requirements for
Utilization of Minority Business Enterprises

Following hereto and made a part of these Information for Bidders are Federal requirements for the utilization of minority business enterprises. The Contractor shall comply with these requirements in every way.

BID SPECIFICATION
MINORITY BUSINESS ENTERPRISE PARTICIPATION

APPENDIX II
PRIME CONSTRUCTION CONTRACTOR RESPONSIBILITIES

The following notice must be included in all invitations and other solicitations for bids and proposals for construction work on all projects that receive EPA funding for the construction or upgrading of wastewater treatment facilities or adjuncts thereto.

Goals for MBE Program

It is the policy of the Federal Government that minority businesses shall have the maximum feasible opportunity to participate in the performance of contracts performed under Federal grants-in-aid program.

The contractor agrees to use his best efforts to carry out this policy through award of contracts and subcontracts to minority business enterprises to the fullest extent, consistent with the efficient performance of this contract. As used in this contract, the term "minority business" means a business at least 51 percent of which is owned and controlled by minority group members; or, in the case of a publicly-owned business, at least 51 percent of the stock of which is owned and controlled by minority group members. For the purpose of this definition, minority group members are Black Americans, Hispanic Americans, Asian Americans, American Indians, American Eskimos, and American Aleuts. The minority ownership must exercise actual day-to-day management.

Each contractor must fully comply with the requirements, terms and conditions of the attached U.S. Environmental Protection Agency, Region II Minority Business Enterprise (MBE) requirements and the attached statement of EPA policy of December 26, 1978 (43 Federal Register 60220-60224) including the goals established for minority business participation during the performance of this contract. The contractor commits himself to the performance of positive efforts to achieve the goals for minority business participation contained therein and all other requirements, terms and conditions of the bid specifications by submitting a properly signed bid.

The contractor will appoint a company executive to assume the responsibility for the implementation of such requirements, terms and conditions.

The prime contractor agrees that he will make good faith efforts to subcontract at least 12 percent of the total value of this contract to minority business. Failure to attain this percentage or demonstrate positive efforts to do so may lead to withholding of contract payment, a finding of non-responsibility or other sanctions, in accordance with the attached EPA policy. For the purpose of this program, the term "subcontract" includes all agreements for construction, modification and service work and supplies contracted for by the prime contractor in the prosecution of the work under his contract. Although it is not made a requirement herein for EPA approval of a contract that a contractor in fact meet or exceed these goals in its contracting, the contractor will be required to objectively demonstrate to the grantee and to EPA, Region II, Civil Rights and Urban Policy Director prior to contract approval and also during contract performance that he has exerted positive efforts to meet these goals. Notwithstanding the fact that a contractor may have the capability to complete the total project with his own workforce and without the use of subcontractors, each contractor will still be required to take positive efforts to subcontract to minority firms a share of the work consistent with the goals. These requirements are also applicable to bidders who are themselves minority-owned enterprises.

MBE Studies, Surveys and Reports

1. The contractor shall cooperate with the grantee and the EPA Region II, Civil Rights and Urban Policy Director in studies and surveys of the contractor's minority business procedures and practices.
2. The contractor shall maintain records showing, (a) awards to minority businesses; and (b) specific efforts to identify and award subcontracts to minority businesses.
3. The contractor shall submit periodic reports of subcontracting to known minority businesses in such form and manner and at such time (not more often than quarterly) as the grantee or the EPA, Region II, Civil Rights and Urban Policy Director may prescribe.

Specific Good Faith Efforts

The contractor shall be deemed to be in compliance with the requirements, terms and conditions of the U.S. Environmental Protection Agency, Region II, Minority Business Enterprise Policy and Program if he meets or exceeds its commitment to the goals for minority business participation in its subcontracts and subagreements.

The contractor's commitment to the goals for minority business participation as required by the U.S. Environmental Protection Agency, Region II, Minority Business Enterprise Policy and Program, constitutes a commitment that he will make every good faith effort to meet such goals. No contractor shall be found to be in noncompliance solely on account of the contractor's failure to meet his goals. But he shall be given the opportunity to objectively demonstrate to the grantee and the EPA, Region II, Office of Civil Rights and Urban Policy Director, that he has instituted all the specific affirmative action steps specified in the USEPA, Region II, MBE Policy and Program and made every good faith effort to make these steps work toward the attainment of his designated goals of allowing minority business enterprises maximum feasible opportunity to participate in subcontracts and subagreements under this EPA funded project. Contractors who fail to achieve the goal and fail to institute the good faith effort steps specified in this appendix may be found non-responsible or be subject to contractual sanctions. Where the Director of the Office of Civil Rights and Urban Policy makes such a determination, the grantee will be informed that EPA will withhold grant payment if the non-responsible contractor fails to take corrective action on deficiencies or to explain satisfactorily why such action cannot be taken.

Contractor Non-Compliance

Contractors who fail to achieve their commitments to the goals for minority business participation must have engaged in affirmative participation, which is supported by documentation at least as extensive as the following:

1. Documentation of efforts to extend opportunities to MBEs such as advertisement in minority trade association newsletters and minority-owned media no less than fifteen (15) days before MBE responses are due for specific subcontracting that would be anticipated to result at least in a degree of MBE participation equal to the percentage goal for MBE utilization specified for the contract.
2. Documentation showing that minority contractor associations, including the local OMBE Office were notified in writing no less than fifteen (15) days before MBE responses are due.
3. Documentation showing that the work to be subcontracted was segmented to the extent consistent with the size and capability of minority-owned firms in order to provide reasonable subcontracting opportunities.

4. Copies of solicitation letters inviting quotes or proposals from minority business enterprise, segmenting portions of the work and specifically describing, as accurately as possible, the portions of the work for which quotes or proposals are solicited from minority firms and encouraging inquiries for further details. Letters that are general and do not describe specifically the portions of work for which quotes or proposals are desired are not acceptable, as such letters generally do not bring responses. Such letters will be sent in a timely manner so as to allow minority firms sufficient opportunity to develop quotes or proposals for the work described. In general, such solicitation letters should be postmarked no later than fifteen (15) days before MBE responses are due.

5. Documentation of good faith negotiation with those MBEs from whom responses were received in an effort to reach a mutually acceptable price. Where the MBE participation was unsuccessful due to failure to agree on price, the bidder must document that the subcontractor selected for the work segment was lower than the MBE and that the work segment so contracted was the same work segment under negotiations with the MBE, and not a reduced portion thereof.

The foregoing documentation should be provided on or as an addition to Form 4700-5 attached hereto.

MINORITY BUSINESS ENTERPRISE INFORMATION			REGION NO.	
PROJECT NAME		PROJECT NO.	QUARTER	FY
GRANTEE'S GOAL		PROJECT LOCATION		
PRIME CONTRACTOR INFORMATION				
NAME AND ADDRESS (Include ZIP code)		TYPE OF CONTRACT		
CHECK		AMOUNT OF CONTRACT	DATE OF AWARD	CONTRACT NO.
<input type="checkbox"/> MINORITY (Specify) _____ <input type="checkbox"/> NONMINORITY				
SUBCONTRACTOR OR JOINT VENTURE INFORMATION				
<input type="checkbox"/> MINORITY (Specify) _____ <input type="checkbox"/> NONMINORITY		NAME AND ADDRESS (Include ZIP code)		
<input type="checkbox"/> SUBCONTRACTOR <input type="checkbox"/> JOINT VENTURE				
CONTRACT AMOUNT	DATE OF AWARD			
CONTRACT NO.	TYPE OF CONTRACT			
<input type="checkbox"/> MINORITY (Specify) _____ <input type="checkbox"/> NONMINORITY		NAME AND ADDRESS (Include ZIP code)		
<input type="checkbox"/> SUBCONTRACTOR <input type="checkbox"/> JOINT VENTURE				
CONTRACT AMOUNT	DATE OF AWARD			
CONTRACT NO.	TYPE OF CONTRACT			
<input type="checkbox"/> MINORITY (Specify) _____ <input type="checkbox"/> NONMINORITY		NAME AND ADDRESS (Include ZIP code)		
<input type="checkbox"/> SUBCONTRACTOR <input type="checkbox"/> JOINT VENTURE				
CONTRACT AMOUNT	DATE OF AWARD			
CONTRACT NO.	TYPE OF CONTRACT			
<input type="checkbox"/> MINORITY (Specify) _____ <input type="checkbox"/> NONMINORITY		NAME AND ADDRESS (Include ZIP code)		
<input type="checkbox"/> SUBCONTRACTOR <input type="checkbox"/> JOINT VENTURE				
CONTRACT AMOUNT	DATE OF AWARD			
CONTRACT NO.	TYPE OF CONTRACT,			
COMMENTS				

[FRL 1028-6]

GRANTS FOR CONSTRUCTION OF TREATMENT WORKS**Policy for Increased Use of Minority Consultants and Construction Contractors**

The Environmental Protection Agency encourages increased participation of minority business enterprise (MBE) in the supply of goods and services in work performed under the EPA grants program contained in Title II of the Clean Water Act of 1977 (Pub. L. 95-217). This publication consolidates the policies and procedures published for architect and engineer (A&E) consultants in 42 FR 10709 (February 23, 1977) and the proposed policies and procedures published for construction contractors in 43 FR 24908 (June 8, 1978). A goal-oriented system is provided to maximize MBE participation.

EPA received numerous written comments from the public and interested parties within EPA on the proposed policy for the use of MBE contractors. EPA carefully considered these comments and adopted a number of them.

The policy published for A&E consultants, on February 23, 1977, did not specify a goal-oriented policy like that proposed for minority construction contractors on June 8, 1978. As the two policies would be applicable to the same projects and grantees, EPA combined these policies into a goal-oriented approach.

EPA will be studying the effects of a goal-oriented approach to increase MBE participation. Public comment is invited, on a continuing basis, on all elements of the EPA program, including its administration. Comments should be addressed to the Director, Office of Civil Rights (A-105) Environmental Protection Agency, Washington, D.C. 20460.

Invitations for bids (IFB) or requests for proposals (RFP) issued by grantees and procurement of subagreements on or after February 1, 1979, are subject to this policy. Prior implementation of the MBE policies will continue, where appropriate, to insure program continuity.

I. INTRODUCTION

EPA has established a goal-oriented system to increase MBE participation

in work performed under EPA grants. Several primary reasons for this action include the following:

A. Low MBE participation in contracts, subagreements and purchase orders under EPA construction grants;

B. The low MBE representation is the result of a number of causes, including the effects of discrimination;

C. Methods used to remedy the underutilization of MBE have not been effective.

II. BACKGROUND

Historically, minorities have not obtained their fair share of American business. The construction industry, a traditional conduit for economic upward mobility, reflects this lack of minority involvement. Allied professional consultant communities also show a similar ethnic imbalance.

The low level of MBE participation in these businesses may be attributed to a number of causes. These causes include, at least, the inability of MBE to obtain start-up and continuing capital financing, credit, and bonding. The longstanding lack of MBE participation has also inhibited the development of adequate management and operational skills. Economic instability, as measured by factors such as recession, increased wage rates, supply costs and interest rates, impacts the operating MBE in a disproportionate manner.

These problems are evident in the low level of MBE participation in federal and federally assisted contracts, which provide a major source of work for construction, and in the related consultant areas. For example, MBE received only 1.2% of federal construction procurement contracts in 1977. Recognizing this problem, Congress and the Executive Branch have initiated several programs in recent years to aid the MBE in sharing the effects of federal expenditures.

In direct procurement, the Small Business Administration administers the Section 8(a) program whereby certain work may be subcontracted to firms owned by socially and economically disadvantaged individuals. This commitment was recently reemphasized by amendment to the 8(a) program. In the federal grants area, the Public Works Employment Act of 1977 generally provides that at least 10 percent of the dollar amount of each grant be set-aside for contracts with MBE. Title VI of the Civil Rights Act of 1964 provides a remedial authority to lessen the effects of disparate treatment of minorities.

The Office of Federal Procurement Policy, within the Office of Management and Budget, establishes grantor policy for procurement under grants. Historically, OMB has required "positive efforts" by recipients of federal

grant assistance to use MBE. Attachment O to OMB Circular A-102, Section 3(c)(3), 42 FR 45890 (September 12, 1977). EPA adopted this obligation verbatim in its grants regulations at (40 CFR 35.936-7):

Positive efforts shall be made by grantees to utilize small business and minority-owned business sources of supplies and services. Such efforts should allow these sources the maximum feasible opportunity to compete for subagreements and contracts to be performed utilizing Federal grant funds.

Proposed OMB revision of Attachment O, published at 43 FR 57203 (December 6, 1978), further defines, in Section 8.b., a grantee's responsibilities in this area by requiring that a minimum of six "affirmative steps" be taken to assure that MBE are utilized when possible as sources of supplies and services. The affirmative steps include, as a minimum the following:

- (1) Include qualified small and minority businesses on solicitation lists.
- (2) Assure that small and minority businesses are solicited whenever they are potential sources.
- (3) When economically feasible, divide total requirements into small tasks or quantities so as to permit maximum small and minority business participation.
- (4) Establish delivery schedules which will encourage participation by small and minority business.
- (5) Use the services and assistance of the Small Business Administration, the Office of Minority Business Administration, the Office of Minority Business Enterprise of the Department of Commerce and the Community Service Administration.
- (6) If any subcontracts are to be let, require the prime contractor to take the affirmative steps in 1 through 5 above.

The President recently issued several policy statements which commit to substantially expanding the amount of work performed by MBE under Federal contracting. In his March 27, 1978, message to Congress on the National Urban Policy, the President requested that all Federal agencies include goals for MBE in their contract and grant-in-aid programs. The President stated that increased MBE use is an important element in the economic well being of American cities.

On April 13, 1978, the Administrator and Deputy Administrator of the Environmental Protection Agency adopted the recommendations of the intra-agency task force on utilization of MBE, and directed revision of the previously published proposed policy for utilization of minority construction contractors to reflect the recommendations of the task force and the directions of the President. The goal-oriented approach in the proposed policy for utilization of minority construction contractors to reflect the recommendations of the task force and the directions of the President. The goal-oriented approach in the proposed

policy for utilization of minority construction contractors was the initial result of this action.

EPA has a vital stewardship of billions of dollars of public funds for publicly owned treatment works and related planning and pollution abatement efforts under the Clean Water Act. These funds will substantially impact the local economies of the grantees. MBE have not sufficiently shared in that expenditure.

III. STATEMENT OF POLICY

The policy of EPA is to encourage increased MBE participation in contracts and subagreements awarded under EPA grants for construction of publicly-owned wastewater treatment works. This implements the OMB positive efforts standard, conforms to Presidential direction, and furthers the requirements of Title VI of the Civil Rights Act of 1964.

EPA will encourage opportunities for immediate participation of competent MBE in work performed under grants and promote the development of new minority firms through a variety of business arrangements. This will involve increased use of wholly-owned MBE, as well as the good faith combination of non-minority capital and expertise with minority ownership and actual control. While it is the purpose of this policy to provide opportunities for MBE to participate in contracts under grants, EPA, in its stewardship role, will not reimburse unsatisfactory work or underwrite costs to correct defective performance.

The goal of EPA is to implement a fair and effective remedy to the underutilization of MBE in the context of the unique EPA-grantee relationship. A goal-oriented system achieves the desired result of increased MBE participation within the EPA grant process and aids in the development of a viable minority consultant and contracting community.

The policy describes the minimum positive efforts responsibilities that are expected to be taken. Use of the MBE goal-oriented system is a condition of all EPA-assisted grants for construction of wastewater treatment works. Administration of this program will be flexible and should not be misconstrued as a mandatory set-aside policy.

IV. DEFINITIONS

A. MINORITY BUSINESS ENTERPRISE

The term "Minority Business Enterprise" means a business, at least 51 percent of which is owned and controlled by minority group members. The minority ownership must exercise actual day-to-day management.

The EPA believes that good faith will mark the efforts of all concerned

to conform to their responsibilities. EPA normally will not review whether each MBE performs or is intended to perform a "commercially useful function" (i.e., assumes a role recognized in the construction industry practice or consultant community that involves substantial responsibility), or is dominated by nonminority control. The EPA regional Office of Civil Rights and Urban Affairs (OCRUA), when requested by a grantee or where determined to be in the Government's best interest, may make such a review. OCRUA will review each proposed use of MBE which is based upon a newly formed MBE source of supply.

In the event EPA finds that an MBE will not contribute, or has not contributed, to a project's complementation in a manner consistent with accepted industry practice, the MBE will not be considered as an MBE under that procurement. Where the contract is underway, the grantee must take steps to demand correction action, terminate the contract, or initiate other remedies available under State or local law. The grantee or, where appropriate, Regional Administrator, may also take steps to determine the business concern(s) nonresponsible and ineligible for future contract awards on EPA grant-assisted projects.

B. MINORITY GROUP MEMBERS

A minority is a member of one or more of the following groups: Black Americans, Hispanic Americans, Asian Americans, American Indians, American Eskimos, and American Aleuts.

The categories of minority group members are intended to focus the beneficial effects of this program on those ethnic groups of American citizens which historically have not adequately shared in opportunities to participate in work on Federal or federally assisted projects. Some agencies have chosen to define minority group members or MBE in terms of their social or economic disadvantage. The EPA categories significantly correspond to those who are, in fact, culturally, socially and economically disadvantaged.

V. IMPLEMENTATION OF POSITIVE EFFORTS TOWARD USE OF MBE

A. INTRODUCTION

The basic obligation of an EPA grantee concerning MBE use is set forth in Title 40, Code of Federal Regulations, as a minimum federal procurement standard and grant requirement:

§ 35.936-7—*Small and minority business.* Positive efforts shall be made by grantees to utilize small business and minority-owned business sources of supplies and services. Such efforts should allow these sources the maximum feasible opportunity to compete for subagreements

and contracts to be performed utilizing Federal grant funds.

The standard is equally applicable in negotiation for any subagreement for A&E services. Sections 35.937-2(a) and 35.937-4(c). The standard concerns the responsibility of both a grantee and bidder or offeror. Sections 35.936-15(a) and 30.340-2(g). This MBE program is principally implemented through the efforts of each EPA grantee to advance the goals of increased MBE participation in each element of work to be performed under an EPA grant. The positive efforts obligation is a required clause in each consulting engineering agreement (Appendix C-1, para. 14 to 40 CFR Subpart E) and construction contract (Appendix C-2, para. 9 to 40 CFR Subpart E). The standard is a continuing obligation in award of all subtier subagreements. Sections 35.937-12(b)(2) and 35.938-9(b)(2). There is an identical obligation for non-construction contract subagreements. § 33.135. In order to implement these obligations, EPA has established the following goal-oriented system.

B. THE GOAL-ORIENTED SYSTEM

The goal-oriented system involves establishing and implementing a goal for MBE use appropriate to the type of work involved. The goal shall be established prior to taking procurement action under a grant (i.e., prior to the issuance of a request for proposals for A&E consultant selection on a Step I and II grant and the issuance of an invitation for bids for construction contracts under a Step III grant). The goal will be set in accordance with the procedure below:

(1) The OCRUA and Water Division, with the approval of the Regional Administrator, shall establish and annually review a goal for A&E and a goal for construction procurement in that region. Each goal should be expressed as a percent of the total dollar amount of all contracts approved. Each goal should contain an explanation of its basis including the region's estimate of MBE participation attainable in the region, given the available and potentially available MBE resources.

(2) The regional goal will be implemented by each grantee in cooperation with OCRUA in one of the following ways:

(a) The regional goal may be included as a provision of each procurement solicitation; or

(b) The grantee, prior to the issuance of any solicitation documents and in cooperation with the OCRUA, may establish a goal appropriate to the type of work to be performed for inclusion in the procurement solicitation. This goal may differ from the overall regional goal where circumstances merit, e.g., a project specific

goal may be less than the regional goal where a minority source of service, supply or manufacture is not reasonably available; or a project specific goal may be in excess of a regional goal where competent minority resources are manifest; or

(c) A grantee may use its own system for MBE utilization where it is demonstrated to the satisfaction of the OCRUA that the grantee's system will result in an acceptable level of MBE participation.

(3) The solicitation documents must contain the following information to implement the goal-oriented system:

(a) Clear notice of the goal, which will be a number or range of numbers;

(b) The manner in which the bidder or offeror may conform to its obligations prior to contract award;

(c) The manner by which positive efforts of the bidder or offeror will be evaluated;

(d) A notice of sanctions for failure to comply with the positive efforts requirement in the solicitation documents; and

(e) A copy of this MBE policy.

(4) Solicitation documents should be reviewed and approved by OCRUA in conjunction with the program review of the Water Division for conformance with this goal-oriented system. The grantee or OCRUA may identify in the solicitation documents further positive efforts which may be taken to comply with this policy.

C. RESPONSIBILITIES

The grantee, in its role as a public trustee, assumes primary administrative responsibility toward maximizing MBE use. Sections 30.120, 30.600 *et seq.* and 35.936-5. Bidders and offerors at the pre-contract stage, and those under contract with EPA grantees are independently responsible, to the grantee and EPA, to exercise positive efforts to conform to this policy. MBE must take steps to actively participate in the grantee's procurement processes. EPA is ultimately responsible for determining compliance with the positive efforts requirements.

Within EPA, the following are the respective programmatic responsibilities:

(1) *Environmental Protection Agency (Headquarters).* (a) An MBE Program is established in the Office of Civil Rights.

(b) The Director of the Office of Civil Rights shall be the Agency Director for Minority Business Enterprise and will work in coordination with the Office of Water Program Operations to implement this policy.

(c) The Director of the Office of Civil Rights shall designate a Minority Business Enterprise Officer.

(d) The Minority Business Enterprise Officer, working in conjunction

with the Office of Water Program Operations and, where appropriate, the Office of General Counsel, shall provide assistance and direction to the regions, including issuing program guidance memoranda to implement this policy.

(2) *Environmental Protection Agency (Regions).* (a) Each Regional Director of OCRUA shall establish a Minority Business Enterprise Program, and work in coordination with the Water Division Director to develop and implement the regional program.

(b) The Regional Director of OCRUA shall be the regional Minority Business Enterprise Officer.

(c) Each EPA region shall monitor implementation of this policy through the OCRUA and the Water Division. The region shall:

(i) Notify States and grantees, in writing, of this MBE policy;

(ii) Review solicitation inserts of applicants/grantees to determine whether the appropriate goal is included in all solicitations for contracts under grants;

(iii) Review all proposed contract awards to evaluate the sufficiency of positive efforts;

(iv) Inform the grantee after the preaward evaluation if a prospective consultant or contractor fails to conform to the positive efforts requirements; advise the grantee of possible corrective actions that can be taken by the prospective consultant or contractor; and advise the grantee that approval of the proposed contract award may be withheld until the deficiencies are corrected;

(v) Review and determine the adequacy of the positive efforts after a contract is awarded;

(vi) Where the review discloses failure on the part of the consultant or contractor to take positive efforts, the regional MBE Officer shall inform the grantee that failure on the part of the consultant or contractor to take corrective action, or explain to the satisfaction of the MBE Officer and the grantee why the corrective action cannot be taken, would lead to the initiation of proceedings for imposition of sanctions which could include withholding of grant payments; and

(vii) Report to Headquarters quarterly on the status of the regional program, including contracts awarded to MBE.

(3) *Grantee Responsibilities.* The grantee in its role as a public trustee assumes primary responsibility to achieve an acceptable level of MBE use. This primary responsibility is a basic condition of its grant award. All applicants/grantees are required to take positive efforts to use MBE. These positive efforts include, at least, the following:

(a) Dividing total requirements into smaller tasks, where economically feasible, to permit maximum MBE participation;

(b) Including MBE on solicitation lists and making plans and specifications for prospective work available to MBE in sufficient time for review;

(c) Allowing sufficient time to facilitate the participation of MBE;

(d) Notifying the minority associations, within the general bidding area, of the work to be solicited and the time frame for submission bids or proposals;

(e) Providing a source list of MBE firms to all prospective consultants or contractors;

(f) Making a list of prospective consultants and prime contractors available to all MBE A&E and subcontracting firms expressing an interest in the EPA-assisted project;

(g) Informing prospective consultants and contractors of the EPA policy concerning MBE participation;

(h) Maintaining records showing MBE contacted, and awards to MBE;

(i) Reviewing participation of MBE in subagreements;

(j) Including in all procurement documents the elements of the goal-oriented system (Section V.B. of this policy);

(k) Making a list of planholders of record for EPA construction grant projects available upon request;

(l) Upon request of the planholders of record, provide a source list of MBE;

(m) Informing all prospective bidders, during any pre-bid conferences, of the EPA policy concerning MBE participation;

(n) Keeping OCRUA informed of all actual and proposed contracts to MBE;

(o) Insuring that the requirements of this policy are used in awarded subagreements.

(4) *Consulting Firm Responsibilities.* All consulting firms are expected to take positive efforts to use MBE. The positive efforts include at least the following:

(a) Extending opportunity to MBE for subcontracting or joint arrangements;

(b) Implementing the goal-oriented system;

(c) Providing the grantee with a list of the MBE proposed to be used (including the nature of the contract and the dollar value), or if no available MBE will be used, furnishing the grantee and the regional MBE officer reasons why;

(d) Maintaining records of MBE contacted, including negotiation efforts to reach competitive price levels, and awards to MBE;

(e) Requiring that each subcontractor under the contract comply with the MBE policy as appropriate;

(f) Keeping EPA regional offices informed of all MBE subagreements or changes in plans to award previously reported proposed subcontracts to MBE.

(5) *Prime Contractor Responsibilities.* All prime contractors are expected to take positive efforts to use MBE. These positive efforts include at least the following:

(a) Extending opportunities to MBE for subcontracting, joint arrangements, and purchasing;

(b) Implementing the goal-oriented system;

(c) Providing the grantee with a list of MBE proposed to be used (including the nature of the contract and the dollar value); or if no available MBE will be used, furnishing the grantee and the regional MBE officer reasons why;

(d) Maintaining records of MBE contacted, including negotiation efforts to reach competitive price levels, and awards to MBE;

(e) Requiring subcontractors under the contract to comply with MBE policy, as appropriate;

(f) Keeping EPA regional offices informed of all MBE subagreements or changes in plans to award previously reported proposed subcontracts to MBE.

(6) *MBE Responsibilities.* All MBE are expected to:

(a) Become involved in the State and local project planning process;

(b) Furnish capability statements to State and local governments;

(c) Maintain liaison with the regional OCRUA;

(d) Contact and maintain liaison with State and local Office of Minority Business Enterprise (OMBE) funded minority assistance organizations and associations;

(e) Seek assistance from OMBE funded assistance organizations in financing, estimating, bid packaging, bonding and technical assistance services.

D. SANCTIONS

(1) *Responsibility Determination.* In the event a bidder or offeror fails to objectively demonstrate positive efforts to meet the stated goal requirement, the grantee shall request, in writing, that the bidder or offeror provide within a reasonable time as stated by the grantee, the necessary evidence of positive efforts or be held nonresponsible. The grantee request may be upon the advice of the OCRUA after its review of the bids or offers received. The efforts to conform to this policy, whether or not sufficient, will not result in an increase in contract price or provide a basis for a later change order.

Where the bidder or offeror fails to objectively demonstrate the required

positive efforts, the grantee, in conjunction with its function of deciding responsibility in each case, shall determine the bidder or offeror to be nonresponsible. In that event, the grantee must promptly advise the bidder or offeror, in writing, of the basis for the nonresponsibility determination. The bidder or offeror may file a request for review under procedures set forth in § 35.939, including appropriate procedural requirements. A timely filed protest will defer the challenged procurement action.

A finding of nonresponsibility on a contract shall not prejudice the right of that bidder or offeror to submit bids or proposals on other EPA funded projects.

The OCRUA, upon review of any proposed contract award, may request a grantee to take appropriate enforcement action. Where an applicant/grantee fails to meet its obligations under this policy the EPA may declare the applicant nonresponsible under § 30.340 *et seq.* or initiate action under procedures set forth in 40 CFR Part 30, Subpart H.

(2) *Waiver.* In limited situations, approval may be justified of a contract where a bidder or offeror has not demonstrated positive efforts. For example, where delay incident to resolicitation will cause substantial harm to the grantee, EPA may concur in the recommended award where at least one of the following provisions is included in the contract: (1) Specific and defined positive efforts for MBE participation during contract performance; (2) a penalty, such as termination or agreed upon liquidated damages, for failure to undertake and complete these efforts; or (3) the withholding of progress payments until such time as the positive efforts requirements have been complied with to the satisfaction of EPA and the grantee.

(3) *Post Contract Award Compliance.* Consultants or contractors are required to execute and submit to the grantee copies of all MBE related subagreements within fifteen (15) days after contract award, and, from time to time, advise the grantee and OCRUA of the status of its compliance with appropriate requirements. In the event a consultant or contractor fails to conform to its MBE obligation, it will be expected to explain, in writing, to the grantee and OCRUA, the reasons for nonutilization. If there is nonutilization without good cause, the grantee will be expected to require corrective efforts by the consultant or contractor. Failure on the part of the grantee to require such efforts or failure to enforce the waiver provisions, where applicable, may result in appropriate EPA imposed sanctions.

(4) *State or Local Law.* Nothing in this policy prevents a grantee from im-

posing more stringent MBE requirements in work procured under EPA grants or procurement obligations which pertain to bid responsiveness, where provided for by State or local law or ordinances.

Dated: December 18, 1978.

BARBARA BLUM,
Deputy Administrator.

[FR Doc. 78-35704 Filed 12-22-78; 8:45 am]

FORM OF PROPOSAL

BETHLEHEM SEWER DISTRICT
TOWN OF BETHLEHEM

ALBANY COUNTY

NEW YORK

CONTRACT NO. 2
COLLECTING SEWERS
AND/OR
CONTRACT NO. 2E
ELECTRICAL WORK
AND/OR
CONTRACT NO. 2P
FURNISHING GRINDER PUMPS

The undersigned, as bidder, declares that the only person, persons, company or parties interested in this Proposal as principals are named herein; that he has carefully examined the annexed Form of Contract, and the Plans and Specifications therein referred to; that he has made a personal examination of the site of the proposed work and such investigations as are necessary to determine the character of the materials to be encountered, and is fully informed regarding all of the conditions affecting the work to be done, and labor and materials to be furnished for the completion of this contract, including the existence of poles, wires, pipes, and other facilities on, over or under the site, and that his information was secured by personal investigation and research and not from the estimates or records of the Owner, and that he will make no claim against the Owner by reason of estimates, tests, borings, test pits or representation of any officer or agent of the Owner; and he proposes and agrees that, if his Proposal is accepted, he will contract with the Town of Bethlehem to provide the necessary machinery, tools, apparatus and other means of construction, and all materials and labor called for by the work in the manner and within the time set forth in said contract, plans and specifications, for the prices set forth in the following Form of Proposal:

(DO NOT DETACH PROPOSAL FROM BINDING)

BETHLEHEM SEWER DISTRICT
TOWN OF BETHLEHEM

ALBANY COUNTY

NEW YORK

CONTRACT NO. 2E
ELECTRICAL WORK

USEPA/NYSDEC PROJECT NO. C-36-1096

FORM OF PROPOSAL

Item No. 1 For Electrical Work, Complete, for
the Winne Place Pump Station (No. 35.1), the Lump Sum
Price of _____

_____ Dollars and _____ Cents
(\$ _____) L.S. \$ _____

Item No. 2 For Electrical Work, Complete, for
the Merrifield Pump Station (No. 35.2), the Lump Sum
Price of _____

_____ Dollars and _____ Cents
(\$ _____) L.S. \$ _____

Item No. 3 For Electrical Work, Complete, for
the Laurelana Heights Pump Station (No. 35.3), the Lump
Sum Price of _____

_____ Dollars and _____ Cents
(\$ _____) L.S. \$ _____

TOTAL AMOUNT (Items 1, 2 and 3)

\$ _____

BETHLEHEM SEWER DISTRICT
TOWN OF BETHLEHEM

Proposal 14

ALBANY COUNTY

NEW YORK

CONTRACT NO. 2P
FURNISHING GRINDER PUMPS

USEPA/NYSDEC PROJECT NO. C-36-1096

FORM OF PROPOSAL

Item No.	Description	Est. Qty.	Unit Meas.	Unit Price	Total Amount
1.1	Furnish Grinder Pump Units for In-House Installation, Complete with Controls and Associated Equipment	62	Each	\$	\$
1.1N	Furnish Grinder Pump Units for In-House Installation, Complete with Controls and Associated Equipment	1	Each	\$	\$
1.2	Furnish Grinder Pump Units for Buried Installation (with Accessway), Complete with Controls and Associated Equipment	22	Each		
*1.3	Furnish Additional Depth of Grinder Pump Accessway	10	L.F.		
1.4	Furnish Spare Grinder Pump Units, Complete with Integral Controls and Electric Power Lead	5	Each		
1.5	Furnish Spare Control Systems Including Disconnect Alarm Panel and Power Transfer Switch	5	Each		
1.6	Furnish Vendor's Services as Specified in Item 1, para. 10	10	Days		
TOTAL AMOUNT (Item Nos. 1.1 through 1.6)					\$

* Contingent item.

N = Non-Eligible for Federal Aid--Unit price bid must be the same as for eligible item bearing the same item number.

OFFER OF SURETY

(COMPLETE ONLY WHEN BID ACCOMPANIED BY A CERTIFIED CHECK)

In the event the above Proposal is accepted and the undersigned is awarded the contract for the work, the undersigned offers as surety for faithful performance bond, and on bond to protect labor and materialmen, the following surety:

(Surety Company)

Signed: _____
(Bidder)

CERTIFICATE OF SURETY, to be signed by a duly authorized official, agent or attorney of the Surety Company.

In the event that the above Proposal is accepted, and the contract for the work is awarded to said

(Name of Bidder)

the _____
(Surety Company)

will execute the Surety Bonds as hereinbefore provided.

Signed: _____
(Authorized Official, agent or attorney)

Dated _____

1. The Contractor will, at his own sole cost and expense furnish all labor and services, and all material and equipment required for:

Contract No. 2 Construction of approximately 24,000 feet of 8" diameter gravity sewers and approximately 11,500 feet of small diameter pressure sewers and appurtenances including the installation of approximately 63 grinder pumps furnished by others, and the construction of three sewage pumping stations and ductile iron force mains

AND/OR

Contract No. 2E Furnish electrical work for three sewage pumping stations

AND/OR

Contract No. 2P Furnishing of approximately 90 grinder pump units, complete with electric motor drives, controls, basins and other miscellaneous equipment

and will construct, complete and finish the same in the most thorough, workmanlike and substantial manner in every respect, to the satisfaction of and approval of the Owner's Engineer, or Engineers, (hereinbefore referred to as the "Engineer") in the manner and within the time hereinafter limited, and in strict accordance with this contract and with the Information for Bidders, Proposal, the General and Detailed Specifications and the General Clauses hereto attached, and the Plans therein referred to, under the penalty expressed in the Bond referred to herein, which said Information, Proposal, Specifications, Clauses, Plans and Bonds are hereby made part of the contract as if the same were repeated at length herein, the said Plans consisting of 33 sheets entitled "Bethlehem Sewer District, Town of Bethlehem, Albany County, New York, USEPA-NYSDEC Project C-36-1096, Contract No. 2, Collecting Sewers", dated June 1981 and prepared by J. Kenneth Fraser and Associates, P. C., Consulting Engineers, 620 Washington Avenue, Rensselaer, New York 12144.

II. The said plans and specifications are intended to supplement each other, and together constitute one complete set of plans and specifications, so that any work exhibited in the one and not in the other shall be executed just as if it has been set forth in both, in order that the work shall be completed in every respect according to the complete design or designs as decided and determined by the Engineer. Should anything be omitted from the plans and specifications which is necessary to a complete understanding of the work, or should any error appear either in the various instruments furnished or in the work done by other contractors affecting the work covered hereby, the Contractor shall and will promptly notify the Engineer, and in the event of the Contractor's failure so to do, he shall and will make good any damage or defect in his work caused thereby.

III. The Contractor shall, at his own cost, provide any and all manner of labor, materials, apparatus, scaffolding, appliances, utensils, tools, machinery, transportation and cartage, and whatever else may be required of every description necessary to do and complete the work, and shall be solely answerable for the same and for the safe, proper and lawful construction, maintenance and use thereof. The Contractor shall cover and protect the work from damage, and shall make good all injury to the same occurring before the completion of this contract.

IV. The Contractor shall and will indemnify and save harmless the Owner and its officers and agents, from all damages arising from the infringement or alleged infringement of any letters patent or patent rights covering any material, appliances or device used in or upon the work or any part thereof, and shall and will, without cost or expense to the said Owner and its officers, and agents, defend any suit or suits which may be brought against it, them or any of them, by reason of such real or alleged infringement.

V. Neither the Owner nor any of its officers or agents shall in any manner be answerable or responsible for any loss or damage that shall or may happen to the said work or to any part or parts thereof, or to any materials, building equipment or other property that may be used or employed therein, or placed upon the ground during the progress of the work, nor shall it or they or any of them be in any manner answerable or responsible for any injury done or damage or compensation required to be paid under any present or future law, to any person or persons whatever, whether employee of the Contractor or otherwise, or for damage to any property, whether belonging to the Owner or to others, occurring during or resulting from the said work. Against all such injuries, damages and compensation, the Contractor shall and will properly guard. The Contractor shall also at all times indemnify and save harmless the Owner and its officers and agents against all such injuries, damages and compensations arising and resulting from causes other than its or their neglect, including counsel fees and expense of defense.

VI. All work under this contract shall be done to the satisfaction of the Engineer, who shall at all times have access to the work, and may order the dismissal of such workmen as he may deem incompetent or careless, or may require the Contractor to remove from the premises such materials or work as in the Engineer's opinion are not in accordance with specifications, and to substitute therefor without delay other work and materials, and the expense of doing so and of making good other work disturbed by the change, shall be borne by the Contractor.

The Engineer shall also determine the amount, quality, acceptability and fitness of the several items of work and materials which are to be paid for hereunder. He shall also determine whether the said plans and specifications have been fully complied with by the Contractor. The determination of the Engineer in all such matters shall be final and binding upon the parties hereto. Such determination, in case any question shall arise, shall be a condition precedent to the right of the Contractor to receive any money hereunder.

VII. The Contractor shall keep himself fully informed of all municipal ordinances and regulations, State and National Laws in any manner affecting the work herein specified, and any extra work contracted for by him, and shall at all times observe and comply with and cause all his subcontractors, agents and employees to observe and comply with said ordinances, laws and regulations, and shall indemnify and save harmless the Owner and its officers and agents against any claim or liability arising from or based on the violation of any such laws, ordinances or regulations. The Contractor shall secure at his own expense all necessary permits from the State, City, County, Village or other public authorities; shall give all notices required by law, regulation or ordinances; shall pay all fees and charges incident to the due and lawful prosecution of the work covered by this contract, and extra work contracted for by him, and shall otherwise comply with all local and State laws and regulations.

At all street, road or highway crossings and other points as may be directed by the Engineer, the trenches shall be bridged in a secure manner, so as to prevent any serious interruption to travel upon the roadway or sidewalks, and also to afford necessary access to public and private premises. Private individuals must not be unnecessarily inconvenienced while crossing their property with pipe line construction or other work provided herein. Roadways, sidewalks and paths must be kept as free as possible from earth or materials used in construction, and roadways, walks and paths bridged whenever necessary, and replaced to their original condition at the expense of the Contractor.

All work in, upon, under or across public highways, not under the control of the Owner, shall be in accordance with permission so to be granted by the City, Town, Village, County or District

Superintendent of Highways, or the State Commissioner of Highways, pursuant to the provisions of the highway law relating thereto. All such permits shall be secured by the Contractor, and all expenses in connection therewith shall be borne by him.

The Contractor must furnish sufficient lights so located and distributed that all open or unfinished work, and all materials, tools or debris will be properly lighted, and the Contractor will also provide necessary and sufficient watchmen at night, on Sundays and on holidays, and at all other times when necessary, to avoid accident.

VIII. The Contractor shall, from time to time, as required by the Owner, furnish satisfactory evidence that the claims of all persons who have done work or furnished materials for the improvement to be constructed hereunder, have been fully discharged or have been secured in a manner satisfactory to the Owner. The Owner may retain from any amount at any time due the Contractor hereunder such sum or sums as shall be necessary to meet the lawful claims of the persons aforesaid until the Contractor has furnished him with evidence that such claims have been fully discharged or so satisfactorily secured, it being understood and agreed, however, that the Owner hereby assumes no obligation toward such claimants, nor in any way undertakes to pay such claims out of its own funds. However, the Owner may pay such claims and apply thereto any moneys retained under this Contract.

Whenever it is necessary in the prosecution of the work to interfere with any gas, water, sewer or other pipes, or any drain or culvert, steam or other railroad, masonry, lamp or telegraph posts, fences, sidewalks, crosswalks, curb or other property, the Contractor shall support the same when necessary at his own expense, and if removed or damaged, he shall replace or repair the same, so that it shall be in as good condition as before. When necessary to lay pipes through any bridge or other masonry structure, the Contractor shall make such opening as may be directed by the Engineer, and after the pipe is laid, such opening shall be restored as nearly as possible to its former condition in a substantial and workmanlike manner. The cost of making and replacing such openings shall be included, in the unit prices bid for the various items.

IX. The Contractor shall and will, at his own cost, promptly upon notification from the Engineer so to do, make good any and all defects, settlements and shrinkage, and other faults in his work, or that of any sub-contractor employed by him hereunder, which may occur or appear during the progress of the work or within twelve months after the date of the issuance of the final certificate hereinafter mentioned. If, within ten days after the delivery or mailing of notice in writing to the Contractor or his agents, of the occurrence or appearance of any such fault in the work, the Contractor shall not remedy the same, the Owner may remedy the same or cause it to be remedied. In case of any emergency where, in the opinion of the Engineer, delay would cause serious loss or damage, the Owner may

remedy such defect or cause the same to be remedied without previous notice. The proper cost, as determined by the Engineer, of any defect as remedied or caused to be remedied by the Owner shall be borne solely by the Contractor, and any sum so expended, or any expense so incurred by the Owner, shall be deducted from any money then due or thereafter due from the Owner to the Contractor.

The Contractor shall, whenever so required by the Engineer, erect and maintain fences around the ground occupied by him, and of such character as will be sufficient for the protection of the adjoining property. The Contractor shall exercise all reasonable care to avoid damage to private property on or about which work is done, and shall conform to any or all agreements made by the Owner with the owners of such private property. Any fences that may be injured or destroyed by the Contractor shall be restored to their former condition by him at his own cost.

X. In entering into this contract, the Contractor agrees that the quantities of work, as stated in the Notice to Bidders and Proposal, or indicated by the Plans, are only approximate; and that during the progress of the work the Owner may find it advisable and shall have the right to omit portions of the work and to increase or decrease the quantities, and that the Owner reserves the right to add or take from the amount of the work up to a limit of 15% of the total amount of the Contractor's bid in dollars and cents, based upon the said estimated quantities.

The said increase or decrease of up to 15% of the total amount of the Contractor's bid for the total contract may be applied to all, to one, or to any combination of the items of work indicated in the Proposal which are involved or which may be involved in the construction work. The 15% increase or decrease in the amount of the contract price, permitted, as stated above, includes, in addition to extra work provided for, all additional work under this contract. The increase or decrease in the cost of the contract due to such changes in the design, plans and specifications shall not, however, exceed 15% of the Contractor's total bid price unless a supplemental agreement is negotiated.

XI. The Contractor shall, at his own expense and under the direction of the Engineer, promptly furnish all labor and materials necessary or proper for marking and preserving all lines, marks or grades that may be given to the Contractor by the Engineer.

The Contractor shall and will carefully follow and preserve all the lines, marks and grades given by the Engineer, and shall notify the Engineer in due season whenever the Contractor will need lines, marks or grades other than those which have already been provided, and the Contractor shall have no redress for any delays occurring in the giving of any lines, marks or grades by the Engineer unless twenty-four hours notice in writing is given to the Engineer that additional

lines, marks and grades, as the case may be, are needed. All work during its progress and on its completion, shall conform to the lines and grades by the Engineer in accordance with the said plans, it being understood and agreed however that such lines and grades may be modified from time to time in the manner and to the extent hereinafter provided.

XII. The Contractor, in entering into this contract, understands that the Owner reserves the right to modify the arrangement, character, grade or size of the work or appurtenances whenever in his opinion he shall deem it necessary or advisable to do so. The Contractor shall and will accept such modification when ordered in writing by the Owner through the Engineer, and the same shall not vitiate or void this contract. Any such modifications so made shall not, however, subject the Contractor to increased expense without equitable compensation, which shall be determined by the Engineer. If such modifications or any other modifications thereof result in a decrease in the cost of work involved, an equitable deduction from the contract price, to be determined by the Engineer, shall be made. The Engineer's determination of any such additional compensation or of any such deduction, shall be based upon the bids submitted and accepted. In no event shall any modifications in the work, shown on the plans and specifications be made unless the nature and extent thereof has first been certified by the Engineer in writing and sent to the Contractor.

XIII. In case any work or materials shall be required to be done or furnished in or about the contract which are not mentioned specifically, or indicated, or otherwise provided for in this contract or in the specifications forming a part of this contract, or in or upon the contract drawings and which, in the opinion of the Engineer, are not susceptible of classification under the foregoing classified items, or which it is expressly provided shall be paid for under this Article, the Contractor shall, if ordered by the Engineer in writing, do and perform such work and furnish such materials at and for the actual and necessary net cost in money to the Contractor for labor, for insurance upon such labor under the Workmen's Compensation Law, for Social Security and Unemployment Insurance, and for material incorporated in the work, and in addition thereto fifteen percent (15%) of such net cost, and the Contractor shall have no claim in excess of the above, such payment being in full compensation for the performance of such work and the furnishing of such materials and for the expense of plant, power, tools, supplies, and other means of construction (except equipment as hereinafter defined), administration, superintendence and insurance and for all the loss, damage, risks, delays and expense hereinafter mentioned.

Before any extra work order is issued, the Contractor shall present the Engineer with a list of equipment proposed to be used in connection therewith and the hourly charge therefor, and these prices, if agreed to as reasonable, or other prices reached by

agreement between the Contractor and Engineer, shall be paid to the Contractor for the use of the equipment, including all charges for fuel, gasoline, oil, lubricants and all other elements of expense except labor. Equipment is to be interpreted as large mechanical apparatus such as trenching machines, concrete mixers, power shovels, derricks and pumps, as differentiated from tools, such as picks and shovels, small electric drills, pneumatic tools as drills, paving breakers, air hammers, etc., or from plant such as stone or sand bins, concrete sheds, etc. In case of dispute whether or not any apparatus is to be classed as equipment, the decision of the Engineer shall be final.

Payment for equipment shall be for the hours actually in use in connection with the work covered by the extra work order. The equipment rental shall be a net figure, and will not have any further allowance for overhead and profit, or for insurance or bond.

Payment shall not be made under this Article for any work or materials which are so required to be done, or furnished in connection with this contract, and which are not mentioned, specified or indicated, or otherwise provided for in this contract or in or upon the contract drawings, so far as such work or materials may be, in the opinion of the Engineer, susceptible of classification under the other items of the schedule. Such work or materials shall be paid for in part or in whole, as the case may be, at the unit prices given in such other items.

In case any work or materials shall be required to be done or furnished under this Article, for cost plus fifteen percent (15%) the Contractor shall, at the end of each day, furnish to the Engineer daily time slips showing the name and number of each workman employed on such work, the number of hours employed therein, the character of work he is doing and the wages paid or to be paid to them, the rate and amount of Workmen's Insurance, and also a daily memorandum of such materials furnished, showing the amount and character of such materials, from whom purchased, and the amount paid or to be paid therefor. If required by the Engineer or the Owner, the Contractor shall produce any checks, vouchers, records and memorandum showing the labor and materials actually paid for and the actual prices therefor. Such daily time slips and memorandum shall not, however, be binding upon the Owner, and if any question or dispute shall arise as to the correct cost of such labor and material, the determination of the Engineer upon such question or dispute shall be final and conclusive.

Instead of the method above described under this Article for paying for any such work or materials to be paid for under this Article, the Engineer may, but only with the approval of the Owner, agree with the Contractor upon reasonable unit prices, or a reasonable lump sum price, for such work and materials. Such additional unit prices or such lump sum prices shall be embodied in a supplemental schedule.

XIV. No certificate given or payments made under this contract, except the final certificate or final payment, shall be evidence of the performance of the contract, either wholly or in part, and no payment shall be construed to be an acceptance of defective work or improper materials. No act of the Owner or of the Engineer, or of any representative of either of them in superintending or directing the work, nor any extension of time for the completion of the work shall be regarded or taken as an acceptance of such work, or any part thereof, or of materials used therein or therefor, either wholly or in part, but such acceptance shall be evidenced only by the final certificate of the Engineer. Before any final certificate shall be allowed, the Contractor shall be required, and he hereby agrees to sign and attest in said certificate, a statement that he accepts the same in full payment and settlement of all claims on account of work done and materials furnished under this contract, and furthermore, that all claims for materials provided or labor performed, have been paid and satisfied in full. No waiver or any breach of this contract by the Owner or anyone acting for or in behalf of the Owner shall be held as a waiver of any other or subsequent breach hereof. Any remedy provided herein shall be taken and construed as cumulative--that is, in addition to each and every other remedy herein provided, or arising by operation of law.

XV. The Contractor shall commence construction work within ten days after the execution of the contract, unless written approval is given by the Engineer to commence at a later date. The rate of progress shall be such that the entire construction work shall be completed within the time limit specified in the Information for Bidders.

Time is of the essence in this contract, and it is the intent that the work shall be progressed in a manner to bring it to total completion and to a satisfactory operating point at the earliest possible date.

The Contractor expressly covenants and agrees that in undertaking to complete the work within the time mentioned, he has taken into consideration and made allowance for all of the ordinary delays and hindrances incident to such work, whether growing out of delays in securing materials or workmen, or otherwise.

Should the Contractor, however, be substantially delayed in the prosecution and completion of the work by any changes, additions or omissions therein ordered in writing by the Engineer, or by fire, lightning, earthquake, tornado, cyclone, riot, insurrection or war, or abandonment of the work by the workmen engaged therein through no fault of the Contractor, or by the discharge of all or any material number of workmen in consequence of difficulties arising between the Contractor and such workmen, or by the neglect, delay or default of any other Contractor of the Owner, then the Contractor may, within

five days after the occurrence of the delay for which he claims allowance, notify the Engineer thereof in writing and thereupon, and not otherwise, the Contractor shall be allowed such additional time for the completion of the work as the Engineer in his discretion shall award in writing, and his decision shall be final and conclusive upon the parties.

XVI. The time allowed in this contract for the completion of the work is considered sufficient for such completion by a Contractor having the necessary plant, capital and experience unless extraordinary and impossible conditions supervene, and it is agreed to by the contracting parties.

In case the Contractor fails to satisfactorily complete the entire work contemplated and provided for under this contract on or before the date of completion determined as described above, the Owner shall deduct from the payments due the Contractor each month the sum of money stated in the Information for Bidders for each calendar day (Saturdays, Sundays and legal holidays excluded) of delay, which sum is agreed upon not as a penalty, but as fixed and liquidated damages for each day of such delay to be paid in full and subject to no deduction. In the event that the Contractor should perform any work on any Saturday, Sunday, or legal holiday, he shall also be subject to liquidated damages for that/those days worked. If the payments due the Contractor are less than the amount of such liquidated damages, said damages shall be deducted from any other moneys due or to become due the Contractor and in case such damages shall exceed the amount of all moneys due or to become due the Contractor, then the Contractor or his Surety shall pay the balance to the Owner.

The findings of the Engineer, approved by the Owner, shall be accepted by the parties hereto as final. Such waiver of the time limit shall in no manner affect the rights or obligations of the parties under this contract, nor be construed to prevent action under Article XXIII hereof in case the Contractor shall fail, in the judgment of the Engineer, to make reasonable and satisfactory progress after such waiver of the time limit.

If the Owner is to furnish any of the materials to the Contractor and the Owner fails to deliver the material at a rate sufficient so that the work can be completed within the specified time limit, and as a result of his failure to do so, the Engineer, with the consent of the Owner, may waive the time limit and permit the Contractor to finish the work within a reasonable period, to be determined by the Engineer. In this event, the Owner will bear all costs beyond the date of completion for the Owner's inspection, superintendence, engineering, legal, etc., caused by or in connection with such extension of time. The Contractor shall, however, have no cause for action or no claim for additional compensation due to the failure of the Owner to supply these materials at the proper time.

XVII. The Contractor shall have no right or power to assign this contract, in whole or in part, nor to assign any right arising or monies due or to grow due thereunder.

XVIII. No part of the work embraced in this contract shall be sublet or in any way removed from the control of the Contractor under the direction and supervision of the Engineer as aforesaid, except with the written consent of the Owner, but this provision shall not apply to the purchase and delivery of materials necessarily manufactured and provided elsewhere.

XIX. Each and every employee of the Contractor, and each and every one of his subcontractors, engaged in the said work shall, for all purposes, be deemed and taken to be the exclusive servants of the Contractor, and not for any purposes or in any manner be relieved from responsibility or liability on account of any fault or delays in the execution of the said work, or of any part thereof, by any such employee, or any such subcontractor or any materialmen whatsoever.

XX. The Owner, in addition to the extra charges, hereinbefore expressly mentioned and provided for, in consideration of the faithful performance by the Contractor of all and singular his covenants, promises and agreements herein contained, agrees to pay the Contractor for the full completion by him of the work embraced in this contract, in the manner and within the time specified, and limited herein, and to the satisfaction and approval of the Engineer, the prices stipulated in the said Proposal hereto attached; such payment to be made at the times and in the manner and upon the conditions expressly provided herein.

XXI. The Engineer, on the last day of the month, shall make an approximate estimate of the value of the work done and materials incorporated into the work, and whenever such estimate or estimates of work done since the last previous estimate exceeds five hundred dollars (\$500) in amount, ninety-five percent (95%) of such estimated sum will be paid to the Contractor on or before the last day of the following month; the remaining five percent (5%) to be retained until the final certificate herein provided for.

Progress payments may, at the discretion of the Owner, include payment for materials pertinent to the project which have been delivered to the work site by the Contractor and suitably stored and secured as required by the Owner. The Owner may limit such payment to materials in short and/or critical supply and materials specially fabricated for the project. Such materials or equipment included for payment shall not be removed from the site, shall be stored until incorporated into the work in a location satisfactory to the Owner and the Engineer and shall be adequately protected from fire, theft, vandalism, the effects of the elements and any other damage whatsoever and shall at all times be available for inspection by the Owner and the Engineer. No materials or equipment shall be paid for until: the Contractor shall furnish an itemized bill of sale for such materials and equipment; the Engineer shall have inspected and recommended payment for such materials and equipment; the Contractor, at his sole cost and expense, shall have

furnished to the Owner an insurance policy providing broad form coverage for 100% of the value of such materials and equipment for loss due to fire, theft, vandalism and any other loss, insuring the Owner and the Contractor for loss or damage to such materials and equipment until incorporated into the work. Materials or equipment for which a progress payment has been made by the Owner pursuant to this section shall be, become and remain the sole property of the Owner; provided, however, that the Contractor shall have the full continuing responsibility to install, protect, maintain, repair, replace and make good any damage thereto without cost to the Owner until such time as the work covered by the contract documents is fully accepted by the Owner. Such transfer of title shall, in no way, affect any of the Contractor's obligations under the contract. Upon rejection of any such materials or equipment by the Owner or Engineer as being defective or otherwise unsatisfactory, title to all such materials or equipment shall be deemed to have been transferred back to the Contractor.

If the Owner shall at any time fail to make the Contractor a monthly payment at the time herein specified, such failure shall not be held to vitiate or void this contract, but in such case the Contractor shall be entitled to interest at the rate of five percent (5%) per annum on the amount unpaid until payment shall have been made.

The Engineer shall, as soon as practicable after the completion of the work, make a final certificate of the amount of the work done under this contract, and the value thereof, and the Owner shall within thirty days after such final estimate is made, pay the entire sum so found to be due hereunder, after deducting therefrom all previous payments, and also all percentages and deductions to be retained under any of the provisions of this contract. All prior estimates and payments shall be subject to correction in the final estimate and payment.

In order to secure the performance of the covenant of the Contractor contained in Article IX hereof, the Contractor shall deliver to the Owner prior to payment of the final estimate, fully negotiable municipal bonds issued by any political subdivision located in New York State, bonds or notes of the State of New York, bonds or notes of the United States of America or obligations guaranteed by the United States of America, having a current market value equal to five percent (5%) of the full contract value. Such municipal bonds will be held in escrow by the Owner for the full guarantee period. If, at the end of the said period of one year, the Contractor shall have fulfilled said covenant to the satisfaction of the Engineer, the said municipal bonds shall then be returned to the Contractor less any charge for replacements or repairs resulting from defects in the work. All interest paid on such bonds during the guarantee period shall be accrued to the Contractor.

XXII. All of the terms and provisions of this contract, insofar as the same are applicable, shall apply to and govern any extra work and materials which may be ordered.

In consideration of the covenants and agreements herein contained, it is mutually agreed and covenanted by the parties hereto as follows:

XXIII. Should the Contractor at any time refuse or neglect to supply a sufficiency of properly skilled workmen or materials of the proper quality and quantity, or fail in any respect to prosecute the work with promptness and diligence, or fail in the performance of any of the agreements on his part herein contained, the Owner shall be at liberty after five days' written notice to the Contractor (which notice may be mailed to the Contractor's last known address) to provide any such labor or materials, and to deduct the cost thereof from any money then due or thereafter to become due to the Contractor hereunder, and in such case, the Owner shall also be at liberty to terminate the employment of the Contractor for the said work and to enter the premises and take possession of all materials and appliances of every kind whatever thereon, and to employ any other person or persons to finish the work and to provide the materials therefor; and in case of such discontinuance of the employment of the Contractor, he shall not be entitled to receive any further payment under this contract until the said work shall be wholly finished, at which time if the unpaid balance of the amount to be paid under this contract shall exceed the expense incurred by the owner in finishing the work, such excess shall be paid by the Owner to the Contractor; but, if such expense shall exceed the aforesaid unpaid balance, the Contractor shall pay the difference to the Owner. The expense incurred by the Owner as herein provided, either for furnishing materials, or for finishing the work, and any damage incurred through such default, shall be audited and certified by the Engineer, whose certificates thereof shall be conclusive upon the parties.

XXIV. The word "Engineer" as used herein shall mean the person or firm holding the position or acting in the capacity of Engineer to the said Owner, whether acting either directly or through properly authorized agents.

Whenever the term "Owner" is used in the specifications, it is understood to refer to the Owner as stated on Page 1 of the contract. They will be represented on the work by as many assistants as may be necessary.

The words "as directed", "as required", "as permitted", "as allowed", or phrases of like effect or import as used herein, shall mean that the direction, requirement, permission or allowance of the Engineer is intended, and similarly, the words "approved", "reasonable", "suitable", "properly", "satisfactorily" or words of like effect or import, unless otherwise particularly specified herein, shall mean approved, reasonable, suitable, proper or satisfactory in the judgment of the Engineer.

XXV. Labor Preference and Wage Rates

Each laborer, workman and mechanic employed by the Contractor or any subcontractor or other person about or upon the work contemplated by this contract, shall be paid wages as provided for by Section 220 of the Labor Law of the State of New York, and as set forth in the Minimum Wage Rate Schedule included in these specifications. If work by men of any occupation not listed in said schedule is required on this work, the Contractor shall request the Engineer for a supplemental schedule covering such occupation, and the Engineer shall apply for such supplementary schedule from the New York State Industrial Commissioner.

Article 8, Section 220 of the Labor Law, as amended by Chapter 750 of the Laws of 1956, provides, among other things, that it shall be the duty of the fiscal officer to make a determination of the schedule of wages to be paid to all laborers, workmen and mechanics employed on public work projects including supplements for welfare, pension, vacation and other benefits. These supplements include hospital, surgical or medical insurance or benefits; life insurance or death benefits; accidental death or dismemberment insurance; and pension or retirement benefits. If the amount of supplements provided by the employer is less than the total supplements shown on the wage schedule, the difference shall be paid in cash to employees.

Article 8, Section 220 of the Labor Law, as amended by Chapter 750 of the Laws of 1956, also provides that the supplements to be provided to laborers, workmen and mechanics upon public work "... shall be in accordance with the prevailing practices in the locality" The amount for supplements listed on the enclosed schedule does not necessarily include all types of prevailing supplements in the locality, and a future determination of the Industrial Commissioner may require the Contractor to provide additional supplements.

The Contractor shall provide statutory benefits for disability benefits, workmen's compensation, unemployment insurance and social security.

SUPERSEDES DECISION

STATE: NEW YORK

COUNTIES: ALBANY, RENSSELAER,
SARATOGA & SCHENECTADY

DECISION NO. NY81-3018

EFFECTIVE: DATE OF PUBLICATION

Supersedes Decision No. NY80-3030 dated August 29, 1980 in 45 FR 57939
DESCRIPTION OF WORK: Building (excluding single family homes and apartments up to and including 4 stories), Heavy & Highway Construction Projects

*Albany County
Rensselaer County
Saratoga County
Schenectady County

Schedule No. 1
Schedule No. 2
Schedule No. 3
Schedule No. 4

SCHEDULE #1
ALBANY COUNTY, NEW YORK

ASBESTOS WORKERS
BOILERMAKERS
BRICKLAYERS (1&2)
CLASS A
CLASS B
CARPENTERS (3)
CLASS A
CLASS B
CLASS C
CLASS D
CLASS E
CLASS F
CLASS G
CEMENT MASONS (HEAVY & HIGH-WAY)
ELECTRICIANS (4)
ZONE I
ZONE II
ELEVATOR CONSTRUCTORS
ELEVATOR CONSTRUCTORS HELPERS
ELEVATOR CONSTRUCTORS HELPERS PROBATIONARY
IRONWORKERS (5)
CLASS A
CLASS B
CLASS C
LABORERS (6) (BUILDING)
ZONE I
CLASS A
GROUP 1
GROUP 2
GROUP 3
GROUP 4
GROUP 5
GROUP 6
GROUP 7
CLASS B

Basic Hourly Rates	Fringe Benefits Payments			
	H & W	Pensions	Vacation	Education and/or Appr. Tr.
13.45	1.07	.66		.02
14.63	1.275	1.08		.03
12.32	.80	1.00		.05
8.76	.80	1.00		.05
11.98	.70	1.00		.02
12.48	.70	1.00		.02
13.25	1.85	1.78	1.01	.05
11.13	.70	.85	a	.025
8.56	.70	1.00		.02
15.69	1.875	1.78	1.03	.05
12.30	1.875	1.78	1.03	.05
10.70	.80	1.00	1.03	.05
13.80	.80	38+.80	b	.05
13.75	.90	38+.60		.05
12.36	1.195	.95	d+c	.035
8.65	1.195	.95	d+c	.035
6.18				
12.00	.75	1.46		.08
12.25	.75	1.46		.08
12.125	.75	1.46		.08
10.21	1.00	1.20		.12
10.36	1.00	1.20		.12
10.385	1.00	1.20		.12
10.435	1.00	1.20		.12
10.485	1.00	1.20		.12
10.465	1.00	1.20		.12
10.685	1.00	1.20		.12
7.08	1.00	1.20		.12

DECISION NO. NY81-3018

Page 1-2

SCHEDULE #1
ALBANY COUNTY, NEW YORK

LABORERS (6) CONT'D

ZONE II

CLASS A

GROUP 1

GROUP 2

GROUP 3

GROUP 4

GROUP 5

GROUP 6

GROUP 7

CLASS B

LABORERS (7) (HEAVY & HIGH-WAY)

ZONE I

CLASS A

CLASS B

CLASS C

CLASS D

ZONE II

CLASS A

CLASS B

CLASS C

CLASS D

LINE CONSTRUCTION (8)

CLASS A

GROUP 1

GROUP 2

GROUP 3

GROUP 4

GROUP 5

GROUP 6

CLASS B

GROUP 1

GROUP 3

GROUP 4

GROUP 5

GROUP 6

CLASS C

GROUP 1

GROUP 2

GROUP 3

GROUP 4

GROUP 5

GROUP 6

Basic Hourly Rates	Fringe Benefits Payments			
	H & W	Pensions	Vacation	Education and/or Appr. Tr.
10.32	.90	1.20		.12
10.47	.90	1.20		.12
10.495	.90	1.20		.12
10.545	.90	1.20		.12
10.595	.90	1.20		.12
10.57	.90	1.20		.12
10.795	.90	1.20		.12
7.19	.90	1.20		.12
9.49	1.10	1.30	o	.15
9.69	1.10	1.30	o	.15
9.89	1.10	1.30	o	.15
10.09	1.10	1.30	o	.15
9.04	.90	1.20	o	.10
9.24	.90	1.20	o	.10
9.44	.90	1.20	o	.10
9.64	.90	1.20	o	.10
11.60	1.40	38+1.00	f	
13.35	1.40	38+1.00	f	
10.44	1.40	38+1.00	f	
9.28	1.40	38+1.00	f	
9.86	1.40	38+1.00	f	
8.70	1.40	38+1.00	f	
13.25	1.40	38+1.00	f	
11.925	1.40	38+1.00	f	
10.60	1.40	38+1.00	f	
11.26	1.40	38+1.00	f	
9.94	1.40	38+1.00	f	
13.95	1.40	38+1.00	f	
15.345	1.40	38+1.00	f	
12.555	1.40	38+1.00	f	
11.16	1.40	38+1.00	f	
11.86	1.40	38+1.00	f	
10.46	1.40	38+1.00	f	

19174

Federal Register / Vol. 46, No. 59 / Friday, March 27, 1981 / Notices

CONTRACT 14
Page 1 of 9

SCHEDULE #1
ALBANY COUNTY, NEW YORK

	Basic Hourly Rates	Fringe Benefits Payments			
		H & W	Pensions	Vacation	Education and/or Appr. Tr.
CLASS D					
GROUP 7	13.95	1.40	38+1.00	f	
GROUP 8	14.65	1.40	38+1.00	f	
GROUP 2	15.345	1.40	38+1.00	f	
GROUP 9	13.95	1.40	38+1.00	f	
GROUP 5	11.86	1.40	38+1.00	f	
GROUP 10	11.16	1.40	38+1.00	f	
GROUP 11	10.46	1.40	38+1.00	f	
MARBLE (9)	11.60	.70	1.00		
PAINTERS (10)					
CLASS A	11.23		.60		
CLASS B	11.98		.60		
CLASS C	11.73		.60		
CLASS D	13.08		.60		
PLUMBERS & STEAMPITTERS (11)					
CLASS A	13.35	1.00	1.02		.05
CLASS B	8.87	1.00	1.02		.05
POWER EQUIPMENT OPERATORS (12) (BUILDING)					
CLASS A					
GROUP 1	11.93	1.15	1.25	g	.15
GROUP 2	12.01	1.15	1.25	g	.15
GROUP 3	12.16	1.15	1.25	g	.15
GROUP 4	12.41	1.15	1.25	g	.15
GROUP 5	12.82	1.15	1.25	g	.15
GROUP 6	13.02	1.15	1.25	g	.15
GROUP 7	13.78	1.15	1.25	g	.15
CLASS B					
GROUP 1	8.31	1.15	1.25	g	.15
GROUP 2	8.37	1.15	1.25	g	.15
GROUP 3	8.48	1.15	1.25	g	.15
GROUP 4	8.67	1.15	1.25	g	.15
GROUP 5	8.98	1.15	1.25	g	.15
GROUP 6	9.13	1.15	1.25	g	.15
GROUP 7	9.32	1.15	1.25	g	.15
POWER EQUIPMENT OPERATORS (13) (HEAVY & HIGHWAY)					
GROUP 1	12.35	1.15	1.25	e	.15
GROUP 2	11.94	1.15	1.25	e	.15
GROUP 3	10.78	1.15	1.25	e	.15
GROUP 4	9.75	1.15	1.25	e	.15

SCHEDULE #1
ALBANY COUNTY, NEW YORK

	Basic Hourly Rates	Fringe Benefits Payments			
		H & W	Pensions	Vacation	Education and/or Appr. Tr.
ROOFERS (14)					
CLASS A	12.00	1.37	.40		.04
CLASS B	12.50	1.37	.40		.04
SHEET METAL WORKERS	12.57	1.00	1.34	h	.07
SPRINKLER FITTERS	14.52	.85	1.20		.08
TRUCK DRIVERS (15) (BUILDING)					
GROUP 1	10.62	1.10	1.00		.12
GROUP 2	10.86	1.10	1.00		.12
GROUP 3	11.01	1.10	1.00		.12
TRUCK DRIVERS (16) (HEAVY & HIGHWAY)					
GROUP 1	9.69	1.05	1.00	f	
GROUP 2	9.74	1.05	1.00	f	
GROUP 3	9.79	1.05	1.00	f	
GROUP 4	9.94	1.05	1.00	f	
GROUP 5	10.09	1.05	1.00	f	

CLASSIFICATION FOOTNOTES

- (1) Bricklayers, cement masons, marble masons, plasterers, pointers, caulkers and cleaners
- (2) CLASS A: Building
CLASS B: Rehabilitation work on residential structures over 4 stories defined to include demolition, alteration and repair on any existing structure which is intended for predominantly residential use
- (3) CLASS A: Carpenters, drywall installers, soft floor layers and lathers
CLASS B: Millwrights
CLASS C: Piledrivermen & dockbuilders
CLASS D: Heavy & highway
CLASS E: Rehabilitation work on residential structures over 4 stories defined to include demolition, alteration and repair on any existing structure which is intended for predominantly residential use
CLASS F: Divers
CLASS G: Diver tenders
- (4) ZONE I: Cohoes and watervliet
ZONE II: Remainder of County
- (5) CLASS A: Structural, ornamental, reinforcing, machinery mover, fence erector, rigger, rodman & stone derrickman
CLASS B: Sheeters
CLASS C: Sheeters, bucket-up

SCHEDULE #1
ALBANY COUNTY, NEW YORK

CLASSIFICATION FOOTNOTES CONT'D

- (6) ZONE I: The west side of the Hudson River, extending Westerly along the North side of 1st Street in Watervliet, to one-half mile of Route 9, to Shaker Rd. to Route 9 Northerly to the North line of Albany County
 ZONE II: Remainder of County
 CLASS A: Building Construction
 CLASS B: Rehabilitation work on residential structures over 4 stories defined to include demolition, alteration and repair on any existing structure which is intended for predominantly residential use
 GROUP I: Laborers
 GROUP II: Pipelayers (2 man team), mortar mixers (hand or machine), jackhammer operator, well pointing, concrete vibrators, power driven buggies
 GROUP III: Form setter (curb)
 GROUP IV: Wagon drill operator
 GROUP V: Acetylene burners
 GROUP VI: Demolition
 GROUP VII: Blasters
- (7) ZONE I: Cities of Cohoes and Watervliet
 ZONE II: Remainder of County
 CLASS A: Laborers, drill tenders, flagmen, outboard and hand boats
 CLASS B: Bull float, chain saw, concrete aggregate, bin, concrete bootman, gin buggy, hand or machine vibrator, jackhammer, mason tender, mortar mixer, pavement breaker, handlers of all steel mesh, small generators for laborers' tools, installation of bridge drainage pipe, pipelayers, vibrator type rollers, tamper, drill doctor, tail or crew op. on asphalt paver, water pump op. (14" and single diaphragm), nozzle (asphalt, gunnite, seeding and sandblasting), laborers on chain link fence erection, rock splitter and power unit, pusher type concrete saw and all other gas, electric, oil and air tool operators, wrecking laborer
 CLASS C: All rock or drill machine operators (except quarry master and similar type), acetylene torch op., asphalt raker, powderman
 CLASS D: Blasters, form setter, stone or granite curb setters

SCHEDULE #1
ALBANY COUNTY, NEW YORK

CLASSIFICATION FOOTNOTES CONT'D

- (8) CLASS A: Electrical overhead & underground distribution work
 CLASS B: All overhead transmission line work and lighting for athletic fields
 CLASS C: Sub-station, switching structures (when not part of the line), electrical, telephone or CATV commercial work, street lighting & signal systems
 CLASS D: All pipe type cable installations maintenance jobs or projects
 GROUP 1: Journeyman lineman & technician
 GROUP 2: Cable splicer
 GROUP 3: Groundman digging machine operator, groundman dynamite man
 GROUP 4: Groundman mobile equipment operator, mechanic first class, ground truck driver
 GROUP 5: Groundman truck driver (tractor trailer)
 GROUP 6: Driver mechanic, groundman - experienced
 GROUP 7: Journeyman Lineman
 GROUP 8: Certified lineman welder
 GROUP 9: Groundman equipment operator
 GROUP 10: Groundman truck drivers
 GROUP 11: Groundman
- (9) Marble, tile and terrazzo workers
- (10) CLASS A: Brush
 CLASS B: Structural steel and bridge
 CLASS C: Swing scaffold, bosun chair, water towers, window jacks, flagpoles
 CLASS D: Spray gun application & sandblasting
- (11) CLASS A: Building
 CLASS B: Rehabilitation work on residential structures over 4 stories defined to include demolition, alteration and repair on any existing structure which is intended for predominantly residential use
- (12) CLASS A: Building
 CLASS B: Rehabilitation work on residential structures over 4 stories defined to include demolition, alteration and repair on any existing structure which is intended for predominantly residential use

SCHEDULE #1
ALBANY COUNTY, NEW YORK

CLASSIFICATION FOOTNOTES CONT'D

GROUP 1: Oilers
 GROUP 2: Fireman and heavy duty greasers, all boilers and steam generators
 GROUP 3: Pumps, vibrators, concrete mixers, spreaders, concrete finishing machines, mortar mixers, air compressors, dust collectors, welding machines, well points, two or more Berman Nelson and like heaters, batch and plant op., seed and mulching machines, generators, temporary light plants, concrete pump, beltcrete power pac (beltcrete system), electric submersible pump 4" and over
 GROUP 4: Dinky locomotives, Barber Greene loaders, loaders and conveyors, tractor, scoopmobiles, bulldozers, road roller, form fine graders, power brooms and sweeper
 GROUP 5: Black top spreaders, black top roller, high lifts, fork lifts, one drum hoist or hod hoists, post hole diggers, traxcavators, core and well driller (one drum), economobile and similar type machines, elevators, A-L frame winches, power hoisting (single drum)
 GROUP 6: LeTourneau graders or scrapers, trenching machines, push cart
 GROUP 7: Tractor road pavers, cranes, power road graders, shovels, backhoes, draglines, pile drivers, hoists two or more drums, three drum engines, hysters, two drum and swinging engines, three drum swinging engine, locomotive cranes, gradalla, hydrocrane, model CBS Vibrotamp or similar, Murphy type diesel generator beltcrete system, side booms, hydro hammer, tractor mounted drill (quarry master), euclid loaders, concrete pumps, all CMI equipment, concrete central mix plant, automated asphalt concrete central plant, derrick, whirllies, tower cranes, cableways, hydraulic cranes, power hoisting (2 drum and over), sucking machine

SCHEDULE #1
ALBANY COUNTY, NEW YORK

CLASSIFICATION FOOTNOTES CONT'D

(13) GROUP 1: Automated concrete spreader (CMI), automatic fine grader, backhoe (except tractor mounted, rubber tired), belt placer (CMI type), blacktop plant (automated), cableway, caisson auger, central mix concrete plant (automated), cherry picker (over 5 tons capacity), concrete pump (8" or over), crane, cranes & derricks (steel erection), dragline, dredge, dual drum paver, excavator (all purpose-hydraulically operated, (gradall or similar), fork lift (factor rated 15 ft. & over), front end loader (4 c.y. and over), head tower (sauerman or equal) hoist (2 or 3 drum), Mine hoist, mucking machine or mole, over head crane (gantry or straddle type), piledriver, power grader, quarry master (or equivalent), scraper, shover, sideboom, slip form paver, tractor drawn belt type loader, truck crane, tunnel shovel
 GROUP 2: Backhoe (tractor mounted, rubber tired), bituminous spreader and mixer, blacktop plant (non-automated), blast or rotary drill truck or tractor mounted, boring machine, cage-hoist, central mix plant (non-automated and all concrete batching plants), cherry picker (5 tons capacity and under), compressors (4 or less) exceeding 2000 C.F.M. combined capacity concrete paver (over 165), concrete pump (under 8"), crusher, diesel power unit, drill rigs (tractor mounted), front end loader (under 4 c.y.), hi-pressure boiler (15 lbs. and over), hoist (one drum) Kolman plant loader and similar type loaders, locomotive maintenance/engineer/greaseman/welder, mixer (for stabilized base self-propelled), monorail machine, plant engineer, pump crete, ready mix concrete plant, refrigeration equipment (for soil stabilization), road widener, roller (all above subgrade), tractor with dozer and/or pusher, trencher, tugger-hoist, winch, winch cat
 GROUP 3: Asphalt curb & gutter machines, blower for burning brush, chipping machine & chip spreader, compressors & not over 2,000 c.f.m. combined capacity, 3 or less with more than 1,200 c.f.m. but not to exceed 2,000 c.f.m., compressor, dust collectors, generators, pumps, welding machines (4 of any type or combination) concrete curing machines, conveyor drill core, drill well, electric pump used in conjunction with well point systems, farm tractor with accessories, fine grade machine hammers-hydraulic-self-propelled, hydraulic rock expander or similar type machine, hydraulic pump, motorized hydraulic pin puller and seeders, post hole digger and post driver, roller (grade and fill), tractor with towed accessories, vibratory compactor, vibro tamp, well point

SCHEDULE #1
ALBANY COUNTY, NEW YORK

CLASSIFICATION FOOTNOTES CONT'D

- GROUP 4: Aggragate plant, boiler, C.M.I. and similar type concrete spreaders, cement bin operator, compressors 3 or less not over 1,200 c.f.m. combined capacity, compressors, dust collectors, generators, pumps, welding machines (3 or less of any type of combination), concrete mixer (16S and under), concrete saw self-propelled, fireman, form tamper, mulching machine, oiler, power boom heaterman, rovinius widener, steam cleaner, tractor
- (14) CLASS A: Roofers
CLASS B: Pitch and asbestos
- (15) GROUP 1: Straight, winch, transit mix on job site, road oilers, dump panel, pick-up, water and fuel trucks on site (including nozzle
GROUP 2: Euclid or similar equipment
GROUP 3: Lowboy or lowboy trailers
- (16) GROUP 1: Pick-ups, panel trucks, flatboy material trucks (straight jobs), single axle dump trucks, dumpsters and receivers, greasers, truck tiremen
GROUP 2: Tandems, batch trucks mechanics
GROUP 3: Semi-trailers, low-boy trucks, asphalt distributors trucks, agitator, mixer trucks and dumpcrete type vehicles, truck mechanic
GROUP 4: Specialized earth moving equipment - euclid type or similar off-highway equipment, where not self loaded, and straddle (ross) carrier
GROUP 5: Off-highway tandem back dump, twin engine equipment and double hitched equipment where not self loaded

SCHEDULE #1
ALBANY COUNTY, NEW YORK

FRINGES BENEFIT FOOTNOTES

- a. Paid Holidays: Thanksgiving, provided employee reports for work the day after the holiday
- b. Paid Holidays: Labor Day and Independence Day
- c. Paid Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, Christmas Day and the day after Thanksgiving
- d. Employer contributes 8% of basic hourly rate for 5 years or more of service or 6% of basic hourly rate for 6 months to 5 years of service as vacation pay credit
- e. Paid Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day, provided the employee has worked the day before and after the holiday
- f. Paid Holidays: New Year's Day, Washington's Birthday, Good Friday, Decoration Day, Independence Day, Labor Day, Thanksgiving Day, Christmas Day, and Election Day for the President of the United States and Election Day for the Governor of New York State, provided the employee works the day before or the day after a holiday
- g. Paid Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day
- h. Two hours off with pay on the first Tuesday after the first Monday of November provided they are working on a job beyond 50 miles from the SHOP

Modification Page 3

DECISION NO. NY81-3018 - Mod. #1
 (46 FR 19174 - March 27, 1981)
 Albany, Rensselaer, Saratoga &
 Schenectady Counties, New York

	Basic Hourly Rates	Fringe Benefits Payments			
		H & W	Pensions	Vacation	Education and/or Appr. Tr.
Change: CARPENTERS: SCHEDULES #1, #2, & #3 (ZONE II), & #4 CLASS D	11.87	.70	1.00	a	.025
CEMENT MASONS (Heavy & High- way) SCHEDULES #1, #2, #3 & #4	11.65	.70	1.00		
LABORERS (Heavy & Highway) SCHEDULE #1 (ZONE II) & SCHEDULE #2 (ZONE I)					
CLASS A	9.69	1.20	1.00	e	.15
CLASS B	9.89	1.20	1.00	e	.15
CLASS C	10.09	1.20	1.00	e	.15
CLASS D	10.29	1.20	1.00	e	.15
SCHEDULE #3 (ZONE II) & SCHEDULE #4					
CLASS A	9.84	.90	1.20		.10
CLASS B	10.04	.90	1.20		.10
CLASS C	10.24	.90	1.20		.10
CLASS D	10.44	.90	1.20		.10
MARBLE SCHEDULES #1, #2, #3 & #4	12.45	.70	1.00		
POWER EQUIPMENT OPERATORS (Heavy & Highway) SCHEDULES #1, #2 & #3					
GROUP 1	13.09	1.25	1.45	e	.15
GROUP 2	12.65	1.25	1.45	e	.15
GROUP 3	11.41	1.25	1.45	e	.15
GROUP 4	10.31	1.25	1.45	e	.15
SCHEDULE #4					
GROUP 1	13.09	1.25	1.45	e	.15
GROUP 2	12.65	1.25	1.45	e	.15
GROUP 3	11.41	1.25	1.45	e	.15
GROUP 4	10.31	1.25	1.45	e	.15

Modification Page 4

DECISION NO. OK80-4008 -
 Mod. #2
 45 FR 1375-January 5, 1980
 Comanche County, Oklahoma

CHANGE:
 Painters

DECISION #M180-2065 Mod #3
 (45 FR 5462) August 15, 1980
 Allegan, Berrien, Calhoun,
 Clinton, Eaton, Ingham,
 Jackson & Kalamazoo Counties
 Michigan

ADD:

ROOFERS:
 Berrien County:
 Composition, Damp, Water-
 proof
 Slate, Tile & Asbestos

Basic Hourly Rates	Fringe Benefits Payments			
	H & W	Pensions	Vacation	Education and/or Appr. Tr.
80.05	.20	.70		.05
\$12.75	.60	.50		.03
13.27	.60	.50		.03

DECISION NO. NY81-3022 - Mod. #1 (CONT'D)

LINE CONSTRUCTION	Basic Hourly Rates	Fringe Benefits Payments			
		H & W	Pensions	Vacation	Education and/or Appr. Tr.
Electrical Overhead & Under-ground Distribution Work					
Journeyman Lineman & Technician	12.00	1.40	3%+1.00	a	
Cable Splicer	16.00	1.40	3%+1.00	a	
Groundman Digging Machine Operator, Groundman Dynamite Man	10.80	1.40	3%+1.00	a	
Groundman Mobile Equipment Operator, Mechanic First Class, Ground Truck Driver	9.60	1.40	3%+1.00	a	
Groundman Truck Driver (Tractor Trailer)	10.20	1.40	3%+1.00	a	
Driver Mechanic, Groundman - Experienced	9.00	1.40	3%+1.00	a	
All Overhead Transmission Line Work and Lighting for Athletic Fields					
Journeyman Lineman & Technician	13.80	1.40	3%+1.00	a	
Groundman Digging Machine Operator, Groundman Dynamite Man	12.42	1.40	3%+1.00	a	
Groundman Mobile Equipment Operator, Mechanic First Class, Groundman Truck Driver	11.04	1.40	3%+1.00	a	
Groundman Truck Driver (Tractor Trailer Unit)	11.73	1.40	3%+1.00	a	
Driver Mechanic, Groundman-Experienced	10.35	1.40	3%+1.00	a	
Sub-Station, Switching Structures (when not part of the line), Electrical, Telephone or CATV Commercial Work, Street Lighting & Signal Systems					
Journeyman Lineman & Technicians	14.55	1.40	3%+1.00	a	
Cable Splicer	16.005	1.40	3%+1.00	a	
Groundman Digging Machine Operator, Groundman Dynamite Man	13.095	1.40	3%+1.00	a	

DECISION NO. NY81-3022 - Mod. #1 (CONT'D)

LINE CONSTRUCTION (CONT'D)	Basic Hourly Rates	Fringe Benefits Payments			
		H & W	Pensions	Vacation	Education and/or Appr. Tr.
Groundman Mobile Equipment Operator, Mechanic First Class, Groundman Truck Driver	11.64	1.40	3%+1.00	a	
Groundman Truck Driver (Tractor Trailer Unit)	12.36	1.40	3%+1.00	a	
Driver Mechanic, Groundman-Experienced	10.91	1.40	3%+1.00	a	
All Pipe type Cable Installations, Maintenance Jobs or Projects					
Journeyman Lineman	14.55	1.40	3%+1.00	a	
Certified Lineman Welder	15.27	1.40	3%+1.00	a	
Cable Splicer	16.005	1.40	3%+1.00	a	
Groundman Equipment Operator	14.55	1.40	3%+1.00	a	
Groundman Truck Driver (Tractor Trailer Unit)	12.36	1.40	3%+1.00	a	
Groundman Truck Drivers	11.64	1.40	3%+1.00	a	
Groundman	10.91	1.40	3%+1.00	a	

FOOTNOTE:

- a. Paid Holidays: New Year's Day, Washington's Birthday, Good Friday, Decoration Day, Independence Day, Labor Day, Thanksgiving Day, Christmas Day, and Election Day for the President of the United States and Election Day for the Governor of New York State, provided the employee works the day before or the day after a holiday

DECISION NO. NY81-3018 - Mod. #3
 (46 FR 19174 - March 27, 1981)
 Albany, Rensselaer, Saratoga &
 Schenectady Counties, New York

	Basic Hourly Rates	Fringe Benefits Payments			
		H & W	Pensions	Vacation	Education and/or Appr. Tr.
CHANGE: BRICKLAYERS SCHEDULES #1, #2, #3, & #4 CLASS A CLASS B	13.15 9.28	.80 .80	1.40 1.40		.06 .05
DECISION NO. NYS1-3022 - Mod. #2 (46 FR 20437 - April 3, 1981) Oneida County, New York					
CHANGE: BRICKLAYERS & STONE MASONS CARPENTERS & SOFT FLOOR LAYERS Building ELEVATOR CONSTRUCTORS ELEVATOR CONSTRUCTORS HELPERS ELEVATOR CONSTRUCTORS HELPERS PROBATIONARY MARBLE, TILE & TERRAZZO WORKERS ROOFERS	13.39 12.99 14.76 10.33 7.38 12.11 14.15	.75 .85 1.345 1.345 .75 1.00	1.31 1.20 1.085 1.085 1.06 2.25		.01 .03 .035 .035 .

DECISION #OK81-4056-Mod. #2
 46FR37209 - July 17, 1981
 Tulsa, Delaware, Creek,
 Craig, Ottawa, Mayes and
 Roger Counties, Oklahoma

CHANGE:
 BRICKLAYERS-STONEMASONS:
 Tulsa, Delaware, Ottawa,
 Craig, Mayes and Roger
 Counties
 SPRINKLER FITTERS

	Basic Hourly Rates	Fringe Benefits Payments			
		H & W	Pensions	Vacation	Education and/or Appr. Tr.
CHANGE: BRICKLAYERS-STONEMASONS: Tulsa, Delaware, Ottawa, Craig, Mayes and Roger Counties SPRINKLER FITTERS	13.39 14.68	.90 .95	.50 1.40	.50	.04 .00
DECISION #OK81-4051-Mod. #3 46FR35884 - July 10, 1981 Pittsburg County, Oklahoma					
CHANGE: Tile Setters Terrazzo workers Sprinkler fitters	14.02 14.02 14.60	.90 .90 .95	.60 .60 1.40		.08
DECISION #OK81-4054-Mod. #2 46FR35888 - July 10, 1981 Muskogee, Adair, Cherokee & Okmulgee Counties, Oklahoma					
CHANGE: Marble, tile and terrazzo workers Sprinkler fitters	14.02 14.68	.90 .95	.60 1.40		.08
DECISION #OK81-4066-Mod. #1 46FR42610 - August 21, 1981 Garfield County, Arkansas					
CHANGE: Bricklayers-Stonemasons Glasiers Marble setters Terrazzo workers Tile layers Sprinkler fitters	12.65 12.47 15.04 15.04 15.04 15.04 14.68		.30 .90 .90 .90 .90		.08

DECISION NO. NJ81-3053 -
(CONT'D)

Basic Hourly Rates	Fringe Benefits Payments			
	H & W	Pensions	Vacation	Education and/or Appr. Tr.
MARBLESETTERS, TERRAZZO WORKERS & TILESETTERS: ZONE 2 Marble Setters	10.25	1.21	1.71	.f
PLUMBERS: ZONE 1	15.78	1.00	2.65	.25
ZONE 3	16.48	1.04	1.80	.11
SHEET METAL WORKERS: Middlesex County	14.09	78	138+.12	.09
Warren County	13.51	38+1.20	1.18	.23
Morris, Somerset, Sussex and Union Counties	14.61	1.20	2.10	.15
Hunterdon County	13.86	38+2.05	1.32	.04
ADD: ELECTRICIANS: Rail-Road Construction: Bergen & Hudson Cos. Commercial Telephone Installation: Bergen & Hudson Cos.	17.00	78	98+.58	.75%
	17.00	98	98+.58	5/108

DECISION NO. NY81-3018 - Mod. 04
(46 FR 19174 - March 27, 1981)
Albany, Rensselaer, Saratoga & Schenectady Counties, New York

CHANGE:
SCHEDULE #1
ALBANY COUNTY, NEW YORK

ASBESTOS WORKERS
BOILERMAKERS
CARPENTERS (3)
CLASS A
CLASS B
CLASS E
CEMENT MASONS (Heavy & Highway)
ELECTRICIANS (4)
ZONE I
ZONE II
ELEVATOR CONSTRUCTORS
ELEVATOR CONSTRUCTORS HELPERS
ELEVATOR CONSTRUCTORS HELPERS
PROBATIONARY
IRONWORKERS (3)
CLASS A
CLASS B
CLASS C
CLASS C
MARBLE (9)
PAINTERS (10)
SHEET METAL WORKERS
SPRINKLER FITTERS
LABORERS, (Building) (6)
ZONE I
CLASS A
GROUP 1
GROUP 2
GROUP 3
GROUP 4
GROUP 5
GROUP 6
GROUP 7
CLASS B

Basic Hourly Rates	Fringe Benefits Payments			
	H & W	Pensions	Vacation	Education and/or Appr. Tr.
14.60	1.07	.66		.02
16.53	1.275	1.653		.04
13.18	.70	1.00		.02
13.68	.70	1.00		.02
9.46	.70	1.00		.02
11.15	.80	1.40		
14.20	.85	32+1.45		.03
14.85	.90	32+ .60		.05
13.25	1.345	1.085	d+c	.035
9.275	1.345	1.085	d+c	.035
6.625				
12.85	.75	1.81		.08
13.10	.75	1.81		.06
12.975	.75	1.81		.08
11.95	.80	1.40		
13.07		1.00		.02
13.86	32+1.07	1.04		.07
15.55	.95	1.40		.08
10.98	1.10	1.30		.17
11.13	1.10	1.30		.17
11.155	1.10	1.30		.17
11.205	1.10	1.30		.17
11.255	1.10	1.30		.17
11.23	1.10	1.30		.17
11.455	1.10	1.30		.17
7.59	1.10	1.30		.17

DECISION NO. NY81-3018 - Mod. # CONT'D

SCHEDULE #1 ALBANY COUNTY, NEW YORK	Basic Hourly Rates	Fringe Benefits Payments			
		H & W	Pensions	Vacation	Education and/or Appr. Tr.
LABORERS, (Building) Cont'd					
ZONE II					
CLASS A					
GROUP 1	11.20	.90	1.30		.12
GROUP 2	11.35	.90	1.30		.12
GROUP 3	11.375	.90	1.30		.12
GROUP 4	11.425	.90	1.30		.12
GROUP 5	11.475	.90	1.30		.12
GROUP 6	11.45	.90	1.30		.12
GROUP 7	11.675	.90	1.30		.12
LINE CONSTRUCTION (8)					
CLASS A					
GROUP 1	12.00	1.40	32+1.00	f	
GROUP 2	16.00	1.40	32+1.00	f	
GROUP 3	10.80	1.40	32+1.00	f	
GROUP 4	9.60	1.40	32+1.00	f	
GROUP 5	10.20	1.40	32+1.00	f	
GROUP 6	9.00	1.40	32+1.00	f	
CLASS B					
GROUP 1	13.80	1.40	32+1.00	f	
GROUP 3	12.42	1.40	32+1.00	f	
GROUP 4	11.04	1.40	32+1.00	f	
GROUP 5	11.73	1.40	32+1.00	f	
GROUP 6	10.35	1.40	32+1.00	f	
CLASS C					
GROUP 1	14.55	1.40	32+1.00	f	
GROUP 2	16.005	1.40	32+1.00	f	
GROUP 3	13.095	1.40	32+1.00	f	
GROUP 4	11.64	1.40	32+1.00	f	
GROUP 5	12.36	1.40	32+1.00	f	
GROUP 6	10.91	1.40	32+1.00	f	
CLASS D					
GROUP 7	11.64	1.40	32+1.00	f	
GROUP 8	12.36	1.40	32+1.00	f	
GROUP 2	16.005	1.40	32+1.00	f	
GROUP 9	14.55	1.40	32+1.00	f	
GROUP 3	12.36	1.40	32+1.00	f	
GROUP 10	11.64	1.40	32+1.00	f	
GROUP 11	10.91	1.40	32+1.00	f	

DECISION NO. NY81-3018 - Mod. # CONT'D

SCHEDULE #1 ALBANY COUNTY, NEW YORK	Basic Hourly Rates	Fringe Benefits Payments			
		H & W	Pensions	Vacation	Education and/or Appr. Tr.
POWER EQUIPMENT OPERATORS (12) (Building)					
CLASS A					
GROUP 1	12.82	1.15	1.25	g	.15
GROUP 2	12.91	1.15	1.25	g	.15
GROUP 3	13.08	1.15	1.25	g	.15
GROUP 4	13.35	1.15	1.25	g	.15
GROUP 5	13.80	1.15	1.25	g	.15
GROUP 6	14.02	1.15	1.25	g	.15
GROUP 7	14.31	1.15	1.25	g	.15
SCHEDULE #2 RENSSELAER COUNTY, NEW YORK					
ASBESTOS WORKERS	14.60	1.07	.66		.02
BOILERMAKERS	16.53	1.275	1.653		.04
CARPENTERS (2)					
CLASS A					
GROUP 1	13.18	.70	1.00		.02
CLASS B					
GROUP 1	13.68	.70	1.00		.02
CLASS D					
GROUP 1	9.46	.70	1.00		.02
CEMENT MASONS (Heavy & Highway)					
ELECTRICIANS (3)					
ZONE I					
GROUP 1	14.85	.90	32+ .60		.05
ZONE II					
GROUP 1	14.50	.95	32+ .95		.05
ELEVATOR CONSTRUCTORS					
GROUP 1	13.25	1.345	1.085	d+c	.035
ELEVATOR CONSTRUCTORS HELPER					
GROUP 1	9.275	1.345	1.085	d+c	.035
ELEVATOR CONSTRUCTORS HELPER					
GROUP 1	6.625				
PROBATIONARY					
IRONWORKERS (9)					
CLASS A					
GROUP 1	12.85	.75	1.81		.08
CLASS B					
GROUP 1	13.10	.75	1.81		.08
CLASS C					
GROUP 1	12.975	.75	1.81		.08
LABORERS (Building) (5)					
ZONE I					
CLASS A					
GROUP 1	11.20	.90	1.30		.12
GROUP 2	11.35	.90	1.30		.12
GROUP 3	11.375	.90	1.30		.12
GROUP 4	11.425	.90	1.30		.12
GROUP 5	11.475	.90	1.30		.12
GROUP 6	11.45	.90	1.30		.12
GROUP 7	11.675	.90	1.30		.12

State of New York
Department of Labor



Bureau of Public Work
State Office Building Campus
Albany, N.Y. 12240

CONTRACT REQUIREMENTS

Each public work contract to which the State, a public benefit corporation, a municipal corporation or a commission is a party and which may involve the employment of laborers, workmen or mechanics, shall comply with the requirements of Article 8 of the New York State Labor Law:

1. No laborer, workman or mechanic in the employ of the contractor, subcontractor or other person doing or contracting to do the whole or a part of the work contemplated by the contract shall be permitted or required to work more than eight hours in any one calendar day or more than five days in any one week except in the extraordinary emergencies set forth in the Labor Law or where a dispensation is granted by the Industrial Commissioner. (See Section 220.2)
2. Each laborer, workman or mechanic employed by the contractor or subcontractor shall be paid not less than the prevailing rate of wages at the time the work is performed, and shall be paid or provided not less than the prevailing supplements at the time the work is performed, as determined by the fiscal officer. If the prevailing rate of wages or the prevailing supplements change after the prevailing rate schedule is issued, each workman, laborer or mechanic shall be paid or provided not less than the new rates. (See Section 220.3)
3. The contractor and every subcontractor shall post in a prominent and accessible place at the work site a statement of the current wage rates and supplements specified by the contract for the various classes of mechanics, workmen or laborers. (See Section 220.3 - a)
4. Apprentices must be registered, individually, under a bona fide program registered with the New York State Department of Labor. The allowable ratio of apprentices to journeymen in any craft classification shall not be greater than the ratio permitted to the contractor as to his work force on any job under the registered program. Any employee who is not registered as above, shall be paid the prevailing wage rate for the classification of work he actually performed. The contractor or subcontractor will be required to furnish written evidence of the registration of his program and apprentices as well as of the appropriate ratios and wage rates for the area of construction, prior to using any apprentices on the contract work. (See Section 220.3 - e)
5.
 - (a) No contractor, subcontractor, nor any person acting on his behalf, shall by reason of race, creed, color, sex or national origin discriminate against any citizen of the State of New York who is qualified and available to perform the work to which the employment relates. (See Section 220-e (a))
 - (b) No contractor, subcontractor, nor any person acting on his behalf shall, in any manner, discriminate against or intimidate any employee on account of race, creed, color, sex or national origin. (See Section 220-e (b)) NOTE: The Human Rights Law also prohibits discrimination in employment because of age, disability or marital status.
 - (c) There may be deducted from the amount payable to the contractor under the contract a penalty of five dollars for each calendar day during which such person was discriminated against or intimidated in violation of the provisions of the contract. (See Section 220 -e (c))
 - (d) The contract may be cancelled or terminated by the State or municipality, and all moneys due or to become due thereunder may be forfeited, for a second or any subsequent violation of the terms or condition of the anti-discrimination sections of the contract. (See Section 220 -e (d))
 - (e) These provisions shall be limited to operations performed within the State of New York. (See Section 220 -c (e))

STATE OF NEW YORK
DEPARTMENT OF LABOR
BUREAU OF PUBLIC WORK
STATE OFFICE BUILDING CAMPUS
ALBANY, N. Y. 12240

Schedule Type-COMplete 43

Date 02/10/82

Refer to:

PREVAILING RATE CASE NO.

Bethlehem Sewer Dist.

PRC 8200555

ALBANY

02

to: James K. Fraser, Jr. P.E. Presid.
J. Kenneth Fraser & Assocs., P.C
620 Washington Avenue
Rensselaer, NY 12144

Location and Type of Project
Cont. #2, 2P, 2E, San. sewers,
Pumps, Pump Station Elect.
Various Sts., Bethlehem
Sewer Dist, T/O Bethlehem

In response to your request, enclosed are schedules of the prevailing hourly wage rates and the prevailing hourly supplements for the above project, together with copies of the Notice of Contract Let (PW-16) for your use. The schedules must be annexed to and form a part of the specifications for this project when it is advertised for bids. These schedules have been prepared and forwarded in accordance with Section 220 of the Labor Law, which provides that it shall be the duty of the fiscal officer to ascertain and determine the schedules of supplements to be provided and wages to be paid to workers, laborers and mechanics employed on public work projects, and to file such schedules with the department having jurisdiction.

These wage rates and supplemental benefits are subject to change, and you will be periodically notified of such changes. The wage rates and supplemental benefits to be paid and provided must be those prevailing at the time the work is being performed.

Supplemental Benefits Legend used in the "other supplements" column of the Prevailing Rate Schedule:

- | | | |
|---|--------------------------------|--------------------------|
| A. Health & Welfare (includes hospital surgical or medical insurance or benefits, life insurance or death benefits, accidental death or dismemberment insurance). | C. Supp. Unemployment Benefits | I. Annuity Fund |
| B. Pension | D. Scholarship Fund | J. Benefit Fund |
| | E. Paid Holidays | K. Security Savings Fund |
| | F. Education | L. Holiday Pay |
| | G. Vacation | M. Other |
| | H. Apprentice Training | |

Very truly yours,

Nicholas Valentine, Jr.

DIRECTOR

WHEN ANY PROJECT IS COMPLETED OR CANCELLED, NOTIFY THE NEAREST DISTRICT OFFICE OF THE BUREAU OF PUBLIC WORK. (see addresses below)

State Office Bldg. Campus, Albany N. Y. 12240
155 Main Street West, Rochester N. Y. 14614
175 Fulton Ave., Hempstead N. Y. 11550
207 Genesee St., Utica N. Y. 13501

65 Court St., Buffalo N. Y. 14202
44 Hawley St., Binghamton N. Y. 13901
333 East Washington St., Syracuse N. Y. 13202
30 Glenn St., White Plains N. Y. 10603

PREVAILING RATE SCHEDULE

State of New York
Department of Labor

Case Number

8200555

Bureau of
Public Work

ALBANY COUNTY

OCCUPATIONS	Prevailing wage basic hourly rate	SUPPLEMENTAL BENEFIT PAYMENTS			
		health and welfare (A)	pen- sion (B)	suppl. unemp. (C)	other supplements (D) through (M)
<u>ASBESTOS WORKER</u>					
Asbestos Worker	14.35	1.07	.91		H-.02
" Appr. 1st term	7.175	1.07	.91		H-.02
<u>BOILERMAKER</u>					
Boilermaker	14.63	1.275	1.46		H-.03
" Appr. 1st term	10.24	1.275	1.02		H-.03
<u>CARPENTER</u>					
Carpenter (Bldg) and Floor Layer	13.18	.70	1.00		H-.02
" Appr. 1st term	7.90	.70	1.00		H-.02
Millwright	13.18	.70	1.00		H-.02
Piledriver/Dockbuilder	14.86	1.85	1.33		G-1.05, H-.10, I-.90
" Appr. 1st term	8.20	1.85	.80		G-.63, H-.10, I-.54
<u>ELEVATOR</u>					
Elevator Constructor	12.36	1.195	.95		F-.035, G-.74
" Helper	8.65	1.195	.95		F-.035, G-.51
<u>GLAZIER</u>					
Glazier	11.21	.98	.35		H-.01
" Appr. 1st term	6.16	.98	.35		H-.01
<u>LABORER</u>					
Laborer (Bldg)					
" Basic, Concrete Mason Tender	10.98	1.10	1.30		F-.17
" Asphalt Raker	11.08	1.10	1.30		F-.17
" Pipelayer, Power Tool	11.13	1.10	1.30		F-.17
" Burner	11.255	1.10	1.30		F-.17
" Blaster	11.455	1.10	1.30		F-.17
Cities of Watervliet, Cohoes & Green Island					

Laborer (Bldg.)					
" Basic, Concrete, Mason Tender	11.20	.90	1.30		F-.17
" Asphalt Raker	11.30	.90	1.30		F-.17
" Pipelayer, Power Tool	11.35	.90	1.30		F-.17
" Blaster	11.675	.90	1.30		F-.17
" Acetylene Burner	11.475	.90	1.30		F-.17
Remainder of County					
<u>LATHER</u>					
Lather	13.18	.70	1.00		H-.02
" Appr. 1st term	7.90	.70	1.00		H-.02
<u>MASON/MARBLE/TILE</u>					
Cement Fin, Plaster, Tuck Pointer	13.15	.80	1.40		H-.06
" Appr. 1st term	5.91	.80	1.40		H-.06

Marble, Tile & Terrazzo Worker	11.95	.80	1.40		
" Appr. 1st term	5.37	.80	1.40		

Marble, Tile & Terrazzo Helper	10.01	----	1.40		
<u>ROOFER</u>					
Roofer, Waterproofer, slate & tile	12.40	1.67	1.05		H-.05
" Appr. 1st term	6.20	1.67	1.05		H-.05
" Pitch	12.90	1.67	1.05		H-.05
<u>SHEETMETAL</u>					
Sheetmetal Worker	13.93	1.00	1.04		H-.07, K-3%
" Appr. 1st term	6.96	1.00	1.04		H-.07, K-3%

OCCUPATIONS APPLICABLE TO BUILDING SCHEDULES

PREVAILING RATE SCHEDULE

State of New York
Department of Labor

Case Number

8200555

Bureau of
Public Work

ALBANY COUNTY

OCCUPATIONS	Prevailing wage basic hourly rate	SUPPLEMENTAL BENEFIT PAYMENTS			
		health and welfare (A)	pen- sion (B)	suppl. unemp. (C)	other supplements (D) through (M).
<u>SPRINKLER</u> Sprinkler Fitter	15.55	.95	1.40		H-.08
<u>STEAMFITTER</u> Steamfitter	13.86	1.50	1.26		H-.05
" Appr. 1st term	5.54	1.50	1.26		H-.05
<u>TEAMSTER(BLDG)</u> Truck Driver(Bldg)					
" Single Axle	11.48	1.20	1.10		F-.12
" Tandem	11.75	1.20	1.10		F-.12
" Euclid	11.91	1.20	1.10		F-.12
<u>OPERATORS OF POWER EQUIPMENT (BLDG)</u>					
Backhoe	13.89	.95	1.45	.30	H-.15
Bulldozer	13.26				
Compressor-large	12.91				
Compressor-battery	12.91				
Crane	13.89				
Front End Loader	13.26				
Fireman	12.82				
Forklift	13.49				
Grader	13.89				
Hoist Opr. 1 drum	13.49				
Hoist Opr. 2 drum	13.89				
Mixer (concrete)	12.91				
Mixer (mortar)	12.91				
Oiler	12.58				
Piledriver	13.89				
Pump (Under 4")	12.91				
Pump (Over 4")	12.91				
Roller-form & fine	13.26				
Roller-high finish	13.49				
Scoopmobile	13.26				
Scraper	13.77				
Shovel	13.89				
Tractor	13.26				
Traxcavator	13.49				
Trenching Machine	13.77				

Location, Effective Date and Supplemental Benefit Payments are the same for all Power Equipment Operators.

OCCUPATIONS APPLICABLE TO BUILDING SCHEDULES

PREVAILING RATE SCHEDULE

State of New York
Department of Labor

Case Number

8200555

Bureau of
Public Work

ALBANY COUNTY

OCCUPATIONS	Prevailing wage basic hourly rate	SUPPLEMENTAL BENEFIT PAYMENTS			
		health and welfare (A)	pen- sion (B)	suppl. unemp. (C)	other supplements (D) through (M)
<u>ELECTRICIAN</u>					
Electrician	14.50	.95	.95+3%		H-.05
" Appr. 1st term	5.365	.95	3%		H-.05
Green Island, Cities of Cohoes, and Watervliet					
Electrician	14.85	.90	.60+3%		H-.05
Appr. 1st term	5.94	.90	3%		H-.05
Remainder of County					
<u>IRONWORKER</u>					
Ironworker-Structural, Reinforcing, Ornamental	12.85	.75	1.81		H-.08
" Appr. 1st term	65%	.75	1.81		H-.08
<u>MASON</u>					
Bricklayer	13.15	.80	1.40		H-.06
" Appr. 1st term	5.91	.80	1.40		H-.06
<u>PAINTER</u>					
Painter - Brush	13.07	----	1.00		
- Steel	13.82	----	1.00		
- Spray, Sandblaster	14.72	----	1.00		
- Bridge	13.82	----	1.00		
- Appr. 1st tr	6.53	----	1.00		
<u>PLUMBER</u>					
Plumber	13.86	1.50	1.26		H-.05
" Appr. 1st term	5.54	1.50	1.26		H-.05
<u>WELDER</u>					
Welder	To be paid the rate of the mechanic performing the work				

OCCUPATIONS APPLICABLE TO HEAVY/HIGHWAY and BUILDING SCHEDULES

PREVAILING RATE SCHEDULE

State of New York
Department of Labor

Case Number

Bureau of
Public Work

8200555

ALBANY COUNTY

OCCUPATIONS	Prevailing wage basic hourly rate	SUPPLEMENTAL BENEFIT PAYMENTS			
		health and welfare (A)	pen- sion (B)	suppl. unemp. (C)	other supplements (D) through (M)

CARPENTER(HVY/HWY)

APPLICABLE on contracts let during the 12 mos. prior to April 1, 1980: rate terminates on Sept. 30, 1981 or 18 mos. from letting date, whichever is earlier; current rates then become applicable.

Carpenter (Hvy/Hwy)	10.30	.70	.85	H-.025, E-PPP
" Appr. 1st term	60%	.70	.85	H-.025, E-PPP

APPLICABLE on Contracts let ON or AFTER April 1, 1980 and BEFORE April 1, 1981: rate terminates on Sept. 30, 1982 or 18 mos. from letting date, whichever is earlier; current rates then become applicable.

Carpenter (Hvy/Hwy)	11.13	.70	.85	H-.025, E-PPP
" Appr. 1st term	60%	.70	.85	H-.025, E-PPP

APPLICABLE current rates.

Carpenter (Hvy/Hwy)	11.87	.70	1.00	H-.025, E-PPP
" Appr. 1st term	60%	.70	1.00	H-.025, E-PPP
Piledriver/Dockbuilder	14.86	1.85	1.33	G-1.05, H-.10, I-.90
" Appr. 1st term	8.20	1.85	.80	G-.63, H-.10, I-.54

LABORER(HVY/HWY)

APPLICABLE on Contracts let during the 12 mos. prior to April 1, 1981: rate terminates on March 31, 1982 or 12 mos. from letting date, whichever is earlier; current rates then become applicable.

Laborer(H/H)				
" Basic, Concrete, Flagman	8.94	1.00	1.20	F-.10, E-PPP
" Asphalt Tamper, Mason Tender, Power Tool, Pipe Layer	9.14	1.00	1.20	F-.10, E-PPP
" Asphalt Raker, Wagon Drill	9.34	1.00	1.20	F-.10, E-PPP
" Form Setter, Blaster	9.54	1.00	1.20	F-.10, E-PPP
Cities of Cohoes and Watervliet				

Laborer(H/H)				
" Basic, Concrete, Flagman	9.04	.90	1.20	F-.10, E-PPP
" Asphalt Tamper, Mason Tender, Power Tool, Pipe Layer	9.24	.90	1.20	F-.10, E-PPP
" Asphalt Raker, Wagon Drill	9.44	.90	1.20	F-.10, E-PPP
" Form Setter, Blaster	9.64	.90	1.20	F-.10, E-PPP
Remainder of County				

APPLICABLE current rates.

Laborer(H/H)				
" Basic, Concrete, Flagman	9.49	1.10	1.30	F-.15, E-PPP
" Asphalt Tamper, Mason Tender, Power Tool, Pipe Layer	9.69	1.10	1.30	F-.15, E-PPP
" Asphalt Raker, Wagon Drill	9.89	1.10	1.30	F-.15, E-PPP
" Form Setter, Blaster	10.09	1.10	1.30	F-.15, E-PPP
Cities of Cohoes and Watervliet				

CONTINUED

OCCUPATIONS APPLICABLE TO HEAVY/HIGHWAY SCHEDULES

PREVAILING RATE SCHEDULE

State of New York
Department of Labor

Case Number

Bureau of
Public Work

8200555

ALBANY COUNTY

OCCUPATIONS	Prev- ailing basic hourly rate	SUPPLEMENTAL BENEFIT PAYMENTS			
		health and welfare (A)	pen- sion (B)	suppl. unemp. (C)	other supplements (D) through (M)

CONTINUED

Laborer(H/H)					
" Basic, Concrete, Flagman	9.69	.90	1.30		F-.15, E-PPP
" Asphalt Tamper, Mason Tender, Power Tool, Pipe Layer	9.85	.90	1.30		F-.15, E-PPP
" Asphalt Raker Wagon Drill	10.09	.90	1.30		F-.15, E-PPP
" Form Setter, Blaster	10.29	.90	1.30		F-.15, E-PPP
Remainder of County					

<u>MASON</u>					
Cement Fin (H/H)	11.65	.70	1.00		E-PPP

<u>TEAMSTER(HVY/HWY)</u>					
Truck Driver(H/H)					
" Single Axle	10.49	1.10	1.05		E-PPP
" Tandem	10.54	1.10	1.05		E-PPP
" Euclid	10.74	1.10	1.05		E-PPP

OPERATORS OF POWER EQUIPMENT
CLASS A

Automated Concrete Spreader(CMI Type), Automatic Fine Grader, Backhoe(except tractor-mounted, rubber tired), Belt Placer(CMI Type), Blacktop Plant(automated), Cableway, Caisson Auger, Central Mix Concrete Plant(automated), Cherry Picker(over 5 tons capacity), Concrete Pump(8" or over), Crane, Cranes and Derricks(steel erection), Dragline, Dredge, Dual Drum Paver, Excavator(all purpose-hydraulic-Gradall or Similar), Fork Lift(factory rated 15ft and over), Front End Loader(4c.y. & over), Head Tower (Saverman or equal), Hoist(two or three Drum), Mine Hoist, Holland Loader, Mucking Machine or Mole, Overhead Crane(Gantry or Straddle Type), Pile Driver, Power Grader, Quad 9, Quarry Master(or equivalent), Scraper, Shovel, Side Boom, Slip Form Paver(If a second man is needed, he shall be an Oiler), Tractor Drawn Belt Type Loader, Truck Crane, Truck or Trailer Mounted Chipper(self-feeding), Tug & Operator(manned, rented equipment excluded) & Tunnel Shovel

CLASS B

Backhoe (Tractor-Mounted, Rubber Tired), Bituminous Spreader & Mixer, Blacktop Plant (non-automated), Blast or Rotary Drill (Truck or Tractor Mounted), Boring Machine, Cage Hoist, Central Mix Plant(Non Automated), All Concrete Batching Plants, Cherry Picker(5 tons & under), Compressors(4 or less exceeding 2,000 c.f.m. combined capacity), Concrete Paver over 165, Concrete Pump(Under 8"), Crusher, Diesel Power Unit, Drill Rigs (Tractor Mounted), Front End Loader(under 4 c.y.), Hi-Pressure Boiler (15 lbs. & over), Hoist(One Drum), Kolman Plant Loader & similar type loaders(if employer requires another man, he shall be Oiler), L.C.M. Work Boat Operator, Locomotive, Maintenance Engineer/Grease Man/Welder, Mixer(for stabilized base-self propelled), Monorail Machine, Plant Engineer, Pump Crete, Ready Mix Concrete Plant, Refrigeration Equipment (for soil stabilization), Road Widener, Roller(all above sub-grade), Sea Mule, Tractor with Dozer and/or Pusher, Trencher, Tugger Hoist, Winch and Winch Cat.

CONTINUED

OCCUPATIONS APPLICABLE TO HEAVY/HIGHWAY SCHEDULES

PREVAILING RATE SCHEDULE

State of New York
Department of Labor

Case Number

Bureau of
Public Work

8200555

ALBANY COUNTY

OCCUPATIONS	Prevailing wage basic hourly rate	SUPPLEMENTAL BENEFIT PAYMENTS			
		health and welfare (A)	pen- sion (B)	suppl. unemp. (C)	other supplements (D) through (M)

CONTINUED

CLASS C

A Frame Truck, Compressors (4 not to exceed 2,000 cfm combined capacity; or 3 or less with more than 1200 cfm. but not to exceed 2,000 c.f.m), Compressors (any size but subject to other provisions for compressors-Dust Collectors, Generators, Pumps, Welding Machines, Light Plants- 4 of any type or combination), Concrete Paverment Spreaders and Finishers, Conveyor, Drill (core), Drill (well), Electric Pump Used in Conjunction with Well Point System, Farm Tractor with Accessories, Fine Grade Machine, ForkLift (under 15ft), Grout Pump, Gunite Machine, Hammers (hydraulic- self propelled), Post Hole Digger & Post Driver, Power Sweeper, Roller (grade & fill), Submersible Electric Pump (when used in lieu of well point system), Tractor (with towed accessories), Vibratory Compactor, Vibro Tamp, Well Point

CLASS D

Aggregate Plant, Boiler (used in conjunction with production), Cement & Bin Operator, Compressors (3 or less not to exceed 1,200 c.f.m. combined capacity), Compressors (any size, but subject to other provisions for compressors-Dust Collectors, Generators, Pumps, Welding Machines, Light Plants-3 or less- any type or combination), Concrete Paver or Mixer (16S & under), Concrete Saw (self propelled), Fireman, Form Tamper, Hydraulic Pump (jacking system), Light Plants, Mulching Machine, Oiler, Parapet Concrete or Pavement Grinder, Power Broome (towed), Power Heaterman, Revinius Widener, Shell Winder, Steam Cleaner, Tractor

Class A	13.09	.95	1.45	.30	H-.15, E-PPP
Class B	12.65	.95	1.45	.30	H-.15, E-PPP
Class C	11.41	.95	1.45	.30	H-.15, E-PPP
Class D	10.31	.95	1.45	.30	H-.15, E-PPP

SURVEY CREW (HIGHWAY & HEAVY)

Party Chief					
" Class A	11.61	.95	1.30	.40	H-.15
" Class B	11.03				
" Class C	10.45				
Instrument Man					Location, Effective Date and Supplemental Benefit Payments are the same for all Classifications
" Class A	9.87				
" Class B	9.29				
Rodman/Chainman					
" Class A	8.71				
" Class B	7.55				

Survey Rates apply to those workmen employed on HIGHWAY and HEAVY contracts let on or after July 2, 1979

OCCUPATIONS APPLICABLE TO HEAVY/HIGHWAY SCHEDULES

The Contractor shall post and maintain in a prominent and accessible place on the site of the work a legible schedule showing all determined minimum wage rates as specified in the contract to be paid for the various classes of mechanics, workingmen or laborers employed on the work, and showing all authorized deductions, if any, from unpaid wages actually earned.

The Contractor and each subcontractor or other person doing or contracting to do any part of the work contemplated by this contract shall pay each of his employees engaged on such work the full and proper wage in cash without any deduction or kickback, excepting such deductions as are mandatory by law. Payment to every employee shall be made not less often than once in each week.

In the performance of the work contemplated by this contract, or any part thereof, including all extra work, preference in employment shall be given to citizens of the State of New York who have been residents for at least six consecutive months immediately prior to the commencement of their employment. Each person employed by the contractor or by any subcontractor or other person doing or contracting for work contemplated by the contract, including extra work, shall furnish satisfactory proof of residence, in accordance with the rules adopted by the Industrial Commissioner. Persons other than citizens of the State of New York may be employed when such citizens are not available. (The foregoing is required by Section 222 of the Labor Law of the State of New York, and in the event such section is not complied with, this contract shall be void.)

In the hiring of employees for the performance of work under this contract or any subcontract hereunder, no contractor, subcontractor, or any person acting on behalf of such contractor or subcontractor, shall by reason of race, creed, color or national origin discriminate against any citizen of the State of New York who is qualified and available to perform the work to which the employment relates. No contractor, subcontractor, or any person on his behalf shall in any manner discriminate against or intimidate any employee hired for the performance of work under this contract on account of race, creed, color or national origin. There may be deducted from the amount payable to the Contractor by the Owner under this contract, a penalty of five dollars for each person for each calendar day during which such person was discriminated against or intimidated in violation of the provisions of this contract. The contract may be cancelled or terminated by the Owner, and all monies due or to become due hereunder may be forfeited for a second or any subsequent violation of the terms or conditions of this paragraph of this contract.

No laborer, workman or mechanic in the employ of the Contractor or in the employ of a subcontractor or other person doing or contracting to do the whole or any part of the work contemplated by this contract shall be permitted or required to work more than eight hours in any one calendar day or more than five days in any one week,

except in cases of extraordinary emergency, including fire, flood or danger to life or property. No such person shall be so employed more than eight hours in any day, or more than five days in any one week, except in such emergency.

Before payment is made by or in behalf of the owner of any sum or sums due on account of this contract or for extra work, the Contractor shall file or cause to be filed a statement in writing in form satisfactory to the Owner, certifying to the amounts then due and owing from the Contractor or subcontractor, filing such statement to any and all laborers for daily or weekly wages on account of labor performed upon the work under this contract, setting forth therein the names of the persons whose wages are unpaid and the amount due to each respectively, which statement so to be filed shall be verified by the oath of the Contractor or subcontractor as the case may be, that he has read such statement subscribed by him and knows the contents thereof, and that the same is true of his own knowledge.

This contract shall not be assigned without the written consent of the Owner.

XXVI. This contract shall be void and of no effect unless the Contractor shall secure and maintain such insurance policies as will protect himself, his subcontractors and unless specified otherwise, the Owner and the Engineer as additional named insured, from claims for Bodily Injuries, Death or Property Damage which may arise from operations under this contract whether such operations be by himself or by any subcontractor or anyone employed by him directly or indirectly.

The following insurance policies are required:

(1) Statutory Workmen's Compensation

(2) Public Liability and Property Damage

<u>Bodily Injury</u>	
Each occurrence	\$1,000,000
Aggregate	\$1,000,000

<u>Property Damage</u>	
Each occurrence	\$1,000,000
Aggregate	\$1,000,000

Automotive Liability

<u>Bodily Injury</u>	
Each person	\$1,000,000
Each accident	\$1,000,000

<u>Property Damage</u>	
Each accident	\$ 500,000

Such policies to insure:

- (a) Contractor's Public Liability & Property Damage, including explosion, collapse & underground hazards.
- (b) Contractor's Protective Liability & Property Damage.
- (c) Completed Operations Liability & Property Damage.
- (d) Contractual Public Liability & Property Damage.
- (e) Automobile Public Liability & Property Damage insuring all owned and non-owned automotive vehicles and equipment.

- (3) Owner's Protective Liability & Property Damage - The Contractor shall take out and furnish to the Owner and maintain and pay for during the life of this contract, complete Owner's Protective Liability Insurance, protecting the Owner and the Engineer as additional named insured, from any and all claims arising out of the operations of the Contractor and his subcontractors on this job. The limits of liability shall be the same as specified under (2) above for the Contractor's Public Liability and Property Damage Insurance.
- (4) Fire Insurance-In addition to such fire insurance as the Contractor elects to carry for his own protection, he shall secure and maintain in the name of the owner, policies upon such structures and materials and in such amounts as shall be designated in the Information for Bidders. The policies shall be secured from a company which is satisfactory to the Owner and delivered to the Owner.
- (5) The original Owner's Protective Liability insurance policy and certificates and/or copies of policies of such insurance specified above shall be furnished to the Owner prior to commencement of the work. All policies shall be secured from a company or companies which are satisfactory to the Owner. All policies and certificates shall contain an unequivocal statement that not less than 30 days' written Notice of Cancellation of any insurance shall be given to the Owner.
- (6) Indemnity-The Contractor and his sureties shall indemnify and save harmless the Owner and all its officers, agents and employees from all suits, actions or claims of any character, name and description brought for or on account of any injuries or damages received or sustained by any person or persons or property, on account of any negligent act or fault of Contractor, subcontractor, his agents or employees in the execution of said contract; or on account of the failure of the Contractor to provide necessary barricades, warning lights or signs; and will be required to pay any judgment, with costs, which may be obtained against the Owner growing out of such injury or damage.

XXVII. All of the terms and provisions of this agreement shall be binding upon each of the parties hereto, and upon the successors and assigns of the Owner, and the executors, administrators, successors and assigns of the Contractor.

XXVIII. Attention of the Contractor is specifically called to the time of completion as given in Article XV, which time should be sufficient to entirely complete the work in accordance with the plans and specifications.

XXIX. The Owner shall have the right to suspend all or any part of the work under the contract if, at any time, in its judgment, there are valid reasons for doing so. The Contractor shall make no claim for any additional expense which he may incur as a result of such suspension of the work provided that the Owner shall have determined that the quality and acceptability of the work being performed does not meet the standards required by the various contract documents or that work of acceptable quality cannot be produced by the Contractor by reason of inclement or freezing weather conditions; the presence of public hazards; insufficient or substandard labor and/or materials and/or equipment or any other deficiency in the contract requirements. The Contractor shall resume work when directed to do so provided that the condition or deficiency, which was present at the time of work suspension has been corrected or is no longer present.

XXX. In addition to the other provisions herein contained to be done or performed by the Contractor as a part of this agreement, the said Contractor certifies, pursuant to the provisions of 103-d of the General Municipal Law that:

- (a) the bid has been arrived at by the bidder independently and has been submitted without collusion with any other vendor of materials, supplies or equipment of the type described in the invitation for bids and,
- (b) the contents of the bid have not been communicated by the bidder, or to its best knowledge and belief, by any of its employees or agents, to any person not an employee or agent to the bidder or its surety on any bond furnished herewith prior to the official opening of the bid.

ACKNOWLEDGMENT OF PRINCIPAL, IF AN INDIVIDUAL

STATE OF _____
COUNTY OF _____ } ss:

On this _____ day of _____, 19____, before
me personally came and appeared _____,

to me known and known to me to be the person described in and who
executed the foregoing instrument, and he duly acknowledged to me
that he executed the same.

(SEAL)

AFFIDAVITS

STATE OF _____
COUNTY OF _____ } ss:

_____ of

being duly sworn, deposes and says that he has applied for a Workmen's Compensation policy to cover the operations, as set forth in the preceding contract, and to comply with the provisions thereof.

Subscribed and sworn to before me
this _____ day of
_____ A.D. 19____.

AFFIDAVITS
PROPERTY DAMAGE AND PUBLIC LIABILITY

STATE OF _____
COUNTY OF _____ } ss:

_____ of

being duly sworn deposes and says that he has applied for all policies of Public Liability and Property Damage insurance required by Article XXVI of the foregoing contract.

Subscribed and sworn to before me
this _____ day of
_____ A.D. 19____.



ACKNOWLEDGMENT OF CONTRACTOR, IF AN INDIVIDUAL

STATE OF _____)
COUNTY OF _____) ss:

On this _____ day of _____ 19____, before
me personally came and appeared _____

_____ to me known and known to me to be the person described in and who
executed the foregoing instrument, and acknowledged that he executed
the same.

(SEAL)

ACKNOWLEDGMENT OF CONTRACTOR, IF A PARTNERSHIP

STATE OF _____)
COUNTY OF _____) ss:

On this _____ day of _____ 19____, before
me personally came and appeared _____

_____ to me known and known to me to be one of the members of the firm of
_____ described in and who executed the foregoing instrument, and he
acknowledged to me that he executed the same as and for the act and
deed of said firm.

(SEAL)

ACKNOWLEDGMENT OF CONTRACTOR, IF AN INDIVIDUAL

STATE OF _____
COUNTY OF _____ } ss:

On this _____ day of _____ 19_____,
before me personally came and appeared _____

_____ to me known and known to me to be the person described in and who executed the foregoing instrument, and acknowledged that he executed the same.

(SEAL)

ACKNOWLEDGMENT OF CONTRACTOR, IF A PARTNERSHIP

STATE OF _____
COUNTY OF _____ } ss:

On this _____ day of _____ 19_____,
before me personally came and appeared _____

_____ to me known and known to me to be one of the members of the firm of _____ described in and who executed the foregoing instrument, and he acknowledged to me that he executed the same as and for the act and deed of said firm.

(SEAL)

SUPPLEMENTAL GENERAL CONDITIONS

1. NEW YORK STATE REQUIREMENTS

1.1 Non-Discrimination Clauses

During the performance of this contract, the Contractor agrees as follows:

(a) The Contractor will not discriminate against any employee or applicant for employment because of race, creed, color or national origin, and will take affirmative action to insure that they are afforded equal employment opportunities without discrimination because of race, creed, color or national origin. Such action shall be taken with reference but not limited to: recruitment, employment, job assignment, promotion, upgrading, demotion, transfer, layoff or termination, rates of pay or other forms of compensation, and selection for training or retraining, including apprenticeship and on-the-job training.

(b) The Contractor will send to each labor union or representative of workers with which he has or is bound by a collective bargaining or other agreement or understanding, a notice, to be provided by the State Commission for Human Rights, advising such labor union or representative of the Contractor's agreement under clauses (a) through (h) hereinafter called "non-discrimination clauses". If the Contractor was directed to do so by the Municipality as part of the bid or negotiation of this contract, the Contractor shall request the labor union or representative to furnish him with a written statement that such labor union or representative will not discriminate because of race, creed, color or national origin and that such labor union or representative either will affirmatively cooperate within the limits of its legal and contractual authority, in the implementation of the policy and provisions of these non-discrimination clauses or that it consents and agrees that recruitment, employment, and the terms and conditions of employment under this contract shall be in accordance with the purposes and provisions of these non-discrimination clauses. If such labor union or representative fails or refuses to comply with such a request, that it furnish such a statement, the Contractor shall promptly notify the State Commission for Human Rights of such failure or refusal.

(c) The Contractor will post and keep posted in conspicuous places, available to employees and applicants for employment, notices to be provided by the State Commission for Human Rights setting forth the substance of the provisions of clauses (a) through (b) and such provisions of the State's Laws against discrimination as the State Commission for Human Rights shall determine.

(d) The Contractor will state, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, that all qualified applicants will be afforded equal employment opportunities without discrimination because of race, creed, color or national origin.

(e) The Contractor will comply with the provisions of the Executive Law, Human Rights Law, Article 15, will furnish all information and reports deemed necessary by the State Commission for Human Rights under these non-discrimination clauses and such sections of the Executive Law, and will permit access to his books, records and accounts by the State Commission for Human Rights, the Attorney General, District Commissioner of Housing and Community Renewal and the Industrial Commission for purposes of investigation to ascertain compliance with these non-discrimination clauses of the Executive Law, Human Rights Law, Article 15.

(f) This Contract may be forthwith cancelled, terminated or suspended, in whole or in part, by the Municipality upon the basis of a finding made by the State Commission for Human Rights that the Contractor has not complied with these non-discrimination clauses, and the Contractor may be declared ineligible for future contracts made by or on behalf of the State or a public authority or agency of the State or housing authority, or an urban renewal agency, or contract requiring the approval of the Commissioner of Housing and Community Renewal, until he has satisfied the State Commission for Human Rights after conciliation efforts by the Commission have failed to achieve compliance with these non-discrimination clauses and after a verified complaint has been filed with the Commission, notice thereof has been given to the Contractor and an opportunity has been afforded him to be heard publicly before three members of the Commission. Such sanctions may be imposed and remedies invoked independently of or in addition to sanctions and remedies otherwise provided by law.

(g) If this contract is cancelled or terminated under clause (f), in addition to other rights of the Municipality provided in this contract upon its breach by the Contractor, the Contractor will hold the Municipality harmless against any additional expenses or costs incurred by the Municipality in completing the work or in purchasing the services, materials, equipment or supplies contemplated by this contract, and the Municipality may withhold payments from the Contractor in an amount sufficient for this purpose and recourse may be had against the surety on the performance bond if necessary.

(h) The Contractor will include the provisions of clauses (a) through (g) in every subcontract or purchase order altered only to reflect the proper identify of the parties in such a manner that such provisions will be binding upon each subcontractor or vendor as to operations to be performed within the State of New York. The Contractor will take such actions in enforcing such provisions of such subcontract or purchase order as the Municipality may direct, including sanctions or remedies for non-compliance. If the Contractor becomes involved in or is threatened with litigation with a subcontractor or vendor as a result of such direction by the Municipality, the Contractor shall promptly so notify the Attorney General, requesting him to intervene and to protect the interests of the State of New York.

1.2 Schedule of New York State Minimum Wage Rates

The labor on this contract shall be performed in all respects in full accordance with the Labor Law of the State of New York. In accordance with Section 220, Subdivision 3, and Section 220-D, of the Labor Law, the Industrial Commissioner has designated as the minimum hourly rates to be paid to employees on this work the rates shown on the attached schedule which shall be posted in a prominent and convenient place for the inspection of the Contractor's employees.

Article 8, Section 220 of the labor law, as amended by Chapter 750 of the Laws of 1956, provides, among other things, that it shall be the duty of the fiscal officer to make a determination of the schedule of wages and supplements to be paid to all laborers, workmen and mechanics employed on public works projects. The amount of supplements listed on the enclosed schedule does not necessarily include all types of prevailing supplements.

The Contractor shall make provision for disability benefits, workmen's compensation, unemployment insurance and social security, as required by law.

2. FEDERAL PROVISIONS FOR CONSTRUCTION CONTRACTS

2.1 Federal Labor Requirements and Standards Provisions

General: Contractors performing work on wastewater treatment projects Federally assisted by the United States Environmental Protection Agency must fulfill requirements of the Davis-Bacon Act, the Copeland Anti-Kickback Act, the Contract Work Hours Standards Act, and the Executive Non-Discrimination Order No. 11246 as amended by E.O. No. 11375. Section 601 of the Civil Rights Act also applies to this project.

The Contractor shall also comply with the Department of Labor Safety and Health Regulations for construction promulgated under the Occupational Safety and Health Act of 1972 (P.L. 91-596) and under Section 107 of the Contract Work Hours and Safety Standards Act (P.L. 91-54).

Responsibilities of the Contractors:

1. A copy of the wage determination must be posted by the Contractor and maintained where it can be seen easily by all the employees.

2. All employees working on the site must be paid at least once a week.

3. Rates of pay shall be at least the minimum shown on the wage determination for each classification.

4. Employees must be paid for overtime at one and one-half (1-1/2) regular rate for all time over eight (8) hours any day or over forty (40) hours any week - whichever is the greater overtime.

5. Each employee must be paid the full amount earned less only those deductions approved, allowed, or required by Federal, State or local statutes or ordinances.

6. No classification of employees shall be employed on the project unless either the classification appears on the wage determination or the classification has the provisional approval of the United States Environmental Protection Agency.

7. Apprentices must be registered in a bona fide Apprenticeship Training Program, registered with a State Apprenticeship Council recognized by the Federal Committee on Apprenticeship, or in a program registered with the Bureau of Apprenticeship, Department of Labor. Evidence of registration must be furnished to the Owner for each individual apprentice prior to employment on the project.

8. Each week as work progresses, the Contractor must submit to the Owner a copy of all weekly payrolls and required attachments stipulated therein. Sample suggested payrolls may be obtained from the Owner upon request.

9. All weekly payrolls shall contain or have attached the following:

- (a) Name of each employee. Also show address when employee is first entered on payrolls and whenever his address changes thereafter.
- (b) Classification of employees (same as shown on wage determination or provisional approval).
- (c) Rate of pay not less than that shown on the wage determination.
- (d) Hours worked each day and total for each week for each employee.
- (e) All deductions made.
- (f) Net amount paid employee.
- (g) The following certification:

"I certify that the payroll is correct and complete, that the wage rates contained therein are not less than the applicable rates contained in the Wage Determination decision of the Secretary of Labor and that the classifications set forth for each laborer or mechanic conform with the work he performs."

(Signature)

(Title)

- (h) The following weekly anti-kickback statement:

"I, (name of signatory party), (Title), do hereby state: That I pay or supervise the payment of the persons employed by (contractor or subcontractor) on the building or work; that during the payroll period commencing on the _____ day of _____, 19____, and ending on the _____ day of _____, 19____, all persons employed on said project have been paid the full weekly wages earned, that no rebates have been or will be made either directly or indirectly from the full weekly wages earned by any person, other than permissible deductions, as defined in Regulations, Part 3 (29 CFR Part 3) issued by the Secretary of Labor under the Copeland Act, as amended (48 Stat. 948, 63 Stat. 108, 72 Stat. 967; (paragraph describing deductions, if any)."

(Signature)

(Title)

10. All prime contractors shall include the wage determination and all the labor standards provisions in all subcontracts as herein specified.

11. The Contractor shall make employment records available for inspection by authorized representatives of the United States Environmental Protection Agency, and the Department of Labor, and will permit employees to be interviewed during working hours by these representatives. Payroll records will be maintained during the course of the work by the General Contractor, including a copy of the payroll of each subcontractor, and they shall be preserved for a period of three years thereafter.

12. Each monthly engineering estimate must be accompanied by the following certificate executed by each prime contractor employing mechanics and laborers at the site on work in which the Federal Government is to participate:

Principal Contractor: _____

Project Name : _____

United States Environmental
Protection Agency Project No.: _____

I, _____ (name and title) _____, as official representative of the above-named principal contractor do hereby certify as follows:

All Labor Standards Requirements have been fulfilled by the principal contractor and all subcontractors under this contract; or

There is an honest dispute regarding the required provisions:

Explanation: _____

(Signature)

(Title)

13. Contractors must comply with Executive Non-Discrimination Order No. 11246, as amended by E.O. No. 11375, requirements (see bid advertisement, instructions to bidders, and contract provisions).

14. In the event of a violation of the Labor Standards provisions of the contract by the General Contractor or any subcontractor, the Owner may, after notice to the Contractor, suspend further payments or proceeds to terminate the contract as provided in the Labor Standards section of the contract.

LABOR STANDARDS PROVISIONS FOR FEDERALLY ASSISTED CONSTRUCTION CONTRACTS

DAVIS-BACON ACT (40 U.S.C. 276a-276a-7)

(a) All mechanics and laborers, including apprentices and trainees, employed or working directly upon the site of the work shall be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by the Copeland Regulations (29 CFR Part 3)), the full amounts due at time of payment computed at wage rates not less than the aggregate of the basic hourly rates and the rates of payments, contributions, or costs for any fringe benefits contained in the wage determination decision of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the Contractor or subcontractor and such laborers and mechanics. A copy of such wage determination decision shall be kept posted by the Contractor at the site of the work in a prominent place where it can be easily seen by the workers.

(b) The Contractor may discharge his obligation under this clause to workers in any classification for which the wage determination decision contains:

(1) Only a basic hourly rate of pay, by making payment at not less than such basic hourly rate, except as otherwise provided in the Copeland Regulations (29 CFR Part 3); or

(2) Both a basic hourly rate of pay and fringe benefits payments, by making payment in cash, by irrevocably making contributions pursuant to a fund, plan, or program for, and/or by assuming an enforceable commitment to bear the cost of, bona fide fringe benefits contemplated by the Davis-Bacon Act, or by any combination thereof. Contributions made, or costs assumed, on other than a weekly basis shall be considered as having been constructively made or assumed during a weekly period to the extent that they apply to such period. Where a fringe benefit is expressed in a wage determination in any manner other than as an hourly rate and the Contractor pays a cash equivalent or provides an alternative fringe benefit, he shall furnish information with his payrolls showing how he determined that the cost incurred to make the cash payment or to provide the alternative fringe benefit is equal to the cost of the wage determination fringe benefit. In any case where the Contractor provides a fringe benefit different from any contained in the wage determination, he shall similarly show how he arrived at the hourly rate shown therefor. In the event of disagreement between or among the interested parties as to an equivalent of any fringe benefit, the Contracting Officer shall submit the question, together with his recommendation, to the Secretary of Labor for final determination.

(c) The assumption of an enforceable commitment to bear the cost of fringe benefits, or the provision of any fringe benefits not expressly listed in section 1 (b)(2) of the Davis-Bacon Act or in the wage determination decision forming a part of the contract, may be considered as payment of wages only with the approval of the Secretary of Labor pursuant to a written request by the Contractor. The Secretary of Labor may require the Contractor to set aside assets, in a separate account, to meet his obligations under any unfunded plan or program.

(d) The Contracting Officer shall require that any class of laborers or mechanics, including apprentices and trainees, which is not listed in the wage determination decision and which is to be employed under the contract shall be classified or reclassified conformably to the wage determination decision, and shall report the action taken to the Secretary of Labor. If the interested parties cannot agree on the proper classification or reclassification

of a particular class of laborers or mechanics to be used, the Contracting Officer shall submit the question, together with his recommendation, to the Secretary of Labor for final determination. Apprentices and trainees may be added under this clause only where they are employed pursuant to an apprenticeship or trainee program meeting the requirements of the Apprentices and Trainees clause below.

(e) In the event it is found by the Contracting Officer that any laborer or mechanic, including apprentices and trainees, employed by the Contractor or any subcontractor directly on the site of the work covered by this contract has been or is being paid at a rate of wages less than the rate of wages required by paragraph (a) of this clause, the Contracting Officer may (1) by written notice to the Prime Contractor terminate his right to proceed with the work, or such part of the work as to which there has been a failure to pay said required wages, and (2) prosecute the work to completion by contract or otherwise, whereupon such Contractor and his sureties shall be liable to the Government for any excess costs occasioned the Government thereby.

(f) Paragraphs (a) through (e) of the clause shall apply to this contract to the extent that it is (1) a prime contract subject to the Davis-Bacon Act, or (2) a subcontract also subject to the Davis-Bacon Act under such prime contract.

CONTRACT WORK HOURS AND SAFETY STANDARDS ACT—OVERTIME COMPENSATION (40 U.S.C. 327-333)

(a) The Contractor shall not require or permit any laborer or mechanic, including apprentices, trainees, watchmen, and guards, in any workweek in which he is employed on any work under this contract to work in excess of 8 hours in any calendar day or in excess of 40 hours in such workweek or work subject to the provisions of the Contract Work Hours and Safety Standards Act unless such laborer or mechanic, including apprentices, trainees, watchmen, and guards, receives compensation at a rate not less than one and one-half times his basic rate of pay for all such hours worked in excess of 8 hours in any calendar day or in excess of 40 hours in such workweek, whichever is the greater number of overtime hours. The "basic rate of pay," as used in this clause, shall be the amount paid per hour, exclusive of the Contractor's contribution or cost for fringe benefits, and any cash payment made in lieu of providing fringe benefits, or the basic hourly rate contained in the wage determination, whichever is greater.

(b) In the event of any violation of the provisions of paragraph (a), the Contractor shall be liable to any affected employee for any amounts due, and to the United States for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including an apprentice, trainee, watchman, or guard, employed in violation of the provisions of paragraph (a) in the sum of \$10 for each calendar day on which such employee was required or permitted to be employed on such work in excess of 8 hours or in excess of the standard workweek of 40 hours without payment of the overtime wages required by paragraph (a).

APPRENTICES AND TRAINEES

(a) Apprentices shall be permitted to work as such only when they are registered, individually, under a bona fide apprenticeship program registered with a State apprenticeship agency which is recognized by the Bureau of Apprenticeship and Train-

ing, U.S. Department of Labor; or if no such recognized agency exists in a State, under a program registered with the aforesaid Bureau of Apprenticeship and Training. The allowable ratio of apprentices to journeymen in any craft classification shall not be greater than the ratio permitted to the Contractor as to his entire work force under the registered program. Any employee listed on a payroll at an apprentice wage rate who is not a trainee as defined in paragraph (b) of this clause, and who is not registered as above, shall be paid the wage rate determined by the Secretary of Labor for the classification of work he actually performed. The Contractor shall furnish to the Contracting Officer written evidence of the registration of his program and apprentices, as well as of the appropriate ratios allowed and the wage rates required to be paid thereunder for the area of construction, prior to using any apprentices in the contract work. The term "apprentice" means (1) a person employed and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Bureau of Apprenticeship and Training, or with a State apprenticeship agency recognized by the Bureau or (2) a person in his first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Bureau of Apprenticeship and Training, or a State Apprenticeship Council (where appropriate) to be eligible for probationary employment as an apprentice.

(o) Trainees shall be permitted to work as such when they are bona fide trainees employed pursuant to a program approved by the U.S. Department of Labor, Manpower Administration, Bureau of Apprenticeship and Training. The term "trainee" means a person receiving on-the-job training in a construction occupation under a program which is approved (but not necessarily sponsored) by the U.S. Department of Labor, Manpower Administration, Bureau of Apprenticeship and Training, and which is reviewed from time to time by the Manpower Administration to insure that the training meets adequate standards.

(c) In connection with contracts in excess of \$10,000, the Contractor agrees as follows:

(1) The Contractor shall make a diligent effort to hire for performance of work under this contract a number of apprentices or trainees, or both, in each occupation, which bears to the average number of the journeymen in that occupation to be employed in the performance of the contract the applicable ratio as set forth in paragraph (d) of this clause.

(2) The Contractor shall insure that 25 percent of such apprentices or trainees in each occupation are in their first year of training, where feasible. Feasibility here involves a consideration of (i) the availability of training opportunities for first year apprentices, (ii) the hazardous nature of the work for beginning workers, and (iii) excessive unemployment of apprentices in their second and subsequent years of training.

(3) The Contractor shall, during the performance of the contract, to the greatest extent possible, employ the number of apprentices or trainees necessary to meet currently the requirements of paragraphs (c) (1) and (c)(2) of this clause.

(4) The Contractor shall maintain records of employment on this contract by trade of the number of apprentices and trainees, apprentices and trainees in first year of training, and of journeymen, and the wages paid and hours of work of such apprentices, trainees, and journeymen. In addition, the Contractor who claims compliance based on the criterion set forth in paragraph (c) (6) (ii) of this clause shall maintain such records of employment on all his construction work in the same labor market area, both public and private, during the performance of this contract. In each of the above cases the Contractor shall make such records available for inspection upon request of the Department of Labor or the Contracting Officer.

(5) The Contractor shall supply one copy of each of the written notices required in accordance with paragraph (c)(6)(iii) of this clause at the request of the Contracting Officer. The Contractor also agrees to supply at 3-month intervals during the per-

formance of the contract and after completion of contract performance a statement describing steps taken toward making a diligent effort and containing a breakdown by craft, of hours worked and wages paid for first year apprentices and trainees, other apprentices and trainees, and journeymen. One copy of the statement will be sent to the Contracting Officer and one copy to the Secretary of Labor.

(6) The Contractor will be deemed to have made a "diligent effort" as required by paragraph (c)(1) if during the performance of this contract, he accomplishes at least one of the following three objectives: (i) The Contractor employs under this contract a number of apprentices and trainees by craft, at least equal to the ratios established in accordance with paragraph (d) of this clause, or (ii) the Contractor employs, on all his construction work, both public and private, in the same labor market area, an average number of apprentices and trainees by craft at least equal to the ratios established in accordance with paragraph (d) of this clause, or (iii) the Contractor (A) if covered by a collective bargaining agreement, before commencement of any work on the project, has given written notice to all joint apprenticeship committees, the local U.S. Employment Security Office, local chapter of the Urban League, Workers Defense League, or other local organizations concerned with minority employment, and the Bureau of Apprenticeship and Training Representative, U.S. Department of Labor, for the locality of the work; (B) if not covered by a collective bargaining agreement, has given written notice to all of the groups stated above, except joint apprenticeship committees, and will in addition notify all non-joint apprenticeship sponsors in the labor market area; (C) has employed all qualified applicants referred to him through normal channels (such as the Employment Service, the Joint Apprenticeship Committees, and where applicable, minority organizations and apprentice outreach programs who have been delegated this function) at least up to the number of such apprentices and trainees required by paragraph (d) of this clause; (D) notice, as referred to herein, will include at least the Contractor's name and address, the agency designation, the contract number, job site address, value of the contract, expected starting and completion dates, the estimated average number of employees in each occupation to be employed over the duration of the contract work, and a statement of his willingness to employ a number of apprentices and trainees at least equal to the ratios established in accordance with paragraph (d) of this clause.

(d) The Secretary of Labor has determined that the applicable ratios of apprentices and trainees to journeymen in any occupation for the purpose of this clause shall be as follows: (1) In any occupation the applicable ratio of apprentices and trainees to journeymen shall be equal to the predominant ratio for the occupation in the area, where the construction is being undertaken, set forth in collective bargaining agreements, or other employment agreements, and available through the Bureau of Apprenticeship and Training Representative, U.S. Department of Labor, for the applicable area; (2) for any occupation for which no ratio is found, the ratio of apprentices and trainees to journeymen shall be determined by the Contractor in accordance with the recommendations set forth in the Standards of the National Joint Apprentice Committee for the occupation, which are on file at offices of the U.S. Department of Labor's Bureau of Apprenticeship and Training; and (3) for any occupation for which no such recommendations are found, the ratio of apprentices and trainees to journeymen shall be at least one apprentice or trainee for every five journeymen.

PAYROLLS AND BASIC RECORDS

(a) The Contractor shall maintain payrolls and basic records relating thereto during the course of the work and shall preserve them for a period of 3 years thereafter for all laborers and mechanics, including apprentices, trainees, watchmen, and guards.

CONTRACT TERMINATION—DEBARMENT

working at the site of the work. Such records shall contain the name and address of each such employee, his correct classification, rate of pay (including rates of contributions for, or costs assumed to provide, fringe benefits), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Contractor has obtained approval from the Secretary of Labor as provided in paragraph (c) of the clause entitled "Davis-Bacon Act," he shall maintain records which show the commitment, its approval, written communication of the plan or program to the laborers or mechanics affected, and the costs anticipated or incurred under the plan or program.

(b) The Contractor shall submit weekly a copy of all payrolls to the Contracting Officer. The Prime Contractor shall be responsible for the submission of copies of payrolls of all subcontractors. The copy shall be accompanied by a statement signed by the Contractor indicating that the payrolls are correct and complete, that the wage rates contained therein are not less than those determined by the Secretary of Labor, and that the classifications set forth for each laborer or mechanic, including apprentices and trainees, conform with the work he performed. Submission of the "Weekly Statement of Compliance" required under this contract and the Copeland Regulations of the Secretary of Labor (29 CFR Part 3) shall satisfy the requirement for submission of the above statement. The Contractor shall submit also a copy of any approval by the Secretary of Labor with respect to fringe benefits which is required by paragraph (c) of the clause entitled "Davis-Bacon Act."

(c) The Contractor shall make the records required under this clause available for inspection by authorized representatives of the Contracting Officer and the Department of Labor, and shall permit such representatives to interview employees during working hours on the job.

COMPLIANCE WITH COPELAND REGULATIONS

The Contractor shall comply with the Copeland Regulations of the Secretary of Labor (29 CFR Part 3) which are incorporated herein by reference.

WITHOLDING OF FUNDS

(a) The Contracting Officer may withhold or cause to be withheld from the Prime Contractor so much of the accrued payments or advances as may be considered necessary (1) to pay laborers and mechanics, including apprentices, trainees, watchmen, and guards, employed by the Contractor or any subcontractor on the work the full amount of wages required by the contract, and (2) to satisfy any liability of any Contractor for liquidated damages under paragraph (b) of the clause entitled "Contract Work Hours and Safety Standards Act—Overtime Compensation."

(b) If any Contractor fails to pay any laborer, mechanic, apprentice, trainee, watchman, or guard, employed or working on the site of the work, all or part of the wages required by the contract, the Contracting Officer may, after written notice to the Prime Contractor, take such action as may be necessary to cause suspension of any further payments or advances until such violations have ceased.

SUBCONTRACTS

The Contractor agrees to insert the clauses hereof entitled "Davis-Bacon Act," "Contract Work Hours and Safety Standards Act—Overtime Compensation," "Apprentices and Trainees," "Payrolls and Basic Records," "Compliance with Copeland Regulations," "Withholding of Funds," "Subcontracts," and "Contract Termination—Debarment" in all subcontracts. The term "Contractor" as used in such clauses in any subcontract shall be deemed to refer to the subcontractor except in the phrase "Prime Contractor."

A breach of the clauses hereof entitled "Davis-Bacon Act," "Contract Work Hours and Safety Standards Act—Overtime Compensation," "Apprentices and Trainees," "Payrolls and Basic Records," "Compliance with the Copeland Regulations," "Withholding of Funds," and "Subcontracts" may be grounds for termination of the contract, and for debarment as provided in 29 CFR 5.6.

NONDISCRIMINATION PROVISIONS

During the performance of this contract, the contractor agrees as follows:

(1) The contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, or national origin. The contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment without regard to their race, color, religion, sex, or national origin. Such action shall include, but not be limited to the following: Employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided setting forth the provisions of this nondiscrimination clause.

(2) The contractor will, in all solicitations or advertisements for employees placed by or on behalf of the contractor, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, or national origin.

(3) The contractor will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding, a notice to be provided advising the said labor union or workers' representatives of the contractor's commitments under this section, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

(4) The contractor will comply with all provisions of Executive Order 11246 of September 24, 1965, and of the rules, regulations, and relevant orders of the Secretary of Labor.

(5) The contractor will furnish all information and reports required by Executive Order 11246 of September 24, 1965, and by rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to his books, records, and accounts by the administering agency and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.

(6) In the event of the contractor's noncompliance with the nondiscrimination clauses of this contract or with any of the said rules, regulations, or orders, this contract may be canceled, terminated, or suspended in whole or in part and the contractor may be declared ineligible for further Government contracts or federally assisted construction contracts in accordance with procedures authorized in Executive Order 11246 of September 24, 1965, and such other sanctions may be imposed and remedies invoked as provided in Executive Order 11246 of September 24, 1965, or by rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law.

(7) The contractor will include the portion of the sentence immediately preceding paragraph (1) and the provisions of paragraphs (1) through (7) in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to section 204 of Executive Order 11246 of September 24, 1965, so that such provisions will be binding upon each subcontractor or vendor. The contractor will take such action with respect to any subcontract or purchase order as the administering agency may direct as a means of enforcing such provisions, including sanctions for noncompliance:

Provided, however. That in the event a contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the administering agency, the contractor may request the United States to enter into such litigation to protect the interests of the United States.

**CONTRACT WORK HOURS AND SAFETY STANDARDS ACT
—SAFETY AND HEALTH (40 U.S.C. 327-333)**

(a) The contractor shall not require any laborer or mechanic employed in the performance of the contract to work in sur-

roundings or under working conditions which are un sanitary, hazardous, or dangerous to his health or safety, as determined under construction safety and health standards promulgated by regulations of the Secretary of Labor.

(b) The contractor shall comply with the Department of Labor Safety and Health Regulations for Construction promulgated under section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 327 et seq.).

or data not current as certified in his certification of current cost or pricing data (EPA form 5700-41), then such price, cost, or profit shall be reduced accordingly and the agreement shall be modified in writing to reflect such reduction.

(b) Failure to agree on a reduction shall be subject to the remedies clause of this agreement.

(Note.—Since the agreement is subject to reduction under this clause by reason of defective cost or pricing data submitted in connection with certain subcontracts, the engineer may wish to include a clause in each such subcontract requiring the subcontractor to appropriately indemnify the engineer. It is also expected that any subcontractor subject to such indemnification will generally require substantially similar indemnification for defective cost or pricing data required to be submitted by his lower tier subcontractors.)

11. SUBCONTRACTS

(a) Any subcontractors and outside associates or consultants required by the engineer in connection with services under this agreement will be limited to such individuals or firms as were specifically identified and agreed to during negotiations, or as the owner specifically authorizes during the performance of this agreement. The owner must give prior approval for any substitutions in or additions to such subcontractors, associates, or consultants.

(b) The engineer may not subcontract services in excess of thirty (30) percent (or _____ percent, if the owner and the engineer hereby agree) of the contract price to subcontractors or consultants without the owner's prior written approval.

12. LABOR STANDARDS

To the extent that this agreement involves "construction" (as defined by the Secretary of Labor), the engineer agrees that such construction work shall be subject to the following labor standards provisions, to the extent applicable:

(a) Davis-Bacon Act (40 U.S.C. 276a-7);

(b) Contract Work Hours and Safety Standards Act (40 U.S.C. 327-333);

(c) Copeland Anti-Kickback Act (18 U.S.C. 874); and

(d) Executive Order 11246 (Equal Employment Opportunity);

and implementing rules, regulations, and relevant orders of the Secretary of Labor or EPA. The engineer further agrees that this agreement shall include and be subject to the "Labor Standards Provisions for Federally Assisted Construction Contracts" (EPA form 5720-4) in effect at the time of execution of this agreement.

13. EQUAL EMPLOYMENT OPPORTUNITY

In accordance with EPA policy as expressed in 40 CFR 30.420-5, the engineer agrees that he will not discriminate against any employee or applicant for employment because of race, religion, color, sex, age, or national origin.

14. UTILIZATION OF SMALL AND MINORITY BUSINESS

In accordance with EPA policy as expressed in 40 CFR 35.936-7, the engineer agrees that qualified small business and minority business enterprises shall have the maximum practicable opportunity to par-

ticipate in the performance of EPA grant assisted contracts and subcontracts.

15. COVENANT AGAINST CONTINGENT FEES

The engineer warrants that no person or selling agency has been employed or retained to solicit or secure this contract upon an agreement or understanding for a commission, percentage, brokerage, or contingent fee, excepting bona fide employees. For breach or violation of this warranty the owner shall have the right to annul this agreement without liability or in its discretion to deduct from the contract price or consideration, or otherwise recover, the full amount of such commission, percentage, brokerage, or contingent fee.

16. GRATUITIES

(a) If it is found, after notice and hearing, by the owner that the engineer, or any of the engineer's agents or representatives, offered or gave gratuities (in the form of entertainment, gifts, or otherwise), to any official, employee, or agent of the owner, of the State, or of EPA in an attempt to secure a contract or favorable treatment in awarding, amending, or making any determinations related to the performance of this agreement, the owner may, by written notice to the engineer, terminate the right of the engineer to proceed under this agreement. The owner may also pursue other rights and remedies that the law or this agreement provides. However, the existence of the facts upon which the owner bases such findings shall be in issue and may be reviewed in proceedings under the remedies clause of this agreement.

(b) In the event this agreement is terminated as provided in paragraph (a) hereof, the owner shall be entitled: (1) To pursue the same remedies against the engineer as it could pursue in the event of a breach of the contract by the engineer, and (2) as a penalty, in addition to any other damages to which it may be entitled by law, to exemplary damages in an amount (as determined by the owner) which shall be not less than 3 nor more than 10 times the costs the engineer incurs in providing any such gratuities to any such officer or employee.

17. PATENTS

If this agreement involves research, developmental, experimental, or demonstration work and any discovery or invention arises or is developed in the course of or under this agreement, such invention or discovery shall be subject to the reporting and rights provisions of subpart D of 40 CFR part 30, in effect on the date of execution of this agreement, including appendix B of part 30. In such case, the engineer shall report the discovery or invention to EPA directly or through the owner, and shall otherwise comply with the owner's responsibilities in accordance with subpart D of 40 CFR part 30. The engineer agrees that the disposition of rights to inventions made under this agreement shall be in accordance with the terms and conditions of appendix B. The engineer shall include appropriate patent provisions to achieve the purpose of this condition in all subcontracts involving research, developmental, experimental, or demonstration work.

18. COPYRIGHTS AND RIGHTS IN DATA

(a) The engineer agrees that any plans, drawings, designs, specifications, computer

programs (which are substantially paid for with EPA grant funds), technical reports, operating manuals, and other work submitted with a step 1 facilities plan or with a step 2 or step 3 grant application or which are specified to be delivered under this agreement or which are developed or produced and paid for under this agreement (referred to in this clause as "Subject Data") are subject to the rights in the United States, as set forth in subpart D of 40 CFR part 30 and in appendix C to 40 CFR part 30, in effect on the date of execution of this agreement. These rights include the right to use, duplicate, and disclose such subject data, in whole or in part, in any manner for any purpose whatsoever, and to have others do so. For purposes of this clause, "grantee" as used in appendix C refers to the engineer. If the material is copyrightable, the engineer may copyright it, as appendix C permits, subject to the rights in the Government in appendix C, but the owner and the Federal Government reserve a royalty-free, nonexclusive, and irrevocable license to reproduce, publish, and use such materials, in whole or in part, and to authorize others to do so. The engineer shall include appropriate provisions to achieve the purpose of this condition in all subcontracts expected to produce copyrightable subject data.

(b) All such subject data furnished by the engineer pursuant to this agreement are instruments of his services in respect of the project. It is understood that the engineer does not represent such subject data to be suitable for reuse on any other project or for any other purpose. If the owner reuses the subject data without the engineer's specific written verification or adaptation, such reuse will be at the risk of the owner, without liability to the engineer. Any such verification or adaptation will entitle the engineer to further compensation at rates agreed upon by the owner and the engineer.

APPENDIX C-2—REQUIRED PROVISIONS— CONSTRUCTION CONTRACTS

SUPPLEMENTAL GENERAL CONDITIONS

1. General.
2. Changes.
3. Differing Site Conditions.
4. Suspension of Work.
5. Termination for Default; Damages for Delay; Time Extensions.
6. Termination for Convenience.
7. Remedies.
8. Labor Standards.
9. Utilization of Small or Minority Business.
10. Audit; Access to Records.
11. Price Reduction for Defective Cost or Pricing Data.
12. Covenant Against Contingent Fees.
13. Gratuities.
14. Patents.
15. Copyrights and Rights in Data.
16. Prohibition Against Listed Violating Facilities.
17. Buy American.

1. GENERAL

(a) The owner and the contractor agree that the following supplemental general provisions apply to the work to be performed under this contract and that these provisions supersede any conflicting provisions of this contract.

(b) This contract is funded in part by a grant from the U.S. Environmental Protec-

tion Agency. Neither the United States nor any of its departments, agencies or employees is a party to this contract. This contract is subject to regulations contained in 40 CFR 35.936, 35.938, and 35.939 in effect on the date of execution of this contract.

(c) The owner's rights and remedies provided in these clauses are in addition to any other rights and remedies provided by law or under this contract.

2. CHANGES

(a) The owner may, at any time, without notice to the sureties, by written order designated or indicated to be a change order, make any change in the work within the general scope of the contract, including but not limited to changes—

(1) In the specifications (including drawings and designs);

(2) In the method or manner of performance of the work;

(3) In the owner-furnished facilities, equipment, materials, services, or site; or

(4) Directing acceleration in the performance of the work.

(b) Any other written order or an oral order (which terms as used in this paragraph (b) shall include direction, instruction, interpretation, or determination) from the owner, which causes any such change, shall be treated as a change order under this clause, if the contractor gives the owner written notice stating the date, circumstances, and source of the order and if the contractor regards the order as a change order.

(c) Except as provided in this clause, no order, statement, or conduct of the owner shall be treated as a change under this clause or shall entitle the contractor to an equitable adjustment.

(d) If any change under this clause causes an increase or decrease in the contractor's cost of, or the time required for, the performance of any part of the work under this contract, whether or not changed by any order, an equitable adjustment shall be made and the contract modified in writing accordingly. However, except for claims based on defective specifications, no claim for any change under (b) above shall be allowed for any costs incurred more than 20 days before the contractor gives written notice as there required. Also, in the case of defective specifications for which the owner is responsible, the equitable adjustment shall include any increased cost reasonably incurred by the contractor in attempting to comply with such defective specifications.

(e) If the contractor intends to assert a claim for an equitable adjustment under this clause, he must, within 30 days after receipt of a written change order under (a) above or the furnishing of a written notice under (b) above, submit to the owner a written statement setting forth the general nature and monetary extent of such claim, unless the owner extends this period. The statement of claim hereunder may be included in the notice under (b) above.

(f) No claim by the contractor for an equitable adjustment hereunder shall be allowed if asserted after final payment under this contract.

3. DIFFERING SITE CONDITIONS

(a) The contractor shall promptly, and before such conditions are disturbed, notify the owner in writing of: (1) Subsurface or latent physical conditions at the site differing materially from those indicated in this

contract, or (2) unknown physical conditions at the site, of an unusual nature, differing materially from those ordinarily encountered and generally recognized as inhering in work of the character provided for in this contract. The owner shall promptly investigate the conditions. If he finds that such conditions do materially differ and cause an increase or decrease in the contractor's cost of, or the time required for, performance of any part of the work under this contract, whether or not changed as a result of such conditions, an equitable adjustment shall be made and the contract modified in writing accordingly.

(b) No claim of the contractor under this clause shall be allowed unless the contractor has given the notice required in paragraph (a) of this clause, except that the owner may extend the prescribed time.

(c) No claim by the contractor for an equitable adjustment hereunder shall be allowed if asserted after final payment under this contract.

4. SUSPENSION OF WORK

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

(b) If the performance of all or any part of the work is: for an unreasonable period of time, suspended, delayed, or interrupted by an act of the owner in administration of this contract, or by his failure to act within the time specified in this contract (or if no time is specified, within a reasonable time), an adjustment shall be made for any increase in the cost of performance of this contract (excluding profit) necessarily caused by such unreasonable suspension, delay, or interruption, and the contract modified in writing accordingly. However, no adjustment shall be made under this clause for any suspension, delay, or interruption to the extent (1) that performance would have been so suspended, delayed, or interrupted by any other cause, including the fault or negligence of the contractor or (2) for which an equitable adjustment is provided for or excluded under any other provision of this contract.

(c) No claim under this clause shall be allowed (1) for any costs incurred more than 20 days before the contractor shall have notified the owner in writing of the act or failure to act involved (but this requirement shall not apply as to a claim resulting from a suspension order), and (2) unless the claim, in an amount stated, is asserted in writing as soon as practicable after the termination of such suspension, delay, or interruption, but not later than the date of final payment under the contract.

5. TERMINATION FOR DEFAULT; DAMAGES FOR DELAY; TIME EXTENSIONS

(a) If the contractor refuses or fails to prosecute the work, or any separable part of the work, with such diligence as will insure its completion within the time specified in this contract, or any extension thereof, or fails to complete said work within such time, the owner may, by written notice to the contractor, terminate his right to proceed with the work or such part of the work as to which there has been delay. In such event the owner may take over the work and prosecute the same to completion, by contract or otherwise, and may take possession of and use in completing the work such

materials, appliances, and plant as may be on the site of the work and necessary therefor. Whether or not the contractor's right to proceed with the work is terminated, he and his sureties shall be liable for any damage to the owner resulting from his refusal or failure to complete the work within the specified time.

(b) If the contract provides for liquidated damages, and if the owner terminates the contractor's right to proceed, the resulting damage will consist of such liquidated damages until such reasonable time as may be required for final completion of the work together with any increased costs the owner incurs in completing the work.

(c) If the contract provides for liquidated damages and if the owner does not terminate the contractor's right to proceed, the resulting damage will consist of such liquidated damages until the work is completed or accepted.

(d) The contractor's right to proceed shall not be terminated nor the contractor charged with resulting damage if:

(1) The delay in the completion of the work arises from causes other than normal weather beyond the control and without the fault or negligence of the contractor, including, but not restricted to, acts of God, acts of the public enemy, acts of the owner in either its sovereign or contractual capacity, acts of another contractor in the performance of a contract with the owner, fires, floods, epidemics, quarantine restrictions, strikes, freight embargoes, unusually severe weather, or delays of subcontractors or suppliers arising from causes other than normal weather beyond the control and without the fault or negligence of both the contractor and such subcontractors or suppliers; and

(2) The contractor, within 10 days from the beginning of any such delay (unless the owner grants a further period of time before the date of final payment under the contract), notifies the owner in writing of the causes of delay. The owner shall ascertain the facts and the extent of the delay and extend the time for completing the work when, in his judgment, the findings of fact justify such an extension. His findings of fact shall be final and conclusive on the parties, subject only to appeal as the remedies clause of this contract provides.

(e) If, after notice of termination of the contractor's right to proceed under the provisions of this clause, it is determined for any reason that the contractor was not in default under this clause, or that the delay was excusable under this clause, the rights and obligations of the parties shall be the same as if the notice of termination has been issued under the clause providing for termination for convenience of the owner.

(f) The rights and remedies of the owner provided in this clause are in addition to any other rights and remedies provided by law or under this contract.

(g) As used in paragraph (d)(1) of this clause, the term "subcontractors or suppliers" means subcontractors or suppliers at any tier.

6. TERMINATION FOR CONVENIENCE

(a) The owner may terminate the performance of work under this contract in accordance with this clause in whole, or from time to time in part, whenever the owner shall determine that such termination is in the best interest of the owner. Any such termination shall be effected by delivery to the

contractor of a notice of termination specifying the extent to which performance of work under the contract is terminated, and the date upon which such termination becomes effective.

(b) After receipt of a notice of termination, and except as otherwise directed by the owner, the contractor shall:

(1) Stop work under the contract on the date and to the extent specified in the notice of termination;

(2) Place no further orders or subcontracts for materials, services, or facilities except as necessary to complete the portion of the work under the contract which is not terminated;

(3) Terminate all orders and subcontracts to the extent that they relate to the performance of work terminated by the notice of termination;

(4) Assign to the owner, in the manner, at the times, and to the extent directed by the owner, all of the right, title, and interest of the contractor under the orders and subcontracts so terminated. The owner shall have the right, in its discretion, to settle or pay any or all claims arising out of the termination of such orders and subcontracts;

(5) Settle all outstanding liabilities and all claims arising out of such termination of orders and subcontracts, with the approval or ratification of the owner to the extent he may require. His approval or ratification shall be final for all the purposes of this clause;

(6) Transfer title to the owner, and deliver in the manner, at the times, and to the extent, if any, directed by the owner, (i) the fabricated or unfabricated parts, work in process, completed work, supplies, and other material produced as a part of, or acquired in connection with the performance of, the work terminated by the notice of termination, and (ii) the completed or partially completed plans, drawings, information, and other property which, if the contract had been completed, would have been required to be furnished to the owner;

(7) Use his best efforts to sell, in the manner, at the times, to the extent, and at the price or prices that the owner directs or authorizes, any property of the types referred to in paragraph (b)(6) of this clause, but the contractor (i) shall not be required to extend credit to any purchaser, and (ii) may acquire any such property under the conditions prescribed and at a price or prices approved by the owner. The proceeds of any such transfer or disposition shall be applied in reduction of any payments to be made by the owner to the contractor under this contract or shall otherwise be credited to the price or cost of the work covered by this contract or paid in such other manner as the owner may direct;

(8) Complete performance of such part of the work as shall not have been terminated by the notice of termination; and

(9) Take such action as may be necessary, or as the owner may direct, for the protection and preservation of the property related to this contract which is in the possession of the contractor and in which the owner has or may acquire an interest.

(c) After receipt of a notice of termination, the contractor shall submit to the owner his termination claim, in the form and with the certification the owner prescribes. Such claim shall be submitted promptly but in no event later than 1 year from the effective date of termination, unless one or more extensions in writing are

granted by the owner upon request of the contractor made in writing within such 1-year period or authorized extension. However, if the owner determines that the facts justify such action, he may receive and act upon any such termination claim at any time after such 1-year period or extension. If the contractor fails to submit his termination claim within the time allowed, the owner may determine, on the basis of information available to him, the amount, if any, due to the contractor because of the termination. The owner shall then pay to the contractor the amount so determined.

(d) Subject to the provisions of paragraph (c), the contractor and the owner may agree upon the whole or any part of the amount or amounts to be paid to the contractor because of the total or partial termination of work under this clause. The amount or amounts may include a reasonable allowance for profit on work done. However, such agreed amount or amounts, exclusive of settlement costs, shall not exceed the total contract price as reduced by the amount of payments otherwise made and as further reduced by the contract price of work not terminated. The contract shall be amended accordingly, and the contractor shall be paid the agreed amount. Nothing in paragraph (e) of this clause, prescribing the amount to be paid to the contractor in the event of failure of the contractor and the owner to agree upon the whole amount to be paid to the contractor because of the termination of work under this clause, shall be deemed to limit, restrict, or otherwise determine or affect the amount or amounts which may be agreed upon to be paid to the contractor pursuant to this paragraph (d).

(e) If the contractor and the owner fail to agree, as paragraph (d) provides, on the whole amount to be paid to the contractor because of the termination of work under this clause, the owner shall determine, on the basis of information available to him, the amount, if any, due to the contractor by reason of the termination and shall pay to the contractor the amounts determined as follows:

(1) For all contract work performed before the effective date of the notice of termination, the total (without duplication of any items) of—

(i) The cost of such work;

(ii) The cost of settling and paying claims arising out of the termination of work under subcontracts or orders as paragraph (b)(5) of this clause provides. This cost is exclusive of the amounts paid or payable on account of supplies or materials delivered or services furnished by the subcontractor before the effective date of the notice of termination. These amounts shall be included in the cost on account of which payment is made under (i) above; and

(iii) A sum, as profit on (i), above, that the owner determines to be fair and reasonable. But, if it appears that the contractor would have sustained a loss on the entire contract had it been completed, no profit shall be included or allowed under this subdivision (iii) and an appropriate adjustment shall be made reducing the amount of the settlement to reflect the indicated rate of loss; and

(2) The reasonable cost of the preservation and protection of property incurred under paragraph (b)(9) of this clause; and any other reasonable cost incidental to termination of work under this contract, including expense incidental to the determi-

nation of the amount due to the contractor as the result of the termination of work under this contract. The total sum to be paid to the contractor under paragraph (e)(1) of this clause shall not exceed the total contract price as reduced by the amount of payments otherwise made and as further reduced by the contract price of work not terminated. Except for normal spoilage, and except to the extent that the owner shall have otherwise expressly assumed the risk of loss, there shall be excluded from the amounts payable to the contractor under (1) above, the fair value, as determined by the owner of property which is destroyed, lost, stolen, or damaged, to the extent that it is undeliverable to the owner, or to a buyer under paragraph (b)(7) of this clause.

(f) The contractor shall have the right to dispute under the clause of this contract entitled "Remedies" from any determination the owner makes under paragraph (c) or (e) of this clause. But, if the contractor has failed to submit his claim within the time provided in paragraph (c) of this clause and has failed to request extension of such time, he shall have no such right of appeal. In any case where the owner has determined the amount due under paragraph (c) or (e) of this clause, the owner shall pay to the contractor the following: (1) If there is no right of appeal hereunder or if no timely appeal has been taken, the amount so determined by the owner or (2) if a "Remedies" proceeding is initiated, the amount finally determined in such "Remedies" proceeding.

(g) In arriving at the amount due the contractor under this clause there shall be deducted (1) all unliquidated advance or other payments on account theretofore made to the contractor, applicable to the terminated portion of this contract, (2) any claim which the owner may have against the contractor in connection with this contract, and (3) the agreed price for, or the proceeds of sale of, any materials, supplies, or other things kept by the contractor or sold, under the provisions of this clause, and not otherwise recovered by or credited to the owner.

(h) If the termination hereunder be partial, before the settlement of the terminated portion of this contract, the contractor may file with the owner a request in writing for an equitable adjustment of the price or prices specified in the contract relating to the continued portion of the contract (the portion not terminated by the notice of termination). Such equitable adjustment as may be agreed upon shall be made in the price or prices. Nothing contained herein shall limit the right of the owner and the contractor to agree upon the amount or amounts to be paid to the contractor for the completion of the continued portion of the contract when the contract does not contain an established contract price for the continued portion.

7. REMEDIES

Unless this contract provides otherwise, all claims, counter-claims, disputes and other matters in question between the owner and the contractor arising out of or relating to this agreement or its breach will be decided by arbitration if the parties mutually agree, or in a court of competent jurisdiction within the State in which the owner is located.

B. LABOR STANDARDS

The contractor agrees that "construction" work (as defined by the Secretary of Labor) shall be subject to the following labor standards provisions, to the extent applicable:

- (a) Davis-Bacon Act (40 U.S.C. 276a-276a-7);
- (b) Contract Work Hours and Safety Standards Act (40 U.S.C. 327-33);
- (c) Copeland Anti-Kickback Act (18 U.S.C. 874); and
- (d) Executive Order 11246 (equal employment opportunity);

and implementing rules, regulations, and relevant orders of the Secretary of Labor or EPA. The contractor further agrees that this contract shall include and be subject to the "Labor Standards Provisions for Federally assisted Construction Contracts" (EPA form 5720-4) in effect at the time of execution of this agreement.

D. UTILIZATION OF SMALL AND MINORITY BUSINESS

In accordance with EPA policy as expressed in 40 CFR 35.936-7, the contractor agrees that small business and minority business enterprises shall have the maximum practicable opportunity to participate in the performance of EPA grant-assisted contracts and subcontracts.

10. AUDIT; ACCESS TO RECORDS

(a) The contractor shall maintain books, records, documents and other evidence directly pertinent to performance on EPA grant work under this contract in accordance with generally accepted accounting principles and practices consistently applied, and 40 CFR 30.605, 30.805, and 35.935-7 in effect on the date of execution of this contract. The contractor shall also maintain the financial information and data used by the contractor in the preparation or support of the cost submission required under 40 CFR 35.938-5 in effect on the date of execution of this contract for any negotiated contract or change order and a copy of the cost summary submitted to the owner. The U.S. Environmental Protection Agency, the Comptroller General of the United States, the U.S. Department of Labor, owner, and [the State water pollution control agency] or any of their authorized representatives shall have access to such books, records, documents and other evidence for the purpose of inspection, audit and copying. The contractor will provide proper facilities for such access and inspection.

(b) If this contract is a formally advertised, competitively awarded, fixed price contract, the contractor agrees to make paragraphs (a) through (f) of this clause applicable to all negotiated change orders and contract amendments affecting the contract price. In the case of all other types of prime contracts, the contractor agrees to include paragraphs (a) through (f) of this clause in all his contracts in excess of \$10,000 and all tier subcontracts in excess of \$10,000 and to make paragraphs (a) through (f) of this clause applicable to all change orders directly related to project performance.

(c) Audits conducted under this provision shall be in accordance with generally accepted auditing standards and established procedures and guidelines of the reviewing or audit agency(ies).

(d) The contractor agrees to the disclosure of all information and reports resulting

from access to records under paragraphs (a) and (b) of this clause, to any of the agencies referred to in paragraph (a), provided that the contractor is afforded the opportunity for an audit exit conference, and an opportunity to comment and submit any supporting documentation on the pertinent portions of the draft audit report and that the final EPA audit report will include written comments of reasonable length, if any, of the contractor.

(e) Records under paragraphs (a) and (b) above, shall be maintained and made available during performance on EPA grant work under this contract and until 3 years from the date of final EPA grant payment for the project. In addition, those records which relate to any "Dispute" appeal under an EPA grant agreement, to litigation, to the settlement of claims arising out of such performance, or to costs or items to which an audit exception has been taken, shall be maintained and made available until three years after the date of resolution of such appeal, litigation, claim or exception.

(f) The right of access which this clause confers will generally be exercised (with respect to financial records) under (1) negotiated prime contracts, (2) negotiated change orders or contract amendments in excess of \$10,000 affecting the price of any formally advertised, competitively awarded, fixed price contract, and (3) subcontracts or purchase orders under any contract other than a formally advertised, competitively awarded, fixed price contract. However, this right of access will generally not be exercised with respect to a prime contract, subcontract, or purchase order awarded after effective price competition. In any event, such right of access may be exercised under any type of contract or subcontract (1) with respect to records pertaining directly to contract performance, excluding any financial records of the contractor, (2) if there is any indication that fraud, gross abuse, or corrupt practices may be involved or (3) if the contract is terminated for default or for convenience.

11. PRICE REDUCTION FOR DEFECTIVE COST OR PRICING DATA

(This clause is applicable to (1) any negotiated prime contract in excess of \$100,000; (2) negotiated contract amendments or change orders in excess of \$100,000 affecting the price of a formally advertised, competitively awarded, fixed price contract; or (3) any subcontract or purchase order in excess of \$100,000 under a prime contract other than a formally advertised, competitively awarded, fixed price contract. Change orders shall be determined to be in excess of \$100,000 in accordance with 40 CFR 35.938-5(g). However, this clause is not applicable for contracts or subcontracts to the extent that they are awarded on the basis of effective price competition.)

(a) If the owner or EPA determines that any price (including profit) negotiated in connection with this contract, or any cost reimbursable under this contract, was increased by any significant sums because the contractor, or any subcontractor furnished incomplete or inaccurate cost or pricing data or data not current as certified in his certification of current cost or pricing data (EPA form 5700-41), then such price or cost or profit shall be reduced accordingly and the contract shall be modified in writing to reflect such reduction.

(b) Failure to agree on a reduction shall be subject to the Remedies clause of this contract.

(Note.—Since the contract is subject to reduction under this clause by reason of defective cost or pricing data submitted in connection with certain subcontracts, the contractor may wish to include a clause in each such subcontract requiring the subcontractor to appropriately indemnify the contractor. It is also expected that any subcontractor subject to such indemnification will generally require substantially similar indemnification for defective cost or pricing data required to be submitted by his lower tier subcontractors.)

12. COVENANT AGAINST CONTINGENT FEES

The contractor warrants that no person or selling agency has been employed or retained to solicit or secure this contract upon an agreement or understanding for a commission, percentage, brokerage, or contingent fee, excepting bona fide employees or bona fide established commercial or selling agencies maintained by the contractor for the purpose of securing business. For breach or violation of this warranty the owner shall have the right to annul this contract without liability or in its discretion to deduct from the contract price or consideration, or otherwise recover, the full amount of such commission, percentage, brokerage, or contingent fee.

13. GRATUITIES

(a) If the owner finds, after notice and hearing, that the contractor or any of the contractor's agents or representatives offered or gave gratuities (in the form of entertainment, gifts, or otherwise) to any official, employee or agent of the owner, of the State, or of EPA in an attempt to secure a contract or favorable treatment in the awarding, amending, or making any determinations related to the performance of this contract, the owner may, by written notice to the contractor, terminate the right of the contractor to proceed under this contract. The owner may also pursue other rights and remedies that the law or this contract provides. However, the existence of the facts upon which the owner makes such findings shall be in issue and may be reviewed in proceedings under the remedies clause of this contract.

(b) In the event this contract is terminated as provided in paragraph (a) of this clause, the owner shall be entitled (1) to pursue the same remedies against the contractor as it could pursue in the event of a breach of the contract by the contractor, and (2) as a penalty in addition to any other damages to which it may be entitled by law, to exemplary damages in an amount (as determined by the owner) which shall be not less than 3 nor more than 10 times the costs the contractor incurs in providing any such gratuities to any such officer or employee.

14. PATENTS

If this contract involves research, developmental, experimental, or demonstration work, and any discovery or invention arises or is developed in the course of or under this contract, such invention or discovery shall be subject to the reporting and rights provisions of subpart D of 40 CFR Part 30, in effect on the date of execution of this contract, including appendix B of part 30. In such case, the contractor shall report the discovery or invention to EPA directly or

through the owner, and shall otherwise comply with the owner's responsibilities in accordance with subpart D of 40 CFR Part 30. The contractor agrees that the disposition of rights to inventions made under this contract shall be in accordance with the terms and conditions of appendix B. The contractor shall include appropriate patent provisions to achieve the intent of this condition in all subcontracts involving research, developmental, experimental, or demonstration work.

15. COPYRIGHTS AND RIGHTS IN DATA

The contractor agrees that any plans, drawings, designs, specifications, computer programs (which are substantially paid for with EPA grant funds), technical reports, operating manuals, and other work submitted with a proposal or grant application or which are specified to be delivered under this contract or which are developed or produced and paid for under this contract (referred to in this clause as "Subject Data") are subject to the rights in the United States, as set forth in subpart D of 40 CFR Part 30 and in appendix C to 40 CFR Part 30, in effect on the date of execution of this contract. These rights include the right to use, duplicate and disclose such Subject Data, in whole or in part, in any manner for any purpose whatsoever, and to have others do so. For purposes of this clause, "grantee" as used in appendix C refers to the contractor. If the material is copyrightable, the contractor may copyright it, as appendix C permits, subject to the rights in the Government as set forth in appendix C; but the owner and the Federal Government reserve a royalty-free, nonexclusive, and irrevocable license to reproduce, publish and use such materials, in whole or in part, and to authorize others to do so. The contractor shall include provisions appropriate to achieve the intent of this condition in all subcontracts expected to produce copyrightable Subject Data.

16. PROHIBITION AGAINST LISTED VIOLATING FACILITIES

(Applicable only to a contract in excess of \$100,000 and when otherwise applicable under 40 CFR Part 15.)

- (a) The contractor agrees as follows:
 - (1) To comply with all the requirements of section 114 of the Clean Air Act, as amended (42 U.S.C. 1857, et seq., as amended by Pub. L. 92-604) and section 308 of the Clean Water Act (33 U.S.C. 1251, as amended), respectively, which relate to inspection, monitoring, entry, reports, and information, as well as other requirements specified in section 114 and section 308 of the Air Act and the Water Act, respectively, and all regulations and guidelines issued thereunder before the award of this contract.
 - (2) That no portion of the work required by this prime contract will be performed in a facility listed on the Environmental Protection Agency list of violating facilities on the date when this contract was awarded unless and until the EPA eliminates the name of such facility or facilities from the listing.
 - (3) To use his best efforts to comply with clean air and clean water standards at the facilities in which the contract is being performed.
 - (4) To insert the substance of the provisions of this clause, including this subparagraph (4), in any nonexempt subcontract.

(b) The terms used in this clause have the following meanings:

- (1) The term "Air Act" means the Clean Air Act, as amended (42 U.S.C. 1857 et seq.).
- (2) The term "Water Act" means the Clean Water Act, as amended (33 U.S.C. 1251 et seq.).
- (3) The term "Clean Air Standards" means any enforceable rules, regulations, guidelines, standards, limitations, orders, controls, prohibitions, or other requirements which are contained in, issued under, or otherwise adopted under the Air Act or Executive Order 11738, an applicable implementation plan as described in section 110(d) of the Air Act (42 U.S.C. 1857c-5(d)), an approved implementation procedure or plan under section 111(c) or section 111(d), or an approved implementation procedure under section 112(d) of the Air Act (42 U.S.C. 1857c-7(d)).
- (4) The term "Clean Water Standards" means any enforceable limitation, control, condition, prohibition, standard, or other requirement which is promulgated under the Water Act or contained in a permit issued to a discharger by the Environmental Protection Agency or by a State under an approved program, as authorized by section 402 of the Water Act (33 U.S.C. 1342), or by a local government to ensure compliance with pretreatment regulations as required by section 307 of the Water Act (33 U.S.C. 1317).
- (5) The term "Compliance" means compliance with clean air or water standards. Compliance shall also mean compliance with a schedule or plan ordered or approved by a court of competent jurisdiction, the Environmental Protection Agency or an Air or Water Pollution Control Agency in accordance with the requirements of the Air Act or Water Act and regulations.
- (6) The term "Facility" means any building, plant, installation, structure, mine, vessel, or other floating craft, location, or site of operations, owned, leased, or supervised by a contractor or subcontractor, to be used in the performance of a contract or subcontract. Where a location or site of operations contains or includes more than one building, plant, installation, or structure, the entire location or site shall be deemed to be a facility except where the Director, Office of Federal Activities, Environmental Protection Agency, determines that independent facilities are located in one geographical area.

17. BUY AMERICAN

In accordance with Section 215 of the Clean Water Act, and implementing EPA regulations and guidelines, the contractor agrees that preference will be given to domestic construction material by the contractor, subcontractors, materialmen, and suppliers in the performance of this contract.

APPENDIX D—EPA TRANSITION POLICY—EXISTING CONSULTING ENGINEERING AGREEMENTS

A. ACCESS TO RECORDS—AUDIT

1. Access clause. After June 30, 1975, a construction grant for Steps 1, 2 or 3 will not be awarded nor will initiation of Step 1 work be approved under 40 CFR 35.917(e) or 35.925-18(a)(2), unless an acceptable records and access clause is included in the consulting engineering subcontract. The clause contained in appendix C-1 shall be used on or after March 1, 1978. The clause required

by former PG-53 or approved as an alternate thereto may be used for all contracts under grants awarded before March 1, 1978.

2. EPA exercise of right of access to records. Under applicable statutory and regulatory provisions, EPA has a broad right of access to grantees' consulting engineers' records pertinent to performance of EPA project work. The extent to which EPA will exercise this right of access will depend upon the nature of the records and upon the type of agreement.

a. In order to determine where EPA shall exercise its right of access, engineers' project-related records have been divided into three categories:

- (1) Category A: Records that pertain directly to the professional, technical and other services performed, excluding any type of financial records of the consulting engineer.
- (2) Category B: Financial records of the consulting engineer pertaining to the direct costs of professional, technical and other services performed, excluding financial records pertaining to profit and overhead or other indirect costs.
- (3) Category C: Financial records of the consulting engineer excluded from category B.

b. In all cases, EPA will exercise its right of access to Category A records. Also, where there is an indication that fraud, gross abuse, or corrupt practices may be involved, EPA will exercise its right of access to records in all categories. Otherwise, access to consulting engineers' financial records (categories B and C) will depend principally upon the method(s) of compensation stipulated in the agreement:

(1) Agreements based upon a percentage of construction cost. Category B and C records will not be audited. However, terms of the agreement, including the total amount of compensation, will be evaluated for fairness, reasonableness, and consistency with historical and advisory guidelines in general use and acceptable locally. These guidelines include those in ASCE manual 45 or other analyses or data which the contracting parties relied on or used in negotiation of the agreement. Such evaluation shall also consider comparable contracts for which EPA grants have been awarded.

(2) Agreements based upon salary cost times a multiplier including profit. Category B records will be audited. However, terms of the agreement, including the total amount of compensation and the multiplier, will be evaluated for fairness and reasonableness and consistency with historical and advisory guidelines in general use and acceptable locally. These guidelines include those in ASCE manual 45 or other analyses or data which the contracting parties relied on or used in negotiation of the agreement. Such evaluation shall also consider comparable contracts for which EPA grants have been awarded. Items of overhead or other indirect costs will only be audited to the extent necessary to assure that types of costs found both in overhead and reimbursable direct costs, if any, are properly charged.

(3) Per diem agreements. Category B records will be audited. Category C records will not be audited. Audit will be performed to the extent necessary to determine that hours claimed and classes of personnel used were properly supported. The per diem rates will be evaluated according to the ap-

2.3 Federal EPA "Buy American" Provisions

General: Contractors performing work on this project must comply with the Buy American provision in Public Law 92-217 (Section 215 of Public Law 92-500 as amended) and implementing EPA regulations and guidelines. Preference shall be given to domestic construction material by the Contractor, his subcontractors, his materialmen and suppliers in the performance of this contract.

The following guidance is provided to aid in implementation of the Buy American provision. The definitions have been adapted from the current Federal Procurement Regulations which EPA has been directed to follow, where applicable.

"Construction material" means any article, material or supply brought to the construction site for incorporation in the building or work. An unmanufactured construction material is a "domestic construction material" if it has been mined or produced in the United States. A manufactured construction material is a "domestic construction material" if it has been manufactured in the United States substantially all from articles, materials or supplies mined, produced or manufactured (as the case may be) in the United States. Generally, a construction material is considered a domestic construction material if the cost of its components which have been mined, produced or manufactured in the United States exceeds 50 percent of the cost of all of its components. "Component" means any article, material or supply directly incorporated in a construction material.

A component shall be considered to have been "mined, produced or manufactured in the United States" (regardless of its source in fact), if the article, material or supply in which it is incorporated was manufactured in the United States and the component is of a class or kind determined by the Regional Administrator to be not mined, produced or manufactured in the United States in sufficient and reasonably available commercial quantities and of a satisfactory quality.

INFORMATION REGARDING BUY AMERICAN PROVISION

- (a) The Buy American Provision of Public Law 95-217 (Section 215 of Public Law 92-500 as amended) as implemented by EPA regulations and guidance, generally requires that preference be given to the use of domestic construction material in the performance of this contract.

- (b) Bids or proposals offering use of non-domestic construction material may be acceptable for award if the Regional Administrator waives the Buy American provision based upon those factors that are deemed relevant, including: (i) such use is not in the public interest; (ii) the cost is unreasonable; (iii) the available resources of the Agency are not sufficient to implement the provision; or (iv) the articles, materials or supplies of the class or kind to be used or the articles, materials or supplies from which they are manufactured are not mined, produced or manufactured, as the case may be, in the United States in sufficient and reasonably available commercial quantities and of a satisfactory quality for the particular project. The Regional Administrator may also waive the Buy American provision if it is determined that application of this provision is contrary to multilateral government procurement agreements. Such evidence as the EPA Regional Administrator may deem relevant shall be furnished to justify use of non-domestic construction material.

BUY AMERICAN

In accordance with the Buy American provision in Public Law 95-217 (Section 215 of Public Law 92-500 as amended) and implementing EPA regulations and guidelines, the Contractor agrees that preference will be given to domestic construction materials by the Contractor, subcontractors, materialmen and suppliers in the performance of this contract.

The Regional Administrator may waive the Buy American provision based upon those factors that are deemed relevant, including: (i) such use is not in the public interest; (ii) the cost is unreasonable; (iii) the available resources of the Agency are not sufficient to implement the provision (subject to the concurrence of the Deputy Administrator); or (iv) the articles, materials or supplies of the class or kind to be used or the articles, materials or supplies from which they are manufactured are not mined, produced or manufactured, as the case may be, in the United States in sufficient and reasonably available commercial quantities and of a satisfactory quality for the particular project.

If the Regional Administrator believes that application of the Buy American provision would be contrary to multilateral government procurement agreements, the Regional Administrator may request the Deputy Administrator to waive the provision.

The amount of cost differential by which domestic construction material may be given preference shall generally be the sum determined by computing up to six percent of the bid or offered price of materials of foreign origin including all costs of delivery to the construction site, including any applicable duty, whether or not assessed. Computations will normally be based on costs on the date of opening of bids or proposals.

The Regional Administrator may utilize the appropriate procedures of 40 CFR 35.939 in making determinations, and the Buy American procedures, regulations, precedents and requirements of other federal departments and agencies shall generally be observed.

The Buy American provision is new to the EPA municipal wastewater construction grants program and no specific EPA precedents exist. To help create such precedents, where it is determined that the Buy American provision should be waived or when problems or questions arise, it should be brought to the attention of the Director of the Municipal Construction Division and the Assistant General Counsel-Grants.

3. GUARANTEES

The Contractor guarantees the work done under this contract, and the materials and equipment furnished by him and used in the construction of the same are free from defects or flaws, and the guarantee is for a term of one year from and after the date of the final certificate provided for in the Contract.

The Contractor agrees that he will deliver to the Owner fully negotiable municipal bonds issued by a municipality located in New York State in a face amount equal to five percent (5%) of the full contract value prior to payment of the final estimate. Such municipal bonds will be held in escrow by the Owner for the full guarantee period.

The Contractor further agrees that he will obtain from the manufacturers of equipment and materials furnished under this contract, guarantees against defective materials and workmanship, and if these guarantees as furnished by the manufacturer do not extend for the term of one year from and after the date of the final estimate of the Engineer, he shall make the necessary arrangements and assume all costs for extending this guarantee for the required period.

The Contractor shall promptly make such repairs or replacements as may be required under the above-specified guarantee; and, when the repairs or replacements involve one or more items of installed equipment, shall provide the services of qualified factory-trained servicemen in the employ of the equipment manufacturers to perform or supervise the repairs or replacements.

When the Engineer or the Owner deems it necessary, and so orders, such replacements or repairs under this section shall be undertaken by the Contractor within twenty-four (24) hours after service of notice. If the Contractor unnecessarily delays or fails to make the ordered replacements or repairs within the time specified, or if any replacements or repairs are of an emergency nature, then the Owner shall have the right to make such replacements or repairs and the expense thereof shall be paid by the Contractor or deducted from any monies due the Contractor.

Upon completion of the guarantee period, the municipal bonds will be returned to the Contractor less any charge for replacements or repairs resulting from defects in the work. All interest paid on such bonds during the guarantee period shall be accrued to the Contractor.

4. APPROVAL DRAWINGS

The Contractor shall furnish to the Engineer for review in accordance with the procedure outlined below, shop drawings and descriptive literature for all manufactured or fabricated items. Additional information such as special drawings, schedules, calculations and curves, shall be provided when specifically required in the technical specifications or when requested by the Engineer. The term shop drawings shall mean drawings, prints, descriptive literature, test reports, samples, calculations, schedules, material lists and information, and items of similar meaning. No material shall be fabricated or shipped unless the applicable drawings or submittals have been reviewed by the Engineer.

The procedure for submitting shop drawings for review shall be as follows:

The Contractor shall review and check drawings and submittals. He shall indicate his approval by initials and date, and shall also reference each to the applicable item, section or division of the specifications. If the drawings or submittals deviate from the contract drawings or specifications, the Contractor shall advise the Engineer in writing, of the deviation and the reasons therefor.

The Contractor shall initially submit to the Engineer a minimum of five (5) copies of all submittals.

All submittals will be stamped, dated and initialled by the Engineer before they are returned to the Contractor. If a submittal is acceptable, it will be marked "No Exceptions Taken" or "Note Markings" - "Confirm". Two (2) copies of the submittal will be returned to the Contractor.

Upon return of a submittal marked "No Exceptions Taken" or "Note Markings" - "Confirm", the Contractor may order, ship or fabricate the materials included on the submittal provided it is in accordance with the corrections indicated. For extensive corrections or corrections of major importance affecting other items, the Engineer may require that the Contractor make the corrections indicated thereon and "Resubmit" five (5) copies for final review.

Should any submittals be unacceptable, one print or copy will be returned to the Contractor with one of the following notations:

"Rejected" - "Resubmit" - "Comments Attached"

Upon return of a submittal marked "Comments Attached" - "Resubmit", the Contractor shall make the corrections indicated and repeat the initial approval procedure.

The "Rejected" notation is used to indicate materials or equipment that are not acceptable. Upon return of a submittal so marked, the Contractor shall repeat the initial approval procedure utilizing acceptable materials or equipment.

Shop drawings or other submittals not bearing the Engineer's "No Exceptions Taken" or "Note Markings" notation shall not be issued to subcontractors or utilized for construction purposes. No work shall be done or equipment installed without such a drawing or submittal.

The Engineer's review of shop drawings or other submittals for any material, apparatus, device and layout shall not relieve the Contractor from the responsibility of furnishing same of proper dimension, size, quality, quantity, materials and all performance characteristics to efficiently perform the requirements and intent of the contract documents. Such review shall not relieve the Contractor from responsibility for errors of any kind on the shop drawings. Review is for general conformance with the design concept of the project and compliance with the information given in the contract documents. The Contractor is responsible for information that pertains solely to the fabrication processes or to the techniques of construction and for the coordination of the work of all trades.

5. MATERIALS AND MANUFACTURED ARTICLES

All material and workmanship shall be subject to the review of the Engineer and shall be in conformity with approved modern practice.

In general, whenever the contract documents show or specify a particular make of material, manufactured article, device or equipment, it shall be regarded merely as a standard.

When a reference is made in the contract documents to standards or specifications of associations such as AWWA, ASTM or others, the provisions of the latest revision of the standards or specifications shall be applicable.

In general, if two or more makes of material, manufactured articles, devices or equipment are shown or specified, each should be regarded as the equal of the other. Any other make of material, manufactured article, device or equipment which is recognized equal of that specified, and is suitable for the purpose intended, will be accepted. However in the cases in which provision is made for bidding of alternate makes of equipment, the Owner will select the alternate make that it considers will be most advantageous under the existing conditions.

In all cases, new materials shall be used, unless this provision is waived by notice from the Owner or the Engineer in writing.

6. ADDITIONS--DEDUCTIONS--DEVIATIONS

The following provisions covering additions and deductions to the contract work shall supplement those contained in Article XIII of the Contract and shall take precedence over provisions contained in said Article XIII which are in conflict with the following:

6.1 The Owner, without invalidating the contract, may make changes by altering, adding to or deducting from the work, the contract sum being adjusted accordingly. All such work shall be executed in conformity with the terms and conditions of the original contract, unless otherwise provided in the order for same. Any claim for extension of time caused thereby shall be adjusted at the time of ordering such change.

6.2 No instructions, either written or verbal, shall be construed as an order for changes unless it be in the form of an Order on Contract, bearing the signed approval of the Owner and Engineer and the signed acceptance of Contractor, except in the case of disagreement as to value of changes, when the Contractor's signature to the order will not be mandatory. Order on Contract shall describe or enumerate the work to be performed and state the price, if any, to be added to or deducted from the contract sum. If the nature of the work is such that an Order on Contract, as above, cannot be issued until the work has been advanced sufficiently to obtain exact quantities, said work will be authorized in writing by the Engineer, with the accompanying statement that an Order on Contract will be issued when the necessary information is at hand.

6.3 Except as provided in the above paragraph, no change shall be made, unless in pursuance of an Order on Contract, and no claim for an addition to the contract sum shall be valid unless so ordered. If the Contractor believes that any instructions, by drawing or otherwise, involves extra cost under his contract, he shall give the Engineer written notice thereof and await instructions before proceeding to execute such work.

6.4 The value of any change shall be determined by one or more the following methods:

- (a) By prices specifically named in the specifications or proposals.
- (b) By acceptance of agreed unit prices based on estimated cost plus overhead and profit as applicable.
- (c) By estimate of the actual cost of labor and materials plus overhead and profit, cost to be determined as the work progresses.
- (d) By actual cost of labor and materials plus overhead and profit, cost to be determined as the work progresses.
- (e) By estimate of the value as deductible from the approved detailed estimate.

6.5 Overhead shall be defined as an allowance to compensate for all costs, charges and expenses, direct or indirect, except for the actual cost of labor and material as defined by Paragraph No. 6.6. Overhead shall be considered to include, but not be limited to insurance (other than as mentioned in Paragraph 6.6), bond or bonds, field and office supervisors and assistants above the level of foreman, use of small tools and minor equipment, incidental job burdens, general office expense, etc.

6.6 Actual cost of labor and material shall be defined as the amount paid for the following items, to the extent determined reasonable and necessary:

- Item 1 - Cost of materials delivered to the job site for incorporation into the contract work.
- Item 2 - Wage paid to workmen and foremen and wage supplements paid to labor organizations in accordance with current labor agreements.
- Item 3 - Premiums or taxes paid by the Contractor for Workmen's Compensation insurance, Unemployment insurance, FICA tax and other payroll taxes as required by law, net of actual and anticipated refunds and rebates.
- Item 4 - Sales taxes paid as required by law.

Item 5 - Allowance for use of construction equipment (exclusive of hand tools and minor equipment), as approved for use by the Engineer-in-Charge. The rate on self-owned equipment used for periods of under one week will be the Associated Equipment Distributor's published monthly rate divided by 22 days to establish a daily rate and divided again by eight hours to establish an hourly rate. Equipment used for periods of 5 days or more will be billed at a rate equal to 45% of the published monthly rate. In the alternative, the Engineer-in-Charge may approve for reimbursement a rate representing the allocable costs of ownership. Self-owned equipment is defined to include equipment rented from controlled or affiliated companies. Rented equipment will be paid for at the actual rental cost. Gasoline, oil and grease required for operation and maintenance will be paid for at the actual cost. When, in the opinion of the Contractor, and as approved by the Engineer-in-Charge, suitable equipment is not available on the site, the moving of said equipment to and from the site will be paid for at actual cost.

Item 6 - When the material furnished under Item 1 is used material, its value shall be pro-rated to the value of new material, but should be no more than its cost. When, in the opinion of the Engineer, the salvage value of salvagable material furnished under Item 1 exceeds the cost of salvage, a suitable credit shall be given the Owner.

6.7 Regardless of the method used to determine the value of any change, the Contractor will be required to submit evidence satisfactory to the Engineer to substantiate each and every item that constitutes his proposal of the value of the change. The amounts allowed for overhead and profit shall not exceed the applicable percentages as established in the two following paragraphs.

6.8 If the work is done directly by the Contractor, overhead in an amount of 10% may be added if method (b), (c) or (d) is used, and to the cost of the labor and materials plus overhead there may be added 10% for profit. The percentages for overhead and profit may vary according to the nature, extent and complexity of the work involved, but in no case shall exceed the percentages set forth in this paragraph. No percentages for overhead and profit will be allowed on payroll taxes or on the premium portion of overtime pay.

6.9 If the work is done by a subcontractor, subcontractor's overhead in the amount of five percent (5%) may be added to cost of labor and materials if method (b), (c) or (d) is used and to the cost of labor and materials plus overhead there may be added 10% for the subcontractor's profit. To this amount there may be added ten percent (10%) for the Contractor's combined overhead and profit. No percentage for overhead and profit will be allowed on payroll taxes or on the premium portion of overtime pay.

CONTRACT NO. 2
COLLECTING SEWERS

SPECIAL CONDITIONS

1. Description of Work

The work under Contract 2 includes the installation of approximately 24,000 feet of 8 inch diameter gravity sewers and appurtenances, the construction of three sewage pumping stations and associated force mains, the installation of approximately 11,500 feet of 1-1/4 inch to 3 inch diameter PVC pressure sewers, together with the necessary clean-outs, valves, house service connections and the installation of approximately 63 household grinder pump units to be furnished by another contractor under Contract No. 2P.

2. Coordination of the Work

The Contractor shall be responsible for the coordination of the work of his subcontractors. The Owner/Engineer shall be responsible for the coordination of work progress schedules whenever there are two or more prime contractors involved in the work.

The Contractor shall submit a proposed work progress schedule utilizing CPM or bar graph method for the Engineer's approval within 10 days subsequent to award of the contract. Such schedule shall conform to the time limit specified in the Information to Bidders or elsewhere in the contract documents. The Contractor shall update the work progress schedule, revised if necessary, and submit it to the Engineer on a monthly basis during the progression of the project.

3. Plans and Specifications

These Detailed Specifications, the General Specifications, the Plans herein referred to, and the General Conditions attached hereto are complementary and it is intended that they include all items of labor and materials and everything required and necessary to complete the work even though some items of work or materials may not be particularly mentioned or may have been inadvertently omitted from the drawings or specifications or both.

4. Discrepancies

In case of discrepancies between the drawings and specifications, interpretations shall be given preference in the following order:

- (A) Addenda (later dates to take precedence over earlier dates)
- (B) Detailed Specifications
- (C) General Specifications
- (D) Drawings (schedules or notes to take precedence over other data shown on drawings)

5. Additional Work

Additional work, if required to be performed under this contract, will be in accordance with the applicable paragraphs of the contract. The Engineer shall be the sole judge as to whether an item was intended as part of the work, or is in addition thereto.

6. Testing Materials and Equipment

The Contractor shall furnish all labor, materials, devices and facilities required by the Engineer to test and determine the suitability of the various items of equipment and material used in this contract. The Engineer will determine the items to be tested and the manner in which such testing shall be performed. The Contractor shall be required to correct all deficiencies in materials and equipment and to re-test those items where in the opinion of the Engineer it is necessary to do so.

7. Subsurface Information

Whenever subsurface borings or other subsurface information, obtained by the owner or his representative, is available for the bidder's inspection or shown on the plans, it is understood that it has been obtained with reasonable care and recorded in good faith with reasonable interpretations placed on the results and character of materials and conditions to be expected. The bidder must interpret the information according to his own judgment and not rely upon it as accurately descriptive of subsurface conditions which may be found to exist. The information is made available to the bidder only in order to provide the bidder with access to the identical information available to the Owner.

8. Payment

Payment for unit price items or for lump sum items, as the case may be, will be made in accordance with the applicable provisions of the contract. No payment will be made for materials delivered to the job site until they have been incorporated into the work except as provided under Article XXI of the contract.

9. Replacement of Disturbed Surfaces

The Contractor shall protect all plants, shrubs, trees, and other features on the highway right-of-way and adjacent property from all injuries. He shall be liable for such injuries. No trees other than noted on the plans shall be removed without written permission of the Engineer. It may be necessary to remove, and replace certain shrubs and bushes. Any trees, shrubs, bushes, etc. damaged and which may die within a time period of one year after completion and acceptance of the work shall be replaced at the Contractor's expense. It is the intent of these specifications that all disturbed surfaces be replaced to their original condition. No additional payment will be allowed over and above the unit prices bid for the various items for any of the above work.

The cost of replacing gravel pavements, including all gravel shoulders, gravel driveways, lawns, shrubs, fences, etc., disturbed in connection with this contract shall be included in the cost bid for the various items under the contract.

The cost of replacing blacktop pavements and driveways and/or concrete pavements disturbed, with the approval of the Engineer, will be paid for under appropriate items of the contract.

10. Layout of Sewers

The Engineer will establish line and grade for the construction of all sewers by staking the location of each manhole and providing elevations (based upon contract datum) at each manhole. The Contractor shall work from such points provided by the Engineer and shall be responsible for all measurements necessary to establish such supplementary lines and grades that are required in order for him to install the sewers on the lines and at the grades shown on the drawings, or as modified at the direction of the Engineer to meet changed conditions or as a result of modifications to the work covered by the contract. Pressure sewers will be installed at a minimum depth of 6.0 feet below finished grade. Location of pressure lines will be established by the Engineer by staking bends, intersections, valve locations, etc.

The Contractor shall use the "laser" method of establishing line and grade for the installation of gravity sewers. If the Contractor desires to use some other method, he shall submit details of such other method to the Engineer in writing, and shall receive approval to use such other method from the Engineer prior to commencing the work.

11. Subsurface Structures

Certain subsurface structures and/or utilities are indicated on the plans, the exact location of which may vary from the locations shown. Attention of the Contractor is specifically called to the fact that the exact location of waterlines or other structures or utilities may be different than shown and it shall be the Contractor's responsibility to proceed with great care in performing the work.

It shall be the responsibility of the Contractor to determine the exact location of existing water lines, structures and/or utilities ahead of his work by test pits or other means and to take suitable precautions to prevent damage and interruption of service. If utilities are broken or damaged, they shall be restored by the Contractor at his expense. If structures encountered coincide with the location of work to be performed under this contract and the Engineer deems it advisable, the location of the work under this contract may be changed to avoid the structure. In such case, any delay occurring by the relocation of the sewer, water line or structure shall not entitle the Contractor to additional compensation.

12. Hand Excavation

In some locations, where the pipe lines will be installed adjacent to trees, fences, shrubs, etc., it may be necessary, in order to avoid damage to private property, and to prevent damage to tree roots, to perform excavation work by hand instead of by mechanical equipment. The Contractor shall use extreme care in such locations and shall be responsible for all damage. No additional payment will be allowed for hand excavation.

13. Systematic Clean-up Work

It is extremely important that general clean-up and repairs and completed sewer testing be progressed at a comparable rate to the sewer construction work under this contract. If at any time the Contractor fails to progress such general clean-up or sewer testing work at a rate satisfactory to the Owner and/or the Engineer, the Engineer may stop by written order any work or any part of the work until such time that general clean-up and sewer testing has been completed or progressed to the Engineer's satisfaction. Since general clean-up and sewer testing is included in the unit prices bid under the items for furnishing and installation of pipe of the various sizes, the Owner may withhold monies from periodic payment estimates for the Contractor's failure to perform such clean-up and testing, the amount of such withholding to be determined by the Engineer.

14. Rights-of-Way or Easements

Where work under this contract is performed on existing rights-of-way, the Contractor shall exercise special care to avoid damage to private property. He shall confine his operations to these limits unless he makes special arrangements with the property owners. All public and private properties shall be restored by the Contractor to at least as good condition as existed prior to entry by the Contractor to perform the work.

Whenever noted on the Contract Drawings that some of the work will be located on easements, if it becomes reasonably necessary in the course of construction of the proposed work, the Contractor may go upon the lands of the grantor immediately adjacent to the easement and temporarily lay excavated dirt thereon, lay material thereon, or use his machines and tools thereon, provided that the particular easement document contains a provision which allows such trespass. These easements have been or will be obtained by the Owner. The Contractor shall not enter upon or proceed with any portion of the work where easements are required (if any) until the Owner has completed his negotiations with the property owners. In case it is necessary to alter the contemplated sequence of the work due to the failure of the Owner to provide any necessary easements, the Contractor shall change such sequence of work as directed by the Engineer and shall have and shall make no claim under this contract for delay or damages in connection therewith.

15. Engineer's Temporary Field Office

The Contractor's attention is directed to the General Clauses Paragraph 2.1, Temporary Field Offices on General Clauses P. 6. A temporary field office will be required only for Contract No. 2. An air-conditioning unit shall be provided during the months of May through September and shall be capable of maintaining office temperatures of 75 degrees or less.

16. Lawn and Grassed Areas Restoration

Topsoiling and seeding of disturbed areas shall be performed as provided in the applicable sections of the General Specifications and in Critical Environmental Areas (if any) as specified under Item No. 32.3.

For lawn areas, seed mixture utilized shall be as follows:

<u>Percent by Weight</u>	<u>Species or Variety</u>	<u>Percent of Germination</u>	<u>Percent of Purity</u>
35%	Festuca - Kentucky 31	80%	95%
15%	Festuca-Vubra-Creeping Red Fescue	90%	90%
25%	Perennial Rye	80%	90%
25%	Poa Pratensis Kentucky Blue Grass	80%	90%

17. Dust Control

The use of calcium chloride for dust control purposes is prohibited on this project by USEPA regulations. The Contractor will, however, be expected to exercise dust control measures during construction to avoid dust conditions which present limited vision hazards to motorists and a nuisance in residential areas as well as the potential for property damage claims.

Dust control shall be performed in a timely and diligent manner by the Contractor and shall consist of at least the following measures:

1. Scraping and brooming of trench areas and adjacent paved areas to remove dust producing debris and materials.
2. Wetting of disturbed roadway areas during heavy traffic periods to eliminate and reduce dust formation.
3. Covering of disturbed trench areas with a layer of crushed stone or other non-dusting granular material, whenever pavement restoration cannot be accomplished in a timely fashion.

The Contractor shall include the cost of his dust control measures in his unit prices bid for the various items of work covered by the Form of Proposal.

18. Noise Control

Contractor shall comply with OSHA and all other applicable regulations pertaining to noise levels and control. He shall schedule construction in critical noise areas, such as schools, funeral homes, rest homes, hospitals, etc., so that the least disturbance to occupants and activities occurs. Contractor shall coordinate construction schedules with the director or other official of each such critical noise level facility to accomplish the work with a minimum of inconvenience to the normal activities of the facility.

19. Environmental Protection and Restoration

The Contractor's attention is directed to Item No. 32 of the Detailed Specifications which is a description of required Environmental Protection and Restoration procedures to be followed in areas which are designated as "Critical Environmental Areas" in the specification.

The specification provides guidance to the Contractor with regard to prohibited construction procedures, erosion control, disposal of spoil, protection of trees and shrubs, stream protection, construction in wetland areas, steep slope protection, and other activities. These guidelines shall be followed in "critical environmental areas" defined in the specification, to the extent specified under the description of applicable protective measures required for each area so designated.

In all other project work areas, the Contractor shall use environmentally sound construction practices designed to accomplish the intent of Detailed Specification Item No. 32. He shall follow the provisions of the following applicable sections of Item No. 32:

5. MATERIALS

- 5.1 General
- 5.2 Dry Rip-Rap Bank and Channel Protection
- 5.3 Topsoil
- 5.6 Sod
- 5.7 Granular Fill

6. CONSTRUCTION DETAILS

- 6.1 General
- 6.2 Prohibited Construction Procedures
- 6.3 Access and Temporary Roads
(filter fabric and hay bales not required)
- 6.4 Storage of Materials and Equipment
- 6.5 Site and Access Clearing
- 6.6 Stockpiling of Backfill Material
- 6.7 Location of Spoil Areas
- 6.8 Protection of Trees and Shrubs
- 6.9 Stream Corridors and Watercourse Crossing,
Erosion, and Sediment Control
- 6.11 Construction in Vicinity of Slopes
- 6.12 Environmental Protection during Temporary Work Stoppages
- 6.13 Restoration Procedures
- 6.14 Seeding and Planting
- 6.15 Adverse Soil and Ground Water Conditions
- 6.16 Restoration of Slopes and Banks
- 6.17 Time of Restoration
- 6.18 Removal, Preservation, and Replacement of Small
Caliper Native Trees.

The Contractor shall include his costs for environmental protection and restoration procedures in "critical environmental areas" identified in the specifications, in the appropriate items under Item No. 32 in the Form of Proposal.

The Contractor shall include his costs for environmental protection and restoration procedures in all other project areas, in the unit price bid for the various items for sewer pipe installation. Payment for work ordered by the Engineer under Item Nos. 32.2 through 32.6 shall be compensated under those items.

20. Optional Sewer Pipe Materials

It is the intention that the Contractor may elect to use ABS composite pipe, PVC pipe or asbestos cement pipe for the installation of sewers under this contract. The Contractor must make such election at the time of submitting his bid by checking the appropriate box provided at the end of the Proposal. Upon the election of the use of a particular piping material, the Contractor shall furnish such pipe material for sanitary sewers under Item Nos. 1.301, 1.302, etc., as well as under Item Nos. 3, 4, and 5. The Form of Proposal for this contract is set up for the use of ABS composite pipe per strength requirements of ASTM Specification D2680-7. If the Contractor elects to furnish asbestos cement pipe or PVC pipe, he shall base his bid submitted for each item in the Proposal upon the following listed strength classes which are also tabulated for his convenience at the end of the Proposal.

Asbestos Cement Pipe Item Nos. 1.101, 1.102, etc. of the following classes:

6" A.C.P.	0'-10' Deep (Class 2400)	
8" A.C.P.	0'-16' Deep (Class 2400)	16'-22' Deep (Class 3300)
10" A.C.P.	0'-14' Deep (Class 2400)	14'-22' Deep (Class 3300)
12" A.C.P.	0'-12' Deep (Class 2400)	12'-18' Deep (Class 3300)
15" A.C.P.	0'-16' Deep (Class 3300)	16'-22' Deep (Class 4000)
18" A.C.P.	0'-14' Deep (Class 3300)	14'-18' Deep (Class 4000)
21" A.C.P.	0'-12' Deep (Class 3300)	12'-16' Deep (Class 4000)

Polyvinyl Chloride (PVC) Sewer Pipe Item Nos. 1.201, 1.202, etc. shall meet the strength requirements of ASTM Specification D3034 (latest revision) for Type PSM PVC Sewer Pipe, SDR 35 for 4" through 15" diameter pipe.

ABS Composite Pipe Item Nos. 1.301; 1.302, etc. shall meet strength requirements as specified in ASTM Specification D2680-7 (or latest revision) for gravity sewer pipe. ABS solid wall pipe laterals shall be as specified under Item No. 1.301, etc., paragraph 3.

Detailed Specifications

Items Nos. 1.101, 1.102, etc. Asbestos Cement Pipe Sewers

1. Description

Under these items the Contractor shall furnish all labor, materials, tools and equipment to construct all asbestos-cement pipe sewers, as shown on the plans or as directed.

2. Asbestos Cement Pipe

All asbestos cement pipe (A.C.P.) shall conform to A.S.T.M. Specification C-428 (latest revision), for gravity sewer pipe, except that all pipe furnished shall have sufficient flexural strength to withstand a minimum applied proof load of 3,500 pounds, when applied at third points of a 12 foot span. Type II pipe is required.

Asbestos Cement pipe shall be furnished in the strength classes shown on the drawings, in the proposal or as specified. The class designation given refers to the crushing strength of the pipe per the A.S.T.M. 3-edge bearing method. Pipe shall be furnished in lengths not exceeding 13 feet for sizes 8 inches and larger, and not exceeding 5 feet for 5 inch sewer laterals. Short lengths shall be furnished and installed at connections to manholes and other structures. All pipe shall be coupled using an approved asbestos cement coupling and two rubber rings.

Asbestos-cement pipe lateral sewers extending from the street sewer to the property line or to such other point as may be determined by the Engineer in the field at the time of construction, shall be 5 inches in size, Class 2400, unless otherwise directed. All lateral sewers shall be installed at a slope of not less than 10 feet per 1,000 feet.

3. Laying Asbestos Cement Pipe

All pipe shall be laid in trenches, excavated or elsewhere specified herein. All joints shall be as above specified and shall be installed in complete accordance with the requirements of the manufacturer who shall have a representative at the site of the work to instruct the Contractor in the proper methods of installing the pipe and making the joints. The manufacturer's representative shall remain at the site of the work for such time as may be necessary to insure that the pipe is being properly installed.

All pipe shall be installed in accordance with the appropriate section or sections of the General Specifications, including Section 8C. Section 8C shall be followed for the installation and testing of asbestos-cement sewer pipe.

If any defective pipe or jointing assembly is discovered after

Detailed Specifications

being installed. It shall be removed, corrected and replaced. All expense resulting from defective or damaged pipe or jointing assemblies shall be borne by the Contractor.

All pipes and jointing assemblies shall be cleaned before they are laid, and shall be kept clean until they are inspected and accepted with the completed work. Open ends of pipe shall be kept properly plugged to prevent entrance of dirt, debris and water.

Unless otherwise directed, pipe shall be laid uphill, without any break in the line from manhole to manhole. When not laying pipe, the end of the line shall be kept properly closed, so as to prevent entrance of all dirt and water.

First Class bedding will be required for all sewer lines with compacted granular bedding placed where directed by the Engineer. (See General Specifications, Section 5-Trench Excavation and Backfilling, and Item No. 19-Granular Bedding).

4. Concrete Pipe Cradles

Where, in the opinion of the Engineer, the nature of foundation requires it, pipe shall be supported on concrete cradles.

In the trench excavated as specified, a cradle of such dimensions as are ordered by the Engineer shall be constructed of second class concrete, in accordance with the specifications for materials and for concrete construction.

The construction of cradles shall be made in two steps: First, the base slab shall be poured and allowed to set to such an extent as to bear the weight of the pipe to be placed thereon. This slab base shall be shovel finished and true to the gradient of the sewer.

After the pipe is in place, and the joints have been accepted, and the grade and alignment have been checked, the remaining portions of the cradle shall be poured and allowed to set for at least three days, free from water, before any backfill whatever is placed around the pipe.

All specifications elsewhere given pertaining to methods of concrete construction, earth excavation and metal reinforcement shall apply to any concrete pipe supports ordered by the Engineer.

In case it is decided to support the sewer structure on concrete piers above the existing surface, details of such construction will be furnished by the Engineer prior to the commencement of the work.

Payment for concrete pipe cradles and/or concrete piers, if required, will be made under other appropriate items of the contract.

5. Measurement and Compensation

Asbestos-cement pipe sewers will be measured from center to center of manholes along the centerline of the pipe. Depth of cut will be measured from the surface of the ground, before excavation starts, to the invert of the sewer.

The contract bid price per linear foot shall include all costs for labor, plant or material necessary to furnish and construct the sewers, as shown on the drawings, or as hereinbefore specified.

The respective price bid per linear foot under these items shall include all excavation, except rock excavation, of the trench to pipe sub-grade, all backfilling, tamping and water ramming of fill material, all disposal of surplus materials, all sheeting and bracing, all pumping and draining, all labor and materials for the construction complete of the sewers as shown on the drawings or as hereinbefore specified. It shall include the final testing for leakage; cleaning the sewers and line of trench; and any other incidental work. Payment for granular bedding and concrete pipe cradles and/or supports will be over and above the price bid per linear foot.

Payment will be made under these items for the number of feet of pipe and fittings installed, as measured along the centerline of the sewer. Wye branches in the line will be included in the measurement for payment.

The unit price bid per linear foot for 5 inch house laterals shall include all costs, as mentioned above, for asbestos-cement pipe sewers, and shall further include the cost of furnishing a 30 degree long radius bend between the wye branch and the run of 5 inch pipe, together with a plug or cap on the house end of the 5 inch lateral. All bends shall conform to the specifications for asbestos-cement pipe sewers.

Payment will be made under these items for laterals for the number of feet of pipe and fittings installed, as measured in a straight line from the centerline of the main sewer along the axis of the lateral pipe to the end of the plug, or cap, in the 5 inch lateral.

Item Nos. 1.201, 1.202, etc.
Polyvinyl Chloride (PVC) Sewer Pipe

1. Description

Under these items the Contractor shall furnish all labor, materials, tools and equipment to construct all polyvinyl chloride (PVC) pipe sewers as shown on the plans or as directed.

2. Polyvinyl Chloride Pipe

All polyvinyl chloride pipe (PVC) and fittings shall conform to ASTM Specification D3034 (latest revision) for SDR 35, Type PSM, Polyvinyl Chloride sewer pipe and fittings for 4" through 15" diameters. ASTM F679 (wall thickness T-1) shall apply to 18" through 27" diameters unless otherwise specified or shown on the plans.

All pipe and fittings shall be made from PVC components as defined and described in ASTM D-1784 for Rigid Polyvinyl Chloride compounds and Chlorinated Polyvinyl Chloride compounds.

Joints in polyvinyl chloride pipe shall be made by means of an integral bell formed with a race designed for a composite rubber gasket in accordance with latest ASTM Specification D3034.

Where PVC pipe passes through manhole walls, the Contractor shall use the standard manhole waterstop assembly, including gasket and clamp, similar to that specified for use with ABS Truss pipe under Item 1.301, 1.302, etc.

PVC pipe lateral sewers extending from the street sewer to the property line or to such other point as may be determined by the Engineer in the field at the time of construction, shall be 6 inches in size, unless otherwise directed. All lateral sewers shall be installed at a slope of not less than 10 feet per 1,000 feet.

3. Laying PVC Pipe

All PVC pipe shall be laid in trenches, excavated as elsewhere specified herein. All joints shall be as above specified and shall be installed in complete accordance with the requirements of the manufacturer who shall have a representative at the site of the work to instruct the Contractor in the proper methods of installing the pipe and making the joints. The manufacturer's representative shall remain at the site of the work for such time as may be necessary to ensure that the pipe is being properly installed.

All pipe shall be installed in accordance with the appropriate section or sections of the General Specifications, including Section 8C, which shall be followed for the installation and testing of PVC pipe sewers.

The Contractor shall test all pipe for the maximum allowable deflection by pulling a gage or mandrel, of a design subject to the approval of the Engineer, through the completed sewer lines. The gage or mandrel shall be designed to test deflection limits utilizing pipe "base inside diameters" as presented in ASTM Designation D 3034-81 (or latest revision). All pipe (except house lateral connections) between manholes shall be tested. Pipe shall be tested for deflection no sooner than three months after installation. Maximum allowable deflection shall be five percent (5%).

If any defective pipe or jointing assembly is discovered after being installed, it shall be removed, corrected and replaced. All expense resulting from defective or damaged pipe or jointing assemblies shall be borne by the Contractor.

All pipes and jointing assemblies shall be cleaned before they are laid, and shall be kept clean until they are inspected and accepted with the completed work. Open ends of pipe shall be kept properly plugged to prevent entrance of dirt, debris and water.

Unless otherwise directed, pipe shall be laid uphill, without any break in the line from manhole to manhole. When not laying pipe, the end of the line shall be kept properly closed, so as to prevent entrance of all dirt and water.

First Class bedding will be required for all sewer lines with compacted granular bedding placed where directed by the Engineer. (See General Specifications, Section 5-Trench Excavation and Backfilling, and Item No. 19-Granular Bedding).

4. Concrete Pipe Cradles

Where, in the opinion of the Engineer, the nature of foundation requires it, pipe shall be supported on concrete cradles.

In the trench excavated as specified, a cradle of such dimensions as are ordered by the Engineer shall be constructed of second class concrete, in accordance with the specifications for materials and for concrete construction.

The construction of cradles shall be made in two steps: First, the base slab shall be poured and allowed to set to such an extent as to bear the weight of the pipe to be placed thereon. This slab base shall be shovel-finished and true to the gradient of the sewer.

After the pipe is in place, and the joints have been accepted, and the grade and alignment have been checked, the remaining portions of the cradle shall be poured and allowed to set for at least three days, free from water, before any backfill whatever is placed around the pipe.

All specifications elsewhere given pertaining to methods of concrete construction, earth excavation and metal reinforcement shall apply to any concrete pipe supports ordered by the Engineer.

In case it is decided to support the sewer structure on concrete piers above the existing surface, details of such construction will be furnished by the Engineer prior to the commencement of the work.

Payment for concrete pipe cradles and/or concrete piers, if required, will be made under other appropriate items of the contract.

5. Measurement and Compensation

PVC pipe sewers will be measured from center to center of manholes along the centerline of the pipe. Depth or cut will be measured from the surface of the ground, before excavation starts, to the invert of the sewer.

The contract bid price per linear foot shall include all costs for labor, plant or material necessary to furnish and construct the sewers, as shown on the drawings, or as hereinbefore specified.

The respective prices bid per linear foot under these items shall include all excavation, except rock excavation, of the trench to pipe sub-grade, all backfilling, tamping and water ramming of fill material, all disposal of surplus materials, all sheeting and bracing, all pumping and draining, all labor and materials for the construction complete of the sewers as shown on the drawings or as hereinbefore specified. It shall include the final testing for deflection and leakage, cleaning the sewers and line of trench, and any other incidental work. Payment for granular bedding and concrete pipe cradles and/or supports will be over and above the price per linear foot.

Payment will be made under these items for the number of feet of pipe and fittings installed, as measured along the centerline of the sewer. Wye branches in the line will be included in the measurement for payment.

The unit price bid per linear foot for 6 inch house laterals shall include all costs, as mentioned above, for PVC pipe sewers, and shall further include the cost of furnishing a 30 degree bend between the wye branch and the run of 6 inch pipe, together with a plug or cap on the house end of the 6 inch lateral. All bends shall conform to the specifications for PVC pipe sewers.

Payment will be made under these items for laterals for the number of feet and fittings installed, as measured in a straight line from the centerline of the main sewer along the axis of the lateral pipe to the end of the plug, or cap, in the 6 inch lateral.

Detailed Specifications

Item Nos. 1.301, 1.302, etc. Acrylonitrile-Butadiene-Styrene Composite Sewer Pipe

1. Description

Under these items the Contractor shall furnish all labor, materials, tools and equipment to construct all Acrylonitrile-Butadiene-Styrene pipe sewers as shown on the plans or as directed.

2. Acrylonitrile-Butadiene-Styrene Composite Pipe

All ABS pipe shall conform to the requirements of ASTM Specification D2680-70 (or latest revision) for gravity sewer pipe.

ABS pipe shall be furnished with Type SC joints (solvent-cemented joints) in which pipe solvent cements into a coupling socket to form the joint closure.

ABS composite pipe shall be of two concentric thermoplastic tubes integrally braced across the annulus, and with the resultant annular space filled to provide continuous support between inner and outer tubes. Filling material shall be Portland Cement Perlite concrete. The thermoplastic material shall be a virgin rigid ABS plastic conforming to the requirements of ASTM Specification D1788 for rigid ABS plastics. Primer for solvent welding shall be methyl ethyl ketone (MEK) and the cement shall be MEK containing a minimum of 20% by weight of dissolved ABS of the same type and grade used in the tubing. ABS composite pipe shall be furnished in standard 12'-6" lengths, or 6'-3" half lengths.

Where ABS composite pipe passes through manhole walls, the Contractor shall use the standard manhole waterstop assembly as manufactured by Armco Steel Corporation, including gasket and clamp, or approved equal.

3. ABS Solid Wall Pipe

Six (6) inch lateral pipes shall be a virgin rigid ABS plastic conforming to the requirements of ASTM D-2751 Type 1 and Type 4 except that the minimum heat deflection temperature shall be 180 degrees Fahrenheit. Pipe shall be furnished in standard 12'-6" lengths or 6'-3" half lengths, and shall have a wall thickness of 0.210" with a plus or minus tolerance of 0.010 inches.

Fittings shall be standard wyes, tees, and long radius bends, made of solid ABS as outlined above. All pipe and fittings shall be clearly marked on the outside indicating the name of the manufacturer and the nominal diameter.

All 6 inch lateral sewers shall be installed at a slope not less than 6 feet per 1,000 feet.

4. ABS Composite Sewer Pipe

All ABS Composite Sewer pipe shall be laid in trenches, excavated as elsewhere specified herein. All joints shall be as above specified and shall be installed in complete accordance with the requirements of the manufacturer who shall have a representative at the site of the work to instruct the Contractor in the proper methods of installing the pipe and making the joints. The manufacturer's representative shall remain at the site of the work for such time as may be necessary to insure that the pipe is being properly installed.

All pipe shall be installed in accordance with the appropriate section or sections of the General Specifications, including Section 8C, which shall be followed for the installation and testing of ABS composite sewer pipe.

If any defective pipe or jointing assembly is discovered after being installed, it shall be removed, corrected and replaced. All expense resulting from defective or damaged pipe or jointing assemblies shall be borne by the Contractor.

All pipes and jointing assemblies shall be cleaned before they are laid, and shall be kept clean until they are inspected and accepted with the completed work. Open ends of pipe shall be kept properly plugged to prevent entrance of dirt, debris and water.

Unless otherwise directed, pipe shall be laid uphill, without any break in the line from manhole to manhole. When not laying pipe, the end of the line shall be kept properly closed, so as to prevent entrance of all dirt and water.

First Class bedding will be required for all sewer lines with compacted granular bedding placed where directed by the Engineer. (See General Specifications, Section 5 - Trench Excavation and Backfilling, and Item No. 19 - Granular Bedding).

5. Concrete Pipe Cradles

Where, in the opinion of the Engineer, the nature of foundation requires it, pipe shall be supported on concrete cradles.

In the trench excavated as specified, cradle of such dimensions as are ordered by the Engineer shall be constructed of Second Class concrete, in accordance with the specifications for materials and for concrete construction.

The construction of cradles shall be made in two steps: First, the base slab shall be poured and allowed to set to such an extent as to bear the weight of the pipe to be placed thereon. This slab base shall be shovel finished and true to the gradient of the sewer.

Detailed Specifications

After the pipe is in place, and the joints have been accepted, and the grade and alignment have been checked, the remaining portions of the cradle shall be poured and allowed to set for at least three days, free from water, before any backfill whatever is placed around the pipe.

All specifications elsewhere given pertaining to methods of concrete construction, earth excavation and metal reinforcement shall apply to any concrete pipe supports ordered by the Engineer.

In case it is decided to support the sewer structure on concrete piers above the existing surface, details of such construction will be furnished by the Engineer prior to the commencement of the work.

Payment for concrete pipe cradles and/or concrete piers, if required, will be made under other appropriate items of the contract.

6. Measurement and Compensation

ABS composite pipe sewers will be measured from center to center of manholes along the centerline of the pipe. Depth of cut will be measured from the surface of the ground, before excavation starts, to the invert of the sewer.

The contract bid price per linear foot shall include all costs for labor, plant or material necessary to furnish and construct the sewers, as shown on the drawings, or as hereinbefore specified.

The respective prices bid per linear foot under these items shall include all excavation, except rock excavation, of the trench to pipe sub-grade, all backfilling, tamping and water ramming of fill material, all disposal of surplus materials, all sheeting and bracing, all pumping and draining, all labor and materials for the construction complete of the sewers as shown on the drawings or as hereinbefore specified. It shall include the final testing for leakage; cleaning the sewers and line of trench; and any other incidental work. Payment for granular bedding and concrete pipe cradles and/or supports will be over and above the price bid per linear foot.

Payment will be made under these items for the number of feet of pipe and fittings installed, as measured along the centerline of the sewer. Wye branches in the line will be included in the measurement for payment.

The unit price bid per linear foot for 6 inch house laterals shall include all costs, as mentioned above, for ABS composite pipe sewers, and shall further include the cost of furnishing a 30 degree long radius bend between the wye branch and the run of 6 inch pipe, together with a plug or cap on the house end of the 6 inch lateral.

All bends shall conform to the specifications for ABS wall pipe sewers.

Detailed Specifications

Payment will be made under these items for laterals for the number of feet of pipe and fittings installed, as measured in a straight line from the centerline of the main sewer along the axis of the lateral pipe to the end of the cap, in the 6 inch lateral.

Item Nos. 1.40; 1.41, etc.
Furnishing and Installing
Cast Iron Pipe and/or Ductile Iron Pipe

1. Description

Under these items the Contractor shall furnish all materials, labor, tools and equipment required to furnish and install all cast iron and/or ductile iron pipe required for the gravity sewers, sewer force mains, or water mains (in trench or in casing pipes) as shown on the drawings, as herein specified, or as directed.

2. Cast Iron Pipe

All cast iron pipe shall be centrifugally cast in metal or sandlined molds in accordance with USAS Specifications A21.6 (latest revision) or USAS Specification A21.8 (latest revision) in 16, 16-1/2, 18 or 20 foot nominal lengths in all respects with the exception of the details of the joint. The joint shall be of the type which employs a single, elongated, grooved rubber gasket to effect the joint seal. The pipe shall be USAS thickness Class 22 unless noted otherwise in the proposal.

3. Ductile Iron Pipe

All ductile iron pipe shall be centrifugally cast in metal or sandlined molds in accordance with tentative USAS Specifications A21.51 (latest revision) or A.W.W.A. Specification C151 (latest revision) in 18 or 20 foot nominal lengths. The joint shall be of the type which employs a single, elongated, grooved rubber gasket to effect the joint seal.

Ductile iron pipe shall be thickness Class 50 unless otherwise shown on the drawings and/or in the Proposal.

4. Cement Mortar Lining

All cast iron and ductile iron pipe shall be cement lined (twice standard thickness) and shall be paint seal coated, in conformance with USAS Specifications A21.4 (latest revision).

5. Replacement of Lawns, Shrubs, etc.

All lawns, shrubs, fences, gravel roadways and driveways and all gravel shoulders disturbed in connection with the construction work shall be replaced by the Contractor to as good a condition as prior to the construction work. The cost for such replacement shall be included in the unit prices bid for the various items. Additional payment will not be allowed. Blacktop and concrete pavements, driveways and concrete sidewalks destroyed, with the approval of the Engineer, shall be replaced by the Contractor under appropriate items of the contract.

6. Cover over Pipelines (Sewage Force Mains or Water Mains)

Unless otherwise directed, or noted upon the plans, all pressure pipelines shall be installed with a distance of not less than 5'-0" from the surface of the ground to the centerline of the pipe. The Contractor shall claim no additional compensation if pipelines are installed with 6 inches greater depth than specified above. If, however, the pipelines are installed at a greater depth than would be covered by this 6 inch variation, the Contractor will be paid for additional excavation under the appropriate item of this contract. In arriving at the amount of additional excavation to be paid the Contractor, such amount will be figured based upon the difference in depth, as above specified, and the actual depth at which the pipeline is installed, and the width for which payment will be allowed will be the nominal diameter of the pipe, plus 2'-0".

Additional excavation will be allowed only where specific instructions are given to install the pipe at a greater depth, and not for a greater depth occasioned by minor surface irregularities or to provide proper alignment and grade in locations where a greater depth is necessary for distances under fifty (50) feet in length.

7. Trench Excavation and Backfill

Trench excavation and backfill shall be performed in accordance with the applicable sections of the General Specifications. Pavement must be removed by a method approved by the Engineer. Use of a hydraulic ram or drop hammer will not be permitted. The unit price bid under these items shall include the restoration of all disturbed surfaces to their original condition, except where payment is provided under other items of the contract.

8. Laying Cast Iron Pipe or Ductile Iron Pipe

See Section 7 of the General Specifications, "Installation of Cast Iron Water Mains" shall apply to the installation of sewage force mains or water lines. Section 8C shall also apply to the installation and testing of cast iron/ductile iron gravity sewers.

9. Testing

All pipelines shall be given a pressure test and leakage test in general accordance with Section 7 of the General Specifications, with the following exception:

The allowable leakage shall not be greater than 20 percent (20%) of the leakage determined by the formula on Page 12, Section 7 of the General Specifications.

10. Certification

The Contractor shall submit a certification from the pipe manufacturer that the pipe furnished has been manufactured in accordance with the above specifications.

11. Cleanup

The Contractor shall systematically and thoroughly clean up the work as it progresses, leaving the line of the trench in substantially the same condition as existed prior to performing the work.

All unused materials, excess excavation, etc. shall be removed as the work progresses, and the cleanup shall be progressed to the entire satisfaction of the Engineer.

12. Measurement and Compensation

The unit prices bid per linear foot under these items includes all costs to furnish all materials, labor, tools and equipment required to install the cast iron or ductile iron pipelines, as specified herein.

The unit price is to cover all clearing and grubbing, all excavation (except rock excavation), furnishing and installation of the pipe in pipe sleeves and/or in trench, together with all incidental work that may be required for a complete and satisfactory installation.

Payment will be made at the unit prices bid for the number of linear feet of pipeline of the various sizes installed, as determined from field measurements. Such field measurements will be made along the axis of the pipeline and will include all fittings, valves, etc. in the line. Depth of cut will be measured from the surface of the ground, before excavation starts, to the invert of the sewer.

Payment for fittings is over and above the unit price bid for these items.

See General Specifications Section 5 "Trench Excavation and Backfill", paragraph 26 for "Exploration Prior to Construction Work."

Detailed Specifications

Item Nos. 1.601; 1.602; 1.603, etc. Furnishing and Installing Polyvinyl Chloride Pressure Sewers

1. Description

Under these items the Contractor shall furnish all polyvinyl chloride (PVC) pipe and other materials, labor, tools and equipment required to install the pressure sewer mains and house service pipes as shown on the plans, as specified or as directed.

2. Materials

PVC pipe and fittings shall be made from virgin polyvinyl chloride compound conforming to the requirements of the ASTM Specifications D 1784, Type 1, Grade 1, 2,000 psi design stress. All PVC pipe shall conform to the latest revisions of ASTM Specification D 2241, Department of Commerce PS 22-70 (SDR-PR) (Pressure Rated Pipe and National Sanitation Foundation Testing Laboratories. All fittings and couplings required to join sections of pipe shall be furnished by and at the expense of the Contractor. Where connections are to be made to mains, a tee of proper size shall be installed. Fittings and bends shall be used at intersections and changes in alignment. The cost of fittings shall be included in the unit price bid per foot of pipe. All joints shall be made by the solvent weld process. Each length of pipe shall be marked to identify size, type, grade, SDR rating, ASTM designation, and manufacturer. All PVC pipe shall be SDR-26 (Standard Dimension Ratio) unless specified otherwise in the Form of Proposal.

3. Installation

In general, PVC pressure sewer mains and service pipe shall be installed at a minimum depth of six feet below finished grade. All pipe shall be installed in accordance with the applicable provisions of Section 7 of the General Specifications, "Installation of Cast Iron Water Mains." The service pipe shall be attached to the curb stop in a manner satisfactory to the Engineer. In making cuts in service pipe, an approved pipe cutting device shall be used and jointing shall be as recommended by the manufacturer.

All pipelines shall be tested for leakage and in all instances the curb stops shall be left in a closed position until after grinder pump units have been installed.

Detailed Specifications

All pipe shall be kept free of sediment, debris, water or other foreign material. Ends of pipe and fittings shall be closed securely with removable plugs at night, during storms or at anytime the work is left. All pipe shall be neatly piled and stored out of direct sunlight, and shall be installed in strict accordance with the manufacturer's recommendations.

4. Replacement of Lawns, Shrubs, etc.

All lawns, shrubs, fences, gravel roadways and driveways and all gravel shoulders disturbed in connection with the construction work shall be replaced by the Contractor to as good condition as prior to the construction work. The cost for such replacement shall be included in the unit prices bid for the various items. Additional payment will not be allowed. Blacktop and concrete pavements, driveways and concrete sidewalks destroyed, with the approval of the Engineer, shall be replaced by the Contractor under appropriate items of the contract.

5. Cover over Pipelines

Unless otherwise directed or noted upon the plans, all pipelines shall be installed with a distance of not less than 6'-0" from the surface of the ground to the centerline of the pipe. The Contractor shall claim no additional compensation if pipelines are installed with six inches greater depth than specified above. If, however, the pipelines are installed at a greater depth than would be covered by this six inch variation, the Contractor will be paid for additional excavation under the appropriate item of this contract. In arriving at the amount of additional excavation to be paid the Contractor, such amount will be figured based upon the difference in depth, as above specified, and the actual depth at which the pipeline is installed, and the width for which payment will be allowed will be the nominal diameter of the pipe, plus 2'-0".

Additional excavation will be allowed only where specific instructions are given to install the pipe at a greater depth, and not for a greater depth occasioned by minor surface irregularities or to provide proper alignment and grade in locations where a greater depth is necessary for distances under fifty (50) feet in length.

6. Trench Excavation and Backfill

Trench excavation and backfill shall be performed in accordance with the applicable sections of the General Specifications. Pavement must be removed by a method approved by the Engineer. Use of a hydraulic ram or drop hammer will not be permitted. The unit price bid under these items shall include the restoration of all disturbed surfaces to their original condition, except where payment is provided under other items of the contract.

7. Testing Completed Pipelines

All pipelines shall be given a pressure test and leakage test in general accordance with Section 7 of the General Specifications.

8. Certification

The Contractor shall submit a certification from the pipe manufacturer that the pipe furnished has been manufactured in accordance with the above specifications.

9. Cleanup

The Contractor shall systematically and thoroughly clean up the work as it progresses, leaving the line of the trench in substantially the same condition as existed prior to performing the work.

All unused materials, excess excavation, etc. shall be removed as the work progresses, and the cleanup shall be progressed to the entire satisfaction of the Engineer.

10. Measurement and Compensation

The unit prices bid per linear foot under these items includes all cost to furnish all material, labor, tools and equipment required to install the PVC pipelines of the various sizes, as specified herein.

The unit price is to cover all clearing and grubbing, all excavation (except rock excavation), furnishing and installation of the pipe, together with all incidental work that may be required for a complete and satisfactory installation.

Payment will be made at the unit prices bid for the number of linear feet of pipeline of the various sizes installed, as determined from field measurements. Such field measurements will be made along the axis of the pipeline and will include all fittings, valves, etc. in the line.

Payment for fittings shall be included in the unit price bid for these items.

See General Specifications Section 5 " Trench Excavation and Backfill", paragraph 26 for "Exploration Prior to Construction Work."

Item Nos. 1.701; 1.702; 1.703, etc.
Furnishing and Installing Copper Pipe

1. Description

Under these items the Contractor shall furnish all copper pipe and all other materials, labor, tools and equipment required to install copper pipe in house basements, from the grinder pump units to the basement foundation wall and the point of connection with polyvinyl chloride (PVC) service pipe installed under other items of this contract, as shown on the plans, as specified or as directed.

2. Materials

Copper pipe shall be Type "L" copper tubing. All fittings and couplings required to join sections of tubing shall be furnished by and at the expense of the Contractor and shall be wrought copper for soldered sweat type joints.

3. Installation

Copper pipe shall be utilized inside basements only and the transition from copper to PVC pipe shall be made at the interior basement wall face. Pipe shall be installed in a neat and workman-like manner and shall be fastened securely to walls or floor joists (overhead) with approved hangers or strapping. Adapters and unions required to join the copper pipe to PVC pipe and to the grinder pump units shall be furnished by this Contractor as part of the cost per linear foot for furnishing copper pipe.

All services shall be tested for leakage and in all instances the curb stop shall be left in a closed position until grinder pump units are placed into service.

4. Measurement and Compensation

The unit price bid per linear foot for copper pipe of the various sizes under these items, includes the furnishing of all material, tools, labor and equipment required to install the copper tubing as above specified.

Payment will be made for the number of linear feet of copper tubing installed of the various sizes at the unit price bid per linear foot, based upon field measurements, which shall be the distance as measured along the run of pipe of connection and shall include fittings, valves and couplings.

Item Nos. 2.01, 2.02, etc.
Manholes

1. Description

Where shown on the plans and where directed, manholes with iron or aluminum steps and iron covers and with concrete bottoms shall be constructed in accordance with the contract drawings and the directions of the Engineer. Manholes shall be either concrete block manholes or precast concrete manholes. All manholes shall be watertight. In general, and unless otherwise specified, manholes are to be circular and 4 feet in diameter on the inside at the bottom. For a standard manhole, the sides shall be carried up vertically to within 32 inches of the top, and then shall gradually diminish in size as shown on the plans, until at the top they shall be of proper dimensions shown.

2. Concrete Block Manholes

Concrete block manholes shall be constructed in accordance with the standard manhole detail on the plans.

Every joint must be carefully filled with mortar or the character specified by the Engineer, and on the inside surface, the joints shall be neatly struck and pointed with a trowel.

All manholes shall be smoothly plastered on the outside with a 5/8 inch thick coating of mortar, which shall then be painted with a full coat of bitumastic sealer. The invert shall be built of brick or concrete on a concrete base having a minimum thickness of 8 inches, and the cross section shall have the same shape and size as the inverts connected, and shall be smooth.

Plugged connections for future extensions shall be installed in all manholes where indicated on the plans, or as directed by the Engineer in the field.

Concrete blocks shall be precast to form a circular manhole of the dimensions indicated on the drawings and shall be at least 6 inches in thickness for depths up to 8 feet, 8 inches up to 12 feet and 12 inches over 12 feet; shall be constructed of first class concrete and shall meet all requirements for concrete masonry units ASTM Designation C139. Mortar for use in laying blocks shall be mixed in the proportion of one part of cement to two parts of sand, and all joints shall be not over 1/2 inch in thickness. Concrete blocks cast for the construction of manholes shall be purchased from experienced and approved manufacturers and before placing his order for any manhole material of this type, the Contractor shall submit to the Engineer for his approval, plans and specifications for the particular type of block he proposes to use.

3. Precast Concrete Manholes

Precast concrete manholes shall be constructed with precast manhole sections and shall conform to ASTM Specification C-478-T, latest revision. The Contractor shall submit drawings for the Engineer's approval of the particular precast manhole which he proposes to furnish.

All reinforced concrete shall be 4,000 psi concrete. Air entrained cement will be utilized when required by the Engineer. Precast manhole base sections shall be set in place on a compacted layer of approved gravel or crushed stone, not less than 6 inches in thickness. Base sections shall include a portion of the manhole wall and shall include properly sized and located wall openings for each of the required inlets and outlets in the manhole.

Precast wall sections of varying heights shall be jointed to the base section to bring the structure to the required finished ground surface. An eccentric conical top section shall be used to reduce the inside diameter of the manhole from 4 feet to 2 feet. The joints between wall sections shall be sealed by the installation of a flexible, premolded, endless O-ring gasket.

4. Castings

Manhole frames and covers shall be of the pattern shown on the drawings, or of approved equivalent patterns and shall have suitable raised letters cast in the top of the cover. They shall be whole and free from all defects. The iron castings shall conform to the requirements of ASTM Designation A-48 (latest revision) for Class 30 iron, unless otherwise specified and shall be so certified in writing upon request. Castings shall be free from pouring faults, sponginess, cracks, blow holes and other defects. The presence of such defects shall be cause for rejection. Before leaving the foundry, they shall be thoroughly cleaned and subjected to the hammer test, after which they shall be covered with asphalt or other approved substance applied at a temperature of about 300 degrees Fahrenheit in such a manner as to provide a firm, durable and tenacious coating. Covers and frames shall be machined to provide an even fit.

5. Ladder Rungs

As shown by the details, manholes are to be provided with ladder rungs spaced as shown. Ladder rungs shall be made of cast iron or aluminum of the dimension shown and shall be inserted between the blocks, or precast into the structure if the walls are of poured concrete.

6. Concrete

The floors and such other portions of the manholes as the Engineer may designate shall be constructed of first class concrete. Concrete for this purpose shall meet all requirements as to ingredients, methods of mixing and placing, hereinafter specified.

Metal reinforcement shall be placed in the floors and side-walls of any manholes so ordered by the Engineer.

7. Measurement and Compensation

The unit prices bid for manholes, shall include all costs for labor, plant or material necessary to construct manholes of the diameters and depths required, complete with frame and cover as detailed on the drawing, as listed in the proposal and as hereinbefore specified.

The bid price shall include all excavation, backfilling, sheeting and bracing, pumping and draining, furnishing and installing either a concrete block manhole or a precast concrete manhole, furnishing and placing of the cast iron frame and cover, manhole steps and any other incidental work required for a complete installation. The depth for which payment will be made will be measured from the top of the manhole cover to the invert of the lowest sewer.

Payment for the construction of outside drops will be made under other appropriate items of the contract.

Item No. 2.20
Pressure Sewer Clean-out Chamber

1. Description

Under this item the Contractor shall furnish all materials, labor, tools and equipment required to install clean-out chambers as detailed on the plans as specified herein and in the locations shown on the plans. This item shall include a precast concrete manhole of the diameter shown, installed on a bed of pea gravel, a cast iron frame and cover of the dimensions shown, a cast iron gate valve and all polyvinyl chloride (PVC) fittings as shown.

2. Materials

The precast concrete manhole shall conform to ASTM Specification C-478 (latest revision) regarding concrete and reinforcing. Ladder rungs shall be provided as shown on the plans. They may be made of cast iron or aluminum with that portion of the aluminum steps inside the concrete, precoated with asphalt.

The manhole frame and cover shall be of an approved pattern with suitable raised letters cast in the cover. They shall be whole and free of all defects, shall conform to the requirements of ASTM Designation A-48 (latest revision) for Class 30 iron and shall be free from pouring faults, sponginess, cracks, blowholes and other defects. Such defects shall be cause for rejection. Before leaving the foundry, they shall be thoroughly cleaned, subjected to a hammer test and then covered with asphalt or other approved substance applied at a temperature of about 300 degrees F. so as to provide a firm durable and tenacious coating. Cover and frame shall be machined to provide an even fit.

Line valves shall be double gate valves of the proper size designed for water working pressure of 150 psi and shall be furnished with threaded ends and non-rising stem. They shall be of the "O" ring type of construction and shall open by turning the stem counterclockwise or to the left. The valve shall be installed utilizing PVC plastic male adapters, threaded on one end and with solvent weld joints on the other end.

Curb stops shall be of the standard waterworks ground key type without drain similar or equal to the Mark II Oriseal Style H-15204, as manufactured by the Mueller Company, or gravel key stops as manufactured by James B. Clow and Sons, Inc. PVC pipe and fittings shall conform to Item Nos. 1.601; 1.602, etc.

Detailed Specifications

All work shall be done in a neat and workmanlike manner as shown on the plans, as required and as may be ordered by the Engineer.

3. Measurement and Compensation

The unit price bid for this item shall include all costs for furnishing all materials, labor, tools and equipment and necessary incidentals required to furnish and install the clean-out chambers complete, as shown on the plans and as specified or as directed. Payment will be made in accordance with the contract for each clean-out chamber furnished and installed.

Detailed Specifications

Items Nos. 2.50, 2.51, etc. Lampholes

1. Description

Where shown on the plans or where directed, lampholes with cast iron covers shall be constructed in accordance with the Contract Drawings and the directions of the Engineer. Pipe risers, bends, and wye branches as shown on the drawings shall be the same material as that used for the sewer main or sewer lateral, and shall be supported on second class concrete as shown on the Contract Drawings. The standard manhole frame and cover shall be of the pattern shown on the drawings or of approved equivalent pattern and shall have raised letters cast in the top of the cover. They shall be whole and free from all defects and shall conform to the requirements of A.S.T.M. Designation A-48 (latest revision) for Class 30 iron unless otherwise specified, and shall be so certified in writing upon request. Casting shall be free from pouring faults, sponginess, cracks, blowholes, and other defects. The presence of such defects shall be cause for rejection. Before leaving the foundry they shall be fully cleaned and subjected to the hammer test, after which they shall be covered with asphalt or other approved substance applied at a temperature of about 300 degrees Fahrenheit in such a manner as to provide a firm, durable and tenacious coating. Covers and frames shall be machined to provide an even fit. Frames shall be supported for their full circumference upon ring of concrete bricks which shall be placed on well tamped backfill. The upstream end of the wye branch and the top of the riser pipe shall have watertight caps and plugs as approved by the Engineer.

2. Measurement and Compensation

The unit prices bid for lampholes shall include all costs for labor, tools, equipment or material necessary to construct the lampholes of the diameters required, complete with frame and cover as detailed on the drawing, as listed in the proposal, and as hereinbefore specified.

The bid price shall include all backfill, sheeting and bracing, pumping and draining, furnishing and installing the necessary wye branch, bend, riser pipe, caps or plugs, second class concrete, cast iron frame and cover, and any other incidental work required for a complete installation.

Payment will be made at the unit price bid for each lamphole installed in accordance with the above specifications.

Detailed Specifications

Item No. 2.9 Painting Concrete Manhole Interiors

1. Description

Under this item, the Contractor shall furnish all labor, tools, equipment and materials required to paint the interior of certain manholes only as indicated on the Contract Drawings.

2. Painting

At locations shown in the various profiles in the Contract Drawings, certain concrete and/or concrete block manholes so indicated, shall be entirely painted on the interior with a coat of approved bitumastic sealer. This coating shall be in addition to the bitumastic coating required on the exterior of all concrete and/or concrete block manholes, as shown on the Contract Drawings.

3. Measurement and Compensation

The unit price bid for this item shall include all costs for labor, tools, equipment and materials required to apply a complete coat of bitumastic sealer to the interior of each manhole so indicated on the Contract Drawings regardless of depth or diameter of manhole. Payment will be made at the unit price bid per manhole upon the satisfactory completion of each manhole so painted.

Detailed Specifications

Item No. 2.95 Watertight Manhole Frames and Covers

1. Description

Under this item the Contractor shall furnish and install watertight, locking type manhole frames and covers on all manholes shown on the plans as requiring watertight, locking type frames and covers or as specifically designated by the Engineer in the field.

2. Specifications

These castings shall be subject to the requirements of specifications given under Item No. 2, Manholes, and to details as shown on the contract drawings.

3. Measurement and Compensation

Watertight, locking type manhole frames and covers furnished and installed under this item will be paid for separately at the unit price bid. It is the intention that the unit price bid under this item will be only to cover the additional cost for furnishing watertight, locking type manhole frames and covers, instead of the standard manhole frames and covers included in the price of manholes under Item No. 2.

Payment will be made for the actual number of sets of watertight, locking type manhole frames and covers installed, as shown on the drawings or as directed by the Engineer.

Detailed Specifications

Item Nos. 3.01, 3.02, etc. Installation of Wye Branches

1. Description

Under the above items the Contractor shall furnish and place wye branches with outlets of the size noted in the proposal, in the street sewers at such locations as specifically designated by the Engineer in the field. Wye branches to be installed under these items shall be of the same material and shall meet all requirements of the specifications for the pipe furnished.

All wye branches (where house laterals are not to be installed at this time) shall be sealed with an approved cap. Additional payment will not be made for furnishing and installing the cap.

2. Measurement and Compensation

Wye branches furnished and placed under these items will be paid for separately at the unit price bid and will be in addition to the unit price bid per linear foot for street sewers. The bid price shall include the furnishing and laying of the wye branches in the trench, making the joints, furnishing and properly sealing with approved caps and shall include all labor, tools and materials required for a complete installation.

Payment will be made for the actual number of wye branches of the various sizes installed in accordance with the directions of the Engineer.

Detailed Specifications

Item Nos. 3.21; 3.22; 3.23, etc.
Tapping Sleeves and Valves

1. Description

Under this item the Contractor shall furnish all labor, tools, material and equipment required to install tapping sleeves and valves of the size noted on the plans and in such other locations as may be required.

2. Materials

Tapping sleeves and valves shall be the product of one of the well known valve companies and as approved by the Engineer. Valves and valve boxes shall be in accordance with the specifications under the item of "Valves and Valve Boxes."

3. Installation

Installation shall be performed by the use of modern equipment, designed especially for this purpose and under the direction of a skilled operator. The sleeve shall accurately fit the existing pipeline which may be either cast iron or asbestos cement. The Contractor must determine the outside diameter and material of the existing pipeline. Installation of valve and valve box shall comply with specifications given elsewhere herein.

4. Measurement and Compensation

Payment will be made under these items for the number of tapping sleeves, valves and valve boxes of the various sizes installed, at the unit price bid under these items.

Detailed Specifications

Item Nos. 3.51; 3.52; 3.53, etc. Furnishing and Installing Double Gate Valves and Boxes

1. Description

Under these items the Contractor shall furnish and install the necessary valves and valve boxes required to construct the various pipelines hereinbefore specified, as indicated on the plans or as directed.

2. Specifications Applicable

All excavation, backfill and embankment required for the installation of the valves under this item will be performed as specified under other items of this contract.

Valves shall be double gate valves, designed for a water working pressure of 150 pounds per square inch, and shall be furnished and installed in accordance with Section 10, "Valves and Gates", in the General Specifications. All valves shall open by turning the stem counterclockwise, or to the LEFT. Valves shall be of the "O" ring type of construction.

Valves shall be AWWA approved double gate valves as manufactured by "Clow", "Dresser" or equal.

3. Type of Valve Boxes and Method of Installation

All valve boxes shall be of the adjustable type to set over valves in a pipeline having approximately six feet of cover. Valve boxes shall be of cast iron, shall be substantially made, shall have a removable cast iron cover with the word, "SEWER", on which an arrow shall indicate the direction the valve must turn for opening. Valve boxes shall be placed in a plumb position over the valves, and the adjustable sections shall be arranged as to finish flush with the ground surface. All valve boxes shall be set on well-tamped backfill to avoid future settlement.

4. Valve Box Extensions

All valve box extensions shall be the product of James B. Clow & Sons, Inc. (Number F-2477) "Dresser Manufacturing Division", Newark Foundry Company" or equal.

5. Measurement and Compensation

The respective unit prices bid under these items shall include all costs for materials, labor, tools, equipment and necessary incidentals required to furnish and install the necessary valves and valve boxes as indicated on the plans, and as specified or as directed.

The quantity to be paid for under these items shall be the actual number of valves of the various sizes installed in the work in accordance with the directions of the Engineer.

Item No. 3.8 provides for payment for valve box extensions in multiples of 14 inches if the combined extension length of the top and bottom section of the valve box required exceeds 72 inches.

Detailed Specifications

Items Nos. 4.01; 4.02; 4.03, etc. Furnishing and Installing Corporation Stops

1. Description

Under these items the Contractor shall furnish all corporation stops and all other material, labor, tools and equipment required to tap the mains and install the corporation stops of the various sizes.

2. Corporation Stops

Corporation stops shall be standard Water Works corporation stops similar or equal to the Style H-15,000 corporation stop with straight coupling nut for use with copper tubing, as manufactured by the Mueller Company. Corporation stops will have Mueller thread on the inlet. Comparable corporation stops by Ford Meter Box Co. or equal are acceptable.

3. Tapping Main

The main in all instances shall be tapped on the side of a horizontal position or in such a position as will provide approximately 5 feet of cover over the connecting service line. The main shall be tapped and the corporation stop installed in accordance with the most modern methods and the use of modern equipment. Corporation stops may be installed in the dry at the time of the installation, in such specific locations as designated by the Engineer in the field, or may be installed if the Contractor so desires at a later date, at which time the mains may be under pressure.

4. Measurement and Compensation

The unit price bid under each of the items includes the furnishing of all material, labor, tools and equipment required to tap the main and install the corporation stop. Payment will be made for the number of corporation stops ordered, installed and approved by the Engineer of the various sizes, in accordance with the specifications, and as directed by the Engineer.

Item Nos. 4.1; 4.2; 4.3, etc.
Inside Drop Manhole Connections

1. Description

Under this item the Contractor shall provide all materials, labor, tools and equipment required to provide an inside drop at such manholes and of such pipe sizes as may be indicated in the Proposal and on the plans and profile. A typical detail of the inside drop connection is shown on the plans. The connection shall be made by use of PVC pipe and fittings (ASTM D 3034-SDR 35) and shall be held in place by steel collars, bolts and masonry anchors, as shown on the detail and as required to firmly anchor the pipe in place.

2. Measurement and Compensation

The unit price bid per foot for drop manhole connections of the various sizes is over and above the unit price bid for manholes and shall include the furnishing of all materials, labor, tools and equipment required to make the drop connection as above specified. Payment will be made under this item for the number of feet of drop connection of the various sizes installed (the total number of feet being the vertical distance between the lowest invert elevation in the manhole to the invert elevation of the incoming sewer on which the drop connection is installed).

Detailed Specifications

Item Nos. 4.51; 4.52; 4.53, etc. Furnishing and Installing Curb Stops and Curb Boxes

1. Description

Under this item the Contractor shall furnish all curb stops and curb boxes and all other materials, labor, tools and equipment required to install curb stops and curb boxes in the locations directed by the Engineer.

2. Materials

Curb stops will be standard Water Works ground key type, T-handle, curb stops, without drain, similar or equal to the Mark II Oriseal Style H-1520 with coupling adapter style 15071 for polyvinyl chloride (PVC) pipe on the inlet and outlet, as manufactured by the Mueller Company or Ford Ball Valve Style B-22 series with coupling adapter Style C-07 series for PVC pipe on the inlet and outlet, as manufactured by The Ford Meter Box Company.

Curb boxes will be of the arch pattern extension type designed for installation on service lines having a cover of 5 to 6 feet. All boxes will be equipped with a stationary rod with malleable iron fork and copper pin. Curb boxes shall be similar or equal to Style H-10386 with foot piece for 1-1/4" to 2" curb stops, as manufactured by the Mueller Company or Style D-1H with foot piece Style CB-7 for 1-1/4" to 2" curb stops, as manufactured by Daigle-Aqua, Inc.

3. Installation

Curb stops and curb boxes shall be installed on the end of the house service lines in such locations as are specifically directed by the Engineer in the field at the time of construction. All curb boxes shall be set in a truly plumb position, supported underneath, in a manner approved by the Engineer, with the cast iron lid left flush or slightly above the surface of the ground. In general, curb stops and curb boxes will be installed at the property line.

4. Measurement and Compensation

The unit price bid for furnishing and installing curb stops and curb boxes under this item shall include all costs to the Contractor to furnish materials, labor, tools and equipment to install the curb stops and curb boxes as above specified.

Payment will be made at the unit price bid for the number of curb stops and curb boxes furnished and installed in accordance with the directions of the Engineer. Separate payment will not be made for the installation of the stops and boxes; the price is a combination price covering both curb stops and curb boxes of any one particular size.

Detailed Specifications

Items No. 5.1, 5.2, etc. Installing Pipe Risers

1. Description

Under this item the Contractor shall construct vertical pipe risers in locations as directed by the Engineer where the street sewers exceed 8 feet in depth. The pipe risers shall be constructed as detailed upon the contract drawings.

Pipe risers will consist of pipe and fittings of the same material specifications as the street sewer and shall be encased in first class concrete as indicated upon the plans. Single wye or double wye branch, or bend, shall be installed at the top of the riser, as directed by the Engineer in the field. Each open end shall be tightly and properly plugged with an approved plug, cap or stoppers, securely held in place.

2. Former Specifications Applicable

All appropriate specifications given elsewhere herein with regard to items of pipe, jointing methods, fittings, concrete, apply to materials and methods of construction required under this item.

3. Measurement and Compensation

Vertical pipe risers will be measured for payment vertically from the invert of the street sewer to the top of the wye branch above. The bid price per linear foot shall include the furnishing and installation of all pipe and fittings necessary, the furnishing and placing of the surrounding concrete, and all labor, tools and appurtenances necessary to complete the work as shown and as specified.

Payment will be made for the number of linear feet of pipe risers installed in accordance with the directions of the Engineer.

Item No. 7
Foundation Stone or Gravel

1. Description

Under this item the Contractor shall furnish all material, labor, tools and equipment necessary to furnish and place such foundation stone or gravel in the pipe trenches in such locations as may be specifically directed by the Engineer at the time of construction.

2. Materials

Foundation gravel for this purpose shall be crushed stone, or screened washed gravel, of a size satisfactory to the Engineer. It is the intent that under this item, foundation stone or gravel will be placed where required, and as specifically ordered by the Engineer, in order to provide a satisfactory foundation under the pipe lines to be installed under this contract.

Payment will not be made for foundation stone or gravel installed by the Contractor in locations where, in the opinion of the Engineer, satisfactory foundation conditions would be present if the trenches were dewatered by well points, or some other satisfactory means.

Foundation stone or gravel shall be placed to the depth and locations as directed by the Engineer, and in a manner to provide a satisfactory foundation for the pipe lines.

Payment will not be made for foundation stone or gravel placed under this item for widths greater than the nominal diameter of the pipe plus 2 feet, unless specifically authorized in writing by the Engineer.

3. Measurement and Compensation

The unit price bid per cubic yard under this item includes furnishing of all material, labor, tools and equipment required to furnish and place foundation stone or gravel, as herein specified. Also included shall be all necessary excavation from pipe sub-grade to the bottom of the foundation stone and gravel as well as the disposal of any excess excavation.

Payment will be made at the unit price bid per cubic yard for all foundation stone or gravel placed upon the specific instructions of the Engineer.

Item No. 8
Sheeting and Bracing Left in Place

1. Description

When the Engineer decides that sheeting and bracing already placed by the Contractor to hold the sides of the excavated trenches or excavated pits for other structures cannot be removed without danger or injury to the pipelines or other structures, he shall order it left in place. If so ordered, the tops of the sheeting shall be cut at a height not greater than 18 inches below the ground surface and this upper part removed.

When sheeting is left in place, special care shall be taken to backfill and consolidate any openings or packets which may have developed outside the sheeting, even if it is necessary to excavate from the ground surface in order to fill and compact any pockets or loose material. In particular, it is intended that sheeting shall not be left in such manner as to interfere with making proper connections to the pipelines or other structures.

2. Measurement and Compensation

The bid price per MFBM for sheeting left in place shall include all costs for labor, plant or material to leave such sheeting in place as is specifically ordered left by the Engineer. It shall include cutting off the tops of the planks at a depth 18 inches below the surface, the filling and consolidating of any pockets back of the sheeting, together with all incidental work for a complete job.

Payment will be made for the actual quantity left in place, as determined from field measurements.

Detailed Specifications

Item No. 9 Foundation Lumber

1. Description

Under this item is included any timber, planking or other lumber which may be ordered by the Engineer to provide proper foundations under any water main pipe included under this contract. Lumber for this purpose shall be merchantable spruce or yellow pine suitable for each of the purposes required, and shall be free from such defects, in the judgment of the Engineer, as would impair its strength or durability for the object used. It shall be cut and placed as directed, and thoroughly nailed or bolted together in a satisfactory manner. When used in connection with wood foundation piles, it shall receive at least two coats of creosote paint.

2. Measurement and Compensation

Foundation lumber will be paid for under this item as the net amount of lumber actually ordered and left in place. The unit price bid per MFBM shall include the furnishing of all materials, tools and appurtenances necessary to complete the foundation as ordered. Spikes, nails and bolts, where required, shall be included under this item for payment.

Detailed Specifications

Item No. 10 Additional Earth Excavation

1. Description

Under this item the Contractor shall furnish all material, labor, tools and equipment required to perform such additional earth excavation required over and above the quantity of earth excavation paid for under other items of the contract.

2. Former Specifications Applicable

All specifications hereinbefore given under other items of the contract, or in the General Specifications, shall apply to all work under this item.

3. Limits of Payment

If additional earth excavation is required in locations where it is necessary to install the pipe line at a greater depth than covered under other items, payment will be made for the number of cubic yards computed as having a width of trench 2 feet greater than the nominal diameter of the pipe, and a depth equal to the difference in depth between the depth called for under other items, and the actual depth to which excavation is made under this item.

4. Measurement and Compensation

Payment will be made at the unit price bid per cubic yard for all additional earth excavation performed in accordance with the above specifications.

Payment will be made based upon actual field measurements of the yardage involved.

Detailed Specifications

Items Nos. 11, 12, 13 Additional First, Second and Third Class Concrete

1. Description

Under these items the Contractor shall furnish all materials, labor, tools and equipment required to place additional concrete that may be ordered by the Engineer. The concrete under these items will be for any modifications in plans for the manholes on other structures, and in such locations and in such amounts as may be specifically ordered by the Engineer.

2. Compressive Strength

First class concrete shall develop not less than 3,500 pounds per square inch; second class concrete, not less than 2,500 pounds per square inch; and third class concrete, not less than 2,000 pounds per square inch. All concrete shall be furnished and installed in accordance with the applicable sections of the General Specifications.

3. Measurement and Compensation

Payment will be made under these items at the unit price bid for the actual number of cubic yards of concrete furnished and placed in accordance with these specifications and at the specific direction of the Engineer.

Detailed Specifications

Item No. 14 Additional Metal Reinforcing

1. Description

Under this item shall be included any additional reinforcing bars specifically ordered by the Engineer for any modifications in the design of the manholes or other structures included in this contract.

2. Type of Reinforcement

Metal reinforcement shall be purchased only from firms of established reputation in its manufacture. Reinforcing bars shall be in accordance with current standard specifications for billet steel concrete reinforcing bars of the ASTM Serial Designation A-15.

All steel for reinforcement shall be the intermediate grade of deformed bars.

Wire or fabric reinforcement, where required, shall meet the specifications for cold drawn steel wire, ASTM Designation A-82.

All reinforcement shall be clean and reasonably free from rust when placed in the forms. Where laps are required, they shall be not less than 40 diameters of the bar.

3. Measurement and Compensation

The bid price per pound under this item shall include all costs for labor, plant or material necessary to furnish and place any additional metal reinforcement over that shown on the plans, and specifically ordered by the Engineer.

Additional reinforcement will be paid for by the pound for the quantity ordered and placed.

Detailed Specifications

Item No. 15 Gravel Backfill

1. Description

Under this item the Contractor shall refill with acceptable run-of-bank gravel the entire depth of the trench or only such portions of the trenches as may be directed and shall place run-of-bank gravel in such other locations as may be directed.

This item does not include the replacing of the existing roadway surfacing, if any exists.

This item also does not include the furnishing and placing of the specified thickness of foundation course of approved R.O.B. gravel or crushed stone specified for all pavements under Item No. 17 - Restoring Pavements.

2. Gravel

Gravel used under this item shall be an acceptable run-of-bank gravel, as approved by the Engineer.

3. Installation

The entire trench, or only the upper portion of the pipe trenches for the full width of the excavation, in such locations as may be directed, shall be filled with run-of-bank gravel to a depth directed by the Engineer. This may be accomplished by removing and disposing of a portion of the original excavation and backfilling the upper portion of the trench with run-of-bank gravel, or completely backfilling the trench with the excavated material and the subsequent removal of earth and the placement of the run-of-bank gravel in the trench.

This material shall be placed as soon as practical after the general backfilling of the trench, and before the public is allowed access to that portion of the completed work.

The Contractor shall maintain the surface of the roadway from the time of placing the gravel at or above the original grade, in order to prevent damage to the adjacent pavement, if any, and shall provide additional run-of-bank gravel whenever required or directed by the Engineer to do so, up to the time of acceptance of the work or the replacing of the surface under other items of the contract.

4. Measurement and Compensation

Payment under this item will be made at the unit price bid for the number of cubic yards of gravel furnished and placed in accordance with the above specifications, and based upon field measurements.

Detailed Specifications

Payment will not be made for gravel backfill placed under this item for widths greater than the nominal diameter of the pipe plus 2 feet, unless specifically authorized in writing by the Engineer.

Payment will not be made for gravel backfill placed under this item beyond a rectangular shape, the planes of which lie not more than 3 feet from the face of manholes or other underground structures.

The cost of removing and disposing of the original trench excavation shall be included in the unit price bid per cubic yard under this item.

Item No. 16
Selected Backfill

1. Description

Where, in the opinion of the Engineer, the material excavated is not suitable for backfilling purposes, the Contractor shall remove and dispose of the excavated material, and furnish and place selected backfill in such locations as the Engineer may specifically direct.

2. Selected Backfill

Selected backfill will be any material which, in the opinion of the Engineer, is satisfactory for the purpose for which it is to be used. The material shall be furnished by and at the expense of the Contractor, and approval of the material must be obtained prior to its incorporation in the work.

The method of placing the selected backfill material shall be in general accordance with the appropriate sections of the Detailed or General Specifications.

3. Measurement and Compensation

Payment under this item will be made at the unit price bid for the number of cubic yards of selected backfill furnished and placed in accordance with the above specifications, and as directed by the Engineer.

The quantity for which payment will be made will be based upon field measurements of the trench or other excavation to be filled.

Payment will not be made for backfill placed under this item for widths of pipe trenches greater than the nominal diameter of the pipe being installed, plus 2 feet.

Payment will not be made for backfill placed under this item beyond a rectangular shape, the planes of which lie not more than 3 feet from the face of manholes or other underground structures.

All selected backfill required to fill trenches or other excavations beyond the limits specified above shall be by and at the expense of the Contractor.

The cost of removing and disposing of the original excavation shall be included in the unit price bid per cubic yard under this item.

Detailed Specifications

Item Nos. 17.1; 17.2; 17.3, etc.
Restoring Pavement, Driveways,
Sidewalks, Curbing, Gutters, etc.

1. Description

Under these items the Contractor shall restore all pavement, driveways, sidewalks, curbing, gutters, combination curbing and gutters, and other surfaces or structures that have been disturbed due to the construction work under this contract and which are not included in payment under other items of the contract.

All costs for removing pavements, sidewalks, curbing, gutters, etc. are to be included in the unit prices bid under other items of the contract.

2. Materials and Method of Construction

Pavements with a penetration macadam or asphalt concrete surface constructed on a gravel or earth sub-base shall be replaced with a two-course asphalt concrete surface having a total thickness after compaction of (1-1/2" and 1") 2-1/2 inches.

All pavements replaced shall have a foundation or sub-base course of approved granular material properly compacted to a depth of not less than 12 inches or as otherwise mentioned specifically in accordance with New York State Department of Transportation Specification Section 304. Sub-base material shall conform to the specification for Item No. 304.05, Type 4.

Bituminous concrete pavement shall be placed in two courses. The bottom course shall have a thickness after compaction of 1-1/2 inches and the top course shall have a thickness after compaction of not less than one inch, making a total pavement thickness of 2-1/2 inches. All bituminous concrete pavement shall be furnished and placed in accordance with the Standard Specifications Section 400 of the New York State Department of Transportation (NYSDOT). The bottom or base course shall conform to Item No. 403.13, Type 3 (dense intermediate course with relatively low permeability) of New York State Department of Transportation Specification Section 401. The top or wearing course shall conform to Item No. 403.16, Type 6 (dense granular texture) of the NYSDOT Specification Section 401. Where the wearing course is installed over existing pavement, the existing pavement surface shall be cleaned using a power broom and shall be clean and dry prior to the application of one course of Type 6 paving. Installation of all pavements shall conform to Specifications Section 400 of the NYSDOT Standard Specifications.

Detailed Specifications

Additional thickness of base course may be required in increments of one inch under the appropriate item in the proposal. If this contingent item is utilized, it is the intention that the base course would be installed as a single pavement course having a greater thickness.

Bituminous concrete sidewalks, driveways, and other non-roadway areas shall be replaced with a two-course pavement of bituminous concrete, with a minimum thickness after compaction of 2-1/2 inches, upon a sub-base of compacted gravel not less than eight inches thick.

New concrete gutter shall be of the dimensions shown on the drawing, installed in lengths not greater than 10 feet, and shall be placed on a gravel sub-base properly compacted not less than 12 inches in thickness.

Concrete sidewalks and driveways shall be replaced with six inches of first class concrete on a properly compacted run-of-bank gravel sub-base not less than eight inches in thickness.

Granite curbing shall be reset on a gravel sub-base not less than eight inches in thickness with not less than six inches of second class concrete under the curb and six inches of concrete-backing behind the curb.

Combination concrete curb and gutter shall be constructed of first class concrete to the dimensions shown on the plans and shall be placed on a gravel sub-base properly compacted not less than 12 inches in thickness.

New concrete curb shall be of the dimensions shown on the drawings and installed in lengths not greater than 10 feet.

Concrete curb, concrete gutter and combination curb and gutter shall be constructed of concrete having a strength of not less than 4,000 psi after 28 days, and shall, in general, be installed in accordance with the applicable sections of the General or Detailed Specifications.

3. Complying with State and Local Requirements

All Contractors will be expected to confer with State, City, Town, County, or other officials having jurisdiction over the pavements to be disturbed and replaced as to their requirements with regard to maintaining traffic, cutting pavement, the width of pavement which must be removed, sheeting and bracing which must be left in place, and other conditions affecting the construction work in placing pipelines under existing pavements.

The Engineer shall be the sole judge of the material required to be replaced and all materials used for this purpose shall have his approval prior to their incorporation in the work.

The pavements which are to be replaced shall, in general, not be replaced until such time as, in the opinion of the Engineer, trench backfill has reached its final settlement. If so directed by the Engineer, the Contractor shall lay temporary surfacing over the street or other area until such time as final settlement has occurred. Temporary pavement shall be blacktop pavement (as available at the particular time of year) and shall be placed to a thickness of not less than one inch. The Contractor shall maintain the temporary pavement in a satisfactory condition at all times.

All pavements shall be cut and replaced in straight lines and must present a neat appearance. Pavement shall be cut to neat lines by approved mechanical means. The use of a hydraulic ram or drop hammer for removal of pavements will not be permitted.

4. Measurement and Compensation

The unit price bid under the following items shall include all costs for labor, plant or material necessary to restore the various types of pavements, sidewalks, curbing, etc., as described above and which have been removed or damaged in connection with the construction work under this contract. The cost for placing the gravel base or sub-base under the various items of pavement, etc., is to be included in the unit price bid for the various items.

Item No. 17.1 covers the construction of two-course bituminous concrete pavement (2-1/2" total thickness) on a 12 inch gravel base.

Item No. 17.2 covers the construction of two-course bituminous concrete sidewalks and driveways (2-1/2" total thickness) on an eight inch gravel base.

Item No. 17.3 covers the construction of one inch thick temporary bituminous concrete pavement.

Item No. 17.4 covers the furnishing and placing of an additional 2-1/2 inches of thickness of bituminous concrete base course to increase the total base course thickness to 4 inches.

Item No. 17.5 covers the construction of concrete sidewalks and driveways on an eight inch gravel base.

Detailed Specifications

Payment for all of the above items (17.1 through 17.5) will be made for the number of square yards of pavement and/or sidewalks of the various types constructed and will include the necessary foundation course whenever specified and be based upon field measurements of the completed work. Payment will not be made under any of the above items for a width of pavement greater than 6'-0".

Under Item No. 17.6 the Contractor shall re-set such existing granite curbing that has been disturbed. All curb shall be placed on a gravel sub-base not less than eight inches in depth and second class concrete shall be placed under and back of the curb to a depth of not less than six inches. Payment will be made for the number of linear feet of granite curbing re-set at the unit price bid under this item.

Under Item No. 17.7 the Contractor shall furnish and place such new concrete curb as may be directed by the Engineer, and in accordance with the specifications hereinbefore given. Payment will be made for the number of linear feet of new concrete curb installed at the unit price bid under this item and based upon field measurements of the completed work.

Under Item No. 17.8 the Contractor shall furnish and place such new combination concrete curb and gutter as may be directed by the Engineer, and in accordance with the specifications hereinbefore given. Payment will be made for the number of linear feet of new concrete curb and gutter installed at the unit price bid under this item and based upon field measurement of the completed work.

Under Item No. 17.9 the Contractor shall furnish and place such new concrete gutter as may be directed by the Engineer, and in accordance with the specifications hereinbefore given. Payment will be made for the number of linear feet of new concrete gutter installed at the unit price bid under this item and based upon field measurement of the completed work.

Detailed Specifications

Item No. 18 Rock Excavation

1. Description

Under this item the Contractor shall remove all rock encountered in the excavation work.

The word "rock", whenever used as a name of an excavated material, shall mean boulders exceeding 1/2 cubic yard in volume, or solid ledge rock, which in the opinion of the Engineer, requires for its removal drilling and blasting or channeling or wedging, or sledging or barring. No soft or disintegrated rock which can be handled with a pick or shovel or with mechanical equipment with reasonable facility; no loose, shaken or previously blasted rock, or broken stone in rock filling or elsewhere; and no rock exterior to the maximum limits of measurement allowed which may fall into the excavation, will be measured or allowed for payment. Pavements or paving material, or the removal of masonry walls, etc., will not be classified or paid for as rock excavation.

All excavation work shall be carried out as specified in the General Specifications under the section, "Excavation, Backfill and Embankment."

2. Limited Price on Rock Excavation

The attention of the Contractor is called to the fact that inasmuch as the quantity of rock excavation is not definitely known, bids for rock excavation in excess of \$30.00 per cubic yard will not be considered. If, in the opinion of the Contractor, the unit price of \$30.00 per cubic yard is not sufficient, any additional cost over and above the \$30.00 per cubic yard shall be included in the unit prices bid under other items.

3. Measurement and Compensation

The unit price bid per cubic yard under this item shall include all costs for labor, materials, tools, equipment and necessary incidentals required to perform all rock excavation for all work under this contract.

The quantity of rock to be paid for under this item shall be the total volume removed, in accordance with the directions of the Engineer, and as determined from field measurements. Boulders with a total volume of 1/2 cubic yard or more from the excavation will be measured and paid for as rock excavation at the unit price bid.

In trench work, the quantity to be paid for will be measured as having a width 2 feet greater than the nominal diameter of the pipe, and from the surface of the rock to a point 6 inches below the invert of the pipe.

Detailed Specifications

For structures, the quantity of rock excavation to be paid for will be measured within vertical planes 3 feet outside the exterior face of the structures and from the surface of the rock to a point 6 inches below the underside of the base slab of the structure.

Detailed Specifications

Item No. 19 Foundation Concrete

1. Description

This item is to include any concrete placed to provide a foundation or cradle under pipes, manholes or other structures included under this contract. Concrete for this purpose shall be mixed in the proportion 1:2-1/2:5, and shall comply with all specifications hereinafter given under the item of second class concrete. Unless otherwise permitted by the Engineer, the concrete shall be mixed at the top of the trench by a batch mixer. Ready mixed concrete may be used, providing it is placed through a chute to the bottom of the trench.

Concrete cradles, if employed to support the pipe, shall be constructed as detailed on the drawings. First, a concrete base not less than 8 inches in thickness shall be placed entirely across the trench, after which the pipe shall be placed and the concrete brought up on either side for at least 1/2 the diameter.

The Contractor shall use care in the excavation of the trench to avoid unnecessary width of trench, and if concrete foundation is used, payment will not be made for concrete placed in excess of a width greater than 2 feet greater than the nominal diameter of the pipe.

2. Measurement and Compensation

The contract bid price per cubic yard for foundation concrete shall include all costs for labor, plant or material necessary to construct concrete cradles or foundation under any pipe or other structure included in this contract. The yardage for which payment will be allowed shall be the actual yardage in place as determined by the Engineer's field measurements, except that a width greater than above specified will not be measured for payment. If special foundations are required under any structures, a detail of such construction will be prepared by the Engineer.

Detailed Specifications

Item Nos. 19.1, 19.2, 19.3, etc. Granular Bedding

1. Description

Under this item the Contractor shall furnish all material, labor, tools and equipment, and including such additional excavation necessary to furnish and place granular bedding in the pipe trenches in such locations as may be specifically directed by the Engineer at the time of construction.

2. Materials

The granular material shall be crushed stone or pea gravel which will pass a 3/4 inch sieve, but will be retained on No. 4 sieve. Granular bedding shall have a minimum thickness of one-fourth the outside pipe diameter but shall not be less than 4 inches in depth and shall extend half way up the pipe barrel at the sides. It is desired to use a material which is well graded, which will reduce voids to a minimum. This material shall be placed for the full width of the trench excavation and carefully compacted under and around the pipe to a point half way up the pipe barrel at the sides. Compacted granular bedding is for the purposes of providing first class bedding for the pipelines in order to prevent future settlement and to be able to maintain proper grade and alignment.

The specifications elsewhere limit the width of the excavation at the top of the pipe to 2 feet greater than the nominal diameter of the pipe.

Where, in the opinion of the Engineer, foundation stone or gravel or compacted granular bedding would not be required, if the trenches were dewatered by well points or some other satisfactory means, payment will not be made for either foundation stone or gravel or compacted granular bedding.

3. Measurement and Compensation

The unit price bid per linear foot under this item includes furnishing of all material, labor, tools and equipment, and any additional excavation required, to furnish and place compacted granular bedding for the various pipe sizes as above specified and in the ranges of pipe sizes as listed hereafter.

Item No. 19.1	5" through 12" pipe
Item No. 19.2	14" through 18" pipe
Item No. 19.3	20" through 24" pipe
Item No. 19.4	30" through 36" pipe

Payment will be made at the unit price per linear foot for the number of linear feet furnished and placed under each item upon the specific instructions of the Engineer.

Detailed Specifications

Item No. 20 Soil Cement Backfill

1. Description

Where the pipelines to be constructed under this contract cross state, county or town highways, the Engineer may require that the entire backfill, or a portion of the backfill, be made with soil cement.

Under this item the Contractor shall furnish all material, labor, tools and equipment required to furnish and place soil cement backfill in such locations as may be specifically directed by the Engineer at the time of construction.

2. Materials and Method of Placing

Soil cement backfill shall consist of a machine mixture of cement and approved run-of-bank gravel in the proportions of one bag of cement to 12 cubic feet of gravel.

Backfill shall be placed in the trenches in layers not greater than 6 inches in thickness, and compacted by approved mechanical means to obtain a dense backfill.

Where soil cement backfill is ordered placed by the Engineer, the price bid per cubic yard shall include the removal and disposal of any surplus excavation performed under other items of the contract.

The run-of-bank gravel used under this item must be suitable, in all respects, for the purpose for which it is to be used, and shall receive approval of the Engineer prior to incorporation into the work.

3. Measurement and Compensation

The unit price bid per cubic yard under this item includes the furnishing and placing of such soil cement backfill as may be specifically ordered placed by the Engineer, and shall also include the removal and disposal of all surplus excavation.

Payment will be made for the actual number of cubic yards of material furnished and placed, based upon field measurements of the width and depth of the trench to be filled. Payment will not be made under this item for a total width of trench in excess of the nominal pipe diameter plus 2 feet, unless specifically authorized in writing by the Engineer. All soil cement required beyond this width shall be by and at the expense of the Contractor.

Detailed Specifications

Item No. 21 Earth Embankment

1. Description

Under this item the Contractor shall furnish all material, labor, tools and equipment that may be required to furnish and place earth embankment over the pipelines to provide additional cover, or in such other locations as may be specifically directed by the Engineer.

2. Materials

Material used for embankment shall be satisfactory, in the opinion of the Engineer, in all respects for the purpose for which it is to be used, and shall be furnished by and at the expense of the Contractor.

3. Former Specifications Applicable

All specifications hereinbefore given or contained elsewhere in these specifications, shall apply to work done under this item, if applicable.

4. Measurement and Compensation

Payment will be made at the unit price bid per cubic yard under this item for furnishing earth embankment in locations as specifically directed by the Engineer, and payment will be based upon the actual number of cubic yards of earth embankment furnished and placed in accordance with these specifications, based on field measurements of the completed work.

Item Nos. 23.01; 23.02; 23.03, etc.
Furnishing and Installing Casing Pipes

1. Description

Under these items the Contractor shall furnish and install casing pipes as hereinafter described and as shown on the contract plans in the following locations:

Boring No. 23.01:	Route 32 (Delmar Bypass)	- Sheet # 7
Boring No. 23.02:	Elsmere Avenue	- Sheet # 8
Boring No. 23.03:	Feura Bush Rd., @ McCombe Dr.	- Sheet #20
Boring No. 23.04:	Feura Bush Rd., near Murray Ave.	- Sheet #21
Boring No. 23.05:	Feura Bush Rd., @ Westphal Dr.	- Sheet #21
Boring No. 23.06:	Feura Bush Rd., @ Bain Dr.	- Sheet #26
Boring No. 23.07:	Flint Drive @ Alb. Water Conduit	- Sheet #23

The casings shall be of the diameter, length and thickness as shown on the plans. The work under this item includes the furnishing of all materials, labor, tools and equipment required to furnish and install the casing pipe, the boring pit, and all incidental work required for a complete and satisfactory installation.

The lump sum amount bid under these items shall be over and above the unit price bid under the items for furnishing and installing the sewer pipe within the casings.

2. Permits

The Owner will obtain the necessary permits from the New York State Department of Transportation and a copy of such permits will be made available to the Contractor. All work shall be in strict accordance with said permits and any other rules and regulations required by the Engineer and/or the authorities having jurisdiction.

The Contractor shall be responsible for giving the proper authorities such notices as may be required prior to and during the construction work. Payment of any and all charges to said authorities for supervision or other charges required as a result of such construction will be by the Owner.

All areas disturbed shall be restored to their original condition after the completion of the work and the Contractor shall obtain and furnish to the Engineer in triplicate, letters from the authorities having jurisdiction upon the completion of the work, stating that the work has been completed to their satisfaction.

3. Method Construction

The casing pipe shall be of steel and conform to A.S.T.M. Designation A139 Gr. B (latest revision), with a minimum yield point of 35,000 psi. The steel thickness shall not be less than that shown on the plans.

Jacking, drilling or boring work must be performed with modern equipment, designated especially for this purpose and operated by trained and experienced personnel. The steel casing pipe is to be installed to the line, elevation and grade indicated on the plan, or as determined by the Engineer in the field and must be absolutely straight, end to end. Adjoining lengths of the sleeve pipe shall be welded by certified welders.

Manual, hydraulic or rotating machines may be used for jacking, drilling or boring the steel casing pipe into place. The Contractor shall furnish to the Engineer for his approval, details of the method of jacking, drilling or boring to be used. The Contractor shall be responsible for maintaining the necessary alignment for grade as shown on the plans, or as directed by the Engineer. The Contractor shall protect underground structures and utilities and shall be responsible for the prevention of settlement or subsidence of roadways and/or adjacent structures and shall be liable for any and all damage which may result from his operations.

When augers or similar devices are used for pipe emplacement, the front of the pipe shall be provided with mechanical arrangements or devices that will positively prevent the auger and cutting head from leading the pipe so that there will be no unsupported excavation ahead of the pipe.

The Contractor shall provide and maintain a dry working pit for the boring equipment to be sheeted in accordance with the State Industrial Commission requirements and the U. S. Department of Labor Safety & Health Regulations for Construction, or other State or Federal authorities having jurisdiction.

The Contractor shall submit for the approval of the authority having jurisdiction the design of the boring pit. The design shall be by a licensed professional engineer.

The Contractor shall furnish an affidavit from the pipe manufacturer stating that all sleeve pipes furnished and installed comply with these requirements.

The carrier pipe shall then be installed within the casing. The furnishing and installation of the carrier pipe in the casing shall be paid for under the unit price bid under the Proposal items labeled "(In-Sleeve)" or for the 0 to 8 foot depth classification for the appropriate size and pipe material as shown on the plans.

The ends of the casing pipe shall be sealed with brick and mortar masonry.

5. Measurement and Compensation

The lump sum amount bid under these items shall include the furnishing of all material, labor, tools and equipment required to furnish and install the steel casing pipe, sheeting, all excavation and compacted gravel backfill as may be required for both the boring pit and the receiving pit, all clean-up work required, the replacing of the ground surface to the condition which existed prior to the work and the obtaining of letters of approval of the completed work from the authorities having jurisdiction.

Payment will be made under these items at the lump sum amount bid for the casing pipe installed in accordance with the plans and specifications upon the satisfactory completion of the work.

PERM 41-1a (7/81)

**METHOD OF PERFORMING WORK
WITHIN THE STATE HIGHWAY RIGHT OF WAY**

I. GENERAL CONDITIONS

These conditions and regulations apply to Highway Work Permits authorizing work within the State highway right-of-way for water mains, gas mains, sewer lines and miscellaneous structures. General conditions apply to telephone and telegraph installations as well as specific conditions on the setting and resetting of poles. These conditions, and any special conditions which are added to this form, are enforceable by the Department of Transportation.

A. TIME

1. Work under the permit shall be commenced within thirty (30) days from the date of permit issuance unless a later starting date is approved by the Regional Traffic Engineer.

B. REQUIREMENTS

All the current requirements of the following shall apply: Occupational Safety and Health Administration, Federal Department of Labor, Safety and Health Standards (29 CFR 1926/1910); Part 131, Title 17, New York Code of Rules and Regulations, Accommodation of Utilities Within State Right-of-Way; New York State Department of Labor, Industrial Code Rule 23, Protection of Persons Employed in Construction and Demolition Work; Industrial Code Rule 53, Construction, Excavation and Demolition Operations At Or Near Underground Facilities.

Temporary soil erosion and water pollution controls shall be used as required. The final decision on the method of underground installation will be made by the Regional Director or his representative.

1. Work Within Pavement and Shoulder Areas

- a. Installations that cross the pavement and shoulder area. Wherever practical, all underground installations shall be placed beneath the pavement and shoulder areas without disturbance to these paved surfaces.

1) Boring, Jacking, and Tunneling Methods**DESIGN**

- a) The location of all excavations (jacking pits, etc.) shall be shown in plan and profile.
- b) The soil profile and groundwater conditions shall be determined by adequate subsurface exploration.
- c) The location of all other existing utilities shall be shown.
- d) The construction equipment and procedures to be used shall be described in the permit application.
- e) The design of all excavations, including ground and surface water control where necessary, shall be made available for review by the Department.
- f) The underground installation shall be described in detail, i.e. size, length, depth, material, provisions for grouting, etc.
- g) Pipes shall generally be enclosed in sleeves or larger pipes. Small diameter services (2 inch I.D. or smaller) may be placed without sleeving at the discretion of N.Y.S.D.O.T.
- h) The limits of an open excavation shall not be closer than 10 feet to the edge of the pavement unless approved by the Department. Open excavations shall be protected with the required controls for safety and for the maintenance and protection of traffic in accordance with the New York State Department of Transportation, Manual of Uniform Traffic Control Devices.

CONSTRUCTION

- a) Grouting operations may be required if surface settlement, loss of soil or voids around the pipe develop. When grout is required, it shall consist of 1 part cement to 2 parts sand, by volume, and sufficient water to produce a consistency suitable for placing the grout.
- b) Backfill of open excavations shall be as required under
 - 2.) f) Open Excavation Method.

2) Open Excavation Method**DESIGN**

- a) The location of all pavement crossing by the open excavation method shall be shown in plan and profile.
- b) The soil profile and groundwater conditions shall be determined by adequate subsurface exploration.
- c) The location of all other existing utilities shall be shown.
- d) The design of all excavations, including ground and surface water control where necessary, shall be made available for review by the Department.
- e) When requested, the construction equipment and procedures to be used shall be described in the permit application.
- f) Pipe installations shall be done according to the requirements of the appropriate New York State Department of Transportation's Standard Sheets. The required granular material shall meet the material requirements for Select Granular Fill in the current New York State Department of Transportation's Standard Specifications including addenda. Exceptions will only be allowed if prior approval is granted by the Regional Soils Engineer.
- g) Pavement shall be saw cut at termination points of pavement replacement.

CONSTRUCTION

- a) Pavement and shoulder removal shall be done in a manner that provides for proper restoration of the replacement section. Straight, vertical cuts of the pavement will be required. Pavement surfaces that become undermined shall be cut back and removed. Alternative repair methods may be used if prior approval is granted.
- b) The backfill material shall be placed and compacted according to the requirement for backfilling structures, culverts, pipes, conduits and direct burial cable described in Section 200, Earthwork, New York State Department of Transportation's Specifications, including addenda.
- c) Generally, cuts shall be filled at the end of each working day. With prior approval, steel cover plates may be used. Recessing of these plates may be required.
- d) Temporary pavements and shoulders shall be placed as soon as a crossover installation is completed.

- b. Installations that are longitudinal to the pavement.

1) Open Excavation Method**DESIGN**

- a) The location of all open excavations shall be shown in plan and profile.
- b) The soil profile and groundwater conditions shall be determined by adequate subsurface exploration.
- c) The design of all excavations, including ground and surface water control where necessary, shall be made available for review by the Department.
- d) The location of all other existing utilities shall be shown.
- e) Pipe installations shall be done according to the requirements of the appropriate New York State Department of Transportation's Standard Sheets. The required granular material shall meet the material requirements for Select Granular Fill in the current New York State Department of Transportation's Standard Specifications, including addenda. Exceptions will only be allowed if prior approval is granted by the Regional Soils Engineer.

CONSTRUCTION

- a) Pavement and shoulder removal shall be done in a manner that provides for proper restoration of the replacement section. Straight, vertical cuts of the pavement will be required. Pavement surfaces that become undermined shall be cut back and removed. Alternative repair methods may be used if prior approval is granted.
- b) The backfill material shall be placed and compacted according to the requirements for backfilling structures, culverts, pipes, conduits and direct burial cable described in Section 200, Earthwork, New York State Department of Transportation's Specifications, including addenda.
- c) Generally, cuts shall be filled at the end of each working day. With prior approval, steel cover plates may be used. Recessing of these plates may be required.
- d) Permanent or temporary pavement shall be placed immediately as sections of the total installation are completed to subbase elevation. Gravel surfaces in shoulder areas may be used if prior approval is granted.

2) Boring, Jacking, and Tunneling Methods**DESIGN**

- a) All the requirements of B.1. a. 1.) DESIGN a) through g) shall apply.

CONSTRUCTION

- a) All the requirements of B.1. a. 1.) CONSTRUCTION a) and b) shall apply.
- b) Open excavations shall be protected with the required controls for safety and for the maintenance and protection of traffic in accordance with the New York State Department of Transportation, Manual of Uniform Traffic Control Devices.
- c) The requirements of B.1. b. 1.) CONSTRUCTION d) shall apply.

2. Work Outside the Pavement and Shoulder Areas**a. Open Excavation Method****DESIGN**

- a) All the requirements of B.1. b. 1.) DESIGN shall apply.
- b) Open excavations shall be protected with the required controls for safety and for the maintenance and protection of traffic in accordance with the New York State Department of Transportation, Manual of Uniform Traffic Control Devices.

CONSTRUCTION

- a) The backfill material shall be placed and compacted according to the requirements for backfilling structures, culverts, pipes, conduits and direct burial cable described in Section 200, Earthwork, New York State Department of Transportation's Specifications, including addenda.

b. Boring, Jacking, and Tunneling Methods

- a) All the requirements of B.1. a. 1.) DESIGN a) through f) shall apply.

- b) Open excavations shall be protected with the required controls for safety and for the maintenance and protection of traffic in accordance with the New York State Department of Transportation, Manual of Uniform Traffic Control Devices.

CONSTRUCTION

- a) All the requirements of B.1. a. 1.) CONSTRUCTION shall apply.

C. SUBBASE, PAVEMENT AND SHOULDER REQUIREMENTS (including manholes)**1. Subbase**

- a) The subbase course shall be a minimum of 12 inches thick unless otherwise approved. The material shall meet the requirements of current Department of Transportation subbase course item as specified by the Regional Soils Engineer.
- b) Under the permit, construction which adversely affects the subsurface drainage of the pavement structure shall be corrected by the addition of surface or subsurface drains, as required.

2. Pavement and Shoulders**a. Permanent**

The replaced pavement shall be similar to the existing pavement in composition and texture. The selection of the material type and composition shall be subject to the approval of the Regional Director or his representative. The limit of pavement replacement shall be such that the replaced pavement is supported by thoroughly compacted subbase material and the pavement is restored to the proper grade, cross-slope and smoothness.

When bituminous concrete mixtures are required for the pavement replacement, the layers shall consist of one or a combination of mixture types contained in Table 401-1, Composition of Bituminous Plant Mixtures in Section 401 of the New York State Department of Transportation's Specification, including addenda. The mixture shall be placed at the proper temperature, without segregation, and compacted thoroughly.

When portland cement concrete mixtures are required for pavement replacement, the mixtures shall consist of either Class C or Class F as contained in Table 501-3, Concrete Mixtures in Section 501 of the New York State Department of Transportation's Specifications, including addenda. Class F is a high early strength mixture and should be used when early opening to traffic is desired.

The concrete mixtures shall be placed without segregation, then consolidated, finished to the proper elevation, and textured. Curing the concrete pavement shall be in accordance with one of the methods permitted in Section 502 pertaining to curing.

Pavement shoulders, curbs, gutters and other incidental features shall be replaced in kind unless otherwise approved by the Regional Director or his representative.

b. Temporary

Pavement that is replaced temporarily may be paved with either a hot bituminous concrete mixture mentioned above or a cold bituminous patching mixture. When a cold patching mixture is used it shall consist of aggregate and bituminous material proportioned and mixed in a bituminous mixing plant or rotating paddle shaft pugmill. Regardless which patching mixture is used it shall be laid on a prepared foundation and thoroughly compacted. Since cold bituminous patching mixtures are subject to distortion by traffic, the temporary patch shall be maintained to provide a smooth surface until the pavement is permanently replaced.

3. Manholes

Manhole frames and covers shall have sufficient structural adequacy to support the roadway traffic. The type of manhole frame and cover shall be approved by the Regional Director or his representative. The manhole frame shall be set flush with the surface of the roadway unless otherwise permitted by the Regional Director or his representative.

D. MAINTENANCE AND PROTECTION OF TRAFFIC

1. Traffic is to be maintained at all times during the progress of this work and adequate signs, barricades and lights shall be provided in accordance with the provisions of Sub-chapter G of the N.Y.S. Department of Transportation's Manual of Uniform Traffic Control Devices. A maintenance and protection of traffic plan may be required. No lanes shall be closed without prior approval.
2. The applicant shall erect and maintain suitable barricades around all trenches while work is in progress for the protection of the public, and they shall be suitably lighted by yellow lights at night. The work shall be carried on in such manner that not more than 100 feet of trench in earth remains open at end of day's work.
3. No pavement cuts are to be left unfilled over night, except in emergencies, and in such cases, adequate precautions must be exercised to protect traffic. Prior approval must be obtained to use steel plating.
4. No construction materials or equipment shall be left on the shoulders or pavement after working hours, nor shall any construction equipment or material be placed in any manner or location that will obstruct highway or railroad warning signs.
5. All open trench in the highway right-of-way shall be barricaded. There shall be conspicuously displayed bright red flags no less than 24" x 24" attached to such barricades and illuminated at night with flashing yellow lights. If in the judgment of the representative of the Commissioner of Transportation, flagmen are necessary, they shall be employed by the permittee and on duty at all times during the progress of the work so as to direct traffic.
6. Soft shoulder signs of adequate size, not less than 24" square, shall be erected and maintained on all backfill trenches within the shoulder area until the backfill is thoroughly settled. These signs shall be located at the beginning of each section of work at intersections and at a distance not greater than 1000 feet apart.
7. During winter conditions highway shoulders shall be maintained free of obstructions which would interfere with snow removal and ice control.
8. The permittee shall keep the traveled way free of foreign objects such as rocks, timber and other items that may fall from transporting vehicles. Spillage of material carried by or dropped from the under-carriage of any carrying vehicle resulting from the permittee's hauling operations along or across any public traveled way shall be removed immediately and such traveled way, both within and outside of the work limits, shall be kept free of such spillage by the permittee.

E. COMPLETION OF WORK

1. All work is to be performed in a manner approved by the Resident Engineer of the State Department of Transportation.
2. All disturbed areas shall be returned to their original condition in a manner satisfactory to the Commissioner of Transportation or his representative.
3. The permittee shall be required to restore shoulders and ditches and clean up the highway as his work progresses. All driveways shall be restored with material in kind and to their original conditions.
4. All surplus earth and rubbish shall be cleaned up and removed from the highway right-of-way upon completion of the work, and the highway left in a neat and orderly condition.
5. As built plans showing final grade of new installation and existing underground facilities encountered shall be provided to N.Y.S.D.O.T. if variation from approved design plans occurred during construction.

F. NECESSITATED FUTURE WORK

1. The applicant agrees, that any present or future injury to or disturbance of the highway, its slopes or gutters, caused by placing mains and service pipe shall be repaired by the applicant at his own expense and in accordance with the requirements of the State Department of Transportation.
2. If necessity arises in the future because of the work on the State Highway system and/or its structures, requiring the removal, relocation or replacement of the installation authorized by the permit, said work shall be done as directed by the Commissioner or his representative, and all cost and expense so incurred shall be the obligation of the said permittee or his successor in interest.

II. TELEPHONE - TELEGRAPH INSTALLATIONS**A. SETTING OF POLES**

1. All poles shall be set outside the ditch lines so that the proper drainage of the highway will not be interfered with. In case it is impracticable to set poles so as not to interfere with the flow of water in the ditches, the shoulder, ditch and space around the poles shall be paved by the applicant to protect against wash.
2. There shall be no obstruction to private driveways, connecting highways or roads, paths or sidewalks.
3. In case it is found necessary to trim trees within the boundaries of the highway, the least possible amount shall be done, and in all cases the consent of the abutting property owner must be secured before the poles are set and trees trimmed.
4. Poles shall be of sufficient length to provide a clearance of not less than eighteen feet between the wire and the crown of the highway, under the worst conditions of temperature and loading. They shall be set in line and properly plumbed. They shall be well guyed. No guying to trees, unless by special permission of owner. Special precautions shall be taken on curves and where lines cross from one side of highway to the other. Poles shall be straight, sound, and the fittings shall be of sufficient to carry wires under the worst condition of loading (ice, wind, etc).
5. Where telegraph and telephone wires cross high tension power lines, electric light or trolley wires, special precaution shall be taken to maintain proper clearance under the worst condition of temperature and loading.

B. RESETTING POLES

1. If necessity arises in future, because of work on the highway, to relocate, replace or re-set poles, cables or conduits, said work shall be done at the expense of the applicant.

III. SPECIAL CONDITIONS

- A. In addition to the aforementioned conditions, if it is found necessary by this Department to add to or otherwise modify the same, it is to be understood such changes shall form a part of the permit and be complied with immediately upon notice.

IV. ADDITIONAL SPECIAL CONDITIONS AND SKETCHES - See Attached Sheet.

Permit Fee \$ 1a NC Munic
Ins. Fee \$ _____
Total Received \$ _____
Check or M.O. No. _____
Liability Insurance Policy No. on file
Disability Benefit Coverage Policy No. _____



HIGHWAY WORK PERMIT

Expiring 1/1/83

SH No. 1184/367
Est. Compl. Date 12/31/82

Permit No. 1-81-0792
Deposit Rec. for \$ _____
Check or M.O. No. _____
Dated _____

\$ 100,000.00

Permittee Berlehem Sewer District
Address Town of Bethlehem, 445 Delaware Ave.
City Delmar State NY Zip 12054

Chargeable to Bond No. RZ 4475095
or Undertaking on File

Workmen's Compensation Policy No. _____

Mailing Address for Return of Bond or Deposit
(Complete only if different from above.)

Return of Deposit Made Payable To:
(Complete Only if Different From Permittee)

Name _____
Address _____
City _____ State _____ Zip _____

Name _____
Address _____
City _____ State _____ Zip _____

Under the provisions of the Highway Law or Vehicle & Traffic Law permission is hereby granted to the permittee to Installation of sanitary sewers along and/or across Delmar By-pass (FASH 61-24), Elsmere Ave., (N.Y.S. Hwy. # 1184), and Feura Bush Rd., (N.Y.S. Hwy. #367). All persons working within the highway ROW are required to wear a hard hat and a reflective safety vest.

_____ in the county of Albany as set forth and represented in the attached application; at the particular location or area, or over the routes as stated therein, if required; and pursuant to the conditions and regulations, whether general or special, and methods of performing work, if any; all of which are set forth in the application and form part of this permit.

Dated at Albany, N.Y.
Date Signed 2/18/82

Commissioner of Transportation

By J.W. Kelly

IMPORTANT
THIS PERMIT, WITH APPLICATION AND DRAWING (OR COPIES THEREOF) ATTACHED, SHALL BE PLACED IN THE HANDS OF THE CONTRACTOR BEFORE ANY WORK IS STARTED.

NOTICE - It is absolutely necessary that the permittee notify John Anderson, Construction Engineer 84 Holland Ave, Resident Engineer, whose address is Albany, NY 12208 Tel. No. 474-6562 before work is started and upon its completion.

The issuing authority reserves the right to suspend or revoke this permit, at its discretion without a hearing or the necessity of showing cause, either before or during the operations authorized.

The Permittee will cause an approved copy of the application to be and remain attached hereto until all work under the permit is satisfactorily completed, in accordance with the terms of the attached application.

(SEE OTHER SIDE)

NOTE
Granite property markers of State Boundaries if removed shall be replaced with markers of identical material, located in exact position of marker removed and a map shall be prepared by certified land surveyor & furnished to State of New York together with his certification that the markers are accurately located.

Application is hereby made for a highway work permit

Highway Permit No. _____

Effective Date _____

Bethlehem Sewer District
Town of Bethlehem
445 Delaware Avenue
Delmar, New York 12054

ENTER NAME AND
MAILING ADDRESS
IN THIS SPACE

Requested duration from Jan. 01 19 82 thru Dec. 31 19 83, to apply to the operation(s) checked below.

Protective Liability Insurance covered by Policy No. 01CBX8862; expires on Jan. 01 19 82*

Workmen's Compensation Insurance Policy No. _____ expiring _____

Disability Benefits Coverage Policy No. _____

*Automatically renewed Jan. 01 every year by Hartford Insurance Co.

Check Type of Operation	PERMIT FEE			Sub-Total	Show Ins. Fee Amt. or PERM-17 or Under-taking on file	Total Amt. of Fee and/or Insurance	(✓) if Permit Charged	Guarantee Deposit Amt. and/or Bond
	Base Fee	Additional Fee Indicate No. Ft./poles	Times Unit Rate					
1. Original installation								
<input checked="" type="checkbox"/> a. Underground	\$10		.10 per ft.	WAIVED		N. C.		
<input type="checkbox"/> (1) Excavating, tunneling, boring, installing, etc.								
<input type="checkbox"/> (2) Commercial service sub-surface connection								
b. Underground	NC			NC				
Private service sub-surface connection								
c. Overhead	\$10		.50 per unit					
Erecting poles, towers, etc.								
d. Overhead	\$10			\$10				
Running new lines								
e. Overhead	NC			NC				
(1) Private service connections								
(2) Commercial service connections								
f. On Bridges and Culverts								
(1) Regular installation	\$10			\$10				
(2) Requiring structural changes (Existing procedure will continue for other aspects)	\$100			\$100				
g. Telephone Booths	\$25			\$25				
(1) Along Interstate highways								
(2) Along State highways with controlled access								
h. Miscellaneous								

TOTAL PAID _____

Work may be described briefly as follows:

Installation of sanitary sewers along and/or across Delmar By-pass (FASN-61-24), Elsmere Ave. (N.Y.S. Hwy #1184), and Feura Bush Rd. (N.Y.S. Hwy. #367).

Additional work description is attached; Plans 8 pages and/or Map is filed showing work to be performed at:
LOCATION (on along across) State Highway No. See above between station (See attached plans)
and station _____ in the Town of Bethlehem County of Albany
known as _____

Acceptance of the requested permit subjects the permittee to the restrictions, regulations and obligations stated on this application and on the permit.
Applicant Signature James W. Long Date of Application Dec. 8 19 81

For joint application and work, note name and address of Second Utility below:

Second Applicant Signature _____ Date _____ 19 _____
Approval recommended Jan 28 19 82 By Resident Engineer [Signature] Region No. 1

Approved _____ 19 _____ Regional Traffic Engineer _____

SPECIAL NOTES
BETHLEHEM SEWER DISTRICT
CONTRACT NO. 2

1. Prior to start of work, the consultant shall arrange for a pre-construction meeting with representatives of the contractor and DOT present. Contact Tom Sharpe, 474-6562.
2. Prior to start of work, all construction signs shall be erected in accordance with the Manual of Uniform Traffic Control Devices. All provisions of Item 619 as outlined in the January 2, 1981 Standard Specifications shall also apply.
3. Parking of vehicles or storage of materials on DOT Highway Pavement or shoulders will not be permitted.
4. Blasting on or immediately adjacent to DOT ROW will not be allowed without written approval from the Regional Office.
5. All ditchlines and drainage structures shall be maintained during construction.
6. No lane closures will be allowed without approval from the Regional Office.
7. All materials incorporated in restoration shall comply with DOT specifications.
8. Prior to start of work on the highway crossings, the contractor shall submit to the consultant, standards details regarding pit construction and method of completing the bores. They inturn shall forward to DOT with their recommendations.
9. All pits shall be enclosed with 4' high temporary safety fencing.
10. On all highway crossings, where pit excavation falls within a 1 on 1 from edge of pavement or paved shoulder pre-driven steel sheeting will be required at face and 10' returns prior to excavation.

Item Nos. 23.51; 23.52; 23.53, etc.
Furnishing and Installing Corrugated Metal Sleeve Pipes

1. Description

Under these items the Contractor shall furnish and install corrugated metal sleeve pipes in open cut as hereinafter described and as shown on the contract plans wherever the sewers to be constructed under this contract cross under a county or other highway where a protective sleeve is required by the authority having jurisdiction. Protective sleeve pipes shall be installed in open trench and backfilled with granular material as specified below.

The sleeves shall be of the diameter, length and thickness as shown on the plans and as required. The work under this item includes the furnishing of all materials, labor, tools and equipment required to furnish and install the sleeve pipe, the special trench backfill (NYSDOT Item 304.05-Type 4), and all incidental work required for a complete and satisfactory installation.

The lump sum amount bid under these items shall be over and above the unit price bid under the items for furnishing and installing the sewer pipe within the sleeves. Sewer pipe within the sleeve, blacktop paving and other items of work shall be paid for under such appropriate items of the proposal.

2. Permits

The Owner will obtain the necessary permits from the Albany County Highway Department and a copy of such permits will be made available to the Contractor. All work shall be in strict accordance with said permits and any other rules and regulations required by the Engineer and/or the authorities having jurisdiction.

The Contractor shall be responsible for giving the proper authorities such notices as may be required prior to and during the construction work. Payment of any and all charges to said authorities for supervision or other charges required as a result of such construction will be by the Owner.

All areas disturbed shall be restored to their original condition after the completion of the work and the Contractor shall obtain and furnish to the Engineer in triplicate, letters from the authorities having jurisdiction upon the completion of the work, stating that the work has been completed to their satisfaction.

3. Method of Construction

All culvert pipes shall be corrugated steel pipe, bituminous coated inside and outside and shall be as manufactured by the Metal Products Division of Armco Steel Corporation, Lane Metal Products Co., Inc. or equal. Corrugated metal pipe shall be of gauge thickness sufficient for H-20 loading. All joints shall be made with corrugated metal bands bolted in place. The steel sleeve pipe is to be installed in open cut to the line, elevation and grade indicated on the plan, or as determined by the Engineer in the field and must be absolutely straight, end to end.

The Contractor shall be responsible for maintaining the necessary alignment for grade as shown on the plans, or as directed by the Engineer. The Contractor shall protect underground structures and utilities and shall be responsible for the prevention of settlement or subsidence of roadways and/or adjacent structures and shall be liable for any and all damage which may result from his operations.

The sleeve pipe shall be laid in a bed of NYSDOT Item No. 304.05-Type 4, granular material, not less than 6 inches thick and the pipe shall be bedded and graveled up to the centerline of the pipe, with a minimum of 24 inches of Item 304.05 around the pipe at all locations.

The sewer pipe shall then be installed within the sleeve. The furnishing and installation of the sewer pipe in the sleeve shall be paid for under the unit price bid under the Proposal items for the appropriate depth classification and for the appropriate size and pipe material as shown on the plans.

The ends of the sleeve pipe shall be sealed with dry masonry.

The trench shall be backfilled with well compacted NYSDOT Item No. 304.05, granular material, as shown on the detail for "Open Cut in County Highway."

5. Measurement and Compensation

The lump sum amount bid under these items shall include the furnishing of all materials, labor, tools and equipment required to furnish and install the corrugated steel sleeve pipe, compacted granular backfill, and all other work which may be required, as well as the obtaining of letters of approval of the completed work from the authorities having jurisdiction.

Payment will be made under these items at the lump sum amount bid for the sleeve pipe installed in accordance with the plans and specifications upon the satisfactory completion of the work.

Blacktop pavement replacement will be as shown on the Detail and will be paid for under Item No. 17.

ALBANY COUNTY DEPARTMENT OF PUBLIC WORKS
 HIGHWAY WORK PERMIT APPLICATION FOR UTILITY WORK

PREPARE
 3 COPIES

APPLICATION IS HEREBY MADE FOR A HIGHWAY WORK PERMIT

Highway Permit No. 1
 Effective Date 1-12-82

Town of Bethlehem
 445 Delaware Avenue
 Delmar, New York 12054

ENTER NAME AND
 MAILING ADDRESS
 IN THIS SPACE

1. Requested duration from March 01 1982, thru Dec. 31 1983, to apply to the operation(s) checked below.
 2. Protective Liability Insurance covered by Policy No. 01CBX8862; expires on January 01 198
 *Automatically renewed every Jan. 01 by Hartford Accid. & Indemnity Co.

Check Type of Operation	PERMIT FEE			Show Ins. Fee Amount	Total Amt. of Fee and/or Insurance	(V) If Permit Charged	Guarantee Deposit Amount and/or Bond	
	Base Fee	Additional Fee						Sub-Total
		Indicate No. Ft./poles	Times Unit Rate					
<input checked="" type="checkbox"/> 1. Original installation				NC				
<input checked="" type="checkbox"/> a. Underground								
<input checked="" type="checkbox"/> (1) Excavating, tunneling, boring, installing, etc.								
<input type="checkbox"/> (2) Commercial service sub-surface connection								
<input type="checkbox"/> b. Underground Private service sub-surface connection	NC			NC				
<input type="checkbox"/> c. Overhead Erecting poles, towers, etc.								
<input type="checkbox"/> d. Overhead Running new lines								
<input type="checkbox"/> e. Overhead	NC			NC				
<input type="checkbox"/> (1) Private service connections								
<input type="checkbox"/> (2) Commercial service connections								
<input type="checkbox"/> f. On Bridges and Culverts								
<input type="checkbox"/> (1) Regular installation								
<input type="checkbox"/> (2) Requiring structural changes (Existing procedure will continue for other aspects)								
<input type="checkbox"/> g. Telephone Booths								
<input type="checkbox"/> (1) Along County highways								
<input type="checkbox"/> h. Miscellaneous								

TOTAL PAID N.C.

Work may be described briefly as follows:

Sanitary sewer installations on Elm Avenue, Delmar, between Murray Avenue and Axbridge Road, and on Schoolhouse, Krumkill, and Russell Roads from Town line to Town line.

Additional work description is attached; Plans pages and/or Map is filed showing work to be performed at:
 LOCATION (on along across) County Highway No. 52 & 204 between Bethlehem
 and in the Town of Bethlehem County of Albany
 known as

Acceptance of the requested permit subjects the permittee to the restrictions, regulations and obligations stated on this application and on it permit.

Applicant Signature Thomas J. Long Supervisor Date of Application 1/8 1982

For joint application and work, note name and address of Second Utility below:

Second Applicant Signature Date 19

Approval recommended 1/12 1982 By County Engineer

Approval recommended 19 By County Traffic Engineer

Approval 1-12 1982 County Commissioner of Public Works

RESPONSIBILITIES OF PERMITTEE

1. PROTECTIVE LIABILITY INSURANCE COVERAGE

Permittee must have protective liability insurance coverage in accordance with Department requirements. Expiration of, or lack of, liability insurance automatically terminates the permit. Insurance coverage may be provided by furnishing the Department with a Certificate of Protective Liability Insurance.

2. NOTIFICATIONS

Notify Commissioner, one week prior to commencing work, except emergency work by public service utilities which should be reported the next work day.

Work must start within 30 days from date of permit.

Notify area gas distributors 72 hours prior to any blasting.

Notify Utility Companies with facilities in work area (permission must be obtained before doing work affecting utilities' facilities) before starting work.

Notify land owners of abutting lands before disturbing trees.

Notify Department of Public Works at conclusion of work and return original copy of permit to Commissioner of Public Works.

Annual Maintenance Permit Notifications:

Notify by telephone the Commissioner's Office, one week in advance, each time regular maintenance work is to be performed. In emergencies, notification by telephone should be made the next work day.

3. SITE CARE AND RESTORATION

An Undertaking, a bond or certified check in an amount designated by the Department of Public Works may be required by the Department, before a permit is issued, to guarantee restoration of the site to its original condition. If the Department is obliged to restore the site of its original condition, the costs to the Department will be deducted from the amount of the permittee's guarantee deposit at the conclusion of the work.

The permittee is responsible for traffic protection and maintenance, including adequate use of signs and barriers during work and evening hours.

No unnecessary obstruction is to be left on the pavement or the right of way or in such a position as to block warning signs during or between work hours.

No work shall be done to obstruct drainage or divert creeks, water courses or sluices onto the right of way.

All falsework must be removed and all excavations must be filled in and restored to the satisfaction of the Commissioner of Public Works.

4. COSTS INCURRED BY ISSUANCE OF THIS PERMIT

All costs beyond the limits of the protective liability insurance, surety deposits, etc., are the responsibility of the permittee. The County shall be held free of any costs incurred by the issuance of this permit, direct or indirect.

5. SUBMITTING WORK PLANS

The applicant will submit work plans and/or a map as required by the Department. This shall include such details as measurements of driveways with relation to nearest corner, positions of guys supporting poles and a schedule of the number of poles and feet of excavation necessary for completion of the work on the County right of way. A description of the proposed method of construction will be included.

Plan work with future adjustments in mind, as any relocation, replacement or removal of the installation authorized by this permit and made necessary by future highway maintenance, reconstruction or new construction, will be the responsibility of the permittee.

The permittee must coordinate his work with any county construction being conducted.

6. TRAFFIC MAINTENANCE

Traffic shall be maintained by the permittee on the highway, in a safe manner, during work and evening hours until its final completion. Suitable safeguards, to reduce conditions dangerous to life, limb and property to a minimum, must be provided by the permittee (including flagmen when requested by the Department.)

7. COST OF INSPECTION AND SUPERVISION

If, in accounts kept by the Department, costs of supervision are found to be exceedingly high, the Department reserves the right to bill the permittee for actual expenses incurred by the supervision and inspection of the permittee's project.

8. SCOPE

a. Areas Covered

Permits issued are for highways, bridges and culverts over which the County of Albany Department of Public Works has jurisdiction. (Local governments issue permits for their own jurisdiction.)

b. Legal

The privilege granted by the permit does not authorize any infringement of federal, state or local laws or regulations, is limited to the extent of the authority of the Department in the premises and is transferable and assignable only with the written consent of the Commissioner of Public Works.

c. Commissioner's Reservations

The Commissioner of Public Works reserves the right to modify fees and to revoke or annul the permit at any time, at his discretion without a hearing or the necessity of showing cause.

d. Locations

Work locations must meet approval of the Department.

**METHOD OF PERFORMING WORK
WITHIN THE COUNTY HIGHWAY RIGHT OF WAY**

I. GENERAL CONDITIONS

These conditions and regulations apply to Highway Work Permits authorizing work within the County highway right of way for Water Mains, Gas Mains, Sewer Lines and Miscellaneous Structures. General conditions apply to Telephone and Telegraph Installations as well as specific conditions on the setting and resetting of poles. These conditions, and any special conditions which are added to this form on the Method of Performing Work, are enforceable by the Department of Public Works.

A. TIME

1. Work under the permit shall be commenced within thirty (30) days from date of permit and continued in an expeditious manner, unless extension of this period is approved by the Commissioner of Public Works

B. LOCATION

1. All locations shall be approved by a representative of the County Department of Public Works. Special permission will be required to use trees for guy wires.
2. Any and all underground and overhead facilities encountered shall not be disturbed in any manner without proper authority from the owner.
3. All pipes or mains crossing highway pavements shall, wherever possible, be driven beneath the roadway without disturbance to the pavement.
 - a. The point of driving shall not be less than 5 feet from edge of pavement.
 - b. Such cross-over pipes shall, whenever possible, be enclosed in sleeves, or larger pipes so that repairs or replacements may be made in the future without further disturbance of the roadway pavement.
4. If the boring method in the driving of cross-over pipes is found to be impracticable, the representative of the Office of the County Department of Public Works shall be consulted to determine the manner of placing the pipe by the open-cut method
 - a. On all pavement where cutting is across the line of traffic or where longitudinal cutting is in the path of traffic, temporary repairs with cold patch or other acceptable type of bituminous patching must be placed as soon as the backfill is made, and repaired and maintained even with the surface of the pavement until such time as the backfill has settled sufficiently to permit permanent restoration of the pavement surface.
 - b. On longitudinal trench excavation outside of pavement area, edge of trench shall not be closer than four (4) feet to edge of pavement except under written authorization of Commissioner of Public Works.
5. Tunneling will be permitted only under exceptional circumstances, and then only if shoring and 1:15 concrete backfill is provided or if hand-placed rock backfill is provided to avoid future settlement.

C. PAVEMENT CUTS

1. No pavement cuts are to be left unfilled over night except in extraordinary cases.

D. EXCAVATION

1. Shoring shall progress with the excavation to prevent cave-in.
2. Outside of the pavement area the work shall be carried on in such manner that not more than 100 feet of trench remains open at the end of the day's work.

E. BACKFILL OF EXCAVATED AREAS

1. Backfill shall be of selected material thoroughly sluiced and tamped and roadway left in a neat and orderly condition, as good as when the work commenced.
2. Backfill necessitated by service connections:
 - a. Where service connections are made the trench shall be backfilled within two days from time of opening, and suitable barricades shall be maintained during this time, with red lights displayed at night.
3. Backfill in areas disturbed for MISCELLANEOUS STRUCTURES shall consist of a concrete mixture of one part cement to 15 parts aggregate thoroughly compacted.
4. Backfill in areas of pavement cuts:
 - a. Wherever the pavement is cut and including paved driveways, backfill for the entire depth of the trench shall consist of a dry concrete mixture of one part cement to fifteen parts run-of-bank gravel thoroughly compacted. This requirement may be modified at the discretion of the Commissioner or his representative.
 - b. Temporary pavement restoration shall consist of bituminous concrete 3 inches in depth and run-of-bank gravel of a depth to provide for the permanent pavement. It shall be maintained flush with the existing pavement until permanent restoration to the pavement is made.
5. Backfill for excavation within shoulder area:
 - a. Wherever the edge of the trench excavation is within 5 feet of the edge of the pavement or paved gutter and/or within areas normally used by traffic, the backfill shall be placed in 12-inch layers and each layer thoroughly compacted; the top 12 inches of backfill shall consist of run-of-bank gravel.
 - b. Where the depth of the trench excavation is greater than the distance from the edge of pavement to edge of the trench sheeting may be required and left in place if so ordered by the representative of the Commissioner. The backfill of the sheeted area shall proceed as stated above.
6. Backfill for excavation within areas outside of pavement and shoulder:
 - a. The backfill in trenches beyond the shoulder and pavement areas but within the roadway area shall be maintained level with the original surface at all times.
 - b. All surplus material between the ditch line shall be removed.
7. Backfill required for tunneled areas:
 - a. Voids in the lower layers of such rock backfill may be sand filled but the top layer adjacent to the pavement shall be filled with 1 to 2 parts of Portland Cement grout, either placed from the sides with a cement gun or forced from the top through holes drilled in the pavement.

F. PAVEMENT REPLACEMENT

1. Pavement replacement shall be as specified by the Commissioner of Public Works or his representative.
2. On longitudinal pavement openings, repairs to concrete and block pavements shall extend at least 18" beyond each side of the trench.
3. After consolidation of the trench has been attained the temporary pavement shall be replaced with permanent-pavement in the following manner:
 - a. On concrete pavements, as specified by the Commissioner, slabs partly undermined, or broken shall be completely replaced with high early strength 1-1-2½ concrete, except, if slabs are more than forty (40) feet long, not more than twenty (20) feet shall be required to be replaced for transverse disturbance. In all such cases the pavement shall be replaced for a distance of at least 4 feet from edge of cut.
 - b. On block pavements, a reinforced high early strength 1-1-2½ concrete foundation and new block shall be placed over the trench and 18" beyond each side of it where the trench is less than two (2) feet deep and 24" on each side where the trench is of greater depth.
 - c. On macadam pavements, acceptable bituminous top course with adequate foundation equal to that removed shall be furnished.
4. Manhole frames and covers shall be of a weight approved by the representative of the County Department of Public Works and set in a workmanlike manner flush with the surface of the highway.

G. MAINTENANCE AND PROTECTION OF TRAFFIC

1. Traffic is to be maintained at all times during the progress of this work and adequate signs, barricades and lights shall be provided in accordance with the provisions of Sub-chapter G of the N.Y.S. Department of Transportation's Manual of Uniform Traffic Control Devices.
2. The applicant shall erect and maintain suitable guard rails or barricades around all trenches while work is in progress for the protection of the public, and they shall be suitably lighted by red lights at night. The work shall be carried on in such manner that not more than 500 feet of trench in earth remains open at end of day's work.
3. No pavement cuts are to be left unfilled over night, except in emergencies, and in such cases, adequate precautions must be exercised to protect traffic.
4. No construction materials or equipment shall be left on the shoulders or pavement after working hours, nor shall any construction equipment or material be placed in any manner or location that will obstruct highway or railroad warning signs.
5. All open trench in the highway right-of-way shall be barricaded. There shall be conspicuously displayed bright red flags not less than 24" x 24" attached to such barricades and illuminated at night with red lanterns and bomb flares. If in the judgment of the representative of the Commissioner of Public Works, flagmen are necessary, they shall be employed by the permittee and on duty at all times during the progress of the work so as to direct traffic and maintain flares, etc.
6. Soft sholder signs of adequate size, not less than 24" square, shall be erected and maintained on all backfill trenches within the sholder area until the backfill is thoroughly settled. These signs shall be located at the beginning of each section of work at intersections and at a distance not greater than 1000 feet apart.
7. During winter conditions highway shoulders shall be maintained free of obstructions which would interfere with snow removal and ice control.
8. The permittee shall keep the traveled way free of foreign objects such as rocks, timber and other items that may fall from transporting vehicles. Spillage of material carried by or dropped from the under-carriage of any carrying vehicle resulting from the permittee's hauling operations along or across any public traveled way shall be removed immediately and such traveled way, both within and outside of the work limits, shall be kept free of such spillage by the permittee.

H. COMPLETION OF WORK

1. All work is to be performed in a manner approved by the Commissioner of the County Department of Public Works.
2. All disturbed areas shall be returned to their original condition in a manner satisfactory to the Commissioner of Public Works or his representative.
3. The permittee shall be required to restore shoulders and ditches and clean up the highway as his work progresses. All driveways shall be restored with material in kind and to their original conditions.
4. All surplus earth and rubbish shall be cleaned up and removed from the highway right-of-way upon completion of the work, and the highway left in a neat and orderly condition.

I. NECESSITATED FUTURE WORK

1. The applicant agrees, that any present or future injury to or disturbance of the highway, its slopes or gutters, caused by placing mains and service pipes shall be repaired by the applicant at his own expense and in accordance with the requirements of the County Department of Public Works.
2. If necessity arises in the future because of the work on the County Highway system and/or its structures, requiring the removal, relocation or replacement of the installation authorized by the permit, said work shall be done as directed by the Commissioner or his representative, and all cost and expense so incurred shall be the obligation of the said permittee or his successor in interest.

II. TELEPHONE-TELEGRAPH INSTALLATIONS

A. SETTING OF POLES

1. All poles shall be set outside the ditch lines and so that the proper drainage of the highway will not be interfered with. In case it is impracticable to set poles so as not to interfere with the flow of water in the ditches, the shoulder, ditch and space around the poles shall be paved by the applicant so as to protect against wash.
2. There shall be no obstruction to private driveways, connecting highways or roads, paths or sidewalks.
3. In case it is found necessary to trim trees within the boundaries of the highway, the least possible amount shall be done, and in all cases the consent of the abutting property owner must be secured before the poles are set and trees trimmed.
4. Poles shall be of sufficient length to provide a clearance of not less than eighteen feet above the crown of the highway, under the worst conditions of temperature and loading. They shall be set in line and properly plumbed. They shall be well guyed. No guying to trees, unless by special permission of owner. Special precautions shall be taken on curves and where lines cross from one side of highway to the other. Poles shall be straight, sound, and the fittings shall be of sufficient strength to carry wires under the worst condition of loading (ice, wind, etc.)
5. Where telegraph and telephone wires cross high tension power lines, electric light or trolley wires, a special precaution shall be taken to maintain proper clearance under the worst condition of temperature and loading.

B. RESETTING POLES

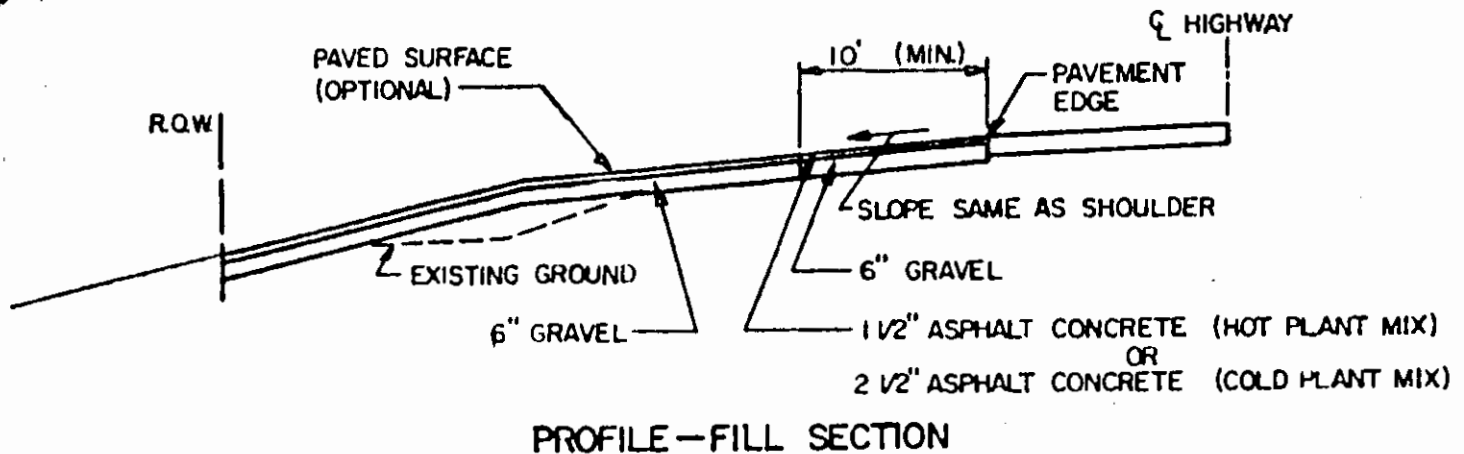
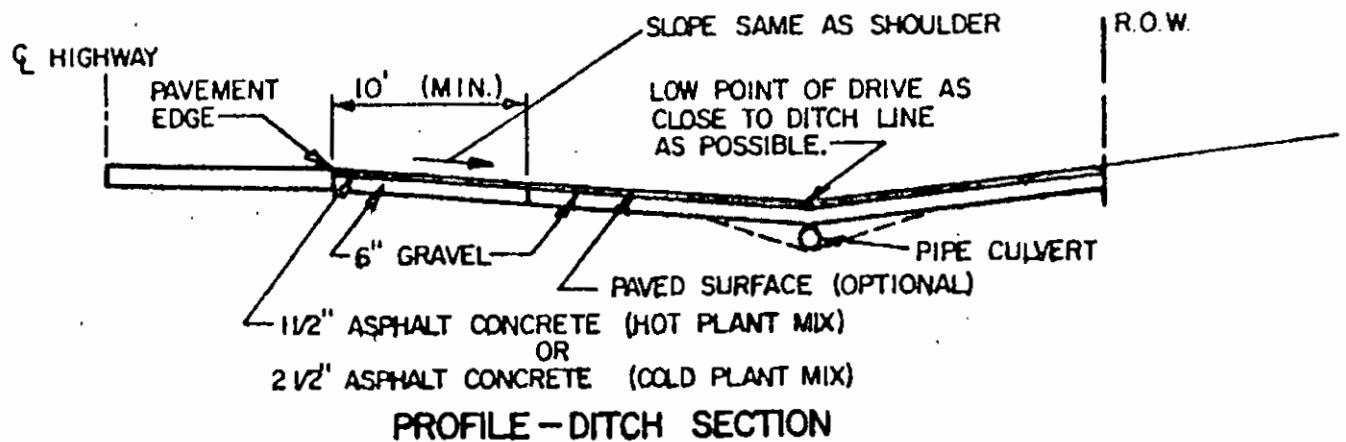
1. If necessity arises in future, because of work on the highway, to relocate, replace or re-set poles, cables or conduits, said work shall be done at the expense of the applicant.

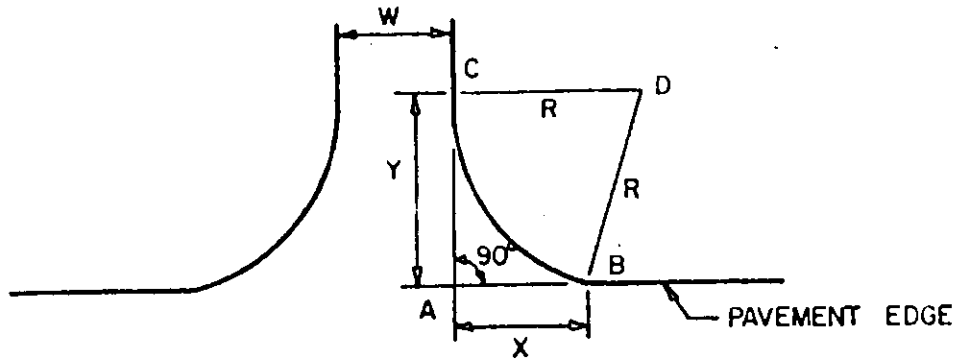
III. SPECIAL CONDITIONS

- A. In addition to the aforementioned conditions, if it is found necessary by this Department to add to or otherwise modify the same it is to be understood such changes shall form a part of the permit and be complied with immediately upon notice.

IV. ADDITIONAL SPECIAL CONDITIONS AND SKETCHES

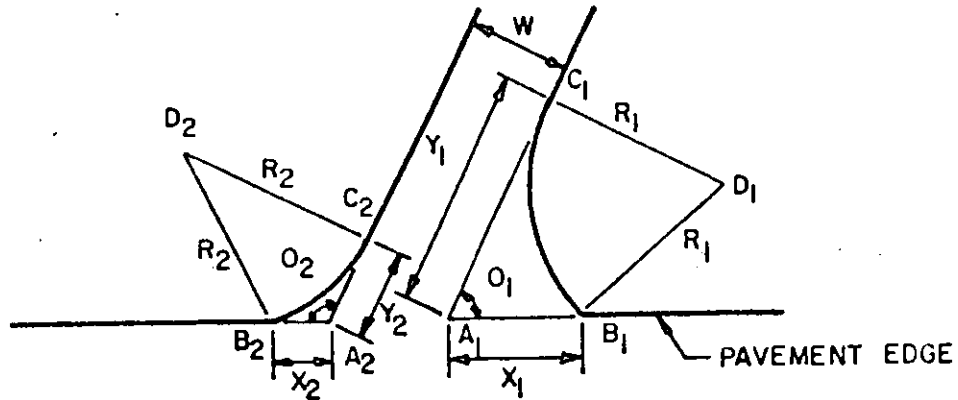
RESIDENTIAL DRIVES





PLAN — PERPENDICULAR DRIVE

- X _____
- Y _____
- W _____
- R _____



PLAN — SKEW DRIVE

LAYOUT PROCEDURE

- 1) LOCATE POINT A, THE INTERSECTION OF THE HIGHWAY PAVEMENT EDGE AND THE PROJECTED DRIVEWAY PAVEMENT EDGE.
- 2) FROM POINT A MEASURE THE GIVEN X AND Y DISTANCES TO LOCATE POINTS B AND C.
- 3) AT THE GIVEN R DISTANCE FROM POINTS B AND C SCRIBE TWO ARCS TO INTERSECT AT POINT D.
- 4) LAYOUT THE DRIVEWAY CORNER RADIUS BY SCRIBING AN ARC BETWEEN POINTS B AND C FROM POINT D, USING DISTANCE R.

Detailed Specifications

Item No. 24 Retainer Clamps, Tie Rods and Retainer Glands

1. Description

Where, in the opinion of the Engineer, it is necessary to install retainer clamps and tie rods or retainer glands at bends or along the pipeline, or in hydrant branches or elsewhere, the Contractor shall furnish and install such clamps and tie rods or retainer glands of the various sizes as may be required.

2. Materials

Retainer clamps for pipe 6 inches and larger shall, in general, be similar or equal to Star figure 11 "Retainer Clamps", as manufactured by Star National Products, Columbus, Ohio. Tie rods for pipe 6 inches to 12 inches in size shall be Star figure 12 all threaded rods 5/8" or 3/4" in size with rod couplings, or approved equal and of such length and size as may be required for any particular location. The Contractor shall submit details of the clamps and tie rods that he proposes to use for approval of the Engineer and approval shall be obtained before purchasing. All material shall be galvanized. Retainer clamps and tie rods for pipe larger than 12 inches shall be similar to the above specifications and the Contractor shall submit shop drawings for the approval of the Engineer. Comparable items by James B. Clow & Son or U. S. Pipe are acceptable.

Ductile iron retainer glands as manufactured by James B. Clow and Son or U. S. Pipe and Foundry Company, or equal, shall be used where applicable, as noted on the contract plans and/or as may be ordered by the Engineer.

3. Installation

Retainer clamps and tie rods shall be installed by experienced workmen and to the entire satisfaction of the Engineer. All clamps and tie rods and ductile iron retainer glands shall be coated after installation with a heavy coating of approved bitumastic paint.

The installation of retainer glands shall be accomplished as follows:

1. Back out all set screws to clear the inside of the gland.
2. Move gland in a position for bolting, insert all bolts and make all nuts finger-tight. Keep plain and centrally located within the bell.
3. Any necessary joint deflections should be taken prior to tightening of any bolts. Deflection at any joint shall not exceed 2-1/2 degrees.

Detailed Specifications

4. After the tee head bolts are tightened, make all set screws finger-tight against the pipe.

5. Tighten all set screws to 75 foot pounds torque, alternately tightening set screws on opposite sides of the pipe. A torque wrench must be used for this purpose.

6. At all cast fittings (bends) in the pipeline, all bell mechanical fittings shall be used. Ductile iron retainer glands as above described shall be installed on either side of the fitting in locations shown on the contract drawings, or as directed by the Engineer.

4. Measurement and Compensation

Payment will be made under this item at the unit price bid per pound for retainer clamps, tie rods and/or retainer glands furnished and placed in such locations as directed by the Engineer. The weight will be determined by field weighing of the retainer clamps of the various sizes, including the necessary nuts and bolts. The weights of the tie rods will be determined by actual measurement of the length of the tie rod using a standard weight per linear foot for the rods of the various diameters. Allowance will be made in the weight for the nuts and washers.

The weights of retainer glands shall be taken from the tabulated weights of the manufacturer.

Payment for retainer glands used on joints of fittings and valves shall be paid for under this Item No. 24.

The cost of furnishing and installing retainer glands used in conjunction with joints on mechanical joint pipe will not be paid for under this Item No. 24. Such cost shall be included in the unit price bid per lineal foot for the various sizes of mechanical joint pipe listed in the Bid Proposal and designated as "M.J./Ret. Glands."

Retainer glands furnished with hydrants shall be included in the unit price bid for each hydrant under Item No. 6.

Detailed Specifications

Item Nos. 25.1, 25.2, etc. Furnish and Place Rip-Rap

1. Description

Under these items the Contractor shall furnish all material, labor, tools and equipment required to furnish and place stone rip-rap for erosion protection in the locations indicated on the plans and in such other locations as may be directed by the Engineer.

2. Materials

Dry Rip-Rap - Dry rip-rap must be stone of a hard, durable character and shall be of such dimensions as can be placed by manual labor, if required. Dimensions shall be such that when in place the rip-rap shall have an average overall thickness of approximately 8 inches. The average minimum dimension of individual pieces of stone shall be not less than 4 inches.

Grouted Rip-Rap - Grouted rip-rap must be stone of a hard, durable character and shall be of such dimensions as can be placed by manual labor, if required. Dimensions shall be such that when in place the rip-rap shall have an average overall thickness of approximately 8 inches. The average minimum dimension of individual pieces of stone shall be not less than 4 inches. One dimension of each of the stones furnished shall be approximately 8 inches and the stone shall be so laid that this dimension is perpendicular to the prepared bed. Grout shall consist of one part cement and three parts of fine aggregates. Cement shall conform to M-1 Portland Cement, Type 2 or 2-A. Sand shall conform to M-3 fine aggregates. The above nomenclature refers to the State of New York Department of Public Works specifications.

3. Construction Details

Dry Rip-Rap - The stones shall be placed so that the dimension approximately equal to the layer thickness is perpendicular to the stone surface and that the weight of the stone is carried by the underlying material and not by the adjacent stones. On slopes, the largest stone shall be placed at the bottom of the slope. The dry rip-rap shall be properly aligned in places so as to minimize void spaces between adjacent stones. The spaces between the stones shall be filled with spalls of suitable sizes until the finished rip-rap presents a reasonably smooth appearance.

Detailed Specifications

Grouted Rip-Rap - The stones shall be placed so that the weight of the stones is carried by the underlying material, and not by the adjacent stones. On slopes, the largest stone shall be placed at the bottom. All grouted rip-rap shall be properly aligned and in close contact, and shall rest on a six inch bed of approved gravel or other suitable granular material. No material upon which the grouted rip-rap is laid will be allowed to fill the spaces between the stones. When the stones are in place, the spaces between them shall be completely filled with grout and the surface swept with a stiff push-broom. The grouted rip-rap shall be kept moist for four days after grouting.

4. Measurement and Compensation

The unit prices bid for these items include the furnishing of all material, labor, tools and equipment required to furnish and place the rip-rap as specified above and as directed.

Payment will be made under Item No. 25.1 at the unit price bid for the number of square yards of dry rip-rap actually placed in accordance with the plans or as directed by the Engineer and as determined from field measurements of the completed work.

Payment will be made under Item No. 25.2 at the unit price bid for the number of square yards of grouted rip-rap actually placed in accordance with the plans or as directed by the Engineer and as determined from field measurements of the completed work.

NOTE: The unit price bid for grouted rip-rap shall include the furnishing and installing of the proper gravel or granular foundation course as specified herein.

Detailed Specifications

Items Nos. 26.1, 26.2, etc. Corrugated Metal Pipe Culverts

1. Description

Under these items the Contractor shall furnish all labor, material, tools and equipment required to furnish and install corrugated metal pipe culverts in the locations shown on the plans or in such other locations as may be directed by the Engineer.

2. Corrugated Metal Pipe

All culvert pipes shall be corrugated steel pipe, bituminous coated inside and outside, with paved inverts and shall be as manufactured by the Metal Products Division of Armco Steel Corporation, Lane Metal Products Co., Inc., or equal. Corrugated metal pipe shall be of gauge thickness sufficient for H-20 loading. All joints shall be made with corrugated metal bands bolted in place. Half-round culverts shall be corrugated and galvanized only. Joints shall be made by extending the galvanized bolts at least six inches into concrete under the joint. Concrete shall be second class and shall extend at least one foot along the length of the pipe and be at least one foot deep. Ends of bolts shall be bent, or supplied with large washers, to provide anchorage.

3. Installation

All pipe shall be laid on a bed of approved run-of-bank gravel, not less than 8 inches thick and the pipe shall be bedded and graveled up to the centerline of the pipe, with a minimum of 8 inches of gravel around the pipe at all locations. The installation of corrugated metal pipe culverts under this item is intended generally for use under existing and new roadways and at depths of less than 4 feet, as measured from the roadway surface to the invert of the pipe.

4. Measurement and Compensation

The unit price bid per linear foot under this item shall include all costs for material, labor, tools and equipment necessary to furnish and install corrugated metal pipe culverts of the sizes and in the locations shown on the drawings, as herein specified, or as directed by the Engineer. The unit price bid shall include all excavation up to a depth of 4 feet, except rock excavation, all backfill, tamping of filled material, disposal of any surplus materials. Excavation beyond a 4 foot depth shall be paid for under Item No. 10, "Additional Earth Excavation." Concrete anchorage shall be paid for under the Item for "Additional Second Class Concrete."

Payment will be made under these items for the number of feet of corrugated metal pipe furnished and installed, as measured along the centerline of the completed pipe culvert.

Detailed Specifications

Item No. 27 Miscellaneous Iron and Steel

1. Description

Under this item the Contractor shall furnish and install all miscellaneous iron and steel called for on the drawings or in the specifications or as ordered by the Engineer and not included under other items of these specifications.

2. Shop Drawings

All iron and steel under this item shall be of standard manufacture and design and approved by the Engineer in all respects. The Contractor shall submit for the Engineer's approval shop drawings from a reputable steel company showing all materials to be furnished and all details of fabrication and erection, and no shop fabrication shall be started until after shop drawings have been approved.

3. Standards

The dimensions and weights of structural steel members furnished shall be in accordance with the tabulated dimensions and weights of the American Institute of Steel Construction.

Except where otherwise specified or shown on the drawings, all materials, loads and stresses, unit stresses, design, fabrication, erection and inspection, shall comply with Specifications for the Design, Fabrication and Erection of Structural Steel for Buildings, issued by the American Institute of Steel Construction, adopted 1936 (latest revision).

Structural steel shapes and steel plates shall fulfill the requirements of ASTM Designation A-7 (latest revision).

4. Painting

The surfaces of all miscellaneous iron and steel work, unless otherwise specified, shall be thoroughly cleaned of all rust, scale, dirt, etc., and shall be painted a shop coat of red lead and linseed oil paint before delivery to the job site. All iron and steel work shall receive a finish field coat of paint of the type specified on the drawings or as directed by the Engineer.

5. Measurement and Compensation

The unit price bid per pound under this item shall include all costs of every nature necessary to furnish and install all miscellaneous iron and steel ordered by the Engineer or as required on the drawings.

Detailed Specifications

The number of pounds paid for shall be the number of pounds of steel or iron incorporated in the work as determined by the Engineer in the field.

Detailed Specifications

Item No. 29 Pipeline Markers

1. Description

Under this item the Contractor shall furnish and place pipe markers where shown on the plans, or as directed by the Engineer. Each pipe marker shall consist of a 2 inch "YOLOY" pipe encased in concrete base as directed by the Engineer. The portion of the pipe not encased in concrete shall receive one coat of metal primer paint and two finish coats of an approved metal paint, as directed by the Engineer.

2. Measurement and Compensation

Under this item the Contractor will be paid at the price bid each therefor, for furnishing and installing the 2 inch "YOLOY" pipe markers, together with concrete base and painting, to complete this item as specified, as shown on the drawings, and as required.

Item No. 30
Installation of Grinder Pumps

1. Description

Under this item the Contractor shall furnish all materials, labor, tools, and equipment required to install household grinder pump units furnished under another Contract No. 2P. The work shall include the receiving, storage and handling of grinder pump units as described in the Detailed Specifications for Contract No. 2P. This Contractor shall install the grinder pump unit in the basement of each home, either above the basement floor or below the basement floor, or buried below ground outside of the basement, as required and as ordered by the Engineer and in the manner shown on the plans and described herein. The work shall include required excavation and backfill, connection of grinder pump unit discharge to piping furnished and installed under other items of this contract, mounting and installation of electrical control panel and auxillary power transfer switch furnished with the grinder pump unit under Contract No. 2P, furnishing and installation of electrical wiring and conduit between house main electrical panel, control/alarm panel, transfer switch, and grinder pump unit. Upon completion of installation, the Contractor shall test the unit on house power and auxillary power, using clear water and shall leave the unit deactivated until the homeowner's plumber connects the house sanitary drainage system to the grinder pump unit.

2. Procedure

Household grinder pump units shall not be installed until the pressure sewer system piping has been completely installed and tested and is ready to accept wastewater flow. House service lines of 1-1/4 inch polyvinyl chloride (PVC) pipe shall have been installed from the curb stop to the appropriate point inside the house foundation as determined by the property owner and the Engineer. Detailed arrangements shall be made with the property owner for an appropriate time to perform the installation of the grinder pump unit on the property. Once installation has started, the Contractor shall perform all work as quickly and efficiently as possible so that the property owner is subjected to the least amount of inconvenience possible. Installation shall not proceed unless the grinder pump installation agreement between the property owner and the town has been executed by the property owner.

3. Materials

The Contractor shall furnish all materials required for installation of the grinder pump, discharge piping and electrical connections which are required for the installation over and above the materials furnished with the grinder pump. Items to be furnished with the grinder pump are as specified under Contract No. 2P and include the grinder pump unit for free-standing or buried surface and redundant check valve for installation in the discharge piping, disconnect/alarm panel complete, auxillary power transfer switch and 10 feet of power and alarm cable for connecting the unit to the control panel when in basement and for connection of unit to junction box in accessway when unit is buried outside of house underground. Gate valves shall be furnished by this contractor under this item.

Unit discharge piping in basement shall be 1-1/4 inch type "K" copper pipe to be furnished, installed and paid for under Item No. 1.701. This Contractor shall furnish a brass union on the grinder pump side of the gate valve in the location shown on the drawings.

Electric wiring, conduit and wiring devices shall be as shown on the contract drawings.

4. Installation

Units to be installed free-standing on basement floor shall be installed as shown on the contract drawings in the location determined to be appropriate for connection of the house sanitary drainage system and a location satisfactory to the property owner. The Contractor shall set the unit in place in a position to facilitate connection of the house drainage system by the property owner's plumbing contractor. This contractor shall install the unit discharge piping including redundant check valve furnished with the grinder pump unit. Copper piping shall be furnished and paid for under Item No. 1.701. Discharge piping shall run along exterior walls or overhead attached to floor joists in a location satisfactory to the property owner and shall penetrate the foundation wall in the location selected by the property owner and the Engineer. Piping inside the basement shall be type "K" copper to a point just inside the foundation wall where it shall transition to PVC pipe. Openings in the basement wall to accommodate discharge piping and electrical conduit shall be made in a neat and workman-like manner and shall be no larger than necessary to accommodate the piping or conduit. The annular space between opening and piping or conduit shall be sealed using a non-shrinking grout approved for this use.

Detailed Specifications

Electrical work shall be performed by a qualified electrician and all electrical work shall conform to the requirements of the National Electrical Code and to other applicable local and state codes. The disconnect/alarm panel shall be mounted on the basement wall immediately adjacent to the grinder pump unit and the auxillary power transfer switch shall be mounted on the exterior of the house in a location which makes it easily accessible from the street side of the house and in a location acceptable to the property owner. Interconnecting conduit and wiring between the house main circuit breaker or fuse panel, the disconnect/alarm panel and the auxillary power transfer switch shall be installed in a neat and workmanlike manner as shown on the drawings as required and in a location acceptable to the property owner and to the Engineer. In general, conduit and wiring shall be run overhead attached to the underside of floor joists, dropping down to each panel or unit. Each installation shall be tested when completed and an underwriter's inspection and certification shall be obtained for each installation. One copy of the certification shall be furnished to the property owner, one copy to the Town and one copy to the Engineer.

Installation of grinder pump units below the basement floor will be accomplished as shown on the drawings and in a comparable manner to those units installed above the floor with the exception that an opening shall be made in the concrete basement floor of a sufficient size to accommodate the unit along with the required pea gravel foundation and the concrete antilotation anchor. Care shall be taken in making the opening in the concrete floor to avoid damage to the floor beyond the required opening. The opening shall be made utilizing a concrete saw and small automatic chipping tools. Care shall be taken when performing excavation to avoid undermining the floor and any voids created shall be completely backfilled and compacted utilizing an approved granular material. After installation of the grinder unit, the basement floor shall be patched utilizing appropriate concrete and/or grouting mixtures and epoxy bonding agents acceptable to the Engineer.

In performance of the work in the basement, the Contractor shall leave the work area neat and clean and in a condition generally the same as he found it prior to installation. The Contractor shall remove all waste materials and debris as the work progresses and shall perform all work to the satisfaction of the property owner and the Engineer.

Grinder pump units to be installed outside of the house, underground, shall be installed as shown on the drawings and in a location to be selected by the property owner and the Engineer. Grinder unit discharge piping shall be PVC pipe to be furnished and paid for under the appropriate item of the Proposal. The electrical installation shall be as shown on the drawings and as previously described except that the conduit and wiring from the unit to the disconnect/alarm panel in the basement will be furnished and installed underground, by the Contractor. The Contractor shall perform the required excavation, installation of the grinder unit complete with accessway, pea stone foundation and antifoatation anchor, and shall backfill around the unit with an approved granular backfill material, properly compacted. The Contractor shall restore damaged lawns as specified elsewhere, to the satisfaction of the property owner and shall remove and replace any bushes or shrubs which interfere with the required installation.

5. Measurement and Compensation

The unit price bid for the installation of each grinder pump unit under these items includes all costs for the furnishing of all materials, labor, tools and equipment required to install the grinder pump units complete as specified herein, as shown on the drawings and as may be required for a complete and satisfactory operating installation. Grinder pump units, complete with associated accessories and electrical panels, as specified under Contract No. 2P, shall be furnished to the Contractor by the Owner in the manner described in the Detailed Specifications for Contract No. 2P.

The unit price bid under Item No. 30.1 is to cover all costs for the installation of each grinder pump unit installed in a basement above the basement floor.

The unit price bid under Item No. 30.2 is to cover all costs for the installation of each grinder pump unit installed in a basement below the basement floor.

The unit price bid under Item No. 30.3 is to cover all costs for the installation of each grinder pump unit installed below ground, outside of a house.

Payment will be made at the unit price bid for the actual number of grinder pump units installed under each of the items in the Form of Proposal upon the satisfactory completion of the installation in accordance with the contract documents.

Detailed Specifications

Item No. 31 Furnishing and Installing Cast Iron Pipe Fittings

1. Description

Under these items the Contractor shall furnish and install all cast iron pipe fittings required to construct and connect the various pipelines, as hereinbefore described, as indicated on the plans and as directed.

2. Specifications Applicable

All excavation, backfill and embankment required for the installation of the cast iron pipe fittings under this item will be performed under other items of the contract.

Cast iron fittings shall, in general, be short-body fittings, in accordance with A.S.A. Specification A21.10, Class 250 for sizes up to and including 12 inch and Class 150 for sizes 14 inch and larger, and shall be furnished with mechanical joints in accordance with A.S.A. Specifications A21.10 and A21.11, or "Tyton" joint fittings, as manufactured by U.S. Pipe and Foundry Co., Atlantic States, or equal. All mechanical joints shall be furnished complete with accessories consisting of cast iron glands, USALLOY bolts and nuts, and plain rubber gaskets. All fittings shall be cement lined as hereinbefore specified under the item for furnishing and installing cast iron pipe. All work shall be in general accordance with Section 7 of the General Specifications.

3. Measurement and Compensation

The unit price bid under these items shall include all costs for materials, labor, tools, equipment and necessary incidentals required to furnish and install the necessary cast iron pipe fittings to complete the pipelines, as indicated on the plans and as specified or as directed.

Payment for fittings will be made for the actual number of tons furnished by the Contractor and incorporated in the work, as determined from the tabulated weights in the above-mentioned specifications. Payment for retainer glands shall be based upon the manufacturer's tabulated weights.

Payment for mechanical joint fittings shall include the weight with joint accessories, payment will not include the weight for the cement lining.

NOTE: Retainer Glands, as manufactured by the U.S. Pipe and Foundry Company, James B. Clow & Sons, Inc., American Cast Iron Pipe Company, or approved equal, shall be used where indicated on the plans and paid for under this item. They are to be installed according to all recommendations of the manufacturer, including the use of a torque wrench.

Item No. 32

ENVIRONMENTAL PROTECTION AND RESTORATION

1. SUBDIVISION OF ITEM 32

Item 32, Environmental Protection and Restoration is subdivided for payment into the following items:

- 32.1 Environmental protection and restoration procedures
- 32.2 Furnishing and planting additional two-inch caliper native trees
- 32.3 Furnishing and spreading additional topsoil and seed
- 32.4 Furnishing and placing additional sodding
- 32.5 granular fill for access roads and work areas
- 32.6 Project photographs

2. WORK INCLUDED

Under the subdivisions of Item 32, the Contractor shall provide all labor, equipment and materials necessary for environmental protection and restoration including those measures, procedures, and schedules, as shown on the plans or specified, which must be implemented during construction in critical environmental areas in order to minimize potentially adverse impacts due to construction of the project. Included are all measures necessary to comply with New York State Department of Environmental Conservation Article 14 Stream Protection Permit and Article 24 Wetlands Permit, United States Army Corps of Engineers Section 404 Dredge and Fill Permit, and all regulations of the United States Environmental Protection Agency which are not specifically included and paid for under other items of this contract. The Contractor shall submit a detailed plan for environmental protection and restoration to the Engineer, for approval, prior to initiation of construction. Copies will be sent to the New York State Department of Environmental Conservation and the United States Environmental Protection Agency for review and comment.

3. CRITICAL ENVIRONMENTAL AREAS DEFINITION

Critical environmental areas are defined as any areas, conditions or features which are environmentally sensitive, or which, if disturbed during construction, would adversely affect the environment. Within the scope of this contract, critical environmental areas related to the construction of the pipelines have been identified as follows:

Special Sewer District No. 1 - Area from easterly end of boring across Delmar By-Pass, to point of connection with existing sewer (approximately 310 feet).

Easement Area (Hudson Avenue to Hunter Road) - Area from Hudson Avenue along easement to Hunter Road (approximately 700 feet).

Easement Area (Hunter Road Pumping Station) - Area in immediate vicinity of Hunter Road Pumping Station.

All environmental protection and restoration measures specified shall apply to work in the areas designated above except the following provisions:

1. Roping and fencing of critical areas will not be required.
2. Temporary access roads, if required at all, will not require the use of filter fabric and hay bales. Only "crawler" equipped vehicles will be allowed to work in critical areas.

4. ENVIRONMENTAL PROTECTION AND RESTORATION PLAN

Before any work is started in critical environmental areas, the Contractor shall submit for approval a detailed plan that shall describe those procedures, measures, schedules and the sequence of construction operations that he will employ to conform to all the requirements of this item. This plan and schedule shall supplement the construction program required by the Special Conditions. The detailed plan shall demonstrate that the work will be completed in a timeframe that permits adequate and timely erosion control. The plan shall provide for delays and/or interruption of the work made necessary by stream crossing at low flow, inclement weather or other seasonal constraints. The Contractor shall revise and resubmit the plan until it is approved. No work will be permitted in environmentally critical areas until the plan is approved.

Prior to submitting the environmental protection and restoration plan for approval, the Contractor shall delineate the edges of his proposed working right-of-way with one-quarter inch diameter nylon rope. The rope shall be a highly visible color, such as yellow or red, and shall be suspended approximately three feet above grade on steel or wooden posts set at fifteen foot intervals or more closely as required. The rope shall be strung in a straight line from point to point along the edges of the working right-of-way and will be used for aligning hay bales, delineating the outer limits of clearing, marking the outer edges of the right-of-way, etc. After delineating the edges of the working right-of-way with rope, the Contractor shall schedule a field inspection of the area with the Engineer. During this inspection, the locations of any stockpile areas, required cross drains, sediment traps and filter basins, etc. will be discussed for inclusion in the environmental protection and restoration plan.

5. MATERIALS

5.1 General

Materials used in the restoration work shall conform with the following requirements and shall be subject to approval of the Engineer prior to incorporation into the work:

5.2 Dry Rip-Rap Bank and Channel Protection

Dry rip-rap bank and channel protection, where shown on the plans or ordered, shall conform to Item 25 and will be measured and paid for under Item 25.

5.3 Topsoil

Topsoil shall be friable, fertile, natural loam, capable of sustaining vigorous plant growth. It shall be free of any admixture of subsoil, stones one inch in diameter or larger, clods of hard earth, plants or roots, sticks or other extraneous material. It shall have a pH range between 6.0 and 6.5. If approved, natural topsoil not having the pH value specified above may be amended by the Contractor, at his own expense. Topsoil shall have organic content of 5 to 7 percent, as determined by ignition loss. Topsoil shall meet the following mechanical analysis:

3/4 inch mesh	100 percent passing
No. 4 sieve	90 - 100 percent passing
No. 200 sieve	20 - 80 percent passing

The clay content of the material passing the No. 200 sieve shall not be greater than 60 percent, as determined by hydrometer tests.

5.4 Temporary Fencing

Temporary fence shall be 14 gauge iron wire of an electrically welded rectangular mesh, not less than four feet in height, mounted on steel angle posts or satisfactory wood posts spaced at not more than 10 feet. Where used, iron wire fence shall be made highly visible by intertwining bright red or yellow surveyor's flagging through the wires at three foot intervals. Snow fence, not less than four feet in height, may be substituted for welded wire fence with the approval of the Engineer.

5.5 Filter Fabric

Filter fabric shall be Mirafi 500X, Dupont Typar or equal.

5.6 Sod

Sod shall be from an approved commercial source cultivated for turf. It shall be grown from a minimum of 90 percent permanent grasses of Bluegrass (Standard 50-50 Kentucky and Merion mixture) and shall be mowed within five days of cutting, shall be free from grubs, insects, fungus or turf diseases. The thickness of the sod shall be one inch to 1-1/2 inches. No sod will be accepted which is more than five days old, which has dried out, or which shows signs of having been improperly stored.

5.7 Granular Fill

Granular fill shall conform to the requirements of Item 15 - Gravel Backfill or Item 16 - Selected Backfill.

6. CONSTRUCTION DETAILS

6.1 General

In general, the construction details outlined herein shall be implemented to ensure minimum damage to the environment during construction. All environmental guidelines established by the New York State Department of Environmental Conservation will be strictly enforced, and all constraints specified herein, outlined in permits, or directed by the Engineer to protect natural resources of the area shall be strictly adhered to.

6.2 Prohibited Construction Procedures

The following construction procedures shall be prohibited:

- a. Dumping or wasting of spoil material into any stream corridor, any wetlands, any surface waters, or at unspecified locations adjacent to the sewer route or at locations not approved by the Engineer.
- b. Indiscriminate, arbitrary, or capricious operation of equipment in any stream corridors, any wetlands, any surface waters or outside the right-of-way limits.
- c. Dumping of silt-laden water from trenches or other excavations directly into any surface waters, any stream corridors, or any wetlands, without provision for treatment as noted herein.
- d. Damaging vegetation adjacent to or outside of access roads or limited rights-of-way for the work. All construction operations must be confined within easement widths as specified.
- e. Disposal of trees, brush, and other debris in any stream corridors, any wetlands, any surface waters, or at unspecified locations.
- f. Permanent or unspecified temporary alteration of the flow line or alignment of any stream or any watercourse.
- g. Open burning of pipeline project debris without proper permit.
- h. Disposal of tree trunks and roots, vegetation and pipeline project debris by burial in trenches.
- i. No area closer than 15 feet from the edge of any stream shall be disturbed, except at specified stream crossings, without written approval of the Engineer.

6.3 Access and Temporary Roads

Whenever possible, access and temporary work roads shall be located and constructed to avoid critical environmental areas. Provisions will be made to regulate drainage, avoid erosion, and minimize damage to vegetation. Access and temporary work roads shall be constructed with the minimum lift of granular material necessary to provide a stable base. Frequent fording of streams shall be avoided and wherever crossings cannot be avoided, temporary bridges or culverts shall be constructed. Such structures must be removed after completion of pipeline construction.

Except as specified in Section 3 - Critical Environmental Areas Definition, or shown on the plans, all access roads in critical environmental areas will be removed. All material used in construction will be removed from the area and the disturbed area restored to the pre-existing grade and drainage condition.

Unless otherwise called for on the drawings or directed by the Engineer, temporary access roads in critical environmental areas shall be constructed by draping filter fabric over parallel rows of contiguous, staked hay bales, aligned 20 feet apart, and filling the area between the rows of bales with a suitable granular material to a sufficient depth to support construction equipment. A minimum two-foot overlap shall be provided where sheets of filter fabric meet. Contractor shall limit the width of trench excavation so that, when the granular material is removed at the end of the pipeline construction, as much of the original vegetation root structure can be maintained and undisturbed by excavation or the "churning" action of heavy construction equipment. The removal of the granular fill shall be accomplished using a "Gradall", a backhoe with a flat plate fastened across the teeth of the bucket, or a bulldozer and payloader.

6.4 Storage of Materials and Equipment

Logistical structures and storage areas shall generally not be located in critical environmental areas. Where areas must be cleared for storage of materials or temporary structures, provisions shall be made for regulating drainage and controlling erosion. Such areas shall be indicated on the Contractor's plan for environmental protection and restoration.

6.5 Site and Access Clearing

The Contractor shall confine all clearing and grubbing to that portion of the right-of-way absolutely necessary and essential for construction and installation of the pipelines. In the vicinity of environmentally critical areas, the area cleared or otherwise used must be minimized to the fullest possible extent. The width of the working right-of-way in critical areas will be restricted to those specified in Section 3 - Critical Environmental Areas Definitions,

or shown on the plans. Temporary fencing, where shown on the plans or directed by the Engineer, shall be erected along the boundaries of the working right-of-way to clearly define restricted working areas and to minimize damage to adjacent areas. In all other portions of the environmentally critical areas, the working right-of-way shall be delineated with nylon rope.

All clearing schedules shall be arranged to provide a minimum practical exposure (in both extent and duration) of soils in order to prevent erosion. As much of the ground cover root structure as is practical shall be left in place to minimize erosion. The extent of clearing and grubbing will be restricted to that length of right-of-way within which construction will be initiated within ten (10) working days.

Where no access road construction is required or necessary and before excavation for pipe installation in a particular area is started, the topsoil shall be stripped and stockpiled separately from the rest of the excavated material. The topsoil shall be kept clean and free of objectionable foreign matter, and shall be replaced upon completion of pipe installation. If sufficient topsoil was not on the original ground surface, the Contractor shall furnish and spread four inches of topsoil and seed as ordered by the Engineer. Where fill for access roads is placed in undisturbed soil, the topsoil lost during trench excavation within the road area shall be replaced, from an outside source, to a minimum depth of four inches.

Payment for all labor, materials and equipment for stripping, stockpiling and replacing topsoil and seeding is included under the unit prices bid for the various items of sewer pipe. Additional payment for extra topsoil and seeding, in areas where no topsoil existed prior to construction, as ordered by the Engineer, will be made under Item 32.3. Temporary fencing where shown or ordered shall be included for payment under Item 32.1.

6.6 Stockpiling of Backfill Material

When excavating trenches, the Contractor shall separate suitable backfill material from material unsuitable for use as backfill. In critical environmental areas, especially areas adjacent to stream corridors or steep slopes, special attention shall be given to selecting stockpile areas and handling backfill in a manner that will minimize environmental damage. Such areas must be clearly indicated on the Contractor's plan for environmental protection and restoration. Deposition and grading of excess unsuitable backfill materials along the sewer route will not be permitted. Where necessary the Contractor will remove and dispose of excess unsuitable backfill material at his own expense.

6.7 Location of Spoil Areas

The Contractor shall submit for approval the proposed location of all spoil areas to be utilized. No spoil areas will be permitted in critical environmental areas. All spoil areas shall be graded, topsoiled as necessary and seeded at the completion of the work.

6.8 Protection of Trees and Shrubs

The Contractor shall make every effort not to damage common native trees and shrubs other than those he is permitted to cut, within or adjacent to the line of the trench. No trees greater than two inches in diameter shall be cut unless permitted by the Engineer. Trees and shrubs to be preserved shall be double-marked for the Contractor by the Engineer after consultation with New York State Department of Environmental Conservation Regional Forester whenever possible. The final routing within the permanent right-of-way will be determined by the Engineer in the field with emphasis on minimizing the number of trees to be removed. Trees greater than eight inches in diameter measured two feet above existing grade will be preserved whenever possible by tunneling and use of boards and burlap. Trees eight inches in diameter and larger, located outside of, but within three feet of the edges of the working right-of-way shall be protected from accidental damage by the use of boards and burlap.

The Contractor shall take sufficient precaution to avoid injury to all trees that are not to be cut by the use of boards, burlap padding or other suitable material. Where trenching and tunneling operations adjacent to trees result in the exposure of roots, immediately after installation of the pipeline. All trees and shrubs that have been damaged shall be pruned by the Contractor, and where equipment or other operations cause damage to tree trunks, the damaged area shall be repaired and painted with approved materials.

6.9 Stream Corridors and Watercourse Crossing, Erosion and Sediment Control

Disturbance of the beds of streams and watercourses shall be kept to a minimum and the beds shall be returned as nearly as possible to their original condition. When necessary for construction in streams, machinery shall operate from the stream bank not in the stream. When crossing streams or watercourses, the Contractor shall keep damage to natural vegetation on the banks to a minimum. A vegetation buffer zone of at least 15 feet shall be maintained between the stream or watercourse and the near edge of the pipeline right-of-way work area whenever the pipeline follows a stream corridor.

Whenever the sewer route is close to streams, the Contractor will be required to schedule his work during periods of normal low flow to minimize the effect on aquatic life and limit the area disturbed by the construction effort. Periods of normal low flow are defined as those periods when seasonal flood flows are not likely to occur and it is reasonable to assume that stream flow will be confined to the natural stream channel.

The Contractor shall, at the direction of the Engineer, use necessary methods to minimize erosion within easements and from access roads, especially in stream or watercourse areas. Right-of-way slopes at surface water crossings or drainage ways shall be protected by sheeting, sandbagging, mulch or the use of jute excelsior blankets, rip-rap or stone fill, as conditions require and as approved by the Engineer. Methods of preventing erosion shall also include construction of berms, dikes and other temporary and permanent structures. Erosion control methods shall be employed during site clearing, construction of pipelines, and at the time of final restoration. Where wet or muddy ground conditions exist or where surface run-off may cause erosion of disturbed areas, the Contractor shall install a continuous line of hay bales along the edge of the working right-of-way. Bales shall be placed along both sides of the right-of-way in generally level areas and on the downhill side of the right-of-way in slope areas. Such bales shall be individually staked to prevent movement. Upon completion of the work, the hay shall be spread over the areas as mulch.

Care shall be taken to prevent or reduce to a minimum any pollution from debris, sediment, or other material or damage from the operation of equipment and materials in stream corridors. Dikes or cofferdams required to facilitate construction shall be erected so that flow will not be reduced excessively to endanger fishlife downstream. Such dikes or cofferdams shall be erected of clean, washed, crushed stone or other suitable materials that will not contribute significantly to turbidity or siltation. The use of earth backfill is specifically prohibited.

Water, resulting from dewatering operations, used for working or processing, or containing oils or sediments that will reduce the quality of the water in the stream, shall not be directly discharged to the stream or watercourse. Such waters shall be diverted through a settling basin and filter before being discharged.

All compensation for any work at stream or watercourse crossings, as specified herein, is included for payment in the lump sum price bid for Item 32.1.

6.10 Construction in Wetland Areas

The Contractor shall exercise special precautions in areas which by virtue of drainage and vegetative condition are considered wetlands. Critical wetland areas are identified areas in Section 3 - Critical Environmental Areas Definition. To maintain natural ground water conditions and flow patterns, backfill materials should have permeability characteristics similar to those soils which are removed unless such a practice would result in conditions which jeopardize the integrity of the pipeline. The construction area must be restored to the original grade to achieve the pre-existing drainage conditions to the maximum extent possible.

6.11 Construction in Vicinity of Slopes

The Contractor shall provide special treatment in construction areas where slopes exceed 15 percent. Disturbance of vegetation shall be kept to a minimum to maintain stability. The Contractor shall employ additional methods which include but are not limited to the use of water diversion berms, temporary stilling basins, and jute or excelsior blankets employed as necessary to prevent erosion and siltation during construction and the period necessary to re-establish ground cover equivalent to that which originally existed, or sufficient to provide adequate erosion control. The local Soils Conservation Service agent must be contacted by the Engineer to provide guidance on suitable measures.

6.12 Environmental Protection during Temporary Work Stoppages

In the event of any temporary work stoppage, the Contractor shall take steps to prevent any temporary or permanent environmental damage to the area undergoing construction. To prevent siltation of streams, the Contractor shall provide for proper drainage and surface runoff regulation. Disturbed areas shall be provided with a temporary cover such as mulch, jute, fibrous netting or any other suitable material that will prevent erosion. Trenches shall not be left open for more than 48 hours if pipe is not being installed. All structures such as dams or dikes used during stream crossings must be removed.

6.13 Restoration Procedures

In general, immediately after backfilling trenches, disturbed areas shall be prepared for restoration. Erosion control measures shall be initiated and final restoration undertaken as soon as an area is no longer needed for construction, stockpiling or access. All areas shall be restored to at least as good condition as existed prior to construction activities.

6.14 Seeding and Planting

Seed selection shall be approved by the Engineer and shall be chosen to best conform with or be most suitable for the particular site conditions. Wherever required because of slope, the seeded areas shall be protected by burlap, mulch or other means approved by the Engineer, after consultation with the local Soils Conservation Service agent.

6.15 Adverse Soil and Ground Water Conditions

In construction areas where local soil conditions are adverse, containing relatively large amounts of clayey material, or having an unsuitable pH or other characteristics, the Contractor shall provide a covering of topsoil as specified by the Engineer sufficient to allow seeded grass to become established. Where adverse acid or mineralized ground water is present, a relatively impermeable soil shall be used for backfill to minimize discharge of such water. Where dewatering is necessary due to ground water levels, all discharges which may result in a deterioration of quality must be treated by settling or filters prior to discharge to surface waters.

6.16 Restoration of Slopes and Banks

To prevent erosion, slopes along rights-of-way, especially those exceeding 15 percent and those in the vicinity of surface water crossings or drainage ways, shall be restored and protected following completion of construction. The Contractor shall plant grass, shrubs or trees, place stone fill, sod, sandbag or use jute, mulch, excelsior blankets or other acceptable procedures to provide acceptable surface restoration and erosion control.

6.17 Time of Restoration

Environmental restoration of all pipeline construction areas shall begin within seven (7) calendar days after backfilling and shall be completed within thirty (30) calendar days from the time of backfill, unless otherwise specified by the Engineer. When pipeline construction is completed after October 1 or before April 1, the Contractor will utilize temporary soil stabilization measures approved by the Engineer to prevent erosion until such time as permanent vegetative cover may be established.

6.18 Removal, Preservation and Replacement of Small Caliper Native Trees

To minimize the impact of pipeline construction, the Contractor shall remove, preserve and replant two (2) inch caliper trees, as measured two feet above the existing grade, native to the construction area, as designated by the Engineer, in addition to restoring the vegetation of the area. In certain areas where trees did not exist prior to construction, or additional trees are deemed necessary by the Engineer, trees shall be planted to stabilize soil conditions or provide a screen after construction is completed. The Contractor shall maintain and guarantee all replanted or additional trees for a period of one year from the date of the final estimate.

7. PROJECT PHOTOGRAPHS

The Contractor shall retain and furnish the services of a professional industrial photographer to take, develop and print photographs of various aspects of the project in critical environmental areas covered by this contract.

The Contractor's choice of a photographer shall be subject to the approval of the Engineer, who shall thereafter determine the location and number of photographs required. Photographs will generally be required at three stages of the project:

- a. Prior to construction, all physical features located on private or public property and that are likely to be disturbed during the normal course of construction shall be photographed at the direction of the Engineer. These photographs must be received by the Engineer at least five (5) days prior to the start of construction in a particular area. No construction shall begin in that particular area before these prints are received and approved by the Engineer.

- b. During the project, photographs will be taken at the direction of the Engineer to illustrate construction progress.
- c. After completion of the project and before final payment, photographs may be taken at the direction of the Engineer.

The Contractor shall insure that the photographer will be available for the entire duration of the project. Normally, the photographer will be given a minimum of two (2) days notice each time photographs are required. However, if requested by the Engineer because of emergency conditions, the photographer should make himself available or designate an alternate approved photographer to substitute for him should the Engineer require photographs that cannot be delayed.

All photographs shall be in color on 8 " by 10" prints made from 4" by 5" negatives. The camera shall be a 4" by 5" view camera with tilts and swings to aid in securing maximum sharpness. All photographs shall be taken with the camera mounted on a tripod, leveled and plumbed. The photographer shall forward directly to the Engineer three (3) prints of each good negative as soon as possible but not later than five days after the photo has been taken. The back of each print shall carry the following information:

- a. the name, address and telephone number of the photographer
- b. the photographer's negative number
- c. the date and time of day the photo was taken
- d. the name of the project, and
- e. an identification of the object or scene photographed. Details of the exact means of photo identification shall be worked out between the photographer and the Engineer, but in all cases it shall be an identification system approved by the Engineer.

The photographer shall retain all numbered negatives of project photographs until such time as they are requested by the Engineer to be turned over to the Owner. These negatives shall then be given to and shall become the sole property of the Owner.

Photographs will be made available to appropriate regulatory agencies including New York State Department of Environmental Conservation and United States Environmental Protection Agency to assure compliance with these specifications for work in critical environmental areas. Photographs which are not properly developed, are over or underexposed, are improperly identified, or which cover subjects not requested by the Engineer shall be unacceptable and will not be paid for.

8. INSPECTION

The Engineer will employ a qualified environmental specialist to assist in the field inspection of the work to be done in environmentally critical areas to assure full compliance with the requirements of this item.

9. MEASUREMENT AND COMPENSATION

Payment for Item 32.1 - Environmental Protection and Restoration, will be made on a lump sum basis. The lump sum price bid for Item 32.1 shall be full compensation for furnishing all materials, labor, tools and equipment necessary to perform all environmental protection and restoration work required as shown and specified, which is not included for payment under other items of this contract. The price bid for Item 32.1 shall also include all costs for all work required by physical constraints and delays and interruptions in the work resulting from inclement weather or other seasonal constraints.

The unit price bid for Item 32.2 - per Additional Two Inch Caliper Native Tree, shall be full compensation for furnishing all materials, labor, tools and equipment necessary to furnish and plant additional two inch caliper native trees as specified, ordered or directed. The quantity to be paid for under Item 32.2 shall be the actual number of additional two inch caliper native trees furnished and planted as specified, ordered or directed.

The unit price bid for Item 32.3, per square yard, shall be full compensation for furnishing all materials, labor, tools and equipment necessary to furnish and place topsoil and seeding as specified, ordered or directed, in addition to that which is included for payment under other items of this contract. The quantity to be paid for under Item 32.3 shall be the number of square yards, measured in place, of additional topsoil and seeding furnished and spread as specified, ordered or directed.

The unit price bid for Item 32.4, per square yard, shall be full compensation for furnishing all materials, labor, tools and equipment necessary to furnish and place sod, as specified, ordered or directed, in addition to that which is included for payment under other items of this contract. The quantity to be paid for under Item 32.4 shall be the number of square yards, measured in place, of additional sodding furnished and placed as specified, ordered or directed.

The unit price bid for Item 32.5, per linear foot, shall be full compensation for all materials, labor, tools and equipment necessary to furnish, place and remove access road as specified, ordered or directed. The quantity to be paid for under Item 32.5 - Granular Fill, for access roads and work areas in critical environmental areas only shall be the number of linear feet of access road, measured along the centerline of the sewer, constructed and removed as specified or directed. Gravel or fill placed and removed in storage or stockpile areas is to be included in the price bid per linear foot of access road and will not be measured and paid for separately.

The unit price bid for Item 32.6, per negative, shall be full compensation for all materials, labor, tools and equipment necessary to furnish acceptable negatives and three 8" by 10" colored prints of each as specified, ordered or directed. The quantity to be paid for under Item 32.6 - Project Photographs, shall be the number of acceptable negatives and shall include three 8" by 10" colored prints of each acceptable negative furnished as specified, ordered or directed.

Detailed Specifications

Items Nos. 34.1, 34.2, etc. Tree Removal

1. Description

Under this item the Contractor shall furnish all labor, tools and equipment required to remove trees, including the disposal of all wood and debris and stumps where they may interfere with the installation of the sewer or water line to be installed.

2. Method of Construction

No tree shall be removed until it has been so designated by the Engineer. All trees shall be topped and limbed previous to felling unless otherwise approved by the Engineer. All stumps shall be removed unless otherwise specified by the Engineer. Where stumps are not removed they shall be cut below a height of 3 inches above the ground surface. All Elm wood cut under this contract shall be burned or debarked and the bark burned. All trunks, branches, rubbish and debris resulting from this work shall be disposed of in an approved manner. A permit for burning shall be obtained from the County Health Department but burning may be or may not be permitted depending upon weather or atmospheric conditions at the time. Under no circumstances may trees or limbs over 8 inches in diameter be burned. Trees or logs shall not be stockpiled either on or off easements for longer than thirty (30) days without written permission of the landowner. The logs may be cut to firewood size, chipped or disposed of in any other manner including burning when permitted by the above-described permit.

The Contractor will protect other plants, trees, shrubs and active lines from all injuries. He shall be liable for all injuries. Replacement and restoration shall be as approved by the Engineer.

3. Measurement and Compensation

Tree removal shall be measured by the number of trees of each size group which have been satisfactorily removed and disposed of. All trees shall be measured before they are cut. Measurement shall be made 4-1/2 feet above the ground line. Tree removal will be paid for at the unit price bid per tree for each size group as set forth in the proposal. Payment will be made at the unit price bid for the actual number of trees cut down in each size group, and shall include full compensation for all labor, tools and equipment necessary to complete the work as specified. The cost of removal and disposal of trees and brush smaller than 12 inches in diameter shall not be paid for under these items and shall be absorbed in the bid prices under other items.

Item Nos. 35.1 through 35.3
Factory-Built Pumping Stations

1. Work Included

Included in Items 35.1 through 35.3 is the furnishing and installation of pumping stations complete, wetwells complete, all piping and equipment, all excavation, backfill, clearing and grubbing, embankment, grading, topsoil and seeding, landscaping, roadways, culverts, and the installation of all ductile iron sewer lines and force mains outside of the pumping stations within the limits shown on the contract drawings. These shall include the connections between the wetwells and the pumping stations, a stub on the wetwells for the incoming sewer, and a stub out of the pumping stations for the force main, including a riser where required and as shown. The following is identification of each pump station to be constructed under this contract:

Item No. 35.1 - Winne Place Pump Station

Item No. 35.2 - Merrifield Pump Station (Hunter Rd.)

Item No. 35.3 - Laurelana Heights Pump Station

All work shall be performed in accordance with the appropriate provisions of the General Specifications and as hereafter specified.

2. Clearing and Grubbing

The sites of all excavation, embankment and roadways shall first be cleared of all trees, stumps, brush and rubbish which shall be removed from the sites in a satisfactory manner. It is the intention that only those trees be removed which are absolutely necessary to remove and would interfere with construction of structures, pipelines and roadways.

3. Earth Excavation, Backfill and Embankment

The Contractor shall excavate and remove to the extent necessary for proper construction, all material required to properly install the prefabricated pumping stations and the wetwells as shown on the contract drawings. Sheet piling shall be as required to protect existing roadways, buildings and utilities. After the construction of the pumping stations, wetwells and pipelines, backfill shall be placed in accordance with Section 2 of the General Specifications.

Detailed Specifications

Backfill may be excavated material if granular and capable of being properly compacted. If select backfill is required to be imported, such select fill shall be run-of-bank gravel or other granular material as approved by the Engineer and shall be paid for under Item No. 16, Select Backfill. Select backfill shall be placed and compacted by an approved method to obtain a high degree of compaction to provide minimum settlement.

If select backfill is required to be imported in the opinion of the Engineer, the quantity to be paid for under Item No. 16, Select Backfill, shall be limited as follows:

Where sheeting is employed, the maximum quantity to be paid for shall be either the actual quantity used to backfill within the sheeting line or the volume computed to a rectangular shape, the sides of which lie not greater than three feet from any outside face of the below-grade structures to be placed within and to the actual depth of backfill placed, whichever is less. Where sheeting is not employed, the maximum quantity to be paid for shall be either the actual quantity used to backfill the excavation or the volume computed from a rectangular shape, the sides of which are not greater than one foot from any outside face of the below-grade structures to be placed within and sloping outward from the bottom of the structures at a 45 degree angle, to the top of the backfill actually placed, whichever is less. In any of the cases above, the volume of the structures within the backfill area shall be deducted when computing quantities of select backfill for payment.

The Contractor shall furnish and place earth embankment in all other locations to the lines and grades indicated on the plans. Such excess excavated material which, in the opinion of the Engineer, is satisfactory for placement as embankment, shall be utilized by the Contractor to form such embankments. If sufficient material is not available at the various sites to form the required embankments, then additional earth embankment material will have to be imported by the Contractor for this purpose. Such material so imported will be paid for under Item No. 21, Earth Embankment.

4. Grading

Upon completion of the construction of all subsurface structures and pipelines, the Contractor shall rough grade the area within the easement limits as shown on the contract drawings or to the toe of the embankment, whichever is greater. Rough grade shall be approximately four inches below the finished grade elevation on the plan. If no finished elevation is indicated, then finished grade shall be equal to existing grade. All excess excavated materials

Detailed Specifications

except topsoil shall be disposed of as directed by the Engineer. Topsoil, if suitable, shall be stockpiled and used in the completed work. After the site has been graded to finished sub-grade, roadways and turn-arounds shall be built of run-of-bank gravel to a total thickness of 12 inches below finished grade and firmly compacted.

5. Topsoil, Seeding and Landscaping

Topsoil where required shall be placed to a depth of four inches and finished to a final grade. If topsoil of a good quality is not available at the site, the Contractor shall furnish and place suitable topsoil. After completion of installation, all areas so designated on the said plans shall be seeded as follows:

All areas to be seeded shall be graded to blend smoothly into the adjacent ground. The topsoil shall then be rolled with a light roller until the topsoil is firm, but not hard packed.

When fine grading is completed, the entire area so graded shall be fertilized and seeded.

Fertilizer shall be 5-10-5 applied at a rate of 40 pounds per 1,000 square feet.

Grass seed shall be a standard commercial mixture, suited for the local conditions, applied at a rate of five pounds per 1,000 square feet.

After fertilizing and seeding, the Contractor shall apply straw mulch at the rate of 100 pounds per 1,000 square feet. Prior to application of the seed, the surface shall be lightly raked to a depth of 3/4 inch. All raking shall be done along contour lines. All rocks, stones or trash appearing on the surface shall be removed. After the seed is sown, the surface shall be lightly rolled.

At each of the pumping stations, the Contractor shall furnish and place three (3) spreading yews in locations to be designated by the Engineer. These plants shall have a minimum height of 15 inches and shall be guaranteed for a period of one year from the date of final acceptance.

6. Ductile Iron Pipelines

All ductile iron pipe shall be centrifugally cast in metal or sandlined molds in accordance with tentative USAS Specifications A21-51 (latest revision) in 18 or 20 feet nominal lengths. The joint shall be the type which employs a single, elongated, grooved rubber gasket to effect the joint seal. Ductile iron pipe shall

have a rated working water pressure of not less than 250 psi, and shall be thickness Class 52 except as shown on the contract drawings. All ductile iron pipe shall be cement lined twice standard thickness and paint seal coated in conformance with USAS Specification A21.4 (latest revision). Fittings shall be short-body, in accordance with USAS Specification A21.10, Class 250 for sizes up to and including 12 inch and Class 150 for sizes 14 inches and larger, and shall be furnished with mechanical joints in accordance with USAS Specifications A21.10. Pipelines shall be installed in accordance with the applicable sections of the General Specifications. Where shown on the contract drawings, retainer glands, as manufactured by James B. Clow & Sons, Inc., American Cast Iron Pipe Company, or equal, shall be used. They shall be installed according to all recommendations of the manufacturer, including the use of a torque wrench.

7. Corrugated Metal Pipe Culverts

Where shown on the contract drawings, the Contractor shall install a corrugated metal pipe culvert of the length and diameter shown. Culvert pipes shall be corrugated steel, bituminous coated inside and outside, with paved inverts, and shall be as manufactured by the Metal Products Division of Armco Steel Corp., Layne Metal Products, or equal. They shall be of a gauge thickness sufficient for H-20 loadings and shall be laid on a bed of approved run-of-bank gravel 8 inches thick. The pipe shall be graveled up to its centerline. All joints shall be made with corrugated metal bands bolted in place.

8. Factory-Built Pumping Stations

a) Bidding Requirements

This is a Standardized Specification, with respect to the furnishing of factory-built concrete pumping stations and pumping equipment. The Town of Bethlehem operates a large number of factory-built concrete pumping stations equipped with Chicago Pump Company "Flush-Kleen" pump systems and has elected to standardize on the exclusive use of this particular equipment. Therefore, each bidder must submit a bid in the space provided in the proposal, based upon furnishing factory-built reinforced concrete pumping stations equipped with sewage pumps manufactured by Chicago Pump Company in accordance with the specifications. Where the "or equal" clause is used for other items of material or equipment, the bidder is free to use any product which he can substantiate as being equal to the product named.

Detailed Specifications

The bidder must submit with his bid full descriptive and technical data of the prefabricated pump station manufacturer upon which he has based his bid and whose pump stations he intends to furnish if he is awarded the contract. A space has been provided on page 12 of the Proposal for designating this information. Data to be furnished by pump station manufacturers may be submitted directly to the Engineer prior to the bid date, but must be received not later than the specified bid time and date. If any of the material and/or equipment fails to meet the technical requirements of the specifications, the Contractor shall furnish such other materials and/or equipment that meet the requirements of the specifications, at no change in the lump sum bid for each pump station complete.

The information submitted to the Engineer must include all of the following:

1. Detailed drawings showing the exact configuration and layout of all equipment to be supplied.
2. Complete submittal information on all equipment to be supplied including: Pumps, motors, controls, piping, electrical equipment, paints and finishes and all auxiliary equipment to be supplied with the station.
3. Structural calculations for the concrete modules approved by a professional engineer.
4. Any deviations from the specifications.
5. Description (and photographs, if available) of testing facilities to be used by the manufacturer to test complete operation of pump station prior to shipment.

b) General

The Contractor shall furnish and install at the sites of Pumping Stations Nos. 35.1, 35.2 and 35.3 a single deck factory-built reinforced concrete sewage pumping station. The stations are to be pre-cast reinforced concrete construction complete with non-clog sewage pumps, motors, automatic pumping level controls, sump pump, dehumidifier, ventilating system, entrance, ladder, lighting, and other necessary appurtenances, all in accordance with the specifications hereinafter stated and as shown on the contract drawings.

After notice of award of contract, the pumping station manufacturer shall submit copies of all shop drawings for the Engineer's approval. Said shop drawings shall be complete with respect to dimensions, design criteria, materials of construction, component parts, wiring diagrams and similar information to enable the Engineer to conduct a complete review. The manufacturer shall also call the Engineer's attention, in writing, to any deviation the drawings may have from the Engineer's specifications. Approval of the shop

drawings shall not relieve the manufacturer from his responsibility for any deviation from the requirements, nor shall it relieve him from any errors or omissions in the shop drawings, unless the manufacturer has called the Engineer's attention to such deviation and the Engineer has given written approval to such deviations.

c) Pump Chambers

The pump chambers for all stations shall be made of reinforced concrete and shall be a vertical cylinder having a nominal inside diameter of 8 feet and a nominal inside height of 8 feet. The reinforced concrete structure shall be of monolithically poured walls and floors, with walls having a minimum concrete thickness of six inches and minimum floor thickness of eight inches. A sump pit at least four inches deep shall be formed in the chamber floor. The pump chamber shall contain duplex vertical sewage pumps, as hereinafter specified, suction and discharge piping, fittings and valves, sump pump, heater, dehumidifier, pump stuffing box water seal system, lights, and access ladder. All stations shall have a reinforced concrete lid at least eight inches thick with a hole cast into it to receive a reinforced entrance tube. Pump chambers shall be installed in the field by the Contractor on a pea gravel leveling base at least eight inches thick.

d) Entrance Tube

Entrance tubes shall be 48 inches I.D. by 58 inches O.D. and shall be cast to specific lengths in order to meet the elevations, in accordance with the Engineer's drawings. An entrance hatch, vent fittings, and conduit fittings shall be cast into the reinforced concrete entrance tube for each station.

e) Reinforced Concrete Structures

Pump chambers and entrance tubes shall be designed as follows:

All concrete shall have a minimum compressive strength at 28 days of 5,000 psi. Joints between chambers, between chambers and lids, and between lids and entrance tubes, shall be sealed utilizing a joint sealant system consisting of three components: (a) a partially vulcanized butyl rubber sealant (Fed. Spec. SS-S-00210) compressed between the joint sections, and sealed with (b) a field formed protection system consisting of 3 coats of grey hydro-ester polymeric compound (3,000 psi tensile str., 10,000 psi compressive str., 15% tensile elongation @ 7 days) and (c) two layers of FX-inorganic fiber reinforcement (.15" min. thickness, 11,000 psi min. Ult. tensile str., 20,000 psi min. Ult. Flex. str., 0.8×10^{-6} psi flexural modulus of elasticity, 14 ft. lb. minimum per inch notched izod impact strength).

Reinforcing steel shall conform to specifications for billet steel ASTM A-15 intermediate grade, and shall be deformed conforming to ASTM A-305. Welded wire fabric reinforcement shall conform to "Specifications for Welded Steel Wire Fabric for Concrete Reinforcements." All reinforcement shall have a minimum cover of one inch and a minimum bar lap of 30 diameters. Annular spaces between pipe wall and concrete structure shall employ a mechanical joint type wall sleeve cast in place. The Contractor shall gasket and mortar entrance tubes with non-shrinking grout in the field.

f) Interior Finish

The interior of all chambers, lids and entrance tubes shall be painted with two coats of an approved epoxy paint. The floors of all chambers shall be tiled with 1" x 1" unglazed ceramic tile and sealed with flexible waterproof grout. All piping, valves, fittings, pumps, motors, brackets and supports, shall be painted with one prime coat of Mobil 13-R-50 and two finish coats of Mobil 28 Series Val-Chem Chlorinated Rubber, comparable Koppers finishes or other equal paint.

g) Entrance Hatch

At the top of the entrance tube on Station Nos. 35.1, 35.2, and 35.3, there shall be an insulated entrance hatch with a 30" x 36" clear opening. The entrance hatch shall be made of galvanized material and shall be complete with a neoprene seal for weather-tightness, one inch of fiberglass insulation, an automatic hold-open device, compression spring operators, pintle hinge, and inside and outside handles with padlock hasp.

h) Ladders

All chambers and entrance tubes shall be furnished with aluminum ladders. Side rails on ladders shall be 14 inches apart and rungs shall be spaced 12 inches on center. Aluminum brackets shall be installed in the entrance tubes and chambers to permit easy field installation of ladders by the Contractor. Ladders shall be equipped with aluminum safety pull-up extension.

i) Lighting

Each chamber shall have installed in it, two (2) 100-watt station lights. Each light fixture shall be vaportight, Series V, Catalog No. VJ1759, as manufactured by Crouse Hinds, Sterner, or equal. The lights shall be mounted on the station walls and shall be operated by the vent fan manual switch near the entrance.

j) Dehumidifier

All pump chambers shall have furnished and installed an automatic refrigeration-type dehumidifier to maintain the relative humidity of the air in the pumping station as low as possible. The dehumidifier shall be capable of removing 24 pints of moisture per day. The dehumidifiers shall be complete with automatic humidistat, compressor motor units, 115 volt, 60 cycle, 6.3 amps, 240 cfm fan and a drain tube connection allowing condensation to drain to the sump pit. All dehumidifiers shall be wall-mounted.

k) Heating

A 1.5 KW, 208 volt electric heater shall be furnished and wall-mounted in all pump chambers. Heaters shall be thermostatically controlled and shall be complete with a circuit breaker in the main electrical control panel.

l) Sump Pump and Pits

The reinforced concrete floor of all pump chambers shall be sloped one inch toward the sump pit. Located in the sump pit shall be a submersible pump with a one-half horsepower motor mounted directly above the impeller. The volute casting shall have feet to support the impeller above the bottom of the sump. Sump pumps shall have a minimum capacity of 2,340 gph at 20 feet TDH. Sumps shall be controlled by a level switch built in the pump and capable of operation on a three inch differential liquid level. Pumps shall discharge to the wetwells through 1-1/2 inch pipes and shall be equipped with gate valves and check valves mounted inside the pump chambers. The pumping station manufacturer shall be responsible for furnishing and installing the sump pump and all piping and valves inside of the station, and the general contractor shall be responsible for furnishing and installing the 1-1/2 inch Schedule 80 PVC pipe from the pump chamber wall to the wetwell.

m) Ventilating System

Stations shall have one-third horsepower, 3,450 RPM motors for driving vent fans capable of delivering 343 cfm at one inch static pressure. A four inch station air intake duct shall be provided and a four inch plastic exhaust pipe shall also be provided, all as shown on the contract drawings. All fans shall have cast aluminum housings and wheels. The ventilating system and lights shall be turned on by a manual entrance switch located at the top of the entrance tube or near other entrances. All internal ducts shall be plastic pipe and all external ducts shall be schedule 40 steel pipe.

n) Direct Current Alarm System

The pumping station manufacturer shall provide in all stations a "power failure", "station flood", and "high wetwell level" alarm system. The station manufacturer shall furnish and install dry contacts (normally open) to sense "power failure" and a "station flood sensor" to be mounted at station floor level. The station manufacturer shall furnish and the Contractor shall install the high level alarm switch in the wetwell. The switch shall be of the mercury tube type sealed in a solid polyurethane float furnished with a weight and the required cord. The switch shall be furnished with normally open contacts. The Contractor shall install the cord from the wetwell to the proper terminals in the main control panel.

o) Sewage Pumps and MotorsPumping Station Nos. 35.1, 35.2 and 35.3:

The station manufacturer shall furnish and install two (2) vertical raw sewage pumps in each station. They shall be vertical pedestal-mounted, raw sewage pumps complete with motor, base, motor pedestal and motor-to-pump coupling. All pump casings, bearings, housings and motor supports shall be close-grained, cast iron machined with tongue and groove construction. Pump pedestals shall be provided with a suction elbow and hand-hole and there shall be a second hand-hole in the pump casing. Large packing boxes shall be provided in each pump casing with provisions for supplying the packing with seal water. Each pump shaft shall be protected from wear at the packing box by a stainless steel shaft sleeve. Each pump shall have two (2) sets of deep-grooved ball bearings designed for both radial and thrust load. These bearings shall be so spaced that the distance between them is greater than the distance between the center of the impeller and the first bearing. The bearings shall be mounted in a dust and moisture proof housing that is bolted to the pump casing to insure a permanent alignment. Grease fittings shall be furnished in accessible points on the bearing housing of each pump. Each pump suction and discharge shall be provided with one-quarter inch drilled and tapped openings for gauges. The pumps shall be furnished by the Flush-Kleen System Manufacturer and be compatible with the size 6 x 4 system hereinafter specified. The pumps and Flush-Kleen System shall be as manufactured by Chicago Pump Company. The Flush-Kleen system shall be size 6 x 4, Type UC.

Detailed Specifications

Each pump shall be separately vented into the Flush-Kleen system hub fitting. Each pump and motor shall be the following:

Pumping Station No. 35.1
Winne Place

- Frame VPMLMC4
Duty Capacity/Head 220 GPM @ 58' TDH
Shutoff Head 76'
Suction Size 6"
Discharge Size 4"
Motor H.P. (Min.) 7-1/2
Motor Speed (Max.) 1750 RPM
Electrical Service 208 Volt, 3-Phase, 60 Hertz

Pumping Station No. 35.2
Merrifield (Hunter Rd.)

- Frame VPMLLC4
Duty Capacity/Head 125 GPM @ 37' TDH
Shutoff Head 40'
Suction Size 4"
Discharge Size 4"
Motor H.P. (Min.) 5
Motor Speed (Max.) 1150 RPM
Electrical Service 240 Volt, 1-Phase, 60 Hertz

Pumping Station No. 35.3
Laurelana Heights

- Frame VPMLMC4
Duty Capacity/Head 220 GPM @ 58' TDH
Shutoff Head 76'
Suction Size 6"
Discharge Size 4"
Motor H.P. (Min.) 7-1/2
Motor Speed (Max.) 1750 RPM
Electrical Service 208 Volt, 3-Phase, 60 Hertz

p) Flush-Kleen System

The station manufacturer shall furnish and install a Type UC, Size 6 x 4 Flush-Kleen System, as manufactured by Chicago Pump Company. The design of the station shall be such that the influent line will lead directly to the discharge pipe of each pump so that the inflowing sewage shall pass through the self-cleaning flo-thru strainers. Each strainer shall comprise a series of conical positioned monel rods extending from the periphery of the strainer housing and circumscribed by a series of straight monel rods so positioned that the area between the strainer housing and the straight rods is capable of passing strained liquid equal to the system's rated inflow. The solids are retained within the high velocity area of the strainer to be flushed clean on each alternate discharge cycle by the

liquid that has circumflowed the solids. The station manufacturer shall furnish and the Contractor shall install a self-cleaning overflow weir box in the inlet line as it passes through the wetwell, as shown on the drawings. A special inlet hub fitting and gate valve assembly to join the inlet line to the Flush-Kleen System shall be furnished and installed in the pump station by the station manufacturer. A special combination tee and check valve fitting shall be located in the discharge of each pump to prevent the pumps from discharging through the inlet hub fitting.

q) Station Piping, Valves and Gauges

The station manufacturer shall furnish, install and properly support and brace all piping and valves inside each pumping station. Pipe fittings and valves shall be of the sizes shown on the drawings. Each pump suction pipe shall be Class 53 ductile iron and terminate approximately 12 inches from the exterior wall of the station with a plain end. A flanged, non-lubricated eccentric-type cast nickel iron body plug valve, as manufactured by Homestead Industries, DeZurik, or equal, shall be installed in each pump suction pipe. Each pump shall discharge through the Flush-Kleen strainer and combination tee and check valve fitting. A vertical spring and lever type flanged check valve, as manufactured by Kennedy Valve Manufacturing Company, Clow Corporation, or equal, and a flanged non-lubricated eccentric type cast nickel iron body plug valve, as manufactured by Homestead Industries, DeZurik, or equal, shall be installed directly above each combination tee and check valve fitting. Each pump discharge shall then be manifolded into a common station discharge pipe. The discharge pipe shall be Class 53 ductile iron and horizontally pass through the chamber wall, terminating approximately 12 inches from the exterior wall with a plain end. The Flush-Kleen inlet line shall be 6" Class 53 ductile iron pipe, shall be valved as shown on the drawings, and terminate approximately 12 inches from the exterior wall with a plain end. The Contractor shall furnish and install flexible couplings on all piping running between the pump chamber and wetwell. The station manufacturer shall furnish and install a gauge with petcock on each pump suction and discharge. The suction gauges shall be compound, range 30" of vacuum to 15 psi with 1/4 inch bottom outlets and 4-1/2 inch dial size. The discharge gauges shall be pressure, range 0 to 100 psi with 1/4 inch bottom outlets and 4-1/2 inch dial size. Gauges shall be No. 600 series, as manufactured by Trerice, Marsh, or approved equal.

r) Main Control Panel

The pumping station manufacturer shall furnish and install in each pumping station a main electrical control panel with a NEMA 12 enclosure for manual or automatic control of the sewage pumps and to operate all station accessories. The panel shall be factory wired and tested and contain all electrical controls, starters, contactors and circuit breakers for operation of all power control and lighting for the station. All electrical components shall be labeled to agree with the electrical schematic which will be submitted by the station manufacturer and approved. The circuit breaker section shall be dead front. Convenient to the operator and located on the panel door shall be the pump power circuit breaker handles in addition to a "power-on" amber indicating light, a manual-off-automatic selector switch and red "pump running" light for each pump, and an off-on selector switch for the station vent fan. A convenience outlet shall be provided on the side of the panel for operation of 120 volt service. Thermal magnetic circuit breakers shall be provided for disconnect service and over-current protection of the sewage pump motors. Pump motor starters shall have thermal overload heater coils to give positive protection against single-phasing and shall have manual reset devices. Starters shall be complete with auxiliary contacts and heater elements. Eight (8) separate circuit breakers shall be provided for the station accessories such as: Dehumidifier, sump pump, station lights and vent fan, air compressor, convenience outlet, Sealtrode controller and spares. The station heater shall be provided with a two-pole circuit breaker and a two-pole circuit breaker shall be provided for the pumps control circuit and all station accessories. All circuit breakers shall be numbered and a circuit breaker schedule shall be secured to the inside of the panel door. All handles, switches and lights on the outside of the panel door shall be labeled with engraved Lamacoid nameplates.

s) Pump Control System

For automatic control of the sewage pumps, the station manufacturer shall furnish and install a Model Y-60 Sealtrode Floatless pump controller assembly, as manufactured by Chicago Pump Company. It shall consist of two (2) pump controls with four (4) electrodes, automatic pump alternation, high water alarm contactor, a flexible bulb functioning as a shield for the control electrodes, thus isolating the electrodes from contamination, a flexible bulb housing for dry well installation which is connected to the wetwell by a two inch pipe and gate valve. A metal terminal housing, shielded stationary bronze electrodes with suspension wires and a 1-1/2 inch lucite plastic support pipe and electrode holder. The sealtrode control box containing relays and alternating circuit for operating each pump starter shall be installed in the main pump control panel. The Contractor shall furnish and install the two inch sealtrode pipe between the wetwell and pump station exterior wall as shown on the drawings.

t) Station Wiring

The pumping station control panel for each of the pumping stations shall be completely wired at the factory, except for power feed lines and entrance switch connections. The wiring shall be in accordance with the National Electrical Code. All wiring in the pump station shall be color coded as indicated on the wiring diagram. All wiring outside of the control panel shall be in watertight or rigid conduit, except for 110 volt accessory items, which are provided with connecting insulated cable by the station manufacturer. The sump pump and dehumidifier shall be plugged into polarized grounded convenience outlets. The electrical contractor shall wire the entrance switch to the control panel after the station is installed. The electrical contractor (Contract No. 2E) shall furnish the main power wiring and conduit from the power source to the control panel inside of the station. A transformer shall be provided if 4-wire service is not available. The transformer shall be mounted on the lift station wall and pre-wired by the lift station manufacturer. The transformer shall be at least 3 KVA.

u) Water Service

The Contractor shall furnish and install a Type K copper underground water service connection from the existing water main to each pump station in the size shown and in the location as shown on the location plan for each of the pumping stations. The Contractor shall furnish and install an approved corporation stop on the existing water main and an approved curb stop and curb box in a location selected by the Engineer. The Contractor shall either obtain permission from the Owner to tap the water main, or shall have the Owner furnish the tap and shall pay all costs in connection therewith. Water services shall be installed at a minimum depth of five feet below ground surface. The Contractor shall furnish and install a backflow preventer in the water service line, in a concrete chamber just outside the control chamber. These items shall be sized adequate for the service intended. Backflow preventer shall be of a manufacture approved by the New York State Department of Health and shall be Watts Manufacturing Co., Model 909-S (strainer), "Beeco", Model 6C, FRP with bronze strainer, as manufactured by the Hersey-Sparling Meter Company, or equal.

v) Wetwells

The Contractor shall furnish and install for each pumping station a precast concrete wetwell structure of the diameter and depth as shown on the drawings.

Detailed Specifications

Precast concrete wetwell structures shall be constructed with precast circular sections and shall conform to ASTM Specifications C478-T (latest revision). The Contractor shall submit drawings for the Engineer's approval of the particular precast wetwell which he proposed to furnish.

All reinforced concrete shall be not less than 4,000 psi concrete and shall utilize air-entrained cement. Wall thicknesses and reinforcing shall be in accordance with the manufacturer's standard design and shall be as required for the particular installation. The precast wetwell base sections shall be set in place on a compacted layer of approved gravel or crushed stone, not less than 8 inches in thickness. Base sections shall include a portion of the wetwell wall and shall include properly sized and located wall openings for each of the required inlets and/or outlets in the wetwell.

Precast wall sections of varying heights shall be joined to the base section to bring the structure to the required finished ground surface. Eccentric conical top sections may be used to reduce the inside diameter of the wetwell to two feet to accommodate the installation of manhole frames and covers. As an alternate for the larger diameter wetwells, a precast reinforced concrete top slab may be utilized and provided with a two foot diameter opening to accommodate the installation of the required manhole frame and cover. The joints between wall sections shall be sealed by the installation of a flexible, premolded, endless O-ring gasket.

Manhole frames and covers shall be of the standard pattern of the Owner and shall have suitable raised letters cast in the top of the cover. Iron castings shall conform to the requirements of ASTM Designation A-48, latest revision, for Class 30 iron and shall be free from all faults and defects. Frames and covers shall be covered with asphalt or other approved substance applied at a temperature of about 300 degrees F. to provide a firm, durable and tenacious coating. Covers and frame shall be machined to provide an even fit. Manhole frames and covers shall be the same as or approved equal to No. LB-268-1, as manufactured by LeBaron Foundry, No. 1009 as manufactured by "Campbell", or equal.

Wetwells for pumping stations shall be provided with ladder rungs spaced as shown on the drawings. Ladder rungs shall be made of cast iron or aluminum of the dimension shown and shall be precast into the structure.

The Contractor shall install all wetwells in accordance with the above specifications and shall then place the necessary concrete fill, install the necessary pump suction piping, sump pump discharge piping, level control piping and all other piping and connections as shown on the drawings, or required. After installation, the interior and exterior surfaces of all wetwells shall be entirely painted with a coat of approved bitumastic sealer.

w) Mandatory Factory Test and Quality Control Inspection

Each pump station shall be completely assembled in the manufacturer's test pit. Each of the pre-assembled modules shall be lowered into the test pit where they shall be vertically stacked. The test pit shall then be flooded with water and the station shall be subjected to a complete operational performance test.

The specifying Engineer shall witness the performance test and inspect the station at the manufacturer's facilities.

The manufacturer shall designate the date for the test and inspection of the station to meet the required delivery. If the Engineer cannot be present, the manufacturer shall perform the test and inspection in his absence and submit test /inspection results.

x) Station Installation

It shall be the Contractor's responsibility to secure from the station manufacturer a station instruction manual at least one week prior to the scheduled shipment of each station to the job site. The Contractor shall study this manual and direct any questions he has to the station manufacturer for answers before proceeding with installation. The Contractor shall then install the station in complete conformance with the manufacturer's instructions. The Contractor shall coordinate with the Owner and the manufacturer and the electrical contractor the delivery schedule for each station, so that electrical power will be available at the pumping station site at the time of installation or immediately thereafter. Immediately upon final setting of the pumping station into the excavation, the Contractor shall notify the electrical contractor to hook up the power supply so that at least 120 volt power is available for the operation of the sump pump and dehumidifier. Care must be taken during installation to keep mud and debris out of the sump pit and pump.

y) Start-up Service

The Contractor shall make certain that permanent electrical power is properly installed into the station transfer panel, all electrical connections are installed and are wired properly and all items of equipment shipped loose are properly and permanently installed. The Contractor shall then arrange for the services of a representative of the station manufacturer to check the installation, place the station into operation and give maintenance instructions. The Contractor shall notify all firms involved in the station installation and request that they have a representative in attendance for startup. The

station manufacturer shall provide as part of his bid price, the services of a factory-trained representative for a period of one day at the pumping station to perform initial startup of the pumping station and to instruct operating personnel in the operation and maintenance of the equipment and to demonstrate satisfactorily the performance of each piece of equipment. The manufacturer shall also indicate a per diem rate for providing a man at the station beyond the one day called for above.

z) Guarantee

The pumping station manufacturer shall guarantee each pumping station for a period of one year from the date of pumping station final acceptance by the Owner, not to exceed a period of two (2) years after shipment. The guarantee shall warrant that the concrete structures and all equipment shall be free from defects in design, materials and workmanship. The station manufacturer shall furnish replacement parts proved defective, whether of his or other manufacture during the warranty period, excepting only those items which are normally consumed in service such as light bulbs, oil, grease, packing, etc. Failure of the Contractor to furnish temporary or permanent electrical power to the station immediately after installation may void the manufacturer's guarantee.

9. Measurement and Compensation

The lump sum amount bid for each pumping station under Item Nos. 35.1, 35.2, and 35.3 shall include all costs for materials, labor, tools and equipment necessary to furnish and construct, complete, the pumping stations within the limits and as shown on the contract drawings and in accordance with the above specifications.

Payment will be made at the lump sum amount bid for each pumping station upon the satisfactory completion of the work in accordance with the contract.

Item No. 36
Project Sign

1. Description

Under this item the Contractor shall furnish all materials, labor, tools and equipment necessary to fabricate and erect a project sign as specified herein and as shown on the attached drawing.

2. Materials

Materials shall be as specified and as shown on the attached drawing and shall be new materials of first quality, suitable for the purpose being used.

Sign base (or standard) shall be made of substantial materials, properly braced and presenting a neat appearance. Wood or metal members may be utilized.

3. Location

Sign(s) shall be erected in location(s) provided by and approved by the Owner. Lettering details shall be furnished by the Engineer.

4. Measurement and Compensation

Payment will be made at the unit price bid for each sign furnished and erected (and removed and disposed of subsequent to construction) in accordance with these specifications and attached drawing.

ENVIRONMENTAL
PROTECTION
AGENCY

ORDER

1015.1B

July 28, 1975

POLICY - AGENCY IDENTIFICATION

EPA IDENTIFICATION SIGNS AT PROJECT SITES

1. PURPOSE. This Order establishes the design and specifications for a sign to be displayed at the sites of projects which are operated or sponsored by EPA. The sign is intended to afford public awareness of the national involvement of EPA in environmental protection.

2. PROCEDURES. A Project Identification Sign shall be displayed in a prominent location at each publicly visible construction site and demonstration project sponsored or operated by EPA. The basic design of the sign shall be as illustrated in Figure 1. With the exception of (a) through (c) below, variations to the basic design shall be at the discretion of the grant awarding official or contracting officer.
 - a. The only Federal Government participant indicated shall be EPA. Names of Program Offices shall not appear.

 - b. Standardized coloring for all signs shall be as shown in Figure 1.

 - c. Identification signs at EPA-funded construction projects shall include prominent display of the pertinent EPA Grant Identification Number; e.g., C-012345-03 (Program Code-Six Digit Grant Serial-Two Digit Project Sequence Number) and shall include the statement "An Equal Employment Opportunity Project" as shown in Figure 1.

3. NOTIFICATION. The appropriate contracting officers or grant awarding officials are responsible for assuring that concerned parties (e.g., State and local agencies, prospective contractors and grantees, and interested consulting engineers) are notified of this requirement.

4. SUPERSESSION. EPA Order 1015.1A is superseded.



Alvin L. Alm
Assistant Administrator
for Planning and Management

Dist: Directives

Initiated by: PM-216

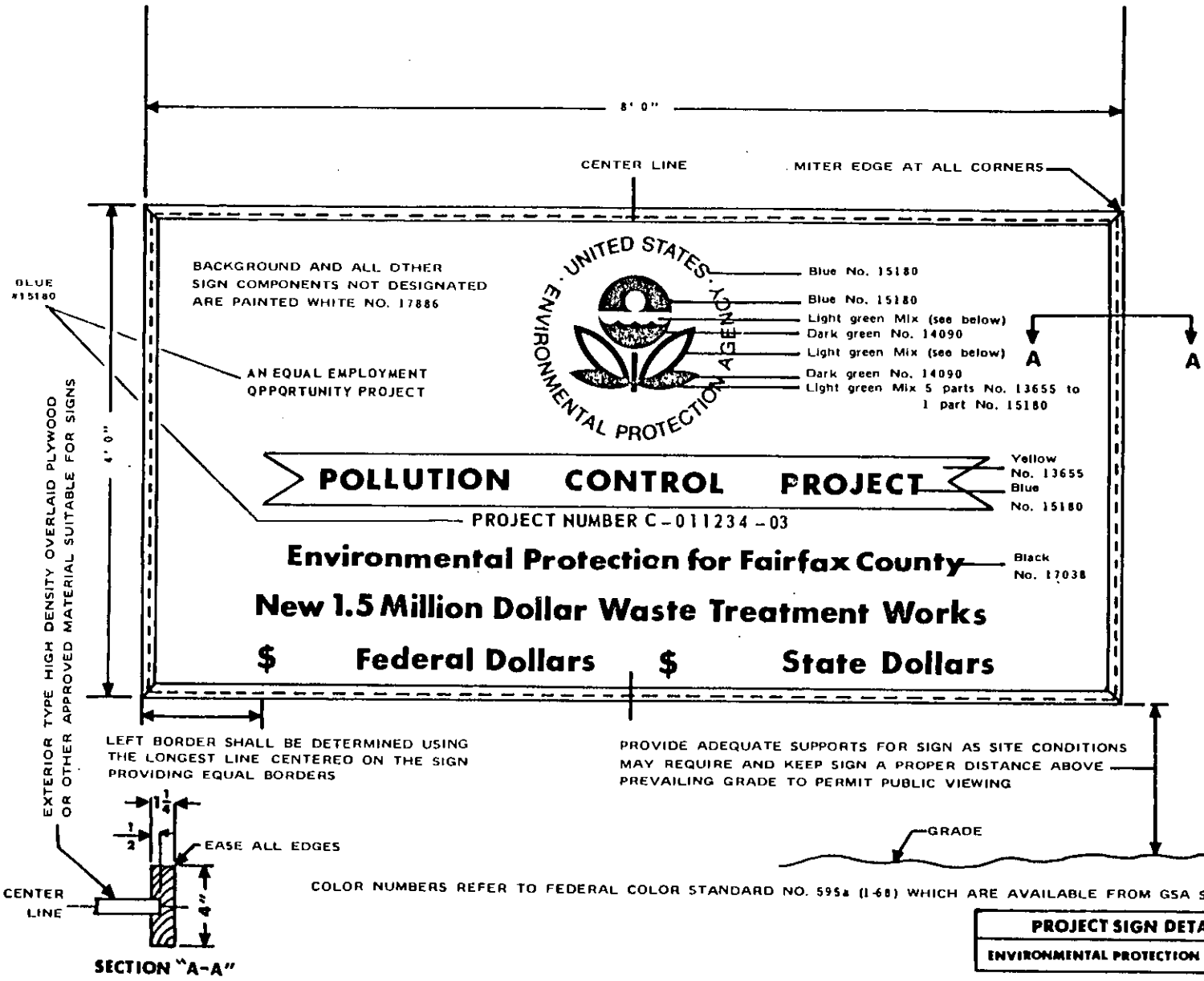


Figure 1.

Detailed Specifications

Item No. 37 Air Valve Manhole

1. Description

Under this item the Contractor shall furnish all materials, labor, tools and equipment required to construct complete, as shown on the contract drawing, air valve manholes in the locations shown.

The manhole structures shall be constructed as shown and as specified in Item No. 37, except for the frame and cover, and the opening in the base slab which is to be filled with crushed stone. A mechanical joint tee shall be inserted in the force main at each manhole location. Four inch and six inch diameter force mains shall have 4" x 4" and 6" x 4" tees, respectively. Larger force mains shall have tees with 6 inch diameter side outlets, and all shall have plugs with two inch diameter taps. A two inch threaded close nipple, two inch globe valve, one inch blow-off valve, and a two inch Apco 400 sewage valve as manufactured by the Valve and Primer Corporation, Clow Corporation, or equal, shall complete the installation.

2. Measurement and Compensation

The unit price bid for air valve manholes shall include all costs for materials, labor, tools and equipment required to construct the air valve manhole complete as specified herein and as shown on the contract drawings. Payment for the mechanical joint tee shall be included under the item for cast iron fittings.

Payment will be made at the unit price bid for each air valve manhole, in accordance with the contract.

TOWN OF BETHLEHEM

ALBANY COUNTY

NEW YORK

CONTRACT NO. 2E
ELECTRICAL WORK

DETAILED SPECIFICATIONS

1. Description of Work

These plans and specifications are intended to describe work to be performed and the manner of installation for complete and operable systems for new facilities as described herein and/or on the plans for the following:

The installation of electric services to three (3) pumping stations as described and listed in the specification section "Specific Work to be Performed at Other Pumping Stations." (Proposal Items 1 through 3).

2. Coordination of the Work

The Contractor shall be responsible for the coordination of the work of his subcontractors. The Owner/Engineer shall be responsible for the coordination of work progress schedules whenever there are two or more prime contractors involved in the work.

The Contractor shall submit a proposed work progress schedule utilizing CPM or bar graph method for the Engineer's approval within 10 days subsequent to award of the contract. Such schedule shall conform to the time limit specified in the Information to Bidders or elsewhere in the contract documents. The Contractor shall update the work progress schedule, revised if necessary, and submit it to the Engineer on a monthly basis during the progression of the project.

3. Plans and Specifications

These Detailed Specifications, the General Specifications, the Plans herein referred to, and the General Conditions attached hereto are complementary and it is intended that they include all items of labor and materials and everything required and necessary to complete the work even though some items of work or materials may not be particularly mentioned or may have been inadvertently omitted from the drawings or specifications or both.

4. Discrepancies

In case of discrepancies between the drawings and specifications, interpretations shall be given preference in the following order:

- (A) Addenda (later dates to take precedence over earlier dates)
- (B) Detailed Specifications
- (C) General Specifications
- (D) Drawings (schedules or notes to take precedence over other data shown on drawings)

5. Additional Work

Additional work, if required to be performed under this contract, will be in accordance with the applicable paragraphs of the contract. The Engineer shall be the sole judge as to whether an item was intended as part of the work, or is in addition thereto.

6. Testing Materials and Equipment

The Contractor shall furnish all labor, materials, devices and facilities required by the Engineer to test and determine the suitability of the various items of equipment and material used in this contract. The Engineer will determine the items to be tested and the manner in which such testing shall be performed. The Contractor shall be required to correct all deficiencies in materials and equipment and to re-test those items where in the opinion of the Engineer it is necessary to do so.

7. Subsurface Information

Whenever subsurface borings or other subsurface information, obtained by the owner or his representative, is available for the bidder's inspection or shown on the plans, it is understood that it has been obtained with reasonable care and recorded in good faith with reasonable interpretations placed on the results and character of materials and conditions to be expected. The bidder must interpret the information according to his own judgment and not rely upon it as accurately descriptive of subsurface conditions which may be found to exist. The information is made available to the bidder only in order to provide the bidder with access to the identical information available to the Owner.

8. Payment

Payment for unit price items or for lump sum items, as the case may be, will be made in accordance with the applicable provisions of the contract. No payment will be made for materials delivered to the job site until they have been incorporated into the work except as provided under Article XXI of the contract.

9. Definitions

The electrical contractor shall hereafter be referred to as "Contractor."

10. Codes and Regulations

All work to be performed in strict conformance with latest applicable codes and regulations of:

- A. NEC
- B. NYBFU
- C. Niagara Mohawk Power Co. (NMPC)
- D. Applicable Local Codes and Regulations
- E. NYTC

11. Permits and Certificates

Obtain and pay for:

- A. Necessary permits to begin work immediately.
- B. NYBFU Certificate of Approval, to be delivered to Engineers prior to final approval by Engineers of contract work.

12. Workmanship

- A. All work shall be performed to meet Engineer's standards.
- B. Provide suitable protection for all work and property against damage and injury.
- C. Assume responsibility for materials stored at site or in structure.

13. Materials and Drawings

- A. All materials shall be new and of a quality equivalent to or better than that specified.
- B. Within 30 days, submit four (4) copies of a list of manufacturers whose equipment and materials are proposed to be used. If a list is not submitted, all items shall comply strictly with specification provisions.
- C. Shop Drawings: The Contractor shall submit to the Engineer for his approval five (5) copies of shop drawings, descriptive data, performance characteristics, material specifications, and wiring diagrams, as appropriate, showing conformance of all equipment to the requirements set forth herein.

14. Cutting and Patching

- A. Shall be sole responsibility of this Contractor.
- B. Make repairs of any damages done by this Contractor.

15. Excavation and Backfill

- A. Any excavation and backfill required by this Contractor shall be performed by or paid for by this Contractor.
- B. Keep excavations dry when open.
- C. Shore excavations to prevent cave-ins.
- D. Compact backfill and bring to grade level as required by Engineers.

16. Cleaning

- A. All equipment shall be thoroughly cleaned prior to final approval.
- B. This Contractor's debris shall be cleaned up frequently by Contractor to minimize fire hazard.

17. Testing

- A. Make a complete test of each system installed or wired and correct any shorts, grounds or excessive heat developed at any points in systems or equipment.

18. Dimensions and Layouts

- A. Verify all dimensions shown or scaled from drawings by field measurements when construction has progressed to point where measurements are available.
- B. Feeder and wiring layouts as shown are diagrammatic. Actual installation layout shall be approved by Engineers so as not to mar appearance, and as directed by job conditions.

19. Wiring Material

A. Building Wire

- 1) GE, Belden, or equal type THW solid conductor tinned copper wire for No. 10 size AWG and smaller, 600V.
- 2) GE, Belden, or equal type THW stranded tinned copper wire for No. 8 size AWG and larger, 600V.
- 3) Minimum size shall be No. 12 unless noted.

20. Conduits and Installation

- A. Rigid conduit shall be used for service and wetwell wiring with watertight joints and shall be mild steel pipe, zinc coated exterior, zinc or enameled interior. Both ends of full lengths of conduit shall be factory threaded and reamed. Youngstown Steel, Armco, or equal.
- B. Type EMT tubing may be used for other circuits.
- C. Run all conduit parallel or perpendicular to building structural members.
- D. Cap or plug empty conduit during installation.

21. Installation of Wire

- A. Mechanically perfect wire nut connectors at outlet and junction boxes.
- B. Solderless connectors for No. 8 size and larger.
- C. No splices in conduits.
- D. Wire sizes as noted or required by NEC.
- E. Use only powdered soapstone for pulling wires.
- F. Wire pulled in conduits only after construction is complete.
- G. Unused wires shall be neatly coiled into outlet box and left unconnected at source.

22. Grounding

- A. Designated ground terminal in each below-grade prefabricated pump station to influent piping (Items 1, 2, and 3).

23. Main Electric Service

- A. Services to pump stations (Items 1 through 3) will be as hereinafter specified and as shown on the pump station drawing.

24. Safety Switches and Circuit Breakers

- A. Main circuit breakers shall be NEMA 3R, ratings as scheduled on drawing.
- B. Double-throw switches shall be NEMA 3R, 4-pole, 120/208 V. Extra pole of switch shall be used to open control circuit as shown whenever service is disconnected from the utility company source.

- C. Interlocked receptacle/circuit breaker shall be Crouse Hinds type DBR with Type APJ plugs, Style 11 grounding, with circuit breaker. Comparable item for "Hubbell", or equal is acceptable.

25. Specific Work to be Performed at Pumping Stations
(Items 1 through 3)

- A. The Contractor shall perform the installations as described herein and on the drawings at the prefabricated pre-wired below grade pumping stations as listed below. All applicable sections of this specification shall apply.
- B. At each of the pumping station locations listed below, the Contractor shall supply and make installation of the electric service including the meter pole, service conduit and wire, main circuit breaker, metering, double-throw switch and interlocked receptacle/circuit breaker, and connection to the Main Control Panel inside each of the stations as well as telephone conduit and wiring between meter pole and alarm terminal contacts in station and wiring and conduit from entrance light switch to main panel. The service and telephone conduits shall be installed underground 30 inches below grade. The Contractor shall provide service wire and conduit and alarm wiring and conduit full distance to the Main Control Panel. Locate service pole as close as practical to each station at a location approved by the Engineer.
- C. Meter, main circuit breaker, double-throw switch, and interlocked receptacle/circuit breaker shall be mounted in a 12 gauge sheet steel metal box enclosure, fabricated by Contractor and mounted on meter pole. Box shall have two shop coats of an approved paint and shall have approximate dimensions: 33 inches wide by 50 inches high by 12" Deep.
- D. Make all arrangements with the electric utility company (NMPC) to install service facilities to each pump station location so that at least single-phase electric power will be available upon installation of the pump station to operate sump pump and dehumidifier.
- E. The Contractor shall refer to the applicable General Construction Drawings for details of construction of the prefabricated pumping stations and to Detailed Specification Item No. 35 of Contract No. 2. Note Sections t) station wiring, x) installation, and z) guarantee
- F. On the following page are the service characteristics and requirements for the prefabricated pumping stations.

26. System Testing (Items 1 through 3)

A. Upon completion of work at a time directed by the Engineer, the Contractor shall perform an electrical test at each station for proper operation of the station when operating from the Owner's portable engine generator sets.

27. Measurement and Compensation

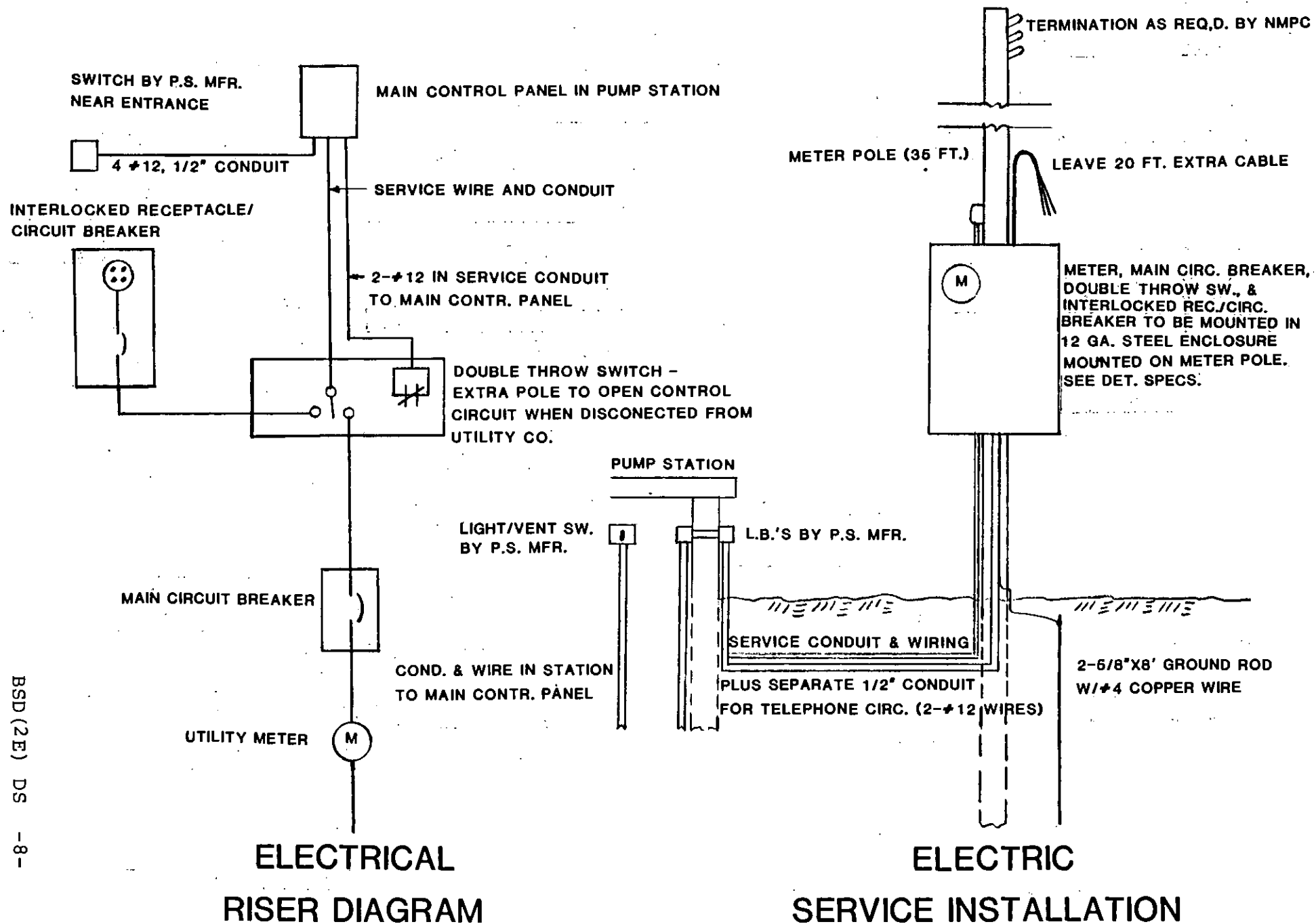
The lump sum amount bid for each of the Item Nos. 1 through 3, listed in the Proposal, shall include all costs for furnishing all materials, labor, tools and equipment required for installation of all electric work as herein described, as detailed upon the plans, and as required for a complete and satisfactory operating installation.

Payment will be made at the lump sum amount bid for each item upon the satisfactory completion of the work in accordance with the contract documents.

Miscellaneous Details

<u>Proposal Item</u>	<u>Item 1 Winne Place Pump Station</u>	<u>Item 2 Merrifield (Hunter Rd.P.S.)</u>	<u>Item 3 Laurelana Hgts. Pump Station</u>
Voltage	120/208	120/240	120/208
Phase	3	1	3
Wire & Conduit	4-#3,1-1-2" C	3-#1,1-1/2" C	4-#3,1-1/2 " C.
Main Circuit Breaker*	125A, 3P	100A, 2P	125A, 3P
Double-Throw Switch	100/4	100/3	100/4
Interlocked Receptacle/ Circuit Breaker	90/3	90/2	90/3

* All main circuit breakers and interlocked circuit breakers are located out of doors and shall be ambient compensated to 50 degrees C.



TOWN OF BETHLEHEM

ALBANY COUNTY

NEW YORK

CONTRACT NO. 2P
FURNISHING GRINDER PUMPS

SPECIAL CONDITIONS

1. Description of Work

The work under Contract 2P includes the furnishing of simplex factory built grinder pumping units complete with semi-positive displacement or centrifugal type pumps, electric motor drives, controls, basins and other miscellaneous equipment as specified herein and as detailed on the contract drawings.

The successful bidder for the furnishing of grinder pumps under this contract will be required to maintain an adequate supply of materials in advance of the work at their plant or at approved locations and will be responsible for the loading and delivery of all materials to the Owner's sewer contractor's construction sites.

2. Coordination of the Work

The Contractor shall be responsible for the coordination of the work of his subcontractors. The Owner/Engineer shall be responsible for the coordination of work progress schedules whenever there are two or more prime contractors involved in the work.

The Contractor shall submit a proposed work progress schedule utilizing CPM or bar graph method for the Engineer's approval within 10 days subsequent to award of the contract. Such schedule shall conform to the time limit specified in the Information to Bidders or elsewhere in the contract documents. The Contractor shall update the work progress schedule, revised if necessary, and submit it to the Engineer on a monthly basis during the progression of the project.

3. Plans and Specifications

These Detailed Specifications, the General Specifications, the Plans herein referred to, and the General Conditions attached hereto are complementary and it is intended that they include all items of labor and materials and everything required and necessary to complete the work even though some items of work or materials may not be particularly mentioned or may have been inadvertently omitted from the drawings or specifications or both.

4. Discrepancies

In case of discrepancies between the drawings and specifications, interpretations shall be given preference in the following order:

- (A) Addenda (later dates to take precedence over earlier dates)
- (B) Detailed Specifications
- (C) General Specifications
- (D) Drawings (schedules or notes to take precedence over other data shown on drawings)

5. Additional Work

Additional work, if required to be performed under this contract, will be in accordance with the applicable paragraphs of the contract. The Engineer shall be the sole judge as to whether an item was intended as part of the work, or is in addition thereto.

6. Testing Materials and Equipment

The Contractor shall furnish all labor, materials, devices and facilities required by the Engineer to test and determine the suitability of the various items of equipment and material used in this contract. The Engineer will determine the items to be tested and the manner in which such testing shall be performed. The Contractor shall be required to correct all deficiencies in materials and equipment and to re-test those items where in the opinion of the Engineer it is necessary to do so.

7. Manufacturer's Qualifications

The Bidder shall submit copies of a brochure giving full and complete details for furnishing the specified equipment and services together with other pertinent and required data on or before the date set for proposals in the Notice to Bidders. One copy of the brochure shall be filed with the Bethlehem Sewer District, Town of Bethlehem, 445 Delaware Avenue, Delmar, New York, Attention: Thomas V. Corrigan, Supervisor and one copy shall be filed with J. Kenneth Fraser and Associates, P. C., 620 Washington Avenue, Rensselaer, New York 12144.

Subsequent to bidding date and prior to award of contract, Bidder shall arrange a demonstration of actual grinder pump equipment for Owner and Engineer at a time and place convenient to both parties. Demonstration shall include servicing techniques to show ease of maintenance. Appearance of units to be installed above grade, in house basement shall be an important criteria in judging equipment acceptability.

The manufacturer's brochure shall contain the following data and information for each type or size of pump:

- a. Complete descriptive literature, including the type, make and model of the equipment to be furnished; sufficient material and fabrication specifications of all components to describe fully the equipment offered, including painting system, and preliminary dimension and cross-sectional drawings of the fully assembled unit including operating and static weight of the unit.
- b. Spare parts catalog or list with current spare parts prices.
- c. A list of any and all instances where the unit proposed deviates from the specifications. If no exceptions are taken, the Bidder shall so indicate.
- d. Time required for submittal of shop drawings for approval after award of contract and time required for fabrication and delivery to the Owner after shop drawings are reviewed and approved and performance tests completed.
- e. Name and address of the factory authorized service organization nearest to Albany County, New York, for each major component of equipment specified and statement of maximum time to have servicemen at site after notification of equipment malfunction.
- f. A signed statement from the Bidder that he has reviewed the specifications; that he has a clear understanding of them as they affect his equipment; that his equipment meets the requirements of the specifications, except for any exceptions he specifically lists; and that his equipment is suitable for the installation as specified.
- g. A list of installations at which equipment of the type and general size proposed have been in successful operation.
- h. Pump performance curves showing the relationship between head and capacity, efficiency and horsepower through entire range from shut-off to minimum head using clear water.
- i. Pump characteristics including RPM, shut-off head, maximum break horsepower and name of motor manufacturer.
- j. A motor sheet showing motor application, manufacturer, type, frame size, bearing type, lubrication medium, insulation type and enclosure type.
- k. Sample of operation and maintenance manual including installation instructions, operating instructions, maintenance instructions, warranty information and parts list.

The submission of the manufacturer's brochure and subsequent equipment choice from information presented therein, in no way relieves the Bidder from the responsibility of insuring that the equipment proposed conforms to the requirements of these specifications except where the Owner allows exceptions specifically listed in the Bidder's submittal.

8. Source Quality Control

The manufacturer shall conduct the following pump tests at the factory prior to shipment:

- Running Test
- Hydrostatic Test for Pump Casing
- Capacity Measurement

9. Single Source Supplier

The manufacturer shall be a single source supplier and shall be responsible for supplying a grinder pump package unit including pump, motor, controls and accessories, alarms, and all necessary equipment for a complete and operable system.

10. Shipping, Unloading and Storage of Grinder Pumping Units

Equipment will be unloaded and stored at sites furnished by the Owner or the sewer construction contractor. The equipment shall be unloaded by the sewer construction contractor who shall be responsible for all damage to the equipment once he has accepted and proceeded to unload the equipment. Equipment shall be set in place by the sewer construction contractor under each sewer construction contract. The manufacturer shall supply complete instructions for both temporary and permanent storage, and the equipment shall be shipped with suitable intransit protection, and shall be equipped with lifting lugs or other suitable means for safe unloading and/or installation of same.

Two days (48 hours) prior to equipment deliveries, the manufacturer shall notify the sewer construction contractor and the Owner of the date and size of each delivery. The manufacturer shall deliver grinder pumps during normal working hours, Monday through Friday, to the site or sites specified by the Contractor. The manufacturer, unless otherwise directed by the Engineer, will ship the specified equipment as dictated by the following schedule:

<u>Number of Grinder Pumps to be Shipped</u>	<u>Time Period Following Approval of Shop Drawings</u>
40	0 - 60 days
Balance + Spare Parts	60 - 120 days

A specific day-to-day delivery schedule shall be developed and agreed upon between the sewer construction contractor and the manufacturer of the grinder pumping units within the time limits specified above.

The Contractor may manufacture all standard units as soon after approval of shop drawings as he wishes. Units requiring special basin depths shall only be manufactured on order from the Owner or Contractor. Units manufactured and held by the Contractor for shipping in accordance with the delivery schedule shall be paid for in accordance with Article XXI of the contract.

Item No. 1
Furnishing Grinder Pumps

1. Description of Work

Under this item the Contractor shall furnish, freight pre-paid, to the Owner's property or construction sites as designated by the Engineer, grinder pump units complete with pump, electric motor drives, controls, pump basins and other miscellaneous equipment and work as specified herein.

The work under this item is subdivided for payment purposes into the following items:

- Item 1.1 Furnishing grinder pump units for in-house installation.
- Item 1.2 Furnishing grinder pump units for buried installation (with accessway).
- Item 1.3 Furnishing additional depth of grinder pump accessway.
- Item 1.4 Furnishing spare grinder pumps.
- Item 1.5 Furnishing spare control systems.
- Item 1.6 Furnishing vendor's services.

2. Grinder Pumps - General

Operating Conditions

The pumps shall be either semi-positive displacement or centrifugal grinder type. All pumps provided shall be capable of delivering 11 GPM against a normal rated total dynamic head of 92 feet without cavitation. For the semi-positive displacement type pump at zero head, the output shall be 15 GPM minimum. The pumps shall be capable of intermittent (3 minutes minimum) operation at any heads up to 125% of normal rated dynamic head with a minimum flow of 8 GPM. The electrical rating of each pump motor shall be 8 amperes, 1 phase, 240 volt, 60 hertz. Provide for lightning protection.

Common Pump Requirement

Grinder pumps supplied shall be identical having the same motor size, housing, and frames. Impellers shall be readily replaceable in the field to suit operating conditions. One pump shall be interchangeable with any other.

Controls

Each pumping unit shall operate automatically. Pumps shall begin operating when the sewage level in the basin reaches a pre-set point and shall turn off when the sewage level is lowered to a second pre-set point. Pump on and pump off points shall be adjustable or shall be pre-set in the factory at the manufacturer's suggested levels. The "pump off" point shall be set such that the basin is scoured substantially free of grease and sludge at the end of each pumping cycle.

A safety disconnect switch and alarm panel including a visual alarm and audible alarm with silencer, as shown on the plans, shall be provided with each grinder pump unit to warn of a high liquid level in the basin. This alarm shall be activated when the liquid has accumulated to the level of the lowest incoming sewer to warn of a full-basin condition. All alarms shall be automatically re-set when liquid levels return to normal. The disconnect/alarm panel shall include:

- 1 - double pole time delay 15 Amp (or larger, as required) circuit breaker with lockable disconnect - UL rated
- 1 - single pole 15 Amp (or larger, as required) circuit breaker for alarm circuit - UL rated
- 1 - external alarm light
- 1 - audible alarm with silencer
- knockouts for 1/2" circuit connectors
- terminal strip for all connections.

The manufacturer shall also furnish with each grinder pump unit, a Power Transfer Box as shown on the plans, to allow manual transfer of power feed from utility company to auxillary power generator. The Power Transfer Box shall include an auxillary power inlet and a transfer switch.

Wiring and conduit between house service breaker panel, disconnect/alarm panel and transfer switch shall be furnished by the installing sewer contractor. Wiring and conduit between grinder pump unit and disconnect/alarm panel shall be furnished by grinder pump vendor and installed by sewer contractor when unit is located in basements. Where buried, outside installation is required, sewer contractor will furnish and install wiring from junction box in accessway to disconnect/alarm panel in basement.

Check Valve

The pumps shall be equipped with a factory-installed, gravity-operated, flapper-type integral check valve built into the discharge pipe. This valve will provide a full-ported passageway when open, and shall introduce a friction loss of less than six inches of water at maximum rated flow. Working parts will be made of a 300 series stainless steel and fabric reinforced synthetic elastomer to ensure corrosion resistance, dimensional stability, and fatigue strength. A non-metallic hinge shall be an integral part of the flapper assembly providing maximum degrees of freedom for assured seating even at a very low pressure. The valve body shall be a high gloss injection molded part made of PVC Type I-II.

Redundant Check Valve

Each Grinder Pump shall include in its package one separate check valve per pump for installation in the discharge line between the Grinder Pump and the sewer main to ensure maximum protection against backflow in the event of sewer service line break.

The valve shall be 1-1/4" and of the gravity-operated, flapper-type. The check valve will provide a full-ported passageway when open and shall introduce a friction loss of less than six inches of water at maximum rated flow. Working parts will be made of a 300 series stainless steel and fabric reinforced synthetic elastomer to ensure corrosion resistance, dimensional stability and fatigue strength. A non-metallic hinge shall be an integral part of the flapper assembly providing maximum degrees of freedom for assured seating at a very low back pressure.

The valve body shall be a high gloss, injection molded part made of PVC Type I-II with hub and socket compatible with 1-1/4" PVC solvent weld system. Dimensions for hub and socket shall be in accordance with commercial standards C5-272-65.

Anti-Siphon Valve

The pump shall be constructed with a positively-primed flooded suction configuration. As added assurance that the pump cannot lose prime even under negative pressure conditions in the discharge piping system, the pump shall be equipped with an integral anti-siphoning, air relief valve in the discharge piping just below the main check valve. This valve will automatically close when the pump is running and open to atmosphere when the pump is off.

Corrosion Protection

All materials exposed to wastewater shall have inherent corrosion protection, i.e., cast iron, fiberglass, stainless steel, PVC. Any interior steel surfaces are to be suitably protected against corrosion.

Serviceability

The Grinder Pump units shall have two lifting eyes provided in the top housing which can be used to facilitate easy removal of each pump unit from the tank for service if necessary.

Safety Standards

The Grinder Pumps shall be free from electrical and fire hazards as required in a residential environment. As evidence of compliance with this requirement, the completely assembled and wired Grinder Pump in its tank shall be listed by Underwriters Laboratories, Inc.

The Grinder Pump shall meet accepted standards for plumbing equipment for use in or near residences, shall be free from noise, odor or health hazards, and shall have been tested by an independent laboratory to certify its capability to perform as specified in either individual or low pressure sewer system applications. As evidence of compliance with this requirement, the Grinder Pump shall bear the National Sanitation Foundation seal of approval.

3. Grinder Pumps - Semi-Positive Displacement Type Option

Core Unit

The Grinder Pump shall have cartridge type easily removable core assemblies containing pump, motor, grinder, controls, check valve, anti-siphon valve and wiring. The watertight integrity of the core unit, including wiring and access cover, shall be established by 100% factory testing at a minimum of 5 psig.

Pump

The pump shall be a custom designed, integral, vertical rotor, motor driven, solids handling pump of the progressing cavity type with mechanical seal. The rotor shall be through-hardened, highly polished, precipitation hardened stainless steel. The stator shall be of a specially compounded ethylene propylene synthetic elastomer. The material shall be suitable for domestic wastewater service. Its physical properties shall include high tear and abrasion resistance, grease resistance, water and detergent resistance, temperature, stability, gauging properties, and outstanding wear resistance.

Grinder

The grinder shall be positioned immediately below the pumping elements and shall be direct-driven by a single, one-piece motor shaft. The grinder impeller assembly shall be securely fastened to the pump motor shaft. The grinder will be of the rotating type with a stationary hardened and ground chrome steel shredding ring spaced in accurate close annular alignment to the driven impeller assembly, which shall carry hardened type 400 series stainless steel cutter bars. This assembly shall be balanced and operate without objectionable noise or vibration over the entire range of recommended operating pressures.

The grinder shall be constructed so as to eliminate clogging and jamming under all normal operating conditions including starting. Sufficient vortex action shall be created to scour the tank free of deposits or sludge banks which would impair the operation of the pump. These requirements shall be accomplished by the following items in conjunction with the grinder Pump tank:

- The grinder shall be positioned in such a way that solids are fed in an up-flow direction.
- The inlet shroud opening shall have a diameter no less than five inches.
- At maximum flow, the average inlet velocity should not exceed .2 feet per second.
- The cutter bars shall extend above the impeller disc .200 to .250 inches.
- The impeller disc shall rotate at a nominal speed of 1,725 RPM.

The grinder shall be capable of reducing all components in normal domestic sewage, including a reasonable amount of "foreign objects", such as paper, wood, plastic, glass, rubber and the like, to finely-divided particles which will pass freely through the passages of the pump and the 1-1/4" diameter discharge piping.

Pump Motor

The motor shall be a 1 H.P. minimum, 240 v., 60 Hertz, 1-phase, capacitor start, ball bearing, squirrel cage induction type with a low starting current not to exceed 30 amperes and high starting torque of 8.4 foot pounds.

Inherent protection against running overloads or locked rotor conditions for the pump motor shall be provided by the use of an automatic-reset, integral thermal overload protector incorporated into the motor. This motor protector combination shall have been specifically investigated and listed by Underwriters Laboratories, Inc. for the application.

Mechanical Seal

The core shall be provided with a mechanical shaft seal to prevent leakage between the motor and pump. The seal shall have a stationary ceramic seat and carbon rotating sealing surface with faces precision lapped and held in position by a stainless steel spring.

Controls

Necessary controls shall be integral with the Grinder Pump and shall be located in the top housing of the core unit inside a water-proof access cover. The cover will be attached with stainless steel, tamper-proof fasteners.

Non-fouling wastewater level detection for controlling pump operation shall be accomplished by monitoring the pressure changes in an integral, air-bell level sensor connected through air-tight tubing to a pressure switch. The level detection device shall have no moving parts in direct contact with the wastewater.

Overflow sensing will be accomplished by a separate air-bell sensor of the same type. External alarm light shall flash and audible alarm shall sound with high water level condition.

Each level control shall have its own built-in fail safe design which will prevent the entrance of moisture into the controls in case of switch diaphragm failure.

To assure reliable operation of pressure sensitive switches, each core shall be equipped with a quick disconnect breather assembly, complete with check valve to prevent accidental entry of water into motor compartment in the event of accessway flooding.

Each Grinder Pump will be furnished with ten feet (10') lengths of Type UF cable, pre-wired and connected with weatherproof materials. The power supply cable shall be 12-2 W. GND., designed for 1 phase, 240 volts, 60 Hertz power supply and meet UL requirements. The signal cable to the overflow indicator lamp shall be 14-2 W.GND., designed for 1 phase, 120 volts, 60 Hertz power supply, and meet UL requirements.

4. Grinder Pumps - Centrifugal Type Option

Submersible Pump-Motor

The grinder pump and motor are to be specially designed and manufactured so they can operate completely submerged in the liquid being pumped. Electrical power cord is to be sealed by use of a cord grip, with individual conductors additionally sealed into the cord cap assembly with epoxy sealing compound, thus eliminating liquid entering the motor by following individual conductors inside the insulation. The cord grommet shall have a male taper pipe thread threaded into a female taper pipe thread in a cord cap. The

cord cap shall be sealed into the motor housing with a Buna-N O-ring, providing an electrical connection which is completely watertight, yet may be easily removed for service simply by taking out two cap screws.

The combination centrifugal pump impeller and grinder unit shall be attached to a common motor and pump shaft made of stainless steel. The grinder unit shall be on the suction side of the pump impeller, discharging directly into the impeller inlet leaving no exposed shaft to permit packing of ground solids. The grinder shall consist of two stages. The cutting action of the second stage shall be perpendicular to the plane of the first cut for better control of particle size. Both stationary and rotating cutters shall be made of hardened and ground stainless steel. The upper (axial) cutter and stationary cutter ring shall be reversible to provide new cutting edges for longer service life. Pump and motor housings are to be high quality grey iron castings. Impeller shall be bronze. All fasteners shall be of 18-8 stainless steel.

The pump-motor shaft shall be sealed by two mechanical carbon and ceramic faced seals within an oil filled chamber to provide clean, constant lubrication. The shaft shall be supported by an upper ball radial and thrust bearing and a lower bronze radial sleeve bearing, between the shaft seals to minimize overhang, both running in oil.

The rotor winding and rotor are to be mounted in a sealed, submersible type housing which is filled with clean high dielectric oil for bearing lubrication and to transmit heat from motor winding to outer housing. Motor winding shall be securely held in the housing with machine screws so that it can be removed in the field without the use of heat or a press. The ball bearing is to be supported by an O-ring sealed, movable cap so that grinder and impeller clearance may be adjusted externally for most efficient operation.

Submersible motor shall be constant speed, 3,450 rpm, 2 HP, suitable to operate on a 240 volt, 60 Hz, single phase service. The motors shall be of proper size to drive the pump at any point on the pump curve without exceeding nameplate horsepower. Thrust bearings shall be of the ball type.

So as to achieve optimum performance in pressure sewer systems with a minimum number of pump units contributing, each pump shall be capable of delivering 40 gpm at a total dynamic head of 34 feet.

Level Controls

Sealed float-type mercury switches shall be supplied to control sump level and alarm signal. The mercury tube switches shall be sealed in a solid polyurethane float for corrosion and shock resistance. The support wire shall have a heavy Neoprene jacket. A weight shall be attached to cord above the float to hold switch in place in sump. Weight shall be above the float to effectively prevent sharp bends in the cord when the float operates. The float switches shall hang in the sump supported only by the cord that is held to the support bracket. Two float switches shall be used to control level. One for pump turn-on, one for pump turn-off. A third switch shall be provided for alarm function.

Operation of System

On sump level rise, lower mercury switch shall first be energized, then upper level switch shall next energize and start pump. With pump operating, sump level shall lower to low switch turn-off setting and pump shall stop. If level continues to rise when pump is operating, alarm switch shall energize and activate the alarm. All level switches shall be adjustable for level setting from the surface.

Electrical Control Panel

Control panel shall be as shown on the drawings and as specified herein. Panel shall contain the items shown on the drawings and as specified and in addition shall contain a magnetic starter with overload protection and any other items required for proper control of the centrifugal type grinder pump unit.

Electrical cable for power and control wiring between the control panel and each pumping unit shall be supplied. Wire size shall be selected in accordance with ampacities required by the National Electric Code for the installation used, but unless otherwise specified, they shall not be smaller than No. 10 AWG for power and No. 12 AWG for control. Well-marked terminal strips shall be placed in the units for electrical connections by others.

5. Furnish Spare Grinder Pumps

The manufacturer shall furnish spare grinder pump core units (single pumps) suitable for replacement in grinder pump stations. Pumps shall be boxed, crated or otherwise completely enclosed and protected during shipment, handling and storage. Equipment shall be protected from exposure to the elements and shall be similar to export packing, and shall be suitable for long-term storage in a damp location. Each unit shall be packed separately and shall be completely identified on the outside of the container. Instructions for servicing while in long-term storage shall accompany each unit. Advisement of enclosed instructions with each package shall be noted on the exterior of the package.

6. Basin

The basin shall be custom molded of fiberglass reinforced polyester resin using a lay-up and spray technique which will assure that the interior surface is smooth and resin-rich. The tank shall have a nominal wall thickness of 3/16th inch. A fiberglass basin approximately 24 inches inside diameter by 36 inches deep shall be furnished for each grinder pump unit and shall have a net capacity of least 60 gallons. The fiberglass basins shall be built in accordance with:

1. Plastic Laminate ASTM C581 and C582.
2. Chemical-resistance Test ASTM C581. Previous tests will be acceptable provided laminates are representative.

The basin shall be free of imperfections, sound, watertight and of high quality workmanship. Basins shall have lifting lugs or other devices for unloading or installation. All conduit and piping connections shall be provided in the locations indicated on the plans and shall be plugged for shipment.

Two, 4-inch diameter inlet hubs shall be provided for each grinder pumping unit. The inlet hubs shall be suitable for use with 4-inch PVC, SDR 35, solvent welded pipe. Hubs shall be factory installed unless directed otherwise.

7. Integral Accessway

Units to be installed out of doors, below grade, shall be furnished with an integral accessway. The accessway shall be an integral extension of the basin and shall be reinforced polyester resin and shall have a nominal wall thickness of 3/16". It shall have an access opening at the top to accept a lockable domed fiberglass cover with skirt. The accessway shall include the following factory supplied items: Copper 1-1/4" grinder pump discharge extension(s) terminating in watertight bulkhead fitting(s) with external 1-1/4" male pipe thread. Internal wiring shall terminate in a sealed junction box(es) integral with accessway and suitable for outdoor use. All seals shall be factory tested to ensure their watertight integrity. Standard accessway shall measure 6'-0" from dome top to top of grinder pump basin.

8. Acceptable Pump Manufacturers

Environment One Corporation, Schenectady, N. Y.; Hydro-Matic Pumps, Ashland, Ohio; or equal.

9. Shop Drawings

No equipment shall be fabricated, assembled or shipped until the shop drawings are approved. The drawings shall be submitted for approval not later than the time stated in the manufacturer's brochure.

Shop drawings shall include list of materials, painting system, equipment installation drawings, piping drawings, electrical wiring diagrams, and instrument logic diagrams. Wiring diagrams shall show external connections required to numbered terminal blocks. Instrument logic diagrams and schematics shall be prepared using ISA and NEMA standard symbols and identification letters.

Electfical diagrams shall be drawn with circuitry arranged in functional sequence on ladder-type diagrams and shall utilize standard symbols and accepted industry drafting practices. All relays shall be identified by manufacturer and model number.

A certified pump curve showing the relationship between head and capacity, efficiency and horsepower throughout the entire range of the pump from shutoff head to minimum head when pumping clear water shall be submitted for at least one of the pumps to be supplied under this contract.

10. Vendor's Services

The Bidder shall provide, in the appropriate item in the Form of Proposal, the daily per diem rates for providing the services of a qualified factory-trained serviceman who shall provide any or all of the following services when and if requested by the Owner.

- a. Inspect the installation prior to startup.
- b. Supervise initial operations.
- c. Instruct operators in the maintenance and operation of the equipment.
- d. Provide technical support services required for interfacing with other new or existing equipment.
- e. Supervise field modifications and calibrations.
- f. Provide other technical services which involve the equipment furnished.

The daily charge shall include all travel and out-of-pocket expense required for a one-day (8 hour) visit. Adjustments shall be made if travel expenses are reduced due to visits lasting longer than one day.

The serviceman shall be available at the site for a minimum of seven hours during each visit.

The quotation for this service shall be valid for a period of not less than two years following the date of the contract or one year after the delivery date of the last piece of equipment, whichever is later.

11. Testing

Prior to shipping any pumping unit, the manufacturer shall test the pump, wiring, and controls to insure that they are operating satisfactorily. In addition, he shall submit a certificate that the pumping capacity of the pump or pumps is within two percent (2%) of the capacity shown on the certified pump curve submitted as part of the shop drawing submittal requirements.

12. Consumables, Spare Parts and Special Tools

The total quantity of spare parts to be provided, in addition to those listed in the proposal, shall be one set of mechanical seals for every ten (or fraction thereof) units furnished.

The following consumables shall be provided:

- a. All lubricants required for initial operation.
- b. A supply, properly labeled and boxed, of all lubricants sufficient for one-year operation.

One set of special tools required to perform maintenance and lubrication services shall be provided for every 20 (or fraction thereof) pumps furnished.

13. Operation and Maintenance Manuals

The manufacturer shall furnish eight copies of an operation and maintenance manual, on or before delivery of equipment, which shall include the following:

- a. Copies of approved shop drawings.
- b. Complete parts drawings detailing all parts of the machine. A "typical parts drawing", which covers a range of sizes or models, is not acceptable unless it describes a machine exactly like that purchased.
- c. Complete parts list (or Bill of Materials) which shows the manufacturer's part numbers for such commercially available items as bearings, seals, drive belts, couplings, etc. and list all parts by part number and drawing number.
- d. Complete installation, operating and maintenance instructions, including those for connected devices furnished with the equipment such as gear boxes, motors, lubricating systems, clutches, etc. Performance curves for pumps, fans, compressors, etc., should also be included.
- e. Lubrication instructions showing lube points with frequency and type of lubrication required.
- f. Recommended spare parts lists including, if possible, availability and current prices for all items shown.

14. Measurement and Compensation

The unit price bid under these items shall include all costs for labor, plant and material necessary to furnish grinder pump units complete with associated equipment and services as outlined above, as shown on the drawings and as required.

Payment will be made under Item 1.1 at the unit price bid for each grinder pump unit furnished for in-house installation, complete with controls and associated equipment as specified.

Payment will be made under Item 1.2 at the unit price bid for each grinder pump unit furnished for buried installation (with accessway), complete with controls and associated equipment as specified.

Payment will be made under Item 1.3 at the unit price bid for the actual number of linear feet of additional depth of grinder pump accessway furnished in excess of standard depth as shown on the drawings.

Payment will be made under Item 1.4 at the unit price bid for each spare grinder pump unit furnished complete with integral controls and electric power lead.

Payment will be made under Item 1.5 at the unit price bid for each spare control system furnished including disconnect/alarm panel and power transfer switch as specified and shown on the drawings.

Payment will be made under Item 1.6 at the unit price bid per day for the actual number of days of vendor's Services furnished as specified and as authorized. Partial days will be paid for on a pro-rata basis.

Section 1
Clearing and Grubbing

1. Description

Under this section the Contractor shall perform all clearing and grubbing required within the area to be occupied by the work, as specified and as shown on the plans, or as directed.

The entire area shall be cleared of all trees, stumps, roots, brush, weeds, shrubs and all other objectionable materials except those trees and shrubs as are specified or as directed to be left in place. All such materials removed in the clearing of the area shall be completely burned or removed from the site of the work. Trees and shrubs within the area which are to be left in place shall be adequately protected from damage, and excavated or piled materials shall not be deposited around them unless they are properly protected.

The entire original surface over excavation areas or upon which embankments or structures are to be built, or which is to be seeded, planted or surfaced, shall be completely stripped of top soil and grubbed of all organic material. All stumps, roots and objectionable materials shall be removed to a depth of 12 inches below finished grade. The material removed in the grubbing operation shall be completely burned or disposed of as directed. Top soil from the stripping operations shall be segregated, piled and stored as directed.

NOTE: In most areas, burning will not be permitted by State or Local authorities. Open burning may be performed by the Contractor only after making application for and obtaining a burning permit from those local and/or State authorities having jurisdiction.

Section 2
Excavation, Backfill and Embankment

1. Description

Under this section the Contractor shall perform all excavation, grading and backfill, and form all embankments required for the construction and completion of the work, as specified and as shown on the plans, or as directed, except such excavation and backfill as is included under "Trench Excavation". The material to be handled under this heading shall include all materials of every name and nature.

2. Excavation

It is expected that the excavation work will be carried out by the use of modern and up-to-date equipment kept in good repair so that the work will progress expeditiously. All excavation shall be done in open cut from the surface, and tunnels longer than 5 feet will be allowed only by special approval of the Engineer.

Where excavation is to be made through paved surfaces, the boundary of the area to be excavated shall be cut in a true line flush with the limits of the excavation, and the edges of the paving shall be adequately protected.

Grading existing surfaces to meet new grades shall be performed under this heading as required or as directed.

Excavation in new areas will be limited by the Engineer with regard being given to expeditious construction, the convenience of other contractors, the necessity of operating existing facilities in the area, and the comfort and convenience of persons residing in the neighborhood, or frequenting the area.

3. Excavation Limits

Excavation limits shall be ample in width and length to perform work to be done or installed within the excavation, and the bottoms of all excavations shall be trimmed to the form of the bottom of all the structures and to the neat lines of the work as indicated on the plans or as directed.

4. Excavation Below Grade

Excavation below the lines and grades indicated on the plans shall be made to obtain better foundation, if so directed by the Engineer. The space so excavated shall be refilled with selected material as directed. The material selected, including the refilling operation complete, shall be paid for under the appropriate items of the contract.

5. Unauthorized Excavation

Excavation made beyond or below the lines and grades indicated or directed by the Engineer shall be satisfactorily refilled by the Contractor at his own expense with selected material, as directed by the Engineer. Unauthorized excavation made below concrete or masonry structures shall be satisfactorily refilled and compacted with selected material, and if deemed necessary by the Engineer, shall be refilled with concrete at the Contractor's expense.

6. Protection of Excavation

The Contractor shall furnish, put in place, maintain and remove such sheeting, shoring and/or bracing as may be required to support thoroughly the sides of the excavation, and to prevent any movement which might injure the work or workmen, diminish the width necessary for proper drainage, or otherwise injure or delay the work or interfere with, or damage adjoining completed work, structures or operations.

Such sheeting, shoring and/or bracing shall be entirely within the limits required for the work and its construction, and shall in no case be braced against parts of the newly completed work, nor pass through forms erected for concrete work.

All existing work encountered in or adjacent to the excavation shall be properly supported and protected during the entire construction period.

All water encountered, or which may be accumulated in the excavation, shall be promptly removed, and the excavation shall be kept dry until the work to be built or placed therein has been completed.

The sides and bottoms of the excavations shall be properly protected from frost, and frozen material under the work to be built shall be removed and the space refilled with concrete or selected material, as directed by the Engineer at the expense of the Contractor.

7. Care of Existing Structures

Care must be taken not to move, without the consent of the Engineer, any sewers, drains, culverts, water, gas or other pipes, or poles or other structures, and in excavating around such pipes or structures, or in excavating parallel to or near them, they shall be securely hung, braced and supported in place until the work is completed. Whenever it is necessary to interfere with said structures, the Contractor, at his own expense, shall maintain their respective services, and if necessary for that purpose, shall lay temporary pipes, or other structures.

General Specifications 2-3

The Contractor shall promptly restore broken services, and shall repair all damage done to any of said structures through his acts or neglect. He shall leave them in as good condition as they were previous to the commencement of the work.

8. Excavation in Rock

Rock encountered in the excavations may be loosened by blasting only with the express approval of the Engineer and all directions of the Engineer shall be strictly followed. All blasting shall be done in compliance with Federal, State and local regulations, and the Contractor shall take all possible precautions against accidents from blasting. The Contractor shall be liable for all damage to persons or property caused by blasts or explosions, as provided in the contract. No blasts shall be made on Sundays, and on week days blasts shall be made only during the ordinary working hours of the day, or immediately before or after them.

Blasting shall be done only by workmen skilled in this class of work. The rock shall be well covered, and sufficient warning shall be given to all persons in the vicinity before blasting. In general, blasts shall be covered with suitable blasting mats and/or heavy timbers. No blasts are to be set off within 50 feet of the end of the completed work, and in general, all blasting work shall be completed within the excavation before other succeeding work is started therein.

Caps or other exploders shall in no instance be kept near the place where dynamite or explosives are stored, and no more than 100 pounds of dynamite shall be stored in the vicinity of the work at any time except by special permission.

9. Limits of Excavation in Rock

Excavation in rock shall be limited unless otherwise directed, so that no projection shall come within vertical planes 6 inches outside of the structure being built, and to neat lines of the base of the structure being built. In trenches, the rock shall be removed to a point 6 inches below the underside of the barrel of the pipe.

Where excavation in rock is carried below the above limits, the additional space shall be refilled at the Contractor's expense with concrete or with selected material, as directed by the Engineer.

Material removed from excavation in rock may be used in backfill and in forming embankments, if such use is approved by the Engineer. The approval of the Engineer shall be governed by the size and nature of the broken pieces of rock, and by the distribution of the rock that may be obtained in the backfill of embankments.

10. Placing of Materials Around Excavations

All excavated or other materials shall be placed so as not to endanger the work, and so that free access may be had at any time to all parts of the work and to all hydrants and valves in the vicinity, and they shall be kept neatly piled so as to inconvenience as little as possible local travel, or the work of other contractors.

Reasonable and satisfactory provision shall be made across narrow excavations, and around larger excavations for all travel requiring egress across the area of the work.

11. Disposal of Excavated Material

The materials excavated shall be deposited in such locations as will interfere as little as possible with the execution of the work and its several parts under this contract, or with the work of other contractors, or with local traffic, and in such manner as will provide the most suitable material for each purpose for which the material is to be used.

All surface materials covering the surface of the excavations, including topsoil, pavement, paving gravel, broken stone, and any other materials, shall be removed and kept separate as specified, or as may be directed, and when suitable, shall be used again in resurfacing, as specified or as directed.

All suitable material from the excavation shall be used, as far as is practicable, in the backfill and in forming embankments. All the material in excess of these requirements, and all material judged by the Engineer not suitable for such purposes, shall be removed from the site of the excavation and, as directed by the Engineer, shall be deposited and spread on selected areas within the limits of the work, or on areas of his own selection outside the limits of the work, at the Contractor's expense.

12. Backfill

The excavations shall be carefully backfilled as soon as possible after examination and approval of the construction of the completed structure therein, with such of the excavated materials and in such order as may be directed. All voids shall be completely filled, and special care shall be taken to carefully refill pockets that may have developed below adjacent footings, pavements or behind sheeting or shoring. Stones, rock or frozen material will not be allowed in the backfill within 2 feet of any pipe or structure.

General Specifications 2-5

Suitable materials for backfill shall be placed in 4 inch layers and properly compacted by tamping, rolling or water ramming, as directed by the Engineer. The directions of the Engineer as to method of compacting will be governed by the use that is to be made of the surface of the ground after backfill, and by the location of adjacent structures.

Where, in the opinion of the Engineer, the soil is of such a character that water ramming will give satisfactory results, particularly in soil of a sandy or gravelly nature, water ramming, with the water furnished by the Contractor at his expense will be required. Where this method is required, the first flooding shall be applied after the backfilling has been compacted as directed, up to 2 feet above the tops of the pipes, or 2 feet above sub-grade of other structures, and before more than 6 feet of fill has been placed. The second flooding shall be applied during or after the subsequent filling of the excavation, except that not more than 6 feet of fill shall be placed after one flushing before being flushed again, even if three or more flushings are required to compact the backfill properly. If required by the Engineer, water shall be introduced into the backfill through a hose nozzle forced into the material.

In water ramming, an excess of water must be avoided in order to prevent flotation caused by an unbalancing of pressure.

The surfaces of roadways and walks over backfilled excavations shall be kept in good and passable condition until such time as the final surfacing has been completed.

13. Embankment

Embankments, as shown on the plans, shall be formed of suitable materials placed in 6 inch horizontal layers across the entire area to be filled, and properly compacted by tamping or rolling to the satisfaction of the Engineer. The Contractor shall form the embankments so that the first layer of fill will properly bond with the stripped and grubbed surface, and so that each layer placed and compacted will properly bond with the underlying layer.

Embankments shall not be formed during freezing weather or with frozen material, nor shall they be formed when material already in the embankment is frozen.

The embankments shall be trimmed and shaped to the lines shown on the plans and to sub-grade, as directed by the Engineer.

Section 3
First, Second and Third Class Concrete

1. Description

Under this section the Contractor shall furnish and place all the first, second or third class concrete required for the complete construction of the work, as specified and as shown on the plans, or as directed.

All concrete for structures shall be first class concrete except as otherwise specified, and concrete for refilling excavations below grade or for other foundation purposes, and for protection around pipes and other similar purposes, shall be second or third class concrete, as may be specified or directed by the Engineer.

2. Materials

a. Portland Cement

Cement shall be first class Portland cement of a reputable brand, satisfactory to the Engineer. It shall be stored in weatherproof buildings having wooden floors raised above the ground, and sufficient stock shall be kept on hand to allow ample time for testing. All necessary facilities shall be provided by the Contractor to permit the inspection of the individual shipments, each of which shall be kept separate. All unsatisfactory cement shall be promptly removed from the work.

The cement shall conform to the latest specifications of the A.S.T.M. Designation C-150, and tests will be made in general accordance thereto.

Air entraining cement as approved by the Engineer shall be used in all concrete above grade or where exposed to freezing and thawing conditions.

b. Fine Aggregate

Fine aggregate shall consist of grains or particles of hard, durable rocks, the surface of which are not coated with any injurious material.

Fine aggregate shall be uniformly graded from coarse to fine so that when dry, 100% shall pass a 1/4 inch sieve; 90% to 100% shall pass a No. 4 sieve; 55% to 75% shall pass a No. 14 sieve; 10% to 25% shall pass a No. 48 sieve; and 2% to 8% shall pass a No. 100 sieve.

General Specifications 3-2

Fine aggregate may be rejected if it contains deleterious materials, or contains more than 2% by weight, or 4% by volume, of loam or silt. All fine aggregate shall be satisfactory when examined for organic material. All natural sand shall be thoroughly washed before using.

The Engineer shall have the right to reject the source of supply even if the fine aggregate submitted for testing complies with the specifications provided, in his opinion, after making an inspection of the pit, and such other tests as he may deem advisable, there are indications that there is a likelihood of unsuitable material being mixed in with that which will meet the specifications.

c. Coarse Aggregate

Coarse aggregate shall be well graded crushed stone, or washed screened and graded gravel. It shall be clean material of a hard durable and acceptable character, and shall be carefully screened to well graded sizes, coarse to fine. That used in all concrete walls, floors or beams 9 inches thick or less, shall be screened to pass through a 1 inch ring, and be retained on a 1/4 inch ring. The coarse aggregate for concrete in walls, beams or floors over 9 inches thick may be screened to pass through a 1-1/2 inch ring and be retained on a 1/4 inch ring.

d. Water

Water for mortar and concrete, and for all other purposes, shall be provided by and at the expense of the Contractor, and shall be clean and free from injurious amounts of oil, acid, alkali, organic matter, or other deleterious substances.

3. Compressive Strength

The various classes of concrete shall develop compressive strength at the end of twenty-eight (28) days as follows:

- 1st Class concrete not less than 3,500 lbs. per sq. in.
- 2nd Class concrete not less than 2,500 lbs. per sq. in.
- 3rd Class concrete not less than 2,000 lbs. per sq. in.

4. Proportioning

a. Proportions

First class concrete shall be mixed in the approximate proportion of one part of Portland cement to two parts of fine aggregate to four parts of coarse aggregate.

Second class concrete shall be mixed in the approximate proportion of one part of Portland cement to two and one-half parts of fine aggregate to five parts of coarse aggregate.

Third class concrete shall be mixed in the approximate proportion of one part of Portland cement to three parts of fine aggregate to six parts of coarse aggregate.

Fine and coarse aggregate shall be proportioned by direct weight on suitable, approved weighing devices, or by other methods where specifically authorized by the Engineer. Portland cement in standard unopened cloth or paper sacks, as packed by the manufacturer, may be considered as weighing 94 pounds per sack.

The fine aggregate and the coarse aggregate will be so graded in size and relatively proportioned that the cement and sand together shall slightly more than fill the voids in the broken stone. One bag of cement shall be regarded as having the volume of one cubic foot, and the sand and stone shall be measured when dry and loose.

The combined aggregate for first class concrete shall be of such composition of sizes that when separated by the No. 4 standard sieve, the weight retained on the sieve shall be not less than one-half of the total, based on dry materials, except when adjustment is necessary, in the opinion of the Engineer, for casting in special details.

b. Water-Cement Ratio

The proportioning of materials shall be based on the requirements for a plastic and workable mix with a water-cement ratio not exceeding six gallons of water per sack of cement for first class concrete, and not exceeding 7.75 gallons of water per sack for second class concrete. The water-cement ratio shall be based on the total net quantity of water in the cement mixture, including the surface water carried by the aggregate as determined by moisture determinations made on representative samples of the aggregate.

c. Slump

The consistency of the concrete mixture shall be such as to produce a concrete that can be thoroughly compacted. The slump shall not exceed 6 inches in any case, and when vibration equipment is used, the slump shall not exceed 3 inches, except as directed.

d. Measuring Ingredients

All measurements of cement, fine and coarse aggregate, shall be made separately. Proportioning aggregates for fractional sacks of cement will not be permitted unless the cement is weighed for each batch.

General Specifications 3-4

Weighing equipment shall be arranged to permit making compensation for changes in the weight of moisture contained in the aggregates. Weighing equipment shall meet the approval of the Engineer, and shall be accurate within one percent of the net load being weighed.

A satisfactory auxiliary device shall be used in connection with the scale beam to indicate or register at least the last 100 pounds of each of the aggregate required for the batch. The weighing hopper shall be equipped with a means of adjusting the volume of the compartment in which the aggregates are weighed.

Water shall be measured by volume or weight by an approved device capable of accurate measurement to one pint, plus or minus, of the total amount of water required per batch.

e. Trial Batches

Full size trial batches shall be made in the mixer, using the aggregates selected for the job, to establish the correct proportion of the mix to give proper workability without exceeding the water-cement ratio and slump specified, and to provide test cylinders for the advance concrete tests. If the desired workability or strength is not obtained with the first combination of aggregates, then the proportions of fine and coarse aggregate shall be adjusted within the limits specified until the mix meets with the approval of the Engineer and produces the strength specified.

5. Forms

The Contractor shall provide suitable forms of such shape, lines, grades and dimensions that the resulting concrete will conform with the plans. They shall be so designed and built that their removal will not result in damage to the concrete. Forms may be of wood or of metal. Wooden forms shall be constructed of lumber of uniform thickness free from loose knots or other defects. Forms for exposed surfaces shall be plywood, dressed shiplap or tongue and grooved material, and for unexposed surfaces may be undressed material.

Openings, pockets, chases and inspection and cleaning openings shall be made in the form work where required, or where directed.

Form material may be re-used provided all nails are removed and all surfaces of the material are thoroughly cleaned and damaged places properly repaired.

Forms shall be sufficiently tight to prevent the leakage of mortar at the time of concreting.

General Specifications 3-5

Forms shall be strong and shall be rigidly braced, tied and supported so as to maintain their position and shape, and to prevent any movement during and after concreting operations. They shall be designed to withstand the use of vibrators.

The inside surface of forms shall be coated with a non-staining mineral oil or other approved material, and such coating shall be applied prior to the placing of metal reinforcement.

Forms shall be tied with internal ties of such type that when the forms are removed, no metal will be within one inch of any surface.

The type of forms, their design and the type of form ties shall be approved by the Engineer before form work is started.

Forms, bracing or supports shall not be disturbed or removed until the concrete has adequately hardened and has attained sufficient strength to safely support its own weight and any loads upon it. Care shall be taken in removing forms to avoid damage to surfaces to be exposed.

Pipes or castings, as shown on the drawings or as directed shall be placed in the forms before concreting operations start, and special care shall be taken to place them at the proper lines and grades.

All pipes passing through concrete walls shall be provided with a cast iron wall sleeve, whether indicated upon the contract drawings or otherwise. Sufficient opportunity shall be given to the various trades and to other contractors to install sleeves and other built-in work before proceeding with concreting operations.

6. Joints and Bonding

In general, the location of both vertical and horizontal joints in the walls and floors of the structure shall be determined in the field by the Engineer, and shall be placed, insofar as practical, to meet the capacity of the Contractor's mixing plant.

When a horizontal joint is to be made, the Contractor shall so construct his forms that they do not project above the horizontal plane at the location of the joint so that water seals and the necessary bracing can be placed at the end of the run where the joint is to be made. No horizontal or vertical joint shall be made in any concrete structures except with the approval of the Engineer, and then with the insertion of water seals and proper key ways. Details of such joints are shown on the drawings, or will be furnished by the Engineer.

General Specifications 3-6

Old masonry surfaces on which new concrete is to be laid shall be thoroughly cleaned of foreign matter and laitance, moistened with water, and shall be slushed with grout, as specified.

7. Mixing Concrete

The concrete shall be mixed by an approved batch mixing machine with the arrangements such as will secure the thorough mixing of each loading of concrete and the introduction of a uniform quantity of water at any stage of the loading and mixing process. The mixer drum shall rotate at a peripheral speed of about 200 feet per minute, and it shall not be loaded above its rated capacity.

The mixing time shall be not less than one minute after all materials are in the mixer drum, and shall be continued until every particle of aggregate is completely covered with mortar and until there is a uniform distribution of the materials and the whole mass is uniform in color and is homogeneous.

The concrete shall be used immediately after mixing, and no concrete shall be used after its initial set has begun. The retempering of concrete will not be allowed.

The capacity of the mixing plant which the Contractor proposes to use shall be reported to the Engineer in ample time before the commencement of any concrete work, in order that he may determine whether or not the plant is adequate in capacity to make the pours or runs of concrete in such time as will insure the fundamental strength and stability of the concrete structures. The Engineer may order the Contractor to increase the capacity of his mixing plant if he deems it to the best interest of the work.

8. Transporting

After mixing, the concrete shall be transported rapidly and deposited in place by methods which shall prevent segregation or loss of the ingredients. All methods used in transporting concrete shall be entirely satisfactory to the Engineer.

Concrete shall be handled from the mixer to the place of final deposit in carts, buggies or conveyors, and shall not be spouted nor delivered by spout or trough from hoists, nor dumped into carts or buggies with a free fall of more than three feet. Every possible precaution shall be taken to prevent separation or loss of the ingredients while transporting and depositing the concrete. Delivery carts or buggies shall be kept on temporary runways and runway supports shall not bear upon reinforcing steel or fresh concrete, and shall be independent of the forms unless the forms are especially designed to carry such loads.

9. Placing Concrete

a. General

Concreting operations shall not be started until the Engineer has inspected and approved the preliminary work.

Concrete shall not be placed at any time except under the direct supervision of the Engineer, and not outside of regular working hours unless the Engineer is notified at least four hours in advance and a representative of the Engineer is present at the site during the concreting operation.

Concrete shall not be placed until all reinforcement is securely and properly fastened in its correct position, and form ties at construction joints have been re-tightened. Before placement of concrete is started, all bucks, sleeves, hangers, pipes, conduits, bolts, wires and any other inserts required to be embedded therein shall be placed and anchored, the forms shall be oiled and the reinforcement cleaned.

Before beginning a run of concrete, hardened concrete and foreign material shall be removed from the inner surface of the mixing and conveying equipment, and all conveyances shall be thoroughly cleaned at frequent intervals during the placing of the concrete.

To insure sufficient mortar at the juncture of old and the newly deposited concrete, the cleaned and moistened surface of the hardened concrete, including vertical and inclined surfaces, shall first be slushed with a coating of neat cement grout against which the new concrete shall be placed before the grout has attained its initial set. The grout shall consist of one part of cement to two parts sand, with enough water added to make a thick consistency.

b. Methods of Placing Concrete

The methods of placing concrete shall meet with the approval of the Engineer.

The concrete shall be carried up level along the whole length of the section under construction, and shall be deposited so as to prevent segregation of the ingredients and to avoid rehandling within the forms.

Concrete shall not be deposited under water, and water shall not be allowed to rise upon or flow over concrete until it has properly set.

General Specifications 3-8

Special care must be exercised to prevent splashing the forms or reinforcement with concrete, and any such splashes or accumulations of hardened or partially hardened concrete on the forms or reinforcement above the level of the concrete already in place must be removed before the work proceeds.

In handling, transporting or placing of concrete, a free fall in excess of three feet will not be allowed except when the fall is through an "elephant trunk" attached to a suitable hopper. The "elephant trunk" shall be moved about so as to maintain the surface of the concrete as nearly level as possible at all times.

Concrete shall be deposited continuously, or in layers of such thickness that no concrete will be deposited on concrete which has hardened sufficiently to cause the formation of seams and planes of weakness within the section. If the section cannot be so placed, construction joints shall be placed at locations approved by the Engineer.

In placing concrete around sleeves or built-in work, the concrete shall first be placed only on one side of the pipe or casting until the concrete flushes through and comes out on the other side, after which placing of concrete shall be continued on the other side.

10. Compacting Concrete

Deposited concrete shall be thoroughly compacted by the use of suitable tools properly manipulated. First class concrete placed in forms for walls and floors shall be compacted and consolidated by the use of mechanical vibrators if so directed by the Engineer. The vibrating equipment shall be of well known make, and of a type approved by the Engineer. The use and number of vibrators used shall be as directed by the Engineer.

11. Care of New Concrete

All exposed surfaces in finished and unfinished concrete shall be kept constantly moist by covering with moistened burlap, or by such other means as may be approved, for at least five days. No new work shall be laid during rainstorms, and freshly laid concrete shall be protected by canvas during storms to prevent the water from washing it. Sufficient canvas covering shall be provided and kept ready at hand for this purpose. All fresh work shall be carefully protected from injury, and no wheeling or walking on it will be allowed. Any portion injured shall be removed and replaced by the Contractor at his own expense.

12. Patching

Immediately after removing forms, all concrete surfaces shall be inspected, and any poor joints, voids, stone pockets and all tie holes

General Specifications 3-9

shall be patched before the concrete is thoroughly dry. If, for any reason, surfaces have voids or are unduly rough, the defective masonry shall be cut out and properly replaced if required. In case of slight imperfections, the concrete may, if permitted, be plastered and floated to give a satisfactory appearance.

Defective areas shall be chipped away to a depth of not less than 1 inch, with the edges perpendicular to the surface. The area to be patched and a space of at least 6 inches wide entirely surrounding it shall be wetted to prevent absorption of water from the patching mortar. The patch shall be made of the same material and of the same proportion as used for the concrete, except that the coarse aggregate shall be omitted and white cement shall be substituted for a part of the gray cement to match the color of the surrounding concrete. The amount of water used in mixing the mortar shall be as little as consistent with the requirements of handling and placing.

The mortar shall be thoroughly compacted into place, and tie holes shall be filled solid, using an Alemite gun or other device. The mortar shall then be screened off so as to leave the patch slightly higher than the surrounding surface, and shall be left undisturbed for a period of one or two hours to permit initial shrinkage before being finally finished. The patch shall be finished in such a manner as to match the adjoining surface. Patches shall be kept wet for a period of at least seven days.

13. Finishing Concrete Surfaces

The surfaces of all concrete walls and ceilings which will be exposed in the completed structure shall be smoothed by rubbing with carborundum brick operated by mechanics skilled in the particular method of finishing. The finished process shall be carried on until the uneven surfaces are rubbed down, all marks of form boards removed, and the surface is smooth and uniform and satisfactory to the Engineer. Surfaces which are finally to be covered with backfill, embankment or other material, need not be finished with carborundum brick. All exposed edges shall be beveled as shown on the plans, or as directed by the Engineer in the field.

The surfaces of concrete fills shall be accurately screeded and floated to conform to the designated levels or grades, and shall be parallel to and at the required distance below the finish. Surfaces which are to receive membrane waterproofing or other finishes shall be finished as required to receive the waterproofing or other finish.

General Specifications 3-10

The exposed concrete floors in the work, except where otherwise shown on the plans, shall have an integral mortar surface which shall be the minimum thickness required to slightly more than fill the voids in the concrete and to permit floating and troweling to true, even surfaces. The mortar shall be applied before the underlying concrete has started to set. The integral mortar surface shall be troweled to a uniform plane with a steel trowel and shall be free from ridges, depressions or other defects. The troweling shall be sufficient to bring the finish to a hard, dense, impervious surface.

14. Concrete in Freezing Weather

No concrete shall be mixed or deposited in freezing temperatures unless the ingredients entered into the mixture are properly heated to the satisfaction of the Engineer, and suitable means be provided for maintaining the concrete at a temperature to prevent freezing for at least four days after placing or until the concrete has thoroughly hardened; and no concrete shall be deposited which may become subject to freezing temperature without special approval of the Engineer. Salts, chemicals or other foreign materials shall not be used as an admixture to prevent freezing.

Any concrete showing indication of frost action shall be removed and replaced by the Contractor at his own expense.

15. Tests

All materials to be incorporated in the concrete work shall be subjected to such standard tests as the Engineer may deem required to determine the suitability of the material to be incorporated in the work, in accordance with the specifications.

a. Extent of Test

Materials incorporated in the concrete construction shall be inspected and tested by the Contractor at his own expense in separate independent laboratories if so directed, to establish their conformance with the specifications.

b. Cement

Tests shall be made on the entire cement requirements by an approved independent laboratory on car samples or bin (sealed) samples as may be desired.

c. Concrete Tests

1. Standard Slump Tests. Field slump tests shall be made as required by the Engineer.

2. Advance Concrete Tests. Advance tests of the concrete shall be made in an independent laboratory in accordance with the latest methods of the A.S.T.M., Designation C-39. Six standard 6 inch compression cylinders, 3 to be tested at 7 days and 3 at 28 days, shall be made with the proportioning and materials proposed to be used in the major part of the work. The slump should not be less than the greatest slump expected in the work and such advance tests shall be repeated if necessary, because of changes in materials or if unsatisfactory results are obtained.

3. Concrete Tests. During the progress of the work, and for each different mix of concrete, a set of two standard 6 inch concrete cylinders shall be made and tested in an independent laboratory for the first 25 cubic yards and for each additional 100 cubic yards of concrete that are placed during each and every day's operation. The cylinders of each set shall be molded from the same sample of concrete and tested at 7 days and 28 days. Making and curing concrete cylinders for test specimens shall be governed by the latest methods of the A.S.T.M. Designation C-31, and the testing of specimens shall be in accordance with the latest methods of the A.S.T.M. Designation C-39. Results of these tests shall be promptly furnished to the Engineer.

16. Waterproofing Admixture

To each bag of cement used for first class concrete shall be added in a dry state "Plastiment", a retarding densifier, or an equivalent integral powdered waterproofing satisfactory to the Engineer. The weight of the powder shall be determined by the manufacturer's recommendations and shall be the correct amount as recommended for the expected high temperature for the day on which the pour is to be made. "Plastiment" is a product of the Sika Chemical Corporation of Passaic, New Jersey.

Section 4
Metal Reinforcement

1. Description

Under this section the Contractor shall furnish and place all the metal reinforcement required for the complete construction of the concrete work, as specified, and as shown on the plans or as directed.

2. Type of Reinforcement

Metal reinforcement shall be purchased only from firms of established reputation in its manufacture. Reinforcing bars shall be in accordance with the latest specifications for billet steel concrete reinforcing bars of the A.S.T.M. Designation A-15. All steel for reinforcement shall be the intermediate grade of deformed bars. Wire or fabric reinforcement, where required, shall meet the latest specifications for cold drawn steel wire, A.S.T.M. Designation A-185.

3. Bar List and Bending Schedule

Before placing any order for material, the Contractor shall submit to the Engineer for approval a Bar List and Bending Schedule, prepared by a reputable steel company, of the reinforcement required in the structure, and indicating the location of splices and dowels, and fabrication shall not be started until such shop drawings have been approved. Metal reinforcement delivered to the work shall be in accordance with the Bar List and Bending Schedule as approved by the Engineer.

4. Laps and Splices

Splices shall not be made in reinforcement without approval of the Engineer unless called for on the drawings. Where splices are indicated or allowed, the bars shall be lapped at least a distance equal to 40 diameters of the bar.

Dowels shall be furnished and installed between horizontal or vertical construction joints. These dowels shall be of the size, length and spacing indicated on the drawings or directed by the Engineer.

At corners, all horizontal reinforcing shall be lapped past the intersection at least 3 feet. Additional metal reinforcing may be required at corners if so directed by the Engineer. Special reinforcement shall be placed over and around all openings to properly transmit stresses.

General Specifications 4-2

Extra bars shall be placed at all construction joints in the face opposite the main tensil reinforcement, and shall run at right angles to the joint and project beyond the joint at least 40 diameters in each direction.

5. Placing Reinforcement

Reinforcement shall be clean and reasonably free from rust when placed in the forms, and shall be in a satisfactory condition when concreting operations are carried out.

All reinforcement, whether round or square deformed bars, triangle mesh, or fabric reinforcing, shall be placed in the forms before the concrete is poured. The Contractor shall place and securely fasten the reinforcement in such a manner that it will be rigid and hold true its position during all periods of depositing concrete within the forms, and until the concrete has hardened. The location of reinforcement and its spacing shall be as indicated on the plans or on the approved Bar List and Bending Schedule. Only the most modern and up-to-date methods of placing and securing reinforcement in place will be permitted, and such methods must be satisfactory to and approved by the Engineer in all cases.

The location of any laps or splices in reinforcing bars, due to the limiting length of commercial bars used in modern practice, must be approved by the Engineer before bars are placed in position.

Section 5
Trench Excavation and Backfill

1. Description

Under this section the Contractor shall make all excavations and backfill required for the construction of all pipe lines lying outside of the excavation limits of the structure to be built under this contract, as specified and as shown on the plans, or as directed.

2. Trench Excavation

Trenches in which various pipe sewers or water lines are to be constructed shall be excavated in open cut from the surface, unless otherwise directed in writing, and in all cases in such manner and to such depths and widths (for sewer trenches not less in width than 12 inches greater than the maximum external diameter of the barrel of the pipe), as will give suitable room for building of the structure it is to contain and for removing from the trench or other excavation any material which the Engineer may deem not proper for foundation. For sewer lines the maximum width of trench at the top of the pipe shall not be greater than 24 inches, plus the outside diameter of the pipe.

3. Trench Backfill

In all pipe trenches suitable selected material shall be filled in around the pipe, and to a height of not less than 1 foot, and to a greater height if so directed, over the top of the pipe. This fill shall be brought up evenly on both sides of the pipe in layers of a thickness directed by the Engineer. Each layer shall be tamped and thoroughly consolidated to provide proper support and bearing for the pipe, and so as not to disturb the line and grade of the pipe. The backfill of the trench above this point over the top of the pipe shall be as specified in the section, "Excavation, Backfill and Embankment".

4. Length of Trench to be Opened

The length of trench to be opened or the area of the surface to be disturbed or unrestored at any one time, shall be limited by the Engineer with regard to expeditious construction and to the convenience and comfort of the persons residing in the neighborhood or frequenting the streets in question. New trenching will not be permitted when earlier trenches need backfilling or labor is needed to restore the surfaces of the streets to a safe and proper condition. The Engineer will refuse additional lines and grades for new trenches, should the Contractor fail to meet the requirements hereinafter specified as to backfilling and resurfacing.

5. Bedding Pipe

First class bedding which will provide a load factor of 1.9 will

General Specifications 5-2

be required for the installation of all sewer pipe lines. This may be accomplished by either of the following methods:

1) By so-called shaped bedding with tamped backfill. The bottom of the trench excavation shall be shaped to conform to a cylindrical surface with radius at least 2 inches greater than the radius of the outside diameter of the pipe and for a width sufficient to allow six-tenths of the width of the pipe barrel to be bedded in fine granular fill placed in the shaped excavation.

Carefully compacted backfill shall be placed at the sides of the pipe and to a depth of at least 12 inches above the top of the pipe.

2) Compacted granular bedding with tamped granular material placed on a flat trench bottom. Granular material shall be crushed stone or pea gravel which will pass a $3/4$ inch sieve, but which minimum thickness of 4 inches or one-fourth the outside pipe diameter, whichever is greater, and shall extend half-way up the pipe barrel at the sides. The remainder of the side walls and a minimum depth of 12 inches over the top of the pipe shall be filled with carefully compacted selected materials.

6. Piling Materials and Care of Structures

All excavated and other materials shall be so placed as not to endanger the work, and so that free access may be had at any time to all parts of the trench and to all hydrants and gates on pipes in the vicinity, and shall be kept neatly piled, so as to inconvenience as little as possible public travel or the adjoining tenants. Reasonable and satisfactory provisions shall be made for gravel on sidewalks, crosswalks, streets, roads, railroads and private ways. Where required, excavated material shall be confined within narrow limits by suitable wooden fences or retainers. All fences and other structures in the vicinity of the work shall be protected and, if injured, shall be repaired or replaced. All trees in the vicinity of the work shall be protected in a satisfactory manner.

7. Footways

The Contractor shall, at all times, maintain at street intersections proper footway passage for the public.

8. Obstructions

The Contractor shall include under the prices bid for the various items the cost of the removal of, and the delay and damage occasioned by any timber or masonry or other obstructions (whether shown on the plans or not).

9. Tunneling

Tunnels will be allowed under crosswalks, and also under water and gas service pipes, for a length of not over 5 feet. Elsewhere, tunnels will not be permitted, unless written permission is given. In all cases, tunneling shall be performed in accordance with directions as to dimensions of heading, methods of excavations, shoring, backfilling, etc.. Where the backfilling proves unsatisfactory, short tunnels shall be re-excavated from the surface and properly backfilled.

10. Removal of Water

The Contractor shall provide and maintain at his own expense ample means and equipment such as pumps, well point systems, drains and sumps for dewatering and properly disposing of water entering the trenches and other parts of the work. The excavation shall be maintained in a dry condition and no foundation materials, pipe or concrete shall be placed in water. Dewatering shall be done in an approved manner such that the subgrade can be trimmed, foundation materials, pipe or concrete placed in the dry, without disturbing bearing materials, and water from the excavation shall be disposed of in such manner that it will cause no injury to property or inconvenience to the public.

High water tables may be encountered in various areas. Where subgrade consists of soils such as fine silty sands, which are easily disturbed by flowing water, uplift pressures shall be relieved by well points extending as far below the base of the trench as necessary. For subgrades of non-plastic silt or silty fine sand, the ground water shall be drawn down to a level at least two (2) feet below the final invert grade of the pipe by well points or other approved means.

Care shall be taken to shut down dewatering equipment slowly to avoid uplift and softening of the materials supporting the pipe and appurtenances.

11. Public Utilities Interference

All conduits, water mains and gas mains encountered in the construction shall be properly and safely taken care of by the Contractor, who shall upon encountering same, notify the public corporation to whom they belong, in order that they may be changed in such manner as not to interfere with the final construction

12. Care of Existing Structures

Care must be taken not to move, without the consent of the Engineer, any sewers, drains, culverts, water, gas or other pipes or poles or other structures, and in crossing such pipes or structures, or in running parallel with or near them, they shall be securely hung, braced and supported in place until the work is completed. Whenever it is necessary to interfere with said structures, the Contractor, at his own expense, shall maintain their respective services, and if necessary for that purpose, shall lay temporary water, gas or other pipes, or other structures. The Contractor shall repair all damage done to any of said structures through his acts or neglect, and shall keep them in repair until one year after the completion of the work. He shall leave them in as good condition as they were previous to the commencement of the work.

13. Permanent Changes of Pipe and Other Structures

If so directed in writing, the Contractor shall make permanent changes in the location of any pipes or other structures above enumerated, not indicated on the plans or in the specifications, and new structures shall be built, where necessary, to leave everything in good working order. The cost of such permanent changes, not indicated on the plans or in the specifications, will be paid for under Article XIII in the contract on the valuation made by the Engineer, and depending upon his decision as to whether the work is or is not included in the work required and bid for by the Contractor under this contract. In rendering all such accounts, the Contractor shall present daily an itemized account of both the material and labor involved.

14. Notification of Broken Pipe Main

In case of a gas, water or other pipe becoming broken in the prosecution of the work, the Contractor shall give immediate notice to the proper authorities, and shall be responsible for any damage to persons or property caused by such breaks, and failure to give prompt notice to the authorities shall make the Contractor responsible for any needless loss of water or gas.

15. Backfill Immediately After Approval

The trench and other excavations above pipe grade shall be carefully refilled as soon as possible after approval with such of the excavated materials, and in such order as may be from time to time directed. No portion of a trench or other excavation shall be back-filled until the structure contained in it has been examined and approved. When, for any reason the work is left unfinished, all trenches and other excavations shall be filled, if so required by the Engineer, and the roadways and sidewalks left unobstructed, with their surface in a safe and satisfactory condition.

On unpaved streets, the backfill above the sewers shall be carefully consolidated, in order to prevent settlement. The trench shall be tamped sufficiently to prevent any settlement of or damage to adjacent structures.

16. Restrictions as to Materials

No rock or frozen earth over 10 inches in diameter shall be put in the trench until the refilling has reached at least 2 feet above the top of the pipe lines, and then not unless specifically permitted. All spaces between suitable pieces of rock shall be thoroughly filled with earth by backfilling with alternate layers of rock and earth.

17. Shovel Tamping

Suitable material shall be filled in and brought up evenly on both sides of the pipe lines or other structures, and carefully shovel-tamped or rammed so as not to disturb the structures, at the same time making the filled trench thoroughly compact, to a point not less than 2 feet above the top of the pipe.

18. Ramming on Paved Streets

When the trench is on a macadamized or paved street, the backfilling shall be done in the following manner:

After the backfillings have been made around the sewer, or such other structure, to a height of 2 feet over the top, the earth shall be deposited in 6 inch layers and thoroughly tamped.

The tamping shall be done by suitable mechanical means so far as possible. The machine used shall be of a type satisfactory to the Engineer as to power of blows and area of rammer, and shall be used in such a manner as will thoroughly compact the backfill to a degree which will insure against later settlement in the judgment of the Engineer.

In all cases, special care shall be taken to see that the spaces at the sides of the trench or other excavations are thoroughly filled and rammed. If necessary, the earth shall be moistened during the operation.

19. Sheeting and Bracing

The Contractor shall furnish, put in place and maintain such sheeting and bracing as may be required to support thoroughly the sides of the excavation (whether above or below sewer pipe grade), and to prevent any movement which might injure the sewers, diminish the width necessary for proper drainage, or otherwise injure or delay the work or interfere seriously with adjoining structures or operations.

20. Removal of Sheeting

That portion of the sheeting in the trench extending below the top of the pipes shall be withdrawn, unless otherwise directed by the Engineer, before more than 6 inches of earth is placed above the top of the pipes. As the trench is refilled, the sheeting and timbering shall be removed in such a manner as to avoid the cavein of the trench. The vacancy left by the sheeting shall be carefully refilled by ramming, or otherwise as directed. Where cavities or pockets have developed outside of sheeting, they shall be carefully backfilled and consolidated to the satisfaction of the Engineer, even if it is necessary to make an opening from the ground surface for this purpose.

21. Condition of Street Surfaces, Curbs and Sidewalks

The surface of the ground in streets and elsewhere, curbs and cement walks, where these have been damaged during the progress of the work, shall in all cases be put promptly, after the sewer or other structure is laid, in as good condition both as to base and surface finish, as it was previous to the commencement of the work. However, a sufficient time shall be allowed for a reasonable amount of settlement under traffic, which time shall not be less than thirty days, the surface to be kept covered with earth, and in good passable condition during this period, all at the contractor's expense.

22. Cleaning Up

As the work progresses, or as directed, all rubbish or refuse, and all unused materials and tools, shall be removed at once from along and near the lines in which the sewers have been built.

23. Surplus Materials Removed

All surplus materials, or such other materials as may be removed, shall be the property of the Owner, and shall be removed and deposited by the Contractor, at his expense, at such points as directed by the Engineer.

24. Repairing Depressions

Where settlements occur in the streets after repaving, the street surface shall be promptly repaired.

25. Neglect of Duties Remedied by Outside Parties

Whenever the Contractor neglects to carry out promptly, the requirements of Paragraphs 21 to 24 inclusive, of these specifications, or to repair or replace fences or other property damaged by the construction, the Engineer will give notice to that effect in writing to the Contractor, and if said work, as stated in such notice, is not begun two days thereafter, the Owner reserves the right to authorize the Engineer to employ outside parties to do such work, and the expense thus incurred will be deducted from any moneys due or that become due the Contractor.

26. Exploration Prior to Construction

The Contractor shall proceed with caution in the excavation and preparation of the trench, so that the exact location of underground structures, pipes, conduits, etc., both known and unknown, may be determined and he shall be responsible for the restoration of all

General Specifications 5-8

damages when such structures, pipes, conduits, etc., are broken or otherwise damaged. Whenever it is necessary or required to explore and excavate to determine the location of the existing underground structures, pipes, conduits, etc., the Contractor shall make explorations and excavations for such purpose at no additional cost to the Owner.

Such explorations and excavations as are necessary and required shall be made sufficiently ahead of all operations to allow the Engineer to make changes in grade or alignment.

Section 6
Pumping, Bailing, Draining, and Cofferdams

1. Description

Under this section the Contractor shall furnish and operate a sufficient pumping plant, provide and maintain satisfactory drainage; furnish, construct, maintain and remove cofferdams and similar work wherever such dams and similar work may be required, and provide all labor, materials, tools, equipment and necessary incidentals required to properly prevent interference with or damage to the work by water, ice or snow, and to enable the work to be carried out in a proper and satisfactory manner, as specified or as directed.

Damage of any kind resulting from insufficient or improperly operated pumping facilities, from faulty construction of cofferdams; from failure to keep cofferdams in good condition; or from similar lack of proper conduct of the work, shall be made good by the Contractor at his own expense.

Drainage from excavations or from pumping operations shall be satisfactorily conducted away from the work to a suitable point of discharge. All offensive water shall be removed from the work at once and shall be properly and safely disposed of.

Cofferdams shall be designed and located so as to restrict natural flow as little as practicable. The Contractor shall at all times take the necessary precautions to avoid damage to the work, adjacent structures, or banks resulting from a change in the location of normal or natural flow channels, or from a restriction of flow. Material scoured away by such restrictions shall be replaced by the Contractor with similar material.

All material deposited as a result of pumping, bailing, drainage or cofferdam work, shall be completely removed and disposed of by the Contractor to the satisfaction of the Engineer after the work is completed and facilities under this section are no longer needed.

Section 7
Installation of Cast Iron Water Mains

Part 1 - Scope

1. General

These specifications form a part of the contract documents.

2. Work Included

The Contractor shall, unless specified otherwise, furnish all material, equipment, tools and labor necessary to do the work required under this contract and unload, haul and distribute all pipe, castings, fittings, valves, hydrants and accessories. The Contractor shall also remove the pavement as stipulated; excavate the trenches and pits to the required dimensions; excavate the bell holes; construct and maintain all bridges for traffic control; sheet, brace and support the adjoining ground or structures where necessary; handle all drainage or ground water; provide barricades, guards and warning lights; lay and test the pipe, castings, fittings, valves, hydrants and accessories; backfill and consolidate the trenches and pits; restore the roadway surface unless otherwise stipulated; remove surplus excavated material; clean the site of the work; and maintain the street or other surface over the trenches as specified.

The Contractor shall also furnish all equipment, tools, labor and materials required to rearrange branch connections to main sewers, or to rearrange sewers, conduits, ducts, pipes or other structures in accordance with the contract drawings and stipulations included herein.

Part 2 - Inspection

3. Shop Inspection

All materials furnished by the Contractor are subject, at the discretion of the Owner, to inspection and approval at the plant of the manufacturer.

4. Field Inspection

All pipe and accessories shall be laid, jointed and tested under pressure for defects and leakage in the manner specified and in the presence of and as approved by the Engineer.

5. Disposition of Defective Material

All material found during the progress of the work to have cracks, flows or other defects will be rejected by the Engineer.

General Specifications 7-2

All defective materials furnished by the Contractor shall be promptly removed by him from the site. Any material furnished by the Owner and found defective shall be set aside and removed from the site of the work by the Owner.

Part 3 - Responsibility for Material

6. Responsibility for Material Furnished by Contractor

The Contractor shall be responsible for all material furnished by him and shall replace at his own expense all such material found defective in manufacture or damaged in handling after delivery by the manufacturer. This shall include the furnishing of all material and labor required for the replacement of installed material discovered defective prior to the final acceptance of the work.

7. Responsibility for Material Furnished by Owner

The Contractor's responsibility for material furnished by the Owner shall begin at the point of delivery thereof to said Contractor. Materials already on the site shall become the Contractor's responsibility on the day of the award of the contract. The Contractor shall examine all material furnished by the Owner at the time and place of delivery to him and reject all defective material. Any material furnished by the Owner and installed by the Contractor without discovery of such defects will, if found defective prior to final acceptance of the work, be replaced with sound material by the Owner. The Contractor, however, shall, at his own expense, furnish all supplies, labor and facilities necessary to remove said defective material and install the sound material in a manner satisfactory to the Engineer.

8. Responsibility for Safe Storage

The Contractor shall be responsible for the safe storage of material furnished by or to him, and accepted by him, and intended for the work, until it has been incorporated in the completed project. The interior of all pipe, fittings and other accessories shall be kept free from dirt and foreign matter at all times. Valves and hydrants shall be drained and stored in a manner that will protect them from damage by freezing.

9. Replacement of Damaged Material

Any material furnished by the Owner that becomes damaged after acceptance by the Contractor shall be replaced by the Contractor at his own expense.

General Specifications 7-3

Part 4 - Handling of Material

10. Hauling

All materials furnished by the Contractor shall be delivered and distributed at the site by the Contractor. Materials furnished by the Owner shall be picked up by the Contractor at points designated in the Detailed Specifications and hauled to and distributed at the site.

Cast iron pipe, fittings, valves, hydrants and accessories shall be loaded and unloaded by lifting with hoists or skidding so as to avoid shock or damage. Under no circumstances shall such materials be dropped. Pipe handled on skidways shall not be skidded or rolled against pipe already on the ground.

11. At Site of Work

In distributing the material at the site of the work, each piece shall be unloaded opposite or near the place where it is to be laid in the trench.

12. Care of Pipe Coating and Lining

Pipe shall be so handled that the coating and lining will not be damaged. If, however, any part of the coating or lining is damaged, the repair shall be made by the Contractor at his expense in a manner satisfactory to the Engineer.

Part 5 - Alignment and Grade

13. General

The water main shall be laid and maintained to the required lines and grades with fittings, valves and hydrants at the required locations; spigots centered in bells; and all valves and hydrant stems plumb.

14. Deviations Occasioned by Other Structures

Wherever obstructions not shown on the plans are encountered during the progress of the work and interfere to such an extent that an alteration in the plan is required, the Engineer shall have the authority to change the plans and order a deviation from the line and grade or arrange with the Owners of the structures for the removal, relocation or reconstruction of the obstructions.

15. Caution in Excavation

The Contractor shall proceed with caution in the excavation and preparation of the trench so that the exact location of underground

structures, both known and unknown, may be determined, and he shall be held responsible for the repair of such structures when broken or otherwise damaged because of carelessness on his part.

16. Subsurface Explorations

Whenever, in the opinion of the Engineer, it is necessary to explore and excavate to determine the location of existing underground structures, the Contractor shall make exploration and excavations for such purposes. If the Contractor is required to perform additional work in making the explorations and excavations, no compensation will be allowed for such additional work.

17. Depth of Pipe

All pipe shall be laid to the depth shown on the contract drawings or as outlined in the Detailed Specifications. Any variation therefrom shall be made only at the order of the Engineer.

Part 6 - Excavation and Preparation
of Trench

18. Description

The trench shall be dug so that the pipe can be laid to the alignment and depth required, and it shall be excavated only so far in advance of pipe laying as specified or permitted by the Engineer. The trench shall be so braced and drained that the workmen may work therein safely and efficiently. It is essential that the discharge of the trench dewatering pumps be conducted to natural drainage channels, drains or sewers.

19. Width of Trench

The width of the trench shall be ample to permit the pipe to be laid and jointed properly, and the backfill to be placed and compacted as specified. Trenches shall be of such extra width when required, as will permit the convenient placing of timber supports, sheeting and bracing, and handling of specials.

20. Bell Holes

Bell holes shall be provided at each joint to permit the jointing to be made properly.

21. Pipe Clearance in Rocks

Ledge rock, boulders and large stones shall be removed to provide a clearance of at least 6 inches below and on each side of all pipe, valves

General Specifications 7-5

and fittings for pipes 24 inches in diameter or less, and 9 inches for pipes larger than 24 inches in diameter.

The specified minimum clearances are the minimum clear distances which will be permitted between any part of the pipe and appurtenances being laid and any part, projection or point of such rock, boulder or stone.

22. Excavation to Grade

The trench shall be excavated to the depth required so as to provide a uniform and continuous bearing and support for the pipe on solid and undisturbed ground at every point between bell holes, except that it will be permissible to disturb and otherwise damage the finished surface over a maximum length of 18 inches near the middle of each length of pipe by the withdrawal of pipe slings or other lifting tackle. Any part of the bottom of the trench excavation below the specified grade shall be corrected with approved material, thoroughly compacted as directed by the Engineer. The finished subgrade shall be prepared accurately by means of hand tools.

The subgrade beneath the centerline of the pipe shall be finished to within 0.03 feet of a straight line between pipe joints or batter boards, and all tolerances shall be above the specified grade.

If, in the opinion of the Engineer, soil conditions are encountered at subgrade which require all or part of the work to be done in accordance with Paragraph 23, the Engineer shall have the authority to order the work to be done, and the Contractor will be allowed extra compensation for the additional work.

23. Excavation Below Grade

The trench shall be excavated to at least 3 inches and not more than 6 inches below the specified grade. Before the pipe is laid, the subgrade shall be made by backfilling with an approved material in 3 inch uncompacted layers. The layers shall be thoroughly tamped as directed by the Engineer so as to provide a uniform and continuous bearing and support for the pipe at every point between bell holes, except that it will be permissible to disturb and otherwise damage the finished surface over a maximum length of 18 inches near the middle of each length of pipe by the withdrawal of pipe slings or other lifting tackle. The finished subgrade shall be prepared accurately by means of hand tools.

The subgrade beneath the centerline of the pipe shall be finished to within 0.03 feet of a straight line between pipe joints or batter boards, and all tolerances shall be above the specified grade.

24. Excavation in Poor Soil and Refilling to Grade

Where the bottom of the trench at subgrade is found to be unstable or to include ashes, cinders, all types of refuse, vegetable or other organic material, or large pieces or fragments of inorganic material which in the judgment of the Engineer should be removed, the Contractor shall excavate and remove such unsuitable material to the width and depth ordered by the Engineer. Before the pipe is laid, the subgrade shall be made by backfilling with an approved material in 3 inch uncompacted layers. The layers shall be thoroughly tamped as directed by the Engineer so as to provide a uniform and continuous bearing and support for the pipe at every point between bell holes, except that it will be permissible to disturb and otherwise damage the finished surface over a maximum length of 18 inches near the middle of each length of pipe by the withdrawal of pipe slings or other lifting tackle. The finished subgrade shall be prepared accurately by means of hand tools.

The subgrade beneath the centerline of the pipe shall be finished to within 0.03 feet of a straight line between pipe joints or batter boards, and all tolerances shall be above the specified grade.

The Contractor will be allowed extra compensation for the additional work.

25. Special Foundation in Poor Soil

Where the bottom of the trench at subgrade is found to consist of material which is unstable to such a degree that, in the opinion of the Engineer, it cannot be removed and replaced with an approved material thoroughly compacted in place to support the pipe properly, the Contractor shall construct a foundation for the pipe, consisting of piling, timbers or other materials, in accordance with plans prepared by the Engineer. Extra compensation will be allowed for the additional work.

26. Subgrade in Rock Trenches

Where excavation is made in rock or boulders and the clearance specified in Paragraph 21 is provided, the subgrade shall be made by backfilling with an approved material in 3 inch uncompacted layers. The layers shall be thoroughly tamped as directed by the Engineer so as to provide a uniform and continuous bearing and support for the pipe at every point between bell holes, except that it will be permissible to disturb and otherwise damage the finished surface over a maximum length of 18 inches near the middle of each pipe length by the withdrawal of pipe slings or other lifting tackle. The finished subgrade shall be prepared accurately with hand tools.

The subgrade beneath the centerline of the pipe shall be finished to within 0.03 feet of a straight line between pipe joints or batter boards, and all tolerances shall be above the specified grade.

General Specifications 7-7

The Contractor will be allowed extra compensation for the additional work.

Part 7 - Laying

27. Handling of Water Main Material Into Trench.

Proper implements, tools and facilities satisfactory to the Engineer shall be provided and used by the Contractor for the safe and convenient prosecution of the work. All pipe, fittings, valves and hydrants shall be carefully lowered into the trench piece by piece by means of a derrick, ropes or other suitable tools or equipment, in such a manner as to prevent damage to water main materials and protective coatings and linings. Under no circumstances shall water main materials be dropped or dumped into the trench.

28. Hammer Test

The pipe and fittings shall be inspected for defects and, while suspended above grade, be rung with a light hammer to detect cracks.

29. Cleaning Pipe and Fittings

All lumps, blisters and excess coal-tar coating shall be removed from the bell-and-spigot end of each pipe, and the outside of the spigot and the inside of the bell shall be wire-brushed and wiped clean and dry and free from oil and grease before the pipe is laid.

30. Laying Pipe

Every precaution shall be taken to prevent foreign material from entering the pipe while it is being placed in the line. If the pipe laying crew cannot put the pipe into the trench and in place without getting earth into it, the Engineer may require that before lowering the pipe into the trench, a heavy, tightly woven canvas bag of suitable size shall be placed over each end and left there until the connection is to be made to the adjacent pipe. During laying operations, no debris, tools, clothing or other materials shall be placed in the pipe.

After placing a length of pipe in the trench, the spigot end shall be centered in the bell and the pipe forced home and brought to correct line and grade. The pipe shall be secured in place with approved back-fill material tamped under it except at the bells. Pipe and fittings which do not allow a sufficient and uniform space for joints shall be removed and replaced with pipe and fittings of proper dimensions to insure such uniform space. Precautions shall be taken to prevent dirt from entering the joint space.

General Specifications 7-8

At times when pipe laying is not in progress, the open ends of pipe shall be closed by a watertight plug or other means approved by the Engineer. Joints of pipe in the trench which cannot be completed (See Paragraph 31) shall be caulked with packing to make them as watertight as possible. This provision shall apply during the noon hour as well as overnight. If water is in the trench, the seal shall remain in place until the trench is pumped completely dry.

31. Cutting Pipe

The cutting of pipe for inserting valves, fittings or closure pieces shall be done in a neat and workmanlike manner without damage to the pipe or cement lining and so as to leave a smooth end at right angles to the axis of the pipe.

When machine cutting is not available for cutting pipe 20 inches in diameter or larger, the electric-arc cutting method will be permitted using a carbon or steel rod. Only qualified and experienced workmen shall be used on this work.

The flame cutting of pipe by means of an oxyacetylene torch shall not be allowed.

32. Bell Ends to Face Direction of Laying

Pipe shall be laid with bell ends facing in the direction of laying unless directed otherwise by the Engineer.

33. Permissible Deflection at Joints

Wherever it is necessary to deflect pipe from a straight line, either in the vertical or horizontal plane, to avoid obstructions or plumb stems, or where long radius curves are permitted, the amount of deflection allowed shall not exceed that required for satisfactory making of the joint, and shall be approved by the Engineer.

34. Unsuitable Conditions for Laying Pipe

No pipe shall be laid in water or when, in the opinion of the Engineer, trench conditions are unsuitable.

PART 8 - JOINTING

35. Types of Joints

The types of joints to be used, subject to the approval of the Engineer, shall generally be the rubber ring push-on type or mechanical type joint. Under certain circumstances it may be necessary to use a lead type joint. All joints, regardless of type, shall be installed in strict accordance with the pipe manufacturer's published instructions and procedures.

General Specifications 7-9

The rubber ring push-on type joint shall be of the type which employ a single, elongated, grooved rubber gasket to effect the joint seal. Joint details shall be in accordance with the particular pipe manufacturer and gaskets shall conform with all applicable requirements of USAS A21.11 and Federal Specification WW-P-421c.

Mechanical joints shall consist of a special bell provided with a flange cast integral with it, a cast iron gland, a rubber gasket, and the necessary bolts and nuts. Mechanical joint accessories shall conform with applicable requirements of USA Standard A21.11, USA Standard A21.12, WW-P-421c, and WW-P-360b. Bolts furnished shall be USALLOY to minimize corrosion.

Lead joints if and where required shall be made in strict accordance with the particular pipe manufacturer's instructions and shall utilize yarning or packing material acceptable to the Engineer, and lead for caulking portions shall contain not less than 99.73% lead. Lead joints shall in all cases be made utilizing approved materials, procedures, and accepted practices for good workmanship.

PART 9 - ANCHORAGE

36. Anchorage for Plugs, Caps, Tees and Bends

All plugs, caps, tees and bends deflecting 22-1/2 degrees or more on mains 6 inches in diameter or larger shall be provided with a reaction backing, or movement shall be prevented by attaching suitable metal rods or clamps as shown or specified.

37. Reaction Backing

Reaction backing shall be concrete of a mix not leaner than 1 cement; 2-1/2 sand; 5 stone; and having a compressive strength of not less than 2,000 psi at 28 days. Backing shall be placed between solid ground and the fitting to be anchored; the area of bearing on the pipe and on the ground in each instance shall be that shown or directed by the Engineer. The backing shall, unless otherwise shown or directed, be so placed that the pipe and fitting joints will be accessible for repair.

38. Metal Harness

Metal harness of tie rods or clamps of adequate strength to prevent movement may be used instead of concrete backing, as directed by the Engineer. Steel rods or clamps shall be galvanized or otherwise rustproof treated, or shall be painted as shown or directed by the Engineer.

PART 10 - HYDROSTATIC TESTS

39. Hydrostatic Tests Required

Hydrostatic tests as described below shall be made.

40. Pressure Test

After the pipe has been laid and partially backfilled, all newly laid pipe, or any valved section thereof, shall be subjected to a hydrostatic pressure test, or if directed by the Engineer, the Contractor may backfill the trench before making the pressure test. Test pressure shall be not less than 1-1/2 times working pressure or 150 psi, whichever is greater.

41. Duration of Pressure Test

The duration of each pressure test shall be at least one hour.

42. Procedure

Each valved section of pipe shall be slowly filled with water and the specified test pressure, based on the elevation of the lowest point of the line or section under test and corrected to the elevation of the test gauge, shall be applied by means of a pump connection to the pipe in a manner satisfactory to the Engineer. The pump, pipe connection and all necessary apparatus shall be furnished by the Contractor. The Contractor shall furnish all necessary assistance for conducting the tests.

43. Expelling Air Before Test

Before applying the specified test pressure, all air shall be expelled from the pipe. If hydrants or blowoffs are not available at high places, the Contractor shall make the necessary taps at points of highest elevation before the test is made and insert the plugs after the test has been completed.

44. Examination Under Pressure

All exposed pipes, fittings, valves, hydrants and joints will be carefully examined during the open trench test. When the joints are made with lead, all such joints showing visible leaks shall be recaulked until tight. Any cracked or defective pipes, fittings, valves or hydrants discovered in consequence of this pressure test shall be removed and replaced by the Contractor with sound material in the manner provided under Part 3, and the test shall be repeated until satisfactory to the Engineer.

45. Leakage Test

A leakage test shall be conducted after the pressure test has been satisfactorily completed. The Contractor shall furnish the

pump, pipe, connections and all other necessary apparatus, and shall furnish all necessary assistance to conduct the test. The duration of each leakage test shall be two hours, and during the test the main shall be subjected to not less than the maximum working pressure.

Leakage is defined as the quantity of water to be supplied into the newly laid pipe, or any valved section thereof, necessary to maintain the specified leakage test pressure after the pipe has been filled with water and the air expelled.

No pipe installation will be accepted until the leakage is less than the number of gallons per hour as determined by the formula:

$$L = \frac{ND\sqrt{P} \times 0.20}{1,850}$$

in which L equals the allowable leakage, in gallons per hour; N is the number of joints in the length of pipe line tested; D is the nominal diameter of the pipe in inches; and P is the average test pressure during the leakage test, in pounds per square inch gauge. (The allowable leakage according to the formula is equivalent to 14 U.S. Gal. per 24 hours per mile of pipe per inch nominal diameter, for pipe in 12 foot lengths evaluated on a pressure basis of 150 psi).

46. Variation from Permissible Leakage

Should any test of pipe laid disclose leakage greater than that specified in Par. 45, the Contractor shall at his own expense locate and repair the defective joints until the leakage is within the specified allowance.

47. Time for Making Test

Pipe may be subjected to hydrostatic pressure and inspected and tested for leakage at any convenient time after the trench has been partially backfilled. The leakage allowance shall be that specified in Paragraph 45.

Where any section of a main is provided with concrete reaction backing, the hydrostatic pressure test shall not be made until at least five days have elapsed after the concrete reaction backing was installed. If high, early strength cement is used in the concrete reaction backing, the hydrostatic pressure test shall not be made until at least two days have elapsed.

48. Pressure and Leakage Tests After Backfilling

After the trench has been backfilled, the test connections made and the main filled with water, the test sections shall be subjected

to water pressure normal to the area. After examination of exposed parts of the system, the test pressure will be increased to the hydrostatic pressure specified and exposed parts again examined. If defects are found, the Contractor shall immediately make the necessary repairs at his own expense. The Engineer will then repeat the pressure test until no defects are found. The duration of the final pressure test shall be at least one hour.

The leakage test shall be conducted after satisfactory completion of the pressure test, in accordance with Paragraph 45. Should any test section fail to meet the leakage test, the Contractor shall make the necessary repairs at his own expense.

PART II - CHLORINATION OF COMPLETED PIPE LINES

49. Chlorination Procedure

Upon completion of the work, and before final acceptance, the water lines constructed under this contract shall be chlorinated. Prior to chlorination, all dirt and foreign matter shall be removed by a thorough flushing through the hydrants, or by other approved means. Each valved section shall be flushed independently.

The method of disinfection shall consist of introducing a solution of hypochlorite or chlorine gas and water in controlled quantities into the piping system in such proportion that the chlorine water mixture entering the piping shall contain sufficient chlorine solution so that after the solution has been in the pipe line for a period of twenty-four hours, there shall be a chlorine residual throughout the entire system, of not less than 50 ppm. If the residual at any point in the system is less than 50 ppm after the twenty-four period, the disinfection procedure shall be repeated until such a residual is obtained at the pipe extremities.

Following chlorination, all treated water shall be thoroughly flushed from the newly laid pipe lines at their extremities until the replacement water throughout its length shall, upon testing both chemically and bacteriologically, be satisfactory to the Engineer. Should the initial treatment, in the opinion of the Engineer, prove ineffective, the chlorination procedure shall be repeated until conformed tests show that the water samples from the newly laid pipe conform to the requirements of the Engineer.

Section 8C
Installation of Clay Sewer Pipe

1. General

These specifications form a part of the Contract Documents and are intended to define proper methods of installing vitrified clay sewer pipe in order to develop and utilize the structural properties of such pipe to their fullest advantage.

2. Strength Classification

All clay sewer pipe shall be of the Class and conform to the specifications as outlined in the Detailed Specifications.

3. Work Included

The Contractor shall, unless specified otherwise, furnish all material, equipment, tools and labor necessary to do the work required under this Contract and unload, haul and distribute all pipe, fittings and accessories. The Contractor shall also remove the pavement as required, excavate the trenches to the required dimensions, construct and maintain all bridges for traffic control; sheet; brace and support the adjoining ground or structures where necessary; handle all drainage or ground water; provide barricades, guards and warning lights; lay and test the pipe; backfill and consolidate the trenches and pits; restore the roadway surface; unless otherwise stipulated; remove surplus excavated material; clean the site of the work and maintain the street or other surface over the trenches as specified.

4. Shop Inspection

All materials furnished by the Contractor are subject, at the discretion of the Owner to inspection and approval at the plant of the manufacturer.

5. Field Inspection

All pipe and accessories shall be laid, jointed and tested for defects and leakage in the manner specified and in the presence of and as approved by the Engineer.

6. Disposition of Defective Material

All material found, during the progress of the work, to have cracks, flaws or other defects not in conformity with the specifications, will be rejected by the Engineer. All defective materials furnished by the Contractor shall be promptly removed by him from the site.

7. Responsibility for Material Furnished by Contractor

The Contractor shall be responsible for all material furnished by him and shall replace at his own expense, all such material found defective in manufacture or damaged in handling after delivery by the manufacturer. This shall include the furnishing of all material and labor required for the replacement of installed material discovered defective prior to the final acceptance of the work.

8. Responsibility for Safe Storage

The Contractor shall be responsible for the safe storage of material furnished by or to him and accepted by him and intended for the work, until it has been incorporated in the completed project.

Piping shall be protected during handling against impact, shock and free-fall. Pipe shall be kept clean at all times, and no pipe shall be used in the work that does not conform to the appropriate A.S.T.M. Specifications.

9. Pipe Laying

The laying of pipe in finished trenches shall be commenced at the lowest point with the spigot ends pointing in the direction of flow.

All pipe shall be laid accurately to the line and grade as designated on the plans or as modified by the Engineer in the field. Preparatory to making pipe joints, all surfaces of the portions of the pipe to be jointed, or of the factory made jointing material shall be clean and dry. Lubricants, primers, adhesives, etc., shall be used as recommended by the pipe or joint manufacturers' specifications. The jointing materials or factory fabricated joints shall then be placed, fitted, jointed and adjusted in such a workmanlike manner as to obtain the degree of watertightness required. Trenches shall be kept water-free and as dry as possible during bedding, laying and jointing and for as long a period as required. As soon as possible after the jointing is made, sufficient backfill material shall be placed, along each side of the pipe to offset conditions that might tend to move the pipe off line and grade.

Where, in the opinion of the Engineer, the native soil is suitable for bedding the pipe, mechanical excavation shall be stopped above the final invert grade elevation so that the pipe may be laid on a firm undisturbed native earth bed. If over-digging occurs, all loosened earth must be removed and the trench bottom brought back to grade with granular material, fortified with cement as directed by the Engineer, at the Contractor's expense.

Where the native soil is not satisfactory for bedding the pipe, the excavation shall be to a depth below the invert elevation of not less

than one-fourth the pipe diameter, but in no case less than 4 inches. The trench shall then be filled to the proper grade with approved granular material, placed in successive layers not more than 6 inches in thickness. Each layer shall be placed and thoroughly and uniformly tamped by means of a mechanical tamper or other equally effective method before the next layer is placed. The backfill shall be placed completely under the pipe haunches, with adequate tamping to offset any shrinkage caused by subsequent consolidation. Successive layers and tamping shall continue until the backfill is a minimum depth of 12 inches over the top of the pipe.

Granular material shall be crushed stone or pea gravel which will pass a 3/4 inch sieve but will be retained on a No. 4 sieve. The granular bedding shall have a minimum thickness of one-fourth the outside pipe diameter and shall extend half-way up the pipe barrel at the sides. The remainder of the side walls and a minimum depth of 12 inches over the top of the pipe shall be filled with carefully compacted suitable material.

In rock excavation, the trenches shall be carried to a depth of one-fourth the diameter of the pipe, but in no case less than 6 inches below the pipe bottom.

Bedding in rock trenches shall be of granular material as above specified.

10. Width of Trenches

Width of trenches in which vitrified clay pipe is to be installed shall be such as to provide adequate space for workmen to place and joint the pipe properly, but in every case, the trench shall be kept to a minimum width. The width of the trench at the top of the pipe shall in no case, be greater than the nominal diameter of the pipe plus 2 feet.

11. Backfilling Trenches

All trenches and excavations shall be backfilled immediately after pipe is laid, unless other protection of the pipe line is directed. Under no circumstances, however, shall water be permitted to rise in unbackfilled trenches after pipe has been placed. No material shall be used for backfilling that contains stones having dimensions greater than 6 inches, frozen earth, debris, or earth with a high void content. For backfill up to a level of 2 feet over the top of the pipe, only selected materials shall be used.

12. Sheeting and Bracing

Whenever timber or other sheeting is driven to a depth below the elevation of the top of the pipe, that portion of the sheeting below the

elevation of the top of the pipe shall not be disturbed or removed. Whenever timber or other sheeting is driven for the protection of a trench wall in waterbearing soil, no portion of such sheeting below a level of 4 feet over the top of the pipe shall be removed.

13. Connections to Manholes

Where pipes connect with the outside faces of manhole walls, or the outside faces of the walls of other structures, there shall be a pipe joint such that slight flexibility or motion can take place in the plane of the wall face.

14. Checking and Testing Completed Sewers

As the work progresses and after pipe trenches have been backfilled to the full depth, all sewers shall be checked to determine if there has been any horizontal or vertical displacement. This shall be accomplished by illuminating the interior of the pipe line with suitable lighting and if the illuminated interior shows poor alignment, displaced pipe, or other defects, such defects as ordered by the Engineer shall be remedied. All such work shall be performed by the Contractor with no additional cost to the Owner.

Practically watertight work is required for all sewers, and after plugging all stubs and performing the displacement tests stated above, the Contractor shall carefully test the sewers to determine the amount of exfiltration and/or the amount of infiltration of ground water.

a) All tests for infiltration and exfiltration shall be conducted in accordance with the requirements of A.S.T.M. Standard C425, as specified herein and as approved by the Engineer. The Engineer shall determine the tests to be performed based upon ground water elevations and other conditions at the time of testing. The Contractor shall provide, without cost to the Owner, all labor, materials, measuring devices and other equipment necessary to perform the required tests, as well as the excavation of test holes at sufficient intervals along the sewer line to properly determine ground water elevations.

b) Where practicable, sewers shall be tested for infiltration or exfiltration in lengths between manholes of not more than 1,500 feet.

c) Sewers shall be tested after all laterals have been installed and prior to making service connections.

d) Allowable infiltration or exfiltration through manhole walls and pipe joints shall not exceed a total of 150 gallons per mile of pipe line per inch of diameter per 24 hours.

General Specifications 8C-5

e) The infiltration test shall only be performed when ground water depths are at least 2 feet above the top of the pipe being tested. Sufficient weir measurements shall be made in manholes to accurately determine the amount of infiltration.

f) The exfiltration test shall be performed by subjecting the pipe being tested to a differential head of not less than 4 feet nor more than 10 feet.

g) Infiltration or exfiltration tests shall extend over a period not less than 24 hours. Not less than hourly readings shall be taken from the beginning of the test for at least an 8 hour period. Additional readings shall be made thereafter at 8 hour intervals until the completion of the 24 hour testing period.

h) Lines which fail to meet the infiltration or exfiltration test requirements shall be repaired and re-tested as required until test requirements are complied with. Defective pipe shall be removed and replaced. All evident leaks shall be repaired, regardless of the total leakage as shown by testing.

Section 10
Valves and Gates

1. General

Under this section the Contractor shall furnish and install all the gate valves required to complete the work, as specified and as shown on the plans, or as directed.

Valves and gates shall have flanged, bell and spigot, bolted joint, or screwed ends as may be required, and shall be furnished and installed with square operating nuts and telescopic valve boxes as indicated or as specified, or as required.

Specifications and details of valves, gate and accessories proposed to be furnished by the Contractor shall be furnished to the Engineer for his approval. Valves, gates and accessories shall be purchased only from one of the well known valve and gate manufacturers of established reputation.

2. Gate Valves

Gate Valves for above ground installation 3 inches or larger shall be iron-bodied, bronze mounted, double disc gate valves. Valves 2-1/2 inches and smaller shall be all bronze gate valves. All valves shall be designed for the working pressures indicated or specified. Valves for 150 lbs. per square inch water working pressure shall conform to the latest specifications of the A.W.W.A., and shall be of standard manufacture as approved by the Engineer.

Gate valves for underground installation, 2 inches through 12 inches shall be iron-bodied, bronze mounted, double disc gate valves, and shall be installed in a vertical position.

In certain instances, valves larger than 12 inch for underground installation shall be installed in a horizontal position. Valves installed in this position shall be equipped with solid bronze or hard babbitt tracks and scrapers, securely fastened in body and bonnet to carry the weight of the gates throughout their entire length of travel on rollers. Valves installed in this position shall have bevel gears, enclosed in an oil-tight cast iron gear case. Valves shall also have a valved bypass of the size noted on the plans. Gate valves installed in a horizontal position shall be supported as directed at the time of installation. All valves shall conform to the latest specification of the A.W.W.A.

General Specifications 10-2

All gate valves, 6 inches and larger, shall open by turning the stem to the LEFT. In sizes 2 inches and larger, where installed underground, they shall have 2 inch square operating nuts, and shall be furnished and installed with an approved type two-piece, cast iron telescopic valve box and cover for proper installation in a trench providing 5 foot cover on the top of the pipe. In sizes smaller than 2 inch, where installed underground, they shall be all bronze and of the curb stop type furnished and installed with an approved 2-1/2 inch adjustable curb box, and where installed aboveground, they shall be all bronze gate valves, and shall be furnished and installed with handwheels, extension stems, stem guides and brackets as indicated or specified, or as required.

Section 13
Miscellaneous Iron and Steel

1. Description

Iron and steel shall include the furnishing and installing of all such items of structural steel, ornamental iron and steel, and miscellaneous iron and steel that are specified and/or shown on the plans or are required in the building construction.

2. Shop Drawings

All iron and steel under this section shall be of standard manufacture and design, and approved by the Engineer in all respects. The Contractor shall submit for the Engineer's approval shop drawings from a reputable steel company, showing all materials to be furnished, all framing, and all details of connections, and no shop fabrication shall be started until after such shop drawings have been approved.

3. Standards

The dimensions and weights of the various structural steel members to be used shall be in accordance with the tabulated dimensions and weights of the American Institute of Steel Construction.

Except where otherwise specified or shown on the drawings, all materials, loads and stresses, unit stresses, design, fabrication, erection and inspection, shall comply with Specifications for the Design, Fabrication and Erection of Structural Steel for Buildings, issued by the American Institute of Steel Construction, adopted 1936 and revised July 1941.

4. Materials

a. Cast Iron

Cast iron shall be tough, close grain, grey iron of uniform physical character.

b. Structural Steel

Structural Steel shapes and steel plates shall fulfill the requirements of the latest specification of ASTM Designation A-7.

c. Bar Steel

Bar steel shall be hot rolled steel bars, produced in accordance with good mill practice for general commercial use, and shall be Bessemer or open hearth grade. The sections shall include rounds and squares of all sizes, and flats not over 6 inches wide.

d. Wrought Iron

Wrought iron shall comply with Federal Specifications QQ-1-68a for refined wrought iron bars Grade B.

5. Methods

Iron and steel work shall be fabricated and erected in a thorough and workmanlike manner by mechanics skilled in their line of work. All exposed joints shall be close fitting, and all bolts, screws, etc., where exposed, shall be cut off flush with nuts or other adjacent metal. Do all drilling and cutting required for installation of the iron and steel work, except where such drilling and cutting are definitely specified in other sections of these specifications.

Iron and steel work to be built with masonry shall be of the form required for anchorage, or shall be provided with suitable anchors, expansion shields, etc., as shown on the drawings, or as required.

All field connections of trusses and columns, and connections to steel or concrete filled columns and connections within 3 feet of columns shall be riveted. All other field connections shall be bolted, riveted or welded. Bolts shall be the nominal size of the holes, shall have shanks of the length to provide full grip, and shall be used with heavy washers under the nuts so that no portion of the threads will be in bearing. Field riveting shall be done with a pneumatic hammer, and shall fulfill the requirements specified for shop riveting.

Connections to members carrying compressive stresses shall be made with rivets or finished bolts with a driving fit.

Dardelet rivet bolts or Anco structural rib bolts will be accepted in lieu of field riveting.

No field riveting shall be done until the work has been aligned.

All steel and iron work shall be erected true and in its designed location. Members shall be plumb or level where so designed. Temporary bracing or shoring shall be installed wherever necessary to take care of loads to which the structure may be subjected, including erection equipment and the operation of same. Such bracing shall be left in place as long as may be required for safety.

All steel grillage, cast iron or steel bases, or steel columns with bases fabricated as an integral part of the column shall be set and wedged or shimmed to the required levels.

General Specifications 13-3

In the setting of structural work, the individual pieces shall be considered plumb or level where the error does not exceed 1 to 500.

As erection progresses, the work shall be securely bolted up to take care of all dead load, wind and erection stresses.

The use of a cutting torch is permissible if the cut metal is not carrying stresses during the operation. Stresses shall not be transmitted through a flame cut surface. The radius of re-entrant flame cut fillets shall be as large as possible, but never less than one inch. To determine the net area of members to cut, 1/8 inch shall be deducted from the flame cut edge.

Unless otherwise shown, or specified, all joints shall be of such character and so assembled that they will be as strong and rigid as the adjoining section. Exposed joints, where specified, shall be welded their entire length, and other work shall be continuously welded or spot welded as required.

Iron and steel work shall be cut, punched, drilled and tapped as required for the attachment of other work where shown on the drawings or where instructions for same are given prior to, or with, the approval of shop drawings.

6. Lintels

Steel lintels shall be provided where indicated on the drawings. They shall provide a masonry bearing at each end of not less than 6 inches.

7. Metal Saddles

Metal saddles shall be of bronze on one single piece, shall be shaped to fit jambs and other adjoining work closely, and shall be cut or drilled as may be required to fit door hardware, shall be 5 inches wide, unless otherwise shown on the drawings, shall be 1/2 inch total thickness, recessed 1/8 inch on the lower side, shall have beveled edges and approved non-slip surfaces.

Saddles shall be securely fastened in place with countersunk screws in metal expansion sleeves near edge of saddle and spaced not more than 18 inches apart. The screws shall be of non-ferrous metal, similar in color to the saddles. Saddles for exterior doors shall be solidly bedded in elastic cement which shall be the same or equal to Fremco caulking compound.

Where angle saddles, or sills, are required, they shall be hot rolled shapes of the size shown, and shall be anchored in place as specified for corner guards in masonry construction.

8. Steel Stairs

Steel stairs shall be formed of steel channel stringers, with abrasive metal structural treads as indicated on the plans, and with all required supports. Platforms shall be formed of checkered steel plate. The stair work shall include all structural steel work required to support the stairs and platforms, except such supports that are specified elsewhere in these specifications.

9. Pipe Railings

Pipe railings shall be constructed of full standard weight steel pipe and, unless otherwise indicated on the plans, shall be 1-1/2 inches inside diameter. Fittings for the steel pipe shall be standard malleable ball pattern. Pipe and fittings for exterior work shall be galvanized.

Connections to other work shall be made with cast or wrought flanges, secured to masonry work with expansion bolts, and to metal with machine bolts or tap screws.

Pipe uprights shall be secured to concrete by means of tight fitting, solid steel dowels which shall be built into and anchored to the concrete and extend up into the pipe and be pinned to it, unless otherwise indicated on the plans.

10. Painting

The surfaces of all iron and steel work, except galvanized metal saddles and safety treads, shall be thoroughly cleaned of all foreign material, rust, scale, dirt and the like, and shall be painted a shop coat of red lead and linseed oil paint before shipment from the shop, except such surfaces of iron and steel work in contact with, and all iron and steel work to be encased in concrete or covered with mortar parging, which shall be left unpainted. All bolts, anchors, separators and other accessories which remain permanently in the work shall be dipped in paint as above specified. All surfaces that are inaccessible after assembling, except surfaces in contact with or steel work which is to be encased in concrete, shall be given two coats of paint before assembling.

Immediately following the erection of the steel, all marred surfaces of the shop coat, all erection marks and all field rivets or bolts, except where same is to be encased in concrete, shall be painted with red lead and linseed oil paint as specified for the shop coat.

General Specifications 13-5

All painting shall be done on dry, clean surfaces, and no painting shall be done when the atmospheric temperature is below 32°F.

Other painting of iron and steel is specified in the Section, "Painting and Finishing".

Section 24
Storing and Spreading Topsoil

1. Description

Under this section the Contractor shall store and spread all topsoil required in surfacing the areas indicated on the plans or elsewhere, as specified or as directed.

2. Storing and Spreading

The topsoil to be stored shall be that suitable material removed under "Clearing and Grubbing" from the area of the excavation and embankments, which will support a healthy growth of grass. The storage area selected shall be such location as will interfere as little as possible with the execution of the work.

The topsoil to be spread shall be reasonably cleaned of plants, roots, stones and other extraneous matter. After the necessary completion of other portions of the work, the topsoil shall be spread and rough graded over the required areas so as to bring the final surface, after settlement, to the grades shown on the plans. When finished grades are not indicated, they shall be uniform between the points for which finished grades are given, or from such points to existing grades, except that the top and bottom of the slopes shall be rounded. Unless otherwise directed by the Engineer, sufficient topsoil shall be placed so that after rolling, there will be a full 4" layer of topsoil. Surfaces to be covered with topsoil shall be accurately graded to proper sub-grade before the spreading of topsoil.

Excess of topsoil stored by the Contractor which is not required, shall be removed by the Contractor and disposed of, at his own expense, in areas designated by the Engineer.

If the quantity of topsoil stripped and stored is not sufficient to properly cover the designated areas, the Contractor shall supply, from outside sources, sufficient additional material of equal quality to that found on the site of the work, or of a quality acceptable to the Engineer.

Any and all areas of the ground outside the areas designated to have topsoil, where the original surface has been disturbed by the Contractor, in the performance of the work under this contract, shall be smoothed to proper sub-grade, and covered with topsoil to the original grade, at the Contractor's expense.

Section 25
Seeding

1. Description

Under this section the Contractor shall furnish all materials and perform all work required in seeding the areas indicated on the plans, as specified, or as directed.

The seeding under this section involves the fine grading of the areas to be seeded, raking the surfaces, sowing the mixed grass seed, and the establishment and maintenance of a healthy growth of grass.

2. Grading

The areas to be seeded will have been brought to rough grade under another section of these General Specifications, and under this section the Contractor shall perform all work required to fine grade the area to the grades shown on the plans. When finished grades are not indicated they shall be uniform between the points for which finished grades are given, or from such points to existing grades, except that the top and bottom of slopes shall be rounded.

During this operation of fine grading, the surface of the top soil should be loosened, and stones over 2 inches in any dimension, sticks, rubbish and other extraneous material shall be removed and satisfactorily disposed of.

3. Seeding

The areas shall be seeded with a mixture of grass seed and oats or rye, or other acceptable seed, which will grow in the particular topsoil covering the areas, and will provide a healthy growth of grass.

The seed shall be sowed at the rate of 10 lbs. to each 1,000 square feet, and after sowing, the surfaces shall be lightly raked over to mix and cover the seed with the top surfaces of the topsoil.

4. Maintenance

The seeded areas shall be maintained for at least thirty days, and as much longer as is necessary to establish over the entire seeded area a close stand of grass. Bare spots shall be re-seeded as required during this maintenance period. The maintenance shall include all operations that are necessary to maintain the surfaces on their original slopes, including repairs for damage caused by erosion.

General Specifications 25-2

Inspection of the work of seeding will be made at the completion of the required maintenance period. Notice requesting inspection should be submitted to the Engineer at least five days prior to the anticipated date.

The Contractor, at his own expense, shall also perform the same operations and furnish similar materials to properly seed other areas of the ground outside the areas designated to be seeded where the original sod has been disturbed or damaged by the Contractor in the performance of the work under this contract.

GENERAL CLAUSES
CONCERNING THE CONDUCT OF THE WORK

1. Material and Workmanship

It is the intent of these specifications to describe definitely and fully the character of materials and workmanship required with regard to all ordinary features, and to require first class work and materials in all particulars. For any unexpected features arising during the progress of the work and not fully covered herein, the specifications shall be interpreted by the Engineer to require first class work and materials, and such interpretation shall be accepted by the Contractor.

2. Representative Always Present

The Contractor, in case of his absence from the work shall have a competent representative or foreman present who shall follow without delay all instructions of the Engineer or his assistants in the prosecution and completion of the work, in conformity with the contract, and shall have full authority to supply labor and materials immediately.

3. Objectionable Employees

The Contractor will be required to discharge any employee who, in the opinion of the Engineer, is objectionable or incompetent. This requirement shall not be made the basis of any claim for compensation or damages against the Owner or any of its officers or agents.

4. Proper Methods of Work and Proper Materials

The Engineer shall have the power to direct the order and sequence of the work, which in general shall be such as to bring the several parts of this work to a successful completion at about the same time. If, at any time before the commencement or during the progress of the work, the materials and appliances used or to be used, appear to the Engineer as insufficient or improper for securing the quantity of work required, or the required rate of progress, he may order the Contractor to increase their efficiency or to improve their character, and the Contractor shall conform to such order, but the failure of the Engineer to demand any increase of such efficiency or improvement shall not release the Contractor from his obligation to secure the quality of the work or the rate of progress specified.

5. Claims and Protests

If the Contractor considers any work required of him to be outside the requirements of the contract, or considers any record or ruling of the Engineers or inspectors as unfair, he shall ask for written instruction or decision immediately, and then file a written protest with the Owner against the same within five days thereafter, or be considered as having accepted the record or ruling.

6. Work in Bad Weather

During the freezing, stormy or inclement weather, no work shall be done, except such as can be done satisfactorily and in a manner to secure first class construction throughout.

7. Sanitary Regulations

Necessary sanitary conveniences for the use of the laborers on the work, properly secluded from observation, shall be erected and maintained by the Contractor in such manner and at such points as shall be approved, and their use shall be strictly enforced. The contents of the same shall be removed with sufficient frequency to prevent nuisance and disposed of to the satisfaction of the Engineer. The Contractor shall obey and enforce such other sanitary regulations, and orders, and shall take such precautions against infectious diseases as may be deemed necessary. In case any infectious disease occurs among his employees, he shall arrange for the immediate removal of the patient from the work and his isolation from all persons connected with the work. The building of shanties or other structures for housing the men, tools, machinery or supplies will be permitted only at approved places, and the sanitary condition of the grounds in and at such shanties or other structures must at all times be maintained in a satisfactory manner.

8. Protection of the Work

The Contractor shall place sufficient red lights on or near the work, and keep them burning from sunset to sunrise, shall erect suitable railings or barriers, and shall provide watchmen on the work by day or night, as required and deemed necessary for the safety of the work, the public, and adjoining property. The Owner reserves the right to remedy any neglect on the part of the Contractor as regards the protection of the work which may come to his attention after 24 hours notice in writing, except in case of emergency, when he shall have the right to remedy any neglect without notice, and in either case, to deduct the cost of such remedy from money due the Contractor.

9. Boundaries of Work and Contiguous Work

The Owner will provide rights-of-way for all work specified in this contract, and the Contractor shall not enter or occupy with men, tools or materials, any private ground outside the property of the Owner without the consent of the Owner and the approval of the Engineer. Other contractors of the Owner may, for all purposes required by their contract, enter upon the work and premises used by the Contractor, and the Contractor shall give to other contractors of the Owner all reasonable facilities and assistance for the completion of the adjoining work.

10. Removal of Temporary Structures

On or before the completion of the work, the Contractor shall, without charge therefore, tear down and remove all buildings and other structures built by him for facilitating the carrying out of the work, and shall remove all rubbish of all kinds from the grounds which he has occupied, and shall leave the site of work clean and in good condition.

11. Injury to Service Pipes

In case any damage shall result to any service pipe for water or gas, or any private or public sewer or conduit, by reason of negligence on the part of the Contractor, he shall, without delay, and at his own expense, repair the same to the satisfaction of the Engineer, and in case such repairs are not made promptly or satisfactorily, the Owner may have the repairs made by another Contractor, or otherwise, and deduct the cost of same from any moneys due or to become due the Contractor.

12. Public Utility Interference

All conduits, water mains and gas mains encountered in the construction shall be properly and safely taken care of by the Contractor, who shall, upon encountering same, notify the public corporation to whom they belong, in order that they may be changed in such a manner as not to interfere with the final construction.

13. Right-of-Way

Where the work called for extends upon or through private property, the Owner shall procure all necessary rights and deeds for access to the property, and the Contractor shall not proceed with this part of the work until the Owner has completed its negotiations with the property holders.

14. Interpretation of Plans, Etc.

On all plans, drawings, etc., the figure dimensions shall govern in the case of discrepancy between the scales and figures. The Contractor shall take no advantage of any error or omission in the plans, or of any discrepancy between the plans and specifications, and the Engineer shall make such corrections and interpretations as may be deemed necessary for the fulfillment of the intent of the specifications and of the plans as construed by him and his decision, approved by the Owner, shall be final.

15. Inspection

All the materials and work necessary or proper for the building and completion of the work herein specified will be inspected by the Engineer

or his Inspectors, and the Contractor shall furnish him and his Inspectors with all needed facilities for discharging the duties assigned to them. When, in the judgment of the Inspectors, the work or materials are not in accordance with the specifications, they shall have the power to stop the work, which shall not be resumed until the Engineer has rendered his opinion upon the matter in dispute. Condemned materials shall be promptly removed from the work. Work covered before inspection, or work done at unusual times in the absence of an inspector, will not be paid for.

The inspection of the work shall not release the Contractor from any of his obligations to fulfill his contract as herein specified, and defective work shall be made good, and unsuitable materials may be rejected, notwithstanding such work and materials may have been previously accepted for payment.

16. Cleaning and Final Inspection

All pipe lines and other structures shall be kept clean during construction and, as the work approaches completion, the Contractor shall systematically and thoroughly clean and make any needed repairs to the same. He shall furnish, at his own expense, suitable tools and labor for cleaning out all dirt, mortar and foreign substances from the structures, and also the water for cleaning by flushing. Any leakage of water into any structure exceeding the limits specified, or any deviation from the proper grade or alignment of the structures or any other defect, such as to make the work, in the opinion of the Engineer, fall short of first class work, shall be properly corrected by the Contractor at his own expense. The cleaning and repairs shall be arranged, so far as practicable, to be completed upon finishing the construction work. Notice to begin this cleaning and repairing, if such is needed, will be given in due season by the Engineer who, at the same time will make his final inspection of the work. The Engineer will not prepare his final estimate of this portion of the work until after the final inspection is made. During this final inspection, the Contractor, at his own expense, shall furnish suitable provision as to needed drainage, workmen and appliances.

17. Order of Work and Completion

The order in which the work is to be performed is of particular importance in the execution of this contract, and the Contractor shall discuss the construction program with the Engineer, and shall submit to and obtain the Engineer's approval of a work progress schedule showing the sequence in which he proposes to perform the work, and the proposed progress and completion of the work.

18. Photographs

On or about the twenty-fifth of each month, the Contractor shall have taken, developed and printed, duplicate sets of at least five progress pictures, each 7" x 9". These photographs shall be taken at such points as will best show the progress of the construction work, as designated by the Engineer.

19. Property Line Monuments or Markers

When in the course of the construction work, it is necessary to remove existing property line markers, the Contractor shall notify the Engineer in advance so that proper offset stakes can be placed to identify the original location. The Contractor shall be responsible for such notification and shall use extreme care in working in the vicinity of existing property line markers. After the work has been completed, the Contractor shall reset such markers as may be disturbed in connection with the project. In case property line markers are disturbed without notification to the Engineer, the Contractor shall pay all costs to the Engineer or others employed for the specific purpose of resetting such damaged markers.

20. Safety

In accordance with generally accepted construction practices, the Contractor will be solely and completely responsible for conditions of the job site, including safety of all persons and property during performance of the work. This requirement will apply continuously and not be limited to normal working hours.

The duty of the Engineer to conduct construction review of the Contractor's performance is not intended to include review of the adequacy of the Contractor's safety measures, in, on or near the construction site.

21. Temporary Field Offices

The General Contractor shall provide and maintain a temporary weathertight office building for the sole use of the Engineer. It shall be provided with sufficient glazed windows to properly light the office, and a glazed door equipped with cylinder lock and latch sets. Screens and a screen door shall be provided if requested. The Contractor shall provide and maintain artificial light and an oil, coal, or electric heater as necessary to properly light and heat the office. The office shall be approximately 160 square feet in floor area and shall be equipped with a plan rack, a smooth sloped top table to enable the spreading of plans, a flat top desk, three chairs, and a metal legal size filing cabinet equipped with a lock.

22. Temporary Telephone

The Contractor shall pay for the installation of a standard type, single party line telephone in the temporary office for the Engineer's use. The telephone shall be for the exclusive use of the Resident Engineer. The Contractor shall pay all charges in connection with such use, except that any toll calls shall be paid for by the parties placing such calls.