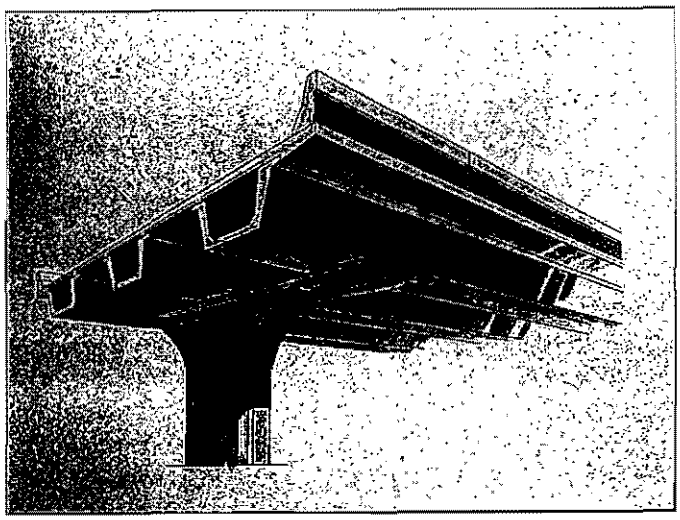
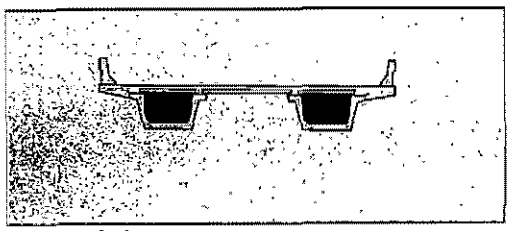
ARAPAHO RD BRIDGE

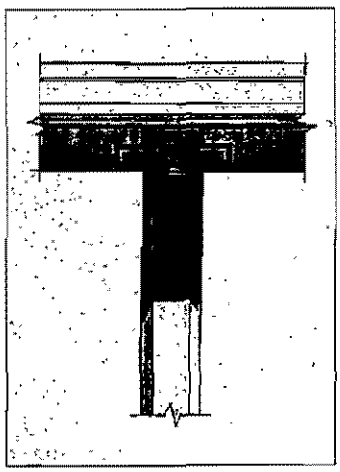
TEXAS U-BEAMS



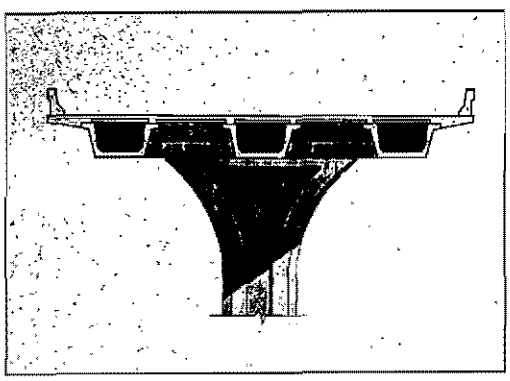
Perspective View of Typical Framed-In Cap



Typical Ramp Section



Framed-In Cap Beam



Typical Multi-Cell Section

HNTB

URS Corporation

Arapaho Road Bridge at Midway Road
Design Development and Contract Documents
Change Order No. 03 to Work Order No. 001

ATTACHMENT M

Revised Estimated Schedule

TASK DESCRIPTION	October 2002	November 2002	December 2002	January 2003	February 2003	March 2003	April 2003	May 2003	June 2003	July 2003	August 2003	September 2003	October 2003	November 2003	December 2003	January 2004	February 2004	March 2004	April 2004	May 2004
Notice to Proceed (NTP)		◆																		
DWU Coordination Issues		▬	▬	▬	▬	▬														
NTP For Prelim. Design						◆														
Preliminary Design Development						▬	▬	▬												
Preliminary Geotech								◆												
Preliminary Grading at Arch								◆												
Finalize Bridge Layouts								▬	▬											
Expert Testimony for Condemnation							▬	▬												
Final Concepts (~30% Plans)									◆											
Addison Review									▬	▬										
Presentation to Town Council										◆										
Revise Concepts										▬	▬									
Presentation to Town Council											◆									
Revise Preliminary Design											▬	▬	▬	▬						
Lighting Concepts														▬	▬	▬				
Final Geotechnical Report														◆						
Final Grading Plans														◆						
Final Design														▬	▬	▬	▬			
Intermediate Design Submittal (60% Plans)																◆				
Addison Review																▬	▬			
Presentation to Town Council																	◆			
Bridge Drainage Requirements																	◆			
Final Design & Construction Documents																	▬	▬	▬	
Final Design Submittal (95% Plans)																			◆	
Addison Review																			▬	
Incorporate Comments, Final PS&E																			▬	▬
Signed and Sealed PS&E (100%)																				◆

◆ NTP

◆ REQ'D INFORMATION FROM TOWN'S CONSULTANT

◆ SUBMITTAL

URS Corporation

Arapaho Road Bridge at Midway Road
Design Development and Contract Documents
Change Order No. 03 to Work Order No. 001

ATTACHMENT M

Revised Estimated Schedule

TASK DESCRIPTION	October 2002	November 2002	December 2002	January 2003	February 2003	March 2003	April 2003	May 2003	June 2003	July 2003	August 2003	September 2003	October 2003	November 2003	December 2003	January 2004	February 2004	March 2004	April 2004	May 2004
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Preliminary Geotech								◆												
Preliminary Grading at Arch								◆												
Finalize Bridge Layouts								▬	▬											
Expert Testimony for Condemnation							▬	▬												
Final Concepts (~30% Plans)									◆											
Addison Review									▬	▬										
Presentation to Town Council										◆										
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Revise Preliminary Design											▬	▬	▬							
Lighting Concepts														▬	▬					
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Final Grading Plans														◆						
Final Design														▬	▬	▬				
Intermediate Design Submittal (60% Plans)																◆				
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Bridge Drainage Requirements																	◆			
Final Design & Construction Documents																	▬	▬		
Final Design Submittal (95% Plans)																		◆		
Addison Review																		▬		
Incorporate Comments, Final PS&E																		▬		
Signed and Sealed PS&E (100%)																		◆		

◆ NTP

◆ REQ'D INFORMATION FROM TOWN'S CONSULTANT

◆ SUBMITTAL

URS Corporation
Arapaho Road Bridge at Midway Road
Design Development and Contract Documents
Change Order No. 03 to Work Order No. 001

ACTUAL 35% COMPLETE 12/17/03

ATTACHMENT M

Revised Estimated Schedule

TASK DESCRIPTION	October 2002	November 2002	December 2002	January 2003	February 2003	March 2003	April 2003	May 2003	June 2003	July 2003	August 2003	September 2003	October 2003	November 2003	December 2003	January 2004	February 2004	March 2004	April 2004	May 2004
Notice to Proceed (NTP)		◆																		
DWU Coordination Issues		▬	▬	▬	▬	▬														
NTP For Prelim. Design						◆														
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Final Design														▬	▬	▬	▬			
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Final Design Submittal (95% Plans)																		◆		
Addison Review																		▬		
Incorporate Comments, Final PS&E																			▬	
Signed and Sealed PS&E (100%)																				◆

DELAYED!

◆ NTP

◆ REQ'D INFORMATION FROM TOWN'S CONSULTANT

◆ SUBMITTAL

MEET W/ URS
@ 2:00 P.M.
ON JANUARY 14, 2003
AT URS OFFICE

635
630
625
620
615
610
605

COTTON BELT RAILROAD
RIGHT OF WAY

20ft-01in
2ft-01in
22ft-01in
22ft-01in
5ft-01in
1ft-01in
1ft-01in

633.54
611.84
608.90

13'-14'

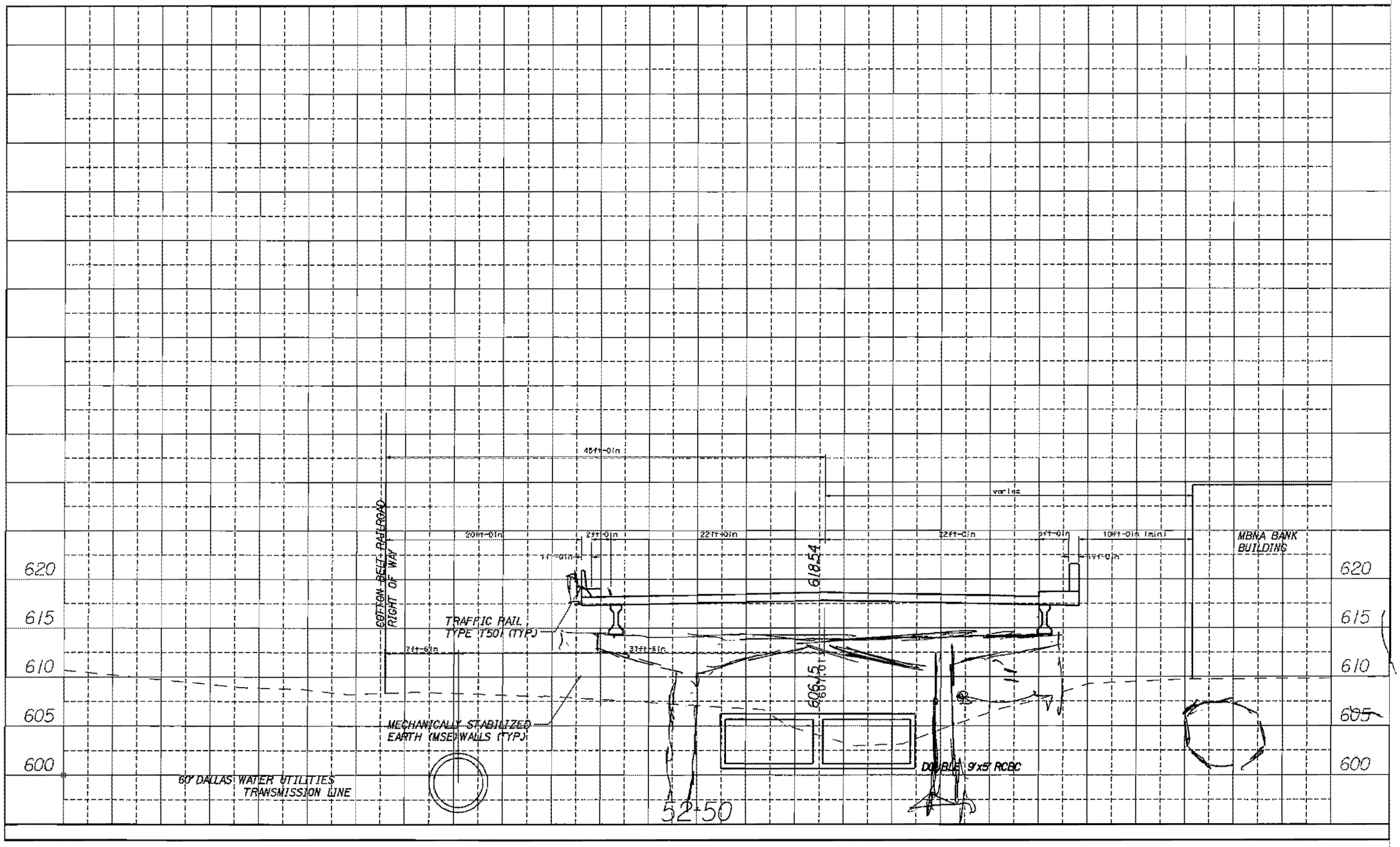
CHARTER FURNITURE

45ft-01in

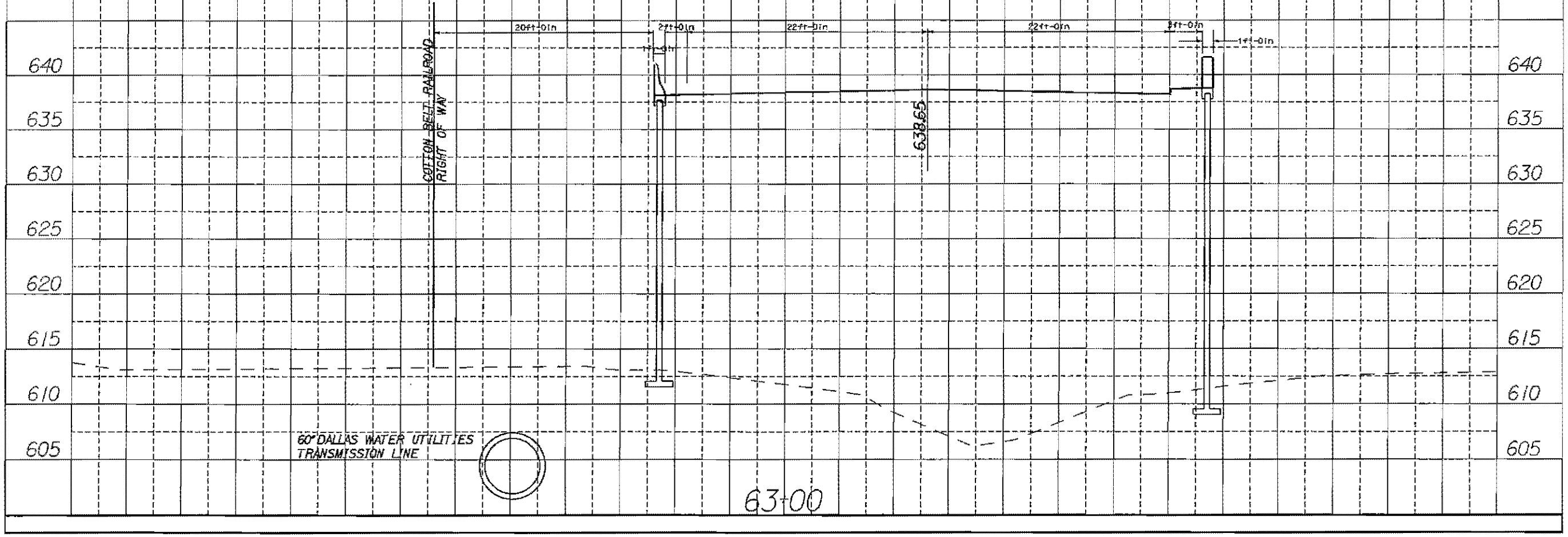
60" DALLAS WATER UTILITIES
TRANSMISSION LINE

DOUBLE 9'x5' RCBC

57-00



I beams on 8' centers


20ft-01in
21ft-01in
22ft-01in
22ft-01in
3ft-07in
1ft-01in
638.65
COTTON BELT RAILROAD
RIGHT OF WAY
640
635
630
625
620
615
610
605
60" DALLAS WATER UTILITIES
TRANSMISSION LINE
63+00


120ft-0in
22ft-0in
7ft-0in
7ft-0in
22ft-0in
COTTON BELT RAILROAD
RIGHT OF WAY
628.00
640
635
630
625
620
615
610
605
82+00

AGREEMENT FOR PROFESSIONAL SERVICES
("Agreement")

This Agreement between the **Town of Addison, Texas** , ("Client") and **URS Corporation** ("URS"), a **Nevada** corporation; **Graystone Centre, 3010 LBJ Freeway, Suite 1300 75234; 972.406.6950** ("URS"), is effective as of **September 11, 2002** . The parties agree as follows:

~~It is the expressed intent of the parties that this Agreement shall be made available to the subsidiaries and affiliated companies of URS. For the purposes of this Agreement, as it applies to each Work Order, the term "URS" shall mean either, **URS Corporation** , or the affiliated company identified in the Work Order. The applicable Work Order shall clearly identify the legal name of the affiliate or subsidiary accepting the Work Order.~~

ARTICLE I - Work Orders. The Scope of Services ("Services"), the time schedule ("Time Schedule") and the charges for the Services ("Charges") are to be set forth in a written Work Order which is supplementary to this Agreement. The terms and conditions of this Agreement shall apply to each Work Order, except to the extent expressly modified by the Work Order. Where Charges~~charges~~ are "not to exceed" a specified sum, all Services shall be provided by URS for Charges which do not exceed the specified sum~~URS shall notify Client before such sum is exceeded and shall not continue to provide the Services beyond such sum unless Client authorizes an increase in the sum~~. If a "not to exceed" sum is broken down into budgets for specific tasks, the task budget may be exceeded without Client authorization as long as the total sum is not exceeded. Changes in conditions which directly affect the Services, including, without limitation, changes in laws or regulations occurring after the budget is established or other circumstances beyond URS control shall be a basis for equitable adjustments in the budget and Time Schedule~~schedule~~.

ARTICLE II - Payment.

A. Unless otherwise stated in a~~an~~ Work Order, payment shall be on a time and materials basis under the Schedule of Fees and Charges set forth in the Work Order which are in effect when the Services are performed. Client shall pay undisputed portions of each progress invoice within thirty (30) days of the date of the Client's receipt of an invoice from URS. If payment is not maintained on a timely~~thirty (30) day current~~ basis, URS may suspend further performance until payments are current. Client shall notify URS of any disputed amount within fifteen (15) days from date of the Client's receipt of the invoice, give reasons for the objection, and ~~promptly~~ pay the undisputed amount in accordance herewith. Client shall pay interest on any overdue payment at the rate~~an additional charge~~ of one ~~and one-half~~ percent (1½%) per month or the maximum percentage allowed by law, whichever is the lesser~~, for any past due amount~~. In the event of a legal action for invoice amounts not paid in accordance with this Agreement and the Work Order, attorneys' fees, court costs, and other related expenses shall be paid to the prevailing party.

B. URS shall submit to Client an invoice or billing statement for all work performed hereunder in form and substance satisfactory to Client. All invoices or billing statements shall include a statement of Services rendered and the amount owed in connection therewith, an itemized statement of reimbursable costs and expenses incurred, and the sum of all prior payments for the Services set forth in the letter agreement dated February 21, 2002 (Exhibit A). The cumulative amounts of progress payments for the Services shall not exceed the Charges. URS shall not be entitled to any compensation for any services or work not actually performed or for any lost profits as a result of any abandonment or suspension of work by the Client. URS shall perform all work hereunder in a manner satisfactory and acceptable to the Client in accordance with the standard of care set forth in this Agreement.

C. Notwithstanding any other provision of this Agreement or the Work Order, Client shall not be obligated to make payment to URS hereunder if:

1. URS is in default of any of its obligations under this Agreement, the Work Order, or any other documents in connection with the Services (and payment may be withheld to the extent of any such default);

2. Any part of such payment is attributable to any services of URS which are not performed in accordance with this Agreement;

3. URS has failed to make payment promptly to consultants or other third parties used by URS in connection with URS' services hereunder for which the Client has made payment to URS; or

4. If the Client, in its good faith judgment and after consultation with URS, determines that the portion of the compensation then remaining unpaid will not be sufficient to complete the Services hereunder, no additional payments will be due URS hereunder unless and until URS performs a sufficient portion of the Services so that such portion of the compensation remaining unpaid is determined by Client to be sufficient to complete the Services.

ARTICLE III - Professional Responsibility. URS is obligated to comply with applicable standards of professional care in the performance of the Services. Client recognizes that opinions relating to environmental, geologic, and geotechnical conditions are based on limited data and that actual conditions may vary from those encountered at the times and locations where the data are obtained, despite the use of due professional care.

URS represents and warrants that it is authorized to practice engineering in the State of Texas and that any necessary licenses, permits or other authorization to practice engineering and to provide the Services set forth herein have been heretofore acquired as required by law, rule or regulation. Notwithstanding anything herein to the contrary, URS and Client agree and acknowledge that Client is entering into this Agreement in reliance on URS' professional abilities with respect to performing the Services set forth herein. URS agrees to use its professional skill, judgment and abilities in the performance of its Services hereunder, and shall render Services under this Agreement and in connection with the project in accordance with the professional standards of engineering prevailing in the Dallas-Fort Worth metroplex area and shall use the skill and care commensurate with the requirements of the engineering profession. URS shall perform its Services in accordance with all laws, regulations, and rules in accordance with the standard of care set forth herein. Without in any way limiting the foregoing or any other provision of this Agreement, URS shall be liable to the Client for any and all damages, injuries, liability, or other harm of whatever nature to the extent caused by or resulting from any negligent, grossly negligent, or intentionally wrongful errors, acts or omissions of URS, or URS' directors, partners, officers, employees, agents, contractors, subcontractors, or any person or entity for whom URS is legally liable, in the provision of its Services under this Agreement, and for other breaches by URS to the extent URS was negligent, grossly negligent, or intentionally wrongful in its performance of professional services under this Agreement.

ARTICLE IV - Responsibility for Others. URS shall be responsible to Client for URS Services and the services of URS directors, partners, officers, employees, agents, contractors, subcontractors, or any person or entity for whom URS is legally liable. URS shall not be responsible for the acts or omissions of other parties engaged by Client nor for their construction means, methods, techniques, sequences, or procedures, or their health and safety precautions and programs.

~~**ARTICLE V - Risk Allocation.** The liability of URS, its employees, agents and subcontractors (referred to collectively in this Article as "URS"), for Client's claims of loss, injury, death, damage, or expense, including, without limitation, Client's claims of contribution and indemnification, express or implied, with respect to third party claims relating to services rendered or obligations imposed under this Agreement, including all Work Orders, shall not exceed in the aggregate:~~

~~(1) The total sum of $250,000 for claims arising out of professional negligence, including errors, omissions, or other professional acts, and including unintentional breach of contract; and any actual or potential environmental pollution or contamination, including, without limitation, any actual or threatened release of toxic, irritant, pollutant, or waste gases, liquids, or solid materials, or failure to detect or properly evaluate the presence of such substances, except to the extent such release, threatened release, or failure to detect or evaluate is caused by the willful misconduct of URS; or~~

~~(2) The total sum of $1,000,000 for claims arising out of negligence, breach of contract, or other causes for which URS has any legal liability, other than as limited by (1) above.~~

ARTICLE VI – Insurance; Indemnity.

A. In connection with this Agreement, URS shall provide and maintain in full force and effect the following insurance:

(i) Workers' compensation and employer's liability insurance for the protection of URS' employees, to the extent required by the law of the State of Texas;

(ii) Commercial general liability insurance with limits not less than One Million and No/100 Dollars $1,000,000.00 each occurrence combined single limit bodily injury and property damage, including contractual liability (covering, but not limited to, the liability assumed under the indemnification provisions of this Agreement), personal injury, broadform property damage, products and completed operations coverage (and if such commercial general liability insurance contains a general aggregate limit, it shall apply separately to the Services under this Agreement);

(iii) Comprehensive automobile liability insurance with limits not less than One Million and No/100 Dollars ($1,000,000.00) each occurrence combined single limit bodily injury and property damage, including owned, non-owned and hired auto coverage, as applicable; and

(iv) Professional Liability Insurance to protect from liability arising out of the performance of professional services under this Agreement. Such coverage shall be in the sum of not less than Two Million and No/100 Dollars ($2,000,000.00) per claim and aggregate. This coverage must be maintained for at least two (2) years after the project contemplated herein is completed. If coverage is written on a claims-made basis, the retroactive date must not be later than the inception date of this Agreement.

All such policies of insurance shall (a) be issued by insurance companies reasonably acceptable to Client, (b) except for professional liability insurance, shall name (by endorsement) the Town of Addison, Texas, its officials, officers, employees and agents as an additional insured or loss payee, as the case may be, (c) in all liability policies, provide that such policies are primary insurance to any other insurance available to the additional insureds, with respect to any claims arising out of activities conducted hereunder, (d) contain a waiver of subrogation endorsement in favor of the Town of Addison, Texas, and (e) provide for at least thirty (30) days written notice to the Town of Addison, Texas prior to cancellation, non-renewal or material modification which affects this Agreement. Certificates of insurance (together with the declaration page of such policies, along with the endorsement naming the Town of Addison, Texas as an additional insured or loss payee, as the case may be), satisfactory to Client, evidencing all coverage above, shall be promptly delivered to Town and updated as may be appropriate, with complete copies of such policies furnished to the Client upon request. The Client reserves the right to review the insurance requirements contained herein and to reasonably adjust coverages and limits when deemed necessary and prudent by the Client.
~~URS agrees to maintain during the performance of the Services: (1) statutory Workers' Compensation coverage; (2) Employer's Liability; (3) General Liability; and (4) Automobile Liability insurance coverage each in the sum of $1,000,000.~~

B. In connection with this Agreement (together with the Work Order) and the provision of Services, URS agrees to and shall indemnify the Town of Addison, Texas, its officials, officers, agents and employees (together, for purposes of this paragraph, the "Indemnified Persons") against, and hold the Indemnified Persons harmless from, any and all claims, actions, causes of action, demands, losses, harm, damages, liability, expenses, lawsuits, judgments, costs, and fees (including reasonable attorney fees and court costs), for any injury to or the death of any person, or any damage to or destruction of any property, or any other harm for which damages or any other form of recovery is sought (whether at law or in equity), resulting from, based upon, or arising out of any negligent, grossly negligent, reckless, or intentionally wrongful act, error, or omission of URS, its officers, employees, agents, engineers, consultants, contractors, subcontractors, or any person or entity for whom URS is legally liable, under, in connection with, or in the performance of, this Agreement. The provisions of this paragraph shall survive the expiration or termination of this Agreement.

~~**ARTICLE VII – Consequential Damages.** Neither Party shall be liable to the other for consequential damages, including, without limitation, loss of use or loss of profits, incurred by one another or their~~

~~subsidiaries or successors, regardless of whether such damages are caused by breach of contract, willful misconduct, negligent act or omission, or other wrongful act of either of them.~~

ARTICLE VIII - Client Responsibility. Client shall: (1) provide URS, in writing, all information relating to Client's requirements for the project; (2) correctly identify to URS, the location of subsurface structures which have been placed by Client, such as pipes, tanks, cables and utilities; (3) notify URS of any potential hazardous substances or other health and safety hazard or condition known to Client existing on or near the project site; (4) give URS prompt written notice of any suspected deficiency in the Services; and (5) with reasonable promptness, provide required approvals and decisions. In the event that URS is requested by Client or is required by subpoena to produce documents or give testimony in any action or proceeding to which Client is a party and URS is not a party, Client shall pay URS for any time and expenses required in connection therewith, including reasonable attorney's fees.

~~Client shall reimburse URS for all taxes, duties and levies such as Sales, Use, Value Added Taxes, Deemed Profits Taxes, and other similar taxes which are added to or deducted from the value of URS Services. For the purpose of this Article such taxes shall not include taxes imposed on URS net income, and employer or employee payroll taxes levied by any United States taxing authority, or the taxing authorities of the countries or any agency or subdivision thereof in which URS subsidiaries, affiliates, or divisions are permanently domiciled. It is agreed and understood that these net income, employer or employee payroll taxes are included in the unit prices or lump sum to be paid URS under the respective Work Order.~~

ARTICLE ~~VIII~~IX - Force Majeure. An event of "Force Majeure" occurs when an event beyond the control of the Party claiming Force Majeure prevents such Party from fulfilling its obligations. An event of Force Majeure includes, ~~without~~ limitation, acts of God (including floods, hurricanes and other adverse weather), war, riot, civil disorder, acts of terrorism, disease, epidemic, strikes and labor disputes, actions or inactions of government or other authorities, law enforcement actions, curfews, closure of transportation systems or other unusual travel difficulties, or inability to provide a safe working environment for employees.

In the event of Force Majeure, the obligations of URS to perform the Services and the obligations of the Client hereunder shall be suspended for the duration of the event of Force Majeure. In such event, ~~URS shall be equitably compensated for time expended and expenses incurred during the event of Force Majeure and~~ the Time Schedule~~schedule~~ shall be extended by a like number of days as the event of Force Majeure. If Services are suspended for ninety~~thirty~~ (90~~30~~) consecutive days or more by such Force Majeure, either URS or the Client may~~, in its sole discretion~~, upon at least 5 days prior written notice, terminate this Agreement and~~or~~ the affected Work Order~~, or both~~. In the case of such termination, ~~in addition to the compensation and time extension set forth above,~~ URS shall be compensated in accordance herewith for all work properly performed to the date of termination~~reasonable termination expenses~~. In the event of such termination of this Agreement and the Work Order, no amount shall be due for lost or anticipated profits.

ARTICLE ~~VIII~~IX - Right of Entry. If Client is the owner of the project site, URS shall have access to the project site at all reasonable times for the purpose of providing the Services. If Client is not the owner of the project site, Client shall use its commercially reasonable efforts to obtain permission for URS to have access to the project site for such purpose~~Client grants to URS, and, if the project site is not owned by Client, warrants that permission has been granted for, a right of entry from time to time by URS, its employees, agents and subcontractors, upon the project site for the purpose of providing the Services. Client recognizes that the use of investigative equipment and practices may unavoidably alter the existing site conditions and affect the environment in the area being studied, despite the use of reasonable care.~~

ARTICLE ~~IX~~XI - Documents. Upon payment to URS for work properly performed, drawings, designs, plans, specifications, reports, information, and other documents or materials in whatever form or format (together, "Drawings") prepared by or for URS in connection herewith belong to, and remain the property of, the Client for its exclusive reuse at any time without further compensation and without any restrictions, and all intellectual property rights in connection with the same (whether copyright or otherwise) are hereby assigned by URS to Client; provided, however, that URS shall retain property rights with respect to any patentable concepts arising from the Services.~~Provided that URS has been~~

~~paid for the Services, Client shall have the right to use the documents, maps, photographs, drawings and specifications resulting from URS efforts on the project.~~ Reuse of any such materials by Client on any extension of this project or any other project without the written authorization of URS shall be at Client's sole risk. URS shall have the right to retain copies of all such materials. ~~URS retains the right of ownership with respect to any patentable concepts or copyrightable materials arising from its Services.~~

Drawings shall be submitted to the Client for the Client's approval, and the same shall comply with all applicable laws, statutes, ordinances, codes and regulations. Notwithstanding Client's approval of any of the Drawings, URS warrants and represents that the Drawings, as the same may be amended or supplemented by URS, shall, to the best of URS' knowledge, information and belief as engineers performing the practice of engineering in accordance with the standards, duties, and obligations set forth in this Agreement and the Work Order, be sufficient and adequate for construction of the project for which the Services are provided, shall be free from material error, and shall be satisfactory to the Client. In accordance with the standard of care, URS agrees that if it shall recommend unsuitable materials in connection with the project and this Agreement and Work Order, or if the design of the project should be defective in any way, URS will assume sole responsibility for any damages, loss, claims, or expenses to the extent caused by URS' recommendation of unsuitable materials or defective design. In the event it is determined that any Drawings are defective, URS shall promptly correct any defective Drawings at no cost to the Client. The Client's approval, acceptance, use of or payment for all or any part of the Services under this Agreement or the Work Order shall in no way alter URS' obligations or the Client's rights hereunder. Approval by the Client of any of URS' Drawings or work, or the use of or payment for all or any part of the Services, shall not constitute nor be deemed a release of the responsibility and liability of URS, its employees, contractors, subcontractors, agents and consultants for the accuracy and competency of the same, nor shall such approval be deemed to be an assumption of or an indemnification for such responsibility or liability by the Client for any defect, error or omission in such Drawings or work, it being understood that the Client at all times is ultimately relying on URS' skill and knowledge in preparing the Drawings.

ARTICLE XII - Termination.

A. Client may at any time terminate all or any portion of the Services, or abandon or defer the project (or any part thereof) for which the Services are being provided, for convenience, at its option and in its sole discretion, by sending a written notice~~Notice~~ of such termination, abandonment or deferral to URS. If the project (or portion thereof) for which the Services are being provided is abandoned or deferred by Client, Client shall have the right to restore and reinstate the project and the Services hereunder within one (1) year of such abandonment or deferral; provided, however, that if the abandonment or deferral is for more than 90 consecutive days, such restoration and reinstatement shall be subject to renegotiation of URS' compensation.

B. Either party can terminate this Agreement and~~or a~~ Work Order for cause if the other party:

(i) commits a material~~, uncured~~ breach of this Agreement, and

(a) such breach remains uncured for a period of 7 days after notice thereof (which notice shall specifically identify the breach) is received by the breaching party, or

(b) if the breach cannot with diligence be cured within said 7 day period, if within such 7 day period the breaching party provides the non-breaching party written notice of the curative measures which it proposes to undertake, and proceeds promptly to initiate such measures to cure such failure, and thereafter prosecutes the curing of such failure with diligence and continuity, the time within which such failure may be cured shall be extended for such period as may be necessary to complete the curing of such failure with diligence and continuity, not to exceed 30 days following the occurrence of the breach, or

(ii) becomes insolvent.

Termination for cause shall be effective ten (10)~~twenty (20)~~ days after receipt of a Notice of Termination, unless a later date is specified in the Notice.~~The Notice of Termination for cause shall contain specific reasons for termination and both parties shall cooperate in good faith to cure the causes for termination stated in the Notice. Termination shall not be effective if reasonable action to cure the breach has been taken before the effective date of the termination~~.

C. URS shall cease all work and labor being performed under this Agreement immediately upon receipt of the notice of termination (whether for convenience or for cause).

D. In the event this Agreement is terminated for any reason (whether for convenience or for cause), URS shall invoice Client for all work properly completed and shall be compensated in accordance with the terms of this Agreement for all such work accomplished prior to the receipt of the notice of termination. In the event of termination of this Agreement for any reason (whether for convenience or for cause), no amount shall be due for lost or anticipated profits. In the event of any termination and upon payment to URS for the work properly performed by URS, URS shall deliver to the Client all finished or unfinished documents, data, studies, surveys, drawings, maps, models, reports, photographs or other items prepared by or for URS in connection with this Agreement, its Services, and the project.~~Client shall pay URS upon invoice for Services performed and charges incurred prior to termination, plus reasonable termination charges.~~

E. In the event of termination for cause, the parties shall have their remedies at law as to any other rights and obligations between them, subject to the other terms and conditions of this Agreement.

ARTICLE XIII - No Third Party Rights. This Agreement shall not create any rights or benefits to parties other than Client and URS. No third party shall have the right to rely on URS opinions rendered in connection with the Services without the written consent of URS and the third party's agreement to be bound to the same conditions and limitations as Client.

ARTICLE XI~~I~~V - Assignments. URS shall have no power to and shall not assign, transfer, or otherwise convey its interest, rights, duties, or responsibilities in this Agreement or any part thereof without the prior written consent of Client, and any such assignment, subletting, transfer or other conveyance shall be deemed a material breach of this Agreement (without an opportunity to cure) and the Client shall have the right to terminate this Agreement immediately and without further notice; provided, however, that nothing contained in this paragraph shall prevent URS from employing such independent professional associates, sub-consultants, and suppliers as URS may deem appropriate to assist in the performance of the Services. Unless specifically stated to the contrary in any written consent to an assignment or transfer, no assignment or transfer will release or discharge the assignor from any duty or responsibility under this Agreement.~~Neither party to this Agreement shall assign its duties and obligations hereunder without the prior written consent of the other party.~~

ARTICLE XIIIV - Hazardous Substances. All nonhazardous samples and by-products from sampling processes in connection with the Services shall be disposed of by URS in accordance with applicable law; provided, however, that any and all such materials, including wastes, that cannot be introduced back into the environment under existing law without additional treatment, and all hazardous wastes, radioactive wastes, or hazardous substances (eg, pollutants and contaminants regulated by law) ("Hazardous Substances") from the sampling processes in connection withrelated to the Services, shall be packaged in accordance with the applicable law by URS and turned over to Client for appropriate disposal (provided, however, that URS shall first give notice to Client of the existence of such Hazardous Substances). URS shall not arrange for or otherwise dispose of Hazardous Substances under this Agreement. URS, at Client's request, may assist Client in identifying appropriate alternatives for off-site treatment, storage or disposal of the Hazardous Substances, but URS shall not make any independent determination relating to the selection of a treatment, storage, or disposal facility nor subcontract such activities through transporters or others. Client shall sign all necessary manifests for the disposal of Hazardous Substances if Client is required by law to sign such manifests. If Client requires: (1) URS agents or employees to sign such manifests; or (2) URS to hire, for Client, the Hazardous Substances transportation, treatment, or disposal contractor, then for these two purposes, URS shall be considered to act as Client's agent so that URS will not be considered to be a generator, transporter, or disposer of such substances or considered to be the arranger for disposal of Hazardous Substances, and Client shall indemnify URS against any claim or loss resulting from such signing.

ARTICLE XIVI – Venue; Dispute Resolution.

A. In the event of any action under this Agreement, venue for all causes of action shall be instituted and maintained in Dallas County, Texas (state court) or in the northern district of Texas (federal court), as the case may be. The parties agree that the laws of the State of Texas shall apply to the interpretation, validity and enforcement of this Agreement, and, with respect to any conflict of law provisions, the parties agree that such conflict of law provisions shall not affect the application of the law of Texas (without reference to its conflict of law provisions) to the interpretation, validity and enforcement of this Agreement.~~In the event of any dispute between the parties to this Agreement, the venue for the dispute resolution shall be any state or federal court in the United States having jurisdiction over the parties. The foregoing notwithstanding, if the project is located outside the United States, the laws of the State of California shall govern and in such event, any dispute under the Agreement not resolved amicably shall be resolved under the binding rules of the American Arbitration Association.~~

B. In an effort to resolve claims, disputes or other matters in question arising out of or relating to this Agreement or breach thereof, the parties agree that all claims, disputes, or other matters in question shall be submitted to nonbinding mediation as a first step in seeking a resolution of the same.

The dispute shall be mediated by a mutually acceptable third-party to be chosen by the disputing parties within thirty (30) days after written notice by one of them requesting mediation. The disputing parties shall share the costs of the mediation equally. By mutual agreement the parties may postpone mediation until each has completed some specified but limited discovery about the dispute. By mutual agreement, the parties may use a nonbinding form of dispute resolution other than mediation. Any nonbinding dispute resolution process conducted under this Agreement shall be confidential within the meaning of Sections 154.053 and 154.073 of the Texas Civil Practice and Remedies Code, as amended, and any successor statute thereto. If neither a negotiated settlement or mediated resolution is obtained within the time periods provided by this Article, the parties may pursue any available legal or equitable remedy.

Any request for mediation or another form of nonbinding dispute resolution shall be filed in writing with the other party within a reasonable time after the claim, dispute or other matter in question has arisen. In no event shall the demand for mediation or other form of nonbinding dispute resolution be made after the date when institution of legal or equitable proceedings based on such claim, dispute or other matter in question would be barred by the applicable statutes of limitations.

ARTICLE XVII - Integrated Writing and Enforceability. This Agreement (together with the Work Order) constitutes the final and complete repository of the agreements between Client and URS relating to the Services and supersedes all prior or contemporaneous communications, representations, or agreements, whether oral or written. Modifications of this Agreement shall not be binding unless made in

writing and signed by an Authorized Representative of each party. The provisions of this Agreement shall be enforced to the fullest extent permitted by law. If any provision of this Agreement is found to be invalid or unenforceable, the provision shall be construed and applied in a way that comes as close as possible to expressing the intention of the parties with regard to the provisions and that saves the validity and enforceability of the provision.

ARTICLE XVI Miscellaneous.

A. The undersigned officers and/or agents of the parties hereto are the properly authorized officials and have the necessary authority to execute this Agreement on behalf of the parties hereto, and each party hereby certifies to the other that any necessary resolutions or other act extending such authority have been duly passed and are now in full force and effect.

B. Any provision of this Agreement later held to be unenforceable for any reason shall be deemed void and all remaining provisions shall continue in full force and effect. All obligations arising prior to the termination of this Agreement and all provisions of this Agreement allocating responsibility or liability between URS and Client shall survive the cancellation, expiration or termination of this Agreement. Any rights and remedies either party may have with respect to the other arising out of the performance of services during the term of this agreement shall survive the cancellation, expiration or termination of this Agreement.

C. Time is of the essence of this Agreement and the Work Order.

D. The rights and remedies provided by this Agreement are cumulative and the use of any one right or remedy by either party shall not preclude or waive its right to use any or all other remedies. Said rights and remedies are given in addition to any other rights the parties may have by law statute, ordinance, or otherwise.

E. URS acknowledges that the project for which the Services are being provided is a public project of the Town of Addison, Texas and is for a public purpose, and that the property on which the project is to be constructed, the improvements to be constructed thereon, and the funds used by Client in connection with the property acquisition and the design and construction of the project are exempt from the filing and enforcement of any liens thereon or with respect thereto and from forced sale. For the consideration set forth herein, URS waives and releases any lien, or claim or right of such lien, which URS has or may have in connection with the Services on or in connection with such property, improvements, and funds, this Agreement and the Work Order.

F. All notices, demands, or requests from one party to another shall be personally delivered or sent by United States mail certified, or registered, return receipt requested, postage prepaid, to the addresses stated below:

To Client:	To URS:
Addison Service Center 16801 Westgrove Drive Addison, Texas 75001-5190 Attn: Mike Murphy, Director of Public Works	Graystone Centre, 3010 /LBJ Freeway, Suite 1300 Dallas, Texas 75234 Attn: _____

All notices or communications required to be given in writing by one party or the other shall be considered as having been given to the addressee (i) if by hand delivery, at the time of delivery, or (ii) if mailed, seventy-two (72) hours after the deposit of same in any United States mail post office box. The addresses and addressees for the purpose hereof may be changed by giving notice of such change in the manner herein provided for giving notice. Unless and until such written notice is received the last addresses and addressee stated by written notice, or provided herein if no written notice of change has been sent or received, shall be deemed to continue in effect for all purposes hereunder.

THE PARTIES ACKNOWLEDGE that there has been an opportunity to negotiate the terms and conditions of this Agreement and agree to be bound accordingly.

CLIENT	**URS**
Signature	Signature
Ron Whitehead / City Manager	**Emily Taylor, P.E. / Vice President**
Typed Name/Title	Typed Name/Title
Date of Signature	Date of Signature

NOT TO EXCEED AMOUNT~~LUMP SUM~~ WORK ORDER NO. 001

In accordance with the Agreement for Professional Services between **Town of Addison** ("Client"), and **URS Corporation~~]~~** ("URS"). a **Nevada** corporation, dated **September 11, 2002**, this Work Order describes the Services, Schedule, and Payment Conditions for URS Services on the Project known as:

ARAPAHO ROAD BRIDGE AT MIDWAY ROAD
DESIGN DEVELOPMENT & CONTRACT DOCUMENTS

Client Authorized Representative:
Address: Public Works Department, P.O. Box 9010
Addison, TX 75001-9010
Telephone No.: 972.450.2871

URS Authorized Representative: Emily Taylor, P.E.
Address: Graystone Centre, 3010 LBJ Freeway, Suite 1300
Dallas, TX 75234
Telephone No.: 972.406.6950

SERVICES. The Services shall be described in Attachment **A** to this Work Order.

SCHEDULE. The Estimated Schedule shall be set forth in Attachment **B** to this Work Order. Because of the uncertainties inherent in the Services, Schedules are estimated and are subject to revision unless otherwise specifically described herein. Time is of the essence of this Work Order.

PAYMENT. The Services described in Attachment A will be performed for ana ~~"lump sum"~~ amount not to exceed~~of~~ **$550,965.00**; in no event shall the payment by Client for the Services exceed the said amount. A breakdown of this amount~~"lump sum" cost~~ is included in Attachment **C**. URS charges shall be on a percent complete basis and payment shall be made monthly based upon statements submitted to the Client for the work performed.

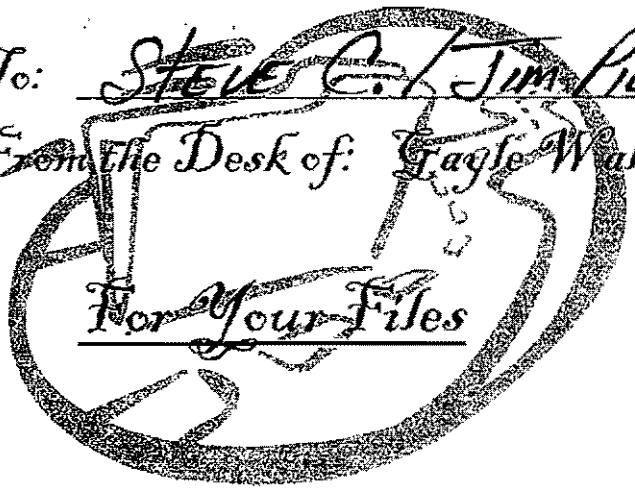
TERMS AND CONDITIONS. The terms and conditions of the Agreement referenced above shall apply to this Work Order, except as expressly modified herein.

ACCEPTANCE of the terms of this Work Order is acknowledged by the following signatures of the Authorized Representatives.

CLIENT	**URS**
Signature	Signature
Ron Whitehead / City Manager	**Emily Taylor, P.E. / Vice President**
Typed Name/Title	Typed Name/Title
Date of Signature	Date of Signature

To: ~~Steve C.~~ / Jim Pierce

From the Desk of: Gayle Walton



For Your Files

RESOLUTION NO. R02-082

A RESOLUTION BY THE CITY COUNCIL OF THE TOWN OF ADDISON, TEXAS, AUTHORIZING THE CITY MANAGER TO ENTER INTO A CONTRACT IN AN AMOUNT NOT TO EXCEED $550,965.00 WITH URS CORPORATION FOR PROFESSIONAL SERVICES FOR THE DESIGN OF THE ARAPAHO ROAD BRIDGE AT MIDWAY ROAD CONTINGENT UPON FINAL APPROVAL BY THE CITY ATTORNEY.

WHEREAS, URS Corporation was selected by the Town's Bridge Selection Committee and approved by Council to perform the design of the Arapaho Road Bridge at Midway Road; and,

WHEREAS, the third phase of the proposed Arapaho Road extension project extends from Surveyor Boulevard to Addison Road which will relieve traffic congestion on Belt Line Road; and,

WHEREAS, the proposed bridge over Midway Road is an integral component of the roadway section in this third phase; and,

WHEREAS, URS Corporation has submitted a Professional Services Agreement for design services related to the construction of the proposed Midway Road Bridge; and,

BE IT RESOLVED BY THE CITY COUNCIL OF THE TOWN OF ADDISON, TEXAS:

THAT, the City Council does hereby authorize the City Manager to enter into a contract in an amount not to exceed $550,965.00 with URS Corporation for professional services for the design of the Arapaho Road Bridge at Midway Road, contingent upon final approval by the City Attorney.

DULY PASSED BY THE CITY COUNCIL OF THE TOWN OF ADDISON, TEXAS, this the 10TH day of September 2002.

Mayor

ATTEST:

City Secretary

URS

August 30, 2002

Mr. Steven Z. Chutchian., PE
Assistant City Engineer
16801 Westgrove Drive
P.O. Box 9010
Addison, TX 75001-9010

Re: **Arapaho Road Bridge at Midway Road**
Phase II – Design Development & Contract Documents
Agreement for Professional Services

Dear Mr. Chutchian:

Enclosed please find one unexecuted copy of the Agreement for Professional Services for the Arapaho Road Bridge at Midway Road for your review. This Agreement includes Work Order Number 001 for the Design Development and Contract Document services with Attachment A - Scope of Services, Attachment B - Estimated Schedule, and Attachment C - Lump Sum Fee Breakdown. Please note that we have made a slight revision on the first page of the Scope of Services to clarify the submittal of the electronic drawing files and specifications.

As we discussed on the telephone, a separate time and materials work order will need to be approved to cover any construction administration services (e.g. shop drawing review, RFIs, construction meetings, etc.) that the Town of Addison will require from URS

We will provide two executed copies of the Agreement and Work Order No. 001 before the Town Council meeting on September 10, 2002 for final signatures. We look forward to working with you on this exciting project.

Sincerely,

URS Corporation

Cliff R. Hall, PE
Project Manager

Enclosure

URS Corporation
Graystone Centre
3010 LBJ Freeway, Suite 1320
Dallas, TX 75234
Tel: 972.406.6950
Fax: 972.406.6951

TOWN OF
ADDISON

PUBLIC WORKS

To: CLIFF HALL, P.E.

From: STEVE CHUTCHIAN

Company: URS

FAX #: 972-406-6951

Date: 8/27/02

No. of pages (including cover): 3

Phone: 972/450-2886
Fax: 972/450-2837

16801 Westgrove
P.O. Box 9010
Addison, TX 75001-9010

CLIFF - REQUESTED ITEMS FOR SCOPE & FEE PROPOSAL - AS PER MY PHONE MESSAGE.
Steve C.

ARAPAHO ROAD BRIDGE AT MIDWAY ROAD
WORK ORDER NO. 001

ATTACHMENT A
SCOPE OF SERVICES

DESIGN DEVELOPMENT AND CONSTRUCTION DOCUMENTS FOR THE ARAPAHO ROAD BRIDGE

URS will provide the engineering, architectural, lighting design and noise study services including plans, specifications and estimates as it relates to Arapaho Road from approximate Station 40+67 to approximate Station 70+28 and as provided in the itemized scope. The construction will consist of an elevated four-lane roadway with sidewalk located within the proposed Arapaho Road right-of-way (ROW) on a tangent alignment. URS shall prepare plans, details and compute quantities for a steel arch bridge, the "blue-bridge concept", over Midway Road, with prestressed concrete beam approaches. Design and details will include all bridge details including any soundwalls located on the bridge. URS will also provide all bridge drainage details to accommodate the drainage in accordance with the Town's Consultant's drainage requirements. URS will also prepare plans, details and compute quantities for any lighting & illumination, and traffic control for the areas under and immediately adjacent to the bridge and retained wall portion of Arapaho Road with the exception of those portions to be prepared by the Town of Addison's Consultant. URS will also prepare architectural details for the bridge, the mechanically stabilized earth (MSE) retaining walls and the sound walls. Additionally, URS will prepare a noise study including ambient noise measurements, modeling and noise analyses. URS will prepare and submit technical memorandums, preliminary plans and preliminary construction cost estimates at the end of the Design Development phase for the Town's review. After resolution of one set of comments, URS will provide all final detail plans, specifications, and estimates as previously described, to be included into one final construction package prepared by the Town's Consultant. URS will submit four sets of plans for review to the Town for 65% review and 95% review and will incorporate the Town's comments (one set per submittal) in the next submittals. URS will also provide signed and sealed mylar plans at the 100% final submittal.

URS will coordinate with the Town of Addison and/or the Town's Consultant for all interface design issues as well as coordinate the format and consolidation of construction plans, specification and estimate into one final construction package. URS will coordinate with the Town and/or the Town's Consultant for revising the horizontal alignment and vertical profile of Arapaho Road to accommodate the proposed bridge structure. URS will coordinate with the Town and/or the Town's Consultant for the revised alignment of the proposed box-culvert under Arapaho Road as well as bridge drainage and bridge drain tie-ins. URS will coordinate with the Town and/or the Town's Consultant for all geotechnical information required for the foundation design for the bridge and retaining walls.

The Town of Addison will provide to URS all available Arapaho Road geometrics, including but not limited to electronic files for horizontal alignment, vertical profile, typical sections, topography survey, field survey, and utility information. The Town will also provide boring logs, soil parameters and foundation design recommendations (allowable bearing capacities, lateral load analysis, etc.) required for the bridge foundation designs. The Town of Addison will provide to URS a field location survey of the existing 60-in. diameter water main, locating the water main precisely, both vertically and horizontally, along the project limits and specifically in the vicinity of the arch-bridge's main foundations. Additionally the Town will provide any applicable noise regulations or ordinance

information, obtain right of entry, and provide all traffic data including but not limited to, peak hourly volumes, average daily traffic, percentages of trucks, and design and posted speeds that may be required for the noise study. The Town will provide all landscape ordinances and guidelines as well as provide a copy of the Town's Consultant's schematic landscape masterplan and the streetscape design development package.

All ROW documentation and plans, Arapaho Road geometrics and roadway design, drainage, parking lot layout and design, retaining wall layout and design, survey, geotechnical engineering, design and details for soundwalls on retaining walls or at grade, landscaping, hardscaping and irrigation for landscaping, permitting, and construction administration, inspection and record drawings are outside the scope of this agreement and will be performed by others.

Pavement marking plan
Sawcut plan
Electronic copy of plans
Shop drawing review
Pre Bid meeting
Pre const meeting
Periodic visits during const
SWPPP

URS

August 7, 2002

Mr. Steven Z. Chutchian, PE
Assistant City Engineer
16801 Westgrove Drive
P.O. Box 9010
Addison, TX 75001-9010

Re: **Arapaho Road Bridge at Midway Road**
Phase II – Design Development, Contract Documents, and Construction Administration
Conceptual Construction Cost Estimate – "TxDOT" Bridge

Dear Mr. Chutchian:

Enclosed please find a copy of the Conceptual Construction Cost Estimate for a standard "TxDOT" bridge for the referenced project for your review as you requested.

This estimate in addition to a standard bridge includes minimal urban design & landscaping, roadway deck and parking lot lighting, lighting along the traffic rails, a rail to separate pedestrians from the roadway and some soundwalls. The conceptual cost is ~$4.1 million.

We trust that this will help in moving the process forward so we may proceed with finalizing our scope and fee proposal.

Sincerely,

URS Corporation

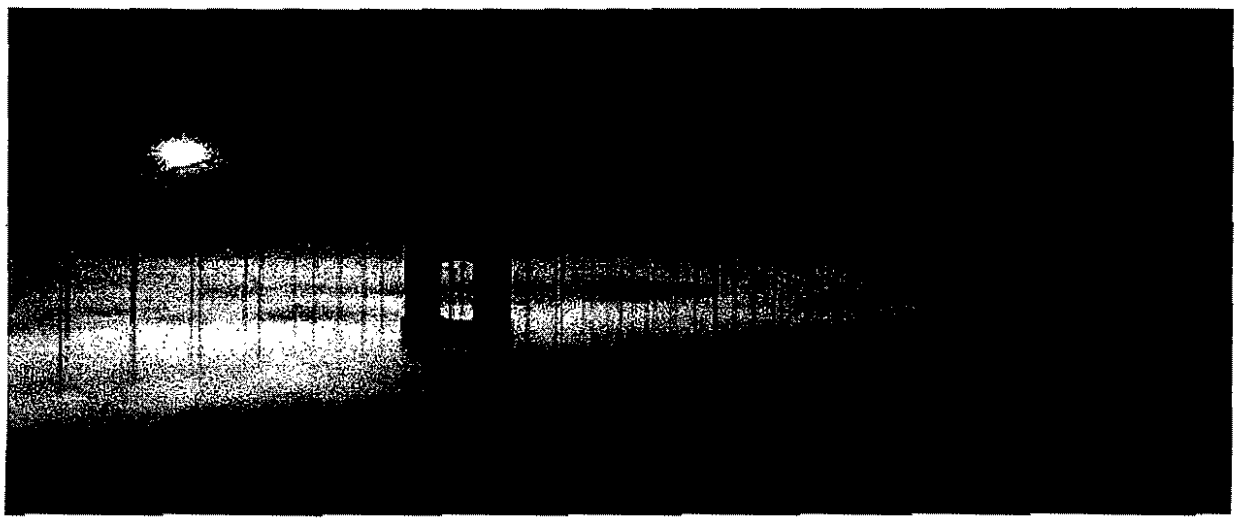
Cliff R. Hall, PE
Project Manager

Enclosure

URS Corporation
Prestonwood Tower
5151 Beltline Road, Suite 700
Dallas, TX 75254
Tel: 972.980.4961
Fax: 972.991.7665

ARAPAHO BRIDGE MEETING, 9/25/02

OPENING COMMENTS	**RON WHITEHEAD/CITY MANAGER**
PHASE III STATUS REPORT	**HNTB**
BRIDGE DESIGN & CONSTRUCTION PROCESS	**URS**
GENERAL DISCUSSION	



URS

May 5, 2003

Mr. Steven Z. Chutchian, PE
Assistant City Engineer
16801 Westgrove Drive
P.O. Box 9010
Addison, TX 75001-9010

Re: **Arapaho Road Bridge at Midway Road**
Phase II – Design Development & Contract Documents
Draft Noise Report

Dear Mr. Chutchian:

Enclosed please find three copies of the Draft Report for the Arapaho Road Bridge Noise and Vibration Analysis for your review. Please provide any comments at your earliest convenience. Upon receipt of your comments we will issue the final report.

Sincerely,

URS Corporation

Cliff R. Hall, PE
Project Manager

Enclosure

URS Corporation
Graystone Centre
3010 LBJ Freeway, Suite 1300
Dallas, TX 75234
Tel: 972.406.6950
Fax: 972.406.6951

Steve Chutchian

To: Elizabeth Metting
Subject: RE: Arapaho Road Borings

Liz - Please accept this correspondence as your approval to perform the additonal borings. Thanks.

Steve C.

-----Original Message-----
From: Elizabeth Metting [mailto:EMETTING@HNTB.com]
Sent: Monday, April 14, 2003 1:30 PM
To: schutchian@ci.addison.tx.us
Subject: FW: Arapaho Road Borings

Steve,
This is the estimate to get the additional two borings done. I would like to get the Town's approval to get this work underway ASAP. Please call me on my mobile at 972-849-8023

Liz

-----Original Message-----
From: Roger Southworth
To: Elizabeth Metting
Sent: 4/14/2003 9:11 AM
Subject: Re: Arapaho Road Borings

Good morning Liz,

The additional cost for the bridge borings is $1,600.00. This includes re-clearing the utilities, re-mobilization of drilling equipment, rock coring (assumed boring depths of 40 feet), laboratory testing, and additional CAD. A large part of this budget is for re-clearing utilities since we will have to start from the beginning with the utility locates. Feel free to give me a call if you need more information.

Roger

>>> "Elizabeth Metting" <EMETTING@HNTB.com> 04/09/03 01:30PM >>>
Here is a spreadsheet listing the borings that I show have been done, along with the ones that remain to be done.

<<BoringStatus.xls>>
Our original scope allowed for 7 Bridge borings, however URS has requested a total of 9 Bridge borings. Please let me know ASAP what the additional cost will be so that we can have the Town approve that and get the work underway.

I am checking with URS to verify the exact locations that want the borings, but this spreadsheet is close.

Liz Metting
Direct 972-628-3109
Mobile 972-849-8023

Steve Chutchian

From: Cliff_Hall@URSCorp.com
Sent: Tuesday, March 18, 2003 11:51 AM
To: Jenny Nicewander
Cc: Jerry Holder; ljalbert@ci.addison.tx.us; schutchian@ci.addison.tx.us
Subject: RE: Bridge footing


bdecarap05_a.dgn

Jenny,

The sidewalk is outside of the 7-ft zone where the 22 ft is needed. We only need 15-ft clearance in the zone from 7-ft to 12-ft. This is where the sidewalk will end up. If we have 16'-6" clearance to the beams and diaphragm, we will have more than the 15-ft required. See attached file.

For looking at vertical clearance I would assume the full structure depth to a point under the main arch members. Please provide the roadway geometry files when they are finished and checked. Thanks.

(See attached file: bdecarap05_a.dgn)

Cliff R. Hall, PE
Bridge Group Manager
URS Corporation
Greystone Centre
3010 LBJ Freeway, Suite 1300
Dallas, TX 75234
Office Tel: 972.406.6950
Direct: 972.406.6976
Fax: 972.406.6951

"Jenny Nicewander" <JNicewander@hntb.com>
03/18/03 10:19 AM

To: <Cliff_Hall@urscorp.com>
cc: <schutchian@ci.addison.tx.us>, "Jerry Holder" <JHolder@hntb.com>, <ljalbert@ci.addison.tx.us>
Subject: RE: Bridge footing

Cliff,

I'm working on finishing up the pavement file now and can have that to you pretty soon. I haven't finalized the profile yet but I am hoping to have that done in the next day or so.

Since the sidewalk is with in 12-ft of the edge of pipe, I will need 22-ft of clearance under the sidewalk. I will verify that you have the 16'6"

under the bridge, but I think the sidewalk might control the vertical over Midway.

I am working in SelectCad not GeoPak but can give you all the files you will need to the 4th decimal place.

Would you want these files as I finish them or all together? I can get them all to you by the end of the week.

Jenny Nicewander, P.E.
HNTB Corp.
5910 W. Plano Parkway, Suite 200
Plano, TX 75093
main - 972-661-5626
direct line - 972-628-3164
fax - 972-661-5614

-----Original Message-----
From: Cliff_Hall@URSCorp.com [mailto:Cliff_Hall@URSCorp.com]
Sent: Tuesday, March 18, 2003 9:07 AM
To: Jenny Nicewander
Cc: schutchian@ci.addison.tx.us; Jerry Holder
Subject: Re: Bridge footing

Jenny,

I have just received a phone call from Luke Jalbert of the Town of Addison giving us notice-to-proceed with Option A for the Arapaho Road Bridge. In order to begin our work on the bridge, we will need the final alignment and profile of Arapaho Road bridge as soon as possible. In addition to any MicroStation files, we would appreciate a copy of the GeoPak files with all information (Sta, Elev, Grade, etc.) to four decimal places. To ensure that a minimum vertical clearance of 16'-6" over Midway Road is maintained to the bottom of the prestressed beam and diaphragm at the arch section, a superstructure depth of a minimum of 5'-6" is required. When verifying the vertical clearance, the cross slope of the deck must be taken into account. Please call if you have any questions.

Cliff R. Hall, PE
Bridge Group Manager
URS Corporation
Greystone Centre
3010 LBJ Freeway, Suite 1300
Dallas, TX 75234
Office Tel: 972.406.6950
Direct: 972.406.6976
Fax: 972.406.6951

Steve Chutchian

From: Jenny Nicewander [JNicewander@HNTB.com]
Sent: Tuesday, March 18, 2003 10:19 AM
To: Cliff_Hall@URSCorp.com
Cc: schutchian@ci.addison.tx.us; Jerry Holder; ljalbert@ci.addison.tx.us
Subject: RE: Bridge footing

Cliff,

I'm working on finishing up the pavement file now and can have that to you pretty soon. I haven't finalized the profile yet but I am hoping to have that done in the next day or so.

Since the sidewalk is with in 12-ft of the edge of pipe, I will need 22-ft of clearance under the sidewalk. I will verify that you have the 16'6" under the bridge, but I think the sidewalk might control the vertical over Midway.

I am working in SelectCad not GeoPak but can give you all the files you will need to the 4th decimal place.

Would you want these files as I finish them or all together? I can get them all to you by the end of the week.

Jenny Nicewander, P.E.
HNTB Corp.
5910 W. Plano Parkway, Suite 200
Plano, TX 75093
main - 972-661-5626
direct line - 972-628-3164
fax - 972-661-5614

-----Original Message-----
From: Cliff_Hall@URSCorp.com [mailto:Cliff_Hall@URSCorp.com]
Sent: Tuesday, March 18, 2003 9:07 AM
To: Jenny Nicewander
Cc: schutchian@ci.addison.tx.us; Jerry Holder
Subject: Re: Bridge footing

Jenny,

I have just received a phone call from Luke Jalbert of the Town of Addison giving us notice-to-proceed with Option A for the Arapaho Road Bridge. In order to begin our work on the bridge, we will need the final alignment and profile of Arapaho Road bridge as soon as possible. In addition to any MicroStation files, we would appreciate a copy of the GeoPak files with all information (Sta, Elev, Grade, etc.) to four decimal places. To ensure that a minimum vertical clearance of 16'-6" over Midway Road is maintained to the bottom of the prestressed beam and diaphragm at the arch section, a superstructure depth of a minimum of 5'-6" is required. When verifying the vertical clearance, the cross slope of the deck must be taken into account. Please call if you have any questions.

Cliff R. Hall, PE
Bridge Group Manager
URS Corporation
Greystone Centre
3010 LBJ Freeway, Suite 1300
Dallas, TX 75234
Office Tel: 972.406.6950
Direct: 972.406.6976

Fax: 972.406.6951

Steve Chutchian

From: Cliff_Hall@URSCorp.com
Sent: Tuesday, March 18, 2003 9:07 AM
To: Jenny Nicewander
Cc: schutchian@ci.addison.tx.us; jholder@hntb.com
Subject: Re: Bridge footing

Jenny,

I have just received a phone call from Luke Jalbert of the Town of Addison giving us notice-to-proceed with Option A for the Arapaho Road Bridge. In order to begin our work on the bridge, we will need the final alignment and profile of Arapaho Road bridge as soon as possible. In addition to any MicroStation files, we would appreciate a copy of the GeoPak files with all information (Sta, Elev, Grade, etc.) to four decimal places. To ensure that a minimum vertical clearance of 16'-6" over Midway Road is maintained to the bottom of the prestressed beam and diaphragm at the arch section, a superstructure depth of a minimum of 5'-6" is required. When verifying the vertical clearance, the cross slope of the deck must be taken into account. Please call if you have any questions.

Cliff R. Hall, PE
Bridge Group Manager
URS Corporation
Greystone Centre
3010 LBJ Freeway, Suite 1300
Dallas, TX 75234
Office Tel: 972.406.6950
Direct: 972.406.6976
Fax: 972.406.6951

URS

Memorandum

Date: January 28, 2003

To: Sharon Bell.

From: Cliff R. Hall, P.E. CRH

Subject: ***Arapaho Road Bridge – Concept Video Files***

As requested we have enclosed a copy of the computer animated video files of the Arapaho Road Bridge concept, developed for the design competition presentation last April. To view these files you will need to download the files onto a computer with a DVD player software. The DVD player software should be opened and from the DVD player open the file.

Please feel free to call me if you have any problems.

c.c. Steve Chutchian, PE

URS

Facsimile

To: STEVE CHUTCHIAN

Firm: TOWN OF ADDISON

Facsimile: 972.450.2837

From: CLIFF HAAK

Date: 1/29/03

Page 1 of : 2

Subject: ARAPAHO RD BRIDGE

Message:

CC:

URS Corporation
3010 LBJ Freeway, Suite 1320
Dallas, TX 75234
Tel: 972.406.6950
Fax: 972.406.6951
www.urscorp.com

Steve Chutchian

To: Jerry Holder
Subject: RE: Data for Noise Study

thanks.

-----Original Message-----
From: Jerry Holder [mailto:JHolder@HNTB.com]
Sent: Monday, December 16, 2002 11:06 AM
To: schutchian@ci.addison.tx.us
Cc: jpierce@ci.addison.tx.us
Subject: RE: Data for Noise Study

Actually Steve, I checked with Liz on #3 and it turns out that we spent a lot of time getting the COG photo's projected into the correct coordinate plane so that it lines up with our CAD drawings. So we're giving what we did to Cliff to save them the time and effort. He'll only need your CD's if for some reason he needs coverage outside of the roadway corridor.

Jerry

-----Original Message-----
From: schutchian@ci.addison.tx.us [mailto:schutchian@ci.addison.tx.us]
Sent: Monday, December 16, 2002 11:04 AM
To: Jerry Holder
Subject: RE: Data for Noise Study

Jerry - thanks for the help. I will check with Jim today.

Steve C.

-----Original Message-----
From: Jerry Holder [mailto:JHolder@HNTB.com]
Sent: Wednesday, December 11, 2002 6:28 PM
To: Cliff_Hall@URSCorp.com; schutchian@ci.addison.tx.us
Cc: Elizabeth Metting; Jenny Nicewander; Angela Stoddard
Subject: RE: Data for Noise Study

Steve, I think we can help with the following:

Item #1: I believe Bruce Grantham has a contract on Midway Road, I will check to see if it covers this area. (Liz, I think you know the answer to this one, please let me know)

Item #2: We can e-mail this to Cliff. (Jenny, please take care of this)

Item #3: The Town has coverage through COG. Jim Pierce has the CD's from COG that have the aerial files on it. (Steve can you check with Jim on this?)

Item #4a, b, and c: I will discuss this with Angela Stoddard. I know this data is limited and assumptions were made for the engineering report. We will provide what we have. (Angie, please get the engineering report and let's discuss what we can provide to Cliff)

Item #4d: Angela and I will send the design criteria to Cliff.

Item 5: Jenny and I will send this to Cliff.

Let's set a deadline of Monday to get this to Cliff. Thanks everyone.

Jerry

-----Original Message-----
From: Cliff_Hall@URSCorp.com [mailto:Cliff_Hall@URSCorp.com]
Sent: Wednesday, December 11, 2002 4:21 PM
To: schutchian@ci.addison.tx.us
Cc: Jerry Holder; Elizabeth Metting
Subject: Data for Noise Study

Steve,

In order to develop our model for the noise study, we will need the following information. We understand that some of this information (e.g. traffic data) may not be available to the extent that we are requesting; however, we would ask that you please provide as much information as is available.

1. Midway Road vertical profile and horizontal alignment in the vicinity of Arapaho Road. 2. Arapaho Road final vertical profile and horizontal alignment (when available). 3. Aerial map showing extent of project ROW plus 500' to cover all adjacent receptors. (It would be helpful if the aerial showed the proposed Arapaho Road). 4. Traffic Data:
  a. ADT: Future design year with project alternative
  b. Directional Peak hour traffic volumes (total, not turning movements) for level-of-service (LOS) C and D/E (link capacity data, not intersection capacity data) for the future design year with project alternative.
  c. Vehicle Mix: 5 types - automobiles, motorcycles, busses, medium trucks and heavy trucks (3 axles or greater) for peak-noise-hour, LOS C or D/E.
  d. Traffic speeds, design and posted.
5. Railroad: type and frequency of rail traffic.

Cliff R. Hall, PE
Bridge Group Manager
URS Corporation
Greystone Centre
3010 LBJ Freeway, Suite 1300
Dallas, TX 75234
Office Tel: 972.406.6950
Direct: 972.406.6976
Fax: 972.406.6951

Steve Chutchian

From: Jerry Holder [JHolder@HNTB.com]
Sent: Thursday, December 12, 2002 9:26 AM
To: cliff_hall@urscorp.com; schutchian@ci.addison.tx.us; Jenny Nicewander; Angela Stoddard; Elizabeth Metting; Rob Kouba; Katura Curry
Subject: See answers below

Please see our responses to Cliff's requests, shown in red below.

Thanks,
Jerry

Steve, I think we can help with the following:

Item #1: I believe Bruce Grantham has a contract on Midway Road, I will check to see if it covers this area. {Liz, I think you know the answer to this one, please let me know} **Liz has sent an e-mail to Katura (Grantham & Associates) to send this information to Cliff.**

Item #2: We can e-mail this to Cliff. {Jenny, please take care of this} **Jenny will e-mail the latest to Cliff by Friday.**

Item #3: The Town has coverage through COG. Jim Pierce has the CD's from COG that have the aerial files on it. {Steve can you check with Jim on this?}

Item #4a, b, and c: I will discuss this with Angela Stoddard. I know this data is limited and assumptions were made for the engineering report. We will provide what we have. (Angie, please get the engineering report and let's discuss what we can provide to Cliff}

#4a: I will fax Cliff the traffic data from the engineering report and also the geotechnical report showing the percentage of trucks. I will do this today.

#4b: This is not available since this road is on a new alignment. You might be able to get some information from the traffic study the Town recently did on Beltline.

#4c: See geotech report I will fax to you.

Item #4d: Angela and I will send the design criteria to Cliff. **Design Speed = 40 mph and Posted Speed = 40 mph.**

Item 5: Jenny and I will send this to Cliff. **There are four (4) freight trains per day that use the track. They are not on a set**

schedule.

Let's set a deadline of Monday to get this to Cliff. Thanks everyone.

Jerry

-----Original Message-----
From: Cliff_Hall@URSCorp.com [mailto:Cliff_Hall@URSCorp.com]
Sent: Wednesday, December 11, 2002 4:21 PM
To: schutchian@ci.addison.tx.us
Cc: Jerry Holder; Elizabeth Metting
Subject: Data for Noise Study

Steve,

In order to develop our model for the noise study, we will need the following information. We understand that some of this information (e.g. traffic data) may not be available to the extent that we are requesting; however, we would ask that you please provide as much information as is available.

1. Midway Road vertical profile and horizontal alignment in the vicinity of Arapaho Road. 2. Arapaho Road final vertical profile and horizontal alignment (when available). 3. Aerial map showing extent of project ROW plus 500' to cover all adjacent receptors. (It would be helpful if the aerial showed the proposed Arapaho Road). 4. Traffic Data:

a. ADT: Future design year with project alternative
b. Directional Peak hour traffic volumes (total, not turning movements) for level-of-service (LOS) C and D/E (link capacity data, not intersection capacity data) for the future design year with project alternative.

c. Vehicle Mix: 5 types - automobiles, motorcycles, busses, medium trucks and heavy trucks (3 axles or greater) for peak-noise-hour, LOS C or D/E.

d. Traffic speeds, design and posted.
5. Railroad: type and frequency of rail traffic.

Cliff R. Hall, PE
Bridge Group Manager
URS Corporation
Greystone Centre
3010 LBJ Freeway, Suite 1300

Steve Chutchian

From: Elizabeth Metting [EMETTING@HNTB.com]
Sent: Monday, December 02, 2002 8:37 PM
To: schutchian@ci.addison.tx.us; Cliff_Hall@URSCorp.com
Cc: Jenny Nicewander; Jerry Holder; Mike Preston; David Boles
Subject: RE: Arapaho Road Bridge

Steve,

I understood that Slade would not be available this week. Whenever he is available, we would like to meet with him, you, Jim Pierce, Luke, and Cliff. Wednesday morning should be possible (as early as 8:30) or right after lunch. If he is out, then let both Cliff and me know several possible times early next week and we will find a time to meet. We have developed some sketches trying to fit a sidewalk/trail within the typical section while still accomodating DWU's desire to remain a minimum distance from the 60" line. We would like to get everyone together to develop the concepts into a working plan.

Liz

-----Original Message-----
From: schutchian@ci.addison.tx.us [mailto:schutchian@ci.addison.tx.us]
Sent: Monday, December 02, 2002 4:00 PM
To: Cliff_Hall@URSCorp.com
Cc: Elizabeth Metting
Subject: RE: Arapaho Road Bridge

Cliff/Liz: we probably can meet on Wednesday or Thursday afternoon this week, or anytime on Monday or Tuesday of next week. Thanks.

Steve C.
-----Original Message-----
From: Cliff_Hall@URSCorp.com [mailto:Cliff_Hall@URSCorp.com]
Sent: Monday, December 02, 2002 3:31 PM
To: emetting@hntb.com
Cc: schutchian@ci.addison.tx.us
Subject: Arapaho Road Bridge

Liz,

As we discussed the week before last, you were going to arrange a meeting with the Town of Addison to discuss the bridge and roadway typical sections that will provide the required clearance to the 60" water main. Please advise the time and location for this meeting if it has been arranged. This issue must be resolved before we can progress with the preliminary bridge design.

Cliff R. Hall, PE
Bridge Group Manager
URS Corporation
Greystone Centre
3010 LBJ Freeway, Suite 1300
Dallas, TX 75234
Office Tel: 972.406.6950
Direct: 972.406.6976
Fax: 972.406.6951

TOWN OF ADDISON

PUBLIC WORKS DEPARTMENT
Post Office Box 9010 Addison, Texas 75001-9010

(972) 450-2871 FAX (972) 450-2837
16801 Westgrove

November 18, 2002

Mr. Cliff R. Hall. P.E.
URS Corporation
Graystone Centre
3010 LBJ Freeway, Suite 1320
Dallas, Texas 75234

Re: Arapaho Road Bridge at Midway Road
Phase II – Design Development & Contract Documents
Agreement for Professional Services

Dear Mr. Hall:

Enclosed is a copy of an executed original of the Agreement for Professional Services for the Arapaho Road Bridge at Midway Road. An original of this document was previously forwarded to your office by separate transmittal. Please accept this correspondence as your authorization to proceed with the Arapaho Road bridge design, as outlined in the Scope of Services portion of the Agreement.

Should you have any questions, please call me at 972-450-2878. Thank you.

Sincerely,

Michael Murphy, P.E.
Director of Public Works

Enclosure

Steve Chutchian

From: HILL, JOHN [jhill@cowlesthompson.com]
Sent: Friday, November 01, 2002 8:36 AM
To: 'Nancy_Cole@URSCorp.com'
Cc: 'mmurphy@ci.addison.tx.us'; 'jpierce@ci.addison.tx.us'; 'schutchian@ci.addison.tx.us'; DIPPEL, KEN
Subject: RE: Town of Addison-Revision!!

Nancy--No problem with striking that provision (that provision (with a modification) was included with the changes proposed by URS). I would appreciate it if you would please have URS execute two originals of the agreement and have the URS representative forward the signed originals to Jim Pierce at Addison. Thanks.

John Hill
Cowles & Thompson
901 Main St.
4000 Bank of America Tower
Dallas, Texas 75202
(214) 672-2170

-----Original Message-----
From: Nancy_Cole@URSCorp.com [mailto:Nancy_Cole@URSCorp.com]
Sent: Thursday, October 31, 2002 2:34 PM
To: HILL, JOHN
Cc: 'jpierce@ci.addison.tx.us'; DIPPEL, KEN
Subject: Re: Town of Addison-Revision!!

John-

Sorry to do this, but as per my phone message, we need to discuss Article XVI, "G" -"In the event Client and URS are unable to agree on an appropriate equitable adjustment in Estimated Costs and Schedule prior to the time the changes in the Services need to be performed, then Client shall authorize URS to proceed with the changes and URS will do so...." . URS doesn't want to have the obligation to perform if we cannot reach an agreement prior to our starting work. We would like to strike that language.

Regards,

Nancy C. Cole
Contracts Manager, Gulf Coast Region
URS Corporation, Legal Department
8181 E. Tufts Avenue
Denver, CO 80237
(303) 740-2737
(303) 930-6044 fax
nancy_cole@urscorp.com

"HILL, JOHN" <jhill@cowlestho mpson.com> To: "'nancy_cole@urscorp.com'" <nancy_cole@urscorp.com> cc:

"'jpierce@ci.addison.tx.us'" <jpierce@ci.addison.tx.us>, "DIPPEL, KEN" <kdippel@cowlesthompson.com>

10/30/2002 08:44 AM

Subject: Town of Addison

<<Addison - Agreement for Professional Services (URS - Bridge).DOC>>

Nancy-

Attached for your review is a revised red-lined copy of the Agreement for Professional Services between the URS and the Town of Addison. A couple of comments:

1. With respect to the force majeure provision (Article VII), I have not included a provision that URS will be compensated if a force majeure event should occur. The purpose of the clause is to allow the parties to suspend performance during a force majeure event, and there should be no compensation due if the parties' duties to perform are suspended.

2. Under Article IX, the word "defective" has been left in, but it is tied to the standard of care.

After your review, please let me know if you would like to discuss any of the items.

John Hill
Cowles & Thompson
901 Main St.
4000 Bank of America Tower
Dallas, Texas 75202
(214) 672-2170

(See attached file: Addison - Agreement for Professional Services (URS - Bridge).DOC)

AGREEMENT FOR PROFESSIONAL SERVICES
("Agreement")

DRAFT

This Agreement between the Town of **Addison, Texas** , ("Client") and **URS Corporation** ("URS"), a **Nevada** corporation; **Graystone Centre, 3010 LBJ Freeway, Suite 1300 75234; 972.406.6950** ("URS"), is effective as of **September 11, 2002** . The parties agree as follows:

~~It is the expressed intent of the parties that this Agreement shall be made available to the subsidiaries and affiliated companies of URS. For the purposes of this Agreement, as it applies to each Work Order, the term "URS" shall mean either, **URS Corporation** , or the affiliated company identified in the Work Order. The applicable Work Order shall clearly identify the legal name of the affiliate or subsidiary accepting the Work Order.~~

ARTICLE I - Work Orders. The Scope of Services ("Services"), the time schedule ("Time Schedule") and the charges for the Services ("Charges") are to be set forth in a written Work Order which is supplementary to this Agreement. The terms and conditions of this Agreement shall apply to each Work Order, except to the extent expressly modified by the Work Order. Where Charges~~charges~~ are "not to exceed" a specified sum, all Services shall be provided by URS for Charges which do not exceed the specified sum~~URS shall notify Client before such sum is exceeded and shall not continue to provide the Services beyond such sum unless Client authorizes an increase in the sum~~. If a "not to exceed" sum is broken down into budgets for specific tasks, the task budget may be exceeded without Client authorization as long as the total sum is not exceeded. Changes in conditions which directly affect the Services, including, without limitation, changes in laws or regulations occurring after the budget is established or other circumstances beyond URS control shall be a basis for equitable adjustments in the budget and Time Schedule~~schedule~~.

ARTICLE II - Payment.

A. Unless otherwise stated in a~~an~~ Work Order, payment shall be on a time and materials basis under the Schedule of Fees and Charges set forth in the Work Order which are in effect when the Services are performed. Client shall pay undisputed portions of each progress invoice within thirty (30) days of the date of the Client's receipt of an invoice from URS. If payment is not maintained on a timely~~thirty (30) day current~~ basis, URS may suspend further performance until payments are current. Client shall notify URS of any disputed amount within fifteen (15) days from date of the Client's receipt of the invoice, give reasons for the objection, and ~~promptly~~ pay the undisputed amount in accordance herewith. Client shall pay interest on any overdue payment at the rate~~an additional charge~~ of one ~~and one-half~~ percent (1½%) per month or the maximum percentage allowed by law, whichever is the lesser~~, for any past due amount~~. In the event of a legal action for invoice amounts not paid in accordance with this Agreement and the Work Order, attorneys' fees, court costs, and other related expenses shall be paid to the prevailing party.

B. URS shall submit to Client an invoice or billing statement for all work performed hereunder in form and substance satisfactory to Client. All invoices or billing statements shall include a statement of Services rendered and the amount owed in connection therewith, an itemized statement of reimbursable costs and expenses incurred, and the sum of all prior payments for the Services set forth in the letter agreement dated February 21, 2002 (Exhibit A). The cumulative amounts of progress payments for the Services shall not exceed the Charges. URS shall not be entitled to any compensation for any services or work not actually performed or for any lost profits as a result of any abandonment or suspension of work by the Client. URS shall perform all work hereunder in a manner satisfactory and acceptable to the Client in accordance with the standard of care set forth in this Agreement.

C. Notwithstanding any other provision of this Agreement or the Work Order, Client shall not be obligated to make payment to URS hereunder if:

1. URS is in default of any of its obligations under this Agreement, the Work Order, or any other documents in connection with the Services (and payment may be withheld to the extent of any such default);

2. Any part of such payment is attributable to any services of URS which are not performed in accordance with this Agreement;

3. URS has failed to make payment promptly to consultants or other third parties used by URS in connection with URS' services hereunder for which the Client has made payment to URS; or

4. If the Client, in its good faith judgment and after consultation with URS, determines that the portion of the compensation then remaining unpaid will not be sufficient to complete the Services hereunder, no additional payments will be due URS hereunder unless and until URS performs a sufficient portion of the Services so that such portion of the compensation remaining unpaid is determined by Client to be sufficient to complete the Services.

ARTICLE III - Professional Responsibility. URS is obligated to comply with applicable standards of professional care in the performance of the Services. Client recognizes that opinions relating to environmental, geologic, and geotechnical conditions are based on limited data and that actual conditions may vary from those encountered at the times and locations where the data are obtained, despite the use of due professional care.

URS represents and warrants that it is authorized to practice engineering in the State of Texas and that any necessary licenses, permits or other authorization to practice engineering and to provide the Services set forth herein have been heretofore acquired as required by law, rule or regulation. Notwithstanding anything herein to the contrary, URS and Client agree and acknowledge that Client is entering into this Agreement in reliance on URS' professional abilities with respect to performing the Services set forth herein. URS agrees to use its professional skill, judgment and abilities in the performance of its Services hereunder, and shall render Services under this Agreement and in connection with the project in accordance with the professional standards of engineering prevailing in the Dallas-Fort Worth metroplex area and shall use the skill and care commensurate with the requirements of the engineering profession. URS shall perform its Services in accordance with all laws, regulations, and rules in accordance with the standard of care set forth herein. Without in any way limiting the foregoing or any other provision of this Agreement, URS shall be liable to the Client for any and all damages, injuries, liability, or other harm of whatever nature to the extent caused by or resulting from any negligent, grossly negligent, or intentionally wrongful errors, acts or omissions of URS, or URS' directors, partners, officers, employees, agents, contractors, subcontractors, or any person or entity for whom URS is legally liable, in the provision of its Services under this Agreement, and for other breaches by URS to the extent URS was negligent, grossly negligent, or intentionally wrongful in its performance of professional services under this Agreement.

ARTICLE IV - Responsibility for Others. URS shall be responsible to Client for URS Services and the services of URS directors, partners, officers, employees, agents, contractors, subcontractors, or any person or entity for whom URS is legally liable. URS shall not be responsible for the acts or omissions of other parties engaged by Client nor for their construction means, methods, techniques, sequences, or procedures, or their health and safety precautions and programs.

~~**ARTICLE V - Risk Allocation.** The liability of URS, its employees, agents and subcontractors (referred to collectively in this Article as "URS"), for Client's claims of loss, injury, death, damage, or expense, including, without limitation, Client's claims of contribution and indemnification, express or implied, with respect to third party claims relating to services rendered or obligations imposed under this Agreement, including all Work Orders, shall not exceed in the aggregate:~~

~~(1) The total sum of $250,000 for claims arising out of professional negligence, including errors, omissions, or other professional acts, and including unintentional breach of contract; and any actual or potential environmental pollution or contamination, including, without limitation, any actual or threatened release of toxic, irritant, pollutant, or waste gases, liquids, or solid materials, or failure to detect or properly evaluate the presence of such substances, except to the extent such release, threatened release, or failure to detect or evaluate is caused by the willful misconduct of URS; or~~

~~(2) The total sum of $1,000,000 for claims arising out of negligence, breach of contract, or other causes for which URS has any legal liability, other than as limited by (1) above.~~

ARTICLE VI – Insurance; Indemnity.

A. In connection with this Agreement, URS shall provide and maintain in full force and effect the following insurance:

(i) Workers' compensation and employer's liability insurance for the protection of URS' employees, to the extent required by the law of the State of Texas;

(ii) Commercial general liability insurance with limits not less than One Million and No/100 Dollars $1,000,000.00 each occurrence combined single limit bodily injury and property damage, including contractual liability (covering, but not limited to, the liability assumed under the indemnification provisions of this Agreement), personal injury, broadform property damage, products and completed operations coverage (and if such commercial general liability insurance contains a general aggregate limit, it shall apply separately to the Services under this Agreement);

(iii) Comprehensive automobile liability insurance with limits not less than One Million and No/100 Dollars ($1,000,000.00) each occurrence combined single limit bodily injury and property damage, including owned, non-owned and hired auto coverage, as applicable; and

(iv) Professional Liability Insurance to protect from liability arising out of the performance of professional services under this Agreement. Such coverage shall be in the sum of not less than Two Million and No/100 Dollars ($2,000,000.00) per claim and aggregate. This coverage must be maintained for at least two (2) years after the project contemplated herein is completed. If coverage is written on a claims-made basis, the retroactive date must not be later than the inception date of this Agreement.

All such policies of insurance shall (a) be issued by insurance companies reasonably acceptable to Client, (b) except for professional liability insurance, shall name (by endorsement) the Town of Addison, Texas, its officials, officers, employees and agents as an additional insured or loss payee, as the case may be, (c) in all liability policies, provide that such policies are primary insurance to any other insurance available to the additional insureds, with respect to any claims arising out of activities conducted hereunder, (d) contain a waiver of subrogation endorsement in favor of the Town of Addison, Texas, and (e) provide for at least thirty (30) days written notice to the Town of Addison, Texas prior to cancellation, non-renewal or material modification which affects this Agreement. Certificates of insurance (together with the declaration page of such policies, along with the endorsement naming the Town of Addison, Texas as an additional insured or loss payee, as the case may be), satisfactory to Client, evidencing all coverage above, shall be promptly delivered to Town and updated as may be appropriate, with complete copies of such policies furnished to the Client upon request. The Client reserves the right to review the insurance requirements contained herein and to reasonably adjust coverages and limits when deemed necessary and prudent by the Client.
~~URS agrees to maintain during the performance of the Services: (1) statutory Workers' Compensation coverage; (2) Employer's Liability; (3) General Liability; and (4) Automobile Liability insurance coverage each in the sum of $1,000,000.~~

B. In connection with this Agreement (together with the Work Order) and the provision of Services, URS agrees to and shall indemnify the Town of Addison, Texas, its officials, officers, agents and employees (together, for purposes of this paragraph, the "Indemnified Persons") against, and hold the Indemnified Persons harmless from, any and all claims, actions, causes of action, demands, losses, harm, damages, liability, expenses, lawsuits, judgments, costs, and fees (including reasonable attorney fees and court costs), for any injury to or the death of any person, or any damage to or destruction of any property, or any other harm for which damages or any other form of recovery is sought (whether at law or in equity), resulting from, based upon, or arising out of any negligent, grossly negligent, reckless, or intentionally wrongful act, error, or omission of URS, its officers, employees, agents, engineers, consultants, contractors, subcontractors, or any person or entity for whom URS is legally liable, under, in connection with, or in the performance of, this Agreement. The provisions of this paragraph shall survive the expiration or termination of this Agreement.

~~**ARTICLE VII – Consequential Damages.** Neither Party shall be liable to the other for consequential damages, including, without limitation, loss of use or loss of profits, incurred by one another or their~~

~~subsidiaries or successors, regardless of whether such damages are caused by breach of contract, willful misconduct, negligent act or omission, or other wrongful act of either of them.~~

ARTICLE ~~VII~~ - Client Responsibility. Client shall: (1) provide URS, in writing, all information relating to Client's requirements for the project; (2) correctly identify to URS, the location of subsurface structures which have been placed by Client, such as pipes, tanks, cables and utilities; (3) notify URS of any potential hazardous substances or other health and safety hazard or condition known to Client existing on or near the project site; (4) give URS prompt written notice of any suspected deficiency in the Services; and (5) with reasonable promptness, provide required approvals and decisions. In the event that URS is requested by Client or is required by subpoena to produce documents or give testimony in any action or proceeding to which Client is a party and URS is not a party, Client shall pay URS for any time and expenses required in connection therewith, including reasonable attorney's fees.

~~Client shall reimburse URS for all taxes, duties and levies such as Sales, Use, Value Added Taxes, Deemed Profits Taxes, and other similar taxes which are added to or deducted from the value of URS Services. For the purpose of this Article such taxes shall not include taxes imposed on URS net income, and employer or employee payroll taxes levied by any United States taxing authority, or the taxing authorities of the countries or any agency or subdivision thereof in which URS subsidiaries, affiliates, or divisions are permanently domiciled. It is agreed and understood that these net income, employer or employee payroll taxes are included in the unit prices or lump sum to be paid URS under the respective Work Order.~~

ARTICLE ~~VIII~~IX - Force Majeure. An event of "Force Majeure" occurs when an event beyond the control of the Party claiming Force Majeure prevents such Party from fulfilling its obligations. An event of Force Majeure includes, without limitation, acts of God (including floods, hurricanes and other adverse weather), war, riot, civil disorder, acts of terrorism, disease, epidemic, strikes and labor disputes, actions or inactions of government or other authorities, law enforcement actions, curfews, closure of transportation systems or other unusual travel difficulties, or inability to provide a safe working environment for employees.

In the event of Force Majeure, the obligations of URS to perform the Services and the obligations of the Client hereunder shall be suspended for the duration of the event of Force Majeure. In such event, ~~URS shall be equitably compensated for time expended and expenses incurred during the event of Force Majeure and~~ the Time Schedule~~schedule~~ shall be extended by a like number of days as the event of Force Majeure. If Services are suspended for ninety~~thirty~~ (90~~30~~) consecutive days or more by such Force Majeure, either URS or the Client may~~, in its sole discretion~~, upon at least 5 days prior written notice, terminate this Agreement and~~or~~ the affected Work Order~~, or both~~. In the case of such termination, ~~in addition to the compensation and time extension set forth above,~~ URS shall be compensated in accordance herewith for all work properly performed to the date of termination~~reasonable termination expenses~~. In the event of such termination of this Agreement and the Work Order, no amount shall be due for lost or anticipated profits.

ARTICLE ~~VIII~~IX - Right of Entry. If Client is the owner of the project site, URS shall have access to the project site at all reasonable times for the purpose of providing the Services. If Client is not the owner of the project site, Client shall use its commercially reasonable efforts to obtain permission for URS to have access to the project site for such purpose~~Client grants to URS, and, if the project site is not owned by Client, warrants that permission has been granted for, a right of entry from time to time by URS, its employees, agents and subcontractors, upon the project site for the purpose of providing the Services. Client recognizes that the use of investigative equipment and practices may unavoidably alter the existing site conditions and affect the environment in the area being studied, despite the use of reasonable care.~~

ARTICLE ~~IX~~XI - Documents. Upon payment to URS for work properly performed, drawings, designs, plans, specifications, reports, information, and other documents or materials in whatever form or format (together, "Drawings") prepared by or for URS in connection herewith belong to, and remain the property of, the Client for its exclusive reuse at any time without further compensation and without any restrictions, and all intellectual property rights in connection with the same (whether copyright or otherwise) are hereby assigned by URS to Client; provided, however, that URS shall retain property rights with respect to any patentable concepts arising from the Services.~~Provided that URS has been~~

~~paid for the Services, Client shall have the right to use the documents, maps, photographs, drawings and specifications resulting from URS efforts on the project.~~ Reuse of any such materials by Client on any extension of this project or any other project without the written authorization of URS shall be at Client's sole risk. URS shall have the right to retain copies of all such materials. ~~URS retains the right of ownership with respect to any patentable concepts or copyrightable materials arising from its Services.~~

Drawings shall be submitted to the Client for the Client's approval, and the same shall comply with all applicable laws, statutes, ordinances, codes and regulations. Notwithstanding Client's approval of any of the Drawings, URS warrants and represents that the Drawings, as the same may be amended or supplemented by URS, shall, to the best of URS' knowledge, information and belief as engineers performing the practice of engineering in accordance with the standards, duties, and obligations set forth in this Agreement and the Work Order, be sufficient and adequate for construction of the project for which the Services are provided, shall be free from material error, and shall be satisfactory to the Client. In accordance with the standard of care, URS agrees that if it shall recommend unsuitable materials in connection with the project and this Agreement and Work Order, or if the design of the project should be defective in any way, URS will assume sole responsibility for any damages, loss, claims, or expenses to the extent caused by URS' recommendation of unsuitable materials or defective design. In the event it is determined that any Drawings are defective, URS shall promptly correct any defective Drawings at no cost to the Client. The Client's approval, acceptance, use of or payment for all or any part of the Services under this Agreement or the Work Order shall in no way alter URS' obligations or the Client's rights hereunder. Approval by the Client of any of URS' Drawings or work, or the use of or payment for all or any part of the Services, shall not constitute nor be deemed a release of the responsibility and liability of URS, its employees, contractors, subcontractors, agents and consultants for the accuracy and competency of the same, nor shall such approval be deemed to be an assumption of or an indemnification for such responsibility or liability by the Client for any defect, error or omission in such Drawings or work, it being understood that the Client at all times is ultimately relying on URS' skill and knowledge in preparing the Drawings.

ARTICLE XII - Termination.

A. Client may at any time terminate all or any portion of the Services, or abandon or defer the project (or any part thereof) for which the Services are being provided, for convenience, at its option and in its sole discretion, by sending a written notice~~Notice~~ of such termination, abandonment or deferral to URS. If the project (or portion thereof) for which the Services are being provided is abandoned or deferred by Client, Client shall have the right to restore and reinstate the project and the Services hereunder within one (1) year of such abandonment or deferral; provided, however, that if the abandonment or deferral is for more than 90 consecutive days, such restoration and reinstatement shall be subject to renegotiation of URS' compensation.

B. Either party can terminate this Agreement and~~or a~~ Work Order for cause if the other party:

(i) commits a material~~, uncured~~ breach of this Agreement, and

(a) such breach remains uncured for a period of 7 days after notice thereof (which notice shall specifically identify the breach) is received by the breaching party, or

(b) if the breach cannot with diligence be cured within said 7 day period, if within such 7 day period the breaching party provides the non-breaching party written notice of the curative measures which it proposes to undertake, and proceeds promptly to initiate such measures to cure such failure, and thereafter prosecutes the curing of such failure with diligence and continuity, the time within which such failure may be cured shall be extended for such period as may be necessary to complete the curing of such failure with diligence and continuity, not to exceed 30 days following the occurrence of the breach, or

(ii) becomes insolvent.

Termination for cause shall be effective ten (10)~~twenty (20)~~ days after receipt of a Notice of Termination, unless a later date is specified in the Notice. ~~The Notice of Termination for cause shall contain specific reasons for termination and both parties shall cooperate in good faith to cure the causes for termination stated in the Notice. Termination shall not be effective if reasonable action to cure the breach has been taken before the effective date of the termination.~~

C. URS shall cease all work and labor being performed under this Agreement immediately upon receipt of the notice of termination (whether for convenience or for cause).

D. In the event this Agreement is terminated for any reason (whether for convenience or for cause), URS shall invoice Client for all work properly completed and shall be compensated in accordance with the terms of this Agreement for all such work accomplished prior to the receipt of the notice of termination. In the event of termination of this Agreement for any reason (whether for convenience or for cause), no amount shall be due for lost or anticipated profits. In the event of any termination and upon payment to URS for the work properly performed by URS, URS shall deliver to the Client all finished or unfinished documents, data, studies, surveys, drawings, maps, models, reports, photographs or other items prepared by or for URS in connection with this Agreement, its Services, and the project.~~Client shall pay URS upon invoice for Services performed and charges incurred prior to termination, plus reasonable termination charges.~~

E. In the event of termination for cause, the parties shall have their remedies at law as to any other rights and obligations between them, subject to the other terms and conditions of this Agreement.

ARTICLE XIII - No Third Party Rights. This Agreement shall not create any rights or benefits to parties other than Client and URS. No third party shall have the right to rely on URS opinions rendered in connection with the Services without the written consent of URS and the third party's agreement to be bound to the same conditions and limitations as Client.

ARTICLE XI~~I~~V - Assignments. URS shall have no power to and shall not assign, transfer, or otherwise convey its interest, rights, duties, or responsibilities in this Agreement or any part thereof without the prior written consent of Client, and any such assignment, subletting, transfer or other conveyance shall be deemed a material breach of this Agreement (without an opportunity to cure) and the Client shall have the right to terminate this Agreement immediately and without further notice; provided, however, that nothing contained in this paragraph shall prevent URS from employing such independent professional associates, sub-consultants, and suppliers as URS may deem appropriate to assist in the performance of the Services. Unless specifically stated to the contrary in any written consent to an assignment or transfer, no assignment or transfer will release or discharge the assignor from any duty or responsibility under this Agreement.~~Neither party to this Agreement shall assign its duties and obligations hereunder without the prior written consent of the other party.~~

ARTICLE XIIIV - Hazardous Substances. All nonhazardous samples and by-products from sampling processes in connection with the Services shall be disposed of by URS in accordance with applicable law; provided, however, that any and all such materials, including wastes, that cannot be introduced back into the environment under existing law without additional treatment, and all hazardous wastes, radioactive wastes, or hazardous substances (eg, pollutants and contaminants regulated by law) ("Hazardous Substances") from the sampling processes in connection with~~related to~~ the Services, shall be packaged in accordance with the applicable law by URS and turned over to Client for appropriate disposal (provided, however, that URS shall first give notice to Client of the existence of such Hazardous Substances). URS shall not arrange for or otherwise dispose of Hazardous Substances under this Agreement. URS, at Client's request, may assist Client in identifying appropriate altematives for off-site treatment, storage or disposal of the Hazardous Substances, but URS shall not make any independent determination relating to the selection of a treatment, storage, or disposal facility nor subcontract such activities through transporters or others. Client shall sign all necessary manifests for the disposal of Hazardous Substances if Client is required by law to sign such manifests. If Client requires: (1) URS agents or employees to sign such manifests; or (2) URS to hire, for Client, the Hazardous Substances transportation, treatment, or disposal contractor, then for these two purposes, URS shall be considered to act as Client's agent so that URS will not be considered to be a generator, transporter, or disposer of such substances or considered to be the arranger for disposal of Hazardous Substances, and Client shall indemnify URS against any claim or loss resulting from such signing.

ARTICLE XIVI — Venue; Dispute Resolution.

A. In the event of any action under this Agreement, venue for all causes of action shall be instituted and maintained in Dallas County, Texas (state court) or in the northern district of Texas (federal court), as the case may be. The parties agree that the laws of the State of Texas shall apply to the interpretation, validity and enforcement of this Agreement, and, with respect to any conflict of law provisions, the parties agree that such conflict of law provisions shall not affect the application of the law of Texas (without reference to its conflict of law provisions) to the interpretation, validity and enforcement of this Agreement.~~In the event of any dispute between the parties to this Agreement, the venue for the dispute resolution shall be any state or federal court in the United States having jurisdiction over the parties. The foregoing notwithstanding, if the project is located outside the United States, the laws of the State of California shall govern and in such event, any dispute under the Agreement not resolved amicably shall be resolved under the binding rules of the American Arbitration Association.~~

B. In an effort to resolve claims, disputes or other matters in question arising out of or relating to this Agreement or breach thereof, the parties agree that all claims, disputes, or other matters in question shall be submitted to nonbinding mediation as a first step in seeking a resolution of the same.

The dispute shall be mediated by a mutually acceptable third-party to be chosen by the disputing parties within thirty (30) days after written notice by one of them requesting mediation. The disputing parties shall share the costs of the mediation equally. By mutual agreement the parties may postpone mediation until each has completed some specified but limited discovery about the dispute. By mutual agreement, the parties may use a nonbinding form of dispute resolution other than mediation. Any nonbinding dispute resolution process conducted under this Agreement shall be confidential within the meaning of Sections 154.053 and 154.073 of the Texas Civil Practice and Remedies Code, as amended, and any successor statute thereto. If neither a negotiated settlement or mediated resolution is obtained within the time periods provided by this Article, the parties may pursue any available legal or equitable remedy.

Any request for mediation or another form of nonbinding dispute resolution shall be filed in writing with the other party within a reasonable time after the claim, dispute or other matter in question has arisen. In no event shall the demand for mediation or other form of nonbinding dispute resolution be made after the date when institution of legal or equitable proceedings based on such claim, dispute or other matter in question would be barred by the applicable statutes of limitations.

ARTICLE XVII - Integrated Writing and Enforceability. This Agreement (together with the Work Order) constitutes the final and complete repository of the agreements between Client and URS relating to the Services and supersedes all prior or contemporaneous communications, representations, or agreements, whether oral or written. Modifications of this Agreement shall not be binding unless made in

writing and signed by an Authorized Representative of each party. The provisions of this Agreement shall be enforced to the fullest extent permitted by law. If any provision of this Agreement is found to be invalid or unenforceable, the provision shall be construed and applied in a way that comes as close as possible to expressing the intention of the parties with regard to the provisions and that saves the validity and enforceability of the provision.

ARTICLE XVI Miscellaneous.

A. The undersigned officers and/or agents of the parties hereto are the properly authorized officials and have the necessary authority to execute this Agreement on behalf of the parties hereto, and each party hereby certifies to the other that any necessary resolutions or other act extending such authority have been duly passed and are now in full force and effect.

B. Any provision of this Agreement later held to be unenforceable for any reason shall be deemed void and all remaining provisions shall continue in full force and effect. All obligations arising prior to the termination of this Agreement and all provisions of this Agreement allocating responsibility or liability between URS and Client shall survive the cancellation, expiration or termination of this Agreement. Any rights and remedies either party may have with respect to the other arising out of the performance of services during the term of this agreement shall survive the cancellation, expiration or termination of this Agreement.

C. Time is of the essence of this Agreement and the Work Order.

D. The rights and remedies provided by this Agreement are cumulative and the use of any one right or remedy by either party shall not preclude or waive its right to use any or all other remedies. Said rights and remedies are given in addition to any other rights the parties may have by law statute, ordinance, or otherwise.

E. URS acknowledges that the project for which the Services are being provided is a public project of the Town of Addison, Texas and is for a public purpose, and that the property on which the project is to be constructed, the improvements to be constructed thereon, and the funds used by Client in connection with the property acquisition and the design and construction of the project are exempt from the filing and enforcement of any liens thereon or with respect thereto and from forced sale. For the consideration set forth herein, URS waives and releases any lien, or claim or right of such lien, which URS has or may have in connection with the Services on or in connection with such property, improvements, and funds, this Agreement and the Work Order.

F. All notices, demands, or requests from one party to another shall be personally delivered or sent by United States mail certified, or registered, return receipt requested, postage prepaid, to the addresses stated below:

To Client:	To URS:
Addison Service Center 16801 Westgrove Drive Addison, Texas 75001-5190 Attn: Mike Murphy, Director of Public Works	Graystone Centre, 3010 /LBJ Freeway, Suite 1300 Dallas, Texas 75234 Attn: _____

All notices or communications required to be given in writing by one party or the other shall be considered as having been given to the addressee (i) if by hand delivery, at the time of delivery, or (ii) if mailed, seventy-two (72) hours after the deposit of same in any United States mail post office box. The addresses and addressees for the purpose hereof may be changed by giving notice of such change in the manner herein provided for giving notice. Unless and until such written notice is received the last addresses and addressee stated by written notice, or provided herein if no written notice of change has been sent or received, shall be deemed to continue in effect for all purposes hereunder.

THE PARTIES ACKNOWLEDGE that there has been an opportunity to negotiate the terms and conditions of this Agreement and agree to be bound accordingly.

CLIENT	**URS**
Signature	Signature
Ron Whitehead / City Manager	**Emily Taylor, P.E. / Vice President**
Typed Name/Title	Typed Name/Title
Date of Signature	Date of Signature

NOT TO EXCEED AMOUNT~~LUMP SUM~~ WORK ORDER NO. 001

In accordance with the Agreement for Professional Services between **Town of Addison** ("Client"), and **URS Corporation}** ("URS"). a **Nevada** corporation, dated **September 11, 2002**, this Work Order describes the Services, Schedule, and Payment Conditions for URS Services on the Project known as:

ARAPAHO ROAD BRIDGE AT MIDWAY ROAD
DESIGN DEVELOPMENT & CONTRACT DOCUMENTS

Client Authorized Representative:
Address: Public Works Department, P.O. Box 9010
Addison, TX 75001-9010
Telephone No.: 972.450.2871

URS Authorized Representative: Emily Taylor, P.E.
Address: Graystone Centre, 3010 LBJ Freeway, Suite 1300
Dallas, TX 75234
Telephone No.: 972.406.6950

SERVICES. The Services shall be described in Attachment **A** to this Work Order.

SCHEDULE. The Estimated Schedule shall be set forth in Attachment **B** to this Work Order. Because of the uncertainties inherent in the Services, Schedules are estimated and are subject to revision unless otherwise specifically described herein. Time is of the essence of this Work Order.

PAYMENT. The Services described in Attachment A will be performed for ana ~~"lump sum"~~ amount not to exceed~~of~~ **$550,965.00**; in no event shall the payment by Client for the Services exceed the said amount. A breakdown of this amount~~"lump sum" cost~~ is included in Attachment **C**. URS charges shall be on a percent complete basis and payment shall be made monthly based upon statements submitted to the Client for the work performed.

TERMS AND CONDITIONS. The terms and conditions of the Agreement referenced above shall apply to this Work Order, except as expressly modified herein.

ACCEPTANCE of the terms of this Work Order is acknowledged by the following signatures of the Authorized Representatives.

CLIENT	**URS**
Signature	Signature
Ron Whitehead / City Manager	**Emily Taylor, P.E. / Vice President**
Typed Name/Title	Typed Name/Title
Date of Signature	Date of Signature

DRAFT REPORT

ARAPAHO ROAD BRIDGE NOISE AND VIBRATION ANALYSIS

Recommended for Approval URS on 5/13/03 SE

Prepared for

Town of Addison
16801 Westgrove Drive
Addison, Texas

May 5, 2003

URS

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EXECUTIVE SUMMARY

A noise analysis was conducted to determine the effects of the construction of a roadway extension of Arapaho Road. Noise and vibration effects at adjacent commercial and transient lodging land uses were investigated as part of this project.

The analysis indicates that the noise and vibration resulting from construction and subsequent operation of the proposed roadway would be below State and federal noise and vibration impact standards. No significant noise or vibration impacts are anticipated from this project.

1.0 INTRODUCTION

This report presents the analysis of potential noise and vibration effects from construction and operation of the proposed project. The project would extend Arapaho Road from Surveyor Boulevard to Addison Road, in the Town of Addison, Texas. The roadway extension will consist of a 4-lane roadway and includes a bridge/elevated roadway, spanning over Midway Road. The extension will be approximately 5,400 feet in length.

The noise analysis consisted of the following: measuring the existing noise environment at representative noise-sensitive locations in the area; modeling the future traffic noise from the project; comparing project-related noise effects to applicable standards to determine if the difference would be a significant change; and determining if noise mitigation should be considered. Additionally, vibration from project construction and operations (i.e., from traffic using the new roadway) was analyzed.

2.0 NOISE FUNDAMENTALS

Noise is generally defined as loud, unpleasant, unexpected, or undesired sound that is typically associated with human activity and which interferes with or disrupts normal activities. Although exposure to high noise levels has been demonstrated to cause hearing loss, the principal human response to environmental noise is annoyance. The response of individuals to similar noise events is diverse and influenced by the type of noise, perceived importance and suitability of the noise in a setting, time of day and type of activity during which the noise occurs, and sensitivity of the individual.

Sound is a physical phenomenon consisting of minute vibrations, which travel through a medium such as air and are sensed by the human ear. Sound is generally characterized by a number of variables including frequency and intensity. Frequency describes the sound's pitch and is measured in Hertz (Hz), while intensity describes the sound's loudness and is measured in decibels (dB). Decibels are measured using a logarithmic scale. A sound level of 0 dB is approximately the threshold of human hearing and is barely audible under extremely quiet listening conditions. Normal speech has a sound level of approximately 60 dB. Sound levels above approximately 120 dB begin to be felt inside the human ear as discomfort and eventually pain at still higher levels. The minimum change in the sound level of individual events that an average human ear can detect in a community environment is approximately 3 dB. A change in sound level of 10 dB is perceived by the average person as a doubling (or halving) of the sound's loudness; this relation holds true for loud sounds and for quieter sounds. Sound levels of typical noise sources and environments are provided in Table 1 to provide a frame of reference.

Because of the logarithmic nature of the decibel unit, sound levels cannot be added or subtracted directly and are somewhat cumbersome to handle mathematically. However, some simple rules of thumb are useful in dealing with sound levels. For example, if a sound's intensity is doubled, the sound level increases by 3 dB, regardless of the initial sound level. Thus, for example: 60 dB plus 60 dB equals 63 dB, and 80 dB plus 80 dB equals 83 dB.

Sound frequency is a measure of how many times each second the crest of a sound pressure wave passes a fixed point. For example, when a drummer beats a drum, the skin of the drum vibrates at a certain number of times per second. A particular tone that makes the drum skin vibrate 100 times per second generates a sound pressure wave that is oscillating at 100 Hz, and this pressure oscillation is perceived as a tonal pitch of 100 Hz. Sound frequencies between 20 Hz and 20,000 Hz are within the range of sensitivity of the best human ear.

Sound from a tuning fork (a pure tone) contains one single frequency; however, most sounds heard in the environment do not consist of a single frequency, but rather a broad band of frequencies differing in sound level. The method commonly used to quantify environmental sounds consists of evaluating all of the frequencies of a sound according to a weighting system that reflects that human hearing is less sensitive at low frequencies and extremely high frequencies than at the mid-range frequencies. This is called A-weighting, and the decibel level measured is called the A-weighted sound level (dBA). In practice, the level of a noise source is conveniently measured using a sound level meter that includes a filter corresponding to the dBA curve.

Although the A-weighted sound level may adequately indicate the level of environmental noise at any instant in time, community noise levels vary continuously. Most environmental noise includes a conglomeration of noise from distant sources that create a relatively steady background noise in which no particular source is identifiable. A single descriptor called the L_{eq} (equivalent sound level) is used. L_{eq} is the energy-mean A-weighted sound level during a measured time interval. It is the "equivalent" constant sound level that a given source would need to produce to equal the fluctuating level measured. In addition, it is often desirable to know the acoustic range of the noise source being measured. This is accomplished through the L_{max} and L_{min} noise descriptors. They represent the root-mean-square maximum and minimum obtainable noise levels during the monitoring interval. The L_{min} value obtained for a particular monitoring location is often called the "acoustic floor" for that location.

Other descriptors of noise are commonly used to predict noise/land use compatibility, as well as community reaction to daytime and nighttime environmental noise. These descriptors include the Day-Night Average Sound Level (abbreviated L_{dn} or DNL). The L_{dn} represents a 24-hour period, and applies a penalty to noise events that occur during nighttime hours when relaxation and sleep disturbance is usually of more concern. Noise occurring from 10:00 p.m. to 7:00 a.m. (nighttime) is penalized by adding 10 dB to the measured level. L_{dn} is the predominant metric used by local governments to describe noise environments within their jurisdictions and for land use compatibility planning purposes. The U.S. Environmental Protection Agency (USEPA) recommends the use of L_{dn}.

Table 1. Sound Levels Of Typical Noise Sources And Noise Environments (A-Weighted Sound Levels)

Noise Source (at a Given Distance)	Scale of A-Weighted Sound Level in Decibels	Noise Environment	Human Judgment of Noise Loudness (Relative to a Reference Loudness of 70 Decibels*)
Military Jet Take-off with After-burner (50 ft) Civil Defense Siren (100 ft)	140 130	Carrier Flight Deck	
Commercial Jet Take-off (200 ft)	120		Threshold of Pain *32 times as loud
Pile Driver (50 ft)	110	Rock Music Concert	*16 times as loud
Ambulance Siren (100 ft) Newspaper Press (5 ft) Power Lawn Mower (3 ft)	100		Very Loud *8 times as loud
Motorcycle (25 ft) Propeller Plane Flyover (1,000 ft) Diesel Truck, 40 mph (50 ft)	90	Boiler Room Printing Press Plant	*4 times as loud
Garbage Disposal (3 ft)	80	High Urban Ambient Sound	*2 times as loud
Passenger Car, 65 mph (25 ft) Vacuum Cleaner (10 ft)	70		Moderately Loud *70 decibels (Reference Loudness)
Normal Conversation (5 ft) Air Conditioning Unit (100 ft)	60	Data Processing Center Department Store	*1/2 as loud
Light Traffic (100 ft)	50	Private Business Office	*1/4 as loud
Bird Calls (distant)	40	Lower Limit of Urban Ambient Sound	Quiet *1/8 as loud
Soft Whisper (5 ft)	30	Quiet Bedroom	
	20	Recording Studio	Just Audible
	10		
	0		Threshold of Hearing

Source: Compiled by URS Corporation

3.0 LAND USE

The project is located within the Town of Addison, Texas and consists of the extension of Arapaho Road from Surveyor Boulevard on the west to Addison Road on the east. The extension would be elevated above the existing grade to accommodate a bridge over Midway Road. The current land uses adjacent to the project alignment consist of commercial, light industrial and transient residential (i.e., motels).

4.0 NOISE REGULATIONS

Federal, State and local agencies have established policies and regulations concerning the generation and control of noise that could adversely affect citizens and associated noise-sensitive land uses. The various policies and laws established to control adverse noise recognize both the desirability of peace and quiet and the necessity and inevitability of noise associated with an urbanized technological society.

The Texas Department of Transportation (TxDOT) in conjunction with the Federal Highway Administration (FHWA) has established specific sound levels, or Noise Abatement Criteria (NAC), which should not be approached or exceeded. TxDOT defines "approach" as being within 1 decibel of the NAC in Table 2. Thus, a peak-noise-hour sound level of 71 dBA L_{eq} for an Activity Category C land use type would be considered as approaching the TxDOT/FHWA Noise Abatement Criteria. Although this project is not subject to TxDOT or FHWA review, these standards will be used in the absence of local noise standards for transportation noise. The NAC are stated in terms of one-hour average sound levels (i.e., 1-hour L_{eq}'s) for various land uses (Table 1). The appropriate NAC for the land uses pertaining to this project are 71 dBA L_{eq} exterior for commercial and light industrial uses and 66 dBA L_{eq} exterior transient residential uses (i.e., hotel/motel). The interior NAC for residences, motels, hotels, public meeting rooms, schools, churches, libraries, hospitals and auditoriums is 51 dBA L_{eq}. Additionally, TxDOT's Noise Policy defines increases in noise levels as "substantial" and therefore an impact when the predicted traffic noise levels exceed the existing noise levels by ten (10) dBA or more.

Table 2. FHWA / TxDOT Noise Abatement Criteria

Activity Category	$L_{eq(h)}$	Description of Activity Category
A	57 (Exterior)	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
B	67 (Exterior)	Parks, residences, motels, hotels, schools, churches, libraries, and hospitals.
C	72 (Exterior)	Developed lands, properties, or activities not included in Categories A or B above.
D	—	Undeveloped lands.
E	52 (Interior)	Residences, motels, hotels, public meeting rooms, schools Churches, libraries, hospitals, and auditoriums.

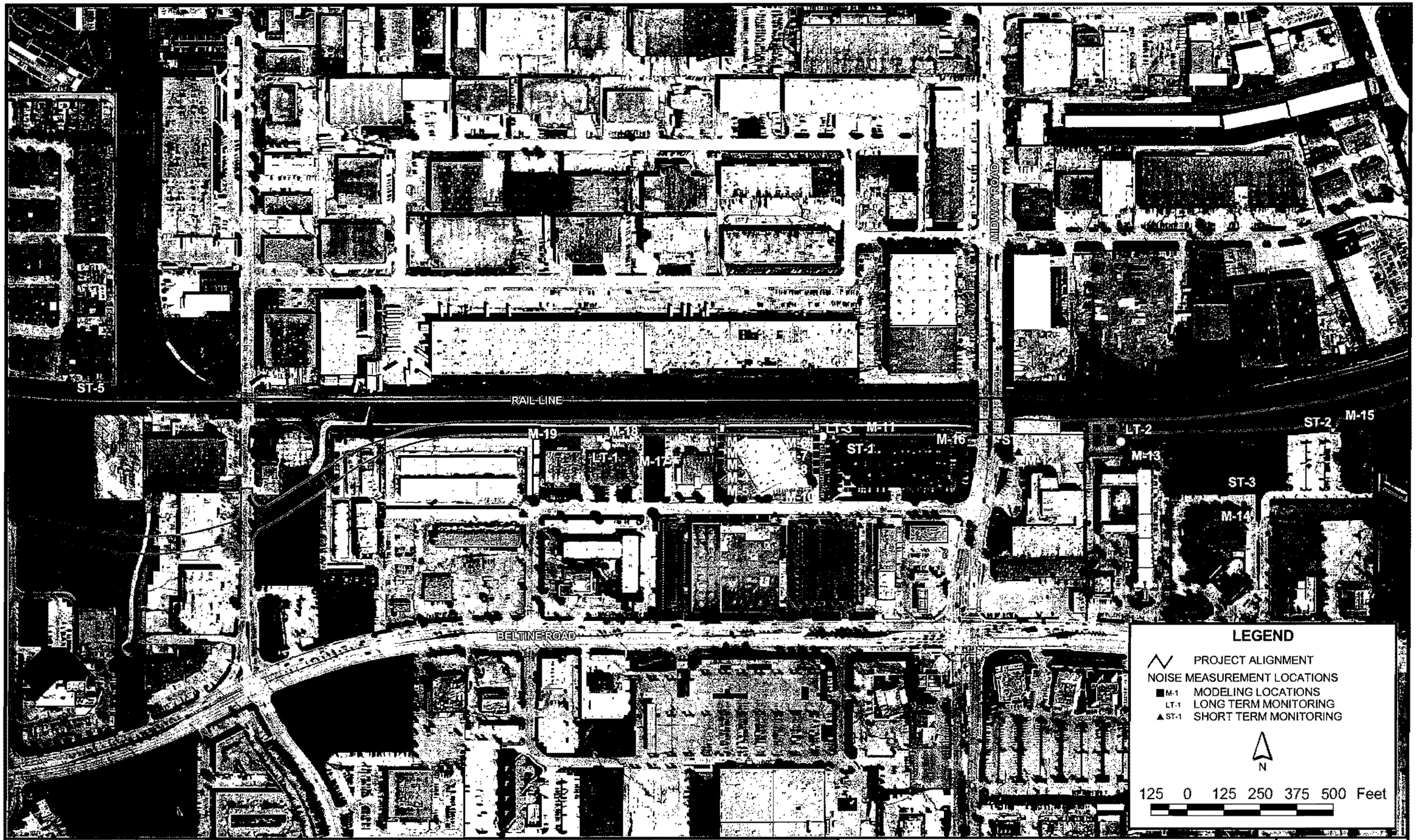
Hourly A-Weighted Sound Level – Decibels (dBA)
Federal-Aid Highway Program Manual Vol.7, Chapter 7
Transmittal 348, August 9, 1982 Sec. 3, Attachment

The Town of Addison has noise control restrictions on construction noise. Section 70-140 (Noise, Dust and Debris) of the Town's Code of Ordinances (adopted April 9, 2002) specifies that "...The permitee shall take appropriate measures to reduce to the fullest extent practicable in the performance of the excavation work, noise, dust and unsightly debris and during the hours of 10:00 p.m. and 7:00 a.m. shall not use, except with the permission of the city manager, or in case of an emergency as herein otherwise

provided, any tool, appliance or equipment producing noise of sufficient volume to disturb the sleep or repose of occupants of the neighboring property."

4.1 EXISTING NOISE ENVIRONMENT

Baseline noise measurements were conducted within the project study area from January 29 to January 30, 2003. The noise measurement locations are shown in Figure 1. The purpose of these measurements was to assess the existing noise levels and for comparison with the results of predicted future-with-project traffic noise modeling. The ambient noise was measured at 9 locations in the vicinity of the proposed project. Short-term (15 minutes to 1 hour in duration) noise measurements were conducted at six locations, and long-term (over 24 hours in duration) noise measurements were conducted at three locations. Table 3 presents the results of the short-term noise measurements. Table 4 presents the results of the long-term noise measurements. Long-term noise measurements are used to assess the noise levels in the project area throughout a typical day-night cycle.



URS	May 2003	25334401	Arapaho Road Bridge Noise Analysis	Noise Measurement & Modeling Locations	Figure 1

The short-term noise measurements were conducted using a tripod-mounted Type 1 (Precision grade) Larson Davis Model 820 Sound Level Meter (SLM) with statistical analyzer. Long-term noise monitoring was conducted using three Metrosonics db-308 community noise analyzers (CNAs). The SLM and the CNAs were set on Slow time response mode, and used the "A" weighting filter network that most closely approximates the hearing characteristics of the human ear. To ensure accuracy, the laboratory calibration of the noise instruments was field checked before and after each measurement period using an acoustical calibrator. The accuracy of the acoustical calibrator is maintained through a program established by the manufacturer, and is traceable to the National Institute of Standards and Technology. The sound measurement instruments meet the requirements of the American National Standard S 1.4-1983 and the International Electrotechnical Commission Publications 804 and 651. In all cases, the microphone heights were five feet above the ground and the microphones were equipped with windscreens.

Meteorological conditions were conducive to reliable and accurate noise measurements, with clear to partly cloudy skies (no precipitation), calm to light winds (0 – 6 miles per hour), temperatures between 45 and 54 degrees Fahrenheit and relative humidity ranging from 53 to 70 percent.

As shown in Table 3, noise levels in the project area during the short-term noise measurements varied from 51 dBA L_{eq} (at ST-5, adjacent to the residential area northwest of the project alignment) to 66 dBA L_{eq} (at ST-4, near The Rink). Predominant noise sources in the project area were traffic along Midway Road and other roadways such as Beltline Road and Addison Road, aircraft operations from the nearby Addison Airport, nearby and distant industrial noises, birds and distant trains.

Long-term noise data, as summarized in Table 4, indicates that 24 hour average noise levels vary from approximately 59 dBA L_{eq} to approximately 66 dBA L_{eq}. In terms of the L_{dn}, the noise levels vary from approximately 65 dBA L_{dn} to 70 dBA L_{dn}. The hourly L_{eq} noise levels are presented graphically in Figure 2. Figure 2 shows that all three of the long-term noise measurements display similar diurnal noise patterns, although maximum and minimum levels and times of day vary somewhat. Hourly noise levels for LT-1 ranged from approximately 43 dBA L_{eq} (during the 3:00 a.m. hour) to approximately 67 dBA L_{eq} (during the 6:00 a.m. hour). Hourly noise levels for LT-2 ranged from approximately 46 dBA L_{eq} (during the 2:00 a.m. to 3:00 a.m. hours) to approximately 77 dBA L_{eq} (during the 1:00 p.m. hour). Hourly noise levels for LT-3 ranged from approximately 48 dBA L_{eq} (during the 1:00 a.m hour) to approximately 72 dBA L_{eq} (during the 7:00 p.m. hour).

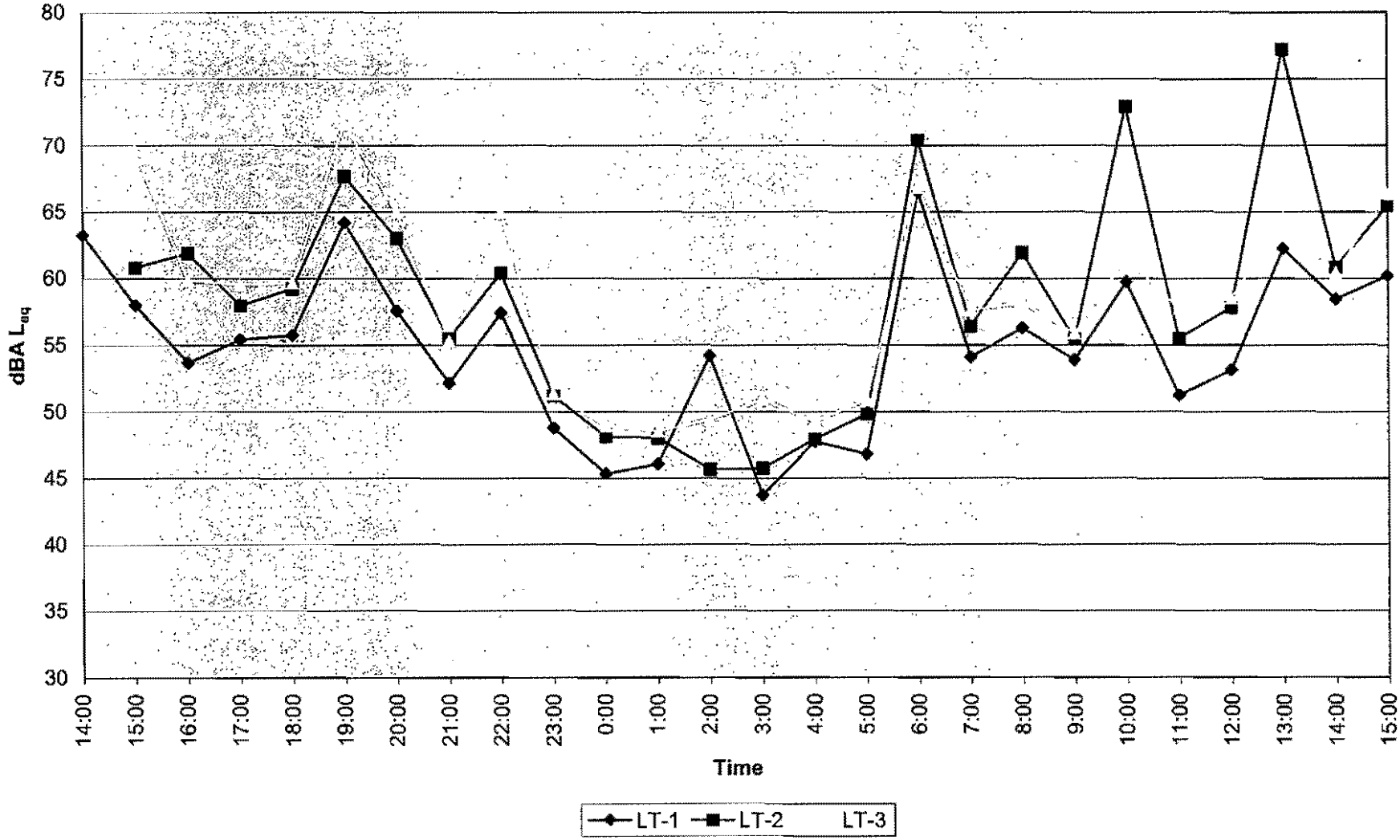
Table 3 - Short-Term Noise Measurement Data (dBA)

Location	Meaurement Date	Measurement Start Time	Duration (Hr:Min)	Description	L_{eq}	L_{Max}	L_{Min}	Primary Noise Sources
ST-1	1/29/03	16:50	1:00	Behind Mapsco (Next to Charter Furniture) near picnic table (employee break area).	58.8	76.9	51.1	Traffic (Midway Road), aircraft, occasional exhaust valve (distant industrial)
ST-2	1/30/03	10:00	1:00	Comfort Suites NE corner	56.7	80.9	44.1	Aircraft, birds, distant traffic, distant industrial exhaust
ST-3	1/30/03	11:10	1:00	Homewood Suites, Beltline Road behind hedge at rear of building.	58.8	79.6	48.2	Aircraft, birds, distant traffic, hotel HVAC system
ST-4	1/30/03	12:40	0:30	The Rink, 15100 Midway Rd., 100' from Midway c.l.	65.6	80.4	51.5	Traffic (Midway Road), aircraft, birds
ST-5	1/30/03	14:25	0:15	Behind 3228 San Sebastion Dr. (residential area near the northwest side of project).	50.2	60.9	46.8	Industrial (Generator, HVAC at nearby industrial buildings), birds, distant aircraft
ST-6	1/30/03	15:05	0:40	Intervest Companies, 4131 Centurion Wy	57.9	78.1	44	Aircraft, birds, distant traffic, distant trains

Table 4.-Long-Term Noise Measurements

Site ID	Measurement Date	Location	24 hr L_{eq} (dBA)	24 hr L_{dn} (dBA)	24 hr Average L_{50} (dBA)	24 hr Average L_{90} (dBA)
LT-1	1/29/03-1/30/03	4125 Centurion Way	58.5	64.5	49.5	47.5
LT-2	1/29/03-1/30/03	Behind Motel 6 Property, on fence of tennis courts	66.4	69.6	53.5	50.5
LT-3	1/29/03-1/30/03	Behind Absolute Systems Property, on fence post	63.3	67.3	54.2	51.3

Figure 2 - Long-Term Hourly Noise Measurement Data
Jan 29-30, 2003



5.0 ENVIRONMENTAL IMPACT ASSESSMENT AND MITIGATION MEASURES

5.1 THRESHOLDS OF SIGNIFICANCE

The project would be considered to produce a noise impact if FHWA/TxDOT NAC are approached or exceeded. Specifically, if the noise from the project equals or exceeds the NAC for Activity Category B or C of 66 dBA L_{eq} and 71 dBA L_{eq} respectively, or if predicted traffic noise levels exceed existing noise levels by more than 10 dBA, the project would be considered to have a significant noise effect and mitigation should be considered.

5.2 IMPACTS ANALYSIS AND MITIGATION MEASURES

5.2.1 Traffic Noise Modeling

After ambient noise data were collected, the potential noise impacts to representative noise-sensitive receivers were modeled using the FHWA Traffic Noise Model (TNM®). TNM® is FHWA's most recent computer-based noise model for highway traffic noise prediction and analysis. TxDOT has approved the noise model for use in the analysis of their highway projects. TNM® incorporates features that make it a very good choice for accurate assessment of noise from the proposed project; specifically, the model allows the analyst to very accurately input and model the geometry of the proposed roadway, surrounding structures and receivers in three dimensions.

Site-specific data used to model future noise impacts included:

- Design year traffic data (traffic volumes, mix, direction, and speed)
- Roadway design data (plan and profile)
- Topographic data
- Aerial photographs

The site-specific data were used to create a digital model of the proposed project alternative in TNM®. The TNM® runs used the same locations as those where measurements were conducted. Additionally, supplemental model locations were used in the TNM® model to more fully represent potential changes to the local noise environment. The model receiver locations are shown in Figure 1 and listed in Table 5.

Year 2020 traffic volumes for the grade-separated alternative (13,000 ADT) were utilized for the noise modeling, as supplied by traffic and design information supplied by HNTB and Terra Mar, Inc. Modeled speed for the project was 40 miles per hour. Traffic mix (the percentages of autos, light, medium and heavy trucks) was used as supplied by the traffic study.

As shown in Table 5 (exterior noise impacts), the TNM® results were combined with the existing, ambient noise levels to obtain predicted future-with-project peak-noise-hour levels. The future-with-project noise levels were then compared with the FHWA/TxDOT NAC to identify any representative

noise-sensitive receivers that would have a noise impact from the proposed project. Interior noise levels were also predicted, using the results for the exterior noise modeling and then subtracting a 25 decibel exterior/interior noise reduction factor for shielding provided by the building structure. The 25 dB reduction factor is based upon guidance provided by TxDOT, as well as other agencies. This factor assumes a masonry structure of modern construction, with single glazing, with doors and windows closed. Most modern commercial structures would provide well over 25 dB of noise reduction with doors and windows closed; thus, the 25 dB assumption is conservative. The predicted interior noise levels were then compared to the FHWA/TxDOT NAC for noise-sensitive interior spaces, as shown in Table 6.

Table 5 - Predicted Exterior Noise Levels

Receptor #	Receptor Location	Existing Ambient Level (based upon Noise Measurements) (dBA Leq)	Estimated[1] Future Noise Level (from Arapaho Bridge) (dBA Leq)	Combined Future Noise Level (Ambient plus Project) (dBA Leq)	Estimated Increase Over Existing Noise Level (dBA Leq)	Criterion Noise Level[2] (dBA Leq)	Future Noise Level Exceeds Criterion Noise Level ?	Substantial Inerease Criterion (Greater than 10 dBA) Exceeded ?
1	W of Croueh Property - 10' fm bridge	58	57	61	3	71	No	No
2	W of Crouch Property - 35' fm bridge	58	58	61	3	71	No	No
3	W of Crouch Property - 60' fm bridge	58	57	61	3	71	No	No
4	W of Croueh Property - 85' fm bridge	58	56	60	2	71	No	No
5	W of Croueh Property - 110 ' fm bridge	58	54	59	1	71	No	No
6	E of Crouch Property - 10' fm bridge	58	55	60	2	71	No	No
7	E of Crouch Property - 35' fm bridge	58	56	60	2	71	No	No
8	E of Crouch Property - 60' fm bridge	58	56	60	2	71	No	No
9	E of Crouch Property - 85' fm bridge	58	56	60	2	71	No	No
10	E of Crouch Property - 110 ' fm bridge	58	55	60	2	71	No	No
11	Outdoor Break Area - Furniture Store	59	54	60	1	66	No	No
12	Ice Rink in Parking Lot	66	56	66	0	71	No	No
13	Adj to Motel 6	63	58	64	1	66	No	No
14	Adj to Homewood Suites	59	57	61	2	66	No	No
15	Adj to Comfort Suites	57	65	65	8	66	No	No
16	Adj to E side of Furniture Store	66	54	66	0	71	No	No
17	Adj to Intervest	58	60	62	4	71	No	No
18	Adj to Satori/The Harbor Group	58	62	63	5	71	No	No
19	Adj. to Building near W side of Project	58	62	63	5	71	No	No

1 - Future noise level from proposed project, derived from the FHWA's TNM® noise model.

Activity Category B (whieh ineludes hotel/motel land uses).

Table 6 - Predicted Interior Noise Levels

Receptor #	Receptor Location	Estimated Future Exterior Noise Level (Ambient plus Project) (dBA L_{eq})	Estimated Future Interior Noise Level[1] (Ambient plus Project) (dBA L_{eq})		Criterion Interior Noise Level[2] (dBA L_{eq})	Future Noise Level Exceeds Criterion Noise Level ?
1-10	Crouch Property	61	36		51	No
12	Ice Rink	66	41		51	No
13	Motel 6	64	39		51	No
14	Homewood Suites	61	36		51	No
15	Comfort Suites	65	40		51	No
16	Furniture Store	66	41		51	No
17	Intervest	62	37		51	No
18	Satori/The Harbor Group	63	38		51	No
19	Building near W Side of Project	63	38		51	No

1 - Assuming a conservative interior/exterior noise reduction factor of 25 dBA, based upon TXDOT guidance, as well as corroborating guidance from other state and federal agencies. Assumes a masonry structure with single-glazing, doors and windows closed.

2- Criterion noise levels based upon TxDOT / FHWA interior Noise Abatement Criteria for residences, motels, hotels, public meeting rooms, schools, churches, libraries, hospitals and auditoriums.

5.2.2 Operational Noise Impacts

As shown in Table 5, none of the 19 modeled representative receivers would have exterior noise impacts from the proposed project. Similarly, Table 6 shows that none of the modeled receivers would have interior noise impacts from the proposed project.

5.2.3 Construction Noise Impacts

Construction phase noise would result from the use of motorized construction equipment. Other short-term impacts from construction noise could result from construction traffic including materials delivery. Noise levels would vary depending on the type of equipment used, how it is operated, how well it is maintained, and its proximity to noise-sensitive uses. Standard excavation and installation equipment, such as graders, backhoes, loaders, tractors, drill rigs, welders, and heavy trucks would be used for construction of project facilities. Although construction would increase local noise levels, construction noise at any one location would be of brief duration because of the linear nature of the project and because of the cyclical nature of construction activities. With implementation of recommended good practice measures (listed below), project construction noise would not result in significant noise effects.

5.2.4 Vibration

Groundborne vibration from heavy equipment operations during project construction and from traffic using the proposed bridge was evaluated and compared with relevant vibration impact criteria. The Federal Transit Authority's (FTA's) Transit Noise and Vibration Impact Assessment Manual (1995) provides vibration impact criteria and recommended methodologies and guidance for assessment of vibration effects.

Ground-borne vibration is a small, rapidly fluctuating motion transmitted through the ground. Ground-borne vibration diminishes (or "attenuates") fairly rapidly over distance. Some soil types transmit vibration quite efficiently; other types (primarily "sandy" soils) do not. There are several basic measurement units commonly used to describe the intensity of ground vibration. The descriptor used by FTA is the velocity decibel, abbreviated VdB. The velocity parameter best correlates with human perception of vibration. Thus, the response of humans, buildings and sensitive equipment to vibration is described in this section in terms of the root-mean square (RMS) velocity level in VdB units. As a point of reference, the average person can just barely perceive vibration velocity levels below 70 VdB (typically in the vertical direction).

For this project, FTA's more detailed, second-tier General Vibration Assessment was performed. In this analysis, adjustments to the impact criteria (level vs. distance) are used to account for vehicle speed, soil type, building/foundation type and roadway structural characteristics (i.e., roadway on bridge structure).

For the General Vibration Assessment, the land-use-dependent criteria listed in Table 7 would apply. The most stringent vibration criteria is 65 VdB for land use Category 1 receptors. Project-specific variables included vehicle speed, soil type and building/foundation type. Vehicle speed used for the analysis was 40 miles per hour. The limestone sub-soil underlying the project site was accounted for by assuming

highly efficient vibration propagation. The elevated roadway structure would act to diminish direct vehicle vibration. In contrast, potential amplification of vibration within the nearby buildings due to sympathetic resonance was assumed, as a conservative measure. Two cases were analyzed for this project: Case 1 was for the nearest building (The Crouch Property) which would be as near as 27 feet from the bridge piers following project construction; Case 2 was for the Motel 6 building which would be located approximately 100 feet from the roadway following project construction. For Case 1, the predicted vibration level within the building would be approximately 59 VdB. For Case 2, the predicted vibration level would be approximately 55.5 VdB. Both vibration levels would be below the most stringent of the FTA vibration criteria for land uses in which low vibration levels are "essential". Both levels would also be below the human threshold of perceptibility.

Table 7- Criteria for Impact for Human Annoyance and Interference to Use of Vibration-Sensitive Equipment*

		Ground-borne Vibration (VdB re 1 micro in/sec)	
		Events*	
Land Use Category	Category Comment	Frequent	Infrequent
1	Low interior ambient is essential	65	65
2	Residential & sleep	72	80
3	Institutional & daytime	75	83
4	Concert hall, TV/Recording Studio **	65	65
5	Auditorium **	72	80
6	Theatre **	72	80

* Frequent is defined as greater than or equal to 70 events per day
** See section 12.2.2 of FTA Manual re potential for structural damage to fragile structures if operational during transit events
Source: FTA, 1995

Potential vibration effects from construction operations were also assessed using the FTA methodology contained in the Transit Noise and Vibration Impact Assessment Manual. For Case 1 (the Crouch Property), in which project construction operations would take place within 25 feet of the building, drilling and other activities would be well below FTA criteria levels for potential damage to structures, even using the most stringent "extremely fragile historic buildings" category. The damage criterion for such structures is 0.12 inches per second, whereas the worst-case vibration level is predicted to be 0.09 inches per second. For Case 2 (the Motel 6 building), the construction vibration level would be substantially reduced by the additional distance between the project site and the building. The vibration level at the motel would be approximately 0.01 inches per second. Vibration from construction activities would be clearly perceptible at the Crouch Property when construction is underway near the building, but would not be damaging. Vibration from construction activities at the Motel 6 building is expected to be barely perceptible when construction is underway adjacent to the property.

In summary, no significant impact would result from operational or construction activities associated with the proposed project.

5.2.5 Good Practices for Construction Noise Reduction

Implementation of the following recommended practices prior to project construction would ensure that potential construction noise effects are less-than-significant:

- The hours of construction including noisy maintenance activities and all spoils and material transport shall be restricted to the periods and days permitted by the local noise or other applicable ordinance. Noise-producing project activity shall comply with local noise control regulations affecting construction activity or obtain exemptions therefrom.
- All noise-producing project equipment and vehicles using internal combustion engines shall be equipped with mufflers, and air-inlet silencers where appropriate, in good operating condition that meet or exceed original factory specification. Mobile or fixed "package" equipment (e.g., arc-welders, air compressors) shall be equipped with shrouds and noise control features that are readily available for that type of equipment.
- All mobile or fixed noise-producing equipment used on the project, which is regulated for noise output by a local, state, or federal agency, shall comply with such regulation while conducting project-related activities.
- Material stockpiles and mobile equipment staging, parking, and maintenance areas shall be located as far as practicable from noise-sensitive receptors.
- The use of noise-producing signals, including horns, whistles, alarms, and bells shall be for safety warning purposes only.
- No project-related public address loudspeaker, two-way radio, or music system shall be audible at any adjacent noise-sensitive receptor.
- The on-site construction supervisor shall have the responsibility and authority to receive and resolve noise complaints. A clear appeal process to the appropriate Town of Addison staff shall be established prior to construction commencement that will allow for resolution of noise problems that cannot be immediately solved by the site supervisor.

5.2.6 Good Practices for Operational Noise and Vibration Reduction

To assure that vibration and noise is not created by vehicles traversing gaps and/or unnecesary breaks in vertical or horizontal alignment, the bridge shall be designed and constructed with particular care to avoid any such unnecessary gaps or breaks, to the extent allowable under the current state of the practice. Expansion joints and changes in grade shall be designed to minimize gaps or sudden vertical "steps" in the roadway surface.

6.0 LIMITATIONS

The opinions and recommendations presented herein are based in part upon field measurements and observations of what is believed to be typical and representative conditions of normal motor vehicle and community activity and URS's understanding of the project as presented in this report. The noise and vibration measurements and analyses were conducted using the professional standard of care as practiced in the industry and are representative of the activity being measured during the environmental conditions existing during the measurement periods. Because of the variability of factors not within the control of the investigators, no warranty can be made that the exact noise, vibration, traffic, or activity levels would be obtained by subsequent field measurements. However, for similar climatic and seasonal conditions, and intensity of community activity, the noise, vibration, and traffic levels measured would be similar to those reported herein.

7.0 REFERENCES

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URS

August 7, 2002

Mr. Steven Z. Chutchian, PE
Assistant City Engineer
16801 Westgrove Drive
P.O. Box 9010
Addison, TX 75001-9010

Re: **Arapaho Road Bridge at Midway Road**
Phase II – Design Development, Contract Documents, and Construction Administration
Conceptual Construction Cost Estimate – "TxDOT" Bridge

Dear Mr. Chutchian:

Enclosed please find a copy of the Conceptual Construction Cost Estimate for a standard "TxDOT" bridge for the referenced project for your review as you requested.

This estimate in addition to a standard bridge includes minimal urban design & landscaping, roadway deck and parking lot lighting, lighting along the traffic rails, a rail to separate pedestrians from the roadway and some soundwalls. The conceptual cost is ~$4.1 million.

We trust that this will help in moving the process forward so we may proceed with finalizing our scope and fee proposal.

Sincerely,

URS Corporation

Cliff R. Hall, PE
Project Manager

Enclosure

URS Corporation
Prestonwood Tower
5151 Beltline Road, Suite 700
Dallas, TX 75254
Tel: 972.980.4961
Fax: 972.991.7665

Arapaho Road Bridge at Midway Road
Phase 2 - Conceptual Estimate of Construction Costs

Description	Estimated Cost Range TxDOT Bridge w/ landscaping, & lighting	Comments
Urban Design Elements		
Trees & shrubs @ thrust blocks	$50,000	minimalistic
Trees & shrubs @ retaining walls	$50,000	minimalistic
Railing around parking lot	$160,000	1600 ft @ $100/lf
Civil Works (subtotal)		
Traffic Control & Temp works	$10,000	
Bridge Structure		
Steel Arch	$3,100,000	abutment to abutment ($35/sf)
Soundwalls	$260,000	1400 ft conc. wall
Pedestrian/Traffic Rail seperation	$80,000	1600 ft @ $50/lf
Lighting		
Bridge Stinger Lights	$0	
Arch and Hanger Liaghts	$0	
Marker Light - Arch top	$0	
Marker Light - Hanger side	$0	
Bridge Railing Lights	$107,000	400 ft of rail each side
Approach Bridge Deck Lighting	$170,000	45 light assemblies
Under-Deck Lighting	$85,000	77 light fixtures
Electrical Services	$55,000	
Subtotal	$4,127,000	
Contigency		
Overhead Utility Relocation	???	
Total		

Arapaho Road Bridge at Midway Road
Phase 2 - Conceptual Estimate of Construction Costs

Description	Estimated Cost Range Low End	Comments	Estimated Cost Range No stingers or landscaping & reduced lighting	Comments	Estimated Cost Range No stingers or landscaping & arch lights only	Comments	Estimated Cost Range No stingers or landscaping & road/park lights only	Comments
Urban Design Elements								
Trees & shrubs @ thrust blocks	$50,000	minimalistic	$0		$0		$0	
Trees & shrubs @ retaining walls	$50,000	minimalistic	$0		$0		$0	
Railing around parking lot	$160,000	1600 ft @ $100/lf	$0		$0		$0	
Civil Works (subtotal)								
Traffic Control & Temp works	$50,000		$50,000		$50,000		$50,000	
Bridge Structure								
Steel Arch — one side only (full length)	$3,960,000	abutment to abutment	$3,800,000	abut.to abut. No stingers	$3,800,000	abut.to abut. No stingers	$3,800,000	abut.to abut. No stingers
Soundwalls	$260,000	1400 ft conc. wall	$260,000	1400 ft conc. wall	$0	NO SOUND WALLS OR PED. RAILING ON INSIDE	$0	
Pedestrian/Traffic Rail seperation	$80,000	1600 ft @ $50/lf	$80,000	1600 ft @ $50/lf SAME AS 1ST ESTIMATE	$0		$0	
Lighting								
Bridge Stinger Lights	$128,000		$0		$0		$0	
Arch and Hanger Liaghts	$90,000	white light	$90,000	white light	$90,000	white light	$0	
Marker Light - Arch top	$18,000		$18,000		$16,000		$0	
Marker Light - Hanger side	$18,000		$18,000		$18,000		$0	
Bridge Railing Lights	$107,000	400 ft of rail each side	$107,000	400 ft of rail each side	$0		$0	
Approach Bridge Deck Lighting	$170,000	45 light assemblies	$100,000	26 light assemblies	$0		$100,000	26 light assemblies
Under-Deck Lighting	$85,000	77 light fixtures	$48,000	42 light fixtures	$0		$48,000	42 light fixtures
Electrical Services	$80,000		$55,000		$25,000		$25,000	
Subtotal	$5,306,000		$4,824,000		$4,001,000		$4,021,000	
Contigency								
Overhead Utility Relocation	???		???		???		???	
Total								

LIGHTS IN RAILING ONLY OVER MIDWAY

FEWER LIGHTS W/ HIGHER INTENSITY TO GET EQUIVALENT ILLUMINATION

LIGHTS ON ARCH ONLY NOT ON RAILS OR PARKING AREA OR ALONG ELEVATED ROADWAY

NO ARCH LIGHTS

THERE IS FUNCTIONAL LIGHTING ONLY — ALONG LENGTH OF BRIDGE & SOME PARKING LIGHTS W/ HIGHER INTENSITY UNDER DECKING

Cliff's Cell Phone
214.435.0406

URS

August 7, 2002

Mr. Steven Z. Chutchian, PE
Assistant City Engineer
16801 Westgrove Drive
P.O. Box 9010
Addison, TX 75001-9010

Re: **Arapaho Road Bridge at Midway Road**
Phase II – Design Development, Contract Documents, and Construction Administration
Conceptual Construction Cost Estimate

Dear Mr. Chutchian:

Enclosed please find a copy of the Conceptual Construction Cost Estimate for Phase II of the referenced project for your review. As you requested, we have separated the estimate into three estimates as follows:

Estimate No. 1: ~$5.3 million
The "low-end" estimate as presented in our meeting on August 6, 2002 of all items including urban design, landscaping, lighting, architectural details and bridge structure.

Estimate No. 2: ~$4.6 million
A reduced estimate removing the urban design, landscaping and the architectural "stinger" elements as well as a reduction in surface and parking lighting.

Estimate No. 3 (two estimates): ~$4.0 million
a) Bridge structure plus arch lighting
b) Bridge structure plus elevated roadway and parking lighting

We look forward to discussing these options with you so we may proceed with finalizing our scope and fee proposal.

Sincerely,

URS Corporation

Cliff R. Hall, PE
Project Manager

Enclosure

URS Corporation
Prestonwood Tower
5151 Beltline Road, Suite 700
Dallas, TX 75254
Tel: 972.980.4961
Fax: 972.991.7665

Arapaho Road Bridge at Midway Road
Phase 2 - Conceptual Estimate of Construction Costs

Description	Estimated Cost Range Low End	Comments
Urban Design Elements		
Trees & shrubs @ thrust blocks	$50,000	minimalistic
Trees & shrubs @ retaining walls	$50,000	minimalistic
Railing around parking lot	$160,000	1600 ft @ $100/lf
Civil Works (subtotal)		
Traffic Control & Temp works	$50,000	
Bridge Structure		
Steel Arch	$3,960,000	abutment to abutment
Soundwalls	$260,000	1400 ft conc. wall
Pedestrian/Traffic Rail seperation	$80,000	1600 ft @ $50/lf
Lighting		
Bridge Stinger Lights	$128,000	
Arch and Hanger Liaghts	$90,000	white light
Marker Light - Arch top	$18,000	
Marker Light - Hanger side	$18,000	
Bridge Railing Lights	$107,000	400 ft of rail each side
Approach Bridge Deck Lighting	$170,000	45 light assemblies
Under-Deck Lighting	$85,000	77 light fixtures
Electrical Services	$80,000	
Subtotal	$5,306,000	
Contigency		
Overhead Utility Relocation	???	
Total		

Arapaho Road Bridge at Midway Road
Phase 2 - Conceptual Estimate of Construction Costs

Description	Estimated Cost Range No stingers or landscaping & reduced lighting	Comments
Urban Design Elements		
Trees & shrubs @ thrust blocks	$0	
Trees & shrubs @ retaining walls	$0	
Railing around parking lot	$0	
Civil Works (subtotal)		
Traffic Control & Temp works	$50,000	
Bridge Structure		
Steel Arch	$3,800,000	abut.to abut. No stingers
Soundwalls	$260,000	1400 ft conc. wall
Pedestrian/Traffic Rail seperation	$80,000	1600 ft @ $50/lf
Lighting		
Bridge Stinger Lights	$0	
Arch and Hanger Liaghts	$90,000	white light
Marker Light - Arch top	$18,000	
Marker Light - Hanger side	$18,000	
Bridge Railing Lights	$107,000	400 ft of rail each side
Approach Bridge Deck Lighting	$100,000	26 light assemblies
Under-Deck Lighting	$46,000	42 light fixtures
Electrical Services	$55,000	
Subtotal	$4,624,000	
Contigency		
Overhead Utility Relocation	**???**	
Total		

Arapaho Road Bridge at Midway Road
Phase 2 - Conceptual Estimate of Construction Costs

Description	Estimated Cost Range No stingers or landscaping & arch lights only	Comments
Urban Design Elements		
Trees & shrubs @ thrust blocks	$0	
Trees & shrubs @ retaining walls	$0	
Railing around parking lot	$0	
Civil Works (subtotal)		
Traffic Control & Temp works	$50,000	
Bridge Structure		
Steel Arch	$3,800,000	abut.to abut. No stingers
Soundwalls	$0	
Pedestrian/Traffic Rail seperation	$0	
Lighting		
Bridge Stinger Lights	$0	
Arch and Hanger Liaghts	$90,000	white light
Marker Light - Arch top	$18,000	
Marker Light - Hanger side	$18,000	
Bridge Railing Lights	$0	
Approach Bridge Deck Lighting	$0	
Under-Deck Lighting	$0	
Electrical Services	$25,000	
Subtotal	$4,001,000	
Contigency		
Overhead Utility Relocation	**???**	
Total		

Arapaho Road Bridge at Midway Road
Phase 2 - Conceptual Estimate of Construction Costs

Description	Estimated Cost Range No stingers or landscaping & road/park lights only	Comments
Urban Design Elements		
Trees & shrubs @ thrust blocks	$0	
Trees & shrubs @ retaining walls	$0	
Railing around parking lot	$0	
Civil Works (subtotal)		
Traffic Control & Temp works	$50,000	
Bridge Structure		
Steel Arch	$3,800,000	abut.to abut. No stingers
Soundwalls	$0	
Pedestrian/Traffic Rail seperation	$0	
Lighting		
Bridge Stinger Lights	$0	
Arch and Hanger Liaghts	$0	
Marker Light - Arch top	$0	
Marker Light - Hanger side	$0	
Bridge Railing Lights	$0	
Approach Bridge Deck Lighting	$100,000	26 light assemblies
Under-Deck Lighting	$46,000	42 light fixtures
Electrical Services	$25,000	
Subtotal	$4,021,000	
Contigency		
Overhead Utility Relocation	**???**	
Total		

Arapaho Road Bridge at Midway Road
Phase 2 - Conceptual Estimate of Construction Costs

Description	Estimated Cost Range Low End	Comments	Estimated Cost Range No stingers or landscaping & reduced lighting	Comments	Estimated Cost Range No stingers or landscaping & arch lights only	Comments	Estimated Cost Range No stingers or landscaping & road/park lights only	Comments
Urban Design Elements								
Trees & shrubs @ thrust blocks	$50,000	minimalistic	$0		$0		$0	
Trees & shrubs @ retaining walls	$50,000	minimalistic	$0		$0		$0	
Railing around parking lot	$160,000	1600 ft @ $100/lf	$0		$0		$0	
Civil Works (subtotal)								
Traffic Control & Temp works	$50,000		$50,000		$50,000		$50,000	
Bridge Structure								
Steel Arch	$3,960,000	abutment to abutment	$3,600,000	abut.to abut. No stingers	$3,800,000	abut.to abut. No stingers	$3,600,000	abut.to abut. No stingers
Soundwalls	$260,000	1400 ft conc. wall	$260,000	1400 ft conc. wall	$0		$0	
Pedestrian/Traffic Rail seperation	$80,000	1600 ft @ $50/lf	$80,000	1600 ft @ $50/lf	$0		$0	
Lighting								
Bridge Stinger Lights	$128,000		$0		$0		$0	
Arch and Hanger Liaghts	$90,000	white light	$90,000	white light	$90,000	white light	$0	
Marker Light - Arch top	$18,000		$18,000		$18,000		$0	
Marker Light - Hanger side	$18,000		$18,000		$18,000		$0	
Bridge Railing Lights	$107,000	400 ft of rail each side	$107,000	400 ft of rail each side	$0		$0	
Approach Bridge Deck Lighting	$170,000	45 light assemblies	$100,000	26 light assemblies	$0		$100,000	26 light assemblies
Under-Deck Lighting	$65,000	77 light fixtures	$46,000	42 light fixtures	$0		$46,000	42 light fixtures
Electrical Services	$80,000		$55,000		$25,000		$25,000	
Subtotal	$5,306,000		$4,624,000		$4,001,000		$4,021,000	
Contigency								
Overhead Utility Relocation	???		???		???		???	
Total								

Arapaho Road Bridge at Midway Road
Phase 2 - Conceptual Estimate of Construction Costs

	Estimated Cost Range			
Description	**Low End**	**Comments**	**High End**	**Comments**
Urban Design Elements				
Trees & shrubs @ thrust blocks	$50,000	minimalistic	$150,000	
Trees & shrubs @ retaining walls	$50,000	minimalistic	$150,000	
Railing around parking lot	$160,000	1600 ft @ $100/lf	$240,000	1600 ft @ $150/lf
Civil Works (subtotal)				
Traffic Control & Temp works	$50,000		$100,000	
Bridge Structure				
Steel Arch	$3,960,000	abut.to abut.	$3,960,000	abut.to abut.
Soundwalls	$260,000	1400 ft conc. wall	$600,000	2800 ft special wall
Pedestrian/Traffic Rail seperation	$80,000	1600 ft @ $50/lf	$160,000	1600 ft @ $100/lf
Lighting				
Bridge Stinger Lights	$128,000		$150,000	
Arch and Hanger Liaghts	$90,000	white light	$230,000	colored lights
Marker Light - Arch top	$18,000		$18,000	
Marker Light - Hanger side	$18,000		$18,000	
Bridge Railing Lights	$107,000	400 ft of rail each side	$428,000	1600 ft of rail each side
Approach Bridge Deck Lighting	$170,000	45 light assemblies	$227,000	60 light assemblies
Under-Deck Lighting	$85,000	77 light fixtures	$170,000	154 light fixtures
Electrical Services	$80,000		$100,000	
Contigency				
Overhead Utility Relocation	**???**		**???**	

URS

VOID

August 23, 2002

Mr. Steven Z. Chutchian., PE
Assistant City Engineer
16801 Westgrove Drive
P.O. Box 9010
Addison, TX 75001-9010

Re: **Arapaho Road Bridge at Midway Road**
Phase II – Design Development & Contract Documents
Scope of Services

Dear Mr. Chutchian:

Enclosed please find a copy of the Scope of Services and fee proposal for Work Order No. 001 – Arapaho Road Bridge Design Development and Construction Documents for your review. We have revised this scope after discussions with you to provide for a total project construction cost of approximately $4.6 million. As we discussed the main changes in scope are:

1. Eliminate the Urban Design service
2. Design for a reduced number of light assemblies and eliminate changing light colors
3. Remove the "stingers" from the bridge
4. Develop only one design concept for the various architectural and lighting elements
5. Eliminate the computer animation task
6. Reduce the number of meetings in Addison
7. Reduce the Project Management effort

We have also reduced our rates and explored ways to provide for a more efficient design in an effort to reduce the design fee as low as possible. We trust that you will find our proposal acceptable and look forward to providing you the final written contract for approval by the Town Council.

Sincerely,

URS Corporation

Cliff R. Hall, PE
Project Manager

Enclosure

c.c. Michael Murphy, PE
Director of Public Works

URS Corporation
Graystone Centre
3010 LBJ Freeway, Suite 1320
Dallas, TX 75234
Tel: 972.406.6950
Fax: 972.406.6951

ARAPAHO ROAD BRIDGE AT MIDWAY ROAD
WORK ORDER NO. 001

ATTACHMENT A
SCOPE OF SERVICES

DESIGN DEVELOPMENT AND CONSTRUCTION DOCUMENTS FOR THE ARAPAHO ROAD BRIDGE

URS will provide the engineering, architectural, lighting design and noise study services including plans, specifications and estimates as it relates to Arapaho Road from approximate Station 40+67 to approximate Station 70+28 and as provided in the itemized scope. The construction will consist of an elevated four-lane roadway with sidewalk located within the proposed Arapaho Road right-of-way (ROW) on a tangent alignment. URS shall prepare plans, details and compute quantities for a steel arch bridge, the "blue-bridge concept", over Midway Road, with prestressed concrete beam approaches. Design and details will include all bridge details including any soundwalls located on the bridge. URS will also provide all bridge drainage details to accommodate the drainage in accordance with the Town's Consultant's drainage requirements. URS will also prepare plans, details and compute quantities for any lighting & illumination, and traffic control for the areas under and immediately adjacent to the bridge and retained wall portion of Arapaho Road with the exception of those portions to be prepared by the Town of Addison's Consultant. URS will also prepare architectural details for the bridge, the mechanically stabilized earth (MSE) retaining walls and the sound walls. Additionally, URS will prepare a noise study including ambient noise measurements, modeling and noise analyses. URS will prepare and submit technical memorandums, preliminary plans and preliminary construction cost estimates at the end of the Design Development phase for the Town's review. After resolution of one set of comments, URS will provide all final detail plans, specifications, and estimates as previously described, to be included into one final construction package prepared by the Town's Consultant. URS will submit four sets of plans for review to the Town for 65% review and 95% review and will incorporate the Town's comments (one set per submittal) in the next submittals. URS will also provide signed and sealed mylar plans at the 100% final submittal.

URS will coordinate with the Town of Addison and/or the Town's Consultant for all interface design issues as well as coordinate the format and consolidation of construction plans, specification and estimate into one final construction package. URS will coordinate with the Town and/or the Town's Consultant for revising the horizontal alignment and vertical profile of Arapaho Road to accommodate the proposed bridge structure. URS will coordinate with the Town and/or the Town's Consultant for the revised alignment of the proposed box-culvert under Arapaho Road as well as bridge drainage and bridge drain tie-ins. URS will coordinate with the Town and/or the Town's Consultant for all geotechnical information required for the foundation design for the bridge and retaining walls.

The Town of Addison will provide to URS all available Arapaho Road geometrics, including but not limited to electronic files for horizontal alignment, vertical profile, typical sections, topography survey, field survey, and utility information. The Town will also provide boring logs, soil parameters and foundation design recommendations (allowable bearing capacities, lateral load analysis, etc.) required for the bridge foundation designs. The Town of Addison will provide to URS a field location survey of the existing 60-in. diameter water main, locating the water main precisely, both vertically and horizontally, along the project limits and specifically in the vicinity of the arch-bridge's main foundations. Additionally the Town will provide any applicable noise regulations or ordinance

information, obtain right of entry, and provide all traffic data including but not limited to, peak hourly volumes, average daily traffic, percentages of trucks, and design and posted speeds that may be required for the noise study. The Town will provide all landscape ordinances and guidelines as well as provide a copy of the Town's Consultant's schematic landscape masterplan and the streetscape design development package.

All ROW documentation and plans, Arapaho Road geometrics and roadway design, drainage, parking lot layout and design, retaining wall layout and design, survey, geotechnical engineering, design and details for soundwalls on retaining walls or at grade, landscaping, hardscaping and irrigation for landscaping, permitting, and construction administration, inspection and record drawings are outside the scope of this agreement and will be performed by others.

Itemized Scope of Services Provided by URS for the Arapaho Road Bridge

TASK I - ENGINEERING

A. Civil Site Works

1. Final Civil Design & PS&E (65%, 95%, 100% submittal)
   - Midway Road Traffic Control Plan
   - Coordinate Relocation of Overhead Utilities (Along Midway Road)
   - Retaining Wall Architectural Details
   - Soundwall Architectural Details
   - QA/QC
   - Cost Estimate
   - Special Provisions & Specifications
   - Coordination with Town's Consultants

B. Bridges

1. Preliminary Bridge Design (~30% submittal)
   - Develop Design Criteria
   - Preliminary Bridge Layout (Finalize Bridge Location)
   - Preliminary Typical Section
   - Refine Arch Shape
   - Size Thrust Block & Refine Shape
   - Size Foundation
   - Size Diaphragms
   - Size Traffic Railing Members
   - Develop Soundwall
   - Coordinate Culvert Layout
   - Quantities and Cost Estimate
   - QA/QC
2. Final Bridge Design, & PS&E (65%, 95%, 100% submittals)
   - Final Bridge Layout
   - Final Typical Section
   - General Notes
   - Quantities and Bearing Seats
   - Foundation Layout
   - Drilled Shaft Details
   - Abutment Plan & Elevation
   - Abutment Details
   - Bent Plan & Elevation
   - Bent Details
   - Thrust Block Plan & Elevation
   - Thrust Block Details
   - Prestressed Concrete Beam Unit – Deck Plan
   - Prestressed Concrete Beam Unit – Deck Sections
   - Bridge Soundwall Details
   - Miscellaneous Superstructure Details (drains, lighting)
   - Diaphragm Details
   - Closure Pour Details
   - Suspension Hanger Details
   - Steel Arch Design and Details
   - Steel Arch Camber Details
   - Bearing Details
   - Drainage Details
   - Railing Details
   - Architectural Details

- Erection Sequencing
- Prestressed Beam Tables
- Compile, Verify & Modify TxDOT Standard Drawings
- QA/QC
- Coordination with Town's Consultants
- Bridge Total Quantities & Cost Estimate
- Bridge Special Provisions & Specifications

C. Electrical Engineering

1. Design Development
   - Prepare a preliminary cost estimate
2. Final Electrical Design & PS&E (65%, 95%, 100% submittals)
   - Develop and finalize a load study for each electrical service source.
   - Prepare Lighting Calculations for under-deck lighting above the parking lot.
   - Illumination Layout (2961', 1200'/sht + 1 sheet under the bridge)
   - Electric Service / Pole Summary
   - Conduit Runs / Contents Summary
   - Insert Lighting Consultant Special Details
   - Insert Latest Town or TxDOT Standards
   - Quantity Summary
   - Develop Final Cost Estimate (Using Estimator)
   - QA ON 95% PLANS
   - Update Drawings per City Review

TASK II - ARCHITECTURAL

A. Design Development

1. Architectural Studies & Details
   - Develop one rail option addressing the issues of hiker/biker separation from the vehicular traffic and the architectural options to realize the proposed triangular pattern in the rail.
   - Coordinate with the engineering team to refine the curvature and size of the steel. Produce drawings representing a viable option
   - Develop option for the final material and form of the thrust block. Provide CADD drawings of preferred scheme.
   - Develop a panel scheme for precast concrete retaining walls at approaches.
   - Develop center pier support shape.
   - Develop bridge mounted soundwalls
   - Attend Team Meetings and Conference Calls to coordinate the architectural aspects of the design with structural and lighting Consultants.

B. Final Design

1. Coordination
2. Review
3. Specifications

TASK III – LIGHTING DESIGN

A. Design Development (includes two meetings in Addison)

1. Develop one alternative for lighting of elevated roadway.
2. Develop mounting concepts for bridge structure lighting.
3. Develop one alternative for lighting of outboard railings.
4. Develop one alternative for lighting of underside of bridge, roadway under bridge and any adjacent parking areas under bridge.

B. Final Design (includes one meeting in Addison)

1. Final details of fixtures and mounting for bridge structure illumination.
2. Final details of fixtures and mounting for elevated roadway lighting.
3. Final details of fixtures and mounting for outboard railing illumination.

4. Final details of fixtures and mounting for lighting of underside of bridge, roadway under bridge and any adjacent parking areas under bridge.
5. Provide control concept diagrams and other information suitable for use by electrical engineer describing control intent.

TASK IV – NOISE STUDY

A. Noise Measurements

1. Review existing noise ordinance and criteria documents
2. Coordinate with the Town of Addison to discuss noise issues and objectives
3. Perform noise measurement survey. Take initial noise readings, both long term (24 hours or longer) and short term (less than one hour) noise readings, at adjacent properties.
4. Observe adjacent building construction type to aid in estimating the potential noise effects inside the buildings

B. Noise Modeling and Analyses

1. Create a noise model to predict future noise emissions from the proposed roadway and bridge
2. Evaluate noise levels at areas of concern for compliance with applicable noise regulations and standards
3. Develop a range of sound wall heights and noise levels where noise impacts require mitigation.
4. Prepare report and respond to one round of comments.

TASK V - PROJECT MANAGEMENT

A. Reports and Invoices

1. Prepare Project Management Plan
2. Prepare Progress Reports
3. Prepare Invoices and Billings

B. Coordination

1. Coordinate/Administer the Project
2. Manage Subconsultants
3. Implement Quality Assurance/Quality Control Program
4. Prepare for and Attend Town Council or other Town Meetings (1 total)
5. Prepare for and run internal project coordination meetings (8 total)
6. Prepare for and attend project meetings with Addison Public Works (3 total)

ARAPAHO ROAD BRIDGE AT MIDWAY ROAD
WORK ORDER NO. 001 – ARAPAHO ROAD BRIDGE
ATTACHMENT C

FEE PROPOSAL
URS CORPORATION

	Total Cost
TASK I - ENGINEERING	**$ 434,400.00**
A. Civil Site Works	$ 19,370.00
B. Bridges	$ 384,680.00
C. Electrical Engineering	$ 30,350.00
TASK II – ARCHITECTURAL (Corgan)	**$ 39,220.00**
A. Design Development	$ 33,920.00
B. Final Design	$ 5,300.00
TASK III – LIGHTING DESIGN (Brandston)	**$ 39,580.00**
A. Design Development	$ 20,620.00
B. Final Design	$ 18,960.00
TASK IV – NOISE STUDY	**$ 14,045.00**
A. Noise Measurements	$ 5,540.00
B. Noise Modeling and Analyses	$ 8,505.00
TASK V - PROJECT MANAGEMENT	**$ 20,920.00**
A. Reports and Invoices	$ 8,080.00
B. Coordination	$ 12,840.00
Printing & Copying Expenses	**$ 2800.00**
GRAND TOTAL	**$ 550,965.00**

URS

August 23, 2002

Mr. Steven Z. Chutchian., PE
Assistant City Engineer
16801 Westgrove Drive
P.O. Box 9010
Addison, TX 75001-9010

Re: **Arapaho Road Bridge at Midway Road**
Phase II – Design Development & Contract Documents
Scope of Services

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Project Manager

Enclosure

c.c. Michael Murphy, PE
Director of Public Works

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Tel: 972.406.6950
Fax: 972.406.6951

ARAPAHO ROAD BRIDGE AT MIDWAY ROAD
WORK ORDER NO. 001

ATTACHMENT A
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ARAPAHO ROAD BRIDGE AT MIDWAY ROAD
WORK ORDER NO. 001 – ARAPAHO ROAD BRIDGE
ATTACHMENT C

FEE PROPOSAL
URS CORPORATION

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TASK IV – NOISE STUDY	**$ 14,045.00**
A. Noise Measurements	$ 5,540.00
B. Noise Modeling and Analyses	$ 8,505.00
TASK V - PROJECT MANAGEMENT	**$ 20,920.00**
A. Reports and Invoices	$ 8,080.00
B. Coordination	$ 12,840.00
Printing & Copying Expenses	**$ 2800.00**
GRAND TOTAL	**$ 550,965.00**

URS

August 23, 2002

Mr. Steven Z. Chutchian., PE
Assistant City Engineer
16801 Westgrove Drive
P.O. Box 9010
Addison, TX 75001-9010

Re: **Arapaho Road Bridge at Midway Road**
Phase II – Design Development & Contract Documents
Scope of Services

Dear Mr. Chutchian:

Enclosed please find a copy of the Scope of Services and fee proposal for Work Order No. 001 – Arapaho Road Bridge Design Development and Construction Documents for your review. We have revised this scope after discussions with you to provide for a total project construction cost of approximately $4.6 million. As we discussed the main changes in scope are:

1. Eliminate the Urban Design service
2. Design for a reduced number of light assemblies and eliminate changing light colors
3. Remove the "stingers" from the bridge
4. Develop only one design concept for the various architectural and lighting elements
5. Eliminate the computer animation task
6. Reduce the number of meetings in Addison
7. Reduce the Project Management effort

We have also reduced our rates and explored ways to provide for a more efficient design in an effort to reduce the design fee as low as possible. We trust that you will find our proposal acceptable and look forward to providing you the final written contract for approval by the Town Council.

Sincerely,

URS Corporation

Cliff R. Hall, PE
Project Manager

Enclosure

c.c. Michael Murphy, PE
Director of Public Works

URS Corporation
Graystone Centre
3010 LBJ Freeway, Suite 1320
Dallas, TX 75234
Tel: 972.406.6950
Fax: 972.406.6951

ARAPAHO ROAD BRIDGE AT MIDWAY ROAD
WORK ORDER NO. 001

ATTACHMENT A
SCOPE OF SERVICES

DESIGN DEVELOPMENT AND CONSTRUCTION DOCUMENTS FOR THE ARAPAHO ROAD BRIDGE

URS will provide the engineering, architectural, lighting design and noise study services including plans, specifications and estimates as it relates to Arapaho Road from approximate Station 40+67 to approximate Station 70+28 and as provided in the itemized scope. The construction will consist of an elevated four-lane roadway with sidewalk located within the proposed Arapaho Road right-of-way (ROW) on a tangent alignment. URS shall prepare plans, details and compute quantities for a steel arch bridge, the "blue-bridge concept", over Midway Road, with prestressed concrete beam approaches. Design and details will include all bridge details including any soundwalls located on the bridge. URS will also provide all bridge drainage details to accommodate the drainage in accordance with the Town's Consultant's drainage requirements. URS will also prepare plans, details and compute quantities for any lighting & illumination, and traffic control for the areas under and immediately adjacent to the bridge and retained wall portion of Arapaho Road with the exception of those portions to be prepared by the Town of Addison's Consultant. URS will also prepare architectural details for the bridge, the mechanically stabilized earth (MSE) retaining walls and the sound walls. Additionally, URS will prepare a noise study including ambient noise measurements, modeling and noise analyses. URS will prepare and submit technical memorandums, preliminary plans and preliminary construction cost estimates at the end of the Design Development phase for the Town's review. After resolution of one set of comments, URS will provide all final detail plans, specifications, and estimates as previously described, to be included into one final construction package prepared by the Town's Consultant. URS will submit four sets of plans for review to the Town for 65% review and 95% review and will incorporate the Town's comments (one set per submittal) in the next submittals. URS will also provide signed and sealed mylar plans at the 100% final submittal.

URS will coordinate with the Town of Addison and/or the Town's Consultant for all interface design issues as well as coordinate the format and consolidation of construction plans, specification and estimate into one final construction package. URS will coordinate with the Town and/or the Town's Consultant for revising the horizontal alignment and vertical profile of Arapaho Road to accommodate the proposed bridge structure. URS will coordinate with the Town and/or the Town's Consultant for the revised alignment of the proposed box-culvert under Arapaho Road as well as bridge drainage and bridge drain tie-ins. URS will coordinate with the Town and/or the Town's Consultant for all geotechnical information required for the foundation design for the bridge and retaining walls.

The Town of Addison will provide to URS all available Arapaho Road geometrics, including but not limited to electronic files for horizontal alignment, vertical profile, typical sections, topography survey, field survey, and utility information. The Town will also provide boring logs, soil parameters and foundation design recommendations (allowable bearing capacities, lateral load analysis, etc.) required for the bridge foundation designs. The Town of Addison will provide to URS a field location survey of the existing 60-in. diameter water main, locating the water main precisely, both vertically and horizontally, along the project limits and specifically in the vicinity of the arch-bridge's main foundations. Additionally the Town will provide any applicable noise regulations or ordinance

information, obtain right of entry, and provide all traffic data including but not limited to, peak hourly volumes, average daily traffic, percentages of trucks, and design and posted speeds that may be required for the noise study. The Town will provide all landscape ordinances and guidelines as well as provide a copy of the Town's Consultant's schematic landscape masterplan and the streetscape design development package.

All ROW documentation and plans, Arapaho Road geometrics and roadway design, drainage, parking lot layout and design, retaining wall layout and design, survey, geotechnical engineering, design and details for soundwalls on retaining walls or at grade, landscaping, hardscaping and irrigation for landscaping, permitting, and construction administration, inspection and record drawings are outside the scope of this agreement and will be performed by others.

Itemized Scope of Services Provided by URS for the Arapaho Road Bridge

TASK I - ENGINEERING

A. Civil Site Works

1. Final Civil Design & PS&E (65%, 95%, 100% submittal)
   - Midway Road Traffic Control Plan
   - Coordinate Relocation of Overhead Utilities (Along Midway Road)
   - Retaining Wall Architectural Details
   - Soundwall Architectural Details
   - QA/QC
   - Cost Estimate
   - Special Provisions & Specifications
   - Coordination with Town's Consultants

B. Bridges

1. Preliminary Bridge Design (~30% submittal)
   - Develop Design Criteria
   - Preliminary Bridge Layout (Finalize Bridge Location)
   - Preliminary Typical Section
   - Refine Arch Shape
   - Size Thrust Block & Refine Shape
   - Size Foundation
   - Size Diaphragms
   - Size Traffic Railing Members
   - Develop Soundwall
   - Coordinate Culvert Layout
   - Quantities and Cost Estimate
   - QA/QC
2. Final Bridge Design, & PS&E (65%, 95%, 100% submittals)
   - Final Bridge Layout
   - Final Typical Section
   - General Notes
   - Quantities and Bearing Seats
   - Foundation Layout
   - Drilled Shaft Details
   - Abutment Plan & Elevation
   - Abutment Details
   - Bent Plan & Elevation
   - Bent Details
   - Thrust Block Plan & Elevation
   - Thrust Block Details
   - Prestressed Concrete Beam Unit – Deck Plan
   - Prestressed Concrete Beam Unit – Deck Sections
   - Bridge Soundwall Details
   - Miscellaneous Superstructure Details (drains, lighting)
   - Diaphragm Details
   - Closure Pour Details
   - Suspension Hanger Details
   - Steel Arch Design and Details
   - Steel Arch Camber Details
   - Bearing Details
   - Drainage Details
   - Railing Details
   - Architectural Details

- Erection Sequencing
- Prestressed Beam Tables
- Compile, Verify & Modify TxDOT Standard Drawings
- QA/QC
- Coordination with Town's Consultants
- Bridge Total Quantities & Cost Estimate
- Bridge Special Provisions & Specifications

C. Electrical Engineering

1. Design Development
- Prepare a preliminary cost estimate

2. Final Electrical Design & PS&E (65%, 95%, 100% submittals)
- Develop and finalize a load study for each electrical service source.
- Prepare Lighting Calculations for under-deck lighting above the parking lot.
- Illumination Layout (2961', 1200'/sht + 1 sheet under the bridge)
- Electric Service / Pole Summary
- Conduit Runs / Contents Summary
- Insert Lighting Consultant Special Details
- Insert Latest Town or TxDOT Standards
- Quantity Summary
- Develop Final Cost Estimate (Using Estimator)
- QA ON 95% PLANS
- Update Drawings per City Review

TASK II - ARCHITECTURAL

A. Design Development

1. Architectural Studies & Details
- Develop one rail option addressing the issues of hiker/biker separation from the vehicular traffic and the architectural options to realize the proposed triangular pattern in the rail.
- Coordinate with the engineering team to refine the curvature and size of the steel. Produce drawings representing a viable option
- Develop option for the final material and form of the thrust block. Provide CADD drawings of preferred scheme.
- Develop a panel scheme for precast concrete retaining walls at approaches.
- Develop center pier support shape.
- Develop bridge mounted soundwalls
- Attend Team Meetings and Conference Calls to coordinate the architectural aspects of the design with structural and lighting Consultants.

B. Final Design

1. Coordination
2. Review
3. Specifications

TASK III – LIGHTING DESIGN

A. Design Development (includes two meetings in Addison)

1. Develop one alternative for lighting of elevated roadway.
2. Develop mounting concepts for bridge structure lighting.
3. Develop one alternative for lighting of outboard railings.
4. Develop one alternative for lighting of underside of bridge, roadway under bridge and any adjacent parking areas under bridge.

B. Final Design (includes one meeting in Addison)

1. Final details of fixtures and mounting for bridge structure illumination.
2. Final details of fixtures and mounting for elevated roadway lighting.
3. Final details of fixtures and mounting for outboard railing illumination.

4. Final details of fixtures and mounting for lighting of underside of bridge, roadway under bridge and any adjacent parking areas under bridge.
5. Provide control concept diagrams and other information suitable for use by electrical engineer describing control intent.

TASK IV – NOISE STUDY

A. Noise Measurements

1. Review existing noise ordinance and criteria documents
2. Coordinate with the Town of Addison to discuss noise issues and objectives
3. Perform noise measurement survey. Take initial noise readings, both long term (24 hours or longer) and short term (less than one hour) noise readings, at adjacent properties.
4. Observe adjacent building construction type to aid in estimating the potential noise effects inside the buildings

B. Noise Modeling and Analyses

1. Create a noise model to predict future noise emissions from the proposed roadway and bridge
2. Evaluate noise levels at areas of concern for compliance with applicable noise regulations and standards
3. Develop a range of sound wall heights and noise levels where noise impacts require mitigation.
4. Prepare report and respond to one round of comments.

TASK V - PROJECT MANAGEMENT

A. Reports and Invoices

1. Prepare Project Management Plan
2. Prepare Progress Reports
3. Prepare Invoices and Billings

B. Coordination

1. Coordinate/Administer the Project
2. Manage Subconsultants
3. Implement Quality Assurance/Quality Control Program
4. Prepare for and Attend Town Council or other Town Meetings (1 total)
5. Prepare for and run internal project coordination meetings (8 total)
6. Prepare for and attend project meetings with Addison Public Works (3 total)

ARAPAHO ROAD BRIDGE AT MIDWAY ROAD
WORK ORDER NO. 001 – ARAPAHO ROAD BRIDGE
ATTACHMENT C

FEE PROPOSAL
URS CORPORATION

	Total Cost
TASK I - ENGINEERING	**$ 434,400.00**
A. Civil Site Works	$ 19,370.00
B. Bridges	$ 384,680.00
C. Electrical Engineering	$ 30,350.00
TASK II – ARCHITECTURAL (Corgan)	**$ 39,220.00**
A. Design Development	$ 33,920.00
B. Final Design	$ 5,300.00
TASK III – LIGHTING DESIGN (Brandston)	**$ 39,580.00**
A. Design Development	$ 20,620.00
B. Final Design	$ 18,960.00
TASK IV – NOISE STUDY	**$ 14,045.00**
A. Noise Measurements	$ 5,540.00
B. Noise Modeling and Analyses	$ 8,505.00
TASK V - PROJECT MANAGEMENT	**$ 20,920.00**
A. Reports and Invoices	$ 8,080.00
B. Coordination	$ 12,840.00
Printing & Copying Expenses	**$ 2800.00**
GRAND TOTAL	**$ 550,965.00**

Arapaho Road Bridge
Scoping Meeting
6/26/02

Attendees:

Jim Pierce	Town of Addison
Steve Chutchian	Town of Addison
Jerry Holder	HNTB
Liz Metting	HNTB
Jennifer Nicewander	HNTB
David Boles	HNTB
Cliff R. Hall	URS
Paulette Vander Kamp	URS

1. HNTB's scope covers all drainage, utility relocation, and parking lot design (paving grading, striping & marking).

2. HNTB's scope does not cover the retaining walls. URS scope should cover everything from start of wall at one end to end of wall at the other end, with the exception of the drainage, utilities and parking lots. (E-mail from Jerry Holder dated July 8, 2002 advised that HNTB's fee did cover retaining wall layouts. URS to provide architectural details.)

3. HNTB's David Boles is an Urban Planner on this project. He has been working with Slade Strickland, the Town of Addison's Parks Director. They have developed standard paving and lighting for the Arapaho corridor. URS will need to tie-in to this and coordinate the urban design efforts with HNTB and Slade.

4. The Town of Addison has a "Trails Plan".

5. URS should include Construction Phase Services. This should include attending pre-bid and pre-construction meetings, shop drawings, RFI's, addendums, review the bridge bid tabs, etc.

6. The bridge and roadway will be bid as one construction document.

7. HNTB will provide URS a copy of HNTB's scope of services.

8. URS will prepare noise study and design any soundwall required on the bridge or the retaining walls; HNTB will design any at grade.

9. Irrigation for landscaping will be prepared by HNTB's subconsultant.

10. URS will provide a 60% design submittal.

11. Addison wants to go out for bid in April/May of 2003.

12. HNTB will provide their drawing border to URS as well as the latest profile, alignment and topo files.

13. URS will prepare traffic control for the bridge.

Steve Chutchian

From: Cliff_Hall@URSCorp.com
Sent: Thursday, June 27, 2002 3:00 PM
To: Liz Metting
Cc: jpierce@ci.addison.tx.us; Jerry Holder; Steve Chutchian
Subject: Arapaho Bridge Borings

Liz,

Please hold off on having Terra Mar drill the borings per our e-mail to Luke Jalbert of the Town of Addison. From the information we received from Luke, we had assumed that the borings located in the vicinity of the bridge would be sufficient for the bridge foundations. However, after briefly reviewing the copy of HNTB's scope that we received yesterday, we now realize that these borings are probably not deep enough for the bridge foundations. If this is the case, we would need to provide revised locations for the seven bridge borings and may need to request additional borings as well.

Before we proceed, we would like to know exactly which borings have been drilled and to get a copy of the logs for these borings. Thanks.

Cliff R. Hall, PE
Bridge Group Manager
URS Corporation
5151 Beltline Road, Suite 700
Dallas, TX 75240
Tel: 972-980-4961
Fax: 972-991-7665

URS

April 28, 2004

Mr. Steven Z. Chutchian, P.E.
Assistant City Engineer
16801 Westgrove Drive
Addison, TX 75001

Re: **Arapaho Road Bridge at Midway Road**
Coordination Comments on 100% Plans

Dear Mr. Chutchian:

We have performed a coordination review of your consultant's roadway, utility, landscape, etc. plans for the subject project to check if certain coordination issues that have been previously discussed were included in the 100% plans. We have noted several items that we had requested to be included into the plans, and that impact the bridge or are required by the noise study, that were not included. We have included a partial copy of some of the plan sheets outlining these items, as well as listed them below.

1. All overhead electrical (OHE) lines that cross the bridge or interfere with the bridge deck need to be relocated.
2. The finished ground elevation at bents 9 & 10 (triangular thrust blocks) needs be at EL 616 or above.
3. A 3-ft high barrier is required by the noise study between Arapaho Road and the adjacent hotel beginning at approximate station 72+07 and ending at approximate station 73+50.

Sincerely,

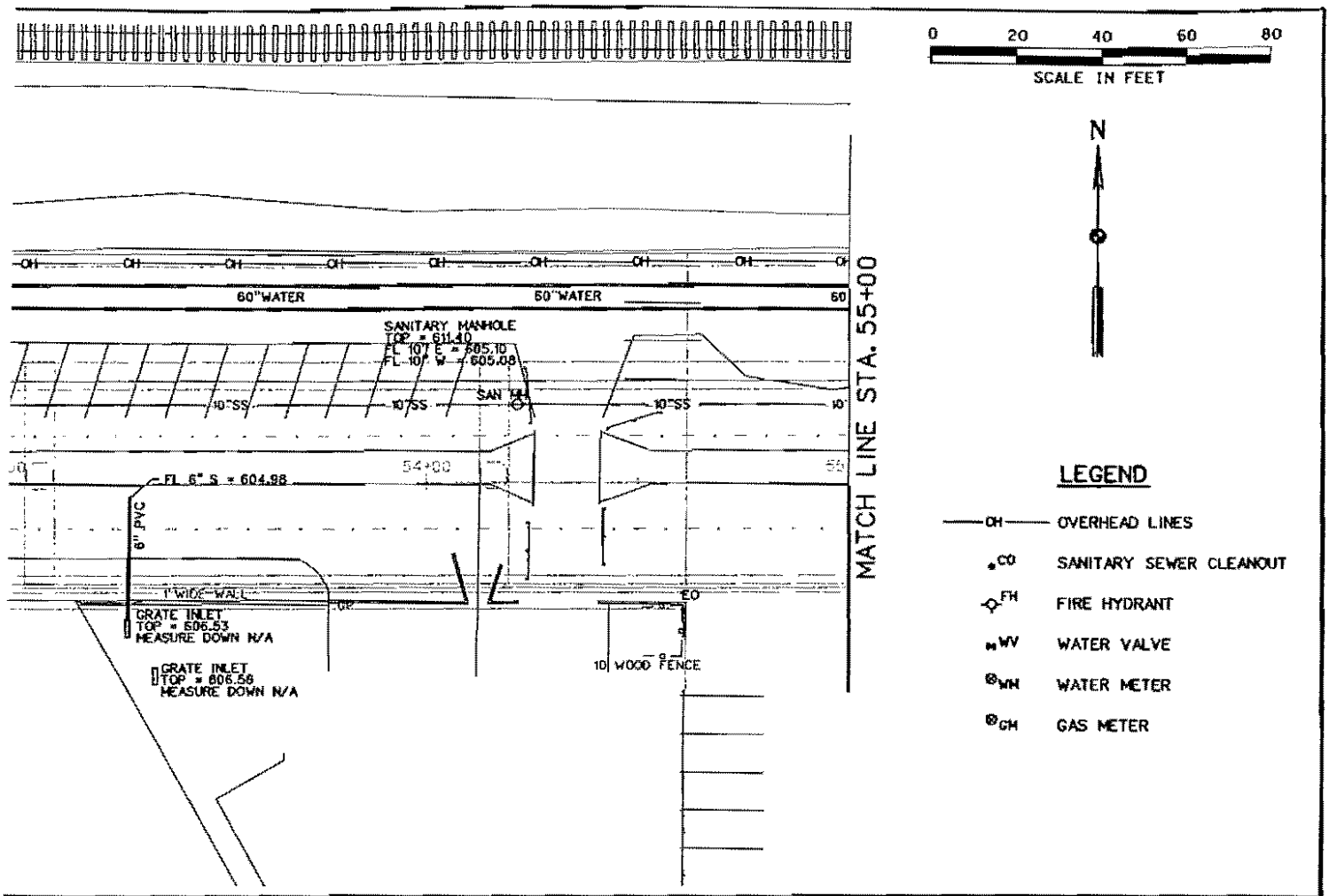
URS Corporation

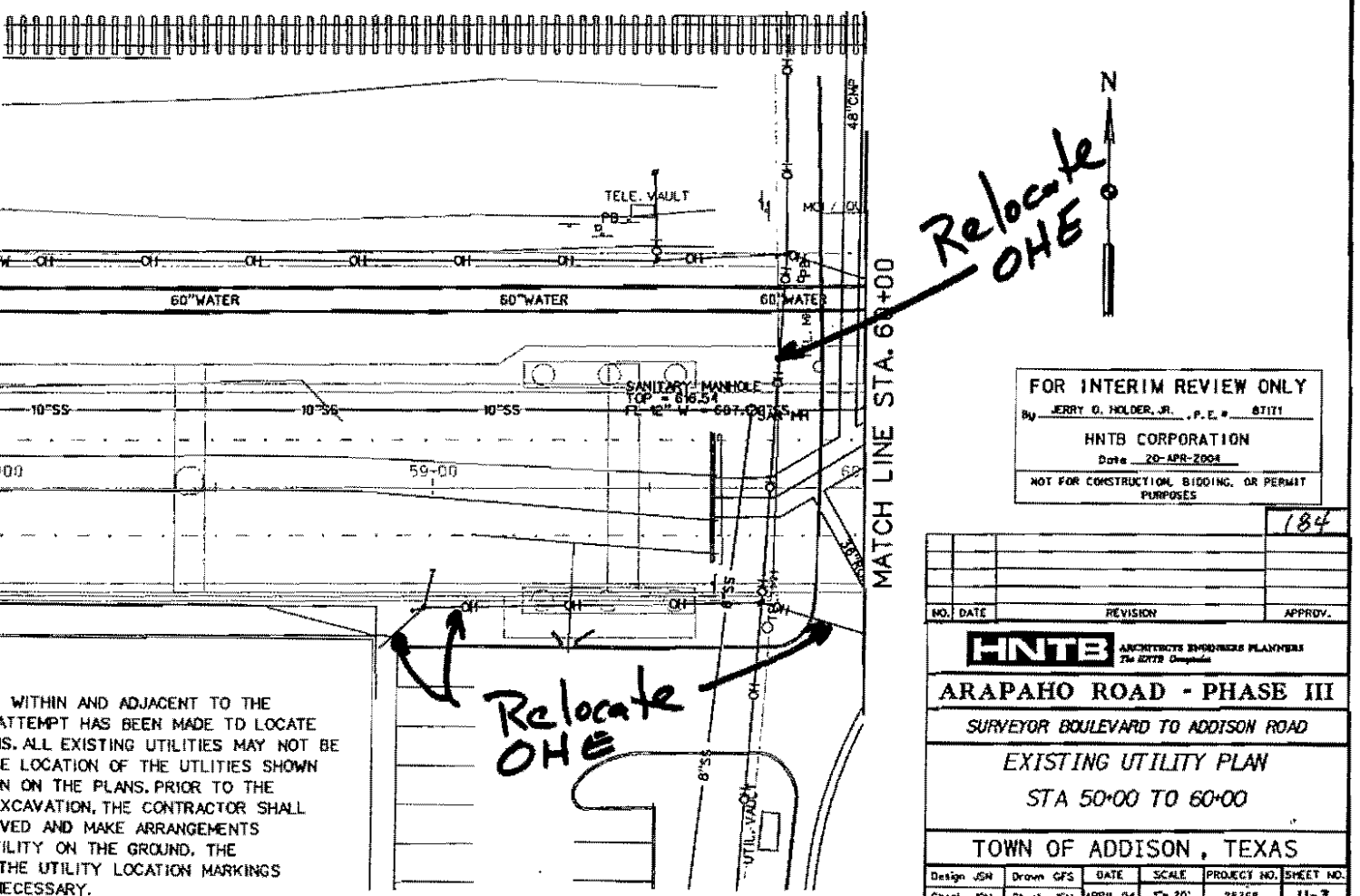
Cliff R. Hall, P.E.
Project Manager

Enclosures

c.c. Jerry Holder (HNTB)

URS Corporation
Graystone Centre
3010 LBJ Freeway, Suite 1300
Dallas, TX 75234
Tel: 972.406.6950
Fax: 972.406.6951





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VED AND MAKE ARRANGEMENTS
ILITY ON THE GROUND, THE
THE UTILITY LOCATION MARKINGS
ECESSARY.

FOR INTERIM REVIEW ONLY
By JERRY O. HOLDER, JR. , P.E. # 87171
HNTB CORPORATION
Date 20-APR-2004
NOT FOR CONSTRUCTION, BIDDING, OR PERMIT PURPOSES

184

NO.	DATE	REVISION	APPROV.

HNTB ARCHITECTS ENGINEERS PLANNERS

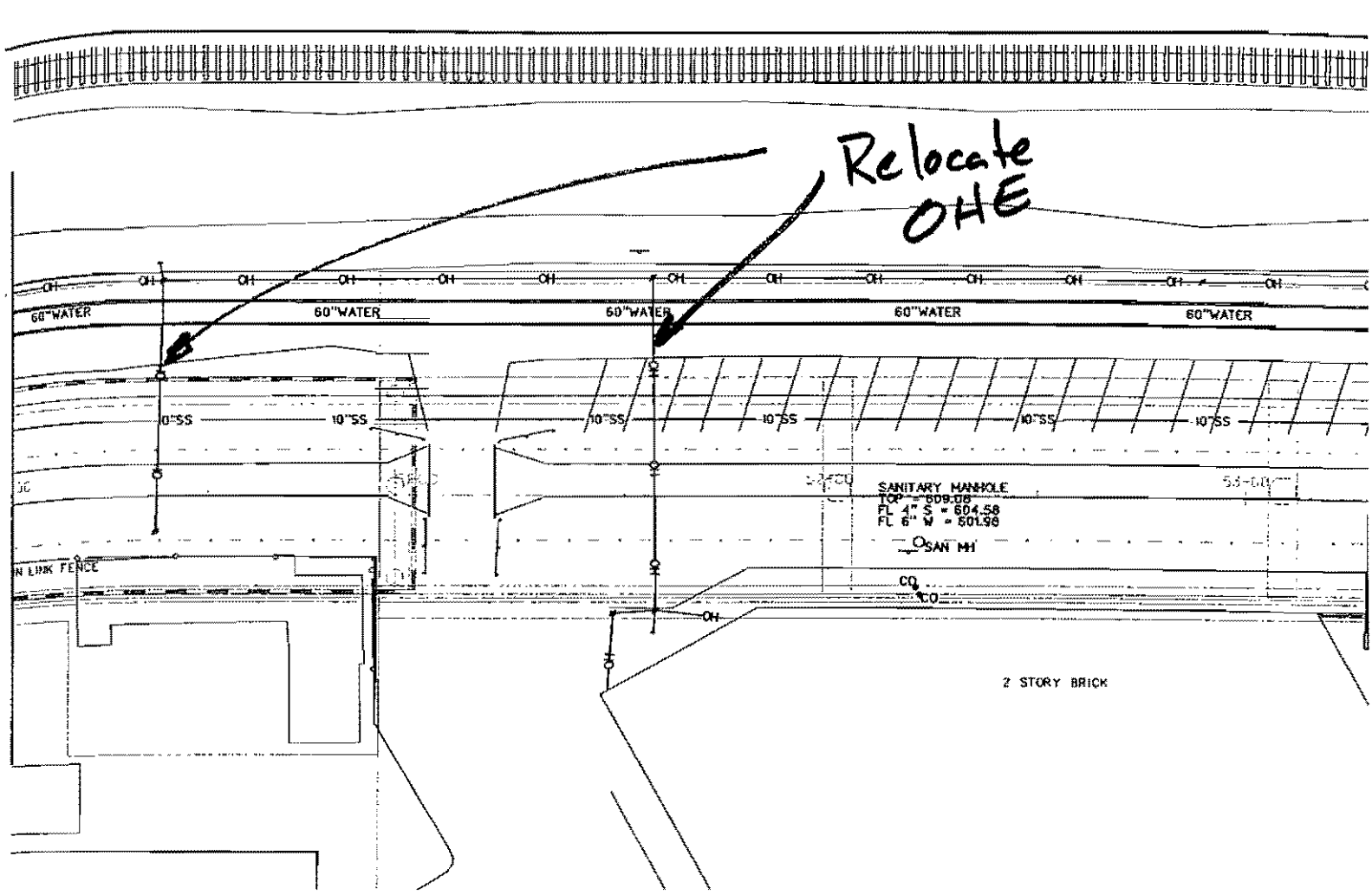
ARAPAHO ROAD - PHASE III

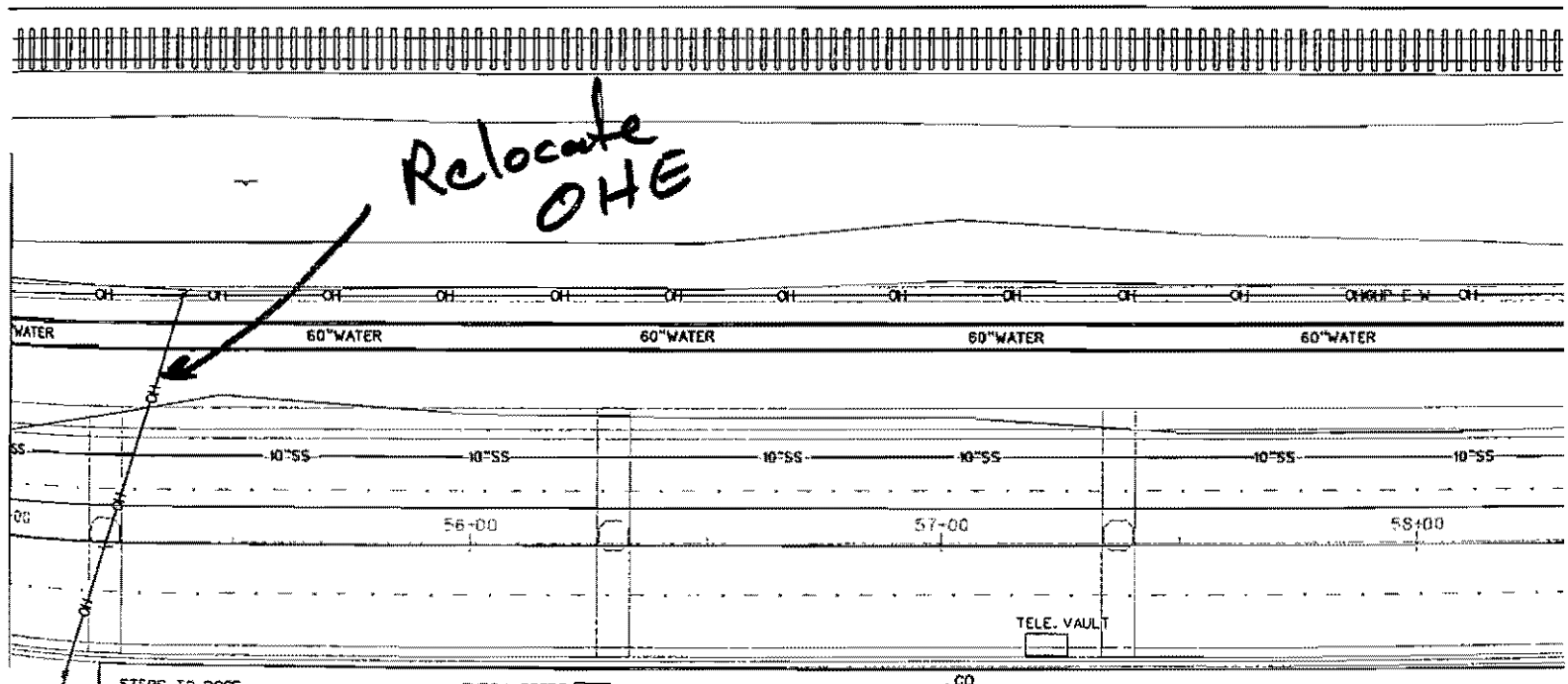
SURVEYOR BOULEVARD TO ADDISON ROAD

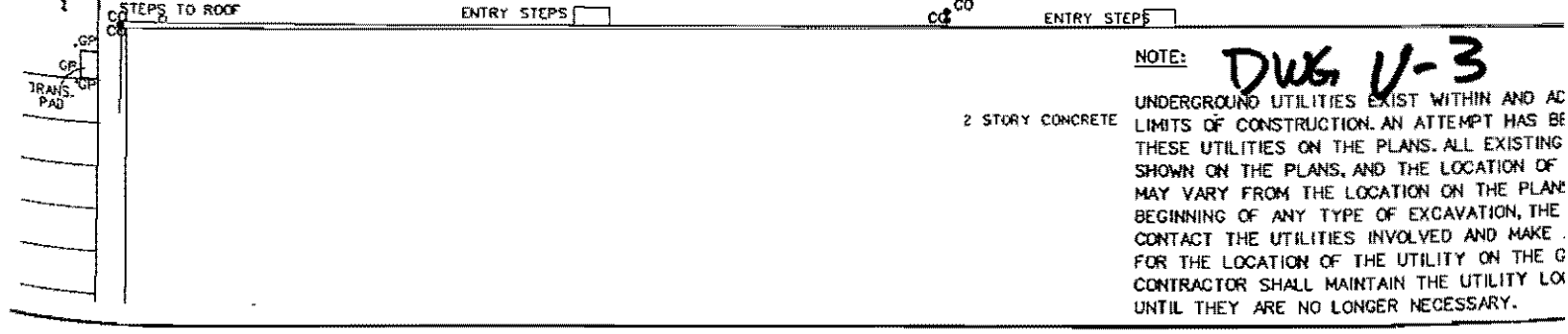
EXISTING UTILITY PLAN
STA 50+00 TO 60+00

TOWN OF ADDISON, TEXAS

Design JSH	Drawn GFS	DATE	SCALE	PROJECT NO.	SHEET NO.
Check JSH	Check JSH	APRIL 04	1"= 20'	25768	U-3







NOTE: DWG V-3

UNDERGROUND UTILITIES EXIST WITHIN AND AD
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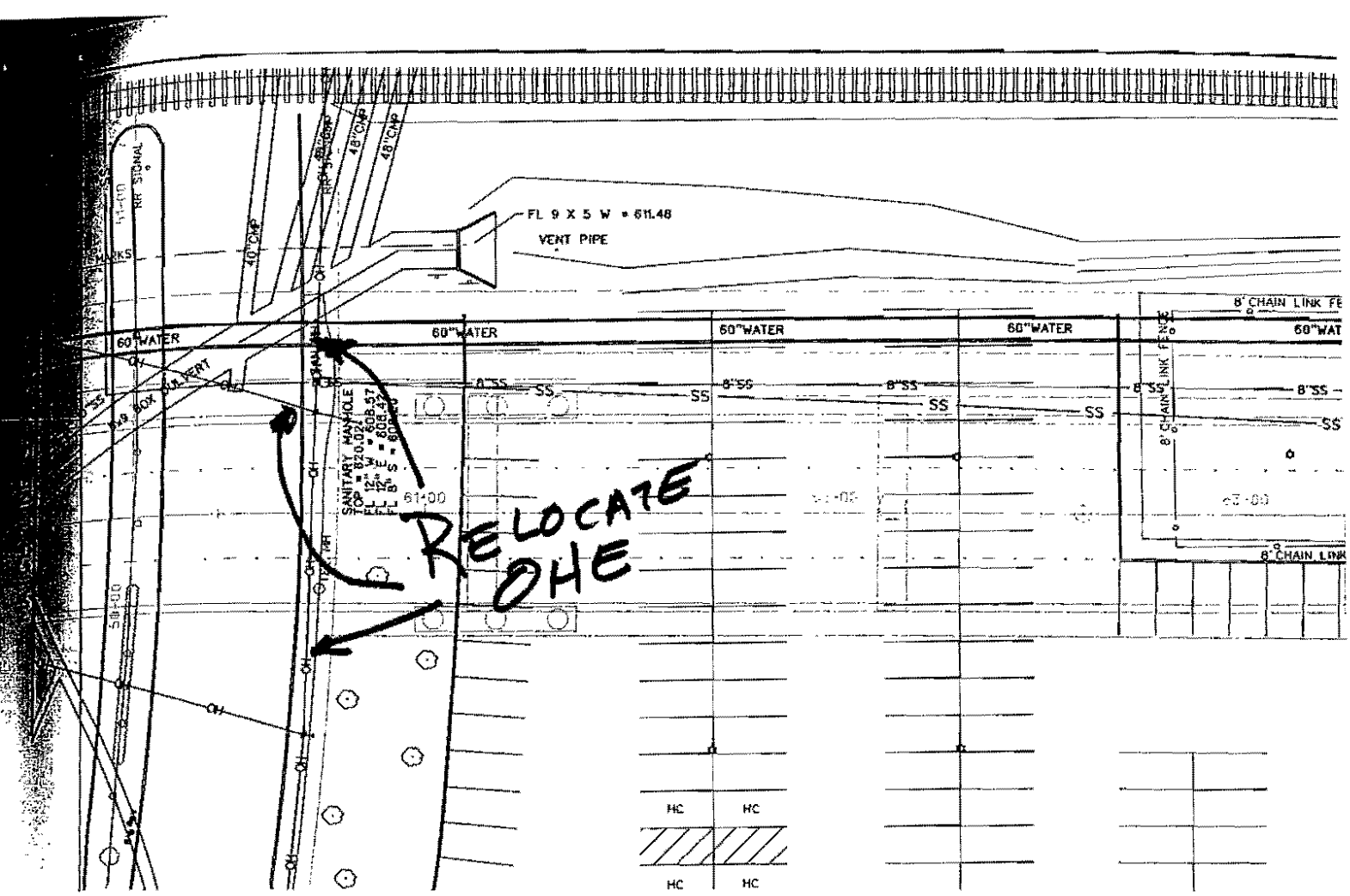
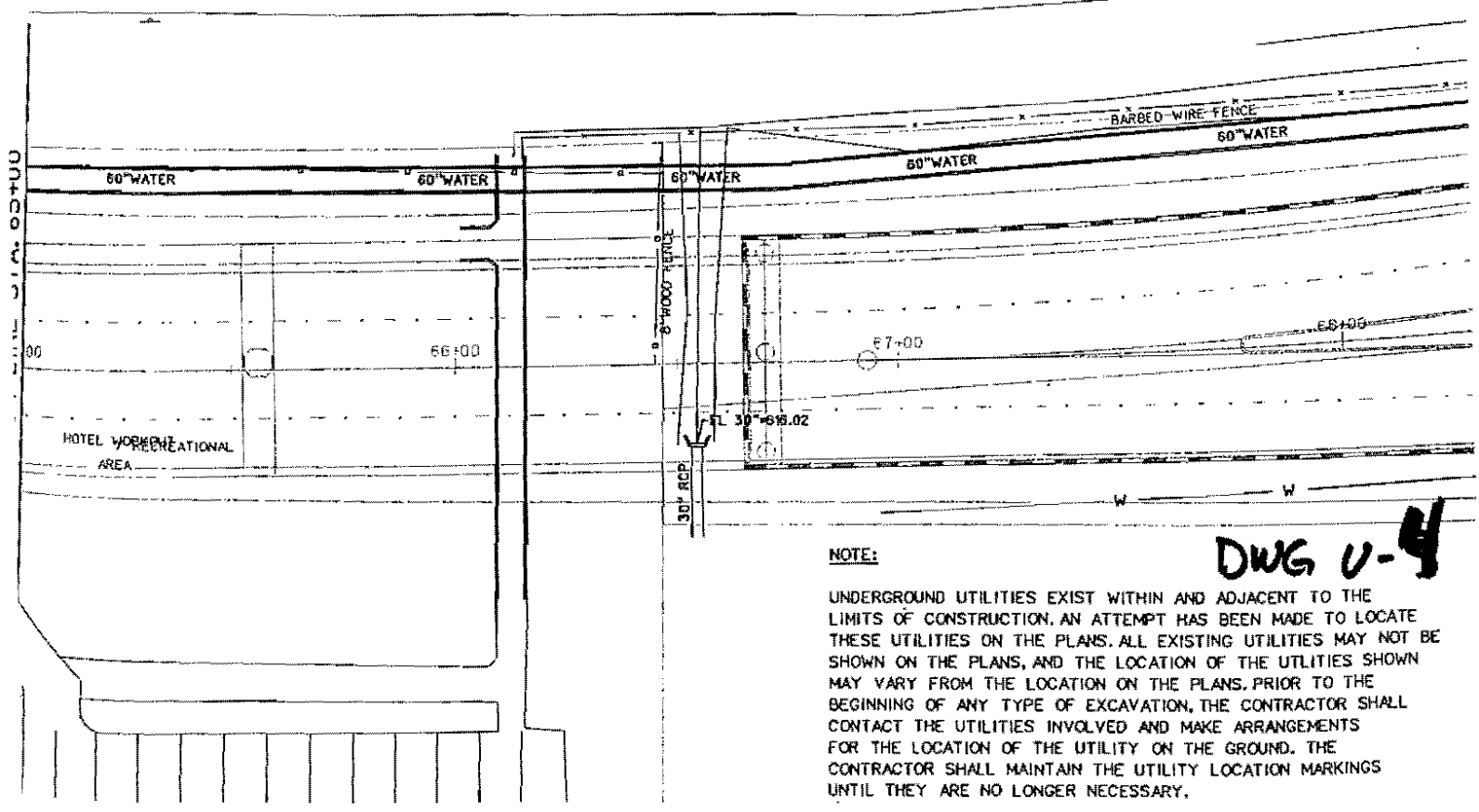
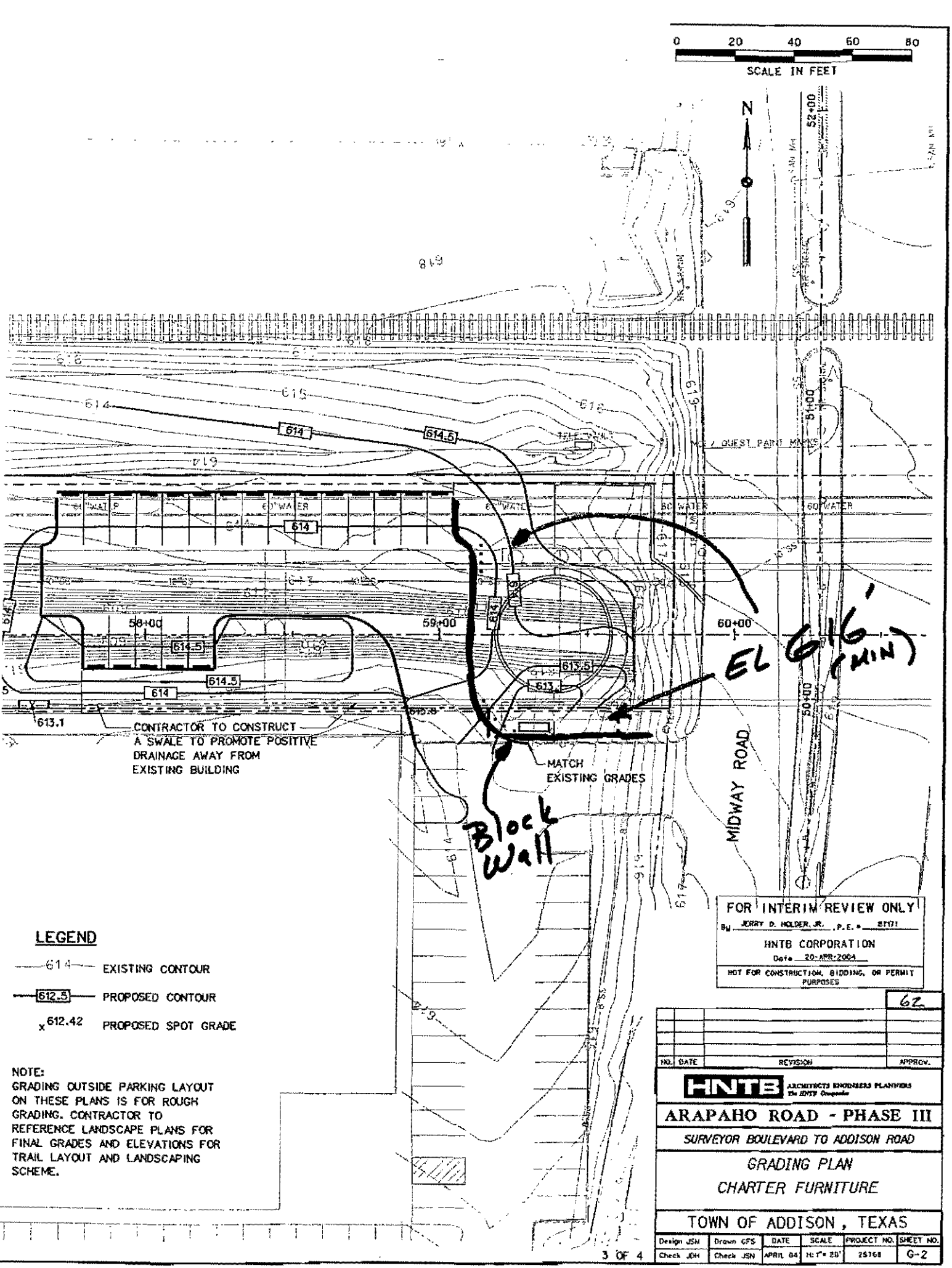




DWG U-4

NOTE:

UNDERGROUND UTILITIES EXIST WITHIN AND ADJACENT TO THE LIMITS OF CONSTRUCTION. AN ATTEMPT HAS BEEN MADE TO LOCATE THESE UTILITIES ON THE PLANS. ALL EXISTING UTILITIES MAY NOT BE SHOWN ON THE PLANS, AND THE LOCATION OF THE UTLITIES SHOWN MAY VARY FROM THE LOCATION ON THE PLANS. PRIOR TO THE BEGINNING OF ANY TYPE OF EXCAVATION, THE CONTRACTOR SHALL CONTACT THE UTILITIES INVOLVED AND MAKE ARRANGEMENTS FOR THE LOCATION OF THE UTILITY ON THE GROUND. THE CONTRACTOR SHALL MAINTAIN THE UTILITY LOCATION MARKINGS UNTIL THEY ARE NO LONGER NECESSARY.



LEGEND

614 — EXISTING CONTOUR

612.5 — PROPOSED CONTOUR

x 612.42 PROPOSED SPOT GRADE

NOTE:
GRADING OUTSIDE PARKING LAYOUT ON THESE PLANS IS FOR ROUGH GRADING. CONTRACTOR TO REFERENCE LANDSCAPE PLANS FOR FINAL GRADES AND ELEVATIONS FOR TRAIL LAYOUT AND LANDSCAPING SCHEME.

FOR INTERIM REVIEW ONLY
By JERRY D. HOLDER, JR., P.E. # 87171
HNTB CORPORATION
Date 20-APR-2004
NOT FOR CONSTRUCTION, BIDDING, OR PERMIT PURPOSES

62

NO.	DATE	REVISION	APPROV.

HNTB ARCHITECTS ENGINEERS PLANNERS

ARAPAHO ROAD - PHASE III

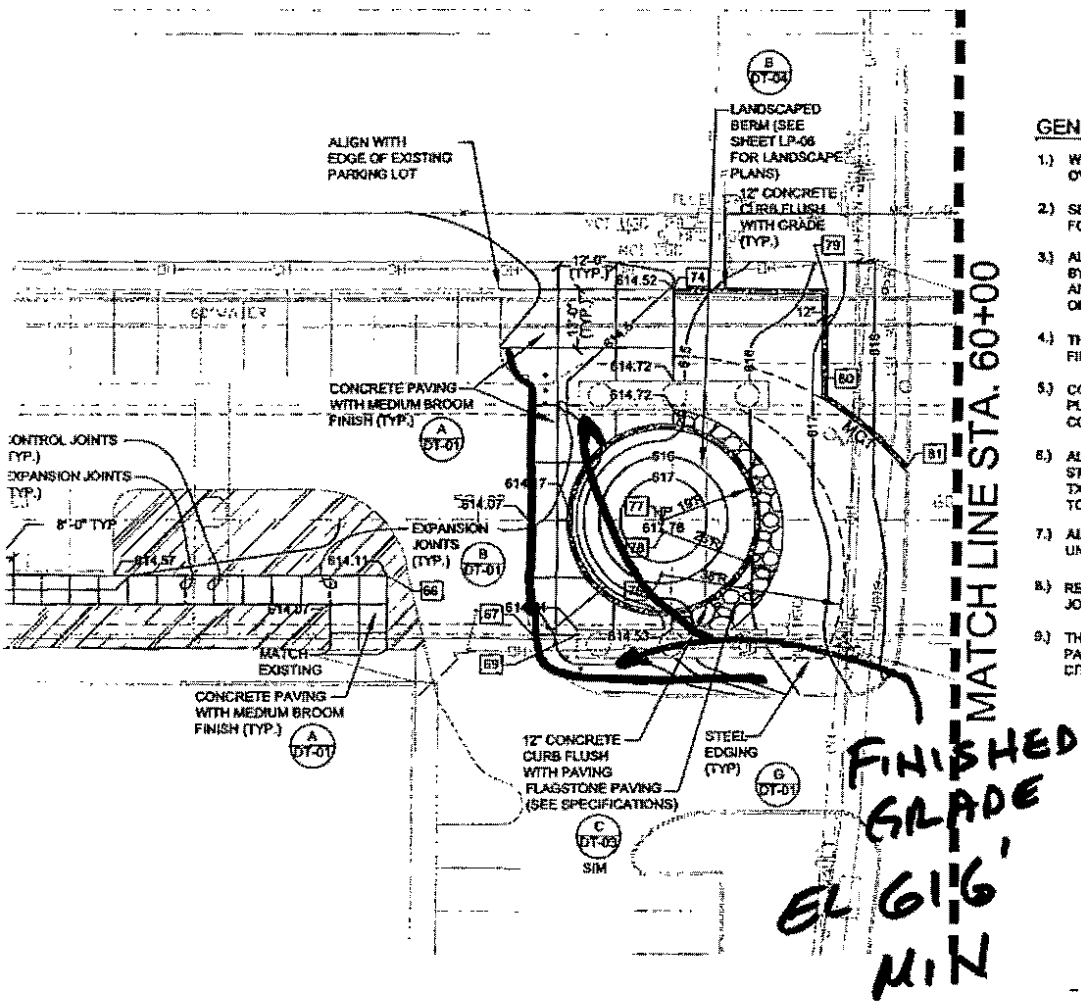
SURVEYOR BOULEVARD TO ADDISON ROAD

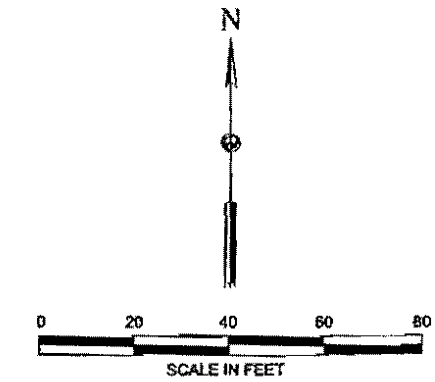
GRADING PLAN

CHARTER FURNITURE

TOWN OF ADDISON, TEXAS

Design JSH	Drawn GFS	DATE	SCALE	PROJECT NO.	SHEET NO.
Check JDH	Check JSH	APRIL 04	H: 1"= 20'	25768	G-2





GENERAL NOTES:

1.) WRITTEN DIMENSIONS AND COORDINATE DATA SHALL GOVERN OVER SCALED DIMENSIONS.

2.) SEE THE SURVEY CONTROL PLAN SHEETS WITHIN THIS SET FOR COORDINATE CONTROL POINT INFORMATION.

3.) ALL IMPROVEMENTS SHALL BE STAKED IN THE FIELD BY THE CONTRACTOR AND APPROVED BY THE LANDSCAPE ARCHITECT AND OWNER'S REP. PRIOR TO CONSTRUCTION OR INSTALLATION.

4.) THE CONTRACTOR SHALL VERIFY ALL EASEMENT LINES IN THE FIELD PRIOR TO BEGINNING WORK.

5.) CONTRACTOR SHALL VERIFY ALL UTILITIES SHOWN ON THESE PLANS AS WELL AS ANY OTHERS IN FIELD PRIOR TO START OF CONSTRUCTION.

6.) ALL CONSTRUCTION WILL CONFORM TO THE TOWN OF ADDISON STANDARDS AND SPECIFICATIONS, AS WELL AS, ANY GOVERNING TXDOT OR RAILROAD STANDARDS AND SPECIFICATIONS RELATED TO THIS PROJECT.

7.) ALL DIMENSIONS ARE TO BACK OF CURB OR EDGE OF PAVEMENT UNLESS OTHERWISE NOTED.

8.) REINFORCEMENT SHOULD BE CONTINUOUS THROUGH CONTROL JOINTS.

9.) THE CONTRACTOR WILL COORDINATE INSTALLATION OF ALL SIGNS, PAVEMENT MARKINGS AND OTHER TRAFFIC CONTROL DEVICES BY THE CITY DURING CONSTRUCTION

LEGEND:

- DECOMPOSED GRANITE TRAIL (SEE SPECIFICATIONS)
- STONE PAVING (SEE SPECIFICATIONS)
- EXPANSION JOINTS
- CONTROL JOINTS
- 600 EXISTING CONTOURS
- 600 PROPOSED CONTOURS

0152.92
179.17
0137.70
179.17
0122.81
196.44

DATA

NG	CHORD
01" W	22.80'

STATE OF TEXAS
MICHAEL PRESTON
2062
REGISTERED LANDSCAPE ARCHITECT

193

NO.	DATE	REVISION	APPROV.

HNTB ARCHITECTS ENGINEERS PLANNERS
The HNTB Companies

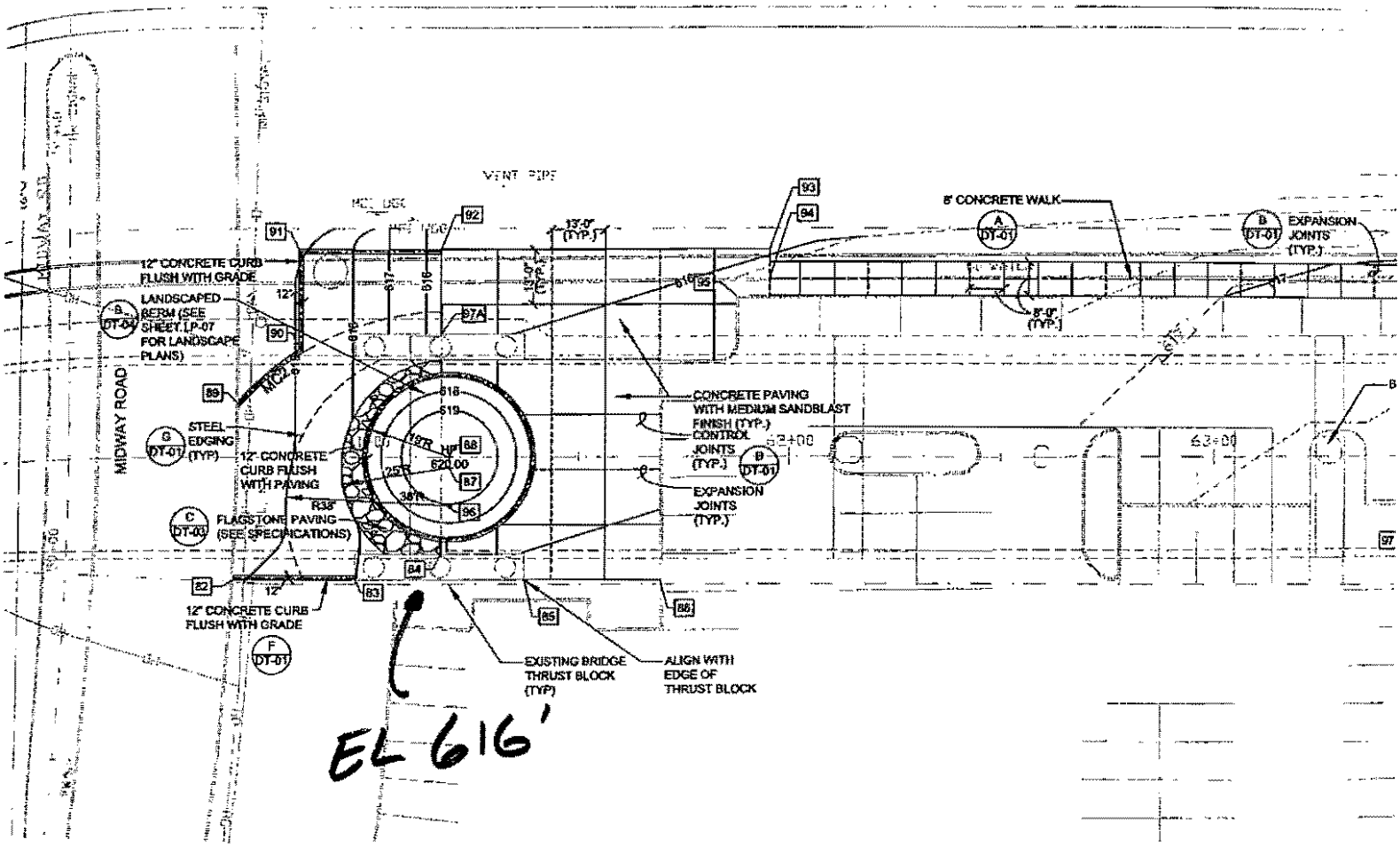
ARAPAHO ROAD EXTENSION

SURVEYOR BOULEVARD TO ADDISON ROAD

STA 55+00 TO 60+00 LAYOUT & DIMENSIONING PLAN

TOWN OF ADDISON , TEXAS

Design DAB	Drawn DAB	DATE	SCALE	PROJECT NO.	SHEET N
Check MP	Check MP	4/26/04	VARIES	25765	LA-06



LAYOUT COORDINATE TABLE

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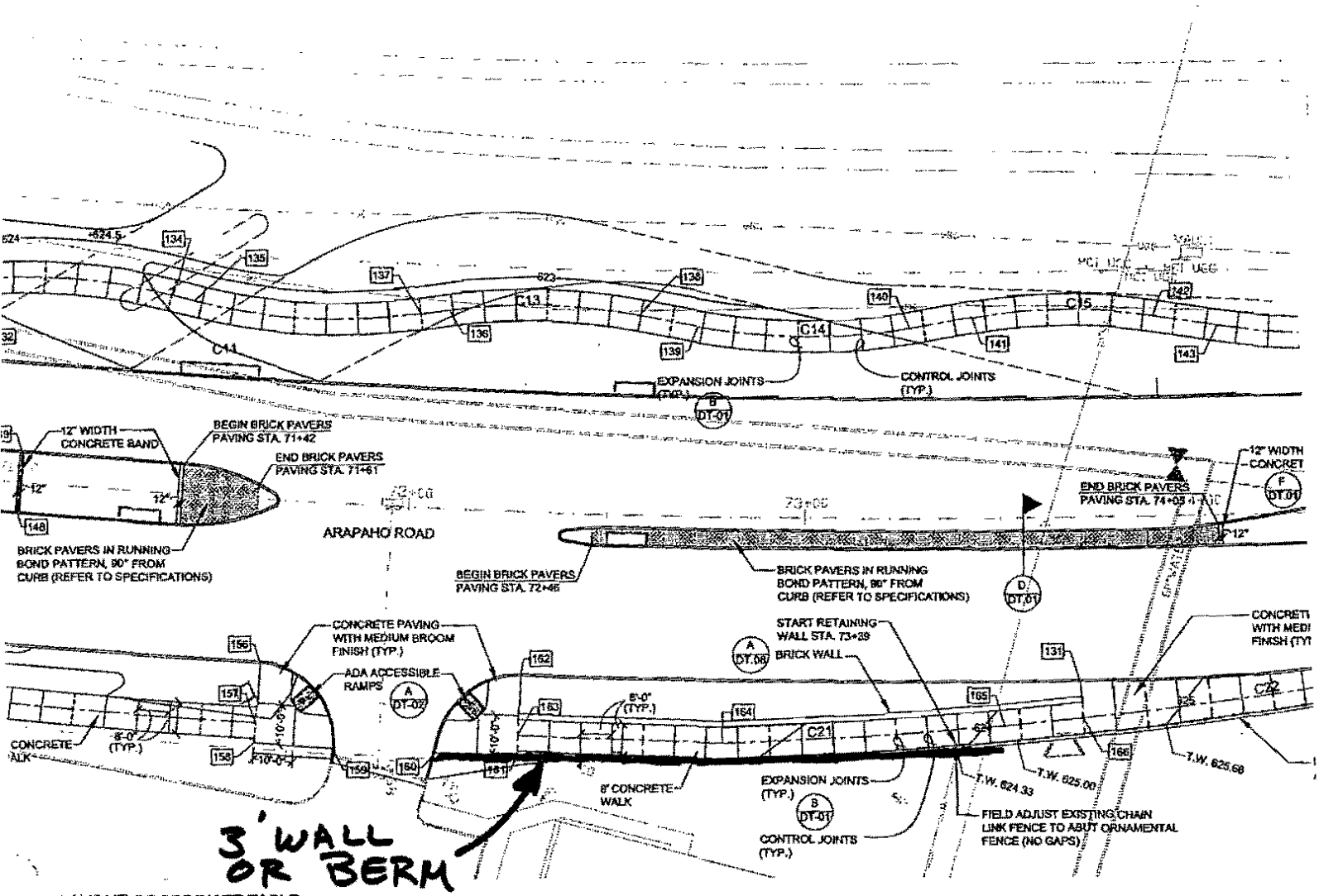
84 N 10078.50 E 9326.54	89 N 10124.59 E 9277.23	94 N 10156.01 E 9411.49	
85 N 10078.50 E 9331.78	90 N 10137.19 E 9291.99	95 N 10150.01 E 9394.69	
86 N 10078.50 E 9378.93	91 N 10162.93 E 9292.00	96 N 10154.01 E 9411.49	

CONTAINER / MOW CURB CENTERLINE CURVE DATA

CURVE	DELTA	RADIUS	ARC	TANGENT	BEARING	CHORD
MC2	16°59'25"	65.50'	19.42'	9.78'	S 49°43'51" W	19.35'

DWG LA-07



LAYOUT COORDINATE TABLE

129 N 10200.77 E 10258.58	136 N 10216.22 E 10379.66	141 N 10259.85 E 10527.94	146 N 10158.67 E 10265.43	151 N 10232.68 E 10642.01	156 N 10128.94 E 10375.69	161 N 10123.35 E 10445.48	166 N 10169.53 E 10582.08
130 N 10204.18 E 10277.28	137 N 10218.27 E 10383.13	142 N 10272.33 E 10571.95	147 N 10143.90 E 10258.04	152 N 10245.09 E 10680.15	157 N 10114.24 E 10379.53	162 N 10142.85 E 10441.04	167 N 10201.67 E 10656.48
131 N 10205.75 E 10286.81	138 N 10238.92 E 10448.96	143 N 10274.34 E 10568.16	148 N 10150.53 E 10307.42	153 N 10259.42 E 10675.96	158 N 10109.30 E 10380.49	163 N 10128.22 E 10444.37	168 N 10218.71 E 10686.04
132 N 10196.76 E 10287.82	139 N 10239.81 E 10461.40	144 N 10290.22 E 10639.10	149 N 10165.31 E 10304.81	154 N 10111.73 E 10282.21	159 N 10113.11 E 10400.17	164 N 10139.80 E 10495.29	169 N 10213.51 E 10687.49
134 N 10197.56 E 10330.18	140 N 10253.04 E 10513.09	145 N 10297.78 E 10653.59	150 N 10243.27 E 10638.91	155 N 10102.61 E 10283.26	160 N 10118.79 E 10425.46	165 N 10152.50 E 10563.37	170 N 10209.68 E 10688.56
135 N 10206.27 E 10364.34							

CONTAINER / MOW CURB CENTERLINE CURVE DATA

CURVE	DELTA	RADIUS	ARC	TANGENT	BEARING	CHORD
C10	14°52'50"	150.00'	38.95'	19.59	S 88°05'13" W	38.85'
C11	20°17'54"	150.00'	53.14'	26.85	S 69°26'36" W	52.86'
C12	10°56'07"	1000.00'	190.86'	95.72	N 84°31'57" E	190.57'
C13	26°35'23"	150.00'	69.61	35.44'	N 72°35'20" E	68.99'
C14	29°29'23"	150.00'	53.64'	27.11'	N 75°38'19" E	53.36'
C15	17°32'22"	150.00'	45.92'	23.14'	N 74°09'49" E	45.74'
C16	20°29'23"	150.00'	53.64'	27.11'	N 72°41'18" E	53.36'
C17	17°32'22"	150.00'	45.92'	23.14'	N 71°12'48" E	45.74'
C21	03°25'52"	1200.00'	71.86'	35.94'	N 71°35'15" E	71.85'
C22	02°58'26"	1597.06'	82.90'	41.46'	N 67°11'08" E	82.89'
C23						

URS

April 28, 2004

Mr. Steven Z. Chutchian, P.E.
Assistant City Engineer
16801 Westgrove Drive
Addison, TX 75001

Re: **Arapaho Road Bridge at Midway Road**
Coordination Comments on 100% Plans

Dear Mr. Chutchian:

We have performed a coordination review of your consultant's roadway, utility, landscape, etc. plans for the subject project to check if certain coordination issues that have been previously discussed were included in the 100% plans. We have noted several items that we had requested to be included into the plans, and that impact the bridge or are required by the noise study, that were not included. We have included a partial copy of some of the plan sheets outlining these items, as well as listed them below.

1. All overhead electrical (OHE) lines that cross the bridge or interfere with the bridge deck need to be relocated.
2. The finished ground elevation at bents 9 & 10 (triangular thrust blocks) needs be at EL 616 or above.
3. A 3-ft high barrier is required by the noise study between Arapaho Road and the adjacent hotel beginning at approximate station 72+07 and ending at approximate station 73+50.

Sincerely,

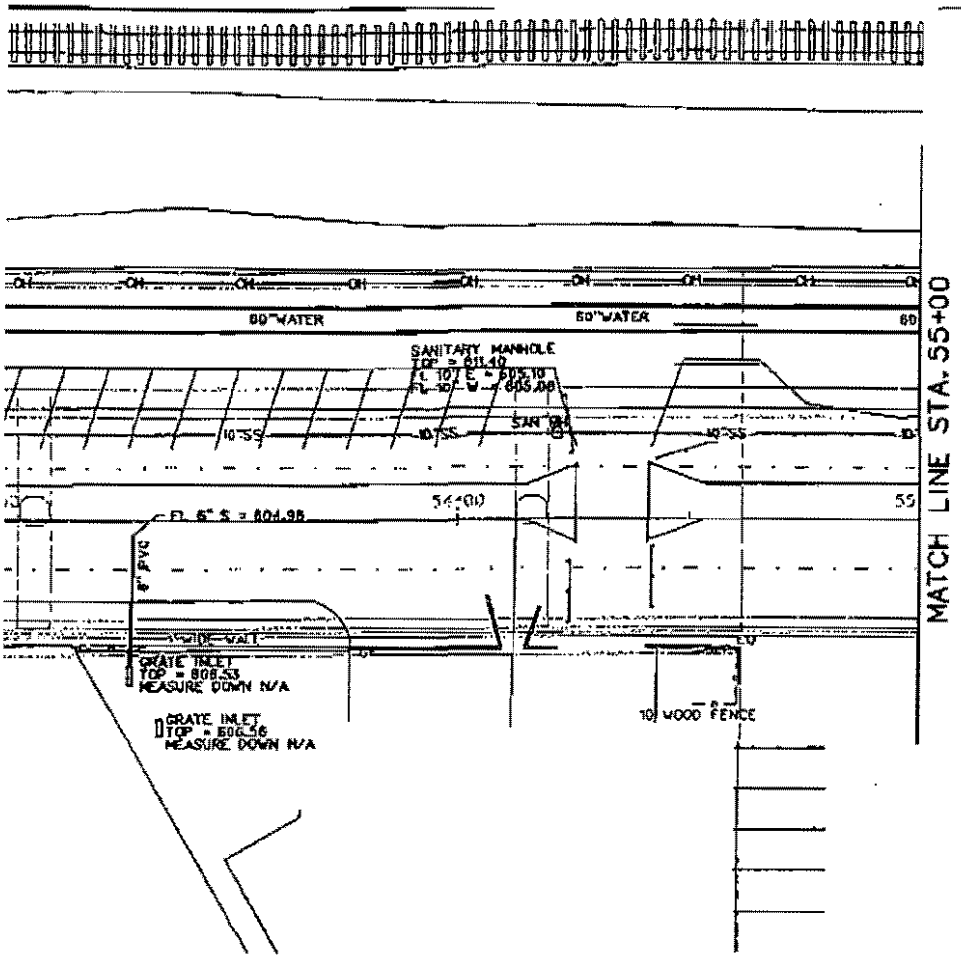
URS Corporation

Cliff R. Hall, P.E.
Project Manager

Enclosures

c.c. Jerry Holder (HNTB)

URS Corporation
Greystone Centre
3010 LBJ Freeway, Suite 1300
Dallas, TX 75234
Tel: 972.406.6950
Fax: 972.406.6951

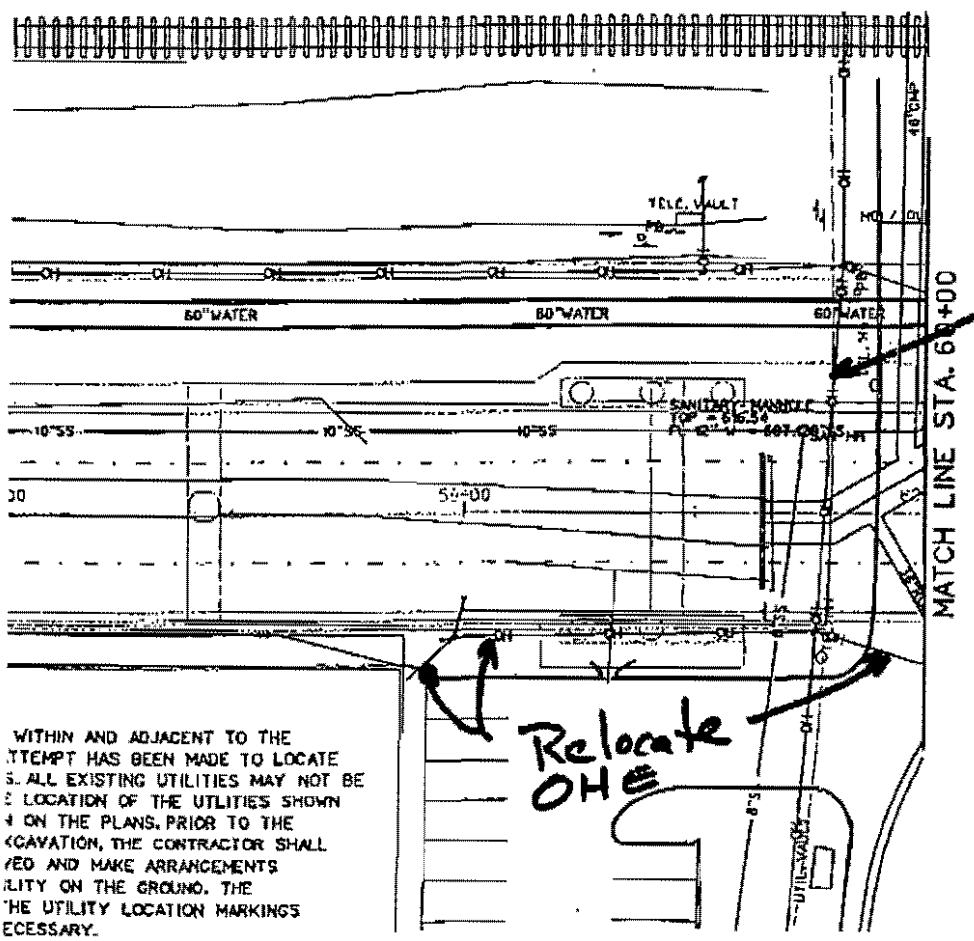


0 20 40 60 80
SCALE IN FEET

N

LEGEND

- OH — OVERHEAD LINES
- CO — SANITARY SEWER CLEANOUT
- FH — FIRE HYDRANT
- WV — WATER VALVE
- WM — WATER METER
- GM — GAS METER



N

FOR INTERIM REVIEW ONLY
BY: JERRY D. HOLDER, JR., P.E. - 87171
HNTB CORPORATION
Date 28-APR-2004
NOT FOR CONSTRUCTION, BIDDING, OR PERMIT PURPOSES

184

NO.	DATE	REVISION	APPROV.

HNTB ARCHITECTS ENGINEERS PLANNERS

ARAPAHO ROAD - PHASE III

SURVEYOR BOULEVARD TO ADDISON ROAD

EXISTING UTILITY PLAN

STA 50+00 TO 60+00

TOWN OF ADDISON, TEXAS

Design JSH	Drawn GFS	DATE	SCALE	PROJECT NO.	SHEET NO.
Check JSH	Check JSH	APRIL 04	1" = 20	25760	U-3

WITHIN AND ADJACENT TO THE
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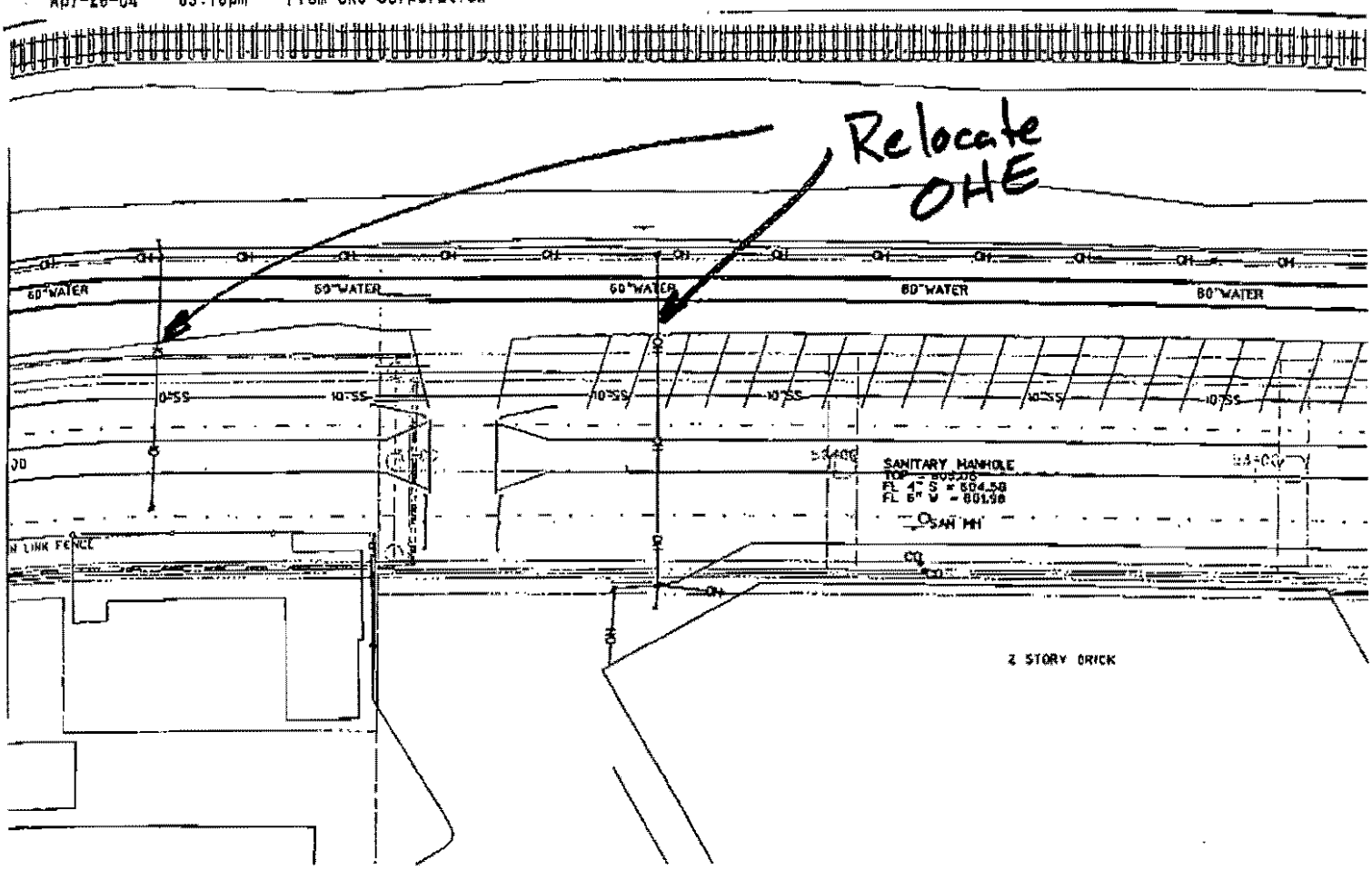
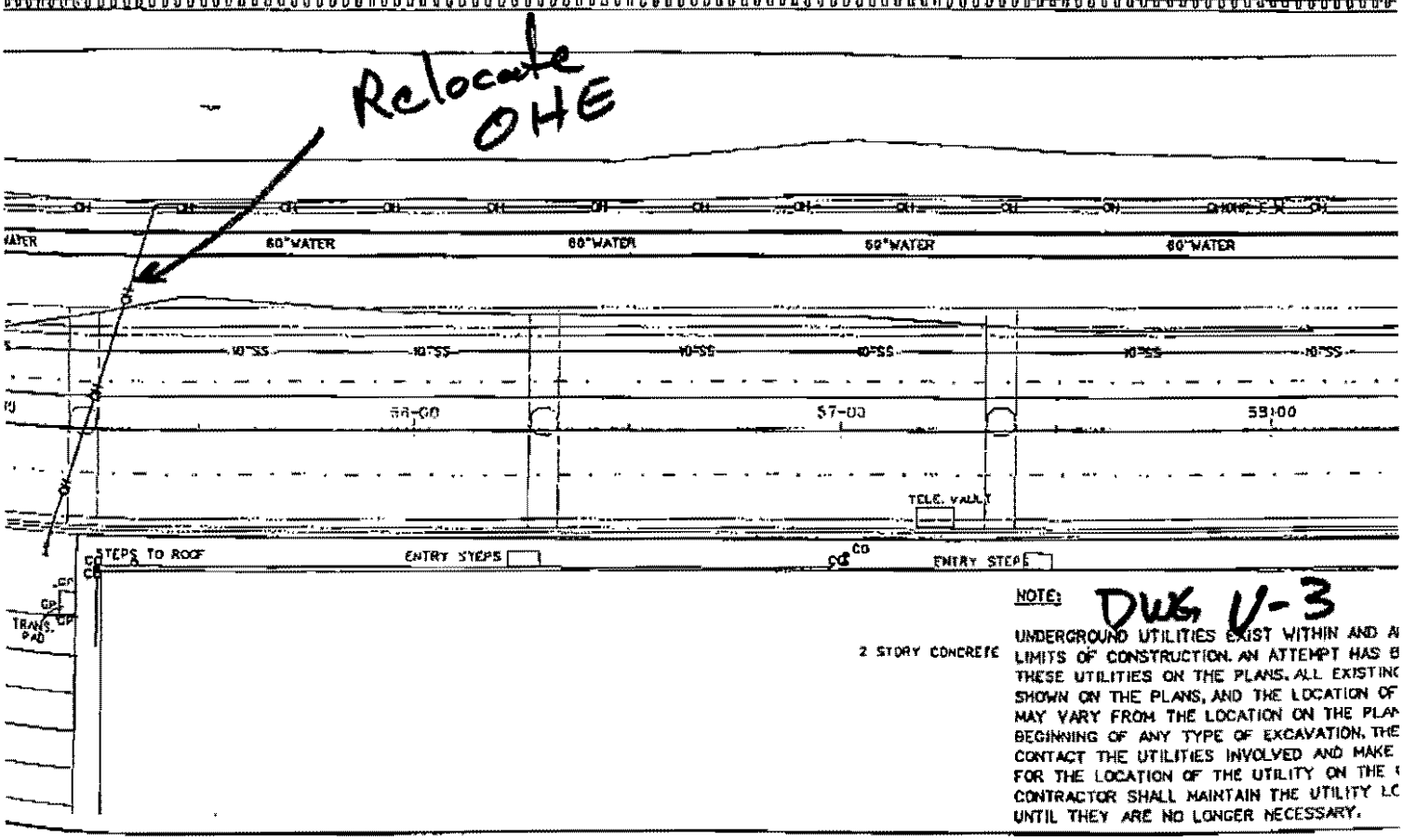
THE UTILITY LOCATION MARKINGS
ECESSARY.





NOTE: DWG V-3

UNDERGROUND UTILITIES EXIST WITHIN AND A
LIMITS OF CONSTRUCTION. AN ATTEMPT HAS B
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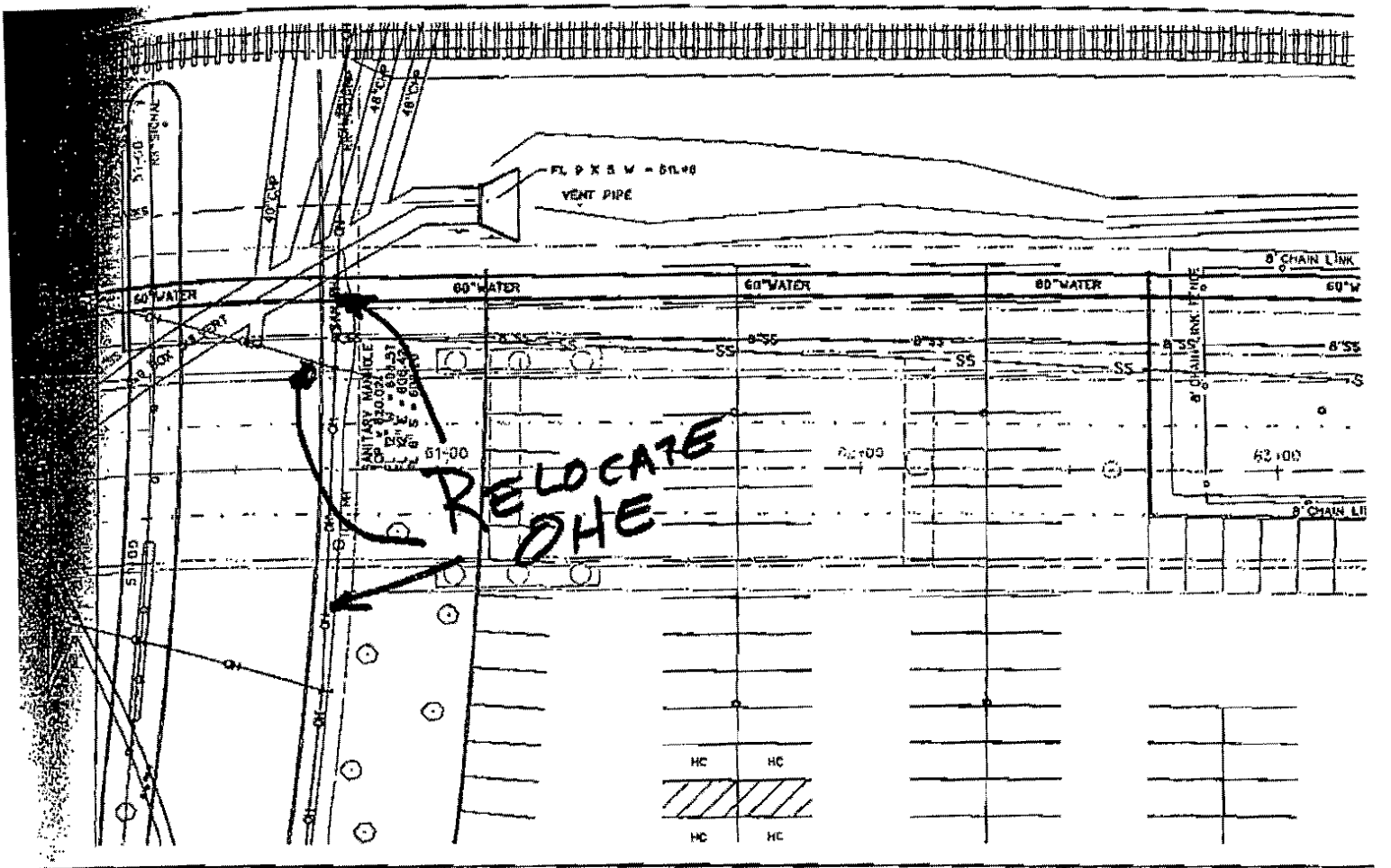
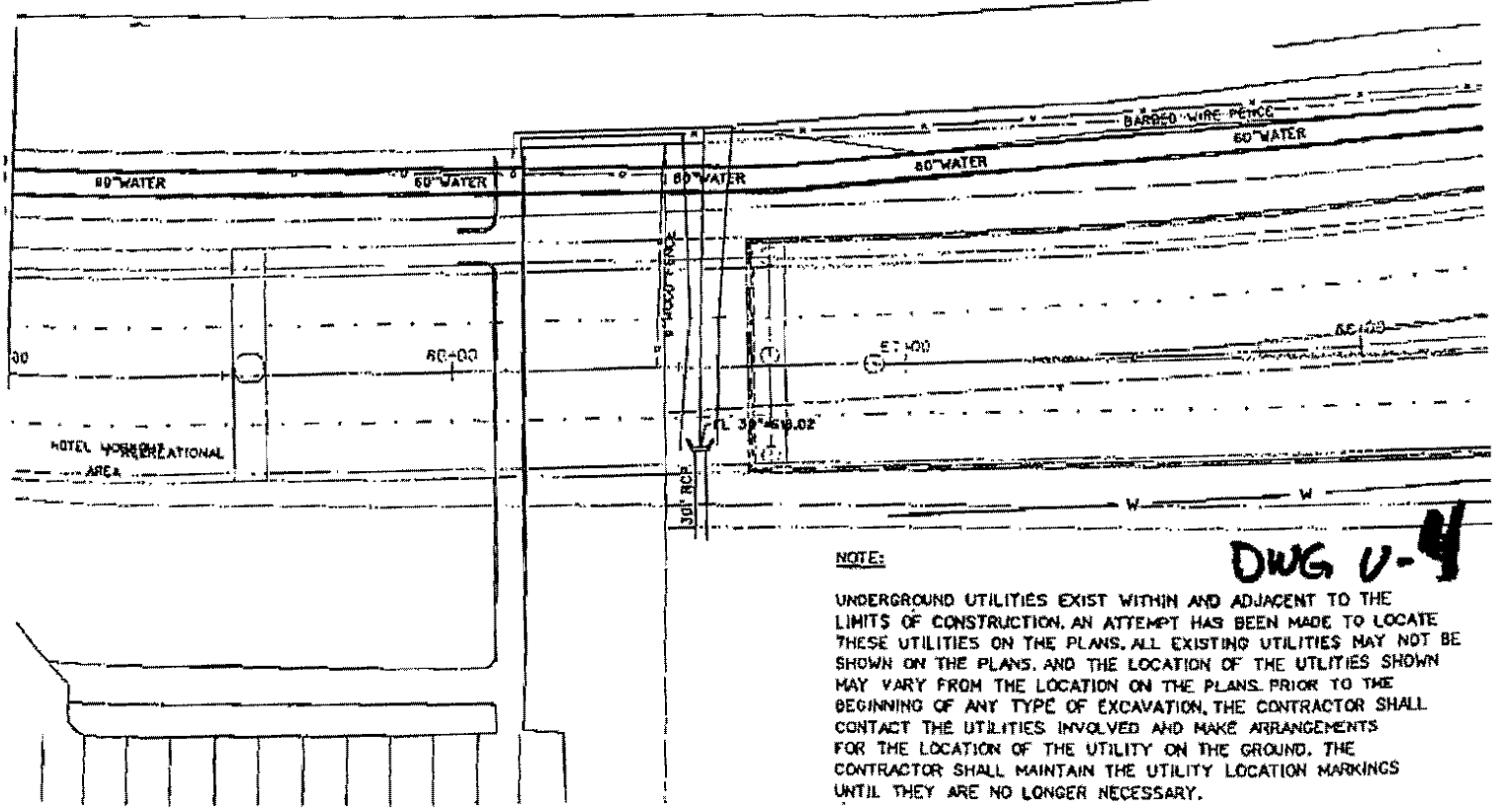
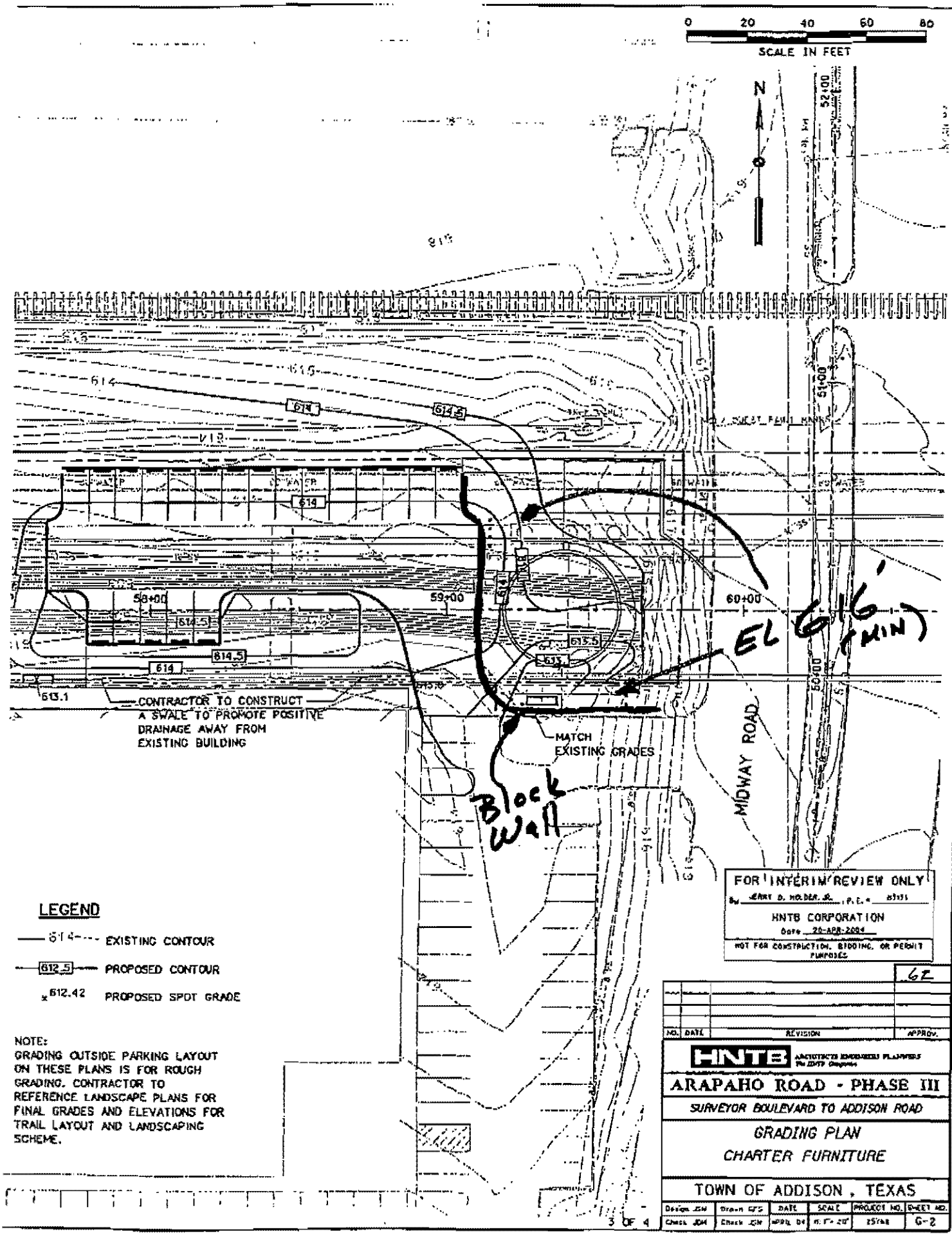




DWG U-4

NOTE:

UNDERGROUND UTILITIES EXIST WITHIN AND ADJACENT TO THE LIMITS OF CONSTRUCTION. AN ATTEMPT HAS BEEN MADE TO LOCATE THESE UTILITIES ON THE PLANS. ALL EXISTING UTILITIES MAY NOT BE SHOWN ON THE PLANS, AND THE LOCATION OF THE UTILITIES SHOWN MAY VARY FROM THE LOCATION ON THE PLANS. PRIOR TO THE BEGINNING OF ANY TYPE OF EXCAVATION, THE CONTRACTOR SHALL CONTACT THE UTILITIES INVOLVED AND MAKE ARRANGEMENTS FOR THE LOCATION OF THE UTILITY ON THE GROUND. THE CONTRACTOR SHALL MAINTAIN THE UTILITY LOCATION MARKINGS UNTIL THEY ARE NO LONGER NECESSARY.


0 20 40 60 80
SCALE IN FEET
N
52+00
51+00
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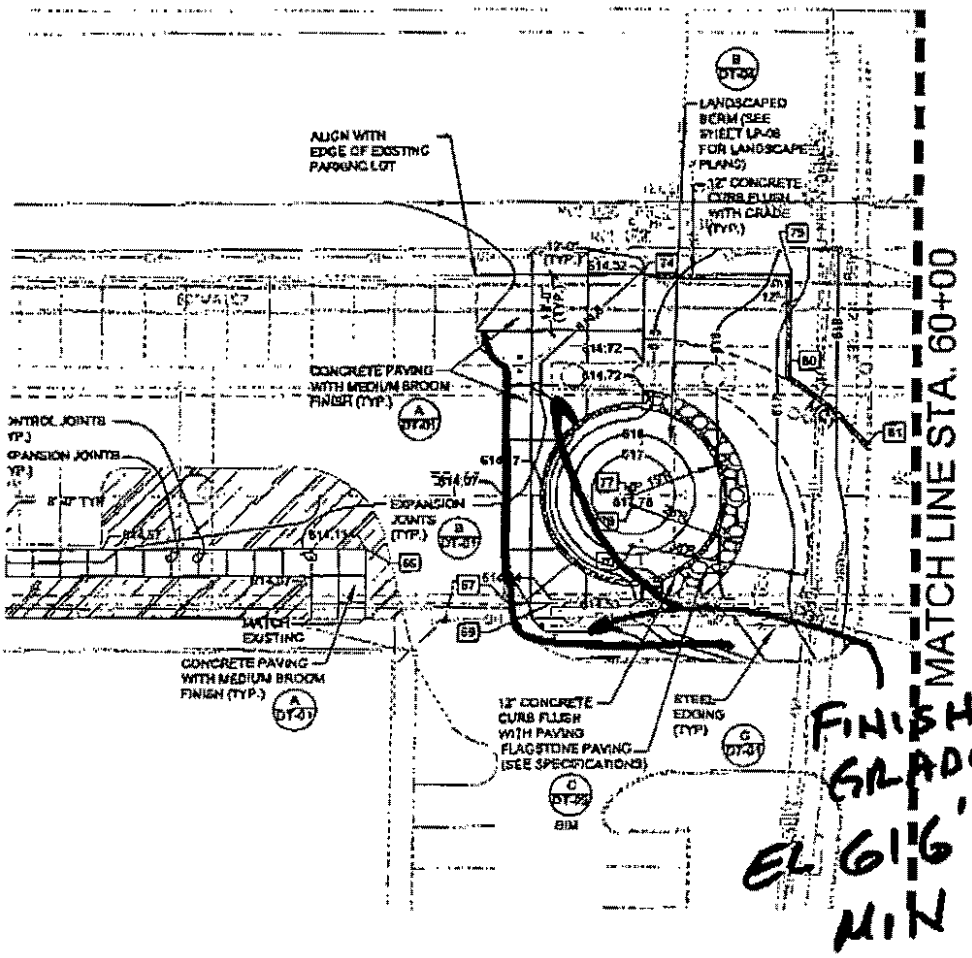
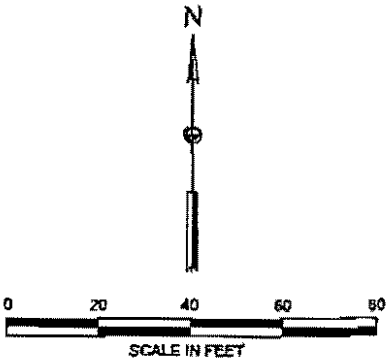
59+00
60+00
614
614.5
613.5
613.1
CONTRACTOR TO CONSTRUCT A SWALE TO PROMOTE POSITIVE DRAINAGE AWAY FROM EXISTING BUILDING
MATCH EXISTING GRADES
Block Wall
EL 616' (MIN)
MIDWAY ROAD
LEGEND
614 EXISTING CONTOUR
612.5 PROPOSED CONTOUR
612.42 PROPOSED SPOT GRADE
NOTE:
GRADING OUTSIDE PARKING LAYOUT ON THESE PLANS IS FOR ROUGH GRADING. CONTRACTOR TO REFERENCE LANDSCAPE PLANS FOR FINAL GRADES AND ELEVATIONS FOR TRAIL LAYOUT AND LANDSCAPING SCHEME.
FOR INTERIM REVIEW ONLY
JERRY D. HOLDER, JR. P.E. # 85135
HNTB CORPORATION
Date 28-APR-2004
NOT FOR CONSTRUCTION, BIDDING, OR PERMIT PURPOSES
NO. DATE REVISION APPROV.
HNTB
ARAPAHO ROAD - PHASE III
SURVEYOR BOULEVARD TO ADDISON ROAD
GRADING PLAN
CHARTER FURNITURE
TOWN OF ADDISON, TEXAS
Design JSH Drawn GFS DATE SCALE PROJECT NO. SHEET NO.
Check JSH Check JSH APPR. DT 1"=20' 25748 G-2
3 OF 4





GENERAL NOTES:

1.) WRITTEN DIMENSIONS AND COORDINATE DATA SHALL GOVERN OVER SCALED DIMENSIONS.

2.) SEE THE SURVEY CONTROL PLAN SHEETS WITHIN THIS SET FOR COORDINATE CONTROL POINT INFORMATION.

3.) ALL IMPROVEMENTS SHALL BE STAKED IN THE FIELD BY THE CONTRACTOR AND APPROVED BY THE LANDSCAPE ARCHITECT AND OWNER'S REP. PRIOR TO CONSTRUCTION OR INSTALLATION.

4.) THE CONTRACTOR SHALL VERIFY ALL EASEMENT LINES IN THE FIELD PRIOR TO BEGINNING WORK.

5.) CONTRACTOR SHALL VERIFY ALL UTILITIES SHOWN ON THESE PLANS AS WELL AS ANY OTHERS IN FIELD PRIOR TO START OF CONSTRUCTION.

6.) ALL CONSTRUCTION WILL CONFORM TO THE TOWN OF ADDISON STANDARDS AND SPECIFICATIONS, AS WELL AS, ANY GOVERNING TXDOT OR RAILROAD STANDARDS AND SPECIFICATIONS RELATED TO THIS PROJECT.

7.) ALL DIMENSIONS ARE TO BACK OF CURB OR EDGE OF PAVEMENT UNLESS OTHERWISE NOTED.

8.) REINFORCEMENT SHOULD BE CONTINUOUS THROUGH CONTROL JOINTS.

9.) THE CONTRACTOR WILL COORDINATE INSTALLATION OF ALL SIGNS, PAVEMENT MARKINGS AND OTHER TRAFFIC CONTROL DEVICES BY THE CITY DURING CONSTRUCTION

LEGEND:

- DECOMPOSED GRANITE TRAIL (SEE SPECIFICATIONS)
- STONE PAVING (SEE SPECIFICATIONS)
- EXPANSION JOINTS
- CONTROL JOINTS
- EXISTING CONTOURS
- PROPOSED CONTOURS

STATE OF TEXAS
MICHAEL PRESTON
2052
REGISTERED LANDSCAPE ARCHITECT

193

NO.	DATE	REVISION	APPROV.

HNTB ARCHITECTS ENGINEERS PLANNERS
The HNTB Companies

ARAPAHO ROAD EXTENSION

SURVEYOR BOULEVARD TO ADDISON ROAD

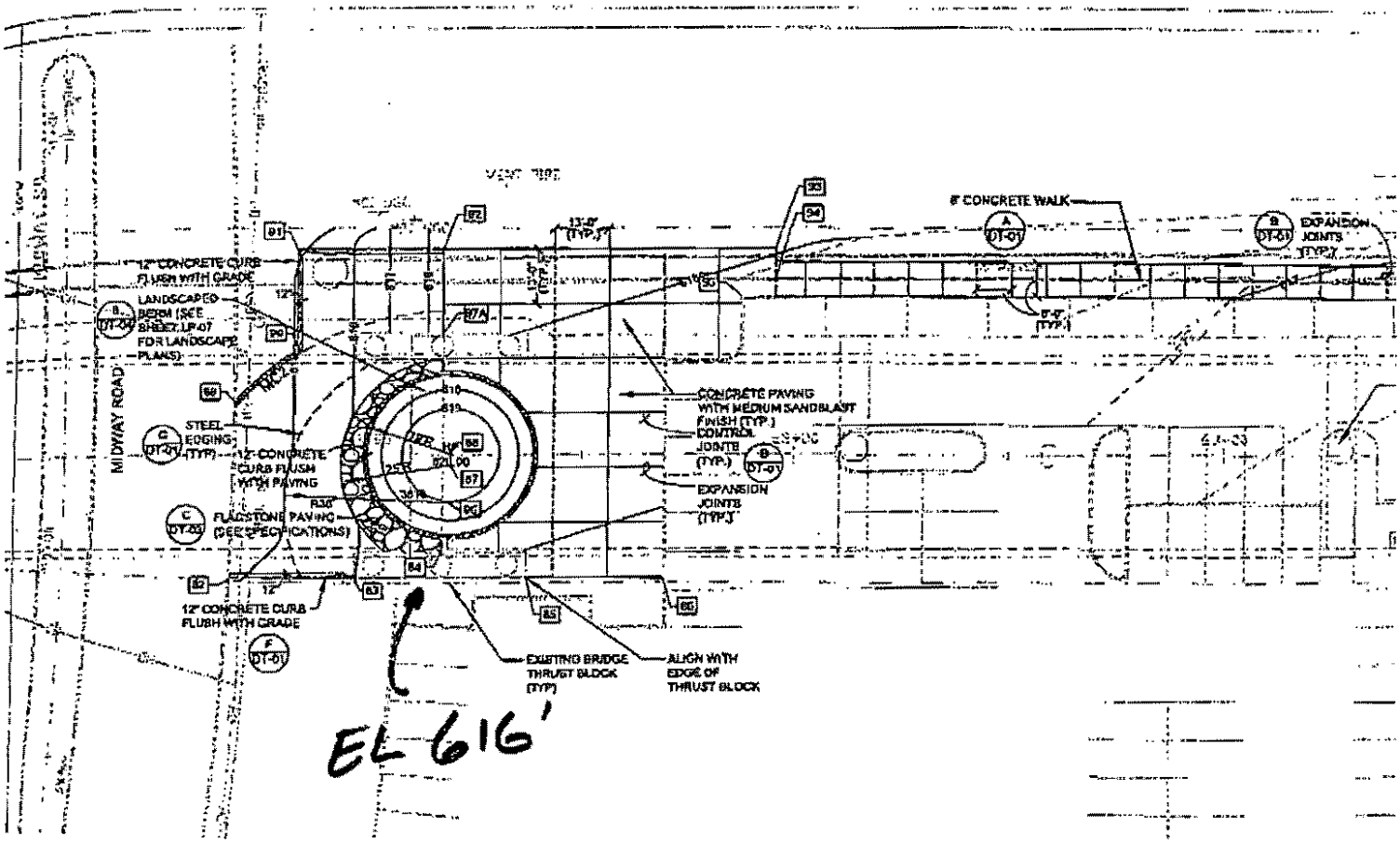
STA 55+00 TO 60+00
LAYOUT & DIMENSIONING PLAN

TOWN OF ADDISON , TEXAS

Des'g'n DAB	Drawn DAB	DATE	SCALE	PROJECT NO.	SHEET
Check MP	Check MP	4/28/04	VARIES	25768	LA-5

)ATA

ING	CHORD
01" W	22.60'



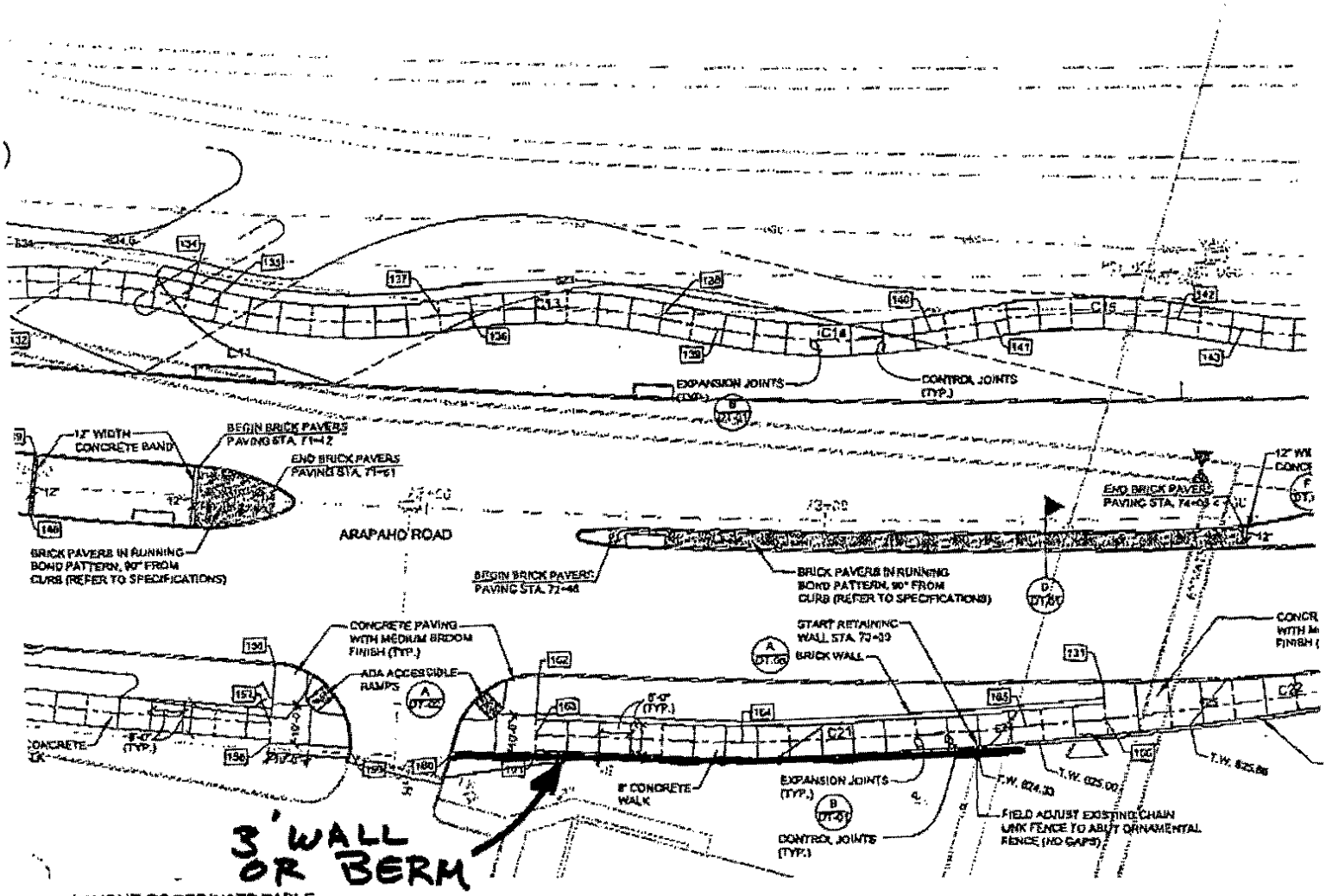
LAYOUT COORDINATE TABLE

82 N 10083.04 E 9275.94	87 N 10102.57 E 9326.49	92 N 10182.92 E 9326.49	97 N 10088.50 E 9569.33
83 N 10063.04 E 9009.64	88 N 10112.08 E 9328.52	93 N 10183.42 E 9411.49	97A N 10130.01 E 9826.49
84 N 10078.50 E 9329.54	89 N 10124.59 E 9277.23	94 N 10158.01 E 9411.49	
86 N 10078.50 E 9301.78	90 N 10187.10 E 9291.98	95 N 10150.01 E 9384.59	
86 N 10078.50 E 9276.93	91 N 10162.83 E 9282.00	96 N 10164.01 E 9411.45	

CONTAINER / MOW CURB CENTERLINE CURVE DATA

CURVE	DELTA	RADIUS	ARC	TANGENT	BEARING	CHORD
MC2	15°09'25"	60.50'	19.42'	9.76'	S 49°43'51" W	19.35'

DWG LA-07



LAYOUT COORDINATE TABLE

129 N 10200.77 E 10256.58	136 N 10218.22 E 10279.86	141 N 10259.85 E 10327.04	146 N 10158.87 E 10295.43	151 N 10232.28 E 10342.91	156 N 10128.84 E 10276.69	161 N 10123.36 E 10445.88	166 N 10159.53 E 10502.08
130 N 10204.15 E 10277.28	137 N 10218.27 E 10303.13	142 N 10272.33 E 10371.95	147 N 10143.90 E 10298.04	152 N 10245.09 E 10360.10	157 N 10114.24 E 10379.53	162 N 10142.85 E 10441.04	167 N 10201.67 E 10538.40
131 N 10205.75 E 10295.81	138 N 10238.92 E 10448.86	143 N 10274.34 E 10388.18	148 N 10150.53 E 10307.42	153 N 10253.42 E 10375.98	158 N 10109.30 E 10360.49	163 N 10128.22 E 10444.37	168 N 10216.71 E 10539.04
132 N 10196.78 E 10207.92	139 N 10239.81 E 10461.40	144 N 10290.22 E 10639.10	149 N 10155.31 E 10306.81	154 N 10111.75 E 10282.21	159 N 10113.11 E 10400.17	164 N 10130.80 E 10435.20	169 N 10213.51 E 10587.43
134 N 10187.50 E 10330.18	140 N 10253.04 E 10313.09	145 N 10287.75 E 10633.59	150 N 10143.27 E 10638.91	155 N 10102.91 E 10283.20	160 N 10110.79 E 10425.40	165 N 10162.58 E 10583.37	170 N 10229.86 E 10649.96
133 N 10205.27 E 10364.54							

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CURVE	DELTA	RADIUS	ARC	TANGENT	BEARING	CHORD
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C22	02°58'26"	1597.06'	82.90'	41.45'	N 87°11'08" E	82.89'
C23						

URS

LETTER OF TRANSMITTAL

Date: 4/23/04

TO: HNTB Corp
5910 W. Plano Parkway
Plano, TX 75093

FROM: Cliff R. Hall
URS Corp
3010 LBJ Freeway
Suite 1300
Dallas, TX 75234

Attention: Jenny Nicewander

JOB No.: 25334401

RE: ARAPAHO ROAD BRIDGE

The following items are being sent: ☒ Attached ☐ Under separate cover by
☐ Shop Drawings ☐ Prints ☒ Plans ☐ Samples ☒ Specifications ☐ Copy of Letter
☒ Other

Item	Copies	Date	Description
1	1	4/23/04	100% Bridge Plans
2	1	4/23/04	Technical Specifications Sections: BC, SSH, IB, BELF
3			
4			
5			

Transmittals for reasons checked:

☐ For Your Approval
☒ For Your Use
☐ As Requested
☐ For Review and Comment

☐ No Exceptions Taken
☐ Make Corrections Noted
☐ Amend and Resubmit

☐ Resubmit copies for approval
☐ Submit copies for distribution
☐ Return corrected prints
☐

Remarks: Bid Tab items and sheet list were sent via electronic mail

Copies: Steve Chutchian - Town of Addison
(Transmittal Letter only)

If enclosures are not as noted, kindly notify us at once.

Name: Cliff R. Hall

URS Corporation

URS

Facsimile

To: STEVE CHOTCHIAN

Firm: Town of Addison

Facsimile: 972.450.2837

From: Clive Hart

Date: 4/23/04

Page 1 of : 2

Subject: ARAPAHO ROAD

Message:

cc:

URS Corporation
3010 LBJ Freeway, Suite 1300
Dallas, TX 75234
Tel: 972.406.6950
Fax: 972.406.6951
www.urscorp.com

URS

April 21, 2004

Mr. Steven Z. Chutchian, PE
Assistant City Engineer
16801 Westgrove Drive
P.O. Box 9010
Addison, TX 75001-9010

Re: **Arapaho Road Bridge at Midway Road**
Phase II – Design Development & Contract Documents
Invoice for Professional Services

Dear Mr. Chutchian:

Enclosed please find our invoice for Professional Services for the Arapaho Road Bridge at Midway Road for the period between February 28, 2004 and March 26, 2004. Also included is our Progress Report for this period outlining the services provided.

Sincerely,

URS Corporation

Cliff R. Hall, PE
Project Manager

Enclosure

URS Corporation
Graystone Center
3010 LBJ Freeway, Suite 1300
Dallas, TX 75234
Tel: 972.406.6950
Fax: 972.406.6951

Monthly Progress Report

Design of the Arapaho Road Bridge Over Midway Road

URS Project No. 25334400

Period: February 27, 2004 to March 26, 2004

---

1. **General Accomplishments**
   - 1.1 Continued final design and plan preparation

2. **Progress This Period**
   - 2.1 Continued final design and drawing production
   - 2.2 Met with the Town to discuss progress.
   - 2.3 Meet with Town's consultant to coordinate drainage, parking and other issues.
   - 2.4 Continued finalizing lighting, including incorporating new street lighting standards.

3. **Anticipated Next Period**
   - 3.1 Submit 95% review plans.
   - 3.2 Incorporate or resolve Town's comments on 95% plans.
   - 3.3 Finish final design and drawing production.
   - 3.4 Perform quality control checks.

4. **Schedule Status**
   - 4.1 95% submittal will be made on April 2, 2004.
   - 4.2 100% review plans are expected to be submitted April 23, 2004.

5. **Issues / Impacts**
   - 5.1 The final grading plan was received to finalize the elevations of the drilled shafts for the bridge bents. The elevations of the shafts for the thrust blocks are set. Ground elevations at the thrust blocks need to be revised to provided adequate cover on the shafts.
   - 5.2 The Town's roadway consultant has not provided any bridge drainage inlets. The Town was to decide if bridge drainage inlets were needed. If bridge drains are needed, receipt of this information will delay the completion of the bridge plans.

MEETING NOTES

Addison Service Center
April 22, 2004

ATTENDEES:

Town of Addison	URS
Mike Murphy	Cliff Hall
Jim Pierce	
Steve Chutchian	
Luke Jalbert	

The meeting was held to resolve four issues outlined in an e-mail by URS to the Town of Addison (attached) and the conflicting responses received from Mike Murphy and Steve Chutchian (attached).

Issue 1: Should a physical barrier be added to the bridge deck around the stingers to meet ADA requirements as interpreted by URS.

The Town of Addison (Addison) requested URS to detail a warning strip in the deck pavement in lieu of a physical barrier.

Issue 2: Should a retaining wall be added near the thrust blocks to raise the finished grade to cover the top of drilled shafts.

Addison advised that a two to three foot high retaining wall should be used to raise the grade. URS was asked to advise Addison's landscape consultant to include the wall in their plans and the elevation of finished grade required.

Issue 3: Should the bent and retaining wall plans detail the "Addison" logo or the "A" as a relief pattern in the concrete.

Addison requested that URS show the logo on the bents and retaining walls with a note on the plans for the Contractor to coordinate with the Town. URS was also asked to provide a separate bid item for the form liner for the logo.

Issue 4: How should the monument plaque be detailed and where should it be located.

Addison requested that URS provide notes and a bid item requiring two 24"x24" brass monument plaques in the plan set. The Contractor will need to coordinate with the Town on wording, location and mounting requirements.

TOWN OF
ADDISON

PUBLIC WORKS

To: CLIFF HALL

From: STEVE CHOTCHIAN

Company: URS

FAX #: 972-406-6951

Date: 4/20/04

No. of pages (including cover): 2

THESE ARE MIKE MURPHY'S COMMENTS.

Phone: 972/450-2886
Fax: 972/450-2837

16801 Westgrove
P.O. Box 9010
Addison, TX 75001-9010

TO: STEVE
FROM: MIKE.

Mike Murphy

From: Cliff_Hall@URSCorp.com
Sent: Thursday, April 15, 2004 2:40 PM
To: Steve Chutchian; Luke Jalbert; Jim Pierce; Mike Murphy
Subject: Arapaho Road Bridge Issues

As always there are a few last minute issues that we need to get cleaned up before the final submittal. I received the Town's comments on our 95% plans and have some follow up questions as well as a few other issues.

1. ADA requirements for overhead obstructions require that a physical barrier be placed where the obstruction height is equal to or less than 6'-8". This is an issue for both the stinger and the arch. Previously we recommended that a steel strand railing type barrier be used around the stinger and arch, but the Town suggested to keep this area open. A suggestion to use a raised/textured pavement was made by the Town. We have reviewed this with the ADA requirements and believe that a physical barrier is necessary to fulfill ADA requirements. Please advise if we should proceed with the use of this barrier.

I THINK THE RAISED PAVEMENT IS ADEQUATE IF WE NEED TO DO SOMETHING DIFFERENT WE CAN DO LATER.

2. We have received some grading plans from HNTB in the vicinity of Bent 9 (western triangular thrust block). Due to the low point elevation of the Charter Furniture parking lot, it appears that the bottom of the southwestern most thrustblock as detailed would be one foot above the ground line. Normally it is preferable to have one to two feet of cover over the drilled shafts, We have discussed this with HNTB and they have agreed to raise the ground around the thrust block as much as possible, but do not expect that this could be raised by more than one foot. It appears that we have two options to address this situation: 1) we could deepen the bottom of the thrust block by two feet to which would leave a 5'-4" wall of concrete exposed above grade at this thrust block; or 2) we could install a short 2' to 3' high block wall around the edge of parking lot to raise the grade. We were advised by HNTB that the Town would prefer not to use a short wall; however, we still feel that this would provide the desired aesthetic look for the bridge. Please advise how we should proceed.

LETS DISCUSS THIS

3. Comments on our 95% plans have requested us to use the "Addison" script logo. We have received a ".jpg" file from Luke with the logo. The best we will be able to do is show the logo on the plans and recommend that the contractor coordinate with the Town when creating the concrete form liner for the logo.

OK

4. We have been requested to provide a monument plaque for the bridge. Is there a location on the bridge (thrust block perhaps) that you would prefer to see this plaque? Do we need to provide a detail for this plaque in the plans, or should this be called out and noted that the contractor should coordinate with the Town?

I LIKE THE THRUST BLOCK LOCATION.

I LIKE THIS OPTION.

LETS DISCUSS THIS.

Cliff R. Hall, PE
Engineering Unit Manager
URS Corporation
Graystone Centre
3010 LBJ Freeway, Suite 1300
Dallas, TX 75234
Office Tel: 972.406.6950
Direct: 972.406.6976
Fax: 972.406.6951

Steve Chutchian

From: Cliff_Hall@URSCorp.com
Sent: Wednesday, March 31, 2004 2:55 PM
To: Jenny Nicewander
Cc: Steve Chutchian
Subject: Retaining Walls

Jenny,

I received a copy of your 95% plans. Please note that your retaining wall layouts need to show the wall in front of the abutment. Also, the retaining wall should end 5-ft from the begin/end of bridge. Begin bridge is 50+95, end retaining wall at 51+00. End bridge at 66+70, begin wall at 66+65.

Also, I have glanced at the specifications. We will need to add the bridge items into the bid document. How do you propose we do this - do you want to send a copy of the bid sheets and we can fill out the descriptions or will you do this when we send our quantity plan sheets? Also, for the bridge items, the TXDOT Standard Specifications 1993, will be the controlling specifications. This needs to be documented somewhere in the specs. We will also have some bridge lighting specs and cut sheets that should be included as well.

Thanks.

Cliff R. Hall, PE
Engineering Unit Manager
URS Corporation
Graystone Centre
3010 LBJ Freeway, Suite 1300
Dallas, TX 75234
Office Tel: 972.406.6950
Direct: 972.406.6976
Fax: 972.406.6951

3/29/04

JUP Projects Coverage / Surgery

Frito Lay Hangar – Luke, Bill Dyer, Mark

* Airport Parkway Relocation – Luke, D. Wilde

Airport Terminal Apron (site concrete)

Paving – Luke, ← HNTB

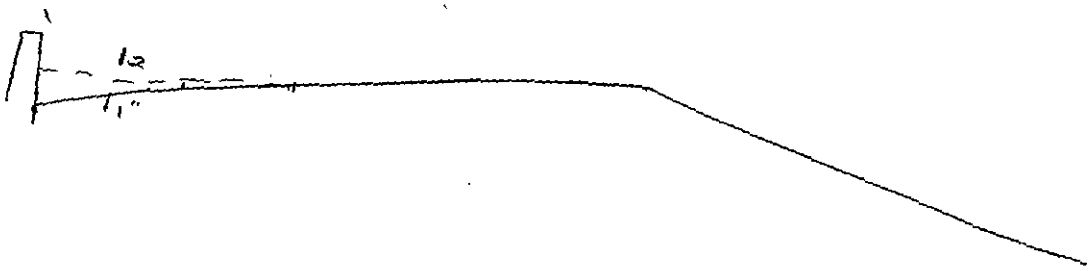
Fencing – Lou Elquezabal (Airport) 972-392 4861

* Lease Tenants Issues – Bill Dyer (") 972-392 4856

Air Traffic Control Tower – D. Wilde, Luke

Fuel Farm Design – Mark A.

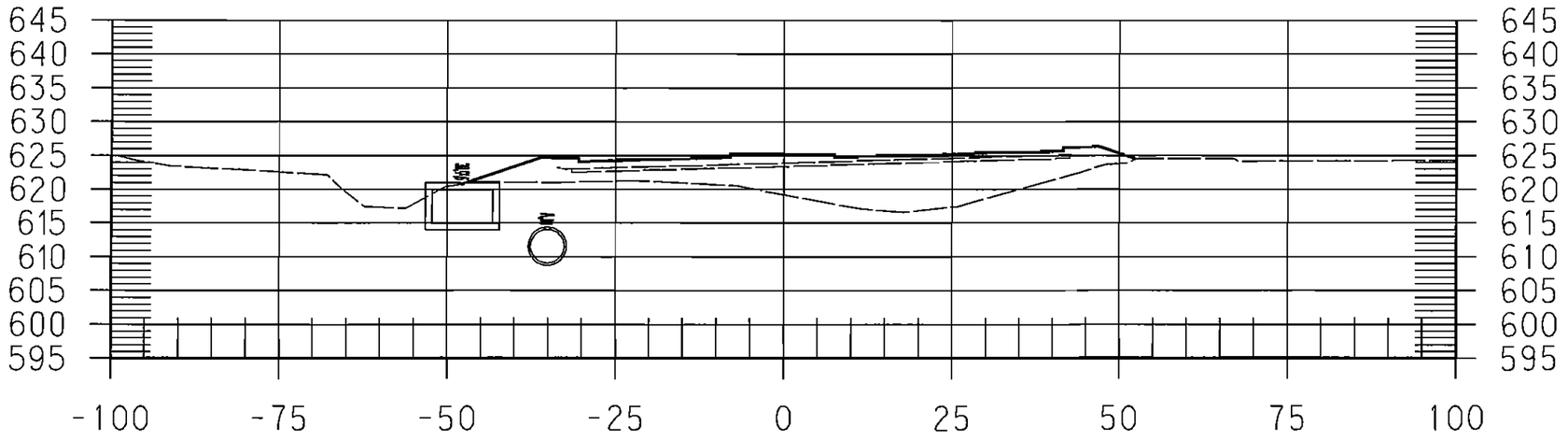
cc Luke
Mark A.
D. Wilde
Mike
Sue Ellen



PEDS 27 @ $500 → 44 @ $3600

Veh 6 @ 3500 → 28 @ $11000

10 300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640
635
630
625
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610
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600
595
-100
-75
-50
-25
0
25
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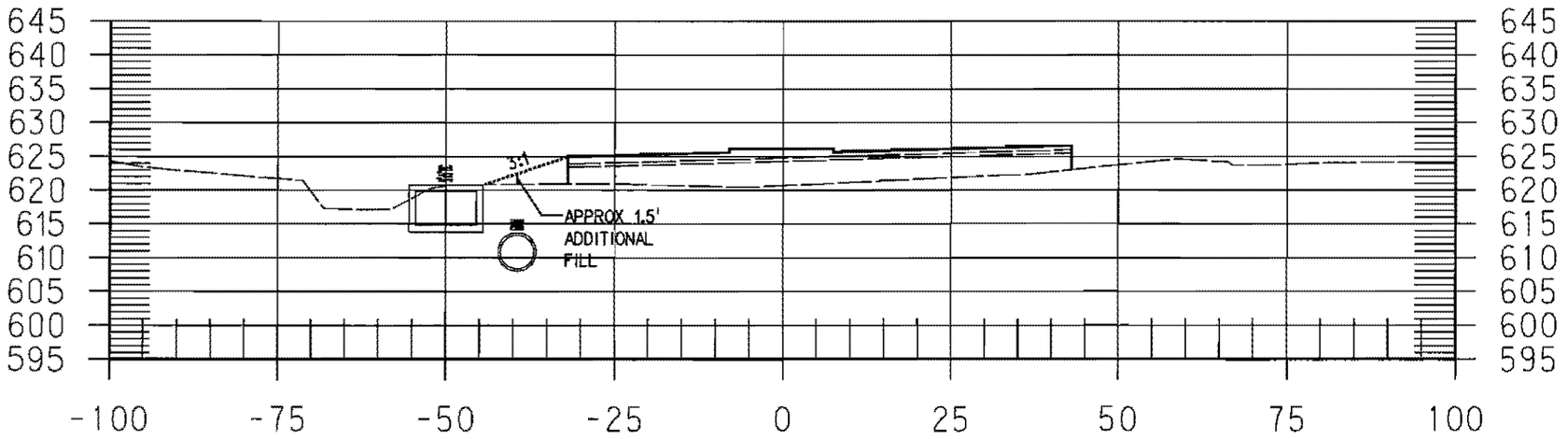
75
100

71+00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-100
-75
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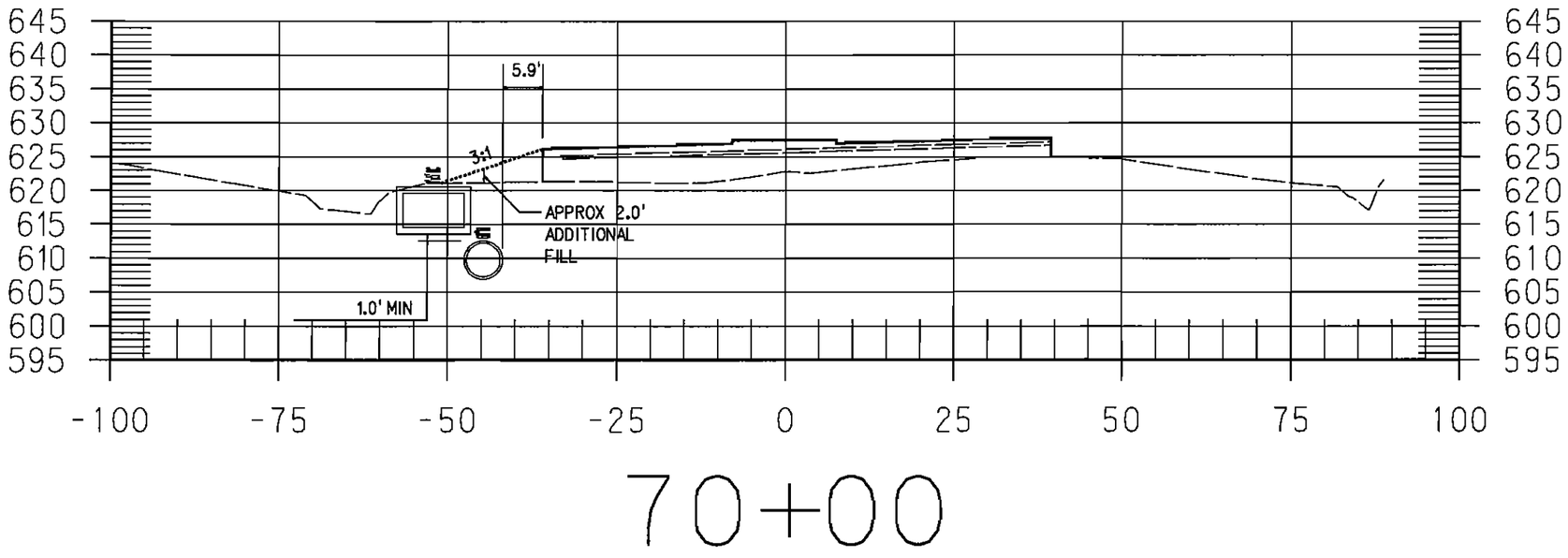
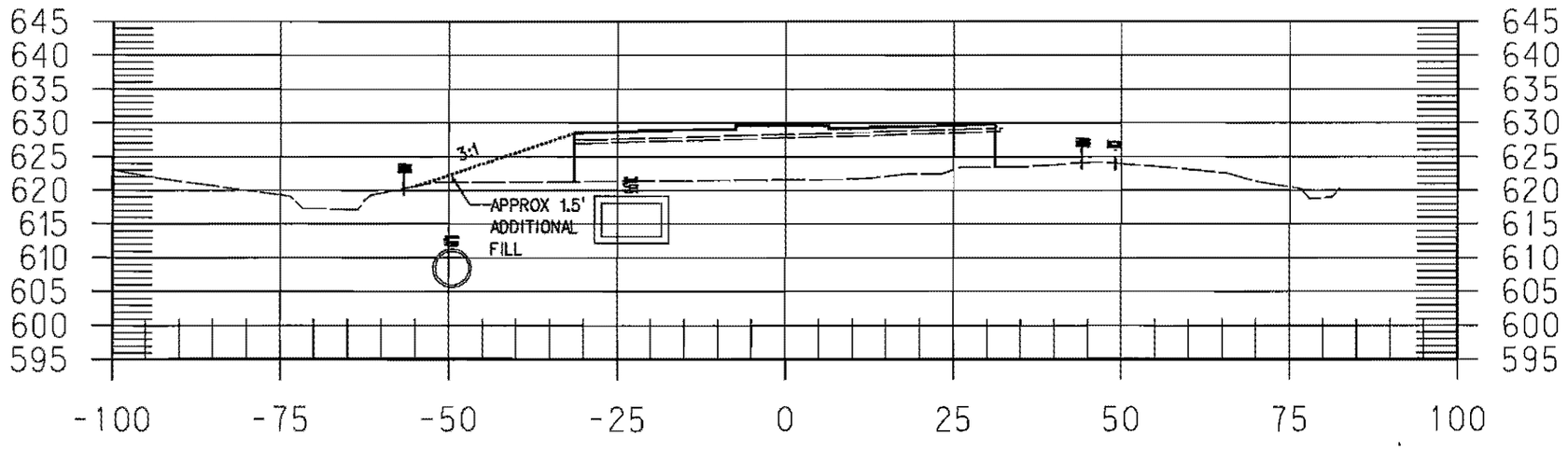
-25
0
25
50
75
100
3:1
APPROX 1.5'
ADDITIONAL
FILL

70+60


645
640
635
630
625
620
615
610
605
600
595
5.9'
3:1
APPROX 2.0'
ADDITIONAL
FILL
1.0' MIN
-100
-75
-50
-25
0
25
50
75
100

70+00


645
640
635
630
625
620
615
610
605
600
595
3:1
APPROX 1.5'
ADDITIONAL
FILL
-100
-75
-50
-25
0
25
50
75
100

69+00

Grantham & Associates, Inc.

DESIGN MEMO

1919 S. Shiloh Rd., Suite 310, LB 8, Garland, TX 75042

Date: March 29, 2004 **G&A No. 320**

To: Mike Murphy, P.E.
Jim Pierce, P.E.
Steve Chutchian, P.E.
Luke Jalbert, P.E.

CC: Cliff Hall, P.E.
Jerry Holder, P.E.

From: Katura Curry, P.E.

Re: Arapaho Road Phase 3 Bridge Drainage

PRELIMINARY - FOR REVIEW ONLY

These documents are for Design Review and not intended for Construction, Bidding or Permit Purposes. They were prepared by, or under the supervision of:

A. KATURA CURRY 87679 3/29/04
Type or Print Name P. E.# Date

In order to meet the request of the Town of Addison to minimize the spread of stormwater on the bridge travel lanes, we have prepared the necessary supporting drainage calculations for bridge drainage grates. Without the grates, our drainage calculations indicate that the stormwater spread on the bridge would not exceed the Town standards for roadway design, consequently, the grates intercept more stormwater than the standards require.

Based upon our discussion with Cliff Hall at URS, it is recommended that a grate inlet such as Neenah R-3951, or one with equal hydraulic characteristics, be placed at Bent Numbers 2, 3, 5, 6, 8, 11, 13, and 14. This grate has been selected based on grate capacity and capacity of the discharge pipe. If a grate with hydraulic characteristics different from that specified is to be used, the drainage should be re-analyzed. Once the drainage is off the bridge structure and on the roadway embankment, curb inlets will be placed as necessary to adhere to the Town of Addison drainage criteria. The supporting calculations are attached to this memo. The calculations include numbers for the 2-year, 10-year, 25-year and 100-year storm events in order to show the impacts during more frequent storm events.

Cliff Hall and others have pointed out that the placement of these grates may increase the need for maintenance along the bridge. Although it is not anticipated that the surface of the bridge will be a high debris collection area, trash and other debris may periodically need to be cleaned from the roadway in order to lower the potential of the grate or subsurface pipes getting clogged. Since the subsurface pipes on the bridge will be encased in the concrete bridge supports, the cleaning of the pipes may be a difficult task requiring special equipment. The restrictive space beneath the bridge will also contribute to the difficulty of cleaning the pipes.

ARAPAHO ROAD PHASE 3
BRIDGE DRAINAGE CALCULATIONS

SCENARIO: NO BRIDGE DRAINS, COLLECT DRAINAGE AT INLETS ON EMBANKMENT

Area No.	Area	C	Tc	Intensity				Flow				Area Description
				I 2	I 10	I 25	I 100	Q 2	Q 10	Q 25	Q 100	
	(acres)		(min)	(in/hr)	(in/hr)	(in/hr)	(in/hr)	(cfs)	(cfs)	(cfs)	(cfs)	
B1	0.49	0.9	10	4.91	6.36	7.29	8.74	2.17	2.80	3.21	3.85	50+95 - 60+30, north side (2@11' lanes)
B2	0.49	0.9	10	4.91	6.36	7.29	8.74	2.17	2.80	3.21	3.85	50+95 - 60+30, south side (2@11' lanes)
B3	0.34	0.9	10	4.91	6.36	7.29	8.74	1.50	1.95	2.23	2.67	60+30 - 66+70, north side (2@11' lanes)
B4	0.34	0.9	10	4.91	6.36	7.29	8.74	1.50	1.95	2.23	2.67	60+30 - 66+70, south side (2@11' lanes)
B5	0.09	0.9	10	4.91	6.36	7.29	8.74	0.40	0.52	0.59	0.71	50+95 - 60+30, north side 4' sidewalk
B6	0.06	0.9	10	4.91	6.36	7.29	8.74	0.27	0.34	0.39	0.47	60+30 - 66+70, north side 4' sidewalk

Gutter Depth (Y) from Figure 3-1, Town of Addison Drainage Criteria Manual

Area No.	Q	Cross Slope	Long. Slope	Z = 1/S	Z/n	Gutter Depth, Y	Gutter Depth, Y	Gutter Spread	Travel Lane Impact[1]	Max. Travel Lane Depth
	(cfs)	(ft/ft,S)	(%)			(ft)	(in)	(ft)	(ft)	(in)
2-year Storm										
B1 / B2	2.17	0.0208	3	48	3698	0.15	1.80	7.2	6.2	1.55
B3 / B4	1.50	0.0208	2.2	48	3698	0.14	1.62	6.5	5.5	1.37
10-year Storm										
B1 / B2	2.80	0.0208	3	48	3698	0.17	1.98	7.9	6.9	1.73
B3 / B4	1.95	0.0208	2.2	48	3698	0.15	1.80	7.2	6.2	1.55
25-year Storm										
B1 / B2	3.21	0.0208	3	48	3698	0.18	2.10	8.4	7.4	1.85
B3 / B4	2.23	0.0208	2.2	48	3698	0.16	1.92	7.7	6.7	1.67
100-year Storm										
B1 / B2	3.85	0.0208	3	48	3698	0.19	2.22	8.9	7.9	1.97
B3 / B4	2.67	0.0208	2.2	48	3698	0.17	2.04	8.2	7.2	1.79

Notes
1. Travel Lane Impact takes into account the one foot shoulder.

ARAPAHO ROAD PHASE 3
BRIDGE DRAINAGE CALCULATIONS

SCENARIO: BRIDGE DRAINS AT BENTS, NO BY-PASS DURING 100-YEAR STORM

Area No.	Area[1]	C	Intensity					Flow				Area Description
			Tc	I 2	I 10	I 25	I 100	Q 2	Q 10	Q 25	Q 100	
	(acres)		(min)	(in/hr)	(in/hr)	(in/hr)	(in/hr)	(cfs)	(cfs)	(cfs)	(cfs)	
BENT 8	0.10	0.9	10	4.91	6.36	7.29	8.74	0.44	0.57	0.66	0.79	60+30 - 58+44, Bent 8 drains, north & south
BENT 6	0.11	0.9	10	4.91	6.36	7.29	8.74	0.49	0.63	0.72	0.87	58+44 - 56+30, Bent 6 drains, north & south
BENT 5	0.06	0.9	10	4.91	6.36	7.29	8.74	0.27	0.34	0.39	0.47	56+30 - 55+23, Bent 5 drains, north & south
BENT 3	0.11	0.9	10	4.91	6.36	7.29	8.74	0.49	0.63	0.72	0.87	55+23 - 53+09, Bent 3 drains, north & south
BENT 2	0.06	0.9	10	4.91	6.36	7.29	8.74	0.27	0.34	0.39	0.47	53+09 - 52+02, Bent 2 drains, north & south
BENT 11	0.10	0.9	10	4.91	6.36	7.29	8.74	0.44	0.57	0.66	0.79	62+14 - 60+30, Bent 11 drains, north & south
BENT 13	0.12	0.9	10	4.91	6.36	7.29	8.74	0.53	0.69	0.79	0.94	64+42 - 62+14, Bent 13 drains, north & south
BENT 14	0.06	0.9	10	4.91	6.36	7.29	8.74	0.27	0.34	0.39	0.47	65+56 - 64+42, Bent 14 drains, north & south

Notes
1. Area represents that to one grate inlet or on one side of the bridge. The travel lane section is symmetrical and so applies to both sides.

ARAPAHO ROAD PHASE 3
BRIDGE DRAINAGE CALCULATIONS

Gutter Depth (Y) from Figure 3-1, Town of Addison Drainage Criteria Manual

Area No.	Q	Cross Slope	Long. Slope	Z = 1/S	Z/n	Gutter Depth, Y	Gutter Depth, Y	Gutter Spread	Travel Lane Impact [1]	Max. Travel Lane Depth	Grate Capacity [2]
	(cfs)	(ft/ft,S)	(%)			(ft)	(in)	(ft)	(ft)	(in)	(cfs)
2-year Storm											
BENT 8	0.44	0.0208	3.0	48	3698	0.085	1.02	4.1	3.1	0.77	0.74
BENT 6	0.49	0.0208	3.0	48	3698	0.085	1.02	4.1	3.1	0.77	0.74
BENT 5	0.27	0.0208	3.0	48	3698	0.070	0.84	3.4	2.4	0.59	0.54
BENT 3	0.49	0.0208	3.0	48	3698	0.085	1.02	4.1	3.1	0.77	0.74
BENT 2	0.27	0.0208	3.0	48	3698	0.070	0.84	3.4	2.4	0.59	0.54
BENT 11	0.44	0.0208	2.2	48	3698	0.090	1.08	4.3	3.3	0.83	0.76
BENT 13	0.53	0.0208	2.2	48	3698	0.091	1.09	4.4	3.4	0.84	0.77
BENT 14	0.27	0.0208	2.2	48	3698	0.075	0.90	3.6	2.6	0.65	0.56
10-year Storm											
BENT 8	0.57	0.0208	3.0	48	3698	0.090	1.08	4.3	3.3	0.83	0.81
BENT 6	0.63	0.0208	3.0	48	3698	0.092	1.10	4.4	3.4	0.85	0.84
BENT 5	0.34	0.0208	3.0	48	3698	0.075	0.90	3.6	2.6	0.65	0.60
BENT 3	0.63	0.0208	3.0	48	3698	0.093	1.12	4.5	3.5	0.87	0.84
BENT 2	0.34	0.0208	3.0	48	3698	0.075	0.90	3.6	2.6	0.65	0.60
BENT 11	0.57	0.0208	2.2	48	3698	0.096	1.15	4.6	3.6	0.90	0.85
BENT 13	0.69	0.0208	2.2	48	3698	0.103	1.24	5.0	4.0	0.99	0.95
BENT 14	0.34	0.0208	2.2	48	3698	0.083	1.00	4.0	3.0	0.75	0.66
25-year Storm											
BENT 8	0.66	0.0208	3.0	48	3698	0.096	1.15	4.6	3.6	0.90	0.91
BENT 6	0.72	0.0208	3.0	48	3698	0.100	1.20	4.8	3.8	0.95	0.97
BENT 5	0.39	0.0208	3.0	48	3698	0.080	0.96	3.8	2.8	0.71	0.67
BENT 3	0.72	0.0208	3.0	48	3698	0.100	1.20	4.8	3.8	0.95	0.97
BENT 2	0.39	0.0208	3.0	48	3698	0.080	0.96	3.8	2.8	0.71	0.67
BENT 11	0.66	0.0208	2.2	48	3698	0.102	1.22	4.9	3.9	0.97	0.94
BENT 13	0.79	0.0208	2.2	48	3698	0.109	1.31	5.2	4.2	1.06	1.05
BENT 14	0.39	0.0208	2.2	48	3698	0.084	1.01	4.0	3.0	0.76	0.68
100-year Storm											
BENT 8	0.79	0.0208	3.0	48	3698	0.101	1.21	4.9	3.9	0.96	0.99
BENT 6	0.87	0.0208	3.0	48	3698	0.106	1.27	5.1	4.1	1.02	1.07
BENT 5	0.47	0.0208	3.0	48	3698	0.085	1.02	4.1	3.1	0.77	0.74
BENT 3	0.87	0.0208	3.0	48	3698	0.106	1.27	5.1	4.1	1.02	0.99
BENT 2	0.47	0.0208	3.0	48	3698	0.085	1.02	4.1	3.1	0.77	0.74
BENT 11	0.79	0.0208	2.2	48	3698	0.109	1.31	5.2	4.2	1.06	1.05
BENT 13	0.94	0.0208	2.2	48	3698	0.118	1.42	5.7	4.7	1.17	1.19
BENT 14	0.47	0.0208	2.2	48	3698	0.093	1.12	4.5	3.5	0.87	0.80

Notes

1. Travel Lane Impact takes into account the one foot shoulder.
2. Grate capacities calculated based on Neenah R-3951 Scupper using the Neenah Grate Capacity calculator, K=45 for 3% slope and K=42 for 2.2% slope.

Grantham & Associates, Inc.

DESIGN MEMO

1919 S. Shiloh Rd., Suite 310, LB 8, Garland, TX 75042

Date: March 29, 2004 **G&A No. 320**

To: Mike Murphy, P.E.
Jim Pierce, P.E.
Steve Chutchian, P.E.
Luke Jalbert, P.E.

CC: Cliff Hall, P.E.
Jerry Holder, P.E.

From: Katura Curry, P.E.

Re: Arapaho Road Phase 3 Bridge Drainage

PRELIMINARY - FOR REVIEW ONLY

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A. KATURA CURRY 87679 3/29/04
Type or Print Name P. E.# Date

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BRIDGE DRAINAGE CALCULATIONS

SCENARIO: NO BRIDGE DRAINS, COLLECT DRAINAGE AT INLETS ON EMBANKMENT

Area No.	Area	C	Tc	Intensity				Flow				Area Description
				I 2	I 10	I 25	I 100	Q 2	Q 10	Q 25	Q 100	
	(acres)		(min)	(in/hr)	(in/hr)	(in/hr)	(in/hr)	(cfs)	(cfs)	(cfs)	(cfs)	
B1	0.49	0.9	10	4.91	6.36	7.29	8.74	2.17	2.80	3.21	3.85	50+95 - 60+30, north side (2@11' lanes)
B2	0.49	0.9	10	4.91	6.36	7.29	8.74	2.17	2.80	3.21	3.85	50+95 - 60+30, south side (2@11' lanes)
B3	0.34	0.9	10	4.91	6.36	7.29	8.74	1.50	1.95	2.23	2.67	60+30 - 66+70, north side (2@11' lanes)
B4	0.34	0.9	10	4.91	6.36	7.29	8.74	1.50	1.95	2.23	2.67	60+30 - 66+70, south side (2@11' lanes)
B5	0.09	0.9	10	4.91	6.36	7.29	8.74	0.40	0.52	0.59	0.71	50+95 - 60+30, north side 4' sidewalk
B6	0.06	0.9	10	4.91	6.36	7.29	8.74	0.27	0.34	0.39	0.47	60+30 - 66+70, north side 4' sidewalk

Gutter Depth (Y) from Figure 3-1, Town of Addison Drainage Criteria Manual

Area No.	Q	Cross Slope	Long. Slope	Z = 1/S	Z/n	Gutter Depth, Y	Gutter Depth, Y	Gutter Spread	Travel Lane Impact[1]	Max. Travel Lane Depth
	(cfs)	(ft/ft,S)	(%)			(ft)	(in)	(ft)	(ft)	(in)
2-year Storm										
B1 / B2	2.17	0.0208	3	48	3698	0.15	1.80	7.2	6.2	1.55
B3 / B4	1.50	0.0208	2.2	48	3698	0.14	1.62	6.5	5.5	1.37
10-year Storm										
B1 / B2	2.80	0.0208	3	48	3698	0.17	1.98	7.9	6.9	1.73
B3 / B4	1.95	0.0208	2.2	48	3698	0.15	1.80	7.2	6.2	1.55
25-year Storm										
B1 / B2	3.21	0.0208	3	48	3698	0.18	2.10	8.4	7.4	1.85
B3 / B4	2.23	0.0208	2.2	48	3698	0.16	1.92	7.7	6.7	1.67
100-year Storm										
B1 / B2	3.85	0.0208	3	48	3698	0.19	2.22	8.9	7.9	1.97
B3 / B4	2.67	0.0208	2.2	48	3698	0.17	2.04	8.2	7.2	1.79

Notes
1. Travel Lane Impact takes into account the one foot shoulder.

ARAPAHO ROAD PHASE 3
BRIDGE DRAINAGE CALCULATIONS

SCENARIO: BRIDGE DRAINS AT BENTS, NO BY-PASS DURING 100-YEAR STORM

Area No.	Area[1]	C	Intensity					Flow				Area Description
			Tc	I 2	I 10	I 25	I 100	Q 2	Q 10	Q 25	Q 100	
	(acres)		(min)	(in/hr)	(in/hr)	(in/hr)	(in/hr)	(cfs)	(cfs)	(cfs)	(cfs)	
BENT 8	0.10	0.9	10	4.91	6.36	7.29	8.74	0.44	0.57	0.66	0.79	60+30 - 58+44, Bent 8 drains, north & south
BENT 6	0.11	0.9	10	4.91	6.36	7.29	8.74	0.49	0.63	0.72	0.87	58+44 - 56+30, Bent 6 drains, north & south
BENT 5	0.06	0.9	10	4.91	6.36	7.29	8.74	0.27	0.34	0.39	0.47	56+30 - 55+23, Bent 5 drains, north & south
BENT 3	0.11	0.9	10	4.91	6.36	7.29	8.74	0.49	0.63	0.72	0.87	55+23 - 53+09, Bent 3 drains, north & south
BENT 2	0.06	0.9	10	4.91	6.36	7.29	8.74	0.27	0.34	0.39	0.47	53+09 - 52+02, Bent 2 drains, north & south
BENT 11	0.10	0.9	10	4.91	6.36	7.29	8.74	0.44	0.57	0.66	0.79	62+14 - 60+30, Bent 11 drains, north & south
BENT 13	0.12	0.9	10	4.91	6.36	7.29	8.74	0.53	0.69	0.79	0.94	64+42 - 62+14, Bent 13 drains, north & south
BENT 14	0.06	0.9	10	4.91	6.36	7.29	8.74	0.27	0.34	0.39	0.47	65+56 - 64+42, Bent 14 drains, north & south

Notes

1. Area represents that to one grate inlet or on one side of the bridge. The travel lane section is symmetrical and so applies to both sides.

ARAPAHO ROAD PHASE 3
BRIDGE DRAINAGE CALCULATIONS

Gutter Depth (Y) from Figure 3-1, Town of Addison Drainage Criteria Manual

Area No.	Q (cfs)	Cross Slope (ft/ft,S)	Long. Slope (%)	Z = 1/S	Z/n	Gutter Depth, Y (ft)	Gutter Depth, Y (in)	Gutter Spread (ft)	Travel Lane Impact [1] (ft)	Max. Travel Lane Depth (in)	Grate Capacity [2] (cfs)
2-year Storm											
BENT 8	0.44	0.0208	3.0	48	3698	0.085	1.02	4.1	3.1	0.77	0.74
BENT 6	0.49	0.0208	3.0	48	3698	0.085	1.02	4.1	3.1	0.77	0.74
BENT 5	0.27	0.0208	3.0	48	3698	0.070	0.84	3.4	2.4	0.59	0.54
BENT 3	0.49	0.0208	3.0	48	3698	0.085	1.02	4.1	3.1	0.77	0.74
BENT 2	0.27	0.0208	3.0	48	3698	0.070	0.84	3.4	2.4	0.59	0.54
BENT 11	0.44	0.0208	2.2	48	3698	0.090	1.08	4.3	3.3	0.83	0.76
BENT 13	0.53	0.0208	2.2	48	3698	0.091	1.09	4.4	3.4	0.84	0.77
BENT 14	0.27	0.0208	2.2	48	3698	0.075	0.90	3.6	2.6	0.65	0.56
10-year Storm											
BENT 8	0.57	0.0208	3.0	48	3698	0.090	1.08	4.3	3.3	0.83	0.81
BENT 6	0.63	0.0208	3.0	48	3698	0.092	1.10	4.4	3.4	0.85	0.84
BENT 5	0.34	0.0208	3.0	48	3698	0.075	0.90	3.6	2.6	0.65	0.60
BENT 3	0.63	0.0208	3.0	48	3698	0.093	1.12	4.5	3.5	0.87	0.84
BENT 2	0.34	0.0208	3.0	48	3698	0.075	0.90	3.6	2.6	0.65	0.60
BENT 11	0.57	0.0208	2.2	48	3698	0.096	1.15	4.6	3.6	0.90	0.85
BENT 13	0.69	0.0208	2.2	48	3698	0.103	1.24	5.0	4.0	0.99	0.95
BENT 14	0.34	0.0208	2.2	48	3698	0.083	1.00	4.0	3.0	0.75	0.66
25-year Storm											
BENT 8	0.66	0.0208	3.0	48	3698	0.096	1.15	4.6	3.6	0.90	0.91
BENT 6	0.72	0.0208	3.0	48	3698	0.100	1.20	4.8	3.8	0.95	0.97
BENT 5	0.39	0.0208	3.0	48	3698	0.080	0.96	3.8	2.8	0.71	0.67
BENT 3	0.72	0.0208	3.0	48	3698	0.100	1.20	4.8	3.8	0.95	0.97
BENT 2	0.39	0.0208	3.0	48	3698	0.080	0.96	3.8	2.8	0.71	0.67
BENT 11	0.66	0.0208	2.2	48	3698	0.102	1.22	4.9	3.9	0.97	0.94
BENT 13	0.79	0.0208	2.2	48	3698	0.109	1.31	5.2	4.2	1.06	1.05
BENT 14	0.39	0.0208	2.2	48	3698	0.084	1.01	4.0	3.0	0.76	0.68
100-year Storm											
BENT 8	0.79	0.0208	3.0	48	3698	0.101	1.21	4.9	3.9	0.96	0.99
BENT 6	0.87	0.0208	3.0	48	3698	0.106	1.27	5.1	4.1	1.02	1.07
BENT 5	0.47	0.0208	3.0	48	3698	0.085	1.02	4.1	3.1	0.77	0.74
BENT 3	0.87	0.0208	3.0	48	3698	0.106	1.27	5.1	4.1	1.02	0.99
BENT 2	0.47	0.0208	3.0	48	3698	0.085	1.02	4.1	3.1	0.77	0.74
BENT 11	0.79	0.0208	2.2	48	3698	0.109	1.31	5.2	4.2	1.06	1.05
BENT 13	0.94	0.0208	2.2	48	3698	0.118	1.42	5.7	4.7	1.17	1.19
BENT 14	0.47	0.0208	2.2	48	3698	0.093	1.12	4.5	3.5	0.87	0.80

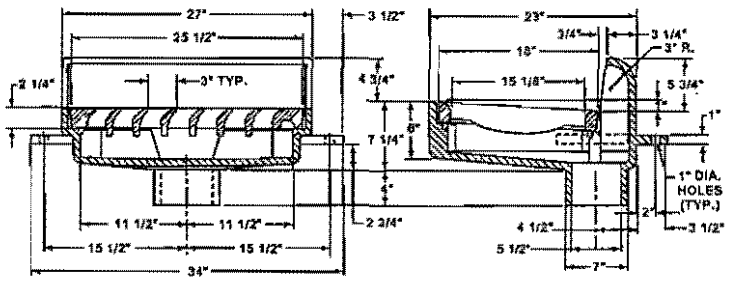
Notes

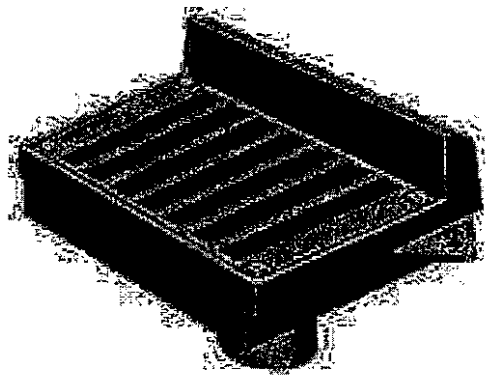
1. Travel Lane Impact takes into account the one foot shoulder.
2. Grate capacities calculated based on Neenah R-3951 Scupper using the Neenah Grate Capacity calculator, K=45 for 3% slope and K=42 for 2.2% slope.

NOTE: When specifying/ordering grates, refer to "CHOOSING THE PROPER INLET GRATE" on pages 108-109. For FREE OPEN AREAS of Neenah Grates, refer to pages 326-330.

R-3948-V
Bridge Scupper with 5 1/2" Outlet, Bolted Grate

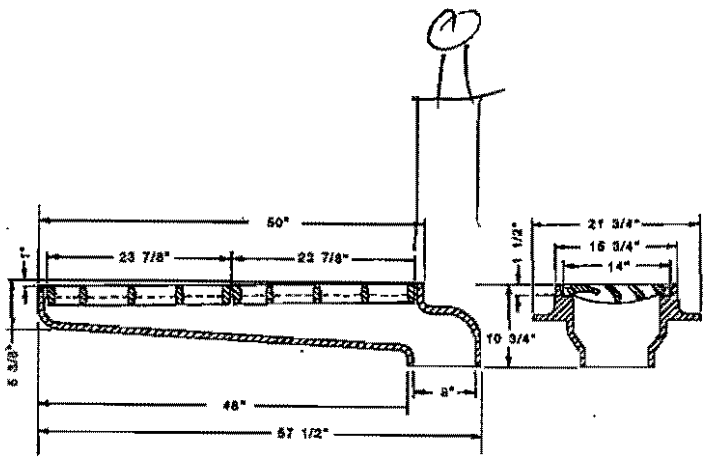
Heavy Duty

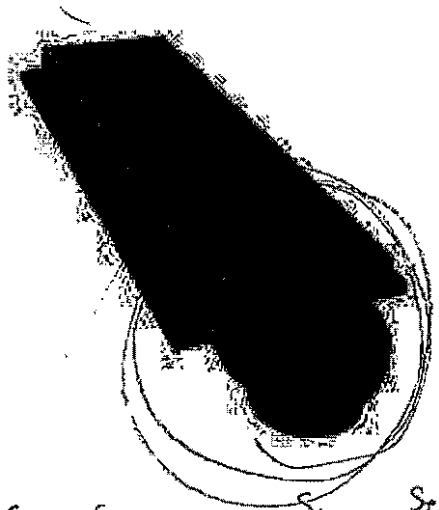




R-3951
Bridge Scupper with 8" Outlet, Bolted Grates

Heavy Duty





S_L S_T — 3%, 2% — K = 45

S_L S_T — 2.2% 2% — K = 42

NOTE: When specifying/ordering grates, refer to "CHOOSING THE PROPER INLET GRATE" on pages 108-109. For FREE OPEN AREAS of Neenah Grates, refer to pages 326-330.

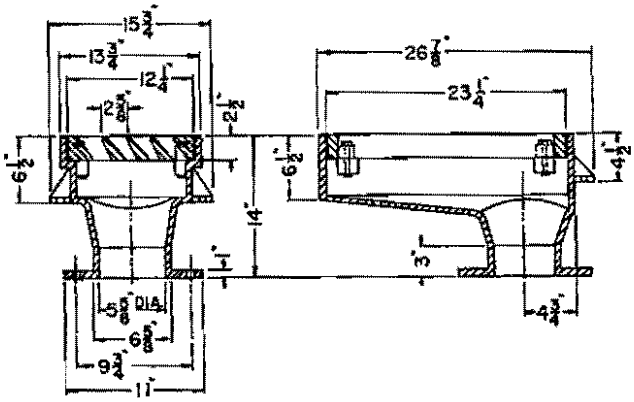
R-3922-A

Heavy Duty

Same as **R-3922** except with bolting flange.

Downspout furnished by others.

Type "V" ductile iron grate (shown) is considered bicycle safe only when installed with vanes perpendicular to the curb.

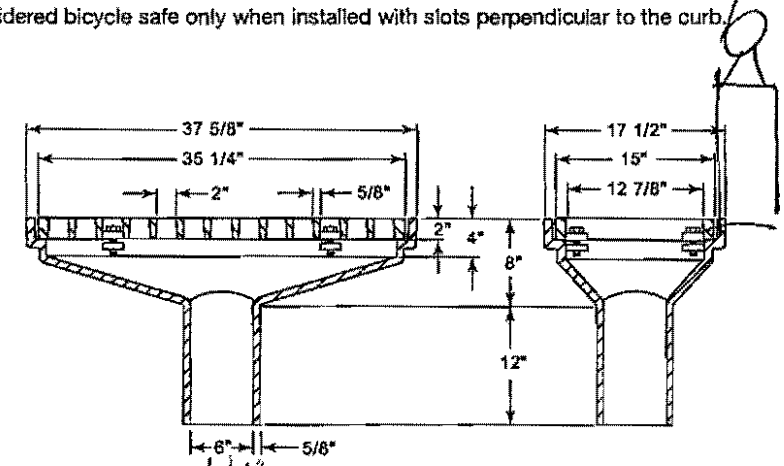


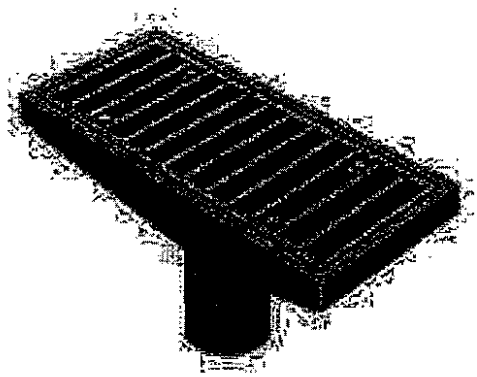
R-3924
Bridge Drain Frame and Bolted Grate (?)

2.3 ft² open
8.4 weir perimeter
lineal feet.

Heavy Duty

Considered bicycle safe only when installed with slots perpendicular to the curb.





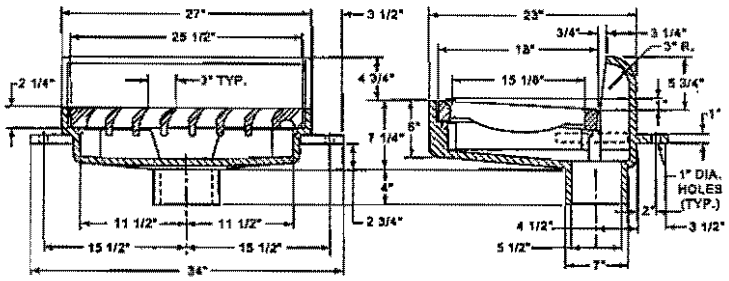
similiar a little.
Similiar to R-3078, K.
3% K = 30
2.2% K = 28

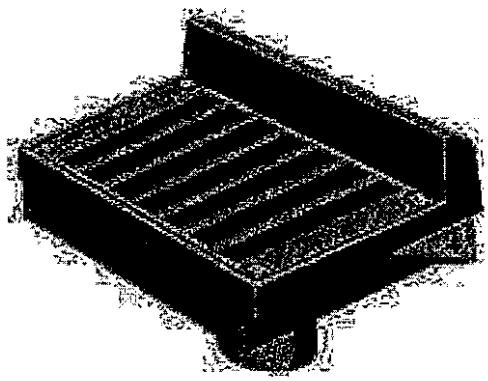
K not listed

NOTE: When specifying/ordering grates, refer to "CHOOSING THE PROPER INLET GRATE" on pages 108-109. For FREE OPEN AREAS of Neenah Grates, refer to pages 326-330.

R-3948-V
Bridge Scupper with 5 1/2" Outlet, Bolted Grate

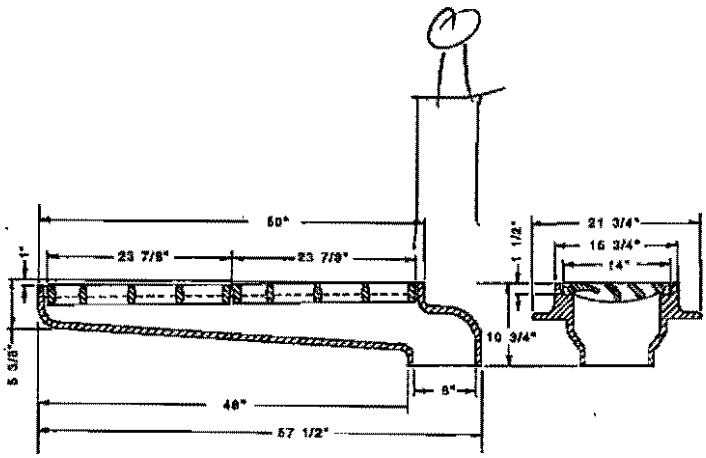
Heavy Duty

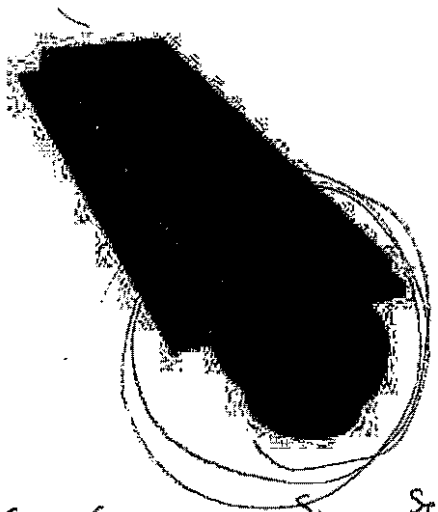




R-3951
Bridge Scupper with 8" Outlet, Bolted Grates

Heavy Duty





S_L S_T S_L S_T
3%, 2% 2.2% 2%
K = 45 K = 42

NOTE: When specifying/ordering grates, refer to "CHOOSING THE PROPER INLET GRATE" on pages 108-109. For FREE OPEN AREAS of Neenah Grates, refer to pages 326-330.

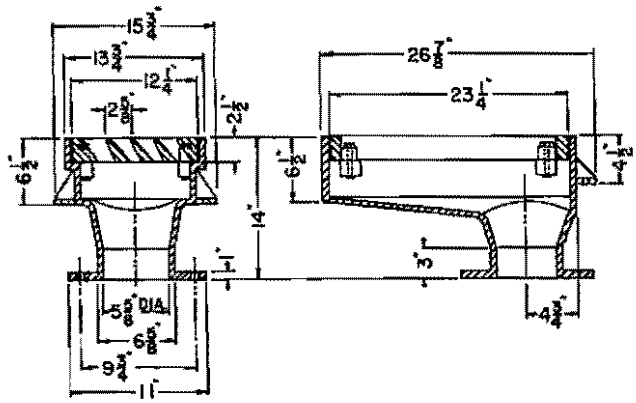
R-3922-A

Heavy Duty

Same as **R-3922** except with bolting flange.

Downspout furnished by others.

Type "V" ductile iron grate (shown) is considered bicycle safe only when installed with vanes perpendicular to the curb.

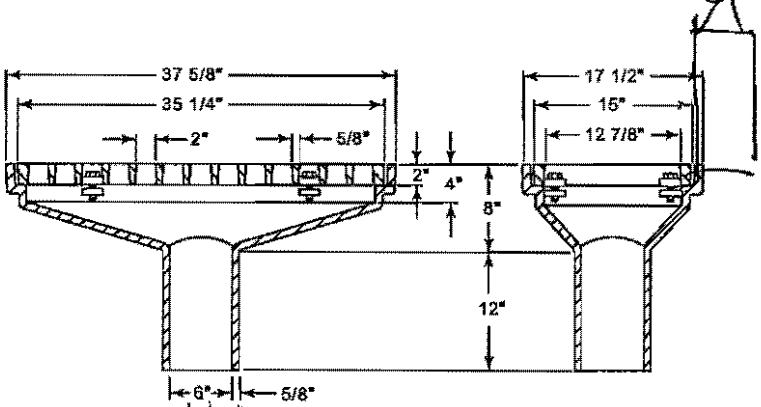


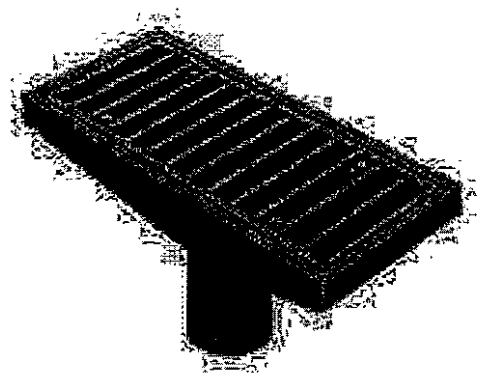
R-3924
Bridge Drain Frame and Bolted Grate (?)

2.3 FT² open
8.4 weir perimeter
lineal feet.

Heavy Duty

Considered bicycle safe only when installed with slots perpendicular to the curb.





similar a little.
Similiar to R-3078, K.
3% K = 30
2.2% K > 28

K not listed

URS

March 12, 2004

Mr. Steven Z. Chutchian, PE
Assistant City Engineer
16801 Westgrove Drive
P.O. Box 9010
Addison, TX 75001-9010

Re: **Arapaho Road Bridge at Midway Road**
Phase II – Design Development & Contract Documents
Invoice for Professional Services

Dear Mr. Chutchian:

Enclosed please find our invoice for Professional Services for the Arapaho Road Bridge at Midway Road for the period between January 30, 2004 and February 27, 2004. Also included is our Progress Report for this period outlining the services provided.

Please be advised that timely completion of the project is dependant on immediate receipt of information relative to the final grading under the bridge and the drainage inlets on the bridge. Your roadway consultant should provide this information.

Sincerely,

URS Corporation

Cliff R. Hall, PE
Project Manager

Enclosure

URS Corporation
Graystone Center
3010 LBJ Freeway, Suite 1300
Dallas, TX 75234
Tel: 972.406.6950
Fax: 972.406.6951

Monthly Progress Report

Design of the Arapaho Road Bridge Over Midway Road

URS Project No. 25334400

Period: January 30, 2004 to February 27, 2004

---

1. **General Accomplishments**
   - 1.1 Continued final design and plan preparation
   - 1.2 Received Town Council Decision on lighting and arch color.

2. **Progress This Period**
   - 2.1 Performed lighting mock-up on Addison Circle sculpture.
   - 2.2 Made presentation to Town Council relative to lighting and received a decision to use the blue paint on the arch and white lights.
   - 2.3 Continued final design and drawing production
   - 2.4 Met with the Town to discuss progress.
   - 2.5 Began finalizing lighting, including incorporating new street lighting standards.

3. **Anticipated Next Period**
   - 3.1 Continue final design and drawing production.
   - 3.2 Meet with Town to discuss progress.
   - 3.3 Meet with Town's consultant to coordinate drainage, parking and other issues.
   - 3.4 Review DWU comments on 60% plans and meet with Town to discuss.
   - 3.5 Perform quality control checks.

4. **Schedule Status**
   - 4.1 60% submittal was made on schedule.
   - 4.2 100% review plans are expected to be submitted April 2, 2004.
   - 4.3 Delay to the schedule could occur if information from Town's roadway consultant is not received by March 12, 2004.

5. **Issues / Impacts**
   - 5.1 Decision by Town Council made February 24, 2004 on lighting could delay project completion.
   - 5.2 URS was provided a new lighting fixture for use on the bridge. This fixture is being evaluated to see how it can be incorporated. This fixture could have impacts to the design.
   - 5.3 The final grading plan is needed to finalize the elevations of the thrust blocks and the elevations of the drilled shafts for the bridge bents. Receipt of this information from the Town's roadway consultant is needed by March 12, 2004 to complete the bent design on schedule.
   - 5.4 The Town's roadway consultant has not yet provided the bridge drainage inlets. Receipt of this information is needed by March 12, 2004 to complete the design on schedule.

Arapaho Road Bridge
Town of Addison

MEETING NOTES

URS Office
March 2, 2004

ATTENDEES:

Town of Addison	URS
Mike Murphy	Cliff Hall
Jim Pierce	Gregg Durham
Steve Chutchian	
Luke Jalbert	

1) The Town of Addison (Addison) requested URS to prepare a letter to Addison describing URS' QA/QC policies and procedures for the bridge design and plans.

2) URS advised that there are clearance issues between the parking lot and the bridge bents. Addison will discuss with Grantham and Associates the possibility of revising the culvert at Surveyor to lower the parking lot grades.

3) URS advised that they still had not received information relative to the bridge inlet drains. Addison to follow up with Grantham.

4) Addison advised that the transformer boxes shown on the new lighting standards would not be used.

5) Addison advised that the contractor is to install the roadway light poles. Some form of specification needs to be in the plan/bid set of drawings.

6) Addison advised that URS may use TxDOT specifications for the bridge. The TxDOT specs will need to be referenced with the COG specs. URS/HNTB will add notes to the bridge plans and notes in the specifications referencing the TxDOT specs.

7) Addison asked URS to add additional power outlets on the bridge (probably 6 total on each side). Conduit can be run through the concrete portion of the T4 (S) rail. These power outlets are to handle 120 volts.

8) URS proposed a cable-fence type barrier to separate the sidewalk from the stingers, cables, and arch. Addison preferred the use of a textured warning strip in the sidewalk around the stingers, cables, and arch to conform to ADA requirements and not a physical barrier.

9) URS advised that the columns at the ends of the bridge would be extremely short (one to two feet). Addison concurred this would not be an issue of concern.

10) URS advised that they would likely have the review plans complete by April 2, 2004. Completion of the lighting and electrical work is the critical tasks due to changes in the lighting standards and Town Council's recent decision on the lighting. Quick resolution of the clearances and bridge drainage are also critical.

11) Addison provided URS with a copy of DWU's comments on the plans. There were no comments from DWU on URS' plans. Addison had no comments on URS' 60% plan submittal.

URS

February 25, 2004

Mr. Steven Z. Chutchian, PE
Assistant City Engineer
16801 Westgrove Drive
P.O. Box 9010
Addison, TX 75001-9010

Re: **Arapaho Road Bridge at Midway Road**
Phase II – Design Development & Contract Documents
Invoice for Professional Services

Dear Mr. Chutchian:

Enclosed please find our invoice for Professional Services for the Arapaho Road Bridge at Midway Road for the period between December 26, 2003 and January 30, 2004. Also included is our Progress Report for this period outlining the services provided.

The total contract amount has been updated to include Change Order No. 3.

Sincerely,

URS Corporation

Cliff R. Hall, PE
Project Manager

Enclosure

URS Corporation
Graystone Center
3010 LBJ Freeway, Suite 1300
Dallas, TX 75234
Tel: 972.406.6950
Fax: 972.406.6951

Monthly Progress Report

Design of the Arapaho Road Bridge Over Midway Road

URS Project No. 25334400

Period: December 26, 2003 to January 30, 2004

---

1. **General Accomplishments**
   - 1.1 Submitted 60% plans

2. **Progress This Period**
   - 2.1 Submitted 60% Plans.
   - 2.2 Continued the final design.
   - 2.3 Completed approach span superstructure drawings.
   - 2.4 Met with the Town to discuss progress.
   - 2.5 Set-up lighting mock-up demonstration.
   - 2.6 Met with Town and Town's consultant to discuss bridge drainage.

3. **Anticipated Next Period**
   - 3.1 Perform lighting mock-up on Addison Circle sculpture.
   - 3.2 Make presentation to Town Council relative to lighting
   - 3.3 Continue final design and drawing production.

4. **Schedule Status**
   - 4.1 60% submittal was made on schedule.

5. **Issues / Impacts**
   - 5.1 Decision by Town Council on lighting is needed immediately to provide direction to designer on lighting method. This could delay project completion.
   - 5.2 URS was provided a new lighting fixture for use on the bridge. This fixture is being evaluated to see how it can be incorporated. This fixture could have impacts to the design.
   - 5.3 Need the final grading plan to finalize the elevations of the thrust blocks.

Steve Chutchian

From: Cliff_Hall@URSCorp.com
Sent: Thursday, February 12, 2004 5:37 PM
To: Luke Jalbert; Mike Murphy
Cc: Steve Chutchian
Subject: Arapaho Road Lighting Standards

This e-mail is to confirm the discussions we had on Tuesday evening, February 10, 2004 during the lighting mock-up demonstration. During our talks we were instructed by you to incorporate the Lighting Standards as developed by Gensler onto the bridge structure with the exception of the recommended spacing.

Cliff R. Hall, PE
Engineering Unit Manager
URS Corporation
Graystone Centre
3010 LBJ Freeway, Suite 1300
Dallas, TX 75234
Office Tel: 972.406.6950
Direct: 972.406.6976
Fax: 972.406.6951

Mike: For your Review! Steve C.

DATE SUBMITTED: February 16, 2004
FOR COUNCIL MEETING: February 24, 2004

Council Agenda Item

SUMMARY:

This is an informational item regarding the proposed bridge lighting package, as presented by URS Corporation.

FINANCIAL IMPACT: N/A

BACKGROUND:

The firm of URS Corporation is currently underway on the design of the bridge that will span Midway Rd., in conjunction with the Arapaho Road, Phase III project. The cost for providing a revised lighting package, as a component of the overall design, is presented for consideration.

RECOMMENDATION: N/A

Steve,

Looks Good!

We may have some changes after State.

Mike

URS

January 30, 2004

Mr. Steven Z. Chutchian, PE
Assistant City Engineer
16801 Westgrove Drive
P.O. Box 9010
Addison, TX 75001-9010

Re: **Addendum 1 to the Final Report for the**
Arapaho Road Bridge Noise and Vibration Analysis
Phase II – Design Development & Contract Documents
Arapaho Road Bridge over Midway Road

Dear Mr. Chutchian:

Submitted herein are the results of the additional noise analyses that were undertaken after the "Final Report" was submitted. These studies were conducted to evaluate the fully open rail option requested by the Town Council in June 2003 and to confirm the use of the 1.5-foot concrete rail recommended to the Council in August. These results had been discussed previously with the Town of Addison and have been incorporated in URS' bridge design and have been discussed with the Town's consultant to be included in their roadway design.

The conclusions from these studies are:

1. The selected T4 (S) bridge rail adequately reduces the noise to meet the criterion levels.
2. The T4 (S) rail should be extended to the western edge of the Bullough/Lykos Building.
3. A 3-foot high earthen berm should be used along Arapaho Road adjacent to the Heritage Inn property.

- Included in this report is a Design Memorandum dated July 29, 2003 relative to the noise analysis for the open rail option. The Predicted Exterior Noise Levels determined in this study would exceed the Criterion Noise Level if open rail was used for two properties, Motel 6 and the Comfort Suites (Heritage Inn property), and approaches the levels considered as Substantial Increase in noise at two properties at the western edge of the project as shown in the excerpt of Table 2 below.

Table 2 - Predicted Exterior Noise Levels without Concrete Rail

Receptor #	Receptor Location	Combined Future Noise Level (Ambient plus Project) (dBA L_{eq})	Estimated Increase Over Existing Noise Level (dBA L_{eq})	Criterion Noise Level[2] (dBA L_{eq})	Future Noise Level Exceeds Criterion Noise Level ?	Substantial Increase Criterion (Greater than 10 dBA) Exceeded ?
13	Adj to Motel 6	69	3	66	Yes	No
14	Adj to Homewood Suites	62	3	66	No	No
15	Adj to Comfort Suites	67	10	66	Yes	No
18	Adj to Satori/The Harbor Group	67	9	71	No	No
19	Adj. to Building near W side of Project	68	10	71	No	No

URS Corporation
Graystone Centre
3010 LBJ Freeway, Suite 1300
Dallas, TX 75234
Tel: 972.406.6950
Fax: 972.406.6951

- Based on these results, we recommended that some form of concrete barrier rail be used to reduce the noise to acceptable levels. We choose to modify a TxDOT Type T4 (S) bridge rail, which consists of an 18-inch high solid concrete barrier with a steel rail mounted above. This rail was presented to the Town Council in August and approved.

- To verify that the selected rail would adequately reduce the noise levels, a revised analysis was performed using a 1-foot high solid concrete barrier. The full results are show in the attached table. Although these results were sufficient for the properties adjacent to the bridge, the Heritage Inn property (Comfort Suites) still showed predicted noise levels that exceeded the criterion as highlighted in the excerpt of the table shown below. We also recommended that the limits of the concrete barrier be extended from the beginning of retaining wall at grade to the western edge of the Bullough/Lykos Building to reduce the increase in noise from 10 dBA, which approaches the Criterion Level, to below 8 dBA.

Predicted Exterior Noise Levels with 1' High Concrete Barrier, Rest Decorative and Pipes

Receptor #	Receptor Location	Combined Future Noise Level (Ambient plus Project) (dBA L_{eq})	Estimated Increase Over Existing Noise Level (dBA L_{eq})	Criterion Noise Level[2] (dBA L_{eq})	Future Noise Level Exceeds Criterion Noise Level ?	Substantial Increase Criterion (Greater than 10 dBA) Exceeded ?
13	Adj to Motel 6	65	2	66	No	No
14	Adj to Homewood Suites	62	3	66	No	No
15	Adj to Comfort Suites	66	9	66	Yes	No
18	Adj to Satori/The Harbor Group	65	7	71	No	No
19	Adj. to Building near W side of Project	66	8	71	No	No

- Because the noise levels at the Heritage Inn property (Comfort Suites) still exceeded the Criterion Noise Levels, we ran a further refined analysis to study this property specifically. The results of this analysis are summarized in the attached Design Memorandum dated August 8, 2003. Based on these results we recommended that an approximately 3-foot solid barrier, which could consist of an earthen berm, be used for the limits shown in this memorandum.

Future noise level for the proposed project used in this Addendum to the Final Noise Report as well as in the Final Noise Report, are derived from the FHWA's TNM® noise model. Criterion noise levels are based upon TxDOT / FHWA exterior "approach or exceed" Noise Abatement Criteria for Activity Category C (which includes commercial land uses) and Activity Category B (which includes hotel/motel land uses). This Addendum to the Final Noise Report should be taken with the Final Noise Report, dated May 13, 2003, for the complete noise study of Phase III of the Arapaho Road Project.

Sincerely,

URS Corporation

Cliff R. Hall, PE
Project Manager

Enclosures

URS Corporation
2020 East First Street, Suite 400
Santa Ana, California 92705
Tel: 714 835 6886
Fax:: 714 667 7147

URS

Memorandum

To: Cliff Hall, P.E. **From:** Mike Greene, INCE Bd. Cert.

Date: July 29, 2003

Re: Arapaho Road Bridge Noise

CC:

As requested, I have modified the noise model for the project to determine the predicted change in noise levels for a "no concrete rail" design. Under this scenario, the approximately three-foot high concrete "k-rail" or "jersey barrier" would not be constructed along the edge of the bridge deck as initially planned. Instead, an open rail design would be used in which two to three horizontal steel pipes (oriented one above the other) would serve as the safety barrier. This open rail design would provide negligible noise "shielding" from passing vehicles at nearby land uses. The Traffic Noise Model (TNM®) version 2.1 was used to predict the resultant change in noise levels at adjacent land uses from this design modification. The model (constructed previously) was modified by effectively removing the low barrier at the edge of the bridge deck. Table 1 presents a summary of the modeled data for the "with concrete rail" scenario as originally modeled, while Table 2 presents the data summary for the "without concrete rail" case. As Table 2 shows, the "without concrete rail" case is expected to result in several FHWA and TXDOT noise abatement criterion (NAC) exceedances. Specifically, noise levels would exceed FHWA and TXDOT NAC at two modeled locations. The two locations where noise levels are predicted to be exceeded are at adjacent hotel/motel establishments (Motel 6 and Comfort Suites). The criterion noise level of 66 dBA L_{eq} for residential uses (including transient residential) would be equaled or exceeded at these

locations. These exceedances are not predicted to occur in the original "with concrete rail" case.

Thanks again for the opportunity to participate in this project. If you have any questions or if I can be of further assistance, please call or e-mail me.

Best Regards,

Mike Greene, INCE Bd. Cert.

Senior Project Scientist

URS Corporation

2020 East First Street, Suite 400

Santa Ana, CA 92705

Table 1 - Predicted Exterior Noise Levels with Concrete Rail

Receptor #	Receptor Location	Existing Ambient Level (based upon Noise Measurements) (dBA L_{eq})	Estimated[1] Future Noise Level (from Arapaho Bridge) (dBA L_{eq})	Combined Future Noise Level (Ambient plus Project) (dBA L_{eq})	Estimated Increase Over Existing Noise Level (dBA L_{eq})	Criterion Noise Level[2] (dBA L_{eq})	Future Noise Level Exceeds Criterion Noise Level ?	Substantial Inerease Criterion (Greater than 10 dBA) Exceeded ?
1	W of Crouch Property - 10' fm bridge	58	57	61	3	71	No	No
2	W of Crouch Property - 35' fm bridge	58	58	61	3	71	No	No
3	W of Crouch Property - 60' fm bridge	58	57	61	3	71	No	No
4	W of Crouch Property - 85' fm bridge	58	56	60	2	71	No	No
5	W of Crouch Property - 110 ' fm bridge	58	54	59	1	71	No	No
6	E of Crouch Property - 10' fm bridge	58	55	60	2	71	No	No
7	E of Crouch Property - 35' fm bridge	58	56	60	2	71	No	No
8	E of Crouch Property - 60' fm bridge	58	56	60	2	71	No	No
9	E of Crouch Property - 85' fm bridge	58	56	60	2	71	No	No
10	E of Crouch Property - 110 ' fm bridge	58	55	60	2	71	No	No
11	Outdoor Break Area - Furniture Store	59	54	60	1	66	No	No
12	Ice Rink in Parking Lot	66	56	66	0	71	No	No
13	Adj to Motel 6	63	58	64	1	66	No	No
14	Adj to Homewood Suites	59	57	61	2	66	No	No
15	Adj to Comfort Suites	57	65	65	8	66	No	No
16	Adj to E side of Furniture Store	66	54	66	0	71	No	No
17	Adj to Intervest	58	60	62	4	71	No	No
18	Adj to Satori/The Harbor Group	58	62	63	5	71	No	No
19	Adj. to Building near W side of Project	58	62	63	5	71	No	No

1 - Future noise level from proposed project, derived from the FHWA's TNM® noise model.

2- Criterion noise levels based upon TxDOT / FHWA exterior "approach or exceed" Noise Abatement Criteria for Activity Category C (which includes commercial land uses) and Activity Category B (which includes hotel/motel land uses).

Table 2 - Predicted Exterior Noise Levels without Concrete Rail

Receptor #	Receptor Location	Existing Ambient Level (based upon Noise Measurements) (dBA L_{eq})	Estimated[1] Future Noise Level (from Arapaho Bridge) (dBA L_{eq})	Combined Future Noise Level (Ambient plus Project) (dBA L_{eq})	Estimated Increase Over Existing Noise Level (dBA L_{eq})	Criterion Noise Level[2] (dBA L_{eq})	Future Noise Level Exceeds Criterion Noise Level ?	Substantial Increase Criterion (Greater than 10 dBA) Exceeded ?
1	W of Crouch Property - 10' fm bridge	58	63	64	6	71	No	No
2	W of Crouch Property - 35' fm bridge	58	63	64	6	71	No	No
3	W of Crouch Property - 60' fm bridge	58	63	64	6	71	No	No
4	W of Crouch Property - 85' fm bridge	58	61	62	4	71	No	No
5	W of Crouch Property - 110 ' fm bridge	58	59	61	3	71	No	No
6	E of Crouch Property - 10' fm bridge	58	61	62	4	71	No	No
7	E of Crouch Property - 35' fm bridge	58	61	63	5	71	No	No
8	E of Crouch Property - 60' fm bridge	58	61	62	4	71	No	No
9	E of Crouch Property - 85' fm bridge	58	60	62	4	71	No	No
10	E of Crouch Property - 110 ' fm bridge	58	59	62	4	71	No	No
11	Outdoor Break Area - Furniture Store	59	58	62	3	66	No	No
12	Ice Rink in Parking Lot	66	60	67	1	71	No	No
13	Adj to Motel 6	63	62	66	3	66	Yes	No
14	Adj to Homewood Suites	59	60	62	3	66	No	No
15	Adj to Comfort Suites	57	67	67	10	66	Yes	No
16	Adj to E side of Furniture Store	66	57	66	0	71	No	No
17	Adj to Intervest	58	65	65	7	71	No	No
18	Adj to Satori/The Harbor Group	58	67	67	9	71	No	No
19	Adj. to Building near W side of Project	58	68	68	10	71	No	No

1 - Future noise level from proposed project, derived from the FHWA's TNM® noise model.

2- Criterion noise levels based upon TxDOT / FHWA exterior "approach or exceed" Noise Abatement Criteria for Activity Category C (which includes commercial land uses) and Activity Category B (which includes hotel/motel land uses).

Predicted Exterior Noise Levels with 1' High Concrete Barrier, Rest Decorative and Pipes

Receptor #	Receptor Location	Existing Ambient Level (based upon Noise Measurements) (dBA L_{eq})	Estimated[1] Future Noise Level (from Arapaho Bridge) (dBA L_{eq})	Combined Future Noise Level (Ambient plus Project) (dBA L_{eq})	Estimated Increase Over Existing Noise Level (dBA L_{eq})	Criterion Noise Level[2] (dBA L_{eq})	Future Noise Level Exceeds Criterion Noise Level ?	Substantial Increase Criterion (Greater than 10 dBA) Exceeded ?
1	W of Crouch Property - 10' fm bridge	58	61	63	5	71	No	No
2	W of Crouch Property - 35' fm bridge	58	61	63	5	71	No	No
3	W of Crouch Property - 60' fm bridge	58	60	62	4	71	No	No
4	W of Crouch Property - 85' fm bridge	58	59	61	3	71	No	No
5	W of Crouch Property - 110' fm bridge	58	57	60	2	71	No	No
6	E of Crouch Property - 10' fm bridge	58	59	61	3	71	No	No
7	E of Crouch Property - 35' fm bridge	58	59	62	4	71	No	No
8	E of Crouch Property - 60' fm bridge	58	59	61	3	71	No	No
9	E of Crouch Property - 85' fm bridge	58	58	61	3	71	No	No
10	E of Crouch Property - 110' fm bridge	58	58	61	3	71	No	No
11	Outdoor Break Area - Furniture Store	59	56	61	2	66	No	No
12	Ice Rink in Parking Lot	66	59	66	0	71	No	No
13	Adj to Motel 6	63	61	65	2	66	No	No
14	Adj to Homewood Suites	59	59	62	3	66	No	No
15	Adj to Comfort Suites	57	65	66	9	66	Yes	No
16	Adj to E side of Furniture Store	66	56	66	0	71	No	No
17	Adj to Intervest	58	63	64	6	71	No	No
18	Adj to Satori/The Harbor Group	58	65	65	7	71	No	No
19	Adj. to Building near W side of Project	58	66	66	8	71	No	No

1 - Future noise level from proposed project, derived from the FHWA's TNM® noise model.

2- Criterion noise levels based upon TxDOT / FHWA exterior "approach or exceed" Noise Abatement Criteria for Activity Category C (which includes commercial land uses) and Activity Category B (which includes hotel/motel land uses).

URS Corporation
2020 East First Street, Suite 400
Santa Ana, California 92705
Tel: 714 835 6886
Fax: 714 667 7147

URS

Memorandum

To: Cliff Hall, P.E. **From:** Mike Greene, INCE Bd. Cert.

Date: August 8, 2003

Re: Arapaho Road Bridge Noise - Near the Comfort Suites Property

CC:

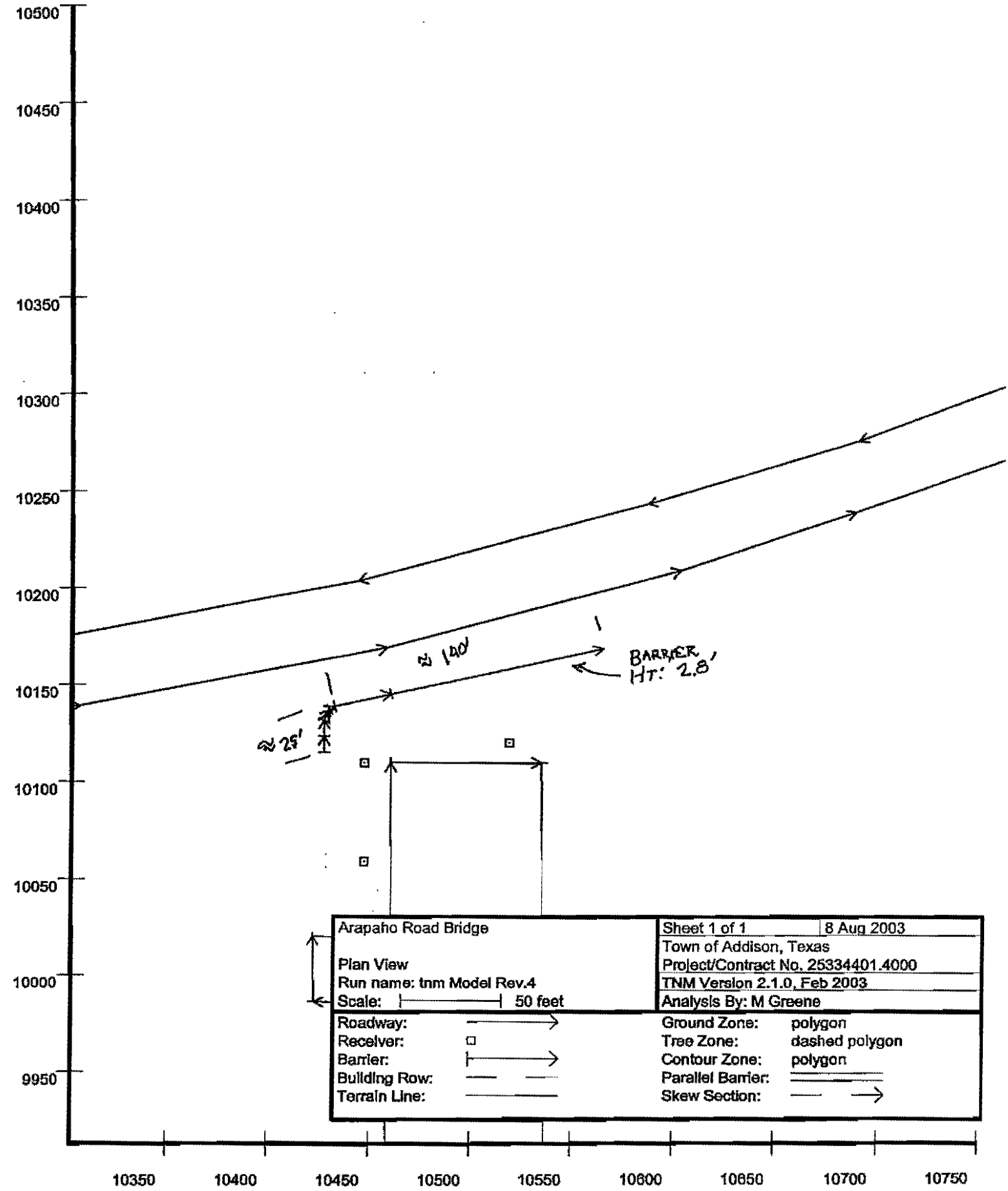
As requested, I have modified the noise model for the project to determine the extent of noise control near the Comfort Suites property. Using the 65% design information that you supplied, I revised the Traffic Noise Model (TNM®) to predict the resultant change in noise levels at locations on the property under a variety of noise barrier design scenarios.

As shown in the attached figure, the recommended noise barrier configuration would shield the northern side of the Comfort Suites site, and would ensure that noise levels at and within the property are below TxDOT and FHWA noise abatement criteria. The height of the noise barrier should be a minimum of 2.8 feet in height. The barrier should be solid from top to bottom, without gaps, holes or cutouts, to the extent feasible.

Thanks again for the opportunity to participate in this project. If you have any questions or if I can be of further assistance, please call or e-mail me.

Best Regards,

Mike Greene, INCE Bd. Cert.
Senior Project Scientist
URS Corporation
2020 East First Street, Suite 400
Santa Ana, CA 92705


10500
10450
10400
10350
10300
10250
10200
10150
10100
10050
10000
9950
10350
10400
10450
10500
10550
10600
10650
10700
10750
≈ 140'
BARRIER HT: 2.8'
≈ 25'
Arapaho Road Bridge
Plan View
Run name: tnm Model Rev.4
Scale: 50 feet
Sheet 1 of 1
8 Aug 2003
Town of Addison, Texas
Project/Contract No. 25334401.4000
TNM Version 2.1.0, Feb 2003
Analysis By: M Greene
Roadway:
Receiver:
Barrier:
Building Row:
Terrain Line:
Ground Zone: polygon
Tree Zone: dashed polygon
Contour Zone: polygon
Parallel Barrier:
Skew Section:

SHEET LIST FOR ARAPAHO ROAD BRIDGE 60% SUBMITTAL

URS SHEETS
Bridge Layout – Sheets 1 – 4
Typical Sections
DWU Clearance Envelope at Arch Span
DWU Clearance Envelope at Approach Spans
Bearing Seat Elevations – Sheet 1 - 2
Bearing Pad Taper Report
Foundation Layout – Sheets 1 – 2
Abutment 1
Abutment 1 Details
Abutment 15
Abutment 15 Details
Bent 2-8, 10-14
Bent 2-8, 10-14 Details
Geometry Pier 9
Geometry Pier 10
Framing Plan – Sheet 1 - 6
Geometry Main Span
Diaphragm Reinforcement 1 of 2 Mainspan
Main Span Erection Sequence – Sheet 1 – 2
Slab Plan - Sheet 1 - 6
Slab details – Sheet 1 - 3
Pedestrian Rail Details
Prestressed Concrete U-Beams (Design Data) UBNS
Traffic Rail (Steel) Type T4(S) (MOD) – Sheet 1 – 2

TxDOT STANDARD DRAWINGS
Sealed Expansion Joint Details Without Overlay (SEJ-A)
Prestressed Concrete U-Beam Details (UBA) – Sheet 1 - 2
English Beam End and Bearing Details (UBB) – Sheet 1 - 2
Miscellaneous Slab Details (UBMS) – Sheet 1 - 3
Miscellaneous Slab Details (For Prestr Conc U-Beams at Inverted Tee Bents) (UBMST)
Permanent Metal Deck Forms (PMDF(U))
Prestressed Concrete Panel Details (PCP(U)) – Sheet 1 - 3

TOWN OF ADDISON
PAYMENT AUTHORIZATION MEMO

DATE: 1/30/04 **Claim #** _____ **Check $** 43,821.40

Vendor No. _____

Vendor Name URS CORPORATION

Address DEPT. 1028

Address P.O. BOX 121028

Address DALLAS, TEXAS 75312-1028

Zip Code US

INVOICE # OR DESCRIPTION	FUND	DEPT	OBJ	PROJ	SAC	AMOUNT
	(00)	(000)	(00000)	(00000)	(000)	($000,000.00)
# 880383	44	000	56570	83300		43,821.40

TOTAL $ 43,821.40

EXPLANATION ARAPAHO RD., PH. III BRIDGE DESIGN

Steve Chotiner
Authorized Signature

Finance

URS

Remittance Page

Invoice Date	01/27/04
Invoice	880383
Project	25334400
Page	1

For: Design of the Arapaho Road
Bridge over Midway Road

Professional Services for Period Ending 12/26/03

Town Of Addison
Attn: Steven Z. Chutchain, PE
16801 Westgrove Dr
Addison TX 75001-5190

Total Due: **$ 43,821.40**
Terms: Due upon Receipt

O.K. to pay!
11/30/04

* Make checks payable to: URS Corporation
* Please indicate invoice number and/or project number on check
* Please include this stub with payment

Regular Mail (USPS): URS Corporation
Dept. 1028
P.O. Box 121028
Dallas TX 75312-1028
US

Overnight Courier: URS Corporation
Lock Box No. 891028
888 South Greenville Ave., Suite 200
Richardson, TX 75081
Attn: Wholesale Lock Box Processing
(972) 680-1900

Electronic Funds Transfer:

Account:	URS Corporation
Bank:	Wells Fargo Bank
Account No.:	4520-086471
ABA Routing No.:	121-000-248
Swift Code:	WFBIUS6S

Remittance Information can be sent to:

Email:	RemitTo@URSCorp.com
Fax:	(512) 419-6937 Attn: Cash Applications

Please contact Emilio S Ramirez at 512 419-6786 or via email at Emilio_Ramirez@urscorp.com
if you have any questions regarding this invoice.

URS

Invoice Date	01/27/04
Invoice	880383
Project	25334400
Page	2

Town Of Addison
Attn: Steven Z. Chutchain, PE
16801 Westgrove Dr
Addison TX 75001-5190

For: Design of the Arapaho Road
Bridge over Midway Road

Professional Services for Period Ending 12/26/03

This is a Firm Fixed Price Project
Total Project Budget is $593,090.00

PHASE	FEE	PERCENT COMPLETE	FEE EARNED	PREVIOUS BILLING	CURRENT BILLING
10010-ENG-Civil Site Work	19,370.00	35.00%	6,779.50	3,874.00	2,905.50
10021-ENG-Prelim Bridge Design	71,350.00	95.00%	67,782.50	57,080.00	10,702.50
10022-ENG-Final Bridge Design	313,330.00	10.00%	31,333.00	6,266.60	25,066.40
10030-ENG-Electrical Eng.	30,350.00	2.00%	607.00	607.00	0.00
20000 ARCHITECTURE	40,200.00	65.00%	26,130.00	26,130.00	0.00
30000 LIGHTING DESIGN	39,580.00	50.00%	19,790.00	17,811.00	1,979.00
40000 NOISE STUDY	32,760.00	95.00%	31,122.00	31,122.00	0.00
50000 PROJECT MANAGEMENT	31,680.00	65.00%	20,592.00	17,424.00	3,168.00
10040-ENG-Conceptual Plan Mod.	14,470.00	100.00%	14,470.00	14,470.00	0.00
TOTALS	593,090.00		218,606.00	174,784.60	43,821.40

TOTAL THIS INVOICE **$ 43,821.40**

Please contact Emilio S Ramirez at 512 419-6786 or via email at Emilio_Ramirez@urscorp.com if you have any questions regarding this invoice.

F5447426

URS

January 27, 2004

Mr. Steven Z. Chutchian, PE
Assistant City Engineer
16801 Westgrove Drive
P.O. Box 9010
Addison, TX 75001-9010

Re: **Arapaho Road Bridge at Midway Road**
Phase II – Design Development & Contract Documents
Invoice for Professional Services

Dear Mr. Chutchian:

Enclosed please find our invoice for Professional Services for the Arapaho Road Bridge at Midway Road for the period between November 28, 2003 and December 26, 2003. Also included is our Progress Report for this period outlining the services provided.

The total contract amount included on the invoice does not include Change Order No. 3, as we had yet to receive the signed copy from your office during this period. We will adjust the values to reflect Change Order No. 3 with our January invoice.

Sincerely,

URS Corporation

Cliff R. Hall, PE
Project Manager

Enclosure

URS Corporation
Graystone Center
3010 LBJ Freeway, Suite 1300
Dallas, TX 75234
Tel: 972.406.6950
Fax: 972.406.6951

Monthly Progress Report

Design of the Arapaho Road Bridge Over Midway Road

URS Project No. 25334400

Period: November 29, 2003 to December 26, 2003

---

1. **General Accomplishments**
   - 1.1 Completed the Preliminary Design
   - 1.2 Began the Final Design

2. **Progress This Period**
   - 2.1 Finalized the preliminary design.
   - 2.2 Set the arch geometry.
   - 2.3 Set the thrust block geometry.
   - 2.4 Met with the Town to discuss progress.
   - 2.5 Began final design and drawings.

3. **Anticipated Next Period**
   - 3.1 Approach span design and drawing details
   - 3.2 Submit 65% drawings
   - 3.3 Arrange the colored lighting mock-up on the Addison circle statue.
   - 3.4 Meet with Town and Town's consultant to discuss bridge drainage.

4. **Schedule Status**
   - 4.1 The Town Council approved Change Order No. 3 including a new scheduled completion date of late March.
   - 4.2 65% submittal is expected on January 30, 2004.

5. **Issues / Impacts**
   - 5.1 Need the final grading plan to finalize the elevations of the thrust blocks.
   - 5.2 Need parking layout to begin the under deck lighting design.

Steve Chutchian

From: Cliff_Hall@URSCorp.com
Sent: Thursday, January 29, 2004 1:39 PM
To: Jenny Nicewander
Cc: David Boles; Steve Chutchian
Subject: RE: Bridge barrier

Jenny,

The noise study showed that the noise level will increase by 10 dBA at the Bullough/Lykos Building on the west end of the project without any kind of barrier. Although this doesn't exceed the criteria to mitigate noise (increase > 10dBA) it is right on the threshold. Therefore we recommend that the traffic rail be carried to the end of this building, approximate station 45+00.

As a reminder we need a 3-ft high noise barrier in front of the Heritage Inn property (including along the east side of the driveway). We discussed accomplishing this with an earthen berm.

Cliff R. Hall, PE
Engineering Unit Manager
URS Corporation
Graystone Centre
3010 LBJ Freeway, Suite 1300
Dallas, TX 75234
Office Tel: 972.406.6950
Direct: 972.406.6976
Fax: 972.406.6951

"Jenny Nicewander" <JNicewander@hntb.com>

To: <Cliff_Hall@urscorp.com>
cc: "David Boles" <DBoles@hntb.com>
Subject: RE: Bridge barrier

01/24/2004 10:30 AM

You mentioned extending the rail on the southwest retaining wall, let me know how far you need that extended and I will include that on the plans.

Jenny

-----Original Message-----
From: Cliff_Hall@URSCorp.com [mailto:Cliff_Hall@URSCorp.com]
Sent: Tuesday, January 20, 2004 9:12 AM
To: Jenny Nicewander
Subject: Re: Bridge barrier

We are using a "T4 (S) (mod)". The modification is to increase the thickness by 1" (1/2" to each side) and use a recessed triangle pattern.

Cliff R. Hall, PE
Engineering Unit Manager
URS Corporation
Graystone Centre
3010 LBJ Freeway, Suite 1300
Dallas, TX 75234
Office Tel: 972.406.6950
Direct: 972.406.6976
Fax: 972.406.6951

"Jenny Nicewander" <JNicewander@hntb.com>

To: <Cliff_Hall@urscorp.com>
cc:
Subject: Bridge barrier

01/20/2004 07:50 AM

Cliff,

Could you let me know what type of barrier you are using on the bridge? I was wanting to be sure I call out the right one on the retaining wall.

Thanks,

Jenny Nicewander
HNTB Corp.
972-628-3164

strictly prohibited.

URS Corporation

Arapaho Road Bridge at Midway Road
Design Development and Contract Documents
Change Order No. 03 to Work Order No. 001

ATTACHMENT M

Revised Estimated Schedule

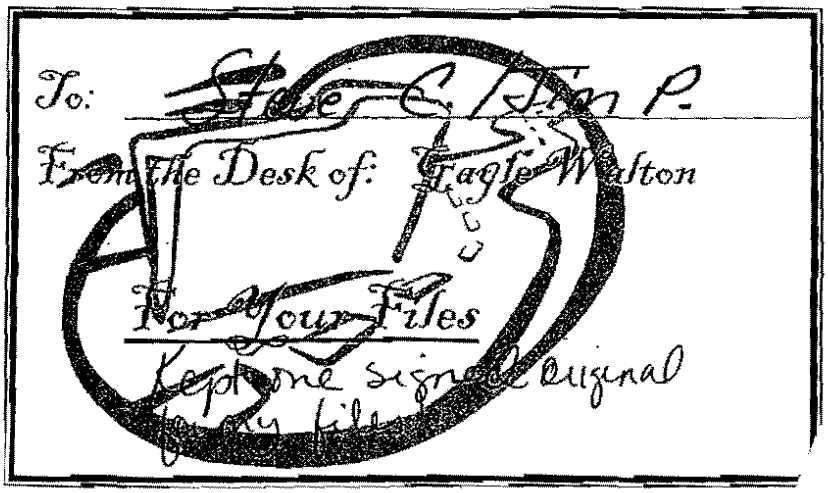
TASK DESCRIPTION	October 2002	November 2002	December 2002	January 2003	February 2003	March 2003	April 2003	May 2003	June 2003	July 2003	August 2003	September 2003	October 2003	November 2003	December 2003	January 2004	February 2004	March 2004	April 2004	May 2004
Notice to Proceed (NTP)		◈																		
DWU Coordination Issues		▬	▬	▬	▬	▬														
NTP For Prelim. Design						◈														
Preliminary Design Development						▬	▬	▬												
Preliminary Geotech								◆												
Preliminary Grading at Arch								◆												
Finalize Bridge Layouts								▬	▬											
Expert Testimony for Condemnation							▬	▬												
Final Concepts (~30% Plans)									◆											
Addison Review									▬	▬										
Presentation to Town Council										◆										
Revise Concepts										▬	▬									
Presentation to Town Council											◆									
Revise Preliminary Design											▬	▬	▬	▬						
Lighting Concepts														▬	▬	▬				
Final Geotechnical Report														◆						
Final Grading Plans														◆						
Final Design														▬	▬	▬	▬			
Intermediate Design Submittal (60% Plans)																◆				
Addison Review																▬	▬			
Presentation to Town Council																	◆			
Bridge Drainage Requirements																	◆			
Final Design & Construction Documents																	▬	▬		
Final Design Submittal (95% Plans)																		◆		
Addison Review																		▬	▬	
Incorporate Comments, Final PS&E																			▬	
Signed and Sealed PS&E (100%)																				◆

◈ NTP

◆ REQ'D INFORMATION FROM TOWN'S CONSULTANT

◆ SUBMITTAL

Weds 11-14-04 2:00
Denny / Katura bridge drainage


To: Steve C. / Tim P.
From the Desk of: Eagle Walton
For your Files
Keptone signed Original

Copy
Signed original

ARAPAHO ROAD BRIDGE AT MIDWAY ROAD
CHANGE ORDER NO. 03 to WORK ORDER NO. 001

ATTACHMENT K
ADDITIONAL SCOPE OF SERVICES

ADDITIONAL DESIGN DEVELOPMENT AND CONTRACT DOCUMENTS FOR THE ARAPAHO ROAD BRIDGE

In addition to the design services provided for in the original Scope of Services and Change Orders No. 1 & 2, URS will provide conceptual design development, preliminary and final engineering and modifications to the plans, as it relates to Arapaho Road from approximate Station 40+67 to approximate Station 70+28 to incorporate the following changes and as listed below in the Additional Itemized Scope of Services. These changes as presented to the Town Council on August 26, 2003 include developing a colored lighting concept for the arch, adding the "stingers" on to the structure and revising the rail to a more open traffic rail. URS shall modify the preliminary bridge design, bridge layouts and typical sections as necessary, attend additional meetings with the Town of Addison, prepare an additional presentation to the Town Council and prepare a lighting mock-up for the Town to see the colored lighting on the blue structure.

Changes to Itemized Scope of Services Provided by URS For the Arapaho Road Bridge

TASK I - ENGINEERING

B. Bridges

1. Preliminary Bridge Design (~30% submittal)
   - Revise Preliminary Bridge Layout (Finalize Bridge Location)
   - Revise Preliminary Typical Section
   - Refine Arch Shape
   - Re-size Diaphragms
   - Revise Traffic Railing Members
   - Develop Stingers
   - Revise Quantities and Cost Estimate
2. Final Bridge Design, & PS&E (65%, 95%, 100% submittals)
   - Prestressed Concrete Beam Unit – Add Deck Plan for Widened Deck
   - Bridge Stinger Details
   - Additional coordination with Town

TASK II - ARCHITECTURAL

A. Design Development

1. Architectural Studies & Details
   - Develop revised rail option and the architectural options to realize the triangular pattern in the rail.
   - Develop bridge mounted "stingers"
   - Attend Additional Meetings with the Town and the Town Council.

TASK III – LIGHTING DESIGN

A. Design Development (includes one meeting in Addison)

1. Develop color alternative for lighting of arch.
2. Develop mounting concepts for bridge structure lighting and stingers.
3. Prepare a mock-up of potential color changing effects on existing Addison Circle sculpture.
3. Present final lighting design development to the Town Council.

TASK V - PROJECT MANAGEMENT

B. Coordination

1. Prepare for and Attend Town Council or other Town Meetings (1 total).
2. Prepare for and attend project meetings with Addison Public Works (2 total)

ARAPAHO ROAD BRIDGE AT MIDWAY ROAD
CHANGE ORDER NO. 03 TO WORK ORDER NO. 001

ATTACHMENT L

ADDITIONAL FIXED PRICE FEE BREAKDOWN
URS CORPORATION

	Total Cost
TASK I – Engineering	
B. Bridges	**$ 23,830.00**
1. Preliminary Bridge Design	
2. Final Bridge Design, PS&E	
TASK II – Architecture (Corgan)	
A. Design Development	**$ 10,280.00**
TASK III – Lighting Design (Brandston)	
A. Design Development	**$ 14,280.00**
TASK V – Project Management	
B. Preparation & Attendance of Meetings W/ Addison	**$ 1,080.00**
TOTAL	**$ 49,470.00**

ARAPAHO ROAD BRIDGE AT MIDWAY ROAD
CHANGE ORDER NO. 03 - ARAPAHO ROAD BRIDGE
MAN-HOUR & EXPENSE COST ESTIMATE
URS CORPORATION

ATTACHMENT L

CONSULTANT: URS Corporation

	No. of Sheets	Principal	Senior Consult.	Project Mangr	Sr Project	Project Eng/Plan	Staff Eng/Plan	Sr. Tech.	Tech	Clerical WP	Total Hours	Total Labor Cost	Direct Expenses	Total Cost
		$185.00	$165.00	$135.00	$135.00	$95.00	$85.00	$80.00	$65.00	$60.00				
TASK I - ENGINEERING		0	0	32	50	65	18	0	58	4	238	$ 23,830.00	$ -	$ 23,830.00
B. Bridges		0	0	32	50	65	18	0	58	4	238	$ 23,830.00	$ -	$ 23,830.00
1. Revise Preliminary Bridge Design (~30% submittal)		0	0	14	28	32	12	0	34	0	120	$ 11,700.00	$ -	$ 11,700.00
Revise Preliminary Bridge Layout (Finalize Bridge Location)						8	4		8		20	$ 1,540.00		$ 1,540.00
Revise Preliminary Typical Section				2	8	4			8		22	$ 2,250.00		$ 2,250.00
Refine Arch Shape				4	8	4			8		24	$ 2,520.00		$ 2,520.00
Re-Size Diaphragms				2	8	4					14	$ 1,730.00		$ 1,730.00
Re-develop Traffic Railing Members						4			6		10	$ 770.00		$ 770.00
Develop Stingers				4		8	4		4		20	$ 1,820.00		$ 1,820.00
Coordinate Culvert Layout											0	$ -		$ -
Revise Quantities and Cost Estimate				2	4		4				10	$ 1,070.00		$ 1,070.00
2. Final Bridge Design, PS&E (65%, 95%, 100% submittals)		0	0	18	32	34	6	0	24	4	118	$ 12,130.00	$ -	$ 12,130.00
Prestressed Concrete Beam Unit - Add Deck Plan for Widened Deck						12	6		12		30	$ 2,310.00		$ 2,310.00
Bridge Stinger Details				6	32	16			12		66	$ 7,430.00		$ 7,430.00
Additional Coordination with Town				12		6				4	22	$ 2,390.00		$ 2,390.00
CORGAN RATES					$140.00	$125.00	$80.00		$35.00					
TASK II - ARCHITECTURAL		0	0	0	48	0	36	0	40	0	124	$ 10,280.00	$ -	$ 10,280.00
A. Design Development		0	0	0	48	0	36	0	40	0	124	$ 10,280.00	$ -	$ 10,280.00
1. Architectural Studies & Details		0	0	0	48	0	36	0	40	0	124	$ 10,280.00	$ -	$ 10,280.00
Develop revised traffic rail option and the Architectural option to realize the proposed triangular pattern.					12		24				36	$ 3,120.00		$ 3,120.00
Develop Bridge Mounted "Stingers"					24		12		40		76	$ 5,480.00		$ 5,480.00
Attend Additional Meetings to coordinate the architectural aspects of the design.					12						12	$ 1,680.00		$ 1,680.00
BRANDSTON RATES			$175.00		$140.00	$105.00		$90.00						
TASK III - LIGHTING DESIGN		0	40	0	8	16	0	22	0	0	86	$ 11,760.00	$ 2,500.00	$ 14,260.00
A. Design Development		0	40	0	8	16	0	22	0	0	86	$ 11,760.00	$ 2,500.00	$ 14,260.00
1. Develop color alternatives for lighting of arch.											0	$ -		$ -
2. Develop mounting concepts for bridge structure and stinger lighting											0	$ -		$ -
3. Attend Additional Meeting with Town and perform lighting mock-up											0	$ -		$ -
TASK V - PROJECT MANAGEMENT		0	0	8	0	0	0	0	0	0	8	$ 1,080.00	$ -	$ 1,080.00
B. Coordination		0	0	8	0	0	0	0	0	0	8	$ 1,080.00	$ -	$ 1,080.00
4. Council or other Town Meetings (1)				4							4	$ 540.00		$ 540.00
6. Project Meetings with Addison Public Works (2)				4							4	$ 540.00		$ 540.00
Grand Total		0	40	40	116	82	54	22	98	4	456	$ 47,290.00	$ 2,500.00	$ 49,790.00

CHANGE ORDER NO. 03

In accordance with the Agreement between **the Town of Addison** ("Client"), and **URS Corporation** ("URS"), a **Nevada** corporation dated **November 11, 2002** (for Work Order No. 001) this Change Order describes the agreed upon changes to the Services, Schedule, and Payment for the Services.

Project: Arapaho Road Bridge at Midway Road URS Project No. 25334401 Date:

REFERENCE: Drawing No. N/A Specification No. N/A Other N/A

The Agreement is hereby changed as follows:

See Attachment K, "ADDITIONAL SCOPE OF SERVICES"

Justification for Change:

The need for additional unforeseen coordination with the Addison Town Council and subsequent requested modifications to the bridge renderings, lighting, traffic rail and layout plans.

CHANGE TO ESTIMATED CONTRACT PRICE *(See Attachment L)*

Original Estimated Contract Price:	$ 550,965.00
Current estimated contract price, including previous change orders:	$ 593,090.00
The estimated Contract Price due to this Change Order will be increased by:	$ 49,470.00
The new estimated Contract Price due to this Change Order will be:	$ 642,560.00

CHANGE TO THE ESTIMATED SCHEDULE *(See Attachment M)*

The Contract Time will be increased by 151 calendar days.

The date for completion of all work under the contract will be: June 30, 2004.

EXCEPT AS PROVIDED IN THIS CHANGE ORDER, ALL TERMS AND CONDITIONS OF THE CONTRACT REMAIN UNCHANGED

Acceptance of the terms of this Change Order is acknowledged by the following signatures of the Authorized Representatives.

CLIENT	**URS**
Signature	Signature
Ron Whitehead, City Manager ~~Michael E. Murphy, P.E., Director of Public Works~~	Emily Taylor, P.E. / Vice President
Typed Name/Title	Typed Name/Title
Date of Signature	11/03/03 Date of Signature

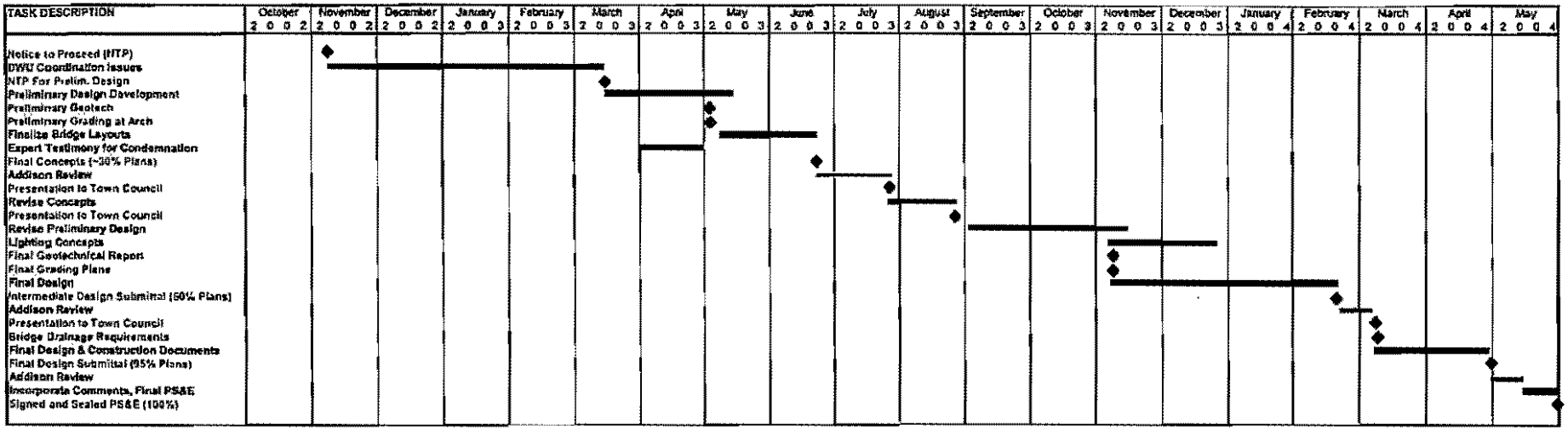
cc: Accounting

URS Corporation

Arapaho Road Bridge at Midway Road
Design Development and Contract Documents
Change Order No. 03 to Work Order No. 001

ATTACHMENT M

Revised Estimated Schedule



◆ NTP

◆ REQ'D INFORMATION FROM TOWN'S CONSULTANT

◆ SUBMITTAL

URS

December 26, 2003

Mr. Steven Z. Chutchian, PE
Assistant City Engineer
16801 Westgrove Drive
P.O. Box 9010
Addison, TX 75001-9010

Re: **Arapaho Road Bridge at Midway Road**
Phase II – Design Development & Contract Documents
Invoice for Professional Services

Dear Mr. Chutchian:

Enclosed please find our invoice for Professional Services for the Arapaho Road Bridge at Midway Road for the period between September 20, 2003 and November 28, 2003. Also included is our Progress Report for this period outlining the services provided.

The total contract amount included on the invoice does not include Change Order No. 3, as we have yet to receive the signed copy from your office.

Sincerely,

URS Corporation

Cliff R. Hall, PE
Project Manager

Enclosure

URS Corporation
Graystone Center
3010 LBJ Freeway, Suite 1300
Dallas, TX 75234
Tel: 972.406.6950
Fax: 972.406.6951

Monthly Progress Report

Design of the Arapaho Road Bridge Over Midway Road

URS Project No. 25334400

Period: September 20, 2003 to November 28, 2003

---

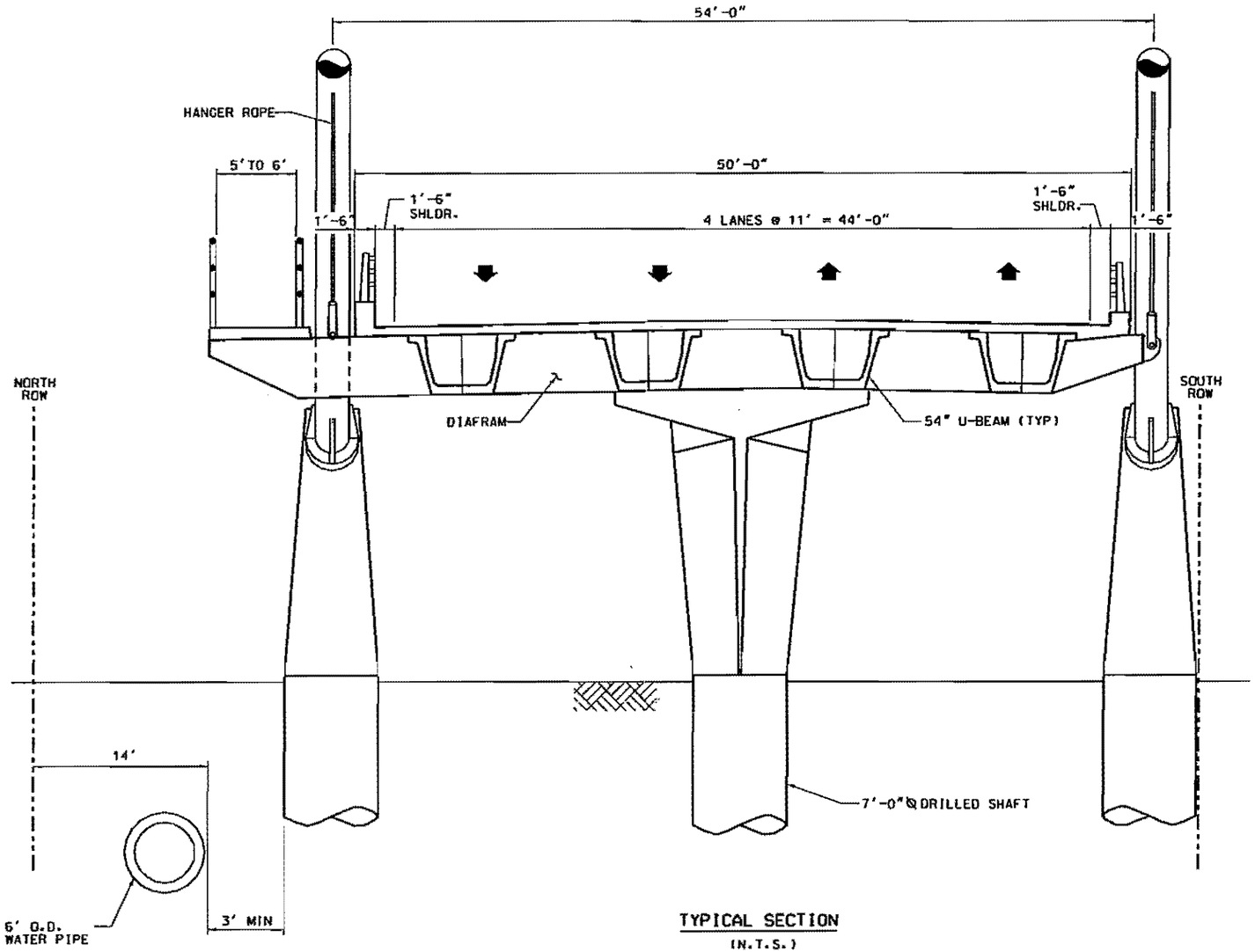
1. **General Accomplishments**
   - 1.1 Progressed the Preliminary Design

2. **Progress This Period**
   - 2.1 Progressed the preliminary design.
   - 2.2 Began setting the arch geometry.
   - 2.3 Began setting the thrust block geometry.
   - 2.4 Met with the Town Council at the Council Meeting for Change Order No. 3.
   - 2.5 Coordinated abutment configuration with storm and sewer pipes.
   - 2.6 Received the Geotechnical Report from Town's consultant.

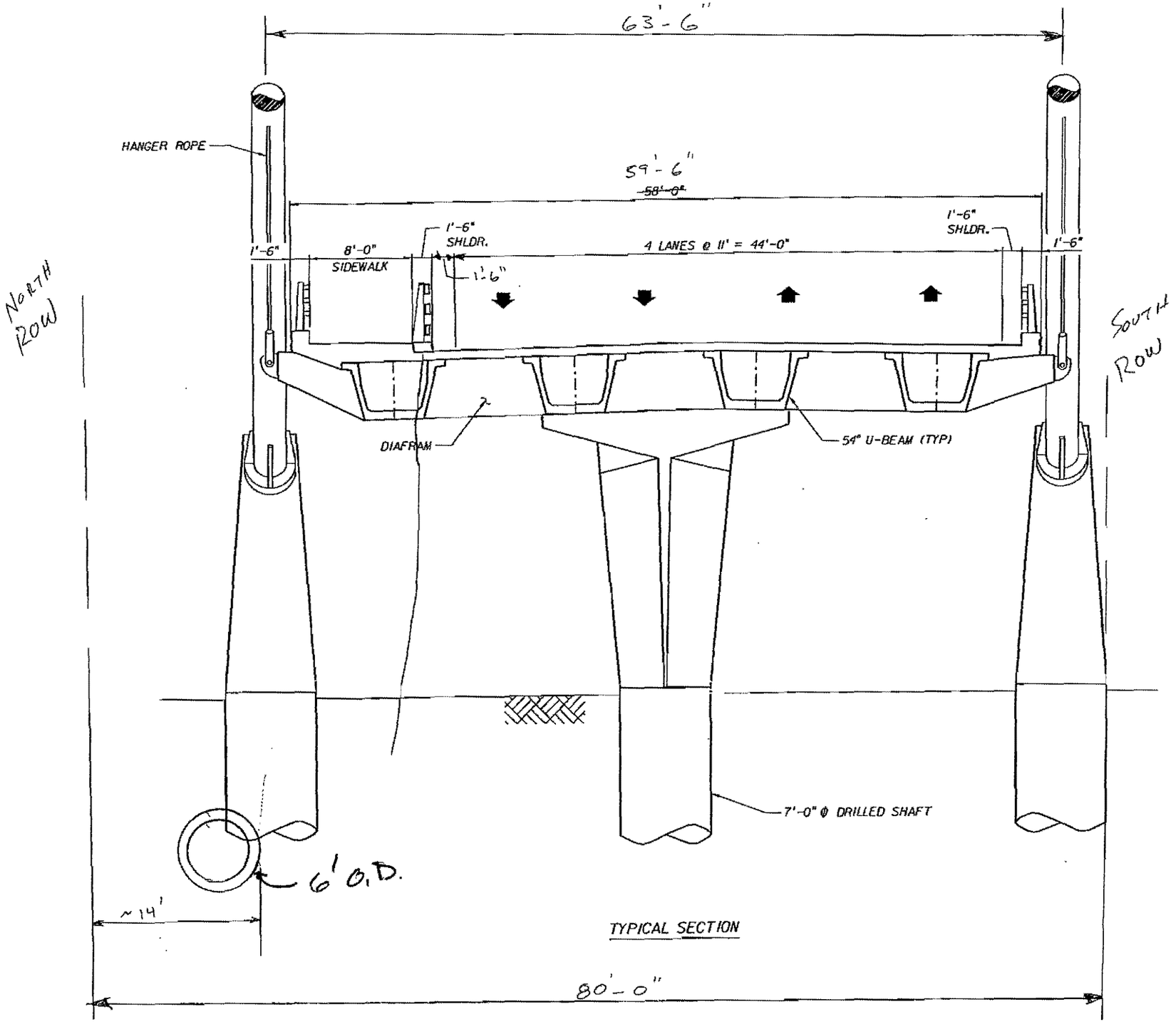
3. **Anticipated Next Period**
   - 3.1 Continue the preliminary arch design, arch size and shape.
   - 3.2 Finalize the thrust block shape and location.
   - 3.3 Begin approach span design and details.
   - 3.4 Begin arranging for the lighting mock-up.

4. **Schedule Status**
   - 4.1 The Town Council approved Change Order No. 3 including a new scheduled completion date of late March.

5. **Issues / Impacts**
   - 5.1 Need the final grading plan to finalize the elevations of the thrust blocks.
   - 5.2 Placing sidewalk exterior to the arch is creating a more difficult structure to design, construct and light. This may increase the cost of the bridge.
   - 5.3 Town Council has requested changes to the bridge rail type, added the "stingers" back onto the bridge, and requested colored lighting for the bridge. These changes have impacted the schedule and cost of the project.



TYPICAL SECTION
(N.T.S.)



TYPICAL SECTION

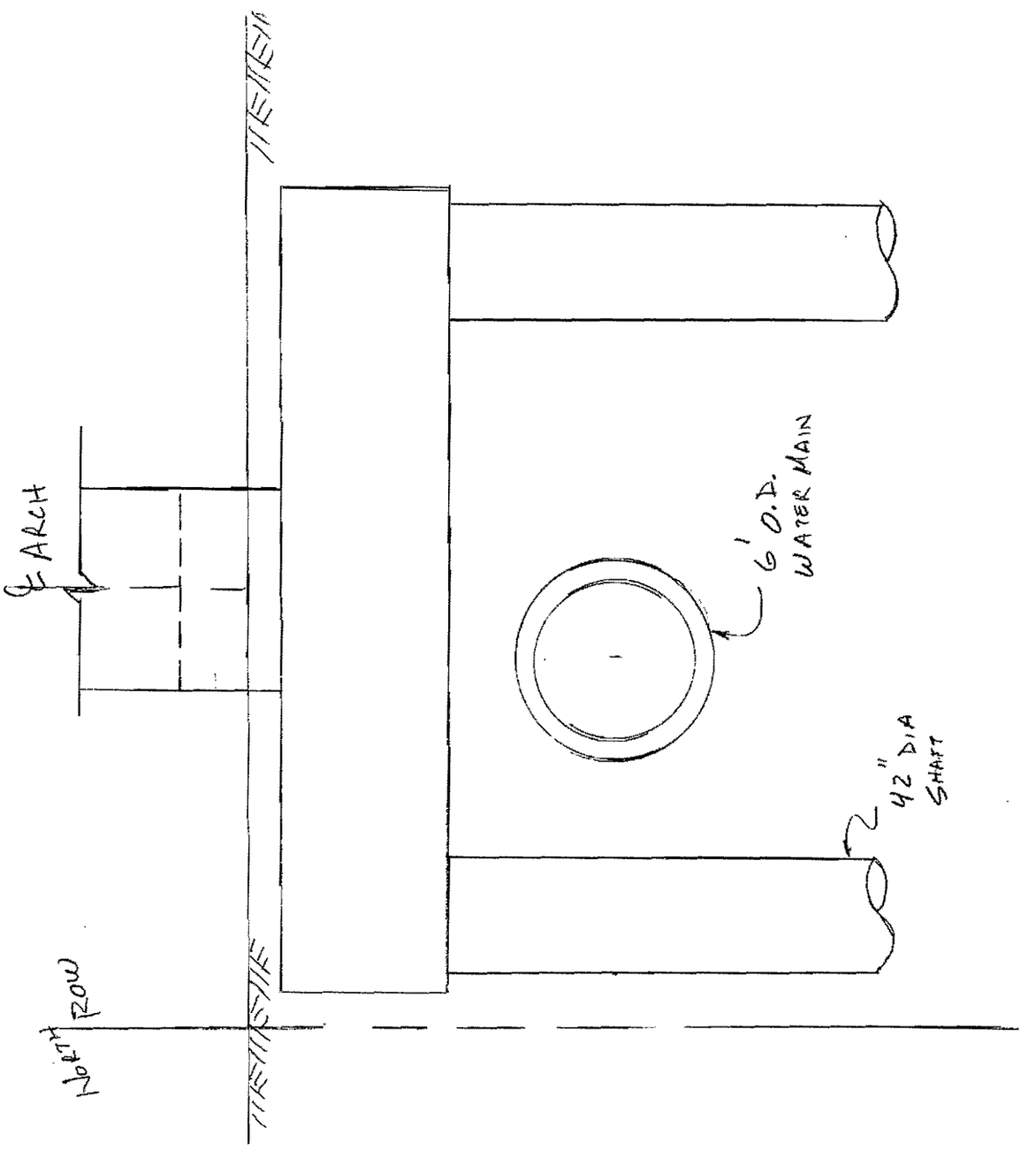
URS

Job ARMIJO ROAD BRIDGE Project No. _____ Page ____ of ____

Description _____ Computed by _____ Date _____ Sheet ____ of ____

_____ Checked by _____ Date _____

Reference



DALLAS AREA RAPID TRANSIT

RAILROAD

60" WATER

1'-6" BARRIER

8'-0" S/W

℄ ARAPAHO ROAD

MIDWAY ROAD

DIRECTION OF STATIONING

57 58 59 60 61 62

S89°58'49"E

4 BMS

4 BMS

℄ PIER 7

℄ PIER 8
STA. 58+38.50

℄ PIER 9
STA. 59+44.00

℄ ARAPAHO ROAD
STA. 60+31.06

℄ MIDWAY ROAD
STA. 10+00.00

℄ PIER 10
STA. 61+18.00

℄ PIER 11
STA. 62+23.50

PLAN

OVERALL BRIDGE LENGTH = 1600'-0"

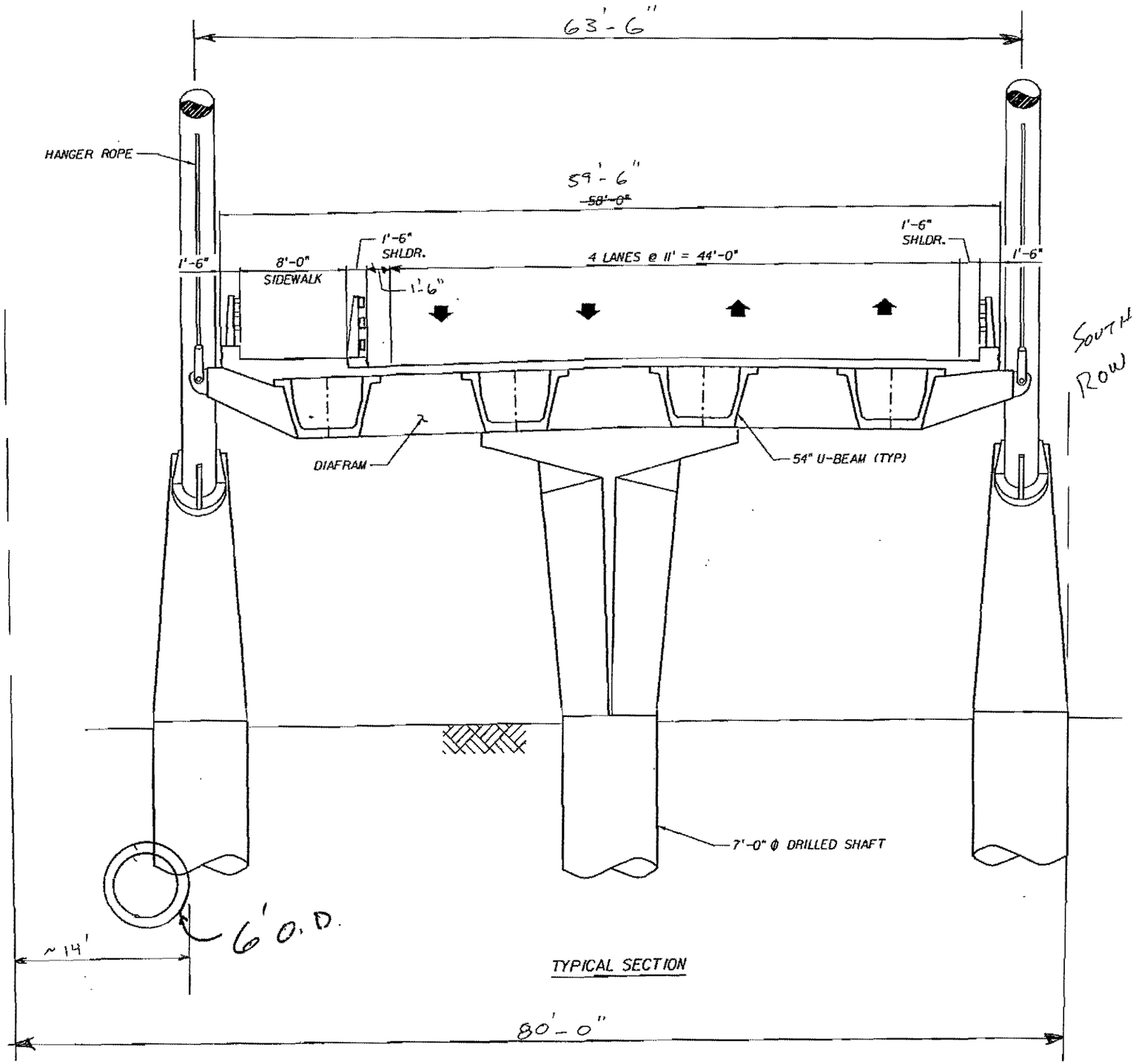
3 SPANS @ 105'-6" = 316'-6"

174'-0"

105'-6"

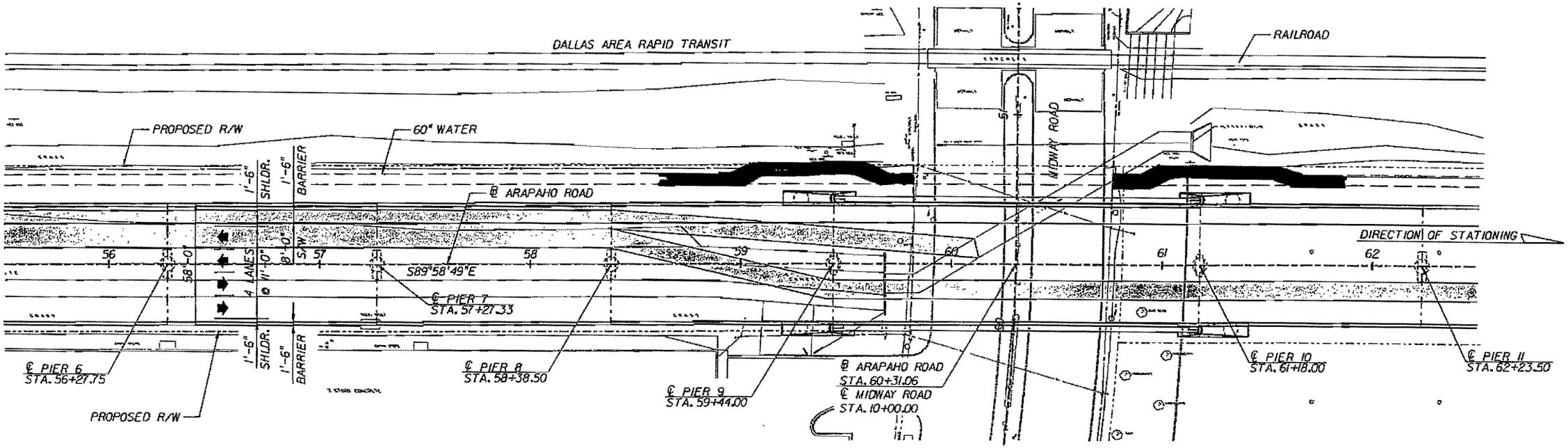
℄ PIER 11
MATCH LINE 2

650
640
630

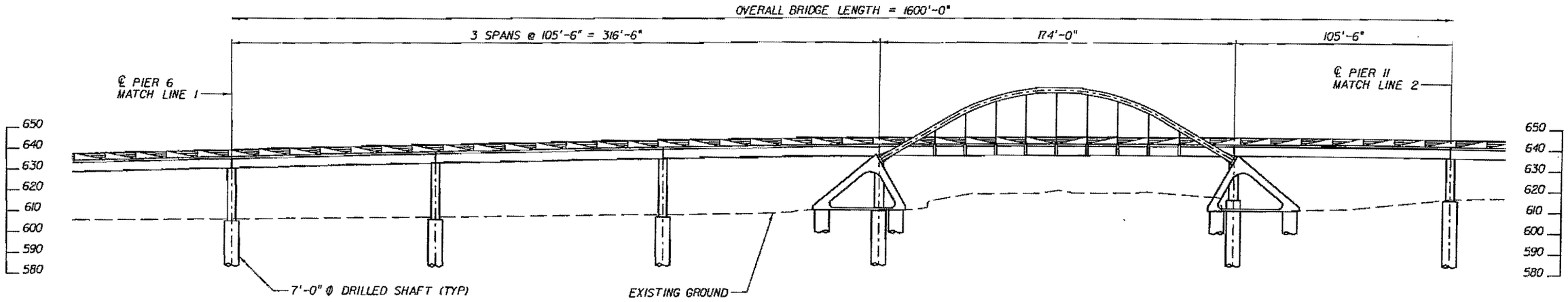


TYPICAL SECTION

RELOCATE 60" WATER MAIN

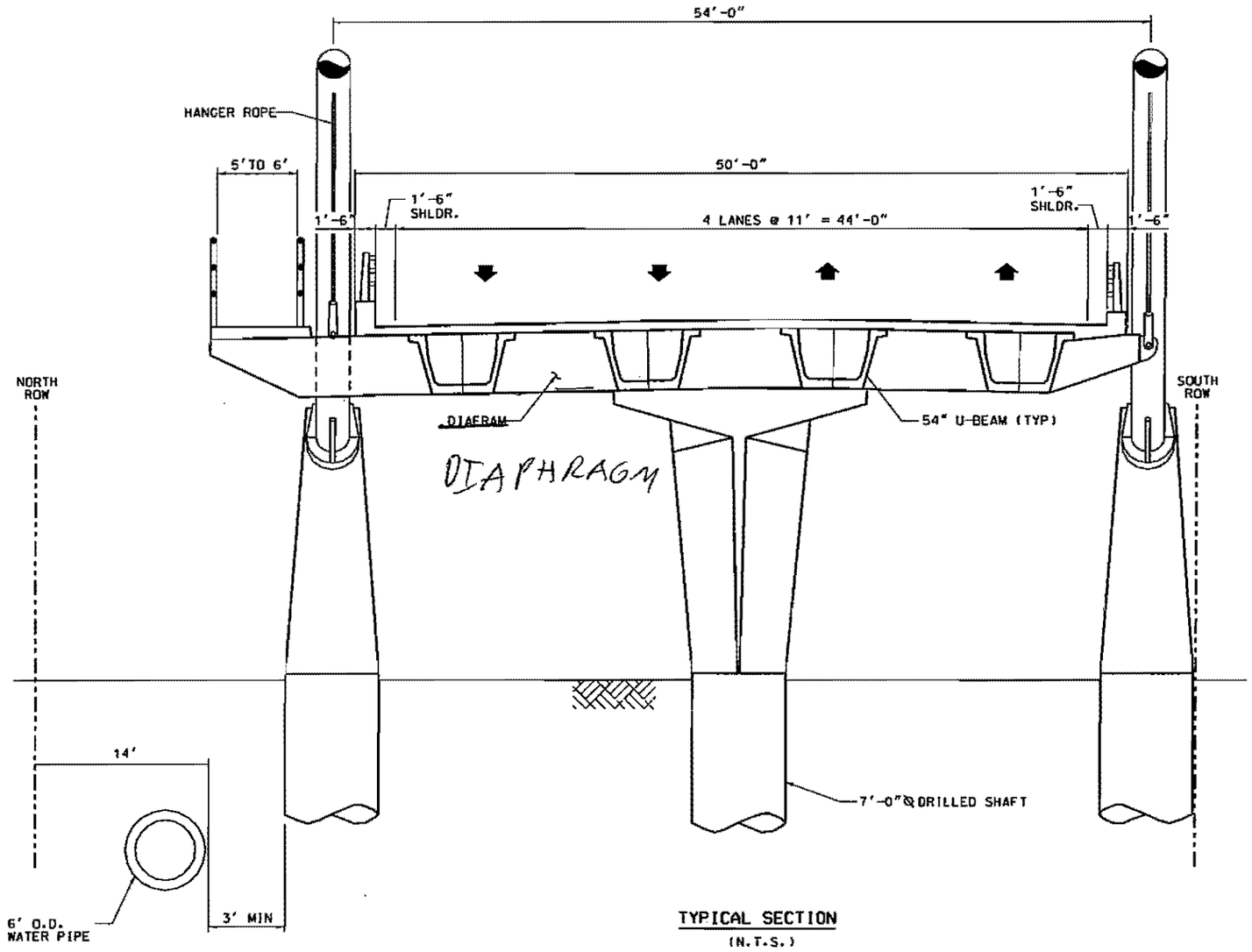


PLAN



ELEVATION

ARAPAHO BRIDGE TOWN OF ADDISON, TEXAS



TYPICAL SECTION
(N.T.S.)

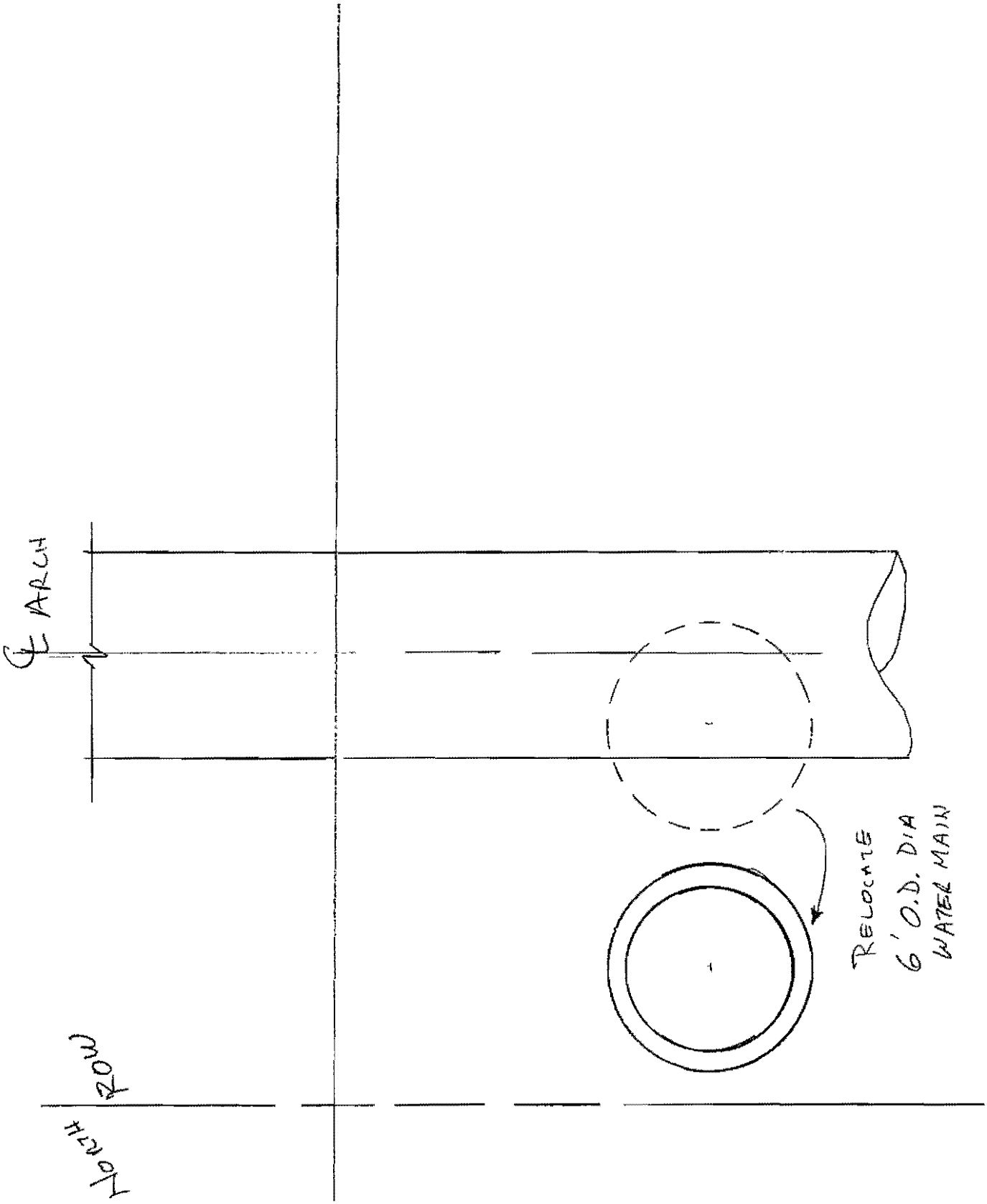
URS

Job ARAPAHO ROAD WIDEN Project No. _____ Page ____ of ____

Description _____ Computed by _____ Sheet ____ of ____

_____ Checked by _____ Date _____

Reference



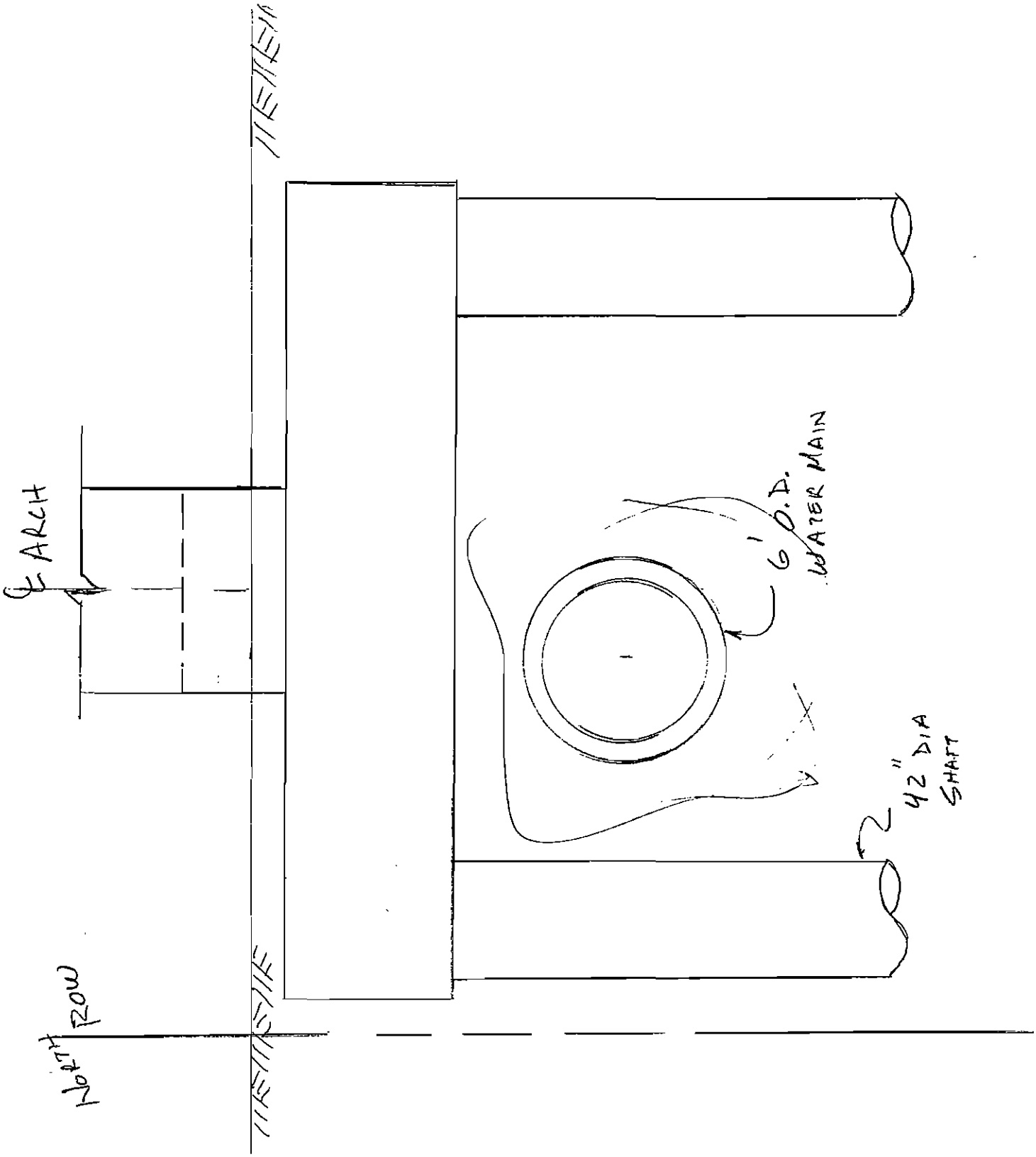
URS

Job ALAMO ROAD BRIDGE | Project No. | Page ____ of ____

Description | Computed by | Date

Checked by | Date

Reference



Jim Pierce

From: Jim Pierce
Sent: Tuesday, March 19, 2002 5:05 PM
To: David Johnston (E-mail); Michael Preston (E-mail); Alan Greer (E-mail)
Cc: Michael Murphy; Chris Terry
Subject: Bridge Competition Presentation Schedule

Gentlemen: We have established the following presentation Schedule:

All presentations will be on Thursday, April 11, 2002 at the Conference and Theatre Center

8:00AM - 10:00AM	URS Greiner	Stone Cottage
10:30AM - 12:30PM	Freese and Nichols	Board Room
1:30PM - 3:30PM	HNTB	Stone Cottage

Please allow at least 30 minutes for questions and answers.

Please call me if you have any questions about the arrangements.

Jim Pierce, P.E.
Assistant Public Works Director
PO Box 9010
Addison, TX 75001-9010
972-450-2879

TOWN OF ADDISON

PUBLIC WORKS DEPARTMENT

Post Office Box 9010 Addison, Texas 75001-9010

(972) 450-2871

16801 Westgrove

12 March 2002

Mr. Bill Crepeau
15101 Midway
Addison, TX 75001

Dear Committee Member:

Please accept my apology for not including a list of the Arapaho Bridge Committee Members in the recent package which was sent to each Member.

The Committee Members are:

Art Lomenick
Bill Crepeau
Diane Mallory
Scott Wheeler
Ron Whitehead
Chris Terry
Mike Murphy

I look forward to working with you.

Very truly yours,

Michael E. Murphy

Mike Murphy, P.E.
Director of Public Works

cc: Jim Pierce
Steve Chutchian
Luke Jalbert

TOWN OF ADDISON ®
PUBLIC WORKS DEPARTMENT (972) 450-2871
Post Office Box 9010 Addison, Texas 75001-9010 16801 Westgrove

March 7, 2002

Mr. Jim Pierce
P. O. Box 9010
Addison, TX 75001

Dear Committee Member:

First of all, I would like to express my appreciation on behalf of the Town of Addison. This is an exciting infrastructure project for the Town and I am pleased you have agreed to participate in our evaluation and recommendation process for the Bridge Competition. As you are aware, the competition is scheduled for April 11th from 7:30am – 5:00pm at the Addison Conference Centre (see schedule below). I would also request that all committee members meet in the Board Room at 7:30 am to go over the upcoming days events. ***There will be breakfast refreshments available.***

Just a very brief update on what events took place to get us to the point at which we are today. In February 2000, the Town of Addison conducted a bond election in which the town of Addison voters approved $20.5 million to go toward the design and construction of the extension of Arapaho Road from Addison Road to Marsh Lane. A key and crucial element to the overall project is the design and construction of a bridge to cross over Midway Road.

In November of 2001, we initiated the process by requesting Statements of Qualifications from engineering and architectural firms. The Town received 12 proposals from a wide variety of firms with connections around the nation. These 12 proposals were evaluated by a selection committee and reduced to the three finalists for the competition (HNTB, URS-Griener and Freese & Nichols). The Town of Addison City Council, prior to Request for Qualifications, approved a $10,000 stipend to be paid to each of the three finalists to assist in the costs associated with preparation of their proposed bridge designs.

The evaluation process will be conducted as follows:

- ***Each firm will be given two hours to make their presentations and answer questions from the panel, with at least 30 minutes dedicated to question and answer.***
- ***Panel will use evaluation criteria stated in information below, with each item having equal value to assist in ranking each firm.***
- ***Each member will then individually grade each firm, in a similar manner, giving each item a grade from 1-10, with 10 being best.***

- ***Each member based on the total score given will rank the firms in order of grade 1st, 2nd, or 3rd.***
- ***All panel members will submit their rankings to establish initial order.***
- ***Group will have open discussions about individual concerns and opinions.***
- ***All panel members will review their initial rankings and re-submit for final order.***
- ***Each firm will be given an overall grade based on rank submitted by each member. 1st place will be awarded one point, 2nd place will be awarded 2 points and 3rd place will be awarded 3 points. The firm with the fewest total points will be the competition winner.***

Please note that I have included a copy of each firm's original ***Statement of Qualifications*** submittal.

Thank you, and I look forward to seeing all of you on April 11th. Should you have any questions prior to April 11th, feel free to contact my office at 972-450-2871 and speak with me or the Assistant Director of Public Works, Jim Pierce.

Sincerely,

Michael E. Murphy/Director of Public Works

Arapaho Road Bridge Pre-Competition Meeting
Agenda
February 14, 2002

I. **Welcome and introductions:** ***Ron Whitehead, City Manager***

II. **Directions to Consultant:** ***Mike Murphy, Director of Public Works***

A. **Announce tentative day and time of presentations**

1. **First Presentation 8:00am-10am**
2. **Second Presentation 10:30am-12: 30pm**
3. **Third Presentation 1:30pm-3: 30pm**

B. **No more than two designs**

III. **Grading will be based on the following criteria**

A. **Aesthetics – appearance day and night, should include lighting design plan**
B. **Landscaping**
C. **Acoustics (how will noise affect adjacent buildings)**
D. **Vibrations (how will motion affect adjacent buildings)**
E. **Estimated cost of construction of the bridge design**
F. **Functionality / build ability (parking, pedestrian and bike users, safety, ADA etc.)**
G. **How does the bridge minimize obstruction to adjacent buildings from roadway**
H. **Overall quality and creativity of presentation (vision, team plan / effort)**

Presentation Schedule:

Time (April 11th)	*Firm*	*Conference Centre Location*
7:30am – 8:00am	Committee Members	Board Room
8:00am – 10:00am	URS Griener	Stone Cottage
10:30am – 12:30pm	Freese & Nichols	Board Room
12:30pm – 1:30pm	Lunch	Board Room
1:30pm – 3:30pm	HNTB	Stone Cottage
3:30pm – 5:00pm	Panel Discussion/Selection	Board Room

EXAMPLE SCORE SHEET

1. **Aesthetics – appearance day and night, should include lighting design plan (1-10) __10__ POINTS**

2. **Landscaping (1-10) __7__ POINTS**

3. **Acoustics (how will noise affect adjacent buildings) (1-10) __5__ POINTS**

4. **Vibrations (how will motion impact adjacent buildings) (1-10) __8__ POINTS**

5. **Estimated cost of construction of the bridge design (1-10) __6__ POINTS**

6. **Functionality / build ability (parking, pedestrian and bike users, safety, ADA etc.) (1-10) __4__ POINTS**

7. **How does the bridge minimize obstruction to adjacent buildings from roadway (1-10) __10__ POINTS**

8. **Overall quality and creativity of presentation (vision, team plan / effort) (1-10) __9__ POINTS**

TOTAL SCORE __59__ POINTS

COMMITTEE	1	2	3	4	5	6	7	TOTAL SCORE	
FIRM #1	3	1	3	2	1	3	3	*16*	*#3*
FIRM #2	2	2	2	1	2	1	2	*12*	*#1*
FIRM #3	1	3	1	3	3	2	1	*14*	*#2*

13 M w slave Bridge

F&N Cuts

Overall Original $10.1 M

Scheme A 16.6 M

Scheme B 16.7 M

Cliff Hall
Dave Johnston
Chuck Armstrong AIA
Robt Prouse IALD
Steve Stroh, PE. Struct

NAME OF FIRM URS

SCORE SHEET

1. **Aesthetics – appearance day and night, should include lighting design plan (1-10)_____POINTS**

Noise 66dB 250' away

2. **Landscaping (1-10) _____POINTS**

3. **Acoustics (how will noise affect adjacent buildings) (1-10) _____POINTS**

4. **Vibrations (how will motion impact adjacent buildings) (1-10) _____POINTS**

5. **Estimated cost of construction of the bridge design (1-10) _____POINTS**

Well?

6. **Functionality / build ability (parking, pedestrian and bike users, safety, ADA etc.) (1-10) _____POINTS**

7. **How does the bridge minimize obstruction to adjacent buildings from roadway (1-10) _____POINTS**

8. **Overall quality and creativity of presentation (vision, team plan / effort) (1-10) _____POINTS**

TOTAL SCORE _____POINTS

1500' post tensioned

$5.3m

Strong concept

Open concept – arch – Well lit $3.9m

Stingers?

Parking lot striking – good

Kirk Milliken HOK
Alan Green F&N
John Doer F&N Street
Steve Janowy

NAME OF FIRM Freese & Nichols / HOK

SCORE SHEET

1. **Aesthetics – appearance day and night, should include lighting design plan (1-10)_____POINTS**
2. **Landscaping (1-10) _____POINTS**
3. **Acoustics (how will noise affect adjacent buildings) (1-10) _____POINTS**
4. **Vibrations (how will motion impact adjacent buildings) (1-10) _____POINTS**
5. **Estimated cost of construction of the bridge design (1-10) _____POINTS**
6. **Functionality / build ability (parking, pedestrian and bike users, safety, ADA etc.) (1-10) _____POINTS**
7. **How does the bridge minimize obstruction to adjacent buildings from roadway (1-10) _____POINTS**
8. **Overall quality and creativity of presentation (vision, team plan / effort) (1-10) _____POINTS**

Share Cost to Include Design? Pipeline on N. Side

TOTAL SCORE _____POINTS

Stack the road over the railroad DART COST?
Changing the alignment? – Redesign – Design Cost
Residential Disconnects – so what?
Got rid of the open channel flume concrete
Span over Dart Tracks
Save some ROW cost
Can't really "Poke through" DART
Pollution issue week
Used nametags

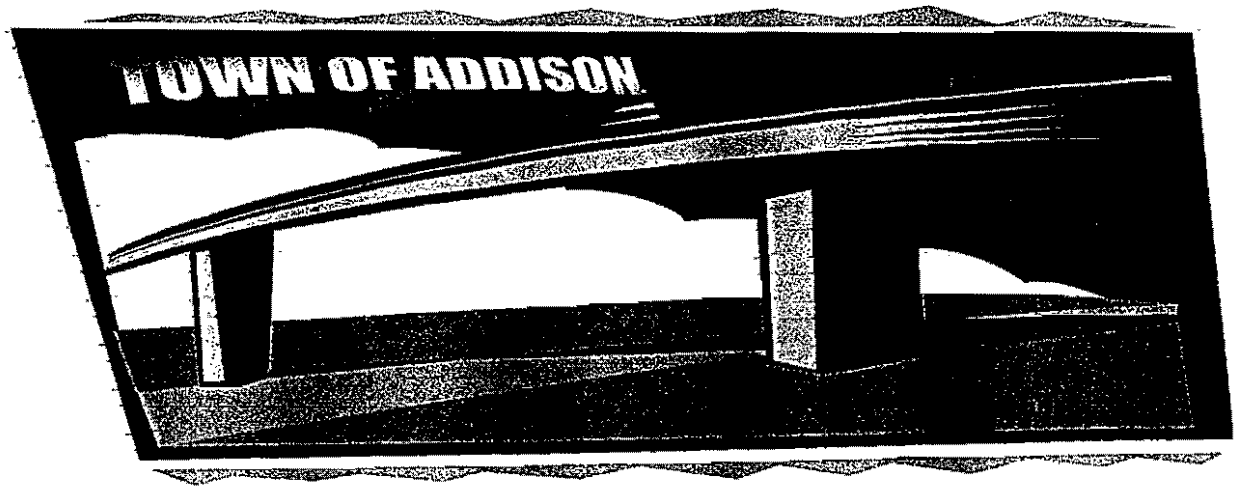
Upper Level Eastbound?

ADDISON CONFERENCE & THEATRE CENTRE

HNTB Arapahoe Bridge 4-11-02

Nicholas Grimshaw & Partners, Architects
Mike Preston – Urban Designer
Viaduct link + Water Tower
Public Information
Anticipated cost $7 to 8 million – Design cost N.I.C.
Traffic Noise Model Stamina 2.0
Little sound from under the bridge
Little vibration influence – more during const –
and not much then
2 yr const time or possibly less.

	Score
URS	6
F&N/HOK	14
HNTB	16



Arapaho Road Bridge Competition Agenda
April 11, 2002

I. **Welcome and introductions:** ***Ron Whitehead, City Manager***

II. **Directions to Committee Members:** ***Mike Murphy, Director of Public Works***

A. **Announce presentation schedule:**

1. **First Presentation URS 8:00am-10am**
2. **Second Presentation Freese & Nichols 10:30am-12: 30pm**
3. **Third Presentation HNTB 1:30pm-3: 30pm**

III. **Grading will be based on the following criteria**

A. **Aesthetics – appearance day and night, should include lighting design plan**
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8:00am – 10:00am	URS Griener	Stone Cottage
10:30am – 12:30pm	Freese & Nichols	Board Room
12:30pm – 1:30pm	Lunch	Board Room
1:30pm – 3:30pm	HNTB	Stone Cottage
3:30pm – 5:00pm	Panel Discussion/Selection	Board Room

Evaluation Guide Lines:

- ***Each firm will be given two hours to make their presentations and answer questions from the panel, with at least 30 minutes dedicated to question and answer.***
- ***Group will have open discussions about individual concerns and opinions.***
- ***Panel will use evaluation criteria stated in information below, with each item having equal value to assist in ranking each firm.***
- ***Each member will then individually grade each firm, in a similar manner, giving each item a grade from 1-10, with 10 being best.***
- ***Each member based on the total score given will rank the firms in order of grade 1^{st}, 2^{nd}, or 3^{rd}.***
- ***All panel members will submit their rankings to establish initial order.***
- ***Each firm will be given an overall grade based on rank submitted by each member. 1^{st} place will be awarded one point, 2^{nd} place will be awarded 2 points and 3^{rd} place will be awarded 3 points. The firm with the fewest total points will be the competition winner.***

NAME OF FIRM_____

SCORE SHEET

1. **Aesthetics – appearance day and night, should include lighting design plan (1-10) _____POINTS**

2. **Landscaping (1-10) _____POINTS**

3. **Acoustics (how will noise affect adjacent buildings) (1-10) _____POINTS**

4. **Vibrations (how will motion impact adjacent buildings) (1-10) _____POINTS**

5. **Estimated cost of construction of the bridge design (1-10) _____POINTS**

6. **Functionality / build ability (parking, pedestrian and bike users, safety, ADA etc.) (1-10) _____POINTS**

7. **How does the bridge minimize obstruction to adjacent buildings from roadway (1-10) _____POINTS**

8. **Overall quality and creativity of presentation (vision, team plan / effort) (1-10) _____POINTS**

TOTAL SCORE _____POINTS

917-406-6950

heavier cables to support the extra weight of floor framing. With a lightweight box girder, a design team that includes OPAC Consulting Engineers, San Francisco, held down the Carquinez Bridge's suspension cables to a diameter of 512 mm. In a first for a U.S. suspension bridge, Spoth says, the design makes specific allowances for the loss of any one of the vertical ropes that support the superstructure from the main cables.

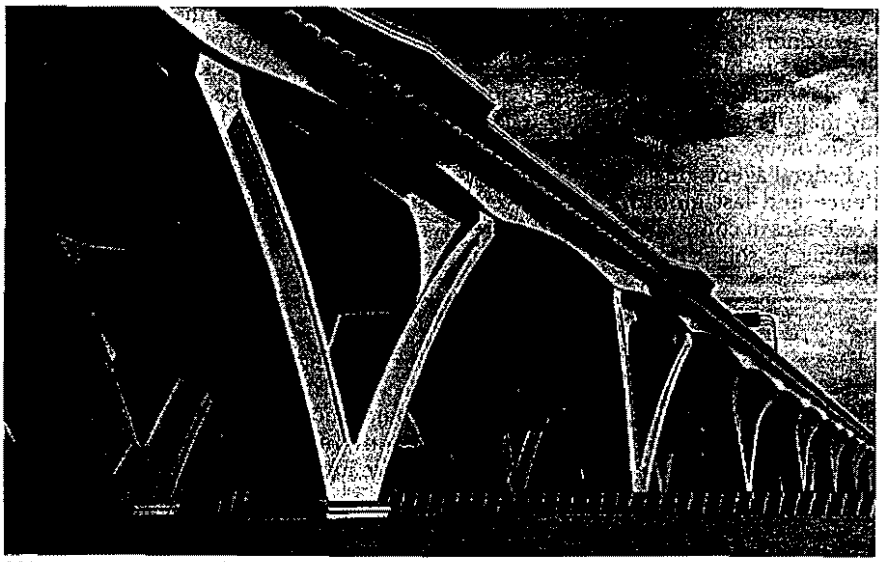
According to Spoth, using large-diameter drilled shaft foundations for the towers instead of concrete caissons is also rarely seen in U.S. bridges. In a quake, massive caissons tend to rock.

The 3-m-dia concrete shafts, with steel shells about 45 m long, are socketed as much as an additional 35 m into rock. Because rock under the south tower lacked the anticipated strength, a $10-million change order and a 355-day extension of the original 1,200-day schedule was needed, says Curtis Weltz, project manager for the FCI-Cleveland Bridge joint venture in Crockett, Calif. The team started work in February 2000 and intends to avoid paying liquidated damages of $50,000 per day after the first 1,000 days, "so all the decisions are schedule driven," Weltz says (ENR 1/31/00 p. 24). □

By David B. Rosenbaum

Bids

LONE WOODROW WILSON BRIDGE BID COMES IN 70% ABOVE ESTIMATE



SQUEEZE Meeting target means bringing in superstructure at $500 million.

MARYLAND HIGHWAY OFFICIALS ARE scrambling to figure a "Plan B" after the sole bid for the main contract for a new Woodrow Wilson bridge near Washington, D.C., came in nearly $360 million, or 72%, above their estimate. If they can't find a way to cut the bid price, Maryland faces a big shortfall for its part of the $2.4-billion overall project.

At the Dec. 13 opening, a team of Kiewit Construction Co., Tidewater Construction Corp. and Clark Construction Group Inc. filed the only bid for two, six-lane bascule spans across the Potomac River and demolition of the existing 40-year-old drawbridge. Based on pre-bid scuttlebutt, State Highway Administrator Parker F. Williams wasn't surprised that he got just one offer. The price was the shocker: $859.95 million, or some $360 million above the state's estimate. "Nobody could have expected...that the bid was going to be this high," he says.

Williams says the agency can "reject all bids and rebid" or can try to negotiate a lower price in a sole-bid scenario.

Meeting the $2.4-billion target hinges on bringing in the superstructure at around $500 million. Funds are tight. The federal government authorized $1.5 billion, Maryland and Virginia each pledged $200 million and will cover "additional costs incurred in each state." Maryland handles the bridge and two interchanges on its side of the Potomac and Virginia has two interchanges on its side of the river.

> Maryland officials are rethinking how to proceed with superstructure.

The bridge also has been the center of a fierce labor fight. Maryland Gov. Parris N. Glendening (D) and construction unions sought to have a project labor agreement on the project. But President Bush and the Associated Builders and Contractors were opposed. On Dec. 7, the Federal Highway Administration rejected the state PLA plan. On Dec. 12, Maryland bowed to FHWA and pulled the PLA on the contract.

Complicating the matter, a federal judge ruled a Bush ban on PLAs on all federally funded work went too far. The Justice Dept. has appealed.

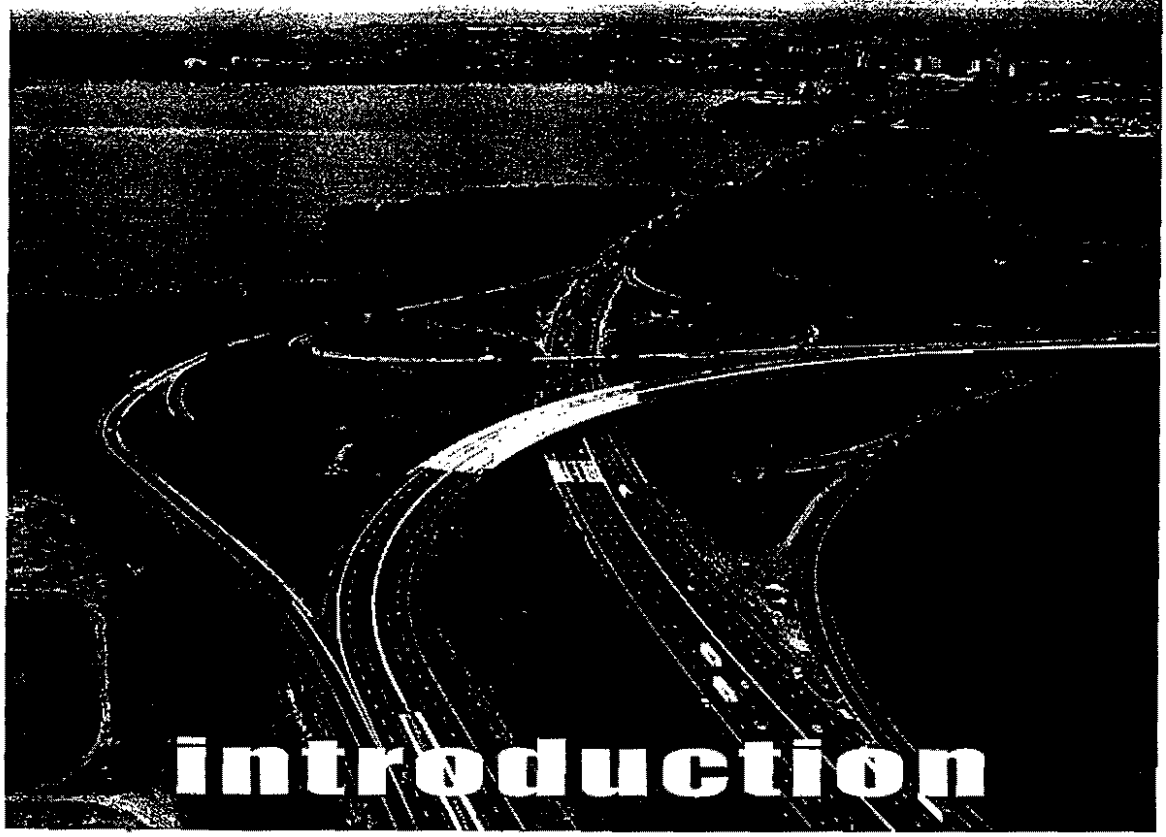
Several contractors bought documents but didn't bid. "Resource-wise, we didn't feel the timing was right for us to tackle a project of that magnitude," says Doug Sickle, Balfour Beatty Construction Inc.'s eastern division manager. In three or four months from now, "we would be in better position to bid, but not now," he says.

Pittsburgh-based Dick Corp. cites more than $200 million in other highway jobs to bid in December. "If the project would have advertised in October for a January or February bid, we might have followed up on it," says Bob Spekis, vice president of Dick's bridge and highway division. He says the Wilson job would have tied up Dick's estimating department for weeks.

But a possible PLA caused Cianbro Corp., Pittsfield, Maine, to hold off. President and CEO Pete Vigue says his open-shop firm doesn't sign PLAs. FHWA's ruling came too close to the opening for Cianbro to set up a team and prepare a bid. Several days "is not enough [for] a project of that size," Vigue says. If the project is rebid without a PLA, "we're very interested," he says. Vigue says the firm is interested in the possibility of dividing the job into smaller contracts.

Maryland hoped to begin the superstructure in early 2002. But "at this point in time, we're not sure as to when we'll be starting," Williams says. □

By Tom Ichniowski



introduction

Significance of the Bridge

The Woodrow Wilson Bridge is of crucial importance to the Washington metropolitan region and the nation. As the southernmost point of the Capital Beltway, the facility plays a major role in the quality of life of hundreds of thousands of local commuters and thousands of businesses. As the midpoint of Interstate 95, the bridge is critically important to the movement of individuals and freight from Maine to Florida.

The Problem

The existing six-lane bridge is vastly overloaded with traffic, causing daily congestion headaches for commuters and shippers alike. What's more, the physical outlook for the facility is bleak, given its rapidly deteriorating condition.

Nearly 200,000 vehicles now drive across the six-lane bridge every day - approaching three times its design capacity of 75,000. The Automobile Association of America has called the Woodrow Wilson Bridge one of the ten worst highway bottlenecks in America. With 300,000 daily vehicles anticipated by 2020, the inadequacy of the existing bridge grows more apparent every day.

In addition, extensive wear and tear has taken a heavy toll on the structure, which was first opened in 1961. Best estimates indicate the bridge will require replacement by about 2004. If a new bridge is not ready by then, either heavy trucks will need to be banned from the facility or a substantial and costly rehabilitation will be required.

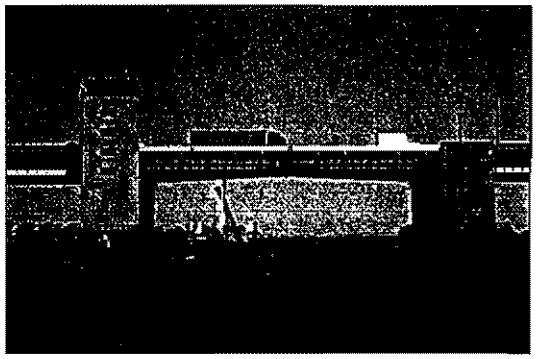
Neither option is acceptable to the region nor to the four agencies responsible for the facility: the Federal Highway Administration, the Maryland State Highway Administration, the Virginia Department of Transportation and the District of Columbia Department of Public Works.

Project History

In 1988, the Federal Highway Administration initiated the Woodrow Wilson Bridge Improvement Study in cooperation with Maryland, Virginia, and the District to identify potential remedies for the congestion problem. A one-year concept competion was held in 1989 to solicit innovative solutions to the complex reconstruction project. This was followed by subsequent environmental studies.

The Woodrow Wilson Bridge Concept Competition was designed to generate innovative, environmentally sensitive concepts and approaches to improving the traffic capacity of the bridge. The competition preceded the Environmental Impact Statement (EIS) process required by the National Environmental Policy Act, and provided a unique opportunity to develop and evaluate preliminary concepts and ideas for consideration in greater detail in the EIS.

Because the function of adjacent interchanges is integral to the function of the bridge, four interchanges were included in the five-mile long Woodrow Wilson Bridge Project for consideration in the EIS. These nearby interchanges include Maryland Route 210, I-295, U.S. Route 1, and Telegraph Road. Additional aspects included various enhancements to adjacent parklands and affected communities.



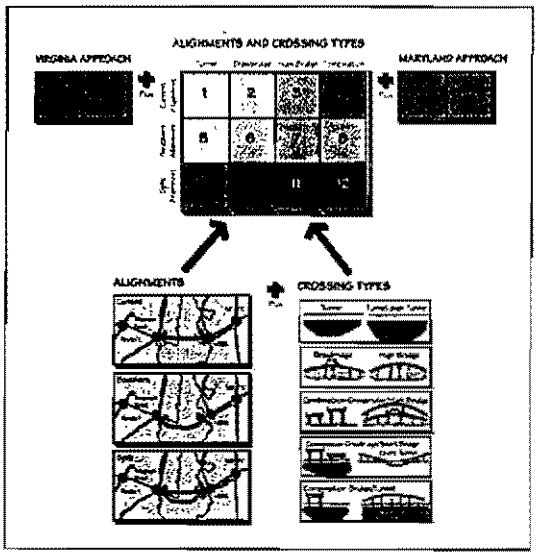
Heavy truck traffic crosses this vital link of I-95.

A Draft EIS was released in August of 1991 for public comment. This step caused the Federal Highway Administration to conclude that the public outreach and consensus building were going to be vital in reaching a final decision. As a result, a multi-jurisdictional Coordination Committee comprised of 14 area transportation and elected officials was formed in 1992 to guide the study. The Committee's mission was "to identify a solution that enhances mobility in the corridor, while assuring that community and environmental concerns were addressed."

As seen in the graphic to the right, candidate alternatives were developed by matching landside approaches with river crossing types and alignment options.

In 1996 the Coordination Committee selected a 12-lane drawbridge alternative located immediately south of the existing bridge as the best possible replacement option. Major improvements to each of the four adjacent interchanges were also selected. It was also decided to remove the existing bridge in its entirety once construction is completed. This decision represented the culmination of more than four years of progressive decision making and analysis.

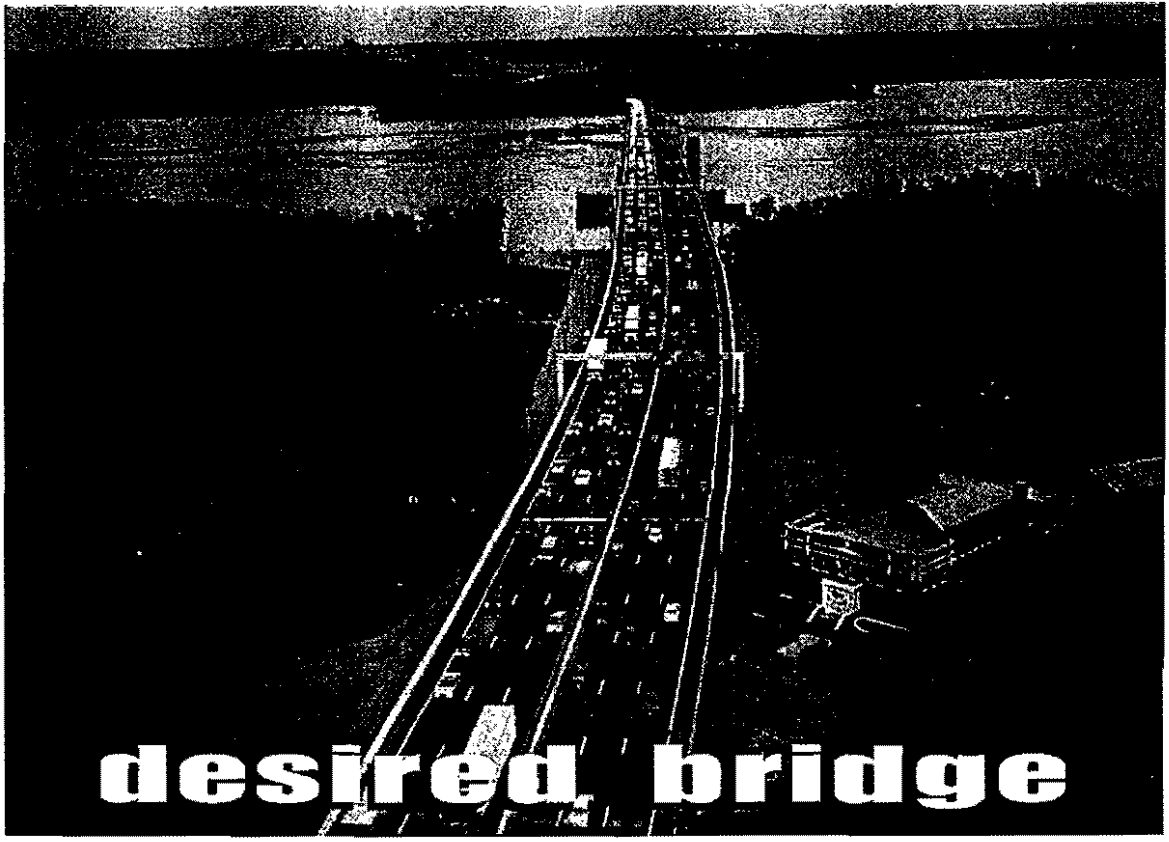
A final EIS was published in September of 1997 and a corresponding Record of Decision and Memorandum of Agreement was signed on November 25, 1997. The project then entered a design phase. One of the first steps in this design phase was to select a General Engineering Consultant.



The candidate alternatives were developed by matching landside approaches with river crossing types and alignment options.

General Engineering Consultant Role

Potomac Crossing Consultants, a joint venture of Parsons Brinckerhoff, URS Greiner Woodward Clyde, and Rummel, Klepper & Kahl, LLP, was selected to assist the sponsoring agencies in the management of final design and construction. This assistance includes management of five section designers during the final design phase and coordination with multiple jurisdictions and agencies. One of the first steps for the General Engineering Consultant was assistance in managing a design competition for the new bridge across the Potomac River.



Competition Intent

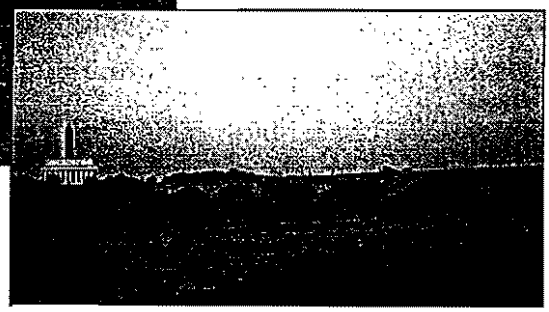
The intent of the design competition was to stimulate the creative abilities of the bridge design community to produce a structure which will be seen as a landmark bridge, sensitively designed to respect its environment, and able to unite the community in support of the project. The entries were expected to combine the best thinking about aesthetics, technology, economy and environmental sensitivity.

Description of Desired Bridge

The following key points are summarized from the Record of Decision issued on November 25, 1997:

- The replacement bridge is to be approximately 6,300 feet long. It will extend from Rosalie Island on the Maryland shore to a point east of Washington Street in Alexandria, Virginia. The replacement bridge is to be located just downstream of the existing bridge.
- The replacement bridge will have a movable span. The navigational channel will be at least 175 feet wide centered along the existing navigational channel. The movable span shall provide a minimum of 70 feet of vertical clearance above mean high water over the entire navigational channel in the closed position and at least 135 feet in the open position. A major challenge in this project will be to incorporate a durable and reliable movable span into the overall structure in a manner which is structurally efficient, aesthetically pleasing, and logical and consistent with the approach spans.
- The replacement bridge will be designed to carry twelve lanes of traffic in an express/ local configuration, plus shoulders and a pedestrian/bikeway facility.
- The appearance and aesthetics of the replacement bridge and the visual impact on the adjacent communities, as well as up-river and down-river are items of major concern.
- The arrangement of the spans across the river, and, in particular, over land on the ends of the bridge are extremely important.
- This project also includes the design of a bridge/deck structure to span over I-95/495 connecting the north and south ends of Rosalie Island in Maryland. This structure will facilitate use of Rosalie Island and Queen Anne's Park as a public recreational area and will serve as a gateway entrance to the State of Maryland. Its design must be both aesthetic and functional. The structure type and detailing must be closely coordinated with the design of the bridge replacement structure to provide a consistent theme and visual appearance.

Key Bridge

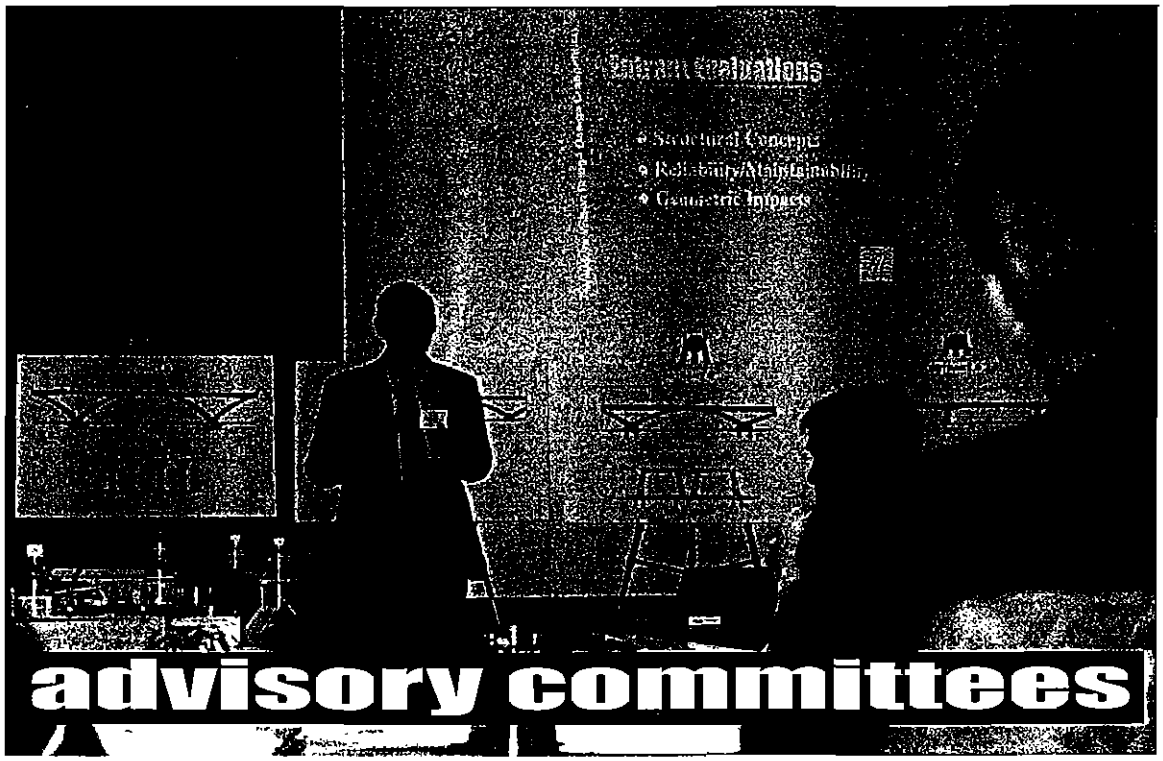


Memorial Bridge

Design Goals from Memorandum of Agreement

The Memorandum of Agreement further stipulated the following design goals related to the bridge:

1. *The Bridge (Potomac River Crossing) shall be a structure designed with high aesthetic values, deriving its form in relation to the monumental core of Washington, D.C., and shall be an asset to the Nation's capital and the surrounding region.*
2. *The concepts for the Bridge shall be based on arches in the tradition of notable Potomac River bridges (e.g., Key Bridge, Memorial Bridge).*
3. *The Bridge design shall employ span lengths which minimize the number of piers occurring in the viewshed of the Alexandria Historic District and other historic properties. Every effort will be made to minimize the footprint of the Project without adversely affecting safety and operations.*
4. *The Bridge design shall also include pier placement which maintains the park use areas in Jones Point Park and Rosalie Island Park, preserves views southward along Royal, Fairfax, and Lee Streets, and avoids terrestrial and underwater archaeological areas to the maximum extent possible.*
5. *The Bridge design should encourage the use of lands under the bridge in Jones Point Park. For example, the structure could approach this goal by introducing and/or reflecting light into the area under the bridge.*
6. *The Bridge design should preserve or enhance views along the Potomac River toward the National Capital and the Alexandria Historic District.*
7. *The design of the Bridge and other Project elements shall take into account the City of Alexandria's Design Guidelines of the Old and Alexandria Historic District and the Parker-Gray District (1993). The Bridge design shall also respect the distinguishing historic characteristics of the Alexandria Historic District, as defined in the report prepared under Section I of this Memorandum of Agreement.*
8. *The Bridge design shall include features appropriate to its status as a memorial to President Woodrow Wilson.*
9. *All practicable measures shall be taken to minimize the construction period of the Project.*
10. *The design of the Bridge and other Project elements shall take into account the historic plan for the Mount Vernon Memorial Highway, the National Park Service General Management Plan for the facility, the agreement between the National Park Service and the City of Alexandria for the management of Jones Point Park and resources therein by the City, the agreement with the Daughters of the American Revolution for the management of Jones Point Lighthouse, and effects on archaeological resources.*



Purpose

For seven concentrated weeks, starting in September 1998, the concepts were considered by four advisory committees. It was critical that the advisory committees not rank the entries, but instead focus on providing a list of advantages and disadvantages to the Selection Panel. Through a consensus-building process, the Advisory Committee members prepared concise reports that were presented to the Selection Panel at the design competition retreat in November 1998. These efforts significantly streamlined the decision-making process of the Selection Panel.

The Citizen Advisory Committee

The Citizen Advisory Committee members concentrated on the aesthetic design goals as described in the Final Environmental Impact Statement and Record of Decision, the placement of the design in the context of the capital region, and the relationship of the bridge to the scale of the surrounding community.

Citizen Advisory Committee Presentation

Members included Mr. W. Kent Cooper, Architect; Ms. Karen Gourdine, Environmental Engineer; Mr. Bob Grow, Planner; Mr. Ray Lewis, Architect/Planner; Mr. Mike Little, CEO, Human Resources Firm; Mr. Lee Schoenecker, Planner; and Mr. Charles Trozzo, Economist. The following criteria were used to evaluate each entrant:

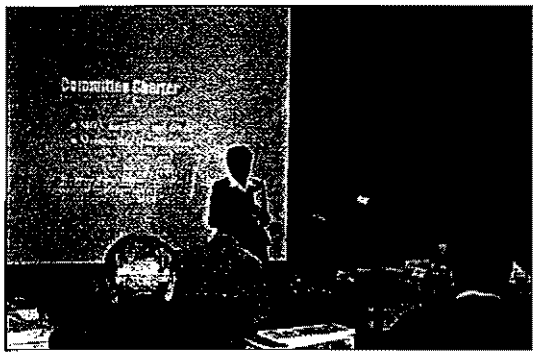
- Aesthetic Quality
- Virginia Land Use Impact
- Maryland Land Use Impact
- Visual Impact
- Control Tower Placement
- Navigation Channel View
- Off-Bridge Aesthetic View
- Pedestrian/Bicycle/User Perspective.

The Historic Advisory Committee

The Historic Advisory Committee members evaluated each entry for their impact on cultural and historic resources in the surrounding communities, including the Old Town Alexandria Historic District.

Their membership included Ms. Mary Ann Naber, Advisory Council on Historic Preservation; Ms. Anne Bruder, Maryland

Historical Trust; Mr. David Dutton, Virginia Department of Historic Resources; Mr. Jeff Kneodler, National Park Service; Mr. Steve Calcott, DC State Historic Preservation Office; Mr. Robert Martin, Prince George's County Executive's Office; Ms. Marilynn Lewis, Maryland-National Capital Park and Planning Commission; and Mr. Peter Smith, City of Alexandria Department of Planning and Zoning. This committee focused on the following items in their evaluation of the entrants:



Historic Advisory Committee Presentation

- Aesthetic Value
- Reflects the Arch Tradition
- Minimizes Piers
- Encourages Park Usage
- Preserves Streetscape Views
- Preserves or Enhances Views of Alexandria and the Capital
- Serves as a Memorial to President Wilson.

The Technical Advisory Committee

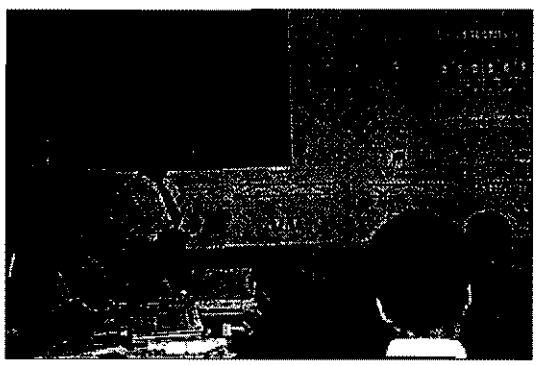
The Technical Advisory Committee examined the technical merit and feasibility of each entry and evaluated the entries for conformance to the design criteria and other technical elements established for the project. They were charged with reviewing the size of major structural elements, including foundations, and evaluating the proposed movable span operation. They also evaluated the long term inspectability and maintainability of each entry.

The members included Mr. Glenn Vaughan, PE, Maryland State Highway Administration; Mr. Fawaz Kandi Saraf, PE, Virginia Department of Transportation; Mr. Claude Napier, PE, Federal Highway Administration; Mr. Thomas D. Jenkins, PE, URS Greiner Woodward Clyde; Mr. James M. Phillips, III, PE, URS Greiner Woodward Clyde; Mr. Stanley Gordon, PE, Independent Consultant; and Mr. Michael J. Abrahams, PE, Parsons Brinckerhoff, Quade & Douglas. Specifically, their major evaluation criteria included:

- Structural Concepts
- Reliability/ Maintainability
- Geometric Impacts

The Constructibility Advisory Committee

The Constructibility Advisory Committee reviewed the proposed construction methods, procedures, and costs of each entry, including the proposed construction sequencing. They also reviewed the cost estimates prepared by the entrants for completeness, accuracy, consistency, and conformance to established project budget.


Constructibility Advisory Committee Presentation

This group included Mr. William H. Schwarz, Maryland State Highway Administration; Mr. William McDowall, PE, Virginia Department of Transportation; Mr. Joseph Policelli, Federal Highway Administration; Mr. Thomas G. Lovett, PE, URS Greiner Woodward Clyde; Mr. John H. Macrae, PE, Parsons Brinckerhoff, Quade & Douglas; Mr. J. Paul Silvestri, Jr., The National Constructors Group; and Mr. Bradford R. Hollingsworth, Morrison Knudsen. The points used to rate each entry included:

- Foundation Construction
- Structure Erection
- Details and Tolerances
- Deck Replacement
- Bascule Span
- Schedule
- Cost

the selection panel

From top left: Ms. Fern Piret, PhD; Mr. Alan M. Hantman, AIA; Ms. Betty Hager Francis; Mr. Nelson J. Castellanos; Mr. L. Donald Cooney, PE; Mr. Earle S. "Jock" Freedman, PE; Mr. Frank D. Sears, PE; Mr. Malcolm T. Kerley, PE; Mr. John Parsons, FSALA; Mr. Harry G. Robinson, III, FAIA, AICP; Mr. Kerry J. Donley; The Honorable Harry R. Hughes; Mr. Reginald W. Griffith; Dr. David P. Billington, PE
Not Pictured: Anthony H. Griffin

Purpose

The competition culminated in November 1998 by convening of an eminent selection panel. Chaired by former Maryland Governor Harry R. Hughes, the 15-member panel included leading public officials; distinguished technical, aesthetic, and urban planning experts; and top bridge engineers from federal and state transportation departments.

The Members

The members and their backgrounds include:

The Honorable Harry R. Hughes served as Governor of the State of Maryland from 1979 to 1987. Prior to being elected Governor, he served as a Maryland State Senator for 12 years. He also served as the Secretary of the Maryland Department of Transportation, the first in the State of Maryland, and held this position for six years.

Mr. Frank D. Sears, PE served as the Chief of the Review and Analysis Branch of the Bridge Division of FHWA from 1969 to 1987. He has also assisted in both the Woodrow Wilson Concept Competition and the Severn River Bridge Design Competition.

Mr. Malcolm T. Kerley, PE is the State Structure and Bridge Engineer for the Virginia Department of Transportation (VDOT). A registered Professional Engineer in Virginia, Mr. Kerley has been associated with the Commonwealth's Structure and Bridge Program since 1971.

Mr. Nelson J. Castellanos is currently serving as the Division Administrator for the FHWA Maryland Division in Baltimore, Maryland.

Mr. Earle S. "Jock" Freedman, PE is currently serving as the Deputy Chief Engineer of the Office of Bridge Development for the Maryland State Highway Administration (SHA). Mr. Freedman joined the SHA in 1950 and has been head of the bridge department since 1977.

Mr. Harry G. Robinson, III, FAIA, AICP is a presidentially appointed Commissioner and elected Vice Chairman of the United States Commission of Fine Arts, which is the authority that approves federal design activities in the Nation's Capital. In addition, he is Vice President for University Administration at Howard University where he also served as the Dean of

Urban Design for the School of Architecture and Planning.

Mr. Alan M. Hantman, AIA is the tenth Architect of the Capitol, appointed by President Clinton on January 6, 1997 and confirmed by the Senate on January 30, 1997. As Architect of the Capitol, Mr. Hantman is responsible for maintenance of the Capitol and is charged with upkeep of the Congressional office buildings and many other federal facilities in DC.

Mr. Reginald W. Griffith is the Executive Director of the National Capital Planning Commission and has served in this role since 1979. As Executive Director, Mr. Griffith manages the Commission's day-to-day operations, formulating and recommending policies and programs, and implementing those policies approved by the Commission.

Mr. John Parsons, FSALA has served as a Landscape Architect with the National Park Service for 30 years. As Associate Superintendent for Professional Services, he manages the planning, development, land acquisition, legislation, congressional liaison, and cultural and natural resource programs for the 60,000 acre Park System in and around Washington, DC.

Chairman Hughes and Mayor Donley at elected official briefing

Dr. David P. Billington, PE, Honorary Member, ASCE, is the Gordon Y. S. Wu Professor of Engineering at Princeton University and has served on the Princeton faculty since 1960 where he teaches both graduate and undergraduate courses in structural engineering and is well noted for his writing on bridge design including aesthetics.

Anthony H. Griffin is the Deputy County Executive for Fairfax County, Virginia, and has served in this position since August 1997. He was the Acting County Executive from October 1996 to August 1997 and also served as Deputy County Executive for Planning and Development for Fairfax County from September 1989 to October 1996.

Ms. Betty Hager Francis, JD, was appointed Director of the Prince George's County Department of Public Works and Transportation in March 1995 by County Executive Wayne Curry. Ms. Francis has served as the Director of Public Works in Washington, D.C. and as an Associate Commissioner of the Massachusetts Highway Department.

Ms. Fern Piret, Ph.D. is currently Director of the Prince George's County Planning Department, Maryland-National Capital Park and Planning Commission. The Department's mission includes Countywide and community planning, revitalization, development review and research.

Mr. Kerry J. Donley was elected Mayor of the City of Alexandria in February 1996. He also has served the City as Vice Mayor from 1994 to 1996. Mr. Donley was elected to the Alexandria City Council in 1988 after many years of service in community activities such as homelessness, substance abuse, and mental health.

Mr. L. Donald Cooney, PE is a Structural Engineer and Project Manager with the District of Columbia Department of Public Works (DCDPW). He has 32 years of experience, all with the Design and Engineering division of DCDPW.

Charter

The Selection Panel's charter was to choose the winning design. This was accomplished through careful evaluation of the seven entries, weighing the advantages and disadvantages developed and presented by the advisory committees, through the panel's own review of the submitted materials, and through mutual discussion and deliberation.

A list of notable and attractive features, as well as any negative features or attributes was developed to document the Panel's evaluation of each entry. The panel was also able to recommend refinements to the winning design for consideration by the Sponsoring Agencies.

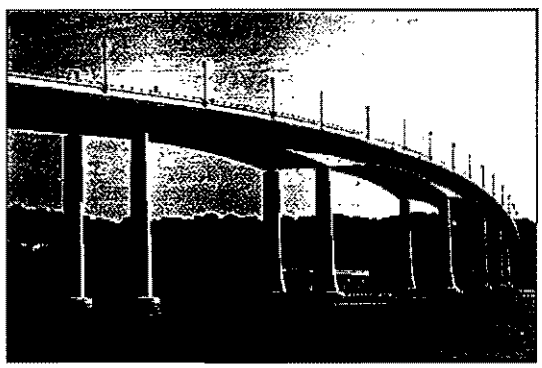
the competition

Why a Design Competition

The Woodrow Wilson Bridge is a symbol of local, regional, national and even international pride. The bridge's function and appearance are important not only to the local community but also for the impression they impart on visitors from across the nation and around the world. To produce a fittingly world-class design, the sponsoring agencies embarked on a Bridge Design Competition.

Previous Experience (Severn River Bridge Design Competition)

This was not the first time such a competition had been conducted. Because of the historic and scenic quality of the Severn River site near the U.S. Naval Academy, the Maryland State Highway Administration and the Governor's Office on Art and Culture cosponsored an international competition for the design of a new bridge to replace the existing, deteriorating Severn River Bridge. This competition stressed technical, economic and aesthetic considerations. The successful final design received numerous awards and encouraged the Woodrow Wilson Design Competition.



Winning Entry, Severn River Bridge Design Competition

Mission: A Landmark Structure

In cooperation with the other federal and state agencies, the Maryland State Highway Administration launched a novel Bridge Design Competition for the new Woodrow Wilson Bridge to spur the creation of a landmark bridge. The challenge to the engineering world: craft a bridge design that will be used and celebrated for generations to come.

Design Competition Activities

The year-long Bridge Design Competition was especially notable for its breadth and depth of effort. To ensure that the design submittals were vetted from every key perspective, a diverse range of reviews were brought into the process.

The Competition kicked off in January 1998 with a call for Expressions of Interest from leading bridge design firms. Seven teams responded. The field of competitors was then narrowed to four finalists, based on evaluations of qualifications. During the summer of 1998, the four finalist teams applied top-flight expertise

and creativity in producing a total of seven concepts. Impartial evaluation was ensured by identifying the design concepts only by designated code letters. The Design Competition activities kicked off in November 1998 in Alexandria.

The Design Competition activities were organized around the objective of making the jury members as relaxed and comfortable as possible so that they could concentrate their full efforts on the task at hand. The activities commenced on Sunday, November 15, 1998 with an informal Welcome Reception where the jury members could view the exhibits of the seven entrants for the first time, as well as meet each other.

Day 1, Monday, November 16, 1998: The morning began with a Breakfast Orientation and welcome from the Maryland Department of Transportation Project Manager, Robert Healy. The group was then taken on a two-hour bus tour of the project area, including many key Maryland and Virginia sites. After lunch and an opportunity for additional review of the exhibits, Technical and Citizen Advisory Committees each presented findings of their studies. That evening, the group enjoyed dinner at the historic Gadsby's Tavern in Old Town.

Selection panel on bus tour viewing renderings in comparison to the existing bridge

Day 2, Tuesday, November 17, 1998: The facilitators started off with a preview of the day's activities which began with the Constructibility and Historic Advisory Committees' presentations. After lunch, the jury members began deliberations and voted to reduce the number of finalists to two, Entrants A and B. In the early afternoon, the group boarded the Cherry Blossom River Boat for a view of the project from the river. During further deliberations, the committee voted unanimously to select Entry B as the winning entry.

Day 3, Wednesday, November 18, 1998: With the final entry selected by the jury, an elected officials' briefing was held to announce the winner of the Design Competition. Former Governor Harry Hughes presented the findings of the jury and answered questions from the audience. Following the briefing, a press conference was held and the images of the winning entry were unveiled to the public.

Design Competition Chronology

- **January 1998:** Competition kicks off with requests for proposals. Initially, seven engineering teams answer the call.
- **April 1998:** After a review of qualifications, four finalists are selected, each permitted to submit up to two concepts.
- **August 1998:** Finalist design teams submit a total of seven design concepts. To ensure anonymity and impartial evaluation, the submittals are assigned code letters.
- **September to November 1998:** Four advisory panels – Citizen, Historic, Technical, and Constructibility – consider the positive and negative points of the submitted designs from their respective vantage points.
- **November 1998:** A distinguished Selection Panel with representatives from surrounding jurisdictions, bridge engineers, and design/aesthetic experts convene to consider the concepts and hear from the committees.
- **November 18, 1998:** The jury unanimously selects Entrant B by Parsons Transportation Group (formerly the joint venture team of Steinman/DeLeuw) of Baltimore, Maryland. The design is publicly unveiled and embraced by the region.

The committee observed a bridge opening during the bus tour

winning entry b

Parsons Transportation Group (formerly Steinman/DeLeuw)

The Parsons Transportation Group's design is a graceful, seamless concept. The box-girder bridge is characterized by V-shaped piers that offer the look of arches but enable a more open appearance with smaller foundations than would be conveyed by a true arched design.

The draw span is particularly well conceived in that in the closed position it appears almost identical to the non-moving spans. The machinery of the bascule is well concealed within the structure, creating an attractive, open appearance.

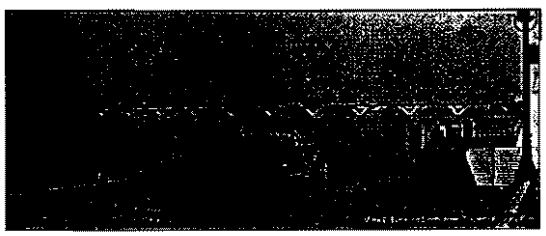
The number and placement of piers played a key role in the decision. The chosen design features long spans requiring only 18 piers, as contrasted with the 57 piers that support the existing bridge. Further, as the bridge takes off to its apex just off the Virginia shore, it passes through Jones Point Park in Alexandria; the design's light, airy quality in this sensitive area was also judged very desirable.

Since its unveiling, the design has received positive reviews. Jury member Harry Robinson of the Commission on Fine Arts poetically noted that a V-shaped pier appeared like Neptune's hand reaching from the water to support the deck of the bridge. A citizen at an open house commented that the graceful, swooping lines of the repeated "faux arches" had the appearance of several seagulls taking flight from the river.

THE WINNING TEAM

Parsons Transportation Group
(formerly Steinman DeLeuw)

Rosales Gottemoeller & Associates
Dr. Christian Menn
Rotterdam Bridge Consult
Moeser Rutledge Consulting Engineers
Finley Lefiary Engineers, Inc.
Gannett Fleming, Inc.
GEOTECH Engineers, Inc.
Athavale, Lysted & Associates
Sidhu Associates, Inc.
Mahan Rykiel Associates, Inc.
VanDermyn & Lynch, Inc.



View from Torpedo Factory, Alexandria, Virginia

Jurors' Comments

"Piers appear to spring from the water, like Neptune's hand holding the bridge."

"The tower location for Entrant B is too far from the movable span and intrudes into Jones Point Park"

"Steel represents a 'maritime' metaphor."

"Visual span is long while the structural span is shorter."

"Thin superstructure appearance."

"Number of piers reduced from 57 to 18."

"Minimum risk to schedule and cost."

"It would be better to have a more pure V support and to expose the top horizontal ties."

"Best opportunity to be completed on time and within budget."

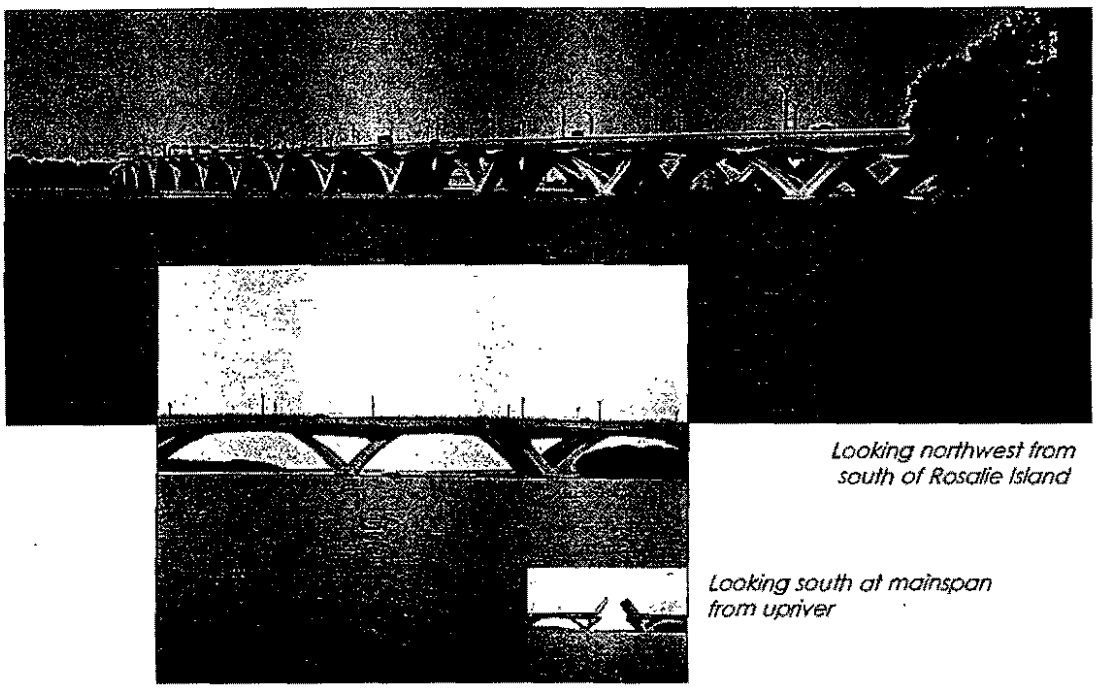
"Structure is multiple transverse layers."

"Structure is finely detailed which provides visual interest."

"Efficient movable span operations."

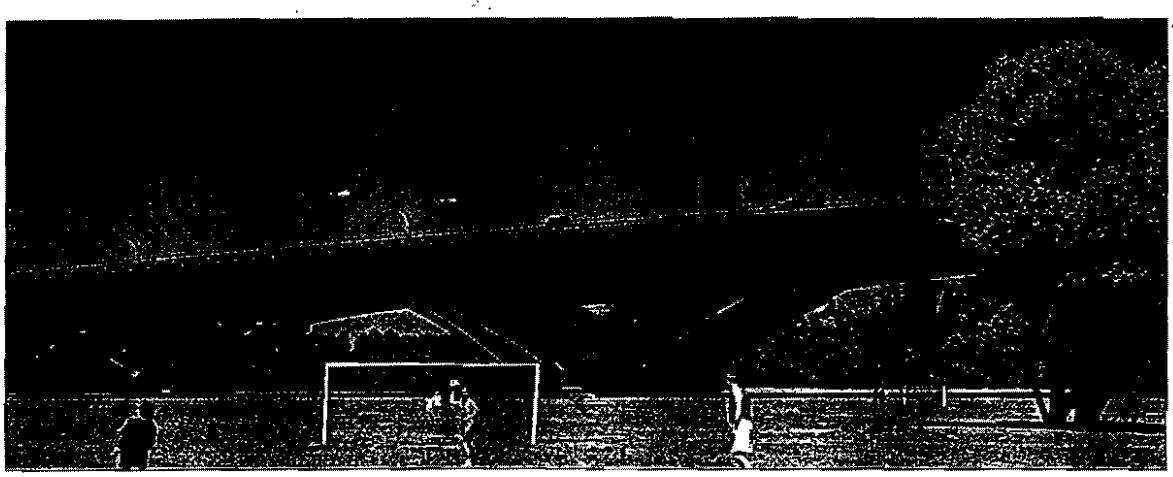
"Structure represents a relatively new, novel idea: a contemporary interpretation of the arch concept."

"Respects tradition of Memorial and Key bridges but in a new, contemporary way for a long, over-water viaduct."

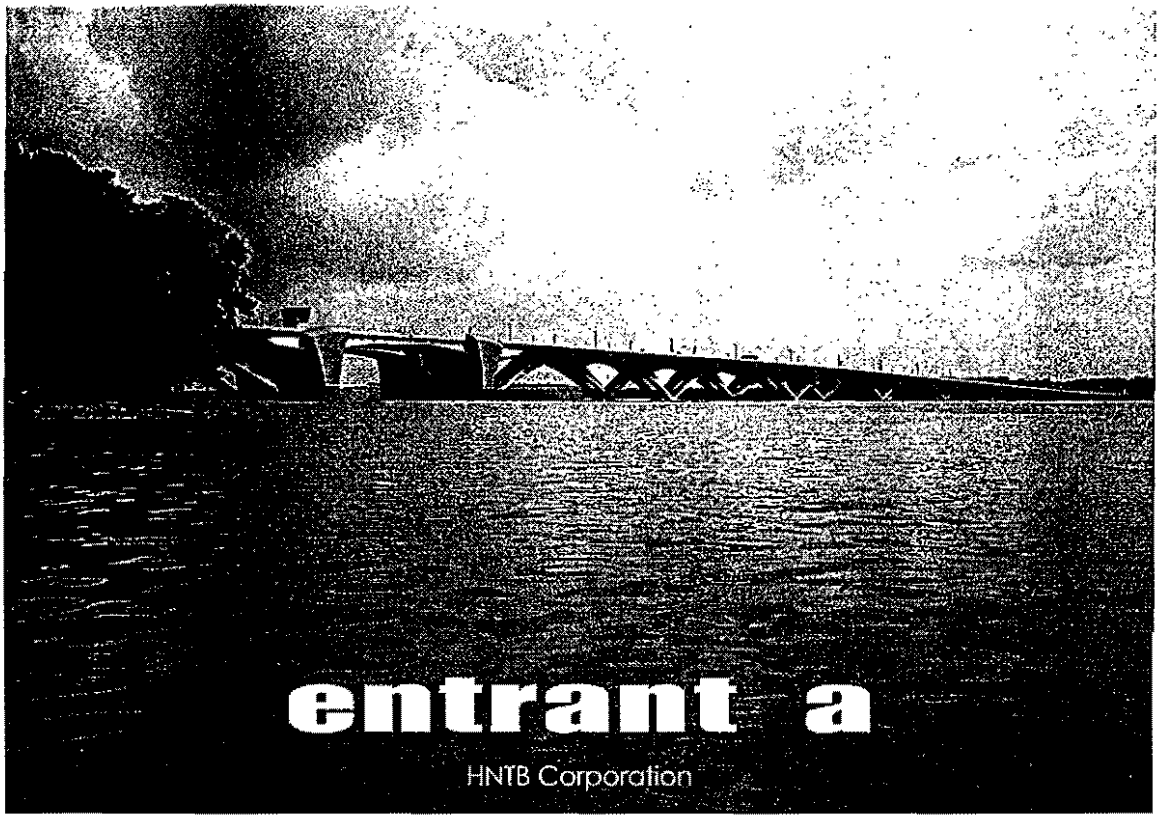


Looking northwest from south of Rosalie Island

Looking south at mainspan from upriver



View from soccer fields, Alexandria, Virginia



This entry was very highly thought of by the jury and was considered by many to be a close second. Entrant A's three-hinged arches echoed the elegance and simplicity of upriver Memorial and Key bridges and complemented Washington, DC's monumental core. A high priority was transparency through the structure, both between and through the piers, providing excellent views to Washington and to both Virginia and Maryland shores. A sense of openness was also achieved by long spans afforded by a total of only 16 piers, the second fewest number of piers in the competition. A prominent walkway/bikepath located between the twin spans rose up from the roadway to join the deckovers on the Maryland and Virginia sides.

However, the graceful flow of repeating arches was interrupted at the draw span by rather substantial bascule towers. While possibly affording unsurpassed views both north and south of the bridges, the elevated walkway was deemed highly undesirable by the advisory committees and the jury. Contrary to the desire for the narrowest bridge possible, Entrant A added 44 feet to the selected alternative by further separating the eastbound and westbound bridges.

Jurors' Comments

"This entrant represents a new arch form for the United States; it was pionecred by Maillart in Switzerland."

"Entrant A ... provided an elevated walkway ten feet above the roadway level, located within a 60-foot opening between the bridges, supported on a truss system, which does not appear to be a desirable situation for pedestrians and cyclists."

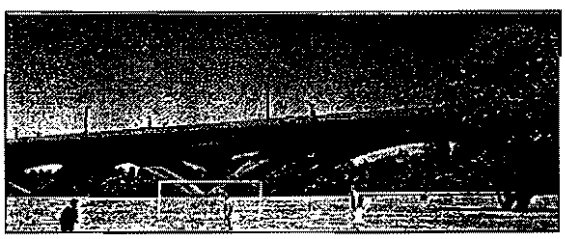
"Entrant A's movable span is a sound design with tower well placed and well designed."

"The tower location breaks up the arch design."

"The elevated trusswork of Entrant A's pedestrian way seems out of character as it raises high above the bridge on the Maryland side."

"Entrant A has few piers in the water and few piers in Jones Point park."

"Entrant A is strong, both as a monument and aesthetically."



entrant c

Figg Engineering Group/Johnson, Mirmiran & Thompson

Entrant C's graceful cadence of recurring arches offered a sense of flow and motion that was interrupted only partially at the bascule span. A distinctive aspect of Entrant C was its slender supporting arches that curved outward from narrower supporting thrust blocks to the wider deck above, creating a smaller "touchdown" impact at the foundations. However, Entrant C's high number of piers controverted its sense of openness, both for viewsheds of the river through the bridge and as it ascended through Jones Point Park in Alexandria. With 26 piers, Entrant C possessed a high number of piers relative to the other submissions, though fewer than half the current bridge's 57 piers. In addition, given poor soil conditions in the river, the higher number of piers, and the thrust from their arch form likely would have presented additional foundation challenges and more environmental impact.

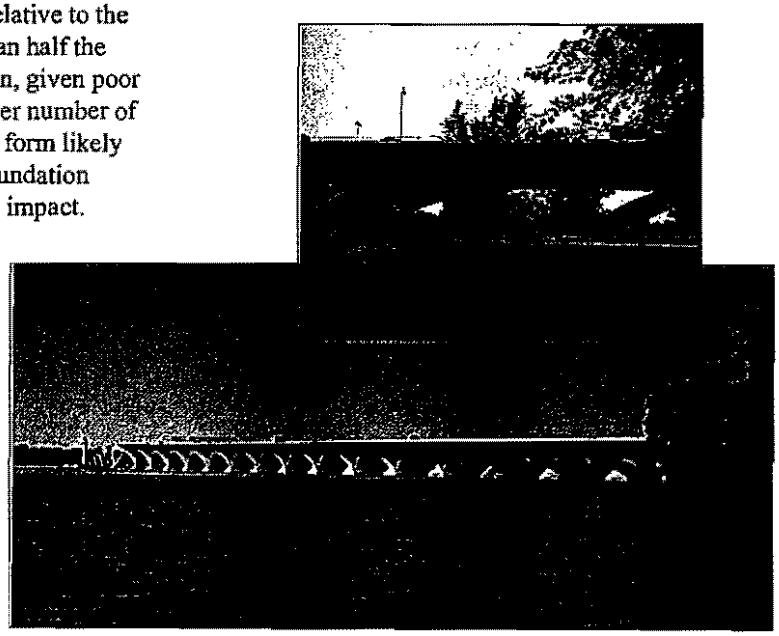
Jurors' Comments

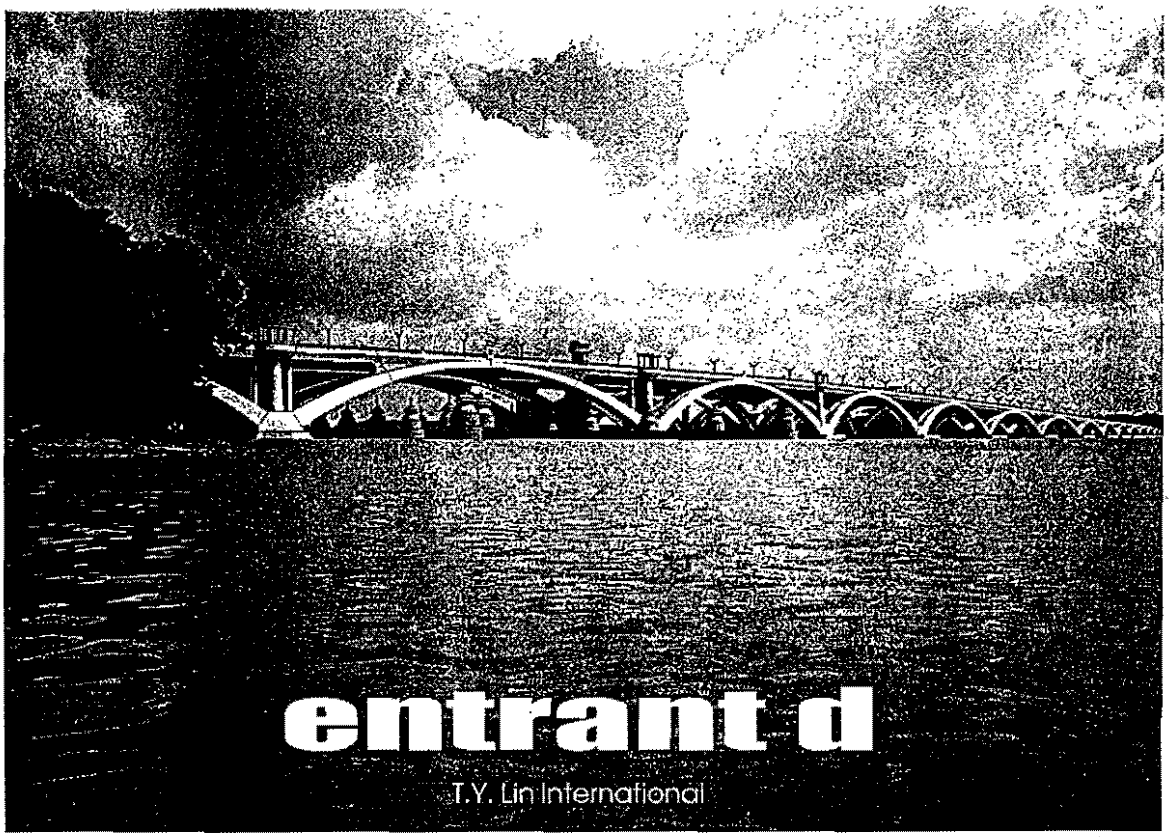
"The outward slope of the arches visually accentuates the arch form of Entrant C."

"The control tower design of Entrant C mimics the Jones Point Lighthouse giving a false sense of place."

"Entrant C's movable span is partially integrated into the arch form."

"False structure; arches are not needed structurally."





With regard to arches, Entrant D, took the opposite approach to Entrant C, opting to flare out the arches at the base rather than at the deck. This treatment emphasized the underlying arch shape by making the substructure very prominent relative to the superstructure. The unusual bascule span was smoothly integrated with the adjacent spans, creating a clean and graceful appearance. Compared with the other designs, Entrant D had a high number of piers – 22, which detracted from its open appearance. Clearly the most ornately embellished design, Entrant D was considered overly adorned by some jury members. Entrant D expanded the width of the project by 54 feet above the selected alternative, the most of any submission. The entrant also proposed shifting the alignment slightly down river. The overall length of the movable span in the open position – 850 feet – seemed somewhat excessive to the jury.

Jurors' Comments

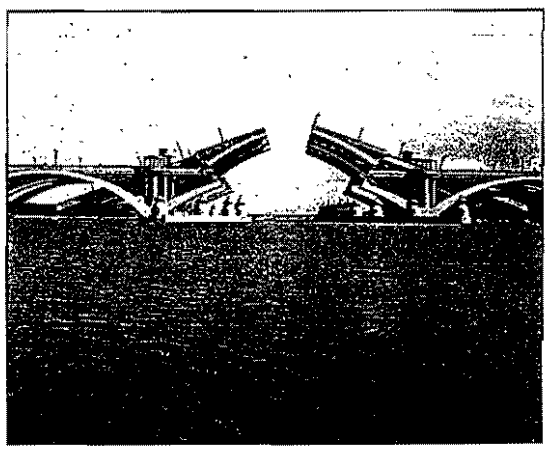
"The bascule span was smoothly integrated with the adjacent spans, creating a clean and graceful appearance."

"Entrant D's arches slope inward as they rise, attractively catching light on their exterior faces."

"The extensive decoration seems to be extraneous with Entrant D's design."

"The unusual movable span design, partially integrated into the arch form, will be difficult to build."

"The overall length of the movable span in the open position of Entrant D appears to be somewhat excessive."



entrant q

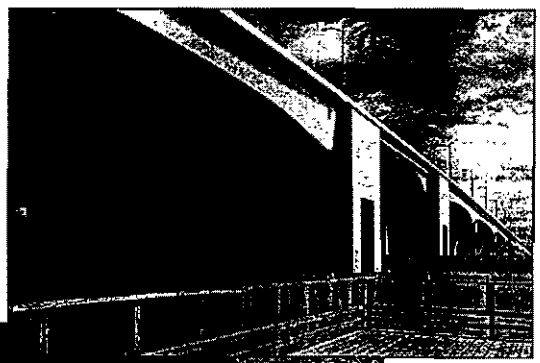
Figg Engineering Group/Johnson, Mirmiran & Thompson

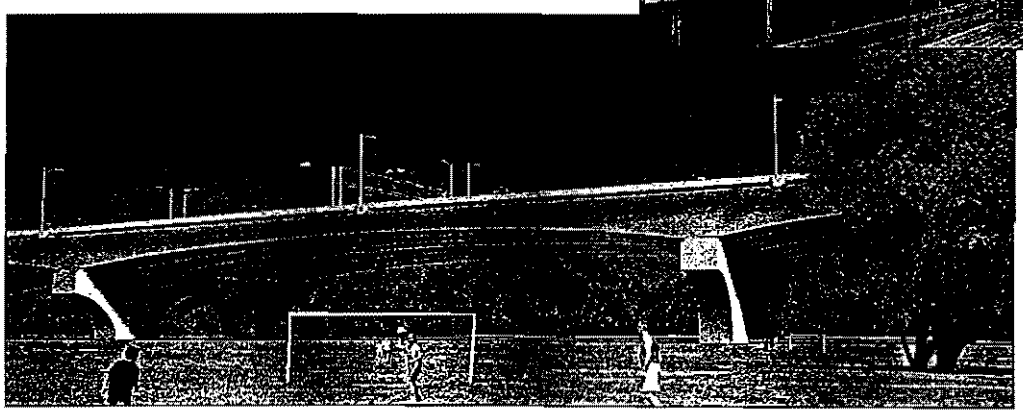
Viewed through the prism of the design goals, the approach of Entrant Q was somewhat controversial in its conventionality. The functional, economical form – box girders supported by hammerhead piers – is a widely used, successful technique. While a measure of the aesthetic appeal of arches is suggested through slightly haunched box girders, Entrant Q was at its essence a more traditional, vertically oriented structure. By eliminating the width of arches, the hammerhead piers offered minimal visual obstruction, creating an uncluttered appearance under the deck. Wide pier placement was achieved by only 18 piers. Entrant Q suggested moving the alignment 20 feet further to the south, potentially causing additional environmental impacts.

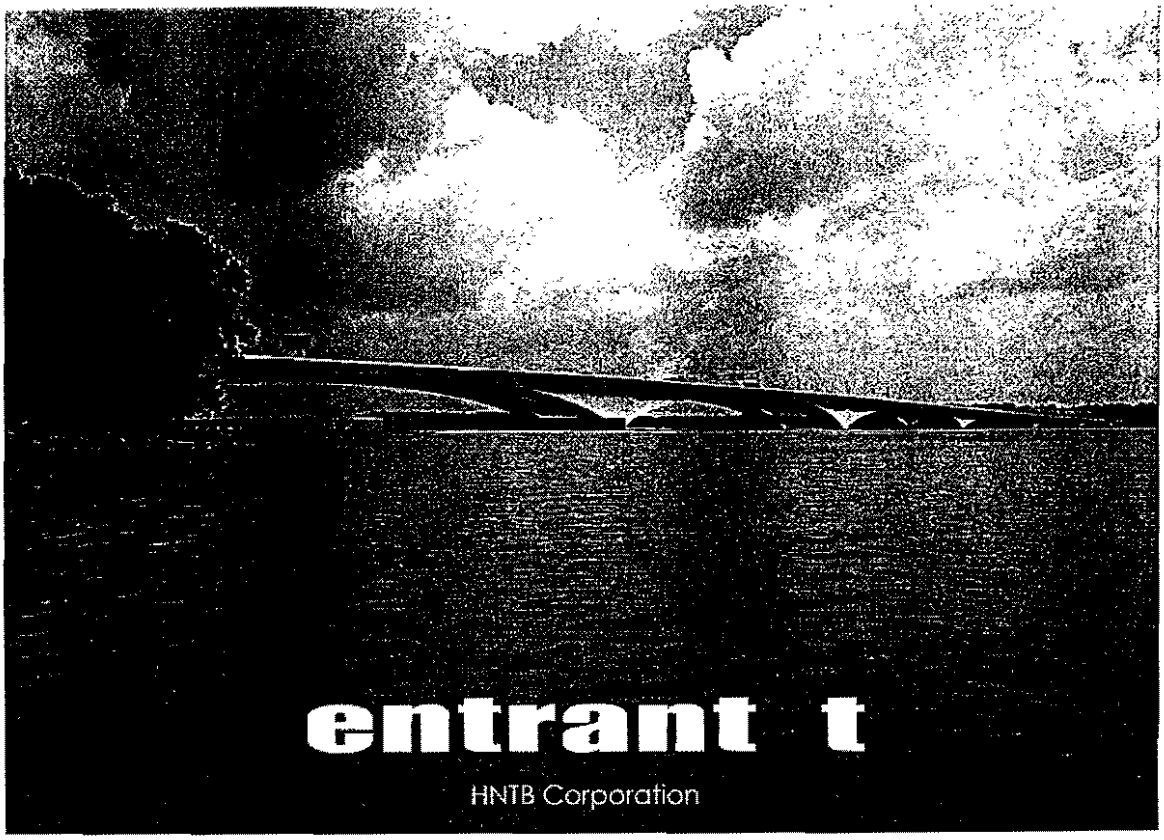
Juror's Comments

"This conventional design is the most straightforward for design and construction, but its aesthetic merit is not consistent with the requirements for this project."

"It is an example of an efficient and economical design with only a minor sense of elegance."







entrant t

HNTB Corporation

Entrant T focused more closely than the other designs in echoing the classic lines of the Memorial Bridge, widely regarded as the Washington's most attractive river crossing. Entrant T was also notable for its extremely long span length, offering very long open space underneath the strueture. With only ten piers, Entrant T had the fewest number of piers in the competition. Relative to the other designs, Entrant T's piers were also the most substantial in dimension. Entrant T's walkway/bikepath prominently ascended from highway level to join the deckover at the Virginia and Maryland shores. Entrant T also suggested moving the alignment to the north, closer to Old Town Alexandria and St. Mary's Cemetery. A distinctive feature was the location of the bascule span and lift machinery in the middle of an 880-foot-long span.

However, while the piers were few in number – 10 – they were massive in dimension, which detracted from the open quality afforded by the long spans. In addition, the large pier mass as it passed through Jones Point Park appeared to several jurors and advisory committee members to be out of scale and character with the surrounding area. In addition, Entrant T featured the same unconventional bikepath/ walkway as Entrant A, which was similarly panned by jurors. While sweepingly graceful, the bascule span was also unconventional in that it would be located in the middle of a would-be world-record span of 880 feet, a feature that gave pause to a number of evaluators.

Jurors' Comments

"...Has great visual appeal over water when seen from a distance."

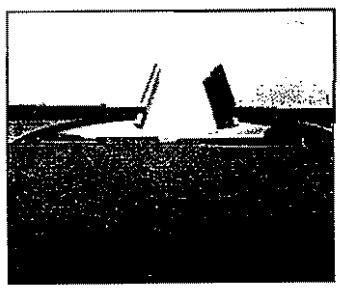
"Such long spans have appeared in a few bridges but always on relatively high column supports where they give a striking and sometimes elegant appearance."

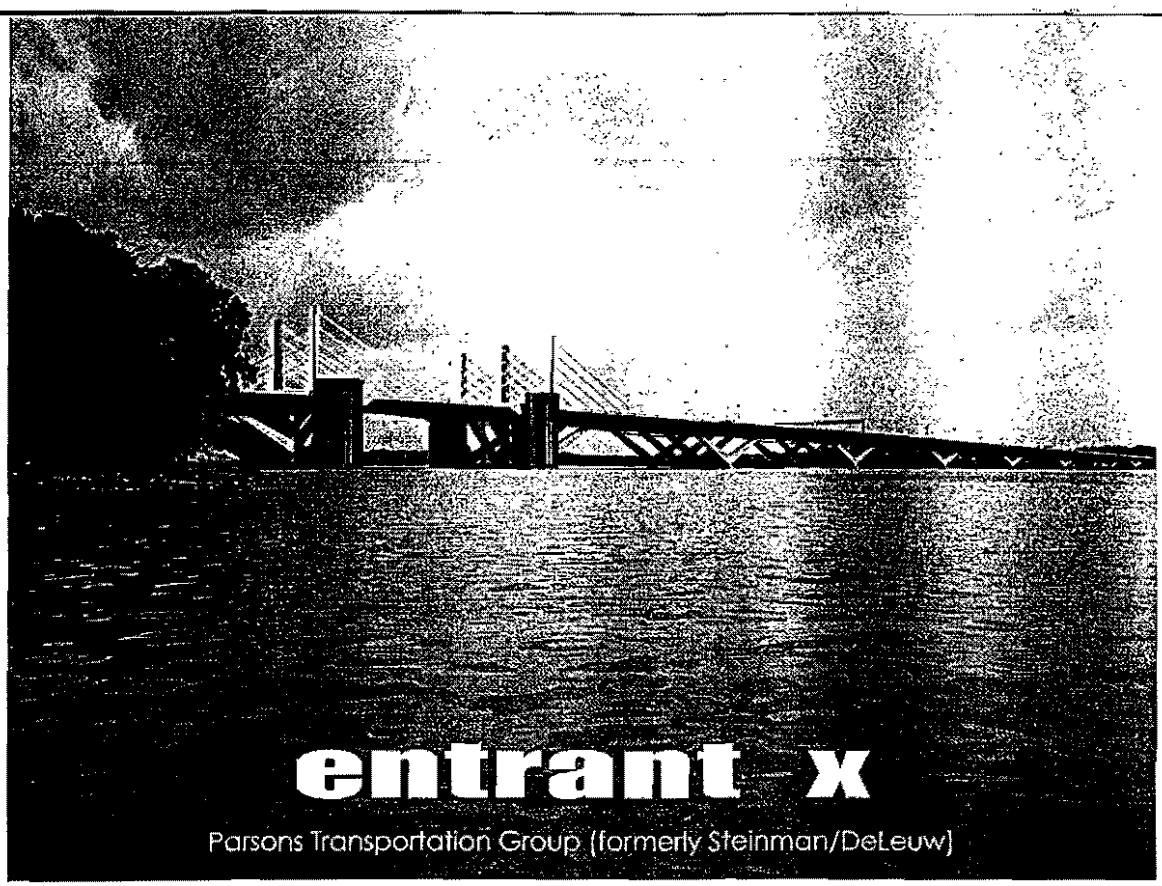
"The bascule design is novel and has a visual appeal but would be very difficult to design and build."

"Entrant T makes a powerful statement: it needs to be bold because Washington, DC is not like any other city."

"...Is a monument, not a bridge."

"...Its massive appearance through the park is highly undesirable."





entrant X

Parsons Transportation Group (formerly Steinman/DeLeuw)

With soaring towers supporting a cable-stayed movable span, Entrant X broke most ambitiously from the specified design goals. The remaining spans, supported by slender V-shaped piers, conveyed a crisp, contemporary look. An aspect of the arch appearance was offered by the combination of the V-shaped piers and the slightly haunched girders. Modernity was further emphasized by the stainless steel cladding of the girders. Entrant X had the second fewest number of piers, 15, and their light and open form provided an airy, attractive flavor to the structure. Similar to Entrant B, the delta piers offer certain structural benefits relative to true arches.

The V-supports are light and simple; the horizontal tie at the top of the V is clearly expressed. The bascule is highly unusual, consisting of a cable-stayed drawbridge where the cables are reeled in to lift the bridge leaves. This bascule form clearly identifies the channel and reflects a sailing motif, but it also creates serious challenges in design, construction, and operation.

Jurors' Comments

"The channel span of Entrant X is in sharp contrast to the arch concept."

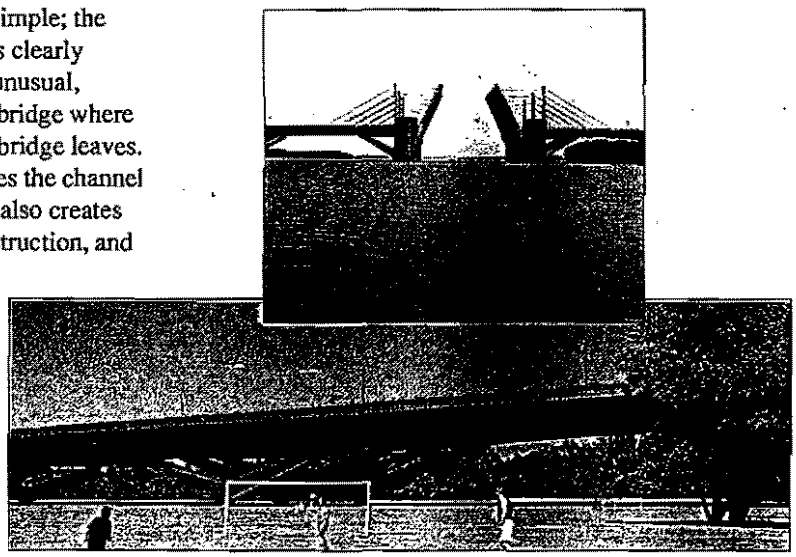
"This V-form has great merit and, with a different bascule, could make a spectacular impression."

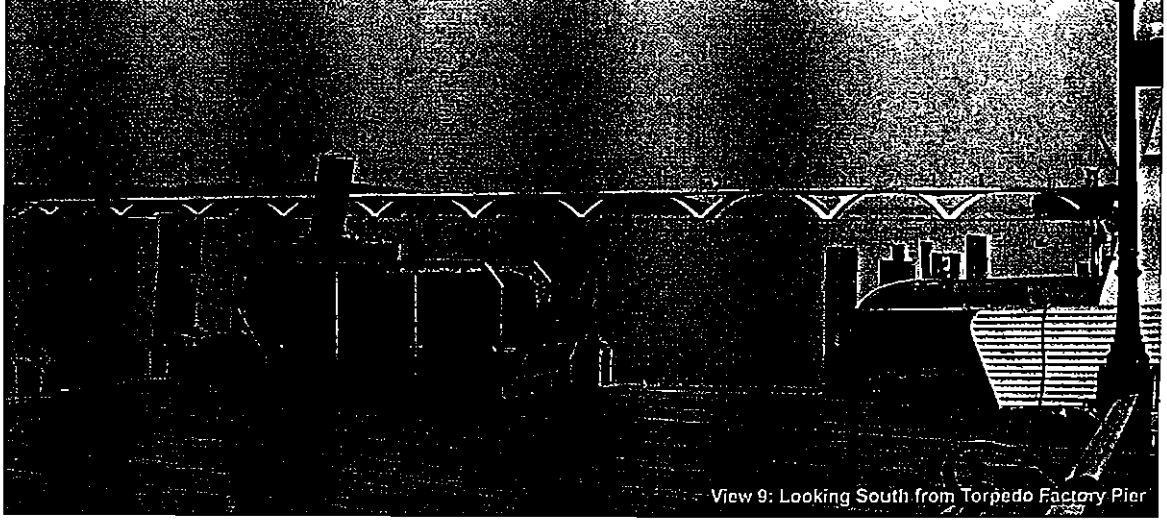
"Liked its clean lines."

"Clearly identified the navigation channel."

"Transparent and elegant with a nice sub-structure."

"There is no attempt to mimic an arch form."





View 9: Looking South from Torpedo Factory Pier

selection panel findings

Satisfaction of Minimum Requirements

Upon review of each of the entries, the selection panel determined that each entry met the minimum requirements of the design competition. Although certain entries were obviously more risk seeking, each was judged to have met the challenge and all entrants submitted an entry on time. Subsequently, each firm was awarded the $100,000 stipend that was identified for the competition.

Additional Design Criteria

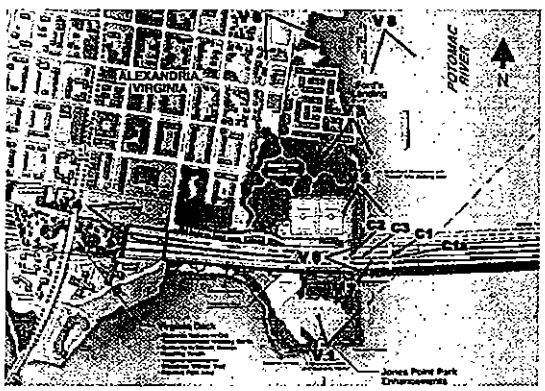
Through coordination efforts with various interested public agencies, the Washington Metropolitan Area Transit Authority expressed an interest in the bridge to not preelude heavy rail transit in addition to light rail. The Authority indicated that ongoing studies in the corridor have not yet narrowed alternatives to a specific type of rail transit and it would be prudent to leave various options open. As a result, the Authority's heavy rail provisions were added to the design criteria of the bridge.

Suggested Refinements

During deliberations, the seleetion panel discussed a few refinements that they believed would further enhance the appearance and operation of the bridge. An Ad-Hoc Panel was established to work with the sponsoring agencies, GEC and Parsons Transportation Group in the evaluation of various refinements.

The first such refinement involved the location of the operator's house. The selection panel believed that the location, appearance and function of the operator's house could be improved from what was submitted in the Entry B. Parsons Transportation Group undertook a detailed study to explore various locations, configurations and appearances. Through work with the Sponsoring Agencies, GEC and the Ad-Hoc Panel, a location between the inner and outer loop bridges at the tip of the VA bascule pier was eventually selected as the most desired location. Advantages to this location included:

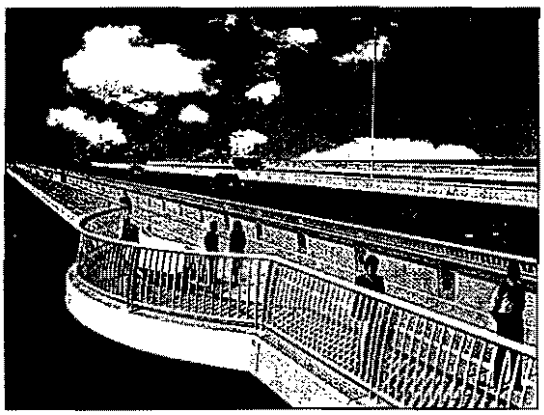
- Better view of activities on the bridge deck and vessels in the channel
- Less obtrusive strueture since the tower only extends from the top of the pier upward rather than the full height of the bridge
- An operator would be closer to the machinery in the event of a malfunction.



Proposed locations of operator's house and important viewsheds

The function of the operator's house was further refined to include only those functions associated with operating and maintaining the bridge. The concept of using the operator's house as an element of Jones Point Park was viewed as inconsistent with the uses in the park. The appearance of the operator's house will be refined further to reflect input from various stakeholders.

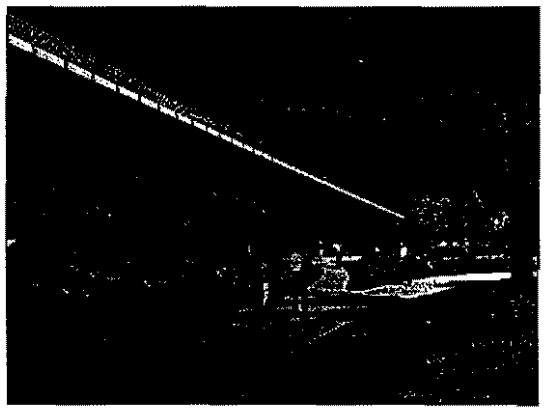
Another major refinement for the bridge focused on the type of traffic barriers and pedestrian railing to be used on the bridge. Subsequent to the competition, the Federal Highway Administration recommended that the traffic barriers be designed for Test Level 5 (TL-5) rather than a Test Level 4 (TL-4), citing safety reasons. This then limited the number of options associated with the traffic barriers. A combination of "Texas HT" and "F-shape" barriers were selected as options that best meet both safety and aesthetic desires. The pedestrian barrier was modified to reflect a vertical post, presenting a more classic look to the bridge. The individual horizontal railings were also replaced with vertical pickets for appearance and safety reasons.



Pedestrian Barrier

Another recommendation of the selection panel was to consider eight leaves in the bascule span rather than the four included in Entrant B. This revised arrangement gives a two-fold benefit of requiring smaller, more conventional machinery that is more easily maintained, and the ability to keep more lanes open to traffic in the event of one leaf malfunctioning.

As a result of seeking input from various stakeholders, it was suggested to explore eliminating the hammerhead piers near the Virginia abutment and replacing them with a V-pier. Various studies resulted in replacing these last two piers with one pier that was partially depressed below ground. This revision creates a more consistent image to the entire bridge. V-piers now rise out of the ground as you experience the bridge walking from the VA abutment to river's edge.



V-piers introduce the bridge from the VA abutment

Other recommendations included lowering the profile at Rosalie Island without adversely affecting the appearance of the V-piers to minimize impacts to the island. Through this study, the height of the bridge was lowered by about two feet at the MD abutment. In addition, the panel recommended eliminating the fiberglass grating from the underside of the bridge. This not only eliminates a potential maintenance headache but also creates a more natural effect with the girders.

Next Steps

Parsons Transportation Group will be working closely with the sponsoring agencies, GEC, Selection Panel Ad-Hoc Committee and other interested groups in further refining certain elements of the bridge during design. The current schedule anticipates construction of the bridge in the fall of 2000, traffic to be transferred to one-half of the bridge in 2004 and the entire bridge to be completed in 2006.

WWW.VRSTAMPA.COM SELECT CREATIVE IMAGES/BRIDGES

2-11-01

Questions for staff:

Chris/Randy

✓**1. How and when will consultants be paid their $10k**

2. Establish a meeting date for competition

✓**3. Approval of selection committee**

✓**4. Ron will make opening comments etc etc**

2 designs
45 days

Directions to Consultants:

1. **Announce day and time of presentations**
2. **No more than 3 designs**
3. **Grading will be based on the following criteria**

   a. **Aesthetics –day and night, should include lighting design/plan**
   b. **Landscaping**
   c. **Acoustics (how will noise affect adjacent buildings)**
   d. **Vibrations (how will motion affect adjacent buildings)**
   e. **Estimated cost of design** & construction
   f. **Functionality (parking, pedestrian and bike users, safety, ADA etc.)** address
   g. **How does the bridge ~~minimize~~ obstruction to adjacent buildings from roadway**
   ~~h. Site Constraints~~
4. **Lottery drawing for presentation times**
5. **Bridge tech information (see handout)** — Site constraints

Alan Green

2 Options

45 days sufficient

for 2, 60 days would be better

2 with variations

Jim Pierce

From: Jerry Holder [JHolder@HNTB.com]
Sent: Monday, February 11, 2002 12:57 PM
To: 'jpierce@ci.addison.tx.us'
Cc: Mike Preston; Ben Biller; Doug Mann
Subject: RE: Bridge Competition

Jim, we're flexible to the Town's preferences and will be happy to adapt to your decision. In answer to your question, we would like to submit more than one. Our preference would be three. If we go to more than one design, we would need more time. For three designs, we could do it in sixty days.
Thanks,

Jerry Holder

-----Original Message-----
From: jpierce@ci.addison.tx.us [mailto:jpierce@ci.addison.tx.us]
Sent: Friday, February 08, 2002 10:56 AM
To: adg@freese.com; jholder@hntb.com; david_johnston@urscorp.com
Cc: cterry@ci.addison.tx.us; mmurphy@ci.addison.tx.us
Subject: Bridge Competition

Gentlemen: We would like to have your ideas on the following:

Would your team like to submit one bridge design, or more than one? If more than one, how many?

Would 45 days be sufficient time for submittals? If not, how much time would you need?

Your answers are needed by 1 PM Monday for staff consideration. Thanks,

Jim Pierce, P.E.
Assistant Public Works Director
PO Box 9010
Addison, TX 75001-9010
972-450-2879

Jim Pierce

From: Cliff_Hall@urscorp.com
Sent: Monday, February 11, 2002 12:20 PM
To: jpierce@ci.addison.tx.us
Cc: cterry@ci.addison.tx.us; mmurphy@ci.addison.tx.us; David_Johnston@URSCorp.com
Subject: RE: Arapaho Road Bridge

Jim,

The URS team would prefer to submit one bridge design and 45 days would be
a sufficient amount of time

We presume that the meeting on Thursday will better define items such as the selection criteria, presentation format, limits of the project, and construction cost criteria, We look forward to seeing you on Thursday.

Cliff R. Hall, PE
Project Manager
URS Corporation
5151 Beltline Road, Suite 700
Dallas, TX 75240
Tel: 972-980-4961
Fax: 972-991-7665

--- Forwarded by David Johnston/Dallas/URSCorp on 02/08/02 11:09 AM
---

jpierce@ci.add
ison.tx.us
02/08/02 10:56 AM

To: adg@freese.com, jholder@hntb.com, david_johnston@urscorp.com
cc: cterry@ci.addison.tx.us, mmurphy@ci.addison.tx.us
Subject: Bridge Competition

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Would 45 days be sufficient time for submittals? If not, how much time would you need?

Your answers are needed by 1 PM Monday for staff consideration. Thanks,

Jim Pierce

From: Michael Murphy
Sent: Wednesday, February 06, 2002 2:32 PM
To: Steve Chutchian
Cc: Luke Jalbert; Jim Pierce; Sue Ellen Fairley; Chris Terry
Subject: FW: BRIDGE SELECTION COMMITTEE - DRAFT

Steve,

Below is the list of People who will set on the Bridge design competition committee. ***(if possible I would like to have the precompetion meeting next week)***

I want you and Luke to set up the meetings as we discussed. We need to check schedules and confirm everyone's availability approximately 60 days from the precompetion meeting. *Since Luke is out of Town use Sue Ellen to Assist.*

Also, once you have verified schedules we can set up a pre completion meeting. I want all of the meetings to be first class and have them at either the stone cottage or the town hall council chambers. preferably the Stone Cottage....Lets make it happen.

See me with any questions

Mike

Michael E. Murphy, P.E.
Director of Public Works
Town of Addison
(972)450-2878

-----Original Message-----
From: Chris Terry
Sent: Tuesday, January 29, 2002 10:06 AM
To: Michael Murphy
Subject: BRIDGE SELECTION COMMITTEE - DRAFT

Mike,

Here is the composition of the committee as Ron and the Mayor discussed it. This is not absolutely final, but close. I will keep you posted as this is still in flux.

Committee Members:
Mayor Wheeler ✓
Councilmember Diane Mallory ✓
Ron Whitehead ✓
Art Lomoneck, developer ✓
Bill Crepeau, property owner along bridge ROW -Charter Furn. ***I spoke with Bill Crepeau and he said he is 99% sure he will be the new owner.***
Mike Murphy ✓
Chris Terry ✓

TOWN OF
ADDISON PUBLIC WORKS

To: Bill Petrelli

Company: Petrelli Assoc.

FAX #: 1-817-633-6507

Date: 2-5-02

# of pages (including cover): 1

From: Jim Pierce, P.E.
Asst. Public Wks. Dir.
Phone: 972/450-2879
FAX: 972/450-2837
jpierce@ci.addison.tx.us

16801 Westgrove
P.O.Box 9010
Addison, TX 75001-9010

Re: Arapaho Rd Bridge

☐ Original in mail ☒ Per your request ☐ FYI ☐ Call me

Comments: Finalists Teams:

HNTB and Nicholas Grimshaw & Partners

Freese & Nichols and HOK

URS Corp., Brandston Partnership Inc., and Corgan Assoc. Inc.

Jim

TOWN OF ADDISON

PUBLIC WORKS DEPARTMENT (972) 450-2871

Post Office Box 9010 Addison, Texas 75001-9010 16801 Westgrove

23 January 2002

Freese-Nichols
1701 N. Market Street
#500, LB 51
Dallas, TX 75202

214-920-2500

ATTENTION Mr. Alan D. Greer, P. E.

SUBJECT Arapaho Road Bridge Finalist

Dear Mr. Greer:

Congratulations!

This is to advise you that Freese-Nichols, along with URS Corporation and HNTB Architects, has been selected as a Finalist for the design competition for the Arapaho Road Bridge at Midway Road.

We will be in contact with you in the near future to schedule a pre-competition meeting to discuss the next steps.

Please call me at 972-450-2879, if you have any questions.

Sincerely,

James C. Pierce, Jr., P.E.
Assistant Director of Public Works

JP:sef

cc: Chris Terry
Mike Murphy

TOWN OF ADDISON

PUBLIC WORKS DEPARTMENT (972) 450-2871

Post Office Box 9010 Addison, Texas 75001-9010 16801 Westgrove

23 January 2002

972-661-5626

HNTB Architects,
Engineers and Planners
5910 W. Plano Parkway, #200
Plano, TX 75093

ATTENTION Mr. Jerry Holder

SUBJECT Arapaho Road Bridge Finalist

Dear Mr. Holder:

Congratulations!

This is to advise you that HNTB, along with Freese-Nichols and URS Corporation, has been selected as a Finalist for the design competition for the Arapaho Road Bridge at Midway Road.

We will be in contact with you in the near future to schedule a pre-competition meeting to discuss the next steps.

Please call me at 972-450-2879, if you have any questions.

Sincerely,

James C. Pierce, Jr., P.E.
Assistant Director of Public Works

JP:sef

cc: Chris Terry
Mike Murphy

TOWN OF ADDISON

PUBLIC WORKS DEPARTMENT (972) 450-2871

Post Office Box 9010 Addison, Texas 75001-9010 16801 Westgrove

23 January 2002

d_johnston@urscorp.com
972-404-6950
X

URS Corporation
5151 Belt Line Road, #700
Dallas, TX 75254

ATTENTION Mr. David Johnston

SUBJECT Arapaho Road Bridge Finalist

Dear Mr. Johnston:

Congratulations!

This is to advise you that URS Corporation, along with Freese-Nichols and HNTB, has been selected as a Finalist for the design competition for the Arapaho Road Bridge at Midway Road.

We will be in contact with you in the near future to schedule a pre-competition meeting to discuss the next steps.

Please call me at 972-450-2879, if you have any questions.

Sincerely,

James C. Pierce, Jr., P.E.
Assistant Director of Public Works

JP:sef

cc: Chris Terry
Mike Murphy

Re: Arapaho Road Bridge at Midway Road

Congratulations!

This is to advise that your firm,

along with

(URS Corporation) Johnston
(HNTB) Jerry Holder
(Freese & Nichols) Greer

has been selected as a finalist for the design competition for the Arapaho Road Bridge at Midway Road.

We will be in contact with you in the near future to schedule a pre-competition meeting to discuss the next steps.

Please call me at 972-450-2879 if you have any questions

JP Jr PE
ADPW

cc Chris, Mike

cc: CT

TOWN OF ADDISON

PUBLIC WORKS DEPARTMENT (972) 450-2871

Post Office Box 9010 Addison, Texas 75001-9010 16801 Westgrove

23 January 2002

Mr. Robin H. McCaffrey
MESA Design Group
3100 McKinnon St., #905
Dallas, TX 75201

SUBJECT Arapaho Road Bridge at Midway Road

Dear Mr. McCaffrey:

The Town of Addison received twelve responses for our Request for Statements of Qualifications for the subject project.

The selection committee has chosen the following firms to enter the design competition:

URS Corporation
HNTB Architects, Engineers & Planners
Freese-Nichols, Inc.

While your firm was not selected, we thank you for your response to the request for qualifications. We appreciate the time and effort you took to respond and hope that you will continue to seek work with the Town of Addison in the future.

Sincerely,

James C. Pierce, Jr.
Assistant Director of Public Works

JP:sef

cc: Chris Terry
Mike Murphy

1/23/02 - LIST OF CONDOLENCE LETTERS FOR ARAPAHO BRIDGE PROJECT:

Mr. J. Richard Perkins, P.E.
Teague, Nall & Perkins
2001 W. Irving Blvd.
Irving, TX 75061

Mr. David T. Retzsch
Carter & Burgess, Inc.
7950 Elmbrook Drive
Dallas, TX 75247-4951

Mr. J. Frank Polma
R-Delta Engineers, Inc.
618 Main Street
Garland, TX 75040

Mr. Michael J. Moran
HDR Engineering, Inc.
1711 Preston Road, #200
Dallas, TX 75248-1229

Mr. Abraham Abugattas
Brown & Root Services
1444 Oak Lawn Ave., #100
Dallas, TX 75207

Mr. J. W. Petrelli, Jr.
Petrelli Associates, Inc.
2225 E. Randol Mill Rd., #400
Arlington, TX 76011

Mr. Robin H. McCaffrey
MESA Design Group
3100 McKinnon St., #905
Dallas, TX 75201

Mr. Paris Rutherford, IV
RTKL Associates, Inc.
1717 Pacific Avenue
Dallas, TX 75201-4688

Mr. Jim Manskey
TBG Partners
5710 LBJ Freeway, #370
Dallas, TX 75240

Letter to

Brown & Root, Carter & Burgess, R. Delta, HDR
TN&P, RTKL, MESA, Petrelli, TBG

Re Arapaho Road Bridge @ Midway Road.

Dear

The Town of Addison received twelve responses for our request for Statements of Qualifications for the above referenced project.

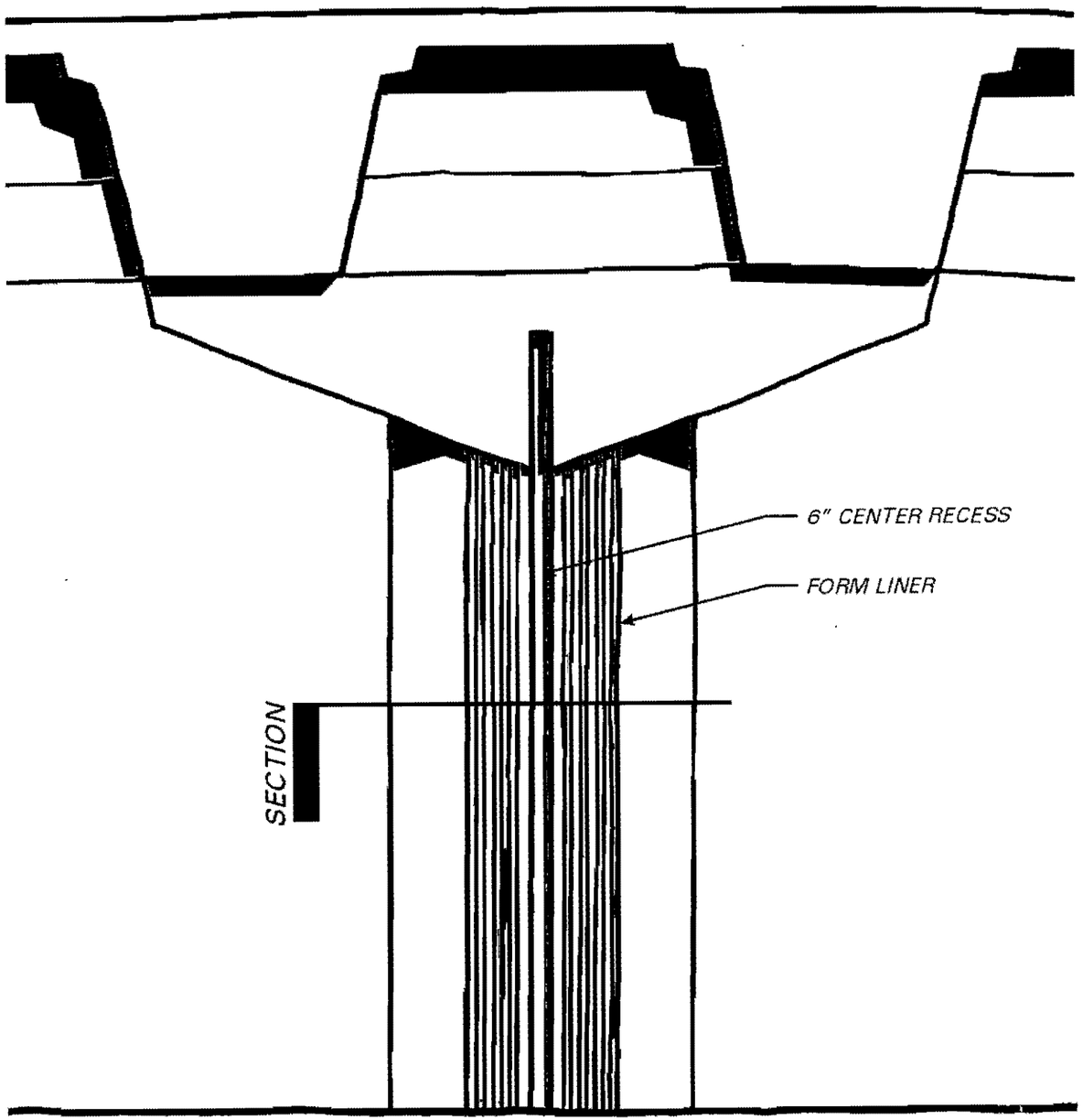
The selection committee has chosen the following firms to enter the design competition:

URS Corporation
HNTB
Freese & Nichols

While your firm was not selected, we thank you for your response to the request for qualifications. We appreciate the time and effort you took to respond and hope that you will continue to seek work with the Town of Addison in the future.

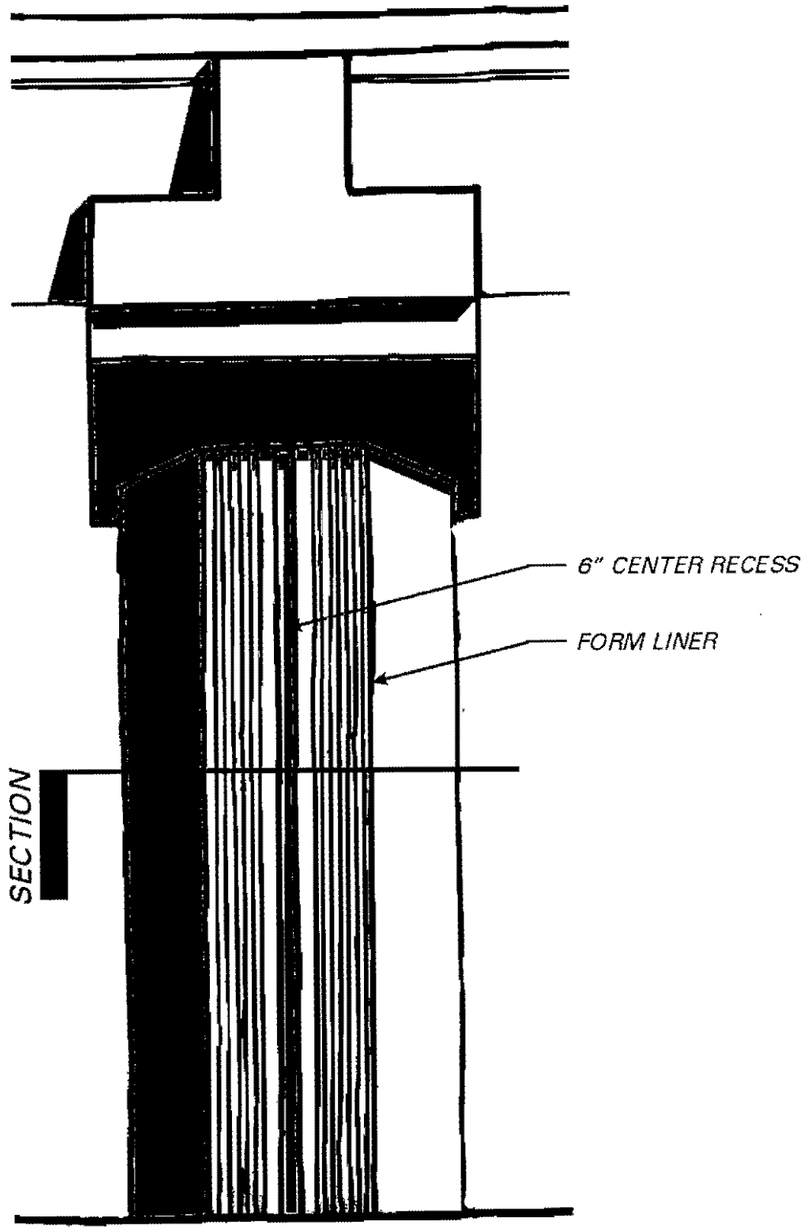
JPJ, PE
APWD

cc Chris, Mike



EAST/WEST ELEVATION @ PIER

0 1 ft.



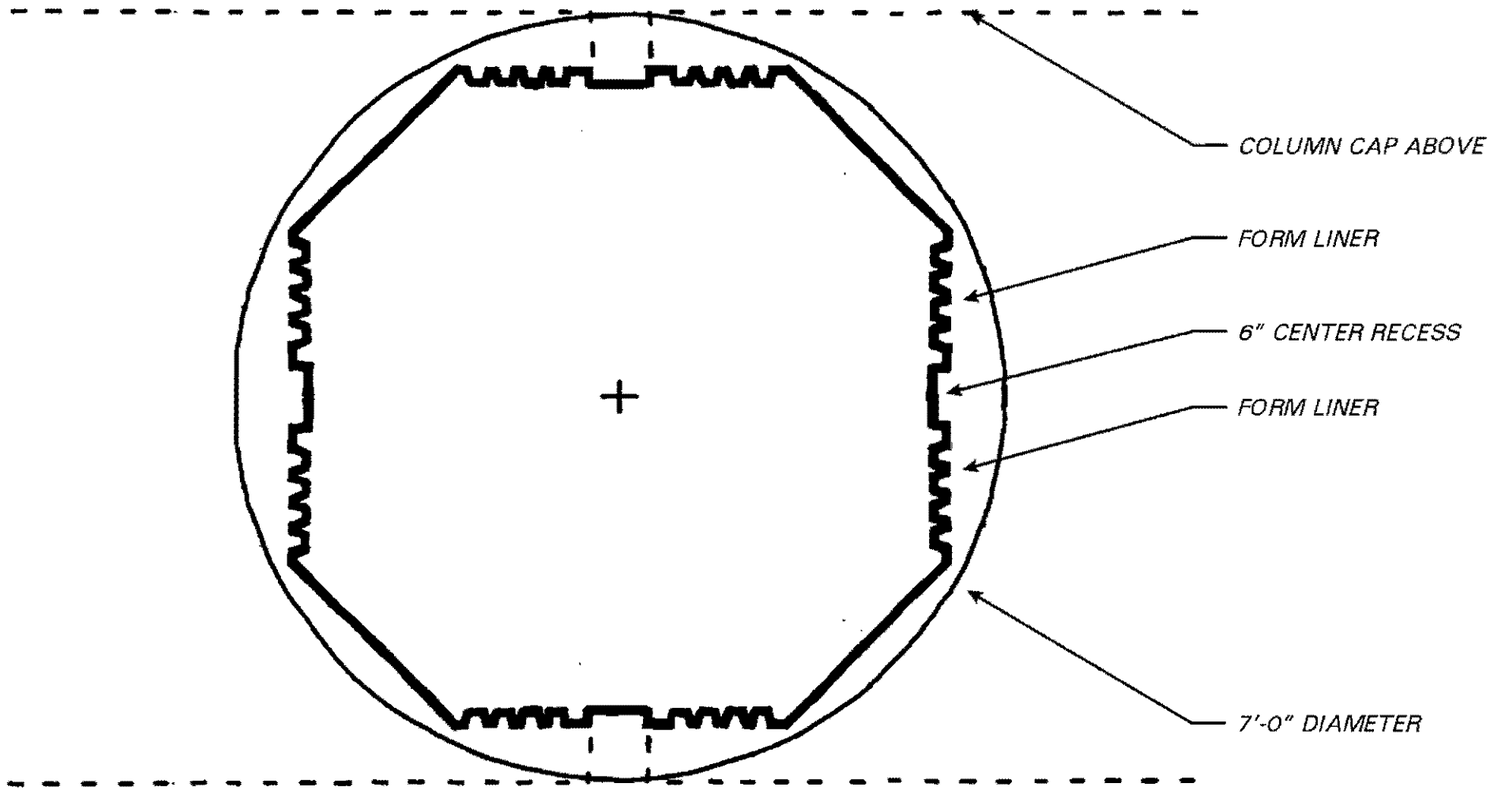
NORTH/SOUTH ELEVATION @ PIER

0 1 ft.

ARAPAHO BRIDGE

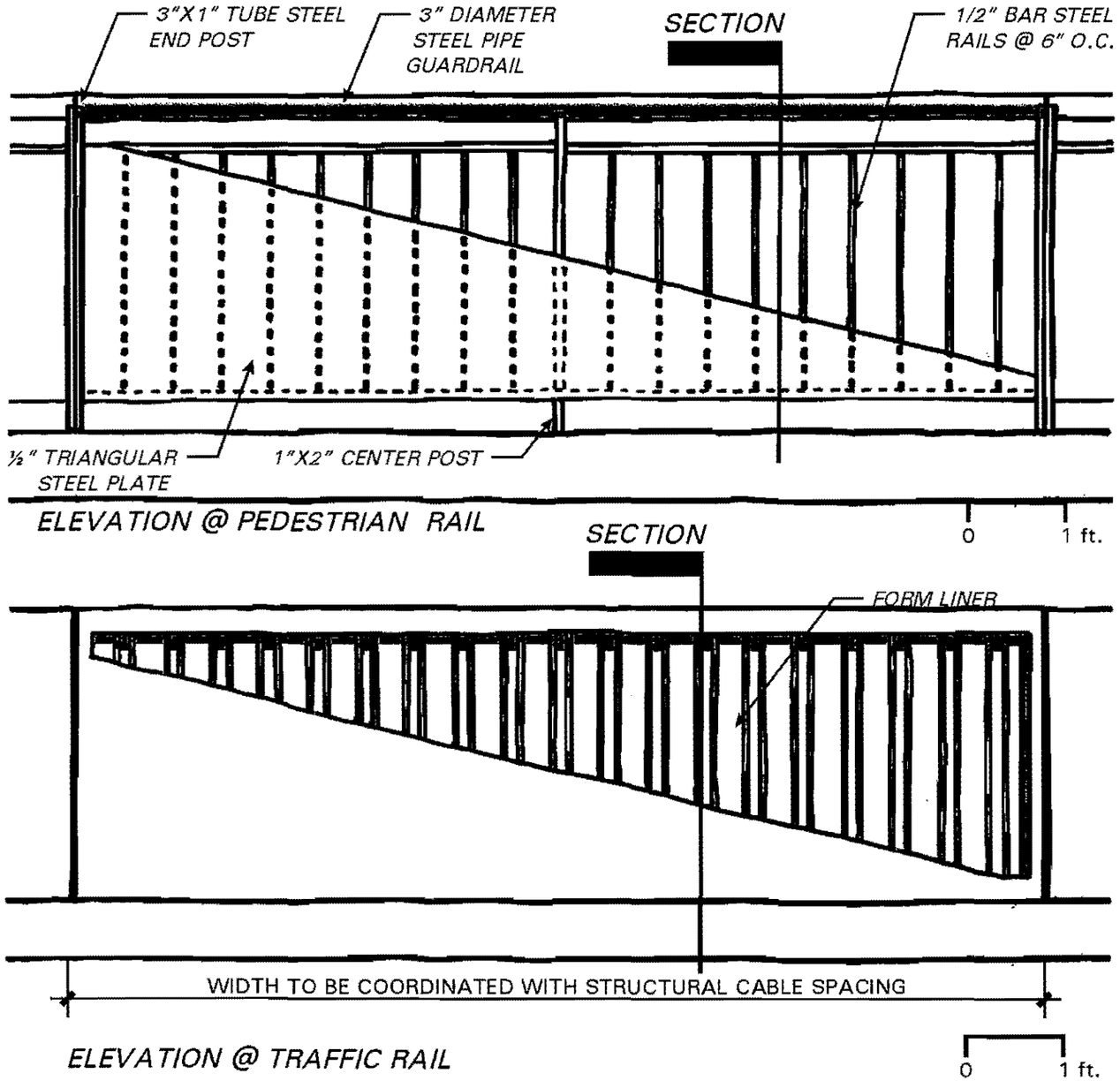
22 MAY 2003

URS CORGAN



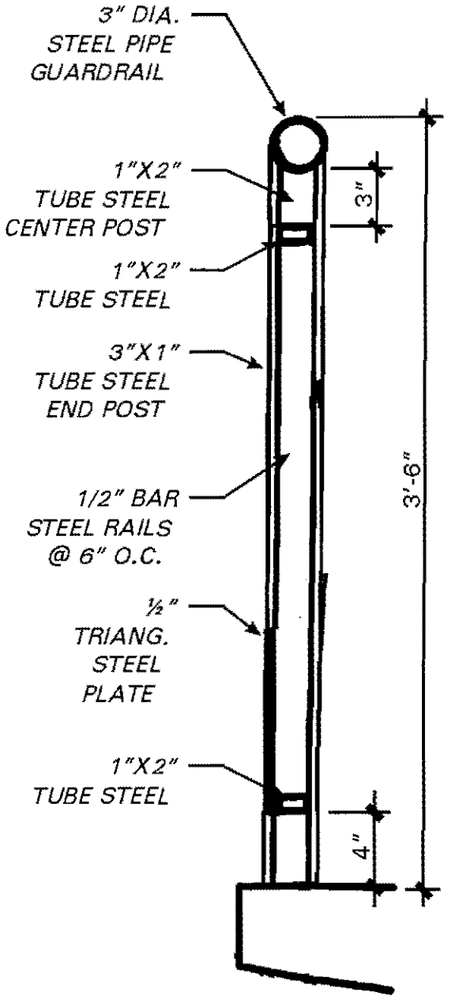
PLAN SECTION @ PIER

0 1 ft.



ELEVATION @ PEDESTRIAN RAIL

ELEVATION @ TRAFFIC RAIL



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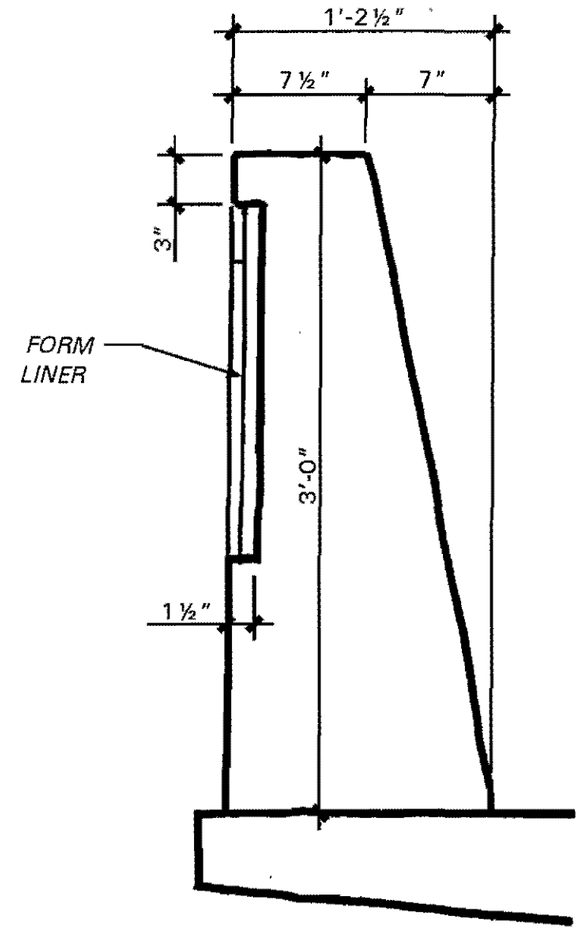


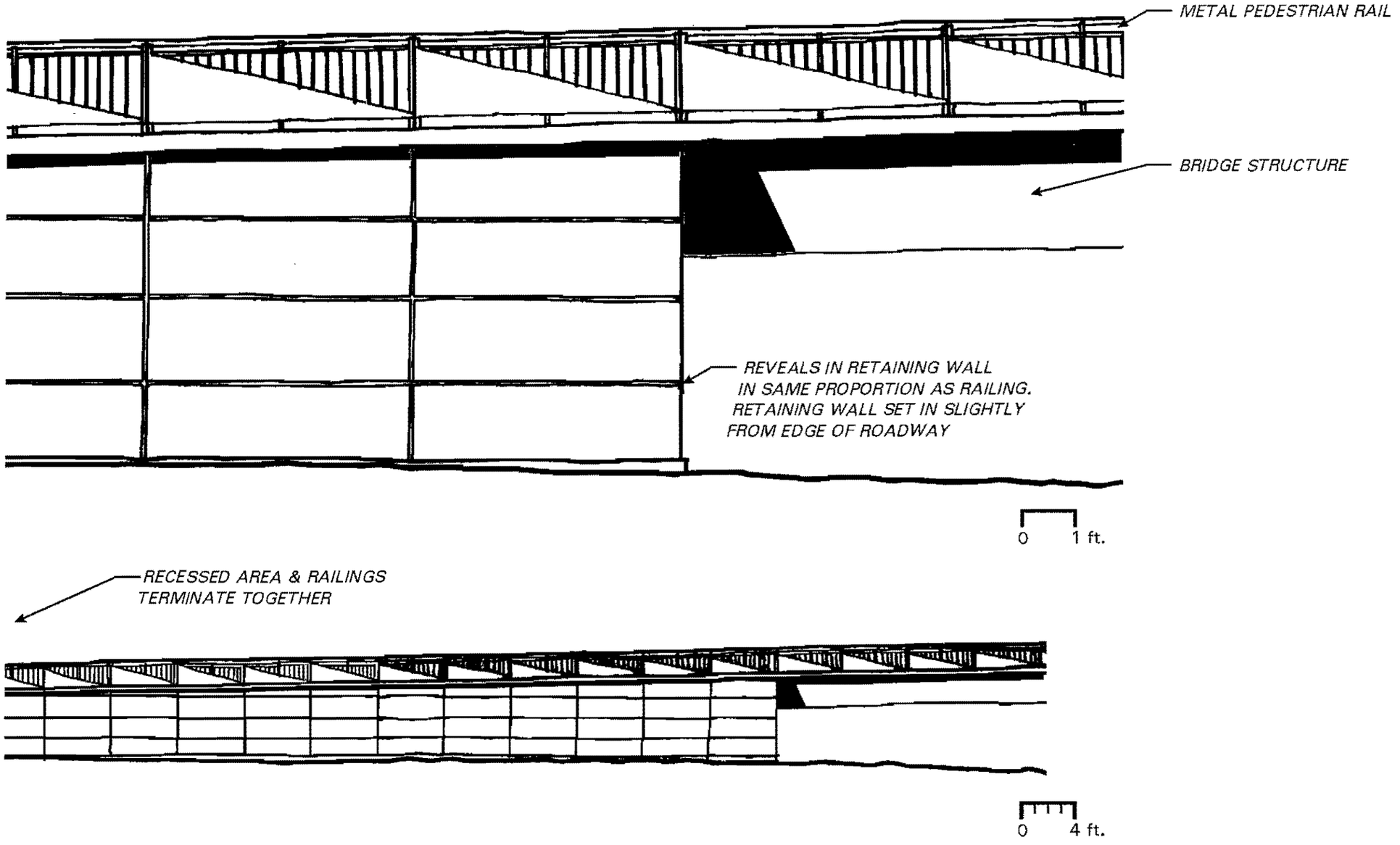
SECTION @ TRAFFIC RAIL

0 1 ft.

ARAPAHO BRIDGE

22 MAY 2003

URS CORGAN

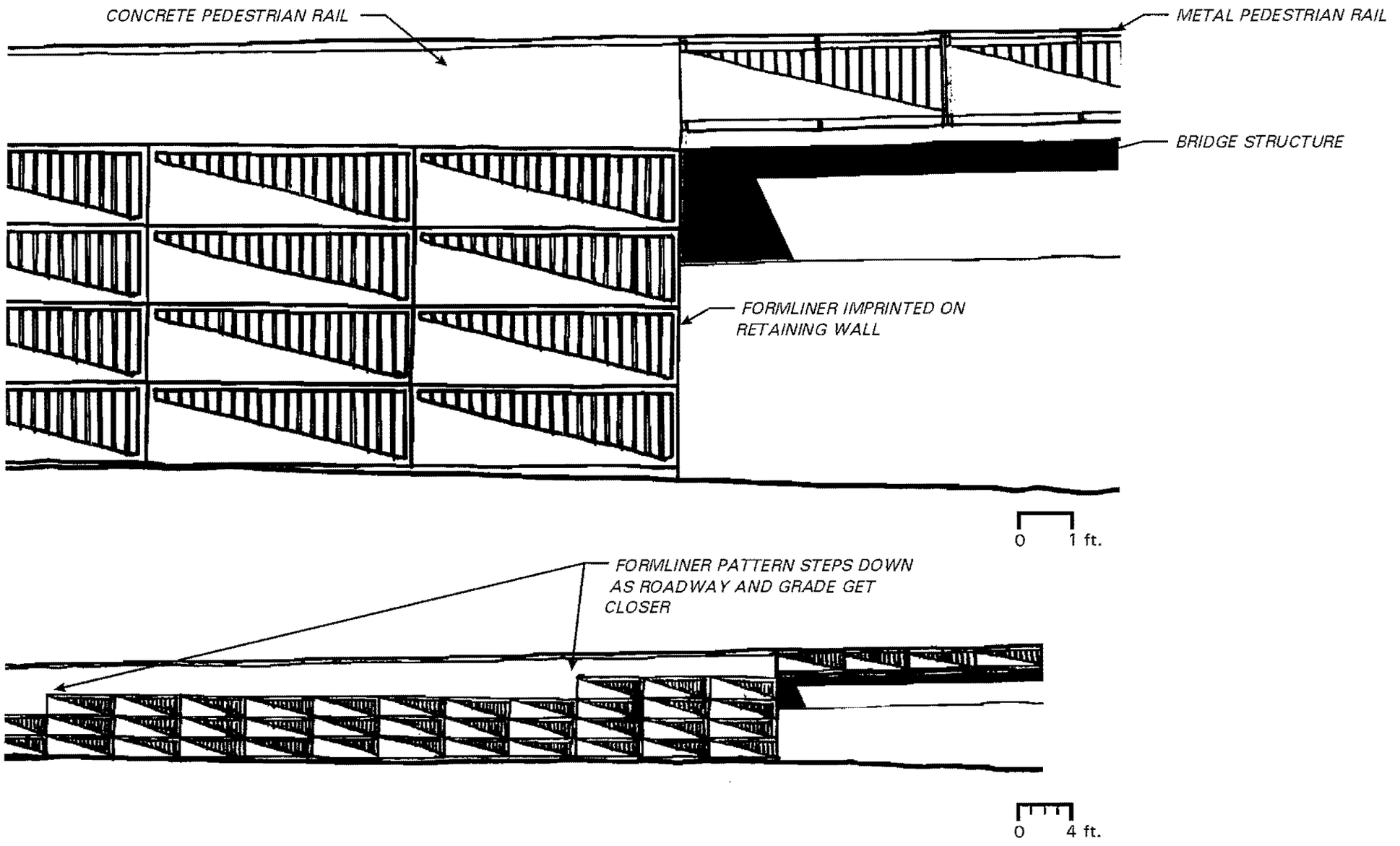


PRELIMINARY RETAINING WALL STUDIES - NORTH ELEVATION - FLAT RECESSED OPTION

ARAPAHO BRIDGE

22 MAY 2003

URS CORGAN



PRELIMINARY RETAINING WALL STUDIES - NORTH ELEVATION - STEPPED OPTION

ARAPAHO BRIDGE

22 MAY 2003

URS CORGAN