DEPARTMENT OF PUBLIC WORKS

ADDENDUM

TO

NORTH CENTRAL TEXAS
STANDARD SPECIFICATIONS

FOR

PUBLIC WORKS
CONSTRUCTION

DECEMBER 1998
This addendum to the North Central Texas Standard Specifications for Public Works Construction 3rd Edition 1998, and its amendments, sets forth exceptions or requirements of the City of Dallas Public Works Department and thereby takes precedence over any conditions or requirements of the Standard Specifications with which it is in conflict.

The comments are itemized by the Standard Specifications section reference number followed by specific comments. Other Special Provisions and required forms can be found in the project special provision and proposal form book specific for each project.

Plans, Addendum to the Standard Specifications, special provisions and proposal forms can be purchased from the Office of the Director of Public Works, Public Works Department, 320 East Jefferson Boulevard, Room 107, Dallas, Texas 75203.

Copies of the Standard Specifications may be purchased by mail or over the counter from the North Central Texas Council of Governments, 616 Six Flags Drive, P. O. Drawer COG, Arlington, Texas, 76005-5888, phone 817/640-3300. Bulk discounts are available. This document is copyrighted.
ADDENDUM TO NORTH CENTRAL TEXAS
STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION
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Add the following sentence to the definition of “Special Provisions or Conditions”:

“For purposes of this definition, the term includes any and all addendums that expressly supplement and take precedence over the general or standard specifications, regardless of whether they are peculiar to a specific project or apply to all projects.”

Add the following to the definition of “Working Day”:

“The legal City Holidays are:

New Year's Day (January 1)
Martin Luther King Jr. Day (Third Monday in January)
President’s Day (Third Monday in February)
Memorial Day (Last Monday in May)
July 4 (Independence Day)
Labor Day (First Monday in September)
Thanksgiving Day (Fourth Thursday in November)
Friday after Thanksgiving
Christmas Day (December 25)

If one of these days falls upon a Saturday, the holiday will be observed on Friday. If one of these days falls upon a Sunday, the holiday will be observed on Monday.

Work requiring inspection will not be permitted on a legal City holiday except by special written permission of the Engineer. Any work done without proper inspection is subject to removal and replacement at the direction of the Engineer.”

Substitute the following for the definition of “Engineer” in Item 1.0:

“Engineer: The OWNER'S Project Manager or duly authorized representative overseeing administration of the Contract and the CONTRACTOR'S performance thereunder. Unless otherwise specifically provided in the Contract Documents, the OWNER'S Project Manager is an employee of the Department of Public Works and Transportation, and is not the Consulting Engineer.”

Add the following definition:

“Consulting Engineer: The person, firm or entity hired as an independent consultant by the OWNER to design the Project and represent the OWNER in the administration of the Contract in whatever capacity the OWNER designates; the OWNER may, at its sole option, designate the Consulting Engineer to be the Engineer for purposes of administration of the Contract. The Consulting Engineer shall be understood to be the Consulting Engineer of the OWNER, and nothing contained in the Contract Documents shall be construed to make the Consulting Engineer an employee of the
OWNER, nor shall they be construed to create any contractual or agency relationship between the Consulting Engineer and the CONTRACTOR. The term includes the officers, employees, associates, agents and subconsultants of Consulting Engineer, if any.”

1.4

Delete the fourth sentence in the first paragraph and add the following additional paragraphs:

“Where the OWNER intends to award a contract on an all-or-nothing basis, the lowest responsible bidder is determined by referring to the grand total of all bid line items for the Work (consisting of whatever bid items, schedules of items or alternates the OWNER advertises it may award.) The grand total is calculated by adding together the respective extended total of the applicable bid line items. If the bidder is not required to calculate extended totals or the grand total of all bid line items, the OWNER reserves the right to calculate the grand total based on the applicable extended totals or unit prices quoted and submitted. If a bidder makes a mathematical error in the calculation of an extended total on a line item, the amount of the bid will still be considered on the basis of the grand total of all applicable bid line items for the Work. If a mathematical error made in an extended total has been calculated and incorporated into the grand total, the error cannot be corrected, except as provided below.

If a mathematical error made in calculating the extended total of a line item causes the grand total of the lowest responsible bid to be higher than it would be if it were mathematically correct, but the bidder remains the lowest responsible bidder with or without the error, the OWNER may, in its best interest, award a contract based on the mathematically correct lower number, treating the error as a waivable irregularity, as long as the overall result of bidding is not changed thereby.

In the event of a conflict or discrepancy between words and numbers in a bid line item, the amount of the bid item will be determined with reference to what extended total was calculated and incorporated into the grand total of all line items bid. A conflict or discrepancy may not be calculated in a way that changes the grand total of all line items bid or the overall result of bidding. The OWNER reserves the right, upon contract award, to reconfigure the unit price of the line item in which there is an error, conflict or discrepancy to make it conform with the grand total of all line items bid, for the convenience of the OWNER, as long as the grand total or the overall result of bidding is not changed.

If there is an error in the grand total, resulting solely from a mathematical error in adding together otherwise correct extended totals, the bidder is bound by the grand total stated in the bid, and the bid may not be changed to correct the error.
These provisions do not affect the common law right of a bidder to withdraw a bid due to a material mistake in the bid, nor do they affect the right of the OWNER to reject any and all bids for any reason."

1.7 The following changes shall be made:

(1) A period will be placed after the word “bidder” in place of the semicolon in line five of the last sentence.
(2) The remainder of the last sentence after the word “bidder” in line twelve is deleted.

1.10 Add the following:

“(e) Failure to use the OWNER’S form of bid bond in submitting his proposal. A proposal may not be considered if this form is not used. A standard form of bid bond is provided in the proposal.

(f) A proposal submitted with a bid bond issued by a surplus line company or by a surety not licensed to transact insurance business in the State of Texas.”

1.11 Delete subsections (c), (d) and (e) and substitute the following:

“(c) the bidder having a history of filing frequent, excessive and meritless claims, or fraudulent claims, against the OWNER, or against other contractors on a project of the OWNER;

(d) the bidder or his surety having defaulted on a previous contract, or the bidder performing poorly on a previous contract;

(e) lack of competency, skill, judgment, financial capability, integrity, reputation, reliability or responsibility to perform the work as revealed by the bid proposal, bid questionnaires, financial statement, performance history or other relevant information obtained by the OWNER.”

1.13 The words “within 90 days” in the first sentence are deleted, and the words “within 180 days” are substituted.

Add:

“1.13.1 DELAY OF CONTRACT

The OWNER will attempt to award the Contract within the time specified in the Standard Specifications and provide a work order within the time specified in the plans. The CONTRACTOR shall not be entitled to any claim for damages due to delay in the award or work order."
If the CONTRACTOR encounters any delay occasioned by the OWNER'S failure or inability to obtain right-of-way or is delayed by the relocation or removal of any of the utilities or other installations of similar kind, the CONTRACTOR shall not be entitled to any claim for damages by virtue of said delay.

Award will be subject to approval of prices by the Public Works Department. The OWNER reserves the right to reject any or all bids and to accept or reject any or all schedules.”

1.18
In the first sentence remove “the Contract is awarded” and replace with “receipt of the Contract.”

1.20.1
The second paragraph shall be revised to read as follows:

“The plans, the specifications, the proposal, special provisions and all supplementary documents are intended to describe a complete work and are essential parts of the Contract. All requirements occurring in any of them is binding. In cases of discrepancies, figured dimensions shall govern over scaled dimensions; plans shall govern over Standard Specifications, special provisions shall govern over both plans and Standard Specifications.

All other provisions of the Standard Specifications shall remain in force.”

1.20.4
Delete this paragraph and substitute the following:

“(a) This Item 1.20.4 addresses only matters arising from certain existing, man-made surface and subsurface structures, facilities and appurtenances, not naturally occurring conditions. AS PROVIDED IN ITEM 1.21., THE OWNER SHALL HAVE NO LIABILITY WHATSOEVER FOR ANY CLAIM ARISING FROM A DIFFERING, NATURALLY OCCURRING SURFACE OR SUBSURFACE CONDITION, OR FROM ANY MAN-MADE CONDITION THAT IS NOT A SURFACE OR SUBSURFACE STRUCTURE, FACILITY OR APPURtenance. The OWNER’S responsibility for any claim arising from existing, man-made surface and subsurface structures, facilities and appurtenances is governed solely by this Item 1.20.4., and any situation involving a differing subsurface condition not included herein shall be governed solely by Item 1.21.

(b) The plans show the general locations of all known, existing man-made surface and subsurface structures, facilities and appurtenances. The locations of many gas mains, water and wastewater mains, storm sewers, drains, culverts, conduits and other man-made utility structures, facilities and appurtenances, however, are unknown. THE OWNER DOES NOT WARRANT THE PLANS TO SHOW THE EXACT LOCATIONS OF ANY AND ALL KNOWN, EXISTING MAN-MADE SURFACE AND SUBSURFACE STRUCTURES, FACILITIES AND APPURTENANCES, AND DOES NOT WARRANT THAT IT KNOWS OF
THE EXISTENCE OF ALL POSSIBLE EXISTING MAN-MADE SURFACE AND SUBSURFACE STRUCTURES, FACILITIES AND APPURTENANCES.
The OWNER assumes no responsibility, except as provided in subsection (c) below, for any failure to show any or all of these structures on the plans or to show them in their exact locations.

(c) The CONTRACTOR and OWNER mutually, expressly agree that the failure of the OWNER to show any existing, man-made surface or subsurface structure, facility or appurtenance on the plans, or the failure to show them on the plans in their exact locations, shall NOT be considered as a basis of a claim for extra work, damages or other compensation of any kind, nor shall it be considered as a basis for increasing the quantities of work or unit prices on any bid item, unless:

(1) the CONTRACTOR could not have discovered the existing, man-made surface or subsurface structure, facility or appurtenance by a reasonable review of the plans and specifications and a reasonable, careful inspection of the work site prior to bid opening or award of the contract; and

(2) the existing, man-made surface or subsurface structure, facility or appurtenance is in a location that necessitates a substantial change in the alignment, depth or hydraulic gradient of the work to be constructed under the Contract because the CONTRACTOR cannot, by the use of reasonable skill or care, place the work in accordance with the original alignment, depth or hydraulic gradient; or

(3) The existing surface or subsurface structure, facility or appurtenance requires the construction of a special structure, facility, appurtenance or other special work, provisions for which are not already made in the plans and specifications, to protect either the existing, man-made surface or subsurface structure, facility or appurtenance or the work to be constructed under the Contract from damage.

If the elements of (1) and either (2) or (3) occur, the provisions of the specifications regarding claims for extra work apply. Otherwise, the condition is considered part of the contract work and OWNER shall not be liable for extra compensation. Provided, however, that the OWNER will not be liable for payment of extra work claims under this subsection that are not timely filed in accordance with other provisions of the specifications, nor shall the OWNER be liable to pay for any additional work or additional costs arising solely from a decision of the CONTRACTOR to change the original means or methods of construction chosen because an existing, man-made surface or subsurface structure, facility or appurtenance is encountered.

(d) It is the intention of the OWNER that all known conflicts between utility-owned facilities and the proposed construction will be cleared prior to the issuance of the
facilities and the proposed construction will be cleared prior to the issuance of the
work order. Conflicts which are found during construction will be resolved as
expeditiously as possible.

It will be the CONTRACTOR'S responsibility to locate and report all utility conflicts
to the Engineer promptly in order to avoid unnecessary delays, and the
CONTRACTOR will cooperate with the utility in making the adjustment.

(e) The CONTRACTOR will be required to protect adequately all utility-owned
facilities from damage or displacement by his operations. Utility information shown
on the plans must be confirmed by actual field check in advance of construction.

The adjustment or location of any utility-owned facility which the CONTRACTOR
may desire for his own convenience or ease of construction will be his responsibility
to coordinate and will be at his own expense.

The following lists the most frequently needed emergency telephone numbers and
representatives (Updated 07/98):
TXU ELECTRIC
214-812-7856  Field Coordination  John Wallak
1-800-242-9113  24-Hour Locator  24 Hours

TXU GAS COMPANY
1-800-817-8090  Emergency Dispatch  24 Hours
1-800-344-8377  Locator  24 Hours
972-323-8936  Metro - North of LBJ  Howard Lewis

SOUTHWESTERN BELL TELEPHONE COMPANY
1-800-395-0440  Locator (24 Hours advance notice requested for surface marking; 48 Hours if backhoe required)  24 Hours

A.T.& T. Broadband Cable Company
214-319-4909  Emergency Dispatch  24 Hours
214-319-4963  Locator Service  24 Hours

GENERAL TELEPHONE COMPANY
1-800-344-8377  Locator Service  24 Hours

WESTERN UNION-ATS/MCI WORLD COM TELECOMMUNICATIONS CORP.
1-800-245-4545  WU-ATS Locator  24 Hours
1-800-624-9675  MCI World Com Locator  24 Hours

AMERICAN TELEPHONE & TELEGRAPH COMPANY
1(800)252-1133  Locator Service  24 Hours
214-827-1510  Field Coordination  Mike Elam

DEPARTMENT OF TRANSPORTATION
214-670-5896  Operations/Street Closings  Gary Maxwell
214-670-4026  Operations/Street Closings  Paul Thompson
214-670-3113  Signal Construction  Steve Cherryholmes

DALLAS WATER UTILITIES
214-948-4600  Water & Sewer Inspection  Randy Nelson
(24 Hour Notice Requested)
214-670-5700  24 Hour Repair  Dispatcher

DALLAS AREA RAPID TRANSIT
214-749-2953  Engineering & Construction  Albert Hall

7
Add:

"1.20.5  
SOIL BORINGS

Soil borings, if available, are located in the Engineer's office at 320 E. Jefferson. Soil Borings are to be used for information only and are not warranted to be accurate in any way. The OWNER accepts no responsibility for any deviation in soil types and/or depths shown on the borings."

1.21 Delete the last sentence of the second paragraph and substitute the following:

"Except as provided in Item 1.20.4, all risks of differing subsurface conditions shall be borne solely by the CONTRACTOR."

1.21.1 Add at the end of the first paragraph:

"The performance and payment bond forms to be used with this Contract are attached with the sample form Contract."

1.21.1 Add the following at the end of this section:

"(e) If the amount of the Contract, including OWNER-accepted alternates and allowances, if any, is greater than $100,000, Performance and Payment Bonds in 100% of the Contract amount are mandatory and shall be provided by the bidder receiving the award. If the Contract amount is greater than $25,000 but less than or equal to $100,000, only a Payment Bond in 100% of the Contract amount is mandatory; provided, however, that the bidder receiving the award may elect to furnish a Performance Bond in the same amount if the bidder so chooses. If the Contract amount is less than or equal to $25,000, the bidder receiving the award may elect not to provide Performance and Payment Bonds; provided that in such event, no money will be paid to the CONTRACTOR until final completion and acceptance of all work by OWNER. If the bidder receiving the award elects to provide Performance and Payment Bonds in 100% of the Contract amount, progress payments will be disbursed in accordance with the applicable Contract provisions.

(f) Surety Bonds, when required, must be with a surety acceptable to the OWNER on OWNER'S bond forms. In determining acceptability, the following will be required, as well as information that may be provided by the State Board of Insurance regarding such matters as company's solvency, investigations, and complaints. The surety must be a corporate surety; Texas Lloyd's Plan carriers are not acceptable. The surety company must be an admitted carrier in the State of Texas, surplus lines carriers are not acceptable. The surety company should be listed in the current circular of the "Federal Register-Department of the Treasury-Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsurance Companies." The surety must have an underwriting limitation (as shown in the Federal Register) to cover 100% of the project cost. Exceptions to the Treasury List
requirement may be made with the concurrence of the Office of Risk Management and
the City Attorney's Office, subject to individual evaluation.”

1.22.2 Delete Item 1.22.2 and substitute the following:

“INDEMNIFICATION

CONTRACTOR agrees to defend, indemnify and hold OWNER, its officers, agents
and employees, and the Consulting Engineer harmless against any and all claims,
lawsuits, judgments, costs and expenses for personal injury (including death), property
damage or other harm for which recovery of damages is sought, suffered by any
person or persons, that may arise out of or be occasioned by CONTRACTOR's
breach of any of the terms or provisions of the Contract, or by any negligent, grossly
negligent or strictly liable act or omission of CONTRACTOR, its officers, agents,
employees or subcontractors, in the performance of the Contract; except that the
indemnity provided for in this paragraph shall not apply to any liability resulting from
the sole negligence or fault of OWNER, its officers, agents, employees or separate
CONTRACTORS, or Consulting Engineer, and in the event of joint and concurring
responsibility of the CONTRACTOR, OWNER and Consulting Engineer,
responsibility and indemnity, if any, shall be apportioned in accordance with the law
of the State of Texas, without, however, waiving any governmental immunity
available to the OWNER under Texas law and without wavin any defenses of the
parties under Texas law. The provisions of this paragraph are solely for the benefit
of the parties hereto and not intended to create or grant any rights, contractual or
otherwise, to any other person or entity.”

1.22.5 Delete Item 1.22.5 and substitute the following:

“The CONTRACTOR shall submit to the Engineer on the effective date of the work
order a written Progress Schedule showing the proposed dates of starting and
completing each of the various sections of the work, the anticipated monthly
payments to become due to the CONTRACTOR, and the accumulated percent of
progress each month. The Contract amount is deemed to be based upon a
construction progress schedule requiring the full Contract time for completion. No
claim for additional compensation shall be allowed as a result of the CONTRACTOR
basing his bid on an early completion schedule, or as a result of delays and costs
attributable to completion later than the planned early completion date.”
INDEPENDENT CONTRACTOR

While engaged in carrying out and complying with the terms and conditions of this Contract the CONTRACTOR is, and shall be, an independent contractor and shall not, with respect to its acts or omissions, be deemed an officer, employee or agent of the OWNER. The CONTRACTOR shall not at any time or in any manner represent that it or any of its agents or employees are in any manner agents or employees of the OWNER.

CONTRACTOR is, and shall remain, an independent contractor, with full, complete and exclusive power and authority to direct, supervise, and control his own employees and subcontractors and to determine the method of the performance of the work covered under this Contract. The fact that the OWNER or the Engineer shall have the right to inspect or observe CONTRACTOR's work during performance and to exercise the other rights and prerogatives expressly reserved to the OWNER or the Engineer under this Contract is not intended to, and shall not at any time, change or affect the status of the CONTRACTOR as an independent contractor with respect to the OWNER, the CONTRACTOR'S own employees or any other person, firm or corporation.”

Add: August 4, 1998

SAFETY RECORD

All CONTRACTORS bidding on City of Dallas projects must submit a notarized affidavit with their bid attesting to their safety record.

The CONTRACTOR must provide safety records from the Dallas OSHA office in which the firm is located. The CONTRACTOR'S safety record may not reflect penalties for six (6) or more Serious violations, none of which may be Repeat violations, nor may it reflect three (3) or more willful violations, none of which may be Repeat violations, within three (3) years preceding award. This information will be considered in determining the responsibility of the bidder for purposes of award.”

Add:

STORM WATER PERMIT

The CONTRACTOR is responsible for obtaining an EPA Storm Water Permit that may be required for construction of this project under regulations contained in 40 CFR Part 122, as amended, under the authority of the Clean Water Act, 33 U.S.C. 1251 et seq. These regulations require the filing of a notice of intent to obtain and abide by the general storm water permit for construction activities, including cleaning, grading, and excavation, that disturb the applicable amount of total land area. Contact, EPA Region VI, 1445 Ross Ave., Suite 1200, Dallas, Texas 75202-2733, (214) 655-7175, for permitting information and requirements.
If a permit is required, the CONTRACTOR shall provide measures to control soil erosion sediment and water pollution created by construction operations for the duration of the Contract as directed by the Engineer. These measures shall be in addition to those required of the CONTRACTOR under Subsections 3.12.4 (a) through (e) of the Standard Specifications, as amended.”

1.24.1 Add at the end of the paragraph:

“During periods when schools are in session, the CONTRACTOR will be required during the construction of this Project to:

(1) Maintain a suitable all-weather footpath across this Project at all designated school crosswalks.

(2) Move and reinstall pedestrian crossing warning signs as construction and routing of traffic lanes require.”

1.24.2 Delete the third, fourth, fifth and last paragraphs and substitute the following:

“Where the work is carried on, in or adjacent to any street, alley, sidewalk, public right-of-way or public place, the CONTRACTOR shall at his own cost and expense provide such flagmen and watchmen and furnish, erect and maintain such warming devices, barricades, lights, signs, and other precautionary measures for the protection of persons or property as are required by law. The CONTRACTOR's responsibility providing and maintaining flagmen, watchmen, warning devices, barricades, signs, and lights, and other precautionary measures shall not cease until the Project is finally accepted by the OWNER.

If the Engineer discovers that the CONTRACTOR has failed to comply with the applicable federal and state law by failing to furnish the necessary flagmen, warming devices, barricades, lights, signs or other precautionary measures for the protection of persons or property, the Engineer may order such additional precautionary measures as required by law to be taken to protect persons and property, and to be reimbursed by the CONTRACTOR for any expense incurred by the OWNER in ordering such additional precautionary measures.

In addition, the CONTRACTOR will be held responsible for all damage to the work and other public or private property due to the failure of warning devices, barricades, signs, lights, or other precautionary measures in protecting said property, and whenever evidence is found of such damage, the Engineer may order the damaged portion immediately removed and replaced by and at the cost and expense of the CONTRACTOR.”
Minimum standards for safeguarding pedestrian and vehicular traffic are contained in the 1988 "TEXAS MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES" as currently amended, Texas Department of Transportation. Signage, barricades and other traffic control devices for detouring and maintenance of traffic on this Contract shall be as provided in above said manual and as directed by the Engineer. Costs associated with the acquisition, installation, maintenance and removal of required traffic control devices shall be considered incidental to this Project."

Add: "1.24.3  Excavations, Trenching & Shoring

The CONTRACTOR is advised that Federal Regulations 29 C.F.R. 1926.650-1926.652 have been, in their most recent version as amended, in effect since January 2, 1990.

THE CONTRACTOR SHALL FULLY COMPLY WITH THE U. S. DEPARTMENT OF LABOR OCCUPATIONAL SAFETY AND HEALTH ORGANIZATION (OSHA) REGULATIONS PERTAINING TO EXCAVATIONS, TRENCHING, AND SHORING AND SHALL PROVIDE AND FAMILIARIZE THEIR EMPLOYEES INVOLVED IN EXCAVATION AND TRENCHING WITH THE PROVISIONS IN OSHA PAMPHLET NUMBER 2226, EXCAVATING AND TRENCHING OPERATIONS.

CONTRACTOR AGREES TO DEFEND, INDEMNIFY AND HOLD OWNER, ITS OFFICERS, AGENTS AND EMPLOYEES, AND THE CONSULTING ENGINEER, COMPLETELY HARMLESS FROM ANY CLAIMS, LAWSUITS, JUDGMENTS, COSTS AND EXPENSES (INCLUDING ATTORNEY'S FEES, IF ANY) FOR ANY PERSONAL INJURY (INCLUDING DEATH), PROPERTY DAMAGE OR OTHER HARM FOR WHICH RECOVERY OF DAMAGES IS SOUGHT (INCLUDING ANY INJURY, DEATH OR DAMAGE SUFFERED BY THE CONTRACTOR'S OWN EMPLOYEES) ARISING OUT OF OR OCCASIONED BY THE USE OF ANY TRENCH EXCAVATION PLANS, REGARDLESS OF THEIR ORIGIN, OR BY ANY NEGLIGENCE, GROSSLY NEGLIGENT, STRICTLY LIABLE OR INTENTIONAL ACT OF THE CONTRACTOR, A SUBCONTRACTOR OR ANY INDIVIDUAL EMPLOYEE OR LABORER (WHETHER OR NOT AN EMPLOYEE OF THE CONTRACTOR OR A SUBCONTRACTOR) IN THE PERFORMANCE OR SUPERVISION OF ACTUAL TRENCH EXCAVATION UNDER THE CONTRACT. THIS INDEMNITY APPLIES REGARDLESS OF WHETHER OWNER'S OR CONSULTING ENGINEER'S NEGLIGENCE OR FAULT IN THE ADMINISTRATION OF THIS CONTRACT OR IN THE PREPARATION, REVIEW OR APPROVAL OF THE OWNER'S OR CONTRACTOR'S TRENCH EXCAVATION PLAN CONTRIBUTED TO THE INJURY, DEATH OR DAMAGE. OWNER ACCEPTS NO LIABILITY WHATSOEVER AS A RESULT OF ITS PREPARATION, REVIEW OR APPROVAL OF ANY TRENCH EXCAVATION PLAN UNDER THIS CONTRACT; OWNER MAKES NO
WARRANTY, EXPRESS OR IMPLIED, CONCERNING THE ADEQUACY OR CORRECTNESS OF ANY TRENCH EXCAVATION PLAN. (THE PROVISIONS OF THIS PARAGRAPH ARE SOLELY FOR THE BENEFIT OF THE PARTIES TO THE CONTRACT AND ARE NOT INTENDED TO CREATE OR GRANT ANY RIGHTS, CONTRACTUAL OR OTHERWISE, TO ANY OTHER PERSON OR ENTITY. THIS PARAGRAPH SHALL NOT BE CONSTRUED TO WAIVE ANY GOVERNMENTAL IMMUNITY OF THE OWNER. THIS PARAGRAPH CONTROLS IN THE EVENT OF A CONFLICT WITH ANY OTHER INDEMNITY OR OWNER-WARRANTY PROVISION IN THE SPECIFICATIONS).”

1.25

Add at the beginning of this item:

“The CONTRACTOR shall furnish payrolls and personnel records which pertain to current construction contracts with the OWNER for the purpose of ascertaining compliance with the published minimum wage rates. Monthly and final estimates for payment will not be processed unless the CONTRACTOR complies with this requirement in a timely manner.”

1.26

Delete Item 1.26 in its entirety and substitute the following:

“1.26.1

CONTRACTOR’S INSURANCE

Without limiting any of the other obligations of liabilities of the CONTRACTOR, the CONTRACTOR and each subcontractor, at their own expense, shall, during the term of the Contract, purchase and maintain at least the insurance coverage stipulated below with insurance companies duly authorized and approved to do business in the State of Texas and otherwise satisfactory to the OWNER. Certificates of insurance evidencing at least the required coverage and meeting the other applicable requirements of Items 1.26.1 through 1.26.4 shall be delivered to OWNER before any work is started. In addition, CONTRACTOR shall promptly furnish, upon the request of and without expense to OWNER, a certified copy of each policy required including all endorsements. Notice of expiration, cancellation, nonrenewal or material change of or in any of the required coverages, described in Item 1.26.3, must be accompanied by a replacement certificate of insurance. Coverage shall be in the following types and amounts:

(a) worker’s compensation in accordance with Texas law, with the policy endorsed to provide a waiver of subrogation as to the OWNER; employer’s liability insurance of not less than $100,000 for each accident, $100,000 disease for each employee, and $500,000 disease policy limit.

(b) commercial general liability insurance, including independent CONTRACTOR’s liability, personal injury liability, products and 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 subcontractors’s)
liability for injury to or death of OWNER’S employees and third parties and for damage to property of third parties, with a combined bodily injury (including death) and property damage minimum limit of $500,000 per occurrence, $1,000,000 annual aggregate. If coverage is written on a claims-made basis, coverage shall be continuous (by renewal or extended reporting period) for no less than 60 months following completion of the contract and acceptance of work by the OWNER. Coverage, including any renewals, shall have the same retroactive date as the original policy applicable to the Project. The policy shall include coverage extended to apply to completed operations, asbestos hazards (if this project involves work with asbestos) and XCU hazards. 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. The policy shall include endorsement CG 2503 amendment of limits (designated project or premises) in order to extend the policy's limits specifically to the project in question. OWNER shall be named an additional insured on the policy, by using endorsement CG 20 26 or broader.

(c) business automobile liability insurance, covering owned, hired and non-owned vehicles, with a combined bodily injury (including death) and property damage minimum limit of $500,000 per occurrence. Such insurance shall include coverage for loading and unloading hazards. No aggregate shall be permitted for this type of coverage.

(d) The Certificate of Insurance as required in Item 1.26.4 shall be furnished to the OWNER with the required bonds.

1.26.2 “UMBRELLA” LIABILITY INSURANCE

CONTRACTOR shall obtain, pay for and maintain umbrella liability insurance during the Contract term, insuring CONTRACTOR for an amount of not less that $1,000,000 per occurrence combined bodily injury (including death) and property damage limit that follows form and applies in excess of the primary liability coverages required hereinabove. OWNER shall be named an additional insured. No aggregate shall be permitted for this type of coverage. The policy shall provide “drop down” coverage where underlying primary insurance coverage limits are insufficient or exhausted.

1.26.3 POLICY ENDORSEMENTS AND SPECIAL CONDITIONS

(1) Each insurance policy to be furnished by CONTRACTOR shall include the following required provisions within the certificate of insurance, and within the body of the insurance contract or by endorsement to the policy:

(a) OWNER shall be named an additional insured as to all applicable liability policies by using endorsement CG 20 26 or broader.

(b) each insurance policy shall require that thirty (30) days prior to the expiration, cancellation, nonrenewal or any material change in coverage, a
notice thereof shall be given to OWNER by certified mail, by sending the
notice to the Engineer and to the Human Resources Department, Risk
Management Division, 1500 Marilla, 1/C/N, Dallas, Texas 75201.
CONTRACTOR shall also notify OWNER, within 24 hours after receipt, of
any notice of expiration, cancellation, nonrenewal or material change in
coverage it receives from its insurer.

(c) the term “OWNER” or “CITY of Dallas” shall include all authorities, boards,
bureaus, commissions, divisions, departments and offices of the OWNER and
the individual members, employees and agents thereof in their official
capacities, while acting on behalf of OWNER (the City of Dallas).

(d) the policy phrase or clause “Other Insurance” shall not apply to OWNER
where OWNER is an additional insured on the policy. The insurance
coverage furnished by CONTRACTOR as required is considered to be
primary insurance for purposes of the Project and the additional insureds
named in the required policies.

(e) all provisions of the Contract Documents concerning liability, duty and
standard of care, together with the indemnification provision, shall be
underwritten by contractual liability coverage sufficient to include such
obligations with the applicable liability policies.

(2) Concerning the insurance to be furnished by CONTRACTOR, it is a condition
precedent to acceptability that:

(a) all policies must comply with the applicable requirements and special
provisions of Item 1.26.

(b) any policy evidenced by a certificate of insurance or submitted for review
shall not be subject to limitations, conditions or restrictions deemed
inconsistent with the intent of the insurance requirements set forth herein,
and the OWNER’s decision regarding whether any policy contains such
provisions, contrary to this requirement, shall be final.

(c) all policies required are to be written through companies duly authorized and
approved to transact that class of insurance in the State of Texas.

(3) CONTRACTOR also agrees to the following special provisions:

(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 OWNER, 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. This waiver of subrogation
shall be included, by endorsement or otherwise, as a provision of all policies
required under Items 1.26.1 and 1.26.2.
(b) Insurance companies issuing the insurance policies and CONTRACTOR shall have no recourse against the OWNER 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 OWNER regarding any insurance supplied by CONTRACTOR (or any subcontractors) shall not relieve CONTRACTOR of any responsibility or liability for damage or accidents as set forth in the Contract Documents. The bankruptcy, insolvency or denial of liability of or by CONTRACTOR’s insurance company shall likewise not exonerate or relieve CONTRACTOR from liability.

(d) OWNER reserves the right to review the insurance requirements of Item 1.26 during the effective period of this Contract and to adjust insurance coverages and their limits when deemed necessary and prudent by OWNER’s Risk Management Division, based upon changes in statutory law, court decisions or the claims history of the field as well as that of CONTRACTOR. CONTRACTOR agrees to make any reasonable request for deletion, revision or modification of particular policy terms, conditions, limitations or exclusions (except where policy provisions are established by law or regulation binding upon either party to this Contract or upon the underwriter of any such policy provisions). Upon request by OWNER, CONTRACTOR shall exercise reasonable efforts to accomplish such changes in policy coverages and shall pay the cost thereof.

(e) No special payments shall be made for any insurance policies that CONTRACTOR and subcontractors are required to carry; all are included in the Contract price and the Contract unit prices.

(4) Any insurance policies required under Item 1.26 may be written in combination with any of the others, where legally permitted, but none of the specified limits may be lowered by doing so, nor may any of the requirements or special provisions of Item 1.26 be limited or circumvented by doing so.

1.26.4 CERTIFICATES OF INSURANCE

The CONTRACTOR shall submit the proof of required insurance on an industry standard form Certificate of Insurance. The purpose is to maintain consistency between insurance certificates submitted and the OWNER's contractual requirements. All certificates of insurance submitted shall identify the Contract and the name of the responsible department of OWNER administering the Contract. According to Item 1.13, no work shall commence before the required insurance has been obtained by the CONTRACTOR and certificate filed with OWNER. Any questions regarding the required coverages shall be directed to the Risk Management Division, Human Resources Department, at (214) 670-4920. The CONTRACTOR shall maintain the required insurance for the term of the Contract. If any policy will expire during the
term of the Contract, the CONTRACTOR must furnish a new certificate of insurance or a certificate of renewal of the existing policy prior to the expiration date. The certificate shall be delivered to the Engineer's office at 320 East Jefferson. In the event the CONTRACTOR fails to do the above, the work on the Contract shall be suspended. If the proper insurance is not furnished within 10 days after the Contract is suspended, the Contract will be terminated and the CONTRACTOR shall be declared in default. The CONTRACTOR shall obtain and monitor the certificates of insurance of its subcontractors in order to assure that all subcontractors are in compliance with the requirements of Item 1.26. The CONTRACTOR shall have the responsibility to enforce the requirements of Item 1.26 among its subcontractors.”

Add:
“1.27.8 Payment for costs incurred in storage of materials or equipment away from the project site will not be made by the OWNER unless: (1) the OWNER has approved off-site storage in writing; and (2) the materials or equipment are stored in a bonded warehouse located in Dallas County and identified with the project for which they are stored as evidenced by warehouse receipts and appropriate documents of title. Storage in facilities of the manufacturer or CONTRACTOR will not be permitted or paid for, unless such storage is expressly approved in writing by the OWNER.”

1.29 Delete the second sentence in the second paragraph and replace it with the following:

“Where the contract drawings, specifications or bulletins do not require the use of specific means or methods of construction, sequencing of construction or a specific traffic control plan, the CONTRACTOR shall submit his proposed plan of procedure, sequencing or traffic control plan to the OWNER sufficiently in advance of the work affected to permit a reasonable time for review and comments. The sequence of construction and traffic control plan must be approved in advance by the OWNER before construction begins. Failure to submit the proposed plan within a reasonable time shall not create a claim for damages for resulting delay in the work or for damages, nor shall it be a cause for extension of working time to complete the work.”

1.32 Add at the end of the item:

“All right-of-way and easements shown on the plans for construction will be provided by the OWNER.

The CONTRACTOR shall maintain the construction site in a neat and orderly manner at all times and remove the trash, paper, rubbish and debris resulting from the CONTRACTOR's operations or that of his employees during the construction of this project.”

1.32.1 Delete this paragraph and substitute the following:

“It will be the responsibility of the CONTRACTOR to preserve all stakes and survey points provided by the Engineer. Any additional stakes deemed necessary in addition to those above will be the responsibility of the CONTRACTOR. Replacement of
stakes or survey points which have been destroyed or disturbed by the CONTRACTOR will be replaced by the Engineer, and the charge for any such replacement will be at actual cost and deducted from the CONTRACTOR's monthly payments.

It is the responsibility of the CONTRACTOR to check all lines and grades and to report any discrepancies or errors to the Engineer.

The Engineer will furnish and set construction stakes as follows:

**Storm Drains:** Line and grade offset stakes will be provided for each inlet location and for each storm sewer line on forty-eight (48) hours advanced notice by the CONTRACTOR.

**Bridges:** Center line with stationing at beginning and end and bench marks at convenient locations.

**Paving:** Lines and grade stakes at normal intervals will be set on or behind each right-of-way line. If the CONTRACTOR so requests, additional offset stakes will be provided for each outside curb line only. These additional stakes will set one time on forty-eight (48) hours notice as requested by the CONTRACTOR.

**Channels:** Line and grade stakes at normal intervals will be set on or behind each right-of-way line. If the CONTRACTOR requests, additional offset stakes will be provided. These additional stakes will be set one time on forty-eight (48) hours notice as requested by the CONTRACTOR.

**Water and Sanitary Sewer Mains:** Construction staking for water and sanitary sewer mains will be provided by Dallas Water Utilities. The CONTRACTOR shall contact the Construction Support Division, 670-8667 seventy-two (72) hours in advance to schedule construction staking. Please notify Pipeline Inspection Division, at 670-8707 seventy-two (72) hours in advance to schedule construction inspection.”

Add:

"1.32.3

DISPOSAL OF MATERIALS

Surplus excavation and other materials removed as a part of the construction may be deposited at the McCommas Bluff disposal site upon payment of the necessary fees. If the CONTRACTOR/subcontractor chooses to dispose of these materials at sites other than the McCommas Bluff disposal site, he shall furnish the Engineer with a list of those sites as well as a copy of a signed permission agreement with the property owner(s). Conditions and restrictions, if any, will be clearly stated. Compliance will be required, and a release from the property owner must be obtained upon completion of the project.

Surplus excavation and other materials must not be deposited in areas designated as Flood Plain or along natural drainage ways. Material so deposited will be required to be removed at the CONTRACTOR's expense and the area restored to its natural condition.
Failure to comply promptly with the requirements of this special provision will result in withholding of payments due.”

Add:

“1.33.1

CONSTRUCTION ACROSS RAILROAD RIGHT-OF-WAY

Prior to crossing or working on Railroad Right-of-Way, the CONTRACTOR will be required to contact the railroad company, or companies, and to execute CONTRACTOR’s Agreements as may be required by each railroad company involved. No work shall be permitted where railroads are involved until the Engineer is furnished sufficient correspondence from the railroad company involved to ascertain that either the agreement has been executed and a certified copy of the insurance policy furnished, or that no such action is required.”

Add:

“1.34.3

EMERGENCY CONTRACT TERMINATION CLAUSE

Whenever, because of a national emergency, so declared by the President of the United States, or other lawful authority, it shall be impossible for the CONTRACTOR to obtain all labor, materials, and equipment necessary for the prosecution of the work with reasonable continuity, the CONTRACTOR shall notify the OWNER. If the OWNER cannot, after a reasonable time, help obtain priorities for the materials and equipment within a reasonable effort, then the Contract shall be considered as terminated, and the CONTRACTOR shall be entitled to reimbursement for the necessary actual cost incurred in the prosecution of the work, without profit.”

1.35

Insert the following between the third and fourth paragraphs:

“Neither such usage, as performed under this section, nor the written statement of work still to be done shall be held in any way an acceptance of said work or structure or any part thereof, nor as a waiver of any of the provisions of these specifications or other Contract documents pending final completion and acceptance of the work; all necessary repairs and removals of any section of the work so put into use, due to the defective materials or workmanship or to operations of the CONTRACTOR, shall be performed by the CONTRACTOR at his own expense.”

1.36

In the third line of the first paragraph, change the words “seven days” to “fourteen days.”

Delete the first sentence of the third paragraph and substitute the following:

“No adjustment to the Contract working time shall be made if, concurrently with the equitable cause for delay, hindrance, disruption, force majeure, impact or interference, there existed a cause for delay due to the fault or negligence of the CONTRACTOR, his agents, employees or subcontractors. Notwithstanding any other provisions of the Contract documents, including the General and Special Provisions, no adjustment shall be made to the Contract price and the CONTRACTOR shall not be entitled to claim or receive any additional compensation as a result of or arising out of any delay, hindrance, disruption, force majeure, impact or interference, foreseen or unforeseen.
resulting in adjustment to the Contract working time, including but not limited to
those caused in whole or in part by the acts, omissions, failures, negligence or fault
of the OWNER, the Consulting Engineer, or the OWNER's representative.”

1.36.1 Add at the end of this item:

“By the submission of its bid for this work, the CONTRACTOR evidences and
warrants that it is capable of performing this work within the time specified elsewhere
in the Contract Documents, and shall begin work as specified in the work order, and
that the CONTRACTOR and its sureties shall be liable for and shall pay the liquidated
damages, as specified.”

1.37.1 Change the second sentence of the fifth paragraph to read as follows:

“The foregoing notwithstanding, the total original Contract amount shall not be
increased more than 25 percent; the CONTRACTOR, by submission of a bid and
execution of the Contract, is deemed to consent to the OWNER’S right to reduce the
total original Contract amount by more than 25 percent.”

1.37.3 Add the following sentence at the end of the paragraph:

“Work considered necessary to the proper completion of the Contract for which unit
or other prices are specifically provided in the Contract shall be paid for only in
accordance with those prices, regardless of whether or not such work is considered
extra work, unless the last three paragraphs of Item 1.37.1 apply.”

Add:

“1.37.4 FINALITY OF CHANGE ORDERS

In addition to the OWNER, the CONTRACTOR shall sign the Public Works Change
Order Form to verify the terms and conditions established by Change Order; however,
failure or refusal of the CONTRACTOR to sign a Change Order shall not relieve the
CONTRACTOR of his obligation to execute the proposed change in accordance with
this item and the other terms and provisions of this Contract. Each Change Order
shall be specific and final as to prices with no reservations or other provisions
allowing for future additional money or time as a result of the particular changes
identified and fully compensated in the Change Order.”

Add:

“1.37.5 GENERAL CLAIM PROCEDURES

Except where otherwise provided in the Contract Documents, claims by the
CONTRACTOR, whether for damages, additional compensation, additional time or
other reasons must be made by written notice to the OWNER within fourteen (14)
days after occurrence of the event or events giving rise to the particular claim. Every
claim, whether for damages, additional compensation, additional time or other reasons
shall be signed and sworn to by an authorized corporate officer (if not a corporation,
then an official of the company authorized to bind the CONTRACTOR by his
signature) of the CONTRACTOR, verifying the truth and accuracy of the claim.
Such verification shall be a condition precedent to the acceptability of any claim
asserted by the CONTRACTOR. The responsibility to substantiate a claim rests with the CONTRACTOR. The CONTRACTOR shall be deemed to have waived any claim not made strictly in accordance with the procedure and time limits set out in this paragraph.”

1.38

Delete this item and substitute the following:

“PAYMENT FOR EXTRA WORK

(a) Extra work done by the CONTRACTOR, as authorized and approved by the Engineer, shall be compensated for in the manner described in this item. The compensation provided for extra work done constitutes full and final payment for the cost of the extra work, which cost is limited to: (1) all reasonable costs of labor, materials, supplies, tools, equipment or machinery rental, power, fuel, lubricants, water and other similar operating expenses (but only for the time that such of the above things are employed or used on such extra work) incurred in the performance of the extra work, and a ratable proportion of the premium expenses for all bonds and insurance required under the Contract, to the extent that the extra work would cause an increase in such bond or insurance premiums; and (2) a markup amount of not-to-exceed 15 percent of the above mentioned costs to cover and compensate the CONTRACTOR for profit, overhead, profit and overhead markups charged to CONTRACTOR by other sub-contractors and suppliers, general supervision, field office expense and all other elements of cost and expense not embraced within the cost of the extra work as described in this paragraph (a). No cost of off-site storage shall be included in the above description of cost unless off-site storage has been approved and directed by the OWNER. No other claims or reservations of right as to additional costs, prices, markups, costs not permitted to be included under this paragraph, disallowed costs or other future additional money or time shall be accepted; each change order shall be specific and final as described in Item 1.37.4.

(b) The method of determination and payment of cost, or credit, to the OWNER for any extra work shall be one of the following:

(1) unit prices agreed on in writing by the Engineer and approved by the OWNER before extra work is commenced, or unit prices already included in the Contract documents, subject to all other conditions of the Contract;

(2) mutual acceptance of a not-to-exceed lump sum properly itemized and supported by sufficient substantiating data to permit evaluation before the extra work is commenced, subject to all other conditions of the Contract;

(3) a not-to-exceed cost to be determined in a manner agreed upon by the parties plus a mutually acceptable fixed or percentage fee, agreed upon before the extra work is commenced and subject to all other conditions of the Contract; or

(4) the force account method provided in paragraph (c).
(c) If the CONTRACTOR and the OWNER cannot agree to one of the methods of calculating cost provided in paragraph (b)(1), (b)(2) or (b)(3) above, or if the parties agree to a method but cannot agree to a final dollar figure, or if the CONTRACTOR for whatever reason fails or refuses to sign the Public Works Change Order in question, the CONTRACTOR, provided he receives a written order signed by the OWNER, shall promptly proceed with the work involved. Nothing in this paragraph shall be construed to relieve the CONTRACTOR of any obligations he has under the disputed work provisions of Items 1.39 or 1.40, and where applicable the CONTRACTOR is still obligated to abide by those Items as well as this paragraph (c). The cost of the work involved shall then be calculated on a force account basis, on the basis of the actual field cost of the work attributable to the changes, plus a reasonable allowance for overhead, profit, markups of other subcontractors and suppliers, general supervision, field office expense and other elements of cost not embraced within the actual field cost as specified herein, such allowance in any case never to exceed 15%. In such case, the CONTRACTOR shall keep a detailed itemized account of the work involved and the actual field cost incurred, in a format acceptable to the Engineer and with such appropriate supporting data as the Engineer and the OWNER may prescribe. Sworn copies of the itemized accounting shall be directed to the Engineer each day during the performance of force account work. Failure of the CONTRACTOR to submit the sworn-to itemized accounting daily as required herein shall constitute a waiver by the CONTRACTOR of any right to dispute the OWNER's determination of the amount due to the CONTRACTOR for force account work. Actual field cost of the work to be charged under this paragraph (c) for force account work is limited to the following:

(1) the wages of all workmen, foremen, timekeepers, mechanics and laborers, plus costs of social security, old age and unemployment insurance, fringe benefits required by agreement or custom (excluding employee or executive bonuses), and worker's compensation insurance, for the time such labor is actually employed or used on force account work;

(2) costs of materials, tools, supplies and equipment (but not to include off-site storage unless so approved and directed by the OWNER), whether incorporated or consumed into the force account work;

(3) rental costs of machinery and equipment, exclusive of hand tools, only for the time actually employed or used on force account work, whether rented from the CONTRACTOR or others; and

(4) a ratable proportion of premium expenses for all bonds and insurance to the extent force account work would cause an increase in such bond or insurance premiums.

Pending final determination of the cost to the OWNER, payment of undisputed amounts on force account shall be included on the monthly estimate as work is completed.
(d) For purposes of this Item or any other provision of the Contract Documents that allows a claim for extra work, the term “extra work” means work that is not reasonably within the scope of the Contract Documents and not otherwise incidental or necessary to performance of the Contract. The term does not include any change by the CONTRACTOR in the means and methods of performing the work from that anticipated or bid (even if such change in means or methods is requested or directed by the OWNER), whether or not the change is due to foreseeable or unforeseeable events or conditions, if the intended result or scope of the work is not expanded or increased. The OWNER shall not be liable for any claim due to a change in the means or methods of construction by the CONTRACTOR, resulting in additional costs, if the OWNER has not changed the plans or specifications and if the intended result and scope of the work required by and reasonably inferred from the Contract Documents remains the same. The OWNER shall also not be liable for any claim for work required in the performance of the Contract, without which the Contract could not be completed, notwithstanding that the CONTRACTOR did not contemplate or foresee the degree or amount of work that would be necessary or required to complete the Contract and notwithstanding that it cost the CONTRACTOR more to complete the Contract work than bid.”

1.39

At the end of the third paragraph, add the following sentences:

“If the OWNER is properly notified of a protest by the CONTRACTOR, then the cost of such disputed work shall be accounted for in accordance with the force account method described in Item 1.38(c). Payment, if any is due, shall be made when the OWNER makes a determination regarding the merit of the CONTRACTOR’S protest. The final determination of the cost of disputed work under this method, or of any issue regarding the merits of a protest, is not waived by the OWNER’S issuance of any Change Order providing for the funding of a portion of the disputed work.”

1.40

Delete the first paragraph and substitute the following:

“While the CONTRACTOR or his subcontractor is performing extra work in accordance with Item 1.38 (c), or is performing disputed work or complying with a determination or order under protest in accordance with Item 1.39 (the cost of which is also determined by the method set out in Item 1.38 (c)), the CONTRACTOR shall daily furnish the Engineer or other representative of the OWNER at the project site with three copies of verified statements showing: (a) the name and number of each workman, foreman, timekeeper, mechanic or laborer employed on extra work or engaged in complying with such determination or order, the character of extra work each is doing and the wages paid to him, including the rate and amount of payroll taxes, contribution for insurance and federal social security; and (b) the nature, cost and quantity of any materials, supplies, tools, plant or construction equipment furnished or used in connection with the performance of the extra work or in Complying with such determination or order, and from whom purchased or rented. The above required submittals are in addition to and not in lieu of submittals required under Items 1.38 and 1.39.”
1.42.3 Add the following at the end of the fourth paragraph:

"Test materials and samples shall be stored so as to ensure the preservation of their quality and fitness for the work. If directed by the Engineer, they shall be placed on wooden platforms or other hard, clean surfaces and shall be placed under cover when directed. Stored materials shall be placed and located so as to facilitate prompt inspection."

1.44 In the fourth line of the first paragraph, change the word "annulled" to "terminated".

1.46 Add the following at the end of the second paragraph:

"The list identifying each proposed subcontractor should include the names, address, telephone numbers, M/WBE certification numbers (where applicable), and type of work of the subcontractor or supplier (including those who are to furnish special materials or equipment) proposed for the work. The CONTRACTOR shall immediately notify the OWNER in writing of any changes in the list as they occur.

If an M/WBE subcontractor is listed on the Schedule of M/WBE Participation, the CONTRACTOR must verify monthly that the listed M/WBE was used, estimate the value of that work, and estimate the percent of the total Contract amount this work represents.

When the work is complete, the CONTRACTOR must furnish proof to the OWNER that the M/WBE was used, the amount paid to the M/WBE, and the percent of the total Contract amount this work represents. If the percent paid is less than that shown on the Schedule of M/WBE Participation the CONTRACTOR must also furnish a statement explaining the variance. The CONTRACTOR must also submit a completed M/WBE Evaluation Form, provided by the OWNER, for each M/WBE firm involved in the Project. The Final Estimate will not be processed until this information is received.

Submittals should be furnished to:

Engineering Services
Public Works Department
320 E. Jefferson
Dallas, Texas 75203"

Add:

"1.46.1 The CONTRACTOR is solely responsible for making payments properly to his subcontractors and suppliers on the Project. During construction of the Project, the CONTRACTOR shall submit each month a Subcontractor/Supplier Payment Report (the "Report"). Every firm that was shown on the latest City of Dallas Schedule of Work and Subcontractor/Supplier Payment for this Contract must be shown on the Report, even if a firm has not performed any work or service on the Contract during the estimate or invoice period in question. The Report shall show all payments made to date by the CONTRACTOR (plus existing retainage) to each subcontractor and supplier involved in the Project. The Report shall be made on a form approved and
supplied by the OWNER. As an alternative to the Report, the CONTRACTOR may furnish Affidavits of Payment Received, which affidavits shall be executed by each subcontractor and supplier owed money and paid during the previous progress payment period for work or materials furnished on the Project. If, for any reason, the CONTRACTOR is withholding payment to a subcontractor or supplier due to a dispute or other problem with performance, the CONTRACTOR shall note the amount withheld and that payment is in dispute. The OWNER may require the CONTRACTOR to document and verify the dispute or other problem in question. Receipt by the OWNER of the Report or Affidavits of Payment Received shall be a condition precedent to payment on any invoice or estimate. The OWNER reserves the right in its sole discretion, pursuant to Item 1.52 of the Standard Specifications, to withhold payment to the CONTRACTOR should it appear from the Report, Affidavits of Payment Received or other information furnished to the OWNER that: (1) the Report has not been properly completed; (2) the CONTRACTOR has knowingly provided false information regarding payment of any subcontractor or supplier; or (3) the CONTRACTOR has otherwise failed to make payment properly to any subcontractor or supplier. The CONTRACTOR shall not have any claim for delay or additional compensation as a result of the OWNER's enforcement of this Item 1.46.1. This Item 1.46.1 shall not be construed to create a contractual relationship, express or implied, between any subcontractor and the OWNER. The CONTRACTOR shall evaluate each subcontractor and supplier. The evaluations will be furnished to the OWNER prior to payment of the final estimate."

1.51.1 Delete the first paragraph and substitute the following:

"Except as otherwise provided by the Contract, between the 25th day and the last day of each month the CONTRACTOR shall make an estimate of the value of the work done during the month under the specifications. The CONTRACTOR shall prepare the estimate on a form approved by the Engineer. The CONTRACTOR shall forward the estimate required above to the OWNER by not later than the last day of the month. The monthly estimate may include acceptable nonperishable materials delivered to and stored at the work site; payment for such stored materials shall be allowed on the same percentage basis of the value as provided hereinafter. The monthly estimate shall also provide such supporting documentation as the Engineer or the other applicable provisions of the specifications may require. The OWNER shall verify that the CONTRACTOR'S estimate matches the total value of work done and acceptable non-perishable materials delivered to the work site, based upon the bid proposal prices and quantities measured or verified by OWNER. In the event of a discrepancy between quantities of work as shown in the CONTRACTOR's estimate and measured quantities as shown in the OWNER'S verification, the OWNER'S determination or measurement shall be final, and the CONTRACTOR'S estimate shall be adjusted to reflect the quantities of work as shown by the OWNER'S verification. Payment shall be made by OWNER about thirty (30) days after receipt of the estimate from CONTRACTOR. OWNER shall not be liable for interest on any late or delayed payment caused by any claim or dispute, any discrepancy in quantities as described above, any failure to provide supporting documentation or other information required with the estimate or as a precondition to payment under the Contract, or due to any payment the OWNER has a right to withhold under the Contract."
The CONTRACTOR shall submit to the ENGINEER a Schedule of Values for each Lump Sum item of work for review and approval 20 calendar days before the work is scheduled to be performed. The CONTRACTOR shall itemize in the Schedule of Values the actual costs to the CONTRACTOR to perform the various parts of the Lump Sum item work which shall include a reasonable overhead and profit cost item. Partial payment for Lump Sum items shall be made based on the value and percentage of the work in the bid item completed, as approved by the OWNER and as reflected in the Schedule of Values.”

Add the following at the end of the second paragraph:

“WIRE TRANSFERS

Payments to the CONTRACTOR may, at the discretion of the OWNER, be made by wire transfer to a bank of the CONTRACTOR’S choice. The CONTRACTOR must furnish the following information:

1. The ABA number of the bank.
2. The CONTRACTOR’S account number.
3. The request must be on the CONTRACTOR’S letterhead and signed by an authorized representative of the CONTRACTOR (cannot be a copy).”

Delete the last two sentences of the first paragraph and substitute the following:

“The amount of the final estimate, less any sums that have been previously paid, deducted or retained under the provisions of this Contract, shall be paid to the CONTRACTOR within a reasonable period of time after final acceptance, provided that the CONTRACTOR has first furnished the OWNER: (a) a consent of surety to final payment; (b) the final CONTRACTOR’s Report of Subcontractor/Supplier Payment, evidencing that all indebtedness connected with the work and all sums of money due for any labor, materials, apparatus, fixtures or machinery furnished for or used in the performance of the work have been paid or otherwise satisfied, or that the person or persons to whom the same may be respectively due have consented to final payment; and (c) such other affidavits, lien waivers and other documentation as the OWNER may reasonably require to protect its interests. In addition, the CONTRACTOR shall be required to execute the OWNER’S standard Affidavit of Final Payment and Release as a precondition to receipt of final payment.”

Add after the last paragraph:

“The CONTRACTOR will be evaluated by the OWNER. An example of the evaluation form is available at 320 E. Jefferson Boulevard, Room 312, Dallas, Texas 75203.”

Delete subsection (g) and substitute the following:

“(g) failure of the CONTRACTOR to make payments to any subcontractors or suppliers for material or labor used in the performance of the work;”
Add the following after the fourth paragraph:

"If the CONTRACTOR has a change of address, the notice must be submitted on company letterhead, signed by an officer of the company, and forwarded to:

    Director of Purchasing
    Room 3/F/S, City Hall
    1500 Marilla
    Dallas, Texas 75201

With a copy to:

    Public Works Administration
    320 E. Jefferson Blvd., Room 102
    Dallas, Texas 75203

    Public Works Construction Inspection Division
    Program Manager
    320 E. Jefferson Blvd., Room 312
    Dallas, Texas 75203"

(c) Delete the entire subsection and substitute the following:

“(c) at the OWNER'S written request, deliver and assign to the OWNER, or any person or entity acting on the OWNER'S behalf, any or all subcontracts, purchase orders and options made by CONTRACTOR in the performance of the work, and deliver to the OWNER true and correct originals and copies of such Contract Documents, or terminate all subcontracts, purchase orders or options to the extent that they relate to the performance of work terminated by the notice of termination;”

In the second paragraph, second line, delete the words “rental or lease.”

In the second paragraph, delete subparagraph (b) and substitute the following:

“(b) all materials, supplies and other tangible personal property, other than machinery or equipment and its accessories and repair and replacement parts, necessary and essential for the performance of the Contract with the OWNER which is to be completely consumed at the job site.”

In the third paragraph, delete the first sentence and substitute the following:

“Tangible personal property necessary and essential for the performance of the Contract includes only such materials, tools and supplies specifically needed and directly used to incorporate tangible personal property into the real estate being improved under the Contract.”
At the end of the third paragraph, add the following:

"Tangible personal property is 'completely consumed' if after being used once for its intended purpose it is used up or destroyed. Any exemption certificate issued by the CONTRACTOR is subject to the then existing rules and interpretations governing the exemption issued by the Comptroller of Public Accounts of the State of Texas. The OWNER will not make interpretations of the extent or applicability of the exemption in a particular case; if the CONTRACTOR, or any subcontractor or supplier of the CONTRACTOR, has any questions about the extent or applicability of the exemption in specific circumstances, guidance should be sought from the State Comptroller's Office."

In the fourth paragraph, last line, delete the words "leased or rented."

Add:

"1.64 CLAIMS FOR OVERCHARGES"

CONTRACTOR hereby assigns to OWNER any and all claims for overcharges associated with this Contract or any subcontractors associated with this Contract or any subcontractors directly and indirectly related to the work, which overcharges may arise under the Anti-Trust Laws of the United States, 15 U. S. C. A., Section 1 et seq (1973). CONTRACTOR shall include in all his subcontracts a clause that requires his subcontractors to assign to the OWNER any and all claims for overcharges associated with their respective contracts, including but not limited to overcharges on purchases and supplies, which may arise under the Anti-Trust laws of the United States, U. S. C. A., Section 1, et seq (1973). CONTRACTOR shall require his subcontractors to execute a notarized assignment on or before the date of the OWNER's approval of the respective subcontractors for the work, which assignment shall become part of the prime Contract and made a part hereof for all purposes."

2.1.1 (a)(5) Add the following between C 88 and C 123:

"C 117 Materials Finer than 75-um (No. 200) Sieve in Mineral Aggregates by Washing"

Delete D 423 and D 424 ASTM Designations and replace with the following:

"D 4318 Liquid Limit, Plastic Limit, and Plasticity Index of Soils"

Add the following after D 2217:

"D 3042 Insoluble Residue in Carbonate Aggregates"

2.1.1 (b)(3) Add the following paragraph:

"Fine aggregate shall be tested for insoluble residue in accordance with ASTM Designation D-3042. The total percent of insoluble residue expressed as a percentage of the total original aggregate sample weight shall not be less than 28."
2.1.1 (b)(4) Delete the requirements chart and replace with the following:

"Passing 3/8 inch. sieve (9.5mm) 100%  
Passing No. 4 sieve (4.75mm) 95 to 100%  
Passing No. 8 sieve (2.36mm) 80 to 100%  
Passing No. 16 sieve (1.18mm) 50 to 85%  
Passing No. 30 sieve (600um) 25 to 60%  
Passing No. 50 sieve (300um) 10 to 30%  
Passing No. 100 sieve (150um) 0 to 10%"

2.1.1 (b)(6) Delete first and second paragraph in their entirety and replace with the following:

"(6) Additional Requirements: The difference between the percent passing any two consecutive sieve sizes shall not exceed 45%. The fine aggregates shall have a fineness modulus between 2.30 and 3.10. In addition, the fineness modulus of the fine aggregates used in actual concrete production shall not vary more than 0.2 from the average value used in proportioning the mix."

Revise third paragraph to read:

"When the fineness modulus of the fine aggregate varies by more than 0.2 from the fineness modulus being used in the current design, the batch shall be redesigned before placing concrete."

2.1.1 (c) Revise Grade No. 3 and Grade No. 4 of the Course Aggregate Grading Chart to read as follows:

"Grade No. 3-Maximum Nominal Size 1 in. (25 mm)

<table>
<thead>
<tr>
<th>Sieve</th>
<th>Percentage Passing</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-1/2&quot;</td>
<td>(37.5mm) 100</td>
</tr>
<tr>
<td>1&quot;</td>
<td>(25mm) 95 - 100%</td>
</tr>
<tr>
<td>½&quot;</td>
<td>(12.5mm) 25 - 60%</td>
</tr>
<tr>
<td>No. 4</td>
<td>(4.75mm) 0 - 10%</td>
</tr>
<tr>
<td>No. 8</td>
<td>(2.36mm) 0 - 5%</td>
</tr>
</tbody>
</table>

Grade No. 4-Maximum Nominal Size 3/8 in. (9.5 mm)

<table>
<thead>
<tr>
<th>Sieve</th>
<th>Percentage Passing</th>
</tr>
</thead>
<tbody>
<tr>
<td>½&quot;</td>
<td>(12.5mm) 100</td>
</tr>
<tr>
<td>3/8&quot;</td>
<td>(9.5mm) 85 - 100%</td>
</tr>
<tr>
<td>No. 4</td>
<td>(4.75mm) 10 - 30%</td>
</tr>
<tr>
<td>No. 8</td>
<td>(2.36mm) 0 - 10%</td>
</tr>
<tr>
<td>No. 12</td>
<td>(1.18mm) 0 - 5%</td>
</tr>
</tbody>
</table>

Add the following notes to the end of this subsection:

"NOTE: Grade No. 1 Coarse aggregate shall not be used in Pavement Concrete."

NOTE: Grade No. 1 Coarse aggregate may be used in foundations only (except cased drilled shafts)."
2.1.2  (a)(6) Delete this item and substitute the following:

“(6) Tests. Test of aggregates, when required, shall be made in accordance with the applicable current Texas Department of Transportation (TxDOT) Test Methods. The tests used for HMAC Aggregates are as follows:

<table>
<thead>
<tr>
<th>Coarse Aggregates</th>
<th>Test Methods</th>
<th>Test Description</th>
<th>Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>o Tex-217-F: Part I</td>
<td></td>
<td>Deleterious Material Percent</td>
<td>1.5</td>
</tr>
<tr>
<td>o Tex-217-F: Part II</td>
<td></td>
<td>Decantation, Percent Maximum</td>
<td>1.5</td>
</tr>
<tr>
<td>o Tex-410-A</td>
<td>Los Angeles Abrasion, Percent Maximum</td>
<td>40</td>
<td></td>
</tr>
<tr>
<td>o Tex-411-A</td>
<td>Magnesium Sulfate Soundness Loss, 5 cycles Percent Maximum</td>
<td>30</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Fine Aggregates</th>
<th>Test Methods</th>
<th>Test Description</th>
<th>Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>o Tex-106-E</td>
<td>Plastic Index, Maximum</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>o Tex-208-E</td>
<td>Sand Equivalent Value Minimum</td>
<td>45“</td>
<td></td>
</tr>
</tbody>
</table>

2.1.2  (c)(4) Delete the gradation requirements and substitute the following:

“Retained on the 3/8" Sieve 0%
Retained on the No. 10 Sieve 0 - 30%
Retained on the No. 200 Sieve 85 - 100%”

2.2.1  (a) Delete first two paragraphs and replace with the following:

“(a) General. Cement shall be either Type I or Type III of a standard brand of portland cement which shall conform to the requirements of the current Standards for Portland Cement, ASTM Designation C 150, or Type IP conforming with the requirements of the current Standard Specification for Blended Hydraulic Cements, ASTM Designation C 595.

Natural pozzolans or fly ash (ASTM Designation C-618), may be utilized in accordance with Item 2.2.2. (d) provided that the “loss on ignition” of the fly ash shall not exceed 3.0 percent. No Fly Ash shall be added when Type IP Cement is used.

Classes of concrete shall be in accordance with Item 5.8.1.1 Concrete for Paving or Item 7.4.5. Concrete for Structures, unless otherwise shown on the plans or detailed specifications.”

2.2.2  (d) Delete in its entirety and revise as follows:

“(d) Mineral Admixtures: Fly ash may be used in all classes of concrete for paving to replace a portion of the minimum Portland Cement currently specified in Item
5.8.1.1., with the exception of Class Hand Finish. With approval of the OWNER, fly ash may be used in all classes of structural concrete specified in Item 7.4.5. Unless otherwise approved by the OWNER, the maximum cement reduction shall not exceed 20 percent by weight of cement, and fly ash replacement shall be 1.25 pounds, per 1.0 pound of Portland Cement reduction.

Example: Class Machine Finish 4000 PSI paving concrete replacement mix would require a minimum of 451 pounds of Portland Cement, plus 113 \times 1.25 = 141 pounds of fly ash. The maximum water-cement ratio is 0.49, thus the maximum total water permitted per cubic yard is; 592 pounds of cementitious material times 0.49 = 290.0 pounds or 34.8 gallons.

The water-cement ratio of the concrete mix shall be based on total cementitious (cement plus fly ash) materials. Proposed concrete mix designs with materials certification data and laboratory or field trial mix test results on the properties of the fresh and hardened concrete shall be submitted to the OWNER for approval. Such data shall be resubmitted for approval when there is a change in materials, or when requested by the OWNER.

The CONTRACTOR, when required by the OWNER, shall furnish laboratory analysis to verify that a fly ash source meets ASTM requirements for C-618 and that “Loss on Ignition” (NCTCOG) requirements shall be a maximum of 3 (three) percent.

Alternate brands and classes of fly ash shall not be substituted in approved concrete mix designs. Equipment and methods for adding fly ash to mixes must be inspected and approved by the Engineer in advance. Transit mix concrete delivered to the job will have a ticket showing the weight of the fly ash and cement for each load. Transit mix concrete deliveries may be rejected unless a complete ticket is presented. For on-site concrete mixing operations, upon completion of the project and before final payment is made, a letter will be required from the supplier certifying the amount of fly ash and cement which was included in the concrete furnished on the project.”

2.2.10.  
(c) Delete in its entirety and replace with the following:

“(c) Cold Pour Joint Sealant.

(1) Description. The sealant shall be a single component polymer modified asphalt emulsion meeting the material specification detailed herein below:

The emulsified asphalt shall be an anionic or cationic type asphalt emulsion and shall be modified with polymer, and must be smooth and homogenous with no evidence of polymer separation during storage for at least six months. The distillation* or evaporation** residue of the modified emulsion shall contain a minimum of 10 percent polymer by weight.

Testing shall be performed in accordance with Texas Department of Transportation, Materials and Tests Division, Test MethodTEX 525C.

*The standard distillation procedure shall be modified as follows:
The temperature on the lower thermometer shall be brought slowly to 350°F ± 10°F and maintained at this point for 20 minutes, with complete and total distillation in 60 minutes ± 5 minutes from the first application of heat.

**Some polymer modified asphalt emulsion sealants do not lend themselves well to the distillation procedure. The residue of these materials may be obtained by the following evaporation procedure:**

Weigh 200g of the sealant into a flat bottom pan having a diameter of 5 inches ± 1 inch and a height of 3.5 inches ± 0.5 inch. Evaporate on a hot plate with constant stirring until the material is water free. The temperature shall be controlled to not exceed 350°F.

(2) Properties. In addition, the emulsion sealant shall comply with the following requirements:

<table>
<thead>
<tr>
<th>Properties</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Viscosity, Brookfield at 77°F, seconds</td>
<td>6000</td>
<td>10,000</td>
</tr>
<tr>
<td>Storage Stability Test, one day, percent</td>
<td>-----</td>
<td>1</td>
</tr>
<tr>
<td>Particle Charge Test: Cationic type</td>
<td>Positive</td>
<td></td>
</tr>
<tr>
<td>Anionic type</td>
<td>Negative</td>
<td></td>
</tr>
<tr>
<td>Sieve Test, percent retained on #200 sieve</td>
<td>-----</td>
<td>0.10</td>
</tr>
<tr>
<td>Distillation or evaporation:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Residue, percent</td>
<td>65</td>
<td></td>
</tr>
<tr>
<td>Tests on Residue from Distillation or Evaporation:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Penetration, 77°F, 100g, 5 seconds</td>
<td>60</td>
<td></td>
</tr>
<tr>
<td>Softening Point, R. &amp; B., °F</td>
<td>140</td>
<td></td>
</tr>
<tr>
<td>Ductility, 39.2°F, 5cm/min., cm</td>
<td>100</td>
<td></td>
</tr>
</tbody>
</table>

(3) Tests. In addition, the emulsion sealant shall comply with the following test requirements:

**Preparation for Adhesion, Cohesion, Self-Healing and Freeze Tests:**

The material shall be poured into standard concrete mortar blocks with a closed polyethylene backer rod set at a depth of 3/8" below surface of blocks. The blocks shall have a spacing of 1/4" apart. The sealant shall be poured level with the surface of the concrete blocks. Tests to be performed on samples after fourteen day cure time (or until liquid component has evaporated). Tests run at 77°F ± 2°F. Five cycles with the same sample.

**Extension and Bonding Test:**

There shall be no cracking of the material or failure in bond between the material and the mortar test blocks during or at the end of five cycles. The sealant must display the following properties:
Adhesion - at 77°F with extension of 300% No Failure
Cohesion - at 77°F with extension of 300% No Failure
Resilience (60 min.) 60% Recovery
Self-Healing Return sample in apparatus to initial position and repeat test after 20 min. Rest. Repeat for five cycles.

Sealant shall be self-leveling. There shall be no failure in adhesion or cohesion when tested to 300% extension with recovery of 60% at the end of 60 min.

Freeze Test:

The sealant must display the following properties:

Freeze sample in blocks to 0°F for four hours. Pull blocks at 1/8"/hour at 0°F with extension of 50%. Repeat three cycles.”

2.2.11 (b)(1) Revise last paragraph to read as follows:

“When tested in accordance with Water Retention by Concrete Curing Materials, ASTM Designation C 156, the liquid membrane-forming compound shall restrict the loss of water present in the test specimen at the time of application of the curing compound to not more than 0.3 grams per square centimeter of surface.”

2.2.11 (b)(6) Add the following subsection:

“(6) The product used shall be Master Builders CONFILM (Reg. U.S. Pat. & TM Off.) or equal.”

2.4.13 (c) Delete the fine grade binder of level-up course (Type B) and fine grade surface course (Type D) gradation requirement tables and replace with the following:

“Table 2 master grading percent retained by weight or volume. The asphaltic material shall form from 4.0 to 7.0 percent of the mixture by weight or from 8 to 16 percent of the mixture by volume.

The aggregate portion of the paving mixture produces shall not vary from the design gradation by more than the tolerances which follow. The material passing the No. 200 sieve is further restricted to conform to the limitations for the master grading for the type specified. The asphaltic material portion of the paving mixture shall not vary from the design amount by more than the allowed tolerance and is also restricted to conform to the master limits.

Tolerance Percent
by weight or
Volume as Applicable

Retained on 1-1/4" to No. 10 Sieve Plus or Minus 5
Retained on No. 40 to No. 200 Sieve Plus or Minus 3
Asphalt, Weight Plus or Minus 0.5
Asphalt, Volume Plus or Minus 1.2”

33
2.4.13 (d) Delete in its entirety and replace with the following: “(d) Extraction: Extraction tests for bitumen content and shall be made for each 500 tons produced or fraction thereof. Extraction tests shall conform to TxDOT Test Method Tex-210-F. Samples of the asphaltic mixture may be taken from the plant, trucks or paving machine.”

2.4.13 (g) Delete in its entirety and replace with the following:

“(g) Stability: The asphaltic mixtures when samples from the plant, truck or paving machine, when tested in accordance with the current methods outlined in TxDOT Test Methods Tex-206F, Tex-207-F, Tex-208-F and Tex-227-F, shall have the following laboratory density and stability:

Density (%)
Minimum 95%
Maximum 97%
Optimum 96%
Stability (%) Hveem Stabilometer
Not less than 35”

2.4.13 (I) In the first paragraph, delete the words “Resistance to Degradation of Small Size Course Aggregate by Abrasion and Impact in the Los Angeles Machine, ASTM Designation C 131” and replace it with:

“Tex-410-F - Abrasion of coarse aggregates by use of Los Angeles machine.”

In the last paragraph, delete the words “Sieve Analysis of Fine and Course Aggregates, ASTM Designation C 136” and replace with:

“Tex-200-F - Sieve analysis of fine and coarse aggregates.”

2.4.14 (f) Replace complete paragraph with the following:

“(f) Stability: The asphaltic mixture when sampled from the plant, truck or paving machine. When tested in accordance with the current methods outlined in TxDOT Test Methods Tex-206-F, Tex-207-F, Tex-208-F and Tex-227-F, shall have the following laboratory density and stability:

Density (%)
Minimum 95%
Maximum 97%
Optimum 96%
Stability % Hveem Stabilometer
Not less than 35”
# TABLE 2
## MASTER GRADING
**PERCENT PASSING BY WEIGHT OR VOLUME**

<table>
<thead>
<tr>
<th>SIEVE SIZE</th>
<th>TYPE</th>
<th>A COURSE BASE</th>
<th>B FINE BASE</th>
<th>C COARSE SURFACE</th>
<th>D FINE SURFACE</th>
<th>F FINE MIXTURE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-1/2&quot;</td>
<td></td>
<td>100</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1-1/4&quot;</td>
<td></td>
<td>95 - 100</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1&quot;</td>
<td></td>
<td></td>
<td>100</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7/8&quot;</td>
<td></td>
<td>20 - 50</td>
<td>95 - 100</td>
<td>100</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5/8&quot;</td>
<td></td>
<td></td>
<td>75 - 95</td>
<td>95 - 100</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1/2&quot;</td>
<td></td>
<td></td>
<td>50 - 70</td>
<td></td>
<td>100</td>
<td></td>
</tr>
<tr>
<td>3/8&quot;</td>
<td></td>
<td></td>
<td>60 - 80</td>
<td>70 - 85</td>
<td>85 - 100</td>
<td>100</td>
</tr>
<tr>
<td>1/4&quot;</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>95 - 100</td>
<td></td>
</tr>
<tr>
<td>No. 4</td>
<td></td>
<td>30 - 50</td>
<td>40 - 50</td>
<td>43 - 63</td>
<td>50 - 70</td>
<td></td>
</tr>
<tr>
<td>No. 10</td>
<td></td>
<td>20 - 34</td>
<td>27 - 40</td>
<td>30 - 40</td>
<td>32 - 42</td>
<td>32 - 42</td>
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<tr>
<td>No. 40</td>
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<td>5 - 20</td>
<td>10 - 25</td>
<td>10 - 25</td>
<td>11 - 26</td>
<td>9 - 24</td>
</tr>
<tr>
<td>No. 80</td>
<td></td>
<td>2 - 12</td>
<td>3 - 13</td>
<td>3 - 13</td>
<td>4 - 14</td>
<td>3 - 13</td>
</tr>
<tr>
<td>No. 200</td>
<td></td>
<td>1 - 6 *</td>
<td>1 - 6 *</td>
<td>1 - 6 *</td>
<td>1 - 6 *</td>
<td>1 - 6 *</td>
</tr>
<tr>
<td>VMA % MINIMUM</td>
<td></td>
<td>11</td>
<td>12</td>
<td>13</td>
<td>14</td>
<td>15</td>
</tr>
</tbody>
</table>

* 2 - 8 WHEN TEST METHOD TEX - 200-F, PART II (WASHED SIEVE ANALYSIS) IS USED.

Delete in its entirety and replace as follows:

3.6.1 DESCRIPTION: Borrow shall consist of required excavation, removal and disposal (when separate pay items are not provided in the plans) and providing and placing the soil or rock materials specified in the plans and specifications. Borrow shall be obtained from designated or approved sources.

3.6.2 CLASSIFICATION: All authorized borrow shall be considered earth borrow unless specified in the plans and specifications. The following are the standard classes of borrow used on projects:

(a) Earth Borrow: Earth borrow shall include all detached boulders having a dimension no greater than 12 inches in any direction and all other materials not classified as rock, excluding trees, stumps, rock, vegetation or other unsuitable materials.

(b) Select Borrow Material For Subgrade: Select borrow material for subgrade shall be either flexible base (crushed stone) meeting the requirements of Item 2.1.3(b) of the Standard Specifications or crushed concrete base meeting the requirements of Item 4.5(A) of the Addendum to the Standard Specifications.

(c) Select Borrow Material For Topsoil: Select borrow material for topsoil shall meet the material requirement of Item 3.8 of the Standard Specifications.

Other classes of borrow may be specified in the plans and specifications.

3.6.3 CONSTRUCTION METHODS: All suitable surplus select project excavation shall be salvaged and used in construction of project fills as required by the plans and specifications or as directed by the Engineer. Where additional fill is required above that provided for by surplus select project excavation, suitable borrow materials shall be provided and placed, as directed by the Engineer. Site of the borrow operations shall be left in a suitable and sightly condition such as to provide proper drainage where practical. Where indicated on the plans, the sides and/or ends of borrow pits shall be sloped to the dimensions indicated on the plans.

When borrow is required in the plans and specifications, selected project surplus excavation meeting the requirements shall be salvaged, processed and used in the construction of fills, backfills and pavement subgrade and subbase as required by the plans and specifications. The work shall be performed in such manner and sequence that suitable material may be salvaged, processed and placed within the limits and elevations required. Material quality, construction procedures and compaction moisture and densities shall meet the requirements of the plans and specifications. Fills shall be constructed in accordance with Item 3.7 Embankment, of the Standard Specifications. Subgrade preparation shall be constructed in accordance with Item 4.2(A) Proof Rolling and Item 4.3 Subgrade Preparation of the
addendum to the Standard Specifications. Topsoil placement shall be constructed in accordance with Item 3.8 Topsoil, of the Standard Specifications.

When use of borrow is authorized, it shall be used only in those locations detailed on the plans or specifically directed by the Engineer. The CONTRACTOR shall provide City Construction Inspection with written 24 hours notice before importing borrow on the project. When exact and complete fill dimensions are not given in the plans and measurement and payment of borrow is not otherwise provided in the plans and specifications, the CONTRACTOR must provide with every truckload of borrow delivered to the project site a stamped ticket as weighed on certified scales giving the type of borrow material and weight in lbs. and tons of the load. The tickets must be signed by the City inspector/authorized representative to be recognized for payment. Failure to provide the stamped ticket as weighed on certified scales signed by the City inspector/authorized representative shall result in rejection and nonpayment of the ticket. Approved tickets for authorized borrow work shall be accepted up to the contract quantity authorized for the borrow item. Authorization from the Engineer in writing shall be required before the CONTRACTOR is authorized to provide borrow in excess of the pay quantity provided in the contract.

3.6.4 MEASUREMENT AND PAYMENT: When borrow is provided in the contract as a separate pay item, measurement and payment for borrow performed in accordance with this specification shall be made as follows.

When exact and complete fill dimensions are not shown on the plans, and measurement and payment of borrow is not otherwise provided in the plans and specifications, authorized and approved borrow work performed shall be calculated as in place cubic yards by multiplying the approved ticket tonnage of borrow shown on the ticket by the appropriate factor listed below for the type borrow material provided and then converting this product to in place cubic yards using 75% of the Truck Volume Measure of borrow provided and used in the completed work as determined from the approved stamped truck tickets, as required in paragraph 3.6.3 of this specification.

The following conversion factors shall be considered adequate and sufficient for the conversion of approved borrow ticket tonnage (as weighed on certified scale) to cubic yards, Truck Volume Measure:

<table>
<thead>
<tr>
<th>Material</th>
<th>Factor (Cubic Yards Per Ton)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crushed Limestone</td>
<td>0.833</td>
</tr>
<tr>
<td>Concrete Sand</td>
<td>0.741</td>
</tr>
<tr>
<td>Backfill Sand</td>
<td>0.833</td>
</tr>
<tr>
<td>Pea Gravel</td>
<td>0.741</td>
</tr>
<tr>
<td>Flex Base (Stone)</td>
<td>0.690</td>
</tr>
</tbody>
</table>
Flex Base (Gravel)          0.714
Low P.I. Select Borrow (Clayey Sand) 0.712
Stone Screening            0.714
Chat                        0.769
Crushed Concrete Base      0.769
Top Soil (not requiring compaction) 0.926
Top Soil (requiring compaction) 0.772
Earth Borrow                0.882

All other materials shall be compared with the above listed materials and the factor for the closest material shall be used.

The total quantity of authorized borrow measured for payment shall not exceed the contract pay quantity provided in the contract without written authorization of the Engineer. All borrow work performed in excess of the contract pay quantity (as amended in writing by the Engineer) shall not be paid for separately but such work shall be considered incidental to the contract pay items provided.

When exact and complete fill dimensions are provided in the plans and specifications, authorized and approved borrow shall be measured as calculated from the fill dimensions, in final position, compacted, complete in place, in cubic yards, which is provided in the plans as the net calculated quantity.

Payment for authorized and approved borrow shall be made at the unit price bid per cubic yard, which shall be considered full compensation for furnishing all labor, for all royalties, materials and material waste and spillage, tools, equipment, hauling, excavation and removal required for placement to grade, placement, compaction and all incidentals necessary to complete the work in accordance with the intent of the plans and specifications.

The quantities provided for borrow work are estimated within a reasonable range of accuracy or are contingency quantities. The bid price of any borrow item shall not be subject to renegotiation of price due to underrun of plan net or contract quantity.

3.8.3 Delete the first paragraph and replace will the following:

"Measurement and payment for topsoil borrow shall be made in accordance with the requirements of Item 3.6 BORROW, section 3.6.4 MEASUREMENT AND PAYMENT."
3.12.4 Revise the first paragraph to read as follows:

“(a) The CONTRACTOR shall provide control measures to prevent or minimize the impact of the CONTRACTOR’S operations to receiving waters as required by the plans or Storm Water Pollution Prevention Plan (SWPPP) and/or as directed by the OWNER’S Representative in writing.”

Revise the third sentence of the sixth paragraph to read as follows:

“Every fourteen days, and also within 24 hours after a rainfall event of 0.5 inch or more as measured by the Project rain gauge, the CONTRACTOR and the OWNER’S Representative will inspect the entire project to determine the condition of the control measures.”

3.12.5 Delete this section and substitute the following:

“Measurement for payment for temporary erosion, sedimentation and water pollution prevention and control work shown on the plans, SWPPP and/or directed by the OWNER’S Representative, when payment is specified in the plans and special provisions with separate pay items, shall be as provided in this specification using the separate contract pay items provided and the quantities of work actually performed for initial installation and for replacement during the course of the construction, provided that replacement is not due in whole or part to negligence of the CONTRACTOR. No separate compensation shall be provided for maintenance of erosion, sedimentation, and water pollution prevention and control measures during the construction of the project but such cost shall be considered incidental to the pay items provided.

Unless otherwise provided in the Contract or bid proposal as separate pay items, no separate payment shall be made for temporary erosion, sedimentation, and water pollution prevention and control work required in the plans, SWPPP, special provisions or this specification, but such work shall be considered as incidental work and the cost thereof shall be included in the Contract pay items provided in the bid proposal and Contract.

When provided for in the bid proposal and Contract, payment for temporary erosion, sedimentation, water pollution prevention and work performed under this specification shall be made at the unit price bid per linear foot, per each or per lump sum bid as specified for the Contract pay items provided, which price shall be considered full compensation for: (1) all clearing and grubbing, removals, excavation and backfill, (2) installation, maintenance, removals and restoration, and (3) all materials, labor, tools, equipment, overhead, profit and incidentals necessary to complete the work in accordance with the plans, SWPPP, special provisions and this specification.
All temporary erosion, sedimentation, and water pollution prevention and control work required by the OWNER due in whole or in part to CONTRACTOR negligence, carelessness, lack of maintenance, or failure to install permanent controls called for in the plans, specifications, or SWPPP in a timely fashion, shall not be paid for under this Contract. All costs to do such required temporary erosion, sedimentation, and water pollution prevention and control work shall be borne by the CONTRACTOR. All such remedial work shall be performed in compliance with the requirements of this specification as directed by the OWNER.

The OWNER reserves the right to have required temporary erosion, sedimentation, and water pollution prevention and control work performed by others should the CONTRACTOR fail to perform required temporary erosion, sedimentation, and water pollution prevention and control work in a timely fashion or should the CONTRACTOR fail to prevent and control soil erosion, sedimentation, and water pollution which may degrade receiving waters. All costs including engineering and right-of-way costs, for the work required shall be borne by the CONTRACTOR. The CONTRACTOR shall reimburse the OWNER for all such costs within 30 calendar days after receipt of the reimbursement request from the OWNER. Failure to submit payment for such reimbursement costs in the time prescribed above may result in the OWNER withholding the reimbursement due from the monthly progress payments to the CONTRACTOR until reimbursement to the OWNER is made.”

Add:
"4.2A

Proof Rolling

4.2A.1.

Description: This Item shall govern for furnishing and operating heavy pneumatic tire compaction equipment for locating unstable areas of earthwork or base.

4.2A.2.

Equipment: The proof rolling equipment shall consist of not less than four pneumatic tire wheels, running on axles carrying not more than four wheels, and mounted in a rigid frame and provided with loading platform or body suitable for ballast loading. All wheels shall be arranged so that they will carry approximately equal loads when operating on uneven surfaces.

The proof roller under working conditions shall have a rolling width of from 8 feet to 10 feet, and shall be so designed that, by ballast loading, the gross load may be varied uniformly from 15 tons to 25 tons. The tires shall be capable of operating under the various loads with variable air pressure up to 150 pounds per square inch. Tires shall be practically full of liquid. (Tires shall be considered as being practically full when liquid will flow from the valve stem of a fully inflated tire with the stem in the uppermost position.)
The operating load and tire pressure shall be within the range of the manufacturer’s chart as directed by the ENGINEER. The CONTRACTOR shall furnish the ENGINEER charts or tabulations showing the contact areas and contact pressures for the full range of tire inflation pressures and for the full range of loadings for the particular tires furnished.

The proof roller shall be towed by a suitable crawler type tractor or rubber tire tractor of adequate tractive capacity, or may be of the self-propelled type. A proof roller unit shall consist of either a self-propelled roller or combination of roller and towing tractor.

There shall be a sufficient quantity of ballast available to load the equipment to a maximum gross weight of 25 tons.

Rubber tire tractive equipment shall be used on base courses and asphalt pavements. Other type tractive equipment may be used on embankment subgrade. The heavy pneumatic tire roller unit shall be capable of turning 180 degrees in the crown width or operating in forward and reverse modes.

In lieu of the rolling equipment specified, the CONTRACTOR may, upon written permission from the ENGINEER, operate other compacting equipment that will produce equivalent results in the same period of time as the specified equipment. The CONTRACTOR shall submit together with any proposed alternate compacting equipment, the weight (empty and with proposed loading), the wheel configuration and load distribution along with his proposed procedure to provide full width and length coverage of the subgrade area within the required period of time. If the substituted compaction equipment fails to produce the desired results within the same period of time as would be expected of the specified equipment, as determined by the ENGINEER, its use shall be discontinued.

4.2A.3.

Construction Methods: This work shall be done when specified in the plans and specifications. The subgrade and base layer shall be proof rolled to locate unstable areas.

Within the ranges set forth in section 4.2A.2., the load and tire inflation pressures shall be adjusted as directed by the ENGINEER. It is proposed to use a contact pressure corresponding as nearly as practical to the maximum supporting value of the earthwork or base. A minimum of two coverages of the proof roller will be required. Each succeeding trip of the proof roller shall be offset by not greater than one tire width. Rollers shall be operated at speeds directed by the ENGINEER which shall be between 2 and 6 miles per hour.

Where the operation of the proof roller unit shows an area to be unstable or non-uniform, it shall be corrected in accordance with the applicable Item of Work.
4.2A.4. Measurement: When proof rolling is called for in the plans and specifications, this Item will not be measured separately for payment, but all work covered under this Item shall be considered incidental to the pay items provided.

4.2A.5. Payment: No separate compensation shall be provided for this item of work, but all costs necessary to perform this item of work shall be considered incidental to the pay items provided.

Unless otherwise provided on the plans, payment for reworking unstable or non-uniform areas, removing and replacing materials, addition of stabilizing materials, and all compaction and incidentals necessary to correct all irregularities will not be made directly but will be considered as subsidiary to the various bid items.”

4.3 Delete Item 4.3 in its entirety and substitute the following:

“4.3.1. Description: These specifications shall govern for the preparation of the subgrade except as otherwise provided or specified. Subgrade is defined as “that portion of the roadbed upon which the base or pavement is to be placed and including 12 inches (30 cm) beyond the back of the curb for streets which are to be paved with concrete.”

4.3.2. Equipment: All equipment necessary for the construction of this item shall be on the project and shall be approved by the OWNER as to condition before the CONTRACTOR shall be permitted to begin construction operations on which the equipment is to be used. In lieu of the subgrade equipment specified, the CONTRACTOR may, upon written permission from the ENGINEER, operate other subgrade equipment that will produce equivalent results in the same period of time as the specified equipment. If the substituted subgrade equipment fails to produce the desired results within the same period of time as would be expected of the specified equipment, as determined by the ENGINEER, its use shall be discontinued.

(a) Subgrade Planer. An approved subgrade trimmer and maintainer with automatic grade and slope control shall be provided or, in the alternative, an approved subgrade planer shall be provided, mounted on visible rollers riding on the forms, having adjustable cutting blades which shall trim the subgrade to exact sections shown on the plans. Planer frames shall be heavy enough to remain on the forms at all times; and shall be of such strength and rigidity that, under a test made by changing the support from the wheels to the center for the type pavements as set out under “Subgrade Planer”, they shall not develop a deflection of more than one-eighth of an inch (3.2 mm). Tractive power equipment used on the subgrade to pull the planer shall not be such as to produce ruts or indentations in the subgrade.

(b) Subgrade Template. The template for checking the contour of the subgrade shall be provided and operated by the CONTRACTOR. The template shall rest
upon the side forms and shall be of such strength and rigidity that, under a test made by changing the support to the center, it shall not develop a deflection of more than one-eighth inch (3.2 mm). It shall be provided with accurately adjustable rods projecting downward to the subgrade at one foot (30 cm) intervals; and these rods shall be adjusted to the required cross-section when the template is resting on the side forms.

(c) Compaction Equipment. Compaction equipment shall conform to the requirements of Item 4.2, "Rolling" and Item 4.2A "Proof Rolling", with the exception that the roller for final subgrade shall be of the three-wheel or tandem, self-propelled type, weighing not less than five tons (4,500 kg).

4.3.3. Construction Methods: All areas beneath proposed pavement shall be proof rolled to detect areas of weakness prior to placement of fill material. In cut areas, the soil shall be proof rolled after excavation is completed to final subgrade elevation. Proof rolling shall be performed in accordance with specification Item 4.2A., "Proof Rolling."

Any soft or compressible areas detected during the proof rolling shall be undercut to firm soil. The proof rolling operation shall be observed by the ENGINEER to verify that firm non-yielding (non-pumping) subgrade soils are present at the base of the roadway excavation. Prior to fill placement, the subgrade soils at the base of the excavation shall be scarified and recompacted within a moisture content range of minus two (2) to plus four (4) percentage points of optimum moisture to a minimum of 95% Standard Proctor density (ASTM D 698). Density tests shall also be performed on any utility trench backfill beneath the proposed roadway to verify that adequate compaction levels have been achieved.

Utility Ditch Cuts

If in the opinion of the project inspector a utility ditch cut is unstable, the CONTRACTOR shall remove the unstable material and replace it with material suitable to the project inspector, and the replacement material shall meet the compaction requirements of ITEM 6.2.9 of the Standard Specifications.

The CONTRACTOR shall notify the proper utility company 24 hours in advance of backfilling or removing the unstable material so the utility company can have a representative present during the removal. The CONTRACTOR shall use a probe rod to determine the depth of the utility to insure against damaging the utility. Any expense for damages or repairs to the utility due to the backfilling or removal of the unstable material shall be borne by the CONTRACTOR.

If soft or loose, non-compact fill or utility trench backfill soil extends to depths of over three (3) feet below final subgrade (bottom of proposed pavement), excavation will terminate at a depth of three (3) feet below final subgrade. The upper eight (8) inches of soil at the base of the excavation shall then be reworked and compacted within a moisture content range of minus two (2) to plus four (4) percentage points
of optimum moisture to a minimum of 95% Standard Proctor density. If the soils at
the base of the cut are too wet and soft to allow expeditious compaction per
specification requirements, the excavation should be deepened 12 inches (to a depth
of four (4) feet below final subgrade) and compacted as well as possible at that depth
at its existing moisture content prior to placement of fill in eight (8) inch compacted
lifts. The removal and replacement of the unstable material must be by permission of
and at the direction of the project inspector, and the removal limits shall be up to a
maximum of three (3) feet below the top of the street paving subgrade by the length
and by the width of the utility ditch cut or unstable area as determined by the project
inspector. Any additional removal or backfill must be approved by the project
superintendent or project manager.

Where existing underground utilities are present, the excavation must be terminated
a sufficient distance above the utility line to prevent damage to the pipe. The
ENGINEER and the Utility Company representative shall determine the necessary soil
cover that must remain above the pipe so that damage will not occur to the existing
utilities.

After compaction and approval of the excavation subgrade, backfill shall be performed
to the required subgrade elevation (bottom of proposed pavement) using on-site soils
or approved borrow placed in maximum eight (8) inch lifts and compacted to a
minimum of 95% Standard Proctor density. The moisture content of granular soils
(having a PI of 20 or less) at the time of compaction shall be from plus to minus three
(±3) percentage points of the optimum moisture content. The moisture content of
clay soils (having a PI in excess of 20) shall be from minus two (2) to plus four (4)
percentage points above optimum. The CONTRACTOR has the option for backfill
of unstable utility cuts and subgrade to use flowable fill approved by the Engineer
having a compressive strength of at least 500 psi but not more than 1200 psi at 28
days. The subgrade soils shall then be stabilized per specification requirements.

After the excavation and construction of embankment has been substantially
completed, the subgrade shall be brought to the proper alignment, cross section and
elevation, so that after rolling as specified in Item 4.2., “Rolling”, and subsequent
finishing operations, it shall conform to the correct alignment, cross section and
elevation. Rolling and sprinkling shall be performed as needed when and to the extent
directed; and the roadbed shall be completed to or above the plane of the typical
section shown on the plans and the lines and grades established by the OWNER.

After completion of the compaction and immediately ahead of the application of base
or pavement, the subgrade planer shall be operated from approved forms in a manner
to finish the subgrade to the required section. The subgrade shall then be tested with
the approved template, operated and maintained by the CONTRACTOR. All
irregularities which develop in excess of one-half inch in a length of 16 feet (12.5 mm
in 5 M) measured longitudinally shall be corrected by lightly scarifying to a depth of
from 2 to 3 inches, adding or removing material; reshaping; and recompacting by
sprinkling and rolling. The completed subgrade shall have a uniform density of not
less than 98 percent of the maximum density determined by ASTM D 698 to the
depth of prepared subgrade specified in the plans. Moisture content shall be within minus 2 to plus 4 of optimum.

The subgrade shall be maintained in a smooth, compacted condition, in conformity with the required section and established grade, until the base or pavement is placed, and shall be kept wetted down sufficiently in advance of placing any base or pavement to insure its being in a firm and moist condition for at least two inches (5 cm) below the surface of the prepared subgrade. Only such subgrade as is necessary for the satisfactory prosecution of the work shall be completed ahead of the placement of base or pavement. Hauling or operating of unnecessary equipment on the completed subgrade shall be kept to a minimum.

Complete drainage of the subgrade shall be provided at all times. The construction area shall be shaped to provide drainage of surface water. Surface water shall not be allowed to pond in or near the subgrade. Surface water shall be pumped immediately from the subgrade area after each rain and a firm subgrade maintained until the overlying pavement is placed.

Finishing of the subgrade by hand shall be permitted on pavement widening projects, on sections where the pavement width is not uniform, at intersections and elsewhere where the operation of the subgrade planer would not be practical. Subgrade finished by hand shall conform to the requirements above specified.

Recompacted Pavement Subgrade

If subgrade stabilization is not performed, the upper eight (8) inches of subgrade soil shall be compacted at minus two (2) to plus four (4) percentage points of optimum moisture to a minimum of 98% Standard Proctor density (ASTM D 698). Only on-site soil (comparable to the underlying subgrade soil) shall be used for fine grading proposed street and alley pavement subgrade. The subgrade shall be lightly scarified to a depth of from 2 to 3 inches before fine grading is performed to insure the resulting subgrade is a homogeneous, monolithic layer throughout. After fine grading, the subgrade shall again be watered if needed and re-compact in order to re-achieve the moisture and density levels discussed above and provide a tight non-yielding subgrade. Sand shall not be allowed for use in fine grading the subgrade beneath street and alley pavement areas since these more porous soils can allow water inflow and ponding beneath the pavement section, resulting in heave and loss of subgrade soil strength. The subgrade moisture content and density must be maintained until paving is completed. The subgrade shall be watered just prior to paving to assure concrete placement over a moist subgrade.

4.3.4. Measurement and Payment: Preparation of subgrade shall not be measured for payment as a separate contract pay item unless specifically provided for in the contract provisions. Measurement of removal or backfill will be by the project inspector and the CONTRACTOR at the time of removal or backfill, and this measurement shall be final and agreed to by both parties at the time of removal or backfill. Preparation of the subgrade or fine grading shall not be paid for as a separate
contract pay item unless specifically provided for in the contract proposal; and cost thereof shall be included in such contract items as are provided, which pay items shall be the total compensation for the furnishing of all labor, tools, materials equipment and incidentals necessary to complete the work, including disposal of surplus material, all in accordance with the plans and these specifications. Removal of soft or compressible areas below 8 inches of the proposed bottom of pavement structure and replacement and recompaction as provided for in these specifications shall be paid for separately as "Removal and Replacement of Unstable Utility Trench and Subgrade" when provided for separately in the contract and proposal and shall be measured and paid for by the cubic yard as determined from the agreed upon measurement of actual average vertical depth up to a four (4) feet maximum depth below paving subgrade by the length and width of the removed utility ditch cut or unstable area.

The contract unit price per cubic yard bid for "Removal and Replacement of Unstable Utility Trench and Subgrade" shall be the total compensation for removal, hauling and delivering; for furnishing and placing all materials; for all dumping, placing, sprinkling, and tamping; and for all labor, tools, fuels, equipment and incidentals necessary to complete the work all in accordance with the plans and specifications.

The unit price bid for "Removal and Replacement of Unstable Utility Trench and Subgrade", shall not be subject to renegotiation under the underrun or overrun limitations as set forth in Item 1.37.1 of the Standard Specifications.”

Add:
“4.6.
LIME TREATMENT

4.6.4. (a) Add the following paragraph after the second paragraph:

The subgrade in all areas specified to receive street pavement shall be proof rolled in accordance with special Provisions Item 4.2A. Proof Rolling and Item 4.3A. Subgrade Preparation. Any soft or compressible areas detected during the proof rolling process shall be undercut to firm soil and backfilled as required by the ENGINEER with acceptable soil to make the final grade. Undercutting, backfilling, and compaction shall be performed as provided in Item 4.3A. Subgrade Preparation. All subgrade to receive lime treatment shall receive an initial scarification to the bottom of the specified subgrade treatment before the lime or lime slurry is added to the subgrade.

4.6.4. (b) Add the following paragraph at the beginning:

"The required application rate of lime for treatment shall be as shown on the plans as the net quantity required. If required by the OWNER, the application rate of lime shall be determined by the ENGINEER based on Atterberg Limit determinations performed on actual on-site subgrade soils treated with lime additives. The rate of lime required shall be determined by the ENGINEER using an adjusted rate (normally up to 20 percent boost) above the laboratory determined rate required to reduce the PI of the lime treated on-site subgrade soils to 15. The adjusted rate used for clay
subgrade soils shall not be less than 4% commercial hydrated lime per dry weight of subgrade soil (for 6 inch depth treatment - 22 lbs per square yard; for 8 inch depth treatment - 29 lbs per square yard) for subgrade soils having a liquid limit less than 50. The adjusted rate used for clay subgrade soils having a liquid limit of 50 or greater shall not be less than 6% commercial hydrated lime per dry weight of subgrade soil (for 6 inch depth treatment - 32 lbs per square yard; for 8 inch depth treatment - 43 lbs per square yard.”

4.6.4. (d) Delete the fourth sentence and replace with the following sentence:

“The compacted mixture shall have a uniform density of not less than 98 percent of the maximum density as determined by ASTM D 698.”

4.6.5. Add the following two sentences after the first sentence of the first paragraph:

“Only lime treated soil shall be used for fine grading proposed street pavement subgrade where lime treatment has been specified. The subgrade of low areas shall be lightly scarified to a depth of from 2 to 3 inches before fine grading is performed to insure the resulting subgrade is a homogeneous, monolithic layer throughout. Use of sand or sandy soil for fine grading beneath proposed street pavement areas is strictly prohibited.”

Add:

“4.7A CEMENT TREATED BASE

4.7A.1 Description: Cement Treated Base (CTB) shall consist of aggregate, cement and water uniformly mixed in a central plant, transported to the project, spread, compacted, shaped, finished, and cured in accordance with these specifications. It shall conform to the lines, grades, thicknesses and typical cross-section shown on the plans.

4.7A.2 Materials:

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

Water: Water shall be free from substances deleterious to the hardening of the cement treated aggregate.

Aggregate: The aggregate may be any granular material or combinations of aggregates that will, when mixed with adequate amounts of cement and water, produce laboratory mix design Unconfined Compression Test strengths as specified in the paragraph below in accordance with ASTM D 1632. The preceding tests will utilize the Moisture-Density Relation as determined by ASTM D 558:AASHTOT 134. The maximum size of aggregate shall pass a 2 inch sieve.
**Laboratory Mix Design:** The CONTRACTOR shall submit a mix design for the proposed CTB to the OWNER for approval in advance of the proposed work. Unconfined compression strength test results shall be submitted with the mix design by the supplier of the Cement Treated Base (CTB) material. Work shall not begin until the mix design is approved by the OWNER.

4.7A.3 

**Equipment:**

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

4.7A.4 

**Construction Methods:**

**Preparation:** Before other construction operations are begun, the area to be paved shall be graded and shaped as required to receive the Cement Treated Base in conformance with the grades, lines, thicknesses and typical cross-section shown on the plans. Unsuitable subgrade soil or material shall be removed and replaced with acceptable soil. Subgrade shall be prepared and compacted in accordance with Item 4.2A PROOF ROLLING and Item 4.3 SUBGRADE PREPARATION of the Public Works amendments to the Standard Specifications. The density testing and CONTRACTOR notification requirements of Item 5.8.2(a) of the Addendum to the Standard Specifications shall apply. Forms shall be placed and removed in accordance with Item 5.8.2(c) of the Standard Specifications.

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

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

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

The mixture shall be placed on a moistened subgrade in a uniform layer by an approved spreader that will deposit the required quantity per linear foot, without segregation, to produce a uniformly compacted base conforming to the grade and cross-section. Not more than 30 minutes shall elapse between placement of CTB in adjacent lanes at any location except at longitudinal and transverse construction joints.
Compaction shall start as soon as possible after spreading and the elapsed time between the addition of water to the CTB mixture and the start of compaction shall not exceed 60 minutes.

The provisions of (2) Weather Conditions and (3) Time of the Addendum and the Standard Specifications shall control the placement of CTB.

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

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

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

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

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

Curing: After the CTB has been finished as specified herein, it shall be protected against drying for seven days by the application of bituminous prime coat. The finished CTB shall be kept continuously moist until the bituminous curing material is placed. The curing material shall be applied as soon as possible, not later than 24 hours after the completion of finishing operations.

At the time the bituminous prime coat is applied, the Cement Treated Base surface shall be dense, shall be free of all loose and extraneous material, and shall contain sufficient moisture to prevent excessive penetration of the bituminous material. The bituminous prime coat specified shall be uniformly applied to the surface of the completed Cement Treated Base at the rate of approximately 0.2 gallons per square yard with approved heating and distributing equipment. The exact rate and
temperature of application for complete coverage without excessive runoff shall be approved by the Engineer. No separate pay item shall be provided for the bituminous prime coat but such cost shall be included with the bid item provided.

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

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

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

**Traffic:** Completed portions of Cement Treated Base may be opened immediately to local traffic and to construction equipment provided the curing material or surface is not impaired as specified in the section on curing of this specification. The completed portions may be opened to all traffic after the seven day curing period, provided the Cement Treated Base has hardened sufficiently to prevent marring or distorting of the surface by equipment or traffic.

**Maintenance:** The CONTRACTOR shall be required to maintain the Cement Treated Base in good condition until the overlying pavement structure has been placed over the CTB or all work has been completed and accepted. Maintenance shall include immediate repairs of any defects that may occur. This work shall be done by the CONTRACTOR at his own expense and repeated as often as may be necessary to keep the CTB intact and in good condition. Faulty work shall be corrected immediately upon notification by the OWNER.

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

No separate compensation shall be provided for maintenance of the CTB work in good condition but such work shall be considered incidental to the contract pay items provided and to pay item provided for Cement Treated Base.

**4.7A.5 Construction Quality Control Program**

The CONTRACTOR shall be fully responsible for the quality of the CTB work. The CONTRACTOR shall be responsible for establishing at his own expense a CONTRACTOR quality control program to insure the quality of work meets
customary and normal quality for CTB work in the industry and meets all the
requirements of this specification.

To insure that the construction of the Cement Treated Base is in accordance with the
provisions of these specifications, the following City quality assurance testing
program will be provided by the OWNER and performed by a testing laboratory
approved or retained by the Engineer. The cost for additional testing to prove out
deficient work shall be born solely by the CONTRACTOR.

Tests Normally Performed by the Owner Quality Assurance Program

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

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

3. Four unconfined compression test cylinders will be molded from CTB material
taken from the haul trucks at the job site for every 150 cubic yards of CTB
placed, but in no case shall less than two sets of cylinders be taken from any one
day’s placement. The sets of cylinders shall be molded in standard Proctor molds,
cured in accordance with ASTM D 1632, and tested in accordance with ASTM
D 1633 procedures.

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

Strength Requirements: The unconfined compressive strengths required for the CTB
material shall be 650 psi at 28 days.

Nonstructural CTB for utility backfill shall require compressive strengths of 200 psi
at 28 days.

Thickness Requirements: The thickness required for the CTB material shall be no less
than 4 inches unless otherwise specified in the plans or proposal.

Acceptance of Work: Acceptance of the work performed shall be based on strict
compliance by the CONTRACTOR with the provisions of this specification.
Pavement testing for thickness and unconfined compression strength shall be made in
accordance with Standard Specification 5.8.6 Pavement Testing, and credits due the
City for CTB work that is deficient in thickness or strength shall be deducted from
payments due the CONTRACTOR in accordance with the provisions of Item 5.8.6.
Measurement of Work and Basis of Payment

**Measurement of Work:** CTB work shall be measured in square yards of completed and accepted Cement Treated Base course in accordance with the dimensions and requirements of the plans and specifications.

**Basis of Payment:** CTB work shall be paid for at the contract unit price per square yard of completed and accepted Cement Treated Base course less any credits due to the City as provided for in Item 5.8.6 of the Standard Specifications, which payment shall be considered full payment for furnishing all materials, equipment, tools, labor, and incidentals necessary to complete the work and to carry out the maintenance provisions in accordance with these specifications.

No allowances shall be made for any materials used or work performed outside the lines established by the Engineer unless approved in writing prior to the work.

Add:

"4.9A

**CEMENT STABILIZATION OF SUBGRADE SOILS**

Cement stabilization of subgrade soils shall be performed in accordance with the applicable provisions of Item 4.9 PORTLAND CEMENT MODIFICATION OF SUBGRADE SOILS of the Standard Specifications for Public Works Construction, as currently amended except as provided below.

Type I Portland Cement shall be used for stabilization of subgrade soils covered under this provision. All surface vegetation and debris shall be scarified and removed and any existing bituminous pavement shall be pulverized so that 100 percent shall pass a two-inch (50 mm) sieve before placement of cement or cement slurry.

Cement or cement slurry shall not be mixed or placed when the air temperature is below 40 degrees Fahrenheit (5°C) and falling, but may be mixed or placed when the air temperature is above 35 degrees Fahrenheit (2°C) and rising, the temperature being taken in the shade and away from artificial heat; and with the further provisions that dry cement shall be mixed or placed only when site and weather conditions, in the opinion of the OWNER, are suitable.

The subgrade to all areas specified to receive street pavement shall be proof rolled in accordance with special provisions Item 4.2A. Proof Rolling and Item 4.3A. Subgrade Preparation. Any soft or compressible areas detected during the proof rolling process shall be undercut to firm soil and backfilled as required by the ENGINEER with acceptable soil to make the final grade. Undercutting, backfilling, and compaction shall be performed as provided in Item 4.3A. Subgrade Preparation.

All subgrade soils with a soil plasticity index of 20 or greater shall be lime treated and cured before commencement of the cement stabilization work. Lime treatment shall be performed in accordance with Item 4.6 LIME TREATMENT of the standard specifications, as currently amended by the City. After the lime treated subgrade has cured the required time, the subgrade shall be cement stabilized in accordance with these revised specifications with the exception that the rate of cement specified in the table in this specification may be reduced by 2%. 

52
All subgrade to receive cement stabilization shall receive an initial scarification to the bottom of the specified subgrade stabilization and shall be pulverized to required gradation of at least 60% passing the No. 4 sieve and 100% passing the 1 3/4 inch sieve before the cement or cement slurry is added to the subgrade. The soil moisture content shall be no higher than optimum moisture content before beginning the pulverization process. If the soil moisture content exceeds optimum moisture, the scarified subgrade shall be removed and spread or windrowed to expose the subgrade soil and the secondary grade to air to accelerate drying. When moisture content has been reduced to optimum or below, the subgrade material shall be respread to the desired subgrade cross section and cement stabilization shall begin.

Cement or cement slurry shall be added to the acceptably pulverized subgrade for only that area where the mixing, compaction, fine grading, and compact action can be completed in daylight within 6 hours of application of the cement or cement slurry to the soil and in one continuous operation. If this entire operation is not completed within six (6) hours of application, the OWNER will evaluate the subgrade to determine if additional testing is required to verify that the effective subgrade modulus assumed for design (k=350 psi) has been achieved.

Except in the CBD area or unless otherwise noted in the plans and specifications, the CONTRACTOR has the option, for soils with a P.I. less than 20 or for soils saturated above optimum moisture, to lime treat or dehydrate the subgrade with Class “C” fly ash or portland cement in advance of cement stabilization. Lime treatment shall be performed in accordance with ITEM 4.6. LIME TREATMENT as amended by the City. After the lime treated subgrade has cured the required time, or in the case of addition of Class “C” fly ash or portland cement, the subgrade has dehydrated sufficiently, the subgrade shall be scarified to the bottom of the specified cement subgrade stabilization and the subgrade shall be stabilized with cement as herein required except that if Lime treatment has been performed, the rate of cement may be reduced by 2%. Unless otherwise provided for in the contract, the cost for the Lime treatment or treatment with fly ash or portland cement prior to cement stabilization shall be borne by the CONTRACTOR.

If the cement stabilized subgrade is found not to be in compliance with these specifications or should the treated subgrade lose the required stability, compaction, or finish before the next course is placed or the project is accepted, the cement stabilized subgrade shall be removed and replaced, unless otherwise directed by the ENGINEER. The CONTRACTOR shall bear the cost of any additional work or testing required by the OWNER to provide the subgrade in compliance with these specifications. If required, removal and replacement will be at the CONTRACTOR’s expense.

The cement stabilization shall be performed to the depth specified on the plan at the specified percent of cement to dry weight of soil. The required application rate of Type I Portland Cement for treatment to a depth of eight (8) inches is outlined below.
<table>
<thead>
<tr>
<th>Soil Plasticity Index (P.I.)</th>
<th>Application (percent)</th>
<th>Depth of Treatment (inches)</th>
<th>Cement Required (pounds/sq yard)</th>
</tr>
</thead>
<tbody>
<tr>
<td>15 or less</td>
<td>6</td>
<td>8</td>
<td>52</td>
</tr>
<tr>
<td>25 or less but greater than 15</td>
<td>8</td>
<td>8</td>
<td>63</td>
</tr>
<tr>
<td>45 or less but greater than 25</td>
<td>10</td>
<td>8</td>
<td>72</td>
</tr>
<tr>
<td>Greater than 45</td>
<td>To be determined by Engineer</td>
<td>8</td>
<td>To be determined by Engineer</td>
</tr>
</tbody>
</table>

Approval of final mixing operations shall be based on gradation tests with at least 60 percent on a dry weight basis of the modified soil passing the No. 4 sieve at a moisture content near optimum and 100 percent passing the 1 inch sieve.

The cement stabilized soil shall be compacted to a minimum of 98 percent of the maximum dry density defined by the Standard Proctor Test (ASTM D-588), at a moisture content within -2% to +2% of optimum moisture.

Sand shall be specifically prohibited beneath pavement areas during final grading (after stabilization), since these more porous soils can allow water inflow, resulting in heave and strength loss of subgrade soils. Only cement stabilized soil shall be used for fine grading. After fine grading each area in preparation for paving, the subgrade surface shall be lightly moistened, as needed, and recompacted to obtain a tight non-yielding subgrade. Fine grading and recompaction shall be completed within 6 hours of the application of the cement or cement slurry.

The finished subgrade shall be continuously moist cured beginning immediately after completion of the cement stabilization of the subgrade until the next course is placed. Instead of continuous moist curing, the CONTRACTOR has the option of immediately wetting the finished cement stabilized subgrade by the use of pressure water distributors so that the cement stabilized subgrade surface is thoroughly and uniformly moistened, but without free water standing on the surface. Immediately after wetting the cement stabilized subgrade surface, the CONTRACTOR shall apply two-tenths (0.2) gallon per square yard asphalt SS-1 emulsion as a curing cover as provided for in ITEM 4.7.5 PORTLAND CEMENT TREATMENT of the Standard Specifications.

The CONTRACTOR shall maintain this curing cover, so that all of the cement stabilized subgrade shall be covered effectively with SS-1 emulsion until the pavement is placed on the subgrade.

After final grading, the depth of the stabilized subgrade shall be measured and verified by the OWNER to verify that the specified depth of stabilization has been achieved below the final pavement subgrade elevation.
Cement stabilization of subgrade soils shall be paid for as provided in Standard Specification Item 4.9.6 Measurement and Payment using Item 508 “Soil Cement Stabilization Subgrade” paid for per square yard, complete in place, and Item 509 “Portland Cement - Type I” per ton, complete in place. No separate compensation shall be provided for preliminary treatment using lime stabilization, fly ash or portland cement required to prepare the soil to meet gradations prior to the beginning of cement stabilization of subgrade soils.”

5.7.3

(4) Add following to end of paragraph:

“The use of vibratory roller on overlay thickness less than 1.5 inches will not be permitted.”

5.7.4

(a) Replace paragraph with the following:

“(a) General. The asphaltic mixture, when placed with a spreading and finishing machine, or the tack coat shall not be placed when the air temperature is below 50° F and is falling, but it may be placed when the air temperature is above 40° F and is rising. The asphaltic mixture, when placed with a motor grader, shall not be placed when the air temperature is below 60° F and is falling, but may be placed when the air temperature is above 50° F and is rising. The air temperature shall be taken in the shade away from artificial heat. Mat thickness of 2 inches and less shall not be placed when the temperature of the surface on which the mat is to be placed is below 50° F.”

5.7.4

(h) Delete subsection and replace with the following:

“(h) Compaction.

(1) The pavement shall be compacted thoroughly and uniformly with the necessary rollers to obtain the density, stability and cross section of the finished paving mixture meeting the requirements of the plans and specifications and the approval of the ENGINEER.

(2) When rolling with the three wheel, tandem, or vibratory rollers, rolling shall start longitudinally at the sides and proceed toward the center of the pavement, overlapping on successive trips by at least half the width of the rear wheel unless otherwise directed by the ENGINEER. The use of vibratory roller on overlay thicknesses less than 1-1/2 inches will not be permitted. Alternate trips of the roller shall be slightly different in length. On super-elevated curves, rolling shall begin at the low side and progress toward the high side unless otherwise directed by the ENGINEER. When rolling with vibratory steel-wheel rollers, the manufacturer’s recommendation shall be followed unless directed otherwise by the ENGINEER. Rolling shall be continued until no further density can be obtained and all roller marks are eliminated. The motion of the roller shall be slow enough at all times to avoid displacement of the mixture. If any displacement occurs, it shall be corrected at once by the use of rakes and with fresh mixture where required. The roller shall not be allowed to stand on pavement which has not been fully
compacted. To prevent adhesion of the surface mixture to the roller, the wheels shall be kept thoroughly moistened with water, but an excess of water will not be permitted. All rollers must be in good mechanical condition. Necessary precautions shall be taken to prevent the dripping of gasoline, oil, grease or other foreign matter on the pavement, either when the rollers are in operation or when standing.

(3) In-Place Compaction Control
In-Place compaction control is required for all mixtures.

(A) Asphaltic concrete should be placed and compacted to contain not more than 9 percent nor less than 5 percent air voids unless otherwise indicated. The percent air voids will be calculated using the maximum theoretical specific gravity of the mixture determined according to TX DOT Test Method Tex-227-F. Roadway specimen, which shall either be cores or sawed-sections of asphalt pavement, will be tested according to TX DOT Test Method Tex-207-F. The same specimen shall be used for determining both the maximum theoretical density and field density. Specimens used for field density determinations shall be carefully crumbled, using heat if necessary, and the maximum theoretical density determined as hereinbefore specified. If heating is necessary, the specimen shall be heated to the lowest temperature required for proper preparation of the sample. The use of nuclear field determinations shall not be accepted as the basis for acceptance with respect to density, however, an approved nuclear gauge may be used to establish a rolling pattern.

(B) The CONTRACTOR shall be responsible that the compaction of the asphaltic concrete in place will attain between 5 and 9 percent air voids. The CONTRACTOR's responsibility for the required compaction includes the selection of rolling equipment and the selection of rolling patterns to achieve the required compaction within the guidelines provided herein. The above selections of equipment and procedures must provide the required qualities of profile, smooth riding surface, and consistent workmanship in appearance.

(c) If the percent air voids in the compacted pavement is outside the prescribed limits, acceptance and payment will be based upon the schedule outlined in Article 7 “ACCEPTANCE PLAN”.

(D) Regardless of the method of compaction, all rolling shall be completed before the mixture temperature drops below 175 degrees F.

(4) Hand Tamping
The edges of the pavement along curbs, headers and similar structures, and all places not accessible to the roller, or in such position that will not allow thorough compaction with the rollers, shall be thoroughly compacted with lightly-oiled hand tamps.
(5) Rolling with the trench type roller will be required on widening areas in trenches and other limited areas where satisfactory compaction cannot be obtained with rollers specified or approached.

5.8.1 Delete in its entirety. Replace with the following:

"DESCRIPTION: This item shall consist of finished pavement constructed of portland cement concrete on the prepared subgrade or other base course, in conformity with the plans, as herein specified and as supplemented and/or amended by “Special Provisions” and to the lines and grades as established by the OWNER. Concrete shall be considered of satisfactory quality, provided it is:

(a) Made of materials acceptable to the job and meeting the requirements of Item 2.1 and 2.2 and special provisions and amendments thereto;
(b) In the proportions approved by the OWNER; and
(c) Mixed, placed, finished and cured in accordance with the requirements of NCTCOG Standard Specifications and any special provisions.

All concrete pavement constructed on public thoroughfares shall conform to the provisions and requirements of these specifications.”

Add:

"5.8.1.1 CLASSES OF CONCRETE:

There shall be four regular classes of concrete as follows:

<table>
<thead>
<tr>
<th>Class of Concrete</th>
<th>Minimum Cement Content Per Cubic Yard</th>
<th>Min. Comp. Strength 28-day, PSI</th>
<th>* Max. Water Cement Ratio</th>
<th>Range Slump Inches</th>
</tr>
</thead>
<tbody>
<tr>
<td>Machine Finish</td>
<td>564 pounds</td>
<td>6.0</td>
<td>4,000</td>
<td>0.49</td>
</tr>
<tr>
<td>Hand Finish</td>
<td>611 sacks</td>
<td>6.5</td>
<td>4,500</td>
<td>0.45</td>
</tr>
<tr>
<td>Sidewalks, separate curb and gutter, and four (4) inch thick median pavement</td>
<td>470 sacks</td>
<td>5.0</td>
<td>3,000</td>
<td>0.58</td>
</tr>
<tr>
<td>Miscellaneous Concrete: As directed by the OWNER or as shown on the plans.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Streets, alleys, driveways, and inlets shall be constructed in accordance with these specifications using the classes of concrete, machine or hand finish, whichever is appropriate. Mass pour medians, noses, and islands shall use Hand Finish concrete.

NOTE: Fly ash may be used to replace a portion of the minimum cement in accordance with ITEM 2.2.2.

NOTE: Grade No. 1 Coarse aggregate shall not be used for pavement concrete.

* The maximum water/cement ratio, in pounds per pound, will be computed based on total cementitious material.
Entrained air will be required. The concrete will be designed to entrain 5 percent air when Grade 2 Coarse Aggregate is used, 6 percent when Grade 3 Coarse Aggregate is used, and 7 percent for Grade 4 unless otherwise specified by the OWNER. Concrete as placed shall contain the proper amount of air as required herein with a tolerance of plus or minus 1.5 percent. Entrained air shall conform to Item 2.2.2.”

Add:
“5.8.1.2

MIX DESIGNS:

At least 10 days prior to the start of concreting operations, the CONTRACTOR shall submit to the OWNER a design of the concrete mix he proposes to use together with samples of all materials to be incorporated into the mix and a full description of the source of supply of each material component. The proposed batch designs must be submitted to the Project Engineer on the approved form.

The design of the concrete mix shall produce a quality concrete complying with these specifications and meet the requirements of ACI 318 (1992) - PART 3 CONSTRUCTION REQUIREMENTS, CHAPTER 5, Concrete Quality, except as amended by these provisions. The concrete mix design shall include the following information:

1. Design Requirements and Design Summary;
2. Material source;
3. Dry weight of cement/cu. yd. and type;
4. Dry weight of fly ash/cu. yd. and type, if used;
5. Saturated surface dry weight of fine and coarse aggregates/cu. yd.;
6. Design water/cu. yd.;
7. Quantities, type, and name of admixtures with manufacturer's data sheets;
8. Current strength tests or strength tests in accordance with ACI 318;
9. Current Sieve Analysis and -200 Decantation of fine and coarse aggregates and date of tests;
10. Fineness modulus of fine aggregate;
11. Specific Gravity and Absorption Values of fine and coarse aggregates; and
12. L.A. Abrasion of coarse aggregates.

Exhibit 1, attached, is a copy of the required form which must be used for all batch design submittals.

Exhibit 2, attached, is a copy of an acceptable batch design for information purposes only, which gives the required information. Concrete shall not be placed on projects until an approved batch design is on file with the Construction Services Division. The concrete batch designs shall be submitted to the Project Engineer for review and approval. Upon approval, the approved batch design shall be submitted to the Project Manager of the Construction Services Division for filing and authorization to proceed.
5.8.1.2

EXHIBIT 1

CONCRETE MIX DESIGN

DESIGN NO. ___
DATE: ________

Client:
Project:
Required:
Design
Summary:

Calculated Unit Weight: (PCF) ________
Measured Unit Weight (PCF) ________
Measured Slump: (inches) ________
Measured Air Content (percent) ________

Materials:

<table>
<thead>
<tr>
<th>Batch Proportions (one cubic yard)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Materials</td>
</tr>
<tr>
<td>-----------</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
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<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>TOTAL</td>
</tr>
</tbody>
</table>

CONFIRMATION TESTS
Compressive Strength (PSI)

7-Day | 28-day
      |      
      |      
      |      
      |      
      |      
      |      
      |      

EXHIBIT 1 (continued)

SUMMARY OF RESULTS
Sieve Analysis
Date: ________

Fine Aggregates

* Percent Passing

<table>
<thead>
<tr>
<th>Sieve Size</th>
<th>Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>3/8&quot;</td>
<td>100</td>
</tr>
<tr>
<td>#4</td>
<td>95 - 100</td>
</tr>
<tr>
<td>#8</td>
<td>80 - 100</td>
</tr>
<tr>
<td>#16</td>
<td>50 - 85</td>
</tr>
<tr>
<td>#30</td>
<td>25 - 60</td>
</tr>
<tr>
<td>#50</td>
<td>10 - 30</td>
</tr>
<tr>
<td>#100</td>
<td>0 - 10</td>
</tr>
<tr>
<td>% Passing #200 by Decantation:</td>
<td>Max. 3.0</td>
</tr>
</tbody>
</table>

Fineness Modules: **__________ | 2.3 - 3.1

Insoluble Residue In
Carbonate Aggregates: Min. 28

Specific Gravity (SSD):
Absorption:

* The difference between the percent passing any two consecutive sieve sizes shall not exceed 45.0%.

** Maximum variation during production: 0.2.

Coarse Aggregate

<table>
<thead>
<tr>
<th>Sieve Size</th>
<th>Percent Passing</th>
<th>Grade Specifications</th>
</tr>
</thead>
</table>

Specific Gravity (SSD):
Absorption:

L.A. Abrasion, % Loss: Max. 45
EXHIBIT 2

CONCRETE MIX DESIGN
DESIGN NO. 6
DATE: 6/23/91

Client: XYZ
Project: C.A. Street
Required Class: Machine Finish 4,000 psi at 28 days; Max. 4 inch slump, Air 5.0% ± 1.5%
Design Average Strengths: 7-day 4447 28-day 5340

Summary: Cement 6 sacks cement/cubic yard w/20% Fly Ash Replacement
C.A. 61 percent coarse aggregate.
F.A. 39 percent fine aggregate.
Water 32 gals. water cement ratio 0.45
Additive AEA - Pave Air 1.0 Fl. Oz./sack cement

Calculated Unit Weight: (PCF) 144.0
Measured Unit Weight (PCF) 144.2
Measured Slump: (inches) 3"
Measured Air Content (percent) 5.0%

Materials:
Fly Ash: Gifford Hill Caisson, Texas
Cement: Type I North Texas Cement Midlothian, Texas
C.A.: Gifford Hill Bridgeport, Texas
F.A.: Manuf. Sand Gifford Hill (Perch Hill) Chico, Texas
Natural Sand Gifford Hill Thackerville, Oklahoma
Additives: AEA - Pave Air Master Builders (ASTM C-260)
Water Reducer: NONE (ASTM C-494)

Batch Proportions (one cubic yard)

<table>
<thead>
<tr>
<th>Materials</th>
<th>Weight (lbs)</th>
<th>Absolute Volume</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cement</td>
<td>451</td>
<td>2.29</td>
</tr>
<tr>
<td>Fly Ash</td>
<td>141</td>
<td>.82</td>
</tr>
<tr>
<td>C.A.</td>
<td>1861 SSD (61%)</td>
<td>11.14</td>
</tr>
<tr>
<td>Natural F.A.</td>
<td>933 SSD (39%)</td>
<td>5.70</td>
</tr>
<tr>
<td>Manufactured F.A.</td>
<td>236</td>
<td>1.42</td>
</tr>
<tr>
<td>Water</td>
<td>267 (32 gal.)</td>
<td>4.23</td>
</tr>
<tr>
<td>A.E.A.</td>
<td>6 oz. 5%</td>
<td>1.35</td>
</tr>
</tbody>
</table>

TOTAL 27.00 CU.FT.

CONFIRMATION TESTS
Compressive Strength (PSI)

<table>
<thead>
<tr>
<th>7-Day</th>
<th>28-day</th>
</tr>
</thead>
<tbody>
<tr>
<td>4430</td>
<td>5300</td>
</tr>
<tr>
<td>4470</td>
<td>5360</td>
</tr>
<tr>
<td>4440</td>
<td>5360</td>
</tr>
</tbody>
</table>

5.8.1.2
EXHIBIT 2 (continued)

DESIGN NO.  6

SUMMARY OF RESULTS

Sieve Analysis
Date: 06/23/91

Fine Aggregates

<table>
<thead>
<tr>
<th>Sieve Size</th>
<th>Gifford Hill Manufactured</th>
<th>Gifford Hill Natural</th>
<th>Thackerville</th>
<th>Combined Gradation</th>
<th>Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>3/8&quot;</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>98.8</td>
<td>95 - 100</td>
</tr>
<tr>
<td>#4</td>
<td>99.4</td>
<td>98.6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>#8</td>
<td>84.9</td>
<td>90.3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>#16</td>
<td>54.9</td>
<td>80.0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>#30</td>
<td>33.8</td>
<td>55.0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>#50</td>
<td>19.1</td>
<td>17.8</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>#100</td>
<td>8.8</td>
<td>2.1</td>
<td></td>
<td>3.4</td>
<td>0 - 10</td>
</tr>
</tbody>
</table>

% Passing #200 by Decantation: 3.6  0.4  1.0  Max. 3.0

Fineness Modulus: 2.647 2.3 - 3.1

Insoluble Residue: 38.0  Min. 28.0

Specific Gravity (SSD): 2.68 2.62
Absorption: 1.5  0.8

* 20% Manufactured  80% Natural

Coarse Aggregate

Gifford Hill Crushed Limestone

<table>
<thead>
<tr>
<th>Sieve Size</th>
<th>Percent Passing</th>
<th>NCTCOG Grade 2 Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>2&quot;</td>
<td>100</td>
<td>99.4 95 - 100</td>
</tr>
<tr>
<td>1-1/2&quot;</td>
<td>45.6</td>
<td>18.4 10 - 30</td>
</tr>
<tr>
<td>3/8&quot;</td>
<td>45.6</td>
<td>10 - 30</td>
</tr>
<tr>
<td>#4</td>
<td>1.8</td>
<td>0 - 5</td>
</tr>
</tbody>
</table>

% Passing #200 by Decantation: 0.6  Max. 1.0

Specific Gravity (SSD): 2.68
Absorption: 0.8

L.A. Abrasion, % Loss: 29.0  Max. 45
All material samples submitted to the OWNER shall be sufficiently large to permit laboratory batching for the construction of test specimens to check the adequacy of the design. When the design mix has been approved by the OWNER, there shall be no change or deviation from the proportions thereof or sources of supply except as hereinafter provided. No concrete may be placed on the job site until the mix design has been approved by the OWNER in writing to the CONTRACTOR.”

Add:

"5.8.1.3

CONSISTENCY

In general, the consistency of concrete mixtures shall be such that:

(1) The mortar shall cling to the coarse aggregate.
(2) The aggregates shall not segregate in concrete when it is transported to the place of deposit.
(3) The concrete, when dropped directly from the discharge chute of the mixer, shall flatten out at the center of the pile; but the edges of the pile shall stand and not flow.
(4) The concrete and mortar shall show no free water when removed from the mixer.
(5) The concrete shall slide and not flow into place when transported in metal chutes at an angle of 30 degrees with the horizontal.
(6) The surface of the finished concrete shall be free from a surface film or laitance.

The consistency of the concrete as placed should allow the completion of all finishing operations without the addition of water to the surface. When field conditions are such that additional moisture is needed for the final concrete surface finishing operation, the required water shall be applied to the surface by fog spray only; and shall be held to a minimum amount. The concrete shall be workable, cohesive, possess satisfactory finishing qualities and be of the stiffest consistency that can be placed and vibrated into a homogeneous mass. Excessive bleeding shall be avoided.

If the strength or consistency required for the class of concrete being produced is not secured with the minimum cement specified or without exceeding the maximum water/cement ratio, the CONTRACTOR may use, or the OWNER may require, an approved cement dispersing agent (water reducer); or the CONTRACTOR shall furnish additional aggregates, or aggregates with different characteristics, or the CONTRACTOR may use additional cement in order to produce the required results. The additional cement may be permitted as a temporary measure, until aggregates are changed and designs checked with the different aggregates or cement dispersing agent.

The CONTRACTOR is solely responsible for the quality of the concrete produced. The OWNER reserves the right to independently verify the quality of the concrete through inspection of the batch plant, testing of the various materials used in the concrete and by casting and testing concrete cylinders or beams on the concrete actually incorporated in the pavement.”
Add:

"5.8.1.4 DELIVERY TICKETS

For transit mix operations, the manufacturer of the concrete shall, before unloading, furnish to the purchaser with each batch of concrete at the site a delivery ticket on which is printed, stamped, or written, the following information to determine that the concrete was proportioned in accordance with the approved mix design:

(1) Name of concrete supplier;
(2) Serial number of ticket;
(3) Date;
(4) Truck number;
(5) Name of purchaser;
(6) Specific designation of job (name and location);
(7) Specific class, design identification and designation of the concrete in conformance with that employed in job specifications;
(8) Amount of concrete in cubic yards (or cubic meters);
(9) Time loaded or of first mixing of cement and aggregates;
(10) Water added by receiver of concrete and his initials;
(11) Weight of cement;
(12) Weight of fly ash;
(13) Type and amount of admixtures;
(14) Information necessary to calculate the total mixing water added by the producer (total mixing water includes free water on the aggregates, water and ice batched at the plant, and water added by the truck operator from the mixer tank);
(15) Maximum size of aggregate; and
(16) Weights of fine and coarse aggregate.

An example of an acceptable delivery ticket and batch weight printout is provided on Exhibit 3, attached.

For on-site concrete plant operations, the CONTRACTOR shall supply to the OWNER a batch ticket with the following information and for each continuous paving operation, provide receipts and invoices to substantiate the amounts of cement and flyash used in the placement.

(1) At the beginning of each day's placement, a list of the actual batch weights to be used shall be given to the OWNER.
(2) When any changes are made, a new list of weights shall be given to the OWNER."
**EXHIBIT 3**

Typical Concrete Batch Delivery Ticket

*(Example)*

---

### Actual Batch Data Generally Submitted on Separate Printout

**Example**

<table>
<thead>
<tr>
<th>PLANT ID</th>
<th>31</th>
</tr>
</thead>
<tbody>
<tr>
<td>BATCH NUMBER</td>
<td>Z9481</td>
</tr>
<tr>
<td>DATE</td>
<td>5/27/92</td>
</tr>
<tr>
<td>START BATCH</td>
<td>09:55</td>
</tr>
<tr>
<td>TRUCK</td>
<td>31</td>
</tr>
<tr>
<td>MOISTURE 3</td>
<td>3.0</td>
</tr>
<tr>
<td>MOISTURE 2</td>
<td>0.0</td>
</tr>
<tr>
<td>DESIGN</td>
<td>Z9481</td>
</tr>
<tr>
<td>QUANTITY</td>
<td>10.0</td>
</tr>
<tr>
<td>INGR TARGET LOAD</td>
<td></td>
</tr>
<tr>
<td>CEM1</td>
<td>6,580</td>
</tr>
<tr>
<td>AGG3</td>
<td>12,493</td>
</tr>
<tr>
<td>AGG2</td>
<td>20,700</td>
</tr>
<tr>
<td>ADM1</td>
<td>64.4</td>
</tr>
<tr>
<td>WAT</td>
<td>239.0</td>
</tr>
<tr>
<td>END BATCH</td>
<td>09:57</td>
</tr>
</tbody>
</table>
5.8.2 (a) Add the following paragraph to the end of this item:

"The CONTRACTOR shall notify the OWNER at least three working days in advance of his intention to place concrete pavement.

Density tests must be taken no more than 72 hours prior to placement of concrete. After the specified moisture and density are achieved, the CONTRACTOR shall maintain the subgrade moisture and density in accordance with Item 4.3.3 or Item 4.6.5, whichever is applicable, of the standard specifications until the pavement is placed. In the event that rain or other conditions may have adversely affected the condition of the subgrade or base, additional tests may be required as directed by the OWNER."

5.8.2 (e)(2) Delete in its entirety and replace with the following:

"(2) Construction Joints. Contraction or sawed dummy joints shall be installed at the locations and at the intervals shown on the plans and standard construction details after placement of the curing membrane. The joints shall be constructed by sawing to a 1/4th inch (6mm) width and to the depth indicated on the plans. Joints shall be sawed into the completed pavement surface as soon after initial concrete set as possible and after the sealing operation to control cracking; but with enough elapsed time to prevent aggregate from being dislodged and to prevent any damage by blade action to the slab surface and to the concrete immediately adjacent to the joint. If sawing causes a crack to occur in the placement surface, sawing shall be discontinued at that location and sawing of the remaining dummy joints shall continue. Any portion of the curing membrane which has been disturbed by sawing operations shall be restored by spraying the areas with additional curing compound. The following sawing schedule table shall be used in relation to the average of the concrete and air temperature at the time of placement:

**REQUIRED CONCRETE DUMMY JOINT SAW SCHEDULE**

<table>
<thead>
<tr>
<th>Average of Concrete and Air Temperature (°F)</th>
<th>Permitted Elapsed Time After Placement Prior To Sawing (Hrs.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>40 to 49</td>
<td>10 ± 1</td>
</tr>
<tr>
<td>50 to 59</td>
<td>8 ± 1</td>
</tr>
<tr>
<td>60 to 69</td>
<td>7 ± 1</td>
</tr>
<tr>
<td>70 to 79</td>
<td>6 ± 1</td>
</tr>
<tr>
<td>80 to 89</td>
<td>5 ± 1</td>
</tr>
<tr>
<td>90 or Greater</td>
<td>4 ± 1</td>
</tr>
</tbody>
</table>

The sawed groove shall be thoroughly cleaned for the full depth and width of the joint and filled with Ready-mixed cold-applied joint sealer. Item 2.2.10. (c) as currently amended. The type of equipment and method for performing this work shall be as provided for in Item 5.8.2 (e).(7) as currently amended."
(e)(6) Add the following section to this item:

"(6) Random Cracking. Random drying shrinkage cracks or stress cracks of any nature in recently placed portland cement concrete pavement or slabs on grade are unacceptable and are subject to being removed and replaced at the discretion of the Director of Public Works and Transportation at no additional cost to the City of Dallas. Recently placed concrete pavement or slabs on grade are those for which the one-year maintenance bond has not expired. Routing, by any means, and sealing random cracks will not be permitted. When portland cement concrete pavement or slabs on grade must be removed and replaced, the area of removal must extend from the nearest contraction or dummy joint or construction joint a minimum distance of 10 feet, measured parallel to the longitudinal axis of the pavement, and include that portion of the concrete pavement or slab on grade containing the random crack. A sawed dummy joint will be required to be sawed across the opposing, non-damaged, slab in line with the saw cut made for the removal of the damaged slab. The area of removal and replacement of slabs containing longitudinal random cracks will be determined by the Director of Public Works and Transportation or his designee. Randomly cracked portland cement concrete sidewalks will require removal and replacement of only the five-feet long section or sections containing random cracks."

(e)(7) Add the following section to this item:

"(7) Joint Sealing Procedures. All joints shall be sealed in accordance with the following requirements:

(A) Description: This item shall govern the cleaning, preparation and sealing of all types of joints in Portland cement concrete pavements as set forth in the plans, as required by the construction sequencing, and as directed by the Engineer.

(B) Materials: All materials used in the construction of joints and joint sealing shall conform to the applicable sections of Division 2. Redwood filler material shall be used in the construction of expansion joints. Joint sealants shall be a single component polymer modified asphalt emulsion conforming to the requirements of Item 2.2.10.(c) "Cold Pour Joint Sealant" as currently amended.

(C) Material Storage and Disposal: Cold pour sealant and other materials that become a part of the final product shall be furnished by the CONTRACTOR. In addition, all incidental materials, fuel solvents and other items shall also be provided by the CONTRACTOR. The CONTRACTOR shall locate and furnish a storage area and shall be responsible for the proper storage of sealing material. Sealing materials shall be delivered to the job sites in clean, sealed, original containers bearing the manufacturer's name, material type, lot number and special handling instructions that apply. At the conclusion of work, all materials, containers, equipment and incidentals shall be removed by the CONTRACTOR. The lawful disposal of barrels and other containers shall be
the responsibility of the CONTRACTOR. Disposal shall take place in a timely manner and in accordance with the current Environmental Protection Agency (EPA) or Texas Natural Resource Conservation Commission (TNRCC) requirements.

(D) Equipment: The CONTRACTOR shall furnish in good working condition all equipment, tools, and machinery necessary to satisfactorily complete the work and shall maintain all such equipment, tools, and machinery in good condition during the course of the work without excessive delays for repairs and replacements. Equipment used for cold pour sealing shall meet the following minimum requirements:

(1) Cleaning Equipment. Equipment utilized for cleaning joints shall be capable of delivering compressed air of sufficient volume and force to remove all loose debris from joints to the depth shown on the plans. At least one (1) hand-held pressurized wand per crew shall be provided by the CONTRACTOR for the sole purpose of joint cleaning. The air compressor shall be capable of delivering at least 100 CFM at 100 psi at the compressor and shall be equipped with an oil and moisture trap to remove contamination from the compressed air. Proper operating pressure for this equipment will be determined by the Engineer. When sealing joints older than one day, the joints shall be routed with a concrete routing saw, in good working condition, capable of routing and cleaning the sides of the joints for the full depth of the joints.

(2) Cold Pour Sealing Equipment for Joints. Equipment utilized for cold pour sealing shall consist of:

a. Not less than two (2) pressure-fed hand-held wands per crew and;

b. A barrel pump or pressurizing system to provide a continuous and uninterrupted flow of sealant through the hoses to the wands.

The CONTRACTOR shall also provide any special equipment required to install backer rod for joint sealing. Sealing equipment shall meet the approval of the Engineer.

(E) CONSTRUCTION METHODS:

(1) Presence of Manufacturer’s Representative Required

Manufacturer’s representative shall be present at the beginning of the sealing operations to meet with the CONTRACTOR, ENGINEER and inspector to establish correct procedures. Contact manufacturer’s representative 48 hours prior to installation of joint sealant at the phone number provided in the standard construction details, File 251D-1, sheet 1003.
(2) **Application**

a. Sealant must be able to be applied to fresh damp concrete and withstand immersion in water after curing.

b. Sealant may be applied immediately following the contraction joint sawing operation. After sawing, joints shall be blown clean with high pressure air, backer rod installed and sealed immediately.

c. Water shall be diverted while sealant is applied and curing.

d. At least 24-hour cure time is required after application before sealed joints can be exposed to traffic.

e. If the CONTRACTOR elects to seal the joints more than four hours after the contraction joint sawing operation, the following procedure must be followed:

The walls of all joints shall be cleaned so that the surfaces of the joints do not have foreign material preventing the sealant from adhering to the walls. This shall be done by backsawing and high pressure air. All joints shall be routed with a concrete routing saw for the full depth of the joint. After the backsawing operation is completed, the street shall be immediately swept clean of all mud, aggregate, and debris. The joints shall then be immediately cleaned thoroughly with high pressure air (100 CFM with at least 100 psi pressure), the backer rod installed and the joints sealed. Joints not sealed within 8 hours of cleaning shall be recleaned using the above method and sealed. The method to be used must first be approved by the Engineer.

1) **Contraction Joints.** Sealant shall be applied on top of an extruded closed-cell polyethylene foam backer rod which shall be inserted into the joint with the top of the backer rod no more than 3/8" below the pavement surface. The backer rod shall be at least 1/8" larger in diameter than the width of the joint to provide positive blockage. The backer rod shall be placed in the joint at a depth not to exceed, the width by more than 1 to 1-1/2 to create a uniform reservoir for the sealant. The backer rod shall be placed immediately after air blasting and before placing the sealant. The backer rod shall be installed with a properly sized backer rod tool to prevent damaging the rod and to insure rod is placed at the proper depth. The nozzle of the application wand shall be inserted into the joint and sealant shall be applied so that air will not be trapped over the backer rod. Sealant shall be applied to the full 1/4" width of the sawed joints to a depth of at least 1/4" thick but not more than 3/8" thick after curing. The sealant shall fill the joint to the surface of the pavement. Care shall be
taken to prevent overfilling the joint. After curing, the sealant shall be within 1/8" to 1/4" of the surface in the center of the joint.

2) **Expansion Joints.** A reservoir shall be created at the joint by the removal of the upper 1-1/4" of redwood strip by routing, sawing, removal of tack strip, or other method approved by the Engineer. A 5/8" backer rod shall be installed over the top of the redwood filler. Sealant shall be applied to the full 1/2" width of the expansion joint. Joints shall be filled with sealant level to the surface of the pavement.

3) **Construction Joints.** Construction joints shall consist of a butt joint with a reservoir for the sealant to a width of 3/8" and a depth of 1/4 created by sawing or hand tooling. The backer rod shall be set to a depth of 1/2" below the surface of the pavement. The reservoir shall be filled with sealant level to the surface of the pavement.

4) **Resealing Old Joints.** The joints are to be routed full depth with a concrete routing saw and cleaned with compressed air. Backer rod will be inserted and sealant applied per paragraph 1 above.

(3) **Precautions**

a. Avoid applying sealant when rain or other sources of water are expected to come into contact with the freshly applied sealant. Normally, the sealant will be protected from damage after a 2 hour cure period.

b. The sealant shall not be applied in temperatures below freezing unless the joints are preheated to prevent freezing of the sealant until sufficient cure time has elapsed.

c. Sealant shall be stored at a temperature not less than 40°F., nor more than 120°F.

(4) **Clean up**

a. The equipment and tools can be cleaned by flushing with mineral spirits or diesel oil to remove any built-up sealant. Flush out all cleaning materials before next sealing operation. This is normally done by placing the wand in a bucket and running sealant until the material is not contaminated.
b. Spills, drips or puddles shall be removed as directed by the Engineer. Removal can be assisted by blotting spills as they occur with dry sand. The material to be removed can be accomplished after curing takes place. The material to be removed can then be water jetted, sandblasted, frozen and chipped, or by use of some other method approved by the Engineer.”

5.8.2 (g)(2) Delete this section and substitute the following:

“(2) Weather Conditions. All concrete shall be placed, finished and cured in conformance with the intent of the Standard Specifications as currently amended by the OWNER. Fresh concrete shall be protected from freeze/thaw damage for at least three calendar days after the placement.

Except by specific written authorization of the OWNER, no concrete shall be placed during detrimental weather conditions or when weather conditions indicate that detrimental weather conditions may exist within 24 hours of the placement. Detrimental weather conditions shall be considered to exist when any one of the following weather conditions occur:

(A) The air temperature is less than 40° Fahrenheit (4°C).
(B) During rainfall or other precipitation sufficient to potentially cause damage to the work or the concrete surface;
(c) The conditions of wind, humidity, ambient temperature and concrete temperature create a condition whereby surface moisture evaporation may exceed 0.2 lb. per square foot per hour as discussed in Item 5.8.2(I)(1) “Plastic Shrinkage Cracking” of these amended Standard Specifications.

The air temperature shall be taken in the shade away from artificial heat.

To secure written authorization to place concrete during potential detrimental weather conditions the CONTRACTOR shall submit his request in writing to the OWNER in advance of the placement of concrete pavement together with the CONTRACTOR’S proposed materials, devices and methods that he will use to protect the concrete placement during the detrimental weather conditions. For detrimental weather condition © above, the proposal must be in compliance with Item 5.8.2(I)(1) “Plastic Shrinkage Cracking” of these amended Standard Specifications.

For detrimental weather condition (A) above, the proposal must insure that the fresh concrete after mixing is protected during transport, placement, finishing and early curing in such a way as to maintain the temperature of the air surrounding the fresh concrete at not less than 50° Fahrenheit (10°C) for a period of at least five calendar days after the placement of the concrete pour. The proposed materials and devices must be on site before the authorization from the OWNER will be given. An
additional four cylinders of concrete test specimens shall be made with each set of cylinders made during the placement. These additional test specimens shall be kept on the site exposed to the same conditions as the concrete placement. Equipment and material loads will not be allowed on the placement until compressive test breaks of these specimens indicate that the concrete has reached sufficient strength to bear the loads.

No additional compensation will be provided to the CONTRACTOR for the costs necessary to comply with these requirements for placing concrete in detrimental weather conditions, but all such costs shall be considered incidental to the pay items provided.

It is to be distinctly understood that the CONTRACTOR is responsible for the quality and strength of the concrete placed under any weather conditions. No concrete shall be placed on a frozen subgrade.”

(h) Add the following at the beginning of this item:

“(a) General: Finishing of Concrete Pavement And Pavement Leaveouts.

Machine and hand finish classes of concrete shall be consolidated with approved mechanical vibrators designed to vibrate and consolidate the concrete internally. Concrete base and pavement in the following instances will be required to be finished mechanically with approved power-driven machines: streets wider than 27 feet, divided streets and major thoroughfares.

Care shall be taken to provide adequate vibration and consolidation of hand finish concrete placements. Hand manipulated mechanical vibrators shall be used in sufficient number required for uniform internal vibration and proper consolidation of the pavement. Over-vibration shall be avoided.

The ten foot wide “Straight Edge” shall be used immediately behind the paving machine or template to help strike off the rough areas. The ten foot wide “Sentem” shall then be used behind the “Straight Edge” to complete the smoothing and sealing of the pavement surface. A five foot wide “Bull Float” may be used for finishing the surface of sidewalks and driveway approaches and other special areas, when approved by the Engineer, to help smooth and seal the pavement surface. If the “Bull Float” is approved by the Engineer for use in finishing of transition areas of the street paving, the ten foot wide “Straight Edge” shall be used behind the “Bull Float” to check and complete the sealing and smoothing of the pavement surface. The “Bull Float” shall not be used in place of the ten foot wide “Sentem” in the main pavement finishing operation.
(b) Machine finishing of concrete base and pavement shall include the use of power-driven finishing machines with internal vibrators fixed to the machine on a spacing not to exceed 24 inches."

5.8.2

(h)(2) Delete first paragraph and replace with the following:

"Hand finishing will be permitted on the transition from a crowned section to a super-elevated section without crown on curves. Hand finishing will also be permitted on pavement widening, on sections where the pavement width is not uniform, at intersections, where required monolithic widths are greater than that of available finishing machines, on streets less than 200 feet in length, alley paving, and elsewhere where mechanical finishing is not specified or required by these specifications."

Add the following paragraphs to the end of this subsection:

"At the option of the CONTRACTOR or when directed by the OWNER, an approved vibrating screen may be used in place of the strike-off template and tamping template specified in the Standard Specifications for hand finished base or pavement. The vibrating screen shall not be used in place of the finishing machine on work specified to receive a mechanical finish. The screen shall be operated over each area as many times and at such intervals as directed and as required to produce a compacted slab free of surface voids with the surface screened to the required section.

Hand finish shall not be a separate pay item in this contract, but the costs associated with hand finish shall be considered incidental to the pay items provided."

5.8.2

(I) Delete in its entirety and replace with the following:

"(I) Curing. The curing of concrete pavement shall be thorough and continuous throughout the entire curing period. Failure to provide proper curing as herein prescribed shall be considered as sufficient cause for immediate suspension of paving operations. The curing method as herein specified does not preclude the use of any of the other commonly used methods of curing, and the OWNER may approve them if so requested by the CONTRACTOR. If any selected method of curing does not afford the desired results, the OWNER shall have the right to order that another method of curing be instituted. Immediately after the finishing of the surface, the pavement shall be covered with a continuous, uniform membrane forming water-impermeable coating. The membrane forming compound shall be of the type specified in Item 2.2.11. After removal of the side forms, the sides of the slab shall receive a like coating before earth is banked against them. The solution shall be applied, under pressure with a spray nozzle, in such a manner as to cover the entire surfaces thoroughly and completely with a uniform film.

The rate of application shall be such as to insure complete coverage and shall not exceed 150 square feet per gallon of curing compound. When thoroughly dry, it shall
provide a continuous and flexible membrane, free from cracks or pinholes; and shall not disintegrate, check, peel or crack during the curing period. If for any reason the seal is broken during the curing period, it shall be immediately repaired with additional sealing solution.

When tested in accordance with ASTM Designation C 156, the membrane forming curing compound shall provide a film which shall have retained within the test specimen the following percentages of the moisture present in the specimen when the curing compound was applied:

<table>
<thead>
<tr>
<th>Time</th>
<th>Retained Moisture</th>
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<tbody>
<tr>
<td>After 24 hours</td>
<td>97%</td>
</tr>
<tr>
<td>After 3 days</td>
<td>95%</td>
</tr>
<tr>
<td>After 7 days</td>
<td>91%</td>
</tr>
</tbody>
</table>

(1) Plastic Shrinkage Cracking: When conditions of wind, humidity, ambient temperature and concrete temperature create a condition whereby surface moisture evaporation may exceed 0.2 lb. per square foot per hour as determined from the chart shown on Figure 1, a monomolecular film may be applied to the concrete or an approved polyethylene film shall be applied immediately behind the first screening. The product used shall be Master Builder COMFILM (Reg. U.S. Pat. & TM Off.) or equal. Rate of application shall be in accordance with manufacturer's recommendations. Paving operations may also be discontinued, at the option of the CONTRACTOR, until the evaporation rate is reduced below 0.2 pound per square foot per hour. The polyethylene or monomolecular film is not a replacement for the membrane forming curing compound and their use may be discontinued once the evaporation rate has decreased to less than 0.2 lb. per square foot per hour. Application of the membrane-forming compound will be applied as specified under (I) Curing, first paragraph.”
Figure 1

Rate of Evaporation of Concrete Surface Moisture

To use this chart:
1. Enter with air temperature, move up to relative humidity
2. Move right to concrete temperature
3. Move down to wind velocity
4. Move left, read approx. rate of evaporation
5.8.3 (a) Delete in its entirety and replace with the following:

“(a) General. All equipment necessary for the construction of this item shall be
on the project and shall be field checked by a trial run by the CONTRACTOR and
observed by the OWNER before its use in the actual construction operations on which
the equipment is to be used. The resulting product must be in compliance with the
project specifications.

The CONTRACTOR shall have on site the following standard finishing tools when
paving streets and slabs wider than ten feet: the ten foot wide “Straight Edge”, the
ten foot wide “Sentem”, and other miscellaneous standard equipment used in the
placing and finishing of concrete pavements.”

5.8.3 (f) Change first paragraph to read as follows:

“(f) Mechanical Vibratory Equipment. All concrete placed as Machine Finish
class concrete shall be consolidated by approved mechanical vibrators attached to the
machine and operated ahead of the transverse finishing screen and designed to vibrate
the concrete internally. Unless otherwise shown on the plans, vibrators of the
surface-pan type may also be used for full-depth placement provided that internal
vibrators fixed to the machine are also used for vibrating the concrete internally.
Vibratory members shall extend across the pavement practically to, but shall not come
in contact with, the side forms. Mechanically-operated vibrators shall be mounted in
such manner as not to interfere with the transverse or longitudinal joints.”

5.8.3 (g) Add the following sentence at the beginning:

“The vibrating screen may be used for Hand Finish class concrete placement for
pavement.”

Add the following sentence at the end:

“Approved hand manipulated mechanical vibrators shall be used with the vibrating
screen in the number required for internal vibration and proper consolidation of the
pavement.”

5.8.3 (h) Change first paragraph to read as follows:

“(h) Transverse Finishing Machine. The transverse finishing machine may be used
for Machine Finish class concrete placement for pavement provided that internal
vibrators fixed to the machine are also used for vibrating the concrete internally. The
requirements for fixed internal vibrators given in part (f) shall apply. The transverse
finishing machine shall be provided with two screeds accurately adjusted to the crown
of the pavement, shall be power driven, and mounted in a substantial frame equipped
to ride on the forms. The machine shall be so designed and operated as to strike off
and consolidate the concrete internally with internal-type vibrators as required in part
(f) Mechanical Vibratory Equipment.”
5.8.6 (c) Change first paragraph to read as follows:

“(c) Pavement Strength Test. During the progress of the work, the OWNER shall cast test cylinders to maintain a check on the compressive strengths of the concrete being placed.”

Add the following paragraphs to the end of this subsection:

“When called for in the contract documents, the CONTRACTOR shall be responsible for the proper storage, maintenance, and any required curing of concrete test samples made by the OWNER.

The CONTRACTOR if directed by the OWNER shall provide and maintain curing facilities for the purpose of curing concrete test specimens. Provisions shall be made to maintain the water in the curing tank at temperatures between 70 degrees Fahrenheit (21° C) and 90° Fahrenheit (32° C). The cost of all materials used in test specimens and the cost of storing, maintaining and of providing and maintaining curing facilities will not be paid for as a separate contract pay item, and the costs thereof shall be considered incidental to the contract pay items provided.”

5.8.7 Change last sentence of 1st paragraph to read:

“Measurement for reinforced concrete pavement shall be by the square yard (M²) measured in its final position.”

Add the following paragraph to the end of this subsection:

“Pavement leaveouts, as defined in ITEM 5.8.5 of the Standard Specifications and provided in the proposal and contract as a separate pay item, will be measured for payment per each for every section of pavement left out and requiring a separate placing operation, regardless of the size. Restoration of leaveouts shall be made as directed by the OWNER using a Class, Hand Finish Concrete Mix. Payment will be paid for at the contract unit price per each, which shall be considered full compensation for any added material cost or inconvenience to the CONTRACTOR caused by this disturbance in the sequence of pouring operations.”

Add:

“7.1A REMOVAL OF EXISTING STRUCTURES

7.1A.1 Description: Removal of existing structures shall consist of the removal and satisfactory disposal of all existing structures and pavements, on the surface or below the ground, which are to be abandoned or removed or which interfere in any way with the new construction, which existing structures are designated for removal on the plans, in these specifications or in the special provisions.

Existing structures shall be defined as buildings, foundations, bridges, culverts, headwalls, walls, linings, enclosures, manholes, inlets, cleanouts, valve boxes, pipes,
conduits, junction structures, access structures and other miscellaneous structures or portions thereof of various material composition.

Removal of existing structures shall include the furnishing of all labor, materials and equipment to accomplish the work to the limits and requirements of the plans, these specifications and the special provisions.

7.1A.2 Construction Methods:

(a) Removal of existing structures:

Materials or parts of the structures not designated for salvage or which are designated for salvage but which, in the opinion of the Engineer, are not salvageable or which are designated as surplus shall become the property of the CONTRACTOR and shall be disposed of by him at his own cost and expense at sites approved by the Engineer.

Existing structures which are to be abandoned shall be broken off or removed to a depth of not less than 1 foot below the foundation or subgrade of the new work, unless otherwise provided for in the plans and specifications. Construction of bulkheads and structural plugs shall be done as directed by the Engineer and the cost of such work shall be considered incidental to the contract pay items provided. All operations which might endanger new work shall be completed prior to the construction of the new work. Pavement shall be removed only between the lines indicated on the plans. Surface course and sub-base select materials shall be as nearly as practicable removed separately from earth or other excavated materials, stored and utilized as directed by the Engineer. The edges of all openings shall be trimmed smooth and to line, and the face shall be perpendicular to the subgrade.

After removal of structures, all excavations not to be occupied by new work, and all holes created, shall be backfilled in accordance with ITEM 7.1.3.b of the Standard Specifications with approved materials thoroughly compacted in place in lifts of no more than 8 inch thickness (before compaction) and to a density of at least 90 percent of the maximum density determined by ASTM D698 with moisture content within minus 2 to plus 4 of optimum, except that under paved areas, compaction shall be to a density of at least 95 percent.

Damages to adjacent property or structures shall be repaired in a timely fashion, as directed by the Engineer, and shall be repaired by the CONTRACTOR at his sole cost and expense, and to the satisfaction of the Engineer. Any unsightly places created shall be cleaned up and the site of the work left in a neat, clean and orderly condition.

(b) Removal of Existing Pavement:

Existing concrete pavements, driveways, curbs, gutters, sidewalks, etc., to be removed shall be broken up and disposed of. Care shall be exercised to leave a neat, uniform edge or joint at the excavation limits or sections removed where only portions are to be removed. Removals shall be to the limits shown on the plans, as directed by the Engineer. Materials designated for salvage shall be salvaged in accordance with
ITEM 7.1B of the Standard Specifications. Any additional removal required after the initial removal has been made will be performed to the limits directed by the Engineer and be paid for in the manner as prescribed under ITEM 1.37, "CHANGE OR MODIFICATION OF CONTRACT" of the Standard Specifications.

Removal of asphalt and aggregate pavements shall be considered part of unclassified street excavation work, unless otherwise specifically provided for in the plans and specifications.

7.1A.3 Measurement and Payment: When the removal work is called for in the plans and specifications, with separate pay items for such work included, measurement for payment shall be as required in this special provision. Unless otherwise provided in the special provisions or proposals, no payment shall be made for removal of structures and concrete pavements as such, but such work shall be considered as incidental work and the cost thereof shall be included in the contract pay items provided in the proposal and contract.

When provided for in the proposal and contract, payment for removal of existing structures performed under this special provision shall be made at the unit price bid per each or per lump sum, as specified, for removal of existing structures, which price shall be full compensation for all excavation and backfill; for all breaking up and removal of concrete, steel and associated materials; for loading, hauling, unloading, storage, and disposal of materials and structures, including any disposal fees; and for all materials, labor, tools and incidentals necessary to complete the work in accordance with the plans, specifications and this special provision.

When provided for in the proposal and contract, payment for removal of concrete pavement or modular block paver pavement, when not with concrete base, performed under this special provision shall be made at the unit price bid per square yard of concrete or modular block paver pavement actually removed, to the limits shown in the plans and specifications and as directed by the Engineer. Payment for removal of composite blockpaver and concrete pavements shall be made per square yard of composite pavement actually removed to the limits authorized. Removal of concrete pavement includes removal of variable dimensioned, variable thickness, nonreinforced or reinforced concrete pavement, drives, slabs, integral curbs and aprons. Pay limits shall be to the back of integral curb removed. Removal of integral curbs shall be considered incidental to removal of the pavement.

When provided for, payment for removal of nonreinforced or reinforced concrete sidewalk performed under this special provision shall be made at the unit price bid per square foot of concrete sidewalk removed, to the limits shown in the plans and specifications and as directed by the Engineer. Payment for removal of concrete separate curb or curb with gutter shall be made at the unit price bid per linear foot of concrete curb or curb with gutter actually removed, to the limits shown in the plans and specifications and as directed by the Engineer.
The removal of structures, pavements, sidewalks, curbs, or curbs and gutter in excess of the limits shown in the plans and specifications or in excess of what is directed by the Engineer shall be at the entire cost and expense of the CONTRACTOR and such excess removal areas shall be replaced with adequate structure, pavement and materials as determined and directed by the Engineer, at the CONTRACTOR's entire cost and expense.”

Add:

**REMOVAL AND SALVAGE OF EXISTING STRUCTURES**

7.1B.1 Description: Removal and salvage of existing structures shall consist of the removal and salvage of all existing structures and pavements, on the surface, or below the ground, which are to be removed and salvaged, and which interfere in any way with the new construction and which are designated for removal and salvaging on the plans or in these specifications or in the special provisions.

Existing structures shall be defined in provision REMOVAL OF EXISTING STRUCTURES, 7.1A.1 DESCRIPTION, 2nd paragraph.

Removal and salvaging of existing structures shall include the furnishing of all labor, materials and equipment to accomplish the work to the limits and requirements of the plans and these specifications and of the special provisions.

7.1B.2 Construction Methods:

Removal and salvage of existing structures:

**All structures which are to be salvaged will be designated as such, and shall be removed by the CONTRACTOR under the direction of the Engineer, in such a manner as to prevent their being broken or unduly damaged. The provisions of “REMOVAL OF EXISTING STRUCTURES”, 7.1A.2(a) “Removal of existing structures” shall apply.**

Materials or parts of structures which are designated to be salvaged, such as lumber, pipe, brick, modular block pavers, concrete, gravel, castings, etc., shall be removed in a manner approved by the Engineer, and stacked at the site of their removal as directed by the Engineer, and shall remain the property of the City. The salvaged materials will be removed from the site by the City unless otherwise specified in the plans and specifications.

Materials or parts of the structures not designated for salvage or which are designated for salvage but which in the opinion of the Engineer are not salvageable or which are designated as surplus shall become the property of the CONTRACTOR and shall be disposed of by him at his own cost and expense at sites approved by the Engineer.

7.1B.3 Measurement and Payment: If the removal and salvage work is called for in the plans and specifications, with separate bid items for such work included, measurement for
payment shall be as required in this special provision. Otherwise, no payment shall be made for removal and salvage of structures and concrete pavements as such, but such work shall be considered as incidental work and the cost thereof shall be included in the contract pay items provided in the bid proposal and contract.

If specifically provided for in the bid proposal and contract, payment for removal and salvage of existing structures performed under this special provision shall be made at the unit price bid per each or per lump sum, as specified, for removal and salvage of existing structures which price shall be full compensation for all excavation and backfill; for all removal of concrete, steel and associated materials; for salvage and storage of materials and structures; and for all materials, labor, tools and incidentals necessary to complete the work in accordance with the plans, specifications and this special provision.

When provided for in the proposal and contract, payment for removal and salvage of modular block paver pavement performed under this special provision shall be made at the unit price bid per square yard of modular block paver pavement actually removed and salvaged, to the limits shown in the plans and specifications and as directed by the Engineer. Payment for removal and salvage of composite block paver and concrete pavements shall be made per square yard of composite pavement actually removed, to the limits authorized.

Payment for removal and salvage of concrete separate curb or curb with gutter performed shall be made at the unit price bid per linear foot of concrete curb or curb with gutter actually removed and salvaged, to the limits shown in the plans and specifications and as directed by the Engineer.

The removal and salvage of structures, pavements, curbs, or curbs and gutter in excess of the limits shown in the plans and specifications, or in excess of what is directed by the Engineer, shall be at the entire cost and expense of the CONTRACTOR and such excess removal areas shall be replaced with adequate structure, pavement and materials as determined and directed by the Engineer, at the CONTRACTOR's entire cost and expense.”

Add:

“7.1C

7.1C.1 ADJUSTMENT OF EXISTING STRUCTURES

Description: Adjustment of existing structures shall consist of the adjustment of all existing structures and pavements, on the surface, or below the ground, which are to be adjusted or rebuilt, and which interfere in any way with the new construction and which are designated for adjustment on the plans or in these specifications or in the special provisions.

Adjustment of existing structures shall include the furnishing of all labor, materials and equipment to accomplish the work to the limits and requirements of the plans and these specifications and of the special provisions.
7.1C.2 Construction Methods:

Adjustment of Existing Structures:

Existing structures such as manholes, inlets, cleanouts, valve boxes, pipes, etc. which are designated for adjustment in the plans or specifications shall be adjusted, altered or reset to the required elevation and alignment shown in the plans and specifications, as directed by the Engineer. New materials and workmanship necessary shall conform to the requirements of these specifications covering the particular work. Where manholes are to be built up for 1 foot or less, the walls may be carried up vertically and one new manhole step shall be set in the new wall; where the walls are to be built up for more than 1 foot, the existing walls shall first be removed down to the bottom of the batter or draw-in section of the walls, or to such an elevation that the inside diameter of the manhole is not less than 3-1/2 feet, the manhole shall then be rebuilt in conformity with the size and shape requirements for new manholes. Salvaged materials in good condition may be used in rebuilding such structures with consent of the Engineer, provided the materials are thoroughly cleaned before their use.

7.1C.3 Measurement and Payment: If the adjustment of existing structures work is called for in the plans and specifications, with separate bid items for such work included, measurement for payment shall be as required in this item. Otherwise, no payment shall be made for adjustment of structures and concrete pavements as such, but such work shall be considered as incidental work and the cost thereof shall be included in the contract pay items provided in the bid proposal and contract.

If specifically provided for in the bid proposal and contract, payment for adjusting of existing structures performed under this special provision shall be made at the unit price bid per each or per lump sum, as specified, for adjusting of existing structures, which price shall be full compensation for all excavation and backfill; for all breaking up and removal of concrete, steel and associated materials; and for all materials, labor, tools and incidentals necessary to complete the work in accordance with the plans, specifications and this special provision.”

7.4.4 Delete in its entirety and revise to read as follows:

“7.4.4. CONCRETE MIX DESIGN AND CONTROL: At least ten days prior to the start of concreting operations, the CONTRACTOR shall submit to the OWNER a design of the concrete mix he proposes to use together with samples of all materials to be incorporated into the mix and a full description of the source of supply of each material component. The proposed batch designs must be submitted to the Project Engineer on the approved form. The design of the concrete mix shall produce a concrete complying with these specifications and meet the requirements of ACI 318 (1992), PART 3 CONSTRUCTION REQUIREMENTS, CHAPTER 5, Concrete Quality, except as amended by these provisions. The concrete mix design shall include the following information:
(1) Design Requirements and Design Summary;
(2) Material Source;
(3) Dry weight of cement/cu. yd. and type;
(4) Dry weight of fly ash/cu. yd. and type, if used;
(5) Saturated surface dry weight of fine and coarse aggregates/cu. yd.;
(6) Design water/cu. yd.;
(7) Quantities, type, and name of admixtures with manufacturer's data sheets;
(8) Current strength tests or strength tests in accordance with ACI 318;
(9) Current Sieve Analysis and -200 Decantation of fine and coarse aggregates and date of tests;
(10) Fineness modulus of fine aggregate and Insoluble Residue Values;
(11) Specific Gravity and Absorption Values of fine and coarse aggregates; and
(12) L.A. Abrasion of coarse aggregates.

Exhibit 1, attached, is a copy of the required form which must be used for all batch design submittals.

Exhibit 4, attached, is a copy of an acceptable batch design for information purposes only, which gives the required information. Concrete shall not be placed on projects until an approved batch design is on file with the Construction Services Division. The concrete batch designs shall be submitted to the Project Engineer for review and approval. Upon approval, the approved batch design shall be submitted to the Project Manager of the Construction Services Division for filing and authorization to proceed.
EXHIBIT 1

CONCRETE MIX DESIGN

DESIGN NO. ___
DATE: _______

Client: 
Project: 
Required: 
Design: 
Summary: 

Calculated Unit Weight: (PCF) _______
Measured Unit Weight (PCF) _______
Measured Slump: (inches) _______
Measured Air Content (percent) _______

Materials:

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<th>Materials</th>
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TOTAL 27.00 CU. FT.

CONFIRMATION TESTS
Compressive Strength (PSI)

7-Day          28-day
_____          _____
_____          _____

7.4.4

EXHIBIT 1 (continued)

DESIGN NO. ____

SUMMARY OF RESULTS
Sieve Analysis
Date: _________

Fine Aggregates

* Percent Passing *

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<thead>
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<th>Sieve Size</th>
<th>Specifications</th>
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<tr>
<td>#8</td>
<td>80 - 100</td>
</tr>
<tr>
<td>#16</td>
<td>50 - 85</td>
</tr>
<tr>
<td>#30</td>
<td>25 - 60</td>
</tr>
<tr>
<td>#50</td>
<td>10 - 30</td>
</tr>
<tr>
<td>#100</td>
<td>0 - 10</td>
</tr>
<tr>
<td>% Passing #200 by Decantation:</td>
<td>Max. 3.0</td>
</tr>
</tbody>
</table>

Fineness Modules: ** ________

2.3-3.1

Insoluble Residue In Carbonate Aggregates: Min. 28

Specific Gravity (SSD):
Absorption:

* The difference between the percent passing any two consecutive sieve sizes shall not exceed 45.0%.

** Maximum variation during production: 0.2.

Coarse Aggregate

<table>
<thead>
<tr>
<th>Sieve Size</th>
<th>Percent Passing</th>
<th>Grade Specifications</th>
</tr>
</thead>
</table>

Specific Gravity (SSD):
Absorption:

L.A. Abrasion, % Loss: Max. 45
EXHIBIT 4

EXAMPLE
CONCRETE MIX DESIGN

DESIGN NO. 5
DATE: 6/23/91

Client: XYZ
Project: C.A. Street
Required: Class "C" 3,600 psi at 28 days; Max. 5 inch slump
Air 5.0% ± 1.5%

Design Average Strength: 7-day 4447 28-day 5340

Summary:
Cement 6 sacks cement/cubic yard w/20% Fly Ash Replacement
C.A. 61 percent coarse aggregate.
F.A. 39 percent fine aggregate.
Water 32 gals. water cement ratio 0.45
Additive AEA - Pave Air 1.0 Fl. Oz./sack cement

Calculated Unit Weight: (PCF) 144.0
Measured Unit Weight (PCF) 144.2
Measured Slump: (inches) 4.5"
Measured Air Content (percent) 5.0%

Materials:
Fly Ash: Gifford Hill Caisson, Texas
Cement: Type I North Texas Cement Midlothian, Texas
C.A.: Gifford Hill Bridgeport, Texas
F.A.: Manuf.Sand Gifford Hill(Perch Hill) Chico, Texas
Natural Sand Gifford Hill Thackerville, Oklahoma
Additives: AEA - Pave Air Master Builders (ASTM C-260)
Water Reducer: NONE (ASTM C-494)

Batch Proportions (one cubic yard)

<table>
<thead>
<tr>
<th>Materials</th>
<th>Weight (lbs)</th>
<th>Absolute Volume</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cement</td>
<td>451</td>
<td>2.29</td>
</tr>
<tr>
<td>Fly Ash</td>
<td>141</td>
<td>0.82</td>
</tr>
<tr>
<td>C.A.</td>
<td>1861 SSD (61%)</td>
<td>11.14</td>
</tr>
<tr>
<td>Natural F.A.</td>
<td>933 SSD (39%)</td>
<td>5.70</td>
</tr>
<tr>
<td>Manufactured F.A.</td>
<td>236</td>
<td>1.42</td>
</tr>
<tr>
<td>Water</td>
<td>267 (32 gal.)</td>
<td>4.28</td>
</tr>
<tr>
<td>A.E.A.</td>
<td>6 oz. 5%</td>
<td>1.35</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>27.00 CU.FT.</strong></td>
<td></td>
</tr>
</tbody>
</table>

CONFIRMATION TESTS
Compressive Strength (PSI)

<table>
<thead>
<tr>
<th>7-Day</th>
<th>28-day</th>
</tr>
</thead>
<tbody>
<tr>
<td>4430</td>
<td>5300</td>
</tr>
<tr>
<td>4470</td>
<td>5360</td>
</tr>
<tr>
<td>4440</td>
<td>5360</td>
</tr>
</tbody>
</table>
7.4.4

EXHIBIT 4 (continued)

DESIGN NO. 5

SUMMARY OF RESULTS

Sieve Analysis
Date: 06/23/91

Fine Aggregates

Percent Passing

<table>
<thead>
<tr>
<th>Sieve Size</th>
<th>Perch Hill Manufactured</th>
<th>Natural</th>
<th>Combined</th>
<th>Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>3/8&quot;</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>#4</td>
<td>99.4</td>
<td>98.6</td>
<td>98.8</td>
<td>95 - 100</td>
</tr>
<tr>
<td>#8</td>
<td>84.9</td>
<td>90.3</td>
<td>89.2</td>
<td>80 - 100</td>
</tr>
<tr>
<td>#16</td>
<td>54.9</td>
<td>80.0</td>
<td>75.0</td>
<td>50 - 85</td>
</tr>
<tr>
<td>#30</td>
<td>33.8</td>
<td>55.0</td>
<td>50.8</td>
<td>25 - 60</td>
</tr>
<tr>
<td>#50</td>
<td>19.1</td>
<td>17.8</td>
<td>18.1</td>
<td>10 - 30</td>
</tr>
<tr>
<td>#100</td>
<td>8.8</td>
<td>2.1</td>
<td>3.4</td>
<td>0 - 10</td>
</tr>
</tbody>
</table>

% Passing #200 by Decantation: 3.60

Fineness Modulus: 2.647

Insoluble Residue: 38.0

Specific Gravity (SSD): 2.68

Absorption: 1.5

* 20% Manufactured 80% Natural

Coarse Aggregate

Gifford Hill Crushed Limestone

<table>
<thead>
<tr>
<th>Sieve Size</th>
<th>Percent Passing</th>
<th>NCTCOG Grade 2 Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>2&quot;</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>1-1/2&quot;</td>
<td>99.4</td>
<td>95 - 100</td>
</tr>
<tr>
<td>3/4&quot;</td>
<td>45.6</td>
<td>40 - 70</td>
</tr>
<tr>
<td>3/8&quot;</td>
<td>18.4</td>
<td>10 - 30</td>
</tr>
<tr>
<td>#4</td>
<td>1.8</td>
<td>0 - 5</td>
</tr>
</tbody>
</table>

% Passing #200 by Decantation: 0.6

Specific Gravity (SSD): 2.68

Absorption: 0.8

L.A. Abrasion, % Loss: 29.0

Max. 1.0

Max. 45
All material samples submitted to the OWNER shall be sufficiently large to permit laboratory batching for the construction of test specimens to check the adequacy of the design. When the design mix has been approved by the OWNER, there shall be no change or deviation from the proportions thereof or sources of supply except as hereinafter provided. No concrete may be placed on the job site until the mix design has been approved by the OWNER in writing to the CONTRACTOR.”

7.4.5

(a) Delete in its entirety and substitute the following:

“If the strength or consistency required for the class of concrete being produced is not secured with the minimum cement specified or without exceeding the maximum water/cement ratio, the CONTRACTOR may use, or the OWNER may require, an approved cement dispersing agent (water reducer); or the CONTRACTOR shall furnish additional aggregates, or aggregates with different characteristics, or the CONTRACTOR may use additional cement in order to produce the required results. The additional cement may be permitted as a temporary measure, until aggregates are changed and designs checked with the different aggregates or cement dispersing agent.

The CONTRACTOR is solely responsible for the quality of the concrete produced. The OWNER reserves the right to independently verify the quality of the concrete through inspection of the batch plant, testing of the various materials used in the concrete and by casting and testing concrete cylinders or beams on the concrete actually incorporated in the structure.

<table>
<thead>
<tr>
<th>Structural Concrete</th>
<th>Desired Slump</th>
<th>Maximum Slump</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a) Cased Drilled Shafts and Thin Walled Sections (9 inches or less)</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>(b) Slabs, Caps, Columns, Piers, Wall Sections over 9 inches, etc...</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Underwater or Seal Concrete</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>Riprap, Curb, Gutter and Other Miscellaneous Concrete</td>
<td>As Specified by OWNER</td>
<td></td>
</tr>
</tbody>
</table>

NOTE: No concrete shall be permitted with slump in excess of the maximums shown. Any concrete mix failing to meet the above consistency requirements, although meeting the slump requirements, shall be considered unsatisfactory; and the mix shall be changed to correct such unsatisfactory conditions.”

7.4.5

(b) Delete in its entirety and replace with the following:

“(b) Other Concrete Qualities: The concrete shall be uniform and workable. The cement content, maximum allowable water cement ratio, the average and maximum slump and the strength requirements of the various classes of concrete shall conform to the requirements of the following table, and as required herein.
### TABLE -- CLASSES OF CONCRETE

<table>
<thead>
<tr>
<th>Class of Concrete</th>
<th>Minimum Cement Contents per cubic yard lbs./cy.</th>
<th>Minimum Comp. Strength sacks/cy.</th>
<th>Min. Beam Strength 28 day, PSI **</th>
<th>Max. Water Cement Ratio *****</th>
<th>Coarse Aggr. No. Item 2.1.1.(c)(4) and Amendments Thereto</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>470</td>
<td>5.0</td>
<td>3000</td>
<td>500</td>
<td>0.58</td>
</tr>
<tr>
<td>B</td>
<td>376</td>
<td>4.0</td>
<td>2000</td>
<td>330</td>
<td>0.71</td>
</tr>
<tr>
<td>C</td>
<td>564</td>
<td>5.0</td>
<td>3600</td>
<td>600</td>
<td>0.53</td>
</tr>
<tr>
<td>D</td>
<td>282</td>
<td>3.0 *</td>
<td>1500</td>
<td>250</td>
<td>0.97</td>
</tr>
<tr>
<td>E</td>
<td>564</td>
<td>5.0</td>
<td>3000</td>
<td>500</td>
<td>0.62</td>
</tr>
<tr>
<td>F</td>
<td>611</td>
<td>5.5</td>
<td>4200</td>
<td>700</td>
<td>0.49</td>
</tr>
<tr>
<td>H***</td>
<td>611</td>
<td>5.5</td>
<td>As specified on plans</td>
<td>N.A.</td>
<td>0.49</td>
</tr>
</tbody>
</table>

* Entrained Air will be required in all concrete exposed or partially exposed to the elements.

** No. 1 coarse aggregate may be used in foundations only (except cased drilled shafts).

*** Prestressed Concrete.

**** ASTM C 293 (Center Point).

***** The maximum water/cement ratio in pounds/pound will be computed based on total Cementitious Material

NOTE: With the approval of the OWNER, Fly ash may be used to replace a portion of the minimum cement in accordance with ITEM 2.2.2.
Entrained air will be required in all concrete exposed or partially exposed to the elements. The concrete will be designed to entrain 5 percent air when Grade 1 or 2 Coarse Aggregate is used, 6 percent when Grade 3 Coarse Aggregate is used and 7 percent for Grade 4, unless otherwise shown on the plans. Concrete as placed in the structure shall contain the proper amount of air as required herein with a tolerance of plus or minus the 1.5 percentage points. Entrained air shall conform to the requirements of Item 2.2.2.

During the progress of the work, the OWNER shall cast a set of four test cylinders or two test beams, perform slump and entrained air tests and will make temperature checks, as required to ensure compliance with the specifications. As a minimum, these tests will be required for each 40 cubic yards, or portion thereof, placed each day. For small placements, tests may be made for each 25 cubic yards placed over a several-day period.

The two test beams shall be tested at an age of 7-days for compliance with the specified strength. Two cylinders shall be tested at 7-days and the remaining two cylinders shall be tested at an age of 28-days for specification compliance.

Additional test specimens, beams or cylinders, representing tests for removal of forms and/or false work shall be cured using the same methods and under the same conditions as the concrete represented.

The CONTRACTOR shall be responsible for the proper storage, maintenance, and any required curing of concrete test samples made by the OWNER.

The CONTRACTOR, if directed by the OWNER, shall provide and maintain curing facilities for the purpose of curing concrete test specimens. Provisions shall be made to maintain the water in the curing tank at temperatures between 70 degrees Fahrenheit (21°C) and 90° Fahrenheit (32°C). The cost of all materials used in test specimens and the cost of storing, maintaining and of providing and maintaining curing facilities will not be paid for as a separate contract pay item, and the costs thereof shall be considered incidental to the contract pay items provided.

Additional cylinders or beams may be made by the OWNER as required by concrete placing conditions, or for adequately determining the strength of the concrete where the early use of the structure is dependent upon the concrete strength tests. No extra compensation will be paid to the CONTRACTOR for materials and labor involved in fulfilling these requirements.

Concrete which shall meet the specified design strength requirements within 28-days after the placement, shall be considered of acceptable strength. Job control shall be by seven-day compressive tests which are shown to provide the required 28-day strength, based on results from trial batches. If the required seven-day strength is not secured with the cement specified in Table -- CLASSES OF CONCRETE, changes in the batch design shall be made as specified in ITEM 7.4.5. The test cylinders shall be tested at the age of 28 days in order to determine the compressive strength. Should any set of test cylinders representing a given area or section of the structure fail to meet the strength requirements, that area shall be considered to be composed of concrete having deficient compressive strength.

For any area having a deficient compressive strength, the CONTRACTOR shall have the privilege of cutting cores for a final compressive strength check, if, in the opinion of the OWNER, it is practicable or advisable to core the particular area or section
involved. The cores shall be cut and tested within thirty days after the concrete has reached the age of 28 days, from locations designated by the OWNER. A minimum of two cores of approved dimensions for each area in question shall be taken from locations designated by the OWNER for a compressive strength value. A compressive strength value shall be the average of the strengths of all cores taken for that area. For any designated area, a maximum of four cores will be permitted to be cut and tested for determining the compressive strength value. The CONTRACTOR may cut additional cores for the purpose of defining the area of deficient strength, if approved by the OWNER.

The cores shall be tested by standard laboratory methods, and the strengths determined thereby shall be conclusive. In order to fulfill the requirements of this special provision, the strength of the cores shall not be less than the specified compressive strength. The cost of cutting cores, testing, and making subsequent repairs to the structure shall be at the entire expense of the CONTRACTOR.

If, in the opinion of the OWNER, it is not practicable or advisable to core the particular area or section of the structure in question, the compressive strength value as determined by the test cylinders shall be conclusive.

For areas or sections of the structure having a deficient compressive strength, the OWNER will require that the deficient area be removed and replaced with concrete conforming to the requirements of these specifications at the entire cost and expense of the CONTRACTOR; or the OWNER may require that an adjustment of payment be made in accordance with the requirements hereinafter specified. The OWNER will decide which course of action will be in the best interest of the OWNER, and the OWNER’S decision will be final.

The minimum compressive strength for concrete used in reinforced concrete load-carrying structures shall not be less than that specified. Concrete having deficient strength as determined by the procedure described in this special provision and ITEM 7.4.5 of the Standard Specifications will be removed and that portion of the structure rebuilt.

The area of concrete concerned in the adjustment or removal shall be the designated area represented by the compressive strength values determined as herein above specified. The area to be measured for adjustment or removal shall be determined in the manner directed by the OWNER.

The cost of removal and replacement of any structure or portion of a structure due to deficient concrete strength shall be borne totally by the CONTRACTOR. For nonload-carrying structures, if the concrete compressive strength is less than the minimum required strength, the amount of reasonable liquidated damages per cubic yard of concrete having a deficient strength shall be in accordance with the following table:

<table>
<thead>
<tr>
<th>Percent Deficient</th>
<th>Amount of Liquidated Damages</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-5%</td>
<td>5% of Concrete Unit Price/CY</td>
</tr>
<tr>
<td>Greater than 5% - Not more than 10%</td>
<td>10% of Concrete Unit Price/CY</td>
</tr>
<tr>
<td>Greater than 10% - Not more than 15%</td>
<td>20% of Concrete Unit Price/CY</td>
</tr>
</tbody>
</table>
The amount of Liquidated Damages shall be deducted from payment due or to become due to the CONTRACTOR; the purpose of the deduction is to defray the cost of extra maintenance, which cost is fixed because of the impracticability and extreme difficulty of figuring the actual cost, and such amounts are agreed to be the damages the OWNER would sustain and retain from any contract amounts due.

All concrete having a strength more than 15 percent deficient shall be removed and replaced with concrete meeting the requirements of these specifications at the entire cost and expense of the CONTRACTOR.”

Add:
“7.4.5. (c) DELIVERY TICKETS

For transit mix operations, the Manufacturer of the concrete shall, before unloading, furnish to the purchaser with each batch of concrete at the site, a delivery ticket on which is printed, stamped, or written, the following information to determine that the concrete was proportioned in accordance with the approved mix design.

(1) Name of concrete supplier,
(2) Serial number of ticket,
(3) Date,
(4) Truck number,
(5) Name of purchaser,
(6) Specific designation of job (name and location),
(7) Specific class, design identification and designation of the concrete in conformance with that employed in job specifications,
(8) Amount of concrete in cubic yards (or cubic meters),
(9) Time loaded or of first mixing of cement and aggregates,
(10) Water added by receiver of concrete and his initials,
(11) Weight of cement,
(12) Weight of fly ash,
(13) Type and amount of admixtures,
(14) Information necessary to calculate the total mixing water added by the producer. Total mixing water includes free water on the aggregates, water and ice batched at the plant, and water added by the truck operator from the mixer tank,
(15) Maximum size of aggregate, and
(16) Weights of fine and coarse aggregate.

An example of a delivery ticket is provided on Exhibit 3, attached.

For on-site concrete plant operations, the CONTRACTOR shall supply to the OWNER a batch ticket with the following information and for each continuous paving operation, provide receipts and invoices to substantiate the amounts of cement and fly ash used in the placement.

(1) At the beginning of each days placement, a list of the actual batch weights to be used, shall be given to the OWNER.
(2) When any changes are made, a new list of weights shall be given to the OWNER.”
EXHIBIT 3

Typical Concrete Batch Delivery Ticket
(Example)

<table>
<thead>
<tr>
<th>LOAD TIME</th>
<th>10 JOB</th>
<th>ARMEN JOB SITE</th>
<th>SLUMP POUR</th>
<th>TUDGE POUR</th>
<th>LEAVE JOB SITE</th>
<th>ARMEN PLANT</th>
</tr>
</thead>
<tbody>
<tr>
<td>9:57</td>
<td>100</td>
<td></td>
<td>05</td>
<td>10:00</td>
<td>10:30</td>
<td></td>
</tr>
</tbody>
</table>

WATER ADDED TO JOB AT CUSTOMER'S REQUEST:
ADDITIONAL WATER ADDED TO THIS CONCRETE WILL REDUCE ITS STRENGTH. ANY WATER ADDED IN EXCESS OF SPECIFIED SLUMP IS AT CUSTOMER'S RISK.

TEST CYL TAKEN: YES [ ] NO [ ]

P. O. BOX 400 ARLINGTON, TEXAS 76010

EFFECTIVE YIELD:

<table>
<thead>
<tr>
<th>PLANT ID</th>
<th>BATCH NUMBER</th>
<th>DATE</th>
<th>START BATCH</th>
<th>TRUCK</th>
<th>MOISTURE 1</th>
<th>MOISTURE 2</th>
<th>DESIGN</th>
<th>QUANTITY</th>
<th>INGR TARGET</th>
</tr>
</thead>
<tbody>
<tr>
<td>31</td>
<td>Z9481</td>
<td>5/27/92</td>
<td>09:55</td>
<td>31</td>
<td>3.0</td>
<td>0.0</td>
<td>Z9481</td>
<td>10.0</td>
<td>LOAD</td>
</tr>
</tbody>
</table>

INGREDIENTS:
- CEM1: 6,580
- AGG3: 12,493
- AGG2: 20,700
- ADM1: 64.4

LOAD:
- WATER: 239.0

END BATCH: 09:57
7.6.9 (a) Correct the words “35°F or 79°F” to read “35°F to 79°F”

Change fifth paragraph to read:

“The use of an approved cement retarding agent in the concrete shall permit the extension of each of the above temperature-time maximums by 30 minutes, except that for non-agitated concrete, the maximum time shall not exceed 30 minutes.”