

CITY OF PLANO, TEXAS



PUBLIC WORKS ENGINEERING DEPARTMENT

SPECIAL PROVISIONS
TO
STANDARD SPECIFICATIONS
FOR
PUBLIC WORKS CONSTRUCTION

NORTH CENTRAL TEXAS

ADOPTED BY ORDINANCE NO. 96-11-17

JANUARY 1, 1997

CITY OF PLANO, TEXAS
JANUARY 1, 1997 SPECIAL PROVISIONS
TO THE
NORTH CENTRAL TEXAS STANDARD SPECIFICATIONS
FOR PUBLIC WORKS CONSTRUCTION
GENERAL PROVISIONS - CITY

All amendments to the North Central Texas Standard Specifications through those designated as the 1994/1995 Amendments are hereby adopted by the City of Plano.

The following are updated exceptions to the North Central Texas Standard Specifications and 1992/1993 and 1994/1995 Amendments.

ITEM 2.1.2(c) Steel slag is not approved as an aggregate within the City of Plano.

ITEM 2.2.13 FIBROUS REINFORCEMENT

This reinforcement is not approved for use within the City of Plano.

ITEM 2.4.13(c) The table for the grading of asphaltic concrete has been revised (See page M-11).

ITEM 2.12.16 CORRUGATED METAL PIPE OR PIPE ARCH SHAPES

This pipe is not approved for use within the City of Plano.

ITEM 2.12.24 POLYETHYLENE (PE) CORRUGATED AND CORRUGATED SMOOTH
LINED STORM DRAINAGE PIPE/TUBING AND FITTINGS

This pipe is not approved for use within the City of Plano.

ITEM 2.12.25 POLYVINYL CHLORIDE (PVC) PRESSURE RATED PIPE (SDR SERIES)

This pipe is not approved for use within the City of Plano.

ITEM 2.12.26 POLYETHYLENE (PE) PRESSURE PIPE AND FITTINGS - FOR WATER DISTRIBUTION

This pipe is not approved for use within the City of Plano.

ITEM 5.8.2(f) Delete the sentence concerning fiber-reinforced concrete.

ITEM 5.8.6(c) 1. Add to the 4th paragraph: The test cylinders fail if: (1) the average of the two cylinders broken at 28 days is less than the specified concrete strength; or (2) either of the concrete cylinder breaks 500 psi less than the specified concrete strength for 3000 psi concrete or greater; or (3) 10% below the specified concrete strength for concrete strength less than 3000 psi.

2. The table for pavement strength requirements has been revised (See page M-13).

ITEM 6.2.9 All references to densities shall specify % moisture to be from -2% to +4% of optimum.

ITEM 6.7.2(c)(3) Delete manhole testing.

ITEM 6.7.2(c)(6) Delete gravity main testing.

CITY OF PLANO, TEXAS
SPECIAL PROVISIONS
TO THE
NORTH CENTRAL TEXAS STANDARD SPECIFICATIONS
FOR PUBLIC WORKS CONSTRUCTION

GENERAL PROVISIONS - CITY

PART 1: GENERAL PROVISIONS - DIVISION 1, CITY CONSTRUCTION CONTRACTS

The General Provisions of the North Central Texas Standard Specifications shall be modified and clarified by the addition to the following requirements to the various items. Except when specifically stated, none of the requirements of the General Provisions shall be deleted.

ITEM 1.0 DEFINITIONS

WORKING DAY: Revise first sentence to read:

WORKING DAY: A working day is defined as any calendar day except Sundays or Holidays (listed below) in which weather or other conditions not under the control of the CONTRACTOR shall permit the performance of the principal units of work underway for a continuous period of not less than seven hours between 7:00 am and 6:00 pm or in the cost of lane closures, work shall be between 9:00 am and 4:00 pm, Monday through Friday where feasible. City of Plano holidays are as follows:

- (1) January 1st**
- (2) 3rd Monday in January**
- (3) The last Monday in May**
- (4) July 4th**
- (5) The first Monday in September**
- (6) The fourth Thursday in November**
- (7) The fourth Friday in November**
- (8) December 25th**
- (9) A "floating" holiday for Christmas, date to be determined by the City Manager.**

ITEM 1.10 REJECTION OF PROPOSALS

Change the second sentence of Item 1.10 to read: "Proposal may be rejected for any of the following specific reasons, but not necessarily limited thereto:"

ITEM 1.11 DISQUALIFICATION OF BIDDERS

Change the first sentence of Item 1.11 to read, "Bidders may be disqualified and their proposal not considered for any of the following specific reasons, but not necessarily limited thereto:"

ITEM 1.13 AWARD OF CONTRACT AND COMMENCEMENT OF WORK

It is the intention of the Owner to award a contract for the work included in this project on the basis of the lowest acceptable bid submitted by a qualified bidder, as determined by the Owner.

Within five (5) working days after the bid opening, the low bidder shall submit such evidence as the Owner may require to establish the bidder's qualifications to satisfactorily perform the work included in this project. Information that may be required shall include the following:

- (1) One (1) additional copy of the bid.
- (2) Current Financial Statement.
- (3) Letter of Auditor's opinion, if available
- (4) Previous years Balance Sheet, Income Statement and Change of Financial Position.
- (5) List of projects that have been satisfactorily completed by the Bidder that are of the same general type as included in this contract, together with names, addresses and phone numbers or persons familiar with this work.
- (6) Other information that may be pertinent to the Bidder's Qualifications.

Should the bidder fail to produce evidence satisfactory to the Owner on any of the foregoing points he may be disqualified and the work awarded to the next bidder so qualifying.

The Owner will notify the successful bidder, in writing, within ninety (90) days after the date of receiving bids, of the acceptance of the proposal. The Contractor or Contractors shall complete execution of the required Bonds and Contract within ten (10) days of such notice.

ITEM 1.19 PRIORITY OF CONTRACT DOCUMENTS

Revise this item to read:

In case of conflict between contract documents, priority of interpretation shall be in the following order: signed agreement, performance and payment bonds, addenda, special conditions, project drawings and specifications, City of Plano Standard Construction Details, The Standard Specifications for Public Works Construction - North Central Texas, Advertisement for Bids (or Notice to Contractors of Invitation to Bidders or Request for Proposals), contractors bid proposal and bid form. (Reference Items 1.20.1, 1.20.3, 1.39, and 1.41).

ITEM 1.20.1 CONTRACT DRAWINGS AND SPECIFICATIONS

In general the number of copies of the plans and specifications furnished to the Contractor shall be limited to six (6). Additional copies may be obtained at cost of reproduction.

ITEM 1.21 CONTRACTOR'S WARRANTIES AND UNDERSTANDING

ITEM 1.21.1 SURETY BONDS

ITEM 1.21.1 (a) PERFORMANCE BOND

Revise first part of first sentence to read:

"A good and sufficient bond in the amount of 115 percent of the approximate total amount of contract,..."

ITEM 1.22.1 PERFORMANCE OF THE WORK

Add the following paragraph to the end of the item:

At such time as actual construction has been started, the work will not be stopped or delayed without written permission of the Owner, excluding delays caused by adverse weather conditions. The Contractor shall maintain at all times sufficient equipment and personnel on the project to produce satisfactory progress during the construction period.

ITEM 1.22.2 INDEMNIFICATION

Delete Item 1.22.2 in its entirety and substitute therefore the following:

The Contractor and his sureties shall indemnify, defend and save harmless the OWNER and all of its officers, agents and employees, ENGINEER and all of its officers and employees from all suits, actions or claims of any character, name and description brought for or on account of any injuries, including death or damages received or sustained by any person, persons or property on account of the operations of the Contractor, his agents, employees or subcontractors; or on account of any negligent act or fault of the Contractor, his agents, employees or subcontractors in the execution of said contract; or on account of the failure of the Contractor to provide the necessary barricades, warning lights or signs; and shall be required to pay any judgment, with cost, which may be obtained against the Owner or Engineer growing out of such injury, including death or damage.

ITEM 1.22.6 PERFORMANCE OF THE WORK

Add the following to the end of the first paragraph: "irregardless of the expected completion date set forth in the Contract Documents."

ITEM 1.23 COMPLIANCE WITH LAWS

ADD ITEM 1.23.1 ANTITRUST

The Contractor hereby assigns to the Owner any and all claims for over-charges associated with this contract which arise under the Antitrust Laws of the United States, 15 U.S.C.A. Section 1, et seq, (1973).

ITEM 1.24 PROTECTION OF WORK AND OF PERSONS AND PROPERTY

ITEM 1.24.2 PROTECTION OF PERSONS AND PROPERTY

The Contractor shall at all times exercise reasonable precautions for the safety of employees and others on or near the work and shall comply with all applicable provisions of Federal, State, and Municipal safety laws and building and construction codes. All machinery and equipment and other physical hazards shall be guarded in accordance with the "Manual of Accident Prevention in Construction" of the Associated General Contractors of America except where incompatible with Federal, State, and Municipal laws or regulations. The Contractor shall provide such machinery, guards, safe walkways, ladders, bridges, gangplanks, and other safety devices. The safety precautions actually taken and their adequacy shall be the sole responsibility of the Contractor, acting at his discretion as an independent contractor.

ITEM 1.24.3 SMALL CLAIMS FOR DAMAGES OR INJURY

If any person files a claim against the OWNER or CONTRACTOR for personal injury or property damage resulting from, arising out of, or caused by the operations of the Contractor, or any work within the limits of the project, the Contractor must either submit to the Owner a duly executed full release within thirty (30) days from the date of written claim, or immediately report the claim to his liability insurance carrier for their action in adjusting the claim. If the Contractor fails to comply with this provision within the stipulated time limit, it will be Automatically deemed that the Contractor has appointed the Owner as its irrevocable Attorney In Fact authorizing the Owner to report the claim directly with the liability insurance carrier. This provision is in and of itself a Power of

Attorney from the Contractor to the Owner which authorizes the Owner to take said action on behalf of the Contractor without the necessity of the execution of any other document. If the Contractor fails to comply with the provisions of this item the Owner, at its own discretion, may terminate this contract or take any other actions it deems appropriate. Any payment or portion thereof due the Contractor, whether it is a final payment, progress payment, payment out of retainage or refund payment may be withheld by the Owner as is authorized by Item 1.52. Bankruptcy, insolvency or denial of liability by the insurance carrier shall not exonerate the Contractor from liability.

ITEM 1.26 INSURANCE

ITEM 1.26.1 CONTRACTOR'S LIABILITY INSURANCE

Delete in its entirety and substitute the following:

Without limiting any of the other obligations or liabilities of the CONTRACTOR, the CONTRACTOR and each subcontractor, at their own expense, shall, during the term of the contract, purchase and maintain the hereinafter stipulated minimum insurance with companies duly authorized to do business in the state of Texas and satisfactory to the CITY OF PLANO. Certificates of each policy, together with a statement by issuing company to the extent that said policy shall not be canceled without 30 day's prior notice being given the CITY OF PLANO, shall be delivered to the CITY OF PLANO before any work is started:

(1) Workers' Compensation with statutory limits as required by Texas law, including employer's liability with the policy endorsed to provide a waiver of subrogation as to the CITY OF PLANO.

(2) Commercial General Liability (CGL) Insurance, including independent contractor's liability, completed operations and contractual liability, covering, but not limited to, the liability assumed under the indemnification provisions of this contract, fully insuring CONTRACTOR'S (or subcontractor's) liability for injury to or death of CITY OF

PLANO employees and third parties, extended to include personal injury liability coverage, for damage to property of third parties, with the following limits:

(a) Heavy Construction: demolition, road repair/construction, utility construction.

General Aggregate	\$2,000,000
Products Completed/ Operations Aggregate	\$2,000,000
Personal & Advertising Liability	\$1,000,000
Each Occurrence	\$1,000,000
Fire Damage	\$ 50,000
Medical Expense	\$ 5,000

(b) Light Construction: cleaning of drainage ditches, parks construction (e.g. ballfields, playgrounds), construction of fences and screening walls, minor utility construction.

General Aggregate	\$1,000,000
Products Completed Operations Aggregate	\$1,000,000
Personal & Advertising Liability	\$ 500,000
Each Occurrence	\$ 500,000
Fire Damage	\$ 25,000
Medical Expense	\$ 5,000

The policy shall include broad form property damage coverage extended to apply to completed operations, XCU exclusions removed where applicable. Explosion, Collapse and Underground (XCU) is normally provided as a single unit. Some underwriters will scratch one or two for consideration in the premium. Contractors using explosives shall be required to have the X (explosion) coverage while those who excavate shall have the U (underground) coverage. Contractors constructing buildings shall have C

(collapse) coverage. The above mentioned contractors must have the appropriate coverage even if it means obtaining all three (XCU). The completed operations coverage must be maintained for a minimum of one year after final completion and acceptance of the work, with evidence of same filed with OWNER. Where work is being performed in connection with an existing facility owned or leased by the CITY OF PLANO, the policy shall include fire legal liability of not less than \$100,000 per occurrence.

(3) Comprehensive Automobile and Truck liability insurance, covering all owned, hired and non-owned vehicles, with minimum limits of \$1,000,000 combined single limit (CSL) for heavy construction or \$500,000 Combined Single Limit (CSL) for light construction, each occurrence, for bodily injury including death and property damage, such insurance to include coverage for loading and unloading hazards.

(4) Employers Liability \$500,000

ITEM: 1.26.2 OWNER'S PROTECTIVE LIABILITY INSURANCE

Delete this item in its entirety and substitute the following:

ITEM: 1.26.2 OWNER'S AND CONTRACTOR'S PROTECTIVE LIABILITY (OCP)

This coverage is purchased by the Contractor on behalf of the Owner for a specific project. The OCP affords protection to the City for liability arising out of the contractor's or subcontractor's negligence on a City project. The coverage is almost identical to the Commercial General Liability (CGL) policy. The OCP will be required for any contract when the CGL insurance will not list the City of Plano as an "additional named insured" but will list the City as an "additional insured". The limits shall be the same as per the occurrence limits of the CGL.

ITEM: 1.26.3 "UMBRELLA" EXCESS LIABILITY INSURANCE

Delete this item in its entirety.

ITEM 1.26.4 POLICY ENDORSEMENTS AND SPECIAL CONDITIONS

Delete this item in its entirety and substitute therefore the following:



CITY OF PLANO CERTIFICATE OF INSURANCE

In consideration of the premiums charged on the insurance policies shown in this certificate, this certificate of insurance is issued to the certificate holder shown below. This certificate does not amend, extend or alter the coverage afforded by the policies listed below except as shown below.

NAME AND ADDRESS OF AGENCY	COMPANIES AFFORDING COVERAGE	BEST RATING
	COMPANY LETTER A	
NAME AND ADDRESS OF INSURED	COMPANY LETTER B	
	COMPANY LETTER C	
	COMPANY LETTER D	
	COMPANY LETTER E	

This is to certify that the insurance policies listed below have been issued to the insured and are in force at this time. It is agreed that none of these policies will be cancelled or changed except in the application of the aggregate liability limits provisions, so as to affect the insurance described by this certificate until after 30 days written notice of such cancellation or change has been delivered to this certificated holder at its address shown below. It is also agreed that 30 days written notice by the insurance companies listed above of their intent not to renew their policies listed below for the same coverages provided in this certificate will be given to the certificate holder at their address shown below. The policies shown in this certificate are primary to any insurance carried by the certificate holder.

COMPANY LETTER	TYPE OF INSURANCE	POLICY NUMBER	POLICY EFFECTIVE DATE (MM,DD,YY)	POLICY EFFECTIVE DATE (MM,DD,YY)	ALL LIMITS IN THOUSANDS	
	GENERAL LIABILITY <input checked="" type="checkbox"/> COMMERCIAL GENERAL <input type="checkbox"/> CLAIMS MADE <input checked="" type="checkbox"/> OCCURRENCE <input type="checkbox"/> OWNERS & CONTRACTORS PROTECTIVE <input type="checkbox"/> XCU COVERAGE <input checked="" type="checkbox"/> BROAD FORM CONTRACTURAL <input type="checkbox"/> BROAD FORM PROPERTY DAMAGE <input type="checkbox"/> INDEPENDENT CONTRACTORS <input type="checkbox"/> ENDT CG25011185	PRIVATE DEVELOPMENT REQUIREMENTS	SAMPLE		GENERAL AGGREGATE	\$ 1000
					PRODUCTS COMPIOPS	\$ 1000
					PERSONAL & ADVERTISING INJURY	\$ 500
					EACH OCCURRENCE	\$ 500
					FIRE DAMAGE (ANY ONE FIRE)	\$ 50
					MEDICAL EXPENSE (ANY ONE PERSON)	\$ 5
						\$
	AUTOMOBILE LIABILITY <input type="checkbox"/> ANY AUTO <input type="checkbox"/> ALL OWNED AUTOS <input type="checkbox"/> SCHEDULED AUTOS <input type="checkbox"/> HIRED AUTOS <input type="checkbox"/> NON-OWNED AUTOS				BODILY INJURY (EACH PERSON)	\$
					BODILY INJURY (EACH ACCIDENT)	\$
					PROPERTY DAMAGE	\$
					BODILY INJURY & PROPERTY DAMAGE COMBINED	\$
	EXCESS LIABILITY <input type="checkbox"/> UMBRELLA FORM <input type="checkbox"/> OTHER THAN UMBRELLA FORM <input type="checkbox"/> CLAIMS MADE <input type="checkbox"/> OCCURRENCE				PROPERTY DAMAGE	\$
					BODILY INJURY AND PROPERTY DAMAGE COMBINED	\$ \$
	WORKERS' COMPENSATION AND EMPLOYERS' LIABILITY Other				STATUTORY	\$
					EACH ACCIDENT	\$
					DISEASE POLICY UNIT	\$
					DISEASE /EMPLOYEE	\$

- All companies named herein are authorized in the State of Texas for that class of insurance, "A-VI" rating minimum
- Thirty (30) day notice by certified mail to City prior to cancellation.
- Waiver of subrogation in favor of City of Plano on the Worker's Compensation Policy.
- The City of Plano is an additional insured on the General Liability Policy.

DESCRIPTION OF OPERATIONS/LOCATIONS/VEHICLES/SPECIAL ITEMS

NAME AND ADDRESS OF CERTIFICATE HOLDER: _____ Date _____ Authorized Rep. _____
 City of Plano P. O. Box 860358 Attn: _____ Address _____
 Plano, TX 75086-0358 Telephone _____

A. Each insurance policy to be furnished by CONTRACTOR shall include the following conditions by endorsement to the policy:

(a) Each policy shall require 30 days prior to the cancellation of any material change in coverage, a notice thereof shall be given to CITY OF PLANO by certified mail;

(b) the term "CITY OF PLANO" aka "CITY" shall include all authorities, boards, bureaus, commissions, divisions departments and office of the CITY and the individual members, employees and agents thereof in their official capacities, and/or while action on behalf of the CITY;

(c) the policy phrase "other insurance" shall not apply to the CITY where the CITY is an additional named insured on the policy; and

(d) specific endorsements shall be submitted to the CITY OF PLANO.

B. Concerning insurance to be furnished by CONTRACTOR, it is a condition precedent to acceptability thereof that:

(a) Any policy submitted shall not be subject to limitations, conditions or restrictions deemed inconsistent with the intent of the insurance requirements to be fulfilled by CONTRACTOR. The CITY'S decision thereon shall be final; and

(b) all policies are to be written through companies duly authorized to transact that class of insurance in the State of Texas. The companies affording coverage will be checked through the A.M. Best Guide. An "A-" rating or better is preferred along with being licensed to do business in the State of Texas.

(c) The City of Plano shall be an additional named insured on the Commercial General Liability policy. If the Carrier will list the City as an additional insured only, then the Contractor shall, at his own expense, obtain an Owner's and Contractor's Protective Liability policy which has the City as an additional insured. The City of Plano shall be the Certificate Holder.

C. CONTRACTOR agrees to the following:

(a) CONTRACTOR hereby waives subrogation rights for loss or damage to the extent same are covered by insurance. Insurers shall have no right of recovery or subrogation against the CITY, it being the intention that the insurance policies shall protect all parties to the contract and be primary coverage for all losses covered by the policies;

(b) companies issuing the insurance policies and CONTRACTOR shall have no recourse against the CITY for payment of any premiums or assessments for any deductibles, as all such premiums and deductibles are the sole responsibility and risk of the CONTRACTOR;

(c) approval, disapproval or failure to act by the CITY regarding any insurance supplied by the CONTRACTOR (or any subcontractors) shall not relieve the CONTRACTOR of full responsibility for liability for damages and accidents as set forth in the contract documents. Neither shall the bankruptcy, insolvency or denial of liability by the insurance company exonerate the CONTRACTOR from liability.

(d) Should any person sustain bodily injury or property damage within the limits of this project, the Contractor or his Insurance Agent shall investigate and report immediately his findings in writing to the City of Plano. The City of Plano, in its sole discretion, may elect at any time to file for coverage directly under the Owner's and Contractor's Protective Liability Policy.

D. Any of such insurance policies required under this section may be written in combination with any of the others, where legally permitted, but none of the specified limits may be lowered thereby.

E. Subcontractors shall have their own insurance policy with the same provisions required for Contractors, or be listed as additional insureds on the General Contractor's Liability policy.

F. A Certificate of Insurance Sample is shown herein. The following information must appear on or with the certificate of insurance submitted by the Contractor or Subcontractor:

1. Thirty (30) day notice of cancellation by certified mail.
2. Full name of insurance company and A.M. Best Guide Rating.
3. Statement which waives subrogation rights for loss or damage to the extent same or covered by insurance.
4. List of all subcontractors which are additional insureds on the prime contractors policy.
5. Furnish subcontractors Certificate of Insurance which are not covered as additional insureds on the prime contractors policy.

ITEM 1.27 MATERIALS AND WORKMANSHIP; WARRANTIES AND GUARANTEES

ITEM 1.27.4 SPECIAL WARRANTY

Add the following:

The Contractor shall provide a Maintenance Bond in the amount of ten percent (10%) of the total amount of the contract guaranteeing the work in accordance with the plans and specifications for a period of one (1) year after acceptance by the City of Plano. This bond shall provide for repair and/or replacement of all defects due to faulty material and workmanship that appear within a period of one (1) year from the date of completion and acceptance of the improvements by the City of Plano.

ITEM 1.28 SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

Review of Shop Drawings by the Engineer shall be of the sole purpose of determining the sufficiency of the said drawings or schedules to result in finished improvements in conformance with the plans and specifications, and shall not relieve the Contractor of his duty as an independent contractor. It being understood and agreed that the Engineer does not assume any duty to pass upon the propriety or adequacy of such

drawings or schedules or any means or methods reflected thereby in relation to the safety of either person or property during the contractors performance hereunder.

ITEM 1.29 MEANS AND METHODS OF CONSTRUCTION

ITEM 1.29.3 WATER FOR CONSTRUCTION

The Contractor shall make the necessary arrangements for securing and transporting all water required in the construction, including water required for mixing of concrete, sprinkling, testing, flushing, flooding, or jetting. The Contractor shall provide water as required at his own expense.

Any party requesting the use of a temporary meter on a fire hydrant in the City of Plano shall execute an agreement with the City of Plano and shall deposit with the City of Plano the amount required by ordinance. Such deposit shall be returned upon payment of all charges for water use, and upon return of the meter, fittings, and wrench in their original condition.

Stationary meters shall be locked to fire hydrants at all times. Installation, set up and service fees shall be in the amounts established by ordinance.

It shall be unlawful for any person to open or close any fire hydrant used to obtain water for any purpose with any tool or device other than a standard accepted fire hydrant wrench, which can be supplied by the City of Plano.

All stationary fire hydrant meters shall be read monthly at their location in the field. All mobile fire hydrant meters are to be brought to the Utility Operations Department, 4200 West Plano Parkway, Plano, Texas, between the 1st and 10th of each month to be read.

Temporary fire hydrant meters shall be read monthly by representatives of the City of Plano, and bills rendered at the current rates for all consumption. Customers using such meters shall comply with the written procedures implemented by the Director of Public Works with regard to making the meters available to be read by representatives of the Plano Water Department. It shall be unlawful for any

person to fail to make such meter available to be read by representatives of the Plano Water Department, as required by written procedures issued by the Director of Public Works.

Upon conviction of violation of the above requirements punishment shall be by fine not to exceed Two Hundred Dollars (\$200.00). Each day on which a violation exists shall constitute a separate offense.

ITEM 1.32 **WORKING AREA; COORDINATION WITH OTHER**
CONTRACTORS; FINAL CLEANUP

ITEM 1.32.1 CONSTRUCTION STAKES

Delete in its entirety and substitute therefore the following:

The CITY OF PLANO will furnish and set control stakes for this project as follows:

1. Control for off-set stakes for establishing centerlines.
2. Benchmarks approximately 500 feet intervals at each section.

The stakes set by the CITY OF PLANO will be set sufficiently in advance of the work to avoid delay. The contractor will be held responsible for the preservation of all stakes and marks, and if, in the opinion of the CITY OF PLANO, any of the stakes or marks have been carelessly or willfully disturbed by the Contractor, the cost of replacing them will be charged against him and deducted from the payment from the payment for the work.

The Contractor shall furnish and set free of charge additional stakes and other materials and templates necessary for making and maintaining points and lines, including layout stakes, line and grade stakes for grading, paving, culverts, utilities, storm sewer lines and appurtenances.

The CITY OF PLANO will perform such checking of the Contractor's stakes as considered necessary by the CITY OF PLANO. Such checking by the CITY OF PLANO will in no way release the Contractor of his responsibility for the correctness of the

stakes or the responsibility for checking to insure that the work is constructed to the lines and grades as shown on the plans.

Establishment of the aforementioned lines and grades by the Owner shall in no way release the Contractor of the responsibility of the correctness of the stakes or the responsibility for checking to insure that the work is constructed to the lines and grades as shown on the plans.

ITEM 1.37. CHANGE OR MODIFICATION OF CONTRACT

ITEM 1.37.3 EXTRA WORK

No work shall be undertaken which requires extra payment without having an executed change order approved by the Contractor and the Owner, except when so ordered in writing.

ITEM 1.41 AUTHORITY OF THE ENGINEER

ITEM 1.41.3 OWNER-ENGINEER RELATIONSHIP

The Engineer will be the Owner's representative during construction. The duties, responsibilities and limitations of authority of the Engineer as the Owner's representative during construction are set forth in the Contract Documents and shall not be extended or limited without written consent of the Owner and Engineer. The Engineer will advise and consult with the Owner, and all of Owner's instructions to the Contractor shall be issued through the Engineer.

ITEM 1.41.4 PROFESSIONAL INSPECTION BY ENGINEER

The Engineer shall make periodic visits to the site to familiarize himself generally with the progress of the executed work and to determine if such work generally meets the essential performance and design features and the technical and functional engineering requirements of the Contract Documents; provided and except, however, that the Engineer shall not be responsible for making any detailed, exhaustive, comprehensive or continuous on-site inspection of the quality or quantity of the work or be in any way responsible, directly or indirectly, for the construction means, methods, techniques,

sequences, quality, procedures, programs, safety precautions or lack of same incident thereto or in connection therewith. Notwithstanding any other provision of this agreement or any other Contract Document, the Engineer shall not be in any way responsible or liable for any acts, errors, omissions or negligence of the Contractor, any subcontractor or any of the Contractor's or subcontractor's agents, servants or employees or any other person, firm or corporation performing or attempting to perform any of the work.

ITEM 1.51 MONTHLY ESTIMATE, PARTIAL PAYMENTS, RETAINAGE, FINAL INSPECTION, ACCEPTANCE AND FINAL PAYMENT

ITEM 1.51.2 RETAINAGE

(d) On projects where the contract price, at the time of execution, is greater than \$400,000, the Owner may retain 10 percent of the amount due the Contractor, with the retainage above 5 percent deposited in an interest bearing account and interest earned on such 5 percent retained funds shall be paid to the Contractor upon completion of the contract.

ITEM 1.51.3 FINAL INSPECTION AND ACCEPTANCE

Revise 1.51.3 to read:

Within ten (10) days after the Contractor has given the Engineer written notice that the work has been completed, or substantially completed, the Engineer and the Owner shall inspect the work and within said time, if the work be found to be completed or substantially completed in accordance with the Contract Documents, the Engineer shall issue to the Owner and the Contractor his Certificate of Completion, and there upon it shall be the duty of the Owner within ten (10) days to insure a Certificate of acceptance of the work to the Contractor or to advise the Contractor in writing of the reason for nonacceptance.

Definition of Substantially Complete: The date of substantial completion of a project or specified area of a project is the date when the construction is sufficiently completed, in accordance with the contract documents, as modified by any change orders agreed to by the parties, so that the Owner can

occupy or utilize the project or specified area of the project for the use for which it was intended.

ITEM 1.56 EQUAL EMPLOYMENT OPPORTUNITY

Delete the last paragraph in this item in its entirety.

ITEM 1.58 STATE AND LOCAL SALES AND USE TAXES

Delete in entirety.

Due to change in sales tax law, the provisions are no longer valid.

CITY OF PLANO, TEXAS
SPECIAL PROVISIONS
TO THE
NORTH CENTRAL TEXAS STANDARD SPECIFICATIONS
FOR PUBLIC WORKS CONSTRUCTION
GENERAL PROVISIONS - PRIVATE DEVELOPMENT

PART 1: GENERAL PROVISIONS, DIVISION 1 - PRIVATE DEVELOPMENT WORK ONLY

The General Provisions of the North Central Texas Standard Specifications shall be modified and clarified by the addition of the following requirements to the various items, which shall apply to Private Development Work Only. Except when specifically stated, none of the requirements of the General Provisions shall be deleted.

ITEM 1.0 DEFINITIONS

OWNER: On Public Works Construction being performed under Subdivision Regulations by a Developer of property within Plano, the Owner shall be defined as the Owner of the property or development subdivision. All work performed on this project shall be inspected by a representative of the City of Plano to observe conformance with these specifications and the approved plans.

ITEM 1.19 PRIORITY OF CONTRACT DOCUMENTS

Revise this item to read:

In case of conflict between contract documents, priority of interpretation shall be in the following order: signed agreement, performance and payment bonds, addenda, special conditions, project drawings and specifications, City of Plano Standard Construction Details, The Standard Specifications for Public Works Construction - North Central Texas, Advertisement for Bids (or Notice to Contractors of Invitation to Bidders or Request for Proposals), contractors bid proposal and bid form. (Reference Items 1.20.1, 1.20.3, 1.39, and 1.41).

ITEM 1.22.2 INDEMNIFICATION

Delete Item 1.22.2 in its entirety and substitute therefore the following:

The Contractor and his sureties shall indemnify, defend and save harmless the OWNER and all of its officers, agents and employees, ENGINEER and all of its officers and employees from all suits, actions or claims of any character, name and description brought for or on account of any injuries, including death or damages received or sustained by any person, persons or property on account of the operations of the Contractor, his agents, employees or subcontractors; or on account of any negligent act or fault of the Contractor, his agents, employees or subcontractors in the execution of said contract; or on account of the failure of the Contractor to provide the necessary barricades, warning lights or signs; and shall be required to pay any judgment, with cost, which may be obtained against the Owner or Engineer growing out of such injury, including death or damage.

ITEM 1.23.1 ANTITRUST (add the following)

The Contractor hereby assigns to the Owner any and all claims for overcharges associated with this contract which arise under the Antitrust Laws of the United States, 15 U.S.C.A., Section 1, et seq, (1973).

ITEM 1.24.2 PROTECTION OF PERSON AND PROPERTY

The Contractor shall at all times exercise reasonable precautions for the safety of employees and others on or near the work and shall comply with all applicable provisions of Federal, State, and Municipal safety laws and building construction codes. All machinery and equipment and other physical hazards shall be guarded in accordance with the "Manual of Accident Prevention in Construction" of the Associated General Contractors of America except where incompatible with Federal, State and Municipal laws or regulations. The Contractor shall provide such machinery, guards, safe walkways, ladders, bridges, gangplanks, and other safety devices. The safety precautions actually

taken and their adequacy shall be the sole responsibility of the Contractor, acting at his discretion as an independent contractor.

ITEM 1.26 INSURANCE

ITEM 1.26.1 CONTRACTOR'S LIABILITY INSURANCE

Delete in its entirety and substitute the following:

Without limiting any of the other obligations or liabilities of the CONTRACTOR, the CONTRACTOR and each subcontractor, at their own expense, shall, during the term of the contract, purchase and maintain the hereinafter stipulated minimum insurance with companies duly authorized to do business in the state of Texas and satisfactory to the CITY OF PLANO. Certificates of each policy, together with a statement by issuing company to the extent that said policy shall not be canceled without 30 day's prior notice being given the CITY OF PLANO, shall be delivered to the CITY OF PLANO before any work is started:

(1) Commercial General Liability (CGL) Insurance, including independent contractor's liability, completed operations and contractual liability, covering, but not limited to, the liability assumed under the indemnification provisions of this contract, fully insuring CONTRACTOR'S (or subcontractor's) liability for injury to or death of CITY OF PLANO employees and third parties, extended to include personal injury liability coverage, for damage to property of third parties, with the following limits:

(a) Heavy Construction: demolition, road repair/construction, utility construction.

OPTION #1

General Aggregate	\$2,000,000
Products Completed/ Operations Aggregate	\$2,000,000
Personal & Advertising Liability	\$1,000,000
Each Occurrence	\$1,000,000

Fire Damage	\$ 50,000
Medical Expense	\$ 5,000
<u>OPTION #2</u>	
<u>General Aggregate</u>	<u>\$1,000,000</u>
<u>Products Completed/ Operations Aggregate</u>	<u>\$1,000,000</u>
<u>Personal & Advertising Liability</u>	<u>\$ 500,000</u>
<u>Each Occurrence</u>	<u>\$ 500,000</u>
<u>Fire Damage</u>	<u>\$ 50,000</u>
<u>Medical Expense</u>	<u>\$ 5,000</u>
<u>Umbrella Form - Bodily Injury and Property Damage Combined</u>	<u>\$1,000,000</u>

The policy shall include broad form property damage coverage extended to apply to completed operations, XCU exclusions removed where applicable. Explosion, Collapse and Underground (XCU) is normally provided as a single unit. Some underwriters will scratch one or two for consideration in the premium. Contractors using explosives shall be required to have the X (explosion) coverage while those who excavate shall have the U (underground) coverage. Contractors constructing buildings shall have C (collapse) coverage. The above mentioned contractors must have the appropriate coverage even if it means obtaining all three (XCU). The completed operations coverage must be maintained for a minimum of one year after final completion and acceptance of the work, with evidence of same filed with OWNER. Where work is being performed in connection with an existing facility owned or leased by the CITY OF PLANO, the policy shall include fire legal liability of not less than \$100,000 per occurrence.

ITEM: 1.26.2 OWNERS PROTECTIVE LIABILITY INSURANCE

Delete this item in its entirety and substitute the following:

ITEM: 1.26.2 OWNER'S AND CONTRACTOR'S PROTECTIVE LIABILITY (OCP)

This coverage is purchased by the contractor on behalf of the Owner for a specific project. The OCP affords protection to the City for liability arising out of the contractor's or subcontractor's negligence on a City project. The coverage is almost identical to the Commercial General Liability (CGL) policy. The OCP will be required for any contract when the CGL insurance will not list the City of Plano as an "additional named insured" but will list the City as an "additional insured". The limits shall be the same as the per occurrence limits of the CGL.

ITEM: 1.26.3 "UMBRELLA" EXCESS LIABILITY INSURANCE

Delete this item in its entirety.

ITEM 1.26.4 POLICY ENDORSEMENTS AND SPECIAL CONDITIONS

Delete this item in its entirety and substitute therefore the following:

A. Each insurance policy to be furnished by CONTRACTOR shall include the following conditions by endorsement to the policy:

(a) Each policy shall require 30 days prior to the cancellation of any material change in coverage, a notice thereof shall be given to CITY OF PLANO by certified mail;

(b) the term "CITY OF PLANO" aka "CITY" shall include all authorities, boards, bureaus, commissions, divisions departments and office of the CITY and the individual members, employees and agents thereof in their official capacities, and/or while action on behalf of the CITY;

(c) the policy phrase "other insurance" shall not apply to the CITY where the CITY is an additional named insured on the policy; and

(d) specific endorsements shall be submitted to the CITY OF PLANO.

B. Concerning insurance to be furnished by CONTRACTOR, it is a condition precedent to acceptability thereof that:

(a) Any policy submitted shall not be subject to limitations, conditions or restrictions deemed inconsistent with the intent of the insurance requirements to be fulfilled by CONTRACTOR. The CITY'S decision thereon shall be final; and

(b) all policies are to be written through companies duly authorized to transact that class of insurance in the State of Texas. The companies affording coverage will be checked through the A.M. Best Guide. An "A-" rating or better is preferred along with being licensed to do business in the State of Texas.

(c) The City of Plano shall be an additional named insured on the Commercial General Liability policy. If the Carrier will list the City as an additional insured only, then the Contractor shall, at his own expense, obtain an Owner's and Contractor's Protective Liability policy which has the City as an additional insured. The City of Plano shall be the Certificate Holder.

C. CONTRACTOR agrees to the following:

(a) CONTRACTOR hereby waives subrogation rights for loss or damage to the extent same are covered by insurance. Insurers shall have no right of recovery or subrogation against the CITY, it being the intention that the insurance policies shall protect all parties to the contract and be primary coverage for all losses covered by the policies;

(b) companies issuing the insurance policies and CONTRACTOR shall have no recourse against the CITY for payment of any premiums or assessments for any deductibles, as all such premiums and deductibles are the sole responsibility and risk of the CONTRACTOR;

(c) approval, disapproval or failure to act by the CITY regarding any insurance supplied by the CONTRACTOR (or any subcontractors) shall not relieve the CONTRACTOR of full responsibility for liability for damages and accidents as

set forth in the contract documents. Neither shall the bankruptcy, insolvency or denial of liability by the insurance company exonerate the CONTRACTOR from liability.

(d) Should any person sustain bodily injury or property damage within the limits of this project, the Contractor or his Insurance Agent shall investigate and report immediately his findings in writing to the City of Plano. The City of Plano, in its sole discretion, may elect at any time to file for coverage directly under the Owner's and Contractor's Protective Liability Policy.

D. Any of such insurance policies required under this section may be written in combination with any of the others, where legally permitted, but none of the specified limits may be lowered thereby.

E. Subcontractors shall have their own insurance policy with the same provisions required for Contractors, or be listed as additional insureds on the General Contractor's Liability policy.

F. A Certificate of Insurance Sample is shown herein. The following information must appear on or with the certificate of insurance submitted by the Contractor or Subcontractor:

1. Thirty (30) day notice of cancellation by certified mail.
2. Full name of insurance company and A.M. Best Guide Rating.
3. Statement which waives subrogation rights for loss or damage to the extent same or covered by insurance.
4. List of all subcontractors which are additional insureds on the prime contractors policy.
5. Furnish subcontractors Certificate of Insurance which are not covered as additional insureds on the prime contractors policy.
6. Additional named insured endorsement shall be attached to certificate.

ITEM 1.27.4 SPECIAL WARRANTY

Add the following:

The Contractor shall provide a Maintenance Bond in the amount of ten percent (10%) of the total amount of the contract guaranteeing the work in accordance with the plans and specifications for a period of one (1) year after acceptance by the City of Plano. This bond shall provide for repair and/or replacement of all defects due to faulty material and workmanship that appear within a period of one (1) year from the date of completion and acceptance of the improvements by the City of Plano.

ITEM 1.28 SHOP DRAWINGS, PRODUCT DATA AND SAMPLES (add the following)

Review of Shop Drawings by the Engineer shall be for the sole purpose of determining the sufficiency of the said drawings or schedules to result in finished improvements in conformance with the plans and specifications, and shall not relieve the Contractor of his duty as an independent Contractor. It being understood and agreed that the Engineer does not assume any duty to pass upon the propriety or adequacy of such drawings or schedules or any means or methods reflected thereby in relation to the safety of either person or property during the Contractors performance hereunder. Review will be made within seven (7) days after receipt of the submittal.

ITEM 1.29.3 WATER FOR CONSTRUCTION

The Contractor shall make the necessary arrangement for securing and transporting all water required in the construction, including water required for mixing of concrete, sprinkling, testing, flushing, flooding or jetting. The Contractor shall provide water as required at his own expense.

Any party requesting the use of a temporary meter on a fire hydrant in the City of Plano shall execute an agreement with the City of Plano and shall deposit with the City of Plano the amount required by ordinance. Such deposit shall be returned upon payment of all charges for water use, and upon return of the meter, fittings, and wrench in their original condition.

Stationary meters shall be locked to fire hydrants at all times. Installation, set up and service fees shall be in the amounts established by ordinance.

It shall be unlawful for any person to open or close any fire hydrant used to obtain water for any purpose with any tool or device other than a standard accepted fire hydrant wrench, which can be supplied by the City of Plano.

All stationary fire hydrant meters shall be read monthly at their location in the field. All mobile fire hydrant meters are to be brought to the Utility Operations Department, 4200 West Plano Parkway, Plano, Texas, between the 1st and 10th of each month to be read.

Temporary fire hydrant meters shall be read monthly by representatives of the City of Plano, and bills rendered at the current rates for all consumption. Customers using such meters shall comply with the written procedures implemented by the Director of Public Works with regard to making the meters available to be read by representatives of the Plano Water Department. It shall be unlawful for any person to fail to make such meter available to be read by representatives of the Plano Water Department, as required by written procedures issued by the Director of Public Works.

Upon conviction of violation of the above requirements punishment shall be by fine not to exceed Two Hundred Dollars (\$200.00). Each day on which a violation exists shall constitute a separate offense.

ITEM 1.56 EQUAL EMPLOYMENT OPPORTUNITY

Delete the last paragraph in this item in its entirety.

ITEM 1.58 STATE AND LOCAL SALES AND USE TAXES

Delete in entirety.

Due to change in sales tax law, the provisions are no longer valid.

CITY OF PLANO, TEXAS
SPECIAL PROVISIONS
TO THE
NORTH CENTRAL TEXAS STANDARD SPECIFICATIONS
FOR PUBLIC WORKS CONSTRUCTION

MATERIALS

PART II: MATERIALS - DIVISION 2

The North Central Texas Standard Specifications, Materials - Division 2, shall be modified and clarified by the addition of the following requirements of the various items. Except when specifically stated, none of the requirements of PART II: MATERIALS - DIVISION 2, shall be deleted.

ITEM 2.1.1 AGGREGATES FOR PORTLAND CEMENT CONCRETE

Coarse Aggregates

Gradation: Add the sentence: For Plano paving projects, the coarse aggregates gradation shall meet the requirements of Grade No. 3 shown in the table.

ITEM 2.1.2 AGGREGATES FOR HOT MIX ASPHALTIC CONCRETE (HMAC)

a. General Requirements

General: Add the following: Paving mixtures which may be used on paving projects in Plano consist of the coarse graded base coarse Type "A", fine graded base or leveling up coarse Type "B", coarse graded surface course Type "C", or fine grades surface course Type "D". Gradations for Type "A" and Type "C" are showing in Special Provision Item 2.4.13 HOT MIX ASPHALTIC CONCRETE. Specifications of Type "B" and Type "D" are included in the Standard Specifications for Public Works Construction, North Central Texas. When Type "A" and Type "C" paving mixtures are specified,

specifications for these types are included in the Texas State Department of Highways and Public Transportation 1982 Standard Specifications and these specifications shall apply.

ITEM 2.1.2(a)(5) Screening and Proportioning

Add to the end of the section:

NOTE: For continuous and drum mix plans refer to 2.4.13.

ITEM 2.1.2 (c)(5) Additional Requirements.

Revise to read:

Where stone screenings are specified for use, they shall be screenings resulting from crushing operation.

ITEM 2.1.3 SUBBASE MATERIAL

b. Flexible Base (Crushed Limestone)

(1) General: Add the sentence: No local limestone material shall be used as flexible base (crushed limestone) on Plano roadway projects, unless otherwise shown on the plans.

(3) Gradation: After the first sentence add the sentence: Samples of crushed limestone material shall be submitted to the engineer testing laboratory employed by the City for testing and conformance with the specifications.

ITEM 2.1.5 TRENCH BACKFILL

Add note - "(Also see Item 6.2.10)".

ITEM 2.1.7 PIPE BEDDING FOR STORM SEWERS

Revise sections as follows:

(a.) General: Add the sentence: Unless otherwise indicated, storm sewer pipe shall be bedded with Class "C" bedding in accordance with the details shown on the plans.

(b.) Earth Bedding: Delete from specifications.

(c.) Trench: Delete paragraph in its entirety.

ITEM 2.1.7(d)(3) Rock Bedding/Foundation

Should be number "Item 2.1.7 (e)" and subsections

should be:

(1) Description.

(2) Deleterious Substances.

(3) Gradation.

ITEM 2.1.7(e) Rock or other Incompressible Foundation.

Should be changed to "Item 2.1.7(f)".

ITEM 2.1.7(f) Class C Bedding.

Should be changed to "Item 2.1.7(g)".

(g.) Class "C" Bedding: After the trench has been cut to a depth below the barrel of the pipe a distance of $1/8 B_c$ (outside diameter of pipe), three inches minimum (six inches minimum in rock), the bedding shall be brought up to a point slightly above grade with stone. Bell holes shall be formed, a trough scooped out to grade, and the pipe laid and jointed as specified. The stone shall then be brought up in uniform compacted layers of either side of the pipe $1/6 B_c$ (outside diameter of pipe). Bedding shall be one of the following materials:

(1) Screened Pit-run gravel, passing 1-1/2 inch sieve and retained on 1/4-inch sieve.

(2) Pea gravel, passing 5/8-inch sieve and retained on 1/8-inch sieve.

(3) Crushed Limestone meeting the requirements of Item 2.1.8- PIPE BEDDING MATERIALS FOR WATER AND SANITARY SEWER MAINS.

Add:

General. The aggregates used shall contain not more than a total of eight percent by weight of deleterious substance, such as clay, shale or organic matter.

The embedment backfill shall be select or granular material and shall be brought up in uniform compacted layers to a point six inches above the top of the pipe. Density shall be 95% under paving, 90% elsewhere.

ITEM 2.1.8 PIPE BEDDING MATERIAL FOR WATER AND SANITARY SEWER MAINS

(a) Crush Stone Embedment: All stone used for pipe embedment within Plano shall be Standard Crushed Rock-Aggregate, Grade 4, unless otherwise approved in writing.

ITEM 2.2.1 CEMENT

General: Add the following paragraph: Where Type I cement is used, if required by the Owner, samples of the proposed Portland Cement will be obtained prior to beginning the work and one (1) set of three (3) cube specimens shall be made and tested at 3 days and 7 days for compressive strength. The 3 day strength shall have a minimum comprehensive strength of 1800 psi and the 7 day strength shall have a minimum comprehensive strength of 2800 psi. In addition, compressive strength cube specimens shall be made and tested at a frequency of one (1) set per 600 tons of cement used during construction so that the quality of the cement can be observed throughout the project. At the beginning of the project, samples of the cement shall be furnished to the laboratory to test for the fineness of the cement. Type I cement shall not exceed 1500 square centimeters per gram as measured by the Turbidimeter in accordance with Method C115. Also, at the beginning of the project, the time of

setting by VICAT NEEDLES, Method C191, shall be made. The initial set shall not be less than 48 minutes.

ITEM 2.2.2 CHEMICAL ADMIXTURES

Add the following: All reinforced concrete pavement shall contain an air entraining admixture having $5\% \pm 1-1/2\%$ entrained air in the concrete. Also, at the Contractors option a water reducing admixture may be used. All beam and cylinders prepared for testing in connection with the mix design shall contain the approved air entraining admixture and water reducing admixture.

(d) Fly Ash: Add the following: Fly Ash admixtures may be used with Type I cement in mix designs for concrete pavements, except on State Highway improvements in Plano. Fly ash meeting the requirements of the Standard Specifications shall be used in the admixture. The maximum cement reduction shall not exceed 20% by weight per cubic yard of concrete and fly ash replacement shall be 1.25 pounds per 1.0 pound of cement reduction except with approval of the Engineer based on laboratory test results.

ITEM 2.2.7 STEEL WIRE REINFORCEMENT

ITEM 2.2.7(a) General.

Revise first sentence to read:

"At the City's option the use of welded wire fabric may be used in lieu of deformed reinforcement bars unless otherwise shown on the plans or in the contract specifications."

ITEM 2.2.10 JOINT SEALING

Delete paragraphs (c) Ready-Mixed Cold-Applied Joint and Crack Sealer and (f) Thermoplastic.

ITEM 2.3 MASONRY MATERIALS

ITEM 2.3.3 SEWER AND MANHOLE BRICK
Delete in entirety.

ITEM 2.3.6 BRICK FOR SCREENING WALLS

a. General

Brick for screening walls shall be new brick made from clay, shale, fine clay or mixtures thereof and fired to incipient fusion and shall meet the requirements of ASTM C216-81.

b. Types

The three (3) types of facing bricks, any of which may be used in screening walls, are as follows:

(1) Type FBS: Brick for general use in exposed exterior and interior masonry walls and partitions where wider color ranges and greater variation in sizes are permitted than are specified for Type FBX.

(2) Type FBX: Brick for general use in exposed exterior and interior masonry walls and partitions where a high degree of mechanical perfection, narrow color range, and minimum permissible variation in size are required.

(3) Type FBA: Brick manufactured and selected to produce characteristic architectural effects resulting from nonuniformity in size, color, and texture of the individual units.

c. Physical Properties

Durability: The brick shall conform to the physical requirements for Grade SW (severe weathering) and shall have

a weathering index greater than 500. Physical requirements for Grade SW brick used to construct single and multiple brick walls are as follows:

PHYSICAL REQUIREMENTS FOR GRADE SW BRICK

Wall Thickness	Minimum Compressive Strength (brick Flatwise) psi, Gross Area		Maximum Water Absorption by 5-h Boiling, Percent		Max Saturation Coefficient	
	Average of 5 Brick	Individual	Avg. of 5 Brick	Individual	Avg. of 5 Brick	Indiv
Double or Greater	3000 psi	2500 psi	17.0	20.0	0.78	0.80
Single	6000 psi	5000 psi	17.0	20.0	0.78	0.80

If the average water absorption is less than 8.0 percent after 24-hour submersion in cold water, the requirement for saturation coefficient shall be waived.

d. Efflorescence

When the brick are tested in accordance with Methods C67, Sampling and Testing Brick and Structural Clay Tile, the rating for efflorescence shall be not more than "slightly effloresced".

e. Material and Finish

Colors and textures produced by application of inorganic coatings to the faces of the brick are permissible with the consent of the purchaser, provided that evidence is furnished of the durability of the coatings. Brick that are colored by flashing or textured by sanding, where the sand does not form a continuous coating, are not considered as surface-colored brick.

The brick shall be free of defects, deficiencies, and surface treatments, including coatings, that would interfere with the proper setting of the brick or significantly impair the strength or performance of the construction.

The face or faces that will be exposed in the place shall be free of chips that exceed the limits given in Tables 3 and 4, ASTM C216.

The aggregate length of chips shall not exceed 10 percent of the perimeter of the face of the brick.

The face or faces shall be free of cracks or other imperfections detracting from the appearance of the designated sample when viewed from a distance of 15 feet for Type FBX and a distance of 20 feet for Types FBS and FBA.

Unless otherwise agreed upon by the purchaser and the seller, a delivery of brick shall contain not less than 95 percent whole brick. In this specification, the term whole brick shall be understood to mean brick meeting the requirements of this specification for chippage and tolerances.

f. Texture and Color

The color and texture should be specified by the purchaser. Unless otherwise specified by the purchaser, at least one end of the majority of the individual brick shall have the same general texture and general color tone as the approved sample. Bricks shall be earth tone in color.

g. Size

The size of brick shall be as specified by the purchaser.

h. Lime Mortar for Brick Screening Walls

Lime mortar for brick screening walls shall be composed of portland cement, hydrated lime, sand and water. The mortar shall be Type "S", in accordance with the requirements of ASTM C-270.

ITEM 2.3.7 INTERLOCKING CONCRETE PAVING STONE

(1) Description

Interlocking Concrete Paving Stone shall be furnished at locations shown on the plans. See Item 5.8.8 of these Special Provisions.

(2) Materials

(a) Interlocking Concrete Paving Stone shall be made from a "non-slump" concrete mix composed of 6 mm (1/4") washed limestone, block sand and portland cement, made under extreme pressure and high frequency vibrations. The stones shall meet or exceed ASTM Specification C 936-82 requiring a compressive strength of 8,000 psi, maximum absorption of 5% and shall meet the requirements of freeze-thaw testing in accordance with Section 8 of ASTM C-67-73 or CSA A82.2-1967.

(b) Reinforced Concrete Base shall be constructed of 3,000 psi concrete meeting the requirements of Item 5.8 NCT-COG Standard Specifications. 3/8" reinforcing bars shall be placed 24 inches on center, both ways in all concrete.

(3) Construction

Remove existing concrete median pavement, if required, excavate as shown on Standard Details, use sand to level grade and construct reinforced concrete base, place bedding course of sand to level, and install paving stone units with joints of

approximately 3 mm (1/8"). Where required, cut paving stones with an approved cutter to fit accurately, neatly, and without damaged edges. Tamp pavers with mechanical vibrator until entirely level, true to grade and free of movement. Fill voids by sweeping in clean fine sand.

(4) Measurement and Payment

Interlocking Concrete Paving Stone shall be measured and paid for by the square foot of stone, sand and concrete base furnished and installed, which price shall include all labor, including excavation, materials, equipment, tools and incidentals necessary to complete the work. No separate payment shall be made for 4" concrete base or washed sand. Payment for removal and disposal of existing concrete median pavement, if required, shall be made by the square foot.

ITEM 2.4.8 EMULSIFIED ASPHALT:

ITEM 2.4.8(a) General.

Last sentence - "Table No. 8" should be "Table No. 9".

"Table No. 8 - Requirements for Emulsified Asphalt",
should be "Table No. 9 - Requirements for Emulsified Asphalt".

ITEM 2.4.9 FLUX OIL

"Table No. 9 - Requirements for Flux Oil", should be
"Table No. 8 - Requirements for Flux Oil".

ITEM 2.4.13 HOT MIX ASPHALTIC CONCRETE

ITEM 2.4.13(b) Material

Revise fourth paragraph to read:

The asphaltic material for tack coat shall be emulsified asphalt, diluted with 50 percent water. Requirements for rapid curing cut-back asphalt or emulsified asphalt are shown on Table No. 9.

Delete last sentence in entirety.

(c) Paving Mixture: Add the following requirements of proportions for Hot Mix Asphaltic Concrete.

**MASTER GRADING
PERCENT PASSING BY WEIGHT OR VOLUME**

SIEVE SIZE	TYPE				
	A COARSE BASE	B FINE BASE	C COARSE SURFACE	D FINE SURFACE	F FINE MIXTURE
1-1/2"	100				
1-1/4"	95-100				
1"		100			
7/8"	70-90	95-100	100		
5/8"		75-95	95-100		
1/2"	50-70			100	
3/8"		60-80	70-85	85-100	100
1/4"					95-100
No. 4	30-50	40-60	43-63	50-70	
No. 10	20-34	27-40	30-40	32-42	32-42
No. 40	5-20	10-25	10-25	11-26	9-24
No. 80	2-12	3-13	3-13	4-14	3-13
No. 200	1-6*	1-6*	1-6*	1-6*	1-6*
VMA % minimum	11	12	13	14	15

* 2-8 when Test Method Tex-200-F, Part II (Washed Sieve Analysis) is used.

The asphaltic material shall form from 3.5 to 7 percent of the mixture by weight or from 8 to 16 percent of the mixture by volume, unless specified otherwise on the plans.

ITEM 2.5.1 LIME

Add the following sentence: Quick Lime shall not be used in the construction of roadway work in Plano.

ITEM 2.5.2 HYDRATED LIME (DRY)

Add the following sentence: Dry hydrated lime shall not be used for treating subgrade or base material unless specified on the plans.

ITEM 2.8.2 WIRE FENCING

(b) Material

(1) Fabric: All chain link fencing installed in Plano shall be No. 9 gage copper bearing open-hearth steel wire.

(2) Metal Posts: All posts shall be heavily galvanized by the hot-dip process after fabrication and shall be

fitted with watertight malleable iron caps. All posts shall be of the following size and shape:

Line Posts: "H" Section hot rolled weighing not less than 4.10 pounds per linear foot or 3-1/2-inch O.D. pipe weighing not less than 3.65 pounds per linear foot.

Terminal Posts: Three inch (3") steel pipe weighing not less than 5.79 pounds per linear foot.

Gate Posts: Four inch (4") O.D. steel pipe weighing not less than 9.11 pounds per linear foot.

(4) Rails, Gates, Braces and Fittings: Shall be 1-5/8 inch steel pipe weighing not less than 2.27 pounds per linear foot.

ITEM 2.9.6 PAINT FOR CONCRETE WALLS

a. Description

Paint for concrete walls shall consist of a Latex Acrylic Paint which has been especially formulated for use on masonry surfaces. Paint color shall be subject to approval by the City Engineer.

b. Performance Requirements

The wall paint shall have excellent color and gloss retention, adhere tightly to the concrete and be blistering and peeling resistant. It shall be resistant to chalking, shall have good flow and working properties and shall meet all present ecological and lead hazard regulations.

c. Masonry Paints (2 Coats Required)

Paint for concrete walls shall meet the requirements of either Sherwin Williams A-100 Flat Latex House and Trim Paint, or Weather Perfect Acrylic Latex Flat Exterior Finish or

equal, or shall meet the requirements of Jones Blair Polyflex, a vinyl acrylic latex paint, or Polyflex Gloss House and Trim Paint or equal.

ITEM 2.10.2 MATERIAL

ITEM 2.10.2(d) Conduit for Street Lighting and Traffic Control

Revise 2.10.2(d) Conduit to Read:

(1) General

This specification shall govern for furnishing conduit for street lightning and traffic control system of the types and sizes indicted on the plans.

(2) Materials

(a) Plastic Conduit

All plastic conduit for street lighting and traffic control system shall be Schedule 40, rigid, high impact polyvinyl chloride, conforming to Federal Specification WC-1094 and Underwriters Laboratories, Inc., Standard UL-651. Fittings for PVC pipe shall be Schedule 40 meeting the requirements of ASTM D2466. Color of the pipe shall be grey.

(b) Solvent Cement for PVC Pipe and Fittings

Solvent cement shall meet the requirements of ASTM D2564.

(c) Rejection

All Polyvinyl Chloride (PVC) Pipe shall be inspected for compliance with manufacturer's dimensional requirements and for freedom from any defects or damage caused by shipment or handling. All damaged or defective conduit shall be rejected.

ITEM 2.10.2(d)(2) Rigid Street Conduit

Change to Item 2.10.2(d)(2)(c)

ITEM 2.10.2(d)(3) Flexible Conduit

Change to Item 2.10.2(d)(2)(d)

ITEM 2.10.2(d)(4) Indoor Cable Tray

Change to Item 2.10.2(d)(2)(e)

ITEM 2.10.2(d)(5) Underground Trench Duct

Change to Item 2.10.(d)(2)(f)

ITEM 2.10.2(f) Rejection

Change to Item 2.10.(g)

Add: Item 2.10.2(f) Pull Box for Traffic Signal Conduit.

All pull boxes shall be #36 supplied by Traffic Signal Equipment Company, Fort Worth, Texas or approved equal. Boxes shall be approximately 10 1/2"x17"x12" and shall be furnished with a concrete cover.

ITEM 2.11.7 METAL RAILINGS

Add: Item 2.11.7(f) Reflectorized Marking for Guard Rail.

Reflectorized marking for guard rail and other traffic control used shall meet the requirements of 3M Scotchlite Brand Reflective Sheeting Grade, Series 2800, 3800 or 5800, or equal. The marking shall conform to U.S. Department of Transportation, Federal Highway Administration, STANDARD SPECIFICATIONS FOR CONSTRUCTION OF ROADS AND BRIDGES ON FEDERAL HIGHWAY PROJECTS, 1979 FP-79, Type III A, Sections 633.36 and 718.01 and Federal Supply Service, General Services Administration, LS-300 C, SHEETING AND TAPE REFLECTIVE NON-EXPOSED LENS, Reflectivity 2, Class 4.

ITEM 2.12.2 CONCRETE SEWER PIPE, NONREINFORCED WITH RUBBER GASKET JOINTS

This type of pipe is not approved for use within the City of Plano.

ITEM 2.12.4 REINFORCED CONCRETE SEWER PIPE WITH RUBBER GASKET JOINTS

All reinforced concrete pipe used in the sanitary sewer system within the City of Plano shall conform to ASTM Designation C76 and shall be of the Thick Wall Pipe design with aggregates consisting of limestone aggregate in the proportion of at least 75 percent by weight of the total aggregates, unless otherwise provided in the Special Conditions to the Specifications.

ITEM 2.12.5 CONCRETE PRESSURE PIPE AND FITTINGS

C302 Reinforced Concrete Pressure Pipe, Non Cylinder Type, for Water and Other Liquids, and C300 Reinforced Concrete Pressure Pipe, Steel Cylinder Type, for Water and Other Liquids are not approved for use within the City of Plano, unless otherwise shown in the plans or approved in writing. Reinforced concrete cylinder pipe in sizes 16 inches through 21 inches shall be Pretensioned Pipe Type C303. For pipe 42 inches in diameter and above the pipe shall be Prestressed Pipe Type C301. Between 24 inches and 36 inches the pipe furnished may be either type. All pipe shall be designed to withstand the working pressure and external load as shown in the plans.

ITEM 2.12.6 THERMOPLASTIC OR THERMOSETTING COATED CONCRETE PIPE AND FITTINGS

This type of coating for concrete pipe is not approved for use within the City of Plano.

ITEM 2.12.8 DUCTILE-IRON PRESSURE PIPE AND FITTINGS (Add the Following)

Minimum design thickness for all Ductile-Iron Pipe installed within the City of Plano shall be Class 50 on sizes 12 inches and smaller, and Class 51 on sizes 14 inches and larger.

ITEM 2.12.10 ASBESTOS-CEMENT NONPRESSURE SEWER PIPE

This type of pipe is not approved for use in the City of Plano.

ITEM 2.12.11 ASBESTOS-CEMENT PRESSURE PIPE

This type of pipe is not approved for use within the City of Plano.

ITEM 2.12.13 PVC LARGE DIAMETER RIBBED GRAVITY SEWER PIPE

This type of pipe is not approved for use within the City of Plano.

ITEM 2.12.14 POLYVINYL CHLORIDE (PVC) SEWER PIPE AND FITTINGS

Delete this item in its entirety and substitute therefore the following:

(a) Pipe 4 inches through 15 inches in diameter. All PVC Sewer Pipe in the above sizes shall be manufactured in accordance with ASTM Designation D3034 to provide pipe and fittings suitable for non-pressure drainage of sewage. The pipe shall be Type PSM SDR-35 PVC Sewer Pipe. The pipe shall be made of PVC plastic having a cell classification of 12454-B or 12454-C as defined in ASTM Specification D1784, Rigid PVC Plastics.

Pipe shall be tested of flattening, impact resistance, stiffness, joint tightness and extrusion quality as specified in ASTM Designation D3034.

(b) Pipe 18 inches through 27 inches in diameter. All PVC Sewer Pipe in the above sizes shall be manufactured in accordance with ASTM Designation F679 to provide pipe and fittings suitable for non-pressure drainage of sewage. The pipe shall be manufactured from PVC material with a minimum cell classification of 12454C as defined in ASTM Specification D1784, Rigid PVC Plastics. All pipe furnished under this section of the specifications shall have a minimum wall thickness as shown in T-1^A OR T-2^B of Table No. 1 of the ASTM F679 Specifications.

ASTM F679 TABLE 1 - PIPE DIMENSIONS AND MINIMUM PIPE STIFFNESS

Nominal Pipe Size	Avg. Outside Diameter		Tolerance on Avg. Outside Diameter		Minimum Wall Thickness				Minimum Pipe Stiffness	
	In.	(mm)	In.	(mm)	T-1 ^A		T-2 ^B		psi	kPa
18	18.701	(475)	+0.028	(+0.71)	0.536	(13.6)	0.499	(12.7)	46	(320)
21	22.047	(560)	+0.033	(+0.84)	0.632	(16.0)	0.588	(14.9)	46	(320)
24	24.803	(630)	+0.037	(+0.94)	0.711	(18.1)	0.661	(15.5)	46	(320)
27	27.953	(710)	+0.042	(+1.07)	0.801	(20.3)	0.745	(18.9)	46	(320)

Pipe shall be tested for flattening, impact resistance, stiffness, joint tightness and extrusion quality as specified in ASTM Designation F679.

ITEM 2.12.18 ASBESTOS BONDED, BITUMINOUS LINED, SMOOTH INTERIOR CORRUGATED METAL SANITARY SEWER PIPE AND PIPE ARCH SHAPES

Delete in entirety

This type of pipe is not approved for use with the City of Plano.

ITEM 2.12.20 POLYVINYL CHLORINE (PVC) WATER PIPE (add the following)

All PVC water pipe shall be Class 200-DR14 for 6-inch diameter and Class 150-DR18 above, 6-inch diameter, and shall be extruded PVC pipe of the rubber gasket type joint and shall be furnished in 20-foot nominal laying lengths.

All fittings shall be ductile-iron of bell and spigot or mechanical joint, Class 250, in accordance with AWWA Specification C 110, C 111 or C 153 (Compact), and shall be tar coated on the outside surface and shall have an interior cement lining with seal coat per AWWA Specification C104, unless otherwise shown in the plans.

ITEM 2.12.25 AERIAL CROSSINGS

(1) Steel Pipe

Steel pipe used of Aerial Crossings shall be of the diameter and wall thickness shown on the plans and shall be line pipe manufactured in accordance with the following specifications:

(a) AWWA C200-86 Mill Type Steel Water Pipe, Grade B (e.g. API 5L GR B), Minimum Wall Thickness of 3/8"

(b) ASTM A53

Pipe shall be designed for a clear span as shown on the plans. Couplings shall be steel (e.g. Dresser Type 38 or approval equal) and shall be located as shown on the plans. Bolts shall be stainless steel or galvanized.

The steel pipe sizes shown on the plans are the nominal diameters of the minimum size steel pipe which may be furnished and installed. Pipe of a larger size may be furnished at the Contractor's option, but no extra payment will be allowed. If larger pipe is utilized, it shall be set so as to retain the flow lines designated on the plans.

All steel pipe shall receive an interior shop-applied Liquid Epoxy Coating System in conformance with AWWA C-210, latest revision.

(2) Paints

Coatings of paints shall be applied in accordance with the schedule shown in Part III - CONSTRUCTION METHODS.

(a) TNEMEC Series 66, or Mobile 78 Series, or Koppers 200 HB, 5.0 mil dry film thickness each coat.

(b) TNEMEC Series 66, or Mobile 78 Series, or Koppers 200 HB, 6.0 mil dry film thickness each coat.

Approved material of other manufacturers which are equivalent in all respects to the brands named above, may be substituted upon approval. All paint applied must be by the same manufacturer. The color on the final coat shall be selected by the City of Plano (light brown or light green).

ITEM 2.13.1 GATE VALVES FOR ORDINARY WATER WORKS SERVICE

Page "196a" should be Page "198a". Add the Following:

ITEM 2.13.1(A) Resilient Seated Gate Valves

Unless otherwise approved in writing, all Gate Valves for direct buried service in the City's distribution system, 6 inches through 12 inches in diameter, shall be Resilient Seated Gate Valves that conform strictly with the latest specification C-509 of the American Water Works Association Standards and must comply with the following supplementary details, changes or additions.

(a) Body: Gate valves shall be iron body designed for a working pressure of 200 psi. All valves shall be hydrostatically tested at 200 psi and shell tested at 400 psi. Any leakage during testing shall be cause for rejection. For ease of

repair the body, bonnet and stuffing box shall be flanged together with ASTM Grade B bolts and nuts. Each valve shall have the maker's initials, pressure rating, and year in which manufactured cast in the body.

(b) Stems: Stems shall be machined from manganese bronze rod with an integral forged thrust collar machined to size. The stems shall be non-rising and equipped for nut operation, which shall be opened by turning to the left.

(c) Stem Seals: Amended to read: Stems shall be O-ring sealed either above or below thrust collar. An antifriction washer shall be located above the thrust collar for operating torque.

(d) Stem Nut: Amended to read: Stem nut can be either integral cast with valve disc or separately installed into disc. Nut shall be waterworks bronze. Manufacturer shall submit an exact formula used to determine number of turns required to affect complete closure of each size resilient seated valve supplied under these specifications.

(e) Paint and Protective Coatings: All valves furnished under these specifications shall be painted on the exterior as specified in AWWA C-509 with asphalt varnish.

All ferrous metal surfaces in the internal part of the valve shall be protected with a two-part thermostat epoxy coating to a nominal thickness of 4 mils for corrosion protection and shall be of a color that is easily identified as an epoxy coating.

The thermostat epoxy coating shall be a two-part epoxy and shall function as a physical, chemical and electrical barrier between the base metal to which it is applied and the surroundings.

The coating shall be non-toxic and shall not impart taste to water. The coating must be formulated from materials deemed acceptable per the Food & Drug Administration Document Title 21 of the Federal Regulations of Food Additives, Section 121.2514 entitled Resins and Polymeric Coatings. The coating shall have a satin finish and shall be suitable for field overcoating and touchup with the same coating material without sanding or special surface preparation, or application of heat in excess of room temperature.

(f) Experience and Certification: Valves, furnished under these specifications, shall be manufactured by a firm that has been producing valves of this general type continuously for the past five (5) years. Each company or manufacturer supplying valves under these specifications shall have on file, at the Plano Public Works Engineering and Utility Operations Department, approved records of experience and detailed drawings of the proposed valves. Drawings shall cover the specific valve to be furnished for installation in the City of Plano and shall show all dimensions including metal thickness, construction details and materials used in all parts of the valve together with ASTM Designation and Structural properties of these materials.

The manufacturer shall furnish to the City of Plano, Public Works Engineering Department, a Certification that the valve complies with the specifications without any exceptions. This certification shall apply to specific valves being installed within the City of Plano water distribution system. The certification shall state (1) the number of valves covered by the certifications, (2) the Addition where valves are being installed or the Project Name, and (3) name of Contractor installing valves.

The City may require the Manufacturer, Supplier or Contractor to dismantle valves at any time to determine compliance with these specifications. Location of any valve within the City system, installed after adoption of these specifications, that does not meet the specifications completely shall be cause for prohibiting the future use of any valves from the same manufacturer.

ITEM 2.13.1(R) (2) Tapping Sleeves:

Revise Item to Read:

The materials for tapping sleeve bodies shall be cast-iron or ductile-iron in accordance with AWWA Standard C110 (ANSI 21.10), in two sections, or halves to be bolted together with high-strength, corrosion resistant, low alloy steel bolts conforming to AWWA Standard C111 (ANSI 21.11).

Cast iron and ductile-iron sleeve shall be mechanical joint, or as specified, or dimensions to secure proper fit on the type and class of pipe on which they are to be used. Each sleeve shall be furnished with a 3/8-inch test opening so that tests can be made prior to tapping. Opening shall be provided with a 3/8-inch bronze plug.

ITEM 2.13.4 BUTTERFLY VALVES (Add the Following)

All Butterfly Valves for installation underground in the City's distribution system 16 inches through 48 inches shall be in accordance with this specification.

All butterfly valves furnished shall conform strictly with the latest specification C-504 of the American Water Works Association Standard for rubber-seated butterfly valves and must comply with the following supplementary details and changes or addition.

(a) Body: The body shall be cast-iron ASTM A126, Class B and shall have face to face dimensions in accordance with AWWA Standards for short body, Class 150-B. All butterfly valves shall have a floating body seat ring to compensate for change in direction of flow to assure bottle-tight seal in either direction.

(b) Shaft: Valve shafts shall be an 18-8, Type 304 stainless steel. Valve disc and shaft shall be attached by means of an "O" ring sealed 304 stainless steel taper pin. Valve shaft seal shall consist of "O" rings in a removable bronze cartridge.

(c) Disc and Seat: The valve disc shall be ductile iron ASTM-A536, Grade 65-45-12. Valve disc shall be of the offset design providing 360 degrees un-interrupted seating. The resilient seat shall be natural rubber bonded to an 18-8, Type 304 stainless steel retaining ring secured to the disc by 18-8, Type 304 stainless steel set screws. Resilient seats in all sizes shall be adjustable and replaceable in the field.

(d) Operator: Butterfly valve operators shall be of the traveling nut design. All operators shall have adjustable mechanical stop limiting devices to prevent over travel of the disc. Should an adjustment of the disc be required to maintain bottle-tight seal, this adjustment shall be made externally without removing the operator housing cover. All operator adjustments shall be made under pressure and without the possibility of dirt getting into the operator lubricant. Any adjustments thru the lower shaft will not be acceptable. Valve operator shall be capable of seating and unseating valves and operating their full stroke against the pressure of the City's distribution system. Operating mechanism shall be sealed in a lubricant reservoir and shall turn on an anti-friction thrust washer.

(e) Operation: Unless otherwise shown in the plans, all valves shall open counter clockwise.

(f) Valve Ends: Valve ends shall be Mechanical Joint End, or Flanged Ends. Mechanical joint valves shall come complete with bolts, nuts, gaskets and glands. It shall be the responsibility of the Contractor to coordinate the ends of the adjoining pipe with the type valve end he proposes to use.

(g) Testing: All valves seats shall be tested at 150 psi as described in AWWA C-504 and in addition shall have a shell test of 300 psi. Any leakage shall be cause for rejection.

(h) Paint and Protective Coatings: All butterfly valves furnished under these specifications shall be painted on exterior as specified in AWWA C-504, with asphalt varnish.

All ferrous metal surfaces in the internal part of the valve shall be protected with a two-part thermostat epoxy coating to a nominal thickness of 4 mils for corrosion protection and shall be of a color that is easily identified as an epoxy coating. This shall be applied in shop.

The thermostat epoxy coating shall be a two-part epoxy and shall function as a physical, chemical and electrical barrier between the base metal to which it is applied and the surroundings. The coating shall be non-toxic and shall not impart taste to water. The coating must be formulated from materials deemed acceptable per the Food & Drug Administration Document Title 21 of the Federal Regulations of Food Additives, Section 121.2514 entitled Resins & Polymeric Coatings. The coating shall have a satin finish and shall be suitable for field overcoating and touchup with the same coating

material without sanding or special surface preparation, or application of heat in excess of room temperatures.

(i) Experience and Certification: Butterfly valves, furnished under these specifications, shall be manufactured by a firm that has been producing valves of this general type continuously for the past five (5) years. Each company or manufacturer supplying valves under these specifications shall have on file, at the Plano Public Works Engineering and Utility Operations Department, approved records of experience and detailed drawings of the proposed valves. Drawings shall cover the specific valve to be furnished for installation in the City of Plano and shall show all dimensions including metal thickness, construction details and materials used in all parts of the valve together with ASTM Designation and structural properties of these materials.

The manufacturer shall furnish to the City of Plano, Public Works Engineering Department, a Certification that the valve complies with the specifications without any exceptions. This certification shall apply to specific valve being installed with the City of Plano water distribution system. The certification shall state (1) the number of valves covered by the certification, (2) the Addition where valves are being installed or the Project Name and (3) name of Contractor installing valves.

The City may require the Manufacturer, Supplier or Contractor to dismantle valves at any time to determine compliance with these specifications. Location of any valve with the City system, installed after adoption of these specifications, that does not meet the specifications completely shall be cause for prohibiting the future use of any valves from the same manufacturer.

ITEM 2.14 FIRE HYDRANTS

Delete this item in its entirety and substitute therefore the following:

ITEM 2.14.1 MATERIALS AND DESIGN

All fire hydrants furnished shall conform strictly with the latest specification C-502 of the American Water Works Association Standards for dry barrel fire hydrants and must comply with the following supplementary details and changes or addition.

(a) Inlet Connection: Unless otherwise specified the inlet connection shall be a six (6) inch standard mechanical joint complete with all joint accessories. The inlet shoe shall be cast of the same or stronger metal than the lower barrel to prevent impact damage of the shoe. The interior of the shoe, including the lower valve plate and/or cap nut shall have a protective epoxy coating of at least 4 mils applied in the shop. If a cap nut is utilized it must be locked in place with a stainless steel lock washer or similar non-corrosive device and all machined surfaces must be protected from water intrusion to prevent corrosion and assure ease of field teardown or maintenance.

(b) Main Valve: The main valve shall be compression type, closing with the pressure and shall be not less than 5-1/4" in diameter. Composition of the main valve shall be molded rubber or neoprene having a durometer hardness of 90 ± 5 and shall be not less than 1" thick to protect against hydrant chatter and give long term durability.

(c) Outlet Nozzles: All hydrants shall be "three way", equipped with two hose nozzles and one pumper nozzle.

(d) Bury Length: Ground to bottom of connecting pipe shall be five feet (5') or as specified by owner.

(e) Diameter Outlet Nozzles: The hydrant shall have two hose nozzles, two and one-half (2-1/2") inches nominal I.D., and one pumper nozzle four and one-half (4-1/2") inches nominal I.D. with Natural Standard Hose Threads.

(f) Nozzle Attachment: All nozzles shall be mechanically connected into the barrel and have "O" Ring pressure seals to provide a positive seal between nozzles and hydrant barrel. A suitable nozzle lock shall be provided and shall be stainless steel or bronze. Nozzles shall not be caulked in.

Nozzle caps shall be furnished with pentagon nut the same size as the operating nut. They shall be furnished with interior rubber gaskets that will seat against bronze nozzles. All caps shall be secured to hydrant barrel by heavy duty non-kinking chains with a chain loop on each cap that permits free turning of the cap, for speed and ease of removal by fire fighters.

(g) Operating Nut: The operating nut shall be non-rising, pentagonal shape, measuring 1-1/8" at the top and 1-1/4" at the base from point to flat. Pentagon shall have a depth of at least one and one-quarter inch (1-1/4"). The hydrant shall be constructed in such a manner that the operating nut, "O" Rings and washers can be removed and replaced without removing the bonnet. All bearing surfaces of the operating nut shall be bronze.

(h) Weather Cap: A weather cap shall be affixed which conceals the holddown nut. It shall also be embossed with an arrow indicating the opening direction. The direction of opening shall be counter-clockwise.

(i) Lubrication Reservoir: All bearing surfaces and threaded parts will be automatically lubricated upon each operation of the hydrant. If bearing surfaces are not lubricated, the design shall keep operating friction to a minimum. A high wear resistant thermostat plastic anti-friction washer shall be in place above the thrust collar to minimize operation torque and facilitate long term ease of operation. The operating threads must be sealed against contact with water to all times regardless of open or closed position of main valve. The hydrant shall have the capability of field personnel to visually check oil level and add additional oil if needed. Filler and inspection plug shall be recessed or flush type.

(j) Traffic Feature: Hydrants shall be "traffic model" having upper and lower barrel joined approximately two inches (2") above the groundline by a breakable "swivel" flange providing 360 degree rotation of the upper barrel for nozzle positioning and must be capable of rotating barrel with line pressure on. The groundline shall not be less than eighteen inches (18") below the centerline of the lowest nozzle and shall be clearly marked in a permanent manner on the lower barrel. A breakable stem coupling shall join the two-piece stem adjacent to the ground line flange. Screws, clevis pins, fasteners or bolts used in the coupling shall be Series 300 stainless steel. The weakened portion of the stem coupling shall be located to divert pressure from the stem coupling directly to the upper and lower stems when torque is applied in seat ring removal.

Design of the coupling shall be such that when the coupling is broken, no part of the coupling will shatter or come loose and fall into hydrant and the break will not occur through the pins or bolts holding the coupling to the stem.

(k) Drain Valve Assembly: Hydrants shall be equipped with drain valves which drain the barrel when the hydrant is closed and seal shut when the hydrant is in the open position. The upper valve plate, seat ring and drain ring (shoe bushing) must be bronze and work in conjunction to form an all bronze drainway. Upper valve plate if not bronze, must be epoxy coated.

The bronze seat ring shall be a minimum 5-1/4" inside diameter and shall thread into a bronze drain ring forming an all bronze drainway with two (2) drain outlets for double protection against drain clogging and corrosive damage. All bronze components shall have less than 16% zinc alloy, Grade A to give high corrosion resistance as recommended in Section 2.1, Table I of American Water Works Association Standard C-502. Seat ring seals shall be "O" Rings. Hydrant shall be designed so that during opening and closing operation(s), water pressure force flushes the drain valve and drain openings to prevent clogging, thus allowing barrel drainage.

(l) Repair: All internal operating parts shall be removable from above ground level with a lightweight stem wrench.

(m) Provisions for Extension: All hydrants shall be capable of being extended to accommodate future grade changes without excavation. Extension of the hydrant shall be made by adding at the groundline flange a new coupling and stem section equal to the length of the extension. This must facilitate easy field grade adjustment.

Stem extensions made by adding new section of stem to the threaded section of the stem at the top of the hydrant will not be accepted.

Extension kits must be available from manufacturer in six-inch (6") increments.

(n) Pressure Loss and Working Pressure: Pressure loss through one (1) four and one-half inch (4-1/2") nozzle at 1000 GPM shall not be more than 5.0 psi.

ITEM 2.14.2 PAINT AND PROTECTIVE COATINGS

All fire hydrants furnished under these specifications shall have paint and protective coatings applied at the factory or in the field as specified herein.

(a) Factory Coating: All hydrants shall be cleaned at the factory by shot blasting and shall be painted above the groundline (at the factory) with two (2) coats of red rust-prohibitive primer which shall be compatible with the finished coating.

All continuously wetted ferrous metal surfaces in the hydrant shoe shall be protected with a two-part thermostat epoxy coating to a nominal thickness of 4 mils of corrosion protection and shall be of a color that is easily identified as an epoxy coating. All other exposed exterior surfaces below ground level shall be coated with asphalt varnish as specified in Americana Water Works Association Standard C-502, Section 4.2 or as otherwise outlined in these specifications. All remaining interior surfaces above the main valve, except machined surfaces such as the threaded portion of the operating stem or nut, shall be coated with asphalt varnish.

The thermostat epoxy coating shall be a two-part epoxy and shall function as a physical, chemical and electrical barrier between the base metal to which it is applied and the surroundings. The coating shall be non-toxic and shall not impart taste to water. The coating must be formulated from materials deemed acceptable per

the Food & Drug Administration Document Title 21 of the Federal Regulations of Food Additives, Section 121.2514 entitled Resins & Polymeric Coatings. The coating shall have a satin finish and shall be suitable for field overcoating and touch-up with the same coating material without sanding or special surface preparation, or application of heat in excess of room temperatures.

(b) Field Coatings: All hydrants shall be field painted at the time the Contractor is instructed by the Public Works Inspector and shall be painted above ground with two (2) coats of aluminum paint, Mobil 11-A-19 or Tnemec 2-color, Tnemec-Gloss or approved equal according to the following color schedule:

<u>Water Main Size</u>	<u>Bonnet and Caps Color</u>
4"	Red
6"	Silver
8"	Blue
10" & Larger	Yellow

ITEM 2.14.3 EXPERIENCE AND CERTIFICATION

Fire hydrants, furnished under these specifications, shall be manufactured by a firm that has been producing hydrants of this general type continuously for the past five (5) years. Each company or manufacturer supplying hydrants under these specifications shall have on file, at the Plano Public Works Engineering and Utility Operations Department, approved records of experience and detailed drawings of the proposed hydrants. Drawings shall cover the specific hydrant to be furnished for installation in the City of Plano and shall show all dimensions including metal thickness, construction details and materials used in all parts of the hydrant together with ASTM Designation and structural properties of these materials.

For ease of identification, all hydrants shall have "City of Plano, Texas" stenciled on the lower barrel. This stencil shall be applied at the factory. The manufacturer shall furnish to the City of Plano, Public Works Engineering Department, a Certification that the fire hydrant complies with the specifications without any exceptions. This certification shall apply to specific hydrants being installed within the City of Plano water distribution system. The certification shall state (1) the number of hydrants covered by the certification, (2) the Addition where hydrants are being installed or the Project Name and (3) name of Contractor installing hydrants.

The City may require the Manufacturer, Supplier or Contractor to dismantle hydrants at any time to determine compliance with these specifications. Location of any hydrant within the City system, installed after adoption of these specifications, that does not meet the specifications completely shall be cause for prohibiting the future use of any hydrants from the same manufacturer.

ITEM 2.15 MATERIALS FOR SEEDING AND SODDING

ITEM 2.15.1 Turfgrass

ITEM 2.15.1(b) Bermudagrass Seed

Revise the fourth sentences as follows:

The seed shall be hulled (if planted out of season) or unhulled (if in planting season), extra fancy grade, treated with fungicide and have a germination and purity that shall produce, after allowance for Federal Seed Act tolerances, a pure live seed content of not less than 85 percent, using the formula: purity percent time (germination percent times plus hard or sound seed five percent).

ITEM 2.16 BRASS STOPS, COCKS AND FITTINGS FOR WATER WORKS SERVICE

ITEM 2.16.1 GENERAL

All brass stops, cocks and fittings shall conform to AWWA Specification C800, latest revision.

ITEM 2.16.2 PHYSICALS

All pressure holding components of brass stops or fittings shall be certifiably pressure tested before assembly as specified herein, including meter coupling tailpieces, compression nuts, etc.

ITEM 2.16.3 DESIGN FEATURES OF STOP AND COCKS

The stem end of the key, prestaked key nut and the "D" washer shall be so designed that they turn in unison and if tightened to the failure point, the stem will not break causing the key to blow out.

Corporation, curb and angle stop bodies shall be of one-piece construction to provide optimum resistance to installation, operating and earth-load stresses. The operating head and checks of these stops shall be integrally cast with the plug or cap of the stop for maximum resistance to torque feature.

Angle valves shall have a lockwing and shall be "O" ring sealed at the top of the key to prevent leakage during operation and to act as a secondary protection against external top leakage. Meter swivel nuts shall be of the saddle nut construction to support the meter during installation. Inlet compression parts for angle valves shall be field interchangeable on 3/4-inch and 1-inch sizes to make repairs easier and more economical.

ITEM 2.16.4 DESIGN FEATURES OF FITTINGS

Delete the third paragraph of this item and replace
with the following:

Flare joints and fittings are not approved in Plano.

Add the following to the sixth paragraph of this item:

All stops and fitting joints shall be of the compression type for copper pipe unless otherwise noted. Compression coupling nuts shall be designed to "bottom out" on a machined shoulder on the fitting to provide a visual check for proper assembly and eliminate field judgment errors of the installation. The coupling nut shall house the compression gasket in a smooth machined area and shall be internally coated with a fluorocarbon (Teflon) lubricant to prevent gasket damage and reduce installation torques. The smaller compression gasket shall be a heavy armored gasket to provide electrical continuity through the fitting and prevent gasket cold flow and shall house a concave hardened stainless steel overlapping gripper band that is automatically activated and set by shouldering out the fitting properly.

Minimum pullout (or tensile strength) required of these fittings after installation to protect against earthloads are as follows:

3/4"	2,000 lbs.
1"	3,000 lbs.
1-1/2"	3,500 lbs.
2"	4,000 lbs.

All outlet threads on compression connections shall be compatible with the City's present drilling and tapping machine equipment.

ITEM 2.18.1 GENERAL (ADD THE FOLLOWING)

Water services from the main to the meter shall be installed as follows:

Two (2) inch or smaller - Type K, Class 1 copper

Three (3) inch - Ductile Iron Per Item 2.12.8 (a)

Larger than three (3) inch - Ductile Iron per Item 2.12.8 (a) or C-900 PVC per Item 2.12.20.

ITEM 2.19 PRECAST REINFORCED MANHOLE SECTIONS

ITEM 2.19.2 JOINTS (Add the Following)

All sanitary sewer manholes installed in the City of Plano, shall have "O" ring joints conforming with ASTM Designation C443.

ITEM 2.24.2 GABIONS

Add the sentence: All wire used, including tie and connecting wire, shall be certified by Mill Test Reports showing compliance with specification requirements.

ITEM 2.24.3 STONE

Add the following: Facing stone shall be hand selected, large stone and shall be selected for best appearance. Facing stone shall be an off-white color and prior to laying the stone, samples shall be delivered to the site and shall be approved by the Engineer for gradation and appearance.

ITEM 2.24.5 PERMEABLE BARRIER FABRIC

High strength permeable barrier fabric for use as a filter media, shall be placed along the earth side of the Gabion Structures. The permeable barrier fabric to be used shall be TREVIRA

S1115 as manufactured by Hoechst Fibers Industries, Spartanburg, South Carolina; MIRAFI 140 Fabric, produced by Fiber Industries, Inc.; Bidim U-14 as distributed by Quline Corporation, Houston, Texas, or approved equal.

CITY OF PLANO, TEXAS
SPECIAL PROVISIONS
TO THE
NORTH CENTRAL TEXAS STANDARD SPECIFICATIONS
FOR PUBLIC WORKS CONSTRUCTION

CONSTRUCTION METHODS

PART III: CONSTRUCTION METHODS

The North Central Texas Standard Specifications shall be modified and clarified by the addition of the following requirements to the various items. Except when specifically stated, none of the requirements of Part III - CONSTRUCTION METHODS shall be deleted.

PART III: DIVISION 3 - SITE PREPARATION

ITEM 3.3.3 CONSTRUCTION METHODS

Add to the second paragraph the following: Unless otherwise approved in writing by the City of Plano, where excavation to grade established in the field by the Owner terminates in loose or solid rock, the Contractor shall excavate 6 inches below the required subgrade elevations for the entire roadbed width and shall backfill with suitable selected materials as indicated on the plans. Suitable selected material shall include lime treated subgrade or a base material having a plasticity index not greater than 12. Payment for such work will be made under the items of unclassified street excavation, lime treated subgrade and hydrated lime. The 6-inch lime treated subgrade or base shall be compacted to 95% density.

ITEM 3.5.3 CONSTRUCTION METHODS

Add the following paragraph: Excavated material from the channel which is used as embankment to complete the established alignment, grade and cross-section of the channel shall be compacted to 95% density.

ITEM 3.7.3 DENSITY

Add: Embankment in the City of Plano shall be compacted to not less than 95% of the maximum density.

ITEM 3.8.2 CONSTRUCTION METHODS

Add the following:

A Minimum of six (6) inches of topsoil shall be provided on all major thoroughfare medians and rights-of-way and on all earthen channel slopes.

ITEM 3.10.1 DESCRIPTION

Add the following:

The Contractor shall maintain the seeded areas including watering until a "Stand of Grass" is obtained. A "Stand of Grass" shall consist of 75% to 80% coverage, a minimum of one (1) inch in height. Re-seeding will be required in washed areas.

ITEM 3.10.2 PLANTING SEASON

Delete the mixture, rate, and planting dates and substitute:

Type I - Bermuda Grass - Hulled

50 lbs/acre April - June

Type II - Annual Rye Grass

40 lbs/acre September - March

Type III - Bermuda Grass - Unhulled January -

March/July - August - 50 lbs/acre

ITEM 3.10.3 CONSTRUCTION METHODS

Revise after the first paragraph as follows:

(a) All seeding operations shall be performed by either "Drilling" or "Cultipacker" process or approved equivalent. Seed shall be covered by + 1/4" Topsoil.

ITEM 3.10.6 OR 3.10.7 ASPHALT MULCH SEEDING

Slope and drainage channel seeding shall be in conformance with Item 3.10.6 or 3.10.7. Seeding mixture and rate shall be as required in Item 3.10.2.

ITEM 3.12.4 CONSTRUCTION REQUIREMENTS

Delete the last sentence of the third paragraph in its entirety:

"The amount of ----- in writing."

PART III: DIVISION 4 - SUBBASES AND BASE COURSES

ITEM 4.6.4 CONSTRUCTION METHODS

(a) General

(1) Treatment for Materials in Place

Add the following: Prior to final compaction of subgrade, samples of the subgrade material shall be collected by a testing laboratory approved by the City, and laboratory tests made to determine the amount of lime required.

The application rate for hydrated lime shall be selected to obtain at least the optimum lime percentage indicated by test method ASTM C977-83a, Appendix X1; however, not less than 27 lbs. per S.Y. shall be applied. A Geotechnical Engineer's report reflecting the recommended application rate and

including supporting test data shall be submitted in writing to the CITY, for approval prior to beginning any lime treatment. Laboratory test may be waived provided a minimum of 36 lbs. per S.Y. is applied.

ITEM 4.6.5 FINISHING, CURING AND PREPARATION FOR SURFACING

Add the following: The lime treated subgrade shall be moist cured until covered by other base or pavement up to fourteen (14) days after final compaction. After 14 days without covering an application of 0.10 to 0.20 gallons per square yard emulsified asphalt shall be applied at the Contractor's expense. Reapplication of emulsified asphalt may be required if lime treated subgrade is not covered shortly after first application. Lime treated subgrade may be covered by other base or pavement when density of 95% of maximum at optimum moisture content is obtained.

ITEM 4.7.1 DESCRIPTION

Add the following: Portland cement modification of subgrade soils is not approved in Plano. Subgrade soils means natural ground or embankment encountered in the construction.

PART III: DIVISION 5 - PAVEMENT AND SURFACE COURSES

ITEM 5.8.2 CONSTRUCTION METHODS

(f) Mixing

(3) Central Mixing Plant

Add the following: When a fly ash admixture is used with Type I cement in the production of portland cement concrete, separate silos shall be provided for fly ash and cement and provisions shall be made for individual measurements.

ITEM 5.8.2 (f) Add: (5) Continuous Volumetric Mix Concrete

[See Item 7.4.6]

(h) Finishing

Delete (h) and add the following: The finished concrete pavement construction under these specifications is expected to meet certain quality standards for surface of the concrete including the durability, texture, riding surface and appearance. The surface must be durable, firm, dense and well bonded to the aggregate to maintain an appearance and texture which is satisfactory to the Owner. Concrete pavement having a poor surface which has spalled (exposed aggregate) due to poor quality paste, high water-cement ratio, over-vibration, improper curing, extreme weather or any other reason, or does not have a satisfactory riding surface shall be removed and replaced at the Contractor's expense. It is extremely important that the pavement have a good rideable surface, free from undulations and rough joints. The City Engineer shall determine the acceptability of the pavement.

(l) Machine Finishing

Machine finishing of pavement shall include the use of power-driven spreaders, reciprocating type power-driven vibrators, power-driven transverse strike-off, and screed.

The concrete pavement shall be consolidated by a reciprocating type mechanical vibrator. As soon as the concrete has been spread between the forms, the mechanical vibrator shall be operated to consolidate the concrete and remove all voids. Hand manipulated vibrators shall be used for areas not covered by the mechanical vibratory unit.

The transverse finishing machine shall first be operated to compact and finish the pavement to the required section and grade, without surface voids. The machine shall be operated over each area as many times and at such intervals as directed. At least two trips will be required and the last trip over a given area shall be a continuous run of not less than 40 feet. After completion of finishing with the transverse finishing machine a transverse drag float may be used.

After the floating has been completed and the excess water removed, but while the concrete is still plastic, the surface of the concrete shall be tested for trueness with an approved 10-foot steel straightedge furnished by the Contractor. The straightedge shall be operated from the side of the pavement, placed parallel to the pavement centerline and passed across the slab to reveal any high spots or depressions. The straightedge shall be advanced along the pavement in successive stages of not more than one-half its length. Practically perfect contact of the straightedge with surface will be required, and the pavement shall be leveled to this condition, in order to insure conformity with the surface test required below after the pavement has fully hardened and to insure a smooth rideable surface. Any correction of the surface required shall be accomplished by adding concrete if required and by operating the longitudinal float over the area. The surface test with the straightedge shall then be repeated.

After completion of the straightedge testing and surface correction the surface of the pavement shall be finished by an approved method. Methods available for pavement surface finish

include a burlap drag finish, a broom finish or a belt finish. Unless otherwise shown on the plans, the pavement surface shall be finished with the burlap drag.

a. Burlap Drag Finish

If the surface texture is to be a drag finish, a drag shall be used; it shall consist of a seamless strip of damp burlap or cotton fabric, and it shall produce a uniform surface of gritty texture after dragging it longitudinally along the full width of pavement. For pavement 16 feet or more in width, the drag shall be mounted on a bridge which travels on the forms. The diameter of the drag shall be such that a strip of burlap or fabric at least 3 feet wide is in contact with the full width of pavement surface while the drag is used. The drag shall consist of not less than two layers of burlap with the bottom layer approximately 6 inches wider than the upper layer. The drag shall be maintained in such a condition that the resultant surface is of uniform appearance and reasonably free from grooves over 1/16-inch in depth. Drags shall be maintained clean and free from encrusted mortar. Drags that cannot be cleaned shall be discarded and new drags substituted.

b. Broom Finish

If the surface texture is to be a broom finish, it shall be applied when the water sheen has practically disappeared. The broom shall be drawn from the center to the edge of the pavement with adjacent strokes slightly overlapping. The broom operation shall be so executed that the corrugation produced in the surface shall be uniform in appearance and not more than 1/16-inch in depth. Brooming shall be completed before the

concrete is in such condition that the surface will be torn or unduly roughened by the operation. The surface thus finished shall be free from rough and porous areas, irregularities, and depressions resulting from improper handling of the broom. Brooms shall be of the quality, size, and construction and shall be operated to produce a surface finish meeting the approval of the Owner. Subject to the approval of the Owner, the Contractor may be permitted to substitute mechanical brooming in lieu of the manual brooming as herein described.

c. Belt Finish

If the surface texture is to be belt finish, when straightedging is completed and after sheen has practically disappeared and just before the concrete becomes nonplastic, the surface shall be belted with a 2-ply canvas belt not less than 8 inches wide and at least 3 feet longer than the pavement width. Hand belts shall have suitable handles to permit controlled, uniform manipulation. The belt shall be operated with short strokes transverse to the centerline and with a rapid advance parallel to the centerline.

(2) Hand Finishing

Hand finishing of concrete pavement will be permitted in areas where it is not practical or possible to construct with finishing machines. These areas include, but are not limited to, intersections, left turn lanes, crossovers, transition areas and where the pavement width is not uniform. In all hand finished areas, one (1) extra sack of cement per cubic yard of concrete shall be used in the mix. In hand finished areas, the concrete shall be struck off with an approved strike-off screed

to such elevation that when consolidated and finished the surface of the pavement shall conform to the required section and grade. The strike template shall be moved forward with a combined transverse and longitudinal motion in the direction the work is progressing, maintaining a slight excess of material in front of the cutting edge. The concrete shall then be tamped with an approved tamping template to compact the concrete thoroughly and eliminate surface voids and the surface screeded to required section. After completion of a strike-off, consolidation and transverse screeding, a hand-operated longitudinal float shall be operated to test and level the surface to the required grade.

Workmen shall operate the float from approved bridges riding on the forms and spanning the pavement. The longitudinal float shall be held in contact with the surface and parallel to the centerline and operated with short longitudinal strokes while being passed from one side of the pavement to the other. If contact with the pavement is not made at all points, additional concrete shall be placed, if required, and screeded, and the float shall be used to produce a satisfactory surface. Care shall be exercised to keep the ends of the float from digging into the surface of the pavement. After a section has been smoothed so that the float maintains contact with the surface at all points in being passed from one side to the other, the bridges may be moved forward half the length of the float and the operation repeated. Other operations and surface tests shall be as required for machine finishing.

(3) Edging at Forms and Joints

After the final finish, but before the concrete has taken its initial set, the edges of the pavement along each side of each slab, and on each side of transverse expansion joints, formed joints, transverse construction joints, and emergency construction joints shall be worked with an approved tool and rounded to the radius required by the plans. A well-defined and continuous radius shall be produced and a smooth, dense, mortar finish obtained. The surface of the slab shall not be unduly disturbed by tilting of the tool during use.

At all joints, any tool marks appearing on the slab adjacent to the joints shall be eliminated by brooming the surface. In doing this, the rounding of the edge shall not be disturbed. All concrete on top of the joint filler shall be completely removed.

All joints shall be tested with a straightedge before the concrete has set, and correction shall be made if one side of the joint is higher than the other or if they are higher or lower than the adjacent slabs.

ITEM 5.8.6 PAVEMENT TESTING

(b) Pavement Thickness Test

Delete in its entirety and substitute therefore the following:

Upon completion of the work and before final acceptance and final payment shall be made, pavement thickness tests shall be made by the Contractor. Tests shall be made at 400 foot spacings along the length of the pavement. In the event a deficiency in the thickness of pavement is revealed, two (2) subsequent tests necessary to

isolate the deficiency shall be made - one at a jointed section prior to the deficient station and one at a jointed section following the deficient station. Additional tests shall be obtained as necessary, at jointed section intervals to isolate the deficient area. Removal and replacement of concrete shall extend to joint boundaries, the full width of pavement section. If the average thickness of pavement in a particular section is less than called for on the plans, the pavement section shall be removed and replaced with the correct thickness, extending to joint boundaries, the full width of the pavement section, at the Contractor's entire expense. No additional payment over the contract unit price shall be made for any pavement of a thickness exceeding that required on the plans.

(c) Pavement Strength Test - Revise the first paragraph to read: During the progress of the work, the Inspector or a commercial laboratory shall cast test cylinders or beams to maintain a check on the strengths of the concrete being placed. Add the following sentence and table: A table titled "PAVEMENT STRENGTH REQUIREMENTS", is provided showing the required pavement thickness, 7-day strength, 28-day strength, minimum cement factor and maximum slump for each street type to be constructed in Plano. Requirements for high strength pavement and less thickness is also shown if required by the City.

Add to the 5th paragraph: Test cores shall be obtained within five (5) working days after the 28-day test results have been provided by the commercial laboratory. All test cores shall be obtained by a commercial laboratory, at the Contractors expense. One (1) core shall be obtained in the immediate area of

the deficiency and two (2) additional cores shall be obtained - one at a jointed section prior to the deficient station and one at a jointed section following the deficient station. Additional cores shall be obtained as necessary, at jointed section intervals to isolate the deficient area. Removal and replacement of concrete shall extend to joint boundaries, the full width of pavement section.

Amend the last paragraph on Page 293 to read "Pavement not meeting the minimum specified 28-day strength after cores have been tested shall be removed and replaced at the Contractor's expense." Delete the table and the paragraph below it at the top of Page 294.

ITEM 5.8.8 INTERLOCKING CONCRETE PAVING STONE

(1) Description

Interlocking Concrete Paving Stone shall be installed in accordance with the Standard Details and at locations shown on the plans. See Item 2.3.7 of these Special Provisions.

PAVEMENT STRENGTH REQUIREMENTS

No	Street Description	Street Width Face/Face	Thickness	Basic Pavement			Alternate Pavement					
				Compr. 7-Day	Strength 28-Day	Min. Cement	Max. Slump	Thickness	Compr. 7-Day	Strength 28-Day	Min. Cement	Max. Slump
1	Type A & B and Highway Use	2-36"	8"	3650	5000	6.5	3"					
2	Type C, 6-lane Thoroughfare other than A & B (i.e. Park and Parker	2-33"	8"	3650	5000	6.5	3"					
3	Type D & E (Retail thru Industrial zoned)	36' to 2-24' Including 44' to 48'	7"	3100	4200	6.0	3"					
4	Type F Thoroughfares & Neighborhood Service or Office Zoned Streets	36'	6"	2200	3000	5.0	3"	5"	2600	3600	6.0	3"
5	Type G or H Residential Streets	24' to 26'	6"	2200	3000	5.0	3"	5"	2600	3600	6.0	3"

Note: Street widths are face to face of curbs.

(2) Reinforced Concrete Base

Shall be constructed of 3,000 psi concrete meeting the requirements of Item 5.8 NCT-COG Standard Specifications. 3/8" reinforcing bars shall be placed 24 inches on center, both ways, in all concrete.

(3) Construction

Remove existing concrete median pavement, if required, excavate as shown on Standard Details, use sand to level grade and construct reinforced concrete base, place bedding course of sand to level, and install paving stone units with joints of approximately 3 mm (1/8"). Where required, cut paving stones with an approved cutter to fit accurately, neatly, and without damaged edges. Tamp pavers with mechanical vibrator until entirely level, true to grade and free of movement. Fill voids by sweeping in clean fine sand.

(4) Measurement and Payment

Interlocking Concrete Paving Stone shall be measured and paid for by the square foot of stone, sand and concrete base furnished and installed, which price shall include all labor, including excavation, materials, equipment, tools and incidentals necessary to complete the work. No separate payment shall be made for 4" concrete base or washed sand. Payment for removal and disposal of existing concrete median pavement, if required, shall be made by the square foot.

PART III: DIVISION 6 - UNDERGROUND CONDUIT CONSTRUCTION

ITEM 6.1.13 STREET CUT PERMIT

Revise the first sentence to read:

The CONTRACTOR shall obtain a street cut permit prior to beginning the work.

ITEM 6.2.8 EXCAVATION

(A) General:

Delete the first two sentences in its entirety and substitute therefore the following:

(a) General

On construction projects in the City of Plano in which excavation will exceed a depth of five feet, the bid documents and the contract must include provisions specifications for detailed plans for excavation safety systems. The term "excavation" includes trenches, structural or any construction which has earthen excavation subject to collapse. "Trench" is defined as any excavation made below the surface of the ground whereby the depth is greater than the width, but the width is less than 15 feet. A trench may consist of the void between the wall of the excavation and the wall of a structure, concrete form, pipe, etc. provided the structure wall or other type of structure is within 15 feet of the excavation wall.

The excavation safety plan must be site specific for the project and this excavation safety plan must be designed and sealed by a professional engineer registered in the State of Texas. The professional engineer shall not be a principal in the contracting company nor have a monetary interest in the contractor's firm. The design engineer is responsible for

obtaining borings and soil analysis and/or other pertinent information as required for safety design. The excavation safety plan shall be designed in conformance with Occupational Safety and Health Administration (OSHA) standards and regulations. Contracts will not be awarded to Contractors with unsatisfactory safety records.

Contractors will be required to submit a notarized affidavit with their bid attesting to their safety record, over the previous two (2) years, based on Occupational Safety and Health Administration (OSHA) records and based on past performance related to safety on City of Plano projects in the City of Plano.

After evaluation of the excavation safety plan, and the Contractors' safety records, the City Engineer will release the reviewed plan to the appropriate City construction division for use in inspection. Plans for construction will not be released by the City Engineer until this plan is reviewed. Changes in the excavation safety plan after initiation of construction may not be cause for extension of time or change order, and will require the same review process. Contractor accepts sole responsibility for compliance with all applicable safety requirements. The design and review is only for general conformance with OSHA safety standards. Release of the excavation safety plan by the City Engineer does not relieve Contractor from any or all construction means, methods, techniques and procedures; and any property damage or bodily injury (including death) that arises from use of the excavation safety plan from Contractor's negligence in performance of contract work, or from City's failure to note exceptions to the excavation plan, shall remain the sole responsibility and liability of the

Contractor. The Contractor agrees to indemnify and hold harmless the design Engineer and the City, its officers, employees and agents from and against any and all claims for property damage or bodily injury (including death) that arise out of or result from any act or omission pertaining to any excavation work, whether or not caused in whole or in part by the negligent act or omission of the City, its officers, employees or agents. A separate pay item for excavation safety and support shall be included in the bid documents.

Engineers have three designs acceptable by the City to meet OSHA Standards for excavation safety. They are as follows:

(1) Minimum Angle of Repose - the greatest angle above the horizontal plane at which a material will lie without sliding.

(2) Utilization of Trench Box.

(3) Shoring, Sheet piling and Bracing Methods.

The following minimum design criteria must be used to utilize the Minimum Angle of Repose:

(1) Geotechnical Professional Engineers report including:

(a) Soil borings of sufficient number and depth to determine appropriate soil and water conditions.

(b) Soil pressure diagrams and angle of repose, if appropriate, for all soil conditions encountered.

(c) Minimum loading criteria for incorporation into design.

(2) A detailed plan of the excavation area and the impact on existing right-of-way and infrastructure, if any.

(3) Plans and specifications must be signed, sealed and dated by a professional engineer, registered in the State of Texas.

The following minimum design criteria must be used to utilize a Trench Box:

(1) Physical dimensions, materials, position in the trench, expected loads, and the strength of the box, sealed by a Registered Professional Engineer.

The following minimum design criteria must be used to utilize Shoring, Sheeting, and Bracing:

(1) Dimensions and materials of all uprights, stringers, cross-bracing and spacing required to meet OSHA requirements, sealed by a Registered Professional Engineer.

Measurement and Payment

Contractor to provide design for the Excavation Safety System based on a Lump Sum amount as provided in the Proposal and Bid Schedule for Trench Safety Design. The payment shall be full compensation for boring, testing, design and preparation of Site Specific Excavation Safety Plan.

Measurement and Payment of Excavation Safety System installed shall be based on as per linear foot amount as provided in the Proposal and Bid Schedule for Furnishing and Installing Excavation Safety Systems. The payment shall be full compensation for all planning, materials, equipment, fabrications, installation, recovery and all incidental work required. All excavation and

backfill in addition to that specified elsewhere in these specifications shall be considered subsidiary to this bid item.

Measurement and Payment of Excavation Safety System Design shall be based on a lump sum amount as shown in the Proposal and Bid Schedule.

ITEM 6.2.9 BACKFILL (Add the Following)

(c) Embedment: Rock Cuttings or Sand will not be permitted in the pipe bedding for sanitary sewer or water lines in the City of Plano.

ITEM 6.2.9(c) Embedment

Add the following:

(18) Class "H" Embedment: The embedment consists of a completely encased pipe with Standard Crushed Stone, Grade 4. Class "H" Embedment shall be used on the P.V.C. Sanitary Sewer Pipe installed within the City of Plano.

After the trench has been cut to a depth below the barrel of the pipe a distance of 1/8 Bc (3 inches minimum and 6 inches maximum), the bedding layer shall be brought to a point slightly above grade with compacted crushed stone. Bell holes shall be formed and the pipe laid and joined as specified. The stone shall be brought up in uniform layers of six inches to a point six inches over the top of the pipe when compacted. On PVC Pipe 18 inches through 27 inches in diameter the crushed stone shall be brought up in uniform layers to a point nine inches over the top of the pipe when compacted.

ITEM 6.2.10 TRENCH BACKFILL (Add the Following)

(a) Excavated Material: The material used in the backfill shall be pulverized to the extent necessary to produce a free flowing material free of clay balls larger than 6-inch diameter.

ITEM 6.7.2 (c) TESTS AND TELEVISION INSPECTION

Delete in its entirety and substitute therefore the following:

(c) Tests and Television Inspection. In order to ascertain that the main shall perform the function for which it was designed and constructed, the following performance tests shall be routinely executed:

(1) All backfill shall be compacted to the required density.

(2) "Go-no-go" mandrell tests shall be performed by the Contractor.

(3) All sewer pipe shall be air tested.

(4) Sanitary sewer force mains shall be hydrostatically tested.

(5) Manholes shall be tested by infiltration or exfiltration.

(6) Visual inspection by photographic means shall be performed by the City of Plano after the backfill, air test and "go-no-go" mandrell test are completed. The following requirements are for the television of mains:

(a) All mains must be laced with water. The television inspection must be done immediately following the lacing of the main, with no water flow.

**TABLE - DURATION REQUIREMENTS FOR AIR TESTING
SPECIFICATION**
**TIME REQUIRED FOR LOSS OF PRESSURE FROM 3.5 PSIG TO 2.5 PSIG FOR SIZE
AND LENGTH OF PIPE INDICATED FOR Q = 0.0015**

Pipe Diameter (in)	Minimum Time (min)	Length for Minimum Time (ft)	Specifications Time for Length (L) shown (min:sec)										
			100ft	150ft	200ft	250ft	300ft	350ft	400ft	450ft			
4	3:47	597	3:47										
6	5:40	398	5:40						5:40	5:42			
8	7:34	299	7:34				7:34	7:36	8:52	10:08			
10	9:27	239	9:27		9:27	9:54	11:53	13:51	15:50	17:49			
12	11:20	199	11:20	11:20	11:24	14:15	17:06	19:57	22:48	25:39			
15	14:10	160	14:10	14:10	17:49	22:16	26:43	31:10	35:37	40:04			
18	17:00	133	17:00	19:14	25:39	32:04	38:28	44:53	51:18	57:42			
21	19:50	114	19:50	26:11	34:55	43:38	52:22	61:05	69:49	78:32			
24	22:40	100	22:40	34:12	45:36	56:59	68:23	79:47	91:11	102:35			
27	25:30	89	28:51	43:17	57:42	72:08	86:33	100:59	115:24	129:49			
30	28:20	80	35:37	53:26	71:14	89:03	106:51	124:40	142:28	160:16			
33	31:10	73	43:06	64:39	86:12	107:45	129:17	150:05	172:23	193:56			

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*This table is based on $T = 0.0850 DK/Q$

where T = time, seconds
 K = 0.000419 DL, but not less than 1.0
 Q = rate of loss, 0.0015 cu.ft/min/sq.ft internal surface
 D = pipe diameter, in.
 L = length of pipe being tested, ft.

(b) Criteria for repair:

(aa) No pulled or slipped joints.

(bb) No water infiltration.

(cc) No cracked or damaged pipe.

(dd) No standing water where design grade is equal to or greater than 0.4 percent.

(ee) For design grades less than 0.4 percent, if standing water is above the bottom of the camera lens, repair must be made. If there is standing water in the main, but it does not reach the bottom of the lens, the City of Plano will determine if repairs need to be made.

(ff) No structural damage to the pipe.

(gg) The City Engineer will make the final determination and that decision will be final.

(c) If repairs are required, another television inspection must be made after the repairs are completed. Television inspection, repairs, and re-television must be completed before a Letter of Acceptance will be issued by the City of Plano.

ITEM 6.7.2 (f) Air Testing

Completely replace subsection 6.7.2 (f), Air Testing with the following text:

(f) Low Pressure Air Testing

(1) General. The CONTRACTOR shall furnish adequate personnel and equipment required to perform the tests. This test covers procedures for testing sewer pipe lines, when using the low pressure air test method to demonstrate the integrity of the installed pipe line and the construction procedures. This

test is used for testing 4-inch to 33-inch circular sewer pipe lines utilizing gasketed joints. Mains 36-inch and larger may be tested by the individual joint method.

(2) History. The low pressure air test was developed to enable detection of damaged pipe or improper jointing and is a test which determines the rate at which air under pressure escapes from an isolated section of sewer. The rate of air loss is intended to indicate the presence or absence of pipe damage and whether or not the joints have been properly constructed. The test is not intended to indicate water leakage limits and cannot be used as a measure of infiltration or exfiltration leakage under service conditions.

(3) Testing Methods. The two most common air test methods used are the "Constant Pressure Method" and the "Time Pressure Drop Method." The contractor may utilize either of these methods of low pressure air testing.

(a) Preparation of the sewer line to be tested: The section of sewer line to be tested shall be flushed and cleaned prior to conducting the low pressure air test. This serves to clean out the debris, wet the pipe, and produces the most consistent results.

(b) Test Procedures 1) Isolate the section of sewer line to be tested by means of inflatable stoppers or other suitable tests plugs. The ends of all branches, laterals, tees, wyes and stubs to be included in the test should be plugged to prevent air leakage. All plugs should be securely braced to prevent possible blow-out due to the internal air pressure. One of the plugs should have an inlet tap, or other provision for

connecting a hose to a portable air control source. 2) Connect the air hose to the inlet tap and a portable air control source. The air equipment should consist of necessary valves and pressure gages to control the rate at which air flows into the test section and to enable monitoring of the air pressure within the test section. Also, the testing apparatus should be equipped with a pressure relief device to prevent the possibility of loading the test section with the full capacity of the compressor. 3) Add air slowly to the test section until the pressure inside the pipe is raised to 4.0 psig. 4) After a pressure of 4.0 psig is obtained, regulate the air supply so that the pressure is maintained between 3.5 and 4.0 psig for a period of two minutes. This allows the air temperature to stabilize in equilibrium with the temperature of the pipe walls. The pressure will normally drop slightly until equilibrium is obtained. During this period all assessable plugs should be checked with soap solution to detect any plug leakage. 5) Determine the rate of air loss by either the constant pressure method or the time pressure drop method. For the constant pressure method, air is supplied to the pipe test section at a rate sufficient to maintain a gage pressure of 3.0 psi. The rate of air flow in cubic feet per minute is read directly by means of a rotometer. The rate of air flow must be corrected for pressure and temperature under standard conditions. 6) Upon completion of the test, the bleeder valve is opened and all air is allowed to escape. Plugs should not be removed until all air pressure in the test section has been released. Also no one should be allowed in the trench or manhole while the test is being conducted.

(c) Constant Pressure Method: 1) Air is supplied to the pipe test section at a rate sufficient to maintain a gage pressure of 3.0 psi. The rate of air flow in cubic feet per minute is read directly by the means of a rotometer. The rate of air flow shall be corrected for pressure and temperature under standard conditions. 2) The requirements for air loss under the "Constant Pressure" method shall be considered satisfied if the air loss does not exceed a rate of 0.003 cfm per square foot of internal pipe surface area with a total rate of air loss not greater than 2.0 cubic feet per minute, based on a wetted pipe.

(d) Time Pressure Drop Method: 1) Air is slowly introduced into the section of pipe to be tested, until the air pressure is raised to approximately 4.0 psig. The air shall be allowed to stabilize for a period of two minutes. The air supply is disconnected and the test pressure allowed to decrease to 3.5 psig. The time required for the test pressure to drop from 3.5 psig to 2.5 psig is determined, and this time interval is then compared to the required time to determine if the rate of air loss is within the allowable. 2) Minimum holding times required per pipe diameter are shown in the table "Duration Requirements for Air Testing." (Note: Test times are independent of the line length once the minimum holding time has been reached.)

(4) Individual Joint Test Method All concrete sewer mains 36-inch and larger in diameter shall be 100% air tested at each joint connection only. The method of testing shall be described in Item 6.7.2(f). The time allowed for the pressure drop from 3.5 psi to 2.5 psi shall be 10 seconds. No joint shall be air tested until the pipe has been backfilled. Air testing shall be

performed as pipe installation progresses. At no time shall pipe installation exceed 100 feet from the last joint tested. If the joint fails to pass the joint air test, necessary repairs as recommended by the pipe manufacturer may be made if approved by the OWNER and the joint retested. Failure to pass the air test after repairs have been made may be cause of rejection.

ITEM 6.7.2(i) Sanitary Sewer Manholes.

ITEM 6.7.2(i)(1) General

Revise third sentence to read:

The ring and cover shall be placed on adjustment rings.

ITEM 6.7.2(i)(1)(A) Cast in Place Concrete Manholes (Add the Following)

(a) Forms: Manholes shall be constructed in place in accordance with the details shown in the plans.

(b) Base: The base shall be cast monolithically with the rest of the manhole. The invert and flow channel shall be formed during or immediately after the placing of the concrete and trowel-finished as soon as the concrete has set sufficiently. The concrete must set for 24 hours before any pipe inside the manhole is trimmed. Concrete shall be minimum 4000 psi.

The base concrete shall be 4000 psi, maximum slump 4 inches vibrated or tamped on undisturbed bearing. The base shall have a minimum diameter or width of at least 1'-0" greater than the

outside diameter of the manhole, and a minimum thickness including the area under the pipe as follows:

0' to 12' manhole	12"
12" to 20' manhole	15"
20' and above	18"

(c) Invert: All invert channels shall be smooth and accurately shaped to a semi-circular bottom conforming to the inside of the adjacent sewer section. Inverts shall be formed directly in the concrete of the manhole base or may be constructed by laying full section sewer pipe through the manhole and breaking out the top half after the base is constructed. Inverts shall extend up at least half of the diameter of the pipe. Changes in the direction of the sewer and entering branches shall have a true curve of as large a radius as the size of the manhole will permit. Where the pipe is laid through the manhole, the invert shall be finished to 1/4-inch below the center of the pipe. The pipe shall be trimmed down to 1/4-inch below the surface of the invert, and the edges of the pipe along the invert and at the walls of the manhole shall be plastered and brush-finished. Plaster shall be 2-parts of masonry sand to 1-part of Portland cement, or an approved non-shrink grout.

(d) Manhole Barrel Section: The vertical forms, wall spaces, and placing cone must be carefully positioned and firmly clamped in place before any placement is made. The wall spacers must be located 90 degrees from each other. The manhole shall be cast of 4000 psi concrete with a maximum slump of 4 inches. The first placement shall consist of approximately 1/2 yard of concrete evenly around the walls and vibrated until there

is a minimum slump of 60 degrees from the bottom of the forms to the bearing surface both inside and outside of the manhole. When this is complete and before additional concrete is added, the concrete must be carefully vibrated on each side of each pipe. Additional concrete must be deposited in evenly distributed layers of about 18 inches with each layer vibrated to bond it to the preceding layer. The wall spacers must be raised as the placements are made with the area from which the spacer is withdrawn being carefully vibrated. Excessive vibration is to be avoided. A maximum of 2% calcium chloride may be added to the concrete, at the Contractor's option, to speed the set. The forms may be removed as soon as the concrete has sufficiently set (approximately 2 hours after placement depending on field conditions).

Form marks and offsets up to 1-inch will be permitted on the outside surface of the manhole. Form marks and offsets up to 1/2-inch will be permitted inside the manhole. All offsets on the inside surface of the manhole will be smoothed and plastered so there is no projection or irregularity capable of scratching a worker or catching and holding water or solid materials. Honeycomb will be plastered with a mortar consisting of 3 parts of masonry sand and 1-part Portland cement upon removal of the forms, but not until after being inspected for structural integrity by the Owner or his authorized Representative. Manholes deemed to be structurally unsound shall be replaced.

(e) Backfilling: Will be performed evenly and carefully around the manhole 24 hours or more after the placement of concrete is completed and shall conform to these specifications.

(f) Cold Joints: Should circumstances make a cold joint necessary, a formed groove or reinforcing dowels will be required in the top of the first placement for shear protection. Immediately before the second placement is made, the surface of the cold joint shall be thoroughly cleaned and wetted with a 1-1/2 inch layer of mortar (2 parts sand and 1-part cement) being deposited on the surface. Cold joints below the natural water table or in the bottom 4 feet of the manhole shall include an approved waterstop material. Waterstops shall be heavy duty polyvinyl conforming to Corps of Engineers Specification CRD-572, latest edition, as manufactured by Serviced Products Division of W.R. Grace and Co.; B.F. Goodrich Company; Electrovert, Inc.; W.R. Meadows, Inc.; or approved equal.

ITEM 6.7.2(i)(1)(D) BRICK

Delete in entirety

ITEM 6.7.3 WATER CONDUIT INSTALLATION

(c) Laying Water Conduit: Delete Paragraph No. 3 in its entirety and substitute therefore the following: Valves for installation in the City's distribution system shall be installed by direct burial as shown on the standard detail sheets and shall be provided with valve boxes for operation of the valve.

(f) Hydrostatic Test: Delete in its entirety and substitute the following:

Before being accepted, all gray iron, ductile iron, plastic, and asbestos-cement pipe lines constructed shall be tested with a hydraulic test pressure of not less than 150 psi (1034.3 kPa) maintained over a period of not less than four hours unless otherwise specified by the OWNER. Concrete pressure pipe shall be

tested with a hydraulic test pressure of 120 percent of the design pressure. Steel pressure pipe shall be tested with a hydraulic test pressure not to exceed 150 percent and not less than 120 percent of the designed working pressure. The rate of leakage of all pipe tested shall not exceed 11.65 gallons per inch of nominal diameter of pipe per mile (0.01 cu. m. per cm of nominal diameter per km) over a 24-hour period. Water lines of materials in combination shall be tested for the type of pipe (material) with the least stringent hydraulic test pressure and maintained over a period of not less than four hours. Refer to the provided table, "Allowable Leakage for 4 Hours at Test Pressure of 150 PSI," to determine acceptable test values.

All newly laid pipe, or any valved section thereof, shall be subjected to the above test with the gage located at the lowest point, a correction factor of minus 0.43lb/vert. ft. (0.64 kg/vert. m) shall be made.

If the tests indicate a leakage in excess of the above rate, then the CONTRACTOR shall be required to find the leak and repair same. Even if the test requirements are met, all apparent leaks shall be stopped. Allowance for valve leakage to the atmosphere may be determined as no more than 0.0078 gal/hr/in (0.012 l/hr/cm) of nominal valve size. The OWNER cannot guarantee that an old existing system valve shall hold the required pressure. The CONTRACTOR has the option of plugging the new main prior to tying onto the existing system and testing against the old valve. If the old valve does not hold against the test pressure, the CONTRACTOR must cut and plug the new main; hydrostatic test the new

main; then complete the tie-in. Internal test plugs may be used in larger R.C. mains in lieu of plugging prior to making a tie-in.

The cost of testing, repairing the leaks, including all uncovering, repairing, backfilling and incidental work, shall be at the expense of the CONTRACTOR.

ITEM 6.7.3(j) Taps and Tap Assemblies in Water Mains.

ITEM 6.7.3(j)(5) Tapping of PVC Pipe:

Revise table to read:

<u>Tap Diameter</u>	<u>Pipe Diameter</u>	<u>Pressure Class</u>
<u>1"</u>	<u>6"-12"</u>	<u>150 and 200</u>

ITEM 6.7.3(r) Blocking

ITEM 6.7.3(r)(2) Measurement and Payment

Concrete blocking shall not be paid for separately but shall be included in the various items of the Proposal and Bid Schedule.

ITEM 6.7.3(s) Purging and Sterilization of Water Mains

ITEM 6.7.3(s)(1) General

Delete in its entirety and substitute therefore:

On all water lines installed in the City of Plano the Contractor shall be responsible for Purging, Testing and Sterilization of the completed lines.

ITEM 6.7.3(s)(2)(A) Pre-Sterilization

Delete in entirety.

ITEM 6.7.3(s)(2)(B)(1) Delete in its entirety and substitute:

The "polly-pig" method of purging shall be used for all water main construction by the Contractor. The "polly-pig" shall be a soft bare swab two pounds per cubic foot (2 lbs/ft³), double dish design with polypropylene rope, both ends.

ITEM 6.7.3(s)(2)(C) Sterilization

Add to end of the first paragraph:

Contractors may not put dry granular chlorine or tablets directly into the water main. The granular chlorine or tablets will be mixed in a barrel or tank then the mixture will be pumped into the new main.

ITEM 6.7.3(t) Manholes

Delete in entirety.

ITEM 6.7.4 STORM DRAIN CONDUIT INSTALLATION

ITEM 6.7.4.1 REINFORCED CONCRETE CULVERT PIPE

ITEM 6.7.4.1(g) Storm Sewer Manholes

ITEM 6.7.4.1(g)(1)(D) Type "A" Manhole

Second sentence change "(.9)" to "(.9M)"

ADD: ITEM 6.7.6 CONSTRUCTION OF AERIAL CROSSINGS

(1) General

Piers for aerial crossings will be drilled piers and columns of the diameter shown on the plans. Piers shall be founded at least 6'-0" into firm gray limestone and 8'-0" into undisturbed material, unless otherwise directed by the Owner.

Materials and workmanship required to construct piers and cap shall conform to Reinforced Concrete Structures, of the specifications. Concrete of piers shall be Class A, 3000 psi.

Anchor straps and bolts shall be installed as shown on the plans, and shall be hot dipped galvanized after fabrication.

After installing the aerial crossing, including the junction collars with the main sewer pipe, an approved coal tar mastic jointing compound shall be installed the full inside circumference of the pipe at each joint to produce a smooth surface with no sharp flow transitions.

(2) Exterior Painting

Surfaces shall be sound, clean and free of harmful scale, rust, dirt, oil, grease, moisture, or any other foreign matter which might lessen the life or usefulness of the coating. Metal shall be smooth and free from blisters, rough corners, pits, dents, or other imperfections before painting. Pits and dents shall be filed and the material ground smooth where required.

All coatings shall be handled and applied in accordance with Manufacturer's recommendations. All paint shall be thoroughly stirred before taken from the containers, shall be kept stirred while using, and all ready-mixed paints shall be applied exactly as received from the manufacturer without addition of any kind of a drier or thinner except in strict accordance with Manufacturer's recommendations.

Field coats shall be applied after a brush-blasting of any existing coats to assure a clean surface and thorough adhesion.

No painting shall take place unless the atmospheric temperature is at least 35 degrees F and rising (50 degrees F for high performance coatings) or when the surface temperature is below the dew point, or when the relative humidity is above 85%, unless approved by the City of Plano and the Paint

Manufacturer. Painting also shall not proceed if the temperature is expected to fall below 32 degrees F (40 degrees F for high performance coatings) before the paint has dried.

Painting found defective shall be removed and the surface repainted as directed by the City of Plano at the Contractor's expense. Before final acceptance of the project, any damaged painted surfaces shall be touched-up or repainted, as directed by the City of Plano at the Contractor's expense.

The Contractor may elect to have all materials shipped to the job site with surface preparation SSPC-SP10 (Near-White Metal Blast) and one shop coat of (a) herein described in Item 2.12.23 of these specifications, or to prepare and paint the surface on the job site as described herein after.

All material to be field painted shall receive surface preparation SSPC-SP10 (Near-White Metal Blast) on the job site and shall receive one (1) field coat of (a) and two (2) field coats of (b) described in Item 2.12.23, colors to contrast; or shall receive two field coats of (b) if equipment is shop coated. Colors are to contrast. If the Contractor elects to apply both coats in the field, no prime coat shall be required for shipment.

All surface prepared in the field shall be inspected by the City of Plano for adequate surface preparation as defined above prior to application of paint coating. All surfaces to be painted in the field shall have their readiness for painting approved by the City of Plano before work is started.

Adequate film build shall be subject to inspection procedures by using a wet film gauge during painting and/or a Mikrotest or equivalent dry film gauge after painting. The finished product shall be completely free of holidays (pin-holes) when tested with a standard low-voltage holiday-detector.

Paint shall be applied to all ferrous material part of the aerial crossing including but not limited to pipe, couplings, straps, nuts, bolts, etc.

(2) Measurement of Payment

Aerial crossings will be measured for payment per each between the limits shown on the plans and will be paid for at the lump sum bid price for each crossing in the Bid Schedule.

Concrete piers and collars to the elevations shown in the plans will be measured and paid for in the lump sum price for aerial crossings. Payment in vertical feet for additional depth of reinforced concrete piers as approved by the City of Plano, shall be as provided in the Proposal and Bid Schedule.

Payment of the unit or lump sum prices shall be full compensation for furnishing all labor, supervisions, materials, tools, equipment, and incidentals, and for performing all work necessary in construction the aerial crossings and piers, including excavation, dewatering, backfilling, disposal of surplus material, painting, testing, concrete encasement, hauling, transportation costs, disposal costs, salvaging, and any other work required in accordance with the Plans and Specifications.

PART III: DIVISION 7 - STRUCTURES

ITEM 7.4.5 QUALITY OF CONCRETE

ITEM 7.4.5(b) Heading for Table on Page 379 Shall Read:

"TABLE 3 CLASSES OF CONCRETE"

ITEM 7.4.5(b) At the end of TABLE 3 CLASSES OF CONCRETE

Add Type "S" Concrete: Min.-Max. Sx. Cement per
C.Y.- 6.5; min. 28 day Comp. Strength - 5,000 psi;

Min. 7-day Beam Strength 600 psi;

Max. Water Cement Ratio - 5.0;

Course Aggr. No. [ITEM 2.1.1(c)(4)]-2-3.

PART III: DIVISION 8 - MISCELLANEOUS CONSTRUCTION

ITEM 8.2 CONCRETE CURB AND GUTTER

ITEM 8.2.3(b) REINFORCING STEEL

The third sentence, first paragraph should be
revised to read:

All bars at splices shall be lapped a minimum to 30
diamters of the bar or 12-inches, whichever is greater.

ITEM 8.3 CONCRETE SIDEWALKS AND DRIVEWAY APPROACHES

ITEM 8.3.2 MATERIALS

ITEM 8.3.2(b) Reinforcement

Revise the first sentence to read:

Driveway approaches and walk reinforcing shall be
No. 3 bars on 24-inch centers.

ITEM 8.3.3 CONSTRUCTION METHODS:

ITEM 8.3.3(a) General

Add to end of first paragraph:

The drive approach shall have a minimum thickness equal to the thickness of the adjacent street or 6-inches, whichever is greater.

ITEM 8.3.3(f) Joints

Revise second sentence to read:

Expansion joints shall be placed in the sidewalk at 20-foot intervals or as otherwise specified by the OWNER.

ITEM 8.4 CONCRETE MEDIANS

Delete in entirety.

ITEM 8.8 SAWING

ITEM 8.8.2 EQUIPMENT

Revise second paragraph to read:

Saw blades shall make a clean, smooth cut, producing a groove a minimum of 3/8-inch wide and to the full depth required by these specifications or as shown on the plans.

ITEM 8.9.3 CONSTRUCTION METHODS

a. Descaling, Cleaning and Preparation of Surfaces

- Add the following: Prior to painting concrete or masonry walls the surface must be thoroughly cured and dry for proper adhesion of paint. Preparation of work shall include either of the following:

(1) The surface shall be thoroughly washed with a solution of one (1) gallon Muratic Acid to ten (10) gallons H₂O (Caution: Always add acid to H₂O rather than H₂O to acid). Rinse thoroughly with clear water and paint while damp.

(2) Treatment of surface with masonry conditioner such as a clear alkali-resistant soya alkyd binder type sealer or as recommended by paint manufacturer.

k. Finish Coats - Add the following: On masonry walls which are painted, the total dry film thickness shall be 6 mils (2 coats applied at 8 mils wet and spreading rate = 200 square feet per gallon based on 36% ± 2% Volume Solids). The thickness shall be tested using a Wet Film Thickness Gage.

ITEM 8.9.4 CLEANING AND PAINTING EXISTING STRUCTURES

Add the following: Masonry walls which require repainting shall be sand blasted or cleaned with a power brush, removing all mastic, powdery, thick layered, peeling or heavily chalked old paint. Spot prime all bare areas with Masonry Conditioner. If old paint is a cement-base paint, apply Masonry Conditioner to entire surface and apply 2 coats of paint in accordance with 8.9.3 (k) above.

ITEM 8.10 ELECTRICAL CONDUIT

ITEM 8.10.2 MATERIAL

Add the following: In the City of Plano, conduit for street lighting shall be 2 inch PVC pipe and for traffic control shall be 3-inch PVC pipe, meeting the requirements of Special Provision, Item 2.12.22.

ITEM 8.10.3 CONSTRUCTION METHODS

Revise first sentence, third paragraph to read as follows:

All conduit shall be placed a minimum of thirty-six (36) inches below finish grade.

Revise first sentence, fourth paragraph to read as follows:

Conduit in median shall be placed a minimum of thirty-six inches below inside of curb as shown on plans.

ITEM 8.11.3 CONSTRUCTION METHODS

Add the following: Reflectorized Marking shall be applied to metal beam guardrail at locations shown on the plans. To apply properly, the following equipment and accessories are recommended:

a. Heat Activated Adhesive

(1) Heat lamp vacuum applicator with temperature control.

(2) Remove protective liner from adhesive and place glossy side of liner over the sign face. Sheeting and liner may require perforation to aid in air evaluation.

b. Pressure Sensitive Adhesive

(1) 48" Interstate Squeeze Roll Applicator.

(2) Hand application. To obtain maximum initial adhesion use firm pressure with 2" (5 cm) rubber roller or plastic squeeze. Multiple, heavy overlapping strokes should be used. Resqueeze all edges.