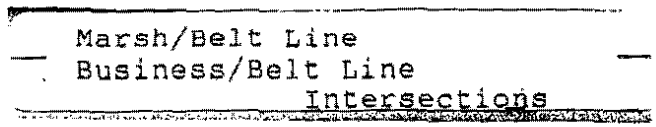
PROJECT MANUAL FOR
INTERSECTION IMPROVEMENTS
BELT LINE ROAD AND MARSH LANE
AND
BELT LINE ROAD AT BUSINESS AVENUE
FOR
TOWN OF ADDISON, TEXAS

ESPEY,
HUSTON &
ASSOCIATES, INC.
Engineering & Environmental Consultants


Marsh/Belt Line
Business/Belt Line
Intersections

CONSTRUCTION SET

ISSUED BY
TOWN OF ADDISON
PUBLIC WORKS DEPARTMENT

NAME: David Nyhswonger **DATE:** 7/19/94

Document No. 940233
EH&A Job No. 15225

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FOR
TOWN OF ADDISON, TEXAS

Prepared for:

Town of Addison
P. O. Box 144
Addison, Texas 75001

Prepared by:

Espey, Huston & Associated, Inc.
13800 Montfort, Suite 230
Dallas, Texas 75240

STATE OF TEXAS
JAMES F. WALDBAUER
65670
REGISTERED
PROFESSIONAL ENGINEER
5/9/94

May 1994

SECTION MB
MAINTENANCE BOND

SECTION MB
MAINTENANCE BOND

STATE OF TEXAS

COUNTY OF DALLAS

That _____ as principal and _____

_____, a corporation organized under the laws of _____

and _____ as sureties, said sureties being authorized to do business in the State of Texas, do hereby expressly acknowledge themselves to be held and bound to pay unto the Town of Addison, a municipal corporation, chartered by virtue of a Special Act of Legislature of the State of Texas, as Addison, Dallas County, Texas, the sum of

_____

_____

_____

($_____) for the payment of which sum will and truly to be made unto said Town of Addison and its successors, said principal and sureties do hereby bind themselves, their assigns and successors, jointly and severally.

This obligation is conditioned, however, that whereas said

_____

has this day entered into a written contract with the said Town of Addison to build and construct the

_____

_____

_____

_____

which contract and the Plans and Specifications therein mentioned adopted by the Town of Addison, are hereby expressly made a part hereof as though the same were written and embodied herein.

WHEREAS, under the Plans, Specifications and Contract it is provided that the Contractor will maintain and keep in good repair the work herein contracted to be done and performed for a period of one (1) year from the date of acceptance, and to do all necessary backfilling that may arise on account of sunken conditions in ditches, or otherwise, and to do and perform all necessary work and repair any defective condition growing out of or arising from the improper joining of the same, or on account of any breaking of the same caused by the said Contractor in laying or building the same, or on account of any defect arising in any of said part of said work laid or constructed by the said Contractor, or on account of improper excavation or backfilling; it being understood that the purpose of this section is to cover all defective conditions arising by reason of defective materials, work or labor performed by the said Contractor; and in case the said Contractor shall fail to do, it is agreed that the City may do said work and supply such materials, and charge the same against the said Contractor and sureties on this obligation, and the said Contractor and sureties hereon shall be subject to the liquidated damages mentioned in said contract for each day's failure on its part to comply with the terms of the said provisions of said contract;

NOW THEREFORE, if the said Contractor shall keep and perform its said agreement to maintain said work and keep the same in repair for the said maintenance period of one (1) year, as provided, then these presents shall be null and void and have no further effect; but if default shall be made by the said Contractor in the performance of its contract to so maintain and repair said work, then these presents shall have full force and effect, and said Town of Addison shall have and recover from the Contractor and its sureties damages in the premises, as provided, and it is further understood and agreed that this obligation shall be a continuing one against the principal and sureties hereon and that successive recoveries may be had hereon for successive branches until the full amount shall have been exhausted; and it is further understood that the obligation herein to maintain said work shall continue throughout said maintenance period, and the same shall not be changed, diminished, or in any manner affected from any cause during said time.

IN WITNESS WHEREOF, the said _____ has caused these presents to be executed by _____ and the said _____ has hereunto set his hand this the ____ day of _____, 19___.

SURETY

_____

_____

By: _____
Attorney in Fact

By: _____
Surety

_____

_____
Agency and Address

PRINCIPAL

_____

By: _____

ATTEST

_____
Secretary

NOTE: Date of Maintenance Bond must not be prior to date of Contract.

SECTION BP
CONTRACTOR'S AFFIDAVIT OF BILLS PAID

SECTION BP

CONTRACTOR'S AFFIDAVIT OF BILLS PAID

STATE OF TEXAS

COUNTY OF DALLAS

Personally, before me the undersigned authority, on this day appeared _____ who, being duly sworn, on oath, says that he is a legal representative of _____
(full name of Contractor as in contract)

and that the contract for the construction of the project, designated as

_____

(Project No.)

_____

_____

has been satisfactorily completed and that all bills for materials, apparatus, fixtures, machinery and labor used in connection with the construction of this project have, to the best of my knowledge and belief, been fully paid.

_____
Signature

_____
Title

Sworn to and subscribed before me this ___ day of _____, 19___.

_____
Notary Public in and for

_____ County, Texas

Instructions:

If the contractor is an individual, he shall sign the affidavit. If the contractor is a partnership, any partner may sign the affidavit. If the contractor is a corporation, a person authorized by the by-laws or by the Board of Directors shall sign the affidavit. If the Contractor is a joint-venture of individuals, any of the individuals may sign the affidavit. If the Contractor is a joint-venture of partnerships, or of individuals and partnerships, the affidavit may be signed by the individual or any partner of any partnership. If the contractor is a joint-venture in which a corporation is a party, separate affidavits must be executed in the name of the joint-venture: one by each corporation and one by each individual or partnership. Signatures for corporations should be by a duly authorized officer. If signature is by another, a showing of authority to sign must accompany the affidavit.

SECTION GP

GENERAL PROVISIONS

GENERAL PROVISIONS

1. The General Provisions of the Contract shall be as stated in the Standard Specifications for Public Works Construction, North Central Texas Council of Governments (1983), under Part I, "General Provisions," Items 1.0 through 1.63 inclusive, as amended or supplemented and except as modified by the Special Provisions.

SECTION SP

SPECIAL PROVISIONS

SECTION SP
SPECIAL PROVISIONS

1. OWNER

The Town of Addison, herein referred to as Owner, party of the First Part of these Contract Documents.

2. ENGINEER

Espey, Huston & Associates, Inc., Engineer of the Owner, or other representative as may be authorized by said Owner to act in any particular position.

3. FORMS, PLANS AND SPECIFICATIONS

Forms of Proposal, Contract, Bonds and Plans may be obtained from the office of Mr. Clyde Johnson, Purchasing Agent, Finance Building, 5350 Belt Line Road, Addison, Texas.

4. COPIES OF PLANS FURNISHED

Three (3) sets of Plans shall be furnished to the Contractor, at no charge, for construction purposes. Additional copies may be obtained at cost of reproduction upon request.

5. PRODUCT RECORD DOCUMENTS

Maintenance of Documents. The Contractor shall maintain at the job site one record copy of the Contract Drawings, Specifications, Shop Drawings, Change Orders, other modification to the Contract, field test records and other documents submitted by Contractor in compliance with specification requirements. These documents shall be maintained at the job site apart from documents used for construction. These documents are not be used for construction purposes. The documents shall be maintained in clean, legible condition. The documents shall be made available at all times for inspection by the Owner.

Recording. Each document shall be labeled Project Record Copy in 2-inch high printed letters. The record documents shall be kept current. No work shall be covered until required information has been recorded.

Contract Drawings. The appropriate drawing shall be legibly marked to record, where applicable:

Horizontal and vertical location of underground utilities and appurtenances referenced to permanent surface improvements.

Field changes of dimension and detail made during construction process.

Changes made by Change Order or Supplemental Agreement.

Details not on original Contract Drawings.

Manufacturer, trade name, catalog number and supplier of each product and item of equipment actually installed.

Changes made by Change Order or Supplemental Agreement.

Other matters not originally specified.

Shop Drawings. The Contractor shall maintain the Shop Drawings as record drawings and legibly annotate shop drawings to record changes made after review. A red felt-tip marking pen shall be used for all recording.

Submittal. At the completion of the project, the Contractor shall deliver record drawings to the Owner. The transmittal letter shall be accompanied, in duplicate, with:

Date, project title and number.

Contractor's name and address.

Title and number of each record document.

Certification that each document as submitted is complete and accurate.

Signature of Contractor or his authorized representative.

6. HORIZONTAL AND VERTICAL SURVEY CONTROL

The Contractor shall provide horizontal and vertical survey control for this project.

7. PERMITS, LICENSES, AND REGULATIONS

Permits and licenses of a temporary nature necessary for the prosecution of the Work shall be secured and paid for by the Contractor. Permits, licenses and easements for permanent structures or permanent changes in existing facilities shall be secured and paid for by the Owner, unless otherwise specified. If the Contractor observes that the Drawings and Specifications are at variance therewith, he shall promptly notify the Engineer in writing, and any necessary changes shall be adjusted as provided in the Contract for changes in Work. The Contractor shall comply with all federal, state and local laws, rules and regulations of every kind and nature applicable to the performance of its Work hereunder, and shall hold the Owner harmless therefrom.

8. REFERENCE SPECIFICATIONS

Where reference is made to specifications compiled by others, such are hereby made a part of these Specifications.

9. REVIEW OF WORK

The Owner shall have the right to review the Work while such Work is in progress to ascertain that the Work is being accomplished in compliance with the standards and requirements set forth in the Contract Documents. It is also contemplated that similar review will be conducted by governmental inspectors. Notwithstanding such review, the Contractor will be held responsible for the finished Work, and any acceptance of the Work by the Owner or governmental agencies will not relieve the Contractor from responsibility for the Work. The Owner reserves the right to place full-time construction observers at the site of the Work.

The Owner and his representatives shall at all times have access to the Work whenever it is in preparation or progress, and the Contractor shall provide proper facilities for such access, and for review.

If the Specifications, the Owner's instructions, laws, ordinances, or any public authority require any Work to be specially tested, the Contractor shall give the Owner timely notice of its readiness for testing, and if the testing is by an authority other than the Owner, of the date fixed for such testing. Tests by the Owner shall be made promptly, and where practicable at the source of supply.

Re-examination of any Work may be ordered by the Owner, and, if so ordered, the Work must be uncovered by the Contractor. If such Work is found to be in accordance with the Contract Documents, the Owner shall pay the cost of re-examination and replacement. If such Work is not in accordance with the Contract Documents, the Contractor shall pay such cost.

10. SCOPE OF WORK

The Work for this Project consists of furnishing all materials, labor, equipment, tools and incidentals necessary to construct, in accordance with the Plans and Specifications, the proposed intersection improvements for Belt Line Road at Marsh Lane and Belt Line Road at Business Avenue.

11. PROPERTY LINES AND MONUMENTS

All property corners, control monumentations, construction and survey stakes and marks shall be carefully preserved by the Contractor, and in case of careless destruction or removal by Contractor or his employees, such stakes or marks shall be replaced at the Contractor's expense as required by the Owner.

12. DISCREPANCIES

If the Contractor, in the course of the Work, finds any discrepancy between the Contract Documents and the physical conditions of the locality, or any errors or omissions in drawings or in the layout as given by survey points and instructions, or if it appears that any Plan, Specification or other Contract Document is or may be not in compliance with any building code or other requirement of any governmental body, he shall immediately inform the Owner in writing, and the Owner shall promptly verify the same. Any Work done after such discovery, until authorized, will be done at the Contractor's risk.

13. TIME ALLOTTED FOR COMPLETION

All items of Work included under these contracts shall be completed within the time stipulated in the Proposal. The time shall commence on the date specified in the Notice to Proceed. The Notice to Proceed shall consist of a written request by the Owner for the Contractor to proceed with construction of the Project.

14. EXISTING STRUCTURES

The Plans show the location of all known surface and subsurface structures. However, the Owner assumes no responsibility for failure to show any or all of these structures on the Plans, or to show them in their exact location. It is mutually agreed that such failure shall not be considered sufficient basis for claims for additional compensation or extra work or for increasing the pay quantities in any manner whatsoever, unless the obstruction encountered is such as to necessitate changes in the lines or grades, or require the building of special work, provisions for which are not made in the Plans and Proposal, in which case the provisions in these Specifications for extra work shall apply.

15. EXISTING UTILITIES AND SERVICE LINES

The Contractor shall contact all the utility companies which have facilities in the vicinity of the proposed improvements to confirm the horizontal and vertical locations of their respective facilities prior to commencing work. Where a conflict with the proposed improvements is encountered, the Contractor shall notify the Engineer immediately prior to proceeding with the work.

The Contractor shall be responsible for the protection of all existing utilities or service lines crossed or exposed by his construction operation. Where existing utilities or service lines are cut, broken or damaged, the Contractor shall replace the utilities or service lines with the same type of original construction, or better, at his own cost and expense. All replacement, backfill and compaction shall be accomplished in strict accordance with the requirements of the owner of the utility or service line.

16. PUBLIC UTILITIES AND OTHER PROPERTY TO BE CHANGED

In case it is necessary to change or move the property of any owner or of a public utility, such property shall not be moved or interfered with until authorized by the utility company and approved by the Owner. The right is reserved to the owner of public utilities to enter upon the limits of the Project for the purpose of making such changes or repairs of this contract.

17. LIGHTS AND POWER

The Contractor shall provide, at his own expense, temporary lighting and power facilities required for the proper execution of the Work.

18. PERMITS AND RIGHTS-OF-WAY

The Owner will provide rights-of-way for the purpose of construction without cost to the Contractor by securing permits in areas of public dedication or by obtaining easements across privately-owned property. It shall be the responsibility of the Contractor, prior to the initiation of construction on easements through private property, to inform the property owner of his intent to begin construction. Before beginning construction in areas of public dedication, the Contractor shall inform the agency having jurisdiction in the area forty-eight (48) hours prior to initiation of the Work. The Contractor shall obtain a right-of-way permit from the Town of Addison.

19. PRECONSTRUCTION CONFERENCE

The successful Contractor(s) and Owner shall meet at the call of the Owner on this Project. Prior to the meeting, the Contractor(s) shall prepare schedules showing the sequencing and progress of their work and its effect on others. These schedules shall be delivered to the Owner in advance of the meeting for his review. The general nature of the work, materials used, and methods of construction as well as the schedules will be discussed at the meeting. A final composite schedule will be prepared during this conference to allow an orderly sequence of project construction.

20. ADDENDA

Bidders desiring further information, or interpretation of the Plans and Specifications, must make written request for such information to the Engineer (prior to forty-eight (48) hours before the Bid opening). Answers to all such requests will be given in writing to all Bidders in addendum form and all addenda will be bound with and made a part of the Contract Documents. No other explanation or interpretation will be considered official or binding. Should a Bidder find discrepancies in, or omissions from, the Plans, Specifications or Contract Documents, or should he be in doubt as to their meaning, he shall at once notify the Engineer in writing in order that a written addendum may be sent to all Bidders.

21. WATER FOR CONSTRUCTION

The Contractor shall make the necessary arrangements with the Town of Addison for securing and transporting all water required in the construction, including water required for mixing of concrete, sprinkling, testing or flushing. Water required for construction shall be paid for by the Contractor at the Town of Addison prevailing rates. There will be no separate pay item for connection into the existing water system and quantity of water required for construction purposes.

22. EXCAVATION

The Contractor shall exercise precautions to insure that drainage from adjacent properties is not blocked by his excavations.

23. CONTRACTOR's BID

The Contractor's Bid shall be on a Unit Price basis for construction of the Project as shown on the Plans and described in the Specifications.

24. OWNER'S STATUS

The Owner shall perform technical review of the Work. He shall also have authority to reject all Work and materials which do not conform to the Contract and to decide questions which arise in the execution of the Work.

25. OWNER'S DECISIONS

The Owner shall, within a reasonable time after their presentation to him, make decisions in writing on all claims of the Contractor and on all other matters relating to the execution and progress of the Work or the interpretation of the Contract Documents.

26. LANDS FOR WORK

The Owner shall provide as indicated on the Plans for this Project, the lands upon which the Work under this Contract is to be done, right-of-way for access to same, and such other lands which are designated on the Plans or in the Specifications for the use of the Contractor. Such lands and rights-of-way shall be adequate for the performance of the Contract. Should the Contractor be delayed as the result of lack of access, this shall be cause for an extension of time but not for additional cost.

The Contractor shall provide at his own expense and without liability to the Owner any additional land and access thereto that may be required for temporary construction facilities.

27. CLEANING UP

The Contractor shall remove at his own expense all temporary structures, rubbish and waste materials resulting from his operations. These requirements shall not apply to property used for permanent disposal of rubbish or waste materials in accordance with permission of such disposal granted to the Contractor by the Owner thereof.

28. LIQUIDATED DAMAGES FOR DELAY BY CONTRACTOR

The time of completion is of the essence in this contract. For each calendar day that any Work shall remain uncompleted after the time specified in paragraph 38, liquidated damages shall be deducted from the monies due the Contractor in the amount of $250.00 per day.

29. USE OF EXPLOSIVES

Use of explosives will not be allowed.

30. PROJECT MAINTENANCE

The Contractor shall maintain, and keep in good repair, the improvements covered by these Plans and Specifications during the life of his contract.

31. DISPOSAL OF WASTE AND SURPLUS EXCAVATION

All asphalt, concrete, rock or excavated material, or other debris removed from the site as a preliminary to the construction shall be removed from the property. Any required disposal permits shall be the sole responsibility of the Contractor.

32. REMOVALS, ADJUSTMENTS AND REPLACEMENTS

Existing pavements, driveways, curbs, gutters, sidewalks, etc., to be removed to facilitate the construction of the improvements shall be broken up and disposed of. Care shall be exercised to leave a neat, uniform edge or joint at the excavation limits or sections removed where only portions are to be removed. The Owner will designate the limits to be removed. Where pavements, driveways, curbs, gutters, sidewalks, etc., shall be replaced, then said replacements shall be to the standard of the previously removed portion or better.

Existing structures such as manholes, inlets, cleanouts, valve boxes, etc. which are not the property of a private firm or company, or an individual required to move their own property, shall be adjusted, altered or reset to the requirement elevation and alignment. New materials and workmanship necessary shall conform to the requirements of these Specifications covering the particular Work. Salvaged materials in good condition may be used in rebuilding such structures, provided the materials are thoroughly cleaned before their use.

All private obstruction which are indicated on the Plans to be moved, will be removed and replaced, or moved to new permanent locations by the Contractor, without additional payment to the Contractor. Any such additional item which the Contractor moves or causes to be moved for his own convenience shall be at his own expense.

33. TOWN OF ADDISON APPROVAL

This project is subject to final approval and acceptance by Town of Addison.

34. TRAFFIC CONTROL

The Contractor shall be responsible for providing traffic control during the construction of this Project consistent with the provisions set forth in the "1980 Texas Manual on Uniform Traffic Control Devices for Streets and Highways" issued under the authority of the "State of Texas Uniform Act Regulating Traffic on Highways", codified as Article 6701d Vernon's Civil Statutes, pertinent sections being Section Nos. 27, 29, 30 and 31. The Contractor will not remove any regulatory sign, instructional sign, street name sign, or other sign which has been erected by the City. If it is determined that a sign must be removed to permit required construction, the Contractor shall contact the Town of Addison to remove the sign. In the case of regulatory signs, the Contractor must replace the permanent sign with a temporary sign meeting the requirements of the above-referenced manual, and such a temporary sign must be installed prior to the removal of the existing sign. The Contractor shall submit a Traffic Control Plan at least five (5) calendar days prior to commencing work for review and approval by the Town of Addison.

35. CERTIFICATION

The Contractor shall submit a manufacturer's certification that the material was manufactured and tested in accordance with the referenced Specifications and a report of test results. The certification shall be submitted prior to material shipment.

36. FINAL ACCEPTANCE OF WORK

Final acceptance of the Work is subject to final testing and approval of the Work by the Town of Addison.

37. WORK AREA

Contractor shall restrict his construction activity to the project site.

38. CONTRACT TIME

It is the Owner's desire to have the project completed and operational in as short a time as possible. The number of calendar days for completion of the project will begin with the date specified in the Notice to Proceed. In no instance shall the number of calendar days for the completion of the Work measured from the proposed date of beginning exceed 120 calendar days. The Belt Line/Business intersection shall be completed by September 20, 1994, with the exception of landscape and irrigation work.

39. CONTRACTOR'S AFFIDAVIT OF BILLS PAID

The Contractor shall be required to execute the form provided in Section BP prior to the acceptance of the project.

40. PAY ITEMS

Pay items provided are intended to be all-inclusive of the work required on this project. Work required by the plans or specifications but not provided with a specific pay item shall be considered incidental to other items of work.

41. SAMPLES AND TESTS OF MATERIALS

Modify the General Provisions, Section GP 5.16, Samples and Tests of Materials.

> "The Contractor shall designate and pay a recognized testing laboratory to perform all testing and concrete design for this project. Such designation shall be subject to the approval of the Engineer. All testing services that the Contractor is required to provide will not be paid for separately, but shall be considered subsidiary to other items of work.
>
> "All samples and tests shall be performed in accordance with the Standard Specifications for Public Works Construction, North Central Texas Council of Governments (1983) as amended or supplemented."

42. CONSTRUCTION STAKING

Construction staking will not be provided by the Owner.

43. COMPLIANCE WITH GENERAL RULES AND LAWS

"Contractor shall familiarize himself with the nature and extent of the specifications, site conditions, traffic and safety requirements, and comply with all federal, state and local laws, ordinances, rules and regulations. Contractor shall determine how compliance with requirements, laws, rules, and regulations will affect his cost, progress or performance of the Work."

44. COMPLIANCE WITH IMMIGRATION LAWS

"Contractor shall take all steps necessary to ensure that all of the Contractor's employees are authorized to work in the United States as required by the Immigration Reform and Control Act of 1986."

45. RESOLUTION OF DISPUTES

The parties hereby covenant and agree that in the event of any controversy, dispute, or claim, of whatever nature arising out of, in connection with or in relation to the interpretation, performance or breach of this agreement, including but not limited to any claims based on contract, tort or statute, before filing a lawsuit, the parties agree to submit the matter to Alternative Dispute Resolution pursuant to the laws of the State of Texas. The parties shall select a third party arbitrator or mediator from the current list of neutrals on file with the Alternative Dispute Resolution Administrator of the Dallas County District Courts. All forms of Alternative Dispute Resolution may be used except binding arbitration. The proceedings shall be conducted in accordance with the laws of the State of Texas.

46. DBE/MBE REQUIREMENTS

All bidders and proposers shall make good faith efforts, as defined in Appendix A of 49 CFR Part 23, Regulations of the Office of the Secretary of Transportation, to subcontract 15% of the dollar value of the prime contract to small business concerns owned and controlled by socially and economically disadvantaged individuals (DBE). In the event that the bidder of this solicitation qualifies as a DBE, the contract goal shall be deemed to have been met. Individuals who are rebuttably presumed to be socially and economically disadvantaged include women, Blacks, Hispanics, Native Americans, Asian-Pacific Americans, and Asian-Indian Americans. The apparent successful bidder (proposer) will be required to submit information concerning the DBE's that will participate in this contract. The information will include the name and address for each DBE, a description of the work to be performed by each named firm, and the dollar value of the contract (subcontract). If the bidder fails to achieve the contract goal as stated herein, it will be required to provide documentation demonstrating that it made good faith efforts in attempting to do so. A bid that fails to meet these requirements will be considered nonresponsive.

47. OWNER-FURNISHED ITEMS

The OWNER shall furnish to the Contractor the following traffic signal components:

1. Six (6) 55-foot mast arms and mast arm poles.

2. Two (2) 36-foot mast arms and mast arm poles which the Contractor shall relocate from the Belt Line/Marsh intersection to the Belt Line/Business intersection.

The Contractor shall pick up item 1 from the Town of Addison storage facility.

48. INSURANCE

Each insurance policy that the Contractor must furnish in accordance with these contract documents which names the OWNER as an additional insured, shall also name the City of Carrollton and the City of Farmers Branch as additionally insured.

SECTION T

TECHNICAL SPECIFICATIONS

SECTION T
TECHNICAL SPECIFICATIONS

I. GENERAL

All materials and construction methods for this project shall be in conformance with Town of Addison standards and specifications and the North Central Texas Council of Governments "Standard Specifications for Public Works Construction" (1983), as amended or supplemented. Where conflicts exist, Town of Addison standards and specifications shall govern.

II. SUPPLEMENTAL STANDARDS

All materials and construction methods for the traffic signal installation and relocation work shall be in conformance with Town of Addison standards and specifications and the Texas Department of Transportation - 1982 Standard Specifications for Construction of Highways, Streets and Bridges. Where conflict exists, Town of Addison standards and specifications shall govern.

III. SUPPLEMENTARY TRAFFIC SIGNAL SPECIFICATIONS

A. Vehicle Detector Loop Wire Sealant.

B. Test Methods - Vehicle Detector Loop Wire Sealant.

IV. SUPPLEMENTAL LANDSCAPE AND IRRIGATION SPECIFICATIONS

A. Demolition.

B. Earthwork.

C. Tree Protection.

D. Irrigation System.

E. Landscaping.

F. Lawns and Grasses.

V. CEMENT TREATED BASE

See attached Section CTB.

VI. SOLID CONCRETE INTERLOCKING RETAINING WALL UNITS

See attached Section RWU.

VII. PAINTING OF SIGNAL POLES AND MAST ARMS

See attached Section SPMA

END OF SECTION

SUPPLEMENTARY TRAFFIC SIGNAL SPECIFICATIONS

VEHICLE DETECTOR LOOP WIRE SEALANT

1.0 SCOPE

1.1 This specification describes the minimum design, installation and functional performance requirements of a flexible traffic loop wire encapsulant intended for sealing and protecting vehicle detector loop wires installed in sawcuts 1/4" to 3/8" wide and 1 1/2" to 2 1/2" deep.

1.2 The encapsulant is intended to provide compressive yield strength to withstand normal vehicular traffic as well as sufficient flexibility to withstand normal movement in asphaltic and concrete pavements, while protecting the loop wire from moisture penetration, fracture and shear.

2.0 GENERAL

2.1 The encapsulant shall be a one-part elastomeric compound requiring no mixing, measuring or application of heat prior to or during its installation.

2.2 The encapsulant shall, within its stated shelf life in original undamaged packaging, cure only in the presence of moisture. The rate of cure will, therefore, depend upon temperature and relative humidity at the time of installation. Cool, dry weather will slow curing whereas warm, humid weather will accelerate curing.

2.3 The encapsulant shall be designed to enable vehicular traffic to pass over the properly filled sawcut immediately after installation without tracking or stringing of the material. The encapsulant shall form a surface skin allowing exposure to vehicular traffic within 30 minutes at 75°F and completely cure to a tough, rubber-like consistency in two (2) to seven (7) days after installation.

2.4 Properly installed and cured encapsulant shall exhibit resistance to effects of weather, vehicular abrasion, motor oils, gasoline, antifreeze solution, brake fluid, deicing chemicals and salt normally encountered, in such a manner that the performance of the venicle detector loop wire is not adversely affected.

2.5 The cured encapsulant shall be temperature stable and exhibit no degradation in performance throughout the ambient temperature ranges experienced within the continental United States, Alaska, Hawaii and Puerto Rico.

2.6 The encapsulant shall exhibit minimal shrinkage during or after its installation, and in no manner affect the performance characteristics of the material.

2.7 The encapsulant shall be designed to permit clean-up of material and application equipment with non-flammable solvents such as 1,1,1 trichloroethane or Scotch-Grip Brand Solvent No. 4 (prior to curing of encapsulant). Should any encapsulant material be allowed to cure in the application nozzle, it shall be able to be pulled out as a solid plug.

2.8 The encapsulant shall have a minimum shelf-life in undamaged original containers when stored in a cool, dry environment as follows: 9 months after receipt when packaged in one quart cartridges. 12 months after receipt when packaged in 5-U.S. gallon pails. The 5-U.S. gallon pails shall contain 4.5 U.S. gallons of encapsulant in order to permit application by commercially available pumps.

2.9 The encapsulant shall be designed for roadway installation when the surface temperature is between 40 degrees F and 140 degrees F.

3.0 PHYSICAL PROPERTIES

3.1 The encaosulant shall have the following physical properties in its uncured and cured states.

3.1.1 Physical properties of the uncured (wet) encapsulant:

Property	Requirement	Test Procedure
A. Weight	10.1 lbs/gal +/- 0.3 lbs	A. Weight/Gallon
B. Total Solids by Weight	75 - 85%	B. Determination of Non-Volatile Content
C. Viscosity	10,000 - 85,000 CPS	C. Viscosity
D. Drying Time	Touch: 24 hrs. max. Complete: 30 hrs. max.	D. Tack-Free Time

3.1.2 Physical properties of the cured encapsulant:

Property	Requirement	Test Procedure
A. Hardness (Indentation)	65 - 85	E. Rex hardness
B. Tensile Strength	500 psi min.	F. Tensile and Elongation
C. Elongation	300% min.	F. Tensile and Elongation

4.0 CERTIFICATION

4.1 The supplier shall be prepared to provide a letter of certification from the manufacturer confirming the physical properties identified in paragraphs 3.1.1 and 3.1.2 of this specification.

4.2 Notification of this letter of certification, if required, shall be stated on this agency's purchase order and such certification shall accompany the material when shipped by the manufacturer.

5.0 PACKAGING

5.1 The encapsulant shall be available in the following packaging:

5.1.1 ONE-QUART CARTRIDGES: Such cartridges shall be equipped with threaded fitting to accommodate a screw-on nozzle designed for insertion in a pavement sawslot 1/4" to 3/8" in width and 1 1/2" to 2 1/2" in depth. The nozzle shall be designed to permit filling of sawslot with encapsulant from the bottom up, with minimal waste. The cartridge shall contain a puncture seal on its nozzle end. All cartridges snall be designed to permit application of encapsulant by appropriate size manual caulking gun or air-powered caulking gun. Cartridges shall be packaged twelve (12) per case with a minimum of three (3) applicator nozzles per case.

5.1.2 FIVE-GALLON PAILS: Such pails shall be DOT-37A80 open head pails and the covers shall be sealed with tubular neoprene gaskets. Such pails shall contain a minimum of 4.5 gallons of encapsulant material in order to permit pumping directly from the pail to the sawslot by commercially available pumps, requiring insertion of a follower-plate in the pail to form an appropriate seal. Encapsulant material shall be ordered in multiples of 4.5 gallons.

6.0 MEASUREMENT

6.1 Measurement for payment shall be made of each unit (cartridges or pails) of encapsulant delivered to the location(s) specified in the Invitation to Bid.

TEST METHODS

VEHICLE DETECTOR LOOP WIRE SEALANT

A. WEIGHT/GALLON:

1. Equipment: The apparatus shall consist of the following parts (Refer to Fisher Catalog No. 3-247).

   a. A smoothly finished round aluminum cup with external threads on the top edge, approximately 1 1/2" in diameter 3/4" high and holding approximately 15 cc filled to the top edge.

   b. A snug fitting, flanged plug type lid with a concave inner surface and a 1/8" hole in the top.

   c. An open centered cap or retaining ring with inside threads to match the cup which can be used to pull the lid in place.

2. Preparation: Each Pycnometer must be calibrated when new and periodically during use as follows:

   a. Weigh empty to the nearest 0.01 gram.

   b. Fill with water and weigh again.

   c. Compute the difference and determine the factor as follows:

$$\text{FACTOR} = \frac{8.33}{\text{Wt. with water - wt. empty}}$$

3. Procedure:

   a. Weigh the empty Pycnometer to the nearest 0.01 gram.

   b. Fill the Pycnometer almost to the top, using care to keep air at a minimum by:

      (1) Using a small amount of encapsulant and working it into the corners to displace air.

(2) Slowly adding the remainder carefully displacing air as the volume is built up.

(3) When the cup is almost full, work the material in the cup with a spatula using an up and down motion.

(4) Then smooth the surface of the material in the cup leaving the edges high and the center low so that the concave shape of the lid and the encapsulant will force out surface air.

c. Carefully position the lid in place centering the plug inside the rim of the cup.

d. Slide the retaining ring over the top and tighten down slowly by hand until the flange on the lid is seated on the top edge of the cup.

e. Remove the excess encapsulant that exudes from the hole, leaving the remaining material level with the top of the hole.

f. Weigh the filled Pycnometer to the nearest 0.01 gram.

g. Calculate the weight per gallon as follows:

Factor X (Weight full - Weight empty) = lbs./gal.

B. DETERMINATION OF NON-VOLATILE CONTENT:

1. Procedure:

a. Accurately weigh three closed containers (2-ounce ointment cans or equivalent with covers) to the third decimal place (W1) and record the weight figures.

b. Place approximately 3 to 5 grams of test material in one of the weighed containers, close the cover at once and weigh it immediately with accuracy to the third decimal place (W2). Repeat this procedure for the remaining two containers.

NOTE: With heavy materials, it is good practice to spread the sample over the entire bottom and sides of the container to give a large surface area.

c. Remove the covers from each ointment can and place them on the bottom. Place the containers in an air circulating oven for 24 hours at 160 degrees F.

NOTE: Normally the air circulating oven is at the specified temperature before placing the samples in the oven.

d. At the end of the specified time period, remove the containers from the oven, replace the covers and allow them to cool at room temperature.

e. Weigh these containers to the third decimal place (W3) and record.

f. Compute the percent non-volatile using the following formula:

$$\% \text{ Non-volatile} = \frac{\text{Final weight of sample}}{\text{Original weight of sample}} \times 100$$

Where:

Original weight of sample = W2 - W1

Final weight of sample = W3 - W1

g. The percent non-volatile reported will be the average of the three samples run if the deviation between the samples is less than 0.50%. In case none of the samples fall within this deviation, new samples must be run.

C. VISCOSITY:

1. Sample Conditioning:

a. One pint samples shall be stored as indicated on the product performance standard and in turn brought to a temperature of 77 degrees + or - 2 degrees F for testing. Stir the sample vigorously with a spatula for 1 minute immediately prior to testing and note any segregated material which cannot be dispersed.

b. Determine the viscosity using a Brookfield RVF viscometer with a No. 6 or 7 spindle (as required) rotating at 20 rpm.

. TACK-FREE TIME:

1. Procedure:

a. Cast a film of undegassed encapsulant in a 1/16 inch deep open mold similar to that used for the tensile and enlongation specimens referenced in test method section F. Fill the mold even with its top and place it at 77 degrees F and 50% RH. A small sheet of smooth polyethylene film (which shall be clear and colorless, with no signs of plasticizer, slip agents or other foreign substances on the surface) measuring 0.004 + or - 0.002 inch thick shall be pressed lightly with the thumb onto the encapsulant and then withdrawn. The time at which the film no longer adheres tightly to the encapsulant shall be considered the tack-free time.

E. REX HARDNESS:

1. Apparatus: Hardness shall be determined with a Rex durometer, Model 1700 Type A (with dial gauge). The durometer should be recalibrated at least once each month using the procedure in ASTM Test Method No. D-2240-64T, and the appropriate adjustments made in the readings.

2. Specimens: Specimens shall be at least 3/16 inch thick, and may be obtained by plying up portions of the tensile and elongation film (described in test method section F) after curing for 7 days at 77 + or - 2 degrees F and 50% R.H. plus 2 days at 120 degrees F. The hardness specimens shall be at least 1 inch in diameter and shall be tested with the mold side up. Specimens with bubbles or other voids, or with irregular thickness, shall be rejected.

3. Determining the Hardness: Place the plied hardness specimen on a heavy flat steel plate. The Durometer shall then be placed on the test specimen, while keeping the base of the instrument parallel to the surface of the specimen. The test pressure applied shall be just sufficient to insure firm contact of the pressure plate with the test specimen. The durometer indentation reading shall be taken as soon as the indicator hand on the dial comes to rest, or if this is not possible, at a moment when a definite change in needle speed is noted. Report the average of 5 such readings.

F. TENSILE AND ELONGATION:

1. Dilution and Degassing: Stir the encapsulant a minimum of 200 rapid strokes to insure uniformity and reduce the thixotropic gel. Weigh 100 grams of stirred sample into a one-quart can and add 30 grams of Analytical Reagent Grade Toluene. Mix until uniform. Place the can in a device suitable for subjecting it to a vacuum of 29 inches of mercury for 15 to 20 minutes. When degassing is complete, remove the sample container and immediately cast a film as described below.

   NOTE: Refer to Figure #1 for a suggested degassing device.

2. Casting the Film:

   a. Prepare a mold for 6" x 8" x 40 mil alclad aluminum (or equivalent 6" x 8" metal panels) by covering one surface of the metal panel with 6" wide Teflon Tape. (e.g. 3M Brand TFE Plastic Tape No. 5491 or equivalent)

   b. Use 3M Brand EC-1202T tape or masking tape, 1/16" thick x 1/2" wide, as a "dam" around the perimeter of the mold.

   c. Pour sufficient encapsulant into the mold to fill the mold even with its top. Strike the encapsulant very carefully to level it with the top of the mold. Do not entrap air in the coating!

3. Curing the Encapsulant: Place the filled mold on a level surface at 77 degrees F and 50% R.H. After two days at these conditions, remove the encapsulant from the mold; invert the film, and continue the cure for five additional days at the same conditions. After 7 days at 77 degrees F and 50% R.H., place the film at 120 degrees F for 2 days.

4. Preparation of Dumbbells: Punch three dumbbells from the cured film using a micro die (Refer to Figure #2). The dumbbells must be free from air bubbles, craters, nicks, segregation, or any other defects. Measure and record the thickness of each dumbbell at the neck (narrow portion), using a micrometer or dial gauge accurate to + or - 1 mil. Take a total of three reading at various locations on the neck and record the median (T, inches). The maximum thickness variation along the neck should not exceed 2 mils. Place two bench marks, in ink, 1/2 inch apart on one side of each dumbbell, using care not to nick the surface of the dumbell.

5. Determining the Tensile Strength and Ultimate Elongation: Place the dumbbells on an instron or tensile testing machine having a sensitivity of 1/10 pound, and a jaw separation rate of 2" per minute. The dumbbells should be clamped near their ends (wide portions) in the jaws of the machine. Start the machine and note continuously the distance between the center of the two bench marks taking care to avoid parallax. Record the stress (S, lbs.) and elongation (L, inches) at the time of rupture. The bench mark distance may be measured just before rupture with either a pocket scale calibrated in inches or with a pair of dividers. If the dumbbell breaks at a hidden bubble or other defect, reject that test and test another dumbbell.

6. Calculation:

Calculate the ultimate tensile strength of each specimen using the following formula:

* $\frac{8 \times 5\ (S)}{T} = PSI$

Calculate and report the mean value of three specimens as tensile strength in PSI. Calculate the elongation of each specimen from the following formula:

* L - .5 inch x 200 = % elongation

Calculate and report the mean value of three specimens as % elongation.

* Note S = Stress in pounds
T = Thickness in inches
L = Length in inches

SUPPLEMENTAL LANDSCAPE AND IRRIGATION SPECIFICATIONS

DEMOLITION

General

1. **Description:** Provide demolition, salvage and protection of existing structures and trees as shown on Drawings or specified.

2. **Related work specified elsewhere:**

   A. Tree Protection

   B. Earthwork

3. **Notification of Owners of Utility Lines and Equipment:** Notify any corporation, company, individual or local authority owning conduits, wires, pipes or equipment on site affected by Demolition work. Remove such items and pay fees or costs in conjunction. Cap lines in accordance with instructions of governing authorities. This is to include existing irrigation lines and related wiring.

4. **Protections:** Protect existing surfaces of building equipment or other materials scheduled to remain. Protect trees and other vegetation.

5. **Examination of Site:** Before submitting proposal, visit and examine site to ascertain actual nature and scope of demolition and salvage work. Claims for extra compensation on account of additional labor, materials or equipment required for difficulties encountered in demolition and salvage work will not be recognized.

Execution

1. **Demolition Operations:**

   A. Prior to demolition operations, disconnect and cap off irrigation and utility service lines not required for new construction in accordance with requirements of governing authorities, applicable ordinances and regulations. If Owner deems necessary, ball and burlap predetermined plant material and relocate to Owner approved site.

   B. Erect necessary barricades and protective measures as required. Verify that tree protection devices are in place.

   C. Execute demolition of surfaces in a careful and orderly manner with least possible disturbance or damage to adjoining surfaces.

   D. Materials and debris resulting from demolition operations will be removed from the site.

E. Remove pavements, structures, utilities, and the like to the depth of their structure.

F. Leave construction areas clean and ready for other trades.

G. Remove pavements sub-base to the depth of the base material.

H. Do not remove or damage trees or other vegetation unless noted to be removed.

Salvage: Salvage items discussed in preconstruction meeting. Clean and deliver to Town of Addison. If Owner deems necessary, have predetermined plant material professionally balled and burlapped by reputable and Owner approved company and relocated to Owner approved site. Here these items are to be professionally planted, staked, mulched, and deep-watered. A written Letter of Guarantee of one year shall accompany all such material.

Final Grading: Refer to Earthwork for final grading requirements.

End of Section

EARTHWORK

General

1. **Description:** Provide complete topsoil stripping and stockpiling, earth excavation, filling, grading, trenching, and backfilling.

2. **Related Work Specified Elsewhere:**

   A. Tree Protection

   B. Lawns

   C. Landscaping

3. **Submittals:** Submit adequate samples of each proposed backfill to the site for Owner's review and approval.

4. **Job Conditions:**

   A. Protections:

      1. Protect reference points, bench marks and monuments from damage or discoloration. Replace or repair immediately points damaged, destroyed or dislocated.

      2. Protect and maintain conduits, drains, inlets, sewers, pipes and wires that remain on property.

      3. Do not leave temporary wood in concrete or fill.

      4. Cover holes and trenches when work is not in progress. Fence or barricade changes of plane more than 45 degrees horizontally and more than 3 feet vertically.

      5. Provide dewatering and drainage to keep excavations free of water.

      6. Protect adjacent surfaces and improvements outside grading limits. Repair any damage immediately.

   B. Coordination: If applicable, coordinate backfill operations with installation of subsurface drainage systems.

   C. Soil Classification: Excavated materials are not classified as to type. Excavation

includes all material encountered at site including rock rubble and debris.

Materials

1. **Select Fill:** Cohesive fill with liquid limit of less than 35 percent and plasticity index ranging from 5 to 15. Select fill shall be free of any lumps or stones larger than 1½ inches diameter.

2. **Imported Topsoil:**

   A. Friable, dark loamy soil, fertile, free from rubble, stones, clay lumps, extraneous material, plant roots and reasonably free of weeds. Topsoil containing Nutgrass or Dallisgrass will be rejected.

   B. Physical properties as follows:

   Clay - Between 7 - 27 percent.
   Silt - Between 28 - 50 percent.
   Sand - Less than 52 percent.

3. **Site Topsoil:**

   A. Suitable topsoil material is excavated from on site.

   B. Suitable soil is defined as dark brown sandy clay loam or dark brown blackland topsoil free of rocks greater than 1" in diameter, weeds, roots and other objectional materials. Suitable soil will be determined by the Architect/Owner.

4. **Subsoil Material:** Soil excavated from construction areas free of rocks (larger than 2½ inches) and construction debris.

5. **Stock Piles:** Topsoil and excess subsoil material cut from construction areas which is suitable for backfilling shall be stockpiled in separate piles as directed by Architect/Owner. Location of stock piles shall be subject to approval of Owner.

6. **Surplus Materials:** Remove from site any excess materials and excavated materials unsuitable for use as fill and backfill. Materials containing rubbish or debris shall be immediately removed and legally disposed of off-site.

Execution

1. **Preparation:**

   A. Remove abandoned, inactive utilities to point not less than 3 feet below finish grade. Plug or cap remaining lines in manner acceptable to utility company.

B. Report encounter of active utilities not indicated by the Contract Documents to Architect/Owner. Disposition shall be as directed with adjustment in Contract amount. Extra payment will not be authorized for work that could have been foreseen by careful examination of site.

C. Notify respective utility companies of damage caused to active utilities and protect active utilities pending instruction for disposition.

D. Strip and stockpile site topsoil and subsoil material for future use.

E. If applicable, verify that drainage system is complete.

F. Verify that waterproofing is complete.

2. Backfilling/Filling:

A. General:

1. Before filling, clean area debris, large rocks, formwork and loose material. Area to be filled shall be approved by Architect/Owner before filling is started.

2. Prior to filling under pavements proof-roll subgrade with a rubber tired roller of sufficient weight. Weak areas or areas where excessive pumping is noted shall be removed and replaced with Select Fill. Once the subgrade is uniformly stable, compact the area as noted herein.

3. Brace retaining walls and grade beams while placing fill or backfill material.

B. Select Fill:

1. Place under pavements in a uniform thickness.

2. Place in maximum 8" lifts compacted to approximately 90% of Standard Proctory density at ±3% of optimum moisture content.

C. Backfill - Site:

1. Prior to placing backfill, scarify surface of ground to a depth of 4 inches. Moisture content of loosened material shall be such that first layer of fill will readily bond to surface. Do not place fill on subgrade that is muddy, frozen or contains frost.

2. Place in 8 inch maximum lifts and compact to approximately 85 percent of

Standard Proctor density.

D. Backfill - Under Pavements: Follow procedures noted in C. above, except compact lifts to 90% of Standard Proctor density.

3. **Finish Grading:**

A. Grade uniformly with rounded surfaces at tops and bottoms of abrupt changes in plane. Hand-grade steep slopes and areas that are inaccessible for machine work and areas around existing trees. DO NOT cut or fill around trees unless approved by the Architect and Owner.

B. Protect graded areas from undue erosion. Repair and regrade if required. Refill and compact where settlement occurs.

C. Grade areas to elevations and slopes indicated without depressions causing pocketing of surface water or humps, producing localized runoff and gullying. Ponding of water on-site is not allowed. Finish surfaces to be not more than 0.10 foot above or below established grade as follows:

1. Lawn Areas - Provide a minimum of 6" of Imported Topsoil or Site Topsoil over the lawn. If rock is encountered, overexcavate to a dept the one (1) foot and backfill with Topsoil.

2. In areas where fill will exceed 6" (except where Select Fill is called for), place Imported Topsoil or Site Topsoil to a minimum depth of two (2) feet. If more than two (2) feet of fill is required, Subsoil Material may be used to within two (2) feet of finish grade.

3. Planting Beds - Grade these areas to a subgrade of 6" below finish grade. Complete final backfill with prepared soil mix as provided in the landscaping section.

4. **Cleanup:** Remove excess materials from site promptly to prevent large accumulations. Store reusable material neatly in designated locations. Upon completion of the project any remaining surplus materials must be removed and legally disposed of off site.

End of Section

TREE PROTECTION

General

1. **Description:** Provide protection of existing trees scheduled to remain.

2. **Site Conditions**: Existing trees are to be field located and displayed on the drawings.

3. **Protection:** Protect trees by barricading each tree within ten feet of construction.

4. **Guarantee:** Guarantee existing trees against damage until final acceptance of the project. Repair any damage which, in the opinion of the Owner, can be satisfactorily corrected.

5. **Definitions:**

   A. Disturbance/Damage: Physical or visual change to the trees which, in the opinion of the Owner, is detrimental to the trees being protected. Such disturbance may be caused by equipment, material or personnel.

   B. Violation: Damage to trees caused by any construction or delivery vehicle, construction material storage, or disposal of solid or liquid debris shall be considered a violation. The Contractor's representative will report the observed violation to the Owner verbally, if possible, and in writing within 7 days of a violation. The written notice shall include the date, the approximate time, the general location and type of violation.

Execution

1. **Tree Protection:**

   A. Barricading fencing material shall be Plastic Snow fence with 6 foot tall steel T post.

   B. Install prior to any mobilization on the site.

   C. Barricade: Install barricades around trees eight (8) feet and farther from construction. Place barricades at drip line or as directed by the Owner.

2. **Maintenance:** Maintain tree protection in a newly installed condition through final acceptance.

3. **Penalty:** If any tree is damaged and in the opinion of the Owner cannot be satisfactorily repaired, then a fine of $100 per caliper inch will be assessed against the Contractor.

Caliper measurements will be taken as follows: Up to and including 4" caliper will be measured 6" above ground level; and calipers over 4" will be measured 4' above ground level.

End of Section

IRRIGATION SYSTEM

General

1. **Description:** Provide complete landscape irrigation system as shown on Drawings and described herein.

2. **Related Work Specified Elsewhere:**

   A. Landscaping

   B. Lawns and Grasses

3. **Quality Assurance:**

   A. Materials:

      1. Procedure: Comply with the Town of Addison's specifications.

      2. Time: To be considered, submit substitution request in writing 7 days prior to bid opening.

      3. Required Submittal Material:

         a. Sample proposed sprinkler.
         b. Manufacturer's data of sprinkler, discharge rates (GPM), minimum allowable operating pressure, maximum allowable spacing and distance of throw.
         c. Detailed pressure loss computations for following zones: largest demand and fartherest from sources(s).
         d. If proposed substitute requires a change in head and piping layout as designed, submit detailed drawings showing design changes and proposed layout.

      4. Approval: Approval of proposed substitute will not relieve responsibility for providing a system that will operate according to intent of originally designed system.

   B. Contractor: System installation must be supervised by Licensed Irrigator, licensed by the State of Texas, and who has performed with a minimum of 5 continuous years of experience installing systems of this size and complexity.

   C. Assembly Procedures: Do not alter design hydraulics by installing additional tees or elbows unless approved by Architect/Owner.

D. Testing: Perform required testing under observation of Architect and/or Owner. Give 24 hours notice that such tests are to be conducted.

E. Handling of PVC Pipe and Fittings: Exercise care in handling, loading, unloading, and storing of PVC pipe and fittings. Transport PVC pipe in a vehicle which allows the length of pipe to lie flat so as not to subject it to undue bending or concentrated external load at any point. Any section of pipe that has been dented or damaged and, if installed, shall be replaced with new piping.

4. Referenced Standards:

American Society for Testing and Materials (ASTM, latest edition)

ASTM - D2241 Poly (Vinyl Chloride) (PVC) Plastic Pipe (SDR-PR)
ASTM - D2287 Flexible Poly (Vinyl Chloride) (PVC) tubing
ASTM - D2464 Threaded Poly (Vinyl Chloride) (PVC) Plastic Pipe Fittings, Schedule 80.
ASTM - D2466 Poly (Vinyl Chloride) (PVC) Plastic Pipe Fittings, Schedule 40.
ASTM - D2564 Solvent Cements for Poly (Vinyl Chloride) (PVC) Plastic Pipe and Fittings.
ASTM - D2855 Standard Recommended Practice for Making Solvent-Cemented Joints with Poly (Vinyl Chloride) (PVC) Pipe and Fittings.

5. Submittals:

A. Product Data: Submit copies of manufacturer's specifications and literature.

B. Water Pressure: Prior to starting construction, determine static water pressure. Confirm findings to Architect/Owner in writing.

C. Project Record Documents:

1. Locate by written dimensions, routing of mainline piping, remort control valves, gate valves, water meters, quick coupling valves, and other related equipment as directed by the Architect/Owner. Located mainlines by single dimensions from permanent site features provided they run parallel to these elements. Locate valves, intermediate electrical connections, if approved, and quick couplers by two dimensions at 90 degrees to each other provided they are within 20 feet of a permanent site feature. Valves, electrical connections and quick couplers beyond 20 feet must be located by triangulation using three dimensions from building corners, walk intersections or similar junctures.

2. When dimensioning is complete, transpose work to mylar reproducible tracings. Tracings will be provided by Architect/Owner. Mark tracings "Record Prints".

Date and sign Drawings.

3. Submit completed tracings to Architect/Owner prior to final acceptance.

4. Controller Charts:

   a. After as-builts drawings have been submitted and approved, complete one controller chart for each controller supplied.
   b. The chart shall show the area controlled by the automatic controller and shall be the maximum size which the controller door will allow.
   c. The chart is to be a reduced drawing of the actual as-built system. However, in the event the controller sequence is not legible when the drawing is reduced, it shall be enlarged to a size that will be readable when reduced.
   d. The chart shall be a black line or blue line ozalid print and a different color shall be used to indicate the area of coverage of each station.
   e. When completed and approved, the chart shall be hermetically sealed between two pieces of plastic, each piece being a minimum 10 mils.

5. Operation and Maintenance Manuals Data:

   a. Provide 3 manuals neatly bound in a hard back three ring binder.
   b. Index sheet stating Contractor's address and telephone number, list of equipment with name and addresses of local manufacturer's representative.
   c. Catalog and parts sheets on every material and equipment installed under this contract.
   d. A Letter of Guarantee for a period one (1) year from date of acceptance.
   e. Complete operating and maintenance instruction on all major equipment.

D. Equipment to be Furnished:

1. Two (2) sets of special tools required for removing, disassembling and adjusting each type of sprinkler and valve supplied on this project.
2. Two (2) keys for each automatic controller.
3. One (1) quite coupler key with swivel attached for every three (3) or fraction thereof of quick coupling valves installed.
4. Provide equipment at the conclusion of the project prior to final review.

6. Coordination:

A. Coordinate water meter installation with local water department.

B. Sleeves under paving and routed through walls to be installed by Contractor. Verify locations and include on as-builts.

C. Coordinate installation of irrigation system with work of other trades. Coordinate with Landscape Contractor to ensure plant material is uniformly watered in accordance with intent.

D. Coordinate to ensure that electrical power source is in place. Electrical service is the responsibility of the Contractor and must conform to national code standards.

7. **Warranty and Maintenance:**

A. Fully warranty materials and workmanship for one year after final acceptance.

B. Provide maintenance of system, including cleaning and adjustment of heads, raising and lowering of heads to compensate for settling, for one year after acceptance.

C. Limit warranty to repair and replacement of defective materials and workmanship; and repair of backfill settlement.

D. Extend to Owner any warranties and guarantees provided by manufacturer to Contractor of equipment provided. Manufacturer's warranties shall not relieve the Contractor of his liability under the guarantee. Such warranties shall only supplement the guarantee.

E. Duplicate the following warranty statement and submit it bound within the Operation and Maintenance manuals.

GUARANTEE FOR SPRINKLER IRRIGATION SYSTEM

We hereby guarantee that the sprinkler irrigation system we have furnished and installed is free from defects in materials and workmanship, and the work has been completed in accordance with the drawings and specifications, ordinary wear and tear and unusual abuse, or neglect excepted. We agree to repair or replace any defects in material or workmanship which may develop during the period of one year from date of acceptance and also to repair or replace any damage resulting from the repairing or replacing of such defects at no additional cost to the Owner. We shall make such repairs or replacements within three (3) days time after receipt of written notice from the Owner, we authorize the Owner to proceed to have said repairs or replacements made at our expense and we will pay the costs and charges therefore upon demand.

PROJECT: _____

LOCATION: _____

_____

SIGNED: _____

ADDRESS: _____

_____

PHONE: _____

DATE OF ACCEPTANCE: _____

Products

1. Definitions:

A. Mainline: Piping from water source to operating valves. Pipe leading to quick coupling valves (QCV) is considered mainline.

B. Lateral: Piping from remote control valves to irrigation heads.

2. Polyvinyl Chloride Pipe Materials:

A. Polyvinyl chloride Pipe (PVC): Manufactured in accordance with standards noted below.

1. Marking and Identifications: Permanently marked with SDR number, schedule, ASTM standard number, and the NSF (National Sanitation Foundation) seal. Provide pipe free of blisters, internal striations, cracks, or other defects.

2. PVC Pipe and Fittings: Schedule 40, NO EXCEPTIONS.

B. Flexible PVC Pipe: As manufactured by Spears, Inc., from virgin PVC material and tested at 200 psi static pressure for two hours with a guide burst rating of 400 psi min.

C. PVC Pipe Connection Materials:

1. For slip fittings, use primer and adhesive solvent. Cans of primers and solvents to have labels intact and stamped with date of manufacture. Cans dated over two years old will not be permitted. Thinning of primer or solvent will not be permitted.

2. For threaded fittings, PVC to PVC, or PVC to copper, use Teflon paste.

3. For flexible PVC, use only solvents made for flexible pipe, such as, IPS-795 solvent.

3. **Copper Pipe Materials:**

A. Copper Tubing: Hard, straight lengths of Type "M" only. Provide pipe free of internal striations, cracks, or other defects. Copper tube of foreign extrusion or irrigation tubing (thin wall) will be rejected.

B. Copper Tube Fittings: Cast brass or wrought copper, seat-solder type.

C. Pipe Connection Materials: Threaded fittings, copper to copper, copper to brass, copper to PVC: Teflon paste.

4. **Miscellaneous Materials;**

A. Wire: Type UF with 4/64 inches insulation, Underwriters laboratory (UL) approved for direct underground burial in National Electrical Code Class II Circuit (30 volts AC or less). Size according to controller manufacturer's recommendations and consideration of length of run, but no smaller than #14.

B. Nipples:

1. Nipples for lawn and shrub heads: Threaded polyethylene, nominal 1/2 inch by 6 inches.

2. Nipples for swing joints: Schedule 80 PVC, Type 1, Grade 1. Utilize Marlex elbow at point of connection to rotary or impact head.

C. Washed Pea Gravel: Graded ¾ - 1½".

5. **Material List:**

Manufacturer	Model No.	Description
Toro	570C-4P	4" pop-up lawn head
	570S	Shrub head on copper riser
	570C-12P	12" pop-up shrub head
Hunter	PGP	Rotary head
Weathermatic	11024-FCR	Contamination resistant electric valve
Irri-Trol	MC Plus Series	Automatic Controller with pedestal where required
Buckner	30A	Quick coupler valve
Spears		Ball valve (Female Thread)
Miniclick		Temperature sensor (1 required for each controller)
Buckner	30AC & 20	¾" Coupler key & swivel
Ametek, DFW, Carson Industries or approved equal		Plastic Valve boxes with locking covers and extensions as required

Execution

1. **Inspection:**

   A. Examine areas and conditions under which irrigation sprinkler system is to be installed.

   B. Verify existing sleeves installed by others.

   C. Notify Architect/Owner in writing of conditions detrimental to proper and timely completion of Work. Do not proceed until conditions are satisfactory.

   D. Exercise extreme care in excavating and working near existing utilities. Contractor shall be responsible for damages to utilities which are caused by his operations or neglect. The Contractor shall arrange to have all utilities located prior to beginning any work.

2. **Installation:** Follow Town of Addison's Irrigation Specifications in conjunction with the following guidelines.

   A. General:

      1. Compliance: Complete installation in strict accordance with manufacturer's recommendations which shall be considered part of these specifications.

      2. Staking: Stake location of each head for approval of Architect/Owner before proceeding. Do not exceed manufacturer's maximum spacing limits.

      3. Piping Layout: Piping layout is diagrammatic. Route piping around trees and shrubs to avoid damage to plantings. Do not dig within balls of newly planted trees and shrubs.

      4. Discrepancies:
         a. Point out any discrepancy between Drawings and field conditions that may affect uniform coverage. Do not proceed until any design change made necessary by such discrepancy is approved.
         b. Should changes create extra cost, approval for extra compensation shall be obtained in writing before commencing work.
         c. Should change create a cost savings, a written reduction in contract price must be approved in writing before commencing work.

   B. Excavations: Excavations are unclassified and include earth, loose rock, or combination, in wet or dry state. Backfill trenches with material, as per Addison's specifications. Ensure a minimum of 6 inches of rock-free soil surrounding pipe.

C. Water Tap: The Owner will provide water taps in approximate locations noted on the drawings. Coordinate tap installation so as not to delay system installation.

D. Water Meter and Backflow Prevention:

1. Install type and size indicated on Drawings and in materials list per Town's specifications.

2. Install in meter box per local codes and Town's specifications.

3. Install 1.0 cu. ft. washed pea gravel in bottom of box.

E. Pipe Installation:

1. Mainline and Lateral Piping: Install in 4 inch wide trenches with minimum of 12 inches of cover over pipe, but no more than 18 inches of cover.

2. Trenching: Provide firm, uniform bearing for entire length of pipe to prevent uneven settlement. Wedging or blocking of pipe is not permitted. Remove foreign matter from inside of pipes before welding. Keep inside of piping clean during and after layout of pipes.

3. Backfill: Hand-tamp and water-jet to prevent settling. Hand rake trenches and adjoining areas to leave grade in condition equal to before installation.

F. PVC Pipe and Fittings Assembly:

1. General: Remove extraneous material including burrs from inside and outside edges of new cuts.

2. Primer: Follow manufacturer's procedures for use.

3. Solvent: Follow manufacturer's procedures to make solvent-welded joints.

4. Threaded Joints: Use Teflon-paste.

G. Copper Pipe and Fittings Assembly:

1. Clean pipe and fittings thoroughly and buff connections with wire brush to remove residue from pipe.

2. Flux pipe and fitting and solder connection using 50-50 soft solid core solder.

H. Remote Control Valves and Gate Valves:

1. Provide type in accordance with materials list from Town's specifications and size according to Drawings.

2. Provide valves in an level position in accordance with manufacturer's specifications.

3. Install valves in rectangular plastic valve box, centered over valve, ¼ inch above finish grade. Provide valve box extensions as required.

4. Provide 0.5 c. ft. washed pea gravel in bottom of valve box.

I. Heads:

1. General: Provide in accordance with materials list, with nozzling as shown on Drawings. Change nozzle degree and trajectory if wind conditions affect coverage. Notify Architect/Owner of changes. Install heads adjacent to walks and curbs 2 inches clear of paving to allow for edging equipment.

2. Shrub Heads: Provide spray nozzles on copper tube risers attached to lateral piping with Poly nipples, sufficiently high to water over plantings and plants when they have reached their ultimate growth, or as directed by Architect/Owner. Firmly tamp soil around copper riser and leave plumb.

3. Lawn Heads: Attach heads to lateral piping with polyethylene nipples. Firmly tamp soil around base plate and leave head plumb.

4. High-Pops: Attach to lateral piping with polyethylene nipple. Use bottom connection only unless otherwise directed by Architect/Owner. Provide strainer in each head. If conditions warrant, funny pipe installations are permissible with Owner approval.

5. Rotary Heads: Install on swing joints using Schedule 80 nipples, threaded fittings and a Marlex elbow at point of head connections. Polyethylene nipples are allowed in areas not to be tractor mowed.

J. Quick Coupling Valves (QVC): Provide in accordance with materials list and install on swing joints using Schedule 80 nipples.

K. Wiring:

1. Provide wire from controller to remote control valves. Conduit is not required for U.F. wire, unless otherwise noted.. Tuck wire under mainline piping.

2. Make wire connections with direct burial King splices according to

manufacturer's installation procedures.

3. Provide a separate lead wire with red insulation from controller to each remote control valve. Provide a common neutral wire with white insulation from controller to valves served by a particular controller.

4. Provide 24 inch long expansion coil for each wire at valves and a 6 inch expansion loop at places of directional change.

L. Controller:

1. Provide according to Owner's recommendations.

2. Locate with approval of Owner. Mount on wall or pedestal, as determined by Owner.

3. Breaker box with 115V power supply will be supplied to controller by other trades. Complete connection in rigid metal conduit in accordance with applicable electrical codes using watertight fittings.

4. If approved, securely fasten conduit permanently to wall in manner appropriate for wall material.

5. Connect one valve per zone. Sequence zones in logical progression.

M. Temperature Sensor: Provide securely mounted on bottom of controller.

3. Testing: Test laterals and mains for a period of one hour in the presence of the Architect/Owner. If leaks or pressure drops occur, correct defect and repeat test.

4. Final Adjustment:

A. Make final adjustments of irrigation system prior to Architect/Owner final inspection.

B. Flush system by removing nozzles from heads on ends of lines and operating system.

C. If needed, adjust each section for operating pressure and balance to other sections by use of flow adjustment on top of each valve.

D. Adjust nozzling for proper operation, alignment and coverage. Prevailing wind conditions or slopes may indicate that arc of angle or trajectory of spray should be other than as shown on Drawings. Change nozzles to provide correct coverage.

Notify Architect/Owner of changes.

E. Carefully check zones verifying plantings are uniformly watered.

5. **Cleanup:** Keep site clean of unused materials and debris. Leave site in broom clean condition daily.

End of Section

LANDSCAPING

General

1. **Description:** Provide complete landscaping as specified and described herein.

2. **Related Work Specified Elsewhere:**

   A. Irrigation System

   B. Lawns and Grasses

   C. Earthwork

3. **Quality Assurance:**

   A. Comply with applicable Federal, State, County, and Town regulations governing landscape materials and work.

   B. Architect/Owner reserves the right to review materials at growing site.

   C. Observation at growing site does not preclude right of rejection at job site. Plants damaged in transit or at job site shall be rejected.

   D. Personnel: Employ only qualified personnel familiar with required work.

4. **Referenced Standards:**

   A. American Standard for Nursery Stock, Edition approved May 2, 1986 by American National Standards Institute, Inc. (Z60.1 - 1990) - plant materials.

   B. Hortus Third, 1976 - Cornell University - plant nomenclature.

   C. ASTM: American Standard Testing Material - sharp sand

5. **Submittals:**

   A. Samples: Provide representative quantities of sandy loam, sharp sand, bark mulch, soil amendment, and soil saver. Samples shall be approved by Architect/Owner before use on project.

   B. Submit three representative samples of each variety of ornamental trees, shrubs, and groundcover plants for Architect/Owner approval. When approved, tag, install and maintain as representative samples for final installed plant materials.

C. File Certificates of Inspection of plant material by State, County and Federal authorities with Architect/Owner, if required.

6. Product Delivery, Storage and Handling:

A. Preparation:

1. Balled and Burlapped (B&B) Plants: Dig and prepare shipment in a manner that will not damage roots, branches, shape, and future development. Allow to properly cure prior to transporting.

2. Container Grown Plants: Deliver plants in container sufficiently rigid to hold ball shape and protect root mass.

B. Delivery:

1. Deliver packaged materials in sealed containers showing weight, analysis and name of manufacturer. Protect materials from deterioration during delivery and while stored at site.

2. Deliver only plant materials that can be planted in one day unless adequate storage and watering facilities are available on job site.

3. Protect root balls by heeling in with saw dust if not planted within 24 hours of delivery.

4. Protect during delivery to prevent damage to root ball or desiccation of leaves. Keep plants moist at all times. Cover all materials during transport.

5. Notify Architect/Owner of delivery schedule 48 hours in advance so plant material may be observed upon arrival at job site.

6. Remove rejected plant material immediately from site.

7. Do not lift, move, adjust to plumb, or otherwise manipulate plants by trunk or stems to avoid damage or stress.

7. Job Conditions:

A. Planting Restrictions:

Perform actual planting only when weather and soil conditions are suitable in accordance with locally accepted practice.

B. Protection:

1. Do not move equipment over existing or newly placed structures without approval of Architect/Owner.

2. Provide board-roading as required to protect paving.

3. Protect other improvements from damage, with protection boards, ramps and protective sheeting.

C. Utilities:

1. Determine locations of underground utilities and perform work in a manner which will avoid possible damage. Hand excavate, if required, to minimize possibility of damage to underground utilities.

2. Coordinate work with irrigation contractor to prevent damage to underground sprinkler system.

D. Grades: Refer to Earthwork section for planting bed depths.

8. Warranty:

A. Warranty plants and trees for one year after final acceptance. Replace dead materials and materials not in vigorous, thriving condition as soon as weather permits and on notification by Architect/Owner. Replace plants, including trees, which in opinion of Architect/Owner have partially died thereby damaging shape, size, or symmetry.

B. Replace plants and trees with same kind and size as originally planted, at no cost to Owner. Provide one year warranty on replacement plants. Trees should be replaced at start of next planting or digging season. In such cases, remove dead trees immediately. Protect irrigation system and other piping conduit or other work during replacement. Repair any damage immediately.

C. Warranty excludes replacement of plants after final acceptance because of injury by storm, drought, drowning, hail, freeze, insects or diseases.

D. At end of warranty period, staking and guying materials shall be removed from the site by the Contractor at no additional costs.

9. Maintenance:

A. Water: Will be available on site. Provide necessary hoses and other watering equipment required to complete work.

B. Maintain plantings and trees by watering, cultivating, weeding, spraying, cleaning

and replacing as necessary to keep landscape in a vigorous, healthy condition and rake bed areas as required until final acceptance.

C. Coordinate watering schedules with irrigation contractor during installation and until final acceptance. Provide supplemental deep root watering to newly installed trees.

Products

1. Plants:

A. General: Equal to well-formed No. 1 grade nursery stock. Listed plant heights are from tops of root balls to nominal tops of plants.

B. Shrubs and Ground Covers: Nursery grown, healthy, vigorous, of normal habit of growth for species, free from disease, insect eggs and larvae. Specified sizes are before pruning and measured with branches in normal position. Plants shall be well rooted and established in the container.

C. Ornamental and Shade Trees: Healthy, vigorous, full-branched, well-shaped, symmetrical, trunk diameter and height requirements as specified. Balls shall be firm, neat, slightly tapered and well-burlapped. Trees with loose or broken balls at time of planting shall be rejected. Trees will be individually approved by Architect/Owner. Root balls shall be 9 inches in diameter for each inch caliper, measured 6 inches above root ball for up to 3 inch caliper, and 12 inches above root ball for trees larger than 3 inch caliper. Trees shall be free of scrapes, bark abrasions, split branches, mistletoe or other parasitic growth.

2. Soil Preparation Materials:

A. Sandy Loam:

1. Friable, fertile, dark, loamy soil, free of clay lumps, subsoil, stones, and other extraneous material and reasonably free of weeds and foreign grasses. Loam containing Dallisgrass or Nutgrass shall be rejected.

2. Physical properties as follows:
   Clay - between 7 - 27 percent
   Silt - between 15 - 35 percent
   Sand - less than 52 percent

3. Organic matter shall be 4-12% of total dry weight.

B. Sharp Sand: Clean, washed sand, (fine aggregate) ASTM C-33.

C. Organic Soil Amendment: Commercial grade decomposed compost similar to Back-To-Earth products.

D. Commercial Fertilizer: 10-20-10 or similar analysis. Nitrogen source to be a minimum 50% slow release organic Nitrogen (SCU or UF) with minimum 8% sulphur and 4% iron, plus micronutrients.

3. Miscellaneous Materials:

A. Steel Edging: ⅛" x 4" Ryerson or approved equal.

B. Mulch: Shredded hardwood bark.

C. Guying materials for Trees:

1. Wire: 12 gauge, single strand, galvanized wire.

2. Rubber hose: 2 ply, fiber reinforced hose, minimum ½ inch inside diameter. Color: Black

D. Soil Saver: Jute mesh, 4 foot wide rolls.

E. Wrapping Material: Waterproof crepe tree wrapping paper.

Execution

1. Inspection: Examine subgrade upon which work is to be performed and verify conditions under which work is to be performed. Notify Architect/Owner of unsatisfactory conditions. Do not proceed with work until unsatisfactory conditions have been corrected in manner acceptable to Owner.

2. Tree Planting:

A. Stake tree locations for approval by Owner.

B. Tree Pit Excavation: Excavated soil may be used for backfill provided it is approved by Owner. Backfill must be free of subsoils, rock, caliche, and other extraneous material. If backfill is not acceptable, use sandy loam.

C. Shade Trees:

1. Plant in pits 2 foot greater in diameter than root balls.

2. Backfill to depths of root with 5 parts excavated soil or sandy loam and 1 part organic amendment. Remove excess excavated soil from site.

Carefully settle by watering to prevent air pockets.

3. Note that tree uplights may be installed adjacent to trees. Take care not to disturb units or conduit.

4. Coordinate required depth with Owner in areas of paver installation. Remove any twine around trunks of B & B plant material and cut off the top ⅓ of any wire baskets.

D. Ornamental Trees:

1. Plant in pits 12 inches greater in diameter than tree ball, backfill with 5 parts excavated soil or sandy loam and 1 part organic amendment. Remove excess excavated soil from site. Carefully settle by watering to prevent air pockets.

2. Determine direction of staking and rotate plants in pit to take advantage of optimum stem orientation. Remove any twine around trunks of B & B plant material and cut off the top ⅓ of any wire baskets.

3. Tree Saucers: Form a 4 inch high saucer around each new tree including ornamentals for deep watering. Contractor is responsible for deep watering until final acceptance.

4. Tree Guying:

A. Guy trees immediately following planting operation. Take precautions during guying operation to prevent damage or injury to branches. Orient guy wires within each cluster or row of trees in same direction

B. Utilize 6 foot T-post and drive into ground sufficient depth to assure rigidity. Loop wire through hose and route both around crotch of major branch. Securely fasten loose ends at T-post by twisting together. Tighten wires to taught condition by inserting screw driver between wires at midpoint and rotating. Allow no wire to rub against branches or trunk.

5. Pruning of New Trees: Prune trees to preserve natural character of plant in a manner appropriate to its particular requirements in the landscape design as directed by Architect/Owner. In general, never remove greater than one-third of wood by thinning. Do not cut back terminal branches. Remove sucker growth and broken or badly bruised branches. Thin field collected trees heavier than nursery grown plants.

6. Tree Wrapping: Wrap nursery grown trees. Extend wrapping from ground to a point immediately below lowest branch of each tree or as directed. Securely fasten in place with tacks or staples, so wrapping will remain in place 2 years.

7. **Steel Edging:** Provide steel edging at interface of planted areas and lawn areas unless indicated otherwise. Set edging as indicated in true lines as designed with top of edging two (2) inches above finish grade on lawn side.

8. **Prepared Soil:** Provide six (6) inches of thoroughly mixed prepared soil for shrubs, ground cover and seasonal color as follows:

    1 part sandy loam
    1 part peat moss
    1 part sharp sand
    Add 4 pound commercial fertilizer per 100 SF of bed area and mix thoroughly.

    Rotor till to a minimum depth of 6"-8".

9. **Shrub and Groundcover Planting:** Place plants in position on bed areas before cans have been removed. Obtain approval from Architect/Owner. Architect/Owner reserves the rights to interchange or shift locations of plants prior to planting. Do not remove burlap from B & B plants. Plant where located, setting plants with tops of balls even with tops of beds and compact soil carefully around each plant ball. Water thoroughly to eliminate air pockets. Carefully prune plants to remove dead or broken branches and hand-rake bed areas to smooth even surfaces.

10. **Pocket Planting:**

    A. Plants having a spacing of 3 feet on center or greater can be pocket planted. Excavate pit 12 inches larger than diameter of container. Backfill with prepared soil.

    B. Remove all vegetative growth including root systems from unexcavated areas between plant pits. Cultivate to a depth of six (6) inches. Rake smooth.

    C. Top dress entire area as specified.

11. **Jute Mesh:** Install soil saver on slopes greater than 3:1 ratio in accordance with manufacturer's directions.

12. **Top Dressing:** After planting has been completed and approved by Architect/Owner, top dress bed areas with shredded hardwood bark mulch to a minimum of 2 inches deep. Delay this operation until near final acceptance.

13. **Cleanup:** Keep premises neat and orderly including organization of storage areas. Remove trash and debris from excavated planting areas, preparing beds, or planting plants from site daily as work progresses. Keep paved areas clean by sweeping or hosing.

LAWNS AND GRASSES

General

1. **Description:** Provide topsoil, fine grading, fertilizer, sodding and hydromulching of either Bermuda grass or Ryegrass followed by a subsequent Bermuda application. Grass varieties are to preapproved by Owner.

2. **Related Work Specified Elsewhere:**

   A. Irrigation System

   B. Landscaping

   C. Earthwork

3. **Product Delivery, Storage and Handling:**

   A. Deliver fertilizer, as specified, to site in original, sealed containers bearing manufacturer's guaranteed statement of analysis.

   B. Store fertilizer in weatherproof location.

4. **Quality Assurance:**

   A. Water: Water will be available on site. Provide necessary hoses and other watering equipment required to complete work.

   B. Maintenance: Until final acceptance and until an approved stand of grass is achieved, maintain plantings by watering, cultivating, mowing, weeding, spraying, cleaning and replacing as necessary to keep plants in a vigorous, healthy condition.

      1. Watering: As necessary to keep top 2 inches of soil moist. Coordinate with Irrigation Contractor.

      2. Mowing: Mow newly planted grass areas weekly after initial growth reaches 2½ inches.

      3. Weeding: Remove weeds and foreign grass over plant areas at least once a week. Herbicides may be used only when approved by Architect/Owner.

5. **Condition of Surfaces:** Lawn areas will be graded with a minimum of 6 inches of topsoil as provided in Earthwork section. If in the opinion of the Architect/Owner the soil is compacted, rotor till to a depth of 4 inches.

6. **Acceptance:** The work will be accepted when a completed, undamaged stand of grass is achieved as approved by Owner.

7. **Seeding Schedules:** Bermuda grass, complete between May 1 and September 15.

8. **Sodding Schedules:**

   A. Sodding operations can be performed year round weather permitting. Do not install sod on frozen ground or if forecast calls for freezing conditions.

   B. Do not place sod without prior approval from Owner.

Materials

1. **Grasses:**

   A. Seed: Bermuda grass (Cynodon dactylon): Extra fancy, hulled and treated lawn type seed with purity of 95% or better and gemination of 85% or better and per requirements of Texas Seed Law. Weed content less than ½%. No noxious weeds.

   B. Sod: Kentucky (KY-31) Fescue and Common Bermuda Grass (Cynodon dactylon). Free of foreign weeds and grasses. Cut sod with a full ¾ inch heavy clay soil covering roots. Do not cut sod more than 48 hours prior to planting.

2. **Fertilizer:**

   A. Provide a complete fertilizer, part of elements of which are derived from organic sources and shall include trace elements. Fillers to be sulphur and iron sulphate.

      1. First Application: 10-10-10 or similar analysis with minimum 8% sulphur and 4% iron, plus micronutrients.

      2. Second Application: 20-5-10 or similar analysis. Nitrogen source to be a minimum 50% slow release organic Nitrogen (SCU or UF) plus minimum 8% sulphur and 4% iron plus micronutrients.

3. **Mulch Fiber:** Virgin wood fiber for hydromulch - Weyerhauser or Conweb with green color additive.

4. **Tackifier:** Natural, non-asphaltic vegetable gum with gelling and hardening agents.

5. **Sharp Sand:** Clean, washed sand (fine aggregate) - ASTM C-33.

Execution

1. **Preparation:** Grading: Verify that lawn areas have been graded as provided in Earthwork.

2. **Final Grading/Seed Bed Preparation:**

   A. Loosen areas to be grassed and fine rake to break up lumps and produce a smooth, even grade, free from unsightly variations, ridges or depressions.

   B. Remove and dispose of stones one (1) inch or larger, sticks, roots, other debris and grass stubble exposed during this operation.

   C. Do not vary final grades more than 0.1 foot from finish elevations.

   D. Receive approval of fine grading from Owner prior to grass planting.

3. **Fertilizing:**

   A. First Application: Distribute 10-10-10- fertilizer uniformly at rate of 15 pounds per 1,000 square feet after initial germination.

   B. Second Application: Repeat fertilization with 20-5-10 commercial fertilizer after first two cuttings at rate of 15 pounds per 1,000 square feet.

   C. Water: Immediately water in fertilizer after each application.

4. **Grass Planting:**

   A. Sodding: After final grading, place sod so edges are touching. Lay across any changes in elevation. Lightly top dress with sharp sand to fill voids and grade smooth. Roll to eliminate undulations.

   B. Hydromulching:

      1. At time of seeding, soil to be moist but not muddy and wind velocity shall not exceed 10 miles per hour. Add water if required to moisten soil.

      2. Hydromulch Bermuda grass seed evenly at a rate of two (2) pounds per 1,000 square feet with wood cellulose fiber at a rate of fifty (50) pounds per 1,000 square feet.

      3. Add tackifier to mix for slopes 4:1 or greater at a rate of one (1) pound per bag of mulch.

5. **Performance:**

A. Establish a dense lawn of permanent grasses, free from lumps and depressions.

B. Reshoot any area failing to show uniform cover. Such replacement shall continue until a dense lawn is established. Scattered bare spots will not be allowed.

C. Mow and edge lawn a minimum of three times, each time after lawn has reached a height of 2½ - 3 inches. Mow to a height of 2 inches.

6. **Grade Maintenance and Erosion Damage:**

A. Maintain original grades of lawn areas after commencement of planting and during maintenance period.

B. Provide surface repair to ruts, ridges, tracks. Replant areas required for final acceptance.

7. **Acceptance:** The work will be accepted when a completed, undamaged stand of grass is achieved, as approved by Architect/Owner.

8. **Clean Up:** Keep premises neat and orderly including organization of storage areas. Remove trash and debris resulting from lawn preparation from site daily as work progresses. Leave paved areas in a broom clean condition by sweeping or hosing.

SECTION CTB
CEMENT TREATED BASE

SECTION CTB

CEMENT TREATED BASE

1.0 GENERAL

1.1 Description

Cement Treated Base (CTB) shall consist of aggregate, cement and water uniformly mixed in a central plant, transported to the project, spread, compacted, shaped, finished, and cured in accordance with these specifications. It shall conform to the lines, grades, thicknesses and typical cross-section shown on the plans.

2.0 MATERIALS

2.1 Cement

Cement shall comply with the latest specifications for Portland cement-ASTM C 150 (Type I) or Portland-ASTM C 595 (Type IP).

2.2 Water

Water shall be free from substances deleterious to the hardening of the Cement Treated Base.

2.3 Aggregate

The aggregate may be any granular material or combinations of aggregates that will, when mixed with adequate amounts of cement and water, produce laboratory mix design Unconfined Compression Test strengths as specified in paragraph 2.5 in accordance with ASTM D 1633 Method "A". The preceding tests will utilize the Moisture-Density Relation as determined by ASTM D-558; AASHTO T-134. The aggregate size shall meet the requirements of Texas State Department of Highways and Public Transportation - 1982 Standard Specifications of Highways, Streets and Bridges, "Item 274.2(3) Cement Stabilized Base - Base Materials."

2.4 Laboratory Mix Design

Test results shall be submitted by the supplier of the CTB material to the Engineer/Architect for approval.

2.5 Strength Requirements

The unconfined compressive strengths required for the CTB material will be as follows:

2.5.1 Class A CTB; 400 psi - seven days

3.0 EQUIPMENT

3.1 Description

Cement Treated Base may be constructed with any combination of machines or equipment that will produce the results meeting these specifications.

4.0 CONSTRUCTION METHODS

4.1 Preparation

Before other construction operations are begun, the area to be paved shall be graded and shaped as required to receive the Cement Treated Base in conformance with the grades, lines, thicknesses and typical cross-section shown on the plans. Unsuitable subgrade soil or material shall be removed and replaced with acceptable soil.

The subgrade shall be firm and able to support without displacement of the construction equipment and the compaction hereinafter specified. Soft or yielding subgrade shall be corrected and made stable before construction proceeds.

4.2 Central Mixing Plant

The aggregate, cement and water shall be mixed in a pug mill as approved by the Engineer/Architect. The plant shall be equipped with feed and metering devices that will add the aggregate, cement and water into the mixer in the specified quantities to produce a mixture that will meet or exceed the mix design criteria as stated above. The aggregate and cement shall be mixed sufficiently to prevent cement balls from forming when the mix water is added. The mixing time shall be sufficient to assure an intimate, uniform mixture of aggregate, cement and water.

The percentage of moisture in the aggregate, at the time of cement application shall be the amount that assures a uniform and intimate mixture of aggregate and cement during mixing operations. It shall not exceed the specified moisture content required for adequate compaction.

Free access to the plant shall be provided to the Engineer/Architect, his inspector and his designated Commercial Testing Laboratory for construction quality control. The mixture shall be hauled to the paving area in trucks having beds cleaned of deleterious material.

4.3 Placement and Compaction

The mixture shall be placed on a moistened subgrade in a uniform layer by any approved method of spreading that will deposit the required quantity per lineal foot, without segregation, to produce a uniformly compacted base conforming to the grade and cross-section. Not more than 30 minutes shall elapse between placement of CTB in adjacent lanes at any location except at longitudinal and transverse construction joints.

No CTB mixture shall be placed when the subgrade is frozen or when the air temperature is less than 40° F in the shade. The Engineer/Architect may allow placement when the temperature is 35° F and clearly rising.

Compaction shall start as soon as possible after spreading. The elapsed time between the addition of water to the CTB mixture and the start of compaction shall not exceed 60 minutes under normal conditions. The Engineer/Architect may alter this time if environmental conditions, such as temperature, humidity or wind conditions would justify such a change. Laboratory tests may be required to verify changes in compaction time limits.

At the start of compaction, the percentage of moisture in the mixture shall not be more than one percentage point below or two percentage points above the specified optimum moisture content, and shall be less than that quantity which will cause the Cement Treated Base mixture to become unstable during compaction and finishing. The specified optimum moisture content and density shall be determined in the field by a Moisture-Density Test, AASHTO T 134 or ASTM D 558, on representative samples of Cement Treated Base mixture obtained from the area prior to compaction. Prior to compaction, the mixture shall be in a loose condition for its full depth. The loose mixture shall then be compacted uniformly to the specified density. During compaction operations, initial shaping may be required to obtain uniform compaction and required grade and cross-section.

4.4 Finishing

When initial compaction is completed, the surface of the Cement Treated Base shall be shaped to the required lines, grades and cross-section. The moisture content of the surface material shall be maintained at not less than its specified optimum moisture content during finishing operations.

If any reshaping of the surface is necessary, it shall be lightly scarified to remove any compaction planes, scales or smooth surfaces left by equipment. Final compaction shall then be continued until uniform and adequate density is obtained.

The CTB shall be uniformly compacted to a minimum of 96% of maximum density.

Compaction and finishing shall be done in such a manner as to produce, in not longer than two hours, a smooth, dense surface free of compaction planes, cracks, ridges, or loose material.

4.5 Cutting

After the CTB has been finished as specified herein, it shall be protected against drying for seven days by the application of a bituminous prime coat, or other acceptable methods. The finished CTB shall be kept continually moist until the curing material has been placed. The curing material shall be applied as soon as possible, but not later than at the end of each day's construction.

If the bituminous cure is used:

4.5.1 Curing, Bituminous Prime Coat

At the time the bituminous prime coat is applied, the Cement Treated Base surface shall be dense, shall be free of all loose and extraneous material and shall contain sufficient moisture to prevent excessive penetration of the bituminous material. The bituminous prime coat specified shall be uniformly applied to the surface of the completed Cement Treated Base at the rate of approximately 0.1 gallons per square yard with approved heating and distributing equipment. The exact rate and temperature of application for complete coverage without excessive runoff will be approved by the Engineer/Architect.

Should it be necessary for construction equipment or other traffic to use the bituminous-covered surface before the bituminous prime coat has cured sufficiently to prevent "pick-ups", sufficient granular cover shall be applied before such use. The curing material shall be maintained by the contractor during the seven day protection period so that all of the Cement Treated Base will be covered effectively during this period. Finished portions of Cement Treated Base that are traveled on by equipment used in constructing an adjoining section shall be protected in such a manner as to prevent equipment from marring or damaging completed work.

Cement Treated Base shall be protected for three days after its construction and until it has hardened.

4.5.2 Curing, Other Methods

If curing is achieved by methods other than Bituminous Prime Coat, the Engineer/Architect must approve and curing must be performed in accordance with manufacturer's recommendations.

4.6 Construction Joints

At the end of each day's construction a transverse construction joint shall be formed by cutting back into the completed work to form a full depth vertical face.

Cement Treated Base for large, wide areas shall be built in a series of parallel lanes of convenient length and width meeting the approval of the Engineer/Architect. Longitudinal joints shall be formed at the edge of each day's construction by cutting back into the completed work to form a full depth vertical face free of loose or shattered materials.

4.7 Traffic

Completed portions of Cement Treated Base may be opened immediately to light traffic and to construction equipment provided the curing material or surface is not impaired as specified in 4.5. The section may be opened to all traffic after the three day curing period provided the Cement Treated Base has hardened sufficiently to prevent marring or distorting of the surface by equipment or traffic.

4.8 Maintenance

The contractor shall be required within the limits of his contract to maintain the Cement Treated Base in good condition until all work has been completed and accepted. Maintenance shall include immediate repairs of any defects that may occur. This work shall be done by the contractor at his own expense and repeated as often as may be necessary to keep the area continuously intact.

Faulty work shall be corrected.

Any low areas shall be remedied by replacing the material for the full depth of treatment rather than by adding a thin layer of Cement Treated Base to the completed work.

5.0 CONSTRUCTION QUALITY CONTROL PROGRAM

To insure that the construction phase of the Cement Treated Base is in accordance with the provisions of these specifications, the following quality control testing program will be performed by a testing laboratory retained by the Contractor and approved by the Engineer/Architect.

5.1 Establish the field moisture density curve in accordance with ASTM D 558 or AASHTO T 134 (Standard Compactive Effort). The results of this test performed on representative samples of CTB obtained from the area being processed at a time of about midway through the initial compaction phase will establish the optimum moisture content to be incorporated at the central mixing plant and the maximum density will serve as a basis for establishing the density for acceptance.

5.2 The Field-Density of the compacted CTB mixture shall be determined by any of the following: (1) Nuclear Method ASTM D 2922, (2) Sand Cone Method ASTM D 1556, (3) Water Balloon Method ASTM D 2167.

5.3 Where strength of Cement Treated Base material is specified, compliance shall be determined by testing a set of three unconfined cylinders molded from a representative sample of uncompacted Cement Treated Base material taken within one hour from the addition of mixing water to the Cement Treated Base material. Strengths of Cement Treated Base material shall be determined by compressive tests at seven (7) days in accordance with ASTM D 1833, Paragraph 5, "Test Specimens." Paragraph 5.1.1, Method A specifies mold size. Specimens will be molded in accordance with ASTM D 558 Method B.

5.4 Visual inspection of loose and compacted thickness of the CTB layer will be included in the report as well as observations on surface scaling, construction joints and curing.

6.0 MEASUREMENTS AND BASIS OF PAYMENT

6.1 Measurements

This work will be measured in square yards of completed and accepted Cement Treated Base course.

6.2 Basis of Payment

This work will be paid for at the contract unit price per square yard of completed and accepted Cement Treated Base course.

Contract unit prices will be full payment for furnishing all materials, equipment, tools, labor, and incidentals necessary to complete the work and to carry out the maintenance provisions in these specifications.

No allowances will be made for any materials used or work done outside the lines established by the Engineer/Architect unless approved in writing prior to the work.

END OF SECTION

SECTION RWU

SOLID CONCRETE INTERLOCKING RETAINING WALL UNITS

SECTION RWU
SOLID CONCRETE INTERLOCKING RETAINING WALL UNITS

PART 1 - GENERAL

1.1 WORK INCLUDED

A. Furnish and place compacted base footing.

B. Furnish and install interlocking concrete retaining wall units in the quality, shape, thickness and color as specified.

C. Furnish and install all accessory items as required by the contract documents.

1.2 RELATED WORK

A. Preparation of sub-base.

B. Furnish and install base course materials.

1.3 SUBMITTALS

A. Manufacturer's product data.

B. Documentation of installer's experience.

C. Manufacturer's installation instructions.

1.4 QUALITY ASSURANCE

A. Manufacturer. Company specializing in the manufacturing of solid concrete interlocking retaining wall units for a period of one year.

B. Installer. Company specializing in the installation of solid concrete interlocking retaining wall units with one year documented experience (and approved by the manufacturer).

1.5 MOCK-UPS

A. Provide mock-up of wall units.

B. Size of mock-up shall be determined based on extent of pattern to be adequately shown.

1.6 DELIVERY, STORAGE AND HANDLING

Deliver wall units on pallets and bound in such a manner that no damage occurs during shipping, handling, unloading, and storage.

1.7 PROJECT CONDITIONS

Install wall units only under conditions stipulated in manufacturer's instructions.

1.8 SEQUENCING AND SCHEDULING.

Coordinate installation of wall units with other work shown on the drawings.

1.9 WARRANTY

A. Installation. Installer shall provide a one-year written guarantee.

B. Wall Units. Manufacturer shall provide a one-year written guarantee.

PART 2 - PRODUCTS

2.1 MANUFACTURER

Pavestone Co., 3215 Wm. D. Tate Avenue, (Highway 121), Grapevine, Texas 76051, or approved equal.

A. Style: Wallstone.

B. Thickness: 4" x 12" x 16" (unsplit). 4" x 12" x 8" (split).

C. Color: Oaks Blend.

2.2 MATERIALS

A. Wall Units.

1. Cementious Materials. Portland Cements shall conform to ASTM Specification C-150.

2. Aggregates. Aggregates shall conform to ASTM Specifications C-33 for Normal Weight Concrete Aggregate (no expanded shale or lightweight aggregates) except that grading requirements shall not necessarily apply.

3. Other Materials. Coloring pigments, air entraining agents, integral water repellents, finely ground silica, etc., shall conform to ASTM standards where applicable, or shall be previously established as suitable for use in concrete.

B. Compacted Base Footings. The first course of wall units may be installed on a level, compacted layer of crushed limestone, gravel, or caliche (1/2" to 3/4" size).

2.3 PHYSICAL REQUIREMENTS

A. Compressive Strength. At the time of delivery to the work site, the average compressive strength shall not be less than 4000 psi with no individual unit strength less than 3,600 psi, with testing procedures in accordance with ASTM Standard C-140.

B. Absorption. The average absorption shall not be greater than 7% with no individual unit absorption greater than 10%.

C. Proven Field Performance. Satisfying field performance is indicated when units similar in composition, and made with the same manufacturing equipment as those to be supplied to the Owner, do not exhibit objectional deterioration after at least one year.

2.4 VISUAL INSPECTION

A. All units shall be sound and free of defects that would interfere with the proper placing of unit or impair the strength of permanence of the construction.

B. Minor cracks incidental to the usual methods of manufacture, or chipping resulting from customary methods of handling in shipment and delivery, shall not be deemed grounds for rejection.

2.5 SAMPLING AND TESTING

A. The Owner or his authorized representatives shall be accorded proper facilities to inspect and sample the units at the place of manufacture from lots ready for delivery.

B. Sample and test units in accordance with ASTM Method C-140.

2.6 REJECTION

In the event the shipment fails to conform to the specified requirements, the manufacturer may sort it, and new test units shall be selected at random by the Owner from the retained lot and tested at the expense of the manufacturer. If the second set of test units fails to conform to the specified requirements, the entire lot shall be rejected.

2.7 EXPENSE OF TESTS

The expense of inspection and testing shall be borne by the Contractor.

PART 3 - EXECUTION

3.1 PREPARATION

A. A suitable base shall be prepared as specified in related sections of this specification.

B. Excavate to a depth of 6" to 12" to firm, native undisturbed soil.

C. Excavate behind the wall to provide an area for the drainage bed and proper space to compact the backfill.

3.2 FOOTINGS

A. Contractor shall inspect and approve the finished sub-base prior to placement of the compacted base.

B. If unusual soil conditions are encountered, contact the Architect/Engineer before proceeding.

3.3 DRAINAGE

A. During construction of the wall, provide 3/8" opening at 24" o.c. in the joints of the bottom two courses.

B. Construct a drainage bed 12" in width and filled with 1/2" to 3/4" washed gravel.

C. Compact the washed gravel in 12" layers.

3.4 PLACEMENT

A. The wall units shall be placed in a pattern approved by the Town of Addison.

B. The wall units shall be placed in such a manner that the desired wall unit pattern and joints between the stones are maintained.

C. Place the first course of blocks on the prepared footing.

D. Place Liquid Nail or approved equal adhesive to attach coping stones to the underlining of blocks.

END OF SECTION

SECTION SPMA
PAINTING OF SIGNAL POLES AND MAST ARMS

SECTION SPMA

PAINTING OF SIGNAL POLES AND MAST ARMS

1.0 GENERAL

1.1 Work Included

A. The work includes, but is not necessarily limited to, furnishing of materials and equipment and completion of painting and painter's finish on exposed surfaces as required, including exterior steel.

B. Thoroughly examine specifications, site of work and conditions under which work will be performed before submitting a proposal. Surfaces which cannot be prepared or painted as specified shall be immediately brought to the attention of the Owner's representative in writing.

1.2 Work Not Included

As directed by the specifications.

1.3 Product Delivery, Storage and Handling

A. Deliver materials in sealed containers with manufacturer's labels intact.

B. Store materials in protected area at temperatures between 50°F and 110°F.

1.4 Job Conditions

A. Apply coatings only under the following prevailing conditions:

1. Air and surface temperatures are not below 50°F or above 120°F, unless noted otherwise on the product data sheets and labels.

2. Relative humidity is not above 85 percent and the surface temperature is at least 5°F above dew point.

B. Protect all surfaces not to be coated.

1.5 Project Conditions

Environmental Requirements: Comply with current Texas Air Quality regulations as to conditions under which coatings and coating systems can be stored and applied. Complete containment of all paint removed that contains lead is mandatory.

1.6 Quality Assurance

Job Mock-Up (if applicable):

Mock-ups shall serve to determine the standard of acceptance for the finished installed product. Mock-up will serve as compatibility test between existing and new system.

2.0 PRODUCTS

2.1 Acceptable Manufacturers

A. Tnemec Company, Inc., Kansas City, MO, (816) 483-3400 or approved equal.

B. Equivalent materials of other manufacturers may be substituted only by approval of the Engineer. Requests for substitution shall include manufacturer's literature for each product giving the name, generic type, descriptive information, solids by volume, recommended dry film thickness and a list of five projects where each product has been used and rendered satisfactory service. No request for substitution shall be considered that would decrease film thickness or offer a change in generic type of coating specified. Certified test results showing that the substitute product(s) equal or exceed the performance of the specified products shall be submitted.

2.2 Approved Materials

A. Rust Inhibitive Polyamide Epoxy, Series 65-1255 Poxiprime, or approved equal.

B. Acrylic Polyurethane Enamel, Series 75 Endura-Shield, or approved equal.

2.3 Colors

A. Primer and Spot Primer: 1255 Beige, or approved equal.

B. Finish: BM07 No. 313 Dk. Bronze, or approved equal.

2.4 Material Preparation

A. Mix and thin materials according to manufacturer's printed instructions.

B. Do not mix materials beyond manufacturer's pot life.

3.0 EXECUTION

3.1 Prework Inspection

A. Examine surfaces to be coated and report any conditions that would adversely affect appearance or performance of the coating systems and which cannot be put into acceptable condition by the preparatory work specified in Paragraph 3.2.

B. Do not proceed with surface preparation and application until the surface is acceptable or authorization to proceed is given by the Owner's representative.

3.2 Surface Preparation

A. General:

Remove all surface contamination. Surface must be clean and dry.

B. Exterior Ferrous Metal:

SSPC-SP2-Hand Tool Cleaning and SSPC-SP1-Solvent Cleaning in accordance with Steel Structures Painting Council standards.

3.3 Application

A. Apply materials at specified film thicknesses by method recommended by manufacturer.

B. Allow each coat to dry thoroughly before recoating. Follow manufacturer's recommended recoat time.

C. Cut edges clean and sharp where work joins other materials or colors.

D. Make finish coats smooth, uniform in color, and free of brush marks, laps, runs, dry overspray and skipped or missed areas.

3.4 Inspection

A. Request acceptance of each coat before applying succeeding coats.

B. Touch-up and repair all work that is not acceptable to the Owner's representative and request final acceptance.

3.5 Cleaning

A. Remove paint spatters from glass, plumbing fixtures, and adjoining surfaces.

B. Repair any damage to coatings or surfaces caused by cleaning operations.

C. Remove debris from job site and leave storage areas clean.

3.6 Painting Schedule

Prepare coatings and finish all surfaces specified and agreed upon:

EXTERIOR Ferrous Metal

A.	Spot Primer:	
	Tnemec Series 65-1212 Poxiprime, or approved equal	2.0- 3.0 mils
B.	Primer:	
	Tnemec Series 65-1212 Poxiprime, or approved equal,	2.0- 3.0 mils
C.	Finish:	
	Tnemec Series 75 Endura-Shield, or approved equal,	3.0- 5.0 mils
	Total Thickness =	5.0- 8.0 mils

END OF SECTION

APPENDIX

01-315
(Rev. 11-81)

TEXAS SALES TAX EXEMPTION CERTIFICATE

Name of purchaser, firm or agency

Address (Street & number, P. O. Box or Route number) | Phone (Area code and

City, town, zip code

I, the purchaser named above, claim an exemption from payment of sales taxes for the purchase of taxable ite described below or on the attached order or invoice:

Description of items to be purchased, or on the attached order or invoice:

Purchaser claims this exemption for the following reason:

TAX EXEMPT USE BY POLITICAL SUBDIVISION OF THE STATE OF TEXAS

I understand that I will be liable for payment of Sales Tax which may become due for failure to comply with the provisions of the State, City and/or Metropolitan Transit Authority Sales and Use Tax Laws and Comptroller rules governing exempt purchases. Liability for the tax will be determined by the price paid for the taxable items purchased or the fair market rental value for the period of time used.

I understand that it is a misdemeanor to give an Exemption Certificate to the seller for taxable items which I know, at the time of purchase, will be used in a manner other than that expressed in this certificate and that upon conviction may be fined not more than $500 per offense.

Purchaser | Title | Date

sign here

NOTE: This certificate cannot be issued for the purchase, lease or rental of a motor vehicle.

THIS CERTIFICATE DOES NOT REQUIRE A NUMBER TO BE VALID.

Sales and Use Tax "Exemption Numbers" or "Tax Exempt" Numbers do not exist.

This certificate should be furnished to the supplier. Do not send the completed certificate to the Comptroller of Public Accounts.

TABLE OF CONTENTS

SECTION AB

ADVERTISEMENT FOR BIDS

SECTION AB

ADVERTISEMENT FOR BIDS

1. Sealed bids addressed to the Town of Addison, Texas, for Intersection Improvements, Belt Line Road at Marsh Lane and Belt Line Road at Business Avenue, for the Town of Addison, Texas, hereinafter called "City" in accordance with plans, specifications and contract documents prepared by Espey, Huston & Associates, Inc., will be received at the office of Clyde Johnson, Purchasing Manager, Finance Building, 5350 Belt Line Road, Addison, Texas until 2:00 p.m. on the 26th day of May, 1994. Bids received by the appointed time will be opened and read aloud. Any bids received after closing time will be returned unopened.

2. The Contractor shall identify his bid on the outside of the envelope by writing the words TOWN OF ADDISON INTERSECTION IMPROVEMENTS, BELT LINE ROAD AT MARSH LANE AND BELT LINE ROAD AT BUSINESS AVENUE.

3. Bids shall be accompanied by a cashier's check or certified check upon a national or state bank in an amount not less than five percent (5%) of the total maximum bid price payable without recourse to the Town of Addison, or a bid bond in the same amount from a reliable surety company licensed by the State of Texas to act as a Surety, or a Binder of Insurance executed by a surety company licensed by the State of Texas to act as a surety or its authorized agent as a guarantee that the bidder will enter into a contract and execute a Performance Bond within ten (10) days after notice of award of contract to him.

4. Plans, specifications and bidding documents may be secured from Clyde Johnson, Purchasing Manager, Finance Building, 5350 Belt Line Road, Addison, Texas.

5. The right is reserved by the Mayor and the City Council as the interest of the City may require to reject any or all bids and to waive any informality in bids received.

6. The Bidder (Proposer) must supply all the information required by the Proposal Form.

7. A Performance Bond, Labor and Material Payment Bond, and Maintenance Bond will be required by the Owner; each Bond shall be in the amount of 100% of the total contract amount. Bonds shall be issued by a surety company licensed by the State of Texas to act as a Surety.

8. For information on bidding or to secure bid documents, call Clyde Johnson (214) 450-7090. For information on the work to be performed, call John Baumgartner, City Engineer, (214) 450-2886.

9. This project consists of providing paving, sidewalk, traffic signal, landscape and other miscellaneous improvements as shown on the plans and in accordance with the specifications.

10. DBE/MBE Requirements: All bidders and proposers shall make good faith efforts, as defined in Appendix A of 49 CFR Part 23, Regulations of the Office of the Secretary of Transportation, to subcontract 15% of the dollar value of the prime contract to small business concerns owned and controlled by socially and economically disadvantaged individuals (DBE). In the event that the bidder of this solicitation qualifies as a DBE, the contract goal shall be deemed to have been met. Individuals who are rebuttably presumed to be socially and economically disadvantaged include women, Blacks, Hispanics, Native Americans, Asian-Pacific Americans, and Asian-Indian Americans. The apparent successful bidder (proposer) will be required to submit information concerning the DBE's that will participate in this contract. The information will include the name and address for each DBE, a description of the work to be performed by each named firm, and the dollar value of the contract (subcontract). If the bidder fails to achieve the contract goal as stated herein, it will be required to provide documentation demonstrating that it made good faith efforts in attempting to do so. A bid that fails to meet these requirements will be considered nonresponsive.

TOWN OF ADDISON, TEXAS

Post-it™ brand fax transmittal memo 7671 | # of pages ▸

To Bruce Grantham	From
Co. Espey Huston	Co. Addison
Dept.	Phone #
Fax #	Fax #

TOWN OF ADDISON

FINANCE DEPARTMENT / PURCHASING DIVISION 5350 Belt Line Road
(214) 450-7091 Facsimile (214) 386-0938 P. O. Box 144 Addison, Texas 75001

ADDENDUM NUMBER 1
INTERSECTION IMPROVEMENTS
BELT LINE ROAD AND MARSH LANE
AND
BELT LINE ROAD AND BUSINESS AVENUE
BID NO. 94-31

This addendum shall amend the original Invitation, Instruction, and Specifications as follows:

A Pre-bid Conference will be held: **9:00 A.M., May 17, 1994**
16801 Westgrove
Addison, Texas 75248

Attendance is voluntary; however, it is strongly recommended that you attend.

This addendum was issued on May 10, 1994, by the Purchasing Manager for the Town of Addison.

_____
Clyde Johnson

Each bidder shall sign, date, and include this addendum with their bid.

_____
DATE SIGNED **AUTHORIZED SIGNATURE**

_____
COMPANY NAME

SECTION IB

INSTRUCTIONS TO BIDDERS

SECTION IB
INSTRUCTIONS TO BIDDERS

A. PROJECT: Intersection Improvements, Belt Line Road at Marsh Lane and Belt Line Road at Business Avenue, in the Town of Addison.

B. PROJECT DESCRIPTION: This project consists of providing paving, sidewalk, traffic signal and other miscellaneous improvements as shown on the plans and in accordance with the specifications.

C. PROPOSALS: Proposals must be in accordance with these instructions in order to receive consideration.

D. DOCUMENTS: Documents include the Bidding Requirements, General Provisions, Special Provisions, Technical Specifications, Drawings plus Addenda which may be issued by the Consultant during the bidding period. Bidding Documents may be viewed and/or obtained under the terms and conditions set forth in the Advertisement for Bids, Section AB of this Project Manual.

E. EXAMINATION OF DOCUMENTS AND SITE: Bidders shall carefully examine the Bidding Documents and the construction site to obtain first-hand knowledge of the scope and the conditions of the Work. Each Contractor, Subcontractor and Sub-subcontractor, by submitting a proposal to perform any portion of the Work, represents and warrants that he has examined the Drawings, Specifications (Project Manual) and the site of the Work, and from his own investigation has satisfied himself as to the scope, accessibility, nature and location of the Work; the character of the equipment and other facilities needed for the performance of the Work; the character and extent of other work to be performed; the local conditions; labor availability, practices and jurisdictions and other circumstances that may affect the performance of the Work. No additional compensation will be allowed by the Owner for the failure of such Contractor, Subcontractor or Sub-subcontractor to inform himself as to conditions affecting the Work.

F. INTERPRETATION OF DOCUMENTS: If any person contemplating submitting a bid for the proposed Contract is in doubt as to the meaning of any part of the Drawings, Specifications (Project Manual) or other proposed Contract Documents, he may submit to the Consultant, not later than seven (7) calendar days prior to the date set for opening bids, a written request for an interpretation or clarification. Bidders should act promptly and allow sufficient time for a reply to reach them before preparing their bids. Any interpretation or clarification will be in the form of an Addendum duly issued. No alleged verbal interpretation or ruling will be held binding upon the Owner.

G. SUBSTITUTIONS: Conditions governing the submission of substitutions for specific materials, products, equipment and processes are in the Special Provisions. Requests for substitutions must be received by the Consultant seven (7) calendar days prior to the established bid date.

H. ADDENDA: Interpretations, clarifications, additions, deletions and modifications to the Documents during the bidding period will be issued in the form of Addenda and a copy of such Addenda will be mailed or delivered to each person who has been issued a set of the Bidding Documents. Addenda will be a part of the Bidding Documents and the Contract Documents, and receipt of them shall be acknowledged in the Bid Form. All such interpretations and supplemental instructions will be in the form of written addenda to the contract documents which, if issued, will be sent by telegram, certified or registered mail, or hand delivered to all prospective bidders (at the respective addresses furnished for such purposes) not later than three (3) calendar days prior to the date fixed for the opening of bids. If any bidder fails to acknowledge the receipt of such addenda in the space provided in the bid form, his bid will nevertheless be construed as though the receipt of such addenda had been acknowledged.

I. COMPLETION TIME: A reasonable completion time has been established by the Owner and is indicated in the Proposal Form.

J. PREPARATION OF BIDS: Prices quoted shall include all items of cost, expense, taxes, fees and charges incurred, or arising out of, the performance of the work to be performed under the Contract. Bids shall be submitted in duplicate and shall be signed in ink. Any bid on other than the required form will be considered informal and may be rejected. Erasures or other changes in a bid must be explained or noted over the initials of the bidder. Bids containing any conditions, omissions, unexplained erasures and alterations, or irregularities of any kind may be rejected as informal. The prices should be expressed in words and figures or they may be deemed informal and may be rejected. In case of discrepancy between the prices written in the bid and those given in the figures, the price in writing will be considered as the bid. Failure to submit all requested information will make a bid irregular and subject to rejection. Bids shall be signed with name typed or printed below signature, and, if a partnership, give full name of all partners. Where bidder is a corporation, bids must be signed with the legal name of the corporation followed by the name of the state of incorporation and the legal signature of an officer authorized to bind the corporation to a contract.

K. SUBMITTAL OF BIDS: Sealed proposals will be received at the time, date and place stated in the Advertisement for Bids. Proposals shall be made on unaltered Proposal Forms furnished by the Consultant. Submit proposal in an opaque, sealed envelope addressed to the Owner and plainly mark on the outside of the envelope the project name, and the name and address of the bidder. The Bid Bond must be completed and signed by each bidder and submitted with the bid. Submit Bids by mail or in person prior to the time for receiving bids set forth in the Advertisement for Bids issued by the City.

L. MODIFICATION AND WITHDRAWAL OF BIDS: Prior to the time set for bid opening, bids may be withdrawn or modified. Bids may be modified only on the official bid form and must be signed by a person legally empowered to bind the bidder. No bidder shall modify, withdraw or cancel his bid or any part thereof for thirty (30) calendar days after the time agreed upon for the receipt of bids.

M. DISQUALIFICATION: The Owner reserves the right to disqualify proposals, before or after the opening, upon evidence of collusion with intent to defraud or other illegal practices relating to this proposal upon the part of the bidder.

N. SUBMISSION OF POST-BID INFORMATION: Upon notification of acceptance, the selected bidder shall, within five (5) calendar days, submit the following:

1. A designation of the portions of the Work proposed to be performed by the bidder with his own force.

2. A list of names of the subcontractors or other persons or organizations, including those who are to furnish materials and equipment fabricated to a special design proposed for such portions of the Work as may be designated in the Bidding Documents or as may be requested by the Consultant. The bidder will be required to establish to the satisfaction of the Owner and the Consultant the reliability and responsibility of the proposed Subcontractors and suppliers to furnish and perform the Work.

O. AWARD: The Owner reserves the right to accept any or to reject any bids without compensation to bidders and to waive irregularities and informalities.

The Consultant, in making his recommendation, will consider the following elements:

1. Whether the bidder is a contractor with experience in the type of work involved.

2. Whether the bidder has adequate plant, equipment and personnel to perform the work properly and expeditiously.

3. Whether the bidder has a suitable financial status and reputation for meeting obligations incident to work of the kind specified.

P. EXECUTION OF THE CONTRACT: The successful bidder will be required to enter into a contract with the Owner within seven (7) calendar days of notice by the Owner that his bid has been accepted. Failure to enter into contract within the established time limit without proper justification shall be considered grounds for forfeiture of the bid bond.

Q. CONSTRUCTION SCHEDULE: It is the Owner's desire to have the project completed and operational in as short a time as possible. The number of calendar days for completion of the project will begin with the date specified in the Notice to Proceed. The Notice to Proceed will be issued in a manner to facilitate a smooth construction of the project. The Contractor shall begin construction within five (5) calendar days of the issuance of the Notice to Proceed.

In no instance shall the number of calendar days for completion of the work measured from the proposed date of beginning exceed 120 calendar days. In addition, the Contractor shall have all work at the Belt Line/Business intersection completed by September 20, 1994, with the exception of the landscape and irrigation work.

R. LIQUIDATED DAMAGES: The time of completion is the essence of this contract. For each calendar day that any work shall remain uncompleted after the time specified in the proposal and the contract, or the increased time granted by the Owner, or as equitably increased by additional work or materials ordered after the contract is signed, the sum per day given in the following schedule shall be deducted from the monies due the Contractor:

$250 per Calendar Day

The sum of money thus deducted for such delay, failure or non-completion is not to be considered as a penalty, but shall be deemed, taken and treated as reasonable liquidated damages, per calendar day that the Contractor shall be in default after the time stipulated in the contract for completing the work. The said amounts are fixed and agreed upon by and between Owner and Contractor because of the impracticability and extreme difficulty of fixing and ascertaining the actual damages the Owner in such event would sustain; and said amounts are agreed to be the amounts of damages which the Owner would sustain and which shall be retained from the monies due, or that may become due, the Contractor under this contract; and if said monies be insufficient to cover the amount owing, then the Contractor or his surety shall immediately pay any additional amounts due. If the Contractor finds it impossible, for reasons beyond his control, to complete the work within the contract time as specified, the Contractor may make a written request for an extension of time in accordance with the General Provisions.

S. FORM OF CONTRACT: The contract for the construction of the project will be drawn up by the Owner. A sample form of agreement is included in the Contract Agreement Section.

T. BONDS: A Performance Bond, a Labor and Material Payment Bond and a Maintenance Bond will be required by the Owner. Sample forms have been included in the Performance Bond, Payment Bond and Maintenance Bond sections.

U. BID SECURITY: Bids shall be accompanied by a cashier's check or certified check upon a national or state bank in an amount not less than five percent (5%) of the total maximum bid price payable without recourse to the Town of Addison, or a bid bond in the same amount from a reliable surety company as a guarantee that the bidder will enter into a contract and execute Performance Bond within ten (10) calendar days after notice of award of contract to him. Such checks or bid bonds will be returned to all except the three lowest bidders within three (3) days after the opening of bids, and the remaining checks or bid bonds will be returned promptly after the Owner has made an award of contract, or, if no award has been made within thirty (30) calendar days after the date of the opening of bids, upon demand of the bidder at any time thereafter, so long as he has not been notified of the acceptance of his bid.

V. RESOLUTIONS: If the bidder is a corporation, a copy of the resolution empowering the person submitting the bid to bind the bidder must be included with the bid.

W. CONSTRUCTION STAKING: Construction staking will not be provided by the Owner. Benchmarks and Horizontal Control are shown on the plans.

X. FINAL PAYMENT: The general provisions for Final Payment shall be as stated in Item 1.51.4 of the North Central Texas Standard Specifications for Public Works Construction (1983 Edition) including all Amendments and Additions. Prior to final payment the Contractor shall provide the Owner with the following items:

1. A Contractor's Affidavit of Bills Paid in accordance with Section BP.

2. A Consent of Surety Company to Final Payment.

3. A complete set of as-built plans which indicate all construction variations from the original construction documents in accordance with Item 5 of the Special Provisions.

4. A one (1) year Maintenance Bond in accordance with Section MB.

Y. OWNER FURNISHED ITEMS: The OWNER shall furnish to the Contractor the following traffic signal components:

1. Six (6) 55-foot mast arms and mast arm poles.

2. Two (2) 36-foot mast arms and mast arm poles which the Contractor shall relocate from the Belt Line/Marsh intersection to the Belt Line/Business intersection.

The Contractor shall pick up item 1 from the Town of Addison storage facility.

END OF SECTION IB

SECTION PF

PROPOSAL FORM

BID FORM

_____, 19__

TO: The Honorable Mayor and City Council
Town of Addison, Texas

Gentlemen:

The undersigned bidder, having examined the plans, specifications and contract documents, and the location of the proposed work, and being fully advised as to the extent and character of the work, proposes to furnish all equipment and to perform labor and work necessary for completion of the work described by and in accordance with the Plans, Specifications and Contract for the following prices, to wit:

Signed by: _____

ACKNOWLEDGEMENT OF ADDENDA:

The Bidder acknowledges receipt of the following addenda:

Addendum No. 1 _____

Addendum No. 2 _____

Addendum No. 3 _____

Clarification of Bid Items

1. The lump sum bid items for traffic signals at Belt Line/Marsh and Belt Line/Business are inclusive of all traffic signal work included in these plans. This work includes, but is not limited to the following items.

   - Touch up paint of six new 55' traffic signal poles and mast arms as required and repaint of two existing 36' traffic signal poles and mast arms. Paint shall be two component polyurethane as manufactured by Tnemec Company Incorporated (Series 75) or approved equal. If the existing paint coating has been removed to the substrate, a two component polyamide epoxy as manufactured by Tnemec Company Incorporated (Series 65) shall be applied prior to the polyurethane coating. The existing poles shall be lightly sanded as required to remove oxidation. Surface preparation shall be in accordance with the manufacturer's recommendations. All paint shall be dark bronze color.

   - New 2" grey electrical conduit (Schedule 40) and 8-conductor, stranded, shielded wire as required to restore the Belt Line Road interconnect between the Marsh Lane controller and the Commercial Drive controller.

   - Opticom sensors for all approaches at Belt Line/Marsh and Belt Line/Business.

   - All detector loops, pull boxes and other appurtenances.

   - Furnish and install the traffic signal components listed on pages PF-4 and PF-5.

Part	Description	Quantity
820A16P/18CM/ 12D/P44/SPECIAL CONTROLLER & CABINET ASSY	820A, CONTROLLER AND CABINET ASSY TO INCLUDE: PAINTED P44 CABINET (META-FLEX DARK BRONZE OUTSIDE, WHITE INSIDE) 16 POSITION BACKPANEL, 16 DIAGNOSTIC VEHICLE LOAD SWITCH (POSITIVE AND NEGATIVE HALF-WAVE SIGNAL SENSING AND FAULT LATCHING), 1 NEMA FLASHER, 1 (18) CHANNEL EDI SSM-18LE CONFLICT MONITOR, 6 FLASH TRANSFER RELAYS, 1 POWER PANEL, 1 DETECTOR PANEL WITH 12 LOOP HARNESSES, AND 12 SINGLE CHANNEL LOOP DETECTORS. (MANUFACTURER: IDC/TranConex/Multisonic)	2 (EACH)
PSC83E300P	1 WAY 3 SECTION 12" POLYCARBONATE TRAFFIC SIGNAL WITH TUNNEL VISORS, COLOR BLACK LENS CONFIGURATION: RED, YELLOW, GREEN (MANUFACTURER: Traffic Control Technologies)	16 (EACH)
PSC84E400P W/TA212OLK	1 WAY 4 SECTION 12" POLYCARBONATE TRAFFIC SIGNAL WITH TUNNEL VISORS, COLOR BLACK WITH FIBEROPTIC DUAL INDICATION LEFT TURN SIGNAL, LENS CONFIGURATION: RED, YELLOW, GREEN, RIGHT TURN FIBEROPTIC DUAL INDICATION YELLOW AND GREEN ARROW. (MANUFACTURER: Traffic Control Technologies)	13 (EACH)
PSC84E400P W/TA212ORK	1 WAY 4 SECTION 12" POLYCARBONATE TRAFFIC SIGNAL WITH TUNNEL VISORS, COLOR BLACK WITH FIBEROPTIC DUAL INDICATION RIGHT TURN SIGNAL, LENS CONFIGURATION: RED, YELLOW, GREEN, LEFT TURN FIBEROPTIC DUAL INDICATION YELLOW AND GREEN ARROW. (MANUFACTURER: Traffic Control Technologies)	3 (EACH)

7037 W/4805	INCANDESCENT 1 SECTION CAST ALUMINUM SIGNAL COLOR BLACK WITH A SINGLE PIECE DOUBLE PARABOLIC REFLECTOR, A TWO COLOR WORD MESSAGE LENS, A SINGLE PIECE CAST ALUMINUM SWING DOWN DOOR FRAME, A BLANKOUT Z-CRATE TYPE SUN VISOR, TWO A21 LONG LIFE TRAFFIC SIGNAL LAMPS, AND CLAMSHELL TYPE MOUNTING (MANUFACTURER: IDC/Indicator Controls)	16 (EACH)
BK-1003-C	VACUUM FORMED BACKPLATE, 3 SECTION 12" TCT (MANUFACTURER: Pelco)	16 (EACH)
BK-1004-C	VACUUM FORMED BACKPLATE, 4 SECTION 12" TCT (MANUFACTURER: Pelco)	16 (EACH)
AB-0116-3-29	3 SECTION ASTRO BRAC W/29" BANDS (MANUFACTURER: Pelco)	16 (EACH)
AB-0116-4-29	4 SECTION ASTRO BRAC W/29" BANDS (MANUFACTURER: Pelco)	13 (EACH)
AB-0116-4-56	4 SECTION ASTRO BRAC W/56" BANDS (MANUFACTURER: Pelco)	3 (EACH)
MODEL 521	OPTICOM OPTICAL DETECTOR (MANUFACTURER: 3M)	8 (EACH)
MODEL 562	OPTICOM DISCRIMINATOR MODULE (MANUFACTURER: 3M)	4 (EACH)
MODEL 138	OPTICOM CABLE (MANUFACTURER: 3M)	2000 (LINEAR FEET)
MODEL SF-2014	PUSH BUTTON STATION ASSY WITHOUT CABLE GUIDE, FREEZE PROOF - 9X12, COLOR: BRUSHING BROWN (MANUFACTURER: Pelco)	16 (EACH)
MODEL SF-1005-09	PEDESTRIAN SIGN, TO CROSS STREET PUSH BUTTON WAIT FOR WALK SIGNAL; LEFT ARROW - 9X12, 4 HOLE (MANUFACTURER: Pelco)	8 (EACH)
MODEL SF-1006-09	PEDESTRIAN SIGN, TO CROSS STREET PUSH BUTTON WAIT FOR WALK SIGNAL; RIGHT ARROW - 9X12, 4 HOLE (MANUFACTURER: Pelco)	8 (EACH)

2. The lump sum bid items for landscaping work at Belt Line/Marsh and Belt Line/Business are inclusive of all landscaping work included in these plans with the exception of Pavestone Pavers (Pattern A and Pattern B) which are separate bid items. The 4" wide concrete paver stop shall be incidental to the bid items for Pavestone Pavers. The lump sum bid items for landscaping work include, but are not limited to, furnishing and installing the following landscape improvements:

- all trees and shrubs
- backfill
- prepared soil mix
- mulch
- organic fertilizer
- erosion control netting
- removal of existing unbroken pavers and delivery to the Town of Addison Service Center.

The soil mix shall be LIVING TECHNOLOGIES' landscape mix or approved equal.

BID SCHEDULE A
TOWN OF ADDISON, TEXAS
INTERSECTION IMPROVEMENTS
BELT LINE ROAD AT MARSH LANE

Item No.	Est. Quan.	Unit	Description	Unit Price	Amount
1	1	L.S.	Mobilization, bonds and insurance, complete, per lump sum	$ 33,600.00	33,600.00
2	0.70	AC.	Clearing and grubbing including removal and disposal of existing trees, complete, per acre	$ 10,000.00	7,000.00
3	4,200	L.F.	Remove and dispose of existing concrete curb and/or curb and gutter, complete, per linear foot	$ 1.50	6,300.00
4	2,080	S.Y.	Remove and dispose of existing concrete pavement, complete, per square yard	$ 7.50	15,600.00
5	1,200	S.Y.	Remove and dispose of existing concrete sidewalk, complete, per square yard	$ 6.50	7,800.00
6	4,670	S.Y.	Furnish, place and compact cement treated base (6"), complete in place, per square yard Deleted	$ 10.00	46,700.00
7	3,850	S.Y.	Furnish and place 10" 8"-3600 PSI reinforced concrete pavement, complete in place, per square yard	$ 33.70 ~~25.15~~	96,827.50

BID SCHEDULE A
TOWN OF ADDISON, TEXAS
INTERSECTION IMPROVEMENTS
BELT LINE ROAD AT MARSH LANE

Item No.	Est. Quan.	Unit	Description	Unit Price	Amount
8	740	S.Y.	Furnish and place 4"-2500 PSI reinforced concrete sidewalk, complete in place, per square yard	$ 22.00	16,280.00
9	1	L.S.	Furnish, place and maintain barricading, signing, temporary pavement markings, and traffic control, complete in place, per lump sum	$ 5,000.00	5,000.00
10	3,980	L.F.	Furnish and place 6"-3600 PSI concrete integral curb, complete in place, per linear foot	$ 1.50	5,970.00
11	1,680	L.F.	Furnish and place 6"-3600 PSI reinforced concrete curb and gutter, complete in place, per linear foot	$ 9.00	15,120.00
12	1,800	C.Y.	Unclassified street excavation, including hauling and disposal, complete in place, per cubic yard	$ 5.00	9,000.00
13	6,160	L.F.	Furnish sawed breakout groove, complete in place, per linear foot	$ 2.00	12,320.00
14	441	L.F.	Furnish and install variable height solid concrete interlocking retaining wall (Pavestone - Oaks Blend, or approved equal), complete in place, per linear foot	$ 20.00	8,820.00

BID SCHEDULE A
TOWN OF ADDISON, TEXAS
INTERSECTION IMPROVEMENTS
BELT LINE ROAD AT MARSH LANE

Item No.	Est. Quan.	Unit	Description	Unit Price	Amount
15	8	EA.	Remove and dispose of existing curb inlet, complete, per each	$ 700.00	5,600.00
16	2	EA.	Furnish and place 6' standard curb inlet, complete in place, per each	$ 1,500.00	3,000.00
17	1	EA.	Furnish and place 6' recessed curb inlet, complete in place, per each	$ 1,500.00	1,500.00
18	1	EA.	Furnish and place 8' recessed curb inlet, complete in place, per each	$ 1,600.00	1,600.00
19	4	EA.	Furnish and place 10' recessed curb inlet, complete in place, per each	$ 2,000.00	8,000.00
20	68	L.F.	Furnish and install 21" reinforced concrete pipe (RCP), including embedment and concrete collar, complete in place, per linear foot	$ 95.00	6,460.00
21	54	L.F.	Furnish and install 15" PVC drain pipe (SDR 35) including embedment and bends, complete in place, per linear foot	$ 65.00	3,510.00

BID SCHEDULE A
TOWN OF ADDISON, TEXAS
INTERSECTION IMPROVEMENTS
BELT LINE ROAD AT MARSH LANE

Item No.	Est. Quan.	Unit	Description	Unit Price	Amount
22	70	L.F.	Furnish and install slotted drain (City of Dallas Std. 251D-1-2005) including embedment, complete in place, per linear foot	$ 115.00	8,050.00
23	230	EA.	Furnish and place 6"x6" white reflective jiggle bars, complete in place, per each	$ 11.00	2,530.00
24	275	EA.	Furnish and place Permark P-7W (4") white non-reflective ceramic marker, complete in place, per each	$ 2.00	550.00
25	275	EA.	Furnish and place Permark P-15W (4") white reflective ceramic marker, complete in place, per each	$ 5.00	1,375.00
26	255	L.F.	Furnish and place 24" white reflective thermoplastic stop bar, complete in place, per linear foot	$ 6.00	1,530.00
27	790	L.F.	Furnish and place 4" white reflective thermoplastic stripe, complete in place, per linear foot	$ 1.00	790.00
28	50	EA.	Furnish and place white reflective thermoplastic pavement directional marker, complete in place, per each	$ 85.00	4,250.00

BID SCHEDULE A
TOWN OF ADDISON, TEXAS
INTERSECTION IMPROVEMENTS
BELT LINE ROAD AT MARSH LANE

Item No.	Est. Quan.	Unit	Description	Unit Price	Amount
29	1	L.S.	Provide all traffic signalization relocation/installation work, including lights, loops, poles, boxes, painting, interconnect conduit and cable, and all appurtenances, complete in place, per lump sum	$ 90,000.00	90,000.00
30	1	EA.	Furnish and install wye connections, complete in place, per each	$ 315.00	315.00
31	9	EA.	Relocate existing street signs, complete in place, per each	$ 90.00	810.00
32	1	EA.	Relocate existing water meter, including all necessary fittings and appurtenances, complete in place, per each	$ 800.00	800.00
33	3	EA.	Relocate existing fire hydrant, including all necessary fittings, tapping sleeves, valves and appurtenances, complete in place, per each	$ 1,900.00	5,700.00
34	2	EA.	Adjust existing water valves to new elevation, complete in place, per each	$ 125.00	250.00

BID SCHEDULE A
TOWN OF ADDISON, TEXAS
INTERSECTION IMPROVEMENTS
BELT LINE ROAD AT MARSH LANE

Item No.	Est. Quan.	Unit	Description	Unit Price	Amount
35	1	L.S.	Provide all irrigation removal/ relocation work and proposed irrigation work, complete in place, per lump sum	$13,000.00	13,000.00
36	1	L.S.	Provide all landscaping removal/ relocation work and proposed landscaping work, complete in place, per lump sum	$35,000.00	35,000.00
37	1	L.S.	Lowering of 12" water main in accordance with Dallas Water Utilities File 414W-31 including all pipe, bends, blocking and appurtenances, complete in place, per lump sum	$ 3,400.00	3,400.00
38	2	EA.	Relocate DART pad, bench and sign, complete in place, per each	$ 600.00	1,200.00
39	8,150	S.Y.	Furnish and place Bermuda Block sodding, including fertilizer, watering and maintenance, complete in place, per square yard	$ 1.00	8,150.00
40	13,630	S.Y.	Furnish and place Bermuda hydromulching, including fertilizer, watering and maintenance, complete in place, per square yard	$ .05	681.50

BID SCHEDULE A
TOWN OF ADDISON, TEXAS
INTERSECTION IMPROVEMENTS
BELT LINE ROAD AT MARSH LANE

Item No.	Est. Quan.	Unit	Description	Unit Price	Amount
41	300	S.F.	Furnish and install Pavestone Pavers (Pattern A) including sand bedding, concrete base, and compacted subgrade, complete in place, per square foot	$ 5.00	1,500.00
42	3,200	S.F.	Furnish and install Pavestone Pavers (Pattern B) including sand bedding, concrete base, and compacted subgrade, complete in place, per square foot	$ 5.00	16,000.00
			TOTAL AMOUNT BID FOR BID SCHEDULE A, ITEMS 1 THROUGH 42, INCLUSIVE	$ 511,889.00	

BID SCHEDULE B
TOWN OF ADDISON, TEXAS
INTERSECTION IMPROVEMENTS
BELT LINE ROAD AT BUSINESS AVENUE

Item No.	Est. Quan.	Unit	Description	Unit Price	Amount
43	0.40	AC.	Clearing and grubbing including removal and disposal of existing trees, complete, per acre	$10,000.00	4,000.00
44	3,445	L.F.	Remove and dispose of existing concrete curb and/or curb and gutter, complete, per linear foot	$ 1.50	5,167.50
45	725	S.Y.	Remove and dispose of existing concrete pavement, complete, per square yard	$ 7.50	5,437.50
46	450	S.Y.	Remove and dispose of existing concrete sidewalk, complete, per square yard	$ 6.50	2,925.00
47	2,635	S.Y.	Furnish, place and compact cement treated base (6"), complete in place, per square yard	$ 10.00	26,350.00
48	2,000	S.Y.	Furnish and place 8"-3600 PSI reinforced concrete pavement, complete in place, per square yard	$ 25.15 33.70	50,300.00
49	465	S.Y.	Furnish and place 4"-2500 PSI reinforced concrete sidewalk, complete in place, per square yard	$ 22.00	10,230.00

BID SCHEDULE B
TOWN OF ADDISON, TEXAS
INTERSECTION IMPROVEMENTS
BELT LINE ROAD AT BUSINESS AVENUE

Item No.	Est. Quan.	Unit	Description	Unit Price	Amount
50	1	L.S.	Furnish, place and maintain barricading, signing temporary pavement markings and traffic control, complete in place, per lump sum	$ 5,000.00	5,000.00
51	1,945	L.F.	Furnish and place 6"-3600 PSI concrete integral curb, complete in place, per linear foot	$ 1.50	2,917.50
52	1,575	L.F.	Furnish and place 6"-3600 PSI reinforced concrete curb and gutter, complete in place, per linear foot	$ 9.00	14,175.00
53	1,640	C.Y.	Unclassified street excavation, including hauling and disposal, complete in place, per cubic yard	$ 5.00	8,200.00
54	3,770	L.F.	Furnish sawed breakout groove, complete in place, per linear foot	$ 2.00	7,540.00
55	557	L.F.	Furnish and install variable height solid concrete interlocking retaining wall (Pavestone - Oaks Blend, or approved equal), complete in place, per linear foot	$ 20.00	11,140.00
56	2	EA.	Remove and dispose of existing curb inlet, complete in place, per each	$ 700.00	1,400.00

BID SCHEDULE B
TOWN OF ADDISON, TEXAS
INTERSECTION IMPROVEMENTS
BELT LINE ROAD AT BUSINESS AVENUE

Item No.	Est. Quan.	Unit	Description	Unit Price	Amount
57	2	EA.	Furnish and place 10' recessed curb inlet, complete in place, per each	$ 2,000.00	4,000.00
58	15	L.F.	Furnish and install 18" reinforced concrete pipe (RCP), including embedment and concrete collar, complete in place, per linear foot	$ 90.00	1,350.00
59	7	L.F.	Furnish and install 21" reinforced concrete pipe (RCP), including embedment and concrete collar, complete in place, per linear foot	$ 95.00	665.00
60	1	EA.	Furnish and install wye connections, complete in place, per each	$ 315.00	315.00
61	1	EA.	Furnish and install 45-degree bend (18" RCP), complete in place, per each	$ 315.00	315.00
62	170	EA.	Furnish and place 6"x6" white reflective jiggle bars, complete in place, per each	$ 11.00	1,870.00
63	175	EA.	Furnish and place Permark P-7W (4") white non-reflective ceramic marker, complete in place, per each	$ 2.00	350.00

BID SCHEDULE B
TOWN OF ADDISON, TEXAS
INTERSECTION IMPROVEMENTS
BELT LINE ROAD AT BUSINESS AVENUE

Item No.	Est. Quan.	Unit	Description	Unit Price	Amount
64	175	EA.	Furnish and place Permark P-15W (4") white reflective ceramic marker, complete in place, per each	$ 5.00	875.00
65	21	EA.	Furnish and place Permark P-117Y yellow double reflective ceramic pavement markers, complete in place, per each	$ 5.50	115.50
66	195	L.F.	Furnish and place 24" white reflective thermoplastic stop bar, complete in place, per linear foot	$ 6.00	1,170.00
67	160	L.F.	Furnish and place 4" white reflective thermoplastic stripe, complete in place, per linear foot	$ 1.00	160.00
68	33	EA.	Furnish and place white reflective thermoplastic pavement directional marker, complete in place, per each	$ 85.00	2,805.00
69	1	L.S.	Provide all traffic signalization relocation/installation work, including lights, loops, poles, boxes, painting, interconnect cable and conduit, and all appurtenances, complete in place, per lump sum	$85,000.00	85,000.00

BID SCHEDULE B
TOWN OF ADDISON, TEXAS
INTERSECTION IMPROVEMENTS
BELT LINE ROAD AT BUSINESS AVENUE

Item No.	Est. Quan.	Unit	Description	Unit Price	Amount
70	4	EA.	Relocate existing street signs, complete in place, per each	$ 90.00	360.00
71	1	EA.	Adjust existing manhole, complete, per each	$ 315.00	315.00
72	1	EA.	Adjust existing water valves to new elevation, complete in place, per each	$ 125.00	125.00
73	1	L.S.	Provide all irrigation removal/ relocation work and proposed irrigation work, complete in place, per lump sum	$ 21,000.00	21,000.00
74	1	L.S.	Provide all landscaping removal/ relocation work and proposed landscaping work, complete in place, per lump sum	$ 47,000.00	47,000.00
75	2,900	S.Y.	Furnish and place Bermuda Block sodding, including fertilizer, watering and maintenance, complete in place, per square yard	$ 1.00	2,900.00
76	7,850	S.Y.	Furnish and place Bermuda hydromulching, including fertilizer, watering and maintenance, complete in place, per square yard	$ .05	392.50

BID SCHEDULE B
TOWN OF ADDISON, TEXAS
INTERSECTION IMPROVEMENTS
BELT LINE ROAD AT BUSINESS AVENUE

Item No.	Est. Quan.	Unit	Description	Unit Price	Amount
77	320	S.F.	Furnish and install Pavestone Pavers (Pattern A) including sand bedding, concrete base, and compacted subgrade, complete in place, per square foot	$ 5.00	1,600.00
78	1,600	S.F.	Furnish and install Pavestone Pavers (Pattern B) including sand bedding, concrete base, and compacted subgrade, complete in place, per square foot	$ 5.00	8,000.00
			TOTAL AMOUNT BID FOR BID SCHEDULE B, ITEMS 43 THROUGH 78, INCLUSIVE	$ 335,465.50	

BID SUMMARY
TOWN OF ADDISON, TEXAS
INTERSECTION IMPROVEMENTS
BELT LINE ROAD AT MARSH LANE AND
BELT LINE ROAD AT BUSINESS AVENUE

TOTAL AMOUNT BID FOR BID SCHEDULE A, ITEMS 1 THROUGH 42, INCLUSIVE	$ 511,889.00
TOTAL AMOUNT BID FOR BID SCHEDULE B, ITEMS 43 THROUGH 78, INCLUSIVE	$ 335,465.50
TOTAL AMOUNT BID FOR BID SCHEDULES A AND B, ITEMS 1 THROUGH 78, INCLUSIVE	$ 847,354.50

The completion time for Bid Schedule A and Schedule B, Items 1 through 78 of this Contract is 120 calendar days.

NOTES:

1. All items, labor, materials, equipment, facilities, incidentals and work required for construction of the project are to be provided and installed by the Contractor as part of the project and payment for the cost of such shall be included in the price bid for the construction of the project.

2. Materials which are "tax exempt" are those items which are physically incorporated into the facilities constructed for the OWNER, as set forth in the Special Provisions. Materials include, but are not limited to purchased items such as concrete, and road base, etc.

   Services which are "not tax exempt" are those items which are used by the Contractor but are not physically incorporated into the OWNER'S facility and/or items which are consumed by construction, as set forth in the Special Provisions. Services include, but are not limited to, items such as supplies, tools, skill and labor, the purchase, rental or lease of equipment, etc.

3. Prices must be shown in words and figures for each item listed in this proposal. In the event of discrepancy, the words shall control.

If BIDDER is:

An Individual

By _____ (Seal)
(Individual's Name)

doing business as _____

Business address: _____

_____

_____

Phone No. _____

A Partnership

By _____ (Seal)
(Firm Name)

_____
(General Partner)

doing business as _____

Business address: _____

_____

_____

Phone No. _____

A Corporation

By _____
(Corporation Name)

_____
(State of Incorporation)

By _____
(Name of Person Authorized to Sign)

_____
(Title)

(Corporate Seal)

Attest _____
(Secretary)

Business address: _____

_____

_____

Phone No. _____

A Joint Venture

By _____
(Name)

_____
(Address)

By _____
(Name)

_____
(Address)

(Each joint venturer must sign. The manner of signing for each individual, partnership and corporation that is a party to the joint venture should be in the manner indicated above.)

SECTION CA

CONTRACT AGREEMENT

AGREEMENT

STATE OF TEXAS

COUNTY OF DALLAS

THIS AGREEMENT is made and entered into this 24th day of June, 1994, by and between the Town of Addison, of the County of Dallas and State of Texas, acting through its City Manager,duly authorized so to do, Party of the First Part, hereinafter termed the OWNER, and Ed Bell Construction Company, of the City of Dallas, County of Dallas State of Texas, Party of the Second Part, hereinafter termed CONTRACTOR.

WITNESSETH: That for and in consideration of the payment and agreement hereinafter mentioned, to be made and performed by the OWNER, the said CONTRACTOR hereby agrees with the said OWNER to commence and complete construction of certain improvements as follows:

Intersection Improvements
Belt Line Road at Marsh Lane and
Belt Line Road at Business Avenue

and all extra work in connection therewith, under the terms as stated in the General and Specific Conditions of the AGREEMENT; and at his own proper cost and expense to furnish all the materials, supplies, machinery, equipment, tools, superintendence. labor, insurance and other accessories and services necessary to complete the said construction, in accordance with the conditions and prices stated in the Proposal attached hereto and in accordance with the Advertisement for Bids, Instructions to Bidders, General Provisions, Special Provisions, Plans, and other drawings and printed or written explanatory matter thereof, and the Technical Specifications and Addenda thereto, as prepared by the OWNER, each of which has been identified by the endorsement of the CONTRACTOR and the OWNER thereon, together with the CONTRACTOR's written Proposal and the General Provisions, all of which are made a part hereof and collectively evidence and constitute the entire AGREEMENT.

The CONTRACTOR hereby agrees to commence work within five (5) calendar days after the date of written notice to do so shall have been given to him, and to substantially complete the work within 120 calendar days after he commences work, subject to such extensions of time as are provided by the General Provisions. The improvements

at Belt Line Road and Business Avenue intersection shall be substantially complete by September 20, 1994.

The OWNER agrees to pay the CONTRACTOR Eight Hundred and Forty-seven thousand, Three Hundred and fifty-four and 50/100 dollars ($847,354.50) in current funds for the performance of the Contract in accordance with the Proposal submitted thereof, subject to additions and deductions, as provided in the General Provisions, and to make payments of account thereof as provided therein.

IN WITNESS WHEREOF, the parties of these presents have executed this AGREEMENT in the year and day first above written.

TOWN OF ADDISON
(OWNER)

By: _____
City Manager

ATTEST:

_____
City Secretary

ED BELL CONSTRUCTION COMPANY
(CONTRACTOR)

By: _____

ATTEST:

By: _____

The following to be executed if the CONTRACTOR is a corporation:

I, Gus Brair, certify that I am the secretary of the corporation named as CONTRACTOR herein; that Win Bell, who signed this Contract on behalf of the CONTRACTOR is the President (official title) of said corporation; that said Contract was duly signed for and in behalf of said corporation by authority of its governing body, and is within the scope of its corporate powers.

Signed: _____

Corporate Seal

CERTIFICATE OF INSURANCE

6/23/1994

PRODUCER	THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. IT DOES NOT AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW.
Rollins Hudig Hall of Texas 2200 Ross Avenue, Ste. 800 Dallas, TX 75201 (214) 978-6661	COMPANIES AFFORDING COVERAGE COMPANY A: St. Paul Insurance Co. COMPANY B: Texas W. C. Insurance Fund COMPANY C: COMPANY D: COMPANY E:
INSURED Ed Bell Investments, Inc.; Ed Bell Construction Co. P. O. Box 540787 Dallas, Texas 75354-0787	

COVERAGES

This is to certify that policies of insurance listed below have been issued to the insured named above for the policy period indicated, notwithstanding any requirement, term or condition of any contract or other document with respect to which this certificate may be issued or may pertain, the insurance afforded by the policies described herein is subject to all the terms, exclusions and conditions of such policies. Limits shown may have been reduced by paid claims.

CO	INSURANCE	POLICY NUMBER	DATES		
A	GENERAL LIABILITY [X] Gen Liability [X] Occ [ ] CM [ ] OCP [ ]	691NJ3718	Effective 10/31/93 Expiration 10/31/94	$ 2,000,000 $ 1,000,000 $ 1,000,000 $ 1,000,000 $ 50,000 $ 5,000	General Agg Prod/CoOps Agg Pers/Adv Inj Occurrence Fire Damage Medical Exp
A	AUTO LIABILITY [X] Any Auto [ ] All Owned [ ] Scheduled [ ] Hired [ ] Non-owned [ ] Garage Liab [ ]	691NJ3718-1	Effective 10/31/93 Expiration 10/31/94	$ 1,000,000 $ $ $	CSL BI (person) BI (accident) PD
	EXCESS LIABILITY [ ] Umbrella [ ] Other		/ / / /	$ $	Occurrence Aggregate
B	WORKERS COMP AND EMPLOYERS LIAB	TSF-104991-01	10/31/93 10/31/94	[X] $ 500,000 $ 500,000 $ 500,000	Statutory Lmts Each Accident Disease-Limit Disease-Empl
			/ / / /	$ $	

Description of operations/locations/vehicles/other

Re: Belt Line Rd. and Marsh Ln and Belt Line Rd. at Business Avenue Intersection Improvements (Bid #94-31)

CERTIFICATE HOLDER

Town of Addison
Finance Dept. / Purchasing Div.
P. O. Box 144
Addison TX 75001

CANCELLATION

Should any of the above described policies be cancelled before the expiration date thereof, the issuing company will endeavor to mail 30 days written notice to the certificate holder named to the left, but failure to mail such notice shall pose no obligation or liability of any kind upon the company, its agents or reps.

Authorized Representative

IMPORTANT NOTICE

TO OBTAIN INFORMATION OR MAKE A COMPLAINT:
YOU MAY CONTACT THE TEXAS DEPARTMENT OF INSURANCE TO OBTAIN INFORMATION ON COMPANIES, COVERAGES, RIGHTS OR COMPLAINTS AT:

1-800-252-3439

YOU MAY WRITE THE TEXAS DEPARTMENT OF INSURANCE:

P. O. BOX 149104
AUSTIN, TEXAS 78714-9104
FAX # (512) 475-1771

PREMIUM OR CLAIM DISPUTES:

SHOULD YOU HAVE A DISPUTE CONCERNING YOUR PREMIUM OR ABOUT A CLAIM YOU SHOULD CONTACT THE AGENT OR COMPANY FIRST. IF THE DISPUTE IS NOT RESOLVED, YOU MAY CONTACT THE TEXAS DEPARTMENT OF INSURANCE

ATTACH THIS NOTICE TO YOUR POLICY:

THIS NOTICE IS FOR INFORMATION ONLY AND DOES NOT BECOME A PART OR CONDITION OF THE ATTACHED DOCUMENT.

CONSENT OF THE SOLE DIRECTOR OF
ED BELL CONSTRUCTION COMPANY

June 1, 1992

Pursuant to Section 9.10(b) of the Texas Business Corporation Act, the undersigned, being the sole director of Ed Bell Construction Company, a Texas corporation (the "Company"), hereby declares that when this Consent has been signed, the following resolutions shall be adopted at a meeting of the Board of Directors duly called and held for the purpose of acting upon such resolutions:

> RESOLVED, that Edwin S. Bell, Jr. is hereby elected to the position of President of Ed Bell Construction Company.
>
> RESOLVED, that Edwin S. Bell, Jr. be, and he hereby is, authorized to execute on behalf of the Company contracts and agreements binding upon the company for the performance of construction work and services, and for the furnishing of labor and materials in connection therewith.

IN WITNESS WHEREOF, the undersigned has caused this Consent to be executed as of June 1, 1992.

Edwin S. Bell

I hereby certify that this is a true copy of a page of the minute books of Ed Bell Construction Company.

Judy Medaris
Notary Public in and for
Dallas County

My Commission expires 12-19-95.

JUDY MEDARIS
COMMISSION EXPIRES
DECEMBER 19, 1995

SECTION PrB
PERFORMANCE BOND

Fireman's Fund

Fireman's Fund Insurance Company
The American Insurance Company
National Surety Corporation
Associated Indemnity Corporation
American Automobile Insurance Company

Texas Statutory Performance Bond

(Public Works)

KNOW ALL MEN BY THESE PRESENTS, that ED BELL CONSTRUCTION CO.

10605 HARRY HINES

DALLAS, TX 75220

(hereinafter called the Principal(s)), as Principal(s), and

ASSOCIATED INDEMNITY CORPORATION

(hereinafter called the Surety(s)), as Surety(s), are held and firmly bound unto

TOWN OF ADDISON

(hereinafter called the Obligee), in the amount of Eight Hundred Forty-seven Thousand, Three Hundred Fifty-four and 50/100---------- Dollars

($ 847,354.50---------) for the payment whereof, the said Principal and Surety bind themselves, and their heirs, administrators, executors, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has entered into a certain written contract with the Obligee, dated the 24th day of June, 19 94, for Intersection Improvements Belt Line Road at Marsh Lane and Belt Line Road at Business Avenue

which contract is hereby referred to and made a part hereof as fully and to the same extent as if copied at length herein.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION IS SUCH, that if the said Principal shall faithfully perform the work in accordance with the plans, specifications and contract documents, then this obligation shall be null and void; otherwise to remain in full force and effect.

PROVIDED, HOWEVER, that this bond is executed pursuant to the provisions of Chapter 2253 of the Texas Government Code and all liabilities on this bond shall be determined in accordance with the provisions, conditions and limitations of said Chapter to the same extent as if it were copied at length herein.

IN WITNESS WHEREOF, the said Principal(s) and Surety(s) have signed and sealed this instrument this 24th day of June, 19 94.

ED BELL CONSTRUCTION CO.
(Principal)

(Principal)

ASSOCIATED INDEMNITY CORPORATION
Corporate Surety

By
Tomi J. Braun
Attorney-in-Fact

360241-2-91

GENERAL POWER OF ATTORNEY

ASSOCIATED INDEMNITY CORPORATION

KNOW ALL MEN BY THESE PRESENTS: That ASSOCIATED INDEMNITY CORPORATION, a Corporation duly organized and existing under the laws of the State of California, and having its principal office in the County of Marin, State of California, has made, constituted and appointed, and does by these presents make, constitute and appoint JERRY P. ROSE and TOMI J. BRAUN, jointly or severally

DALLAS, TX

its true and lawful Attorney(s)-in-Fact, with full power and authority hereby conferred in its name, place and stead, to execute, seal, acknowledge and deliver any and all bonds, undertaking, recognizances or other written obligations in the nature thereof ----------

and to bind the Corporation thereby as fully and to the same extent as if such bonds were signed by the President, sealed with the corporate seal of the Corporation and duly attested by its Secretary, hereby ratifying and confirming all that the said Attorney(s)-in-Fact may do in the premises.

This power of attorney is granted pursuant to Article VII, Sections 45 and 46 of By-laws of ASSOCIATED INDEMNITY CORPORATION now in full force and effect.

"Article VII. *Appointment and Authority of Resident Secretaries, Attorney-in-Fact and Agents to accept Legal Process and Make Appearances.*

Section 45. *Appointment.* The Chairman of the Board of Directors, the President, any Vice-President or any other person authorized by the Board of Directors, the Chairman of the Board of Directors, the President or any Vice-President may, from time to time, appoint Resident Assistant Secretaries and Attorneys-in-Fact to represent and act for and on behalf of the Corporation and Agents to accept legal process and make appearances for and on behalf of the Corporation.

Section 46. *Authority.* The authority of such Resident Assistant Secretaries, Attorneys-in-Fact and Agents shall be as prescribed in the instrument evidencing their appointment. Any such appointment and all authority granted thereby may be revoked at any time by the Board of Directors or by any person empowered to make such appointment."

This power of attorney is signed and sealed under and by the authority of the following Resolution adopted by the Board of Directors of ASSOCIATED INDEMNITY CORPORATION at a meeting duly called and held on the 13th day of April, 1984, and said Resolution has not been amended or repealed:

"RESOLVED, that the signature of any Vice-President, Assistant Secretary, and Resident Assistant Secretary of this Corporation, and the seal of this Corporation may be affixed or printed on any power of attorney, on any revocation of any power of attorney, or on any certificate relating thereto, by facsimile, and any power of attorney, any revocation of any power of attorney, or certificate bearing such facsimile signature or facsimile seal shall be valid and binding upon the Corporation."

IN WITNESS WHEREOF, ASSOCIATED INDEMNITY CORPORATION has caused these presents to be signed by its Vice-President, and its corporate seal to be hereunto affixed this 10th day of December, 19 93.

ASSOCIATED INDEMNITY CORPORATION

By _____
Vice-President

STATE OF CALIFORNIA
COUNTY OF MARIN } ss.

On this 10th day of December, 19 93, before me personally came M. A. Mallonee, to me known, who, being by me duly sworn, did depose and say: that he is Vice-President of ASSOCIATED INDEMNITY CORPORATION, the Corporation described in and which executed the above instrument; that he knows the seal of said Corporation; that the seal affixed to the said instrument is such corporate seal; that it was so affixed by order of the Board of Directors of said Corporation and that he signed his name thereto by like order.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal, the day and year herein first above written.

OFFICIAL NOTARY SEAL
A. KRIEGER
Notary Public — California
MARIN COUNTY
My Comm. Exp. MAR 20,1995

_____
Notary Public

CERTIFICATE

STATE OF CALIFORNIA
COUNTY OF MARIN } ss.

I, the undersigned, Resident Assistant Secretary of ASSOCIATED INDEMNITY CORPORATION, a CALIFORNIA Corporation, DO HEREBY CERTIFY that the foregoing and attached POWER OF ATTORNEY remains in full force and has not been revoked; and furthermore that Article VII, Sections 45 and 46 of the By-laws of the Corporation, and the Resolution of the Board of Directors; set forth in the Power of Attorney, are now in force.

Signed and sealed at the County of Marin. Dated the _____ day of _____, 19 _____.

_____
Resident Assistant Secretary

360711-AS-8-93

SECTION PyB
PAYMENT BOND

Fireman's Fund

Fireman's Fund Insurance Company
The American Insurance Company
National Surety Corporation
Associated Indemnity Corporation
American Automobile Insurance Company

Texas Statutory Payment Bond

(Public Works)

KNOW ALL MEN BY THESE PRESENTS, that ED BELL CONSTRUCTION CO.

10605 HARRY HINES

DALLAS, TX 75220

(hereinafter called the Principal(s)), as Principal(s), and

ASSOCIATED INDEMNITY CORPORATION

(hereinafter called the Surety(s)), as Surety(s), are held and firmly bound unto

TOWN OF ADDISON

(hereinafter called the Obligee), in the amount of Eight Hundred Forty-seven Thousand, Three Hundred Fifty-four and 50/100---------- Dollars

($847,354.50----------) for the payment whereof, the said Principal and Surety bind themselves, and their heirs, administrators, executors, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has entered into a certain written contract with the Obligee, dated the 24th day of June, 19 94, for Intersection Improvements
Belt Line Road at Marsh Lane and
Belt Line Road at Business Avenue

which contract is hereby referred to and made a part hereof as fully and to the same extent as if copied at length herein.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION IS SUCH, that if the said Principal shall pay all claimants supplying labor and material to him or a subcontractor in the prosecution of the work provided for in said contract, then, this obligation shall be null and void; otherwise to remain in full force and effect.

PROVIDED, HOWEVER, that this bond is executed pursuant to the provisions of Chapter 2253 of the Texas Government Code and all liabilities on this bond shall be determined in accordance with the provisions, conditions and limitations of said Chapter to the same extent as if it were copied at length herein.

IN WITNESS WHEREOF, the said Principal(s) and Surety(s) have signed and sealed this instrument this 24th day of June, 19 94.

ED BELL CONSTRUCTION CO.
(Principal)

(Principal)

ASSOCIATED INDEMNITY CORPORATION
Corporate Surety

By
Tomi J. Braun
Attorney-in-Fact

360240-2-94

GENERAL POWER OF ATTORNEY

ASSOCIATED INDEMNITY CORPORATION

KNOW ALL MEN BY THESE PRESENTS: That ASSOCIATED INDEMNITY CORPORATION, a Corporation duly organized and existing under the laws of the State of California, and having its principal office in the County of Marin, State of California, has made, constituted and appointed, and does by these presents make, constitute and appoint JERRY P. ROSE and TOMI J. BRAUN, jointly or severally

DALLAS, TX

its true and lawful Attorney(s)-in-Fact, with full power and authority hereby conferred in its name, place and stead, to execute, seal, acknowledge and deliver any and all bonds, undertaking, recognizances or other written obligations in the nature thereof ----------

and to bind the Corporation thereby as fully and to the same extent as if such bonds were signed by the President, sealed with the corporate seal of the Corporation and duly attested by its Secretary, hereby ratifying and confirming all that the said Attorney(s)-in-Fact may do in the premises.

This power of attorney is granted pursuant to Article VII, Sections 45 and 46 of By-laws of ASSOCIATED INDEMNITY CORPORATION now in full force and effect.

"Article VII. *Appointment and Authority of Resident Secretaries, Attorney-in-Fact and Agents to accept Legal Process and Make Appearances.*

Section 45. *Appointment.* The Chairman of the Board of Directors, the President, any Vice-President or any other person authorized by the Board of Directors, the Chairman of the Board of Directors, the President or any Vice-President may, from time to time, appoint Resident Assistant Secretaries and Attorneys-in-Fact to represent and act for and on behalf of the Corporation and Agents to accept legal process and make appearances for and on behalf of the Corporation.

Section 46. *Authority.* The authority of such Resident Assistant Secretaries, Attorneys-in-Fact and Agents shall be as prescribed in the instrument evidencing their appointment. Any such appointment and all authority granted thereby may be revoked at any time by the Board of Directors or by any person empowered to make such appointment."

This power of attorney is signed and sealed under and by the authority of the following Resolution adopted by the Board of Directors of ASSOCIATED INDEMNITY CORPORATION at a meeting duly called and held on the 13th day of April, 1984, and said Resolution has not been amended or repealed:

"RESOLVED, that the signature of any Vice-President, Assistant Secretary, and Resident Assistant Secretary of this Corporation, and the seal of this Corporation may be affixed or printed on any power of attorney, on any revocation of any power of attorney, or on any certificate relating thereto, by facsimile, and any power of attorney, any revocation of any power of attorney, or certificate bearing such facsimile signature or facsimile seal shall be valid and binding upon the Corporation."

IN WITNESS WHEREOF, ASSOCIATED INDEMNITY CORPORATION has caused these presents to be signed by its Vice-President, and its corporate seal to be hereunto affixed this 10th day of December, 19 93.

ASSOCIATED INDEMNITY CORPORATION

By _____
Vice-President

STATE OF CALIFORNIA
COUNTY OF MARIN } ss.

On this 10th day of December, 19 93, before me personally came M. A. Mallonee, to me known, who, being by me duly sworn, did depose and say: that he is Vice-President of ASSOCIATED INDEMNITY CORPORATION, the Corporation described in and which executed the above instrument; that he knows the seal of said Corporation; that the seal affixed to the said instrument is such corporate seal; that it was so affixed by order of the Board of Directors of said Corporation and that he signed his name thereto by like order.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal, the day and year herein first above written.

OFFICIAL NOTARY SEAL
A. KRIEGER
Notary Public — California
MARIN COUNTY
My Comm. Exp. MAR 20,1995

_____
Notary Public

CERTIFICATE

STATE OF CALIFORNIA
COUNTY OF MARIN } ss.

I, the undersigned, Resident Assistant Secretary of ASSOCIATED INDEMNITY CORPORATION, a CALIFORNIA Corporation, DO HEREBY CERTIFY that the foregoing and attached POWER OF ATTORNEY remains in full force and has not been revoked; and furthermore that Article VII, Sections 45 and 46 of the By-laws of the Corporation, and the Resolution of the Board of Directors; set forth in the Power of Attorney, are now in force.

Signed and sealed at the County of Marin. Dated the _____ day of _____, 19 _____.

_____
Resident Assistant Secretary

360711-AS-8-93