

CITY OF LITTLE ROCK
LITTLE ROCK, ARKANSAS

PUBLIC WORKS DEPARTMENT

CONTRACT CONDITIONS AND SPECIFICATIONS

For
Public Works and
Facilities Improvements

January, 1994

CITY OF LITTLE ROCK
PUBLIC WORKS DEPARTMENT

CONTRACT CONDITIONS AND SPECIFICATIONS

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GENERAL CONDITIONS

1. CONTRACT AND CONTRACT DOCUMENTS

These General Conditions, Special Conditions and Technical Specifications, as enumerated in the Table of Contents of the Bid and Contract Documents, are referent in each and every contract for public works and facilities improvements under the Capital Improvement Programs and Community Development Block Grant Program of the City of Little Rock, and their provisions are incorporated by reference into each such contract and are as binding as if therein fully set forth.

2. DEFINITIONS

The following terms as used in this Contract are respectively defined as follows:

- (a) "Contractor" - A person, firm or corporation with whom the contract is made by the Owner.
- (b) "Subcontractor" - A person, firm or corporation supplying labor and materials or only labor for work at the site of the project for, and under separate contract or agreement with, the Contractor.
- (c) "Work on (at) the Project" - Work to be performed at the location of the project, including the transportation of materials and supplies to or from the location of the project by employees of the Contractor and any Subcontractor.

3. ADDITIONAL INSTRUCTION AND DETAIL DRAWINGS

The Contractor may request such additional information and/or instruction on project layout, reinforcing steel schedules or construction details as may be necessary to complete the contract.

4. SHOP OR SETTING DRAWINGS

The Contractor shall submit promptly to the Construction Manager two copies of each shop or setting drawing prepared in accordance with the schedule predetermined as aforesaid. After examination of such drawings by the Construction Manager and the return thereof, the Contractor shall make such corrections to

the drawings as have been indicated and shall furnish the Construction Manager with two corrected copies. If requested by the Construction Manager, the Contractor must furnish additional copies. Regardless of corrections made in or approval given to such drawings by the Construction Manager, the Contractor will nevertheless be responsible for the accuracy of such drawings and for their conformity to the plans and specifications, unless he notifies the Construction Manager in writing of any deviations at the time he furnishes such drawings.

5. MATERIALS, SERVICES AND FACILITIES

(a) It is understood that except as otherwise specifically stated in the Contract Documents, the Contractor shall provide and pay for all materials, labor, tools, equipment, water, light, power, transportation, superintendence, temporary construction of every nature, and all other services and facilities of every nature whatsoever necessary to execute, complete and deliver the work within the specified time.

(b) Any work necessary to be performed after regular working hours, on Sundays or legal holidays shall be performed without additional expense to the Owner.

6. CONTRACTOR'S TITLE TO MATERIALS

No materials or supplies for the work shall be purchased by the Contractor or by any Subcontractor subject to any chattel mortgage or under a conditional sale contract or other agreement by which an interest is retained by the seller. The Contractor warrants that he has good title to all materials and supplies used by him in the work, free from all liens, claims or encumbrances.

7. INSPECTION AND TESTING OF MATERIALS

(a) All materials and equipment used in the construction of the project shall be subject to adequate inspection and testing in accordance with accepted standards. The laboratory or inspection agency shall be selected by the Owner. The Owner will pay for all laboratory inspection service direct and not as a part of the Contract.

- (b) Materials of construction, particularly those upon which the strength and durability of the structure may depend, shall be subject to inspection and testing to establish conformance with specifications and suitability for uses intended.

8. "OR EQUAL" CLAUSE

Wherever a material, article or piece of equipment is identified on the Plans or in the Specifications by reference to manufacturers' or vendors' name, trade names, catalogue numbers, etc., it is intended merely to establish a standard; and, any materials, article or equipment of other manufacturers and vendors which will perform adequately the duties imposed by the general design will be considered equally acceptable provided the material, article or equipment so proposed is, in the opinion of the Construction Manager, of equal substance and function. It shall not be purchased or installed by the Contractor without the Construction Manager's written approval.

9. PATENTS

- (a) The Contractor shall hold and save the Owner and its officers, agents, servants and employees harmless from liability of any nature or kind, including cost and expenses for, or on account of any patented or unpatented invention, process, article or appliance manufactured or used in the performance of the Contract, including its use by the Owner, unless otherwise specifically stipulated on the Contract Documents.
- (b) License or Royalty Fees: License and/or royalty fees for the use of a process which is authorized by the Owner of the project must be reasonable, and paid to the holder of the patent, or his authorized licensee, direct by the Owner and not by or through the Contractor.
- (c) If the Contractor uses any design, device or materials covered by letters, patent or copyright, he shall provide for such use by suitable agreement with the owner of such patented or copyrighted design, device or material. It is mutually agreed and understood that, without exception, the Contract prices shall include all royalties or costs arising from the use of such design, device or materials in any way involved in the work. The Contractor and/or his Sureties shall indemnify and save harmless the Owner of the project from any and all claims for infringement by reason of the use of such patented or

copyrighted design, device or materials or any trademark or copyright in connection with work agreed to be performed under this Contract, and shall indemnify the Owner for any cost, expense or damage which it may be obliged to pay by reasons of such infringement at any time during the prosecution of the work or after completion of the work.

10. PERMITS AND REGULATIONS

The Contractor shall procure and pay all permits, licenses and approvals necessary for the execution of his Contract.

The Contractor shall comply with all laws, ordinances, rules, orders and regulations relating to performance of the work, the protection of adjacent property, and the maintenance of passageways, guard fences or other protective facilities.

11. CONTRACTOR'S OBLIGATION

The Contractor shall and will, in good workmanlike manner, do and perform all work and furnish all supplies and materials, machinery, equipment, facilities and means, except as herein otherwise expressly specified, necessary or proper to perform and complete all the work required by this Contract, within the time herein specified, in accordance with the provisions of this Contract and said Specifications and in accordance with the Plans and drawings, and in accordance with the directions of the Construction Manager as given from time to time during the progress of the work. He shall furnish, erect, maintain, and remove such construction plan and such temporary works as may be required.

The Contractor shall observe, comply with, and be subject to all terms, conditions, requirements, and limitations of the Contract Conditions and Specifications, and shall do, carry on and complete the entire work to the satisfaction of the Construction Manager and the Owner.

12. WEATHER CONDITIONS

In the event of temporary suspension of work, or during inclement weather, or whenever the Construction Manager shall direct, the Contractor will, and will cause his Subcontractors to protect carefully his and their work and materials against damage or injury from the weather. If in the opinion of the Construction Manager, any work or materials shall have been damaged

or injured by reason of failure on the part of the Contractor or any of his Subcontractors as to protect his work, such materials shall be removed and replaced at the expense of the Contractor.

13. PROTECTION OF WORK AND PROPERTY -- EMERGENCY

The Contractor shall at all times safely guard the Owner's property from injury or loss in connection with this Contract. He shall at all times safely guard and protect his own work, and that of adjacent property from damage. The Contractor shall replace or make good any such damage, loss or injury unless such be caused directly by errors contained in the Contract or by the Owner or his duly authorized representatives.

In case of an emergency which threatens loss or injury of property, and/or safety of life, the Contractor will be allowed to act, without previous instructions from the Construction Manager, in a diligent manner. He shall notify the Construction Manager immediately thereafter. Any claim for compensation by the Contractor due to such extra work shall be promptly submitted to the Construction Manager for approval.

Where the Contractor has not taken action but has notified the Construction Manager of any emergency threatening injury to persons or damage to the work or any adjoining property, he shall act as instructed or authorized by the Construction Manager.

The amount of reimbursement claimed by the Contractor on account of any emergency action shall be determined in the manner provided in Paragraph 17 of the General Conditions.

14. INSPECTION

The authorized representatives and agents of the Department of Housing and Urban Development shall be permitted to inspect all work, materials, payrolls, records of personnel, invoices of materials and other relevant data and records.

15. REPORTS, RECORDS AND DATA

The Contractor shall submit to the Owner such schedule of quantities and costs, progress, schedules, payrolls, reports, estimates, records and other data as the Owner may request concerning work performed or to be performed under this Contract.

16. SUPERINTENDENCE BY CONTRACTOR

At the site of the work, the Contractor shall employ a construction superintendent or foreman who shall have full authority to act for the Contractor. It is understood that such representative shall be acceptable to the Construction Manager and shall be one who can be continued in that capacity for the particular job involved unless he ceases to be on the Contractor's payroll.

17. CHANGES IN WORK

No changes in the work covered by the approved Contract Documents shall be made without having prior written approval of the Owner. Changes or credits for the work covered by the approved change shall be determined by one or more, or a combination, of the following methods.

- (a) Unit bid prices previously approved.
- (b) An agreed-upon lump sum.
- (c) The actual cost of:
 - (1) Labor, including foremen.
 - (2) Materials entering permanently into the work.
 - (3) The ownership or rental cost of construction plant and equipment during the time of use on the extra work.
 - (4) Power and consumable supplies for the operation of power equipment.
 - (5) Insurance.
 - (6) Social Security and old age and unemployment contributions.

To the cost under (c), there shall be added a fixed fee to be agreed upon but not to exceed fifteen percent (15%) of the actual cost of the work. The fee shall be compensation to cover the cost of supervision, overhead, bond, profit, and any other general expenses.

18. EXTRAS

Without invalidating the Contract, the Owner may order extra work or make changes by altering, adding to or deducting from the work, the Contract sum being

adjusted accordingly, and the consent of the surety being first obtained where necessary or desirable. All the work of the kind bid upon shall be paid for at the price stipulated in the proposal, and no claims for any extra work or materials shall be allowed unless the work is ordered in writing by the owner or its Design, Engineer, acting officially for the Owner, and the price is stated in such order.

19. TIME FOR COMPLETION AND LIQUIDATED DAMAGES

It is hereby understood and mutually agreed, by and between the Contractor and the Owner, that the date of beginning and the time for completion as specified in the Contract of the work to be done hereunder are ESSENTIAL CONDITIONS of this Contract; and it is further mutually understood and agreed that the work embraced in this Contract shall be commenced on a date to be specified in the "NOTICE TO PROCEED."

The Contractor agrees that said work shall be prosecuted regularly, diligently, and uninterruptedly at such rate of progress as will ensure full completion thereof within the time specified. It is expressly understood and agreed, by and between the Contractor and the Owner, that the time for the completion of the work described herein is a reasonable time for the completion of the same, taking into consideration the average climatic range and usual industrial conditions prevailing in this locality.

If the said Contractor shall neglect, fail or refuse to complete the work within the time herein specified, or any proper extension thereof granted by the Owner, then the Contractor does hereby agree, as a part consideration for the awarding of this Contract, to pay to the Owner the amount specified in the Contract, not as a penalty but as liquidated damages for such breach of contract as hereinafter set forth, for each and every calendar day that the Contractor shall be in default after the time stipulated in the Contract for completing the work.

The said amount is fixed and agreed upon by and between the Contractor and the Owner because of the impracticability and extreme difficulty of fixing and ascertaining the actual damages the Owner would in such event sustain, and said amount is agreed to be the amount of damages which the Owner would sustain and said amount shall be retained from time to time by the Owner from current periodical estimates.

It is further agreed that time is of the essence of each and every portion of this Contract and of the

Specifications wherein a definite and certain length of time is fixed for the performance of any act whatsoever; and where under the Contract an additional time is allowed for the completion of any work, the new time limit fixed by such extension shall be of the essence of this Contract. Provided, that the Contractor shall not be charged with liquidated damages or any excess cost when the Owner determines that the Contractor is without fault and the Contractor's reasons for the time extension are acceptable to the Owner; provided further, that the Contractor shall not be charged with liquidated damages or any excess cost when the delay in completion of the work is due;

- (a) To any preference, priority or allocation order duly issued by the Government;
- (b) To unforeseeable cause beyond the control and without the fault of negligence of the Contractor, including, but not restricted to, acts of God, or of the public enemy, acts of the Owner, acts of another contractor in the performance of a contract with the Owner, fires, floods, epidemics, quarantine restrictions, strikes, freight embargoes, and severe weather conditions; or
- (c) To any delays of Subcontractors or suppliers occasioned by any of the clauses specified in subsections (a) and (b) of this article.

Provided further, that the Contractor shall, within ten (10) days from the beginning of such delay, unless the Owner shall grant a further period of time prior to the date of final settlement of the Contract, notify the Owner, in writing, of the causes of the delay, who shall ascertain the facts and extent of the delay and notify the Contractor within a reasonable time of its decision in the matter.

20. CORRECTION OF WORK

All work, all materials, whether incorporated in the work or not, all processes of manufacture, all methods of construction shall be at all times and places subject to the inspection of the Construction Manager who shall be the final judge of the quality and suitability of the work, materials, processes of manufacture and methods of construction for the purposes for which they are used. Should they fail to meet his approval, they shall be forthwith reconstructed, made good, replaced and/or corrected, as the case may be, by the Contractor at his own expense. Rejected material shall immediately be removed from the site. If, in the opinion of the Construction Manager,

it is undesirable to replace any defective or damaged materials or to reconstruct or correct any portion of the work injured or not performed in accordance with the contract documents, the compensation to be paid to the Contractor hereunder shall be reduced by such amount as in the judgment of the Construction Manager shall be equitable.

21. EXAMINATION OF PLANS, SPECIFICATIONS, SPECIAL PROVISIONS AND SITE OF WORK

The City will prepare full, complete and accurate plans and specifications giving such directions as will enable any competent mechanic or Contractor to carry them out. The bidder is expected to examine carefully the site of the proposed work, the proposal, plans, specifications, supplemental specifications, special provisions and contract forms before submitting a proposal. The submission of a bid shall be considered prima facie evidence that the bidder has made such examination and is satisfied as to the conditions to be encountered in performing the work and as to the requirements of the plans, specifications, supplemental specifications, special provisions and contract.

When the plans or special provisions include information pertaining to subsurface exploration, boring logs, soil survey information or other preliminary investigations, such information was obtained by the City for design and estimating purposes only. Other subsurface investigation information may be available and prospective bidders will be permitted to examine such information upon request. It is expressly understood and agreed that said information does not constitute a part of the contract and represents only the best knowledge of the City as to the location, character and depth of the materials encountered. This information is only included and made available so that prospective bidders may have access to subsurface information obtained by the City and is not intended to be a substitute for personal investigation, interpretation and judgment of the bidder. The bidder should be cognizant of the possibility that conditions affecting the cost and/or quantities of work to be performed may differ from those indicated.

22. CLAIMS FOR EXTRA COST

No claim for extra work or cost shall be allowed unless the same was done in pursuance of a written order of the Design Engineer approved by the Owner, as aforesaid, and the claim presented with the first estimate after the changed or extra work is done. When

work is performed under the terms of Subparagraph 17 (c) of the General Conditions, the Contractor shall furnish satisfactory bills, payrolls and vouchers covering all items of cost and when requested by the Owner, give the Owner access to accounts relating thereto.

23. RIGHT OF THE OWNER TO TERMINATE CONTRACT

In the event that any of the provisions of this Contract are violated by the Contractor, or by any of his Subcontractors, the Owner may serve written notice upon the Contractor and the Surety of its intention to terminate the Contract, such notices to contain the reasons for such intention to terminate the Contract, and unless within ten (10) days after the serving of such notice upon the Contractor, such violation or delay shall cease and satisfactory arrangement of correction be made, the Contract shall, upon the expiration of said ten (10) days, cease and terminate. In the event of any such termination, the Owner shall immediately serve notice thereof upon the Surety and the Contractor and the Surety shall have the right to take over and perform the Contract; provided, however, that if the Surety does not commence performance thereof within ten (10) days from the date of the mailing to such Surety of notice of termination, the Owner may take over the work and prosecute the same to completion by Contract or by force account for the account and at the expense of the Contractor, and the Contractor and his Surety shall be liable to the Owner for any excess cost occasioned the Owner thereby, and in such event the Owner may take possession of and utilize in completing the work, such materials, appliances, and plants as may be on the site of the work and necessary therefore.

24. CONSTRUCTION SCHEDULE AND PERIODIC ESTIMATES

- (a) Immediately after execution and delivery of the Contract, and before the issue of Notice to Proceed, the Contractor shall deliver to the Owner an estimated Construction Progress Schedule in form satisfactory to the Owner, showing the proposed dates of commencement and completion of each of the various subdivisions of work required under the Contract Documents and the anticipated amount of each monthly payment that will become due the Contractor in accordance with the Progress Schedule. The Contractor shall also furnish on forms to be supplied by the Owner (a) a detailed estimate giving a complete breakdown of the contract price and (b) periodic itemized estimates of work done for the purpose of making partial

payments thereon. The costs employed in making up any of these schedules will be used only for determining the basis of partial payments and will not be considered as fixing a basis for additions to or deductions from the contract price.

- (b) The Contractor shall submit a revised Progress Chart for approval within ten (10) days after receiving a monthly estimate from the Engineer which shows the actual progress of a controlling phase or the total job lagging the scheduled progress by fifteen (15) percent. The revised Progress Chart shall be accompanied by a statement from the Contractor indicating the amount of additional equipment, labor or materials to be assigned to the work to ensure its completion within the Contract time limit. If the updated Construction Progress Chart has not been received by the next monthly estimate period, payment will be withheld until the revised Chart is submitted.

25. PAYMENTS TO CONTRACTOR

- (a) Not later than the 20th of each calendar month, the Owner shall make a progress payment to the Contractor on the basis of a duly certified and approved estimate of the work performed under this Contract, but to ensure the proper performance of this Contract, the Owner shall retain ten (10) percent of the amount of each estimate: Provided, that the Contractor shall submit his estimate to the Construction Manager within five (5) calendar days of the ending date of the progress payment period: Provided further, that if the Contractor is making suitable progress in the sole judgment of the Owner, all further progress payments shall be paid in full, without retainage, after fifty (50) percent of the estimated Contract amount has been reached and that on completion and acceptance of each separate building, public work, or other division of the Contract, on which the price is stated separately in the Contract, payment shall be made in full, including retained percentage thereon, less authorized deductions.

NOTE: See bonding and insurance requirements relative to Arkansas laws.

- (b) In preparing estimates, the material delivered on the site and preparatory work done may be taken into consideration.
- (c) The City may withhold from any payment otherwise due the Contractor so much as may be necessary to

protect the City, and if it so elects, may also withhold any amounts due from the Contractor to any Subcontractors or material dealers for work performed or material furnished by them. The foregoing provisions shall be construed solely for the benefit of the City and will not require the City to determine or adjust any claims or disputes between the Contractor and his Subcontractors or material dealers, or to withhold any monies for their protection unless the City elects to do so. The failure or refusal of the City to withhold any monies from the Contractor shall in no wise impair the obligations of any Surety or Sureties under any bond or bonds furnished under this Contract.

- (d) All material and work covered by partial payments made shall thereupon become the sole property of the Owner, but this provision shall not be construed as relieving the Contractor from the sole responsibility for the care and protection of materials and work upon which payments have been made or the restoration of any damaged work, or as a waiver of the right of the Owner to require the fulfillment of all of the terms of the Contract.

26. ACCEPTANCE OF FINAL PAYMENT CONSTITUTES RELEASE

The acceptance by the Contractor of final payment shall be and shall operate as a release to the Owner of all claims and all liability to the Contractor for all things done or furnished in connection with this work and for every act and neglect of the Owner and others relating to or arising out of this work. No payment, however, final or otherwise, shall operate to release the Contractor or his Sureties from any obligations under this Contract or the Performance and Payment Bond.

27. PAYMENTS BY CONTRACTOR

The Contractor shall pay (a) for all transportation and utility services not later than the 20th day of the calendar month following that in which services are rendered, (b) for all materials, tools and other expendable equipment to the extent of ninety percent (90%) of the cost thereof, not later than the 20th day of the calendar month following that in which such materials, tools and equipment are delivered at the site of the project, and the balance of the cost thereof not later than the 30th day following the completion of that part of the work in or on which such materials, tools and equipment are incorporated or used, and (c) to each of his Subcontractors, not later than the 5th day following each payment to the

Contractor, the respective amounts allowed the Contractor on account of the work performed by his Subcontractors to the extent of each Subcontractor's interest therein.

28. INSURANCE

The Contractor shall not commence work under this Contract until he has obtained all the insurance required under this paragraph and such insurance has been approved by the Owner, nor shall the Contractor allow any Subcontractor to commence work on his Subcontract until the insurance required of the Subcontractor has been so obtained and approved.

- (a) Compensation Insurance: The Contractor shall procure and shall maintain during the life of this Contract Workmen's Compensation Insurance, as required by applicable State law, for all of his employees to be engaged in work at the site of the project under this Contract and, in case of any such work sublet, the Contractor shall require the Subcontractor similarly provide Workmen's Compensation Insurance for all of the latter's employees to be engaged in such work unless such employees are covered by the protection afforded by the Contractor's Workmen's Compensation Insurance. In case any class of employees engaged in hazardous work on the project under this Contract is not protected under the Workmen's Compensation Statute, the Contractor shall provide and shall cause each Subcontractor to provide adequate employer's liability insurance for the protection of such of his employees as are not otherwise protected.
- (b) Contractor's Public Liability and Property Damage Insurance and Vehicle Liability Insurance: The Contractor shall procure and shall maintain during the life of this Contract Contractor's Public Liability Insurance, Contractor's Property Damage Insurance, and Vehicle Liability Insurance in the amounts specified hereunder, naming as the insured therein the City of Little Rock and the Design Engineer. If the scope of work entails work within or abutting upon an Arkansas or United States highway right-of-way, said insurance shall also name as one of the insured the Arkansas Highway and Transportation Department.
- (1) Said Public Liability and Property Damage Insurance shall be in form and substance similar to the Railroad Protective Liability Policy as approved by federal, state, and

railroad agencies. Limits of liability shall be the following:

Bodily Injury Liability (including death)
\$250,000 each person
\$500,000 each occurrence

Physical Damage Liability (damage to or destruction of property)
\$250,000 each occurrence
\$500,000 aggregate

(2) Said Vehicle Liability and Property Damage Insurance shall be in an amount not less than \$100,000 for injuries, including accidental death, to any one person, and subject to the same limit for each person, in an amount not less than \$300,000 on account of one accident, and Contractor's Property Damage Insurance in an amount not less than \$100,000.

(c) Subcontractor's Public Liability and Property Damage Insurance and Vehicle Liability Insurance:

The Contractor shall either (1) require each of his Subcontractors to procure and to maintain during the life of his Subcontract, Subcontractor's Public Liability and Property Damage Insurance and Vehicle Liability Insurance of the type and in the amounts specified in subparagraph (b) hereof, or (2) insure the activities by his policy, specified in subparagraph (b) hereof.

(d) Scope of Insurance and Special Hazards: The insurance required under Subparagraphs (b) and (c) hereof shall provide adequate protection for the Contractor and his Subcontractors, respectively, against damage claims which may arise from operations under this Contract, whether such operations be by the insured or by anyone directly or indirectly employed by him.

(e) Proof of Carriage of Insurance: The Contractor shall furnish the Owner with certificates showing the type, amount, class of operations covered, effective dates and date of expiration of policies. Such certificates shall also contain substantially the following statement. "The insurance covered by this certificate will not be cancelled or materially altered, except after ten (10) days written notice has been received by the Owner."

29. CONTRACT SECURITY

The Contractor shall furnish a performance bond in an amount at least equal to one hundred percent (100%) of the contract prices as security for the faithful performance of this Contract and also a payment bond in an amount not less than one hundred percent (100%) of the contract price or in a penal sum not less than that prescribed by State or local law, as security for the payment of all persons performing labor on the project under this Contract and furnishing materials in connection with this Contract. The Performance Bond and the Payment Bond may be in one or in separate instruments in accordance with local law.

30. ADDITIONAL OR SUBSTITUTE BOND

If at any time the Owner for justifiable cause shall be or become dissatisfied with any Surety or Sureties, then upon the Performance or Payment Bonds, the Contractor shall within five (5) days after notice from the Owner so to do, substitute an acceptable bond (or bonds) in such form and sum and signed by such other Surety or Sureties as may be satisfactory to the Owner. The premiums on such bond shall be paid by the Contractor. No further payments shall be deemed due nor shall be made until the new Surety or Sureties shall have furnished such an acceptable bond to the Owner.

31. ASSIGNMENTS

The Contractor shall not assign the whole or any part of this Contract or any monies due or to become due hereunder without written consent of the Owner. In case the Contractor assigns all or any part of any monies due or to become due this Contract, the instrument of assignment shall contain a clause substantially to the effect that it is agreed that the right of the assignee in and to any monies due or to become due to the Contractor shall be subject to prior claims of all persons, firms and corporations of services rendered or materials supplied for the performance of the work called for in this Contract.

32. MUTUAL RESPONSIBILITY OF CONTRACTORS

If, through acts of neglect on the part of the Contractor, any other Contractor or any Subcontractor shall suffer loss or damage on the work, the Contractor agrees to settle with such other Contractor or Subcontractor by agreement or arbitration if such other Contractor or Subcontractor will so settle. If such other Contractor or Subcontractor shall assert any

claim against the Owner on account of any damage alleged to have been sustained, the Owner shall notify the Contractor, who shall indemnify and save harmless the Owner against any such claim.

33. SEPARATE CONTRACT

The Contractor shall coordinate his operations with those of other Contractors. Cooperation will be required in the arrangement for the storage of materials and in the detailed execution of the work. The Contractor, including his Subcontractors, shall keep informed of the progress and the detail work of other Contractors and shall notify the Construction Manager immediately of lack of progress or defective workmanship on the part of other Contractors. Failure of a Contractor to keep informed of the work progressing on the site and failure to give notice of lack of progress or defective workmanship by others shall be construed as acceptance by him of the status of the work as being satisfactory for proper coordination with his own work.

34. SUBLETTING OF CONTRACT

- (a) The Contractor will be permitted to sublet a portion of the Contract but shall perform with his own organization, work amounting to not less than fifty-one (51) percent of the total contract cost, except that any items designated in the Contract as "specialty items" may be performed by subcontract and the cost of any such specialty items so performed by subcontract may be deducted from the total cost before computing the amount of work required to be performed by the Contractor with his own organization. No subcontracts, or transfer of contract, shall in any case release the Contractor of his liability under the Contract and Bond.
- (b) The Contractor shall not award any work to any Subcontractor without prior written approval of the Owner, which approval will not be given until the Contractor submits to the Owner a written statement concerning the proposed award to the Subcontractor, which statement shall contain such information as the Owner may require.
- (c) The Contractor shall be as fully responsible to the Owner for the acts and omissions of his Subcontractor, and of persons either directly or indirectly employed by them, as he is for the acts and omissions of persons directly employed by him.

- (d) The Contractor shall cause appropriate provisions to be inserted in all subcontracts relative to the work to bind Subcontractors to the Contractor by the terms of the General Conditions and other Contract Documents insofar as applicable to the work of Subcontractors and to give the Contractor the same power as regards terminating any subcontract that the Owner may exercise over the Contractor under any provision of the Contract Documents.
- (e) Nothing contained in this Contract shall create any contractual relation between any Subcontractor and the Owner.
- (f) All Subcontractors shall be licensed and bonded.
- (g) The Contractor will insert in any subcontracts the Federal Labor Standards provisions contained herein and such other clauses as the Department of Housing and Urban Development may, by instructions require, and also a clause requiring the Subcontractors to include these clauses in any lower tier subcontracts which they may enter into, together with a clause requiring this insertion in any further subcontracts that may in turn be made.

35. CONSTRUCTION MANAGER'S AUTHORITY

The Construction Manager shall give all orders and directions contemplated under this Contract and Specifications, relative to the execution of the work. The Construction Manager shall determine the amount, quality, acceptability, and fitness of the several kinds of work and materials which are to be paid for under this Contract and shall decide all questions which may arise in relation to said work and the construction thereof. The Construction Manager's estimates and decisions shall be final and conclusive, except as herein otherwise expressly provided. In case any questions shall arise between the parties hereto relative to said Contract or Specifications, the determination or decision of the Construction Manager shall be a condition precedent to the right of the Contractor to receive any money or payment for work under this Contract affected in any manner or to any extent by such question.

The Construction Manager shall decide the meaning and intent of any portion of the Specifications and of any plans or drawings where the same may be found obscure or be in dispute. Any differences or conflicts in regard to their work which may arise between the Contractor under this Contract and other Contractors

performing work for the Owner shall be adjusted and determined by the Construction Manager.

36. STATED ALLOWANCES

The Contractor shall include in his proposal any cash allowances stated in the Contract Documents (Bid Documents). The Contractor shall purchase the "allowed materials" as directed by the Owner on the basis of the lowest and best bid of at least three competitive bids. If the actual price for purchasing the "allowed materials" is more or less than the "cash allowance," the contract price shall be adjusted accordingly. The adjustment in contract price shall be made on the basis of the purchase price without additional charges for overhead, profit, insurance or other incidental expenses. The cost of installation of the "allowed materials" shall be included in the applicable sections of the Contract Specifications covering this work.

37. USE OF PREMISES AND REMOVAL OF DEBRIS

The Contractor expressly undertakes at his own expense:

- (a) To take every precaution against injuries to persons or damage to property;
- (b) To store his apparatus, materials, supplies, and equipment in such orderly fashion at the site of the work as will not unduly interfere with the progress of his work or the work of any other contractors;
- (c) To place upon the work or any part thereof only such loads as are consistent with the safety of that portion of the work;
- (d) To clean up frequently all refuse, rubbish, scrap materials, and debris caused by his operations, to the end that at all times the site of the work shall present a neat, orderly, and workmanlike appearance;
- (e) Before final payment to remove all surplus materials, false-work, temporary structures, including foundations thereof, plants of any description and debris of every nature resulting from his operations, and to put the site in a neat, orderly condition;
- (f) To effect all cutting, fitting, or patching of his work required to make the same to conform to the Plans and Specifications, and except with the

consent of the Construction Manager, not to cut or otherwise alter the work of any other contractor;

- (g) To secure from the Owner of any site to be used for deposit of material removed from the construction site, before beginning such use, a signed release and agreement to such use; and, if said deposit is to be permanent by terms of the said agreement, to provide the Owner with a copy of this agreement.

38. QUANTITIES OF ESTIMATE

Wherever the estimated quantities of work to be done and materials to be furnished under this Contract are shown in any of the documents including the proposal, they are given for use in comparing bids and the right is especially reserved except as herein otherwise specifically limited, to increase or diminish them as may be deemed reasonably necessary or desirable by the Owner to complete the work contemplated by this Contract, and such increase or diminution shall in no way vitiate this Contract, nor shall any such increase or diminution give cause for claims or liability for damages.

39. LANDS AND RIGHTS-OF-WAY

Prior to the start of construction, the Owner shall obtain all lands and rights-of-way necessary for the carrying out and completion of work to be performed under this Contract.

40. GENERAL GUARANTY

Neither the final certificate of payment nor any provision in the Contract Documents, nor partial or entire occupancy of the premises by the Owner, shall constitute an acceptance of work not done in accordance with the Contract Documents or relieve the Contractor of liability in respect to any express warranties or responsibility for faulty materials or workmanship. The Contractor shall remedy any defects in the work and pay for any damage to other work resulting therefrom, which shall appear within a period of one year from the date of Final Acceptance of the work unless a longer period is specified. The Owner will give notice of observed defects with reasonable promptness.

41. CONFLICTING CONDITIONS

Any provisions in any of the Contract Documents which may be in conflict or inconsistent with any of the

paragraphs in these General Conditions shall be void to the extent of such conflict or inconsistency.

42. NOTICE AND SERVICE THEREOF

Any notice to any Contractor from the Owner relative to any part of this Contract shall be in writing and considered delivered and the services thereof completed, when said notice is posted, by Certified or Registered Mail, to the said Contractor at his last given address, or delivered in person to the said Contractor or his authorized representative on the work.

43. PROVISIONS REQUIRED BY LAW DEEMED INSERTED

Each and every provision of law and clause required by law to be inserted in this Contract shall be deemed to be inserted herein and the Contract shall be read and enforced as though it were included herein, and if through mistake or otherwise any such provision is not inserted, or is not correctly inserted, then upon the application of either party the Contract shall forthwith be physically amended to make such insertion or correction.

44. PROTECTION OF LIVES AND HEALTH

The Contractor shall exercise proper precaution at all times for the protection of persons and property and shall be responsible for all damages to persons and property, either on or off the site, which occur as a result of his prosecution of the work. The safety provisions of applicable laws and building and construction codes, in addition to specific safety and health regulations described by Chapter XVII, Occupational Safety and Health Administration, Department of Labor, Part 1926, Occupational Safety and Health Regulations for Construction, as outlined in the Federal Register, Volume 39, No. 122, Part II, Monday, June 24, 1974, Title 29-LABOR, shall be observed and the Contractor shall take or cause to be taken such additional safety and health measures as the Owner may determine to be reasonably necessary.

The Contractor shall execute all excavation work which equals or exceeds five (5) feet in depth in accordance with the current edition of Occupational Safety and Health Administration Standard for Excavation and Trenches Safety System, 29CFR 1926, Subpart P.

45. EQUAL EMPLOYMENT OPPORTUNITY

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

- (a) The Contractor will not discriminate against any employee or applicant for employment because of race, religion, sex, color or national origin. The Contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment without regard to their race, religion, sex, color, or national origin. Such action shall include, but not be limited to, the following: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided setting forth the provisions of this nondiscrimination clause.
- (b) The Contractor will, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, state that all qualified applicants will receive consideration for employment without regard to race, religion, sex, color or national origin.
- (c) The Contractor will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding, a notice to be provided advising the labor union or workers' representative of the Contractor's commitments under Section 202 of Executive Order No. 11246 of September 24, 1965, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.
- (d) The Contractor will comply with all provisions of Executive Order No. 11246 of September 24, 1965, and of the rules, regulations and relevant orders of the Secretary of Labor.
- (e) The Contractor will furnish all information and reports required by Executive Order No. 11246 of September 24, 1965, and by the rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to his books, records and accounts by the Department of Housing and Urban Development and the Secretary of Labor for purposes of investigation to ascertain

compliance with such rules, regulations and orders.

(f) In the event of the Contractor's noncompliance with the nondiscrimination clauses of this Contract or with any of such rules, regulations or orders, this Contract may be cancelled, terminated or suspended in whole or in part and the Contractor may be declared ineligible for further government contracts or federally-assisted construction contracts, in accordance with procedures authorized in Executive Order No. 11246 of September 24, 1965, and such other sanctions may be imposed and remedies invoked as provided in Executive Order No. 11246 of September 24, 1965, or by rule, regulation or order of the Secretary of Labor, or as otherwise provided by law.

(g) The Contractor will include the provisions of Paragraphs (a) through (g) in every subcontract or purchase order unless exempted by rules, regulations or orders of the Secretary of Labor issued pursuant to Section 204 of Executive Order No. 11246 of September 24, 1965, so that such provisions will be binding upon each Subcontractor or vendor. The Contractor will take such action with respect to any subcontract or purchase order as the Department of Housing and Urban Development may direct as a means of enforcing such provisions, including sanctions for noncompliance. Provided, however, that in the event the Contractor becomes involved in, or is threatened with, litigation with a Subcontractor or vendor as a result of such direction by the Department of Housing and Urban Development, the Contractor may request the United States to enter into such litigation to protect the interest of the United States.

46. INTEREST OF MEMBER OF OR DELEGATE TO CONGRESS

No member of or delegate to Congress, or Resident Commissioner, shall be admitted to any share or part of this Contract or to any benefit that may arise therefrom, but this provision shall not be construed to extend to this Contract if made with a corporation for its general benefit.

47. OTHER PROHIBITED INTERESTS

No official of the Owner who is authorized in such capacity and on behalf of the Owner to negotiate, make, accept or approve, or to take part in negotiating, making, accepting, or approving any architectural,

engineering, inspection, construction or material supply contract or any subcontract in connection with the construction of the project, shall become directly or indirectly interested personally in this Contract or in any part hereof. No officer, employee, architect, attorney, engineer or inspector of or for the Owner who is authorized in such capacity and on behalf of the Owner to exercise any legislative, executive, supervisory or other similar functions in connection with the construction of the project, shall become directly or indirectly interested personally in this Contract or in any part thereof, any material supply contract, subcontract, insurance contract, or any other contract pertaining to the project.

48. USE AND OCCUPANCY PRIOR TO ACCEPTANCE BY OWNER

The Contractor agrees to the use and occupancy of a portion or unit of the project before formal acceptance by the Owner, provided the Owner:

- (a) Secures written consent of the Contractor except in the event, in the opinion of the Construction Manager, the Contractor is chargeable with unwarranted delay in final cleanup of punch list items or other contract requirements;
- (b) Secures endorsement from the insurance carrier and consent of the Surety permitting occupancy of any building or use of the project during the remaining period of construction; or
- (c) When the project consists of more than one building, and one of the buildings is occupied, secures permanent fire and extended coverage insurance, including a permit to complete construction. Consent of the Surety must also be obtained.

49. SUSPENSION OF WORK

Should the Owner be prevented or enjoined from proceeding with work either before or after the start of construction by reason of any litigation or other reasons beyond the control of the Owner, the Contractor shall not be entitled to make or assert claim for damage by reason of said delay, but time for completion of the work will be extended to such reasonable time as the Owner may determine will compensate for time lost by such delay with such determination to be set forth in writing.

50. COMPLIANCE WITH FEDERAL LABOR STANDARDS PROVISIONS

The Contractor shall comply fully with Federal Labor Standards Provisions as published by the United States Department of Housing and Urban Development (HUD 4010). A copy of the referenced document and of the applicable wage determination, as provided with the Bid and Contract Documents, is attached to and made part of the Contract.

51. SPECIAL EQUAL OPPORTUNITY PROVISIONS

(a) Activities and Contracts Not Subject to Executive Order 11246 as Amended

(Applicable to federally-assisted construction contracts and related subcontracts under \$10,000.)

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

- (1) The Contractor shall not discriminate against any employee or applicant for employment because of race, color, religion, sex or national origin. The Contractor shall take affirmative action to ensure that applicants for employment are employed, and that employees are treated during employment without regard to their race, color, religion, sex, or national origin. Such action shall include but not be limited to the following: employment, upgrading, demotion or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship.
- (2) The Contractor shall post in conspicuous places, available to employees and applicants for employment, notices to be provided by contracting officer setting forth the provisions of this nondiscrimination clause. The Contractor shall state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex or national origin.
- (3) Contractors shall incorporate foregoing requirements to all subcontracts.

(b) Contracts Subject to Executive Order 11246, as Amended

(Applicable to federally-assisted construction contracts and related subcontracts exceeding \$10,000.)

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

- (1) The Contractor shall not discriminate against any employee or applicant for employment because of race, color, religion, sex or national origin. The Contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment without regard to their race, color, religion, sex, or national origin. Such action shall include but not be limited to the following: employment, upgrading, demotion or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided by contracting officer setting forth the provisions of this nondiscrimination clause.
- (2) The Contractor will, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex or national origin.
- (3) The Contractor will send to each labor union or representative or workers with which he has a collective bargaining agreement or other contract or understanding, a notice to be provided by the Contract Compliance Officer advising the said labor union or worker's representatives of the Contractor's commitment under this section and shall post copies of the notice in conspicuous places available to employees and applicants for employment.
- (4) The Contractor will comply with all provisions of Executive Order 11246 of September 24, 1965, and of the rules,

regulations and relevant orders of the Secretary of Labor.

- (5) The Contractor will furnish all information and reports required by Executive Order 11246 of September 24, 1965, and by the rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to his books, records and accounts by the Department and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations and orders.
- (6) In the event of the Contractor's noncompliance with the nondiscrimination clauses of this Contract, or with any of such rules, regulations, or orders, this Contract may be canceled, terminated or suspended in whole or in part, and the Contractor may be declared ineligible for further government contracts or federally assisted construction contract procedures authorized in Executive Order 11246 of September 24, 1964, or by rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law.
- (7) The Contractor will include the portion of the sentence immediately preceding Paragraph (1) and the provisions of Paragraphs (1) through (7) in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to Section 204 of Executive Order 11246 of September 24, 1965, so that such provisions will be binding upon each Subcontractor or vendor. The Contractor will take such action with respect to any subcontract or purchase order as the department may direct as a means of enforcing such provisions, including sanctions for noncompliance. Provided, however, that in the event a contractor becomes involved in, or is threatened with, litigation with a Subcontractor or vendor as a result of such direction by the department, the Contractor may request the United States to enter into such litigation to protect the interest of the United States.

52. "SECTION 3" COMPLIANCE IN THE PROVISION OF TRAINING,
EMPLOYMENT AND BUSINESS OPPORTUNITIES

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

- (a) The Contractor agrees to comply with the requirements of Section 3 of the Housing and Urban Development Act of 1968 (12 USC 1701(U); as amended, the HUD regulations issued pursuant thereto at 24 CFR Part 135, and any applicable rules and orders of HUD issued thereunder; and he further agrees to render any reports that may be required.
- (b) The "Section 3 clause" set forth in 24 CFR 135.20(b) shall form part of this Contract, as set forth in Paragraph 1 of the General Conditions, "Contract and Contract Documents."
- (c) Contractors shall incorporate the "Section 3 clause" shown below and the foregoing requirements in all subcontracts.

Section 3 Clause as Set Forth in 24 CFR 135.20(b)

- A. The work to be performed under this Contract is on a project assisted under a program providing direct federal financial assistance from the Department of Housing and Urban Development and is subject to the requirements of Section 3 of the Housing and Urban Development Act of 1968 as amended 12 USC 1701(u), Section 3 requires that to the greatest extent feasible opportunities for training and employment be given lower income residents of the project area and contracts for work in connection with the project be awarded to business concerns which are located in, or owned in, substantial part by persons residing in the area of the project.
- B. The parties to this Contract will comply with the provisions of said Section 3 and the regulations issued pursuant thereto by the Secretary of Housing and Urban Development set forth in 24 CFR 135 and all applicable rules and orders of the Department issued thereunder prior to the execution of this Contract. The parties to this Contract certify and agree that they are under no contractual or other disability which would

prevent them from complying with these requirements.

- C. The Contractor will send to each labor organization or representative or workers with which he has a collective bargaining agreement or other contract or understanding, if any, a notice advising the said labor organization of workers' representative of his commitments under this Section 3 clause and shall post copies of the notice in conspicuous places available to employees and applicants for employment or training.
- D. The Contractor will include this Section 3 clause in every subcontract for work in connection with the project and will, at the direction of the applicant for or recipient of federal financial assistance take appropriate action pursuant to the subcontract upon a finding that the Subcontractor is in violation of regulations issued by the Secretary of Housing and Urban Development, 24 CFR 135. The Contractor will not subcontract with any Subcontractor where it has notice or knowledge that the latter has been found in violation of regulations under 24 CFR 135 and will not let any subcontract unless the Subcontractor has first provided it with a preliminary statement of ability to comply with the requirements of these regulations.
- E. Compliance with the provisions of Section 3, the regulations set forth in 24 CFR 135 and all applicable rules and orders of the department issued thereunder prior to the execution of the contract shall be a condition of the federal financial assistance provided to the project, binding upon the applicant or recipient for such assistance, its successors and assigns. Failure to fulfill these requirements shall subject the applicant or recipient, its contractors and subcontractors, its successors and assigns to those sanctions specified by the grant or loan agreement or contract through which federal assistance is provided and to such sanctions as are specified by 24 CFR 135.

53. CERTIFICATION OF COMPLIANCE WITH AIR AND WATER ACTS

(Applicable to federally-assisted construction contracts and related subcontracts exceeding \$100,000.)

During the performance of this Contract, the Contractor and all Subcontractors shall comply with the requirements of the Clean Air Act, as amended, 42 USC 1857 et. seq., the Federal Water Pollution Control Act, as amended, 33 USC 1251 et. seq., and the regulations of the Environmental Protection Agency with respect thereto, at 40 CFR Part 15, as amended.

In addition to the foregoing requirements, all nonexempt contractors and subcontractors shall furnish to the Owner, the following:

- (1) A stipulation by the Contractor or Subcontractor that any facility to be utilized in the performance of any nonexempt contract or subcontract is not listed on the List of Violating Facilities issued by the Environmental Protection Agency (EPA) pursuant to 40 CFR 15.20.
- (2) Agreement by the Contractor to comply with all the requirements of Section 114 of the Clean Air Act, as amended, (42 USC 1857c-8) and Section 308 of the Federal Water Pollution Control Act, as amended, (33 USC 1318) relating to inspection, monitoring, entry, reports and information, as well as all other requirements specified in said Section 114 and Section 308 and all regulations and guidelines issued thereunder.
- (3) A stipulation that as a condition for the award of the Contract, prompt notice will be given of any notification received from the Director, Office of Federal Activities, EPA, indicating that a facility utilized, or to be utilized for the Contract, is under consideration to be listed on the EPA List of Violating Facilities.
- (4) Agreement by the Contractor that he will include, or cause to be included, the criteria and requirements in Paragraphs (1) through (4) of this section in every nonexempt subcontract and requiring that the Contractor will take such action as the government may direct as a means of enforcing such provisions.

54. SPECIAL CONDITIONS PERTAINING TO HAZARDS, SAFETY STANDARDS AND ACCIDENT PREVENTION

(a) Use of Explosives

When the use of explosives is necessary for the prosecution of the work, the Contractor shall observe all local, state and federal laws in

purchasing and handling explosives. The Contractor shall take all necessary precaution to protect completed work, neighboring property, water lines or other underground structures. Where there is danger to structures or property from blasting, the charges shall be reduced and the material shall be covered with suitable timber, steel or rope mats.

The Contractor shall notify all owners of public utility property of intention to use explosives at least eight hours before blasting is done, close to such property. Any supervision or direction of use of explosives by the Construction Manager, does not in any way reduce the responsibility of the Contractor or his Surety for damages that may be caused by such use.

(b) Danger Signals and Safety Devices

The Contractor shall make all necessary precautions to guard against damages to property and injury to persons. He shall put up and maintain in good condition, sufficient red or warning lights at night, suitable barricades and other devices necessary to protect the public. In case the Contractor fails or neglects to take such precautions, the Owner may have such lights and barricades installed and charge the cost of this work to the Contractor. Such action by the Owner does not relieve the Contractor of any liability incurred under these specifications or contract.

55. TERMINATION OF CONTRACT FOR CONVENIENCE OF OWNER

The Owner may terminate the Contract any time for its convenience by a written notice to the Contractor, which shall set forth the reason for the termination such as lack of funds, or acts of God, public enemy, or the Federal Government or other reasons. If the Contract is terminated for the convenience of the Owner, the Contractor will be paid at the unit prices for work performed plus the prorata portion of lump sum items accomplished, less payments of compensation previously made. Provided however, that if less than 60 percent of the work covered by the Contract is completed upon the effective date of the termination, the Contractor may be reimbursed (in addition to the above payment) for portions of certain fixed expenses which would not be equitably covered by the above method of compensation. Should the Contract be terminated due to fault of the Contractor, Section 23 of these General Conditions shall apply.

56. DISMISSAL OF EMPLOYEE

The City may require the Contractor or Subcontractor to dismiss from the work such employee or employees as the City or the Construction Manager may deem incompetent, or careless or insubordinate.

57. MAINTENANCE BOND

With reference to Section 40 of these General Conditions, and before final payment is made, the Contractor shall furnish to the City of Little Rock a one-year maintenance bond in the amount of fifty (50) percent of the final contract price, which shall be in full force and effect from the date of final acceptance of the work by the City. A typical form is shown on Page 32. Prior to the end of the one-year period covered by the General Guarantee and Maintenance Bond, the City shall make an inspection of the work and shall notify the Contractor of all defects which must be corrected prior to the relief of his obligations under the general guarantee. Upon correction of the defects, the City will advise the Contractor in writing of release from the general guarantee and maintenance bond. If the Contractor fails to complete the defects cited by the City, then the bond shall remain in effect, with the City exercising its option to proceed to take legal steps against the Contractor for completing the defects. The City is required to initiate such action within ninety (90) days from the end of the period of notification referred to above.

MAINTENANCE BOND

KNOW ALL MEN BY THESE PRESENTS:

That, _____, as Principal, and _____, as Surety, are held and firmly bound unto the CITY OF LITTLE ROCK, ARKANSAS, as Obligee, in the amount of \$ _____ for the payment whereof Principal and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

NOW, THEREFORE, the condition of this obligation is such that if the Principal, upon receiving notice within a period of one year from _____ to _____ from the date of this bond of and defects in the following improvements:

_____ authorized by Plans and Specifications approved by the CITY OF LITTLE ROCK under date of _____ shall promptly correct said defects in keeping with requirements of the Director of Public Works in accordance with provision of Section 30-82, Bonds, Insurance, etc., Little Rock City Code, then shall obligation be null and void; otherwise, it shall remain in full force and effect.

Any suit under this bond must be instituted before the expiration of three (3) months from the end of the period of notification referred to in the preceding paragraph thereof.

No right of action shall accrue on this bond to or for the use of any person or corporation other than the Owner named herein or their heirs, executors, administrators or successors of Owner.

Signed and Sealed this ____ day of _____, 19____.

Principal

Surety

Attorney-in-Fact

(Attach one copy of "Power of Attorney" to each copy of bond for person signing for the surety company.)

SPECIAL CONDITIONS

1. DEFINITIONS

In addition to the definitions as given in Section 2 of the General Conditions, whenever the words herein defined, or pronouns used in their stead, occur in this Contract and documents, they shall have and are mutually understood to have the meanings herein given.

The word "Owner" shall mean the City of Little Rock, Arkansas.

The word "Design Engineer" shall mean the consulting engineers who have been employed by the Owner for this work, or their duly authorized agents.

The word "Construction Manager" shall mean the engineering or technical inspector or inspectors duly authorized by the City of Little Rock, limiting to the particular duties entrusted to him or them.

Whenever the letters "A.S.T.M." are used, they shall mean the American Society for Testing Materials. The letters "A.W.W.A." shall mean the American Water Works Association. The letters "A.A.S.H.T.O." shall mean the American Association of State Highway and Transportation Officials. The letters "NEMA" shall mean the National Electrical Manufacturer's Association.

When the words "as ordered," "as directed," "as permitted," "as allowed," or words or phrases of like import are used, they shall be understood to mean that the order, direction, requirements, permission or allowance of the owner and engineer is intended.

Similarly, the words "approved," "reasonable," "suitable," "acceptable," "properly," "satisfactory" or words of like affect and import, unless otherwise particularly specified herein, shall mean approved, reasonable, suitable, acceptable, proper, or satisfactory in the judgment of the Owner.

2. RESPONSIBILITIES OF CONTRACTOR

Except as otherwise specifically stated in Contract Documents and Technical Specifications, the Contractor shall provide and pay for all materials, labor, tools, equipment, water, light, heat, power, transportation, superintendence, temporary construction of every

nature, changes, levies, fees or other expenses and all other services and facilities of every nature whatsoever necessary for the performance of the contract and to deliver all improvements embraced in this Contract complete in every respect within the specified time.

3. COMMUNICATIONS

- (a) All notices, demands, requests, instructions, approvals, proposals and claims must be in writing.
- (b) Any notice to or demand upon the Contractor shall be sufficiently given if delivered at the office of the Contractor stated on the signature page of the agreement (or at such other office as the Contractor may from time to time designate) in writing to the City or if deposited in the United States mail in a sealed, postage-prepaid envelope, or delivered with charges prepaid to any telegraph company for transmission, in each case addressed to such office.
- (c) All papers required to be delivered to the City shall, unless otherwise specified in writing to the Contractor, be delivered to the Community Development Block Grant Office at 615 West Markham Street, Room 106, Little Rock, Arkansas 72201 and any notice or demand upon the City shall be sufficiently given if so delivered, or if deposited in the United States mail in a sealed, postage-prepaid envelope, or delivered with charges prepaid to any telegraph company for transmission to said City at such address, or to such other representatives of the City to such other address as the City may subsequently specify in writing to the Contractor for such purpose.
- (d) Any such notice shall be deemed to have been given as of the time of actual delivery or in the case of mailing when the same should have been received in due course of post, or in the case of telegrams, or the time of actual receipt, as the case may be.

4. SIGNS

Subject to prior approval of the City as to size, design, type and location and to local regulations, the Contractor or his Subcontractors may erect signs for purposes of identification and controlling traffic. The Contractor shall furnish, erect and maintain such

other signs as may be required by safety regulations or as necessary to safeguard life and property.

5. CONSTRUCTION MANAGER'S OFFICE AND OTHER TEMPORARY SPACE

- (a) Prior to the beginning of construction on this project, the Contractor shall provide a facility for the office of the Construction Manager at the site, as approved by the Construction Manager. This office shall have at least 100 square feet of floor space and shall be well lighted and ventilated and shall have means of safely maintaining a comfortable office temperature at all times. This office may be adjacent or connected to another office, but must be arranged so as to provide a separate and private office. It shall be removed from the site upon completion of this project. Telephone service shall be installed in the Construction Manager's office and paid for by the Contractor. All costs resulting from the furnishing and maintenance of the facility and utilities, with the exception of long-distance telephone calls by the Construction Manager shall be borne by the Contractor. The field office is subsidiary to the various items of work.
- (b) It will be the responsibility of the Contractor and his Subcontractors to secure space for office and storage space during the construction period. It is the intent of the City of Little Rock to cooperate with the Contractor if such space is available and in possession of the City of Little Rock. Such space will be at no charge to the Contractor; however, any damage occurring to the trees will be the Contractor's responsibility.
- (c) Upon completion of the improvements, or as directed by the City of Little Rock, the Contractor shall remove all such facilities from the site, same to become his property, including the project office set out under Paragraph 5a above, and leave the site of work in the conditions required by the Contract.

6. PARTIAL USE OF IMPROVEMENTS

The City, at its option, may give notice to the Contractor and place in use those sections of the improvements which have been completed, inspected and can be accepted as complying with the technical specifications, and if in its opinion, each such sections reasonably safe, fit and convenient, for the

use and accommodation for which it was intended, provided:

- (a) The use of such sections of the improvements shall in no way impede the completion of the remainder of the work by the Contractor.
- (b) The Contractor shall not be responsible for any damages or maintenance costs due directly to the use of such sections.
- (c) The use of such sections shall in no way relieve the Contractor of his liability due to having used defective materials or to poor workmanship.
- (d) The period of guarantee stipulated in General Conditions, Section 40, hereof, shall not begin to run until the date of the final acceptance of all work which the Contractor is required to construct under this Contract. The date of final acceptance is defined as the date of approval and acceptance of project construction by the City of Little Rock.

7. WORK BY OTHERS

- (a) During the execution of the work under this Contract, work may be underway at various times by the following utility companies and departments of the City of Little Rock in clearing rights-of-way for the Contractor and for other purposes:
 - (1) Little Rock Municipal Water Works
 - (2) Arkansas Power and Light Company
 - (3) Southwestern Bell Telephone Company
 - (4) City of Little Rock
 - (5) Arkansas Louisiana Gas Company
 - (6) Little Rock Wastewater Utility
 - (7) Riverside Cable TV

The City and the Construction Manager shall make every attempt to coordinate the work so a minimum interference will occur between the Contractor and the utility concerns. The Contractor shall cooperate to the fullest extent possible with others working within the limits of this project.

The Contractor shall, as far as possible, arrange his work and placement and/or disposal of the materials being used so as not to interfere with the operations of others within the limits of this project.

The foregoing provisions are also considered applicable to those utility concerns that will be working within the project during such time as construction work by the Contractor is underway.

In connection with this Contract, the Contractor shall protect and save harmless, the City from any and all damages or claims that may arise because of inconvenience, delay or loss experienced by him because of the presence of operations of the aforementioned utility concerns or departments of the City of Little Rock, Arkansas.

- (b) The location of existing mainline underground utilities were determined, to the fullest extent possible, from available records of the various utility companies. It is the Contractor's responsibility to coordinate with the utility company concern, for the adjustment, relocation or removal of interfering utilities. It can be anticipated that interference and/or conflicts may occur (due to unrecorded or erroneous data and house service connections) which will require field adjustment, either in the utility or in the improvement being constructed. In the event this occurs, the City and the engineer will make every effort to assist the Contractor in securing the necessary adjustments within the least time possible; however, delays can be expected to occur. When utility mainlines are specifically shown on the plans, the Contractor will verify the locations and elevations and mark them accordingly before construction commences. Should the Contractor break said mains during the performance of his work, he and his Surety will be liable for all costs resulting out of repairs of said breakage. Contractors will endeavor to locate all service lines and buried cable, mark them for clearance and afford them the same protection as the mains to prevent damage and service interruptions. If in the opinion of the engineer, a utility has not determined facilities are present along the work line and one is encountered by the Contractor, he will afford it protection as necessary, notify the engineer and utility of its presence, but shall not be held liable if breakage occurs before its presence is known. In connection with any unforeseen interferences

and/or conflicts, the Contractor shall protect and save harmless, the City and/or engineer from any and all damages or claims other than possible time extensions that may arise because of inconvenience, delay, or loss experienced by him due to waiting for adjustments resulting from such interference and/or conflicts or subsurface and surface utilities.

- (c) Local ordinances and/or regulations require that the City of Little Rock repair all street cuts, under the Community Development Block Grant Program. The Contractor will make all street cut repairs on existing streets not to be abandoned. The street cuts made by utility companies or other contractors or agencies will be repaired by the City and the cost will be paid for by the utility company, contractor or other agency making the street cut. Street cuts under this Contract will be completed in accordance with the technical specifications and City Code, Chapter 30, Art. 30-241 through 30-275.

8. CONTRACT DOCUMENTS AND PLANS

The City will furnish the Contractor without charge four (4) copies of the Contract Conditions and Specifications of the Community Development Block Grant Program of the City of Little Rock, consisting of General Conditions, Special Conditions, and Technical Specifications and a maximum of four (4) copies of Bid and Contract Documents. Additional copies requested by the Contractor will be furnished at cost.

9. APPLICABLE CODES AND ORDINANCES OF THE CITY OF LITTLE ROCK, ARKANSAS

As set forth in General Conditions, Section 10, herein, it is the Contractor's responsibility to be familiar and comply with the provisions of Chapter 30, Streets and Sidewalks, Little Rock Code, Revised 1988, and any other laws, ordinances, and codes of the City of Little Rock that may be applicable to the construction work and/or the installation of those improvements covered under this Contract. These documents may be obtained from the Office of the City Clerk, City Hall, Little Rock, Arkansas.

This information is provided as a convenience and shall not be construed as relieving the Contractor of the responsibility of securing information regarding other applicable laws, ordinances, and codes of the City of Little Rock.

10. FUNCTION OF THE CONSULTING (DESIGN) ENGINEER

The Consulting Engineering firm will provide sufficient vertical and horizontal survey control points so that the Contractor may layout the work. All questions that the Contractor may have concerning the plans, grades or layout should be directed to the Construction Manager. The Construction Manager will decide if the problem is of such magnitude as to require the presence of the Consulting Engineer on the project.

11. DUTIES OF THE CONSTRUCTION MANAGER

- (a) The City's "on-site" representative is the Construction Manager assigned to this project and shall be named at the Preconstruction Conference. He is authorized to inspect all work done and materials furnished to determine if the requirements of the Specifications and Contract are being met. Should a dispute arise between the Construction Manager and the Contractor, as to material furnished or the manner in which the work is being performed, he shall have the authority to reject the materials or suspend the work until the questions at issue are decided by the City of Little Rock Public Works Department. The Construction Manager shall in no case direct the Contractor's workmen, nor perform duties or interfere with the management of the work of the Contractor. The Construction Manager is authorized to approve necessary field adjustments due to unforeseen conditions such as underground utility interference.
- (b) Any instructions contrary to the Plans and Specifications or the authorization to revoke, alter, enlarge, relax, release or to approve and/or accept any portion of the work or undertake additional work including the extension of quantities as set out in the proposal must be approved by the Construction Manager and concurred therein by the City.
- (c) Any advice which the Construction Manager may give the Contractor shall not be construed as binding the City in any way nor as releasing the Contractor from fulfillment of the terms of the Contract.
- (d) All work rejected shall be remedied or removed and replaced in an acceptable manner by the Contractor at his own expense. Extra work done without

- (e) The Contractor will assist the Construction Manager in the preparation of any reports by providing information relating to the number of crews working, equipment on the job and quantities of work completed each day. The Contractor shall provide the City with a signed copy of his daily construction reports covering the aforementioned items, if requested.
- (f) The Contractor shall be entitled to and may receive upon request one copy of the Construction Manager's daily report.

12. LAYOUT OF WORK

The Contractor shall lay out his own work using horizontal and vertical survey control points furnished by the Design Engineer, and he shall be responsible for all work executed by him under the Contract. He shall verify all figures and elevations before proceeding with the work and will be held responsible for any error resulting from his failure to do so.

Construction layout is subsidiary to the various items of work.

13. CONSTRUCTION SEQUENCE, MAINTENANCE OF TRAFFIC AND MAINTENANCE OF ACCESS TO INDIVIDUAL PROPERTIES

- (a) The Contractor is specifically advised that the construction of the improvements under this Contract will occur within a densely inhabited area. During construction, the Contractor shall be required to schedule his operations so that traffic circulating within the project can safely be maintained under all weather conditions. Further, construction operations shall be coordinated so as to maintain access to individual properties (except for the short period of time where construction activities make it impossible) with a minimum amount of inconvenience to the residents.
- (b) Prior to initiating construction, the Contractor shall meet with the City and the Construction Manager for the purpose of preparing a work schedule and contemplating sequence of operations. For the purpose of coordination, this schedule will be furnished to the utilities. The Contractor shall prepare a maintenance or traffic and/or detour plan and obtain approval from the City Engineering Department prior to commencing

work. The Contractor's plan for maintaining traffic shall be coordinated with his schedule of work and sequence of operations. An approved copy of the barricading plan shall be forwarded to the Construction Manager.

- (c) During construction, the Contractor shall notify immediately the Little Rock Engineering Department and the Construction Manager prior to making any change affecting the maintenance of traffic. Also, the sequence of operations schedule shall be kept up-to-date and furnished to the Construction Manager.
- (d) Cleanup operations shall be undertaken and completed immediately for those parts of the project area where construction is substantially complete in order that these areas may be returned to the residents as soon as possible.

14. ARKANSAS STATE LICENSE

Contractors submitting bids must be licensed under the terms of Act 150 of the 1965 Arkansas General Assembly, effective June 9, 1965, and subsequent amendments, which regulates the practice of general contracting in the state of Arkansas.

15. AS-BUILT DRAWINGS

All underground and underpavement storm and sanitary sewers, conduit, or other underground facilities which the Contractor installs shall be accurately located in the final locations by making measurements to exposed permanent structures or markers, and shown on the appropriate drawings listed in the Schedule of Drawings by the Contractor. The marked drawings shall be submitted to the Department of Public Works upon completion of the work.

16. RIGHTS-OF-WAY, RIGHTS OF ENTRY AND EASEMENTS

- (a) Temporary rights of entry and permanent easements for the construction of streets, storm sewers and other drainage works, retaining walls, driveways or sanitary sewer lines will be furnished by the City. The Contractor shall make his own arrangements with property owners for any other construction rights of entry needed by him.
- (b) Disposition of fences interfering with construction is shown on the plans and specified in the Technical Specifications. Damages to fences, trees, shrubs, grass, flowers or any other

plants, buildings or other structures outside easements of the right-of-way shall be repaired or restored, suitable to the property owner, by the Contractor at his expense.

17. SCOPE, NATURE, AND INTENT OF CONTRACT SPECIFICATIONS AND PLANS

The said Specifications and Plans are intended to supplement, but not necessarily duplicate each other, and together constitute one complete set of Specifications and Plans, so that any work exhibited in the one and not in the other shall be executed just as if it has been set forth in both in order that the work shall be completed according to the complete design or designs as decided and determined by the Design Engineer. Should anything be omitted from the Specifications and Plans which is necessary to a clear understanding of the work, or should it appear various instructions are in conflict, then the Contractor shall secure written instructions from the Public Works Department, City of Little Rock, before proceeding with the construction affected by such omission or discrepancies. It is understood and agreed that the work shall be performed and completed according to the true spirit, meaning and intent of the Contract, Specifications and Plans.

18. FIGURED DIMENSIONS TO GOVERN

Figured dimensions, when given on the plans, shall be accurately followed, even though they differ from scaled measurements. No work shown on the Plans, the dimensions of which are not figures shall be executed, until instructions have been obtained from the Construction Manager as to the dimensions to be used. Large scales and full-size drawings shall be followed in preference to small-scale drawings.

19. CONTRACTOR TO CHECK PLANS AND SCHEDULES

The Contractor is required to check all dimensions and quantities on the Plans and schedules given to him by the Design Engineer, and shall notify the Construction Manager of any discrepancy between the Plans and the conditions on the ground, or any error or omission in the Plans, or in the layout as given by stakes, points, or instructions which he may discover in the course of the work. The Contractor will not be allowed to take advantage of any error or omission in the Plans or Contract Documents, as full instructions will be furnished by the Construction Manager should error or omission be discovered, and the Contractor shall carry out such instructions as if originally specified.

20. INSPECTION

As set out in Section 14 of the General Conditions, the project shall at all times be subject to inspection by representatives of the Department of Housing and Urban Development. Access and inspection shall also be provided for representatives of the City, the Public Health Service and the Arkansas State Department of Health. The Contractor shall provide proper facilities for such access and inspection.

Unless otherwise directed by the Construction Manager, all work of a permanent nature which cannot be inspected after completion shall be done in the presence of an inspector. NO CONCRETE SHALL BE PLACED UNLESS AN INSPECTOR IS PRESENT. The Contractor shall notify the Construction Manager at least 24 hours in advance before concrete is to be placed. It shall be the duty of the Contractor to notify the Construction Manager in advance of the beginning of work after delays, shutdowns, change of work progress or change of location.

The failure or neglect on the part of the Construction Manager or the Inspector to inspect, condemn or reject inferior materials or work shall not be construed to imply an acceptance of the same should inferiority become evident at any time prior to the final acceptance of the work by the City, or within the time limit of one year as set out in Section 40 of the General Conditions.

The Construction Manager does not guarantee the performance of the Contract by the Contractor, nor shall his inspection be construed as supervision of actual construction, nor make him responsible for providing a safe place for the performance of the work by the Contractor, or the Contractor's employees, or those of the suppliers, his subcontractors, nor for access, visits, use, work, travel or occupancy by any person, as these responsibilities are covered under the provisions of this Contract, the Contractor's Insurance and Performance Bond, and are not the responsibility of the City. Where the provisions of safety, in any of its categories, are not being observed, and this condition comes to the attention of the Construction Manager or his representative, the Construction Manager may require standard safety procedures to be initiated, but the requirements of these procedures does not constitute a guarantee by the Construction Manager as to their adequacy or the safety of the public.

Where plants, buildings or mass movement of earth is being undertaken, the Design Engineer will set such control lines and basic elevations as are required for the Contractor to make such unit or plant layouts as are required. When work is undertaken which requires constant or generally intermittent checking of lines and elevations, the Contractor shall maintain such equipment and personnel as are essential to the actual prosecution of the work. In these instances, the final grades, alignments and dimensions are subject to the checking of the Construction Manager.

21. PROTECTION OF PUBLIC UTILITIES

The Contractor shall give reasonable notice to the owners of steam, gas, water, sewer and other pipelines or conduits, overhead and underground wires or other structures, either public or private, railroads and other owners of property, when such property is liable to injury or damage by reason of the execution of the work, in order that the owner or owners of such utility or other property may remove or protect the same.

If any owner or owners of public utilities liable to be affected, endangered or damaged by the construction of the work does not protect its or their property, then the Contractor must do so. The Contractor shall receive no compensation over the unit and lump sum prices specified in the bid for the completion of this Contract, which prices shall cover every item of additional cost for all the material and labor necessary to support, protect or remove such tracks, pipes, conduits, overhead and underground wires, and structures and other improvements during the Construction of said work across, under, over, along or near the same.

The Contractor shall satisfactorily shore, support, and protect any and all pipes, sewers and other structures and shall be responsible for any damage resulting thereto. The Contractor shall not be entitled to any damages or extra pay on account of any postponement, interference or delay caused by any such structures being on the line of the work, whether such structures are shown on the plans or not. In all cases, the Contractor will be responsible for all damage and/or repair of utilities.

22. SANITARY CONVENIENCES

Sanitary conveniences, consistent with good health standards and decency shall be provided for the workmen. Such conveniences shall be approved by the local officials responsible for such standards. Such

conveniences shall be maintained in good order and waste disposed of regularly and to the satisfaction of said official.

The Contractor shall provide a safe drinking water for all workmen. The water shall come from a safe source approved by the State Department of Health. Water shall be delivered to workmen through an approved water spigot or angle jet fountain, and the use of a common drinking cup will be prohibited.

23. PRIVILEGES OF CONTRACTORS IN STREETS

The Contractor will be entitled to use such streets, alleys, roadways or parts of the streets and alleys as are necessary for the prosecution of the work. The use of such public thoroughfares shall be at the direction of the Construction Manager and in accordance with the provisions as expressed by him. The Contractor shall take care to keep streets open for use whenever practicable; cross streets will be kept open whenever possible. The Contractor will notify the Fire Chief of the locality and the City Police Department when a street is closed and again shall notify him when it is opened for traffic. In case no adequate action can be provided, the Contractor will stand in readiness to provide a crossing in case of any emergency.

24. DUST CONTROL

During the construction period when streets have been scarified and subgrade has been exposed, the Contractor shall maintain a water truck on the site full time, for the purpose of controlling dust during dry weather periods. In cases of drainage ditch construction in "built-up" residential areas and streets must be traversed for placement of improvements, as soon as construction has been completed in the street, cuts will be backfilled and compacted and a treatment of oil shall be applied to prevent dust pollution. Water treatment shall be paid on a unit price basis and oil treatment shall be considered part of site preparation.

TECHNICAL SPECIFICATIONS

SECTION 1 - SPECIFICATIONS, ARKANSAS STATE HIGHWAY COMMISSION

1.01 Description

- (a) The standard specifications of the Arkansas State Highway Commission are bound in a book titled Standard Specifications for Highway Construction, Arkansas State Highway Commission. These standard specifications are referred to herein as "Standard Specifications." The most current edition shall apply.
- (b) A copy of the Standard Specifications may be obtained from the Arkansas State Highway Department, Little Rock, Arkansas, at their customary charge.

1.02 Use and Modification

- (a) Certain parts of the Standard Specifications are appropriate for inclusion in these Technical Specifications. Such parts are incorporated herein by reference to the proper section or article number. The individual specification numbers noted herein may be different from those in the latest edition of the "Standard Specifications". The most current specification number shall apply. Each such referenced part shall be considered to be a part of these Contract Documents as though copied herein in full.
- (b) Certain referenced parts of the Standard Specifications are modified in the Specifications that follow. In case of conflict between the Standard Specifications and the Specifications that follow, the Specifications that follow shall govern.
- (c) Individual material test numbers change from time to time. Use the most current applicable test.

SECTION 2 - SITE PREPARATION

2.01 Description

This section covers site preparation and cleanup.

- (a) Site preparation and cleanup shall cover, but not be limited to the following areas:
- (1) Area to be occupied by the improvements
 - (2) Necessary abutting work areas,
 - (3) Any site for disposal of unsatisfactory excavated material
 - (4) Haul roads or streets, and
 - (5) Areas within the project that the Contractor might use for storage areas.
- (b) In the areas described in Subparagraph (a) (1), the Contractor shall remove and dispose of all trees, roots, shrubs and other vegetation; all debris of whatever nature; all side drains or cross drains; all steps or walks; and all fences or other obstructions on the site of the project which interfere with the construction of improvements.
- (c) Removal and disposal of existing side drains or cross drains shall be in accordance with stipulations as follow:
- (1) Removal shall be done in a manner as to minimize damage to the drainpipes.
 - (2) Salvageable materials shall be stacked neatly within and near the street right-of-way, or delivered to some central point, as directed by the Construction Manager.
 - (3) Material unsuitable for salvage shall be disposed of by the Contractor. When the Contractor and the Construction Manager agree that the above conditions exist, Subparagraph (c) (1) shall not apply.
- (d) Any ornamental trees, shrubs or flowers which are to be transplanted by the Owner will be completed ahead of the Contractor's operation. It is called to the Contractor's attention that the alignment of the proposed streets was established in such a manner as to minimize the clearing of any trees, shrubs, or other desirable plants. In general, trees known to interfere with the construction operations are shown on the plans. The Contractor shall determine for himself the extent of the work involved in Subparagraph 2.01 (b) and shall be prepared to remove all trees or other such

obstructions as necessary for the construction operation.

- (e) The relocation of shrubs by the Contractor shall be in accordance with SECTION 15 - SHRUBBERY RELOCATION AND HEDGE RELOCATION.
- (f) It shall be the responsibility of each bidder to examine the site carefully and to make his own calculations as to costs to be incurred by reason of the requirements of this paragraph of this Special Provision. The Contractor will not be allowed compensation, additional to that herein provided, because of any claim concerning any stipulation of this paragraph.

2.02 Intermittent Cleanup

The Contractor shall, periodically or as directed during the progress of the work, put the entire site of the work in a neat and clean condition as set forth in PARAGRAPH 37(d) - GENERAL CONDITIONS of these Specifications.

2.03 Measurement and Payment

- (a) Site preparation will be measured as a complete item.
- (b) Site preparation acceptably completed and measured as provided above will be paid for at the percentage of completion as determined by the Construction Manager of the Contract lump sum price for "SITE PREPARATION," which price shall be full compensation for furnishing all materials and for all equipment, tools, labor and incidentals necessary to complete the work.

SECTION 3 - EARTHWORK

3.01 Description

- (a) This section covers all earthwork necessary for the construction of streets, sidewalks, curb and gutter, ditches and site work within the project area.
- (b) This section covers the excavation, filling and compacting of material required for the construction outlined in 3.01(a) above and the disposal of material unsuitable for such construction.

- (c) This section does not cover the excavation and backfill of structures which can be found in SECTION 12 - UNCLASSIFIED EXCAVATION FOR STRUCTURES.

3.02 Standard Specifications

- (a) All work shall be in accordance with the lines and grades shown on the plans, or as directed by the Construction Manager, and with applicable portions of SECTION 210 - EXCAVATION AND EMBANKMENT, and SECTION 212 - SUBGRADE, STANDARD SPECIFICATIONS, except as modified or augmented herein.
- (b) All excavation performed under this Section, regardless of the material encountered, shall be classed as unclassified excavation, except for ditch excavation described below:
- (c) The ditch excavation for channel changes or to bring ditches to minimum required section shall be in accordance with applicable portions of the Standard Specifications referred to under 3.02(a) above.
- (d) In areas of ditch requiring no excavation, Subparagraph 2.01(b) shall apply to the extent that all trees, shrubs, heavy vegetation or any other obstruction to flows shall be removed as shown in the Plans.
- (e) All ditch excavation shall be completed to the required grade shown on the Plans or as directed by the Construction Manager.

3.03 Over-Excavation

Where excavation is carried below or beyond that required, the space shall be filled to grade with suitable material and thoroughly compacted as directed by the Construction Manager. The Contractor will not be entitled to additional compensation for such filling unless the Owner or its agent is responsible for the error.

3.04 Use

- (a) Suitable excavation shall be used for the forming of embankment, and where needed, for backfilling.
- (b) Embankment and backfills will not be measured for separate payment, but will be considered subsidiary work pertaining to the several items of the Contract.

- (c) Suitable excavation not needed for work described in 3.04(a) above shall be disposed of by the Contractor off the site.
- (d) Excavation unsuitable for use shall be disposed of by the Contractor off-site.
- (e) The Contractor is expected to make fills from suitable excavated material, and it may be necessary to stockpile a part or all of this material for later use; "Donna Fill" is not an acceptable fill material. The stockpiling and rehandling will not be paid for separately and the Contractor shall include this cost in "Unclassified Excavation." The Contractor will be required to replace with suitable borrow material, at no additional compensation; any suitable excavated material needed for the work which may be permanently wasted.

3.05 Compaction of Earthwork

- (a) Completion shall be in accordance with applicable parts of PARAGRAPH 210.09, SECTION 210 - EXCAVATION AND EMBANKMENT, except as herein modified.
- (b) All compaction shall be to a density not less than ninety-five percent (95%) of maximum density, at optimum moisture, obtained in the laboratory. Samples for laboratory tests and field determination will be taken by the Construction Manager and at the expense of the Owner, except that the Contractor shall assist the Construction Manager in the making of field determinations.
- (c) The moisture-density relation of the material shall be determined in the laboratory in accordance with AASHTO Designation T 180, modified to use material passing a 3/4-inch sieve. The field determination of material in place shall be in accordance with ASSHTO Designation T 191, or T 205, or T 239.
- (d) The Contractor will not be required to furnish a field laboratory.

3.06 Borrow Material

- (a) Borrow material, when required, shall be in accordance with SECTION 210 - EXCAVATION AND EMBANKMENT.

- (b) The Contractor shall obtain the source, or sources, of borrow material (Donna Fill is not acceptable) and shall pay all royalty charges in connection therewith.
- (c) The Contractor shall obtain written permission from the Department of Public Works for the use of haul roads within the City. Both within and without the City, he shall maintain the haul route free from spillage by his vehicles. He shall clean the haul route surface as often as necessary to avoid the creation of a public nuisance. He shall repair and restore the surface of all haul roads which have been damaged by his operations.

3.07 Subgrade

- (a) Subgrade for concrete sidewalks and steps shall be in keeping with requirements specified in SECTION 3 - CONCRETE SIDEWALKS AND STEPS.
- (b) Preparation of subgrade will not be measured for separate payment, but shall be considered subsidiary work pertaining to the several items of the Contract.

3.08 Measurement and Payment

- (a) Unclassified excavation for street construction and site grading as well as for curb and gutter, and ditch or channel excavation, which is by necessity included in the street excavation, has been computed from the original cross sections and the proposed typical section. This will be the quantity used for final payment with the exception that revisions will be made for adjustment in the profile or typical section during the construction of the project. Unclassified Excavation, as specified in this paragraph, will be paid for at the contract unit price bid per cubic yard for "UNCLASSIFIED EXCAVATION" which price shall be full compensation for all excavation, except excavation for structures; for the formation of embankment; for disposal of unsuitable material; for compaction and preparation of subgrade; and for all equipment, tools, labor and incidentals necessary to complete the work.
- (b) Unclassified excavation for sidewalks and steps will not be measured for separate payment, but will be considered subsidiary to the items "CONCRETE SIDEWALKS" and "CONCRETE STEPS." Unclassified excavation of 4-inch topsoil for solid sod will not be measured for separate

payment, but will be considered subsidiary to the item "SOLID SOD."

- (c) Borrow material will be measured by the cubic yard, truck measure, at the points of delivery to the site and will be paid for at the contract unit price per cubic yard for "BORROW MATERIAL," which price shall be full compensation for furnishing all materials; for all work necessary in procurement of the material, loading, hauling, forming embankment; compaction of embankment; and for all labor, equipment, tools and incidentals necessary to complete the work.
- (d) Compaction of earthwork will not be measured for separate payment but will be considered subsidiary to the several items of the Contract.
- (e) When excavation to the finished grade section results in a subgrade or slopes of unsuitable soil, the Construction Manager may require the Contractor to remove the unsuitable materials and backfill to the finished graded section with "B" stone. Payment will be as per Section 23, "B" stone. The Construction Manager may designate as unsuitable those soils that cannot be properly compacted.
- (f) Payment for "UNCLASSIFIED EXCAVATION" and "BORROW MATERIAL" will be made in proportion to amount of work complete to date, but in no event will the amount exceed the percentage shown in the following payment schedule:

PAYMENT SCHEDULE

	<u>Partial Estimates</u>
(1) Street Section to Subgrade Elevation	80%
(2) After Base Course Dumped and Spread	10%
(3) After Erosion Control Items (Solid Sodding, Sod Mulch, Seeding, etc.) are Completed	10%
TOTAL	100%
	Of Bid Price

SECTION 4 - AGGREGATE BASE COURSE

4.01 Description

This section covers all work in connection with the construction of Aggregate Base Course, Class SB-2.

4.02 Standard Specifications

Material and work for aggregate base course shall be in accordance with SECTION 303 - AGGREGATE BASE COURSE, Standard Specifications unless modified or augmented herein.

4.03 Tests

Material will be acceptable from crushing plants which currently are, or recently have been, supplying crushed material meeting the specifications of the Arkansas State Highway Commission for Aggregate base material. In-place density shall be determined by AASHTO T 191, T 205 or T 238 of not less than 100% of max density determined in the laboratory by AASHTO T180.

4.04 Maintenance

The Contractor shall maintain the base course until and during the construction of the asphaltic concrete wearing course. He shall repair any defects which may develop and at his own expense.

4.05 Measurement and Payment

- (a) Aggregate Base Course will be measured by the ton of two thousand (2,000) pounds, as determined by weighing on accurate, approved scales as described in Article 109.01(f), Standard Specifications. Each truck shall bear a plainly legible identification number and, upon being weighed, shall be given two (2) copies of a delivery ticket which will have on it the number of the truck, time of departure, truck weight, combined weight, and project name. The Construction Manager shall receive a copy of each delivery ticket for the computation of pay quantities.
- (b) Aggregate Base Course, acceptably completed and measured as provided above, will be paid for at the contract unit price per ton for "AGGREGATE BASE COURSE," which price shall be full compensation for furnishing the material; for hauling, placing, spreading and compacting; and for all equipment, tools, labor and incidentals necessary to complete the work.

- (c) Payment for "AGGREGATE BASE COURSE" will be made in proportion to amount of work completed to date in accordance with the following payment schedule:

PAYMENT SCHEDULE

	<u>Partial Estimates</u>
(1) Aggregate Base Course Dumped and Spread	Tons of Base Course Dumped and Spread to date x 50%
(2) Aggregate Base Course Compacted and Primed	Tons of Base Course Compacted and Primed to date x 50%

SECTION 5 - PRIME COAT AND TACK COAT

5.01 Description

- (a) Prime coat or tack coat shall consist of a single application of bituminous material, applied on the completed and approved aggregate base course, at the rate shown on the Plans or approved by the Construction Manager.
- (b) All work under this section shall be in accordance with details shown on the Plans and with these Specifications.

5.02 Standard Specifications

Material and work for this section shall be in accordance with SECTION 401 - PRIME AND TACK COATS, Standard Specifications, that concerns prime coats, or tack coats, unless modified or augmented herein.

5.03 Materials

The type of bituminous material to be used is not designated on the plans or in these specifications, except that, in general, prime coat shall be a medium curing cut back asphalt, and a rapid curing cut-back for tack coats. The Construction Manager will select the particular grade of asphalt, depending on the season of the year and texture of the base material.

5.04 Measurement and Payment

- (a) Prime and tack coats will be measure by the gallon actually placed and the number of gallons will be determined by the outage measurements of the distributor as delivered on the job, based on volume content as of 60 degrees F. for asphalt cement and liquid asphalt.
- (b) Prime and tack coats acceptably completed and measured as provided above, will be paid for at the contract unit price per gallon bid for "BITUMINOUS PRIME COAT," which price in each case shall be full compensation for furnishing all materials; for all hauling, heating, applying; and for all equipment, tools, labor and incidentals necessary to complete the work.

SECTION 6 - ASPHALT SURFACE, BINDER AND ASPHALT STABILIZED
BASE COURSE

6.01 Description

- (a) This section covers the Asphaltic Concrete Hot Mix Surface Course, Asphaltic Concrete Hot Mix Binder Course, and Hot Mix Asphalt Stabilized Base Course.
- (b) Materials, equipment and construction methods for Hot Mix Asphalt Stabilized Base Course shall be in accordance with SECTION 405 of the Standard Specifications, except as modified or augmented herein.
- (c) Materials, equipment and construction methods for Asphaltic Concrete Hot Mix Binder Course shall be in accordance with SECTION 406 of the Standard Specifications, except as modified or augmented herein.
- (d) Materials, equipment and construction methods for Asphaltic Concrete Hot Mix Surface Course shall be in accordance with SECTIONS 404, 407, and 408 of the Standard Specifications, except as modified or augmented herein.
- (e) All work shall be in accordance with details shown on the Plans and with the Specifications.
- (f) The ambient (air) temperature shall be determined as follows: the thermometer placed in the shade, three feet above the ground.

6.02 Method of Measurement

Asphaltic Concrete Hot Mix Surface, Binder and Stabilized Base Courses will be measured by the ton of two thousand (2,000) pounds, as determined by plant weights. Measurements shall include only the actual amounts placed within the lines shown on the Plans, or as directed by the Construction Manager.

6.03 Basis of Payment

Asphaltic Concrete Hot Mix Surface and Binder Course, and Hot Mix Asphalt Stabilized Base Course, acceptable completed, and measured as provided above, will be paid for at the contract unit prices per ton bid for "ASPHALT CONCRETE (HOT MIX, BINDER COURSE)", "ASPHALT CONCRETE (HOT MIX, SURFACE COURSE)", "HOT MIX ASPHALT STABILIZED BASE COURSE", which prices shall be full compensation for furnishing all materials; and for all equipment, tools, labor, and incidentals necessary to complete the work.

SECTION 7 - DRIVEWAYS, DRIVEWAY EXTENSIONS AND APRONS

7.01 Description

This section covers the construction of Driveways, Driveway Extensions, and Aprons to the lines and grades shown on the Plans or as directed by the Construction Manager.

7.02 Materials

- (a) The construction material of the extensions shall generally conform to the material of the existing driveways. The remainder of the driveway between the curb and right-of-way line shall be of Portland Cement Concrete Pavement.
- (b) Materials for Concrete Driveways, Driveway Extensions, and Aprons shall be in accordance with SECTION 505 - PORTLAND CEMENT CONCRETE DRIVEWAY, STANDARD SPECIFICATIONS.
- (c) Materials for Asphalt Driveway Extensions shall be in accordance with applicable portions of SECTION 4 - AGGREGATE BASE COURSE, SECTION 5 - PRIME COAT AND TACK COAT, AND SECTION 6 - ASPHALT SURFACE, BINDER AND ASPHALT STABILIZED BASE COURSE of these specifications.

- (d) Materials for gravel driveways shall be in accordance with SECTION 4 - AGGREGATE BASE COURSE.

7.03 Construction Methods

The construction of driveways shall be done in accordance with applicable sections of these Specifications for the type of construction material specified. Sections considered applicable are as follows:

SECTION 3 - EARTHWORK
SECTION 4 - AGGREGATE BASE COURSE
SECTION 6 - ASPHALT SURFACE, BINDER AND ASPHALT STABILIZED BASE COURSE

7.04 Measurement and Payment

- (a) Concrete Driveways, Driveway Extensions and Aprons will be measured by the square foot.
- (b) Concrete Driveways, Driveway Extensions, and Aprons acceptable completed and measured as provided above will be paid for at the contract unit price per square foot bid for "CONCRETE ALLEY APRONS AND DRIVEWAYS (6" thick)" or "CONCRETE DRIVEWAYS (4" thick, Private Property)" as applicable, which price shall be full compensation for furnishing all materials, including reinforcing steel that might be required, for preparation of the subgrade; and for all equipment, tools, labor, and incidentals necessary to complete the work.
- (c) Asphalt driveway extensions shall be measured and paid for as set forth in SECTION 4 - PRIME COAT AND TACK COAT and SECTION 6 - ASPHALT SURFACE, BINDER AND ASPHALT STABILIZED BASE COURSE.
- (d) Gravel driveway extensions shall be measured and paid for in accordance with SECTION 4 - AGGREGATE BASE COURSE.

SECTION 8 - CONCRETE CURB AND GUTTER

8.01 Description

This section shall consist of the construction of Concrete Curb and Gutter at the locations shown on the Plans or as directed by the Construction Manager.

8.02 Standard Specifications

Materials and work for concrete curb and gutter shall be in accordance with SECTION 634 - CURBING, Standard Specifications, except as modified by SECTION 11 - CONCRETE AND REINFORCING STEEL of these Specifications and except as modified or augmented in this section of the Specifications.

8.03 Tests

Tests shall be in accordance with Paragraph 7, INSPECTING AND TESTING OF MATERIALS, General Conditions, and SECTION 12 of these Specifications.

8.04 Forms

Article 634.03(b) of Standard Specifications shall be augmented as follows:

- (a) Form for curb and gutter on tangent shall be steel forms, taking into consideration standard lengths of such forms.
- (b) Forms in curved sections may be substantially built wood forms.
- (c) The Construction Manager shall approve all forms before they are used on the job and shall inspect them periodically. When forms appear to be unsatisfactory in any way, either before forms are used, during forming operations, or during the placing of concrete, the Construction Manager shall order the work stopped until the defects have been corrected or the defective forms are replaced by satisfactory ones.

8.05 Placing and Finishing

That part of Article 634.03(c)(1) of Standard Specifications which relates to placing and finishing shall be replaced by the following requirements:

- (a) Concrete shall be dry enough to permit early removal of face forms, if used, for the curb section; it shall not be so dry but what adequate tamping and spading will ensure adequate compaction and surfaces free from honeycomb. The subgrade shall be wetted before placing the concrete.
- (b) The surface shall be shaped to the required section, finished with a steel trowel, and lightly brushed to produce a uniform surface of slightly

roughened texture. The exposed edge of the gutter at the front form, and the exposed edge of the curb at the back form, shall be edged with an edging tool having a radius of approximately 1/8 inch.

- (c) As the Contractor may elect, shaping may be done by a steel screen, shaped to exact curb and gutter section, riding upon the tops of front metal template. The Contractor shall be responsible for construction within the tolerances allowed by this section. The shaping operation shall be repeated as often as necessary to attain the required results.
- (d) If templates are used to control shape, they shall be of metal securely fastened in position at intervals not exceeding ten (10) feet. Templates shall be normal to the grade of the gutter and to the centerline of roadway.

8.06 Joints

Article 634.03(d), Joints, Standard Specifications, for Concrete Curb and Concrete Curb and Gutter shall be deleted in its entirety, and substituted therefore shall be the following:

- (a) Premolded expansion joint material shall be placed between curb and any concrete construction that otherwise would abut against it. Joint material shall be 1/2 inch thick, with a width sufficient to obtain complete separation.
- (b) Expansion joints of 1/2 inch premolded material shall be constructed at the ends of curb and gutter, at the points of curvature of returns to streets and driveways. Intermediate joints shall be constructed so that the maximum distance between joints is sixty (60) feet. The joint material shall extend entirely through the curb and gutter and, before the joint can be considered completed, must be trimmed to curb and gutter section. Joints shall be normal to the grade for gutter and the centerline of the roadway. Contraction joints shall be placed at ten (10) foot intervals between expansion joints, and otherwise conform to the paragraph dealing with contraction joints in SECTION 501, Standard Specifications.
- (c) Premolded joint material shall be of the nonextruding type, and shall conform to AASHTO designation M213.

- (d) All joints shall be sealed with material meeting the requirements of SECTION 501 - PORTLAND CEMENT CONCRETE PAVEMENT, Article 501.03(h), Standard Specifications.

8.07 Placement

Concrete Curb and Concrete Curb and Gutter shall be one-course, monolithic, between expansion joints.

8.08 Method of Measurement

Work required by this Section shall be measured by the linear foot. Each continuous section of the Concrete Curb and Gutter of the type constructed, will be measured along the back edge of the curb; measurements shall include the space occupied by all joints. Measurements shall not include distance across driveways or inlet structures. The quantity on the estimate will be the sum of the several measurements, to the nearest 0.1 linear foot.

8.09 Basis of Payment

Work acceptably completed and measured as provided above will be paid for at the contract unit price per linear foot bid for "CONCRETE CURB AND GUTTER," which prices shall be full compensation for furnishing all materials, including joint material and for all reinforcing steel; for all excavating, fine grading, and backfilling; for placing, finishing and curing; and for all equipment, tools, labor and incidentals necessary to complete the work.

SECTION 9 - CONCRETE SIDEWALKS AND STEPS

9.01 Description

This item shall consist of the construction of concrete sidewalks and steps at locations shown on the plans or as directed by the Construction Manager. All materials and work shall be in accordance with details shown on the Plans and with these Specifications.

9.02 Standard Specifications

Materials and work shall be in accordance with SECTION 633 - CONCRETE WALKS AND STEPS, Standard Specifications, except as modified by SECTION 11 - CONCRETE AND REINFORCING STEEL, and except as modified herein.

9.03 Finishing

Final finishing of the surface shall be by steel trowel finish followed by light brushing or brooming to attain a slightly roughened texture.

9.04 Expansion Joints

- (a) Expansion joints shall be in accordance with applicable requirements of SECTION 8 - CONCRETE CURB AND GUTTER.
- (b) Transverse expansion joints shall be constructed in sidewalks opposite expansion joints in curb and gutter and as otherwise directed by the Construction Manager.

9.05 Method of Measurement

Concrete Sidewalks and Steps will be measured by the square foot. The measurement shall be composed of the horizontal width by the horizontal length. The quantity on the estimate will be nearest square foot.

9.06 Basis of Payment

Work acceptably completed and measured as provided above, will be paid for at the contract unit prices per square foot bid for "CONCRETE SIDEWALK" and "CONCRETE STEPS", which prices shall be full compensation for furnishing all materials, including expansion joint materials; and for all equipment, tools, labor and incidentals necessary to complete the work.

SECTION 10 - INLETS AND JUNCTION BOXES

10.01 Description

This section covers all work in connection with the construction of various types and sizes of inlets and junction boxes included in this Contract, in accordance with details shown on the Plans and with these Specifications.

10.02 Standard Specifications

All work under this section shall be done in accordance with SECTION 609 - MANHOLES, DROP INLETS AND JUNCTION BOXES, Standard Specifications, except as modified or augmented herein.

10.03 Materials

Cement, aggregate, and water shall conform to the requirements for materials as provided in SECTION 11 - CONCRETE AND REINFORCING STEEL.

10.04 Construction Methods

- (a) Forms, concrete and reinforcing steel shall be in accordance with applicable requirements of SECTION 11 - CONCRETE AND REINFORCING STEEL, and with additional stipulations as follows:

Inside wall forms shall be removed prior to the erection of forms for top slabs. The supports for the top slab forms shall be positioned in such a manner that will result in a minimum of interference with the free flow of water.

- (b) Concrete masonry work and brick work shall be limited to risers for manholes or access holes as detailed on the Plans or as directed by the Construction Manger.
- (1) Concrete masonry units shall be solid and should meet the absorption and strength requirements of ASTM C-139. Clay or shale brick shall be solid and meet the absorption and strength requirements of ASTM C-32. Concrete masonry unit work and brick work shall be done in a workmanlike manner, true to dimensions shown on the Plans. All masonry shall be clean; the area of the foundation to receive the first course of mortar shall be washed clean before laying the first course of mortar.
- (2) Masonry shall be laid in a full mortar bed, with the vertical joints entirely filled with mortar (Type M - Proportioned as required by ASTM C-270). Horizontal joints, and interior vertical joints shall be not less than 1/4 inch nor more than 1/2 inch in thickness. The masonry shall be laid in alternate courses of headers and stretchers, with consecutive courses breaking joints. Where bats are necessary in forming the closures around pipes, a full unit shall be used next to the pipes and the bat used in the interior of the course. Any masonry displaced during Construction shall be removed, cleaned and relaid with fresh mortar.

- (3) The interior surfaces of masonry or brick work shall be pargeted with mortar of a thickness sufficient to obtain a uniform finished surface, or as directed by the Construction Manager.
 - (4) Masonry shall not be constructed when the temperature is below 35 degrees F., or when masonry has frost deposits, except by written permission of the Construction Manager and subject to such precautions as he may require.
 - (5) Masonry shall not be used where the placement of steps are required.
- (c) Joints, finish, and curing shall conform to the applicable portions of SECTION 11 - CONCRETE AND REINFORCING STEEL.
 - (d) Manhole rings and covers shall conform to applicable portions of Section 609 - MANHOLES, DROP INLETS AND JUNCTION BOXES. Standard Details PW-6 and PW-7 show the appropriate details of acceptable ring and covers.
 - (e) Rectangular junction boxes and inlets shall be constructed of reinforced concrete as shown in Standard Details PW-1, PW-3 through PW-8 or as indicated on the drawings. Round junction boxes and inlets shall be constructed as Standard Details PW-2 through PW-8 or as indicated on the drawings.

10.05 Cast-in-Place Inlets and Junction Boxes

- (a) Cement, aggregate, and water shall conform to the requirements for materials as provided in SECTION 11 - CONCRETE AND REINFORCING STEEL with the further provision that a maximum of two (2) percent calcium chloride may be added to the concrete to speed the set.
- (b) Dimensions of bases, inverts, barrel sections, throats, steps and tops shall be in accordance with the details shown on the Plans.
- (c) The vertical forms, wall spacers, steps and placing cone must be carefully positioned and firmly clamped in place before any placement is made. The first placement shall consist of the base concrete deposited evenly around the walls. When this lift is complete and before additional concrete is added, the concrete shall then be

deposited in evenly distributed layers of eighteen (18) inches with each layer to be sufficiently vibrated to ensure bonding to the previous layer.

10.06 Rebuild Inlets

- (a) Existing inlets shown on the Plans that are to have the top slab replaced to match the new curb and gutter or otherwise rebuilt shall be constructed in accordance with this Section.
- (b) The new portion of the inlet shall be adequately tied to the existing structure as determined by the Construction Manager.

10.07 Measurement and Payment

- (a) Completed and accepted inlets and junction boxes will be measured according to the Payment Schedule detailed in Paragraph 10.07(b).
- (b) Work completed and accepted under this Section and measured as detailed below will be paid for at the contract unit price bid each for "REBUILD RADIAL INLETS," "STANDARD CURB INLETS," "STANDARD GRATE INLETS," "STANDARD RADIAL INLETS," "STANDARD JUNCTION BOXES," as the case may be, which prices shall be full compensation for constructing the inlets or junction boxes, for all excavation and backfill; and for all materials, equipment, tools, labor and incidentals necessary to complete the work. The payment for inlets and junction boxes measured as provided in this section will be made according to the following schedule:

PAYMENT SCHEDULE

	<u>Description of Progress</u>	<u>% Complete</u>	<u>% Payment</u>
1.	Footing of Inlet	100%	25%
2.	Footing and Vertical Walls of Inlet	100%	50%
3.	Inlet Completed	100%	100%

SECTION 11 CONCRETE AND REINFORCING STEEL

11.01 Description

- (a) This section covers concrete and reinforcing steel for the construction of headwalls, inlets and other concrete drainage structures, curb and

gutter and sidewalk, and other miscellaneous concrete structures shown on the Plans or called for in the Specifications.

- (b) Additional requirements are as specified in the section of the Specifications covering the several items involved with concrete and with reinforcing steel.
- (c) All work shall be in accordance with details shown on the Plans and with these Specifications.

11.02 Standard Specifications

Concrete and reinforcing steel construction as described above shall be accomplished in accordance with the applicable portions of SECTION 802 - CONCRETE FOR STRUCTURES, SECTION 804 - REINFORCING STEEL FOR STRUCTURES, Standard Specifications, except as modified or augmented herein.

11.03 Material

(a) Cement

- (1) Cement shall be Portland Cement conforming to AASHTO Designation M 85, Type I. If approved by the Construction Manager, Type III, high-early strength Portland Cement may be used.
- (2) If concrete is mixed on the site, cement shall be delivered in plainly marked paper sacks of not less than 94 pound net weight.

(b) Fine Aggregate

Fine aggregate shall be clean sand, coarse grained, sharp and free from clay, loam, vegetable matter or other foreign substances. It shall be washed and screened for reasonably uniform gradation within limits as follows:

Size Square Opening Sieve	% By Weight Passing
3/8"	100
No. 4	95 - 100
No. 8	70 - 95
No. 16	45 - 80
No. 30	20 - 60
No. 50	5 - 30
No. 100	0 - 5

(c) Coarse Aggregate

- (1) Coarse aggregate shall consist of crushed stone. It shall consist of clean, hard, tough durable particles free from shale, dirt lignite or other impurities. It shall be washed and screened for reasonably uniform gradation within limits as follows:

Size Square Opening Sieve	% By Weight Passing
1-1/4"	100
3/4"	35 - 75
3/8"	10 - 30
No. 4	0 - 5

- (2) When tested in accordance with AASHTO Designation T 96, coarse aggregate shall have a percentage of wear not more than 40.

(d) Water

Water used in mixing concrete and mortar shall be free from injurious amounts of acids, alkalies, oil, sewage and vegetable matter. It shall be fit for drinking.

(e) Reinforcing Steel

- (1) Bar reinforcement shall conform to ASTM Designation A 615 or A617, Grade 60 unless otherwise noted on drawing, up and including No. 18 sizes. All bars shall be of deformed type conforming to current specifications of AASHTO Designation M 137.
- (2) Mesh reinforcement for concrete shall be cold-drawn steel wire for concrete reinforcement conforming to ASTM Designation A 82.

(f) Joint Material

- (1) Premolded expansion joint filler strips shall be 1/2 inch in thickness, of the size and shape shown on the Plans or as required, and shall conform to the requirements of AASHTO Designation M 33.
- (2) Joint compound, pouring type, shall be delivered to the project in the manufacturer's sealed containers. It shall conform to the requirements of AASHTO Designation M 173.

- (3) Roofing felt shall conform to subparagraph 802.21(d) Roofing, SECTION 802 - CONCRETE FOR STRUCTURES, Standard Specifications.

11.04 Samples and Tests

- (a) Subject to the provisions of Paragraph 7, General Conditions, material will be accepted on the basis as follows:
 - (1) Cement will be accepted on the manufacturer's mill certificates of compliance with the specification requirements.
 - (2) Aggregate will be accepted from producers who currently are furnishing, or recently have furnished, aggregates acceptable for use in construction by the Arkansas State Highway Commission; subject to such sieve analyses as the Construction Manager may direct.
 - (3) Reinforcing steel will be accepted on the manufacturer's certificate that the bars conform to the specification requirements.

11.05 Storage of Materials

- (a) Cement shall be stored in a suitable weatherproof structure which will protect the cement from dampness. Space shall be ample so that deliveries may be stored separately, and to provide easy access for identification and inspection. Cement shall be used in the order in which it is received.
- (b) Aggregates shall be piled so that there will be good drainage, no segregation and no introduction of foreign matter. Fine and coarse aggregate shall be stored in separate stockpiles removed from each other a distance sufficient to prevent intermixing.
- (c) Reinforcing steel shall be placed upon timbers, or other supports, that will prevent its resting upon the ground surface.

11.06 Concrete Test Cylinders

- (a) The initial proportioning of cement, aggregates and water, to meet the requirements of 11.08, COMPOSITION AND STRENGTH OF CONCRETE, shall be established by tests and made in advance of the beginning of concrete operations, using

consistencies suitable for the work. Specimens shall be made and cured in accordance with AASHTO Designation T 23, and tested in accordance with AASHTO Designation T 22. Trial design batches and testing shall be the responsibility of the Contractor; the proportion selected for initial use shall be subject to the approval of the Construction Manager.

(b) As the work progresses, continuing compliance with the strength requirements of Paragraph 11.08 will be determined through the breaking of standard concrete test cylinders.

(1) The making and curing of test cylinders and their testing will be done in accordance with the Standard Specifications listed in Subparagraph 11.06(a). Test cylinders shall be made in sets of three (3) cylinders. The Contractor will make and cure the test cylinders; the Contractor shall furnish the material in the making, curing and protecting of test cylinders. Sets shall be made and tested as often as deemed necessary by the Construction Manager.

(2) The Construction Manager may order such change in the proportion as necessary for compliance with all requirements of Paragraph 11.08, COMPOSITION AND STRENGTH OF CONCRETE.

(3) Testing of progress specimens shall be at the expense of the Owner.

11.07 Reinforcing Steel Bar Lists

Reinforcing steel bar lists shall be submitted in the manner specified in Paragraph 4, SHOP DRAWINGS, General Conditions.

11.08 Composition and Strength of Concrete

(a) Concrete shall be composed of Portland Cement, fine and coarse aggregates, and water proportioned in keeping with the following:

(1) Minimum sacks of cement per cubic yard - 6

(2) Consistency range in slump, inches - 2-4

(b) Proportioning of concrete shall be by weight except that water may be measured by volume.

- (c) Concrete made with Portland Cement - type 1 shall have a minimum compressive strength at 28 days of 3,000 pounds per square inch, or as specified on the plans; if made with Type III, Portland Cement, that strength shall be attained at the age of seven (7) days.

11.09 Mixing

(a) On-Site Mixing

- (1) Concrete shall be mixed thoroughly in a batch mixer of a type designed to ensure uniform and thorough distribution of the materials throughout the mix. Its size shall be such as to produce a volume of concrete consistent with demands of structural concrete placement. It shall be equipped with a water metering device for accurate measurement of water. Charges of cement shall be by full sacks of cement; the use of fractional sacks, or reclaimed cement will not be acceptable.
- (2) All concrete shall be mixed for a period of not less than one and one-half (1-1/2) minutes after all materials, including the mixing water, shall have been placed in the drum. The entire contents of each batch shall be discharged from the drum before any material for the succeeding batch is placed therein. When the mixing operation for each period is completed, the mixer drum shall be cleaned thoroughly. Concrete shall be deposited within thirty (30) minutes after it is mixed.
- (3) If the Contractor elects to use a central mixing plant, he shall provide sufficient hauling equipment, properly designed to prevent segregation and loss of mortar, and to permit discharge without segregation. When the hauling and placing operations for each period are completed, the hauling equipment shall be cleaned thoroughly.

(b) Ready-Mixed Concrete

- (1) Ready-mixed concrete may be used at the option of the Contractor if acceptable concrete is delivered. Ready-mixed concrete shall conform to AASHTO M 157 and to applicable portions of these specifications for on-site mixing. The concrete shall be delivered and placed within one (1) hour

after all materials, including mixing water, shall have been placed in the mixing drum.

- (2) The Contractor shall obtain from the supplier of the ready-mixed concrete the supplier's agreement to inspection by the Construction Manager to the full extent deemed necessary by the Construction Manager.

(c) Critical Temperatures

- (1) Concrete shall not be mixed and placed when the descending temperature is less than 40 degrees F., or a rising temperature is less than 35 degrees F. Temperatures shall be taken in the forms or other points of concrete placement. Concrete shall not be placed when there is frost or ice on forms. In the mixing of concrete, particles of frozen aggregate shall not be used.
- (2) If the Contractor desires to overcome the restrictions of Subparagraph (1) next above, with respect to the stated temperatures, he shall provide heating equipment adequate to maintain a temperature surrounding the concrete of not less than 40 degrees F. The Contractor shall be responsible for any defective work, and shall replace such work at his own expense.

11.10 Forms

- (a) Forms shall be constructed to the shape, form, lines and grade required, and shall be maintained sufficiently rigid to prevent deformation or displacement under load.
- (b) Forms may be constructed of any material having sufficient strength which will permit a surface of satisfactory finish. They must be sufficiently tight to prevent the escape of mortar in appreciable quantity. Forms shall be clean, and oiled with form oil before concrete is placed. Care shall be exercised to avoid any coating of the reinforcing steel with form oil.
- (c) Forms shall be set true to the required grade and alignment, and shall be supported rigidly during the entire operation of placing and finishing of concrete. Th alignment and grade of all forms set shall be approved before and immediately prior to the placing of any concrete against them.

- (d) Forms for the tops of inlets and junction boxes shall be placed after the inside wall forms are removed, or the wall form shall be cut so as to permit the flow of water while the top form is in place. The top form shall be supported in such manner so as not to impede the flow of water while forms are still in place.
- (e) All form material shall be accomplished in such manner as to avoid injury to the concrete. Except as otherwise specifically authorized by the Construction manager, forms for the concrete items listed below shall not be removed prior to the expiration of periods of time as follows:

Sidewalks, curbs, curb and gutter, and headwalls	24 hrs.
Inside walls for inlets and junction boxes	24 hrs.
Outside walls for inlets and junction boxes	36 hrs.
Any load-bearing form	14 days

Days where temperature is below 40 degrees F. shall be excluded from the above stated time periods. Field operations may be controlled by cylinder test. The removal of forms, supports and housing, and the discontinuance of heating and curing may be begun when the concrete is found to have a compressive strength of 3,000 pounds per square inch, or as specified on the plans, provided further that in no case shall supports be removed in less than seven days after placing the concrete. The cylinders shall be cured under conditions which are not more favorable than the most favorable conditions for the portions of the concrete which they represent.

The Contractor shall be responsible for damage caused by premature removal of forms.

11.11 Joints

- (a) Joints shall be formed in the positions, and according to the details shown on the plans. Concrete shall be monolithic from neat lines to joints and from joint to joint.
- (b) Construction joints not specifically shown on the plans are to be avoided, but if made shall be as approved by the Construction Manager, and shall be made and located so as to minimize impairment of the strength of the structure. Where any construction joint is to be made, the surface of the concrete in place shall be roughened and

cleaned thoroughly and all laitance, loose aggregate, and foreign matter removed. Forms shall be tightened as needed. Joints shall be wetted thoroughly immediately before placing the new concrete. Excess water shall be drained from the surface of the joint before the new concrete is placed.

11.12 Preparation for Placing Concrete

- (a) Excavations for foundations shall be prepared in accordance with the applicable portions of SECTION 12 - UNCLASSIFIED EXCAVATION FOR STRUCTURES. Water shall be removed from excavations before concrete is deposited, and all loose particles and debris removed therefrom. The bottom of excavations shall be moistened, but not made muddy, before the concrete is deposited.
- (b) The interior of forms shall be cleaned of all sawdust, chips, other construction debris and all foreign matter.
- (c) Steel reinforcement will be inspected and shall be approved prior to the placement of concrete. Runways for buggies or wheelbarrows shall not be supported on the reinforcement.

11.13 Reinforcing Steel

- (a) Steel reinforcement shall be free from rust, scale, and from mortar, dirt or other objectionable coatings. It shall be placed accurately in accordance with details shown on the plans and properly secured in position.
- (b) Bar reinforcement shall be bent cold.
 - (1) Where bars are used in concrete which will remain in contact with earth surfaces, the bar shall be supported in position by framing, and by wire as needed, in such manner that the supports shall not remain as protrusions through the surface of the concrete; wires shall be cut off and pushed down into the concrete before the concrete has had initial set.
 - (2) Where concrete is placed on horizontal forms, bars shall be supported by metal chairs with coated feet.

(c) Splices

Bar reinforcement shall be spliced where shown on the Plans. Unless otherwise shown on the Plans, the lap at each splice shall be 32 times the bar diameter, but not less than the minimum lap specified by ACI Code.

11.14 Placing Concrete

(a) General

- (1) The Construction Manager or his representative must inspect and approve the layout, alignment, grade, form work, etc., for all concrete work before placement of the concrete. Failure to have the preparatory work inspected by the Construction Manager or his representative could result in the removal and replacement of the work at the Contractor's expense. This inspection in no way relieves the Contractor from his responsibilities under the Contract. The Contractor shall schedule concrete work with the Inspector as much in advance as is feasible, but not less than twenty-four (24) hours ahead, and shall notify the Inspector at least twenty-four (24) hours before changing the schedule.
- (2) Concrete shall be placed only upon firm surfaces that are free from frost, ice, mud, and other detrimental substances.
- (3) Concrete shall be placed in such a manner as to avoid segregation, and to avoid displacement of reinforcement. Concrete shall be deposited as closely as feasible to its final position. Concrete shall not be dropped freely for distances greater than those specified as follows:

Sidewalks, curb, curb and gutter	2 ft
Retaining wall footings	3 ft
Retaining walls, and bottoms and walls of inlets and junction boxes	5 ft
Tops of inlets and junction boxes	5 ft
Headwalls	5 ft

- (4) Concrete shall be placed to the lines, grades and sections shown on the Plans or as directed by the Construction Manager. Care shall be exercised in the placing of concrete that the forms are not displaced. Honeycomb shall be prevented by proper manipulation and compaction of the concrete.
 - (5) The maximum time interval between placing batches of concrete, shall not exceed twenty (20) minutes.
- (b) Curb and Curb and Gutter
- (1) Vibrating of the concrete will not be required if other methods of manipulation obtain acceptable results.
 - (2) Curb and gutter shall be shaped without the use of mortar or additional cement. When the concrete has hardened sufficiently, the exposed edges of the curb and gutter shall be edged with an edging tool having a radius of approximately 1/8 inch.
- (c) Sidewalks
- (1) Concrete shall be spaded carefully, particularly along the edges to avoid the occurrence of honeycomb and in such manner as to avoid the introduction of dirt into the concrete. A vibrator shall not be used.
 - (2) Sidewalk shall be one course construction without mortar topping. The exposed edges of the sidewalks shall be edged with an edging tool having a radius of approximately 1/8 inch.
 - (3) The sidewalk shall be struck off with a screed or straight edge to true grade. All scum, debris and excess water shall be worked off the surface.
- (d) Concrete, other than that described in Subparagraphs (b) and (c) next above, shall be placed in accordance with stipulations that follow:
- (1) Concrete shall be placed to the thickness of the structural element being poured, but in no case in layers over eighteen (18) inches deep. Each layer shall be compacted by mechanical internal-vibrating equipment,

supplemented by such hand spading, rodding and tamping as the Construction Manager may direct. Vibrators shall not be used to transport concrete inside forms over distances so great as to cause segregation.

- (2) The use of form vibrators is not acceptable. Internal vibrators shall be capable of transmitting vibration to the concrete at frequencies not less than 4,500 impulses per minute. Duration of vibration shall be limited to the time necessary to produce satisfactory consolidation without causing objectionable segregation. The vibrator shall not be inserted into lower courses previously vibrated. Vibrators shall be applied to a substantially vertical position, and at uniformly spaced points not further apart than the visible effectiveness of the vibrator.
- (3) For the last lift of any structural element, the concrete shall be struck off with a screed or straight edge to true grade. All scum, debris and excess water shall be worked off the surface and the surface shall be finished and cured in accordance with Paragraph 11.15 and 11.16 below.

11.15 Finishing

- (a) Curb and Curb and Gutter
 - (1) Gutters to remain exposed in the completed work and top of gutter shall be given a steel trowel finish, followed by a light brushing.
 - (2) If face form is used, the battered face of curbs shall be given a Carborundum stone finish as specified below for exposed surfaces. If a face form is not used, finish shall be as specified in (1) next above.
- (b) Sidewalks shall be given a steel trowel finish and shall be lightly groomed or brushed to produce a uniform surface of slightly roughened texture.
- (c) All other surfaces which will remain exposed in the completed work shall be wetted thoroughly and rubbed with a medium grit Carborundum stone, followed by a second rubbing with a fine grit Carborundum stone, to obtain an entire surface of smooth texture and uniformity in color. A cement wash or plaster coat shall not be used.

(d) All concrete shall be finished in accordance with stipulations as follows:

(1) General

Defective concrete, whether exposed or unexposed, shall be repaired or replaced as directed by the Construction Manager.

(2) Formed Surfaces

All form tie rods shall be removed, and all tie wires shall be cut back 1/4 inch. The resulting holes and depressions shall be pointed with mortar.

(3) Uniform Surfaces

Surfaces not to remain exposed in the completed work need have no further finish if carefully struck off as required in Paragraph 11.14.

11.16 Curing

(a) Immediately after placing or finishing, concrete surfaces shall be protected against moisture loss. Where formed surfaces are cured in the forms, the forms shall be kept wet. If the forms are removed before the end of the curing period, curing shall be continued for the remainder of the period using suitable means.

(b) All concrete, other than retaining wall, headwall footings and bottom slabs of inlets and junction boxes shall be cured for a period of at least five (5) days.

(c) Curing shall be accomplished by one of the methods, or combination of methods, described as follows:

(1) The surface shall be covered with burlap, cotton mats or other suitable fabric kept in intimate contact with the surface, or with sand which shall be kept continuously wet.

(2) The entire surface shall be covered with a white pigmented curing compound, applied in a two (2) coat, continuous operation. Application shall be not less than one (1) gallon for 150 square feet of surface for

each coat. The compound shall conform to the requirements of AASHTO Designation M 148.

11.17 Method of Measurement

(a) Reinforced Concrete

- (1) Reinforced concrete shall be measured by the cubic yard. The amount the estimate will be to the nearest 0.01 cubic yard.
- (2) The volume to be paid for will be the actual volume within the neat lines of the structures, as shown on the Plans or as directed by the Construction Manager. Measurements of concrete placed against the sides of any excavation, where intervening forms have not been used, will be made only within the neat lines of the structures. No deduction will be made for round or beveled edges, or for space occupied by reinforcing steel and supports, expansion joint material, weep holes and chamfers.
- (3) Measurement of reinforced concrete for separate payment will be made only when the concrete is used to construct headwalls, retaining walls, or other items as noted on the Plans. The furnishing and placing of concrete in other work shall be considered subsidiary work pertaining to the several items; the costs thereof shall be included in the respective unit prices bid.

(b) Miscellaneous Measurements

- (1) Concrete curb and gutter will be measured as stipulated in SECTION 8 - CONCRETE CURB AND GUTTER.
- (2) Concrete sidewalks and steps will be measured as specified in SECTION 9 - CONCRETE SIDEWALKS AND STEPS.
- (3) Concrete driveways and aprons will be measured as specified in SECTION 7 - DRIVEWAYS, DRIVEWAY EXTENSIONS AND APRONS.
- (4) Concrete inlets and junction boxes will be measured as specified in SECTION 10 - INLETS AND JUNCTION BOXES.

11.18 Basis of Payment

Concrete acceptably completed and measured as provided above will be paid for at the contract unit price per cubic yard for "REINFORCED CONCRETE (RETAINING HEADWALLS AND WINGWALLS)," at which price shall be full compensation for furnishing all materials, including reinforcing steel; for all forming and bracing; for mixing, transporting, placing, finishing and curing; and for all equipment, tools, labor and incidentals necessary to complete the work.

SECTION 12 - UNCLASSIFIED EXCAVATION FOR STRUCTURES

12.01 Description

- (a) This section covers the removal of all materials of whatever nature necessary for the construction of pipes, culverts, storm drainage piping, headwalls, inlets and other concrete drainage structures, and retaining walls. EXCAVATION DESCRIBED HEREIN WILL NOT BE MEASURED FOR SEPARATE PAYMENT, BUT SHALL BE CONSIDERED SUBSIDIARY WORK PERTAINING TO THE INVOLVED ITEMS OF THE CONTRACT.
- (b) All work shall be in accordance with details shown on the Plans, or as directed by the Construction Manager and with these Specifications.

12.02 Standard Specifications

The work involved in Unclassified Excavation for Structures shall be in accordance with SECTION 801 - EXCAVATION AND BACKFILL, Standard Specifications, for the structures involved and except as modified or augmented herein.

12.03 Excavation for Pipe Culverts, Storm Drainage Piping and Other Structures

- (a) Trench width at the horizontal centerline of a pipe shall not exceed nominal inside diameter of the pipe plus two (2) feet.
- (b) Other requirements with respect to pipe culverts and storm drainage piping are specified in SECTION 13 - PIPE CULVERTS AND STORM DRAINAGE PIPING.
- (c) Areas of excavation for headwalls, inlets, junction boxes, retaining walls, shall be selected by the Contractor except that areas shall be large enough to permit proper construction of the structures, and except that they shall not extend

more than eighteen (18) inches outside the structures unless authorized by the Construction Manager.

12.04 Disposal of Excavated Material

- (a) To the extent suitable and needed, excavated material shall be used in backfill or fills. Such material shall be free from frozen material, trash, lumber, broken pieces of concrete having a dimension greater than two (2) inches or broken concrete in nests regardless of dimensions, or other debris. Such material shall be susceptible to proper compaction. Any material used in backfills or fills under the pavement shall conform to the requirements of SECTION 3 - EARTHWORK, of these specifications.
- (b) Excavated material unsuitable for use, or in excess of needs, shall be disposed of by the Contractor off-site.

12.05 Backfill

- (a) Backfill shall be made from suitable structural excavation materials, and from suitable roadway excavation materials if and as needed. Such materials shall conform to the requirements of Subparagraph 12.04(a) above.
- (b) Backfill shall be compacted to a density of not less than ninety-five (95) percent of the maximum density, at optimum moisture, obtained in the laboratory in accordance with AASHTO Designation T 180. Samples for laboratory tests and field determinations will be taken by the Construction Manager at the expense of the Owner; the Contractor shall give assistance when requested.
- (c) Backfill shall not be placed against concrete structures until the expiration of the curing periods specified in SECTION 11 - CONCRETE AND REINFORCING STEEL.
- (d) Compacting shall be obtained by the use of pneumatic or mechanically actuated tampers. Gravity hand tampers will not be acceptable. Backfill material shall be sprinkled or aerated as necessary to assure the moisture content.
- (e) Backfill of all concrete structures shall be made with reasonable uniformity around and along the structure. It shall be placed in six (6) inch

layers, loose measurement and each layer compacted.

- (f) Backfill of pipe culverts and storm drainage piping shall be in accordance with the following:
- (1) Backfill material shall be deposited simultaneously on both sides of the pipe in layers not exceeding six (6) inches in thickness, loose measurement. It shall be compacted thoroughly under haunches of pipe on both sides for the full width of trench. This operation shall be continued to the elevation twelve (12) inches above the top of pipe.
 - (2) Backfilling shall proceed uniformly along the entire section of pipe being backfilled. The Contractor shall be responsible for any damage to or displacement of pipe.
 - (3) Backfill above the elevation twelve (12) inches higher than the top of pipe may be compacted by any method which will obtain the required density and which will cause no damage or displacement. Flooding of trenches will not be acceptable.
 - (4) Backfill of pipe shall be carried to the elevations of the adjoining subgrade, or as specified in Paragraph 13.02 of SECTION 13.
- (g) Backfill will not be measured for separate payment. Placing and compacting of backfill shall be considered subsidiary work pertaining to Structural Excavation.

12.06 Measurement and Payment

Structural excavation for all structures, including pipe culverts, storm drainage piping, inlets, junction boxes and retaining walls will not be measured for separate payment, but will be considered subsidiary work pertaining to the construction of the items.

SECTION 13 - PIPE CULVERTS AND STORM DRAINAGE PIPING

13.01 Description

- (a) This section covers all types of reinforced concrete pipe and corrugated metal pipe at the locations shown on the Plans or as described by the Construction Manager.

- (b) All work shall be in accordance with details shown on the Plans, or as directed by the Construction Manager and with these Specifications.

13.02 Standard Specifications

Materials and work shall be in accordance with SECTION 606 - PIPE CULVERTS; Standard Specifications, except as herein modified or augmented.

13.03 Materials

- (a) Concrete pipes shall be of the bell and spigot type and shall conform to the specifications of ASTM Designation C 76 and C 506, latest editions, for the sizes and classes of pipes shown on the Plans and listed in the Unit Price Schedule. The class of pipe and date of manufacture shall be marked on each joint of pipe. Pipe shall be at least ten (10) days old before it is delivered to the project.
- (b) The manufacture and furnishing of precoated galvanized steel pipe culverts shall be in accordance with AASHTO M 245, as amended below, and AASHTO M 246. AASHTO M 245 is amended as follows:
- (1) Add to Section 23 - A field inspection will be made by the Construction Manager. The Contractor shall furnish the Construction Manager an itemized statement of the sizes and lengths of culvert pipe in each shipment. This inspection will include an examination of the culvert pipe for deficiencies in lengths of sheets used, nominal specified diameter, net length of finished culvert pipe and any evidence of poor workmanship as outlined above. The inspection may include the taking of samples for chemical analysis and shelter and polymeric coating measurement. The pipe making up the shipment shall meet the requirements of these specifications, and if 25 percent of the pipe in any shipment fails to meet these requirements, the entire shipment may be rejected.
 - (2) The Contractor shall arrange, if the Construction Manager so requests, to have the material inspected and sampled in the rolling mill or in the shop where fabricated. The Construction Manager may require from the mill the chemical analysis of any heat. The

inspection, either in the mill or in the shop, shall be made under the direction of the Construction Manager. The Construction Manager will have free access to the mill or shop for inspection, and every reasonable facility shall be extended to him for this purpose. The inclusion of any material or pipe which has been rejected at the mill or shop will be considered sufficient cause for rejection of the entire lot.

- (3) No precoated steel will be accepted until after the sheet manufacturer's certified analysis and manufacturer's guarantee have been passed by the Construction Manager of materials and accepted.
 - (4) The identification brands shall be placed on the sheets by the manufacturer of the sheets in such a manner that when the sheets are rolled into culverts, such identification shall appear on the outside of each section of pipe. Pipe having any sections not so stamped will be rejected.
 - (5) The sheets shall have a polymeric coating of 0.010 inch thickness minimum on both sides.
- (c) Alternates will be shown on the Plans.
- (d) Jointing material for reinforced concrete pipe, at the Contractor's option, shall be bituminous plastic cement or compression type rubber conforming to the requirements that follow:
- (1) Bituminous plastic cement shall be made for use without heating.
 - (a) It shall be composed either of a steam refined petroleum asphalt or of a refined coal tar dissolved in a suitable solvent and stiffened with a mineral filler consisting essentially of short fiber asbestos.
 - (b) The cement shall be a smooth, non-thickened, uniform mixture and shall show no separation which cannot be overcome easily by stirring. The material shall be of such consistency and properties that it can be applied readily with a trowel, a putty knife or with a caulking gun without pulling or drawing. The cement, when applied to

concrete surfaces shall exhibit good adhesive and cohesive properties, and shall have only slight shrinkage after curing. The cement shall be capable of being exposed to temperatures below freezing without sustaining any damage or losing its characteristics.

- (c) When applied in a layer 1/16 inch to 1/8 inch thick on a tinned metal panel, and cured at room temperature for 24 hours, the cement shall set to a tough plastic coating, free from blisters. The cement shall conform to specifications tabulated as follows:

	<u>Min.</u>	<u>Max.</u>
Grease Cone Penetration. (unworked) 150 grams, 25 degrees C., 5 Sec., ASTM D 217, Min/10	175	250
Weight, pounds per gallon	9.75	XX
Nonvolatile, 19 grams 105 degrees C - 110 degrees C, 24 hours	75	XX
Ash, by ignition, % Backfill shall not be undertaken until the cement joint is at least 24-hours old.	24	45

- (2) With pipe manufactured for such joints, an approved rubber compression-type joint may be used. In case of such use, backfilling may proceed immediately after the pipe is laid and inspected.

13.04 Jointing of Pipe

- (a) Jointing of concrete pipe shall be in accordance with one (1) of the two (2) methods specified as follows:

- (1) Bituminous Cement Joint

The tongue and groove shall be wiped clean and dry. The plastic compound shall be applied to the entire surface of both the tongue and groove. The joints shall be forced together with excess compound extruding both inside and outside the joint.

Excess compound shall be removed from the interior surface and the exterior shall be leveled reasonably flush with the surface of the pipe.

(2) Rubber Compression-Type Joint

The tongue and groove shall be cleaned and maintained clean. The joint shall be constructed as recommended by the manufacturer of the pipe.

- (b) Jointing of corrugated metal pipe and corrugated metal arch pipe shall be in accordance with SECTION 606 - PIPE CULVERTS, Standard Specifications.

13.05 Tests

Tests shall be in accordance with Paragraph 7, INSPECTION AND TESTING OF MATERIALS, General Conditions of these Specifications.

13.06 Trenching and Backfill

- (a) Trenching and backfill shall be in accordance with applicable requirements of SECTION 12 - UNCLASSIFIED EXCAVATION FOR STRUCTURES, except as augmented herein.
- (b) Where unsuitable material is encountered, excavation shall continue until a firm material is reached and the over-excavation filled to grade with a special bedding material conforming to Aggregate Base Course, Class 7.

13.07 Installation of Pipe

- (a) The provisions of this Paragraph 13.07 shall apply to circular pipes and to arch pipes.
- (b) Each section of pipe shall be examined carefully before being laid, and the defective or damaged sections shall not be used. Pipelines shall be laid to the grades and alignment indicated, or as directed by the Construction Manager. Pipe laying shall proceed upgrade. The groove ends of concrete pipe shall point upgrade.
- (c) Proper facilities shall be provided for lowering sections of pipe into trenches. Under no circumstances shall pipe be laid in water, and no pipe shall be laid when trench conditions or weather are unsuitable for such work. Full

responsibility for the diversion of drainage and for dewatering of trenches during construction shall be borne by the Contractor.

- (d) All pipe in place shall have been approved before being backfilled. In all backfilling operations, the Contractor shall be responsible for preventing damage to or misalignment of the pipe.

13.08 Measurement and Payment

- (a) Excavation and backfill will not be paid for separately, but will be considered subsidiary to constructing the pipe.
- (b) Special bedding material, used at the direction of the Construction Manager, will be measured and paid for as specified in SECTION 20 - PIPE EMBEDMENT.
- (c) Method of Measurement

Completed and accepted pipe culverts will be measured by the linear foot in place. The linear feet upon which payment for Reinforced Concrete Pipe Culverts will be made shall be determined by multiplying the number of sections placed by the net length of each section. Separate measurements will be made by the sizes, classes, gauges and thicknesses shown on the Plans and listed in the Unit Price Schedule. Measurements will be taken to the nearest 0.1 linear foot.

- (d) Storm sewer pipe acceptably completed and measured as provided above will be paid for at the contract unit price per linear foot bid respectively for "REINFORCED CONCRETE PIPE," for "PRECOATED GALVANIZED STEEL ARCH PIPE CULVERTS (GAGE)" and or "PRECOATED GALVANIZED STEEL PIPE CULVERTS (GAGE)" of the sizes, classes, gauges and thicknesses shown on the Plans and listed in the Unit Price Schedule; which prices, in each case, shall be full compensation for furnishing all materials, except special bedding material; for all trenching, backfilling and compacting; and for all equipment, tools, labor, and incidentals necessary to complete the work.

SECTION 14 - SOLID SODDING

14.01 Description

- (a) This section covers the furnishing and placing of and to form solid mats on areas shown on the Plans or as described by the Construction Manager.
- (b) It covers the furnishing and applying of water for sod.
- (c) It covers the furnishing and placing of four (4) inches of topsoil on areas directed by the Construction Manager.
- (d) It covers the furnishing and placing of fertilizer.
- (e) All work shall be in accordance with details shown on the Plans and with these Specifications.

14.02 Standard Specifications

Materials and work shall be in accordance with SECTION 624 - SOLID SODDING, Standard Specifications, except as herein modified or augmented. Other requirements of SECTION 624 which obviously are related to road construction, as opposed to street construction, do not apply.

14.02 Materials

- (a) Solid sod shall be cut from well-established viable Bermuda grass.
- (b) Topsoil shall be reasonably free from subsoil, clay, lumps, brush, objectionable weeds and/or other litter and shall be free from roots and toxic substances or other material or substances that might be harmful to plant growth or be a hindrance to grading, planting and maintenance operations. ALL TOPSOIL SHALL BE APPROVED BY THE CONSTRUCTION MANAGER PRIOR TO PLACING.
- (c) Fertilizer shall be a standard commercial product complying with state and federal fertilizer laws and with the requirements issued by proper authorities.
 - (1) Fertilizer shall be delivered to the site in the manufacturer's original container, on which shall be plainly marked the manufacturer's name and the guaranteed chemical analysis.

- (2) Except as noted in the following sentence, fertilizer shall contain not less than the percentages by weight of ingredients as follows:

Nitrogen	12 percent
Phosphorus, P2O5	12 percent
Potash K2	12 percent

Other 1:1:1 ratio fertilizers may be used, provided the available plant food remains the same as herein specified.

- (3) All fertilizer shall be solid and shall be in a condition which will permit proper distribution.

14.04 Construction Methods

- (a) In this Paragraph 14.04, "Solid Sod" is interchangeable with the word "sod."
- (b) Solid sod or topsoil shall not be placed until all other items of work are complete.
- (c) Areas to be sodded shall be shaped in such manner that they will, after placement of sod, conform to the typical sections.
- (d) Topsoil will not be used unless authorized by the Construction Manager, specifically in each case.
- (e) Prior to placing the topsoil in the areas designated, the ground surface shall be cleared of materials that might hinder proper grading, tillage, or subsequent maintenance operations such as stumps, stones, roots, cable, wire, grade stakes, etc., and brought to four (4) inches below the finished grade. The areas shall then be thoroughly tilled to a depth of at least two (2) inches by plowing, disking, harrowing or other acceptable means.
- (f) The Contractor shall then obtain an approved topsoil from any available source and place uniformly on the designated areas and spread evenly to a minimum thickness of four (4) inches. Irregularities in the surface shall be corrected so as to prevent formation of depressions where water will stand. TOPSOIL SHALL NOT BE PLACED when the subgrade is frozen, excessively wet or in a condition detrimental to the proposed planting and proper grading.

- (g) After the topsoil has been spread and graded, the surface shall be cleared of stones, stumps or other objects that might hinder planting or maintenance operations. Paved areas over which hauling operations are conducted shall be kept clean.
- (h) Where any portion of the surface becomes eroded or otherwise damaged, the affected areas shall be repaired to the aforementioned condition.
- (i) Fertilizer shall be applied to the loosened layers (two (2) inches deep) at the rate of one and one-half (1-1/2) pounds per 100 square feet for all areas, regardless of whether topsoil has been added. Distribution shall be uniform.
- (j) Prior to placement of sod, areas shall be sprinkled with water sufficiently to make them moist, but not muddy. As determined by the Construction Manager, this initial application of water may be omitted if the area is sufficiently moist from rainfall.
- (k) Immediately following the placing and tamping of sod, the covered area shall be wetted thoroughly. Subsequent applications of water shall be directed by the Construction Manager.
- (l) The sodding operations shall produce areas of solid, living grass.

14.05 Intermittent Cleanup

Immediately following the sodding operations, all gutters, sidewalks, driveways, street pavement, yards or other areas shall be cleaned of all debris, excess sod, topsoil or other objectionable matter. All such cleanup operations shall be completed before sodded areas are measured for payment as described below.

14.06 Measurement and Payment

- (a) Areas covered by living sod will be measured by the square yard to the nearest 1.0.
- (b) Fertilizer will not be measured for separate pay. Its furnishing and applying shall be considered subsidiary work pertaining to solid sodding.
- (c) Topsoil will be measured by the cubic yard at the points of delivery to the site, truck measure.

- (d) Water for sod will not be measured separately, but will be subsidiary to the item of solid sodding.
- (e) Solid sodding and topsoil acceptably completed, and measured as provided above, will be paid for at the contract unit price per square yard bid for "SOLID SODDING" and at the contract unit price per cubic yard for "TOPSOIL," which prices shall be full compensation for furnishing all materials; for cleanup work; and for all equipment, tools, labor, and incidentals necessary to complete the work.

SECTION 15 - SHRUBBERY RELOCATION AND HEDGE RELOCATION

15.01 Description

This section covers the removal and relocation of shrubs and hedges designated by the Construction Manager. Such shrubs and hedges shall be moved to new locations as designated by the Construction Manager.

15.02 Materials

- (a) All shrubs and hedges relocated shall be existing hedge or new shrubs, purchased from a reputable nursery. New shrubs shall be essentially of the same size and of the same type as shrubs removed. The relocation of existing shrubs or the planting of new shrubs shall be as approved by the Construction Manager.
- (b) Materials used in the relocation of shrubbery shall be type and kinds as recommended by a reputable nursery.

15.03 Construction Methods

- (a) The removal and relocation of existing shrubbery shall be accomplished in such a manner that the root system is left intact. It shall be the Contractor's responsibility to provide adequate water, fertilizer, peat or other plant food necessary for the work involved.
- (b) Any trees or shrubbery that are damaged due to the construction of tree walls or the shrubbery relocation and those that do not live because of the construction operations shall be replaced with trees or shrubbery acceptable to the property owner involved.

15.04 Measurement

Measurement for shrubbery relocation will be made by the whole unit, complete in place. Separate measurement will not be made for any excavation or removal of shrubs. Shrubs closer than four (4) feet center to center of bush will be considered as hedges and will be measured by the linear foot center to center of the roots at the ground line.

15.05 Payment

Work under this section acceptably completed and measured provided above will be made at the contract unit price bid per "SHRUBBERY RELOCATION," or "HEDGE RELOCATION," which prices shall be full compensation for the furnishing of all materials, for all equipment, tools, labor and incidentals necessary to complete the work.

SECTION 16 - MAINTENANCE OF TRAFFIC

16.01 Description

- (a) This item shall include the erection of signs and barricades, and the maintenance of, or noninterference with, traffic in accordance with details shown on the Plans and with these Specifications, or as directed by the Construction Manager.
- (b) This item shall also include the temporary relocation of traffic and street signs, the maintenance of the temporarily relocated signs through the construction of the project, and the permanent relocation of the signs after the construction is complete.
- (c) Certain requirements with respect to maintenance of traffic are specified in Special Conditions of these Specifications.

16.02 Standard Specifications

- (a) Maintenance of traffic as described above shall be accomplished in accordance with the applicable portions of Section 603, "Traffic Control Through Construction Zones" Standard Specifications, except as modified or augmented herein.

16.03 City Code and Notification

- (a) Articles 30 - 216 through 30 - 221 of the Little Rock Code require the furnishing to the appropriate City department a Barricade Plan showing traffic control and safety devices proposed for the work area. Typical worksite barricade setups will be found in Pages 40-61 of the Traffic Controls in Construction and Maintenance Work Zones, FHWA-TS-77-203.
- (b) The Contractor shall prepare a maintenance of Traffic and Barricade Plan. This Plan shall be submitted to the Traffic Engineer for approval. Upon approval by the Traffic Engineer, the Contractor shall supply the Fire Chief and the Police Chief one (1) copy each for their files. Two (2) copies shall be supplied to the Construction Manager.

16.04 Driveways

- (a) Maintenance of driveways shall be as approved by the Construction Manager. It shall be the Contractor's responsibility to maintain adequate access to private and commercial property at all times, except as approved by the Construction Manager. During the construction of driveways or at any time that the Property Owner cannot use his driveway, the Contractor shall notify the Property Owner when the driveway will be closed and the approximate length of time that it will be closed.
- (b) The intent of this section of the Specifications is to cause as little inconvenience as possible to private property owners.

16.05 Repetitions

For emphasis, protective actions are noted in other parts of these Contract Documents. These repetitions here are called to the attention of each bidder to the end that he shall avoid any duplication of costs in compiling his bid.

16.06 Relocation and Replacement of Traffic Signs

- (a) During the construction of the project, the temporary relocation of street signs and traffic control signs will be performed by the Contractor. The Contractor shall maintain the signs at highly visible locations as near as practicable to the original locations. The latest edition of the Manual of Uniform Traffic Control Devices

published by the Federal Highway Administration shall be used as a guide to the placement of signs during construction.

- (b) Immediately after the construction on any part of the project reaches a stage of completion such that the relocation of the street signs and traffic control signs is no longer necessary, the Contractor shall permanently relocate the street signs and traffic control signs at a site marked by personnel of the City of Little Rock.
- (c) Street signs and traffic control signs shall be removed from such area of work as necessary to permit work on the project. Each sign shall be securely relocated by driving the sign into the ground with equipment approved by the Construction Manager.

16.07 Measurement and Payment

- (a) Maintenance of traffic will not be paid for separately but will be considered subsidiary to the various items of the Contract; except that the Construction Manager may direct the Contractor to use aggregate material in the maintenance of traffic over the streets and in driveways, in which case it will be paid for as provided in SECTION 4 - CRUSHED STONE BASE COURSE of these Specifications.

SECTION 17 - PAVEMENT REPAIRS

17.01 Description

- (a) This section covers the repairs of streets for storm drainage or other cuts where the street is not planned for reconstruction.
- (b) All work shall be in strict accordance with these specifications.

17.02 City Code

All work under this section of the Specifications shall be in accordance with Chapter 30, Article V of the Code of the City of Little Rock, Arkansas. Sections 30 - 254 and 30 - 255 are reproduced in these specifications for convenience. A copy of this Code may be examined at the Office of the City Clerk, City of Little Rock, Arkansas. The Contractor shall obtain all permits required by this Article.

Little Rock Section 30 - 254. Temporary Restoration

- (a) The permit holder is required to restore the excavation or cut immediately upon completion of the work which required the cut. The permit holder shall notify the Public Works Operations, Material Yard by telephone (562-8606) when the restoration is completed.
- (b) All excavation or cuts shall have a uniform width of not less than 12 inches unless specifically authorized by the Chief of Public Works Operations. Excavations shall be smoothly cut or sawed and shall have a neat appearance.
- (c) Materials removed from the excavation or cut shall not be used as backfill material. This includes pieces of broken concrete or asphalt concrete.
- (d) Backfill material which shall be used at the discretion of the permit holder is limited to:
 - (1) Crushed rock and natural fines uniformly mixed and so proportioned to meet the specifications for ABC CL-7 as reflected in the most current Arkansas State Highway Commission Standard Specifications.
 - (2) Crushed run rock or other selected material, when approved by the Chief of Public Works Operations, free of debris and excess moisture, when compacted to a minimum of 90 percent density as determined by the Modified Proctor Compaction Test.
 - (3) Compacted river sand or lean mix concrete may be used when prior approval has been granted by the Chief of Public Works Operations.
- (e) The top 6 inches of the backfill shall be compacted to 95 percent of maximum density as determined by the Modified Proctor Compaction Test.
- (f) The surface course will consist of 2-inch application of cold mix asphalt for asphalt streets, concrete streets or streets with double penetration surface treatments. For gravel streets and alleys, the top 6 inches of the backfill will be select material that meets Arkansas State Highway Department specifications for ABC CL-7, compacted to conform to the surrounding surface.

- (3) Remove and replace fences.
 - (4) Sanitary sewer lines.
 - (5) Stone retaining walls.
 - (6) Galvanized street handrail.
 - (7) Riprap.
 - (8) Access ramps.
- (b) All work shall be in accordance with details shown on the Plans and with these Specifications.

18.02 Manhole Rings and Covers Adjusted to Grade

- (a) This item shall be in accordance with SECTION 610 - MANHOLES, DROP INLETS AND JUNCTION BOXES, Adjusted to Grade, Standard Specifications.
- (b) Manhole rings and covers adjusted to grade will be measured per each and payment will be made at the contract unit price bid for each "MANHOLE RINGS AND COVERS ADJUSTED TO GRADE," which price shall be full compensation for furnishing all materials, and for all equipment, tools, labor and incidentals necessary to complete this work.

18.03 Valve and Meter Boxes Adjusted to Grade

- (a) The Contractor shall adjust valve and meter boxes of gas or water mains as directed by the Construction Manager. If any new material is required in making adjustments, it shall be similar and equal to the existing material, and shall be furnished by the Contractor at his own expense.
- (b) Valve and meter boxes adjusted to grade will be measured and paid for at the contract unit price bid per each and "VALVE AND METER BOXES ADJUSTED TO GRADE," which prices shall be full compensation for furnishing all materials, and for all equipment, tools, labor and incidentals necessary to complete the work.

18.04 Replacement of Fences

- (a) This item shall consist of the removal of existing fences and the replacement of new fences as directed by the Construction Manager or as indicated on the Plans.

- (b) This item shall consist of the removal of existing fences and replacement with new fence on top of retaining wall.
- (c) All work shall be in accordance with details shown on the Plans and with these Specifications.
- (d) The fences replaced shall be with the same kind of material as the existing fence, or as approved by the property owner and the Construction Manager.
- (e) All wood fences shall be painted or stained to match existing fence.
- (f) Construction methods shall be as approved by the Construction Manager as shown on the Plans. All posts installed in the ground shall be placed in concrete.
- (g) Pipe sleeves shall be installed in retaining walls at the location of all posts and the post, when set in place, shall be grouted in the sleeves.
- (h) Gates, either wood, chain link or other type, shall be relocated at the locations where existing gates occur.
- (i) Measurement for replacement of fence, including gates and pipe sleeves, will be measured by the linear foot, measurements being taken along the midheight of the fence from center of end post to end post. Separate measurement will not be made for gates or any of the devices used to hang and close gates. Measurement for fence will include the space occupied by gates.
- (j) Payment will be made for work covered under this paragraph at the contract unit price bid per linear foot for "REPLACEMENT OF FENCES," which price shall be full compensation for the furnishing for all materials, including fence, posts, braces, gates and other fence hardware; and for all labor, equipment, tools and incidentals necessary to complete the work.

18.05 Relocation of Sanitary Sewer Lines

- (a) This section covers the relocation of sanitary sewer lines required because of interference with other items of construction.

- (b) It also covers any new lines shown on Plans or directed by the Construction Manager, including manholes.
- (c) All materials and construction methods shall meet with the current edition of Specification Requirements for Sanitary Sewers, Little Rock Wastewater Utility, Little Rock, Arkansas. Copies of these specifications are available from the Little Rock Wastewater Utility.
- (d) Attention is called to the requirement of bedding materials, Section C10 - Pipe Bedding, outlined in the Specifications referred to in Paragraph (c) above. Payment will be made per ton placed at the bid price for "Class B" Sanitary Sewer Bedding.
- (e) All lengths of sanitary sewer lines shall be as determined to give a true line and grade. Grades shall be as determined by the Construction Manager or as shown on the Plans. Size of sewer line shall be of the same size as the existing sewer lines, or as shown on the Plans.
- (f) Trench excavation and backfill, including the excavation for bedding material, will not be paid for separately, but will be considered subsidiary to the sanitary sewer line.
- (g) The Contractor shall be diligent in the construction of sanitary sewer lines in order that property owners sustain inconvenience for as short a period as possible. The Contractor shall notify the property owner prior to commencing any work that would knowingly cause any inconvenience.
- (h) It shall be the Contractor's responsibility to avoid any contamination of new work because of sewage being discharged during the work and shall avoid any creation of any nuisance.
- (i) It shall be the Contractor's responsibility to have all service lines and mains inspected by a representative of the Little Rock Wastewater Utility and "signed-off" by the utility inspector as being constructed in accordance with specifications. A copy of the "sign-off" will be obtained from the Wastewater Inspector and forwarded to the Construction Manager as proof of inspection and authorization for payment.
- (j) Sanitary sewer lines, including adjustments, will be measured by the linear foot of pipe actually placed. Joint material, laying of pipe, trench

excavation, backfill or concrete collars will not be measured separately, but will be considered subsidiary to the item of sanitary sewer line. "WYE'S" will be paid at the contract unit price bid.

- (k) Work covered by this Paragraph 18-06, acceptably completed, inspected and measured as provided above, and payment for manholes and wyes, will be paid for at the contract unit prices bid, which prices shall be full compensation for furnishing all materials, and for all equipment, tools, labor and incidentals necessary to complete the work.

18.06 Stone Retaining Walls

- (a) This item consists of the construction of stone retaining walls at the locations directed by the Construction Manager and in accordance with the details shown on the Plans.
- (b) Materials
 - (1) In each continuous section of wall, all stones shall be substantially of the same kind.
 - (2) Cement shall be Portland Cement conforming to AASHTO Designation M 85, Type I. Sand shall conform to the specifications for fine aggregate, SECTION 11 - CONCRETE AND REINFORCING STEEL.
 - (3) Mortar shall be mixed in the proportion of one (1) part cement to three (3) parts sand, by volume, to which shall be added seven (7) pounds of hydrated lime per sack of cement. The amount of water used shall be only that necessary to produce a "dry" workable mix. Stones shall be moist when laid.
 - (4) Pipe used for weepholes shall conform to ASTM Designation D-1785, SCH 40 P.V.C.
- (c) Construction Methods
 - (1) The wall shall be plumb and its top shall be reasonably smooth. Where the wall rests upon a concrete footing, the bottom layer of stones shall be laid up in a full mortar bed. Exposed joints between stones shall be given a smooth tooled finish.

(2) A sufficient amount of mortar shall be used to fill the voids between individual stones. Spalls may be used in partially filling the larger voids provided they are keyed in properly and are well coated with mortar. Mortar shall not be used when retempering with water is necessary to make it workable.

(d) Disposal

All stones not used in the new work and all debris of whatever nature resulting from the operations shall be removed by the Contractor and disposed of by him off-site.

(e) Measurement and Payment

(1) Stone retaining walls will be measured by the cubic yard. Measurements shall be taken to the nearest 0.1 cubic yard. In computing the volumes, the theoretical thickness of walls shall be used.

(2) Stone retaining walls acceptably completed and measured as provided above will be paid for at the contract unit price per cubic yard bid for "STONE RETAINING WALLS," which price shall be full compensation for furnishing all materials; for disposing of all debris; and for all equipment, tools, labor and incidentals necessary to complete the work.

18.07 Galvanized Steel Handrail

(a) This item shall consist of furnishing and erecting galvanized steel handrail on headwalls, retaining walls or steps, where shown on the Plans, or as directed by the Construction Manager, in accordance with the details shown on the Plans and with these Specifications.

(b) All handrail materials shall be galvanized steel, coated at the rate of 2.0 ounces of zinc per square foot of surface coated, and in accordance with the current provision of ASTM Designation A 123.

(c) All handrail materials shall be steel, conforming to the current provisions of the ASTM Designation in the listing as follows:

(1) Pipe - A53, Type E or S, Grade B

(2) Plates - A36

(3) Sleeves - A53, Type E or S, Grade B

- (d) All welding shall be in accordance with current provisions of Specifications for Welded Highway and Railroad Bridges, American Welding Society. Welding shall be done by the shielded arc method, and shall be done only by certified welders. Welding rods shall be low hydrogen suitable for use with the metal being welded. Welds joining sections of handrail shall be ground smooth prior to field galvanizing. All welds shall be field galvanized, and all galvanized areas which have been damaged shall be repaired as follows: All galvanizing that has been chipped off or damaged in handling or transporting or in welding or riveting shall be repaired by field galvanizing by the application of a paste composed of approved zinc powder and flux with a minimum amount of water. The places to be coated shall be thoroughly cleaned, including removal of slag on welds before the paste is applied. The surface to be coated shall first be heated with a torch to a sufficient temperature so that all metallics in the paste are melted when applied to the heated surface. Extreme care shall be taken to see that the galvanized surfaces are not damaged by the torch. The flux in the paste will cause a black substance to appear on the surface of the coated parts, and this black substance shall be removed by wiping off with waste or by quick application of cold water.

Other galvanizing methods may be used if approved in writing by the Construction Manager.

- (e) The bottom of posts shall be painted with a bituminous paint. Painting shall be done by dipping or by careful swabbing of inside and outside of posts. The paint on the outside of posts shall extend approximately 1/2 inch above the top of grout.
- (f) Grout, for setting posts in sleeves, shall be an approved premixed, nonshrinking grout and shall be used in accordance with the manufacturer's recommendations. The amount of water shall be no more than necessary to allow complete filling of the annular space between post and sleeve.
- (g) Prior to fabrication, the Contractor shall submit to the Construction Manager shop drawing and obtain his approval thereof. Drawings shall be in

sufficient detail to show the proposed fabrication and to imply the method of erection.

(h) Measurement and Payment

- (1) Galvanized Steel Handrail will be measured by the linear foot, to the nearest 0.1 linear foot.

Measurements will be made along the top rail from center of post to center of post.

- (2) Galvanized steel handrail acceptably completed and measured as provided above, will be paid for at the contract unit price per linear foot bid for "HANDRAILS," which price shall be full compensation for furnishing all materials, including sleeves with plates, paint and grout; and for all equipment, tools, labor and incidentals necessary to complete the work.

18.08 Grouted Riprap

- (a) This item shall consist of a protective layer of stone laid to a minimum thickness of one (1) foot, placed in accordance with these Specifications, and to the line, grade and location shown on the Plans or as directed by the Construction Manager.
- (b) Materials and work for riprap shall be in accordance with SECTION 816 - FILTER BLANKET AND RIPRAP, Standard Specifications, unless modified as augmented herein. The type of riprap shall be in accordance with Article 816.02(a) and as directed by the Construction Manager.
- (c) Material for riprap shall consist of field stone, or rough unhewn quarry stone, rectangular or nearly rectangular in section, and otherwise shall conform to the applicable portion of Article 816.02, Materials, Standard Specifications.
- (d) Construction Methods

Placing riprap shall be done in accordance with Article 816.03, Construction Requirements, Standard Specifications, for Dumped Riprap, unless placing by hand is necessary to properly protect the surrounding ground.

(e) Measurement and Payment

- (1) Riprap will be measured by the cubic yard in place, and the volume to be included for payment shall be the product of the thickness multiplied by the area.
- (2) Riprap placed and accepted and measured as provided above shall be paid for at the contract unit price per cubic yard bid for "RIPRAP," which price shall be full compensation for furnishing all materials; for all quarrying involved; for all transportation; for the necessary preparation of the subgrade; for all excavation and backfill; and for all labor, tools, equipment, and incidentals necessary to complete the work, whether dumped or hand placed.

18.09 Access Ramps

- (a) This item covers the construction of access ramps to the lines and grades shown on the Plans or as directed by the Construction Manager.
- (b) Material for the access ramps shall be Portland Cement concrete complying with SECTION 11 - CONCRETE AND REINFORCING STEEL.
- (c) Construction Methods

The construction of the access ramps shall be in accordance with applicable Sections of these Specifications and the attached drawings. Applicable sections include SECTION 3 - EARTH WORK and SECTION 501 - PORTLAND CEMENT CONCRETE PAVEMENT, Standard Specifications.

(d) Measurement and Payment

- (1) Access ramps will be measured by the square foot.
- (2) Access ramps acceptably completed and measured as provided above, will be paid for at the contract unit price per square foot bid for "ACCESS RAMPS," which price shall be full compensation for furnishing all materials, including curbs, on-ramps, transition concrete thickness, preparation of subgrade and for all equipment, tools, labor and incidentals necessary to complete the work.

18.10 Water for Dust Control

- (a) This item shall consist of the furnishing and placing of water for the purpose of dust control during periods of dry weather.
- (b) Control of dust is of extreme importance to the health and welfare of the project residents and it is the intent of this Specification that the Contractor will, upon 24-hour notice by the Construction Manager, furnish a water truck and adequate personnel to control dust on the project as directed by the Construction Manager and to maintain the availability of the equipment on the job during periods of dry weather.
- (c) Measurement and Payment
 - (1) Water will be measured by the gallon in the truck and will be computed by cross sectional area times the length of the tank.
 - (2) Water placed as directed by the Construction Manager and measured as provided above shall be paid for at the unit price per gallon for "WATER FOR DUST CONTROL," which price shall be full compensation for furnishing water, labor and transportation.

SECTION 19 - CLEANUP

19.01 Description

This section covers the cleanup of the project and includes, but is not necessarily limited to, the following items:

(a) Site Preparation

Removal of trees, fences or any obstructions which would interfere with the normal course of construction of this Contract.

(b) Pipe Construction

Cleaning surface debris, backfill of storm sewer boxes, sanitary sewer manholes or any other structures related to the construction of storm, sanitary and water lines, removal of excess material caused by the construction of storm, sanitary and water lines.

(c) Concrete Construction

Removal and cleaning of excessive amounts of prime, splashed concrete, dirt and other debris from sidewalks, curbs and pavements on the project.

(d) Final Cleanup

Removal and satisfactory disposal of silt and sediment in storm drainage and inlets, in gutters and in streets and sidewalks and in drainage ditches. Repair of damage to previously completed work by natural or other forces. Correction of deficiencies found during the final inspection.

19.02 Time for Completion

The nature of the work involved in this item requires that this work be performed during the course of construction or as directed by the Construction Manager. The Contractor shall, periodically or as directed during the progress of the work, put the entire site of work in a neat and clean condition.

19.03 Measurement and Payment

- (a) Payment for "CLEANUP" will be made at the discretion of the Construction Manager in proportion to the amount of work completed to date. This item shall represent final cleanup of the Project.
- (b) Cleanup acceptably completed and measured as provided above will be paid for at the contract lump sum price for "CLEANUP," predetermined in this Contract and shown in the Unit Price Schedule, which price shall be full compensation for furnishing all materials; for all equipment, tools, labor and incidentals necessary to complete the work.

SECTION 20 - PIPE EMBEDMENT

20.01 Description

- (a) This section covers the furnishing of all labor, equipment and materials necessary for placing pipe foundations as required on the Plans or as deemed necessary by the Construction Manager.
- (b) All work shall be in accordance with details shown on the Plans or as directed by the Construction

Manager and in accordance with these Specifications.

20.02 Materials

Materials for pipe foundations shall be as follows:

Class "B" bedding shall be crushed stone, commonly referred to as Class "C" Ballast Stone and shall conform to the following gradation:

<u>Sieve</u> <u>(Square Opening)</u>	<u>Percent Passing</u>
1-1/2 inch	100
1 inch	70 - 80
3/4 inch	40 - 60
1/2 inch	20 - 30
3/8 inch	0 - 10
No. 4	0 - 5

- (1) Deleterious substances shall not be present in the prepared crushed stone in excess of the following amounts:

Soft and friable pieces - 5%
Material finer than No. 200 - 1%
Clay lumps - 0.5%

- (2) The percentage of wear of the crushed stone, tested in the Los Angeles Abrasion Tests, shall not be greater than 45 percent.
- (3) Crushed stone shall be stockpiled and placed in such a manner that foreign material will not be included in the complete embedment section.

20.03 Use

- (a) Pipe embedment will be required for the sanitary sewer line as shown on the Plans.
- (b) Pipe embedment will be required for the storm drainage pipe to mucky areas, in saturated sand areas or other areas deemed necessary by the Construction Manager. The minimum bedding under storm drainage pipe will be a 6-inch thickness of bedding material in the trench bottom. The width of the pipe embedment shall not extend more than one and one-half feet beyond the outside of the pipe.

20.04 Excavation

- (a) Excavation for pipe embedment shall be carried to a specified depth below the pipe flow line to allow adequate bedding materials to be placed in accordance with details shown on the Plans and as required by the Construction Manager.
- (b) Additional excavation will be required in soft, mucky areas where the specified bedding will not adequately support the pipe. Where such areas as determined by the Construction Manager are excavated, the additional depth of trench shall be backfilled with the material specified for Class "B" bedding. It shall be the responsibility of the Contractor to explore the project and subsurface materials to determine the extent of this additional excavation.

20.05 Measurement and Payment

- (a) "PIPE EMBEDMENT" will be measured by the ton of 2,000 pounds as determined by weighing on accurate, approved scales as described in Paragraph 109.01 (f), Standard Specifications. Each truck shall bear a plainly legible identification number and, upon being weighed, shall be given two copies of a delivery ticket which shall have on it the number of the truck, time of departure, truck weight, combined weight, and project name. The Construction Manager shall receive a copy of each delivery ticket for the computation of pay quantities.
- (b) "PIPE EMBEDMENT" acceptably completed and measured as provide above, will be paid for at the contract unit price per ton for "PIPE BEDDING," which price shall be full compensation for furnishing the material; for hauling, placing, spreading and compacting; and for all equipment, tools, labor and incidentals necessary to complete the work.

SECTION 21 - LIME TREATED SUBGRADE

21.01 Description

This section covers all work required for the construction of lime treated subgrade necessary for the construction of streets in the project area.

21.02 Standard Specifications

All work shall be in accordance with the lines and grades shown on the Plans, or as directed by the Construction Manager, and with applicable portions of SECTION 301 - LIME TREATED SUBGRADE of the Standard Specifications, except as modified or augmented herein.

21.03 Compaction

The mixture shall be composed of the soil in the existing subgrade, hydrated lime and water. The mixture shall not contain less than 4.0 percent and not more than 6.5 percent by weight of hydrated lime. The Construction Manager will specify based on laboratory tests, the exact percentage of lime to be used.

21.04 Construction Methods

The methods employed in performing the work, and all equipment, tools and machinery used in handling materials and executing any part of the work shall be approved before the work is started and if found unsatisfactory shall be improved or replaced as directed.

The depth of treated subgrade of 8 inches shown on the Plans may be treated in due course, 8 inches deep.

21.05 Measurement and Payment

- (a) Processing lime treated subgrade will be measured by the square yard, completed and accepted. Payment for processing lime treated subgrade shall be at the unit price bid for processing lime treated subgrade, which price shall be full compensation for all excavation, mixing, compaction, curing and for all equipment, tools, labor and incidentals necessary to complete the work.
- (b) Hydrated lime actually used at the direction of the Construction Manager will be measured by the ton of 2,000 pounds. Payment for lime shall be made at the unit price bid for furnishing this material; for all delivery, placing and incorporation of the material; and for all labor, equipment, tools, and incidentals necessary to complete this item of work.

SECTION 22 - MAILBOX RELOCATION

22.01 Description

- (a) This section covers the removal, the temporary relocation, and the permanent relocation of mailboxes that conflict with construction.
- (b) All work under this section shall be in accordance with details shown on the Plans complementary to these specifications.

22.02 Standard Specifications

Mailbox modifications shall conform to the following criteria:

- (a) Service shall be maintained at all times so that deliveries will not be interrupted.
- (b) All mailboxes and supports that are in satisfactory condition in the opinion of the Engineer shall be relocated.
- (c) Mailboxes shall be permanently relocated in the same street station as before and where requested by the Owner.

22.03 Materials

- (a) Mailbox supports shall consist of 3" to 4" pentatreated posts, or equal, with a 1" x 6" x 16" No. 2 pine wolmanized pine board on top.
- (b) A 1/8" x 1-1/2" steel (painted with black enamel) or 1/4" x 1" aluminum brace shall be mounted on the street side. The brace shall be mounted at 45 degrees with the post with 2" bends at connections. The brace shall be mounted with #8 round-head brass or galvanized wood screws
- (c) The relocation shall be mounted with base support and dimensions relative to the new pavement as shown on Plans.

22.04 Temporary Service

If it becomes necessary to cut off vehicle access to individual properties temporarily, then mailboxes may have to be located in a temporary stand at the end of each block. The temporary mailbox support for boxes closely spaced shall consist of a sturdy wood crame of two upright members and 2" x 6" pine horizontal support. Prior to this temporary relocation, each

