



HT
168
.B46
J3
1982
c1



CARROLL ENGINEERING CORPORATION

Consulting Engineers

387 York Road, Warminster, Pennsylvania 18974 674-5640
901 Woodbine Avenue, Bensalem, Pennsylvania 19020 638-3400

JAMES ARMSTRONG
MEMORIAL PARK

PHASE III

HT 168.346 J3 1982 c. 1

JAMES ARMSTRONG MEMORIAL PARK

PHASE III

as part of the implementation of the
PENNSYLVANIA COASTAL ZONE MANAGEMENT PROGRAM

PREPARED FOR:

BENSALEM TOWNSHIP BOARD OF SUPERVISORS
Bensalem Township, Pennsylvania

PREPARED BY:

CARROLL ENGINEERING CORPORATION
387 York Road
Warminster, Pennsylvania 18974

JUNE 1982

The preparation of this report was financed through the Pennsylvania Coastal Zone Management Program under provisions of the Federal Coastal Zone Management Act of 1972, (as amended), administered by the Coastal Zone Management Office, Office of Resources Management, Pennsylvania Department of Environmental Resources.

1-A T 168.03 J3 1982

INDEX

SCOPE OF WORK

DIVISION I:	GENERAL PROVISIONS	
	A. Notice to Bidders	1A-1 & 1A-2
	B. Instructions to Bidders	1B-1 thru 1B-13
	C. Proposal	1C-1 & 1C-2
	D. Agreement	1D-1 thru 1D-5
	E. Performance Bond	1E-1 thru 1E-6
	F. General Conditions	1F-1 thru 1F-22
DIVISION II:	SITE WORK	
	A. General	2A-1
	B. Environmental Protection	2B-1
	C. Clearing and Grubbing	2C-1 thru 2C-3
	D. Earthwork	2D-1 thru 2D-9
	E. Ice Skating Pond	2E-1 & 2E-2
	F. Site Amenities	2F-1 & 2F-2
	G. Storm System	2G-1 & 2G-2
	H. Carpentry	2H-1 thru 2H-3
	I. Roofing	2I-1
APPENDIX:		
	A. Provided in Addenda	

SUMMARY OF WORK

General

Description of Work:

- A. The work to be performed under this Contract consists of all labor, equipment and materials to construct James Armstrong Memorial Park - Phase III, as shown on the Contract drawings.
- B. The Plans and Specifications are intended to cover a complete project and it shall be thoroughly understood that failure to mention specifically any work which would naturally be required to complete the project shall not relieve the Contractor of his responsibility to perform such work.
- C. The Contract will be constructed under all applicable local, state and federal regulations.
- D. The Contractor will be required to obtain all necessary local permits necessary for the construction of the one-way road and parking areas.
- E. The Contractor shall contact all utility companies to verify the location of their facilities. A list of utility companies registered in the township is included on the Drawings, and in these Specifications. It will be the responsibility of the Contractor to protect all utilities encountered in the course of the work.

Products

Materials:

All materials supplied for use on this project shall be new and purchased specifically for incorporation into the work included in the Contract Documents, except as noted.

Suppliers:

The Contractor shall submit, as a part of the Bid Form, a list of the suppliers from whom major equipment items will be purchased. The suppliers listed shall not be altered from those submitted without written approval of the Engineer. Only one supplier will be shown for each equipment item.

Execution

Inspection:

Each bidder is required to carefully examine the site of the work, the Bid Form, Plans, Specifications, applicable state, county and local codes, and other Contract Documents for the work contemplated, and it will be assumed that he has familiarized and satisfied himself as to the conditions and obstacles to be encountered, as

to the character, quality and quantities of work to be performed and materials to be furnished, and as to the requirements of these Specifications, Plans and other Contract Documents. He must also be prepared to execute a finished job in every particular, without any extra charge whatever, except as may be specifically provided for elsewhere in these Contract Documents.

CONDUCT OF WORK

- A. All work shall be subject to the control of the Engineer. In the performance of the work, the Contractor shall abide by all orders, directions and requirements of the Engineer, and shall perform all work in such manner and sequence as the Engineer may require. The Engineer shall determine the amount, quality, acceptability and fitness of all parts of the work; shall interpret the plans, specifications and Contract Documents; shall issue any extra work orders and shall decide all other questions in connection with the work. The Contractor shall employ no plant, equipment, materials, or methods to which the Engineer objects and shall remove no plant, materials, equipment or other facilities from the site of the work without the Engineer's permission. Upon request, the Engineer shall confirm, in writing, any oral order, direction, requirement or determination. If any person employed on the work by the Contractor shall appear to the Engineer to be incompetent or to act in a disorderly or improper manner, such person shall be removed immediately upon request by the Engineer. The Contractor agrees to use, at all times on the work, only such labor as will in no way disturb or affect labor employed by the Owner and/or other Contractors on the project. The Contractor and each and every subcontractor performing work at the site of the project shall comply with all "Labor Laws" of the Government, and of the State, County, Township and Municipality in which the project is located.
- B. The Engineer may order the Contractor to suspend all or any part of the work for such period of time as may be determined by the Engineer necessary or desirable for the convenience of the Owner. Unless such suspension unreasonably delays the progress of the work and causes additional expense or loss to the Contractor, no increase in Contract price will be allowed. In the case of suspension of all or any part of the work for any unreasonable length of time causing additional expense or loss, not due to the fault or negligence of the Contractor, the Owner will make an equitable adjustment in the Contract price, and modify the Contract accordingly. An equitable extension of time for the completion of the work in the event of any such suspension will be allowed the Contractor, provided however, that the suspension was not due to the fault or negligence of the Contractor.

DIVISION 1 GENERAL PROVISIONS

DIVISION 1 - GENERAL PROVISIONS

SECTION 1A - NOTICE TO BIDDERS

Sealed Proposals will be received by Bensalem Township until prevailing time, on the _____ day of _____, at the Township Building, 3800 Hulmeville Road, Bensalem, Pennsylvania 19020. Such proposals will be opened and read publicly at 8:00 p.m., prevailing time, at the Public Meeting, for the following Contract:

JAMES ARMSTRONG MEMORIAL PARK - PHASE III

Specifications for the work to be done are on file and open for inspection at the Township Building, 3800 Hulmeville Road, Bensalem, PA 19020.

Complete sets of the Contract Documents may be obtained from the Township Manager's Office. A non-refundable fee of _____ will be required for the Contract Documents. All checks for obtaining the Contract Documents shall be made payable to Bensalem Township.

Each Proposal must be accompanied by a Certified Check or Company's Bid Bond, in the form provided in the Contract Documents, naming as payee or obligee, as applicable, the Bensalem Township, in the amount of 10 per centum (10%) of the TOTAL amount of the Bid as security for proper execution of the Contract Documents. The Surety Company must be acceptable to Bensalem Township.

The Contractor will be required to execute the Contract and to furnish a "Performance Bond" and a "Payment Bond" each of said bonds to be in the amount of one hundred per centum (100%) of the Contract Price, all in the respective forms provided in the Contract Documents. The Contractor also will be required to furnish evidence of insurance coverage as required by the Contract Documents.

Bidders are advised that the Project as set forth in the Contract Documents, is subject to Pennsylvania Prevailing Wage Act approved August 15, 1961, P.L. 987, as amended and supplemented and that Proposals shall be prepared after given consideration to the Pennsylvania Prevailing Wages applicable to this project.

All bidders shall comply with all requirements of the Act of October 26, 1972 (No. 247), Prevention of Environment Pollution and Preservation of Public Natural Resources in Construction Projects, Commonwealth of Pennsylvania.

No Proposal may be withdrawn for a period of sixty (60) days after the above specified date for the receiving, opening and reading of proposals.

All Proposals shall be sealed and marked as follows:

Bensalem Township
3800 Hulmeville Road
Bensalem, Pennsylvania 19020

Proposal for
- James Armstrong Memorial Park -
Phase III

Bensalem Township reserves the rights to reject any or all Proposals or parts thereof or items therein, to waive any defects or irregularities in Proposals and to accept any Proposal which, in its judgement, is for its best interests.

DIVISION 1 - GENERAL PROVISIONS

SECTION 1B - INSTRUCTIONS TO BIDDERS

PREPARATION OF PROPOSAL

All bids must be made upon the blank forms of the PROPOSAL furnished and must not be detached from this volume.

THE CERTIFIED CHECK must be submitted with each bid.

DESCRIPTION OF WORK

It is the intent and purpose of the Contract Documents to prescribe the work to be performed and materials to be supplied to complete the Phase III construction of James Armstrong Memorial Park, Bensalem Township, PA, as outlined in the Scope of Work.

The work shall include all materials, labor, and apparatus necessary to properly construct, install, equip and place in immediate operation of the respective items of the Contract. Any apparatus, material, and labor not hereinafter specifically mentioned or shown on the drawings, which may be found necessary to complete or perfect any portion of the work in a substantial manner and in compliance with the requirements implied or intended in the Contract Documents shall be furnished by the Contractor without additional compensation. This shall include all materials, devices or methods peculiar to the apparatus or system, furnished or installed by the Contractor.

DEFINITIONS

Owner: Party of the First Part or First Party to the Contract, acting directly or through any agent, officer, or employee duly authorized to act for the said party in the execution of the work required by the Contract.

Engineer: The person or organization duly employed by the Owner as Engineer, and as agent authorized to prepare related plans and specifications for the work under the Contract by the Contractor acting directly or through properly authorized agents, engineers, assistants, inspectors, or other representatives acting severally within the scope of the particular duties entrusted to them. The word "Engineer" shall include the officers, agents, and employees of the Engineer.

Contractor: Party of the Second Part or Second Party to the Contract acting directly or through his authorized agents, legal representatives, superintendents, or employees, appointed to act for said party in the performance of the work under the Contract or the Surety in case of default.

Inspection: The examination of the work performed by the Contractor to ascertain its conformity with the Contract Documents and applicable Laws and governmental Rules and Regulations.

Surety or Sureties: The corporate body or bodies, approved by the Owner, who are bound with, and for, the Contractor and who are primarily liable for the satisfactory and acceptable execution and fulfillment of the Contract, and/or the prompt payment in full for labor, material and rental as provided in the bonds.

Contract: The written agreement executed by and between the Owner and the successful bidder including collectively all of the Contract Documents.

Contract Documents: The Contract Documents consist of:

- a. Notice to Bidder
- b. Addenda (if any)
- c. Instructions to Bidders
- d. Proposal
- e. The Agreement
- f. Bond Forms (Performance and Payment)
- g. General Conditions
- h. Scope of Work
- i. Prevailing Wage Determination
- j. Exhibits (if any)
- k. Drawings or Plans
- l. Notice to Proceed
- m. Hold Harmless Agreement
- n. Specifications

Specifications: Collectively, all of the definitions, descriptions, directions, provisions, requirements, terms and stipulations contained in those portions of the Contract Documents titled: James Armstrong Memorial Park - Phase III, and all written supplements thereto, made to or to be made, or which are made, including those made after the execution of the Contract, and the materials and workmanship to be furnished pursuant to the Contract, and any Exhibits made part of the Contract Documents and all Drawings or Plans as hereinafter defined.

Drawings or Plans: Collectively, all of the drawings or plans (or reproductions of them) pertaining to the construction of the project and incorporated into the Contract Documents entitled: James Armstrong Memorial Park - Phase III or otherwise made a part thereof; and also such supplementary drawings as the Engineer may issue from time to time in order to elucidate or clarify or change said Drawings, or for showing details which are not shown thereon, or for the purpose of showing changes in the work as authorized under General Conditions, Paragraph No. 20, entitled "Changes, Additional and Extra Work."

Contract Price: The lump sum bid, or unit price or prices bid, by the Contractor (if unit prices are bid) and accepted.

Bidder: Any individual, firm or corporation submitting a Proposal for the work contemplated herein, acting directly or through a duly authorized representative.

Proposal or Bid: The written offer of a Bidder submitted on the approved form prepared for the purpose, to perform the work and to furnish the labor, materials and service embraced in the Contract for the consideration of payment at the price (or prices, if unit prices are bid) stated therein.

Proposal Security: The required security furnished with the Proposal by a Bidder as guaranty of his ability and intent to qualify for award of the Contract and to enter into a Contract with the Owner for the performance of the work and to furnish satisfactory bonds as required if the work involved in the Proposal is awarded to him. This may be a money deposit in the form of a certified check, on a solvent bank.

Certified Check: When the Advertisement indicates that a certified check is required, each bidder shall submit with his Proposal a certified check drawn upon a solvent bank, or a bank's cashier check, or treasurer's check. (Any bidder who has had the Contract awarded to him and fails to promptly and properly execute the required Contract and bonds shall forfeit said check.)

Performance Bonds: The approved and executed form of security required by law and furnished by the Contractor and his Surety as a guaranty to execute and complete the work in accordance with the terms of the Contract and all Contract Documents.

Payment Bond: The approved and executed form of security required by law and furnished by the Contractor and his Surety as a guaranty to promptly pay or cause to be paid in full such sums as may be due for material furnished, labor supplied or performed, or services rendered and the reasonable rentals of equipment for certain periods.

Notice to Proceed: A written notice to the Contractor, from the Owner or the Engineer, of the date on or before which the Contractor is to begin prosecution of the work and on which date the Contract period starts.

Project: All the necessary performance, services and materials required for the satisfactory completion of the work under the Contract as provided for in the Agreement and other Contract Documents, including all changes in the work made after execution of the Agreement.

Site: The area which has been secured or reserved by the Owner for use in the performance of the Contract.

Certificate of Substantial Completion: The certificate of the Engineer, approved by the Owner, indicating that construction is sufficiently completed in accordance with Contract Documents so that the project can be used, occupied or operated for its intended use. The project will not be certified until 90% of the work is completed.

Final Estimate: The estimate approved by the Engineer and Owner, following completion and acceptance of all work specified and performed under the Contract, which sets forth the total net amount to be paid as final payment to the Contractor.

Final Payment: The total net amount of payment owed to or made to the Contractor by the Owner as set forth in and as evidenced by the approved Final Estimate.

Subcontractor: A person, firm or corporation having direct contract with the Contractor to perform part of the latter's contract; such as one who installs or furnishes and installs at the site, equipment forming a permanent part of the work, or who furnishes labor at the site for work required by the Contract in accordance with the Contract Documents. This term does not include individual workmen furnishing labor only, nor one who merely furnished material not worked to a special design.

BIDDERS QUALIFICATION

At the time a bid is submitted, the bidder shall furnish the following in a separate, sealed envelope:

- (a) a sworn statement showing the equipment definitely owned or controlled by the Bidder and available to him for performing the work;
- (b) a sworn statement of his experience in performing work of the character for which his bid is submitted; and
- (c) a sworn financial statement showing his assets and liabilities as of a date no more than ninety (90) days prior to the date of submission.

BIDDERS RESPONSIBILITY

The Bidder is required to examine carefully and in detail the character of the soil, the site, the Contract Documents as defined, and all other matters pertinent to the work contemplated. It will be assumed that each Bidder has satisfied himself as to the conditions to be encountered overhead, on the surface and underground, at the site and the character, quality and quantities of work to be done and materials to be furnished, and all requirements of the Contract Documents. No allowance or concession will be made for the lack of

such information on the part of the Contractor. When borings, test pits, test piles, and existing underground and overhead structure locations are shown in the Contract Documents they are for the information of the Owner only; their correctness is not guaranteed by the Owner or Engineer, and in no event is this information to the Owner to be considered a part of the Contract, or to be used by any Bidder for computations in submitting a Proposal. If this information is used by a Bidder in preparing his Proposal, he must assume all risks resulting from conditions differing from the information to the Owner shown.

If Bidders desire to obtain such data, the Owner will, to the extent possible, afford them the opportunity, at their own expense, to make borings or soundings, to drive test piles, to dig test pits on the Site and to make measurements and studies of all kinds. Where Owner cannot grant such rights, Owner will cooperate with Bidder in endeavoring to secure such rights.

There is no expressed or implied warranty or representation that the depths, locations, or character of the materials have been correctly indicated and Bidders should take into account that conditions affecting the cost or quantities of work to be done may differ from those indicated.

The Bidder shall ascertain all governmental requirements with respect to wage scales, trench and structure excavations, tunnel construction, blasting, equipment, materials, labor, safety and sanitation, and shall base his bid prices on full compliance therewith.

APPROXIMATE ESTIMATE OF QUANTITIES

The Bidder's attention is directed to the fact that in contracts based on unit prices the estimate of quantities of work to be done and materials to be furnished under the Contract Documents is approximate only and is given only for the benefit of the Owner, to be used as a basis of calculation upon which to determine the lowest bidder. Neither Owner nor the Engineer assumes any responsibility that the quantities shall obtain in the construction of the Project, nor shall the Contractor plead misunderstanding, fraud or deception because of such estimate of quantities, or the character of the work or location, or other conditions pertaining thereto. The Owner reserves the right to increase or diminish without limitation any or all quantities of work or materials to be furnished or decrease in the aforesaid quantities of work or materials to be furnished, before Final Payment, for which a unit price was bid shall not be considered as any ground for granting an increase in the unit prices bid for the quantities of work or materials actually furnished.

PREPARATION OF PROPOSAL

In preparing Proposals, this volume must be preserved intact for submission. The Proposal form bound herewith must be properly executed in the ink without alterations and must not be detached from this volume. The copies of these forms which are furnished separately to Bidders are solely for the convenience of Bidders in maintaining a record of their bids and are not to be submitted as a Proposal.

Using the prescribed Proposal form bound herewith, all bid prices shall be written in ink in the blank spaces provided for each item, with the amounts extended, if a unit price bid, and all amounts totaled. For unit price items, the "unit price" shall govern in the event of occurrence of a multiplication error in arriving at a total price for the item bid.

Except as provided below, bids containing substitutions or combinations of alternates will not be considered unless such substitutions or combinations are specifically authorized by the Proposal.

When products of particular named manufacturers are specified, it is intended and shall be understood that the Proposal tendered by the Bidder includes those products or equal products in his base bid. Should the Bidder desire to submit for consideration an unspecified product or products as equal to those specified, the Bidder shall furnish with his proposal a list of any product or products he proposes to incorporate in the work other than those specified herein by manufacturer's name. This list shall be accompanied by descriptive information for each unspecified product or products, including as applicable, detailed drawings and specifications, certified operation data, and experience records. The Owner reserves the right to reject any unspecified product or products submitted which require changes in design, construction, or changes which may increase the cost for the performance of any of the separate contracts of the project. The alternate product or products submitted by the Bidder shall meet the requirements of the Specifications and shall, in all respects, be equal to the products specified by name herein and shall be approved by the Engineer.

In unit price bids, the extensions, if any, and the total are for informational purposes only, and the determination of the lowest bid will be based solely on the total results of computations of the estimated quantities and the prices bid, including any combination of alternates authorized by the Proposal.

The Bidder shall sign his name and give his business address in the spaces provided therefor. If the Proposal is made by a partnership, it shall be signed by a general partner; if made by a corporation, it shall be signed in the name of the corporation by the President or a Vice President, or by a duly authorized agent, due proof of whose authority shall be attached, and shall have affixed the seal of the corporation attested by the Secretary or an Assistant Secretary.

PROPOSAL SECURITY

Each Proposal shall be accompanied by security in the form of a certified check payable to the Owner, in the amount indicated in the Advertisement. Such proposal security of the accepted Bidder shall be used for the payment of liquidated damages to the Owner if the accepted Bidder fails to furnish the Performance Bond and the Payment Bond, as specified in the Contract Documents within seven (7) days after notification by the Owner to furnish such bonds, or fails to execute and deliver the Contract in conformity with the form of Agreement, and furnish insurance certificates as specified in the Contract Documents within seven (7) days after the notification by the Owner of the acceptance of his bid. Within three (3) weeks after the formal opening of the bids, the securities therefor will be returned excepting those which the Owner elects to hold until the award is made and the accepted Bidder qualifies and executes the Contract. The security of the accepted Bidder will be returned to him when the Contract is executed by both parties thereto and the Contractor has furnished the bonds and insurance certificates as required by the Contract Documents. If all Proposals are rejected, the securities therefor will be returned after the determination of such rejection.

WITHDRAWAL OF PROPOSALS

All Bidders specifically waive any right to withdraw a Proposal after it has been submitted to the Owner, except as hereinafter provided. A Bidder may withdraw a Proposal, provided the Bidder makes a request to do so by telegraph, or in writing to the Owner, and provided that such requests reach the office of the Owner not later than the day previous to the date set for opening thereof. Requests by telegraph must be confirmed in writing, by the Bidder in person, or by an accredited representative of the Bidder before the time set for the opening of the Proposals. No bids may be withdrawn for a period sixty (60) days after the date and time designated for the opening thereof.

RIGHT TO REJECT PROPOSALS

The unqualified right is reserved by the Owner to waive any informalities in, or reject any or all Proposals, as may be deemed to be in the best of interest of the Owner. Proposals which contain any omissions, erasures, alterations, additions not called for, conditional bids, or irregularities of any kind, or Proposals otherwise regular which are not accompanied by Proposal Security, may be rejected. Proposals in which the bid prices are obviously unbalanced may be rejected.

CHANGES PRIOR TO THE OPENING OF BIDS

During the period allowed for preparation of bids, the Bidders may be furnished addenda, or bulletins, for additions to or alterations of the Plans or Specifications, which shall be included in the work covered by the Proposal and become a part of the Contract Documents. If any prospective Bidder is in doubt as to the true meaning of any part of the Plans, he may submit a written request to the Engineer for an interpretation thereof. The Bidder submitting the request will be responsible for its prompt delivery. Any interpretation of the Plans will be made only by an addendum duly issued and a copy of such addendum will be mailed or delivered to each prospective Bidder of record. The Owner will not be responsible for any other explanations or interpretations of the proposed Contract Documents and all requests for such will be made in writing to the Owner.

SUBMITTING PROPOSAL

Proposals, accompanied by the Proposal Security and all addenda, if any, shall be submitted in an opaque, sealed envelope, addressed to the Owner. The name of the Bidder shall appear in the upper left-hand corner of the envelope and the following notation shall appear in the lower left-hand corner of the envelope, "Proposal for Construction of James Armstrong Memorial Park - Phase III."

SUBMISSION OF BONDS AND AWARD AND EXECUTION OF CONTRACT

When a Proposal received has been determined to be satisfactory, a Contract will be executed within the number of days as provided in the Contract Documents with the lowest responsible Bidder who previously has furnished properly executed Performance and Payment Bonds.

The Bidder selected as the apparently acceptable Bidder, prior to the execution of the Contract, will be notified by the Owner of its intention to execute the Contract, and which notification will also state that the apparently acceptable Bidder shall furnish to the Owner, within seven (7) days after the date of such notice, properly executed Performance and Payment Bonds. Properly executed Performance and Payment Bonds shall be returned to the office of the Engineer within the time hereinbefore specified. Said notification will be mailed to the accepted Bidder within forty-five (45) days of the date of the opening of the bids.

The Bidder to whom the award is made shall execute the Contract and return it, together with the properly executed insurance certificates and copies of the insurance policies, to the office of the Engineer, within said seven (7) days after the award. The insurance certificates shall stipulate also any conditions or exclusions affecting coverages specified in the policies.

If the Contractor executes the Contract as herein provided and the Contract is not executed by the Owner within thirty (30) days after the receipt thereof from the Contractor, the Owner, upon written request of the Contractor, will return the Proposal Security and Performance and Payment Bonds. In such event, the award of the Contract shall be considered annulled.

The Contract and Surety Bonds shall be executed in as many copies as the Owner may require.

CANCELLATION OF AWARD

The Owner reserves the right to cancel the award of the Contract at any time prior to its execution by the Owner, without liability to any bidder for any cost, expense or loss which such bidder might suffer or allege to suffer, thereby.

SURETY BONDS

Prior to award of the Contract, the apparently acceptable Bidder, as stipulated above, will be required to furnish a "Performance Bond", covering faithful and satisfactory performance of the work contracted, in an amount not less than one hundred percent (100%) of the Contract price, and a "Payment Bond" in an amount not less than one hundred percent (100%) of the Contract price, covering payment in full for all services (including reasonable rentals of equipment for certain periods) rendered; materials furnished and labor performed. The same Surety must execute both Bonds. All bonds shall be issued by companies authorized to transact business in Pennsylvania. All bonds shall be in the form as set forth in the Contract Documents.

Should any Surety upon any bond furnished in connection with the Contract become unacceptable or be deemed unsatisfactory to the Owner at any time, the Contractor shall, upon written notice from the Owner, promptly furnish acceptable or substitute security as may be required to protect the interests of the Owner of persons supplying services (including rental of equipment), labor or materials in the prosecution of the work under Contract. No further payment shall be deemed due or shall be made under the Contract until the new Surety shall qualify and be accepted by the Owner.

INDEMNITY AND INSURANCE

The Contractor shall not commence work under the Contract until he has obtained all insurance required, submitted the executed certificates and the copies of the policies to the Engineer as required and such insurance has been approved by the Owner and the Engineer, nor shall the Contractor allow any subcontractor to commence work on a subcontract until all similar insurance required of the subcontractor has been so obtained and approved by the Contractor.

TYPES OF INSURANCE. The following insurances are required by the Contract:

- (a) Compensation Insurance: The Contractor shall take out and maintain during the life of the Contract, in amounts required by law, Workmen's Compensation Insurance for all of his employees employed at the Site of the Project and, in case any work is sublet, the Contractor shall require the subcontractor similarly to provide Workmen's Compensation Insurance for all the latter's employees, unless such employees are covered by the protection afforded by the Contractor. The Contractor shall at all times, indemnify and save harmless the Owner and the Engineer, of and from all claims for Workmen's Compensation which may be made by any of the employees of the Contractor or by any of the employees of any subcontractor to whom the Contractor may have let the performance of any part of the work embraced by the Contract, and the Contractor will appear for and defend the Owner and the Engineer against any and all claims.
- (b) Public Liability and Property Damage Insurance: The Contractor shall take out and maintain during the life of the Contract such Public Liability and Property Damage Insurance as shall protect him, the Owner, and the Engineer from claims against any of them for damages for personal injury including accidental death, as well as from claims for property damages, which may arise from operations connected with or caused by any operation or matter related to the Contract, whether such operations be by himself or by any subcontractor or by anyone directly or indirectly employed by any of them. Hazards insured against for property damage liability shall include explosion, collapse, underground object, and blasting to the extent that any such exposure exists. The amounts of such insurance shall be as follows and shall be non-deductible:

Public Liability and Property Damage Insurance:
In an amount not less than \$500,000 for injuries, including accidental death, to any one person, (and for a multiple of persons injured or killed in one occurrence in an amount not less than \$1,000,000 for each separate occurrence). Property Damage Insurance in an amount not less than \$1,000,000. The Public Liability, Bodily Injury and Death policies shall be written on an occurrence basis. All policies protecting the Engineer and the Owner shall be forwarded to the Engineer and the Owner for inspection and approval and shall be written with an insurance company suitable to the Engineer and the Owner.

Automobile and Truck Insurance: Public Liability as above with liability limits in amounts of \$500,000 and \$1,000,000 for bodily injury liability and \$1,000,000 for property damage liability.

The Public Liability-Property Damage Insurance Policy shall contain a Contractual Liability endorsement or provision covering the liability assumed by the Contractor under the Contract, particularly Article IX of the Agreement.

- (c) Builder's Risk Insurance: The Contractor shall maintain during the progress of the work and until Final Payment is actually made by the Owner, insurance on all work included in the Contract against loss or damage by fire, lightning, wind, explosion and those perils covered by extended coverage endorsement and vandalism and malicious mischief endorsement on the completed value form, in the names of the Owner, the Contractor, and the Trustee, if any, of the bond issue of the Owner as their respective interest may appear, in the amount equal to one hundred percent (100%) of the insurable value of each building or structure erected or in the process of being erected, and materials and equipment installed or incorporated in any work pursuant to the Contract or on the site in preparation for installation or incorporation in any work to be done pursuant to the Contract (as determined by the Engineer), as shall fully protect the interests of the Owner and the Contractor. The risk of damage to the said work due to the perils covered by said insurance, as well as any other perils which might result in damage to the said work, is that of the Contractor and Surety, and no claim for such loss or damage shall be recognized by the Owner, nor will such loss or damage excuse the complete and satisfactory performance of the Contract by the Contractor.

- (d) Certificates: The Contractor shall submit to the Owner and the Engineer for approval, the executed certificates and the copies of the insurance policies covering all insurance required by the Contract Documents.

Each certificate and insurance policy shall contain therein, or have contained in a rider attached thereto and made a part thereof, a clause to the effect that the insurer will notify the insured and the Owner and the Engineer, in writing, ten (10) days prior to cancellation of the policy. The certificate for each policy shall be executed in six (6) copies.

- (e) Accidents and Claims: The Contractor shall be responsible for all accidents as described in the Agreement, and shall provide all of the indemnification as stated in the Contract Documents.

- (f) Mutual Responsibility of Contractors: Should a Contractor in the performance of his Contract cause damage to any person, any property or work of another Contractor working on the Project, he shall, upon due notice to do so from the Owner or other party to the damage, arrange for an amicable settlement thereof. It is agreed by all parties hereto that such disputes shall not delay completion of the work, nor be cause for a claim against the Owner. Work shall be continued by the party claiming damages at his expense, subject to such damages as may be obtained by due course of law.
- (g) Contractor's Liability: The status of the Contractor in the work to be performed by him under the Contract is that of an independent Contractor and as such he shall properly safeguard against any and all injury or damage to the public, to public and private property, materials and things; and as such, he alone shall be responsible for any and all damage, loss or injury to persons or property that may arise, or be incurred, in or during the conduct or progress of said work without regard to whether or not the Contractor, his subcontractors, agents, or employees have been negligent; and the Contractor shall keep the Owner and the Engineer free, and discharged of, and from any and all responsibility and liability for risks and casualties of every description, as provided in the Agreement between the Owner and the Contractor. The Contractor shall assume and be liable for all blame and loss of whatsoever nature by reason of neglect or violation of any federal, state, county or local laws, regulations or ordinances in the performance of the work.

NOTICE OF ACCIDENTS

The Contractor shall, on the day of occurrence, give written notice to Owner and Engineer (in triplicate) of any accident occurring in connection with the Project.

PROGRESS SCHEDULE

Within ten (10) days after the award of the Contract to him, each Contractor shall submit a proposed program of operation, and Statement of Work Force Needs, showing clearly how he proposes to conduct the work so as to bring about the completion of his work within the time limit specified. This program shall outline the proposed sequence of operation, the rates of progress and the estimated completion date of the construction items. The program shall be subject to the approval of the Owner.

NOTICE TO PROCEED

As soon as practicable after the satisfactory execution of the Contract by both parties, written notice to proceed with the work will be given to the Contractor. In the event the notice to proceed cannot be or is not issued within thirty (30) days after the execution of the Agreement due to any cause, either of the parties terminated without further liability or obligation of either party.

If the Contractor incurs any expense in furtherance of the Contract prior to receipt of the Notice to Proceed, he does so on his own responsibility.

COMPLETION TIME AND LIQUIDATED DAMAGES

The Bidder shall understand that the time limit indicated for completion of the Contract, and the amount of liquidated damages to be charged against the Contractor in accordance with the provisions of the Contract Documents, shall be as stated in Article II of the form of Agreement which is a part of the Contract Documents.

FEDERAL OR STATE REQUIREMENTS

In the event that any funds to finance the Contract are from the Federal or State Government in the form of a grant or grants, the Contractor shall comply with all requirements, administrative, technical, or otherwise, which the Federal or State Government might set forth as a condition or conditions for or as a requirement of the grant or grants, or as an obligation of the grantee, or for the performance of the Project or any aspect of the Project.

PROPOSAL

Date: _____

Board of Supervisors
Bensalem Township
3800 Hulmeville Road
Bensalem, PA 19020

Supervisors:

The undersigned Bidder, having examined the plans, specifications and other proposed Contract Documents; the extent, character and location of the proposed work; the nature and type of construction to be done, and being cognizant of the location, and the condition of existing streets and roadways giving access to the site of the work, and the topography of the site of the work and its effect on drainage and surface runoff, which might affect the work; hereby proposes to furnish all labor, material, tools, equipment, and appliances to complete the construction for Bensalem Township in accordance with plans, specifications and other Contract Documents referred to in the Instructions to Bidders, for the following prices to wit:

<u>Item</u> <u>No.</u>	<u>Unit</u>	<u>Quantity</u>	<u>Item</u> <u>Description</u>	<u>Unit</u> <u>Price</u>	<u>Total</u>
1.	Cu. Yd.	<u>1,000</u>	excavation - clearing and grubbing, erosion control and construction and stabilization of ice skating pond berm	_____	_____
2.	L.F.	<u>15</u>	installation of 6" PVC riser and discharge pipe	_____	_____
3.	Cu. Yd.	<u>130</u>	excavation and installation and erosion control for canoe launch	_____	_____
4.	L.S.	_____	installation of warming shed	_____	_____
5.	Each	<u>120</u>	Hemerocallis falva "Europa"	_____	_____

Total _____

By: _____

Title: _____

Firm Name: _____

Address: _____

SEAL (If Corporation)

AGREEMENT

THIS AGREEMENT, entered into this _____ day of _____, 1982, by the BOARD OF SUPERVISORS, BENSALEM TOWNSHIP, PENNSYLVANIA 19020, hereinafter called the Owner, Party of the First Part, and a Corporation known as _____ organized and existing under the laws of the State of _____ A PARTNERSHIP known as _____ consisting of the following members: _____

_____ AN INDIVIDUAL _____ trading as _____ of _____ Street, City of _____ State of _____, hereinafter called the CONTRACTOR, Party of the Second Part,

WITNESSETH, that the parties hereto do mutually agree as follows:

ARTICLE I. The Contractor agrees to furnish all labor, superintendence, materials, and other utilities and facilities, perform all work necessary for or incidental to, and to perform all other obligations imposed by the Contract for the Earth Work, Landscaping, Paving, Storm System, Site Amenities, at James Armstrong Memorial Park - Phase III, Bensalem Township, Bucks County, Pennsylvania

herein called for in strict accordance with the Drawings and Specifications prepared by Carroll Engineering Corporation, Engineer, acting as and entitled the Engineer in said Contract, which Contract comprises the following Contract Documents which are made a part hereof:

- | | |
|----------------------|----------------------------|
| a. Notice to Bidders | c. Instructions to Bidders |
| b. Addenda (if any) | d. Proposal |

- | | |
|---|--|
| e. This Agreement | j. Exhibits (if any) |
| f. Bond Forms (Performance and Payment) | k. Drawings or Plans |
| g. General Conditions | l. Notice to Proceed |
| h. Scope of Work | m. Hold Harmless Agreement |
| i. Prevailing Wage Determination | n. Specifications: Earthwork, Landscaping, Paving, Storm System, Site Amenities. |

ARTICLE II. The Contractor agrees that the work shall be started not later than the date in the Notice to Proceed and that all work shall be completed in 180 calendar days following such notice.

The Contractor further agrees that for each calendar day, (with the exception of Sundays and legal holidays) any work that shall remain uncompleted after the completion period stipulated above, the sum of one thousand dollars (\$1,000.00) per day may be deducted by the Owner from any moneys due the Contractor not as a penalty, but as liquidated damages. If the Contractor is declared in default in accordance with the provisions of the Contract Documents, liquidated damages shall be charged as provided herein, and such amounts shall be deducted from any final amount payable to the Contractor. Should the total amount chargeable as liquidated damages exceed the amount due or payable to the Contractor, then such excess shall be paid to the Owner by the Contractor or his Surety.

The Contractor agrees to coordinate his work with that performed by all other Contractors engaged in separate Contracts of this Project in such a way as to permit each of the Contracts to be completed within the stipulated time.

ARTICLE III. The Contractor shall receive and shall accept compensation for the performance of the Contract in accordance with the prices set forth in the Proposal, subject to such additions or deductions as are provided for in the Contract Documents, and such compensation shall be made and accepted in such a manner as provided for in Article IV hereof and in no other manner.

ARTICLE IV. Payments to the Contractor shall be made as follows:

At intervals of once a month, the Contractor will prepare and submit an Estimate for Payment for the work completed to the first day of a monthly period established by the Engineer. Ninety percent (90%) of the sum thus determined will be paid to the Contractor within thirty (30) days following approval of the Estimate by the Owner, until such time as the value of the completed work is equal to fifty percent (50%) of the Contract Price after which time the Owner will not retain any amount from any subsequently approved estimates but will hold the amount previously retained until final completion and acceptance of all work covered by the Contract.

Final payment shall be made to the Contractor in the manner and pursuant to the procedure set forth in the Contract Documents.

ARTICLE V. The Contractor shall not sublet, sell, transfer, assign or otherwise dispose of the Contract or any portion thereof, or his right, title or interest therein, without the written consent of the Owner.

ARTICLE VI. The work shall be subject at all time to the inspection of the Owner and his authorized agents to ascertain if the work being performed by the Contractor is in conformity with the Drawings and Specifications and all applicable Laws and Regulations. The Owner shall decide all questions which may arise relative to the meaning and interpretation of the Drawings and as to whether the performance of the work is in conformity with the Drawings. Any doubt concerning the meaning of the Drawings, or any ambiguity or obscurity as to the wording or intent of them shall be decided by the Owner and his decisions shall be binding upon both parties hereto and shall not be subject to review by and Court, in any action between the Owner and the Contractor.

ARTICLE VII. It is agreed that the work in every respect, from the execution of the Contract and during the progress of the work and until actual Final Payment, shall be under the charge of and in the care of the Contractor and at his risk. He shall properly safeguard against any or all damage or injury (including death) to the public and to his employees and shall alone be responsible for any damage or injury (including death) from his undertaking of the work to any person, persons or thing. The Contractor will solely and without qualification be responsible for all construction methods and results, for use of equipment and personnel, for the safety of his employees and other persons, for the protection of public and private property, and for compliance with all local, state, and federal laws and regulations in performance of work under this Contract. Neither Owner nor Engineer will have any right to hire or fire, nor any power of supervision or direction over the construction methods, nor over use of equipment or personnel, nor for or over the safety of Contractor's employees or other persons, nor for or over the protection of public and private property, nor for the Contractor's compliance with local, state, or federal laws and regulations in performance of work under this Contract.

ARTICLE VIII. The Contractor shall guarantee his work and shall remedy, without cost to the Owner, any defects which may develop therein during a period of one (1) year from the date the Owner actually makes Final Payment to Contractor.

ARTICLE IX. The Contractor shall indemnify and save harmless the Owner and Engineer and all their officers, agents, and employees, from all claims, liabilities, suits, or actions at law or equity of any kind whatsoever arising out of, connected with or caused by

any operation or matter related to the project, including, among other things, injury to property and injury to or death of any persons, including employees of the Contractor or any subcontractor, and shall, if required by the Owner and Engineer, produce evidence of settlement of any such suit or action before Final Payment shall be made by the Owner. The provisions of this indemnification agreement shall include all accidents, injuries, and claims made, whether or not caused, in whole or in part, by any act, omission, or negligence of the Owner, its officers, agents, or employees, or by any act, omission, or negligence of the Engineer, its officers, agents, or employees, or by any act, omission or negligence of the Contractor or any subcontractor, its officers, agents, or employees: Provided that in the event of negligence by the Engineer, the duty to indemnify him shall exist only if the Contractor or subcontractor is also negligent. Contractor shall, at his own cost and expense, defend any such claim, suit, action, or proceeding, whether false, fraudulent or groundless, which may be commenced against the Owner or Engineer by reason thereof or in connection therewith, and Contractor shall pay any and all judgements which may be recovered in any such action, claim, proceeding, or suit, and defray any and all expenses including cost and attorneys fees, which may be incurred by Contractor, Owner or Engineer in or by reason of such action, claim, proceeding, or suit.

ARTICLE X. In the event of conflict between this Agreement and any other part of the Contract Documents, the provisions of this Agreement shall govern. In an ambiguity or ambiguities in any of the Contract Documents should be claimed by the Owner or Contractor, or any court of competent jurisdiction should determine that an ambiguity or ambiguities exist in any of the Contract Documents, such ambiguity or ambiguities shall be resolved in favor of the Owner.

ARTICLE XI. The Contractor represents and warrants to the Owner that:

- (a) The Contractor is financially solvent and is experienced in and is competent to perform the work to be performed as provided in Article I; and
- (b) The Contractor is familiar with all federal, state, municipal, or other regulator laws, ordinances, and/or regulations, which, in any manner whatsoever, may affect the work to be performed as provided in Article I; and
- (c) Temporary and permanent construction which shall be necessary in performance of the work to be performed as provided in Article I can be constructed satisfactory and can be used for the purposes for which it is intended; and that such construction will not injure any person or damage any property; and

- (d) The Contractor has examined carefully all of the Contract Documents and fully understands, each and every part of them, INCLUDING HIS OBLIGATIONS TO INDEMNIFY THE OWNER, THE ENGINEER, AND THEIR OFFICERS, AGENTS AND EMPLOYEES; AND THE PROVISION FOR RESOLUTION OF ANY, OR CLAIMED, AMBIGUITIES IN THE CONTRACT DOCUMENTS IN FAVOR OF THE OWNER, AND LIMITATION ON THE OWNER'S OBLIGATION TO PAY CONTRACTOR AND HAS EXAMINED CAREFULLY THE SITE UPON WHICH THE WORK TO BE PERFORMED AS PROVIDED IN ARTICLE I IS TO BE UNDERTAKEN AND HAS BECOME FAMILIAR, BY HIS OWN INVESTIGATION, WITH THE VARIOUS CONDITIONS WHICH MAY AFFECT THE PERFORMANCE OF SUCH WORK.

ARTICLE XII. It is the intention of the parties to be legally bound by this instrument.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement in triplicate the day and year first above written.

BENSALEM TOWNSHIP
BENSALEM, PENNSYLVANIA

ATTEST: _____ BY ITS BOARD OF SUPERVISORS
Secretary

Chairman

Corporation - Contractor

ATTEST: _____ Secretary _____ President (Affix Corporate Seal)

* * * * *

WITNESS

Individual Contractor (Seal)

* * * * *

WITNESS

Partnership-Corporation

BY: _____ (Seal)
Partner

BY: _____ (Seal)
Partner

Business Address

PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS, that a CORPORATION known as

organized and existing under the laws of the State of

A PARTNERSHIP, known as _____

AN INDIVIDUAL _____

trading as _____

of _____

in the State of _____

hereinafter called PRINCIPAL, and _____

in the City of _____, State of

_____, a corporation created and existing
under the laws of the State of _____,

hereinafter called SURETY, are held and firmly bound unto

BENSALEM TOWNSHIP, BENSALEM

PENNSYLVANIA 19020, as Obligee, in the full and just sum of

Dollars (\$ _____), lawful money of the United States of

America, for the payment of which sum we bind ourselves, our heirs,

executors, administrators, successors, and assigns, jointly and sever-
ally, firmly by these presents.

NOW, THEREFORE, the terms and condition of the Bond are and shall
be that if: (a) the Principal well, truly and faithfully shall comply
with and shall perform the Contract in accordance with the Contract
Documents, within time and if the Principal shall satisfy all claims
and demands incurred in or related to the performance of the Contract
by the Principal or growing out of the performance of the Contract
by the Principal, and if the Principal shall indemnify completely and

shall save harmless the Obligee and all of its officers, agents and employees from any and all costs and damages which the Obligee and all of its officers, agents and employees may sustain or suffer by reason of the failure of the Principal to do so, and if the Principal shall reimburse completely and shall pay to the Obligee any and all costs and expenses which the Obligee and any of its officers, agents and employees may incur by reason of any such default or failure of the Principal; and (b) if the Principal shall remedy, without cost to the Obligee, all defect which may develop during the period of one (1) year from the date of actual final payment in accordance with the Contract Documents, which defects, in the sole judgement of the Obligee or its legal successors in interest, shall be caused by or shall result from defective or inferior materials or workmanship, then this Bond shall be void; otherwise, this Bond shall be and shall remain in force and effect.

This Bond is executed and delivered under and subject to and in accordance with the laws of the Commonwealth of Pennsylvania.

The Principal and the Surety agree that any alterations, changes and/or additions to the Contract Documents, and/or any alterations, changes and/or additions to the work to be performed under the Contract in accordance with the Contract Documents, and/or any alterations, changes and/or additions to the Contract, and/or giving by the Obligee of any extensions of time for the performance of the Contract in accordance with the Contract Documents, and/or any act of forbearance of either the Principal or the Obligee toward the other with respect to the Contract Documents and the Contract, and/or the reduction of any percentage to be retained by the Obligee as permitted by Law or by the Contract documents and by the Contract, shall not release in any manner whatsoever, the Principal and the Surety, or either of them, or their heirs, executors, administrators, successors, and assigns, from liability and obligations under this Bond; and the Surety for value received, does waive notice of any such alterations, changes, additions, extensions of time, acts of forbearance, and/or reduction of retained percentage.

The Contract referred to herein is the Contract as defined in the Instructions to Bidders and is that Contract to be entered into between the Owner and the Principal for:

Earthwork, Landscaping, Paving, Storm System, and Site Amenities
at James Armstrong Memorial Park - Phase III, Bensalem Township, PA.

IN WITNESS WHEREOF, the Principal and the Surety cause this
Bond to be signed, sealed, and delivered this _____ day
of _____, 19____.

ATTEST:

Secretary

Corporation-Contractor

(AFFIX CORPORATE SEAL)

President

WITNESS

Individual-Contractor

(SEAL)

WITNESS

Partnership-Contractor

By: _____ (SEAL)

Partner

Partner

(SEAL)

Partner

(SEAL)

Business Address

WITNESS

Surety Company

ATTEST:

Attorney-in-Fact

Secretary

PAYMENT BOND

KNOW ALL MEN BY THESE PRESENTS, that a CORPORATION known as

_____ organized

and existing under the laws of the State of _____,
* * * * *

A PARTNERSHIP, known as _____ consisting
of the following members: _____

* * * * *
AN INDIVIDUAL _____

trading as _____
* * * * *
of _____

in the State of _____, hereinafter called
PRINCIPAL, AND _____

of the City of _____ State of _____
a corporation created and existing under the laws of the State of

_____ hereinafter called SURETY, are held
and firmly bound unto BENSALEM TOWNSHIP, BENSALEM, PENNSYLVANIA,
19020, as Obligee in the full and just sum of _____

_____ Dollars (\$ _____),

lawful money of the United States of America, for the payment of
which sum we bind ourselves, our heirs, executors, administrators,
successors, and assigns, jointly and severally, firmly be these
presents.

NOW, THEREFORE, the terms and conditions of the Bond are and shall be that if the Principal and any subcontractor of the Principal to whom any portion of the work under the Contract shall be subcontracted, and if all assignees of the Principal and of any such subcontractor, promptly shall pay or shall cause to be paid, in full, all money which may be due any claimant supplying labor or materials including the rental of vehicles or equipment or services in the prosecution and performance of the work in accordance with the Contract and in accordance with the Contract Documents, including any amendment, extension, or addition to the Contract and/or to the Contract Documents, for material furnished, including the rental of vehicles or equipment or services, or labor or services supplied or labor performed, then this Bond shall be void; otherwise, this Bond shall be and shall remain in force and effect.

This Bond is executed and delivered under and subject to and in accordance with the laws of Pennsylvania.

The Principal and the Surety agree that any alterations, changes and/or additions to the Contract Documents, and/or any alterations, changes and/or additions to the work to be performed under the Contract in accordance with the Contract Documents and/or any alterations, changes and/or additions to the Contract, and/or any giving by the Obligee of any extensions of time for the performance of the Contract in accordance with the Contract Documents, and/or any act of forbearance of either the Principal or the Obligee toward the other with respect to the Contract Documents and the Contract, and/or the reductions of any percentage to be retained by the Obligee as permitted by law or by the Contract Documents and by the Contract, shall not release, in any manner whatsoever, the Principal and the Surety, or either of them, or their heirs, executors, administrators, successors, and assigns, from liability and obligations under this Bond; and the Surety, for value received, does waive notice of any such alterations, changes, additions, extensions of time, acts of forbearance and/or reduction of retained percentage.

The Contract referred to herein is the Contract as defined in the Instructions to Bidders and is that Contract to be entered into between the Owner and Principal for:

Grading, Seeding, and Miscellaneous Constructions for the
James Armstrong Memorial Park - Phase III, Bensalem Township, PA

IN WITNESS WHEREOF, the Principal and the Surety cause this Bond
to be signed, sealed and delivered this _____ day of
_____, 19____.

ATTEST:

Secretary

Corporation-Contractor
(AFFIX
CORPORATE
SEAL)

President

WITNESS:

Individual-Contractor (SEAL)

WITNESS:

Partnership-Contractor

By: _____ (SEAL)
Partner

Partner

WITNESS:

Business Address

Surety Company

Attorney-in-Fact

ATTEST:

Secretary

GENERAL CONDITIONS

1. DRAWINGS AND SPECIFICATIONS

The Drawings and Specifications, and all other Contract Documents are complementary, and the requirements of any one shall be considered as the requirements of all.

- (a) In the event the Contractor discovers any discrepancy or or inconsistency between the Drawings and Specifications, the matter shall immediately be submitted to the Engineer, whose decision therein shall be final. The Contractor will not be responsible for the discovery of such discrepancies or inconsistency but any work done on the item involved after such discovery, and prior to authorization by the Engineer to proceed, will be done at the Contractor's risk.
- (b) In case of any discrepancy or inconsistency between scaled dimensions and figures, figured dimensions shall govern. In case any work dimension is not give on the Drawings, the Contractor shall obtain the figure from the Engineer; in no case shall the Contractor determine such dimensions by scaling the Drawings.
- (c) Deviations from the Drawings or Specifications, required by the exigencies of construction, will be determined by the Engineer only, and authorized in writing.
- (d) Supplemental detailed drawings and instruction shall be furnished by the Engineer when and as he determined that such drawings and instructions are required for successful completion of the Project.

2. OWNER'S EXAMINATION AND INSPECTION

2.1 The work shall at all times be subject to the examination and inspection of the Owner and his authorized assistants, who shall have free access to the work and shall be furnished by the Contractor with every reasonable facility for examination of the work, to the extent of uncovering, testing or removing finished portions thereof as hereinafter provided. The Contractor shall provide all labor and equipment necessary for such examination and inspection.

2.2. All inspection and tests shall be performed without unnecessarily delaying the work. The Contractor shall be charged with any additional cost of inspection when material or workmanship is not ready at the time inspection is requested of the Owner. All material and workmanship, if not otherwise designated by the Contract Documents, shall be subject to inspection, examination and test by the Owner or his duly authorized representatives. The Owner shall have the right to reject defective material or workmanship or require its correction.

2.3 If the Contract Documents, the Owner's instructions, laws, ordinances, or any public authority require the work to be specially tested or approved, the Contractor shall give the Owner timely notice of its readiness for inspection.

3. OWNER'S AUTHORITY AND DECISIONS

3.1 The Owner shall, within a reasonable time after presentation to him, determine questions in relation to the construction of the Project, and render decisions, and decide questions, which may arise, relative to Contractor's compliance with the Specifications and Drawings.

3.2 The Owner shall determine the amount and quality of the several kinds of work performed and the material furnished by Contractor. The Owner's determination shall be accepted by the Contractor, and such determination shall be a condition precedent to the right of the Contractor to receive any money due under the Contract.

3.3 Any verbal opinion or suggestion which the owner may give the Contractor shall not be construed as binding upon the Owner in any way, nor as releasing the Contractor from the fulfillment of any of the terms of the Contract.

3.4 The Owner shall have authority to reject materials or suspend the work if the Contractor shall refuse or neglect to perform the work in accordance with the Contract Documents. The Contractor shall not be authorized to revoke, alter, enlarge, relax or release any requirements of the Specifications or Drawings, nor to approve or accept any portion of the work or issue instructions contrary to the Specifications, or Drawings without the written consent of the Owner.

4. DEFECTIVE WORK

4.1 When any material which does not conform to the requirements of the Specifications and Drawings has been delivered to the site of the Project or incorporated in the work, or when any work performed is of inferior quality, such material or work shall be considered as defective and shall be immediately removed and renewed or made satisfactory as directed by the Owner. Failure or neglect on the part of the Owner to condemn or reject any bad or inferior work or materials shall not be so construed as to imply an acceptance of such work or materials by the Owner.

4.2 Upon request of the Owner, the Contractor shall expose any work. Should the work thus exposed or examined prove satisfactory, the exposing or removing and replacing, renewing and making good the parts removed, shall be paid for as extra work. However, should the work exposed or examined prove defective, unsatisfactory, or placed in violation or disregard of any provisions of the Contract Documents, the Contractor shall remove at his own expense that work or material condemned, and shall rebuild and replace the same without any additional compensation.

4.3 The Contractor shall promptly remove from the premises all materials condemned by the Owner as failing to conform to the Contract and the Contractor shall promptly replace his own work in accordance with the Contract and without expenses to the Owner, and shall bear the expense of making good all work of other Contractors destroyed or damaged by such removal or replacement.

5. MATERIALS

5.1 The Contractor shall furnish the Engineer, promptly after the award or execution of the Contract, with complete statements of the origin, composition, and manufacturer of all materials to be used in the construction of the Project. Only materials conforming to the requirements of the Contract and approved by the Engineer shall be used in the work.

5.2 Representative preliminary samples of the materials, of the character and quality prescribed in the Contract, shall be submitted when indicated or directed, for advance examination or test. Written approval of the quality of such samples shall be received by the Contractor prior to obtaining materials from the respective sources of supply.

5.3 Samples of all material requiring laboratory tests shall be taken under the direction of, in the presence of, or in the manner prescribed by the Engineer. Such material shall not be used until accepted by the Engineer after the result of such tests. Materials will be used only so long as the quality of the material remains equal to that of the accepted sample. The acceptance at any time of any material shall not be a bar to its future rejection, if it is subsequently found to be defective or inferior in quality to the material specified.

5.4 Required laboratory tests of materials shall be made by a testing laboratory or agency selected or approved by the Engineer, and in accordance with the methods indicated herein. When standard specifications and serial numbers of technical societies and associations are stipulated, the reference shall be construed to be the latest of such specifications and serial numbers.

5.5 Payment for all laboratory tests, mill inspection and tests conducted by any testing laboratory or agency or at the shops or mills of any manufacturer of a product will be made by the Contractor, and the Contractor shall furnish, without compensation, all labor, materials and equipment necessary for collecting, packaging, and identifying representative samples of materials, and the shipping of such samples to the testing laboratory.

5.6 The Contractor shall permit or arrange with any manufacturer of any product to permit the Engineer or any agent of any testing laboratory selected by the Engineer to inspect or test any and all material being used or to be used, at any time before, during or after its preparation, or while being used during the progress of the work or after the work has been completed.

5.7 Materials shall be stored so as to insure the preservation of their specified quality and fitness for work. When necessary, materials shall be placed on wooden platforms or other hard and clean surfaces, and not on the ground, and shall be placed under cover when directed. Stored materials shall be located so as to facilitate prompt inspection. Private property shall not be used for storage purposes without the written permission of the owner or lessee of such private property.

6. EQUIPMENT AND MACHINERY

6.1 All apparatus, mechanism, equipment, machinery and manufactured articles for incorporation in the work shall be the new and unused standard products of recognized reputable manufacturers.

6.2 The mention of such products by trade name or manufacturer, with or without the designation "or equal" is intended to convey to the Contractor the degree of excellence required. The products of manufacturers other than those named will be accepted if, in the opinion of the Engineer, they are equal in strength, durability, usefulness, suitability, performance, and convenience for the purpose intended. The Engineer shall be the sole judge of the qualifications of such products with the Contract Documents.

6.3 All equipment and machinery, and parts and assemblies thereof, entering into the work shall be tested as specified. Unless waived in writing by the Engineer, all field and operating tests shall be made in the presence of the Engineer or his authorized representative. When such a waiver is issued, a sworn statement, in duplicate, of the tests made and the results thereof shall be furnished to the Engineer by the Contractor or manufacturer. Costs of all tests and trials specified herein, and with the exception of the Engineer's expenses, shall be borne by the Contractor. Inspections or tests of apparatus, machinery, or equipment shall be made at the option of the Engineer at the point of production, manufacturer, installation or shipment.

6.4 Unless otherwise provided, all material and equipment, parts and assemblies thereof to be furnished and installed by the Contractor shall be guaranteed against defective materials and workmanship by the Contractor for a period of one (1) year from the date final payment is actually made by Owner. In the event of failure during the period specified, the affected item or items shall be replaced by the Contractor promptly upon notice of the Owner. In the event of failure of prompt replacement by the Contractor, such replacement by the Contractor may be made by the Owner at the Contractor's expense.

7. OBSERVANCE OF LAWS AND REGULATIONS

7.1 The Contractor at all times, shall observe and comply with all Federal and State laws and regulations, and local ordinances, rules and regulations which in any manner affect the conduct of the work or which apply to persons on the Project, or who might perform the work, as well as all safety precautions, order or decrees which have been promulgated or enacted, or which may be promulgated or enacted, by any governmental body or agency which has any authority or jurisdiction over the work, materials, equipment, persons involved in the work or in the contract or over any aspect of such. Such observance and compliance shall be solely and without qualification the responsibility of the Contractor without reliance on superintendence or direction by the Owner. The duty of enforcement of all said laws, ordinances, regulations, orders or decrees, lies with the body or agency promulgating them, not with the Owner.

7.2 Attention is drawn to Federal and State regulations of wage scales, trenches and excavation, equipment, materials, labor, safety, sanitation, and other regulations of which the Contractor shall be fully informed and with which he shall fully comply. The Contractor shall receive no additional compensation for work or materials required on his part solely for the purpose of conforming to the applicable law. Observance of, and compliance with, said regulations shall be solely and without qualification, the responsibility of the Contractor, without reliance on superintendence of, or direction by, the Owner. The duty of enforcing such laws and regulations shall lie with the Contractor or the State, or the Federal Government, and shall lie with the Owner.

8. SANITARY CONVENIENCES

8.1 Sanitary conveniences complying with the regulations of OSHA and the Department of Environmental Resources and other governmental bodies having jurisdiction, shall be provided for the use of the workmen and the use of such shall be strictly enforced. At the completion of the work, temporary conveniences provided under this Article shall be removed and any pits disinfected and backfilled in accordance with all applicable governmental regulations.

9. PERMITS AND LICENCES

9.1 The Contractor shall procure all necessary permits and licenses, and shall pay all charges and fees therefor, and shall give all notices necessary and incident to the proper and lawful prosecution of the work. The cost thereof shall be included by the Bidder in the bid price or prices.

9.2 The Owner will assist the Contractor where a permitting agency refuses to grant permits to anyone except Owner, by the Owner obtaining such permit, upon written request by Contractor. Cost thereof shall nevertheless be paid by Contractor.

9.3 The Contractor shall obtain all permits required for the opening of any roads, and shall adhere to all laws, rules, and regulations with regard to such openings, and the procedures to be followed in backfilling all excavations in roads, and where any of such laws, rules or regulations require more onerous methods to be used in backfilling or road restoration or different materials to be used as backfill or for road restoration than do the Contract Documents, Contractor will comply with such laws, rules or regulations and no additional compensation will be allowed Contractor therefor, nor will Contractor make any claim against the Owner for any additional compensation due to, or on account of, Contractor's compliance with such laws, rules or regulations. It will be conclusively presumed against the Contractor, that Contractor was familiar with such laws, rules and regulations, at the time Contractor submitted his Proposal, and Contractor's Proposal took into consideration such laws, rules or regulations, and Contractor priced his Proposal accordingly.

10. NO WAIVER OF LEGAL RIGHTS

10.1 Neither the Owner nor the Engineer shall be precluded or estopped, by any measurements, estimate, or certificate made or given to or by them or by any of their agents or employees, under any provision or provisions of the Contract, at any time, either before or after the completion and acceptance of the work and payment thereof pursuant to any measurements, estimate or certificate, from showing the true and correct amount and character of the work performed and materials furnished by the Contractor or from showing at any time that any such measurement, estimate or certificate is untrue or incorrectly made in any particular, or that the work or materials, or any part thereof, do not conform in fact to the Contract. The Owner shall have the right to reject the whole or any part of the work or materials, should the said measurements, estimate, certificate or payments be found, or be known to be inconsistent with the terms of the Contract, or otherwise improperly given, and the Owner shall not be precluded and estopped, notwithstanding any such measurements, estimate, certificate and payment in accordance therewith, from demanding and recovering from the Contractor or his Surety such damages as the Owner may sustain by reason of the Contractor's failure to comply with any term of the Contract, or on account of any overpayment made on any estimate or certi-

ificate. Neither the acceptance by the Owner, the Engineer nor any of their agents or employees, nor any certificate by the Owner for payments of money, nor any payments for, or acceptance of the whole or any part of the work by the Owner or Engineer, nor any extension or remission of time, nor any possession taken by the Owner or his employees shall operate as a waiver of any portion of the Contract or any power therein reserved by the Owner, or any right to damages, nor shall any waiver of any breach of the Contract be held to be a waiver of any other, or subsequent breach. All remedies provided for to the Owner in the Contract shall be taken and construed as cumulative, that is, in addition to each and every other remedy provided.

11. CARE OF PUBLIC AND PRIVATE PROPERTY

11.1 The Contractor shall take all necessary precaution to prevent damage to all overhead and underground structures and to protect and preserve property within or adjacent to the Site and shall be responsible for damage thereto. Special care must be used by the Contractor in the prosecution of the work in order to avoid interference or damage to any operating utilities or plants; however, where there is any possibility of such interference or damage, the Contractor shall make satisfactory arrangements with responsible officers or with the owners of the utilities or plants covering the necessary precautions to be used as safeguards during the performance of the work by the Contractor. Such arrangement shall be made before work is started and shall be subject to the approval of the Owner which approval will not be considered as a release of the Contractor from any responsibility for the acts of the Contractor or his agents or employees or subcontractors or as the acceptance of any responsibility or liability on the part of the Owner. The Contractor shall protect all land monuments and property markers which will be affected by the construction until they have been correctly referenced. Monuments and markers which are disturbed by the Contractor during the construction of the Project or otherwise shall be satisfactorily reset by him at his expense when and as directed by the Owner. The Contractor shall make good any damage or injury to public or private property whether within or outside of the areas covered by the Project and shall promptly make restitution for, or proceed to repair or otherwise restore such damage or injury to property as may be deemed necessary by the Owner. The Contractor will be held responsible for the protection of, or damage done to, trees to be left standing and, if any are damaged, the Contractor shall have them promptly repaired at his own expense by a qualified tree surgeon, or replaced, as required.

12. PRELIMINARY INSPECTION

12.1 Prior to the start of actual construction operations, the Contractor or his authorized representative shall go over the Site of the Project and shall observe for himself, with the approved Drawings before him, all pertinent conditions relative to the Contract, including the status of rights-of-way and the status of any structures, obstructions, or other objects to be removed, altered and changed.

13. SAFETY REQUIREMENTS

13.1 The Contractor shall furnish, erect and maintain throughout the Site of the Project, all necessary approved barricades, suitable and sufficient red lights, torches, approved reflectors, danger signals, warning, detour and closure signs, and provide a sufficient number of watchmen and take all necessary and legal precautions for the protection of the work and safety of the public. All barricades, danger signals, signs and obstructions shall be illuminated and kept illuminated when time, weather, atmospheric and traffic conditions so require.

13.2 If and when the use of explosives is necessary for the prosecution of the work, the Contractor shall observe the utmost care, so as not to endanger life or property. All explosives shall be stored in a secure and safe manner in strict conformity to all State and local regulations, and all such storage shall be clearly marked "DANGEROUS EXPLOSIVES", and shall be in care of a competent watchman at all times.

13.3 The safety provisions of all applicable laws, regulations, and building and construction codes shall be observed. Machinery, equipment, and other hazards shall be guarded in accordance with the safety provision of the "Manual of Accident Prevention in Construction," published by the Associated General Contractors of America, to the extent that such provisions are not in contradiction of applicable Federal, State and local laws.

13.4 Observance of and compliance with said laws, regulations and codes shall be solely and without qualification the responsibility of the Contractor, without reliance on, or superintendence of, or direction by, the Owner or Engineer.

14. LABOR DISCRIMINATION

14.1 The Contractor shall fully comply with any applicable State or Federal laws in respect to intimidation of, or discrimination against, any employees or qualified prospective employees by reason of race, color, sex, national origin or creed. Penalties provided by statute will be assessed against the Contractor for all violations of such laws.

15. VIOLATION OF CONTRACT

15.1 The Owner, upon satisfactory proof, and after the Owner shall have given written notice to the Contractor and his Surety of delay, neglect, or default on the part of the Contractor, shall have full power and authority, without violating the Contract, to declare the Contractor in default for any of the following reasons:

A. Failure of the Contractor to begin work within the time specified in the Notice to Proceed; or

B. Failure of the Contractor to perform the work with sufficient properly skilled workmen and/or proper equipment, or with sufficient materials to insure the completion of said work in accordance with any term of the Contract; or

C. Neglect or refusal of the Contractor to remove materials or perform anew such work as may be rejected by the Owner as defective or unsuitable; or

D. Halting prosecution of the work by the Contractor without approval of the Owner; or

E. Insolvency or bankruptcy of the Contractor or committing any act of bankruptcy or insolvency by the Contractor; or

F. If the Contractor should allow a final judgement against the Contractor to stand unsatisfied for a period of forty-eight (48) hours; or

G. If the Contractor shall make an assignment for the benefit of creditors; or

H. Failure or refusal of the Contractor to make payment within ten (10) days after written notice by the Owner, to make payment or show cause why payment should not be made, on any amount due for labor, services, equipment rentals or materials supplied or installed in the Project; or

I. Failure of the Contractor to protect, repair, or make good any damage or injury to property; or

J. If a receiver or liquidator shall be appointed for the Contractor or for any of the Contractor's property and such receiver or liquidator is not dismissed within twenty (20) days after such appointment or the proceedings in connection therewith are not stayed on appeal within twenty (20) days after such appointment; or

K. If the Contractor shall refuse or fail to prosecute the work or any part thereof with such diligence as will insure its completion within the period herein specified (or any duly authorized extension thereof) or shall fail to complete the work within said period; or

L. If the Contractor shall fail or refuse to regard laws, ordinances, regulations or decisions of the Owner, or otherwise be guilty of a violation of any provision of the Contract; or

M. If the Contractor shall fail or refuse to comply with all applicable laws and regulations of all governmental agencies; or

N. If the Contractor shall fail to comply with any requirement of the Contract Documents.

15.2 After the Owner has declared the Contractor in default, and given him three (3) days written notice, the Owner shall have authority to take the Prosecution of the work out of the hands of the Contractor, and appropriate or use any materials and equipment of the Contractor assembled for the Project for the completion of the Project.

15.3 Should the Owner elect to take the prosecution of the work out of the hands of the Contractor, the Owner may at its option, notify and require the Surety to complete the Contract according to contract terms, or the Owner may at its option, complete the Contract through another Contractor or with its own forces, in either of which cases, the Owner may take all right, title and interest in and to the equipment and materials owned by the Contractor and assembled for use in the execution of the Contract.

15.4 If the completion of the Contract by any of the methods described above results in financial loss to the Owner, the Owner may dispose of, by sale of, any of the remaining equipment and materials so taken over without further legal processes. Any equipment or materials not required for completion or recoupment of loss or for legal charges against the Contractor or any balance remaining from the disposition of materials and equipment, after deducting losses by the Owner, shall be turned over to the person legally or equitably entitled thereto.

16. RESPONSIBILITY OF CONTRACTOR

16.1 The Contractor shall be responsible for the entire Project, as provided for in the Contract Documents, from the date of the starting of the work until it is accepted as evidenced by final payment by the Owner. He shall be responsible for removals, renewals, and replacements due to action of the elements and all other causes except as otherwise provided in the Contract. The Contractor shall keep the Contract under his own control and it shall be his responsibility to see that the work is properly supervised and carried on faithfully and efficiently. The Contractor shall supervise the work personally or shall have a competent, English-speaking superintendent or representative, who shall be on the site of the Project during all working hours, and who shall be clothed with full authority by the Contractor to direct the performance of the work and make arrangements for all necessary materials, equipment and labor without delay.

16.2 Renewals or repairs necessitated because of defective materials or workmanship, or due to action of the elements or other natural causes, including fire and flood, prior to the final payment, shall be done anew by the Contractor at the sole expense of the Contractor, and without additional compensation.

17. TEMPORARY SUSPENSION OF WORK

17.1 The Owner shall have authority to temporarily suspend the work wholly or in part, due to unsuitable weather, or other such conditions as are considered unfavorable for the suitable accomplishment of the work, or due to the failure on the part of the Contractor to carry out orders given or to perform any provisions of the Contract, or due to unforeseen conditions which had not been provided for in estimating the contract time required for completion of the work. No claim for damages or loss of profit or additional compensation shall be advanced by the Contractor by reason of such temporary suspension.

17.2 If the Owner suspends temporarily the work in part, the Owner shall have authority to direct the Contractor to perform such other parts or items of work which, in Owner's opinion, may be performed with favorable results and advantageously for the time of completion of the Project, and the Owner shall notify the Contractor accordingly in writing.

17.3 If it should become necessary to suspend work for a sustained or an indefinite period, the Contractor shall store all materials satisfactorily, and he shall take every precaution to prevent damage or deterioration of the work performed. The Contractor shall resume work after such suspension upon written notice from the Owner. All of the work outlined in this article shall be performed at the Contractor's sole expense and no additional compensation will be allowed Contractor therefor.

18. COMPETENT WORKMEN

18.1 The Contractor shall employ only competent and efficient superintendents, foremen, timekeepers, equipment operators, laborers, and mechanics or artisans for every kind of work, and whenever, in the opinion of the Owner, any person is unfit to perform his task, or does his work contrary to requirements of the Contract or conducts himself improperly, the Contractor must discharge him immediately upon the Owner's written request, and not employ him again on the Project without permission. These requirements shall not operate against the employment of physically handicapped persons, otherwise employable, where such persons may be safely assigned to work which they can ably perform. No person under the age of sixteen (16) years and no person concurrently serving sentence in a penal or correctional institution shall be employed to perform any work under the Contract, except those persons in Court approved "Work Release Programs."

19. NONCOMPLIANCE OF CONTRACTOR

19.1 In addition to the elective measures which the Owner may take for violation of the Contract, the Owner shall also have discretionary right to take any or all of the following actions if the Contractor fails, neglects, or refuses to comply with the requirements of the Contract Documents.

19.2 The Owner may shut down the work until all requirements of the Contract Documents are met by the Contractor. In such event no remission will be made in working time for the period for which the work is shut down.

19.3 The Owner may withhold payment of estimates for work completed until all requirements of the Contract are met by the Contractor.

19.4 The Owner may enter upon the site of the Project and perform such work as may be necessary to meet the requirements of the Contract and may deduct the cost thereof from monies due or which may become due the Contractor or the Surety, or, in the absence of any monies due the Contractor or the Surety, the Owner shall be fully reimbursed for such costs by the Contractor or the Surety.

20. CHANGES, ADDITIONAL AND EXTRA WORK

20.1 The Owner may, at his own discretion make such minor changes in the Drawings as are deemed necessary by him to complete more fully the Project or any part thereof, provided they are of a character as not to affect materially the cost of the work involved.

20.2 If the Contractor claims that any change by Drawings, or otherwise, involves extra cost, he shall give the Owner written notice thereof within seven (7) days after being advised of such change, and in any event, before proceedings to execute the work. No such claim shall be valid unless so made in writing and approved by the Owner before the Contractor commences doing the work involved in the change.

20.3 The Owner reserves the right to change the location of any piece of apparatus or equipment, up to the time of roughing in, without additional expense to the Owner, unless such change requires additional material. If such a change of location requires a lesser amount of material than the original layout called for by the Contract, the Owner shall be entitled to a credit equal to the difference in the cost of installation.

20.4 The Specifications and Drawings may be modified and changed from time to time in a manner not materially affecting the substance thereof. If such changes and modifications materially increase the unit cost of the work, the increased expense will be paid by the Owner. If such modifications and changes diminish the cost of the work, the amount of said diminution may be retained or withheld by the Owner. No consequential loss or anticipated profit on work not executed will be paid to the Contractor.

20.5 The Owner, without invalidating the Contract, may order extra work or make any changes by altering, adding to or deducting from the work. All such work shall be executed under the conditions of the original Contract except that any claim for extension of time caused thereby shall be adjusted at the time of ordering such change. No claim for an additional compensation by Contractor shall be valid unless the change be ordered in writing.

20.6 The Contractor shall do such additional work only upon prior receipt of a written change order signed by the Owner.

Any additional work for which there is no lump sum bid or unit price bid for like work in the Proposal will be done as "extra work" at prices to be agreed upon previous to the performance thereof by the Contractor, in writing, signed by the Contractor and the Owner.

20.7 Where unit prices are not set forth, then a lump sum or unit prices, mutually agreed upon by the Owner and the Contractor, shall be used. Where a unit price or lump sum cannot be agreed upon by the parties or where this method of payment is impracticable, the Owner, may require the Contractor to do such "extra work" on a "force-account" basis.

20.8 "Force-account" shall be defined as the actual net cost, in money, to the Contractor for the materials and for the taxable wages of applied labor (plus pro-rated premiums for Workmen's Compensation Insurance) required for such extra work, plus such costs of rental of equipment (other than small tools) required and approved by the Owner in writing for such extra work, plus twenty percent (20%) as compensation for all other items of profit and costs or expenses, including administration, overhead, superintendence, insurance (other than Workmen's Compensation Insurance), materials used in temporary structures, allowances made by the Contractor to subcontractors, additional premiums upon the Payment and Performance Bonds of the Contractor and the use of small tools. The twenty percent (20%) compensation for profit and expenses shall be the total allowance paid to the Contractor for profit and expenses on any item of extra work. If the Contractor subcontracts any portion of the extra work, the total allowance of twenty percent (20%) shall be divided between the Contractor and the subcontractor. The provisions hereof shall not affect the power of the Owner to act in case of emergency as herein provided. The Owner shall have the right to examine the books and records of the Contractor relative to the cost figures in the extra work referred to above and the Contractor shall furnish to the Owner, for approval, a detailed statement at the end of each day, of the charges incurred and billable for all "force-account" work performed on that day. Payment to the Contractor by the Owner for extra work will be subject to approval by the Owner after examination and audit of Contractor's said books and records and comparison of such audit against the Owner's records.

21. APPROVALS

21.1 All samples, shop drawings or schedules required for approval shall be furnished by the Contractor as directed subject to approval by the Engineer. The work shall be done in accordance with these approved items, and the Drawings and Specifications.

21.2 After checking and verifying all field measurements, Contractor shall submit to Engineer for approval, three (3) copies of all Shop Drawings, which shall have been checked by and stamped with the approval of the Contractor and identified as Engineer may require. The data shown on the Shop Drawings will be complete with respect to dimensions, design criteria, materials of construction and the like to enable the Engineer to review the information as required.

21.3 Contractor shall also submit to Engineer for approval with such promptness as to cause no delay in the work, all samples required by the Contract Documents. All samples will have been checked by and stamped with the approval of the Contractor, identified clearly as to material, manufacturer, any pertinent catalog numbers and the use for which intended.

21.4 At the time of each submission, Contractor shall in writing call Engineer's attention to any deviations that the Shop Drawings or sample may have from the requirements of the Contract Documents.

21.5 Engineer will review and approve with reasonable promptness Shop Drawings and samples, but his review and approval shall be only for conformance with the design concept of the Project and for compliance with the information given in the Contract Documents. The approval of a separate item as such will not indicate approval of the assembly in which the item functions. Contractor shall make any corrections required by Engineer and shall return the required number of corrected copies of Shop Drawings and resubmit new samples until approved. Contractor shall direct specific attention in writing or on resubmitted Shop Drawings to revisions other than the corrections called for by Engineer on previous submissions. Contractor's stamp of approval on any Shop Drawings or sample shall constitute a representation to the Owner and Engineer that Contractor has either determined and verified all quantities, dimensions, field construction data, or he assumes full responsibility for doing so, and that he has reviewed or coordinated each Shop Drawing or sample with the requirements of the Work and the Contract Documents.

21.6 Where a Shop Drawing or sample submission is required by the Contract Documents no related work shall be commenced until the submission has been approved by the Engineer. A copy of each approved Shop Drawing and each approved sample shall be kept in good order by Contractor at the Site and shall be available to Owner.

21.7 Engineer's approval of Shop Drawings or samples shall not relieve Contractor from his responsibility for any deviations from the requirements of the Contract Documents unless Contractor has in writing called the Engineer's attention to such deviation at the time of submission and the Engineer has given written approval to the specific deviation, nor shall any approval by Engineer relieve Contractor from responsibility for errors or omissions in the Shop Drawings.

21.8 Cuts and drawings of all equipment and appliances which the Bidder proposes to furnish must be submitted to Engineer together with the trade name by which such appliance is known. The Contractor shall prepare drawings which shall include all details, and the Contractor shall submit three (3) copies of each sheet for the approval of the Engineer, and shall furnish him with as many copies thereof as the Engineer may consider necessary for the execution of the work. The Contractor shall furnish to the Engineer such drawings, catalogues, pictures, descriptions, dimensions, test reports, specifications, statements, bills of materials, specimens, and such other similar information as the Engineer may request at any time prior to the completion of the execution of the Contract.

21.9 The approval of the Engineer of drawings or other data furnished by the Contractor shall in no way relieve the Contractor from responsibility for the correctness thereof or for the accurate and satisfactory execution of the Contract.

22. CONTRACTOR'S GUARANTEE

22.1 The Contractor shall guarantee his work and shall remedy without cost to the Owner any defects which may develop therein during the guarantee period indicated in the Contract. If after written notice to the Contractor and his Surety, the Contractor fails to remedy such defects, the Owner may declare the Contractor in default and may notify and require the Surety to remedy such defects under the terms of the Performance Bond.

23. OTHER WORK AND CONTRACTS

23.1 The Owner reserves the right to let and execute other Contracts in connection with this work. The Contractor shall afford other Contractors reasonable opportunity for the introduction and storage of their materials and the execution of their work, and shall properly connect and coordinate his work with theirs.

23.2 If any part of the Contractor's work depends for proper execution or results upon the work performed by others, the Contractor shall inspect and promptly report to the Owner any defects in such work that render it unsuitable for such proper execution or results. His failure to so inspect and report shall constitute an acceptance of the work performed by others as fit and proper for the reception of his work.

23.3 To insure the proper execution of his subsequent work, the Contractor shall measure work already in place and shall at once report to the Owner any discrepancy between the executed work and the Drawings.

24. SUBCONTRACTS

24.1 The Contractor shall, as soon as practicable after signing of the Contract, notify the Owner in writing of the names of any subcontractors proposed for any part of the work and shall not employ any subcontractor that the Owner may, within a reasonable time, object to.

24.2 The Contractor agrees that he will be fully responsible to the Owner for the acts and omissions of his subcontractors and of persons either directly or indirectly employed by them as he is for the acts and omissions of persons directly employed by the Contractor. Nothing contained in the Contract Documents shall create any contractual relation between any subcontractor and the Owner.

25. RELATIONS OF CONTRACTOR AND SUBCONTRACTORS

24.1 The Contractor agrees to bind every subcontractor and every subcontractor agrees to be bound by the following provisions of this article.

a) The subcontractor agrees:

(1) To be bound to the Contractor by the terms of the Contract and to assume toward the Contractor the obligations and responsibilities that the Contractor, by the Contract, assumes toward the Owner.

(2) To submit to the Contractor applications for payment in such reasonable time as to enable the Contractor to apply for payment.

(3) To make all claims for extras, for extension of time and for damages for delays or otherwise, to the Contractor in the manner provided in the Contract for like claims by the Contractor upon the Owner.

b) The Contractor agrees:

(1) To be bound to the subcontractor by all the obligations that the Owner assumes to the Contractor under the Contract, and by all the provisions thereof affording remedies and redress to the Contractor from the Owner.

(2) To pay the subcontractor the amount allowed to the Contractor on account of the subcontractor's work to the extent of the subcontractor's interest therein.

(3) To pay the subcontractor so that at all times the total payments shall be as large in proportion to the value of the work done by the subcontractor as the total amount paid to the Contractor is to the value of the work done by the Contractor.

(4) To pay the subcontractor to such extent as may be provided by the Contract Documents or the subcontract, if either of these provides for earlier or larger payments than the above.

(5) To pay the subcontractor on demand for his work or materials as far as executed and fixed in place, less the retained percentage, even though the Owner fails to pay Contractor for any cause not the fault of the subcontractor.

(6) To make no demand for liquidated damages or penalty for delay in any sum in excess of such amount as may be specifically named in the subcontract.

(7) That no claim for services rendered or materials furnished by the Contractor to the subcontractor shall be valid unless written notice thereof is given by the Contractor to the subcontractor during the first ten (10) days of the calendar month following that in which the claim originated.

c) The Contractor and subcontractor agree:

(1) That nothing in this article shall create any obligation on the part of the Owner to pay, or to see to the payments of, any sums to any subcontractor.

26. TEMPORARY SERVICES

26.1 The Contractor is responsible for providing temporary electric power, water, and any other services necessary for the safe and efficient progress of work.

27. WORKING CONDITIONS

27.1 No night or Sunday work will be permitted except in cases of emergency, and then only with the written consent of the Owner and to such an extent as the Owner may deem necessary.

27.2 The Contractor shall arrange for and be responsible for a sufficient amount of illumination at all times to carry on all phases of the work.

28. CLEANING SITE

28.1 The Contractor shall, at all times, keep the Site free from accumulations of waste materials or rubbish caused by his employees or by the work. Steel trash receptacles with lids shall be provided by Contractor, at his costs, during all work on the project.

Before the work will be considered as having been completed, the Contractor shall clean and remove from the Site of the Project and adjacent property all trash, debris, surplus and discarded materials, equipment and temporary structures.

29. PUBLIC CONVENIENCE AND SAFETY

29.1 The Contractor shall conduct the work so as to insure the least obstruction to pedestrian and vehicular traffic. The convenience of the general public and of residents adjacent to the Project shall be provided for in an adequate and satisfactory manner. Unless otherwise authorized by the Municipality or Governing Agency, streets shall not be unnecessarily obstructed. Unless the Municipality or Governing Agency authorizes the complete closing of a street, road, or alley, the Contractor shall provide for the maintenance of traffic thereon at his own expense.

29.2 The Contractor shall plan his work so as to provide adequate protection during storms. Certain portions of the work included in this Contract may be affected during storms and floods. Provisions for preventing damage thereby shall be made available at all times by Contractor.

29.3 No trees, shrubs, or plantings shall be cut down or removed without the authorization of the Owner. Trees and shrubs cut down on authorization of the Owner shall have their stumps and roots removed. All debris resulting from the removal of trees and shrubs shall be removed from the Site and disposed of by the Contractor in a satisfactory manner at Contractor's sole expense.

30. POLLUTION CONTROL

30.1 The Contractor shall exercise every reasonable precaution throughout the life of the Project to prevent the pollution of rivers, streams, or impoundments. Pollutants such as chemicals, fuels, lubricants, bitumens, raw sewage and other harmful wastes shall not be discharged into or alongside of rivers, streams, impoundments or into natural or man-made channels leading thereto. The Contractor shall comply with Chapter 102 "Erosion Control", of the Department of Environmental Resources Rules and Regulations, which shall apply, and to the Erosion and Sedimentation Control Plan included as part of the plan set, and to the Narrative relating thereto and is made a part hereof.

30.2 Prohibited construction procedures include, but are not limited to: dumping of spoil materials into any stream corridor, any wetlands, any surface waters, or at unspecified locations; indiscriminate, arbitrary or capricious operation of equipment in any stream corridors, any wetlands, or any surface waters; pumping of silt-laden water from trenches or other excavations into any surface waters, any stream corridors, or any wetlands; damaging vegetation

adjacent to or outside of the Contractor's limit of work; disposal of trees, brush and other debris in any stream corridors, any wetlands, any surface waters, or at unspecified locations; permanent or unspecified alteration of the flow line of any stream; open burning of debris.

30.3 No separate or additional payment will be made for pollution control, it being considered included in the price bid in the Proposal.

31. LIENS

31.1 The Contractor shall file a release of liens before commencing any of the work and provide the Owner with proof of the filing with the appropriate Court.

32. PAYMENTS AND COMPLETION

32.1 Contractor shall submit monthly to Owner for review an Estimate for Payment filled out and signed and verified by Contractor covering the Work completed as of the date of the Estimate and accompanied by such data and schedules as Owner may reasonably require.

32.2 Contractor warrants and guarantees that title to all Work, materials and equipment covered by any Estimate for payment will pass to Owner at the time of payment, free and clear of all liens, claims, security interests and encumbrances.

32.3 Owner will, within thirty (30) days after receipt of each Estimate for Payment, either indicate in writing his approval of payment, or return the Estimate to Contractor indicating in writing his reasons for refusing to approve payment. In the later case, Contractor shall make the necessary corrections and resubmit the Estimate to the Owner for approval. Owner shall, within thirty (30) days after approval by Owner of a so-approved Estimate for Payment, pay Contractor the amount approved by the Owner; subject to withholding by Owner of ten percent (10%) of said amount approved. The Owner shall retain said ten percent (10%) of the amount of each payment until such time as the value of the completed work is equal to fifty percent (50%) of the Contract Price after which time Owner will not retain any amount from subsequent payments but will hold the amount previously retained as provided by law.

32.4 The Owner shall refuse to approve any such payment because of subsequently discovered evidence, or the results of subsequent inspections or tests nullify any such payment previously approved, to such extent as may be necessary in his opinion to protect Owner from loss because:

A. The Work is defective, or completed Work has been damaged requiring correction or replacement;

B. Claims or liens have been filed against the Contractor, the Owners, or the lands involved;

C. The Contract Price has been reduced because of Modifications;

D. Owner has been required to correct defective Work or complete the Work in accordance with Paragraph 4 of the General Conditions;

E. Of unsatisfactory prosecution of the Work by the Contractor, including failure to furnish acceptable submittals, engage in a satisfactory procedure, or to clean up, or to keep adequate books and records.

32.5 Prior to final payment, Contractor may, in writing to Owner, certify that the entire Project is substantially complete and request that Owner issue a Certificate of Substantial Completion. Within a reasonable time thereafter, the Owner and Contractor shall make an inspection of the Project to determine the status of completion. If the Owner does not consider the Project substantially complete, he will notify the Contractor in writing giving his reasons therefor. If the Owner considers the Project substantially complete, the Owner will prepare a tentative Certificate of Substantial Completion. There shall be attached to the Certificate a list of items to be completed or corrected, said time to be within the Contract Time.

32.6 After receiving notice of Owner's intent to issue a Certificate of Substantial Completion, the Contractor shall deliver to the Owner all maintenance instructions, and related materials, all guarantees, Bonds, all certificates of inspection and other documents--all as required by the Contract, as well as his Estimate for Final Payment following the procedures for progress payments. The Estimate for Final Payment shall be accompanied by such data and schedules as Owner may reasonably require, together with complete and legally effective releases or waivers (satisfactory to Owner) of all Liens arising out of the Contract and the labor and services performed and the material and equipment furnished thereunder. If any Subcontractor materialmen, fabricator or supplier fails to furnish a release or receipt in full, Contractor may furnish a Bond or other collateral satisfactory to Owner to indemnify the Owner against Liens.

32.7 Contractor's obligation to perform the Work and complete the Project in accordance with Contract shall be absolute. Neither approval of any progress Estimate or Estimate for Final Payment by Owner, nor any use or occupancy of the Project or any part thereof by Owner, nor any act of acceptance by Owner, nor any failure to do so by Owner, nor any correction of defective Work by Owner shall constitute an acceptance of Work not performed or constructed in accordance with the Contract.

32.8 If the Contractor does not complete or correct all the items on the list prepared in conjunction with the Certificate of Substantial Completion before the Final Payment is actually made, the Owner will retain from Final Payment one and one-half (1-½) times the amount certified by the Owner as required to fully complete the work pending the full completion or correction of such items.

32.9 The acceptance of Final Payment by Contractor shall constitute a waiver of all claims by Contractor against Owner other than those previously made in writing by Contractor to Owner and which claims are unsettled at the time of Final Payment.

33. LOCATION AND MEASUREMENT

33.1 The entire installation during its progress shall be accurately located in plan and elevation as shown on the Drawings or as specified or as located, staked out, marked, or otherwise directed by the Owner. When directed to do so by the Owner, the Contractor shall provide and have at hand on the job Site, all necessary stakes, straight edges, levels, chalk lines, sounding rods, augers, and all other implements and materials which the Owner or his representative may desire to use in the location or measurement of the Work by the Contractor and in making any tests thereof. The Contractor shall furnish such labor as the Owner or his representative may desire to assist in laying out, measuring up, all or any portions of the Work of the Contractor, and in making any tests thereof.

34. ACT OF OCTOBER 16, 1972 (NO. 247), COMMONWEALTH OF PENNSYLVANIA

This act relates to the prevention of environmental pollution and the preservation of public natural resources in construction projects.

If the Contractor must undertake additional work due to the enactment of new, or the amendment of, existing statutes, rules or regulations occurring after the submission of the successful Proposal, the Owner will issue a change order setting forth the additional work that must be undertaken, which will not invalidate the Contract. The cost of such a change order to the Owner will be determined in accordance with the provisions of the Contract for Changes, Additional and Extra Work. In the event of a dispute between the Owner and Contractor as to the costs of such work, or payment to the Contractor therefor, such dispute will be determined by Court action and not by any form or Arbitration.

35. SUITS AND ACTIONS -- VENUE

All and any suits or actions, whether at Law or in Equity or otherwise on account of this Contract, by the Contractor against the Owner, Engineer, or the officers, agents, servants, workmen or employees of either of them, will be brought in and only in the

Court of Common Pleas of Bucks County, Pennsylvania, and any suit by Owner or Engineer against the Contractor or Surety, whether at Law or in Equity or otherwise, if brought in a State Court, will not be removed by the Contractor or Surety to any Federal Court.

36. CONSTRUCTION IN REGARD TO PAYMENT

The Contract involves a public works project on which public money is to be spent. It is the intention of the Owner to spend the least amount of public money possible. If any dispute should arise between the Owner and Contractor as to any monies due or allegedly due Contractor, such dispute or disputes shall be resolved by construing the Contract so as to determine the amount due the Contractor, as the least amount possible, under any interpretation of the Contract.

37. USE OF LANDS

The Owner shall provide the lands upon which the work under the Contract is to be done, except that the Contractor shall provide all necessary additional land required for the erection of temporary construction facilities and storage of materials, together with right of access thereto. The Contractor shall conduct no operations outside the lines of the property leased or owned or authorized for such use by the Owner without permission of the Owner.

38. ENGLISH-SPEAKING PERSONNEL

The Contractor shall provide a competent reliable and English-speaking person, who is delegated to be readily available, and who shall have full authority to act in behalf of the Contractor in case it is necessary to deal with emergency situations which may arise in connection with this Project during off-work hours, evenings, weekends, and holidays.

DIVISION 2 - SITE WORK

DIVISION 2 - SITE WORK

SECTION 2A - GENERAL

General

Description: The Contractor shall provide all labor, materials, equipment and services necessary for, and incidental to, the preparation of the site, protection, excavation, embankment, drainage, and grading as shown on the drawings and as herein specified.

The Contractor shall accept the site in the condition in which it exists at the time of award of the Contract.

The Engineer shall determine the suitability of materials that are to be used in the work and should any materials encountered be unsatisfactory for the purpose intended, they shall be disposed of at a location designated by the Owner.

Lines and Grades: The Contractor shall provide the stake-out, including construction perimeter boundary.

The Contractor shall preserve and maintain in proper position all stakes, grade-boards, and lines, until authorized to remove same; and in case any such are disturbed by the Contractor's employees, or by his neglect to give them proper protection, those so disturbed shall be reset at the Contractor's expense. The Contractor shall furnish, when and as required, all necessary materials, labor and assistance for the setting of all stakes, grade-boards, lines, forms, etc. which may be required for the proper construction of the work.

Any work done without lines, levels and instructions, or without the supervision of any inspector, will not be estimated or paid for except when such work is authorized by the Owner.

DIVISION 2 - SITE WORK

SECTION 2B - ENVIRONMENTAL PROTECTION

General

Description: The Contractor shall provide labor, equipment, tools, materials, and services needed to accomplish work as described herein.

Products

Materials: All materials shall be in accordance with the description herein.

Execution

Procedures: All work done shall conform to the Department of Environmental Resources Regulations and to the Bucks County Soil Conservation Service Specifications and Requirements.

Requirements: The Contractor shall exercise care to preserve the natural landscape and shall conduct his construction operations so as to prevent any unnecessary destruction scarring, or defacing of the natural surroundings in the vicinity of the work area.

Graded areas are to be seeded within 30 days following earthmoving procedures. If the time of the year is not conducive for permanent seeding, a temporary mulch and/or seeding should be used.

Critical slopes shall be stabilized and protected from surface water runoff.

Erosion control devices, such as diversion or interceptor dikes, hay bales, shall be used to provide temporary erosion control during construction.

All materials deposited on public thoroughfares shall be immediately removed.

Construction shall not impair surface drainage, constitute a potential erosion hazard or act as a source of sedimentation to any adjacent property or water course.

Air Pollution: All dust and dirt caused by construction activity shall be controlled. Such controls shall be in compliance with state and local regulations.

DIVISION 2 - SITE WORK

SECTION 2 C - CLEARING AND GRUBBING

General

Description: The Contractor shall clear the entire work area to be graded, including a sufficient area alongside of same to properly carry on the work, of all trees, down timber, snags, brush, rubbish, all other objectionable material, and other vegetation, except leaves, grass and weeds. All stumps and matted roots shall be grubbed.

Related Documents: Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specifications, apply to work specified in this section.

Protection: Streets, roads, adjacent properties and other works to remain shall be protected throughout the work area.

Protect existing trees and other vegetation indicated to remain in place, against unnecessary cutting, breaking or skinning of roots, skinning and bruising of bark, smothering of trees by stockpiling construction materials or excavated materials within drip line, excess foot or vehicular traffic, or parking of vehicles within drip line. Provide temporary guards to protect trees and vegetation to be left standing.

Water trees and other vegetation to remain within limits of contract work as required to maintain their health during course of construction operations.

Provide protection for roots over 1-1/2" diameter cut during construction operations. Coat cut faces with an emulsified asphalt, or other acceptable coating, formulated for use on damaged plant tissues. Temporarily cover exposed roots with wet burlap to prevent roots from drying out, cover with earth as soon as possible.

Replace trees which cannot be repaired and restored to full growth status, as determined by tree surgeon.

Restriction: The Contractor shall remove only the materials specified within the limits specified. If the Contractor removes extra material that is required on the Project, then all suitable material removed shall be replaced by the Contractor at his own expense. If the Contractor exceeds the clearing limits specified, he shall, if directed, restore such areas to their original condition.

Measure and Payment: No separate item is provided for clearing and grubbing, therefore, the cost for this work must be included in the unit prices for the items to which clearing and grubbing pertains.

Disposal of Trees and Shrubs: State and local code requirement shall control the disposal of trees and shrubs.

Execution

Clearing: Remove vegetation, improvements, or obstructions interfering with installation of new construction. Remove such items elsewhere on site or premises as specifically indicated. Removal includes digging out stumps and roots.

Individual trees, groups of trees and other vegetation which may be designated within the right-of-ways not to be cleared shall be left standing and uninjured.

Trees, saplings, shrubs, bushes, vines and undergrowth within the limits of clearing shall be removed to the heights above the ground as follows:

Trees over 6 inches in diameter: 12 inches

Shrubs, saplings, bushes and trees under 6 inches in diameter: 3 inches

Vines and undergrowth: 2 inches

Stumps required to be removed shall be removed to a depth of 18 inches. The depth shall be measured from the existing ground surface or the proposed finished surface, whichever is lower.

Grubbing: The limits of grubbing shall coincide with the limits of clearing.

Remove all stumps, roots over 4 inches in diameter, and matted roots within the limits of grubbing to a depth of 18 inches.

Trimming of Trees: When required, and with the Engineer's approval, trees shall be trimmed to remove branches and roots which interfere with construction. Paint all cut branches and roots over 2 inches in diameter with wound paint.

Salvage: Materials which are to be salvaged, as a result of the Contractor's clearing operations, shall include the following items which are to be turned over to the property or adjacent property owner if the owner so desires:

Logs over 12 inches, butt diameter

Branches over 6 inches, butt diameter

Part suitable for use as mulch

Live plants suitable for replanting

All salvageable material not desired by the property owner shall be removed at the Contractor's expense.

Cut logs and branches into cordwood, 24 inches in length and store on site where approved by the Engineer.

Disposal: Burning of materials on the site will not be permitted.

Dispose of removed and demolished items, including trash and debris, off the Owner's property, unless otherwise indicated.

Topsoil: Topsoil is defined as friable clay loam surface soil found in a depth of not less than 4". Satisfactory topsoil is reasonable free of subsoil, clay lumps, stones, and other objects over 2" in diameter, and without weeds, roots, and other objectional material.

Topsoil Stripping: To whatever depths encountered in a manner to prevent intermingling with underlying subsoil or other objectionable material.

Remove heavy growths of grass from areas before stripping.

Where trees are indicated to be left standing, stop topsoil stripping a sufficient distance to prevent damage to main root system.

Topsoil Stockpile: At readily accessible locations. Construct storage piles to freely drain surface water. Cover storage piles if required to prevent wind-blown dust or off site at the Contractor's expense.

Excess Fill and Topsoil: Transport excess fill and topsoil materials only to designated "spoil" areas on Owner's property and dispose of as directed.

Removal of Other Obstructions: Fences, guard rails, buildings, foundations, or materials of any kind within the limits of the project area shall be removed carefully by the Contractor, wholly or in part, as required to complete the project and shall be disposed of in "spoils area", or off site at the Contractor's expense.

DIVISION 2 - SITE WORK

SECTION 2D - EARTHWORK

General

Description: The Contractor shall excavate, sheet, store, de-water, backfill and compact all excavations, and shall make all fills that may be necessary for constructing the work under this project. The above shall also include all excavation and backfill. The Contractor shall furnish all labor, materials and equipment necessary for completion of the work.

Existing Utilities: The contractor shall comply with Pa. Act 287 and contact all utility companies to verify the location of facilities. Contact shall be made three (3) working days prior to construction. A list of utility companies operating in this area are as follows:

Bucks County Water &
Sewer Authority

Neshaminy Manor Center 215-343-2800
Building "G"
Doylestown, PA. 18901

Should uncharted, or incorrectly charted, piping or other utilities be encountered during excavation, consult utility owner immediately for directions. Cooperate with Owner and utility companies in keeping respective services and facilities in operation. Repair damaged utilities to satisfaction of utility owner

Unclassified Excavation: All excavation, of every description and in whatever substance encountered, shall be performed to the dimensions and elevations shown on the Drawings. The Contractor will be allowed no extra compensation for unusual materials encountered, unless provisions for extra compensation are so noted in the Specifications.

Rock Excavation: Rock excavation will be accomplished on a unit price basis. No extra will be allowed for rock excavation until the rock has been properly measured. "Rock excavation" shall be interpreted as meaning material which cannot be loosened, if trenching is being done by hand, and if trenching is done by machine, "rock excavation" shall mean any material which cannot be removed from its original bed by the trenching machine in use. In brief, it is material which requires drilling and blasting to remove it from its original bed, including ledgerrock, concrete or masonry structures and all boulders exceeding one-half (1/2) cubic yard in volume.

Execution

General Excavation: The Contractor shall proceed with caution in any excavation and shall use every means possible to determine the location and extent of underground structures, utilities, conduits, etc, prior to excavation and to protect such facilities from damage or displacement during excavation. The Contractor shall be held strictly responsible for the repair and/or replace-

ment of any structure, pipeline or other facility, above or below the ground which may be damaged in any way by his operations.

All excavated materials shall be segregated into suitable and unsuitable material. Only suitable materials shall be used for backfilling. Unsuitable materials shall be promptly removed from the site by the Contractor.

The Contractor shall keep all excavations free from water, at his own expense, while structural work is in progress, and to such extent as may be necessary while excavation work alone is being carried on. He shall build all dams and other devices necessary for this purpose, and provide and operate pumps of sufficient capacity for dewatering the excavations. He shall provide for the disposal of the water removed from excavations, in such manner as shall not cause injury to the public health, to public or private property or to any portion of the work completed or in progress, or any impediment to the use of the streets by the public.

Excavation Classifications: The following classifications of excavation will be made when unanticipated rock excavation is encountered in work. Do not perform such work until material to be excavated has been cross-sectioned and classified by the Engineer. Such excavation will be paid on basis of contract conditions relative to changes in work.

Earth Excavation: Includes removal and disposal of pavements and other obstructions visible on ground surface, underground structures and utilities indicated to be demolished and removed, material of any classification indicated in data on subsurface conditions, and other materials encountered that are not classified as rock excavation or unauthorized excavation.

Rock Excavation: Consists of removal and disposal of materials encountered that cannot be excavated with a 3/4 cubic yard capacity power shovel without drilling and blasting, or requiring use of special equipment, except such materials that are classified as earth excavation.

Typical of materials classified as rock are boulders 1/2 cu. yd. or more in volume, solid rock, rock in ledges, and rockhard cementitious aggregate deposits.

Intermittent drilling or ripping performed to increase production and not necessary to permit excavation of material encountered will be classified as earth excavation.

Rock Payment Lines: Are limited to the following:

Two feet outside of concrete work for which forms are required, except footings.

One foot outside perimeter of footings.

In pipe trenches, 6" below invert elevation of pipe and 2 ft. wider than inside diameter of pipe, but not less than 3 ft. minimum trench width.

Neat outside dimensions of concrete work where no forms are required.

Under slabs or grade 6" below bottom of concrete slab.

Unauthorized Excavation: Consists of removal of materials beyond indicated subgrade elevations or dimensions without specific direction of Architect. Unauthorized excavation, as well as remedial work directed by Engineer shall be at Contractor's expense.

Additional Excavation: When excavation has reached required subgrade elevations, notify Engineer who will make an inspection of conditions.

If unsuitable bearing materials are encountered at required subgrade elevations, carry excavations deeper and replace excavated materials as directed by Engineer.

Removal of unsuitable material and its replacement as directed will be paid on basis of contract conditions relative to changes in work.

Dewatering: Prevent surface water and subsurface or ground water from flowing into excavations and from flooding project site and surrounding area.

Do not allow water to accumulate in excavations. Remove water to prevent softening of foundation bottoms, undercutting footings, and soil changes detrimental to stability of subgrades and foundations. Provide and maintain pumps, well points, sumps, suction and discharge lines, and other dewatering system components necessary to convey water away from excavations.

Convey water removed from excavations and rain water to collecting or run-off areas. Establish and maintain temporary drainage ditches and other diversions outside excavation limits for each structure. Do not use trench excavations as temporary drainage ditches.

Removal and Storage of Topsoil Materials: On all areas where grading is to be performed the topsoil shall be carefully removed, stored and, after backfilling and/or grading is completed, areas uncovered shall be restored to such a condition as is designated in this Specification. The loss of topsoil through inefficient stripping or improper storage shall in no way relieve the Contractor from providing topsoil where directed and as required by these Specifications.

Site Grading: The Contractor shall grade the entire project

area to the slopes and elevations as indicated on the general site plan for finish grade contours. Grading shall be held to a tolerance of 2/10 foot except that this tolerance shall not be allowed in the direction which will retard drainage.

Unless otherwise shown on the Drawings, all surfaces shall be restored to their original condition. Surfaces shall be graded to drain away from all new structures. Topsoil shall be placed over all disturbed areas and shall be seeded or sodded as required.

Excavation for Trenches: The Contractor shall make all necessary excavations to the lines, slope and levels shown on the drawings and as required for the pipe laying and/or installation of pipe appurtenances.

The banks of the excavations shall be generally sloped as required to prevent slides or cave-ins. Where rock formations are encountered and the earth is stable, the sides may be cut vertically, or nearly so, consistent with normal safe practice for excavating the material encountered.

Trenches shall be excavated true to line so that a clear space not less than 6 inches or more than 8 inches in width is provided on each side of the barrel of the pipe. Bell holes shall be excavated to insure pipe resting for its entire length upon the bottom of the trench. Where, in the opinion of the Engineer, damage is liable to result from withdrawing sheathing, the sheathing shall be left in place and the contract price adjusted accordingly. Care shall be taken not to excavate below the depths specified.

In earth excavation the bottom of the trench shall be shaped so as to conform as nearly as possible to the outside of the pipe, particular care being taken to recess the bottom of the trench in such a manner as to relieve the bell of all load. Where the bottom of the trench shall, by mistake of the Contractor, have been taken out to a greater depth than above specified, it shall be refilled to the proper grade, using crushed stone, at the expense of the Contractor. Refilling with earth to bring the bottom of the trench to the proper grade will not be permitted.

Backfill trenches with concrete where trench excavations pass within 18" of column or wall footings and which are carried below bottom of such footings, or which pass under wall footings. Place concrete to level of bottom of adjacent footing.

Trenching Machines: Trenching machines may be used. No trenching machines shall be used on private property unless the Contractor obtains permission from the Owner for their use. The contractor will be held responsible for all damages done to private property and to State, City, Borough, Town, County, or Township highways or to any underground or overhead structures now on private property.

Length of Open Trench: No greater length of trench shall be left open, in advance of completed structure placed therein, then shall be authorized or directed. The Engineer shall be empowered at anytime, to require backfilling of open trenches over completed pipe lines, if in their judgement, such action is necessary even though to accomplish said backfilling he may be compelled to temporarily stop excavation or other work. If work is stopped on any trench, for any reason except by order of the Engineer and excavation is left open for an unreasonable length of time in advance of construction, the Contractor shall, if so directed, backfill such trench, and shall not again open said trench until he is ready to complete structure herein. If the Contractor refuses or fails to backfill such trench completely within forty-eight (48) hours the Engineer shall be authorized to do the work, and charge expense thereof to the Contractor.

Trenching Regulations: In open trenching on State or City highways, the Contractor shall be governed by the conditions, restrictions and regulations made by the Pennsylvania Department of Transportation. All such regulations shall be in addition to the ones set down in these specifications.

Stockpiling of Backfilling Materials: The Contractor shall stockpile all excavated backfill materials and shall maintain these stockpiles until required for backfilling. Care shall be taken by the Contractor to prevent erosion. Excess materials not used for backfilling and grading shall be promptly removed from the project site.

Backfilling: The Contractor shall backfill all excavations as promptly as is consistent with non-injury to pipe or structures, except that no backfilling shall be performed without the permission of the Engineer. Where excavations are in paved areas or areas to be paved, a suitable pavement base shall be provided as directed by these specifications.

Backfilling shall not be performed until the completion of the following:

- Acceptance of construction below finish grade including, where applicable, dampproofing, waterproofing, and perimeter insulation.

- Inspection, testing, approval, and recording locations of underground utilities.

- Removal of concrete formwork.

- Removal of shoring and bracing, and backfilling of voids with satisfactory materials. Cut off temporary sheet piling driven below bottom of structures and remove in manner to prevent settlement of the structure or utilities, or leave in place if required.

- Removal of trash and debris.

Permanent or temporary horizontal bracing is in place on horizontally supported walls.

Backfill materials shall be suitable materials excavated in the course of construction or other materials deemed suitable by the Engineer.

The material shall be free from cinders, ashes, refuse, boulders, rocks, stone, organic materials or other material which in the opinion of the Engineer is unsuitable. Frozen materials shall not be used in the backfill. Backfilling shall not be placed upon frozen material.

All backfilling shall be done in horizontal layers not to exceed eight inches (8") of uniform, loose thickness. Layers shall not exceed four inches (4") where hand tamping equipment will be used.

Backfill of Trenches: Immediately after a section of the piping is laid, sufficient backfill material shall be placed along each side of the pipe to hold pipe to line and grade.

Backfilling and tamping shall be started immediately after preliminary alignment inspection is made and shall continue without interruption to completion.

When the trench opening is under a state roadway, all requirements for trench restoration are dictated by the Pennsylvania Department of Transportation.

When the trench opening is within an existing roadway, other than a state road, or a road shoulder, the backfill shall be made with 2B modified stone.

The compaction of backfill to the specified density may be accomplished with the use of any type of compaction equipment approved by the Engineer. The compaction equipment may include any approved type of hand, air, mechanical, or vibrating equipment or combination thereof. All backfill material shall be distributed evenly and of such thickness as may be satisfactorily compacted consistently with the type of compaction equipment being used for the work. Each layer of loose material shall be uniformly compacted before more loose material has been added to that previously tamped. The compaction of backfill material will be accomplished in 4 inch to 6 inch lifts.

When rock is encountered, stones of not more than 6 inches in their largest dimension may be used in the backfill from a distance of one foot above the top of the pipe to the top of the trench. The stones shall be mixed with earth, in an amount of not over 25 percent of the backfill. Stones of larger size or in greater quantity shall not be used unless otherwise specified.

In roads, streets and surface areas, the Contractor shall immediately upon completion of the tamping, place and roll the full amount of stone base as hereinafter directed and as specified for resurfacing. In any event, the placing of the stone base and the completion of cleanup shall be completed within a period of 24 hours, after the laying of the pipe.

As the trenches are filled in, the work completed, the Contractor shall cart away, or remove all surplus material, without compensation, to such a point as may be designated. As a "Spoils Area" or off-site if not suitable for burial

When the trenches do not furnish sufficient material of suitable quality for refilling, the Contractor shall procure and supply such deficiency without extra charge.

Any settlement of backfill is the complete responsibility of the pipe laying contractor and all finished grades shall be constructed to the proper grades for good surface drainage, surfacing, resurfacing, repaving or laying of concrete walkways. Ponding will not be permitted.

After backfill has become or has been made sufficiently compact the Contractor shall substantially and neatly grade the entire disturbed area and after one (1) week resurface or repave and return to original condition the entire area which has been disturbed by said Contractor.

The Contractor shall be responsible for all settlement for a period of one (1) year after acceptance by the Owner and shall establish a time and method for repair within twenty-four (24) hours after notice is received of a settlement condition.

Maintenance of Backfill Excavation: The Contractor shall, at his own expense, maintain all backfilled excavation in proper condition until the end of the guarantee period. All depressions appearing in the backfilled excavations shall be promptly refilled regardless of the extent of seeding performed. The Contractor shall be responsible for any injury or damage that may result from improper maintenance of any backfilled excavation at any time during the guarantee period.

Shoring: Trenches shall, at all times, be properly and adequately sheeted and braced to prevent accidents, caving of the sides of the trench, or breaking of the ground outside of the lines of the trenches proper. Underground structures of all types shall be protected by the Contractor, who shall use all necessary shoring, bracing or other appliances for the protection of same. Care must be taken not to injure in any way water mains, water service pipes, drain pipes, sanitary sewers, gas mains, oil mains, Electric conduits or other structures encountered on the lines of the work.

In case of accident to any structures, the Owner of the structures shall be notified immediately so that the proper steps may be taken to repair any and all damage done. Any damage done to such structures shall be

repaired by the Contractor, or, if not done promptly by him the Architect may make such repairs at the expense of the Contractor.

The Contractor shall comply with all applicable provisions of "REGULATIONS FOR EXCAVATING AND CONSTRUCTION" of the Commonwealth of Pennsylvania, Department of Labor and Industry, particularly those requirements relating to shoring, bracing, and sheet piling.

Compaction: Compact soil to not less than the following percentages of maximum dry density for soils which exhibit a well-defined moisture density relationship determined in accordance with ASTM D 1557; and not less than the following percentages of relative density, determined in accordance with ASTM D 2049, for soils which will not exhibit a well defined moisture-density relationship.

Lawn or Unpaved Areas - Compact top 6" of subgrade and each layer of backfill or fill material at 90% maximum dry density.

Pavements - Compact top 12" of subgrade and each layer of backfill or fill material at 95% maximum dry density or 90% relative dry density for cohesive soil material.

Moisture Control: Where subgrade or layers of soil material must be moisture conditioned before compaction, uniformly apply water to surface of subgrade, or layer of soil material, to prevent free water appearing on surface during or subsequent to compaction operations.

Remove and replace, or scarify and air dry, soil material that is too wet to permit compaction to specified density.

Soil material that has been removed because it is too wet to permit compaction may be stockpiled or spread and allowed to dry. Assist drying by discing, harrowing or pulverizing until moisture content is reduced to a satisfactory value.

Ground Surface Preparation: Remove vegetation, debris, unsatisfactory soil materials, obstructions, and deleterious materials from ground surface prior to placement of fills. Plow, strip, or break-up sloped surface steeper than 1 vertical to 4 horizontal so that fill material will bond with existing surface.

When existing ground surface has a density less than that specified under "Compaction" for particular area classification, break up ground surface, pulverize, moisture-condition to optimum moisture content, and compact to required depth and percentage of maximum density.

Pavement Sub-base Course: Sub-base course consists of placing sub-base material, in layers of specified thickness, over subgrade surface to support a pavement base course.

See Section 2H "Asphalt Paving" for specifications on paving.

During construction, maintain lines and grades including crown and cross-slope of subbase course.

Place shoulders along edges of subbase course to prevent lateral movement. Construct shoulders of acceptable soil materials, placed in such quantity to compact to thickness of each subbase course layer. Compact and roll at least 12" width of shoulder simultaneously with compacting and rolling of each layer of subbase course.

Place subbase course material on prepared subgrade in layers of uniform thickness, conforming to indicated cross-section and thickness. Maintain optimum moisture content for compacting subbase material during placement operations.

When a compacted subbase course is shown to be 6" thick or less, place material in a single layer. When shown to be more than 6" thick, place material in equal layers, except no single layer more than 6" or less than 3" in thickness when compacted.

Field Quality Control: Quality Control Testing during Contruction: Allow testing service to inspect and approve subgrades and fill layers before further construction work is performed.

Perform field density tests in accordance with ASTM D 1556 (sand cone method).

Footing subgrade: For each strata of soil on which footings will be placed, conduct at least one test to verify required design bearing capacities. Subsequent verification and approval of each footing subgrade may be based on a visual comparison of each subgrade with related tested strata, to the satisfaction of the testing agency.

Paved Areas and Building Slab Subgrade: Make at least one field density test of subgrade for every 2,000 sq. ft. of paved area or building slab, but in no case less than 3 tests. In each compacted fill layer, make one field density test for every 2,000 sq. ft. of overlaying building slab or paved area, but in no case less than 3 tests.

Foundation Wall Backfill: Take at least 2 field density tests, at locations and elevations as directed.

If in opinion of Engineer, based on testing service reports and inspection, subgrade or fills which have been placed are below specified density, provide additional compaction and testing at no additional expense.

Disposal of Excess and Waste Materials: Transport acceptable excess excavated material to designated soil storgae areas on Owner's property. Stockpile soil or spread as directed by Engineer.

Removal from Owner's Property: Remove waste materials, including unacceptable excavated material, trash and debris, and disopose of it off Owner's property.

DIVISION 2 - SITE WORK

SECTION 2E - ICE SKATING POND

General

Description: The Contractor shall provide labor, equipment, tools, materials, and services needed to accomplish work described herein and as shown or called out on the drawings.

Products:

PVC Pipe (Schedule 80):

- A. Materials: Pipe, fittings and valves shall be manufactured from a PVC compound which meets the requirements of Type 1, Grade 1 Polyvinyl Chloride as outlined in ASTM D-1784. A Type 1, Grade 1 compound is characterized as having the highest requirements for mechanical properties and chemical resistance.

Compound from which pipe is produced shall have a design stress rating of 2000 psi at 73° F. and 440 psi at 140° F. for water service listed by the Plastics Pipe Institute (PPI).

Materials from which pipe, fittings and valves are manufactured shall have been tested and approved for conveying potable water by the National Sanitation Foundation (NSF).

- B. Fittings: Fittings shall conform to the requirements of ASTM D-2467 for socket type, and ASTM D-2464 for threaded type, by Plastic Piping Systems, Inc., Piscataway, New Jersey. 4.1 All 8" fittings shall have a minimum pressure rating of 200 psi.

Execution

Trenching and Bedding

Depth: In installing underground piping systems, the depth of the trench is determined by the intended service and by local conditions (as well as by local, state and national codes that may require a greater trench depth and cover than are technically necessary).

Pipe intended for potable water service should be buried at least 12 inches below the maximum expected frost penetration. For permanent lines subject to heavy overhead traffic, a minimum cover of 24 inches should be allowed. IN areas of light overhead traffic, a depth of 12 to 18 inches normally is sufficient for small-diameter and small-diameter-to-thickness-ratio pipe. On larger sizes or larger diameter-to-thickness-ratio pipe, the bearing stresses should be calculated with the appropriate formula. Sufficient cover should be maintained to keep external stress levels below design criteria.

Width: The width of the trench should be sufficient to provide adequate room for "snaking" the pipe from side to side along the bottom, as des-

cribed below, and for placing and compacting the side fills. The Trench width can be held to a minimum with most pressure piping materials by joining the pipe at the surface and then lowering it into the trench after adequate joint strength has been obtained.

Bedding: The bottom of the trench should provide a firm, continuous bearing surface along the entire length of the pipe run. It should be relatively smooth and free of rocks. Where hardpan, ledge rock or boulders are present, it is recommended that the trench bottom be cushioned with at least four (4) inches of sand or compacted fine-grained soils.

Backfilling: Before making the final connections and backfilling, the pipeline should be cooled to near the temperature of the soil. During hot weather, for example, backfilling should be done early in the morning, when the solvent-cemented joints are completely dried and the line is fully contracted.

Assuming that the pipe is uniformly and continuously supported over its entire length on firm, stable material, it should first be covered with 6 to 8 inches of soil that is free of debris and rocks larger than one-half inch in diameter. This initial layer should be compacted by hand or, preferably, by mechanical tamper so that it acts as a protective cushion against the final backfill. Any large, sharp rocks that could penetrate the tamped layer around the pipe should be removed from the final backfill.

Ice Skating Pond:

Execution: The Contractor shall execute and construct the ice skating pond as per drawings.

Suitable tools and appliances for safe and convenience handling and laying of pipe and fittings shall be used. Extra care shall be exercised to prevent damage to pipe.

The Contractor shall use all care possible to prevent filtration and other pollution of all streams and waters during and after construction.

The Contractor shall clean up and construction work to final grades and stabilize surfaces as directed on plans or specified in those specifications.

DIVISION 2 - SITE WORK

SECTION 2F - SITE AMENITIES

General

Description: The Contractor shall provide all labor, materials, equipment, and accessories necessary to construct and install all site amenities as herein specified and as shown or detailed on the drawings.

Products

Materials: All materials shall be in accordance with the descriptions herein and as called out on the drawings.

Execution

Bollards: Bollards shall be constructed and installed as detailed on the drawings. Number of bollards (quantity) and locations are shown on the drawings.

Bollards shall be constructed of used utility poles, which are in no way rotted or severely cracked and generally have an overall good appearance.

Cut sections of utility poles shall have the newly exposed cut ends treated with creasote.

Improvement of Creek Bank: The creek bank shall be cleaned of all debris. Steep embankments, areas where walls and trees are to be removed along the bank, and other areas as shown on the plans shall be improved and planted as specified herein.

Grading shall conform to the proposed contours and elevations shown on the grading plan. Final grades will be considered acceptable for planting only when free of stones, roots, and debris.

Prior to planting, a fine layer of a balanced plant fertilizer shall be applied and raked into the soil surface.

Plant material shall be as specified:

<u>Name</u>	<u>Size</u>	<u>Root</u>	<u>Spacing</u>
Hemerocallis fulva "Europa"			
"Europa" Daylilly	8" Min.	pots	24" o.c.

Plants shall conform to the specified variety. No replacements will be accepted.

Planting holes shall be large enough to accommodate the entire root system when it is spread out in a natural position. A cone of soil

shall be made in the center of the hole to support the crown and permit the roots to grow outward and downward. Work the backfill soil in carefully among the roots. The crown shall be set so that it is not more than an inch below the surface of the soil.

Plants shall be thoroughly watered upon completion of planting.

Clean-up: Excess materials (stone, concrete, backfill, etc.) shall be removed from the site promptly, keeping all areas free of such debris.

Grass areas disturbed by construction shall be scarified and seeded.

Inspection: The Owner reserves the right to inspect the Site Amenities for structural strength and aesthetic appearance. If the work is deficient, the Contractor shall pay the cost of repairs and repairs shall be made promptly.

Canoe Launch: The canoe launch (or ramp) shall be constructed as detailed on the drawings.

Earth work required shall conform to the proposed contours and elevations shown on the grading plan.

Stone base shall be No. 2 ballast, 8" thick. Concrete shall be a pebble or river stone mix, 6" thick. Concrete finish shall be exposed aggregate.

Rip-rap shall be placed along the upstream edge of the canoe launch as shown on plans to protect from water undermining. Rip-rap stone size shall be a minimum of 24 inches in diameter.

Canoe launch construction shall be done during a time when the creek is at a low water level. The time of construction shall be approved by the Engineers.

DIVISION 2 - SITE WORK

SECTION 2G - STORM SYSTEM

General

Description: The Contractor shall provide labor, equipment, tools, materials, and services needed to accomplish work as described herein and as shown or called out on the drawings.

Comply: Comply with the requirements of applicable Division 2, Section 2E - Earthwork, for excavation and backfilling required in connection with sewer collection system work.

Products

Corrugated Metal Pipe: The corrugated metal pipe used for this project shall be 12 gauge, fully bituminous coated and shall be furnished and placed in accordance with the details shown on the drawings and Section 707, "Culverts and Underdrain Pipe (Metal)" of the Pennsylvania Department of Transportation's Form 408 Specifications dated 1976.

End Sections - Corrugated Metal: The corrugated metal end sections shall be constructed at the locations and in accordance with the details shown on the drawings. The specification governing the end sections' construction are noted in Section 616 "End Sections and Slope Pipe Fittings" of the Pennsylvania Department of Transportation Specification, Form 408.

Rip-Rap: Rocks shall be placed to the prescribed outlined and thicknesses, as shown on the drawings or outlined in this specification.

Rock fragments shall be dense, sound, and resistant to abrasion and shall be free of cracks, seams, and other defects that would tend to increase unduly their destruction by water and frost action.

Execution

Pipe Laying: All requirements for excavation and backfilling shall be governed by Division 2 - Section 2E - Earthwork.

Previously to being lowered into trench, each pipe shall be carefully inspected, and those not meeting specifications shall be rejected and removed from the work. No pipe shall be laid except in the presence of the Engineer or his authorized inspector. The Engineer may order the removal and relaying of any pipe not so laid.

In addition to the inspection to be made by the Engineer, the Contractor shall examine all pipe and fittings before placing in the trench. Any pieces which show evidence of cracks or fractures shall be rejected by him. Such inspection shall carry with it the responsibility on the part of the Contractor for the removal at his own expense of all pipe

appurtenances, incorporated in the work and which under tests are found to be defective.

Pipe shall be laid so that when completed, the interior bore will conform accurately to grades and alignment indicated by the contract documents.

Suitable tools and appliances for safe and convenience handling and laying of pipe and fittings shall be used. Extra care shall be exercised to prevent damage to pipe lining and coating.

The Contractor shall use all care possible to prevent filtration and other pollution of all streams and waters during and after construction.

The Contractor shall clean up and construct work to final grades and stabilize surfaces as directed on plans or specified in those specifications.

DIVISION 2 - SITE WORK

SECTION 2H - CARPENTRY

General

Description: The work included in this Section consists of furnishing all labor, materials, equipment, and services necessary to complete all carpentry work shown on the drawings, herein specified, and/or reasonably implied to carry out the intent of the carpentry work.

Products

Materials:

- A. All lumber furnished shall be of a quality equal or superior to the minimum requirements of the specified grade for the species furnished. The current grading rules of the Association of Lumber Manufacturers producing the material specified shall govern the grading of all rough and finished lumber.
- B. Finished lumber shall be surfaced on all four sides to standard dimensions or shall be worked to patterns shown on the drawings.
- C. Lumber shall be clear white pine or Douglas fir, construction grade, 80 percent or better, except where otherwise called for.

Protection of Materials: The Contractor shall protect all trim, angles, corners, sills, finish floors, and other finish materials from damage by exposure to moisture by adequate boxing and reinforced kraft paper or other suitable means from time of erection until completion of the work.

Rough Hardware: The Contractor shall furnish all bolts, nails, anchors, etc., required for the installation of his work. Anchors and inserts for embedment shall be furnished to the trades involved with necessary instructions for locations and installations.

Framing Lumber:

- A. Softwood framing lumber shall comply with American Lumber Standards, SPR-16-53, and with specific grading requirements of the West Coast Lumbermen's Association covering construction grade Douglas Fir.
- B. All framing lumber shall be identified by the grade mark of a recognized grading association or of an independent lumber grading inspection agency authorized to grade the species. The Association or independent inspection agency and the grading rules under which they grade shall be certified by the Board of Review, American Lumber Standards Committee.
- C. Dimensions:
 - 1. Nominal sizes are shown on the drawings unless otherwise noted.

2. Dressed dimensions shall be within five percent of the American Lumber Standard sizes measured at a moisture content of 19 percent. Lumber more than two percent scant, but not more than five percent scant, may be subject to span limitations.

D. Moisture content of framing lumber shall not exceed 19 percent at time of installation. In areas where the average annual precipitation is 15 inches or less, moisture content shall not exceed 14 percent at time of installation.

E. Use Douglas Fir, construction grade, for roof framing.

F. Miscellaneous Uses:

<u>Use</u>	<u>Grade</u>	<u>Species</u>
Nailers, blocking studding and furring	No. 2	Douglas fir, coast and inland Hemlock, west coast pine, northern white, Norway, ponderosa and southern Spruce, Englemann

Board Lumber

A. Board lumber shall comply with the American Lumber Standards and with the specific grading requirements of the association recognized in the trade as covering the particular species used and under whose grading rules it was produced.

B. Grade:

1. Grade of board lumber shall be suitable for its intended use. In general, knots or knot holes shall not exceed 1/3 of the width of the piece and splits shall not exceed 1/5 of the length of the piece. Boards with defects greater than these may be used if the defects are sawn out.

2. All board lumber shall be identified by the grade-mark of a recognized grading association or of an independent lumber grading inspection agency authorized to grade the species. The Association or independent inspection agency and the grading rules under which they grade shall be certified by the Board of Review, American Lumber Standards Committee.

C. Moisture Content:

1. Moisture content of boards eight inches or less in width shall not exceed 19 percent at time of installation. Moisture content of boards wider than eight inches shall not exceed 15 percent at time of installation.

2. In areas where the average annual precipitation is 15 inches or less, moisture content shall not exceed 14 percent at time of installation. Maximum width, eight inches.

D. Board Dimensions:

1. Nominal sizes are given in these Minimum Standards unless otherwise noted.
2. Minimum dressed dimensions shall comply with the American Lumber Standards.

Plywood

A. Plywood shall comply with one of the following Commercial Standards:

Douglas Fir (1)	C.S. 45
Hardwood (2)	C.S. 35
Pine (2)	C.S. 157
Southern Pine	C.S. 259
Western Softwood	C.S. 259

1. Includes Douglas Fir (Coast Type) and Western Larch.
2. Interior grades shall be used for interior non-structural uses only.

B. Each sheet of plywood shall be labeled with information set forth in "C" below. In addition, each sheet of exterior or structural interior type plywood shall bear the mark of a recognized association or independent inspection agency and shall be in accordance with the procedures set forth in ASA A34.1-47, "American Standard Practice for Certification Procedures."

C. The mark shall identify the plywood as the species, type or group, grade of face and back veneers, applicable commercial standard and as one of the following types:

1. Exterior Type (Ext.) This type shall meet the requirements for exterior type plywood in the commercial standard. In Hardwood plywood exterior type is termed "Technical" or Type 1."

DIVISION II - SITE WORK

SECTION 2I - ROOFING

General

Description: The Contractor shall furnish all labor, materials, equipment and incidentals to install the required roof, as shown on the drawings and herein specified.

Product

Materials: The roof shall consist of two (2) layers of 20-lb. asphalt asbestos felt.

Executions

Installation:

- A. Apply two (2) layers of 20 lbs. asphalt asbestos felt with a minimum of a ten (10) inch lap.
- B. Do not install roofing on wet or moist substrates.
- C. Nailers shall be used to hold felt. Nailers to be 1 x 2's on 30 inch centers. Nailers to be placed to allow for water to flow from roof.

