CONTRACT DOCUMENTS
AND
SPECIFICATIONS
FOR

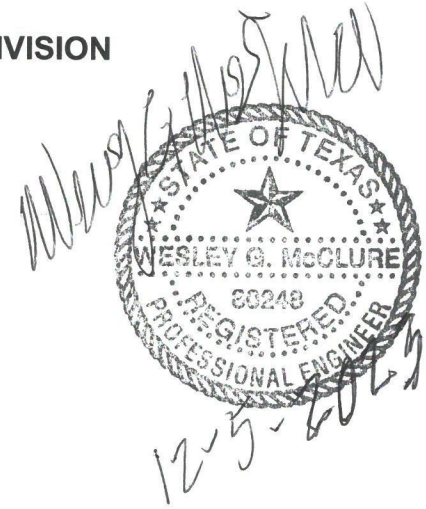
MESQUITE HERITAGE TRAIL PHASE II
CITY OF MESQUITE CONTRACT NO. 2024-014

FOR THE CITY OF MESQUITE, TEXAS
PUBLIC WORKS DEPARTMENT - ENGINEERING DIVISION

MESQUITE
TEXAS
Real. Texas. Service.

Prepared by:

CITY OF MESQUITE
PUBLIC WORKS DEPARTMENT – ENGINEERING DIVISION



12-5-2023

BID OPENING: January 9, 2024

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TENTATIVE SCHEDULE

FOR

MESQUITE HERITAGE TRAIL PHASE II

City of Mesquite Contract No. 2024-014

1st Public Advertisement	Thursday, December 7, 2023
2nd Public Advertisement	Thursday, December 14, 2023
Pre-Bid Conference	2:00 p.m., Tuesday, December 19, 2023
Questions	2:00 p.m., Wednesday, January 3, 2024
Open Bids *(Bid openings are held on Tuesdays and Thursdays)*	2:00 p.m., Tuesday, January 9, 2024
Council Awards Contract (**Assumes no bidding irregularities or other issues with the low bidder requiring extensive checking of Qualifications)**	February 19, 2024
Notice to Proceed - Start Construction **(Assumes rapid execution of contract documents by the Contractor with proper insurance and bonds)**	March 18, 2024
Substantial Completion (365 Calendar Day Contract)	March 17, 2025

ADVERTISEMENT FOR BIDS

City of Mesquite Contract No. 2024-014

Sealed competitive bids or proposals as set forth and required in the plans and specifications (either of which shall hereinafter be referred to as the "Bid") addressed to the Mayor and City Council of the City of Mesquite, Texas will be received at the office of Ryan Williams, Manager of Purchasing at City Hall, Purchasing Division, 2nd Floor, 757 North Galloway Avenue, Mesquite, Texas 75149 until ***2:00 p.m. on Tuesday, January 9, 2024*** for the following: **MESQUITE HERITAGE TRAIL PHASE II**

As set forth in the plans and specifications, the project is to construct approximately 7,500 square yards of 6" thick concrete trail, two truss span pedestrian bridges, pedestrian crossings, 1,000 linear feet of reinforced concrete drainage pipe, 600 linear feet of water line, 1,300 square yards of 8" concrete parking lot (add alternate), overlook (add alternate), lighting, landscaping, irrigation, and hardscaping amenities.

A pre-bid conference will be held at 2:00 p.m. on Tuesday, December 19, 2023, at the City of Mesquite Arts Center located at 1527 N. Galloway Avenue, Mesquite, Texas, 75149, in the Library Meeting Room (second floor).

Instruction to Bidders, proposal forms, plans and specifications (the "Bid Documents") may be obtained from the Purchasing Department Website and from Periscope Holdings.

The Bid shall be submitted on the form provided in the Bid Documents. Vendors should check the Mesquite Purchasing Department website, http://www.cityofmesquite.com/674/Bid-Openings-Specifications-Conferences, and Periscope Holdings, https://www.cityofmesquite.com/678/Periscope-Bid-Openings, to view documents relating to this Bid. Questions shall be submitted through Periscope Holdings and response will be posted through Periscope Holdings.

Bidder must submit, with their Bid, a Cashier's check, Certified check or a Bid Bond from an approved surety company, in the amount of five percent (5%) of their Bid as a guarantee that the Bidder will enter into a contract and guarantee forms, if required, within 10 days after notice of award of contract.

The successful bidder must furnish both a Performance Bond and a Payment Bond, each in the amount of one hundred percent (100%) of the contract price, from an approved Surety company holding a permit from the State of Texas to act as surety, and acceptable according to the latest list of companies holding Certificates of Authority from the Secretary of the Treasury of the United States, or another Surety acceptable to the City.

Further information concerning the procurement may be obtained **by email only** from the City of Mesquite Engineering Division – *Wes McClure, PE, CFM, Assistant City Engineer wmcclure@cityofmesquite.com of assigned City Project Manager.*

The right is reserved by the City of Mesquite to reject any and all bids.

CITY OF MESQUITE, TEXAS

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Sonja Land
City Secretary

CITY OF MESQUITE CONTRACT NO.: 2024-014
Publish: December 7, 2023
December 14, 2023

INSTRUCTIONS TO BIDDERS

1. If you have questions regarding the preparation of your bid, you may contact Ryan Williams, Manager of Purchasing, City of Mesquite, telephone 972-216-6201. For technical questions **send an email** to ***Wes McClure, PE, CFM, email address wmcclure@cityofmesquite.com of assigned City Project Manager.***

2. Mailed bids must be submitted in sufficient time to be received and time-stamped at the location in the advertisement on or before the published date and time shown on the Advertisement for Bids. The City of Mesquite is not responsible for mail delivered from the post office. Bids received after the published date and time will not be considered and will be returned unopened.

3. The Bidder/Contractor shall at all times observe and comply with all Federal, State and local laws, ordinances and regulations which in any manner affect the Contract or the work, and shall indemnify and save harmless the City against any claim arising from the violation of any such laws, ordinances and regulations whether by the Bidder/Contractor or his employees.

4. Prices shall be filled in and extended on the bid sheets. In case of discrepancy between unit price and the extension, the unit price will govern. Contractors may utilize the Microsoft Excel spreadsheet bid form available on the City's Purchasing Division web site. No other electronic forms will be accepted. A hard copy printout is required with the bid.

5. Bidder shall complete all information requested and blanks provided shall be filled in beside or under each bid item. Failure to completely describe the item being bid may result in rejection of the bid.

6. Prices quoted in the bid shall prevail for the entire term of the contract.

7. The Contract, Performance Bond and Payment Bond forms are included for Bidders information so that Bidders may be familiar with their contents and requirements. ***Bidder shall not fill in or execute these forms at time of bid submittal.***

8. The City of Mesquite reserves the right to reject any and all bids, waive formalities and to make award of bid as may be deemed to the best advantage of the City. No bid may be withdrawn within one hundred and twenty (120) days after date of opening. The City may, at its sole discretion, release any Bidder and return the bid security prior to that date.

9. The City of Mesquite reserves the right to evaluate variations from these specifications. If exceptions are made, bidder shall state wherein the bid item fails to meet these specifications. Failure to completely describe the item being bid may result in rejection of your bid.

10. Any ambiguity in the bid as a result of omission, error, lack of clarity or non-compliance by the Bidder with specifications, instructions and all conditions shall be construed in favor of the City.

11. Quantities are estimated. It is specifically understood and agreed that these quantities are approximate and any increase or decrease in quantities may result in contract adjustments per General Provision 104.2.

12. Disadvantaged business/HUB vendors listed with the Office of Small Business Assistance of the General Services Commission are requested to provide a copy of their current certificate with the bid.

13. Bidders shall complete the non-collusion statement included in the bid.

14. All BIDDERS must submit **with the bid**, either a Bid Bond provided herein, Cashier's Check or Certified Check in the amount of 5% of the total bid per General Provision Section 102.5.

15. Bidders shall fill out the following forms, as noted in the bid and attach them to their bid and mail or deliver them prior to the bid closing date and time to the City of Mesquite Purchasing Division, City Hall, 757 North Galloway Avenue, Mesquite, Texas 75149:

- ❑ Bid Form (Proposal).
- ❑ Disadvantaged Business Enterprises (DBE) Information.
- ❑ Prohibition On Contracts with Companies Boycotting Israel – House Bill 89.
- ❑ Non-Collusion Statement.
- ❑ Conflict of Interest Questionnaire (CIQ).
- ❑ Bid Bond.

16. The **apparent low bidder** shall complete and deliver to the Engineering Division and City's Consulting Engineer **within 48-hours after the bid opening**, the following **Bidder's Qualification Information** documents:

- ❑ Qualification Statement of Bidder. If additional space is needed, please use attachments.
- ❑ Reference Statement of Bidder's Surety.
- ❑ Bidder's Release of Qualification Information.
- ❑ Bidder's List of Proposed Sub-contractors.
- ❑ Financial Statement Reviewed or Audited by an Independent Certified Public Accountant (CPA) in accordance with Generally Accepted Accounting Principles (GAAP), prepared in the last 12-months for the bidder's company.
- ❑ Non-Exclusion Affidavit – System for Award Management (SAM).
- ❑ Certificate of Interested Parties (Form 1295)
- ❑ IRS W9 Form – a pdf version of this form can be downloaded from the IRS website.
- ❑ Secretary of State Filing Certificate.

All nine (9) documents shall be delivered to the Engineering Division and City's Consulting Engineer as a single, complete package. No one form or statement will be accepted individually.

If a project is a "joint venture", all partners in the joint venture shall complete the qualification forms.

END OF SECTION

STANDARDS OF CONDUCT

The City of Mesquite conducts business with the public, business partners, vendors and contractors under a set of rules to ensure that all City officials and employees discharge their duties in a manner designed to promote public trust and confidence in our city. This code of ethics, titled Standards of Conduct, is taken from the Mesquite City Code, Chapter 2, Article IV, Sec 2-123.

The City wants you to be aware of the rules that its employees are required to follow while performing their services to you. A violation of state or federal statutes may occur if these rules are broken. It is hoped that by outlining these rules for you, your experience in dealing with the City of Mesquite will be both rewarding and satisfactory.

Acceptance of Gifts or Gratuities

Accepting gifts or gratuities by employees in consideration for the performance of their duties, or as an appreciation for their performance, is strictly prohibited.

- Please do not offer employees any gift, loans or any other thing of value.
- Employees may not receive any fee or compensation for their services from any sources other than the City, so please don't offer.
- Please do not offer to buy meals for employees.
- Employees may accept coffee, tea, soft drinks, snacks, etc. when attending meetings in your office.
- Letters to supervisors for exceptional service by employees are always welcome.

Conflicts of Interest

Employees are prohibited from engaging in any outside activities that conflict with, or have the appearance of conflicting with, the duties assigned to them in the employment of the City.

- Please do not ask employees for any special favor or consideration that is not available to every other citizen.
- Please do not ask an employee to disclose any information that is not available to every other citizen through normal public information channels.
- Please do not offer to compensate the employee by offering to hire, or do business with any business entity of the employee or family member
- Do not ask employees to represent you or your company or make any recommendations on your behalf other than those that are a part of their official duties with the City.
- Please do not ask employees to endorse the products or services of your company.
- Please do not ask employees to hand out or post advertising materials.

Solicitation by City Employees

Employees may not solicit gifts, loans, or any other items of value from people doing City business that will be used by them personally.

- If you are asked to pay a fee for services that you believe is improper or illegal, please contact the City's ethic's officer at **972-329-8723**. (Payments should only be made to designated cashiers or clerks.)
- Employees are prohibited from taking retaliatory action against you for failing to comply with any request unless the request is within the scope of the employee's official duties for the City.

Use of City Equipment, Facilities and Resources

Use of City equipment, facilities and resources is authorized only for City purposes and for those activities permitted by City ordinance and policy.

- Please do not ask employees to use City equipment to run errands or perform tasks for your benefit.
- Employees may not perform tasks, nor conduct any business not related to their official duties while on City time.

Your Rights and Expectations

When dealing with employees of the City of Mesquite you have the right to honest, fair and impartial treatment. You may expect prompt, courteous and professional service from our employees who are expected to understand and practice good customer service skills. Employees are tasked to uphold the public trust through the ethical performance of their duties. We understand that the enforcement of regulatory guidelines and codes may sometimes be a cause for concern; however, you may rest assured that we are responsible to all of the citizens of Mesquite and our goal is to serve them to the best of our ability.

Should you have any concerns or questions concerning this information or the conduct of any of our employees please contact the City's ethics officer at 972-329-8723. All calls to the City's ethics officer are confidential and your name (or any other identifying information) will not be disclosed.

Cliff Keheley
City Manager

BID SUBMITTAL

PROPOSAL

To: The Honorable Mayor and City Council Members
Purchasing Office – City Hall, 2nd Floor
City of Mesquite
757 N. Galloway Avenue
Mesquite, Texas, 75149

Pursuant to the Advertisement for Bid, Proposal, Contract, Bond(s), General Provisions, Special Provision(s), and Requirements and the Plans and Technical Specifications, the undersigned Bidder hereby proposes to do all the work and furnish all necessary superintendence, labor, machinery, equipment, tools and materials, and to complete all the work upon which he bids, as provided by the Specifications, and binds himself, on acceptance of the proposal, to execute a contract and bonds, according to the City of Mesquite forms, for performing and completing the said work within the required time, and furnish all guarantees, for the following prices, and the undersigned certifies that the bid prices contained in this proposal have been carefully checked and are submitted as correct and final, to wit:

MESQUITE HERITAGE TRAIL PHASE II

CITY OF MESQUITE CONTRACT NO. 2024-014

BID FORM

1. The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an Agreement with CITY in the form included in the Bidding Documents to perform all Work as specified or indicated in the Bidding Documents for the prices and within the times indicated in this Bid and in accordance with the other terms and conditions of the Bidding Documents.

2. Bidder accepts all of the terms and conditions of the Advertisement for Bids and Instructions to Bidders, including without limitation those dealing with the disposition of Bid security. The Bid will remain subject to acceptance for one hundred and twenty days (120) after the Bid opening date, or for such longer period of time that Bidder may agree to in writing upon request of CITY.

3. In submitting this Bid, Bidder represents, as set forth in the Agreement, that:

   A. Bidder has examined and carefully studied the Bidding Documents and the other related data identified in the Bidding Documents.

   B. Bidder has visited the Site and become familiar with and is satisfied as to the general, local and site conditions that may affect cost, progress, and performance of the Work.

   C. Bidder is familiar with and is satisfied as to all federal, state and local Laws and Regulations that may affect cost, progress and performance of the Work.

   D. Bidder has carefully studied all reports of explorations and tests of subsurface conditions at or contiguous to the Site and all drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the Site.

   E. Bidder has obtained and carefully studied (or assumes responsibility for having done so) all additional or supplementary examinations, investigations, explorations, tests, studies and data concerning conditions (surface, subsurface and Underground Facilities) at or contiguous to the Site which may affect cost, progress, or performance of the Work or which relate to any aspect of the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder, including applying the specific means, methods, techniques, sequences, and procedures of construction expressly required by the Bidding Documents to be employed by Bidder, and safety precautions and programs incident thereto.

   F. Bidder does not consider that any further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of this Bid for performance of the Work at the prices bid and within the times and in accordance with the other terms and conditions of the Bidding Documents.

   G. Bidder is aware of the general nature of work to be performed by CITY and others at the Site that relates to the Work as indicated in the Bidding Documents.

   H. Bidder has correlated the information known to Bidder, information and observations obtained from visits to the Site, reports and drawings identified in the Bidding Documents, and all additional examinations, investigations, explorations, tests, studies, and data with the Bidding Documents.

   I. Bidder has given CITY written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder has discovered in the Bidding Documents, and the written resolution thereof by CITY is acceptable to Bidder.

J. The Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance of the Work for which this Bid is submitted.

4. Bidder further represents that this Bid is genuine and not made in the interest of or on behalf of any undisclosed individual or entity and is not submitted in conformity with any agreement or rules of any group, association, organization or corporation; Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid; Bidder has not solicited or induced any individual or entity to refrain from bidding; and Bidder has not sought by collusion to obtain for itself any advantage over any other Bidder or over CITY.

5. Bidder will complete the Work in accordance with the Contract Documents for the following prices:

MESQUITE HERITAGE TRAIL
CITY OF MESQUITE CONTRACT NO. 2024-014

MESQUITE, TEXAS

BASE BID- TRAIL A AND TRAIL B

ITEM NO	BID QTY	UNITS	ITEM DESCRIPTION	UNIT PRICE	AMOUNT
1	1	LS	MOBILIZATION (MAX 5% OF BID TOTAL)	$	$
2	64	STA	RIGHT-OF-WAY PREPARATION	$	$
3	12	MO	BARRICADES, SIGNS, AND TRAFFIC HANDLING	$	$
4	6	AC	BROADCAST SEED (TEMP)	$	$
5	3,179	LF	TEMP. SEDIMENT CONTROL FENCE (INSTALL)	$	$
6	3,179	LF	TEMP. SEDIMENT CONTROL FENCE (REMOVE)	$	$
7	594	LF	BIODEG EROSION CONTROL LOGS (12”) (INSTALL)	$	$
8	594	LF	BIODEG EROSION CONTROL LOGS (REMOVE)	$	$
9	80	SY	CONSTRUCTION EXITS (TY 1) (INSTALL)	$	$
10	80	SY	CONSTRUCTION EXITS (REMOVE)	$	$
11	662	LF	TRENCH EXCAVATION PROTECTION (RCP)	$	$
12	26	CY	CL A CONC (FLUME)	$	$
13	112	CY	RIPRAP (STONE PROTECTION) (36”)	$	$
14	270	LF	REINFORCED CONCRETE PIPE (30” (CLASS III)	$	$
15	392	LF	REINFORCED CONCRETE PIPE (48” (CLASS III)	$	$
16	1	EA	INLET (PAZD) (SL) (3’ x 3’) (COMP)	$	$
17	1	EA	INLET (PAZD) (RC) (3’ x 3’) (COMP)	$	$
18	2	EA	INLET (PAZD) (MOD) (4’ x 4’) (COMP)	$	$
19	1	EA	SET (TY II) (30” RCP) (3:1)	$	$
20	1	EA	SET (TY II) (48” RCP) (3:1)	$	$
21	251	LF	REMOVE & DISPOSE EX. WATER LINE	$	$

ITEM NO	BID QTY	UNITS	ITEM DESCRIPTION	UNIT PRICE	AMOUNT
22	45	EA	REMOVE TREES (6”-24” DIA.)	$	$
23	124	SY	REMOVE CONCRETE PAVEMENT	$	$
24	489	SY	REMOVE CONCRETE SIDEWALK	$	$
25	144	LF	REMOVE CONCRETE CURB & GUTTER	$	$
26	40	SY	REMOVE CONCRETE PAVERS	$	$
27	18	SY	REMOVE CONCRETE SLOPE PROTECTION	$	$
28	1	EA	REMOVE BARRIER	$	$
29	1	EA	REMOVE SMALL STRUCTURE (INLET)	$	$
30	2	EA	REMOVE SMALL STRUCTURE (HEADWALL)	$	$
31	31	LF	REMOVE RCP DRAINAGE PIPE	$	$
32	530	SY	REMOVE GABIONS	$	$
33	80	LF	REMOVE PAVEMENT MARKINGS & MARKERS (24”)	$	$
34	29	SY	REMOVE CONCRETE RIPRAP	$	$
35	1,436	SY	FLEX BASE (COMPLETE IN PLACE) (6” THICK) (TY D) (GRADE 1-2)	$	$
36	7,919	SF	TEMPORARY SPECIAL SHORING	$	$
37	389	LF	DRILLED SHAFT (18” DIA.)	$	$
38	224	LF	DRILLED SHAFT (24” DIA.)	$	$
39	38	LF	DRILLED SHAFT (36” DIA.)	$	$
40	35	CY	CONCRETE FLUME (CL A)	$	$
41	84	CY	CONCRETE ABUTMENT (CL C)	$	$
42	21	CY	CONCRETE BENT (CL C)	$	$
43	3,192	SF	REINFORCED CONCRETE SLAB	$	$
44	14	CY	CONCRETE APPOACH SLAB	$	$
45	5,919	SY	CONCRETE RETAINING WALL (12” THICK)	$	$
46	2,063	LF	HANDRAIL (TY B)	$	$
47	482	LF	HANDRAIL (TY F)	$	$
48	5,919	SF	ANT-GRAFFITI COATING (PERMANENT- TY III)	$	$

ITEM NO	BID QTY	UNITS	ITEM DESCRIPTION	UNIT PRICE	AMOUNT
49	1	EA	25.34 PEDESTRIAN TRUSS BRIDGE SPAN	$	$
50	1	EA	241.00 PEDESTRIAN TRUSS BRIDGE SPAN	$	$
51	266	LF	INSTALL 12” C900 (DR 18) PVC WATER LINE	$	$
52	2	TON	DUCTILE IRON FITTINGS	$	$
53	3	EA	12” GATE VALVE	$	$
54	61	LF	STEEL ENCASEMENT (18”)	$	$
55	4	EA	CONNECT TO EX. 12” W.L.	$	$
56	266	LF	TRENCH EXCAVATION PROTECTION (W.L.)	$	$
57	3	EA	ADJUST WATER VALVE STACK TOP	$	$
58	2	EA	ADJUST MANHOLE TOP	$	$
59	1	LS	UNCLASSIFIED EXCAVATION (PLAN QUANTITY) (5,830 CY)	$	$
60	1	LS	EMBANKMENT (TY C) (DENSITY CONTROL) (FINAL) (PLAN QUANTITY) (3,620 CY)	$	$
61	3	TON	LIME (TY A) (SLURRY)	$	$
62	118	SY	LIME TREATED SUBGRADE (8” THICK) (TY A) (DENSITY CONTROL)	$	$
63	118	SY	CONCRETE PAVEMENT (CRCP) (10” THICK) (HES)	$	$
64	173	SY	GABION MATTRESS (GALV.) (12” THICK)	$	$
65	131	LF	CONCRETE MONOLITHIC CURB (TY II)	$	$
66	6,647	SY	CONCRETE TRAIL (6” THICK)	$	$
67	2	EA	CONCRETE CURB RAMP (TY 2)	$	$
68	6	EA	CONCRETE CURB RAMP (TY 7)	$	$
69	2	EA	CONCRETE CURB RAMP (TY 10)	$	$
70	21	EA	SMALL SIGN ASSEMBLY & SUPPORT (MESQUITE)	$	$
71	3	EA	GPS MARKER (MESQUITE)	$	$
72	3	EA	MILE MARKER (MESQUITE)	$	$

ITEM NO	BID QTY	UNITS	ITEM DESCRIPTION	UNIT PRICE	AMOUNT
73	1	EA	RELOCATE SMALL ROAD SIGN ASSEMBLY & SUPPORT	$	$
74	454	LF	REFLECTORIZED PAVEMENT MARKING (TY II) (12” WIDE) (WHITE) (SOLID)	$	$
75	135	LF	REFLECTORIZED PAVEMENT MARKING (TY II) (24” WIDE) (WHITE) (SOLID)	$	$
76	3,440	LF	REFLECTORIZED PAVEMENT MARKING (TY II) (4” WIDE) (YELLOW) (BROKEN)	$	$
77	1,075	LF	REFLECTORIZED PAVEMENT MARKING (TY II) (4” WIDE) (YELLOW) (SOLID)	$	$
78	2	EA	REFLECTORIZED PAVEMENT MARKING (TY II) (WHITE) (STOP AHEAD)	$	$
79	3	EA	PREFABRICATED PAVEMENT MARKING (TY C) (WHITE) (STOP SYMBOL)	$	$
80	4,515	LF	PAVEMENT SURFACE PREPARATION FOR MARKING (4”)	$	$
81	454	LF	PAVEMENT SURFACE PREPARATION FOR MARKING (12”)	$	$
82	135	LF	PAVEMENT SURFACE PREPARATION FOR MARKING (24”)	$	$
83	5	EA	PAVEMENT SURFACE PREPARATION FOR MARKING (SYMBOL)	$	$
84	9	EA	REMOVABLE BOLLARDS	$	$
85	72	LF	DRILLED SHAFT (24”) LIGHT FOUNDATION	$	$
86	300	LF	CONDUIT (HDPE) (2”) (BORE)	$	$
87	210	LF	CONDUIT (PVC) (SCH 40) (2”)	$	$
88	1,290	LF	CONDUIT (PVC) (SCH 80) (4”)	$	$
89	75	LF	CONDUIT (RMC) (2”)	$	$
90	60	LF	ELECTRIC CONDUCTOR (NO. 8) (BARE)	$	$
91	60	LF	#8 XHHW-2 CONDUCTORS	$	$

ITEM NO	BID QTY	UNITS	ITEM DESCRIPTION	UNIT PRICE	AMOUNT
92	6	EA	GROUND BOX (TY A) (W/APRON) (ONCOR)	$	$
93	1	EA	GROUND BOX (TY A) (CITY)	$	$
94	2	EA	ELECTRIC SERVICE (TY A) (120/240) 060 (NS) AL (E) PS (U) (ONCOR)	$	$
95	1	EA	ELECTRIC SERVICE (TY A) (120/240) 060 (NS) AL (E) PS (U) (CITY)	$	$
96	1	ALW	LANDSCAPE IRRIGATION REPAIR ALLOWANCE	$20,000.00	$20,000.00
97	1	ALW	TREE MITIGATION ALLOWANCE	$20,000.00	$20,000.00
98	SY	8,307	“CELEBRATION” BERMUDA SOD (CYNODON DACTYLON) (PRIMARY TRAIL)	$	$
99	SY	2,097	“CELEBRATION” BERMUDA SOD (CYNODON DACTYLON) (TOWN CENTRE DR.)	$	$

TOTAL BASE BID- TRAIL A AND TRAIL B (ITEMS 1 to 99) **$** _____

1. Materials incorporated into the Project: $ _____

2. All other charges: $ _____

NOTE: Materials and all other charges incorporated into the **MESQUITE HERITAGE TRAIL PHASE II, CITY OF MESQUITE CONTRACT NO. 2024-014** must equal base bid amount.

ADD ALTERNATE 1- PARKING LOT

ITEM NO	BID QTY	UNITS	ITEM DESCRIPTION	UNIT PRICE	AMOUNT
A1.1	5	STA	RIGHT-OF-WAY PREPARATION	$	$
A1.2	12	MO	BARRICADES, SIGNS, AND TRAFFIC HANDLING	$	$
A1.3	525	LF	TEMP. SEDIMENT CONTROL FENCE (INSTALL)	$	$
A1.4	525	LF	TEMP. SEDIMENT CONTROL FENCE (REMOVE)	$	$
A1.5	71	LF	BIODEG EROSION CONTROL LOGS (12”) (INSTALL)	$	$
A1.6	71	LF	BIODEG EROSION CONTROL LOGS (REMOVE)	$	$
A1.7	303	LF	TRENCH EXCAVATION PROTECTION (RCP)	$	$
A1.8	17	CY	RIPRAP (STONE PROTECTION) (36”)	$	$
A1.9	95	LF	REINFORCED CONCRETE PIPE (18” (CLASS III)	$	$
A1.10	208	LF	REINFORCED CONCRETE PIPE (30” (CLASS III)	$	$
A1.11	2	EA	INLET (PAZD) (MOD) (4’ x 4’) (COMP)	$	$
A1.12	1	EA	STANDARD CURB INLET (10’)	$	$
A1.13	1	EA	SET (TY II) (30” RCP) (3:1)	$	$
A1.14	6	EA	REMOVE TREES (6”-24” DIA.)	$	$
A1.15	67	SY	REMOVE CONCRETE SIDEWALK	$	$
A1.16	15	SY	REMOVE CONCRETE PAVERS	$	$
A1.17	19	SY	REMOVE STABILIZED BASE AND ASPHALT PAVEMENT (UP TO 6” DEPTH)	$	$
A1.18	1	EA	REMOVE SMALL STRUCTURE (HEADWALL)	$	$
A1.19	1	EA	REMOVE BOLLARD	$	$
A1.20	45	LF	1” WATER SERVICE	$	$
A1.21	54	LF	INSTALL 4” (SCH 40) PVC WATER LINE	$	$

ITEM NO	BID QTY	UNITS	ITEM DESCRIPTION	UNIT PRICE	AMOUNT
A1.22	288	LF	INSTALL 8” C900 (DR 18) PVC WATER LINE	$	$
A1.23	1	EA	8” GATE VALVE	$	$
A1.24	1	EA	1” SERVICE TAP	$	$
A1.25	1	EA	CONNECT TO EX. 8” W.L.	$	$
A1.26	387	LF	TRENCH EXCAVATION PROTECTION (W.L.)	$	$
A1.27	1	LS	EMBANKMENT (TY C) (DENSITY CONTROL) (FINAL) (PLAN QUANTITY) (5,812 CY)	$	$
A1.28	29	TON	LIME (TY A) (SLURRY)	$	$
A1.29	1,275	SY	LIME TREATED SUBGRADE (8” THICK) (TY A) (DENSITY CONTROL	$	$
A1.30	2	TON	HOT MIX ASPHALTIC CONRETE (TY D)	$	$
A1.31	1,275	SY	CONCRETE PARKING LOT PAVEMENT (CRCP) (8” THICK)	$	$
A1.32	216	LF	CONCRETE MONOLITHIC CURB (TY II)	$	$
A1.33	88	LF	CONCRETE MONOLITHIC CURB (MOUNTABLE)	$	$
A1.34	216	SY	CONCRETE DRIVEWAY (6” THICK)	$	$
A1.35	438	SY	CONCRETE TRAIL (6” THICK)	$	$
A1.36	2	EA	CONCRETE CURB RAMP (TY 2)	$	$
A1.37	2	EA	CONCRETE CURB RAMP (TY 7)	$	$
A1.38	4	EA	SMALL SIGN ASSEMBLY & SUPPORT (MESQUITE)	$	$
A1.39	1	EA	GPS MARKER (MESQUITE)	$	$
A1.40	1	EA	MILE MARKER (MESQUITE)	$	$
A1.41	1	EA	RELOCATE SMALL ROAD SIGN ASSEMBLY	$	$
A1.42	489	LF	PREFABRICATED PAVEMENT MARKING (TY C) (4” WIDE) (WHITE) (SOLID)	$	$
A1.43	2	EA	PREFABRICATED PAVEMENT MARKING (TY C) (ACC PARKING) (BLACK & WHITE) (W/BORDER) (LARGE)	$	$

ITEM NO	BID QTY	UNITS	ITEM DESCRIPTION	UNIT PRICE	AMOUNT
A1.44	2	EA	PAVEMENT PARKING (HANDICAP PARKING)	$	$
A1.45	489	LF	PAVEMENT SURFACE PREPARATION FOR MARKING (4”)	$	$
A1.46	2	EA	PAVEMENT SURFACE PREPARATION FOR MARKING (SYMBOL)	$	$
A1.47	50	LF	DRILLED SHAFT (24”) LIGHT FOUNDATION	$	$
A1.48	35	LF	CONDUIT (HDPE) (2”) (BORE)	$	$
A1.49	675	LF	CONDUIT (PVC) (SCH 40) (2”)	$	$
A1.50	25	LF	CONDUIT (RMC) (2”)	$	$
A1.51	790	LF	ELECTRIC CONDUCTOR (NO. 8) (BARE)	$	$
A1.52	1,580	LF	#8 XHHW-2 CONDUCTORS	$	$
A1.53	4	EA	GROUND BOX (TY A) (CITY)	$	$
A1.54	1	EA	ELECTRIC SERVICE (TY A) (120/240) 060 (NS) AL (E) PS (U) (CITY)	$	$
A1.55	1,910	SY	“CELEBRATION” BERMUDA SOD (CYNODON DACTYLON)	$	$
A1.56	1	LS	IRRIGATION- PARKING LOT	$	$
A1.57	973	SY	MULCH	$	$
A1.58	6	EA	CHINESE PISTAHE (PISTACIA CHINENSIS) (100 GAL)	$	$
A1.59	2	EA	RED OAK (QUERCUS SHUMARDII) (100 GAL)	$	$
A1.60	5	EA	LIVE OAK (QUERCUS BIRGINIANA) (100 GAL)	$	$
A1.61	4	EA	NATCHEZ CRAPE MYRTL (LAGERSTROEMIA INDICA “NATCHEZ”) (65 GAL)	$	$
A1.62	28	EA	AGAVE NEOMEXICANA (AGAVE NEOMEXICANA) (5 GAL)	$	$
A1.63	68	EA	THORNLESS PRICKLY PEAR (OPUNTIA ELLISIANA) (5 GAL)	$	$
A1.64	380	EA	NEW GOLD LANTANA (LANTANA X HYBID “HOLD” & LANTANA X HYBRID) (1 GAL)	$	$

ITEM NO	BID QTY	UNITS	ITEM DESCRIPTION	UNIT PRICE	AMOUNT
A1.65	453	EA	REGAL MIST FULF MUHLY (MUHLENBERGIA CAPILLARIS “REGAL MIST”) (3 GAL)	$	$
A1.66	1,992	EA	MEXICAN FEATHER GRASS (NASSELLA TENUISSIMA) (1 GAL)	$	$
A1.67	437	EA	INDIAN HAWTHORNE “PINKIE” (RHAPHIOLEPIS INDICA “PINKE”) (3 GAL)	$	$
A1.68	998	EA	ASIAN JASMINE (TRACHELOSPERMUM ASIATICUM) (1 GAL)	$	$
A1.69	973	SY	PLANT SOIL MIX	$	$
A1.70	5	EA	BIKE RACK	$	$
A1.71	1	EA	DRINKING FOUNTAIN	$	$
A1.72	730	LF	STEEL EDGING	$	$
A1.73	121	SY	INTEGRAL COLOR CONCRETE	$	$
A1.74	3	EA	STANDARD BENCH	$	$
A1.75	92	SY	DECOMPOSED GRANITE	$	$
A1.76	326	SY	CRUSHED GRANITE BASE	$	$
A1.77	234	SY	TEJAS BLACK CRUSHED GRANITE	$	$
A1.78	5	EA	LANDSCAPE STONE PILASTER W/ARBORS	$	$
A1.79.	1	EA	TRAIL SIGN		

TOTAL ADD ALTERNATE 1- PARKING LOT (ITEMS A1.1 to A1.79) **$** _____

1. Materials incorporated into the Project: $ _____

2. All other charges: $ _____

NOTE: Materials and all other charges incorporated into the **MESQUITE HERITAGE TRAIL PHASE II, CITY OF MESQUITE CONTRACT NO. 2024-014** must equal base bid amount.

ADD ALTERNATE 2- OVERLOOK

ITEM NO	BID QTY	UNITS	ITEM DESCRIPTION	UNIT PRICE	AMOUNT
A2.1	1	LS	EMBANKMENT (TY D) (DENSITY CONTROL) (FINAL) (PLAN QUANTITY) (257 CY)	$	$
A2.2	13.2	CY	CL C CONC (MISC)	$	$
A2.3	1,389	SF	CONCRETE BLOCK RETAINING WALL	$	$
A2.4	135	SY	“CELEBRATION” BERMUDA SOD (CYNODON DACTYLON)	$	$
A2.5	1	LS	IRRIGATION- OVERLOOK	$	$
A2.6	253	SY	MULCH	$	$
A2.7	3	EA	CHINESE PISTAHE (PISTACIA CHINENSIS) (100 GAL)	$	$
A2.8	1	EA	RED OAK (QUERCUS SHUMARDII) (100 GAL)	$	$
A2.9	1	EA	LIVE OAK (QUERCUS BIRGINIANA) (100 GAL)	$	$
A2.10	14	EA	AGAVE NEOMEXICANA (AGAVE NEOMEXICANA) (5 GAL)	$	$
A2.11	24	EA	THORNLESS PRICKLY PEAR (OPUNTIA ELLISIANA) (5 GAL)	$	$
A2.12	58	EA	NEW GOLD LANTANA (LANTANA X HYBID “HOLD” & LANTANA X HYBRID) (1 GAL)	$	$
A2.13	1,553	EA	MEXICAN FEATHER GRASS (NASSELLA TENUISSIMA) (1 GAL)	$	$
A2.14	253	SY	PLANT SOIL MIX	$	$
A2.15	237	LF	STEEL EDGING	$	$
A2.16	145	SY	INTEGRAL COLOR CONCRETE	$	$
A2.17	3	EA	STANDARD BENCH	$	$
A2.18	25	SY	DECOMPOSED GRANITE	$	$
A2.19	100	SY	CRUSHED GRANITE BASE	$	$
A2.20	75	SY	TEJAS BLACK CRUSHED GRANITE	$	$
A2.21	1	EA	TRAIL SIGN	$	$

ITEM NO	BID QTY	UNITS	ITEM DESCRIPTION	UNIT PRICE	AMOUNT
A2.22	2	EA	LANDSCAPE STONE PILASTER	$	$
A2.23	8	EA	LANDSCAPE STONE PILASTER AT BRIDGE	$	$
A2.24	3	EA	LIMESTONE SEAT BLOCKS	$	$
A2.25	285	LF	HANDRAIL (TY F)	$	$

TOTAL ADD ALTERNATE 2- OVERLOOK (ITEMS A2.1 to A2.25) **$** _____

1. Materials incorporated into the Project: $ _____

2. All other charges: $ _____

NOTE: Materials and all other charges incorporated into the **MESQUITE HERITAGE TRAIL PHASE II, CITY OF MESQUITE CONTRACT NO. 2024-014** must equal base bid amount.

ADD ALTERNATE 3- TRAIL C

ITEM NO	BID QTY	UNITS	ITEM DESCRIPTION	UNIT PRICE	AMOUNT
A3.1	2.7	STA	RIGHT-OF-WAY PREPARATION	$	$
A3.2	0.1	AC	BROADCAST SEED (TEMP)	$	$
A3.3	305	LF	TEMP. SEDIMENT CONTROL FENCE (INSTALL)	$	$
A3.4	305	LF	TEMP. SEDIMENT CONTROL FENCE (REMOVE)	$	$
A3.5	11	EA	REMOVE TREES (6”-24” DIA.)	$	$
A3.6	74	SY	REMOVE CONCRETE PAVEMENT	$	$
A3.7	60	LF	REMOVE CONCRETE CURB & GUTTER	$	$
A3.8	9	SY	REMOVE STABILIZED BASE AND ASPHALT PAVEMENT (UP TO 6” DEPTH)	$	$
A3.9	1	LS	UNCLASSIFIED EXCAVATION (PLAN QUANTITY) (33 CY)	$	$
A3.10	1	LS	EMBANKMENT (TY C) (DENSITY CONTROL) (FINAL) (PLAN QUANTITY) (62 CY)	$	$
A3.11	2	TON	LIME (TY A) (SLURRY)	$	$
A3.12	74	SY	LIME TREATED SUBGRADE (8” THICK) (TY A) (DENSITY CONTROL)	$	$
A3.13	63	LF	CONCRETE MONOLITHIC CURB (TY II)	$	$
A3.14	74	SY	CONCRETE DRIVEWAY (6” THICK)	$	$
A3.15	480	SY	CONCRETE TRAIL (6” THICK)	$	$
A3.16	2	EA	CONCRETE CURB RAMP (TY 7)	$	$

TOTAL ADD ALTERNATE 3- TRAIL C (ITEMS A3.1 to A3.16) **$** _____

1. Materials incorporated into the Project: $ _____

2. All other charges: $ _____

NOTE: Materials and all other charges incorporated into the **MESQUITE HERITAGE TRAIL PHASE II, CITY OF MESQUITE CONTRACT NO. 2024-014** must equal base bid amount.

BID SUMMARY

TOTAL BASE BID- TRAIL A AND TRAIL B (ITEMS 1 to 99)	**$** _____
TOTAL ADD ALTERNATE 1- PARKING LOT (ITEMS A1.1 to A1.79)	**$** _____
TOTAL ADD ALTERNATE 2- OVERLOOK (ITEMS A2.1 to A2.25)	**$** _____
TOTAL ADD ALTERNATE 3- TRAIL C (ITEMS A3.1 to A3.16)	**$** _____
TOTAL BID- BASE BID + ALT. 1 + ALT. 2 + ALT.3	**$** _____
1. Materials incorporated into the Project:	$ _____
2. All other charges:	$ _____

NOTE: Materials and all other charges incorporated into the **MESQUITE HERITAGE TRAIL PHASE II, CITY OF MESQUITE CONTRACT NO. 2024-014** must equal base bid amount.

Pre-bid Inspection

The undersigned declares that he has personally inspected the site where the work is to be performed and that he has informed himself of all:

(1) surface and subsurface conditions, constraints, and facilities which may in any way affect the work, in terms of cost, time, and/or constructability;
(2) quantities, types, and nature(s) of materials to be incorporated into the work;
(3) types and specialties of equipment, tools, labor, and superintendence required to perform the work;
(4) other matters which in any way will affect the work and/or the performance of the work;
(5) project plans, specifications and other project documents.

Commencement and Execution

The undersigned bidder agrees to commence the work on or before the date so stated in the written notice to proceed and to diligently perform all of the work and to substantially complete the work **within 365 calendar days**. Time shall commence on the first day of move-in, but in no case later than the date so stated in the written notice to proceed.

The Time of Construction as given above shall include all work related to this project. Included in the above Time and Construction shall be the necessary utility work involved with the franchise utility companies (i.e. Natural Gas, Telecommunications, Cable Television, Electrical Power, etc.).

The right is reserved by the City as is advantageous to the City, to reject any and all bids, award a contract based upon submitted bids, or to re-bid the contract and to waive any and all formalities. Bidder understands and agrees that the unit prices provided above shall be used for all additions and deletions from the accepted option.

Bidder submits as guarantee that he will execute and issue the required contracts, bonds, insurance, and other required agreements and documents, as set forth under the contract, and general and special provisions of agreement, cashier's check or bid bond payable in full without conditions and upon demand to the City of Mesquite in the amount of:

_____ ($ _____),

representing 5% of the Bidder's total base bid price.

Bidder understands and agrees that, should he fail to execute and issue the contract, bonds, insurance, other agreements, and other documents as set forth under the general and special provisions of agreement for that certain contract known as the **MESQUITE HERITAGE TRAIL PHASE II, CITY OF MESQUITE CONTRACT NO. 2024-014** the City will cash or demand payment under the bid bond for payment of agreed upon liquidated damages. Bidder understands and agrees that, for bidding purpose only, liquidated damages shall be 5% of the Bidder's bid proposal, and that upon execution of the Contract, liquidated damages shall be as stated in the General Provisions.

Addenda

Contractor acknowledges receipt and incorporation into the bid of addendums as listed below:

Addendum No. 1 – Acknowledgement of Receipt: _____ ***(initial)***

Addendum No. 2 – Acknowledgement of Receipt: _____ ***(initial)***

Addendum No. 3 – Acknowledgement of Receipt: _____ ***(initial)***

Addendum No. 4 – Acknowledgement of Receipt: _____ ***(initial)***

Proposal Approval:

Company Name

Signature: Printed Name:

Title: Company Address

Telephone City State Zip Code

(If Bidder is a Corporation Seal Proposal with Corporate Seal)

SEAL

DISADVANTAGED BUSINESS ENTERPRISE (DBE) INFORMATION

Disadvantaged Business Enterprises (DBEs) are encouraged to participate in City of Mesquite's bid. The Purchasing Office will provide additional clarification on specifications, assistance with Bid Proposal Forms and further explanation of bidding procedures to those DBEs who request it.

Representatives from DBE companies should identify themselves as such and submit a copy of the Certification.

The City of Mesquite recognizes the certifications of both the State of Texas General Services Commission HUB Program and the North Central Texas Regional Certification Agency. All companies seeking information concerning DBE certification are urged to contact

State of Texas HUB Program
General Services Commission
PO Box 13047
Austin, TX 78711-3047
512-463-5872

OR

North Central Texas
Regional Certification Agency
624 Six Flags Drive, Suite 216
Arlington, TX 76011
817-640-0606

If your company is already certified, attach a copy of your certification to this form and return with your bid.

FIRM NAME SUBMITTING THE BID

REPRESENTATIVE | TITLE OF AUTHORIZED REPRESENTATIVE

ADDRESS | CITY, STATE, ZIP

TELEPHONE NUMBER | FACSIMILE NUMBER

Indicate all that apply:

□ Minority-Owned Business Enterprise

□ Women-Owned Business Enterprise

□ Disadvantaged Business Enterprise

PROHIBITION ON CONTRACTS WITH COMPANIES BOYCOTTING ISRAEL

House Bill 89, effective September 1, 2017, amended the Texas Government Code to add Chapter 2270, Prohibition on Contracts with Companies Boycotting Israel. Effective September 1, 2017, a state agency and a political subdivision (which includes a city) may not enter a contract with a company for goods or services unless the contract contains a written verification from the company that: (i) it does not Boycott Israel; and (ii) will not Boycott Israel during the term of the contract.

"Boycott Israel" is defined to mean refusing to deal with, terminating business activities with, or otherwise taking any action that is intended to penalize, inflict economic harm on, or limit commercial relations specifically with Israel, or with a person or entity doing business in Israel or in an Israeli-controlled territory, but does not include an action made for ordinary business purposes. "Company" is defined to mean a for-profit organization, association, corporation, partnership, joint venture, limited partnership, limited liability partnership, or limited liability company, including a wholly owned subsidiary, majority-owned subsidiary, parent company, or affiliate of those entities or business associations that exists to make a profit. The term "Company" does not include sole proprietorship.

I, _____, the _____
(Name of Certifying Official) (Title or Position of Certifying Official)

of _____,
(Name of Company)

does hereby verify on behalf of said company to the City of Mesquite that said company does not Boycott Israel and will not Boycott Israel during the term of this contract.

_____
Signature of Certifying Official

_____
Title

_____
Date of Certification

NON-COLLUSION STATEMENT

The undersigned affirms that they are duly authorized to execute this contract, that this company, corporation, firm, partnership or individual has not prepared this bid in collusion with any other bidder and that the contents of this bid as to prices, terms or conditions of said bid have not been communicated by the undersigned nor by any employee or agent to any other person engaged in this type of business prior to the official opening of this bid.

Name of Company _____

Address _____

_____

Phone _____

Email _____

Fax _____

Bidder (Signature) _____

Bidder (Print Name) _____

Position with Company _____

Signature of
Company Official
Authorizing This Bid _____

Company Official
(Printed Name) _____

Official Position _____

SUBSCRIBED AND SWORN TO BEFORE ME, this _____ day of _____, 20___.

_____
(Notary Public in and for the State of Texas)

_____
(Printed Name of Notary)

My commission expires _____

CONTRACTING WITH THE CITY OF MESQUITE
Updated: January 8, 2016

Conflict of Interest Questionnaire
And Disclosure of Interested Parties (Form 1295)

YOU WILL BE REQUIRED TO COMPLY WITH THE FOLLOWING:

Chapter 176 of the Texas Local Government Code is an ethics law that was initially enacted by the Texas Legislature with HB 914 in 2005 that requires disclosure of employment and business relationships local government officers may have with contractors, consultants and vendors who conduct business with local government entities. The law applies to any written contract for the sale or purchase of real property, goods or services. Further information regarding Texas Conflict of Interest laws and the ***Conflict of Interest Questionnaire*** (Form CIQ) can be found at the Texas Ethics Commission web site at the following web address:

https://www.ethics.state.tx.us/filinginfo/conflict_forms.htm
PLEASE COMPLETE THE ATTACHED FORM CIQ AND SUBMIT WITH YOUR RESPONSE.

Section 2252.908 of the Texas Government Code was enacted in 2015, by the Texas Legislature pursuant to HB 1295, which provides that a governmental entity may not enter into certain contracts with a business entity on or after January 1, 2016, unless the business entity submits a disclosure of interested parties (Form 1295) to the governmental entity at the time the business entity submits the signed contract to the governmental entity. Further information regarding the disclosure of interested parties law and Form 1295 can be found at the Texas Ethics Commission web site at the following web address:

https://www.ethics.state.tx.us/filinginfo/1295/
PLEASE DO NOT COMPLETE FORM 1295 UNTIL YOU HAVE BEEN NOTIFIED OF CONTRACT AWARD AND REQUESTED TO ELECTRONICALLY FILE FORM 1295 WITH THE TEXAS ETHICS COMMISSION.

CONFLICT OF INTEREST QUESTIONNAIRE

FORM CIQ

For vendor doing business with local governmental entity

This questionnaire reflects changes made to the law by H.B. 23, 84th Leg., Regular Session.

This questionnaire is being filed in accordance with Chapter 176, Local Government Code, by a vendor who has a business relationship as defined by Section 176.001(1-a) with a local governmental entity and the vendor meets requirements under Section 176.006(a).

By law this questionnaire must be filed with the records administrator of the local governmental entity not later than the 7th business day after the date the vendor becomes aware of facts that require the statement to be filed. *See* Section 176.006(a-1), Local Government Code.

A vendor commits an offense if the vendor knowingly violates Section 176.006, Local Government Code. An offense under this section is a misdemeanor.

OFFICE USE ONLY

Date Received

1 **Name of vendor who has a business relationship with local governmental entity.**

2 ☐ **Check this box if you are filing an update to a previously filed questionnaire.** (The law requires that you file an updated completed questionnaire with the appropriate filing authority not later than the 7th business day after the date on which you became aware that the originally filed questionnaire was incomplete or inaccurate.)

3 **Name of local government officer about whom the information is being disclosed.**

_____
Name of Officer

4 **Describe each employment or other business relationship with the local government officer, or a family member of the officer, as described by Section 176.003(a)(2)(A). Also describe any family relationship with the local government officer. Complete subparts A and B for each employment or business relationship described. Attach additional pages to this Form CIQ as necessary.**

A. Is the local government officer or a family member of the officer receiving or likely to receive taxable income, other than investment income, from the vendor?

☐ Yes ☐ No

B. Is the vendor receiving or likely to receive taxable income, other than investment income, from or at the direction of the local government officer or a family member of the officer AND the taxable income is not received from the local governmental entity?

☐ Yes ☐ No

5 **Describe each employment or business relationship that the vendor named in Section 1 maintains with a corporation or other business entity with respect to which the local government officer serves as an officer or director, or holds an ownership interest of one percent or more.**

6 ☐ Check this box if the vendor has given the local government officer or a family member of the officer one or more gifts as described in Section 176.003(a)(2)(B), excluding gifts described in Section 176.003(a-1).

7

_____ _____
Signature of vendor doing business with the governmental entity Date

Form provided by Texas Ethics Commission www.ethics.state.tx.us Revised 11/30/2015

CONFLICT OF INTEREST QUESTIONNAIRE
For vendor doing business with local governmental entity

A complete copy of Chapter 176 of the Local Government Code may be found at http://www.statutes.legis.state.tx.us/Docs/LG/htm/LG.176.htm. For easy reference, below are some of the sections cited on this form.

Local Government Code § 176.001(1-a): "Business relationship" means a connection between two or more parties based on commercial activity of one of the parties. The term does not include a connection based on:

(A) a transaction that is subject to rate or fee regulation by a federal, state, or local governmental entity or an agency of a federal, state, or local governmental entity;

(B) a transaction conducted at a price and subject to terms available to the public; or

(C) a purchase or lease of goods or services from a person that is chartered by a state or federal agency and that is subject to regular examination by, and reporting to, that agency.

Local Government Code § 176.003(a)(2)(A) and (B):

(a) A local government officer shall file a conflicts disclosure statement with respect to a vendor if:

***

(2) the vendor:

(A) has an employment or other business relationship with the local government officer or a family member of the officer that results in the officer or family member receiving taxable income, other than investment income, that exceeds $2,500 during the 12-month period preceding the date that the officer becomes aware that

(i) a contract between the local governmental entity and vendor has been executed; or

(ii) the local governmental entity is considering entering into a contract with the vendor;

(B) has given to the local government officer or a family member of the officer one or more gifts that have an aggregate value of more than $100 in the 12-month period preceding the date the officer becomes aware that:

(i) a contract between the local governmental entity and vendor has been executed; or

(ii) the local governmental entity is considering entering into a contract with the vendor.

Local Government Code § 176.006(a) and (a-1)

(a) A vendor shall file a completed conflict of interest questionnaire if the vendor has a business relationship with a local governmental entity and:

(1) has an employment or other business relationship with a local government officer of that local governmental entity, or a family member of the officer, described by Section 176.003(a)(2)(A);

(2) has given a local government officer of that local governmental entity, or a family member of the officer, one or more gifts with the aggregate value specified by Section 176.003(a)(2)(B), excluding any gift described by Section 176.003(a-1); or

(3) has a family relationship with a local government officer of that local governmental entity.

(a-1) The completed conflict of interest questionnaire must be filed with the appropriate records administrator not later than the seventh business day after the later of:

(1) the date that the vendor:

(A) begins discussions or negotiations to enter into a contract with the local governmental entity; or

(B) submits to the local governmental entity an application, response to a request for proposals or bids, correspondence, or another writing related to a potential contract with the local governmental entity; or

(2) the date the vendor becomes aware:

(A) of an employment or other business relationship with a local government officer, or a family member of the officer, described by Subsection (a);

(B) that the vendor has given one or more gifts described by Subsection (a); or

(C) of a family relationship with a local government officer.

BID BOND

Bond No.: _____
(by Surety)

STATE OF TEXAS §
§ **KNOW ALL MEN BY THESE PRESENTS:**
COUNTY OF DALLAS §

THAT _____, of the City of _____, _____County, State of Texas (hereinafter referred to as "Principal"), and _____, authorized under the laws of the State of Texas to act as Surety on bonds for principals (hereinafter referred to as "Surety") are held and firmly bound unto the City of Mesquite (hereinafter referred to as "City") in the penal sum of $_____ (an amount equal to 5% of the approximate total amount of the bid or if the bid is based upon alternates and/or addenda, at least 5% of the greatest amount bid by the bidder or Principal herein as evidenced in the Bid Proposal) for the payment whereof, the said Principal and Surety bind themselves, and their heirs, administrators, executors, successors and assigns, jointly and severally, by these presents;

WHEREAS the Principal has submitted on or about this date, a bid proposal offering to perform the following: **MESQUITE HERITAGE TRAIL PHASE II, CITY OF MESQUITE CONTRACT NO. 2024-014** in accordance with the specifications and terms and conditions related thereto, to which reference is hereby made;

NOW, THEREFORE, the condition of this obligation is such that if the said Principal's offer as stated in the bid proposal is accepted by the City, and the said Principal executes and returns to the City the number of original counterparts of the contract required by the City, on the forms provided by the City, for the materials, equipment and/or services described herein and also executes and returns the same number of Performance, Payment and Maintenance Bonds, if required, on the forms provided by the City, within the time provided in the specifications, then this obligation is null and void, otherwise, it is to remain in full force and effect;

IN WITNESS WHEREOF, the said Principal and Surety have signed and sealed this instrument on this _____ day of _____, 20___.

PRINCIPAL:	**SURETY:**
_____	_____
Signature	Signature
_____	_____
Typed or Printed Name	Typed or Printed Name
Title:_____	Title:_____
Company:_____	Company:_____
Address:_____	Address:_____
_____	_____

SURETY'S DALLAS COUNTY REGISTERED AGENT FOR SERVICE (REQUIRED):

_____
Type or Printed Name

_____
Street Address (P.O. Box is not acceptable)

_____
City, State, and Zip Code

_____
Dallas County Telephone No.

BIDDER'S QUALIFICATION INFORMATION
(APPARENT LOW BIDDER)

1. The **apparent low bidder** shall complete and deliver to the Engineering Division and City's Consulting Engineer **within 48-hours after the bid opening**, the following **Bidder's Qualification Information** documents:

   - ❑ Qualification Statement of Bidder. If additional space is needed, please use attachments.
   - ❑ Reference Statement of Bidder's Surety.
   - ❑ Bidder's Release of Qualification Information.
   - ❑ Bidder's List of Proposed Sub-contractors.
   - ❑ Financial Statement Reviewed or Audited by an Independent Certified Public Accountant (CPA) in accordance with Generally Accepted Accounting Principles (GAAP), prepared in the last 12-months for the bidder's company.
   - ❑ Non-Exclusion Affidavit – System for Award Management (SAM).
   - ❑ Certificate of Interested Parties (Form 1295)
   - ❑ IRS W9 Form – a pdf version of this form can be downloaded from the IRS website.
   - ❑ Secretary of State Filing Certificate.

All nine (9) documents shall be delivered to the Engineering Division and City's Consulting Engineer as a single, complete package. No one form or statement will be accepted individually.

2. If the 48-hours deadline falls on a weekend or holiday, Bidder shall deliver the eight (8) documents to the Engineering Division and City's Consulting Engineer the next workday after the 48-hours.

3. If a project is a "joint venture", all partners in the joint venture shall complete the pre-qualification forms.

4. The low bidder shall be required to submit evidence that they have a practical knowledge and experience of the particular work bid upon and that they have the financial resources to complete the proposed work.

5. In determining the contractor's qualifications, the following factors will be considered: Work previously completed by the contractor; adequate plant and equipment to do the work properly and expeditiously; financial resources to meet all obligations incidental to the work; technical expertise and safety record.

QUALIFICATION STATEMENT OF BIDDER

Engineering Division
City of Mesquite
1515 N. Galloway Avenue
Mesquite, Texas 75149

Bidder: _____

Circle One: Sole Proprietor Partnership Corporation Joint Venture

Name: _____ Partner: _____

Address: _____ Address: _____

City: _____ City: _____

Phone: _____ Phone: _____

Principal Place of Business: Principal Place of Business:

_____ _____
County & State County & State

If the Bidder is a corporation, fill out the following:

State and County of Incorporation: _____

Location of Principal Office: _____

Contact Person(s) at Office: _____ Phone: _____

List Officers of the Corporation and person(s) authorized to execute Contracts on Behalf of the Corporation:

Name: _____ Title: _____

Name: _____ Title: _____

Name: _____ Title: _____

Name: _____ Title: _____

How many years has your organization been in business as a General Contractor? _____

Greatest number of contracts in excess of $100,000 under construction at one time in company's history: _____

Greatest number of contracts in excess of $500,000 under construction at one time in company's history: _____

Total approximate value of incomplete work outstanding: $ _____

List major projects of the type of work qualifying for or similar work completed in the last three years, give the following information for each project:

Project: _____

Owner/Engineer: _____

Contact Person: _____ Phone: _____

Date of Completion: _____ Contract Price: _____

Project: _____

Owner/Engineer: _____

Contact Person: _____ Phone: _____

Date of Completion: _____ Contract Price: _____

Project: _____

Owner/Engineer: _____

Contact Person: _____ Phone: _____

Date of Completion: _____ Contract Price: _____

Project: _____

Owner/Engineer: _____

Contact Person: _____ Phone: _____

Date of Completion: _____ Contract Price: _____

Project: _____

Owner/Engineer: _____

Contact Person: _____ Phone: _____

Date of Completion: _____ Contract Price: _____

Project: _____

Owner/Engineer: _____

Contact Person: _____ Phone: _____

Date of Completion: _____ Contract Price: _____

Project: _____

Owner/Engineer: _____

Contact Person: _____ Phone: _____

Date of Completion: _____ Contract Price: _____

Project: _____

Owner/Engineer: _____

Contact Person: _____ Phone: _____

Date of Completion: _____ Contract Price: _____

Project: _____

Owner/Engineer: _____

Contact Person: _____ Phone: _____

Date of Completion: _____ Contract Price: _____

(If Necessary - List Additional Projects by Using Attachments)

List **incomplete** projects, including the following information for each incomplete project listed:

Project: _____

Owner/Engineer: _____

Contact Person: _____ Phone: _____

Value of Incomplete Work: _____

Project: _____

Owner/Engineer: _____

Contact Person: _____ Phone: _____

Value of Incomplete Work: _____

Project: _____

Owner/Engineer: _____

Contact Person: _____ Phone: _____

Value of Incomplete Work: _____

Project: _____

Owner/Engineer: _____

Contact Person: _____ Phone: _____

Value of Incomplete Work: _____

Project: _____

Owner/Engineer: _____

Contact Person: _____ Phone: _____

Value of Incomplete Work: _____

(If Necessary - List Additional Projects by Using Attachments)

If company is under new management, please list names of staff and qualification and/or experience of said persons. (Please use attachments).

Have you or any present partner(s) or officer(s) failed to complete a contract? _____
If so, name of owner and/or surety:

Contact Person: _____ Phone: _____

List any unsatisfied demands upon you as to your accounts payable, please use attachments.

Bank Reference:

Bank: _____ City: _____

Address: _____ Phone: _____

Contact Officer: _____

Other Credit References:

Name: _____ Name: _____

Address: _____ Address: _____

City: _____ City: _____

Phone: _____ Phone: _____

Municipal Reference:

City: _____

Contact Person: _____ Title: _____

Address: _____ Phone: _____

REFERENCE STATEMENT OF BIDDER'S SURETY

Bidder: _____

Address: _____

1. For this Bidder, how many contracts **that are now complete** has this surety furnished contract bonds? _____

2. For this Bidder, how many **incomplete contracts** has this surety furnished contract bonds? _____

3. What is the maximum bonding capacity of this Bidder? $ _____

4. Does the current financial information on this Bidder indicate solvency and a financial ability to complete this contract? _____

5. Does the information available to this surety indicate that the contractor pays accounts when due? _____

   If not, give details: _____

6. Is it the surety's opinion that the bidder has sufficient experience and financial resources to satisfactorily perform the contract? _____

7. Provided this bidder does not assume other commitments or that this surety does not acquire further information that in your opinion will materially affect the bidder's capacity to perform this contract, will you furnish the bonds as specified: _____

REMARKS:

_____

_____

_____

Surety: _____

Signed: _____

Title: _____

Address: _____ (Local office in Dallas County)

_____
City State Zip

Phone: _____

BIDDER'S RELEASE OF QUALIFICATION INFORMATION

Pursuant to advertisement for bids and in conformance with Instructions to Bidders for types of work outlined in Bidder's Statement of Qualifications, the undersigned is submitting information as required with the understanding that the purpose is for the City's confidential use, only to assist in determining the qualifications of Bidder's organization to perform the type and magnitude of work designated, and further, Bidder guarantees the truth and accuracy of all statements made, and will accept the City's determination of qualifications without prejudice. The surety herein named, any other bonding company(s), bank(s), subcontractor(s), supplier(s), or any other person(s), firm(s) or corporation(s) with whom Bidder has done business, or who have extended any credit to Bidder is (are) hereby authorized to furnish the City with any information the City may request concerning performance on previous work and Bidder's credit standing with any of them; and Bidder hereby releases any and all such parties from any legal responsibility whatsoever on account of having furnished such information to the City:

Signed: _____ Title: _____

Printed Name: _____ Email: _____

Bidder: _____ Date: _____

LOCATION OF LOCAL UNDERWRITING OFFICE OF PROPOSED SURETY (MUST BE IN DALLAS COUNTY)

Name: _____ Phone: _____

Printed Name: _____ Email: _____

Address: _____ City: _____ State: _____

BIDDER'S LIST OF PROPOSED SUB-CONTRACTORS

1. Sub-Contractor / Material Supplier:

Company Name: _____

Type of Work to Be Performed: _____

Contact Person: _____ Title: _____

Email: _____ Phone: _____

---

2. Sub-Contractor / Material Supplier:

Company Name: _____

Type of Work to Be Performed: _____

Contact Person: _____ Title: _____

Email: _____ Phone: _____

---

3. Sub-Contractor / Material Supplier:

Company Name: _____

Type of Work to Be Performed: _____

Contact Person: _____ Title: _____

Email: _____ Phone: _____

---

4. Sub-Contractor / Material Supplier:

Company Name: _____

Type of Work to Be Performed: _____

Contact Person: _____ Title: _____

Email: _____ Phone: _____

---

5. Sub-Contractor / Material Supplier:

Company Name: _____

Type of Work to Be Performed: _____

Contact Person: _____ Title: _____

Email: _____ Phone: _____

---

6. Sub-Contractor / Material Supplier:

Company Name: _____

Type of Work to Be Performed: _____

Contact Person: _____ Title: _____

Email: _____ Phone: _____

7. Sub-Contractor / Material Supplier:

Company Name: _____

Type of Work to Be Performed: _____

Contact Person: _____ Title: _____

Email: _____ Phone: _____

8. Sub-Contractor / Material Supplier:

Company Name: _____

Type of Work to Be Performed: _____

Contact Person: _____ Title: _____

Email: _____ Phone: _____

9. Sub-Contractor / Material Supplier:

Company Name: _____

Type of Work to Be Performed: _____

Contact Person: _____ Title: _____

Email: _____ Phone: _____

10. Sub-Contractor / Material Supplier:

Company Name: _____

Type of Work to Be Performed: _____

Contact Person: _____ Title: _____

Email: _____ Phone: _____

NON-EXCLUSION AFFIDAVIT - SYSTEM FOR AWARD MANAGEMENT (SAM)

Federal, state, and local government agencies, not-profits, and other organizations that use federal money to fund all or part of any program or project are required to follow specific requirements regarding the use of such federal funds. One of these requirements is that no contract, subcontract, grant, financial assistance, or other forms of assistance provided using federal funds may be awarded to individuals or entities that have been suspended, debarred, or otherwise excluded from participation in federally funded programs.

The U.S. federal government maintains a Web site known as the "System for Award Management" (SAM) at www.sam.gov. One of the purposes of the SAM Web site is to provide a comprehensive list of all individuals, firms, and other entities that have been suspended, debarred, or otherwise excluded from participation in federally funded contracts, subcontracts, grants, etc. SAM provides a simple means of helping government, non-profit agencies, and other organizations ensure that they do not award federally-funded grants, contracts, subcontracts, or other financial or non-financial benefits to any individual, firm, or other entity that has been excluded by any agency from participation in such federally funded activities.

I, _____ ***(Contractor Representative)***, hereby certify that neither I nor _____ ***(Name of the company or organization I represent)*** nor any subcontractors that I or said company may employ to work on any federally funded activity have been suspended, debarred, or otherwise excluded by any federal agency from participation in any federally funded activity. I further acknowledge my understanding that, before entering into a contract with me or with the company or organization I represent, City of Mesquite staff will perform a search on www.sam.gov to verify whether I, the organization I represent, or any subcontractors I may employ to work on any federally funded activity, have been excluded from participation in any federally funded activity.

_____ _____

Signature of Contractor Representative Date

Notary

Sworn to and subscribed before me this _____ day of _____, 20____

_____

Notary Public in and for _____ County, _____ (Insert State Name).

CERTIFICATE OF INTERESTED PARTIES

FORM 1295

Complete Nos. 1 - 4 and 6 if there are interested parties. Complete Nos. 1, 2, 3, 5, and 6 if there are no interested parties.	**OFFICE USE ONLY**

1 **Name of business entity filing form, and the city, state and country of the business entity's place of business.**

2 **Name of governmental entity or state agency that is a party to the contract for which the form is being filed.**

3 **Provide the identification number used by the governmental entity or state agency to track or identify the contract, and provide a description of the goods or services to be provided under the contract.**

4 Name of Interested Party	City, State, Country (place of business)	Nature of Interest (check applicable)	
		Controlling	Intermediary

5 **Check only if there is NO Interested Party.** ☐

6 **AFFIDAVIT**

I swear, or affirm, under penalty of perjury, that the above disclosure is true and correct.

_____
Signature of authorized agent of contracting business entity

AFFIX NOTARY STAMP / SEAL ABOVE

Sworn to and subscribed before me, by the said _____, this the _____ day of _____, 20 _____, to certify which, witness my hand and seal of office.

_____ _____ _____
Signature of officer administering oath | Printed name of officer administering oath | Title of officer administering oath

ADD ADDITIONAL PAGES AS NECESSARY

Form provided by Texas Ethics Commission www.ethics.state.tx.us Adopted 10/5/2015

CONTRACT AND BOND FORMS

NOTICE TO BIDDERS

The following blank spaces in the contract and bonds **are not to be filled in** by the Bidder at the time of submitting his proposal.

The contract and bond forms are submitted at this time to familiarize the Bidder with the form of contract and bonds that the successful Bidder will be required to execute.

CONTRACT CHECKLIST

City contracts must be checked to ensure they are ready for review and signature.

CHECK	CONTRACT ITEM:
	Are all blanks filled in, except for the signatures of the Mayor (or City Manager), City Secretary and City Attorney?
	The date the Contract is "made and entered into" should be the meeting date the bid was awarded by City Council (for contracts over $50,000), or the date of City Manager approval (for contracts under $50,000). Is the date of the contract correct?
	units x unit price = amount
	individual amounts = total base bid
	total bid = amount awarded by Council
	Company name is consistent throughout all contractual documents
	If the contractor is a corporation, the President or Vice-President of the corporation should sign the Contract. The Secretary of the corporation must then attest the signature and seal the Contract unless the contract form used provides for an acknowledgment by a notary.
	Contract total matches the awarded amount by Council
	Signed by authorized person for the company
	Printed name matches signed name
	The name of the person signing the Contract on behalf of the contractor and the City must be typed on the appropriate lines as well as their respective titles.
	If the Contract is revised by the striking-out or inserting of new language, both parties should initial the change.
	PERFORMANCE AND PAYMENT BONDS
	Performance Bond = 100% of Contract Amount (City Form) Includes a 1-year warranty period after City Acceptance for materials and workmanship.
	Check that the company name is identical to name listed in contract
	Check for same contract date (reference in top paragraphs)
	The name of the surety on the bond must appear the same on each page of the bond.
	Check for issuance date (date of contract or after)
	Check for same signature & title throughout bond.
	Check for typed name and title of the person signing bond and for legible signature.
	Check for agent in Dallas County.
	The items listed as work to be done must exactly match the improvements listed on the Contract.
	The surety's seal (which is the seal of the bond company) must appear under the surety's signature (not a notary's seal). All corporate sureties have seals. The seal may be a legible facsimile seal, unless the instrument states otherwise.
	Payment Bond = 100% of contract amount (City form)
	Check that the company name is identical to name listed in contract
	Check for same contract date (reference in top paragraphs)
	The name of the surety on the bond must appear the same on each page of the bond.
	Check for issuance date (date of contract or after)
	Check for same signature & title throughout bond
	Check for typed name and title of the person signing bond and for legible signature.
	Check for agent in Dallas County
	The items listed as work to be done must exactly match the improvements listed on the Contract.

CHECK	CONTRACT ITEM:
	The surety's seal (which is the seal of the bond company) must appear under the surety's signature (not a notary's seal). All corporate sureties have seals. The seal may be a legible facsimile seal, unless the instrument states otherwise.
	INSURANCE-GENERAL
	Certificate of Insurance (ACORD form)
	Certificate of Insurance Supplemental Form
	Check that the company name is identical to name listed in contract
	Check the expiration date on policy to ensure it is current.
	Check for City of Mesquite listed as additional insured under General and Auto Liability Policies.
	Check for a waiver of subrogation in favor of the City of Mesquite under General and workers Compensation/Employers Liability.
	Workers Compensation $100,000 per occurrence
	INSURANCE-CONSTRUCTION
	Commercial Liability $500,000 per person/$1,000,000 per occurrence
	Contractual Liability property damage $500,000 per occurrence with general aggregate of $1,000,000
	Automobile combined single limit $500,000
	OTHER
	Filled out Certificate of Interested Parties - Form 1295
	Fill out and Submit Conflict of Interest Questionnaire (CIQ)
	IRS W9 Form Submitted for Setting Up Vendor Account and Processing Payment

Checked by: _____

Date: _____

SUPPLEMENT TO ACORD 25

Reset Form

INSURANCE CERTIFICATE ADMINISTRATORS	Supplement to ACORD® 25 (Construction)	DATE:	

Insured:	Certificate Holder(s):

Yes	No		
Commercial General Liability:			
		C-1	Provide, in the space below, the appropriate form number(s) of the Additional Insured endorsement(s): Ongoing Operations Completed Operations Attach a copy of the endorsement(s).
		C-2	Does the Other Insurance clause or an endorsement to the policy state that the CGL policy is primary for the Additional Insured if "agreed in writing in a contract or agreement that this insurance would be primary" or does it contain similar wording? If so, provide a copy of such similar wording clearly highlighting or referencing the applicable language.
		C-3	Does the Other Insurance clause or an endorsement to the policy state that the CGL policy is non-contributory for the Additional Insured if "agreed in writing in a contract or agreement that this insurance...would not seek contribution from any other insurance available to the additional insured " or does it contain similar wording? If so, provide a copy of such similar wording clearly highlighting or referencing the applicable language.
		C-4a	Does the definition of "insured contract" contain the words or phrase "caused in whole or in part by" or "sole negligence"? If YES, attach the policy definition clearly highlighting or referencing the applicable language.
		C-4b	Does the contractual liability provision contain a reference to "residential construction"? If YES, attach a copy clearly highlighting or referencing the applicable language.
		C-5	Is coverage under the policy limited to work performed within certain described operations and/or classification codes? If YES, attach the operations and/or classification codes.
		C-6	Is there a pollution exclusion in the "policy form"?
		C-6a	If C-6 is NO, has a pollution exclusion been added by endorsement?
		C-6b	If C-6 is YES, has a pollution endorsement been added?
Are the following specifically excluded?			
		C-7	Independent Contractors?
		C-8	Explosion? (X)?
		C-9	Collapse? (C)?
		C-10	Underground? (U)?
		C-11	Punitive Damages (other than Terrorism)?
		C-12	Third Party Over Actions?
		C-13	Residential Construction Operations? If YES, attach a copy of the exclusion.
		C-14	Prior Work? If YES, attach a copy of the exclusion.
Workers Compensation:			
Yes	No		
		C-1	Does Part 3 provide coverage for "All States"(other than monopolistic states) or list specific states? If specific states are listed, provide a list of the states.
		C-2	Is the Alternate Employer endorsement attached to the policy?
Excess/Umbrella Liabilities:			
The Excess/Umbrella policy is excess over which of the following primary policies?			
		C-1	Commercial General Liability Insurance
		C-2	Automobile Liability Insurance
		C-3	Employers Liability Insurance
		C-4	Pollution Liability Insurance (If provided by separate policy)
Yes	No		
		C-5	Does the policy include language addressing reduced or exhausted primary limits over which the policy is excess, frequently referred to as drop-down? If YES, provide a copy of such wording clearly highlighting or referencing the applicable language.
Notice of Cancellation:			
		C-1	Do all policies certified on the attached ACORD® 25 provide at least a 30 day notice to the certificate holder for cancellation (other than non-payment of premium)?

It is agreed that the coverages, endorsements and conditions shown on these pages are in effect and apply, as indicated, to the coverages certified on the attached ACORD ® certificate of insurance. This form neither affirmatively nor negatively amends, extends nor alters the coverage afforded by the policy summarized hereon and is qualified by reference to the policy itself. This form does not constitute a contract between the issuing insurer(s), authorized representatives or producer, and the certificate holder.	**Signature:**

A25 01C (03-13)

CONTRACT

STATE OF TEXAS §
§ KNOW ALL MEN BY THESE PRESENTS:
COUNTY OF DALLAS §

THIS CONTRACT is made and entered into on _____, 20___ by and between the **CITY OF MESQUITE, TEXAS**, a municipal corporation, of the County of Dallas and State of Texas, acting through Cliff Keheley, City Manager, hereinafter termed the CITY, and **ENTITY NAME**, a What Type of Legal Entity, with offices located at Full Street Address, City, State Zip Code, hereinafter termed the CONTRACTOR.

WITNESSETH: That for and in consideration of the mutual covenants hereinafter set forth, the CITY and CONTRACTOR agree as follows:

I. DESCRIPTION OF WORK

The CONTRACTOR shall perform all of the work as specified in the contract documents such work generally described as:

MESQUITE HERITAGE TRAIL PHASE II, CITY OF MESQUITE CONTRACT NO. 2024-014

Plans and Specifications prepared by:

ENGINEERING DIVISION, PUBLIC WORKS DEPARTMENT

All work shall be performed at the CONTRACTOR'S own proper cost and expense to furnish all the materials, supplies, machinery, equipment, tools, superintendence, labor, insurance, bonds and other accessories and services necessary to complete the work, in accordance with the Contract documents.

II. CONTRACT DOCUMENTS

The Contract documents shall consist of the following:

1. this Contract;
2. all addenda issued prior to award of Contract;
3. the bid specifications including the advertisement for bid, instruction to bidders, bidder's bid form, plans, and drawings (if any);
4. the City of Mesquite General Design Standards;
5. the Standard Specifications for Public Works Construction (North Central Texas Fifth Edition November 2017), Division 100, as amended and supplemented by the City of Mesquite by Addendum (hereinafter referred to as the "General Provisions");
6. a Performance Bond in the sum of ONE HUNDRED PERCENT (100%) of the total Contract price, which Bond shall be in a form acceptable to the City, shall guarantee the work in accordance with the plans and specifications for a period of one (1) year after acceptance by the City, and shall provide for repair or replacement of all defects due to faulty material and/or workmanship that appear within a period of one (1) years from the date of

acceptance by the City;

7. A Payment Bond in the sum of ONE HUNDRED PERCENT (100%) of the total Contract price; and
8. the Contractor's bid/proposal and any other documents identified as pertaining to this Contract, all of which have been identified by the CITY and the CONTRACTOR.

These Contract documents constitute the entire agreement between the CITY and CONTRACTOR, and all are fully incorporated herein. The Contract documents are complementary and what is called for by one shall be as binding as if called for by all. In the event of an inconsistency in any of the provisions of the Contract documents, the inconsistency shall be resolved by giving precedence to the Contract documents in the order in which they are listed above. The Contract may be altered, amended or modified only as provided in the general or special provisions. These Contract Documents supersede all oral or written previous contemporaneous agreements between the parties relating to matters in this Contract.

III. TIME OF COMMENCEMENT, COMPLETION AND LIQUIDATED DAMAGES

The work to be performed under this Contract shall be commenced by the CONTRACTOR upon final execution of this Contract and notice from the CITY to proceed. All work to be performed under this Contract shall be substantially completed within **365 calendar days** of the date of commencement of the work, subject to extensions of time provided in accordance with the Contract documents. Time is of the essence in this Contract and it is understood by the CONTRACTOR and CITY that actual damages caused by the failure of the CONTRACTOR to complete the work within the stated time are impractical or extremely difficult to fix or ascertain, and that per diem deduction from the Contract price shall be retained by the CITY as payment by the CONTRACTOR of liquidated damages, and not as penalty for such failure. Such liquidated damages to be assessed and retained are set forth in the General Provisions.

IV. CONTRACT PRICE

The CITY shall pay the CONTRACTOR for the performance of the work, subject to additions and deductions by change order or as otherwise provided in the provisions of this Contract, in current funds the Contract sum, which has been bid as a separated contract in compliance with the Texas Tax Code, as follows:

Total sum: **INSERT CONTRACT AMOUNT IN WORDS ($INSERT IN NUMBERS)**

V. CONTRACT ADMINISTRATION

This Contract shall be administered on behalf of the CITY by Public Works Director or their designee (referred to herein as "City Representative") and the CONTRACTOR shall fully comply with any and all instructions from said City Representative. With execution and delivery of the Contract, the CONTRACTOR shall furnish and file with the CITY in the amounts herein required, performance and payment bonds in accordance with the provisions of V.T.C.A. Government Code, Chapter 2253 if this is a public work contract in excess of fifty thousand dollars ($50,000.00).

VI. LABOR CLASSIFICATION AND MINIMUM WAGE SCALE

The CONTRACTOR is required to follow all provisions of Chapter 2258 of the Texas Government Code in the hiring and payment of all skilled and unskilled labor used on this contract. The CONTRACTOR must pay the prevailing wage rates as shown on the attached Wage Decision.

VII. DISCLOSURE OF CONFLICTS OF INTEREST AND COMPLIANCE WITH OTHER APPLICABLE LAWS

The CONTRACTOR shall at all times observe and comply with all Federal, State and local laws, ordinances and regulations including all amendments and revisions thereto, which in any manner affect the CONTRACTOR or the services and/or items to be provided, specifically and not limited to any ethics laws. In particular, the CONTRACTOR is put on notice that the CITY will require the CONTRACTOR to comply with Chapter 176 of the Texas Local Government Code by completing the attached Conflict of Interest questionnaire (FORM CIQ) and returning the completed FORM CIQ to the CITY. Additionally, CONTRACTOR must comply with Section 2252.908 of the Texas Government Code, which was enacted in 2015 by the Texas Legislature pursuant to HB 1295, providing that a governmental entity may not enter into certain contracts with a business entity on or after January 1, 2016, unless the business entity submits a disclosure of interested parties (FORM 1295) to the governmental entity at the time the business entity submits the signed contract to the governmental entity. Further information regarding the disclosure of interested parties law and instructions on filing FORM 1295 can be found at the Texas Ethics Commission web site at the following web address:

https://www.ethics.state.tx.us/filinginfo/1295/

VIII. INSURANCE

The CONTRACTOR agrees to provide and to maintain the types and amounts of insurance set forth in the General Provisions and to include the CITY as an additional insured in all policies providing coverage for the term of this Contract.

IX. CHOICE OF LAW, VENUE AND CONTRACT INTEPRETATION

The obligations of the Parties to this Contract shall be performable in Dallas County, Texas, and if legal action is necessary in connection with or to enforce rights under this Contract, exclusive venue shall lie in Dallas County, Texas

This Contract shall be governed by and construed in accordance with the laws and court decisions of the State of Texas, without regard to conflict of law or law principles of Texas or any other State. Although this Contract is drafted by the CITY, should any part be in dispute, the parties agree this Contract shall not be construed more favorably for either Party.

X. SEVERABILITY

If any part of this Contract shall be stricken for any reason whatsoever or found to be invalid or unenforceable, that part will be severed and the remainder of this Contract will continue in full force and effect.

XI. SURVIVAL

Any liabilities or obligations of a Party for acts or omissions prior to the cancellation or termination of this Contract, and any other provisions of this Contract which, by their terms, are contemplated to survive (or to be performed after) termination of this Contract, shall survive cancellation or termination thereof.

XII. MISCELLANEOUS

Pursuant to Section 2271.002, Texas Government Code, CONTRACTOR hereby (i) represents that it does not boycott Israel, and (ii) subject to or as otherwise required by applicable federal law, including without limitation 50 U.S.C. Section 4607, agrees it will not boycott Israel during the term of the Agreement. As used in the immediately preceding sentence, "boycott Israel" shall have the meaning given such term in Section 2271.001, Texas Government Code.

CONTRACTOR further represents that (i) it does not engage in business with Iran, Sudan or any foreign terrorist organization and (ii) it is not listed by the Texas Comptroller under Section 2252.153, Texas Government Code, as a company known to have contracts with or provide supplies or services to a foreign terrorist organization. As used in the immediately preceding sentence, "foreign terrorist organization" shall have the meaning given such term in Section 2252.151, Texas Government Code.

Pursuant to Texas Government Code Chapter 2274, unless otherwise exempt, if CONTRACTOR employs at least ten (10) fulltime employees and this Contract has a value of at least $100,000 that is paid wholly or partly from public funds of the governmental entity, CONTRACTOR represents that: (i) the CONTRACTOR does not have a practice, policy, guidance, or directive that discriminates against a firearm entity or firearm trade association; and (ii) the CONTRACTOR will not discriminate during the term of the contract against a firearm entity or firearm trade association.

Pursuant to Texas Government Code Chapter 2274, unless otherwise exempt, if the CONTRACTOR is a company with at least ten (10) or more full-time employees and this Contract has value of at least $100,000 or more that is paid wholly or partly from public funds of the governmental entity, the CONTRACTOR represents that: (i) the CONTRACTOR does not boycott energy companies; and (ii) will not boycott energy companies during the term of the Contract.

XIII. AUTHORITY TO SIGN

The undersigned officers and/or agents of the parties hereto are the properly authorized officials and have the necessary authority to execute this Contract on behalf of the parties hereto.

IN WITNESS WHEREOF, the CITY and CONTRACTOR have executed this Contract in the year and day first written above.

CITY OF MESQUITE
(CITY)

By: _____
Cliff Keheley
City Manager

ATTEST:

By: _____
Sonja Land, City Secretary

APPROVED AS TO FORM:
David L. Paschall, City Attorney

By: _____
Assistant City Attorney

INSERT CONTRACTOR NAME
(CONTRACTOR)

By: _____
(signature)

TYPED NAME: _____

TITLE: _____

ATTEST:

_____

WAGE RATE

General Decision Number: TX20230025 01/06/2023

Superseded General Decision Number: TX20220025

State: Texas

Construction Type: Highway

Counties: Archer, Callahan, Clay, Collin, Dallas, Delta, Denton, Ellis, Grayson, Hunt, Johnson, Jones, Kaufman, Parker, Rockwall, Tarrant and Wise Counties in Texas.

HIGHWAY CONSTRUCTION PROJECTS (excluding tunnels, building structures in rest area projects & railroad construction; bascule, suspension & spandrel arch bridges designed for commercial navigation, bridges involving marine construction; and other major bridges).

Note: Contracts subject to the Davis-Bacon Act are generally required to pay at least the applicable minimum wage rate required under Executive Order 14026 or Executive Order 13658. Please note that these Executive Orders apply to covered contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but do not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(2)-(60).

If the contract is entered into on or after January 30, 2022, or the contract is renewed or extended (e.g., an option is exercised) on or after January 30, 2022:	• Executive Order 14026 generally applies to the contract. • The contractor must pay all covered workers at least $16.20 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on that contract in 2023.
If the contract was awarded on or between January 1, 2015 and January 29, 2022, and the contract is not renewed or extended on or after January 30, 2022	• Executive Order 13658 generally applies to the contract. • The contractor must pay all covered workers at least $12.15 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on that contract in 2023.

The applicable Executive Order minimum wage rate will be adjusted annually. If this contract is covered by one of the Executive Orders and a classification considered necessary for performance of work on the contract does not appear on this wage determination, the contractor must still submit a conformance request.

Additional information on contractor requirements and worker protections under the Executive Orders is available at www.dol.gov/whd/govcontracts.

Modification Number	Publication Date
0	01/06/2023

* SUTX2011-007 08/03/2011

	Rates		Fringes
CONCRETE FINISHER (Paving and Structures)	$ 14.12	**	
ELECTRICIAN	$ 19.80		
FORM BUILDER/FORM SETTER			
Paving & Curb	$ 13.16	**	
Structures	$ 13.84	**	

LABORER		
Asphalt Raker	$ 12.69	**
Flagger	$ 10.06	**
Laborer, Common	$ 10.72	**
Laborer, Utility	$ 12.32	**
Pipelayer	$ 13.24	**
Work Zone Barricade Servicer	$ 11.68	**
POWER EQUIPMENT OPERATOR:		
Asphalt Distributor	$ 15.32	**
Asphalt Paving Machine	$ 13.99	**
Broom or Sweeper	$ 11.74	**
Concrete Pavement Finishing Machine	$ 16.05	**
Concrete Saw	$ 14.48	**
Crane Operator, Lattice Boom 80 Tons or Less	$ 17.27	
Crane Operator, Lattice Boom over 80 Tons	$ 20.52	
Crane, Hydraulic 80 Tons or Less	$ 18.12	
Crawler Tractor	$ 14.07	**
Excavator, 50,000 pounds or less	$ 17.19	
Excavator, over 50,000 pounds	$ 16.99	
Foundation Drill, Truck Mounted	$ 21.07	
Foundation Drill, Crawler Mounted	$ 17.99	
Front End Loader 3 CY or Less	$ 13.69	**
Front End Loader, over 3 CY	$ 14.72	**
Loader/Backhoe	$ 15.18	**
Mechanic	$ 17.68	
Milling Machine	$ 14.32	**
Motor Grader, Fine Grade	$ 17.19	
Motor Grader, Rough	$ 16.02	**
Pavement Marking Machine	$ 13.63	**
Reclaimer/Pulverizer	$ 11.01	**
Roller, Asphalt	$ 13.08	**
Roller, Other	$ 11.51	**
Scraper.	$ 12.96	**
Small Slipform Machine	$ 15.96	**
Spreader Box	$ 14.73	**
Servicer	$ 14.58	**
Steel Worker (Reinforcing)	$ 16.18	**
TRUCK DRIVER		
Lowboy-Float	$ 16.24	
Off Road Hauler	$ 12.25	**
Single Axle	$ 12.31	**
Single or Tandem Axle Dump Truck.	$ 12.62	**
Tandem Axle Tractor with Semi Trailer	$ 12.86	**
Transit-Mix	$ 14.14	**
WELDER	$14.84	**

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

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** Workers in this classification may be entitled to a higher minimum wage under Executive Order 14026 ($16.20) or 13658 ($12.15). Please see the Note at the top of the wage determination for more information.

Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO is available at https://www.dol.gov/agencies/whd/government-contracts.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (ii)).

The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of "identifiers" that indicate whether the particular rate is a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).

Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than "SU" or "UAVG" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union, which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

Survey Rate Identifiers

Classifications listed under the "SU" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

* an existing published wage determination
* a survey underlying a wage determination
* a Wage and Hour Division letter setting forth a position on a wage determination matter
* a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Division National Office Branch of Wage Surveys. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor

200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

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END OF GENERAL DECISION

PERFORMANCE BOND

Bond No. _____

STATE OF TEXAS §
§ **KNOW ALL MEN BY THESE PRESENTS:**
COUNTY OF DALLAS §

THAT _____, an _____, duly authorized to transact business in the State of Texas (hereinafter referred to as "Principal"), and _____ (hereinafter referred to as "Surety"), authorized under the laws of the State of Texas to act as Surety on bonds for principals are held and firmly bound unto the **City of Mesquite** (hereinafter referred to as "City") in the penal sum of **$**_____ (not less than 100% of the approximate total amount of the Contract as evidenced in the Proposal) for the payment whereof, the said Principal and Surety bind themselves, and their heirs, administrators, executors, successors and assigns, jointly and severally, by these presents:

WHEREAS the Principal has entered into a certain written contract with the City, dated the _____ day of _____, 20__, for the **MESQUITE HERITAGE TRAIL PHASE II, CITY OF MESQUITE CONTRACT NO. 2024-014** to which said Contract is hereby referred to and made a part hereof and as fully and to the same extent as if copied at length herein;

NOW, THEREFORE, the condition of this obligation is such that if the said Principal fully and faithfully executes the work and performance of the Contract, as amended, in accordance with the Plans, Specifications and Contract Documents, including any extensions thereof, and according to the true intent and meaning of said Contract and the Plans and Specifications hereto annexed, then this obligation shall be void; otherwise, to remain in full force and effect.

PROVIDED, HOWEVER, that this Bond is executed pursuant to the provisions of V.T.C.A. Government Code Chapter 2253, Public Work Performance and Payment bonds, as amended, and Article 53.201 of the Property Code, and all liabilities on this Bond shall be determined in accordance with the provisions of said articles to the same extent as if they were fully copied at length herein.

Surety, for value received, stipulates and agrees that the Bond shall automatically be increased by the amount of any change order or supplemental agreement which increases the Contract price with or without notice to the Surety and that no change, extension of time, alteration or addition to the terms of the Contract, or to the work performed thereunder, or the Plans, Specifications or Drawings accompanying the same shall in any way affect its obligation on this Bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the Contract or to the work to be performed thereunder.

Surety must be approved by the Texas State Board of Insurance under Article 7.19-1 of the Insurance Code and authorized under the laws of Texas to act a surety on bonds for principals.

Surety agrees that the bond provides for the repairs and/or replacement of all defects due to faulty materials and workmanship that appear within a period of **one (1) year** from the date of completion and acceptance of all the improvements by the City.

IN WITNESS WHEREOF, the said Principal and Surety have signed and sealed this instrument on this the _____ day of _____, 20__.

PRINCIPAL:	**SURETY:**
_____ Signature	_____ Signature
_____ Printed Name	_____ Printed Name
_____ Title	_____ Title
_____ Company	_____ Company
_____ Street Address	_____ Street Address *(P. O. Box is not acceptable)*
_____ City State Zip Code	_____ City State Zip Code
_____ Phone Number *(Dallas Telephone Number)*	

SURETY'S DALLAS COUNTY REGISTERED AGENT FOR SERVICE (REQUIRED):

Printed Name: _____

Title: _____

Company: _____

Street Address: _____
(P. O. Box is not acceptable)

_____
City State Zip Code

Phone Number: _____
(Dallas County Telephone Number)

(Attach dated Power of Attorney for Surety)

PAYMENT BOND

Bond No. _____

STATE OF TEXAS §
§ **KNOW ALL MEN BY THESE PRESENTS:**
COUNTY OF DALLAS §

THAT _____, an _____, duly authorized to transact business in the State of Texas (hereinafter referred to as "Principal"), and _____ (hereinafter referred to as "Surety"), authorized under the laws of the State of Texas to act as Surety on bonds for principals are held and firmly bound unto the **City of Mesquite** (hereinafter referred to as "City") in the penal sum of **$**_____ (not less than 100% of the approximate total amount of the Contract as evidenced in the Proposal) for the payment whereof, the said Principal and Surety bind themselves, and their heirs, administrators, executors, successors and assigns, jointly and severally, by these presents:

WHEREAS the Principal has entered into a certain written contract with the City, dated the _____ day of _____, 20__, for the **MESQUITE HERITAGE TRAIL PHASE II, CITY OF MESQUITE CONTRACT NO. 2024-014** to which said Contract is hereby referred to and made a part hereof and as fully and to the same extent as if copied at length herein;

NOW, THEREFORE, the condition of this obligation is such that the bond guarantees the full and proper protection of all claimants supplying labor and material in the prosecution of the work provided for in said Contract and for the use of each claimant, and that conversely should the Principal faithfully perform said Contract and in all respects duly and faithfully observe and perform all and singular the covenants, conditions and agreements in and by said Contract agreed to by the Principal, and according to the true intent and meaning of said Contract, and the claims and specifications hereto annexed, then this obligation shall be void; otherwise, to remain in full force and effect.

PROVIDED, HOWEVER, that this Bond is executed pursuant to the provisions of V.T.C.A. Government Code Chapter 2253, Public Work Performance and Payment bonds, as amended, and Article 53.201 of the Property Code, and all liabilities on this Bond shall be determined in accordance with the provisions of said articles to the same extent as if they were fully copied at length herein.

Surety, for value received, stipulates and agrees that no change, extension of time, alteration or addition to the terms of the Contract, or to the work performed thereunder, or the Plans, Specifications or Drawings accompanying same shall in any way affect its obligation on this bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the Contract or to the work to be performed thereunder.

Surety must be approved by the Texas State Board of Insurance under Article 7.19-1 of the Insurance Code and authorized under the laws of Texas to act a surety on bonds for principals.

IN WITNESS WHEREOF, the said Principal and Surety have signed and sealed this instrument on this the _____ day of _____, 20__.

PRINCIPAL:

Signature

Printed Name

Title

Company

Street Address

City State Zip Code

Phone Number
(Dallas Telephone Number)

SURETY:

Signature

Printed Name

Title

Company

Street Address
(P. O. Box is not acceptable)

City State Zip Code

SURETY'S DALLAS COUNTY REGISTERED AGENT FOR SERVICE (REQUIRED):

Printed Name: _____

Title: _____

Company: _____

Street Address: _____
(P. O. Box is not acceptable)

_____
City State Zip Code

Phone Number: _____
(Dallas County Telephone Number)

(Attach dated Power of Attorney for Surety)

CONTRACTOR'S AFFIDAVIT OF FINAL PAYMENT AND RELEASE

(This form will be prepared by the City and executed by the Contractor after project completion)

STATE OF TEXAS §
§ **KNOW ALL MEN BY THESE PRESENTS:**
COUNTY OF DALLAS §

BEFORE ME, the undersigned authority, on this day personally appeared _____ ("Affiant") ***(Insert name of authorized company officer)***, who, after being by me duly sworn, deposes and says that he is _____ ***(Insert title)*** of _____***(Insert formal company name)***, a _____, ***(Insert company business organization such as corporation, partnership, etc.)*** of _____County ***(Insert county and state of county incorporation)***, State of Texas (the "Contractor"), which said Contractor was awarded the contract dated the _____ day of _____, 20__ ***(Insert date of contract)*** for the construction of _____**,** ***(Insert formal contract title)*** **City of Mesquite Contract No. 2024-014** (the "Work"), for a total consideration of _____**and ??/100 Dollars ($?,???,???.??)** ***(Insert sum of total work in place as calculated on final estimate)*** to be paid to the said Contractor (the "Contract"), and that Affiant has full power of authority to make this affidavit.

That City of Mesquite, Texas, (the "City") has approved the final estimate on said Work, and that the said Contractor has fully satisfied and paid any and all claims that may be covered by Chapter 53 of the Texas Property Code, and Chapter 2253 of the Texas Government Code, or any other applicable statutes or charter provisions, and that all just bills for labor and materials have been paid and discharged by said Contractor insofar as they pertain to the Work in question.

That in addition to any funds which may have been previously paid by the City, the Contractor hereby accepts the amount of _____**and ??/100 Dollars ($?,???,???.??)** as **FULL AND FINAL PAYMENT** ***(remaining payment plus retainage, minus liquidated damages or other penalties both written out and numeric)*** under the aforementioned Contract, and hereby waives and releases any right Affiant and/or the Contractor may have to pursue claims of any nature against the City arising out of or in any manner connected with the performance of the Work and/or the Contract, including but not limited to claims of third parties that supplied material and/or labor for the Work for or through the Contractor ("Subcontractors"), as well as claims for delay, additional compensation, or for recovery of liquidated damages which may have been withheld by the City. The Contractor shall defend, hold harmless, and indemnify the Owner from any such claims of such Subcontractors. The Contractor further releases the City from any claim or liability arising from any act or neglect of the City related to or connected with the Contract. This affidavit is given pursuant to the final payment provisions of the Contract and shall not be deemed to alter or modify the terms and provisions of said Contract.

By:

_____ _____
(Affiant) (Contractor's Signature) (Title)

_____
(Printed Name)

SUBSCRIBED AND SWORN TO BEFORE ME, this _____ day of _____, 20__.

_____
(Notary Public in and for the State of Texas)

_____
(Printed Name of Notary)

My commission expires _____

SECTION GP

CONTRACT GENERAL PROVISIONS

For this Contract, the City of Mesquite has adopted the *North Central Texas Council of Governments Public Works Construction Standards, Fifth Edition (November 2017), Division 100 General Provisions* with modifications by addendum. The modifications to the above referenced Division 100 General Provisions are contained in the below City of Mesquite Addendum.

CITY OF MESQUITE

ADDENDUM
TO
DIVISION 100, GENERAL PROVISIONS

OF SECTION 1, STANDARD SPECIFICATIONS

OF THE

PUBLIC WORKS CONSTRUCTION STANDARDS
NORTH CENTRAL TEXAS
Fifth Edition

This addendum to Division 100, “General Provisions,” of Section I, “Standard Specifications,” of the *Public Works Construction Standards, North Central Texas, Fifth Edition, dated November 2017* sets forth exceptions or requirements of the City of Mesquite and thereby takes precedence over any conditions or requirements of the *Public Works Construction Standards, North Central Texas, Standard Specifications, Division 100 General Provisions* with which it is in conflict.

The comments are itemized by the ***Public Works Construction Standards, North Central Texas, Standard Specifications, Division 100 General Provisions*** section reference number followed by specific comments.

101.1. DEFINITIONS

Add the following definitions:

Apparent Low Bidder: The bidder determined to have the numerically lowest bid as a result of the tabulation of bids by the OWNER.

Award: The City Council's formal acceptance of the Bidder's bid for a proposed contract that authorizes the OWNER to enter into a contract.

Bid Bond: The approved form of bid/proposal guarantee furnished by the Bidder and Bidder's surety as security for compliance with all conditions of such bid/proposal as set forth in the General Provisions.

City: The City of Mesquite, Texas, a home rule municipal corporation, acting by and through (a) its governing body, (b) its Mayor, or (c) its City Manager, each of whom is required by Charter to perform specific duties.

Claim: Compensation for any alleged damage by reason of the acts or omissions of the OWNER.

CONTRACTOR's Qualification Information: Qualification forms completed by a Bidder reflecting a Bidder's financial data and experience.

Effective Start Date: The date indicated in the Notice to Proceed as the date of commencement of Work which is the date from which the start of Contract Time is measured.

Field Order: A written order issued by the OWNER's Representative which orders minor changes or clarifications in the Work which do not involve a change in the Contract Time or Contract Price.

General Design Standards: The General Design Standards developed, adopted and published by the City of Mesquite - Engineering Division, as may be amended.

Holiday: Official City-recognized holidays, the Wednesday before Thanksgiving, and December 31st (New Year's Eve). The list of official City-recognized holidays will be provided by the Director of Public Works upon request.

Product: The term "product" includes materials, systems, and equipment.

Proposal Guaranty: The security designated in the advertisement and proposal, to be furnished by each Bidder as a guaranty of good faith to enter into a contract with the OWNER and execute the required bonds for the work contemplated after the work is awarded to the Bidder and payment of damages upon the Bidder's failure to enter into the contract incompliance with Section 102.5.

Provide: The term "provide" means to both furnish and install.

Request for Information (RFI): A written request from the CONTRACTOR to the OWNER's Representative for plan or specification interpretation or clarification.

Shop Drawings or Submittals: All drawings, diagrams, illustrations schedules, and other data which are specifically prepared by or for the CONTRACTOR to illustrate some portion of the Work and all illustrations, brochures, standard schedules, performance charts, instructions, manufacturer's data, diagrams, and other information submitted by the CONTRACTOR to the OWNER's Representative for approval (reference Section 105.3).

Standard Details: Standard details developed, adopted and published by the City of Mesquite Engineering Division as may be amended, or the standard details developed by other agencies or engineers that are included in the project plans or specifications.

Substantially Complete: In the opinion of the Engineer, that the Work has been made suitable for use or occupancy, or is serving its full intended purpose, but may require minor miscellaneous work or adjustment as evidenced by issuance of a Certification of Substantial Completion by the OWNER's Representative.

Working Hours: The hours in which Work shall be done, and unless otherwise indicated in any special provisions, Working Hours are the hours of 7:00 a.m. to 6:00 p.m. central time. No work shall be done during other hours, Sundays, or Holidays unless advance written permission is given by the OWNER's Representative.

Written Notice: A notice, in writing, either: (1) hand delivered to the individual, or if to a legal entity, to a member of the firm or officer of the legal entity; or (2) if delivered at or sent by registered mail, to the last business address designated in the Contract for the Work.

Replace the definitions of "OWNER", "OWNER's Representative", and "Proposal" with the following:

OWNER: The City of Mesquite, Texas, a home rule municipal corporation.

OWNER's Representative: The City Engineer of the City of Mesquite or the person designated by the City Engineer to represent the City, or such other person as authorized by the City in the contract documents.

Proposal: The written statement(s)and any other documents duly filed with the Purchasing Agent, whether in the form of a sealed bid, proposal, quotation or other form, of the person, persons, partnership, company, firm, association or corporation proposing to do the work contemplated in accordance with the provisions of the plans and specifications, special and general provisions, and all contract documents.

Add to the end of the Section the following Subsection:

102.1.1. Pay Items. Items not listed in the bid proposal shall be considered subsidiary to the construction and under no circumstance shall the OWNER provide additional compensation for said subsidiary items.

102.3. EXAMINATION OF PLANS, SPECIFICATIONS AND SITE OF THE WORK
Add to End of Section the Following Subsections:

102.3.1. Addenda. Bidders desiring further information, or interpretation of the plans and specifications, must make request for such information in writing to the OWNER's Representative five (5) working days prior to the date of the bid opening. Answers to such requests will be given in writing to all bidders by Addendum and such Addendum shall be made a part of the Contract Documents. No other explanation or interpretation will be considered official or binding. Should a Bidder find discrepancies in the plans, specifications or quantities, or should the bidder be in doubt as to their meaning, the Bidder shall at once notify the OWNER's Representative in order that a written Addendum may be sent to all Bidders. Any Addendum issued prior to twenty-four (24) hours before the opening of bids will be delivered by facsimile or email to all plan holders on record with the City of Mesquite. The proposal as submitted by the Bidder will be so constructed as to include any Addendum issued by the OWNER's Representative prior to twenty-four (24) hours before the opening of bids.

The Bidder must acknowledge in the proposal bid forms that all Addenda have been received.

102.3.2. Pre-Bid Inspection. Bidder shall inspect the site prior to bidding and prior to move in. Bidder's inspection shall include but not be limited to observation and verification of existing grades, topographic conditions, surface and subsurface soil conditions and surface and subsurface water drainage conditions, observation and verification of any existing utility, appurtenance, or structure as it may relate to the contract. This shall include but not be limited to:

- ❑ Water and sewer appurtenances.
- ❑ Storm sewer structures and appurtenances.
- ❑ Concrete structures and appurtenances.
- ❑ Petroleum pipeline systems and appurtenances.
- ❑ Natural Gas pipeline systems and appurtenances.
- ❑ Telecommunications systems and appurtenances.
- ❑ Electrical systems and appurtenances.
- ❑ Television cable systems and appurtenances.
- ❑ Irrigation systems and appurtenances.

102.3.3. Geotechnical Data. Soil Borings, soil profiles, ground water elevations, and underground utilities shown on the plans have been obtained for use in preparation of the plans. The OWNER makes no representation or warranty regarding the accuracy of this geotechnical data.

102.3.4. Quantity Verification. Bidders shall verify all quantities included in the bid proposal prior to submitting their bid. Should any quantity discrepancy between stated bid quantities and Bidder's estimate be found, Bidder shall notify the OWNER's Representative in writing, prior to submitting bid, and obtain a clarification and/or correction to the stated bid quantity. By submitting a bid, Bidder represents that estimates were performed and no quantity discrepancies were found.

102.3.5. Subsidiary Cost: It is the intent of the Contract Documents, Technical Specifications, Supplemental Specifications, and plans to describe the construction and subsidiary activities and materials necessary to furnish and install a complete in place project, ready for its intended use, accepted by the OWNER's Representative. Those materials and work necessary to furnish and install a complete in place project, conforming to the plans and specifications, that are not specifically identified in the bid proposal, technical specifications, or the supplemental technical specifications as pay items shall be considered as subsidiary to the contract as a whole, and as such shall not be submitted for individual payment by the CONTRACTOR. The cost of those subsidiary items shall be reflected in the prices stated in the bid proposal. It shall be the responsibility of the Bidder to review the bid proposal, plans, technical specifications, and supplemental technical specifications and site conditions to determine those materials and work which are not specifically identified but which shall be necessary to furnish and install a complete project in place.

102.4. PREPARATION OF PROPOSAL

Change: Replace first three sentences with the following:

The bidder shall submit its proposal on the forms furnished or approved by the OWNER. The bidder shall submit Bid Proposals on Bid Forms in the contract document or from computer generated forms supplied by the OWNER. Modifications or revisions to the OWNER-supplied form or the creation of a new computer generated form shall be considered an irregular proposal and may disqualify the bidder. Unit prices shown on the Bid Proposals shall state the prices for which the bidder proposes to perform the work or supply the required material. Bidder shall fill in all blank spaces in the form and shall numerically state the bid prices. All costs in connection with the proper and successful completion of the Work, including furnishing all materials, equipment, supplies, and appurtenances; providing all construction plant, equipment, and tools; and performing all necessary labor and supervision to fully complete the Work, shall be included in the unit and lump sum prices bid. All Work not specifically set forth as a pay item in the Bid Form shall be considered a subsidiary obligation of CONTRACTOR and all costs in connection therewith shall be included in the prices bid. All prices shall be written in ink distinctly and legibly or submitted electronically if allowed by OWNER.

102.5 PROPOSAL GUARANTY
Add to the end of the section: An acceptable Surety per the terms of GP Section 103.3 SURETY BONDS shall execute the Bidder's surety bond, together with the bidder, as Principal. In addition, the Bidder and its agents shall have no financial interest in the Surety.

102.7. WITHDRAWING PROPOSALS
Change: In the last sentence, change "90 days" to "120 days".

Add after the last sentence: After the 120-day period, if agreed to in writing between Bidder and OWNER, the bid will stay in effect, without change, for a period agreed to between the Bidder and OWNER.

102.8 OPENING PROPOSALS
Delete the last sentence of this section.

102.9. CONSIDERATION OF PROPOSAL
Add after the last sentence: When required by the bid documents, within 48-hours of the bid opening, the apparent low Bidder must submit to the OWNER, the Bidder's Qualification Information on the forms provided in the bid documents providing evidence that the Bidder is capable of properly executing the work.

102.10. IRREGULAR PROPOSALS
Add: After the words "irregular if" add ", in the sole opinion of the OWNER,".

102.12. DISQUALIFICATION OF BIDDERS
Add:
(12) The bidder being in arrears on any existing contract or other financial obligation or debt.
(13) Lack of a current financial report as required in the Bidder's Qualification Information submission requirements.
(14) The quality, availability and adaptability of the supplies, materials, equipment or contractual services, to the particular use required.
(15) For request for proposals, the number and scope of conditions attached to the proposal.
(16) Whether the bidder can perform the contract or provide the service promptly, or within the time required, without delay or interference.
(17) The previous and existing compliance by the bidder with laws relating to the contract or service.
(18) The ability of the bidder to provide future maintenance, repair parts, and service for the subject contract.
(19) Evidence that CONTRACTOR, subcontractor have been suspended, debarred, or otherwise excluded from participation in federally funded programs.

103.2. AWARD OF CONTRACT
Change: In the first sentence, change "90 days" to "120 days".

103.3.3. Sureties.
Delete second to last sentence and Replace with: The surety shall designate an agent in Dallas County, Texas who is acceptable to the OWNER to whom any requisite notices may be delivered and on whom service of process may be had in matters arising out of such suretyship. Legal venue for enforcement of the bonds shall lie exclusively in Dallas County, Texas.

103.4 INSURANCE

Delete entire subsection 103.4.1. CONTRACTOR's Insurance, including subsections and Replace with:

103.4.1 CONTRACTOR's Insurance. The CONTRACTOR and his subcontractor(s) shall not commence work on any contract in the City of Mesquite until the CONTRACTOR has obtained, for himself and all subcontractors, all of the insurance required under this paragraph, and such insurance has been approved by the OWNER.

The CONTRACTOR and his subcontractor(s) shall provide and maintain the following types and amounts of insurance, which may be satisfied by any combination of primary, excess or umbrella liability insurance, for the term of this Contract:

Amounts and Types of Insurance:

	Type	Amount	
1	Workers Compensation/Employer's Liability	Statutory	
2	Employer's Liability	No less than $100,000 Limit Ea. Occ/Disease/Aggregate	City shall be an Additional Insured with Waiver of Subrogation
3	Commercial (Public) Liability, including, but not limited to: A. Premises/Operations B. Independent Contractors C. Personal Injury D. Products/Completed Operations E. Contractual Liability (insuring the indemnity provisions in the contract) F. Explosion or Cave-in	No less than $1,000,000 per Occurrence and Aggregate Limits	All insurance policies shall be written on a primary basis and be non-contributory with any other coverages carried by the City. City is to be an Additional Insured with Waiver of Subrogation.
4	Automobile Policy	The OWNER shall be an Additional Insured at No less than Combined Single Limit - $500,000.00	City shall be an Additional Insured

The required limits may be satisfied by any combination of Primary, Excess or Umbrella liability coverage. The preceding amounts notwithstanding, OWNER reserves the right to decrease or increase the minimum required insurance either as provided in the contract documents or after thirty (30) days' notice is sent to the CONTRACTOR's address as shown on CONTRACTOR's Proposal. The CONTRACTOR may pass through to the OWNER all costs for obtaining the increase in the insurance coverage.

The CONTRACTOR understands that it is its sole responsibility to provide Certificates of each policy before any work is started and that failure to timely comply with the stated policy endorsements and special conditions hereinafter specified shall be a cause for termination of this Contract. Prior to the effective date of cancellation of any coverage, the CONTRACTOR must deliver to the OWNER a replacement Certificate or proof of reinstatement. In addition to the Certificates, all Policies shall be subject to examination and approval by City Risk Management for their adequacy as to form, content, form of protection and the providing company.

The proof will include completed/current Certificate(s) of Insurance, endorsements, exclusions, and/or relevant extracts from the insurance policy, or copies of policies. The City shall have no duty to pay or perform under this contract until the proof of insurance has been delivered to and approved by the CITY's Risk Management Department. No officer or employee other than the CITY's Risk Manager shall have authority to waive this requirement.

Insurance required by this Contract for the OWNER as additional insured shall be primary insurance and not contributing with any other insurance available to the OWNER, under any third party liability policy.

Delete entire subsection 103.4.2. OWNER's Protective Liability Insurance and Replace with:

103.4.2 Worker's Compensation Insurance. The OWNER shall require workers' compensation insurance coverage as defined in Section 401.011(44) of the Texas Labor Code as may be amended, from any contractor before entering into a building or construction contract to prove in writing that the CONTRACTOR and all subcontractors shall provide coverage, based on proper reporting of classification codes and payroll amounts and filing of any coverage agreements, which meets the statutory requirements set forth in Section 406.096 of the Texas Labor Code as may be amended, for all persons providing services on the project, for the duration of the project. The City shall be an Additional Insured, and, with a Waiver of Subrogation.

103.4.5.1 Endorsements.
Delete 103.4.5.1(1) and Replace with:
(1) With the exception Professional Liability coverage, the Certificate of Insurance must state that "The City of Mesquite-Texas, its trustees, officers, agents and employees are Additional Insureds as their interests appear relating to the contractually stipulated service, project or product";

103.4.5.2(2) Insurance Requirements.
Add to the end of the sentence: and rated at least "A-" in A.M. Best's Key Rating Guide; and with a financial strength of VII or greater

103.6 NOTICE TO PROCEED AND COMMENCEMENT OF WORK
Replace last sentence with: Prior to the start of work, the OWNER may arrange a Pre-Construction Conference with the CONTRACTOR and appropriate OWNER staff. The Pre-Construction Conference shall be scheduled no later than 30 days after the Contract is fully executed. The Notice to Proceed (NTP) shall state the date upon which the Contract time (the Effective Start date) shall start. The Effective Start date will be within 30 days after the Pre-Construction Conference for the Project is held unless requested otherwise in writing by the OWNER's Representative.

Add The Following Section:
103.9. COST BREAKDOWN (SCHEDULE OF VALUES FOR LUMP SUM BIDS OR BID ITEMS)
The CONTRACTOR shall prepare and submit for approval to the OWNER's Representative, prior to the start of construction, a breakdown of lump sum items, identified by the OWNER, for the various parts and classes of work to be performed under the Contract.

105.1.1 Priority of Contract Documents.
Delete numbers (1) through (9) of subsection 105.1.1 and Replace with:
In case of conflict between Contract documents, priority of interpretation shall be in the following order:

1. signed Contract Agreement;
2. properly authorized change orders;
3. any listed and numbered addenda;
4. special provisions;
5. construction drawings;
6. project specific details;
7. Division 100 of the Public Works Construction Standards, North Central Texas, Fifth Edition, dated November 2017 with City of Mesquite Addendum;
8. technical specifications;
9. City of Mesquite Standard Details;
10. the OWNER's written notice to proceed to the CONTRACTOR;
11. the CONTRACTOR's bid proposal;
12. the Performance and Payment Bonds;

13. City of Mesquite General Design Standards
14. Public Works Construction Standards, North Central Texas, Fifth Edition, dated November 2017
15. Texas Department of Transportation (TxDOT) Standard Specifications for Construction and Maintenance of Highways, Streets, and Bridges, 2014

105.1.3. Contract Drawings and Specifications.
Add at the end of the first paragraph: The only plans authorized for use are stamped:

RELEASED FOR CONSTRUCTION
CITY OF MESQUITE
ENGINEERING DIVISION
(DATE)
THESE PLANS SHALL
BE ON THE JOB SITE AT ALL TIMES

105.3. SHOP DRAWINGS, PRODUCT DATA AND SAMPLES
Delete: The last sentence in the last paragraph.

105.4. CONSTRUCTION STAKES
Delete: Entire first paragraph of section.
Add: The CONTRACTOR is responsible for furnishing, at CONTRACTOR's expense, all construction staking necessary to establish line and grade. The Consulting Engineer will provide one-time location of survey control points for the CONTRACTOR's surveyor. Prior to construction, the CONTRACTOR shall field-verify elevations and locations of tie-in points for existing utilities. If discrepancies are discovered between field conditions and plan elevations, the CONTRACTOR shall notify the OWNER immediately of the discrepancies. All construction staking is subject to checking and verification by the OWNER's Representative.

105.6. SUPERVISION BY CONTRACTOR
Add: The CONTRACTOR superintendent and general foreman shall both be fluent in speaking, reading, and writing English.

105.7.1 Authority of the Engineer
Add: The Engineer has the authority to stop the work whenever such stoppage may be necessary to insure the proper execution of the Contract.

105.7.2. OWNER's Representative's Final Determination
Add: Should the CONTRACTOR object to any order by any subordinate of the OWNER's Representative (i.e. City inspector), the CONTRACTOR may, within six days make written appeal to the OWNER's Representative for his decision.

105.9 INSPECTION
Add: The OWNER's Inspector shall not have the power to waive the obligations of this Contract for the furnishing by the CONTRACTOR of good material, and of his performing good work as herein described, and in full accordance with the plans and specifications. No failure or omission of the OWNER's Inspector to condemn any defective work or material shall release the CONTRACTOR from the obligation to at once remove and properly replace the same at any time prior to OWNER's final acceptance upon the discovery of said defective work or material.

105.9.1. Removal of Defective and Unauthorized Work.
Delete the first sentence and Replace with the following:
(1) Except as provided in Paragraph (2) of this 105.9.1, all work which has been rejected or condemned shall be repaired, or if it cannot be repaired satisfactorily, it shall be removed and replaced at the CONTRACTOR's expense.

Add after first paragraph: (2) If the OWNER prefers to accept Work which is defective and/or not in accordance with the requirements of the Contract Documents, the OWNER's Representative may accept Work instead of requiring its removal and correction, prior to recommendation of final payment. Work found to be defective and accepted by the OWNER shall be, at the discretion of the OWNER and without recourse by the CONTRACTOR, subject to partial or non-payment. CONTRACTOR shall bear all direct, indirect, and consequential costs attributable to the OWNER's evaluation of any determination to accept such defective work (such costs to be approved by the OWNER's Representative as to reasonableness, and to include, but not be limited to, fees and charges of engineers, inspectors, architects, attorneys, laboratories and other professionals). If any such acceptance occurs prior to the OWNER's Representative's recommendation of final payment, a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work; and the OWNER shall be entitled to an appropriate decrease in the Contract Price. If the acceptance occurs after such recommendation, an appropriate amount will be paid by the CONTRACTOR to the OWNER.

105.9.3. Inspection Overtime

Delete the second and third sentences in the first paragraph and Replace with the following: The CONTRACTOR will be required to reimburse the OWNER or its designated representative for the cost of all inspection overtime which may be necessary for the successful and expeditious prosecution of the work included in this contract. Inspector's normal working hours are 7:30 a.m. to 11:30 a.m. and 12:30 p.m. to 4:30 p.m., Monday through Friday with the exclusion of Holidays. **The CONTRACTOR will reimburse the OWNER for all Inspection overtime outside the Inspector's normal working hours.** To arrange for inspection outside Inspector's normal working hours, a written request for overtime inspection must be communicated to the OWNER's Inspector two working days in advance. Work on Sundays and Holidays is prohibited except in the case of emergency and authorized, in writing, by the OWNER's Representative. Work between the hours of 6:00 P.M. and 7:00 A.M. must be approved by the OWNER's Representative. Overtime inspection shall be charged portal to portal. There is a two-hour minimum charge for inspection on weekends or Holidays. The CONTRACTOR will be charged a 2-hour minimum overtime charge if the CONTRACTOR schedules inspection on weekends or Holidays but then cancels work without notice to the Public Works Construction Inspector before the inspector shows up to the project.

Delete: The last paragraph.

Add: Inspection overtime will be reimbursed to the OWNER by the CONTRACTOR at the rate of time-and-one-half plus workman's compensation, F.I.C.A. and other normal City benefits and any other additional rates paid to the inspector by the City. The CONTRACTOR will be billed monthly by the City for overtime charges. The OWNER will not release final payment or give final acceptance of a project until inspector overtime charges are paid.

106.4. OFF-SITE STORAGE

Delete the second paragraph including (1) through (6), and Replace with:

The costs incurred in storage of materials or equipment away from the project site will not be made by the OWNER. All costs incurred shall be the full responsibility of the CONTRACTOR and included in the CONTRACTOR's bid.

106.5 SAMPLES AND TESTS OF MATERIALS

Delete the first paragraph and Replace with:

Where called for in the specifications or, in the opinion of the OWNER, tests and retests of materials or completed work are necessary, such tests will be made **at the sole expense of the CONTRACTOR** unless otherwise specified.

Add at the end of the last paragraph:

The CONTRACTOR shall designate and pay a City Approved testing laboratory to perform all testing, if any, for this project. Such designation is subject to the approval of the OWNER's Representative. The

hiring of the testing laboratory shall comply with Article 2254.004 of the Texas Governmental Code (Professional Services Procurement Act) and other applicable laws.

The Testing Laboratory must furnish the inspector with one field copy of the test results. A typed paper copy must be mailed to the OWNER's Representative identified at the Pre-Construction Conference. The OWNER's Representative may approve the submission of final test reports to the OWNER by electronic means.

Collection of potable water samples for bacterial sampling will be accomplished by the CONTRACTOR. The CONTRACTOR must prepare the sample point and assist the City Public Works Construction Inspector in collecting the sample. All work and materials used for the sampling point and taking the samples must conform to the latest version of the American Water Works Association Standards. Delivery of the potable water sample to the testing laboratory and testing of the potable water sample will be at the OWNER's expense.

107.3. INDEMNIFICATION
Add the following subsections:

107.3.1 CONTRACTOR's Responsibility. CONTRACTOR further agrees that it shall at all times exercise reasonable precautions on behalf of, and be solely responsible for, the safety of its officers, agents, employees, subcontractors, licensees, invitees, and other persons, as well as their property, while in the vicinity where the improvements are being made. It is expressly understood and agreed that OWNER shall not be liable or responsible for the negligence of the CONTRACTOR, including but not limited to its officers, agents, employees, subcontractors, licensees, invitees, and other persons.

107.3.2 Premise Defects. Further, OWNER assumes no responsibility or liability for harm, injury, or any damaging events which are directly or indirectly attributable to premise defects, real or alleged, in improvements constructed by CONTRACTOR which may now exist or which may hereafter arise upon the premises, responsibility for any and all such defects being expressly assumed by CONTRACTOR. CONTRACTOR understands and agrees that this indemnity provision shall apply to any and all claims, suits, demands, and/or actions based upon or arising from any such premise defects or conditions, including but not limited to any such claim asserted by or on behalf of CONTRACTOR, including but not limited to its officers, agents, employees, subcontractors, licensees, invitees, and other persons.

107.3.3 Notice of Claim. It is further agreed with respect to the above indemnity that OWNER and CONTRACTOR will provide the other prompt and timely notice of any event covered which in any way, directly or indirectly, consequently or otherwise, affects or might affect the CONTRACTOR or OWNER, and OWNER shall have the right to compromise and defend the same to the extent of its own interests.

107.13 LABOR AND MATERIALS
Add the following subsection:

107.13.1. LABOR CLASSIFICATION AND MINIMUM WAGE SCALE
In compliance with Texas state law, the CONTRACTOR is required to pay all employees, and is required to make all subcontractors pay their employees, for the construction of any public work project not less than the general prevailing rate of per diem wages in the locality for work of a similar character as determined by the City. The City, as provided by law, has adopted the prevailing wage rates as determined by the U.S. Department of Labor in accordance with the Federal Davis Bacon Act for this Contract.

Attention is called to the fact that the inclusion of a minimum scale of wages to be paid to employees engaged in the work under this Contract does not release the CONTRACTOR from compliance with any Federal or State Wage Law that may be applicable to the project. The CONTRACTOR shall abide by Federal and State Wage and Hour Laws and must not pay less than the wages legally prescribed as set forth therein. In order to verify compliance with Federal or State wage laws and regulations, the

CONTRACTOR may be required to submit a weekly certified payroll of all workers on the project listing name, social security number, labor classification, wage rates, hours worked and compensation paid.

Under the provisions of the Texas Government Code, Title 10, Subchapter F, Section 2258.023, the CONTRACTOR shall forfeit as a penalty to the City on whose behalf the Contract is made or awarded, Sixty Dollars ($60.00) for each laborer, workman or mechanic employed, for each calendar day or portion thereof that such laborer, workman or mechanic is paid less than the said stipulated rates for any work under the Contract, by him or by any subcontractor under him.

Such wage determinations must be for projects in Dallas County, Texas dated no more than 3 years prior to the date this Contract was advertised for bid.

In addition, the CONTRACTOR is required to obtain skilled and unskilled labor used on the work, when qualified, fit and available, first from residents within the City and secondly, from residents of Dallas County, if practical and available. However, the CONTRACTOR may bring his superintendent, foreman, sub-foreman, machine operators and sufficient key men to round his organization.

107.14 EQUAL EMPLOYMENT OPPORTUNITY

107.14.5 Reports
Add at the end of the first sentence: "if required by the OWNER."

Add the following subsections:
107.14.6. Protection of Resident Workers: The OWNER actively supports the immigration and Nationality Act (INA), which includes provisions addressing employment eligibility, employment verification, and nondiscrimination. Under the INA, employers may hire only persons who may legally work in the United States (i.e., citizens and nationals of the U.S.) and aliens authorized to work in the U.S. The employer must verify the identity and employment eligibility of anyone to be hired, which includes completing the Employment Eligibility Verification Form (I-9). The CONTRACTOR shall establish appropriate procedures and controls so no services or products under the Contract Documents will be performed or manufactured by any worker who is not legally eligible to perform such services or employment.

107.14.7. Handicapped Discrimination Regulations:
The handicapped discrimination regulations mandate equal opportunity and require that outside organizations such as labor unions and contractors who provide services to the local governments must not discriminate against qualified handicapped persons in employment decisions.

107.14.8. Non-Compliance with Equal Employment Opportunity Provisions
In the event of the CONTRACTOR's non-compliance with the nondiscrimination clauses of this Contract or with any of the said rules, regulations, or orders, this Contract may be canceled, terminated, or suspended in whole or in part and the CONTRACTOR may be declared ineligible for further Government contracts in accordance with procedures authorized in Executive Order 11246 of September 24, 1965, or by rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law.

107.15 STATE AND LOCAL SALES AND USE TAXES
Add at the end of the section:
If the CONTRACTOR performs under a separated contract as defined by Texas Administrative Code Rule 3.291 by obtaining the necessary permit or permits from the State Comptroller's office allowing the purchase of materials for incorporation in this project without having to pay the Limited Sales and Use Tax at the time of purchase, the CONTRACTOR shall identify separately from all other charges the total agreed contract price for materials incorporated into the project. Total materials shall include only materials physically incorporated into the project.

If the CONTRACTOR operates under a "separated contract," the City of Mesquite Purchasing Division

will furnish the CONTRACTOR with an exemption certificate for the applicable materials. In order to comply with the requirements of Texas Administrative Code Rule 3.291, as mentioned above, Bidder shall obtain a sales tax permit. It shall be necessary that the Bidder issue resale certificates to suppliers.

Sales tax application for a sales tax permit and information regarding resale certificates may be obtained by writing to:

Texas Comptroller of Public Accounts
Capitol Station
Austin, Texas 78774

The CONTRACTOR may also receive information or request sales tax permit applications by calling the State Comptroller's local Mesquite office at **(214) 289-3400**.

Subcontractors are eligible for sales tax exemption if the subcontract is made in such a manner that the charge for materials is separated from all other charges. The procedure described above will effect a satisfactory separation. When subcontracts are handled in this manner, the CONTRACTOR shall issue a resale certificate to the subcontractor, who in turn, must issue a resale certificate to his supplier.

107.17 COMPLIANCE WITH LAWS
Add at the end of the section:
THE CONTRACTOR SHALL INDEMNIFY AND SAVE HARMLESS THE OWNER AGAINST ANY CLAIMS ARISING FROM THE VIOLATION OF ANY SUCH LAW, ORDINANCES AND REGULATIONS.

107.19 PUBLIC CONVENIENCE AND SAFETY
Add the following subsections:

107.19.1. Temporary Water and Sanitary Sewer Service. When existing water or sanitary sewer mains or services have to be taken up or removed, the CONTRACTOR shall, at his own cost and expense, provide and maintain temporary outlets and connections for all private or public water, sanitary sewer and drain connections affected. The CONTRACTOR shall also take care of all sewage and drainage that will be received from these sanitary sewers and drains; and for this purpose, he shall provide and maintain, at his own expense, adequate pumping facilities and temporary outlets or diversions. The CONTRACTOR, at his own expense, shall construct such piping, troughs, or other necessary structures, and be prepared at all times to dispose of sanitary sewer and drainage received from these temporary connections until such time as the permanent connections are built and in service. The existing water, sanitary sewer and drain connections shall be kept in service and maintained under the Contract, except where specified or ordered to be abandoned by the OWNER's Representative. All water, sewage or drainage shall be disposed of in a legal and satisfactory manner so that no nuisance is created and the work under construction adequately protected.

107.19.2. Explosives. Explosives shall not be used under any circumstances in relation to this project.

Add at the end of section 107.19:
In order to document site conditions and assist in resolving claims for construction damage the CONTRACTOR shall take digital pictures and/or digital video recordings of the site before construction. In addition, the CONTRACTOR shall, during the course of construction, periodically record site conditions using digital pictures and/or digital video recordings. The CONTRACTOR shall make these recordings at least monthly or more frequently if the OWNER's Inspector so orders. Copies of all digital photographs and/or video recordings shall be burned to DVD or other digital media acceptable to the OWNER and provided to the OWNER's Inspector.

Add to end of section 107.20.2 the following subsection:

107.20.2.1. Access to Property. The CONTRACTOR shall schedule the work such that inconvenience to the public and adjoining property owner's shall be at a minimum. Access to all businesses shall be provided at all times during business hours.

The CONTRACTOR will schedule work through residential areas in a manner that would expedite construction operations and will restore drive approach access at the end of each working day during execution of the project (except during paving operations of the specific residential drive approach). The CONTRACTOR shall maintain temporary drive approaches to the satisfaction of the OWNER's Representative. Private drives to residences shall not be closed for more than 10 days at any one time during paving operations.

The CONTRACTOR will notify the OWNER's Representative Office in writing one (1) week prior to any street or driveway closure.

107.20.3.6. Payment for Trench Safety and Special Shoring.
Delete the first sentence and Replace with: Payment for trench safety shall be by the lineal feet of trench regardless of depth.

107.24.4. Utility Coordination and Protection
Delete the first sentence and Replace with:
No franchise utility relocations have taken place in preparation for the project, and the location of existing utilities may not be shown on the plans. It is the CONTRACTOR's responsibility to notify utility companies to arrange for exact locations at least 48 hours prior to beginning construction. The CONTRACTOR is fully responsible to coordinate necessary utility relocation with the utility companies and will make all efforts to coordinate necessary relocation of utilities with the utility owner. The OWNER shall not be held responsible by the CONTRACTOR for any delays created by a franchise utility company relocating their facilities. The time of construction given for the project includes all necessary utility work involved with franchise utility companies. The OWNER will make an effort to assist the CONTRACTOR in coordinating relocations before and during the project.

Delete: Table 107.24.4.(a) Utility Coordination and Replace with:

Entity	**Contact Information**
Texas One Call system	**811**
City of Mesquite Water/Sewer Locates	**972-216-6278** **972-216-6973** **972-216-8797**
City of Mesquite: Record Drawings	**GISHelpdesk@cityofmesquite.com**
City of Mesquite Traffic Signal Conduit & Loop Detectors	**972-216-6278**

Add to the end of section 107.24 the following subsections:

107.24.5. Arrangement and Charge for Water Furnished by the City. Where CONTRACTOR desires to use City water in connection with any construction work, he shall make prior arrangements with the Mesquite Water Accounting Division for so doing. Where meters are used, the charge for water will be at the regular established rate; where no meters are used, the charge will be as prescribed by ordinance; or, where no ordinance applies, payment shall be made on estimates made by the Mesquite Engineering Division.

107.24.6. Use of Fire Hydrants. No person shall open, turn off, interfere with, attach any pipe or hose to, or connect anything with any fire hydrant, stop valve or stopcock, or tap any water main belonging to the City, unless duly authorized to do so by the Mesquite Utilities Division.

107.24.7. Operation of Existing Valves. The CONTRACTOR is not permitted to operate any valve in the existing City of Mesquite water system. The valves must be operated by City of Mesquite Utility Division employees only.

107.27 RESTORATION OF PROPERTY
Add to the end of the section:
The CONTRACTOR shall exercise special care to minimize damage to trees, plants, shrubs and irrigation systems along the route of the work. The CONTRACTOR shall notify adjacent property owners before beginning construction operations adjacent to their property of trees, plants and shrubs that lie inside the right-of-way or easements lines and within the normal limits of work. The property owners shall be allowed to remove and protect their property, and all trees, plants and shrubs not so protected by the adjacent property owners shall be removed and disposed of by the CONTRACTOR, as directed by the OWNER's Representative.

107.28.1 Spill Prevention Plan
Add to beginning of first sentence: "When required by federal and/or state law, rules or regulations,"
107.28.5 Failure to Comply

Delete item (3) and Replace with:
(3) terminate the contract for default as provided in the Contract Documents; or

Add the following as Item (4):
(4) terminate the contract in any other applicable manner provided in the Contract Documents.

Add the following section to the end of Item 107:
107.29 ANTI-KICKBACK ACT
For any project funded by a Federal grant, the CONTRACTOR shall comply with the Copeland "Anti-Kickback" Act (18 U.S.C. 874) as supplemented by Department of Labor regulations (29 CFR, Part 3). This Act provides that each contractor or sub grantee shall be prohibited from inducing, by any means, any person employed in the construction, completion or repair of public work or to give up any part of the compensation to which he is otherwise entitled. The City shall report all suspected or reported violations to the grantor agency.

108.8.1 Liquidated Damages for Failure to Complete on Time.
Delete the entire subsection and replace with the following:
The time of completion is the essence of this Contract. For each day that any work shall remain uncompleted after the time specified in the proposal and the Contract, or the increased time granted by the OWNER, or as equitably increased by additional work or materials ordered after the Contract is signed, the sum per day given in the Schedule 108.8.1. (a) Liquidated Damages, unless otherwise specified, shall be deducted from the monies due the CONTRACTOR.

Schedule 108.8.1. (a) Liquidated Damages

Amount of Contract ($)	Amount of Liquidated Damages ($)
Less than 25,000.00	200.00 Per Day
100,000.00 to 999,999.99	500.00 Per Day
More than 1,000,000.00	1000.00 Per Day

The sum of money thus deducted for such delay, failure or noncompletion is not to be considered as a penalty, but shall be deemed, taken and treated as reasonable liquidated damages, per day that the CONTRACTOR shall be in default after the time stipulated in the Contract for completing the work. The said amounts are fixed and agreed upon by and between OWNER and CONTRACTOR because of the impracticability and extreme difficulty of fixing and ascertaining the actual damages the OWNER in such event would sustain; and said amounts are agreed to be the amount of damages which the OWNER would sustain and which shall be retained from the monies due, or that may become due, the CONTRACTOR under this Contract; and if said monies be insufficient to cover the amount owing, then the CONTRACTOR or its surety shall pay any additional amounts due.

In the event that the actual damages incurred by the OWNER exceed the amount of liquidated damages, OWNER shall be entitled to recover its actual damages.

109.1 PAYMENT FOR LABOR AND MATERIAL; NO LIENS
Add the following paragraph to this section:
The CONTRACTOR is not required to furnish payrolls and records unless this submittal is otherwise required by the Special Provisions or the Contract Documents. The CONTRACTOR is still required to comply with the minimum wage rates published by the OWNER.

109.2 PAYMENT FOR MATERIALS
109.2.1. Materials On-Hand. Delete the text of subsection and replace with the following: The OWNER will not pay for Materials on Hand unless otherwise specified in a Special Provision or the Contract Documents.

109.2.2. Materials Stored Off-Site. Delete entire subsection.

Re-number Subsection 109.2.3. "Measurement of Quantities" to 109.2.2.

109.5.1 MONTHLY ESTIMATE
Replace the second sentence of the first paragraph with the following: "The monthly estimate may include acceptable nonperishable materials if allowed by Special Provisions or the Contract Documents."

Replace the fourth sentence of the first paragraph with the following: "The monthly estimate may include acceptable nonperishable materials delivered to and stored at the work site or a storage facility accessible to the OWNER if allowed by Special Provisions or the Contract Documents."

109.5.4. Final Payment.
Revise the last sentence of the first paragraph to read as follows:
The amount of the final estimate, less any sums that have been previously paid, deducted or retained under the provisions of this Contract, shall be paid to the CONTRACTOR within a reasonable period of time (not to exceed 90 days) after final acceptance and the CONTRACTOR has provided to the OWNER:

(1) a consent of surety to final payment;

(2) the final CONTRACTOR's Report of SUBCONTRACTOR/Supplier Payment, evidencing that all indebtedness connected with the work and all sums of money due for any labor, materials, apparatus, fixtures or machinery furnished for or used in the performance of the work have been paid or otherwise satisfied, or that the person or persons to whom the same may be respectively due have consented to final payment;

(3) such other affidavits, lien waivers and other documentation as the OWNER may reasonably require to protect its interests; and

(4) a marked-up set of plans showing all changes, revisions and alterations to the original plans.

109.6 WIRE TRANSFERS

Delete entire text of Section 109.6 and Replace with:

The City of Mesquite has chosen the Paymode-X™ service through Bank of America to make electronic payments to contractors, vendors and suppliers.

The City of Mesquite recognizes the importance of expediting the payment process to CONTRACTOR's vendors and suppliers. Our Accounts Payable department utilizes Paymode-X to replace paper checks with electronic payments. We strongly encouraging our vendors and suppliers to enroll in Paymode-X so that future payments are made electronically. Contract the assigned OWNER's Inspector to receive further information on how to process online enrollment to the Paymode-X electronic payment system.

Delete entire ITEM 110. AIR QUALITY REQUIREMENT FOR EQUIPMENT

SPECIAL PROVISIONS

These Special Provisions are to be used in conjunction with the ***North Central Texas Council of Governments Public Works Construction Standards, Fifth Edition (November 2017), Division 100 General Provisions, as amended***. Should any discrepancies arise, the governing order shall be: Special Provisions, Plans, Technical Specifications, and General Provisions.

THE FOLLOWING SPECIAL PROVISIONS HEREBY MODIFY THE *North Central Texas Council of Governments Public Works Construction Standards, Fifth Edition (November 2017), Division 100 General Provisions*. Where reference is made in these specifications to specifications compiled by others, such reference is made for expediency and standardization, and such specifications referred to are hereby made a part of these specifications.

SP-1 PROJECT DESCRIPTION:

As set forth in the plans and specifications, the project is to construct approximately 7,500 square yards of 6" thick concrete trail, two truss span pedestrian bridges, pedestrian crossings, 1,000 linear feet of reinforced concrete drainage pipe, 600 linear feet of water line, 1,300 square yards of 8" concrete parking lot (add alternate), overlook (add alternate), lighting, landscaping, irrigation, and hardscaping amenities.

SP-2 BIDDERS QUALIFICATION INFORMATION:

The Bidder's Qualification Information shall be provided by the apparent low bidder as outlined within 48 hours of bidding opening or as otherwise agreed to.

SP-3 LIQUIDATED DAMAGES:

This project is a **365-calendar day contract**. Liquidated damages are per the provisions of GP 108.8, 108.8.1, and 108.8.1(a) listed as $1000/day for projects having a construction cost over $1M. Calendar days shall be charged Sunday through Saturday, including holidays, regardless of weather conditions , material availability, or other conditions not under control of the contractor.

SP-4 SUBMITTALS:

The Contractor shall provide submittals of the following items to the Owner's Representative at the pre-construction conference:

1. Comprehensive list of Subcontractors and Material Suppliers (including Material's Testing Laboratory and Surveyor for construction staking).
2. Submittals for all materials to be incorporated into the project unless expressly stated otherwise in the Contract Documents. A submittal is not required for an item if it is an item is listed on the City of Mesquite Approved Materials list by brand name and model number.
3. Concrete batch designs and paving equipment.
4. Project Baseline Schedule utilizing the Critical Path Methodology (CPM) clearly and accurately identifying critical path.
5. Listing of all testing required by the specifications and plans with frequency requirements.
6. Traffic Control Plans
7. Completed SWPPP (as required by TCEQ)
8. Construction Site Notice (CSN) and Notice of Intent (NOI) (as required by TCEQ)
9. Trench Safety Plan – signed and sealed by a registered professional engineer.
10. Affidavit of trained and certified "Competent Person" for Trench Safety Inspections
11. Contractor Contact List with listing of personnel for 24 hour – 7 days a week contact.
12. Construction Sequencing Plan
13. Other Items as requested by the Owner's Representative or required by contract documents, specifications or plans.

SP-5 CONSTRUCTION SEQUENCE:

The Contractor shall prepare a Construction Sequencing Plan which shows staging for the installation of the construction by street or other division of the work as requested by the Owner's Representative and submit it to the Owner's Representative at the Pre-Construction Conference. This Plan shall include maintaining one lane of traffic open in each direction, access to all adjacent properties/alleys/streets, and all water and sanitary sewer service.

SP-6 REMOVAL AND DISPOSAL OF TREES AND SHRUBS:

Pay items are provided for the removal of trees 6" in diameter and greater based on the approximate number of identified trees. All removal of shrubs and trees under 6" in diameter are not included in approximate number of trees to be removed and shall be considered subsidiary to Preparing Right-of-Way.

The City's compost facility at 3550 Lawson Road (Mapsco 60A-T) will accept trees and brush from the project under the following terms:

- Trees that have root balls will not be accepted.
- All brush must be cut.
- Tree trunks and limbs with a diameter larger than 18-inches must be cut in lengths no longer than three-feet.
- Tree trunks and limbs with a diameter smaller than 18-inches must be cut in lengths no longer than six-feet.
- The contractor will be charged by truck or trailer size and volume according to the attached Fee Schedule. There is an option for monthly billing if the contractor sets up an account with the City with a $100.00 non-refundable deposit.

(1) Compost materials charge.
   a. Pick-up……... $ 20.00
   b. 10-foot trailer……. $ 25.00
   c. 12-foot trailer……. $ 30.00
   d. 14-foot trailer……. $ 34.00
   e. 16-foot trailer……. $ 38.00
   f. 18-foot trailer……. $ 42.00
   g. 20-foot trailer……. $ 47.00

(2) Chipped loads.
   a. 10-cubic-yard box truck……. $ 25.00
   b. 20-cubic-yard box truck……. $ 45.00
   c. 30-cubic-yard box truck……. $ 65.00

(3) Roll-off containers and tract trailers.
   a. 10-cubic-yard……. $ 36.00
   b. 20-cubic-yard……. $ 67.00
   c. 30-cubic-yard……. $ 98.00
   d. 40-cubic-yard……. $129.00
   e. 50-cubic-yard……. $160.00
   f. 60-cubic-yard……. $191.00

SP-7 DOCUMENT SITE CONDITIONS:

Contractor shall take digital pictures and/or digital video recordings of the site before construction begins. Special emphasis shall be on adjacent private property, including driveways, fences, etc. A copy of the photos and/or videos shall be furnished to the inspector for review and filing prior to any construction in that area. This shall be considered incidental to the project.

SP-8 COORDINATION WITH FRANCHISED AND CITY UTILITIES:

The Contractor shall be responsible for locating all utilities, both public and private, on this project prior to any construction, the location of which may or may not be shown on the plans. It is the Contractor's responsibility protect all existing utilities from damage during construction. The contractor will be required to cooperate with other contractors performing work and to schedule and sequence construction operations to facilitate utility adjustments and relocations working within this project. The time of construction given for the project includes all necessary coordination with franchise utility companies.

SP-9 RECORD DRAWINGS:

The Contractor will be furnished one set of plans on which he shall indicate all changes made during construction. All notes and comments necessary to give a clear conception of exactly how all items were constructed including location shall be shown. This set of plans shall be reviewed with the Owners representative at the completion of the project and returned to the Engineer at that time. This shall be considered incidental to the project.

SP-10 ESTIMATED QUANTITIES:

All estimated quantities stipulated in the Bid Form or other Contract Documents are approximate and are to be used only (a) as a basis for estimating the probable cost of the Work and (b) for the purpose of comparing the bids submitted for the Work. The actual amounts of work done and materials furnished under unit price items may differ from the estimated quantities. The basis of payment for work and materials will be the actual amount of work done and materials furnished. Contractor agrees that it will make no claim for damages, anticipated profits, or otherwise on account of any difference between the amounts of work actually performed and materials actually furnished and the estimated amounts.

SP-11 STAGING AREAS:

Materials and equipment shall be safely stored during construction so that public roadways and/or access to adjacent properties are not obstructed. The City has not provided or identified specific staging areas for use by the Contractor during construction. There are several vacant properties within and near the project areas. The Contractor may negotiate with owners of those properties for use during construction. The City shall be provided a copy of permission letter obtained from property owner.

SP-12 IRRIGATION SYSTEMS:

Contractor shall protect all existing irrigation systems encountered during construction from damage. Any avoidable (as determined by the City) damage caused to irrigation systems by the contractor’s operation shall be repaired to the satisfaction of the City and property owner at the contractor’s expense. Any unavoidable damage caused to irrigation systems by the contractor’s operation shall be repaired to the satisfaction of the City and property owner at and shall be charged against the Irrigation Repair Allowance bid item. All irrigation repairs must be performed by a licensed irrigator.

SP-13 ADA & TAS REQUIREMENTS:

All work (including sidewalks AND ramps) must be in compliance with current ADA (Americans with Disabilities Act) & Architectural Barriers Rule 68.102, amended effective March 15, 2017 of the PROWAG requirements for right-of-way projects.

SP-14 PROJECT SCHEDULE:

Project schedules are used to convey the Contractor’s intended work plan to the City. Prepare project schedules with a level of effort sufficient for the work being performed. Project schedules will not be used as a basis to establish the amount of work performed or for the preparation of the progress payments.

If continuous progress of an activity is interrupted for any reason except non-work periods (such as holidays, weekend, or interference from temperature or precipitation), then the schedule will show the actual finish date as that date of the start of the interruption and the activity will be broken into a subsequent activity (or activities, based on the number of interruptions) similarly numbered with successive alpha character as necessary. The original duration of the subsequent activity will be that of the remaining duration of the original activity. Relationships of the subsequent activity will match those of the original activity so that the integrity of the project schedule logic is maintained. Once established, the original durations and actual dates of all activities must remain unchanged. Revisions to the schedule

may be made as necessary. The project schedule must be revised when changes in construction phasing and sequencing occur or other changes that cause deviation from the original project schedule occur.

Monthly updating of the project schedule will include updating of:

1. The actual start dates for activities started;
2. The actual finish dates for activities completed;
3. The percentage of work completed and remaining duration for each activity started but not yet completed; and
4. The calendars to show days actual work was performed on the various work activities.

Monthly schedule updates are to be provided to the City. The cut-off day for recording monthly progress will be the last day of each month. Submit the updated project schedule no later than the 20th calendar day of the following month.

SP-15 CONSTRUCTION PHASING AND TRAFFIC SEQUENCING:

The City of Mesquite has provided a Traffic Control Plan (TCP) in the plan set as general guidance only. The TCP provided shall be modified and amended, subject to final City review and approval, by the Contractor after award of contract at no additional cost to the City. The Contractor provided TCP shall be signed and sealed by a licensed engineer registered in the State of Texas meeting the following requirements at a minimum:

Construction Phasing and Traffic Control Performance Specifications:

1. Meet TMUTCD Part VI requirements conforming to TxDOTs Compliant Work Zone Traffic Control Device List.

2. Complies with TxDOT Specification Item 502 - Barricades, Signs, and Traffic Handling

3. The City requires that a minimum of one vehicular lane of traffic must be open in each direction, at all times, for the duration of the project.

4. The TCP shall include details for allowable time and duration of lane closures, all detours, traffic control devices, striping, and signage applicable to each phase of construction. Information included in the TCPs shall be of sufficient detail to allow verification of design criteria and safety requirements, including typical sections showing lane width, concrete traffic barrier and barrel placement, alignment, striping layout, drop off conditions, and temporary drainage.

5. Throughout the duration of the Project, Contractor shall ensure all streets and intersections remain open to traffic to the greatest extent possible by constructing the project in phases except as shown on preapproved TCP. Contractor shall maintain access to all adjacent streets and shall provide for ingress and egress to public and private properties at all times during the project.

6. Contractor shall coordinate with the respective landowners and tenants and also secure written permission prior to disrupting access to parking facilities.

7. Contractor shall also notify the traveling public by placing changeable message signs a minimum of seven days in advance of actual roadway closure or major traffic modifications.

8. If at any time the City determines Contractor’s traffic control operations do not meet the intent of the Contractors developed TCP, Contractor shall immediately revise or discontinue such operations to correct the deficient conditions.

9. Contractor shall provide to the City the name of s traffic coordinator and a backup coordinator in the event the primary coordinator is unavailable, and the phone number(s) where they can be reached 24 hours per day, seven days per week.

10. All temporary detour routes shall be reviewed and approved by the City prior to implementation. All detour routes shall be identified in accordance with the TMUTCD, Part 6.

11. Contractor shall maintain the vehicular travel lanes, detours, transitions, and street conditions in a safe and traversable condition. This will be required for the entire length of the project Contract.

SP-16 DISADVANTAGED BUSINESS ENTERPRISE (DBE) INFORMATION:

The Contractor is encouraged make a good faith effort to utilize DBE companies and use the DISADVANTAGED BUSINESS ENTERPRISE (DBE) INFORMATION form to identify themselves or potential subcontractors as DBE companies recognized by the certifications listed. A list of potential vendors can be obtained from the City's Purchasing Department. The low bidder shall submit DBE information as part of Bidder's qualifications.

TECHNICAL SPECIFICATIONS

SECTION 02441

IRRIGATION SYSTEM

PART 1 - GENERAL

1.1 DESCRIPTION

Provide an underground irrigation system as shown and specified. The work includes:

A. Automatic irrigation system, including piping, fittings, sprinkler heads, and accessories.
B. Valves, and fittings.
C. Meters provided and installed by the contractor
D. Controller, sensors, control wire, phone modem, flow meter, and phone line. E. Testing.
E. Excavating and backfilling irrigation system work.

1.2 QUALITY ASSURANCE AND APPLICABLE STANDARDS

A. Installer's qualifications:
   1. Minimum of 5 years experience installing irrigation systems of comparable size.
   2. Contractor shall employ a State of Texas Licensed Irrigator.
   3. Contractor shall also employ a licensed Texas Irrigation installer or State of Texas Licensed Irrigator as a continuous on-site representative to the Contractor.

B. Materials, equipment, and methods of installation shall comply with the following codes and standards:
   1. The City of Mesquite Ordinances and Building Codes.
   2. National Electrical Code.
   3. American Society for Testing and Materials, (ASTM).
   4. National Sanitation Foundation, (NSF).
   5. Texas Commission on Environmental Quality rules and regulations.

C. Excavating, backfilling, and compacting operations:

D. Obtain Park Project Manager’s acceptance of installed and tested irrigation system prior to installing backfill materials. Notification must precede requested inspection by 24 hours.

1.3 SUBMITTALS

A. Submit manufacturer's product data and installation instructions for each of the system components to be installed.

B. "As-Built” Drawings: Contractor shall submit a set of reproducible "As-Built" drawings on a Mylar base or a vector based electronic file (AutoCAD 2006 or compatible format) upon completion of the project. The Park Project Manager will provide a base sheet for temporary use by contractor. "As-Built" drawings shall give dimensions to objects from two permanent objects. Dimensions shall be 300' or less unless approved by the Park Project Manager. Permanent objects are considered non-perishable and not likely to be moved i.e., buildings, street curbs, fire hydrants, tennis/basketball court corners, concrete footings or slabs around facilities, street signs, etc. (plant material is perishable). If permanent objects are not close enough to take measurements from, consult with the Park Project Manager. Objects to be dimensioned include but are not limited to: electric valves, routing of wiring, mainline, double check valve assembly, any deviations from the plan (including any and all lateral lines). Prior to taking measurements,

consult with the Park Project Manager as to what other objects, if any, are to be dimensioned. Identify field changes and Change Order changes by dimension and detail.

1.4 DELIVERY, STORAGE, AND HANDLING

A. Deliver irrigation system components in manufacturer's original undamaged and unopened containers with labels intact and legible.

B. Deliver plastic piping in bundles, packaged to provide adequate protection of pipe ends, either threaded or plain.

C. Store and handle materials to prevent damage and deterioration. Do not store P.V.C. pipe in direct sunlight for more than 48 hours.

D. Remove uninstalled components and construction debris each day from site. No storage will be permitted.

1.5 PROJECT CONDITIONS

A. Known underground and surface utility lines are indicated on the drawings. Contractor shall request utility locating services provided by utility companies.

B. Water Service - The Contractor shall connect the proposed system into existing stub-out as indicated on the plans.

C. Protect existing trees, plants, lawns, and other features designated to remain as part of the final landscape work. Restore turf and planting area to original condition after trenching, backfilling, and cleaning.

D. Promptly repair damage to adjacent facilities caused by irrigation system work operations. Cost of repairs shall be contractor's expense.

E. Promptly notify the Park Project Manager of unexpected sub-surface conditions.

F. Irrigation system layout is diagrammatic. Exact locations of piping, sprinkler heads, valves, and other components shall be established by contractor in the field at time of installation. Obtain Park Project Manager’s approval of head layout prior to installation.

G. Space sprinkler components as per manufacturer's recommendations.

H. Minor adjustments in system layout will be permitted to clear existing fixed obstructions. The Park Project Manager shall approve final system layout.

I. A pre-construction inspection will be conducted by Park Project Manager with the Contractor to observe original site conditions.

J. Electric power supply shall be furnished by the City to a location indicated on the plans. Acceptable drop location shall be verified during the design phase. A ten-amp breaker box will be provided to irrigation contractor at park sign. Contractor shall be responsible for directly wiring the automatic controllers into 120 V power supply. NOTE: NO plug in devices will be accepted.

1.6 WARRANTY AND GUARANTEE

A. Materials and workmanship shall be fully guaranteed for one (1) year following Owner’s final acceptance of project at 100% completion. Manufacturer's warranty shall extend beyond 1 year if applicable.

B. Backfilling of all excavation shall be guaranteed for the one (1) year guarantee period.

C. Provide a one (1) year warranty against material, installation and operation defects. Repairs, adjustments and replacement of defective irrigation system materials, including materials that have been installed on the work during the warranty period shall be at Contractor's expense.

PART 2 - PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

A. Parts List: Materials provided and installed by irrigation contractor

DESCRIPTION	MANUFACTURER / MODEL NO.
Controller	Weathermatic Smartline: SL4800 (12 station base model) 12 Station Module: SLM12 (up to 3 needed depending on station quantity) Aircard: SL-AIRCARD1
Flow meter	Data Industrial #IR220p-? (Match size to mainline) w/ all necessary wiring and accessories for proper operation
Electric Valve	Weathermatic 11000 series (size as noted on drawings)
Wire Splice Kit	King One Step socket seal
Freeze Sensor	Weathermatic Wireless Weather Station: SLW15 (this one product satisfies both sensors)
Rain Sensor	Weathermatic Wireless Weather Station: SLW15 (this one product satisfies both sensors)
Pop-up Spray Head (turf & bed areas)	Rainbird 1800 SAM/PRS w/ MPR nozzles (arc & radius as shown on the plans)
Small Rotary Head (turf areas)	Rainbird 5004 + PRS (stainless steel) ¾" inlet
Large Rotary Head (turf areas)	Rainbird 7005, stainless steel, 1" inlet (50' – 70' radius)
Large Rotary Head (turf areas)	Rainbird 8005, stainless steel, 1" inlet (70' – 80' radius)
Rotary Head (clay infield)	Rainbird 6504 HS Falcon, stainless steel, ¾" inlet (arc & radius as shown on the plans)
Low pressure rotor, 40 operating	Rainbird 6504 Falcon, stainless steel, (20' – 70' radius)
Golf / large turf rotors 80'+ radius	Toro 690 Golf Course Rotor / Rainbird Eagle 700 & 900
Tree / shrub bubbler	Rainbird RWS - M – BG02 Root Watering System
Quick Coupler Valve	Weathermatic V-100
Ball Valve (at remote Valve,	Spears Schedule 80 PVC (size to match valve)
Valve Box, and lid, 12" x 17" (for remote valve, and Q.C.V.)	DFW Plastics D-1200
Valve Box Extension	DFW Plastics D-600
Wire splice box	DFW Plastics 10" round
Concrete Valve Box	Brooks #65 concrete box with 2-piece cast iron cover
Reduced Pressure Zone Assembly (RPZ)	Febco Model 860 or Watts Regulator Series 009 (sized for optimum system performance)
RPZ device enclosure	HB-1 (1" RPZ) HB-2 (2" RPZ)

DESCRIPTION	MANUFACTURER / MODEL NO.
Main Line PVC	Class 200 PVC
Lateral PVC	Class 200 PVC
Swing Joint Assembly, 1” size	Lasco G-132-212
Drip (4’ and narrower)	Netafim
Sleeves	Schedule 40 PVC 4” or 6” (size as noted on drawings)

B. Manufacturers:

1. TORO, 523 Camp Wisdom Rd., Duncanville, TX 75116, 972-709-3528
2. Weathermatic, Inc. Telsco Industries, P. O. Box 180205, Dallas, TX 75218-0205, 972-278-6131
3. Glen-Hilton Products, Inc., P. O. Box 31614, Richmond, VA 23294, 804-765-1101
4. Rainbird Corporation, 972-217-5961

2.2 MATERIALS

A. Provide only new materials, without flaws or defects and of the highest quality of their specified class and kind.

B. Comply with pipe sizes indicated. No substitution of smaller pipes will be permitted. Remove damaged and defective pipe.

C. Provide pipe continuously and permanently marked with manufacturer's name or trademark, size schedule and type of pipe, working pressure at 73 degrees F. and National Sanitation Foundation (NSF) approval.

D. Plastic pipe, fittings, and connections:

1. Polyvinyl chloride pipe: ASTM D2241, rigid, unplasticized PVC, extruded from virgin parent material.
2. Provide pipe homogeneous throughout and free from visible cracks, holes, foreign materials, blisters, wrinkles, and dents. SDR21, Class 200.
3. PVC pipe fittings: ASTM D2241 schedule 40 PVC molded fittings suitable for solvent weld, slip joint ring tight seal, or screwed connections. Fittings made of other materials are not permitted. PVC Pipe Fittings - All PVC fittings shall be Type I, medium weight Schedule 40, as manufactured by LASCO Manufacturing Company, or approved equal. Provide 24" minimum dimensions between fittings (exception: threaded couplings).

E. Size slip fitting socket taper to permit a dry unsoftened pipe end to be inserted no more than halfway into the socket. Saddle and cross fittings are not permitted.

F. Schedule 80 PVC pipe may be threaded.

G. Use male adapters for plastic to metal connections. Tighten male adapters by hand plus one turn with a strap wrench.

H. Copper pipe, fittings, and connections of RPZ device: Refer to Water Utilities specifications. Contact Ron Self, City Backflow Inspector, for details at 972-216-6973.

1. Water piping, fittings and connectors: ASTM B88 Type "L" hard tempered copper tubing. Fittings shall be 150-pound working water pressure standard, solder end type, constructed of wrought copper, bronze, or brass.
2. Joints made with tin-lead solder, approximately 50/50 composition.

Thoroughly polish joints and use proper flux to provide sound joints.

I. Associated equipment:

1. Electric control: Type UF 12/2 gauge or 14/3-gauge insulation. UL listed approved for direct underground burial when used in National Electrical Code Class II Circuit,
2. Wire color code: Provide control or "hot" wires red in color. Provide common or "ground" wires white in color.
3. Ground Rod and Wire for Controller

a. Ground shall be 6-gauge uncoated copper bus wire.

b. Ground rod shall be a copper coated steel rod or as per local code. Length and diameter shall be as per local code.

c. Refer to manufacturer's requirements for wire sizing to valves, and sensors.

J. Valve box to enclose electric valves shall be a 12" rectangular valve box with a snap in lid. Valve box to be installed with 6" extension (as needed), and supported with bricks around the entire base of the box

K. Automatic sprinkler controllers shall be capable of operating the number of stations specified. Power source shall be standard 120V AC, 60 Hz., @1.0A for 5 valves. Output for operation of companion solenoid operated valves shall be 24/28V AC, 2.5A (60/70VA). All conduits shall be ridged type for controller wire and electrical to breaker box. The controller shall be of solid-state construction. The operation of the controller shall be a fully automatic, incorporating the following features: pump start/master valve relay with flow sensing, telephone modem, internal surge protection for AC input and valve outputs, & program information memory during power outages. A computer chip bypass switch for the rain sensor shall be installed inside the controller housing.

L. Paco LC Model 15705 Simplex Booster System. Each system is pre-wired, skid mounted and assembled as a packaged system requiring only suction and discharge field connection and field wiring to panel. Each system consists of:

1. Paco LC close-coupled bronze fitted pump with mechanical seal, bronze impeller, bronze case wear ring and bronze shaft sleeve. Full load capacity of pump to be 160 GPM at 147’ TDH. Motor to be a 10HP/3500 RPM/1PH/220 VAC/TEFC.
2. Nema 3R enclosure control panel containing fusible disconnect switch with control power transformer, 220/110 volt. Starter with hand/off/auto switch, ambient compensated overload and run light. Also mounted on panel is external duplex receptacle for 110 volt service minimum 1KVA capacity and circuit breaker. Panel to have alarm system to indicate a non-flow condition and shut pump down. Pump on/off to be controlled by 24 volt signal provided by others. Controller and pump system to be wired and tested.
3. Accessories and fittings to include ball valve and check valve on discharge piping, and ball valve flow switch on suction piping. Suction and discharge gauges to be furnished. Galvanized pipe to connect fittings. Only galvanized pipe should be connected to the pumps galvanized fittings. Thermostatically controlled tape furnished for freeze protection of piping, valve and pump case, etc., inside fiberglass enclosure. Drain valves to be included on suction and discharge side of pump.
4. Unit to have fiberglass lockable enclosure with external gel coat color green. Commercial grade resin and reinforcing material furnished.

Enclosed to have 2” flat flange lip plate. Bottom side with replaceable rubber gasket. Flange suitable to accept padlock device and with two (2) padlocks keyed alike. Two (2) lifting handles, six (6) 3” vents also furnished. Fiberglass enclosure designed 1/4” thick and for 300# line load. Enclosure includes electric fan ventilation system.

5. Unit with heavy duty galvanized steel skid with four (4) anchor bolts holes. Holes inside enclosure. Suction and discharge openings provided through skid.
6. Start-up assistance and operation and maintenance instructions to be furnished by contractor to Park Supervisory personnel.

2.3 ACCESSORIES

A. Drainage fill: 1/2" washed pea gravel.

B. Fill: Clean soil free of stones larger than 1" diameter, foreign matter, organic material, and debris.

C. Suitable excavated materials removed to accommodate the irrigation system work may be used as fill material subject to the Park Project Manager's review and acceptance.

D. Concrete Thrust block: 3000 psi, 5 sack concrete mix.

PART 3 - EXECUTION

3.1 INSPECTION

A. Examine final grades and installation conditions. Do not start irrigation system work until unsatisfactory conditions are corrected.

B. The contractor shall verify existing and proposed locations of all site utilities (i.e. gas, water, electric, telephone, sanitary and storm sewers etc.) prior to any trenching and laying of pipe. In addition, this contractor shall request for inspection of reduced pressure zone assembly (RPZ) with the Water Utilities Division in connection to City provided meter and exhaust.

3.2 PREPARATION

A. Lay out and stake the location of each pipe run and all sprinkler heads and sprinkler valves. Obtain Park Project Manager's acceptance of layout prior to excavating.

3.3 INSTALLATION

A. Excavating and backfilling:

1. Excavation shall include all materials encountered, except materials that cannot be excavated by normal mechanical means.
2. Excavate trenches of sufficient depth to provide 18” maximum and 12” minimum cover over installed pipe.
3. Fill to match adjacent grade elevations with approved earth fill material. Place and compact fill in layers not greater than 8" depth. Backfill all voids in soil. Material shall not be placed to cause shifting or compression of pipe and valve boxes.
4. Provide clean original material fill free of rocks, concrete and debris for backfill.
5. Provide drainage fill aggregate around each valve and double check assembly.

6. Irrigation mainline: The mainline shall be installed in a 6" wide (minimum) trench with all electric wire to valves laid directly below mainline (upon inspection the wires should be hidden from sight). Trench shall allow a minimum of 12" of cover. All mains and laterals up to and including 4” shall have a maximum 18” of cover. Mainline shall be flushed before attaching valves. If splices are made in mainline, use gasket repair fittings. Compression fittings are not allowed. Mainline may be backfilled except at joints prior to inspection by the Owner. Mainline shall be tested for leaks under pressure for a 6-to-8-hour period. Joints may be backfilled after Park Project Manager verifies and approves that no leaks exist.
7. Thrust block shall be required at all 3” or larger fittings.
8. Lateral Piping - Shall be installed in a 4" wide (minimum) trench 12" deep. Excavate trenches and install piping and fill during the same working day. Do not leave open trenches or partially filled trenches open overnight. Fill at joints in pipe may remain open.
9. Sleeves installed to accommodate irrigation piping shall be installed with 18” of cover, as measured from finished grade. Costs for providing and installing these sleeves shall be included in the irrigation system bid item.

B. Plastic pipe:

1. Install plastic pipe in accordance with manufacturer's installation instructions. Provide for thermal expansion and contraction.
2. Saw cut plastic pipe to ensure a square cut. Remove burrs and shavings at cut ends prior to installation.
3. Make plastic-to-plastic joints with solvent weld joints or slip seal joints. Use only solvent recommended by the pipe manufacturer. Install plastic pipefittings in accordance with pipe manufacturer's instructions. Solvent primer is required on all joints/fittings. Excess primer and/or solvent dripped on pipe or squeezed from fitting is not permitted and shall be grounds for removal and replacement of the joint.
4. Make plastic to metal joints with plastic male adapters.
5. Maintain a minimum of 24" between all glued joints.
6. Allow joints to set at least 24 hours before pressure is applied to the system.
7. Maintain pipe interiors free of dirt and debris. Close open ends of pipe by acceptable methods when pipe installation is not in progress.
8. Inspection of all fittings and coupling will be made by the Park Project Manager. Backfill of approved soil is not permitted until Park Project Manager has inspected all fittings, valves, and couplings.
9. Install in-ground control valves in valve box as indicated. Valve boxes shall be installed in accordance with the manufacturer's installation instructions and with an 8" layer of washed pea gravel under the valve. Each valve box shall be supported by bricks around the entire perimeter of the box. Install valve boxes on a suitable base to provide a level foundation. Set the top of the box 2” below surrounding grade and cover to protect from vandalism.
10. Seal threaded connections on both sides of the control valves with Teflon tape.
11. Install freeze and rain sensors as directed by the Park Project Manager.

C. Sprinklers, fittings, valves, and accessories:

1. Install fittings, valves, sprinkler heads, risers, and accessories in accordance with manufacturer's instructions, except as otherwise indicated. Maintain a minimum of 24" between all glued fittings. All fittings shall be installed in a horizontal manner. Fittings that join pipe vertically or at angles other than horizontal will be subject to removal. Use of fittings that appears excessive and inappropriate for normal installation and not in compliance with standard industry practice, shall be rejected.
2. Set sprinkler heads perpendicular to finished grades, except as otherwise indicated.
3. Set top of quick coupler, gate, and isolation valve boxes flush to finish grade.
4. Set top of electric valve box at 2" below finish grade.
5. Provide pop-up spray heads with 1/2" flex cut-off nipples joint assembly.
6. Install reduced pressure zone (RPZ) backflow device above grade in an insulated aluminum or stainless steel enclosure appropriately sized for the RPZ device. The enclosure shall be securely anchored and vandal resistant. The concrete pad for the enclosure shall be a 3000 PSI 4" concrete slab that extends 6" beyond the enclosure on all sides. Reinforce the concrete pad with #3 rebar @ 12” on-center, both ways.
7. Install the specified controller in the location shown on the drawings. Install per manufacturer's recommendations.
8. The contractor shall pull valve wires, program controller by labeling station position for zones and put controller in operation.

D. Control wiring:

1. Contractor shall run a single wire to each solenoid, for the control and a common neutral wire to all solenoids from the controller. Wire shall be sized and color-coded according to device requirements of manufacturer.
2. Install enough wire to allow raising the valve bonnet or splice to the surface without disconnecting the wires when repair is required.
3. Pull each remote control valve wire through rigid conduit in base, which shall then be connected to controller.
4. Make wire connections to remote control electric valves and splices of wire in 10" valve boxes. All wire splices must be properly insulated and waterproofed. Splices shall be made with a King One-Step in accordance with manufacturer's recommendations. Provide 2" of soil cover to protect from vandalism. Show location of any and all splices on the “As-Built” drawings

E. Sensors: Install rain, freeze and flow sensors as noted on the plans (or as directed by the Park Project Manager) with control wire enclosed in 1/2” rigid conduit (above grade).

F. RPZ device/enclosure shall be installed according to the construction details shown on the plans and the heater shall be wired directly to the breaker box/disconnect. A licensed electrician shall perform all electrical connections.

G. Flushing, testing, and adjustment:

1. After sprinkler piping and main are installed and before sprinkler heads are installed, open control valves and flush out the system with full head of water until pipes are clear of debris.

2. Perform system testing upon completion of each section. Make necessary repairs and re-test repaired sections as required. Trench and pipe must be dry at inspection. System must be under operating pressure for 24 hours prior to observation of every joint and coupling, by the Park Project Manager. Backfill is permitted after inspection and approval by Park Project Manager.
3. Adjust sprinklers after installation for proper and adequate distribution of the water over the coverage pattern. Adjust for the proper arc of coverage.
4. Tighten nozzles on spray type sprinklers after installation. Adjust sprinkler-adjusting screw on lateral line or circuit as required for proper radius. Interchange nozzle patterns as directed by the Park Project Manager, to give best arc of coverage.
5. Adjust all electric remote control valve flow control stems for system balance.
6. Adjust all rain and temperature sensors as directed by the Park Project Manager. Test as required to obtain satisfactory operating conditions. Demonstrate correct operation of sensors to the Park Project Manager.
7. Test and demonstrate the controller by operating appropriate day, hour, and station selection features as required to automatically start and shut down irrigation cycles to accommodate plant requirements and weather conditions.

H. Spare Parts: Provide to the City of Mesquite additional parts as per noted on plan, including installation and operations manuals to all products.

I. Booster Pump: Install Paco LC model 15705 Simplex Booster System according to manufacturer recommendations.

3.4 DISPOSAL OF WASTE MATERIAL

A. Stockpile, haul from site, and legally dispose of waste materials, including unsuitable excavated materials, rock, trash, and debris. Debris must be removed at the end of work time each day.

B. Maintain pavement and curb clear, clean, and free of debris and soil. Pavement and curb shall remain clear, clean and free of debris.

3.5 SUBSTANTIAL COMPLETION

A. An inspection of the irrigation system will be made by the Park Project Manager upon request for Application of Substantial Completion by the Contractor. The irrigation system must be sufficiently complete so that all plant material can be sustained by the system and all valve boxes are properly installed. All electric valves shall have 2” of fill over the top of the box. Contractor shall deliver complete “As-Built” drawings (section 1.03B) to Park Project Manager for review and comment prior to application of final payment.

3.6 CLEANING

A. Perform daily cleaning during installation of the work and upon completion of the work. Remove from site all excess materials, soil, debris, and equipment. Repair damage resulting from irrigation system installation. Restore site to the original condition prior to damage caused by construction activities.

3.7 FINAL COMPLETION

A. The Park Project Manager, upon written request, will make an inspection of the irrigation system for Final Completion by the Contractor. Provide notification of at least two (2) working days before requested inspection date. Contractor shall submit on forms approved by the Park Project Manager, a Waiver of Release of Lien, Affidavit of Payment of Debts and Claim, and a fully executed “Consent of Surety for Payment”.

END OF SECTION

SECTION 02900

LANDSCAPING

PART 1 - GENERAL

1.1 GENERAL CONDITIONS

A. The requirements of the "General Provisions" shall apply to all work of this Section with the same force and effect as though repeated in full herein.

1.2 WORK INCLUDED

A. Furnish all labor, material, equipment and services necessary to provide all landscape planting, and related items complete in place, as shown on the Drawings and specified, herein. Work Specified in this Section: Fine grading, steel edging, soil preparation, gravel groundcover, planting, clean-up, and all other miscellaneous items related to landscaping as shown on the drawings.

1.3 QUALITY ASSURANCE

A. Standards:

1. Standardized Plant Names, 1942 Edition, American Joint Committee on Horticulture Nomenclature.
2. American Standards for Nursery Stock, Latest Edition, American Association of Nurserymen.

B. Source Quality Control:

1. Submit documentation to Park Project Manager within ten (10) days after award of Contract that all plant material to be supplied by Contractor is available. Any and all substitutions due to unavailability must be requested in writing prior to confirmation of ordering. All materials shall be subject to inspection by Park Project Manager at any time after confirmation of ordering.
2. Plants to be supplied by Contractor shall be subject to inspection and approval of Park Project Manager at place of growth or upon delivery for conformity to Specifications. Such approval shall not impair the right of inspection and rejection during progress of the work. Inspection and tagging of plant material by the Park Project Manager is for design intent only and does not constitute the Park Project Manager’s approval of the plant materials in regard to their health and vigor. The health and vigor of the plant material is the sole responsibility of the Contractor. Submit written request for inspection of plant material at place of growth to Park Project Manager. Written request shall state the place of growth and quantity of plants to be inspected. Park Project Manager reserves the right to refuse inspection at this time if, in their judgment, a sufficient quantity of plants is not available for inspection.
3. The Contractor shall submit specifications of any item being used on site upon the request of the Park Project Manager.

1.4 PRODUCT DELIVERY, STORAGE AND HANDLING

A. Delivery:

1. Deliver packaged materials to site in original unopened containers bearing manufacturer's guaranteed chemical analysis, name, trademark, and conformance to State Law.

2. Deliver all plants with legible identification labels.
a. Label trees, evergreens, bundles of containers of like shrubs, or groundcover plants.
b. State correct plant name and size indicated on plant list.
c. Use durable waterproof labels with water-resistant ink which will remain legible for at least 60 days.
3. Protect plant material during and after delivery to prevent damage to root ball or desiccation of leaves.
B. Storage:
1. Store plant material in shade and protect from weather.
2. Storage at the site is allowed, however, Contractor accepts full responsibility for damage, theft, or vandalism.
3. Any plant material balled or burlapped, not installed within 24 hours of delivery shall be healed in until such time as it is installed.
4 Maintain and protect plant material not to be planted within four (4) hours in a healthy, vigorous condition.
C. Handling: The Contractor is cautioned to exercise care in handling, loading, unloading and storing of plant materials. Plant materials that have been damaged in any way will be discarded and if installed, shall be replaced with undamaged materials at the Contractor's expense.

1.5 JOB CONDITIONS

A. Perform actual planting only when weather and soil conditions are suitable in accordance with locally accepted practice.
B. Scheduling: Install trees, shrubs, and liner stock plant material before grassing is commenced.
C. Contractor shall note that rock and/or construction materials from previous site use may be encountered on some areas of the site. Rock or construction material excavation shall be included as part of bid.

1.6 QUALIFICATIONS OF WORKMEN

A. Provide at least one person who shall be present at all times during execution of this portion of the Work, who shall be thoroughly familiar with the type of materials being installed and the proper materials and methods for their installation, who speaks understandable English, and who shall direct all work performed under this Section.

1.7 SAMPLES AND TESTS

A. Park Project Manager reserves the right to take and analyze samples of materials for conformity to specifications at any time. Contractor shall furnish samples upon request by Park Project Manager. Rejected materials shall be immediately removed from the site at Contractor's expense. Cost of testing of materials not meeting Specifications shall be paid by Contractor.

1.8 PLANT GUARANTEE

A. All trees, shrubs, vines, and groundcovers will be guaranteed for a twelve (12) month period after Final Acceptance. The Contractor will replace all dead or defective materials upon notification (weather permitting) with plants of the same kind and size as those originally planted. Plants, including trees, which have partially died so that shape, size, or symmetry

has been damaged, shall be considered subject to replacement, and the opinion of the Park Project Manager will be final. At the direction of the Park Project Manager, plants may be replaced at the start of the next planting or digging season, but in such cases, Contractor will remove dead plants within two (2) working days.

B. All replacement work (including materials, labor and equipment) will be done at no cost to the Owner. Any damage, such as ruts in lawn or bed areas, that occurs when Contractor makes replacements, will be repaired immediately by the Contractor.

C. The guarantee will not apply where plants die after Final Acceptance because of injury by storms, drowning, drought, hail, freeze, insects, disease, mechanical injury by humans or machines, and theft.

PART 2 - PRODUCTS

2.1 MATERIALS

A. All materials shall be of standard, approved and first-grade quality and shall be in prime condition when installed and accepted. Any commercially processed or packaged material shall be delivered to the site in the original unopened container bearing the manufacturer's guaranteed analysis. Contractor shall supply Park Project Manager with a sample of all supplied materials accompanied by analytical data from an approved laboratory source illustrating compliance or bearing the manufacturer's guaranteed analysis.

B. Product Manufacturer's name(s) and/or model numbers are used herein to set a standard of quality and are not intended to be a restraint of trade or prevent submittals of other manufacturer's products of equal quality.

C. Soil Amendment:

1. Compost Mix: "A Professional Bedding Soil" as produced by Living Earth Technologies, Inc., 1808 W. Northwest Highway, Dallas, Texas (phone: 214/869-4332) composed of 45% Compost, 45% Composted Pine Bark, and 10% Sandy Loam, or approved equal.

D. Tree Backfill Fertilizer:

1. 13.13.13 analysis bulk fertilizer.

E. Tree Shrub, Groundcover, and Seasonal Color Fertilizer:

1. Provide commercial balanced slow release fertilizer (Osmocote), delivered to the site in bags labeled with the manufacturer's guaranteed analysis. If stored on the site, protect fertilizer from the elements at all times.

F. Tree, Shrub, and Groundcover Planting Tablets:

1. Shall be slow-released type with potential acidity of not more than 5% by weight containing the following percentages of nutrients by weight:

a. 20% nitrogen
b. 10% phosphoric acid
c. 5% potash

G. Plant Material:

1. Plant names indicated, comply with "Standardized Plant Names" as adopted by the latest edition of the American Joint Committee of Horticultural Nomenclature. Names of varieties not listed conform generally with names accepted by the nursery trade. Provide stock true to botanical name and legibly tagged.

2. Plant material shall meet and/or exceed grades and standards set forth by the Texas Association of Nurserymen. All plants shall have a normal habit of growth and shall be sound, healthy, vigorous and free of insect infestations, plant diseases, sunscalds, fresh abrasions of

the bark, excessive abrasions, or other objectionable disfigurements. Tree trunks shall be sturdy and have well "hardened" systems and vigorous and fibrous root systems that are not root or pot-bound. In the event of disagreement as to condition of root system, the root condition of the plants furnished by the Contractor in containers will be determined by removal of earth from the roots of not less than two or more than two percent of the total number of plants of each species or variety. Where container-grown plants are from several sources, the roots of not less than two plants of each species or the variety from each source will be inspected. In case the sample plants inspected are found defective, the Park Project Manager reserves the right to reject the entire lot or lots of plants represented by the defective samples. Any plants rendered unsuitable for planting because of this inspection will be considered as samples and will be provided at the expense of the Contractor.

3. The size of the plants will correspond with that normally expected for species and variety of commercially available nursery stock or as specified on Drawings. The minimum acceptable size of all plants measured before pruning with the branches in normal position, shall conform to the measurements, if any, specified on the drawings in the list of plants to be furnished. Plants larger in size than specified may be used with the approval of the Park Project Manager, but the use of larger plants will make no change in Contract price. If the use of larger plants is approved, the ball of earth, container size, or spread of roots for each plant will be increased proportionately.

4. Provide "specimen" plants with a special height, shape, or character of growth. Tag specimen trees or shrubs at the source of supply. Plants may be inspected by the Park Project Manager and reviewed at the place of growth, for compliance with specification requirement for quality, size, and variety. Such approval shall not impair the right of inspection and rejection upon delivery at the site or during the progress of the work.

5. Field-selected or Nursery Grown Balled and Burlapped Tree Stock (B&B): Dig balled and burlapped plants with, natural balls of earth of sufficient diameter and depth to encompass the fibrous and feeding root system necessary for full recovery of the plant. Provide 10" of root ball per 1" caliper of trunk (measured 6" above grade level for trees 4" caliper and less and 12" above grade for larger trees). If a tree is of multi-trunk variety, the caliper of the tree is the average caliper of all its trunks. Cracked or mushroomed balls are not acceptable. Selectively remove 1/2 to 2/3 of twig growth.

6. Container-grown Stock (General): Grown in a container for sufficient length of time for the root system to have developed to hold the soil together, firm and whole.

a. No plants shall be loose in the container.

b. Container stock shall not be pot bound.

7. Container-grown Tree Stock: Grown in a container from seedling stage and complies with Paragraph 2.1 - G-6, Container-grown Stock requirements.

8. Containerized Tree Stock: Grown in a container for not less than one (1) year and complies with Paragraph 2.1 - G-6, Container-grown Stock requirements.

9. Plants planted in rows shall be matched in form, height and overall character.

10. Shrubs and small plants shall meet the requirements for spread and height indicated in the plant list.

a. The measurements for height shall be taken from the ground level to the average height of the top of the plant and not the longest branch.

b. Single stemmed or thin plants will not be accepted. Side branches shall be generous, well-twigged, and the plant as a whole well-bushed to the ground.

c. Plants shall be in a moist, vigorous condition, free from dead wood, bruises, or other

root or branch injuries.
11. Pruning: At no time shall trees or plant materials be pruned, trimmed or topped prior to delivery and any alteration of their shape shall be conducted only with the approval and when in the presence of the Park Project Manager.
12. All plants not conforming to the requirements herein specified, shall be considered defective and such plants, whether in place or not, shall be marked as rejected and immediately removed from the site of the work and replaced with new plants at the Contractor's expense. The plants shall be of the species, variety, size and conditions specified herein or as shown on the Drawings. Under no conditions will there be any substitutions of plants or sizes listed on the accompanying plans, except with the express consent of the Park Project Manager.
H. Tree Paint: Morrison Tree Seal, Cabort Tree Paint, or equal.
I. Water: Furnished by Owner; transport as required.
J. Mulch Topdressing: Shall be shredded, fine textured, hardwood mulch as approved by Park Project Manager. Minimum 2" layer spread uniformly.
K. Steel Edging and Stakes: 3/16" x 4" Ryerson 'Estate' edging, as manufactured by Joseph Ryerson Co., Inc., Houston, Texas (phone 713-675-6111), or approved equal.
L. Soil Saver/Jute Mesh (if required): Heavy weight (green) jute mesh as manufactured by Jim Walls Company, 12820 Hillcrest Road, Dallas, Texas 75230, or approved equal. Install on all groundcover or shrub bed slopes greater than 3:1 slope.
M. Anchoring Materials: In-ground type tree anchors approved by the Park Project Manager or the city’s designated representative.
N. Gravel Mulch (if applicable): 3/4" to 1-1/2" native washed stone. Install 3" layer over layer of filter fabric (to be approved by Park Project Manager). Provide sample of gravel mulch for Park Project Manager approval.
O. Other Materials: All other materials, not specifically described but required for a complete and proper installation, shall be as selected by the Contractor subject to the approval of the Park Project Manager.

PART 3 - EXECUTION

3.1 INSPECTION
A. Obtain Park Project Manager certification that final grades to +0.10' have been established prior to commencing planting operations. Provide for inclusion of all amendments, settling, etc. Landscape Contractor shall be responsible for shaping all planting areas as indicated on Plans or as directed by Park Project Manager.
B. Inspect trees, shrubs and groundcover plant material for injury, insect infestation and trees and shrubs for improper pruning.
C. Do not begin planting of trees until deficiencies are corrected or plants replaced.

3.2 PLANTING PREPARATION
A. Soil Preparation for Groundcover, Shrub Beds:
1. Excavate existing soil, if necessary, and add to complete shrub, groundcover, and seasonal color beds the following:
a. 4" layer of Compost Mix
b. 14-14-14 slow release fertilizer (Osmocote) at a rate of 5 lbs./100 sq.ft.
2. Spread materials uniformly and cultivate thoroughly by means of a mechanical tiller. Till to a minimum depth of 8".

B. Final Grades:
1. Minor modifications to grade may be required to establish the final grade.
2. Finish grading shall ensure proper drainage of the site as determined on Drawings.
3. All areas shall be graded so that the final grades will be 1" below adjacent paved areas, curbs, valve boxes, edging, clean-outs, drains, manholes, etc., or as indicated on Plans.
4. At time of planting, the top 6" of all areas to be planted or seeded shall be free of stones, stumps, or other deleterious matter 1" in diameter or larger, and shall be free from all wire, plaster, or similar objects that would be a hindrance to planting or maintenance.
C. Disposal of Excess Soil: Disposal of any unacceptable or excess soil shall be the sole responsibility of the Contractor. Excess soil may be spoiled on-site per direction of Owner.

3.3 PLANTING INSTALLATION

A. General:
1. Actual planting shall be performed during those periods when weather and soil conditions are suitable and in accordance with locally accepted practice, as approved by the Park Project Manager.
2. Only as many plants as can be planted and watered on that same day shall be distributed in a planting area.
3. Containers shall be opened and plants shall be removed in such a manner that the ball of earth surrounding the roots is not broken and they shall be planted and watered as herein specified immediately after removal from the containers. Containers shall not be opened prior to placing the plants in the planting area.
B. Layout of Major Plantings: Locations for plants and outlines of areas to be planted shall be marked on the ground by the Contractor before any plant pits are dug. All such locations shall be approved by the Park Project Manager. If underground construction or utility line is encountered in the excavation of planting areas, other locations for planting may be selected by the Park Project Manager. Layout shall be accomplished by flagged grade stakes indicating plant names and specified container size on each stake. It shall be the Contractor's responsibility to confirm with the Park Project Manager superintendent and governing agencies the location and depth of all underground utilities, and obstructions.
C. Excavation:
1. Excavation for planting shall include the stripping and stacking of all acceptable topsoil encountered within the areas to be excavated for trenches, tree holes, plant pits and planting beds.
2. Excess soil generated from the planting holes and not used as backfill, or in establishing the final grades may be spoiled on-site per direction of Owner.
3. Protect all areas from excessive compaction when trucking plants or other material to the planting site.
4. Tree and shrub pits shall be excavated to allow the root ball to set on undisturbed soil and excavated to the following diameters:

Plant Size	Pit Diameter
a. Up to 5 gallon container	12" greater than root ball diameter
b. 5 gallon container and larger (including trees)	24" greater than root ball diameter

5. All excavated holes shall have vertical sides with roughened surfaces.
6. All holes for trees and large shrubs shall be tested for water retention prior to tree or

shrub installation. After hole is excavated, it is to be filled with water to the top of the excavation. If, after 24 hours, the hole still holds water, the Contractor shall excavate an additional 6" from the bottom of hole. The Contractor shall then install of the hole) with filter fabric. The Contractor shall also install a capped 3" diameter PVC sump which will extend from near the bottom of the rock layer to 3" above the proposed finish grade so the hole can be evacuated through mechanical means.

D. Planting Trees:

1. Container Removal:

a. Cut cans (if applicable) with an acceptable can cutter. Remove tree from plastic container or box carefully so container can be re-used.

b. Do not injure root ball.

2. Center tree in pit.

3. Face plants with fullest growth into prevailing wind, or away from building facade.

4. Set plants plumb and hold rigidly in position until soil has been tamped firmly around ball.

5. Tree Pit Backfill:

a. Tree backfill should be composed of 5 parts existing soil excavated from the hole to one part Soil Amendment, thoroughly mixed with 5 lbs. per cubic yard tree backfill fertilizer. Tree backfill to be mechanically mixed prior to backfill operations.

6. Set tree in upright position in the center of the hole and compact the backfill mixture around the ball or roots. Thoroughly water each plant after back filling. After planting trees not in beds, surround the pits with a 3" height berm.

7. Plant Tablets:

a. After the water has completely drained from the plant pit, planting tablets shall be placed in the top 3" of the plant pit, four tablets per every foot of rootball diameter per tree.

b. Planting tablets shall be set with each plant on the top of the rootball while the plants are still in their containers so the required number of tablets to be used in each hole can be easily verified by the Park Project Manager.

8. Pruning: Pruning shall be limited to the minimum necessary to remove injured twigs and branches or to limb-up trees as directed by the Park Project Manager. Pruning may not be done prior to delivery of plants. Cuts over 3/4" in diameter shall be painted with tree paint.

9. Newly planted trees must be anchored the first year to help the tree become established. Some flexibility must be provided to allow the stem and root system to develop strength. For trees up to a 4" caliper diameter, use a minimum of two in- ground tree anchors; 4" - 8" use a minimum of three in-ground tree anchors. Information about in-ground tree anchoring products can be found at the website www.treestaple.com. This product and its web site are offered as an example of one type of tree anchoring system to establish a standard of quality. Similar products with equal specifications will be accepted.

E. Planting Shrubs:

1. Container Removal:

a. Cut cans on two sides with an acceptable can cutter. Do not cut cans with spade or ax.

b. Do not injure root system.

2. Center plant in pit or trench.

3. Face plants with fullest growth into prevailing wind, or away from building facade.

4. Set plants plumb and hold rigidly in position until soil has been tamped firmly around ball or roots.

5. Fill holes with backfill composed of 50% soil taken from the hole and 50% Soil

Amendment, thoroughly mixed.
6. Set plant in upright position in the center of the hole and compact the backfill mixture around the ball or roots. Thoroughly water each plant after back filling. After shrubs not in beds, surround the pits with a 3" height berm.
7. Plant Tablets:
a. After the water has completely drained from plant pit, planting tablets shall be placed in the top 3" of the plant pit as indicated:
i. One tablet per one-gallon container and two-gallon container
ii. Two tablets per five-gallon container
b. Planting tablets shall be set with each tablet on the top of the rootball while the plants are still in their containers so the required number of tablets to be used in each hole can be easily verified by the Park Project Manager.
8. Pruning: Pruning shall be limited to the minimum necessary to remove injured twigs and branches. Pruning may not be done prior to delivery of plants.
F. Planting Groundcover:
1. Space the plants evenly as indicated on the Drawings, staggering.
2. After planting is completed, cover the bed uniformly with a minimum 2" layer of mulch topdressing.
3. Thoroughly water entire planting bed.
G. Grass Installation:
1. Sod Grass:
a. All areas to receive sod must be roto-tilled to a depth of 2” (inches), cleaned of any rocks, bricks or other debris and fine graded before sod is planted. Soil preparation must be reviewed by the Park Project Manager prior to installation of sod/seed.
b. Sod must be fresh and free of any weeds. Sod may not sit on pallets for more than 48 hours without being planted. Any sod allowed to sit on pallets for more than 24 hours is subject to rejection by the Park Project Manager and will be replaced at contractor’s expense.
c. All sod is to be planted in a “running bond” pattern.
d. All sod planted on the site must be watered and rolled with a grass roller the same day it is planted.
2. Grass seed:
a. All areas to receive grass seed must be roto-tilled to a depth of 2” (inches), cleaned of any rocks, bricks or other debris, and fine graded before seed is spread. Soil preparation must be reviewed by the Park Project Manager prior to installation of sod/seed.
b. All seed must be distributed in a uniform fashion as per product manufacturer's or grower’s recommendations.
c. All areas that have been seeded must remain moist for 7 to 10 days from the time of the first watering or until seed has germinated. Seed that is allowed to dry before germination will be subject to replacement at Contractor’s expense. It is the Contractor’s responsibility to coordinate site watering.

3.4 CLEAN-UP

A. After all planting operations have been completed, remove all trash, excess soil, empty plant containers and rubbish from the property. All scars, ruts or other marks in the ground caused by this work shall be repaired and the ground left in a neat and orderly condition throughout the site. Contractor shall pick up all trash resulting from this work on a daily basis.

All trash shall be removed completely from the site.

B. The Contractor shall leave the site area broom-clean and shall wash down all paved areas within the Contract area, leaving the premises in a clean condition.

3.5 MAINTENANCE

A. Maintain the trees, shrubs, groundcovers, and sod grass until Final Completion and Acceptance of the entire project.

B. Maintenance shall include pruning, cultivating, weeding, watering, and application of appropriate insecticides and fungicides necessary to maintain plant free of insects and disease.

1. Re-set settled plants to proper grade and position. Restore planting saucer and adjacent material and remove dead material.
2. Correct defective work as soon as possible after deficiencies become apparent and weather and season permits.
3. Deep-water trees, plants, and groundcover beds within the first 24 hours of initial planting, and not less than twice per week until final acceptance.

3.6 OBSERVATION SCHEDULE

A. When observations are conducted by someone other than the Park Project Manager, the Contractor shall show evidence in writing of when and by whom these observations were made.

B. No site visits shall commence without all items noted in previous Observation Reports either completed or remedied unless such compliance has been waived by the Owner and/or Park Project Manager.

END OF SECTION

SECTION 10010

MOBILIZATION

1.1 PART 1 – GENERAL

1.2 DESCRIPTION

A. This item shall be for the procurement of payment and performance bonds, required insurance, full execution of contract documents, attendance at the project preconstruction meeting, submission of required submittals to the City Project Engineer, field office and other facilities at the project site and the movement of adequate personnel, construction equipment and materials to the project site and the Contractor beginning work on the contract items outlined in the contract documents.

PART 2 – MATERIALS AND EQUIPMENT

Not used.

PART 3 – EXECUTION

Not used.

PART 4 – MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

A. The maximum bid amount for this item shall be five percent (5%) of the total amount bid for the project.

4.2 PAYMENT

A. Payment shall be full compensation when all the items outlined in Part 1.1 above have been completed. The **total payment for mobilization shall not exceed 5% of the total bid** and shall be payable when in the opinion of the City Project Engineer all the items outlined in Part 1.1 above have been completed.

END OF SECTION

SECTION 10011

TRAFFIC CONTROL

PART 1 – GENERAL

1.1 DESCRIPTION

A. This item shall govern for traffic control & barricading in accordance with these specifications and as shown on the plans. This item includes the design, application, installation and implementation of traffic control.

PART 2 – MATERIALS AND EQUIPMENT

2.1 MATERIALS

A. All barricades, fences, lights, danger signals, and other precautionary devices and measures shall conform to the current edition of the Texas Manual on Uniform Traffic Control Devices.

PART 3 – EXECUTION

3.1 GENERAL

A. All work shall conform to the current edition of the Texas Manual on Uniform Traffic Control Devices.

B. The Contractor shall provide a traffic control plan at least 48 hours prior to any work in a City street. The City Project Engineer may require the traffic control plan to be designed and sealed by an engineer licensed in the State of Texas. The Contractor shall plan his work in accordance with the traffic control plan, and/or as indicated in the plans. Any revisions must receive the City's approval prior to beginning work. As deemed necessary, the City Representative may require the Contractor to provide and maintain additional traffic control devices at any time.

C. Prior to beginning work the Contractor shall designate, in writing, a competent person who will be responsible and available on the project site or in the immediate area to insure compliance with the traffic control plan.

D. The Contractor will not remove any regulatory signs, instructional signs, street name signs or other signs which have been erected by the City. If removal or relocation of traffic signs, traffic control equipment or other traffic control appurtenances is deemed necessary, the Contractor shall contact the City of Mesquite Traffic Engineering Division at (972) 216-4104.

E. All traffic control devices must be installed prior to beginning construction.

F. One lane in each direction is to be kept open at all times on existing streets, except as necessary for short-term, temporary vicinity construction operations which would warrant adequate signs, barricades and flagmen as required by the current Texas Manual on Uniform Traffic Control Devices. Unless approved in writing, access to adjacent properties, driveways, alleys and intersecting streets shall be maintained at all times.

G. If paving operations result in a vertical longitudinal face greater than 1" in depth between lanes or at shoulders, Contractor shall erect either sign CW8-11

(UNEVEN LANES) or sign CW8-9a (SHOULDER DROP OFF) in advance of the area in accordance with the Texas Manual on Uniform Traffic Control Devices.

H. Arrow boards are required and additional advance warning traffic control devices used where an arterial street has lane closures overnight. The effective placement of arrow boards is contingent on sight visibility; attention must be paid to the road geometry and speed of the roadway when determining placement. Arrow boards will be placed at the direction of the City Public Works Construction Inspector.

I. If the Contractor's proposed plan of operation for handling traffic does not provide for safe, comfortable movement, the Contractor shall immediately change his operations to correct the unsatisfactory conditions. The Contractor will be held responsible for all damage to the work due to the failure of barricades, signs, lights, danger signals, watchmen, and other devices to protect it, and whenever evidence of such damage is found, the City Representative may order the Contractor to immediately remove and replace the damaged portion at his cost and expense.

J. The Contractor's responsibility for maintenance of all traffic control devices shall not cease until the project is accepted by the City.

PART 4 – MEASUREMENT AND PAYMENT

A. Traffic control implementation and maintenance shall be paid based upon percent of contract time completed and shall be full compensation for all traffic control devices, maintenance of devices, moving, placing and removing of devices; and for all manipulation, labor, tools, equipment and incidentals necessary to complete the work, all in accordance with the plans and these specifications.

END OF SECTION

SECTION 10020

TESTING LABORATORY SERVICES

PART 1 – GENERAL

1.1 DESCRIPTION

A. The Contractor shall employ and pay for an independent testing laboratory, **APPROVED BY THE CITY ENGINEER**, to perform testing of construction materials. Contractor shall submit the name of the testing laboratory prior to beginning of Work.

B. Contractor shall coordinate all testing activities and shall assist in whatever manner necessary so that the testing laboratory may provide all testing services.

C. All re-testing costs for failed testing shall be at the expense of the Contractor.

D. The City's Public Works Construction Inspector may initiate any test.

E. The Contractor shall notify the assigned City Public Works Construction Inspector of all density testing 24 hours prior to the scheduled test. Copies of all test reports shall be sent to the Public Works Inspector for review and acceptance and inclusion in the City project file. Projects will not receive City acceptance until all test results are complete and satisfactory.

F. Materials and products incorporated in the Work, shall be inspected, tested and approved by the Contractor. Tests by the Contractor, Subcontractors or by Suppliers shall be performed by certified technicians using certified laboratories. Laboratory technicians shall hold current certification in accordance with ASTM E 329, Standard Practice for Use in Evaluation of Testing and Inspection Agencies as Used in Construction or have a nationally recognized certification acceptable to the Engineer. Work in which materials are used without prior test and approval may be ordered removed and replaced at the Contractor’s expense. The Contractor will be required to furnish such facilities and equipment as may be necessary to perform the tests and inspection and shall be responsible for calibration of all test equipment required. When requested, the Contractor shall furnish a complete written statement of the origin, composition, and/or manufacture of any or all materials that are to be used in the Work.

G. Contractor shall have testing laboratory include requested City personnel on email distribution list for all test reports. Testing reports must be submitted within five days after the test has been made. Construction shall not proceed where materials are to be placed upon materials previously placed and these previously placed materials have not been tested or the test results have not been made available to the Engineer.

H. The most current specifications for all specifications listed herein shall govern testing methods.

1.2 STANDARD TEST METHODS FOR COMPACTION AND MOISTURE CONTENT OF SOIL

A. Moisture and Compaction Testing Standards: Testing laboratory shall sample, test in laboratory, and test in field moisture content and compaction per the following ASTM designations:

1. D-698 – Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort.

2. D-6938 - Standard Test Methods for In-Place Density and Water Content of Soil and Soil Aggregate by Nuclear Methods (Shallow Depth).
3. D-4318 - Standard Test Methods for Liquid Limit, Plastic Limit and Plasticity Index of Soils.
4. D-1140 - Standard Test Methods for Amount of Material in Soils Finer Than the No. 200 Sieve.
5. D-2487 – Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System).

B. Results: Density tests must meet a minimum compaction of 95% Standard Proctor Density (ASTM D698) at a moisture content of 0% to 6% of optimum moisture.

C. Test Report: Laboratory shall provide both field and final copies of test results to the Engineer, Owner and other parties as directed by the Contractor.

1.3 STANDARD TEST METHODS FOR CONCRETE AND CORING

A. Concrete

1. Samples shall be drawn from mid-load or from point of discharge if concrete is pumped. Sampling and making of cylinders shall conform to ASTM C-172 and ASTM C-31, respectively.
2. Field Test Methods: For concrete, laboratory shall perform field test(s) and provide the following information for each set of cylinders or beam:
    a. Contractor's name.
    b. Name of project.
    c. Exact location and description of area where concrete was placed.
    d. Date of sampling.
    e. Concrete supplier.
    f. Concrete batch design number.
    g. Minimum required strength.
    h. Ambient temperatures.
    i. Concrete temperature.
    j. Weather condition; e.g., raining, windy, cloudy, sunny, etc.
    k. Truck number.
    l. Ticket number.
    m. Any admixtures.
    n. Slump per ASTM C-143; visual inspection will not be accepted.
    o. Air content in percent per ASTM C-231.
3. Tests and Standards for Concrete:
    a. ASTM C-172 - Sampling of Freshly Mixed Concrete.
    b. ASTM C-31 - Making and Curing of Concrete Test Specimens in the Field.
    c. ASTM C-143 - Slump of Portland Cement Concrete.
    d. ASTM C-231 - Concrete Air Content by Pressure Method (for Fresh Concrete) Test.
    e. ASTM C-39 - Concrete, Cylindrical, Compressive Strength Test.
    f. ASTM C-793 - Standard Test Method for Flexural Strength of Concrete (Using Simple Beam with Center Point Loading.)
    g. ASTM A-1064 Standard Specification for Carbon-Steel Wire and Welded Wire Reinforcement, Plain and Deformed, for Concrete

B. Coring

1. Tests and Standards for Concrete Coring:

a. Samplings and tests of concrete cores shall conform to ASTM C-42 - Obtaining and Testing Drilled Cores Sawed Beams of Concrete.
b. Should coring be required to demonstrate acceptable thickness, measuring of concrete cores shall conform to ASTM C-174 - Measuring Length of Drilled Concrete Cores.
c. Testing for Comprehensive Strength shall be in accordance with ASTM C-39 Concrete Cylindrical Strength Test.

1.4 STANDARD TEST METHODS FOR WATER SYSTEMS

A. Bacterial Sampling

1. The City Public Works Construction Inspector shall supervise the taking of water samples from a suitable tap (not through a fire hydrant) for analysis by the North Texas Municipal Water District laboratory. The sample(s) shall be transported by City staff to the laboratory at 9:00 AM on Tuesdays and Thursdays. Samples may not be taken earlier than 3:00 PM on the day prior to delivery. The City Public Works Construction Inspector shall notify the Contractor of the results.
2. Microbiological sampling shall be done prior to connecting the new conduit into the existing distribution system in accordance with AWWA C651 Disinfecting Water Mains. Samples shall be tested in accordance with ***Standard Methods for the Examination of Water and Wastewater***. Samples for bacteriological analysis shall be collected in sterile bottles treated with sodium thiosulfate. At least one sample shall be collected from every 1,000-linear-feet of new water conduit, plus one set from the end of the line and at least one set from each branch. If trench water has entered the new conduit during construction or, if in the opinion of the City inspector, excessive quantities of dirt or debris have entered the new conduit, samples shall be taken at intervals of approximately 200-linear-feet. Samples shall be taken of water that has been in the new conduit for at least 16-hours.
3. Unsatisfactory test results shall require a repeat of the disinfection process and resampling as required above until a satisfactory sample is obtained.
4. In the event there are two unsatisfactory test results from the same sampling point, the Contractor must “poly-pig” the new water main and samples taken again until a satisfactory sample is obtained.

B. Hydrostatic (Pressure) Test

1. All water mains, fittings and services shall be tested with a hydraulic test pressure of not less than 200 psi over a period of not less than 2 hours. The allowable leakage, in gallons, of all pipe tested shall be calculated per the following equation:

$$Allowable\ Leakage = \frac{28.28 * L * D}{148{,}000}$$ where L = Length of Pipe,feet, D = Diameter of Pipe,inches

2. For a two hour pressure test at a pressure of 200 psi. If the tests indicate a leakage in excess of the acceptable rate, the Contractor shall be required to find and repair the leak. Even if the test requirements are met, all apparent leaks shall be repaired and stopped.
3. The hydrostatic pump shall be connected to a system where the amount of leakage can be determined by measurement or gauge. The 200-psi pressure shall be maintained at the highest point of the main being tested over the entire 2-hour test period. The leakage shall be determined by comparing the quantity of water in the measuring system at the beginning of

the test and quantity of water at the end of the test. The difference in these quantities shall be the leakage. An alternate method is to add water to the measuring system during the test. At the end of the 2-hour test, the quantity of water added shall be the leakage.

4. Hydrostatic pressure test for HDPE pipe shall be per NCTCOG Standard Specifications.

C. Tapping Sleeve and Valve Air Test

1. Prior to tapping, all tapping sleeves and valves shall be air tested at 120 psi for three (3) minutes with no pressure loss.

1.5 STANDARD TEST METHODS FOR SANITARY SEWER SYSTEMS

A. Deflection Testing

1. Mains less than thirty-six (36) inches in diameter shall pass deflection mandrel test per NCTCOG Standard Specifications for Public Works Construction, Item 507.5.1.4 Flexible Pipe (Deflection) Testing and TCEQ regulations Chapter 217.57(b) Deflection Testing.
2. Alternate methods for measuring deflection for pipes larger than thirty-six (36) inches in diameter subject to City approval. Testing of mains thirty-six (36) inches and larger shall occur at least 30 days after installation and backfill.
3. Pipe with deflection exceeding the percentage allowed deflection per NCTCOG table 507.5.1.4.2(a) at the time of testing shall be uncovered and reinstalled. If deflection exceeds 7% at the time of testing, pipe shall be removed and replaced with new materials. All failed joints, pipes, sections or structures shall be retested upon completion of remedial actions. Failed sections shall be retested after the remedial construction has been in place for 30 days.

B. Air Testing

1. Mains less than thirty-six (36) inches in diameter and laterals shall pass a Low Pressure Air Test per NCTCOG Standard Specifications for Public Works Construction, Item 507.5.1.3 Low Pressure Air Testing and TCEQ regulations 30 TAC Chapter 217.57(a)(1) Low Pressure Air Test.
2. Pipes 36-inches and larger may be tested per NCTCOG item 507.5.1.3.3 (individual joint air test method). Testing of mains thirty-six (36) inches and larger shall occur at least 30 days after installation and backfill. All failed joints, pipes, sections or structures shall be retested upon completion of remedial actions. Failed sections shall be retested after the remedial construction has been in place for 30 days.

C. TV Camera Inspection

1. After the deflection mandrel and air pressure test, the contractor shall conduct a color television camera inspection of the interior of the installed sanitary sewer system. The main must be laced with enough water to fill any low points. A copy of the recording in digital format and storage device (DVD disk, flash drive, etc.) as specified by the City, with written log of the inspection, shall be provided to the Public Works Construction Inspector prior to final acceptance of the project.
2. General Approach:
    a. Television inspection of pipelines shall be performed by experienced personnel trained in locating breaks, obstacles and service connections by closed circuit color television.

b. The camera should be set at the appropriate height for the pipe size and shape (centered in the middle of the circular pipe +/- 10%).
c. The camera shall be moved through the pipe at a steady pace not to exceed 30 feet per minute.
d. If the line needs to be flushed prior to TV inspection, a minimum of 1-hour time must lapse between flushing and TV inspection.
e. All flows tributary to reach of sewer being inspected are to be completely by-passed around the reach during inspection if necessary and required by City.

3. Television inspection deliverables shall include the following:
a. A digital copy of the video (post) with a written report to be submitted to the City as they are made. Video recordings to remain property of the City; Contractor to retain second copy for his use.
b. Post construction video upon completion of reconstruction of each reach of sewer with the voice description, as appropriate with stationing of services indicated. Data and stationing to be on video.
c. Should any portion of the inspection video be of inadequate quality or coverage, as determined by the City, the Contractor will have the portion inspected again and video documentation provided at no additional expense to the City.

D. Manhole Testing
1. All manholes shall be vacuum tested including grade rings and casting per NCTCOG Public Works Construction Standard 502.1.5.2 and meet TCEQ regulations 30 TAC 217 and ASTM C1244, "*Standard Test Method for Concrete Sewer Manholes by the Negative Air Pressure (Vacuum) Test Prior to Backfill"*. The time for the vacuum to drop from 10 inches of mercury to 9 inches shall not be less than two (2) minutes.

1.6 FREQUENCY OF TESTS

A. Refer to City of Mesquite Standard Details and Project Specifications for the required frequency of tests.

PART 2 – MATERIALS AND EQUIPMENT

Not used.

PART 3 – EXECUTION

Not used.

PART 4 – MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

A. This section shall not be measured as a separate contract section.

4.2 PAYMENT

A. The work performed and materials furnished in accordance with this section will not be paid for directly but will be subsidiary to pertinent sections.

END OF SECTION

SECTION 20022

REMOVAL OF EXISTING PAVEMENT

PART 1 – GENERAL

1.1 DESCRIPTION

A. The work as specified in this section includes all labor, equipment and materials necessary to remove and dispose of existing pavement of all types (i.e. driveways, sidewalks, street, etc.) and materials (i.e. asphalt, concrete, etc.) in conformity with the plans and these specifications

PART 2 – MATERIALS AND EQUIPMENT

Not used.

PART 3 – EXECUTION

3.1 GENERAL

A. When removing portions of concrete pavement from existing pavement that will remain in place, Contractor shall delineate the line of removal neatly and accurately with a full-depth saw-cut to facilitate removal without damaging the remaining pavement. Saw-cut shall be considered incidental. Contractor shall ensure the removal methods do not chip or damage surrounding pavement or curb. If any existing concrete beyond the removal limits is damaged or destroyed, it shall be replaced at the Contractor's entire expense. Removed concrete pavement shall be disposed of off-site by the Contractor.

PART 4 – MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

A. This section shall be measured by each plan view square yard of pavement removed. Payment shall be full compensation for materials and installation including sawcutting, removal, excavation, haul off and lawful disposal of spoils, and all manipulation, labor, tools, equipment and incidentals necessary to complete the work, all in accordance with the plans and these specifications.

END OF SECTION

SECTION 20030

REINFORCED CONCRETE PAVEMENT, CURB AND GUTTER AND SIDEWALK

PART 1 – GENERAL

1.1 DESCRIPTION

A. The work as specified in this section includes all labor, equipment and materials necessary to construct the reinforced concrete pavement of the thickness shown on the plans and in conformity with the plans and these specifications.

1.2 SUBMITTALS

A. The Contractor shall submit the proposed concrete mix design for approval and record.
B. Paving equipment
C. Pattern and color for stamped, colored concrete as applicable.
D. Submittals as required by Section 20010 Steel Reinforcement

1.3 QUALITY CONTROL

A. General

Locations for testing will be determined by the City Public Works Construction Inspector.

B. Testing Requirements, reference Section 10020 Testing Laboratory Services
    1. Subgrade / Sub-base

    Moisture content and compaction shall be tested every 300 ft. per lane
    2. Concrete During Placement
        a. At least one test shall be made on fresh concrete each day for each class of concrete. On large placements, at least one test shall be made on each 150 cubic yards of concrete placed, per class of concrete. Each set of tests shall consist of one (1) slump test, one (1) air entrainment test, one (1) temperature test and three (3) compression test cylinders.
            i. One cylinder shall be broken at 7 days and the other two at 28 days or as instructed by the Public Works Construction Inspector.
            ii. The Contractor may have additional cylinders taken if desired to determine the strength of the concrete in addition to a 7-day break and 28-day break.
        b. Temperature shall be tested throughout the day on each load of concrete
    3. Concrete Cores (4” diameter)
        a. As directed by City Engineer to verify pavement thickness or additional 28-day strength test.
    4. Reinforcement
        a. Inspected by City Representative for layout prior to placing any concrete

1.4 INSPECTION

A. Reinforcing steel must be inspected and approved prior to placement of concrete
B. Any subgrade and/or base material testing required must be completed and shown to have passed requirements of project specifications prior to placement of concrete.

PART 2 – MATERIALS AND EQUIPMENT

2.1 GENERAL

A. All materials and requirements for concrete shall conform to the requirements of NCTSSPWC Item 303 “Portland Cement Concrete Pavement” with the exception of items specified herein.
B. Slip Form Paving Machine(s) equipped with external vibrators shall be used for all street pavements. Vibrating screeds will only be allowed for hand finished placement or if authorized by the City Engineer.

2.2 CONCRETE

A. Concrete shall have a 28-day minimum compressive strength of 4,000 psi, containing 6 sacks of cement per cubic yard minimum, with 1” to 3” slump for machine placement and 3” to 5” slump for hand placement.
B. Fly ash may be substituted for up to 20% of the cement content requirement at 1 to 1.25 cement to fly ash substitution rate.

2.3 REINFORCEMENT

A. Reinforcing shall conform to ASTM A 615 and be a minimum grade of 60 ksi per ASTM A 370. Reinforcement may be rejected for failure to meet the following: reinforcement exceeding the allowable variations; reinforcement with a coating of dirt, loose scale, paint, oil, or other foreign substance which would prevent the bonding of the concrete and reinforcement; reinforcement not bent in accordance with the standard details; or twisted bars. Reinforcement shall be stored above the ground surface upon skids, platforms, or other supports, and shall be protected from mechanical injury and surface deterioration caused by exposure to the conditions producing rust.
B. Reinforcement shall conform to Section 20010 Steel Reinforcement.

2.4 JOINTS

A. Joints shall be filled with hot-poured rubber joint sealing compound that conforms to ASTM D 3406 and meets the requirements of NCTSSPWC 303.2.14.1.1.(a) Hot Poured Polymer Sealant Requirements
B. Expansion joint materials shall consist of:
    1. Redwood shall be standard for all expansion joints.
    2. Pre-molded asphalt board tested in accordance with ASTM D 545 Test Methods for Preformed Expansion Joint Fillers for Concrete Construction (Non-extruding and Resilient Types) if approved by City Representative.

2.5 CURING MATERIALS

A. White Curing compound is to be applied, per manufacturer’s recommendations, to all exposed concrete surfaces (including back-of-curbs) immediately after completion of finishing operations. Clear curing compound shall be used on stained concrete surfaces only. Curing compounds shall be ASTM C-309, Type 2

and shall be per NCTSSPWC Section 303.2.13.1.1. The compound shall be delivered to the jobsite in the manufacturer's original containers only, which shall be clearly labeled.

2.6 STAMPED CONCRETE

A. Pattern and color per plans. City shall be provided mold upon completion of project.

B. Prepare for approval a 9-sq. ft., 3-in. thick specimen for each color, pattern, and texture required before beginning work

PART 3 – EXECUTION

3.1 GENERAL

A. All requirements for concrete shall conform to the requirements of the current NCTSSPWC Item 303 "Portland Cement Concrete Pavement" with the exception of items specified herein.

3.2 JOINTS

A. Joints shall be used where shown on the plans or where directed by the Engineer. The plane of all joints shall make a right angle with the surface of the pavement. No joint shall have an error in alignment of more than one half (1/2) inch at any point. The concrete along the face of all joints, except dummy joints, shall be thoroughly consolidated by vibration to insure a surface which is free from honeycombing. All joints shall be constructed in accordance with Standard City of Mesquite Joint Details.

3.3 INTEGRAL CURB

A. Integral curb shall be constructed along the edge of the pavement as an integral part of the slab and of the same concrete as the slab. The concrete for the curb shall be deposited not more than thirty (30) minutes after the concrete in the slab.

B. If curb is formed by hand finishing a curb finish mule must be used to ensure a uniform cross-section.

C. Provide finished work with a well-compacted mass and a surface free from voids and honeycomb, in the required shape, line, and grade. Round exposed edges with an edging tool of the radius shown on the plans. Construct joints at locations shown on the plans. Cure for at least 72 hr.

D. Set and maintain a guideline that conforms to alignment data shown on the plans, with an outline that conforms to the details shown on the plans. Ensure that changes in curb grade and alignment do not exceed 1/4 in. between any 2 contacts on a 10-ft. straightedge.

E. Conventionally Formed Concrete.

1. Shape and compact subgrade, foundation, or pavement surface to the line, grade, and cross-section shown on the plans. Lightly sprinkle subgrade or foundation material immediately before concrete placement.
2. Pour concrete into forms, and strike off with a template 1/4 to 3/8 in. less than the dimensions of the finished curb unless otherwise approved. After initial set, plaster surface with mortar consisting of 1 part hydraulic cement and 2 parts fine aggregate. Brush exposed surfaces to a uniform texture.
3. Place curbs, gutters, and combined curb and gutters in 50-ft. maximum sections unless otherwise approved.

F. Extruded or Slipformed Concrete.
   1. Hand-tamp and sprinkle subgrade or foundation material before concrete placement. Provide clean surfaces for concrete placement. Coat cleaned surfaces, if required, with approved adhesive or coating at the rate of application shown on the plans or as directed. Place concrete with approved self-propelled equipment.
   2. The forming tube of the extrusion machine or the form of the slipform machine must be easily adjustable vertically during the forward motion of the machine to provide variable heights necessary to conform to the established gradeline.
   3. Attach a pointer or gauge to the machine so that a continual comparison can be made between the extruded or slipform work and the grade guideline. Other methods may be used when approved.
   4. Finish surfaces immediately after extrusion or slipforming.

3.4 REINFORCEMENT

A. Reinforcement shall be placed at locations and spacing shown on the plans, or as directed by the Engineer, and shall be supported above the sub-grade on chairs approved by the Engineer.

B. Placement and work methods shall conform to Section 20010 Steel Reinforcement

C. Contractor shall drill dowel holes using approved equipment that will ensure proper depth and alignment. Dowel holes shall be mechanically drilled at mid-depth of the slab. The holes shall be on alignment, level with the top surface of the slab, with minimal wandering. In some instances, dowel locations may have to be adjusted due to field conditions such as cracks, heavy mesh reinforcement, or other obstructions at the plan location for a dowel hole. After drilling holes, Contractor shall clean out the dowel holes with compressed air at a minimum 125 psi and then brush the holes out. Contractor shall insert the air nozzle to the back of the hole to force out all dust and debris, which might prevent the epoxy from bonding to the concrete. Contractor shall occasionally check the air for oil and moisture contamination from the compressor. To place the anchoring material, Contractor shall use a long nozzle that feeds the material to the back of the hole, assuring that the anchoring material will flow forward along the entire dowel embedment length during insertion. Contractor shall not use any method that attempts to pour or push the anchoring material into the hole. The injection wand on the installation unit shall contain an auger-type mixing spindle that mixes the two-part epoxy. Contractor shall insert dowels by twisting the dowel about one full revolution to evenly distribute the material around the dowel's circumference. Contractor shall verify that the dowels are installed to the proper insertion depth and to the correct orientation (perpendicular to the vertical face of pavement). A plastic grout-retention disk shall be used to prevent the escape of epoxy. Some anchoring material shall be visible from the sides of the disk after installation to ensure proper amount of epoxy was placed in the hole. Dipping dowels into epoxy and inserting the dowel into the drilled hole is not acceptable.

D. Standard pavement reinforcing steel bar laps are to be 30 bar diameters or 15" per ACI 318, section 12.15, whichever is greater. All bars shall be wired at their intersections and at all laps or splices. All reinforcement necessary for a section of concrete shall be placed and approved by the Owner before any concrete is placed in the section. The pavement reinforcing steel shall be supported on chairs and care shall be exercised to keep all steel in its proper locations. After the

reinforcing steel is securely installed above the subgrade, there shall be no loading imposed upon (or walking upon) the bar mats or individual bars before or during the placing or finishing of the concrete. When placed in the work, the reinforcement shall be free from dirt, loose rust, scale, painting, oil, or other foreign material.

3.5 CONCRETE PLACEMENT

A. The Contractor shall do all necessary filling, leveling, and fine grading required to bring the subgrade to the exact grades needed for repair.

B. Fill and Level Up: Approved fill and level-up material is crushed concrete Flexible Base per TXDOT Item No. 247, Grade 1, Type D. **Sand may not be used as fill or level-up material under any pavement.**

C. The subgrade shall be compacted using City approved vibratory sheep's foot rollers, or other mechanical compaction equipment approved by the City. The subgrade and all level-up material must be compacted to 95% standard proctor density with a moisture content of 0% to plus 6% of optimum moisture. Moisture level must be maintained by wetting, until placing of concrete. All fill and level-up shall have densities taken at the interval and locations determined by the City Public Works Construction Inspector.

D. Subgrade shall be prepared per plans and pass required testing prior to setting forms.

E. Placement of Concrete

1. Forms shall be straight, free of warp and kinks, and of a depth equal to the thickness of the finished work. Forms shall be a minimum of 10' in length for each individual form or of a section satisfactory to the Owner, securely staked to the line and grade, and maintained in a true position during the depositing of concrete. Forms shall be of ample strength and shall be provided with adequate devices for secure setting so that when in place they shall withstand the impact and vibration of equipment imposed thereupon without appreciable springing or settlement. Forms shall be thoroughly cleaned and oiled before each use. Forms shall remain in place until the concrete has taken its final set. Removal of forms shall be followed immediately by banking earth against the sides of the slab and wetting it. Care shall be taken in removing forms to prevent spalling or other damage of the concrete. All forms showing a deviation of 1/8" in 10' from a straight line shall be rejected.

F. Thickness of concrete shall be per plans.

G. Hot-Weather Concreting

1. The temperature of concrete as delivered shall not exceed 95 degrees F. Take immediate corrective action or cease concrete production when the concrete temperature exceeds 95 degrees F.
2. If concrete is to be placed before sunrise or after there is sufficient natural light the contractor must provide their own supplemental artificial lighting enough to do work safely and properly and in accordance with the City of Mesquite specifications.

H. Cold-Weather Concreting

1. No concrete shall be placed on a frozen subgrade
2. If the ambient air temperature is less than 40 degrees F and dropping concrete shall not be placed.

3. If concrete is placed and there is an anticipated low temperature of less than 40 degrees F within 5 days after placement the concrete must be covered and kept at a temperature of no less than 50 degrees F.
4. In all cases, concrete should not be kept at a temperature of less than 50 degrees F for a period of 5 days' minimum.

3.6 FINISHING

A. Immediately after finishing all concrete surfaces, the surfaces shall be finished to a true, even surface and the required line, grade, and section with all surface voids filled. Finish all concrete street paving wider than 37' with a tine finish (1"), perpendicular to traffic flow. Broom curb and gutter parallel to traffic 12" from curb. The edges of slabs and all joints requiring edging shall be carefully tooled with a suitable tool at the time the concrete begins to take its "initial set" and becomes non-workable. Before street pavement will be accepted and reopened, all foreign debris shall be removed and pavement cleaned.

B. Stamped Concrete: Contractor shall apply concrete stamping as shown on the plans. Upon completion, contractor shall provide concrete stamping mats used for construction to City.

3.7 SIDEWALKS

A. Shape and compact subgrade, foundation, or pavement surface to the line, grade, and cross-section shown on the plans. Lightly sprinkle subgrade or foundation material immediately before concrete placement. Hand-tamp and sprinkle foundation when placement is directly on subgrade or foundation materials. Remove and dispose of existing concrete. Provide a clean surface for concrete placement directly on the surface material or pavement.

B. Mix and place concrete in accordance with the pertinent Sections. Hand-finishing is allowed for any method of construction. Finish exposed surfaces to a uniform transverse broom finish surface. Curb ramps must include a detectable warning surface and conform to details shown on the plans. Install joints as shown on the plans. Ensure that abrupt changes in sidewalk elevation do not exceed 1/4 in., sidewalk cross slope does not exceed 2%, curb ramp grade does not exceed 8.3%, and flares adjacent to the ramp do not exceed 10% slope. Ensure that the sidewalk depth and reinforcement are not less than the driveway cross-sectional details shown on the plans where a sidewalk crosses a concrete driveway.

C. Provide finished work with a well-compacted mass, a surface free from voids and honeycomb, and the required true-to-line shape and grade.

3.8 PROTECTION OF PAVEMENT AND OPENING TO TRAFFIC

A. No vehicle traffic shall be permitted on newly paved areas for a minimum of seven days after placement or until 3000 psi has been achieved.

B. Contractor shall protect concrete during curing period. Any damage done to pavement shall be remedied at contractor's expense.

3.9 PAVEMENT TOLERANCES

A. No concrete pavement with ponded or standing water over 1/8" deep will be accepted.

B. Contractor shall measure the transverse and lateral profile of the finished riding surface using a 10-ft straightedge to measure and evaluate the ride quality of the pavement surfaces. The texture and ride quality of the new pavement should

closely match of that of the existing pavement to which it connects. Contractor shall use an approved grinding or other acceptable method to correct localized roughness and surface areas that have more than 1/8-in variation between any 2 contacts on a 10-ft straight edge. This shall be considered incidental to this bid item.

C. Comply with tolerances of ACI 117 and as follows:
   1. Elevation: 1/4 inch.
   2. Thickness: Plus 3/8 inch, minus 1/4 inch.
   3. Surface: Gap below 10-foot- long, unleveled straightedge not to exceed 1/4 inch.
   4. Joint Spacing: 3 inches.

3.10 CLEANUP

A. After the construction work has been completed, the Contractor shall remove all debris, trash, excess materials, forms, stakes, etc. from the premises. The site shall be left with a neat appearance. All excavation shall be backfilled, and all excess excavated materials shall be disposed of.

3.11 PENALTY FOR DEFICIENT PAVEMENT THICKNESS AND STRENGTH

A. Where the pavement is deficient in strength from that called for by the plans or specifications, as determined by the proper compressive strength testing, the Contractor is responsible for addition testing to determine the actual strength deficiency.

B. Where the pavement thickness is deficient from that called for by the plans or specifications, as determined by core test set up in the contract, the Contractor is responsible for additional core tests to determine actual limits of deficient pavement thickness. The length of the area of such deficient thickness shall be determined by additional cores at intervals of 10 feet along the length of the pavement in each direction until cores are obtained which are at least plan thickness. The width of such area shall be the entire placement width.

C. Contract payment will be made at an adjusted rate based on the following tables. If area of pavement is deficient in both measurements, then the more stringent payment deduction will be in effect:

Percent Deficient from Required Strength	Percent of Contract Price Allowed
Greater than 0%- Not more than 5%	95%
Greater than 5%- Not more than 10%	90%
Greater than 10%- Not more than 15%	80%

Deficiency in Thickness Determined By Cores	Percent of Contract Price Allowed
0.00 – 0.20	100%
0.21 – 0.30	80%
0.31 – 0.40	70%
0.41 - .050	60%

D. Any area of pavement found deficient in strength by more than 15% or deficient in thickness by more than 0.50 inches shall be removed and replaced by the

Contractor at his entire expense for the width of the street or alley and as directed by the Engineer.

3.12 REMOVAL OF DEFICIENT CONCRETE

A. If the above tests indicate that a particular batch of previously placed concrete has less than the design strength, the Engineer may direct that the defective concrete be removed and replaced.
   1. The removal of the defective concrete shall also include the removal of concrete that has obtained the required strength if the Engineer deems this necessary to obtain structural or visible continuity when the concrete is replaced.
   2. The removal, and replacement of any defective concrete, shall be made at no additional cost to the Owner. This shall include any formwork required and any reinforcing steel required. The Owner will not accept any additional costs for extra work required because of the failure of placed concrete to meet the minimum requirements.

PART 4 – MEASUREMENT AND PAYMENT

A. Concrete street pavement and sidewalks shall be measured by square yard of reinforced concrete street pavement and sidewalks in place and accepted for the depth specified in the plans. The area of concrete pavement includes the portion of the pavement slab extending beneath the curb. Payment shall be full compensation for concrete paving including reinforcement, joints, joint sealing, forms, base for level up, curing compound, testing, clean-up and for all manipulation, labor, tools, equipment and incidentals necessary to complete the work, all in accordance with the plans and these specifications.

B. Curb or curb and gutter shall be measured by linear foot of curb or curb and gutter in place and accepted. Payment shall be full compensation for concrete paving including reinforcement, joints, joint sealing, forms, base for level up, curing compound, testing, clean-up and for all manipulation, labor, tools, equipment and incidentals necessary to complete the work, all in accordance with the plans and these specifications

END OF SECTION

SECTION 30010

WATER UTILITIES

PART 1 – GENERAL

1.1 DESCRIPTION

A. All material, labor, equipment, tools, and superintendence necessary to furnish and install public water systems, water services from public waterline to meter and private fire sprinkler systems.

1.2 SUBMITTALS

A. Pipe material, fittings, valves, fire hydrants and appurtenances
B. Polyethylene tube wrap
C. Backfill material
D. Detector Tape
E. Flushing plan as required by City Engineer

1.3 QUALITY CONTROL

A. General
    1. The design and construction of all water system improvements shall be in conformance with the current adopted edition of the following:
        a. City of Mesquite Engineering Design Standards;
        b. Texas Commission on Environmental Quality (TCEQ) Rules and Regulations found in Texas Administrative Code (TAC), Title 30, Chapter 290, Subchapter D (Rules and Regulations for Public Water Systems);
        c. American Water Works Association (AWWA) Standards;
        d. National Sanitation Foundation (NSF) 61 (Drinking Water System Components – Health Effects);
        e. International Fire Code with City adopted amendments;
        f. Insurance Services Office (ISO) Fire Suppression Rating Schedule (edition 02-03) – Section 600 – Water Supply;
        g. North Central Texas Council of Governments (NCTCOG) – Public Work Construction Standard Specifications and Standard Drawings.
    2. **The installation, flushing, disinfection and testing of all water system improvements and components shall be coordinated with, and observed by, a City Public Works Construction Inspector.**
    3. Locations for testing will be determined by the City Public Works Construction Inspector.
    4. The Contractor shall complete all fill and cut operations in accordance with released engineering plans prior to installing any utilities (i.e., water, sanitary sewer, drainage).
    5. Materials must conform to the City of Mesquite Approved Water Materials List.
B. Testing Requirements, reference Section 10020 Testing Laboratory Services and the City of Mesquite General Design Standards for Testing Procedures.
    1. Waterlines – Prior to connecting water lines to the active distribution system, water lines shall be thoroughly flushed and tested for:

a. Hydrostatic Pressure - All water mains, fittings and services shall be tested with a hydraulic test pressure of not less than 200 psi, maintained at the highest point of the main, over a period of not less than 2 hours.
b. Bacterial Sampling – At least one sample per 1,000 linear feet of new water conduit, plus one sample from the end of the line and at least one sample from each branch.

2. Tapping sleeves and valves
   a. Prior to tapping, all tapping sleeves and valves shall be air tested at 120 psi for three (3) minutes with no pressure loss.
3. Backfill
   a. Moisture content and compaction – Density tests shall be performed at a frequency of one test per lift, per 300 linear feet of trench (including services) at locations specified by the City Public Works Construction Inspector.

PART 2 – MATERIALS AND EQUIPMENT

2.1 MATERIALS

A. Where applicable, all of the following shall conform to the City of Mesquite General Design Standards for materials. Materials shall be from the City of Mesquite Approved Water Materials List.

B. Public Water Line Pipe:
   1. PVC Water Pipe (Including Fusible PVC Pipe): 4”-18” Diameter
      a. AWWA C-900, Class 235 (DR 18).
      b. Blue in color.
      c. Ductile iron pipe nominal dimensions (DIPS), integral bell and locked-in factory installed rubber gasket or thermal butt fused joint, as specified.
   2. Ductile Iron Pipe: Larger than 12” Diameter
      a. AWWA Standard C151, thickness Class 52 for all sizes, designed for a minimum working pressure of 200 psi and HS-20 loading.
      b. Gauged pipe with consistent outside diameter.
      c. Polyethylene Tube Wrap in accordance with AWWA C105 Method A and blue in color.
      d. Pipe Coatings in accordance with AWWA C104, standard interior cement mortar lining and exterior asphaltic coating.
      e. Joints:
         i. All joints and glands shall be ductile iron in accordance with AWWA C111 with a minimum pressure rating of 250 psi. Bolts and Nuts for all joints and glands shall be ASTM A 325 Type 3 Enhanced Corrosion Resistant steel, or stainless steel grade 304 or 316.
            a) Push on Joint: AWWA C111
            b) Flanged Joint: AWWA C115
            c) Mechanical Joints: AWWA C111
         ii. Internal bead shall be removed from fused pipe joints as directed by the City Engineer.
   3. Concrete Pressure Pipe: 16” or Larger Diameter

a. Pipe: Concrete Pressure Pipe may be supplied for water systems for pipe diameters 16” and larger and shall conform to AWWA C303 and AWWA C304, designed for a minimum working pressure if 200 psi minimum field test pressure of 200 psi and an HS-20 live load.

b. Fittings: All fitting and glands shall be designed and fabricated in accordance with AWWA C303 and AWWA C304 and shall be designed for a minimum working pressure of 200 psi minimum field test pressure of 200 psi and an HS-20 live load. All fittings and valves shall be mechanically restrained using full circle welds or equal as approved by the City Engineer. Bolts and Nuts for all fittings shall be ASTM A325 Type 3 Enhanced Corrosion Resistant Steel, or stainless steel Grade 304 or 316.

4. Fittings:

a. All mechanical joint fittings, glands and restraints for Ductile Iron pipe or PVC pipe shall be Ductile Iron in accordance with AWWA C110 or AWWA C153 (compact fittings) and AWWA C111 with a minimum pressure rating of 350 psi. Flange fittings shall be ductile iron in accordance with ANSI/AWWA C110/A21.10 and 125# ANSI B16.1 faced and drilled. Fitting interior shall be cement lined and seal coated. The outside coating shall be bituminous coating. Bolts and Nuts for all fittings shall be stainless steel Grade 304 or 316 or ASTM A325 Type 3 Enhanced Corrosion Resistant steel. Stainless steel all-thread may be used in some applications with the approval of the City Engineer.

b. Joint Restraint: All fittings, including valves, shall be mechanically restrained using restrained fittings and meet the requirements of ASTM F1674 (PVC) or U.L. Standard 194 (Ductile Iron). Restraint gland and body and wedge components shall be ductile iron material. For pipe diameters 12” or greater, waterline profile plan shall show length of joints to be restrained on each side of fittings. For pipe diameters less than 12”, all joints within 15 feet of fitting shall be restrained.

C. Fire Hydrant:

1. All fire hydrants supplied shall comply with AWWA C-502, with a minimum working pressure of 200 psi.
2. 2 operating nut which turns counterclockwise to open.
3. Fire hydrants shall be installed without chains.
4. Valves - All valves shall be resilient seat gate valves (restrained) AWWA C509 or C515 and be directly flanged to the tee, unless otherwise approved by the City Engineer.

D. Air Release Valves and Combination Valves:

1. All air release valves, and combination valve components shall be insulated.

E. Gate Valves:

1. All valves 4-inch to 36-inch diameter shall be resilient seated gate valves that comply with AWWA C509 or C515 with a minimum working pressure of 200 psi. The valve shall be full opening, ductile iron body, non-rising stem, resilient seated wedge type designed to have complete zero leakage with flow in either direction at pressures up to two hundred psi. The valves shall be designed for throttling if required.

2. All valves over 24-inch in diameter shall be designated for horizontal installation unless otherwise shown on plans. Valves shall be placed in vault.
3. Coating – Valves shall have all internal and external ferrous metal surfaces coated with an approved epoxy coating to provide a corrosion resistant barrier. The epoxy coating shall be holiday free with a minimum thickness of not less than ten mils.
4. Operating Stems - Valves shall have two (2) “O” ring stem seals. Valves shall have the thrust collar and bearing surfaces isolated from the waterway and be provided with continuous lubrication, or they shall be provided with non-corrosive thrust bearings above and below the thrust collar. All valves shall open by turning to the left (counterclockwise) and shall have a two (2) inch-operating nut. Hand-wheel operated valves shall only be installed if specifically shown on the plans or related general details.
5. Valve Ends - In general, all in-line valves supplied shall have mechanical joint ends unless otherwise specified.
6. Three-Piece Adjustable Valve Boxes – Adjustable valve boxes shall be furnished and set on each valve in accordance with the appropriate General Design Standards and the City of Mesquite Approved Water Materials List. After the final clean up and alignment has been completed, the Contractor shall cast in place a concrete block, 2-foot x 2-foot x 4-inch around all valve box tops at finish grade.

F. Butterfly Valves:
1. General - With the approval of the City Engineer, valves larger than 24-inch diameter may be butterfly valves. Butterfly valves must comply with AWWA C504 pressure class 250B or approved equal. Seats must be in the valve body.
2. Gear Boxes – Butterfly valves shall be supplied with worm gear operators manufactured of hardened steel with open/closed indicators. Gearboxes shall be supplied with an operating nut unless otherwise specified.
3. Bolts, Bolt-studs and “T” Head Bolts - Bolts and “T” head bolts shall be long enough so that the ends project ¼ to ½ inch beyond outside surface of nuts. The ends of all bolts shall be chamfered or rounded. The threads on all bolts, bolt-studs and “T” head bolts shall have ANSI B1.1 coarse thread series, class 2A Fit. Bolt-studs may be threaded full length. Studs for tapped holes shall be threaded to match threading in holes. All bolts, bolt-studs and “T” head bolts (AWWA C111) shall be either A242 high strength low alloy steel with enhanced atmospheric corrosion resistance (ASTM A325 Type III) or Stainless Steel A151 304 or 316 high strength bolts. All nuts are to be A563 carbon alloy steel with a C3 grade and finish.
Exception: All-thread rod and nuts used for joint restraint or thrust restraint shall be A151 304 or 316 stainless.
4. Valve Vaults and Manholes - All butterfly valves must be enclosed in manholes or vaults. The size of the manhole or vault and lid should be adequate to access and remove or service the valve, gear box and sleeve from the enclosure. The valve must be installed with a sleeve to allow removal of the valve and must be mechanically thrust anchored with stainless all-thread or other approved system. Direct bury of butterfly valves may be allowed with the approval of the City Engineer.

G. Tapping Sleeves and Valves:

1. Tapping Sleeve – Tapping sleeves shall be full body and be completely constructed of type A151 304 stainless steel. The sleeve shall have a flange flat-faced outlet recessed for the tapping valve conforming to AWWA C207 Class D-ANSI 150-pound drilling and a ¾" inch N.P.T. test opening with plug for pressure test prior to tapping. All welds shall be fully passivated to restore the corrosion resistance of the stainless steel.
2. Tapping Valve – Tapping valves shall be a flange by MJ resilient seat gate valve unless otherwise specified. The gaskets shall be neoprene or other synthetic rubber, conforming to ASTM D2000.
3. Bolts and Nuts – All bolts shall be Grade 18-8, Type A151 304 Stainless steel with heavy hex nuts. Bolts will be fluorocarbon coated to prevent galling.
4. Gasket – Gasket shall be Buna-N rubber, conforming to ASTM D2000, with resistance to water, oil and hydrocarbon fluids or as approved by the City Engineer. The gasket shall be of hydraulically loaded design to provide a positive seal against the pipe surface.

H. Standard Water Service: All water service line materials shall be from the City of Mesquite Approved Water Materials List.
1. All PEX-A water service lines shall be in accordance with ASTM F876 and AWWA C904 and shall be a minimum of 1" and be in accordance with the City of Mesquite Approved Water Materials List. For PEX-A water service lines, a stainless steel stiffener shall be used at all fittings. For installations under a non-residential street, service lines shall be installed with a minimum 12-gauge detectable tracing wire with HDPE coating.
2. Service Saddles - Service saddles shall meet the requirements of AWWA C800 and be equipped with AWWA taper threads outlet. For ductile iron, cast iron and PVC water mains shall have a brass or bronze body with two bronze or 304L stainless steel straps. Epoxy coated ductile iron service saddles will not be allowed. Service saddles for existing AC water mains shall be a full body tapped stainless steel repair clamp. Service connections to the main for services larger than 2-inches shall use factory tee fittings.
3. Corporation Valves - All corporations shall meet requirements of AWWA C800 and be equipped with ball valve, AWWA taper threads inlet and a stainless steel grip ring compression outlet and be rated for 200 psi service pressure. Factory tees shall be installed for all services larger than 2-inches.
4. Angle Meter Valve (Angle Curb Stop) - All angle meter valves shall meet the requirements of AWWA C800 and be equipped with a ball valve with lock wing, rated for 200 psi service pressure. Angle meter valves of ¾-inch and 1-inch size shall be equipped with a stainless steel grip ring compression inlet connection x meter saddle-swivel nut outlet connection. Angle meter valves of 1-1/2-inch and 2-inch size shall be equipped with a stainless steel grip ring compression inlet connection and meter flange outlet connection.
5. Meter Box or Vault - A water meter box with locking lid shall be furnished and installed by the Contractor after paving and fine grading are complete. When installing a water main, new meter boxes shall be furnished and installed. Meters larger than 2-inches in size shall be furnished and installed by the Contractor in concrete vaults in accordance with City Standard Details.

I. Concrete thrust blocks:
    1. 2,000 psi, 4-sack minimum cement content.

PART 3 – EXECUTION

3.1 GENERAL

A. **Contractor shall not operate any valves in the existing water system nor operate any new valves that would allow connection to the City water system.**

B. The Contractor shall coordinate with, and notify, the City Public Works Construction Inspector 72-hours in advance to schedule a shut-down of the existing water system by City personnel. The City may require a night or weekend shut-down in order to maintain customer service. Notices to all affected customers shall be delivered by the contractor a minimum of 48-hours in advance of scheduled water shut-down.

C. The City of Mesquite requires portable fire hydrant meters for temporary and/or construction water use at construction sites. They are routinely used to account for water usage prior to installation of a permanent water meter. These meters have a backflow prevention device attached. The City requires support for this device to prevent excessive torque when attached to a fire hydrant. The City requires payment for each meter. An invoice for water use is rendered each month. Arrangements for portable fire hydrant meters are administered by the City of Mesquite Water & Sewer Accounting Division at 757 N. Galloway Avenue. Please coordinate meter usage through the Utilities Division – Meter Services Section.

3.2 REMOVAL/ABANDONMENT OF EXISTING WATERLINES AND APPURTENANCES

A. Any existing water main being replaced shall be cut and plugged or removed as directed by the City Engineer.

B. Abandoned Mains – The ends of the pipe to be abandoned shall be plugged with anchor plug

C. Valve stacks for abandoned mains shall be removed below grade and/or filled with concrete as shown in the City of Mesquite General Design Standards.

3.3 DELIVERY, STORAGE AND HANDLING

A. Transport, handle, and store pipe and fittings as recommended by manufacturer.

B. If new pipe and fittings become damaged before or during installation, it shall be repaired as recommended by the manufacturer or replaced as required by the City Public Works Inspector at the Contractor's expense, before proceeding further.

C. Deliver, store and handle other materials as required to prevent damage.

D. Pipe Delivery, Handling and Storage
    1. Off-loading devices such as chains, wire rope, chokers, or other pipe handling implements that may scratch, nick, cut, or gouge the pipe are strictly prohibited.
    2. During removal and handling, be sure that the pipe does not strike anything. Significant impact could cause damage, particularly during cold weather.
    3. If appropriate unloading equipment is not available, pipe may be unloaded by removing individual pieces. Care should be taken to ensure that pipe is not dropped or damaged. Pipe should be carefully lowered, not dropped, from trucks.

4. Any length of pipe showing a crack or which has received a blow that may have caused an incident fracture, even though no such fracture can be seen, shall be marked as rejected and removed at once from the work. Damaged areas, or possible areas of damage may be removed by cutting out and removing the suspected incident fracture area.
   Limits of the acceptable length of pipe shall be determined by the City Public Works Inspector.
5. Any scratch or gouge greater than 10% of the wall thickness will be considered significant and can be rejected unless determined acceptable by the City Public Works Inspector.
6. Pipe lengths should be stored and stacked per the manufacturer's guidelines. Pipe should be stored at the job site in the unit packaging provided by the manufacturer. Caution should be exercised to avoid compression, damage, or deformation to the ends of the pipe. The interior of the pipe, as well as all end surfaces, should be kept free from dirt and foreign matter. Pipe shall be stored off the ground at a sufficient height so as not to allow water, dirt, animals and other contaminants to enter the pipe. Any pipe found to be contaminated with unknown, objectionable or unsanitary materials shall be rejected, marked and immediately removed from the site.
7. Pipe shall be handled and supported with the use of woven fiber pipe slings or approved equal. Care shall be exercised when handling the pipe to not cut, gouge, scratch or otherwise abrade the piping in any way.
8. If pipe is to be stored for periods of 1 year or longer, the pipe should be shaded or otherwise shielded from direct sunlight. Covering of the pipe which allows for temperature build-up is strictly prohibited. Pipe should be covered with an opaque material while permitting adequate air circulation above and around the pipe as required to prevent excess heat accumulation.

3.4 INSTALLATION

A. General:
   1. All water pipe, valves, fire hydrants, and fittings shall be installed using lifting straps. The use of chains is prohibited.
   2. Where applicable, all the following will conform to the City of Mesquite General Design Standards for installation.

B. Waterline Pipe:
   1. Open cut installation per North Central Texas Council of Governments Public Works Construction Standards, current City adopted edition, Items 506.3-506.4 and 506.6 except as amended by this specification
      a. Water mains with a nominal diameter less than 14-inches shall have a minimum cover of 42".
      b. Water mains with a nominal diameter 14" or greater shall have a minimum cover of 60-inches.
      c. Warning tape shall be installed 24" above the top of pipe or as otherwise directed by the City Engineer. The tape shall be a plastic, high stretch, 4" width tape, blue in color and have the words "Caution – Water Main Buried Below" imprinted on the tape.
   2. Pipe Bursting shall be in accordance with Section 30050 Pipe Bursting.

C. Concrete Thrust Blocking:

1. All fittings, valves, hydrants, etc. shall be blocked with 2,000 psi concrete, 4-sack minimum cement content. All concrete blocking shall be placed to avoid nuts and bolts to allow easy access for maintenance. Excessive blocking shall not be allowed and shall be removed at the contractor's expense. Sizing and construction of blocking shall be as shown in standard drawings 4010A to 4040 of the North Central Texas Council of Governments Public Works Construction Standards, current City adopted edition.

D. Valves:
   1. Valves shall be flanged or anchored to adjacent fittings at Tee and Cross fittings and on fire hydrant leads.
   2. Valves located within a right-of-way shall be indicated on the face of the curb, or where curbs do not exist, on a conspicuous location adjacent to the valve location. Markings are to be the cutting of a four (4) inch high and 1/8" deep letter "V" with the point of the "V" pointing towards the valve location. The "V" shall be cut into the curb or paving using an approved motor driven concrete saw. The completed cut and valve riser lids shall receive a coating of blue paint if a main line valve or red if a fire hydrant valve. Contractor shall coat the interior, and exterior of the cut to a width of one (1) inch.

E. Tapping waterline:
   1. Wet connections to existing water mains (6-inch through 12-inch in size), shall be made with a tapping sleeve and valve. **EXCEPTION:** In some cases, as judged by the City Engineer, the use of a cut-in sleeve and tee will be required. No size-on-size taps will be allowed. Both the tapping sleeve and valve shall be rated for a minimum 200 psi service pressure.
   2. Wet tapping is to be accomplished with no interruption of service. Facilities shall be provided for proper dewatering and for disposal of water removed from the water mains and excavations without damage to adjacent property. Special care shall be taken to prevent contamination of the existing potable water line when dewatering, cutting, and making connections with existing pipe. No trench water, mud, or other contaminating substances shall be permitted to enter the existing lines. The interior of all tapping sleeves, tapping machine cutter assemblies, and tapping gate valves installed in such connections, and the surface of the existing pipe at these connections, shall be thoroughly cleaned and then swabbed with a solution having a chlorine content of 200 milligrams per liter.

F. Fire Hydrants:
   1. Fire hydrants shall be located to minimize interference with driveways and shall be located with sufficient clearance from drive and street radii to prevent the fire hydrant from being struck if a vehicle jumps the curb and/or takes a wide turn. Hydrants shall not be placed in intersection radii or other locations with a high probability of being damaged by traffic. A 3-foot clear space shall be maintained around the circumference of fire hydrants except as otherwise required or approved.
   2. Mid-block fire hydrants shall be located on property lines (extended) to minimize interference with drives and on-street parking.
   3. Hydrants shall be placed 2-feet to 10-feet from the back of curb and shall not be installed in sidewalks, driveways, etc. unless otherwise approved by the City Engineer Hydrants shall be placed so the bury mark is at or above

ground or paving level and the breakaway flange is no more than 6” above finished grade. Mounding of the ground or paving shall not be allowed to achieve this requirement. No more than one extension of 18 inches maximum will be allowed for grade adjustment. Hydrants shall have a barrel length of 4-feet to 6-feet unless approved by the City Engineer. All hydrants shall be surrounded by a minimum 3’ wide concrete splash pad between the hydrant and the curb and extend 1’ beyond the rear of the hydrant or connect to the adjoining walk for firefighting access and flushing operations per City of Mesquite General Design Standards.

4. Bollards shall only be used to protect fire hydrants in areas where the speed limit is 10 mph or lower, such as around loading docks and in parking lots. Bollards are not a substitute for proper traffic flow layout and should only be used after options for relocation of the fire hydrant have proved infeasible. Bollards shall not be used in City street or alley right-of-way. Bollards that are installed shall meet the requirements of the appropriate General Design Standards.
5. Installation shall be of a type as detailed in these standards. All valves shall be flanged to the tee. Lead pipes from valve to hydrant shall be anchored or flanged.
6. If a fire hydrant is out of service, for any reason, the contractor shall bag the fire hydrant with a black trash bag secured with duct tape and report hydrant to the Utility Dispatch office with the reason why it is out of service. This includes, but is not limited to, hydrants that are out of service for the following reasons:
    a. Water main valved-off and being abandoned but connected hydrant is not yet removed.
    b. New hydrant recently installed but not yet ready for service.
    c. Hydrant temporarily out of service due to main shut down.
7. The contractor shall place a Stimsonite Model 88-SSA blue fire hydrant marker in the street adjacent to the hydrant. The marker shall be located perpendicular to the curb, at the center of the driving lane closest to the fire hydrant. The marker shall be installed with a two-part epoxy adhesive per manufacturer’s instructions.
8. All fire hydrants are to be painted with a base coat consisting of two (2) coats of aluminum paint as specified below. Refer to City of Mesquite Approved Water Materials List for approved paint. When a color code other than aluminum is required, the top bonnet (from operating nut to underneath the uppermost flange) shall be painted two coats of the appropriate color in accordance with the following color code. Nozzle caps are not to be color-coded.
    a. Base undercoat: Two (2) coats of aluminum paint are required as a base coat on all hydrants.
    b. Overcoats: Two (2) additional coats of paint are required over the base coat. The colors shall conform as follows:

Main Size	Color
6”	Aluminum – Top & Bottom
8”	Blue Top – Aluminum Bottom
10” or larger	Yellow Top – Aluminum Bottom

G. Excavating, backfilling and compacting shall be done in accordance with Section 10030 Trenching and Backfilling.

3.5 WATER SERVICES

A. Contractor will be totally responsible for protecting service lines. If Contractor damages or removes a service line, Contractor must replace it, installing new tubing, and making new connections to the existing (or new) main and the meter. This includes new service saddles, corporation stops, and miscellaneous fittings. If Contractor damages a service line outside the scope of work, in the opinion of the Engineer, then the Contractor will be responsible for all repair at no additional pay

B. Contractor must not interrupt water service to customers for more than four (4) hours. Temporary services are required if the work involved will be longer than four (4) hours.

C. Service Taps - Domestic water service taps shall be off a looped main. Domestic water service taps shall not be shared, split or bullheaded with an irrigation tap and shall not tap to a fire hydrant lead. Irrigation meters may tap a fire hydrant lead. Utility contractor shall make the tap and install the service.

D. Location - Meters and services must be located within R.O.W. or easements in accordance with City approved plans and details. In residential developments, residential water meters and services are generally placed at the center of the lot in the grassed parkway. Water meters shall not be located in proposed driveways, sidewalks, parking lots or other paved areas. For narrow lots or front entry lots, the designer must design the location of the meters to make sure they are placed in an unpaved area. Meters in conflict with this requirement will be relocated by the developer/builder at their expense. In non-residential developments, water meters shall be located in unpaved islands. Meters should be set so that the meter face is 6-inches to 10-inches below finished grade.

E. Service Lines - All water services shall be continuous from the corporation valve at the water main to the angle meter valve in the meter box (No Couplings). Crimping or excessive bending of the service line shall not be allowed. Service lines shall be continuous and shall have no fittings under any paving, unless approved by the City Engineer. Copper service lines that exceed the length of standard 100’ rolls of copper may be spliced in unpaved areas with a silver solder coupling. PEX-A pipe joints may only be outside paved areas. When installing a water main, the Contractor shall furnish and install new meter boxes. Service lines shall be poly-wrapped for the first 5-feet of service from the main. Water service mains shall have a minimum depth under paving of 36-inches (measured from surface of paving).

F. Marking - Each individual service location shall be marked on the face of the curb with a 4-inch high and 1/8-inch deep scribe mark “I” cut in the curb using an approved motor driven concrete saw. The scribe mark “I” shall receive a coating of blue paint, which shall coat the interior and exterior of the cut to a width of 1-inch.

G. Blow-Off Valves - For 2-inch blow-off valves, use fittings for a standard 2-inch service configuration.

3.6 CONNECTION TO EXISTING WATER SYSTEM

A. Water required to fill the new main for hydrostatic pressure testing, disinfection, and flushing shall be supplied through a connection to the existing distribution system provided a new valve is placed at the connection point. Do not test against an existing valve in the existing system. As an alternate, and with approval of the City Public Works Construction Inspector, potable water may be supplied through

a temporary connection between the distribution system and the new main. The temporary connection shall not be from a hydrant or non-potable water source. The temporary connection shall include an appropriate cross-connection control device and shall be disconnected during the hydrostatic pressure test. The temporary connection shall be removed at the end of testing.

B. General Procedures and Precautions Taken During Construction:
Inspect materials prior to installation to ensure their cleanliness and integrity.
   1. Keep interior of pipe dry and clean during storage and installation. Prevent contaminates from entering the water main during storage and construction.
   2. If dirt enters the pipe during storage or installation, it shall be removed and the interior surface swabbed with a 1 to 5 percent hypochlorite disinfecting solution.
   3. During construction, openings in the pipe shall be closed with a watertight plug when pipe laying is stopped at the close of each day's work or for other reasons such as rest breaks and meals to prevent contaminants and animals from entering pipe.
   4. Remove those materials that may have entered the water main by sufficient scouring and flushing or other means.
   5. Chlorinate any residual contamination that may remain and flush the chlorinated water from the main.
   6. Protect the existing distribution system from backflow caused by hydrostatic test and disinfection procedure.
   7. Document that adequate levels of chlorine contacted each pipe to provide disinfection.
   8. Once the contractor has been notified by the City Public Works Construction Inspector of a successful (negative result) laboratory bacteriological testing result, the City Utilities Department will place the new water main into service with the active distribution system by turning all valves.

3.7 DISINFECTION

A. The inside of all pipe and fittings shall be kept clean during storage and installation. The City Public Works Inspector shall require swabbing or pigging of all new pipe if the pipe is stored or installed in an unsanitary manner.

B. Flushing
   1. Before the main is chlorinated, it shall be filled to eliminate air pockets and flushed to remove particulates. Fire hydrant steamer nozzles shall be the preferred appurtenance for flushing. The flushing velocity in the main shall not be less than 3.0 ft/sec. Below is the required flow and openings needed to flush pipelines with a pressure of 40 psi

Pipe (Inch)	Flow (gpm)	1" Tap	1-1/2" Tap	2" Tap	2-1/2" Hydrant Outlets	4-1/2" Hydrant Outlets
4	120	1			1	1
6	260		1		1	1
8	470		2		1	1
10	730		3	2	1	1
12	1060			3	2	1
16	1880			5	2	1

C. Pigging

1. Pigging is accomplished by passing an appropriately sized pig through the pipe. A pig is a bullet-shaped, flexible sponge available in different sizes, densities, and degrees of roughness. All mains 12-inch and larger must be pigged prior to flushing and disinfection with chlorine.
2. The pig shall be inserted in the new conduit at the location where the new conduit is connected to the active distribution system.
3. Where expulsion of the pig is required through a dead-ended conduit, the Contractor shall make every effort to prevent back flow of the purged water into the conduit after passage of the pig. Backwater re-entry into the pipe can be prevented by the temporary installation of mechanical joint bends and pipe joints to provide a riser out of the trench.
4. After passage of the pig, flushing of all backwater from the pipe and satisfactory hydrostatic test results, the Contractor shall secure the test location openings and then proceed with disinfection.
5. If thermal butt fused joints are specified for HDPE pipe (i.e. internal bead), Contractor shall confirm pigging procedure and sizing is in accordance with pipe manufacturers recommendations.

D. Disinfection

1. The Continuous-feed method must be used unless it is stated otherwise in the Contract Specifications.
2. The Contractor shall install and remove all pump-in, blow-off and sampling points.
3. Water from the existing system or other approved source shall be made to flow at a constant rate into the new main.
4. At a point no more than 10-ft downstream of the beginning of the new conduit, water entering the new conduit shall receive a dose of chlorine such that the water shall have not less than 100-mg/L (ppm) free chlorine. Chlorine application shall not cease until the entire conduit is filled with heavily chlorinated water. 125 lbs of Calcium Hypochlorite (65% available chlorine) is required in 100,000 gal of water to produce 100 mg/L (ppm) Chlorine concentration.
5. The chlorinated water shall be retained in the conduit for at least 24 hours, during which time all valves and hydrants in the section treated shall be operated in order to disinfect the appurtenances. The Contractor shall make every effort to prevent the flow of chlorinated water into conduits in active service. At the end of the 24-hour period, the treated water in all portions of the conduit shall have a residual of at least 10-mg/L (ppm) free chlorine.

E. Chlorine for Disinfection:

1. Calcium Hypochlorite in granular form conforming to ANSI/AWWA B300 shall be used and must contain approximately 65 percent available chlorine by weight. The material shall be stored in a cool, dry, and dark environment in accordance with the manufacturer's recommendations to minimize deterioration.
2. The heavily chlorinated water shall then be flushed from the conduit and disposed in a manner meeting the requirements set out below.
3. The chlorine residual shall be tested prior to flushing operations.

F. Disposal of Hyper-Chlorinated Water:
1. If the chlorine residual exceeds 4-mg/L (ppm) the water shall remain in the new water conduit until the chlorine residual is less than 4-mg/L (ppm). As an alternate, the Contractor may choose to evacuate the water into water trucks or an approved storage facility (such as a detention pond until the chlorine residual is 4-mg/L (ppm) or less), or treat the water with Sodium Bisulfite, another dechlorination chemical (Sulfur Dioxide, Sodium Sulfite, Sodium Thiosulfate, or Ascorbic Acid) or a method appropriate for potable water which is approved by the City Engineer until the chlorine residual is reduced to 4-mg/L (ppm) or less. **The heavily chlorinated water shall not be disposed of into the storm sewer system.** After the specified chlorine residual is obtained (i.e., less than 4-mg/L (ppm)), the water may then be discharged into the storm sewer system or utilized by the Contractor.
2. The requirement for discharge of heavily chlorinated water is found in the TPDES General Permit to Authorize the Discharge of Storm Water and Certain Non-Storm Water Discharges from Regulated Construction Activities Within the State of Texas.
3. The Contractor shall prepare the conduit for disinfection activities and secure same after chlorination is complete.
4. This shall consist of furnishing all equipment, material and labor to satisfactorily prepare the conduit for disinfection. The Contractor shall also be required to provide adequate provisions for sampling.
5. The Contractor shall make all necessary taps into the pipe to accomplish chlorination of a new line.
6. After satisfactory completion of the disinfection operation, the Contractor shall remove surplus pipe at the chlorination and sampling points, plug the remaining pipe, backfill, and complete all appurtenant work necessary to secure the conduit.

3.8 CORROSION PROTECTION

A. Contractor shall coat all bolts with anti-seize compound.

B. All ductile iron pipe, fittings and valves shall be wrapped with polyethylene tube wrap in accordance with AWWA C105, Method A. The polyethylene wrap of pipe must be blue in color.

PART 4 – MEASUREMENT AND PAYMENT

A. This section shall be measured by linear feet of waterline installed and accepted. Linear footage will be measured horizontally from center of fitting to center of fitting or end of pipe without any deduction for the length of the intermediate fittings or valves. Payment shall be full compensation for materials, installation, testing and

all manipulation, labor, tools, equipment and incidentals necessary to complete the work, all in accordance with the plans and these specifications.

B. This section shall be measured by each fire hydrant assembly installed and accepted. Payment shall be full compensation for materials, installation, testing of fire hydrant assembly including fire hydrant, valves, 6” piping, fittings, thrust restraint and all manipulation, labor, tools, equipment and incidentals necessary to complete the work, all in accordance with the plans and these specifications.

C. This section shall be measured by each air release valve installed and accepted. Payment shall be full compensation for materials, installation, testing and all manipulation, labor, tools, equipment and incidentals necessary to complete the work, all in accordance with the plans and these specifications.

D. This section shall be measured by each valve installed and accepted. Payment shall be full compensation for materials, installation, testing and all manipulation, labor, tools, equipment and incidentals necessary to complete the work, all in accordance with the plans and these specifications.

E. This section shall be measured by each service connection installed and accepted. Payment shall be full compensation for materials, installation, testing, including corporation stop, saddle, PEX-A or copper tubing, stainless steel stiffeners, angle stops, meter can, meter adjustments and all manipulation, labor, tools, equipment and incidentals necessary to complete the work, all in accordance with the plans and these specifications. A bid item for ‘short side’ shall mean a service connection where 10 or less linear feet of service line is laid. A bid item for ‘long side’ shall mean a service connection where more than 10 linear feet but less than 50 linear feet of service line is laid. A ‘long side’ service shall be by bore under existing pavement.

F. This section shall be measured by each plug installed. Payment shall be full compensation for materials, installation including cutting existing line, providing and installing plug, removal of waterline necessary to install plug and all manipulation, labor, tools, equipment and incidentals necessary to complete the work, all in accordance with the plans and these specifications.

G. This section shall be measured by each valve abandoned. Payment shall be full compensation for removal of valve stack including removal and disposal of valve cover and stack, concrete fill, backfill and all manipulation, labor, tools, equipment and incidentals necessary to complete the work, all in accordance with the plans and these specifications.

H. Thrust blocks, fittings, bends, tees, joint restraints, appurtenances and any excavation, backfill, grading, compaction, testing will not be paid for directly but will be subsidiary to pertinent bid items.

I. Unless listed as separate bid item, temporary water service will be subsidiary to installation of waterlines.

END OF SECTION

SECTION 30051

ADJUSTMENT OF UTILITY APPURTENANCES

PART 1 – GENERAL

1.2 DESCRIPTION

A. Adjustment of existing water valve covers to proposed grade.
B. Adjustment or replacement of existing meter boxes to proposed grade.
C. Adjustment of existing sanitary sewer manholes to proposed grade.

PART 2 – MATERIALS AND EQUIPMENT

2.1 MATERIALS

A. General: Materials shall be in accordance with City of Mesquite Standard Details and current approved materials as listed in the Engineering Design Manual.

PART 3 – EXECUTION

3.2 GENERAL

A. Contractor shall take care that all existing utilities remain in service during adjustment of appurtenances.

3.3 WATER VALVE COVER ADJUSTMENT

A. Contractor shall adjust the top of the water valve box to the proposed finished surface elevations by adjusting or lowering it to conform to the final grade in accordance with the plans. The existing valve box and cover, if in good condition, may be salvaged and reused. Where the valve box is of the adjustable type, the top section of the existing valve box shall be adjusted up or down as necessary within its adjustable limits. A valve box extension adapter also may be added to the top of the existing valve box. If the existing valve box is tilted/ and/or far enough off center on the valve nut to make valve operation difficult, the Contractor shall plumb and center the valve box over the valve nut prior to placement of adjacent material. The valve box lid ears shall be aligned parallel to the direction of water flow. Final adjustment of water valve shall be made after paving.

3.4 WATER METER ADJUSTMENT

A. Contractor shall adjust the top of the water meter box to the proposed finished surface elevations by adjusting or lowering it to conform to the final grade in accordance with the plans.
B. If meter box needs to be replaced, a new box will be provided by the City, unless otherwise specified that contractor shall provide new box.

3.5 SANITARY SEWER MANHOLE ADJUSTMENT

A. Contractor shall install a false bottom in the manhole prior to initiation of grading and/or liming operations. The false bottom shall be 3/4” plywood. Contractor shall

remove and salvage existing manhole lid and ring. Contact areas shall be cleaned of all mortar and grease. Contractor shall adjust the existing manhole casting to proper grade. If the adjustment involves lowering the top of a manhole, a sufficient depth of concrete shall be removed to permit reconstruction on a batter if necessary to adjust the fixture to proposed new surface. If the adjustment involves raising the elevation of the top of the manhole, Contractor shall install grade rings as necessary to conform to the finished surface elevations. Installed grade rings shall fit within the existing casting without interference, shall not cause binding to the manhole lid, be immobile and watertight.

B. Contractor shall install a new bolt down type manhole lid and ring along with installing new anchor bolts to attach ring to cone. All manhole rings shall be sealed and contain a wrap as shown per the *City of Mesquite's Approved Sanitary Sewer Materials List*. The space between risers and cone basin, between risers and cover frame, and between multiple risers shall be sealed with an approved mastic sealer. Concrete grade rings are not allowed.

PART 4 – MEASUREMENT AND PAYMENT

4.2 MEASUREMENT

A. This section shall be measured by each adjustment of existing water valve covers completed and accepted. Payment shall be full compensation for materials and installation including backfill, compaction, haul off and lawful disposal of spoils, and all manipulation, labor, tools, equipment and incidentals necessary to complete the work, all in accordance with the plans and these specifications.

B. This section shall be measured by each adjustment and/or replacement of existing water meter boxes completed and accepted. Payment shall be full compensation for materials and installation including backfill, compaction, haul off and lawful disposal of spoils, and all manipulation, labor, tools, equipment and incidentals necessary to complete the work, all in accordance with the plans and these specifications.

C. This section shall be measured by each adjustment of existing sanitary sewer manhole completed and accepted. Payment shall be full compensation for materials and installation including backfill, compaction, haul off and lawful disposal of spoils, grade rings, chimney seal and all manipulation, labor, tools, equipment and incidentals necessary to complete the work, all in accordance with the plans and these specifications.

END OF SECTION

SECTION 30052

IRRIGATION AND WATER SERVICE REPAIR ALLOWANCE

PART 1 – GENERAL

1.3 DESCRIPTION

A. This item includes repair and/or replacement of existing irrigation systems and water services unavoidably damaged during construction activities.

1.4 SUBMITTAL

A. Licensed sub-contractor

PART 2 – MATERIALS AND EQUIPMENT

2.2 MATERIALS

A. General: Materials shall be in accordance with City of Mesquite Standard Details and current approved materials as listed in the Engineering Design Manual.

PART 3 – EXECUTION

3.6 GENERAL

A. Contractor shall protect all existing irrigation and water service systems encountered during construction from damage. Any avoidable (as determined by the City) damage caused to systems by the contractor's operation shall be repaired to the satisfaction of the City and property owner at the contractor's expense. Any unavoidable damage caused to systems by the contractor's operation shall be repaired to the satisfaction of the City and property owner at and shall be charged against the Irrigation and Water Service Repair Allowance.

3.7 IRRIGATION REPAIR

A. The Contractor must contact the Park Project Manager – Robert Blankenship at 972-216-6413 (office) prior to cutting, removing or altering City irrigation systems and to determine the location of any City sprinkler systems.

B. All irrigation repairs must be performed by a licensed irrigator.

C. Contractor shall follow TCEQ's laws and regulations for irrigation repair. Repair to City owned irrigation systems shall be per the City of Mesquite's Irrigation System Specifications (Section 02441) contained in the Engineering Design Manual. Inspection of the City owned irrigation system repair shall be by the Park Project Manager, at 972-216-6413.

3.8 WATER SERVICE REPAIR

A. All water service repairs must be performed by a licensed plumber.

B. All water service repairs shall adhere to City of Mesquite General Design Standards.

PART 4 – MEASUREMENT AND PAYMENT

D. This item will be paid from invoices paid by the contractor to a licensed irrigator for irrigation repair or licensed plumber for water service repair that was unavoidably damaged by the contractor. The amount of the invoices is subject to review and approval by the City. Once invoices are approved by the City Project Engineer, the amount of the invoice shall be paid against the contract allowance for this item. Payment shall be per an allowance as per the bid form. Invoices will be required that shows the cost of materials and labor. Payment shall be full compensation for materials and installation including backfill, compaction, haul off and lawful disposal of spoils, and all manipulation, labor, tools, equipment and incidentals necessary to complete the work, all in accordance with the plans and these specifications.

END OF SECTION

SECTION 40010

PAVEMENT STRIPING, MARKERS, AND BUTTONS

PART 1 – GENERAL

1.1 DESCRIPTION

A. All material, labor, equipment, tools, and superintendence necessary to furnish and install raised and/or retroreflectorized pavement markings.

B. Work shall be done in accordance with the current Texas Department of Transportation's Standard Specifications for Construction of Highways, Streets and Bridges, Item 662 "Work Zone Pavement Markings", Item 666 "Retroreflectorized Pavement Marking", Item 668 "Prefabricated Pavement Markings", Item 672 "Raised Pavement Marker", Item 677 "Eliminating Existing Pavement Marking and Markers" and Item 678 "Pavement Surface Preparation for Markings" with the exception of items specified herein.

PART 2 – MATERIALS AND EQUIPMENT

2.1 MATERIALS

A. Where applicable, all of the following shall conform to the City of Mesquite General Design Standards for materials. Materials shall be from the City of Mesquite Approved Materials List.

B. All pavement markings wider than 6" thick on concrete pavement shall be prefabricated material in accordance with TxDOT DMS-8240 and be "Premark" brand or approved equal.

C. All markings on asphalt pavement shall be hot applied thermoplastic, type I in accordance with TxDOT DMS-8220

PART 3 – EXECUTION

3.1 GENERAL

A. Surface shall be prepared prior to installation.

B. Contractor shall establish guide marks and the City shall verify the locations prior to installation.

PART 4 – MEASUREMENT AND PAYMENT

A. Raised pavement markers shall be measured by each installed and accepted for the size, type, and color and shall be full compensation for pavement preparation, installment and for all manipulation, labor, tools, equipment and incidentals necessary to complete the work, all in accordance with the plans and these specifications.

B. Pavement striping shall be measured by the Linear Foot of stripe installed and accepted for the size, type and color, and shall be full compensation for preparation, installment and for all manipulation, labor, tools, equipment and

incidentals necessary to complete the work, all in accordance with the plans and these specifications.

C. Pavement markings shall be measured by each marking installed and accepted for the size, type and color and shall be full compensation for pavement preparation, installment and for all manipulation, labor, tools, equipment and incidentals necessary to complete the work, all in accordance with the plans and these specifications.

END OF SECTION

SECTION 40030

TRAFFIC SIGNS AND POSTS

PART 1 – GENERAL

3.2 DESCRIPTION

D. All material, labor, equipment, tools, and superintendence necessary to furnish and install regulatory, warning and guide signs and posts.

E. Work shall be done in accordance with the current Texas Manual on Uniform Traffic Control Devices (TMUTCD).

PART 2 – MATERIALS AND EQUIPMENT

2.1 MATERIALS

A. Sign Materials

1. Sign materials and fabrication shall conform to Texas Department of Transportation (TxDOT) Item 636, Aluminum Signs (Type A).
2. Aluminum sign blank substrates shall be 0.080 inch thick. Six (6) inch wide sign blades shall be extruded aluminum, and nine (9) inch wide sign blades shall be flat aluminum.
3. Regulatory and warning signs shall be Type III, high-intensity retroreflective sheeting, as defined by ASTM D 4956-95.
4. Guide signs, to include street name signs, shall be Type I, medium-intensity (engineer grade) retroreflective sheeting, as defined by ASTM D 4956-95.
5. Sign identification decals shall be coded and applied in accordance with TxDOT Item 643, "Sign Identification Decals" to the rear of each sign.
6. A manufacturer's warranty shall be provided to the City that warrants the sign against delamination and loss of retroreflectivity for seven (7) years.

B. Sign Posts

1. Sign posts shall be roll-formed from 12 gauge (0.105") strip steel per ASTM Spec. #A570-79 or per ASTM Spec. #A446, Grade A. Sign posts shall be comer induction welded so that neither weld nor flash interferes with the telescoping properties.
2. Sign post finish shall be in-line, hot dip galvanized zinc coating per ASSHTO M-120, or strips are pre-galvanized when roll formed from ASTM Spec. #A446, Grade A steel.
3. Sign post holes shall be seven-sixteenths inches (minimum diameter) plus tolerance of one sixty-fourth inch. Holes shall be on exact one-inch centers along the longitudinal centerline of each of the four faces of each section. Thus, each set of four holes on respective section faces will be in exact lateral alignment, at each one-inch increment, longitudinally along the center section length. The centers of the end holes in each section are to be exactly one-half (1/2) inch from the section end. Each section therefore is to be in exact inch measurement with a tolerance of 0.025 inches.
4. Sign Post Tolerances shall be as follows:

a. Outside tolerance at all sides, at comers, shall be plus or minus 0.010 inches per respective specified (O.D.) section size.
b. The straightness tolerance shall be one-sixteenth of one inch per three (3) feet of section length.
c. Outside comer radii shall be three sixteenths of one inch, plus or minus one sixteenth of one inch.
d. Respective specified length tolerance shall be plus or minus one quarter of one inch
e. Convexity and concavity tolerance measured in the center of each section face shall be plus or minus 0.005 inches.

C. Hardware and Fasteners
1. All hardware and fasteners shall be galvanized steel, stainless steel or dichromate sealed aluminum conforming to TxDOT Materials Specification D-9-7120. When dissimilar metals are used, the metals shall be so selected or insulated to prevent corrosion.
2. Comer bolts, flat washers, and nuts used to secure the 1 % inch post to the base shall be 5116 inches in diameter galvanized steel.
3. Signs shall be fastened with 3/8 inch diameter zinc plated steel drive rivets.
4. Extruded sign blade holders used to secure six-inch sign blades shall be cast aluminum with stainless steel set screws.
5. Nine inch sign blades shall be affixed using 5/16 inch stainless steel round head machine screws with self-locking nuts, Y, inch diameter nonferrous spacers, and nylon washers.

PART 3 – EXECUTION

3.1 INSTALLATION

A. The breakaway sign-support system (BS3) consists of dimensioned square section tubing secured together in a telescoped array to form. The system consists of three 12-gauge steel components; a 36 inch long anchor post of 2" x 2" O.D. square tubing, an 18 inch long anchor sleeve of 2-1/4" x 2-1/4" O.D. square tubing, and a sign post of 1-3/4" x 1-3/4" O.D. square tubing. The three components must be manufactured to tolerances that ensure telescoping of sections with minimal internal clearances that preclude excessive play between sections of the assembled support system.

B. The anchor post and anchor sleeve shall be driven into the ground as an assembly. Three holes shall remain visible above ground level for attachment of the 1 %inch sign post using two corner bolts.

C. Nine inch sign blades are installed along all arterial and secondary arterial streets as depicted on the current Thoroughfare Plan. Six inch sign blades are installed on all local and collector streets. Standard Construction Details- Signage- sheets T-1 and T-2 depict proper sign assembly and installation.

D. Street name blades may be affixed to streetlight poles with the approval of Oncor and the City. Street name blades will be attached to cast aluminum cantilever brackets with stainless steel set screws, and the cantilever bracket will be affixed to streetlight pole using stainless steel banding.

E. Ornamental Signage.

1. Standards for ornamental signage are determined on a case by case basis. In general, ornamental signage shall be compatible with Oncor street light poles and luminaires.
2. Standard Construction Details, Signage, sheets T-3 depicts proper sign placement on street light poles and free standing poles.

PART 4 – MEASUREMENT AND PAYMENT

A. Signs shall be measured by each installed and accepted for the size and type and shall be full compensation for post installation, sign installation and for all manipulation, labor, tools, equipment and incidentals necessary to complete the work, all in accordance with the plans and these specifications.

END OF SECTION

SECTION 50010

SODDING

PART 1 – GENERAL

2.2 DESCRIPTION

F. This item shall govern for furnishing, hauling, and placement of sod (Bermuda grass, St. Augustine grass, or other approved grass) as directed by the City and in accordance with the requirements of this specification.

2.3 SUBMITTALS

A. Sod Supplier

PART 2 – MATERIALS AND EQUIPMENT

2.1 MATERIALS

A. The sod placed by the contractor shall be live, growing grass with a healthy root system and dense matted roots throughout the sod for a minimum thickness of 1-inch. If turf exists adjacent to the disturbed area, the Contractor shall match type of sod to the existing turf. Sod shall be healthy, free of insects, disease, stones, undesirable foreign materials, and weeds detrimental to its growth or that might affect its livelihood or hardiness when transplanted. All sod shall be in a fertile soil with a high percentage of loamy topsoil. Sod, including the soil containing roots, shall be cut to uniform thickness. It shall be mowed to a height not to exceed three inches before the sod is lifted. Sod shall be protected from exposure to wind, sun, and freezing. If sod is stacked, it shall be kept moist. Sod shall not be planted when its moisture condition is so excessively wet or dry that its survival shall be affected. Grass sod with dried roots shall be considered unacceptable and rejected. Sod placed during dormancy shall be inspected by the City to verify that the grass is satisfactory. Broken or torn pads and uneven ends shall be rejected.

B. Water for sodded areas shall be potable, or otherwise free from harmful materials that might injure the sod.

C. Soil testing is not required. Fertilizer shall be 1-1-1 or 1-2-1 (N-P-K) ratio applied at a rate of 10 lbs fertilizer per 1,000 sq ft.

2.2 EQUIPMENT

A. Suitable equipment necessary for proper ground surface preparation and for the transporting and placing of all required materials shall be on hand, in good condition, and approved by the Owner before the various operations begin. Adequate watering equipment must also be on hand before sodding begins. A truck mounted pumping unit capable of injecting high density polyurethane material beneath the pavement. The pumping unit will be capable of controlling the rate of material as required to densify the soils.

PART 3 – EXECUTION

B. After the designated areas have been completed to the lines and grades required, areas to be sodded shall be tilled and free of large stones, sticks, and other debris that might interfere with sodding, livelihood of the grasses, or future maintenance of grass-covered areas. If any damage occurs after the grading of areas to be sodded and before the placement of sod, the Contractor shall repair such damage.

C. Sod shall be carefully placed by hand on the prepared areas. Sod shall be placed so that the entire designated areas are covered. The entire sodded area shall immediately be rolled and tamped with approved equipment to force the sod in firm contact with the underlying soil and form a solid mass and provide an even surface. Any voids left shall be filled with additional sod and tamped. Surfaces that in the opinion of the Owner may slide due to the height or slope of the surface, shall be stapled with steel turf staples driven through the sod and flush with the surface of the sod.

D. Fertilizing shall consist of providing and distributing fertilizer under the sod before placing in accordance with these specifications. The fertilizer shall be in acceptable condition for distribution and applied uniformly over the area. All fertilizer shall be delivered in bags or containers clearly labeled showing the analysis of the contents. A sample label or specification of proposed fertilizer shall be submitted to the Owner for approval prior to use.

E. Sodded areas shall be thoroughly watered immediately after they are planted and as directed by the City for two-weeks after placement. In all cases the sod shall be kept moist until it is established and watered in a manner that will avoid the application of excess quantities.

PART 4 – MEASUREMENT AND PAYMENT

A. Sodding shall be measured by the square yard of sodded area completed and accepted and shall be full compensation for furnishing and placing all materials required; for all staking, rolling and tamping; fertilizing; for all water; and for all manipulation, labor, tools, equipment and incidentals necessary to complete the work, all in accordance with the plans and these specifications.

END OF SECTION

SECTION 50020

EROSION CONTROL

PART 1 – GENERAL

1.1 DESCRIPTION

G. This item shall govern for the development and implementation of erosion control measures, storm water pollution prevention plan (SWPPP) and completion and posting of Construction Site Notice in accordance with the requirements of this specification.

1.2 SUBMITTALS

A. SWPPP

PART 2 – MATERIALS AND EQUIPMENT

Not used.

PART 3 – EXECUTION

A. SWPPP is not required to be signed and sealed by a registered professional engineer.

B. All work shall be in accordance with TCEQ requirements.

PART 4 – MEASUREMENT AND PAYMENT

A. Development and implementation of erosion control and SWPPP shall be paid based upon percent of contract time completed and shall be full compensation for development of plans, completion and posting of required forms, implementation of plans including furnishing and placing all materials required; and for all manipulation, labor, tools, equipment and incidentals necessary to complete the work, all in accordance with the plans and these specifications. Separate pay items may be provided for specific erosion control measures.

END OF SECTION

APPENDIX

- ITEM DC-2169- REMOVABLE STEEL BOLLARD
- ITEM DC-4810- PREFABRIATED STEEL TRUSS BRIDGE SPAN
- ITEM DC-5520- RAILING (WITH RUB RAIL)
- HALSEY TAYLOR WATER FOUNTAIN
- MODULAR IN-GRADE LUMINAIRE
- BENCH 19 SERIES
- PARKING LOT LITHONIA LIGHTING
- VISIONAIRE STREET LIGHTING
- ONCOR GUIDE FOR USE OF COMPANY PROPERTY BY OTHERS
- GENERAL RESTRICTIONS WITHIN BRAZOS ELECTRIC EASEMENTS
- GEOTECH

SPECIAL SPECIFICATION
ITEM DC-2168

REMOVABLE STEEL BOLLARD

1. **Description.** Furnish and construct removable steel bollards in conformance to the details shown on the plans.

   A. **Reference standards:**
      1) ASTM A36 & ASTM A53– Standard Specification for Carbon Structural Steel and Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless.
      2) ASTM A500 – Standard Specification for Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes.
      3) ASTM A536 – Standard Specification for Ductile Iron Castings.

   B. **Submittals:** Furnish the following items for approval:
      1) Product Data: Provide for bollard, component, finish, and accessories.
      2) Color Sample: Submit manufacturer's standard colors for selection.
      3) Setting Drawings: Show embedded items and cutouts required for work specified in other Sections.
      4) Maintenance Data: Submit manufacturer's field touch-up, cleaning, and maintenance instructions.
      5) Warranty Documentation: Submit sample of manufacturer's warranty against defect in materials and workmanship.

   C. **Delivery, Storage and Handling:** Protect bollards and accessories during delivery, storage, and handling.

   D. **Warranty:** Provide manufacturer's warranty against defects in materials and workmanship.
      1) Warranty Period: Five years from date of invoice, except as otherwise indicated.
      2) Coatings: Two years, against peeling, cracking, or significant color change.

2. **Materials.** Furnish materials for bollard, cap, sleeve, and lock in accordance with **"Buy America"**.

3. **Construction.**

   A. **Installation:**
      1) Install items in accordance with approved Shop Drawings and manufacturer's instructions.
      2) Install plumb and level, anchored rigid and secure, and in true alignment with related and adjoining work.
      3) Provide anchoring devices and fasteners as required for property installing items.
      4) Upon completion, re-examine work and correct to insure that installation is firm, tight, anchored, in true alignment with near fits, without distortions, unsightly fastenings, raw edges, or protrusions.
      5) Damaged, cracked, chipped, deformed or marred bollards are not acceptable. Field touch-up minor imperfections in accordance with manufacturer's instructions.

B. Cleaning and protection:

1) Protect bollards against damage.
2) Immediately prior to Substantial Completion, clean bollards in accordance with manufacturer's instructions to remove dust, dirt, adhesives, and other foreign materials.
3) Touch up damaged finishes according to manufacturer's instructions.

C. Closeout Activities

1) Provide executed warranty.

4. **Measurement.** All bollards satisfactorily installed in accordance with the plans and specifications will be measured by each bollard, complete.

5. **Payment.** The work performed and materials furnished in accordance with this Item and measured as provided under "Measurement" will be paid for as follows:

A. **Complete bollards:** Payment for bollards will be made at the unit price bid for "Removable Steel Bollard" (Complete In Place), of the type specified.

These prices are full compensation for the excavations, concrete, form work, back fill, bollard and for all other materials, tools, equipment, labor, and incidentals.

SPECIAL SPECIFICATION

ITEM DC-4810

PREFABRICATED PEDESTRIAN STEEL TRUSS BRIDGE SPAN

1. **Description.** Design, fabricate, and install prefabricated pedestrian steel truss bridge spans including bearing devices, anchor bolts, bridge deck, and pedestrian railings with rub rails. This Item does not govern the design or construction of bridge substructure, including piers, abutments, and foundations.

2. **Materials.** Use materials that meet the requirements of the following Items:
   - Item 420, "Concrete Substructures"
   - Item 421, "Hydraulic Cement Concrete"
   - Item 434, "Bridge Bearings"
   - Item 440, "Reinforcement for Concrete"
   - Item 441, "Steel Structures"
   - Item 442, "Metal for Structures"
   - Item 447, "Structural Bolting"
   - Item 448, "Structural Field Welding"
   - Item 449, "Anchor Bolts"

   Leave the steel truss surfaces exposed. Provide a Society for Protective Coatings SSPC SP6 cleaning for exposed unpainted self-weathering steel.

3. **Design.** The Contractor is responsible for the structural adequacy of the prefabricated pedestrian truss bridge span design. Submit to the County Engineer details and design calculations bearing the seal of a Licensed Professional Engineer in the State of Texas for review and approval. Include the steel truss span superstructure, bearing devices, anchor bolts, bridge deck, and bridge railing with accessibility handrails when required. Provide at least 28 calendar days' notice before the start of fabrication.

   Design bridges intended for pedestrian, light maintenance vehicle and bicycle traffic in accordance with the latest *AASHTO Guide Specifications for Design of Pedestrian Bridges*, and with the latest *AASHTO Standard Specifications for Highway Bridges*. The County will not grant additional time for rejection or correction of design submissions.

   Design the truss for pedestrian live load, occasional maintenance vehicles, wind load, and load combinations in accordance with the latest edition of the *AASHTO Guide Specifications for Design of Pedestrian Bridges*.

   The pedestrian live load shall be a minimum of 100 psf. For the maintenance vehicle, use a 10,000-lb. AASHTO Standard H Truck (H-5) for clear deck widths from 6 ft. to 10 ft. and a 20,000-lb. AASHTO Standard H Truck (H-10) for clear deck widths over 10 ft.

   Design steel pedestrian rails with steel rub rail to the height specified on the plans and in accordance with the latest AASHTO requirements for railing.

Reinforced concrete bridge deck surfaces shall meet the requirements of Texas Accessibility Standards (TAS) 4.5, "Ground and Floor Surfaces."

4. **Fabrication.** Fabricate the trusses, bearing devices, and other permanent metal components for the steel truss span from unpainted self-weathering steel ASTM A588, A242, or A606 in accordance with "Buy America" requirements and Item 441, "Steel Structures." Dallas County must approve the fabricator prior to beginning work. Approval of the fabricator is based on the following:

   - Obtaining certification by the American Institute of Steel Construction (AISC) Quality Certification Program as a fabrication shop for Major Steel Bridges (CBR),
   - Demonstrating the ability to design and fabricate pedestrian steel truss bridge spans that provide quality workmanship, detailing, structural integrity, and satisfactory aesthetics, and
   - Having readily available access to the services of a licensed professional engineer, experienced in the design of pedestrian steel truss bridge spans.

   Prepare and submit detailed shop drawings for the steel truss span, bearing devices, bridge deck, deck joints, bridge railings, and pedestrian rails with rub rails. Submit 6 complete copies of the shop drawings for review and approval. Give the Engineer at least 28 calendar days to review and approve each shop drawing submittal. Include unique drawings that illustrate specific portions of the work to be done. Clearly show all relevant design information such as member sizes and connections.

5. **Construction.** Erect the bridge and construct the deck in accordance with the following Items:

   - Item 420, "Concrete Substructures"
   - Item 441, "Steel Structures"

   Exposed threads for all bolts shall be deformed after erection to prevent removal.

   Construct bridge deck surfaces that meet the requirements of TAS 4.5, "Ground and Floor Surfaces."

   A load limit sign (5 tons max) shall be installed at each end of the bridge by the manufacturer. The sign shall be included in the bridge shop drawings for County approval.

   Provide a minimum 10-Year Warranty on each prefabricated bridge.

6. **Measurement.** This Item will be measured by each pedestrian truss bridge span delivered to & stored on the job site and in the completed and accepted final position.

7. **Payment.** The work performed and materials furnished in accordance with this Item and measured under "Measurement" will be paid for at the unit price bid for "Pedestrian Bridge-Fabrication, Delivery to Project Site, and Storage" and "Pedestrian Bridge ...- Assembled & Installed" of the length specified (Complete in Place). All access and staging areas required for the bridge construction are incidental to the bridge. It shall be the Contractor's responsibility to gain approval from the appropriate land owner, prepare areas as needed, and restore to equal or better condition upon completion of the project. This price is full compensation for design, fabrication, transport, erection, pedestrian rails with rub rail, and final finishing; and for equipment, labor, tools, and incidentals (Complete in Place).

   The reinforced concrete bridge deck construction will not be measured or paid for under this item but shall be measured and paid for under "Item 422-6002 Reinf Conc Slab".

SPECIAL SPECIFICATION

ITEM DC-5520

RAILING (WITH RUB RAIL)

1. GENERAL

1.1 SUMMARY

A. Section Includes:

1. Shop fabricated railings and handrails.

1.2 REFERENCES

A. American Society for Testing and Materials (ASTM):

1. A 36 - Structural Steel.
2. A 108 - Steel Bars, Carbon, Cold-Finished, Standard Quality.
3. A 123 - Zinc (Hot-Galvanized) Coatings on Products Fabricated from Rolled, Pressed, and Forged Steel Shapes, Plates, Bars and Strips.
4. A 500 - Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes.
5. A 501 - Hot-Formed Welded and Seamless Carbon Steel Structural Tubing.
6. D7803 – Practice for Preparation of Zinc (Hot-Dip Galvanized) Coated Iron and Steel Product and Hardware Surfaces for Powder Coating

B. American Welding Society (AWS) D1.1 - Structural Welding Code - Steel.

C. SSPC – Paint 20 – Zinc-Rich Primers (Type 1, inorganic and Type II, organic); The Society for Protective Coatings; 2002.

1.3 SUBMITTALS

A. Shop Drawings: Show dimensions, metal thicknesses, finishes, joints, attachments, and relationship of work to adjacent construction.

B. Product Data: Manufacturer's data on materials. Include:

1. Product designation and grade of each paint type.
2. Surface preparation materials and procedures.
3. Product analysis and performance characteristics for each paint type.
4. Color charts showing range of color for final selection.

C. Mock-Up

1. Finish surfaces for verification of products, colors, and sheens.
2. Finish approximately one fence panel.
3. Provide mock-up that shows prime and finish coats.
4. Do not proceed with remaining work until the Engineer approves the mock-up samples.

D. Applicator Qualifications:

1. A company whose primary business is painting with documented experience on at least 10 projects of similar nature in past 5 years.
2. Submit written verification showing required qualifications.

1.4 QUALITY ASSURANCE

A. Design Requirements: Minimum design loads:

1. Handrails and railings:
   a. Concentrated lateral force of 200 pounds at any point.
   b. Uniform load of 50 pounds per linear foot applied in any direction.
   c. Maximum deflection under loading: L/120.
2. Concentrated and uniform loads do not need to be applied simultaneously.

2. PRODUCTS

2.1 MATERIALS

A. Steel:

1. Shapes: ASTM A 36.
2. Pipe: ASTM A 501.
3. Tube: ASTM A 500.

2.2 ACCESSORIES

A. Touch up paint for powder coating applied by paint manufacturer.

B. Anchoring Cement: Premixed, cementations based.

2.3 FABRICATION

A. Shop assemble in largest practical pieces.

B. Form metal work to shape and size with sharp lines, angles and arises.

C. Fit joints and intersections accurately.

D. Exposed Components:

1. Fabricate in longest practical lengths. Locate joints symmetrically.
2. Fit adjacent pieces to hairline joints.
3. Miter corners and intersections.

E. Conceal fastenings wherever possible.

F. Welding:

1. AWS D1.1. Use welds for permanent connections where possible. Grind exposed welds smooth.
2. Tack welds prohibited on exposed surfaces.

G. Finish: Powder coating. Color to be selected by owner.

3. EXECUTION

3.1 INSTALLATION

A. Install items in accordance with approved Shop Drawings.

B. Install components plumb, level, and rigid.

C. Welding: AWS D1.1. Grind and fill exposed welds; finish smooth and flush.

D. Install sleeved components with anchoring cement.

3.2 ADJUSTING

A. Clean and touch up powder coating at welded and abraded surfaces.

4. MEASUREMENT AND PAYMENT

4.1 Measurement and payment shall be by the linear foot of the types and sizes of pedestrian rails specified in the plans and details.

Halsey Taylor®
Satisfying Thirsts Since 1912

Bi-Level Endura II™ Tubular Pedestal with Pet Fountain

MODEL 4420DB

This fountain is certified to **NSF/ANSI 61.**

GENERAL
Pedestal, Endura II™ Steel fountain with textured powder-coat finish and E-coat immersion for year-round beauty with minimum maintenance. The E-coat immersion process coats the outside and inside of the fountain for the ultimate in corrosion protection. Contour-formed stainless steel bi-level basins with rounded corners and edges reduce splatter, insure proper drainage and prevent standing waste water. Pet fountain features slow drainage for easy drinking.

Designed to be easily accessible to both physically challenged and able-bodied individuals. Ideally suited for installation in public areas. Model meets state and federal requirements as defined by the Americans with Disabilities Act.

BUBBLER
Vandal-resistant bubbler is one-piece, chrome-plated. Unit has integral hood guard design to prevent contamination from other users, airborne deposits and tampering.

PUSHBUTTON ACTUATION MECHANISM
Self closing, vandal-resistant pushbutton does not require grasping or twisting.

AUTOMATIC STREAM HEIGHT REGULATOR
Self-closing assembly is located inside unit to prevent tampering. Unit resists corrosion and liming. A constant stream height is automatically maintained under line pressures that vary from 20 to 105 psi.

INLET STRAINER
Easily cleaned in-line strainer screen traps particles of 140 microns or larger before they enter the waterway.

WATER INLET
3/8" O.D. Tubing

DRAIN OUTLET
1-1/4" tube outlet for 1-1/4" slip joint connection.

ACCESS PANEL
Manufactured of heavy-gauge steel with vandal-resistant screws. Provides access for easy hook-up of all plumbing connections.

SUGGESTED SPECIFICATIONS
Fountain shall have lower pet fountain and shall include pushbuttons on the front and side. Shall include contour-formed basins to eliminate splashing and standing water, and shall have rounded corners and edges. Projectors shall be chrome-plated vandal-resistant type with integral hood guard and anti-squirt feature. Fountain shall comply with ANSI 117:1 and ADA for visual and motion disabilities. The manufacturer shall certify the unit to meet the requirements of NSF/ANSI 61, and the Safe Drinking Water Act.

Note: Continued product improvement makes specifications subject to change without notice. See Halsey Taylor website for most current spec sheet.

Standard Finish is Evergreen textured powder-coat Endura II™

Each 4420DB consists of 1 carton of the following:
Fountain

Trap and service stop not included.

Shipping weight: 166 lbs.

JOB NAME: _____

_____

_____

ENGINEER/CONTRACTOR NAME:

_____

APPROVAL: _____

DATE: _____

halseytaylor.com
HALSEY TAYLOR, 2222 CAMDEN COURT, OAK BROOK, ILLINOIS 60523

4420DB

Barrier-Free Endura II™ Tubular Pedestal Fountain with Twin Receptors & Pet Fountain

(CONTINUED)

MOUNTING INSTRUCTIONS and PLUMBING CONNECTIONS
Provide solid, well-drained surface to mount pedestal fountain (concrete pad recommended.) (10) ½" anchor bolts (not included) should be attached firmly to mounting surface in order to secure fountain. (Refer to rough-in diagram.)

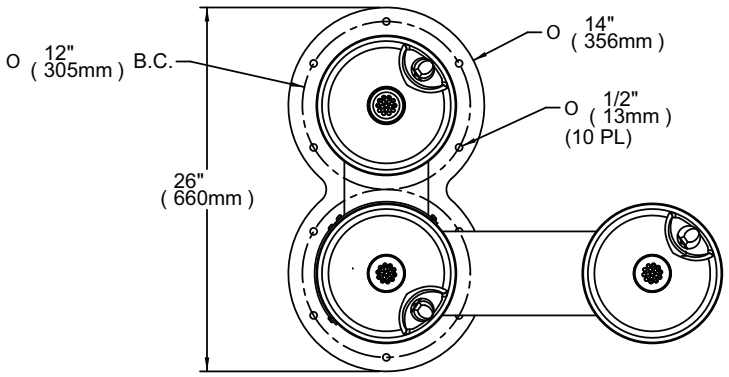
Locate and install plumbing through ground as required. NOTE: Fountain is not furnished with service valve.

Position pedestal over plumbing and secure base to anchor bolts. Remove access panels and connect supply and water lines. Turn on water supply and check for leaks. Stream height is factory set at 45-50 psi. If water pressure varies greatly from this, adjust automatic stream regulator to provide drinking stream approximately 1 1/2" above projector guard. Modified low stream height bubbler for pet fountain. Reassemble access panels to pedestal.

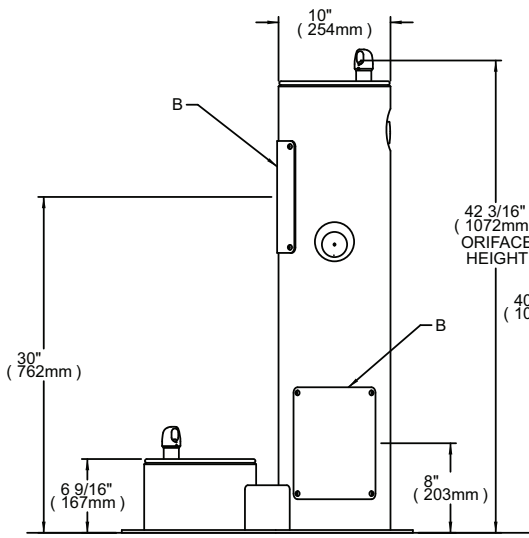
Trap and service stop not included.

OPERATING PRESSURES:
Supply water - 105 psi maximum

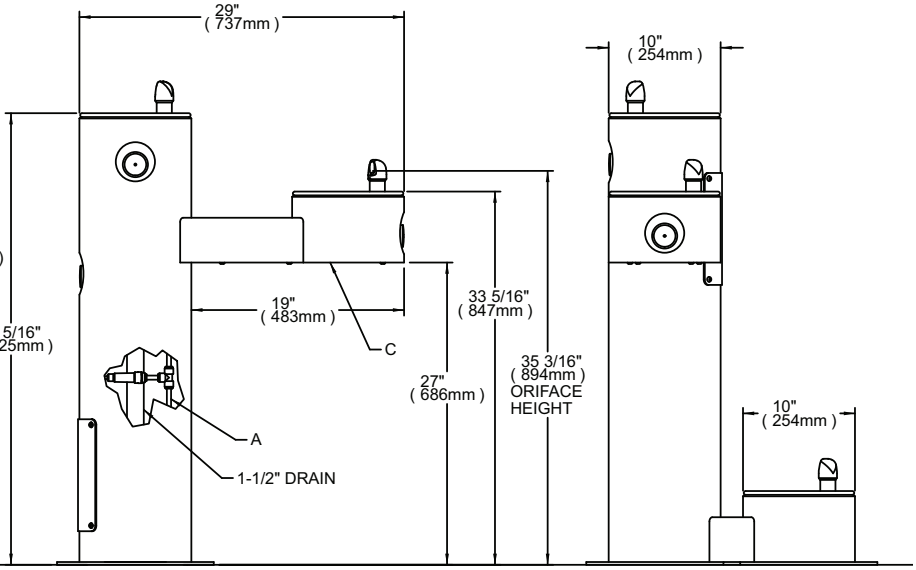
TOP VIEW



BACK VIEW



SIDE VIEW



Halsey Taylor®

Printed in the U.S.A.

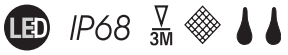
M9410/M9420 QUICK SHIP

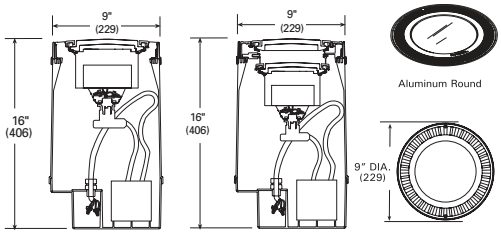
Modular In-Grade Luminaire LED

CATALOG NUMBER	
NOTES	
TYPE	

Specifications

L:	9″ (229 mm)
W:	9″ (229 mm)
H:	16″ (406 mm)





DESCRIPTION

Hydrel's M9410/M9420 Series modular in-grade lights are multi-purpose units designed for uplighting architectural and landscape features. These units can be flush mounted into a variety of substrates or landscape materials.

The M9410/M9420 consists of a factory-sealed lamp module and encapsulated power module. The components are secured inside a heavy-duty polymer rough-in housing designed with channeled convective cooling, an integral junction box, and finish door trim assembly.

ORDERING INFORMATION

EXAMPLE: M9410 A 12LED WHT53K MVOLT NSP FLC 34B LP QS

M9410	A	12LED	WHT53K	MVOLT	NSP
Model	Door Material	Lamp Type	LED Color	Voltage	Distribution
M9410 Round Single **M9420** Round Double	**A** Aluminum	**12LED**	**WHT53K** White	**MVOLT (120-277)**	**NSP** Narrow Spot **MFL** Medium Flood **FL** Flood **WFL** Wide Flood **VWFL** Very Wide Flood (no optics) **HSP** Horizontal Spot **HFL** Horizontal Flood

FLC	34B	LP	QS	
Lens	Conduit Entries	Lamp	Quick Ship	Listing
FLC Flat Lens Clear	**34B** 3/4″ NPT Bottom **25S**[7] Two 25mm Side	**LP** Lamp Included	**QS** Quick Ship	**IEC**[7] International Electrotechnical Commission

Suitable For Wet Locations

Notes:

1 Only for use in 50HZ applications.

M9400 Series Assembly consists of the following individual components parts	MRIS94 Rough-In Housing MFS94 Finishing Section MACS Lamp Module MHSL94 Power Module

NOTE: Hydrel Reserves The Right To Modify Specification Without Notice. Any dimension on this sheet is to be assumed as a reference dimension: "Used for information purposes only. It does not govern manufacturing or inspection requirements." (ANSI Y14.5-1973)

HYDREL

20660 Nordhoff St., Suite B • Chatsworth, CA 91311 • www.hydrel.com
Phone: 866.533.9901 • Fax: 866.533.5291

FEATURES & SPECIFICATIONS

IP68

DOOR MATERIAL: Cast aluminum.

ROUGH-IN SECTION: Injection molded polymer with integral junction box for thru- branch wiring. The housing is U.V. stabilized, impact and corrosion resistant for use in all types of environments. The rough-in has a cylinder configuration and houses the lamp components and top door finishing section.

LAMP MODULE: Stainless steel housing, factory-sealed and purged of all moisture for longer component life. Lens is sealed with silicone gasket and stainless steel clamp band assembly with single fastener. Electrical connection to lamp module is done through a submersible quick pull plug connector with gold-plated contacts. (Lamp Included)

LAMP TYPE: LED: Monochromatic LEDs, 12W (Lamp Included).

VOLTAGE: MVOLT.

LIGHT DISTRIBUTION: See ordering guide.

FINISHING SECTION: Single lens: design includes door assembly with 360° Aim-Lock™ lamp module support ring. Module indexing provides easy maintenance and relamping without re-aiming. Active optical lenses are also available. Door trim locks into position with two stainless steel captive, tamper-resistant fasteners.

Double lens design includes door assembly with 360° Aim-Lock™ module support and tilt ring. Module indexing provides easy maintenance and relamping without re-aiming. Door trim locks into position with two stainless steel captive, tamper-resistant fasteners.

POWER MODULE: LED driver is encapsulated in a custom designed heat-dissipating epoxy resin that also eliminates all moisture intrusion. Module is provided with submersible rated cord leads for connection to integral junction box and lamp module.

CONDUIT ENTRIES: Two (2) bottom or side entries available. Box suitable for through-branch wiring. Splicing volume is 25 in^3 (410 ccm)

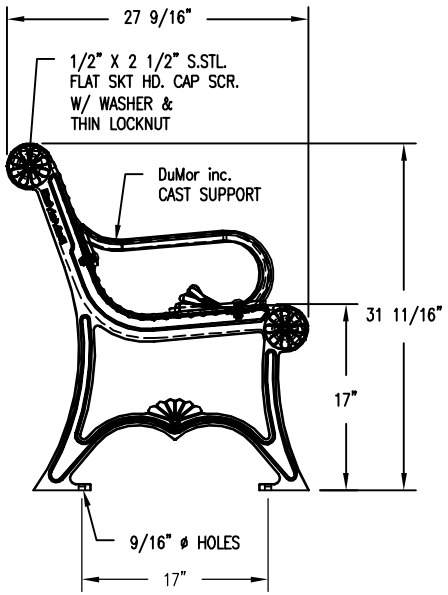
NOTE: Potting compound (PC21) recommended for junction box splices. PC21 sold separately.

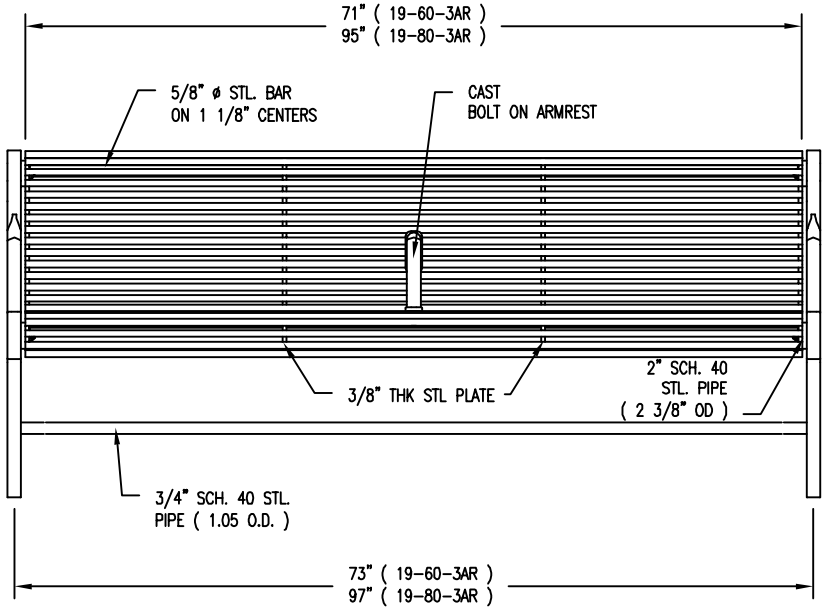
LISTING: U.L., C.U.L., C.E.

HYDREL

20660 Nordhoff St., Suite B • Chatsworth, CA 91311 • www.hydrel.com
Phone: 866.533.9901 • Fax: 866.533.5291

3/31/14
M9410_M9420_LED_MONO_QS

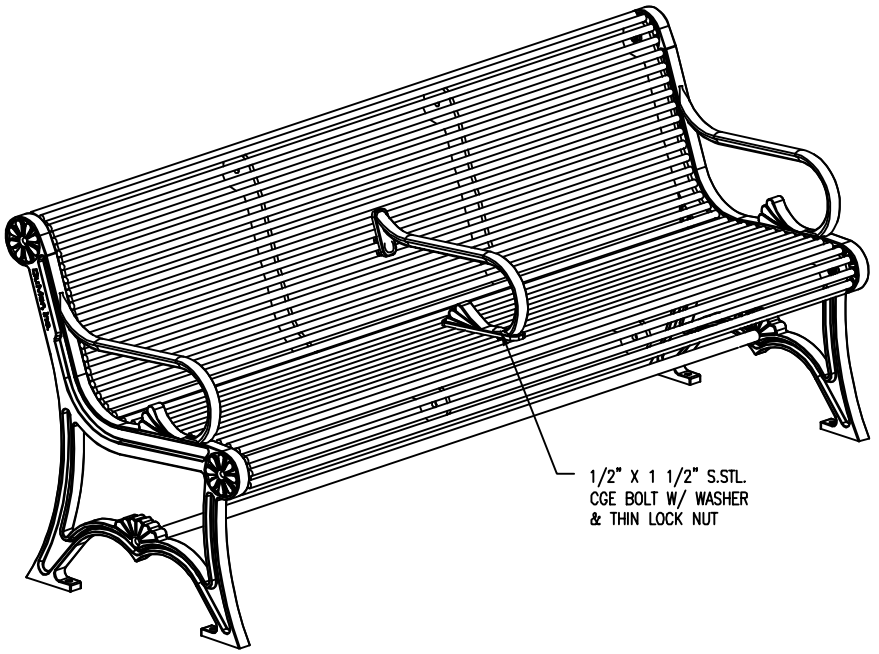




LENGTH OPTIONS

☐ 8' BENCH

☐ CUSTOM LETTERING (37 SPACES) _____



NOTES

1.) ALL STL. MEMBERS COATED W/ ZINC RICH EPOXY THEN POLYESTER POWDER COATED.
2.) CUSTOM LETTERING AVAILABLE FOR RECESSED SIDE PANEL. (37 TOTAL SPACES).
3.) 1/2" X 3 3/4" EXPANSION ANCHOR BOLTS PROVIDED.

DuMor, inc.	BENCH	DATE DRAWN : 12/06/99 DRAWN BY : AWH DATE REV. : 03/14/05 REV. BY : AWH	REV. D	DRAWING NUMBER 19 SERIES-3AR	SHEET 1 OF 2

NOTES:

1.) DURING ASSEMBLY PROCEDURE;
DO NOT COMPLETELY TIGHTEN HARDWARE.

2.) THE ACTUAL PARTS WILL NOT BE NUMBERED.
NUMBERS ONLY APPLY TO DRAWING.

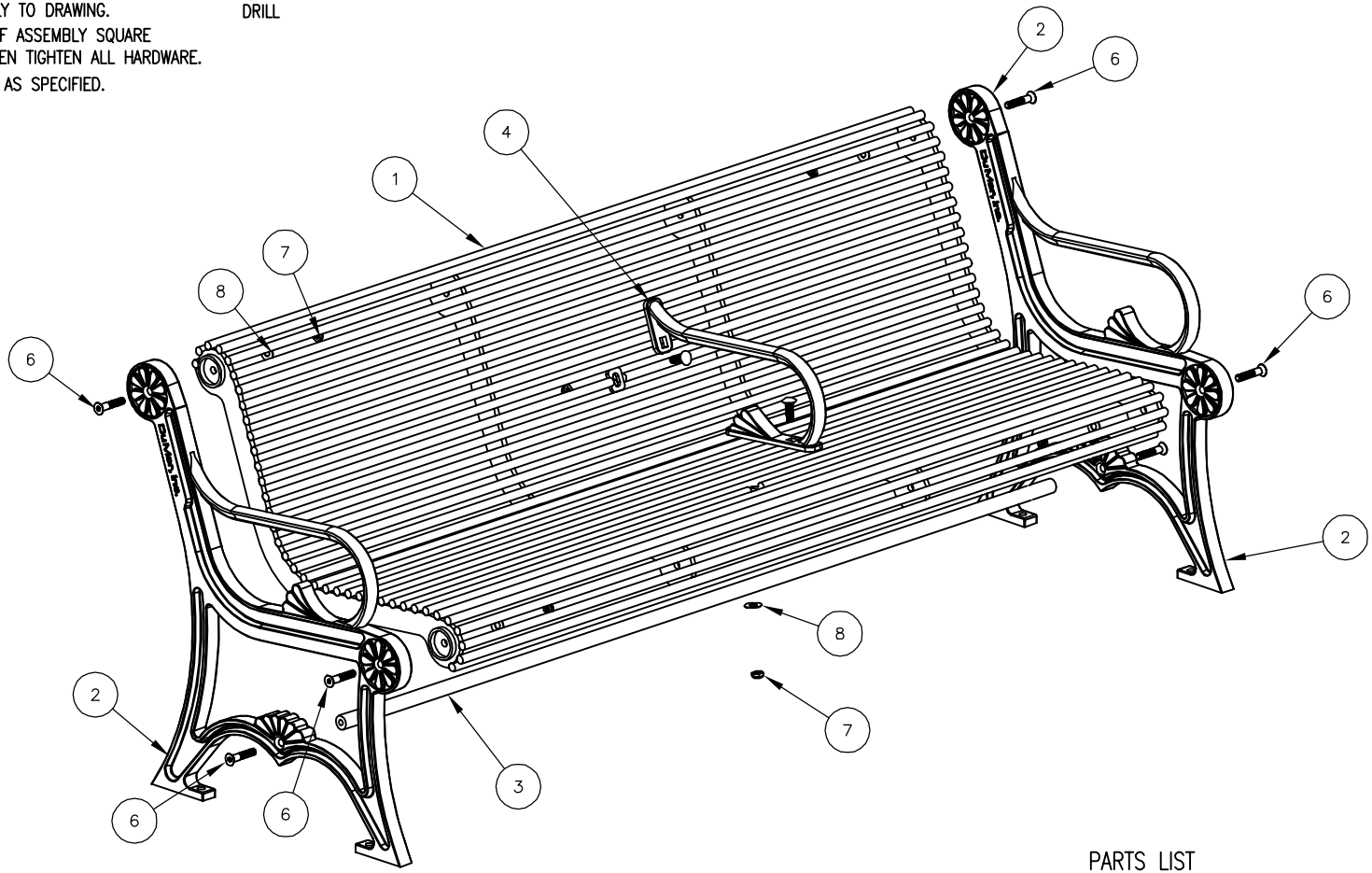
3.) UPON COMPLETION OF ASSEMBLY SQUARE
ALL COMPONENTS THEN TIGHTEN ALL HARDWARE.

4.) MOUNT AND ANCHOR AS SPECIFIED.

TOOLS REQ'D

3/4" WRENCH
5/16" ALLEN WRENCH
1/2" MASONRY DRILL BIT
DRILL

(1) ATTACH PIPE BRACE TO SUPPORTS, ATTACH SEAT TO SUPPORTS. ATTACH ARMREST.



PARTS LIST

ITEM	QTY	PART NO	DESCRIPTION
1	1	0-19-60-3AR-01	6' STL SEAT FOR 1 ARMREST
2	2	0-57-00-02	CAST IRON BENCH SUPPORT
3	1	0-57-60-04	71 3/4" PIPE BRACE
4	1	0-58-00AR-03	CAST IRON BOLT ON ARMREST
5	2	1-11-042	1/2" X 1 1/2" SS CGE BOLT
6	6	1-12-065	1/2" X 2 1/2" FLT SKT HD CAP SCR
7	6	1-20-018	1/2" SS THIN NYLON LOCKNUT
8	6	1-22-015	1/2" SS FLAT WASHER
9	1	K-ANC0860-4	1/2" X 3 3/4" SS ANCHOR KIT (4PC)

KITS PROVIDED

ITEM	QTY	PART NO	DESCRIPTION
10	1	K-CG0824-2TL	1/2" CGE BOLT HARDWARE KIT (2PC)
11	1	K-FC0840-6	1/2" CAP HARDWARE KIT (6PC)
12	1	K-TLNUT08-4	1/2" THIN LOCK NUT HARDWARE KIT (4PC)

DuMor, inc.

ASSEMBLY INSTRUCTIONS

DATE DRAWN : 10/03/08
DRAWN BY : JSB
DATE REV. : 00/00/00
REV. BY : XXX

REV. A

DRAWING NUMBER 19 SERIES-3AR

SHEET 2 OF 2

KAD LED
LED Area Luminaire

Catalog Number

Notes

Type

Hit the Tab key or mouse over the page to see all interactive elements.

Specifications

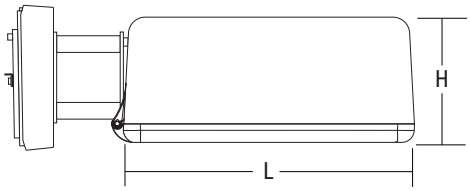
EPA: 1.2 ft² *(0.11 m²)*

Length: 17-1/2" *(44.5 cm)*

Width: 17-1/2" *(44.5 cm)*

Height: 7-1/8" *(18.1 cm)*

Weight (max): 36 lbs. *(16.4 kg)*



A+ Capable Luminaire

This item is an A+ capable luminaire, which has been designed and tested to provide consistent color appearance and system-level interoperability.

- All configurations of this luminaire meet the Acuity Brands' specification for chromatic consistency
- This luminaire is A+ Certified when ordered with DTL® controls marked by a shaded background. DTL DLL equipped luminaires meet the A+ specification for luminaire to photocontrol interoperability1
- This luminaire is part of an A+ Certified solution for ROAM®2 control networks, providing out-of-the-box control compatibility with simple commissioning, when ordered with drivers and control options marked by a shaded background[1]

To learn more about A+, visit www.acuitybrands.com/aplus.

1. See ordering tree for details.
2. A+ Certified Solutions for ROAM require the order of one ROAM node per luminaire. Sold Separately: Link to Roam; Link to DTL DLL

A+ Capable options indicated by this color background.

Ordering Information

EXAMPLE: KAD LED 40C 1000 40K R5 MVOLT SPD04 DDBXD

KAD LED

Series	LEDs	Drive current	CCT	Distribution	Voltage	Mounting[3]
KAD LED	20C[1] 20 LEDs 30C[1] 30 LEDs 40C 40 LEDs 60C 60 LEDs	530 530 mA[1] 700 700 mA 1000 1000 mA	30K 3000 K 40K 4000 K 50K 5000 K	R2 Type II R3 Type III R4 Type IV R5 Type V[2]	MVOLT[3] 277[4] 120[4] 347[1,3] 208[4,5] 480[1,3] 240[4,5]	**Shipped included** SPUMBAK___ Square pole universal mounting adaptor[6] RPUMBAK___ Round pole universal mounting adaptor[6] SPD___ Square pole RPD___ Round pole WWD___ Wood pole or wall 04 4" arm 09 9" arm[5] 12 12" arm[6] **Shipped separately** DAD12P Degree arm (pole) DAD12WB Degree arm (wall) KMA Mast arm external fitter

Options

Shipped installed

PER5	NEMA twist-lock five-wire receptacle only (no controls)[7,8,9]
PER7	Seven-wire receptacle only (no controls)[7,8,9]
SF	Single fuse (120, 277, 347V)[4]
DF	Double fuse (208, 240, 480V)[4]
PIR	Bi-level, motion/ambient sensor, 8-15' mounting height, ambient sensor enabled at 5fc[3,10,11,12,13]
PIRH	Bi-level, motion/ambient sensor, 15-30' mounting height, ambient sensor enabled at 5fc[3,10,11,12,13]
PIR1FC3V	Bi-level, motion/ambient sensor, 8-15' mounting height, ambient sensor enabled at 1fc[3,10,11,12,13]
PIRH1FC3V	Bi-level, motion/ambient sensor, 15-30' mounting height, ambient sensor enabled at 1fc[3,10,11,12,13]
BL30	Bi-level switched dimming, 30%[3,9,10,11]
BL50	Bi-level switched dimming, 50%[3,9,10,11]
HS	Houseside shield[16]

Finish *(required)*

DDBXD	Dark bronze	DDBTXD	Textured dark bronze
DBLXD	Black	DBLBXD	Textured black
DNAXD	Natural aluminum	DNATXD	Textured natural aluminum
DWHXD	White	DWHGXD	Textured white

Ordering Information

Accessories

Ordered and shipped separately.

DLL127F 1.5 JU	Photocell - SSL twist-lock (120-277V) [17]
DLL347F 1.5 CUL JU	Photocell - SSL twist-lock (347V) [17]
DLL480F 1.5 CUL JU	Photocell - SSL twist-lock (480V) [17]
DSHORT SBK U	Shorting cap [17]
KADLEDHS 20C U	Houseside shield for 20 LED unit
KADLEDHS 30C U	Houseside shield for 30 LED unit
KADLEDHS 40C U	Houseside shield for 40 LED unit
KADLEDHS 60C U	Houseside shield for 60 LED unit
KMA DDBXD U	Mast arm adapter (specify finish)
PUMBAK DDBXD U*	Square and round pole universal mounting bracket adaptor (specify finish)

For more control options, visit DTL and ROAM online.

**Round pole top must be 3.25" O.D. minimum.*

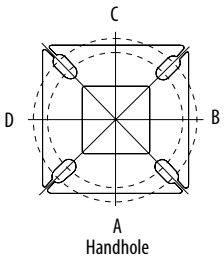
NOTES

1 20C or 30C LED are not available with 530 Drive Current and 347V or 480V.
2 Any Type 5 distribution, is not available with WBA.
3 Any PIRx with BL30, BL50, is not available with 208V,240V, 347V, 480V or MVOLT. It is only available in 120V or 277V specified.
4 MVOLT driver operates on any line voltage from 120-277V (50/60 Hz). Single fuse (SF) requires 120, 277 or 347 voltage option. Double fuse (DF) requires 208, 240 or 480 voltage option.
5 9" or 12" arm is required when two or more luminaires are oriented on a 90° drilling pattern.
6 Available as a separate combination accessory: PUMBAK (finish) U.
7 Mounting must be restricted to ±45° from horizontal aim per ANSI C136.10-2010. Not available with motion sensor.
8 Photocell ordered and shipped as a separate line item from Acuity Brands Controls. See accessories. Not available with DS option. Shorting cap included.
9 If ROAM® node required, it must be ordered and shipped as a separate line item from Acuity Brands Controls. Not available with DCR. Node with integral dimming. Shorting cap included.
10 PIR and PIR1FC3V specify the SensorSwitch SBGR-10-ODP control; PIRH and PIRH1FC3V specify the SensorSwitch SBGR-6-ODP control. Dimming driver standard. Not available with PER5 or PER7.
11 Maximum ambient temperature with 347V or 480V is 30°C.
12 Reference Motion Sensor table.
13 Reference PER table on page 3 to see functionality.
14 Requires an additional switched circuit with same phase as main luminaire power. Supply circuit and control circuit are required to be in the same phase.
15 Dimming driver standard. MVOLT only. Not available with 347V, 480V, PER5, PER7 or PNMT options.
16 Also available as a separate accessory; see Accessories information.
17 Requires luminaire to be specified with PER option. Ordered and shipped as a separate line item from Acuity Brands Controls.

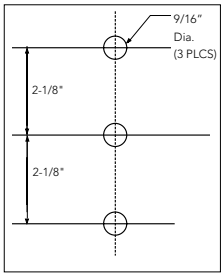
Drilling

Template #5

HANDHOLE ORIENTATION



Top of Pole



Tenon Mounting Slipfitter**

Tenon O.D.	Single Unit	2 at 180°	2 at 90° †	3 at 120°	3 at 90° †	4 at 90° †
2-3/8"	T20-190	T20-280	T20-290	T20-320 †	T20-390	T20-490
2-7/8"	T25-190	T25-280	T25-290	T25-320	T25-390	T25-490
4"	T35-190	T35-280	T35-290	T35-320	T35-390	T35-490

*** For round pole mounting (RPDXX) only.* *† Requires 9" or 12" arm.*

Pole drilling nomenclature: # of heads at degree from handhole (default side A)				
DM19	DM28	DM29	DM39	DM49
1 @ 90°	2 @ 280°	2 @ 90°	3 @ 90°	4 @ 90°
Side B	Side B & D	Side B & C	Side B, C, & D	Sides A, B, C, D
Note: Review luminaire spec sheet for specific nomenclature				

Performance Data

Lumen Output

Lumen values are from photometric tests performed in accordance with IESNA LM-79-08. Data is considered to be representative of the configurations shown, within the tolerances allowed by Lighting Facts. Contact factory for performance data on any configurations not shown here.

LEDs	Drive Current (mA)	System Watts	Dist. Type	30K (3000 K, 70 CRI)					40K (4000 K, 70 CRI)					50K (5000 K, 70 CRI)				
				Lumens	B	U	G	LPW	Lumens	B	U	G	LPW	Lumens	B	U	G	LPW
20C	530 mA	35W	R2	4,140	1	0	1	118	4,446	1	0	1	127	4,473	1	0	1	128
			R3	4,123	1	0	1	118	4,427	1	0	1	126	4,455	1	0	1	127
			R4	4,128	1	0	1	118	4,433	1	0	1	127	4,460	1	0	1	127
			R5	4,381	2	0	1	125	4,704	3	0	1	134	4,734	3	0	1	135
	700 mA	45W	R2	5,271	1	0	1	117	5,660	1	0	1	126	5,696	1	0	2	127
			R3	5,250	1	0	2	117	5,637	1	0	2	125	5,672	1	0	2	126
			R4	5,256	1	0	2	117	5,644	1	0	2	125	5,679	1	0	2	126
			R5	5,578	3	0	1	124	5,990	3	0	1	133	6,027	3	0	1	134
	1000 mA	73W	R2	7,344	1	0	2	101	7,886	2	0	2	108	7,935	2	0	2	109
			R3	7,314	1	0	2	100	7,854	1	0	2	108	7,903	1	0	2	108
			R4	7,322	1	0	2	100	7,863	1	0	2	108	7,912	1	0	2	108
			R5	7,771	3	0	1	106	8,345	3	0	1	114	8,397	3	0	1	115
30C	530 mA	53W	R2	6,166	1	0	2	116	6,621	1	0	2	125	6,663	1	0	2	126
			R3	6,141	1	0	2	116	6,594	1	0	2	124	6,635	1	0	2	125
			R4	6,148	1	0	2	116	6,602	1	0	2	125	6,643	1	0	2	125
			R5	6,525	3	0	1	123	7,006	3	0	1	132	7,050	3	0	1	133
	700 mA	69W	R2	7,817	2	0	2	113	8,395	2	0	2	122	8,447	2	0	2	122
			R3	7,785	1	0	2	113	8,360	2	0	2	121	8,412	2	0	2	122
			R4	7,794	1	0	2	113	8,370	1	0	2	121	8,422	1	0	2	122
			R5	8,272	3	0	2	120	8,883	3	0	2	129	8,938	3	0	2	130
	1000 mA	108W	R2	10,755	2	0	2	100	11,549	2	0	2	107	11,621	2	0	2	108
			R3	10,711	2	0	2	99	11,502	2	0	2	106	11,574	2	0	2	107
			R4	10,724	2	0	2	99	11,515	2	0	2	107	11,587	2	0	2	107
			R5	11,381	3	0	2	105	12,221	4	0	2	113	12,297	4	0	2	114
40C	530 mA	71W	R2	8,156	2	0	2	115	8,758	2	0	2	123	8,812	2	0	2	124
			R3	8,122	2	0	2	114	8,722	2	0	2	123	8,776	2	0	2	124
			R4	8,132	1	0	2	115	8,732	1	0	2	123	8,786	1	0	2	124
			R5	8,630	3	0	2	122	9,267	3	0	2	131	9,325	3	0	2	131
	700 mA	94W	R2	10,286	2	0	2	109	11,045	2	0	2	118	11,114	2	0	2	118
			R3	10,244	2	0	2	109	11,000	2	0	2	117	11,069	2	0	2	118
			R4	10,256	2	0	2	109	11,013	2	0	2	117	11,081	2	0	2	118
			R5	10,884	3	0	2	116	11,688	4	0	2	124	11,761	4	0	2	125
	1000 mA	141W	R2	13,923	2	0	2	99	14,951	2	0	2	106	15,045	2	0	2	107
			R3	13,866	2	0	3	98	14,890	2	0	3	106	14,983	2	0	3	106
			R4	13,882	2	0	3	98	14,907	2	0	3	106	15,000	2	0	3	106
			R5	14,733	4	0	2	104	15,821	4	0	2	112	15,920	4	0	2	113
60C	530 mA	103W	R2	11,996	2	0	2	116	12,882	2	0	2	125	12,963	2	0	2	126
			R3	11,947	2	0	2	116	12,829	2	0	2	125	12,909	2	0	2	125
			R4	11,961	2	0	2	116	12,844	2	0	2	125	12,925	2	0	2	125
			R5	12,694	4	0	2	123	13,632	4	0	2	132	13,717	4	0	2	133
	700 mA	137W	R2	14,927	2	0	2	109	16,029	3	0	3	117	16,130	3	0	3	118
			R3	14,866	2	0	3	109	15,964	2	0	3	117	16,063	2	0	3	117
			R4	14,884	2	0	2	109	15,982	2	0	3	117	16,082	2	0	3	117
			R5	15,796	4	0	2	115	16,962	4	0	2	124	17,068	4	0	2	125
	1000 mA	216W	R2	19,328	3	0	3	89	20,754	3	0	3	96	20,884	3	0	3	97
			R3	19,248	3	0	3	89	20,669	3	0	4	96	20,799	3	0	4	96
			R4	19,271	3	0	3	89	20,693	3	0	4	96	20,823	3	0	4	96
			R5	20,452	4	0	2	95	21,962	4	0	2	102	22,099	4	0	2	102

Performance Data

Lumen Ambient Temperature (LAT) Multipliers

Use these factors to determine relative lumen output for average ambient temperatures from 0-40°C (32-104°F).

Ambient		Lumen Multiplier
0°C	32°F	1.02
10°C	50°F	1.01
20°C	68°F	1.00
25°C	**77°F**	**1.00**
30°C	86°F	1.00
40°C	104°F	0.99

Projected LED Lumen Maintenance

Data references the extrapolated performance projections for the **KAD LED** platform in a **25°C ambient**, based on 10,000 hours of LED testing (tested per IESNA LM-80-08 and projected per IESNA TM-21-11).

To calculate LLF, use the lumen maintenance factor that corresponds to the desired number of operating hours below. For other lumen maintenance values, contact factory.

Operating Hours	0	25,000	50,000	100,000
Lumen Maintenance Factor	KAD LED 60C 1000			
	1.0	0.91	0.86	0.76
	KAD LED 40C 1000			
	1.0	0.93	0.88	0.79
	KAD LED 60C 700			
	1.0	0.98	0.97	0.94

Electrical Load

			Current (A)					
Number of LEDs	Drive Current (mA)	System Watts	120	208	240	277	347	480
20	530	35	0.30	0.18	0.16	0.15	-	-
	700	45	0.39	0.23	0.20	0.18	0.15	0.12
	1000	73	0.61	0.35	0.31	0.27	0.22	0.17
30	530	53	0.44	0.26	0.23	0.20	-	-
	700	69	0.58	0.34	0.29	0.26	0.21	0.16
	1000	108	0.90	0.52	0.46	0.40	0.32	0.24
40	530	71	0.60	0.35	0.32	0.29	0.21	0.16
	700	94	0.79	0.46	0.41	0.36	0.27	0.20
	1000	141	1.18	0.68	0.59	0.52	0.42	0.30
60	530	103	0.87	0.50	0.44	0.39	0.29	0.22
	700	137	1.15	0.66	0.58	0.51	0.40	0.29
	1000	216	1.81	1.04	0.92	0.81	0.63	0.47

NOTE: All ratings in this table are for a nominal system operated at 25°C ambient temperature. Current and power specifications in this table do not include branch circuit derating specified in the National Electrical Code. Please observe all applicable electrical codes and ratings.

Motion Sensor Default Settings						
Option	Dimmed State	High Level (when triggered)	Photocell Operation	Dwell Time	Ramp-up Time	Ramp-down Time
PIR or PIRH	3V (37%) Output	10V (100%) Output	Enabled @ 5FC	5 min	3 sec	5 min
*PIR1FC3V or PIRH1FC3V	3V (37%) Output	10V (100%) Output	Enabled @ 1FC	5 min	3 sec	5 min
*For use when motion sensor is used as dusk to dawn control						

PER Table						
Control	PER (3 wire)	PER5 (5 wire)		PER7 (7 wire)		
			Wire 4/Wire5		Wire 4/Wire5	Wire 6/Wire7
Photocontrol Only (On/Off)	✔	⚠	Wired to dimming leads on driver	⚠	Wired to dimming leads on driver	Wires Capped inside fixture
ROAM	⊘	✔	Wired to dimming leads on driver	⚠	Wired to dimming leads on driver	Wires Capped inside fixture
ROAM with Motion (ROAM on/off only)	⊘	⚠	Wires Capped inside fixture	⚠	Wires Capped inside fixture	Wires Capped inside fixture
Future-proof*	⊘	⚠	Wired to dimming leads on driver	✔	Wired to dimming leads on driver	Wires Capped inside fixture
Future-proof* with Motion	⊘	⚠	Wires Capped inside fixture	✔	Wires Capped inside fixture	Wires Capped inside fixture

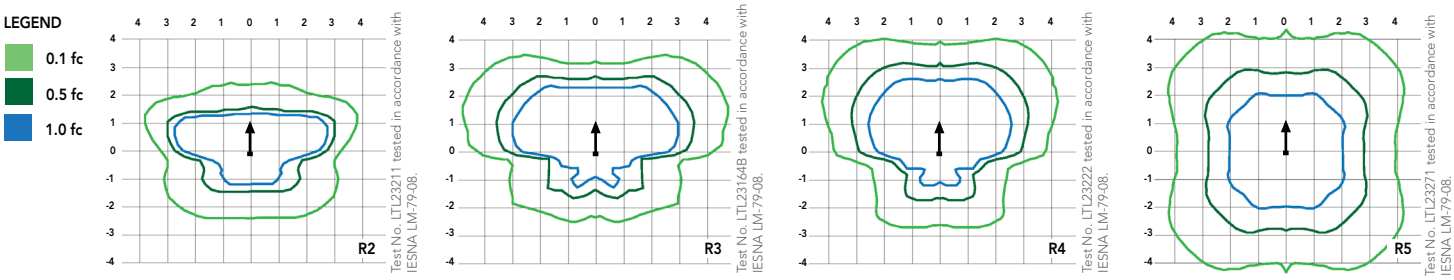
✔ Recommended
⊘ Will not work
⚠ Alternate

*Future-proof means: Ability to change controls in the future.

Photometric Diagrams

To see complete photometric reports or download .ies files for this product, visit Lithonia Lighting's KAD LED homepage.

Isofootcandle plots for the KAD LED 60C 1000 40K. Distances are in units of mounting height (20').



FEATURES & SPECIFICATIONS

INTENDED USE
The energy savings and long life of the KAD LED area luminaire make it a reliable choice for illuminating streets, walkways, parking lots, and surrounding areas.

CONSTRUCTION
Single-piece die-cast, aluminum housing with contoured edges has a 0.12" nominal wall thickness. Die-cast door frame has an impact-resistant, tempered glass lens that is fully gasketed with one piece tubular silicone.

FINISH
Exterior parts are protected by a zinc-infused Super Durable TGIC thermoset powder coat finish that provides superior resistance to corrosion and weathering. A tightly controlled multi-stage process ensures a minimum 3 mils thickness for a finish that can withstand extreme climate changes without cracking or peeling.

OPTICS
Precision-molded refractive acrylic lenses are available in four distributions. Light engines are available in standard 4000K, 3000K or 5000K (70 CRI) configurations.

ELECTRICAL
Light engine consists of high-efficacy LEDs mounted to a metal-core circuit board and aluminum heat sink, ensuring optimal thermal management and long life. Class 1 electronic driver has a power factor >90%, THD <20%, and has an expected life of 100,000 hours with <1% failure rate. Easily-serviceable surge protection device meets a minimum Category C Low (per ANSI/IEEE C62.41.2).

INSTALLATION
Included universal mounting block and extruded aluminum arm facilitate quick and easy installation using nearly any existing drilling pattern. Stainless steel bolts fasten the luminaire to the mounting block securing it to poles or walls. The KAD LED can withstand up to a 1.5 G vibration load rating per ANSI C136.31. The KAD LED also utilizes the standard K-Series (Template #5) for pole drilling.

LISTINGS
CSA certified to U.S. and Canadian standards. Luminaire is IP65 rated. Rated for -40°C minimum ambient.

BUY AMERICAN ACT
This product is assembled in the USA and meets the Buy America(n) government procurement requirements under FAR, DFARS and DOT regulations.
Please refer to www.acuitybrands.com/resources/buy-american for additional information.

WARRANTY
5-year limited warranty. This is the only warranty provided and no other statements in this specification sheet create any warranty of any kind. All other express and implied warranties are disclaimed. Complete warranty terms located at:
www.acuitybrands.com/support/warranty/terms-and-conditions

Note: Actual performance may differ as a result of end-user environment and application. All values are design or typical values, measured under laboratory conditions at 25 °C. Specifications subject to change without notice.

ODEN LED Specifications

Project Name:

Catalog Number:

Type:

With six interchangeable caps and spun shade styles, the **Oden - LED** offers architects, designers and engineers endless possibilities for a custom fixture to fit their unique application.

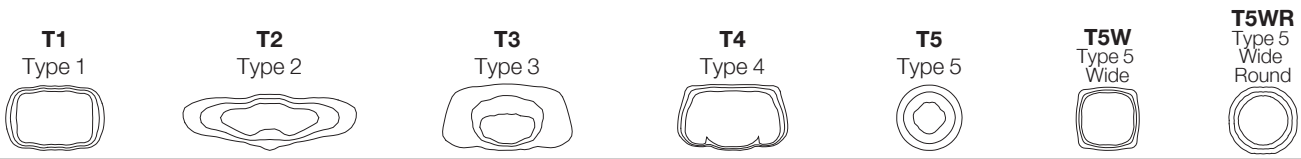
The **Oden - LED Array**'s high-quality, durable construction makes it an ideal fixture for any application.

Ordering Information

MODEL	OPTICS	LEDs	CURRENT	KELVIN	VOLTAGE	MOUNTING	FINISH	CAP/SHADE	OPTIONS	OPTIONS
ODN-1-L	**T1** Type 1	**16LC**	**3** 350mA	**3K** 3000K	**UNV** 120-277V	**YM** Yoke Mount *Slips over 3"ØD tenon × 4" tall with special threaded mounting plate.	**BZ** Bronze	**C1**	**PC-120** **PC-208** **PC-240** **PC-277** Photocell & Receptacle	**DIM** 0-10v Dimming Driver
	T2 Type 2	**32LC**	**5** 530mA	**4K** 4000K	**8** 347V		**WB** Weathered Brown	**C2**	**WSC-8** Motion Sensor 8' Mounting Height	**VWC** Visionaire Wireless Controls *Consult Factory
	T3 Type 3	**48LC**	**7** 700mA	**5K** 5000K	**5** 480V	**UAM** Arm Mount *Decorative arm not included	**BK** Black	**C3**	**WSC-20** Motion Sensor 9-20' Mounting Height	**IR-R** Illuminated Rings Red
ODN-2-L	**T4** Type 4	**48LC**				See decorative arm section for arm mount options	**SBK** Smooth Black	**C4**	**WSC-40** Motion Sensor 21-40' Mounting Height *The WSC option will require (1) FSIR 100 remote for programing	**IR-B** Illuminated Rings Blue
	T5 Type 5	**64LC**				ODN uses small arm. ODN-2 & ODN-3 uses large arm	**WH** White	**C5**		**IR-G** Illuminated Rings Green
	T5W Type 5 Wide	**80LC**					**SWH** Smooth White	**C6**		**CLS** Cutoff Louver Shield
ODN-3-L	**T5WR** Type 5 Wide Round	**96LC**					**GP** Graphite	**H1**		
		128LC					**GY** Grey	**H2**		
							SL Silver Metallic	**H3**		
							FG Forest Green	**H4**		
							VD Verdigris	**H5**		
							CC Custom Color	**H6**		

ODEN LED Specifications

Photometric Optical Summary

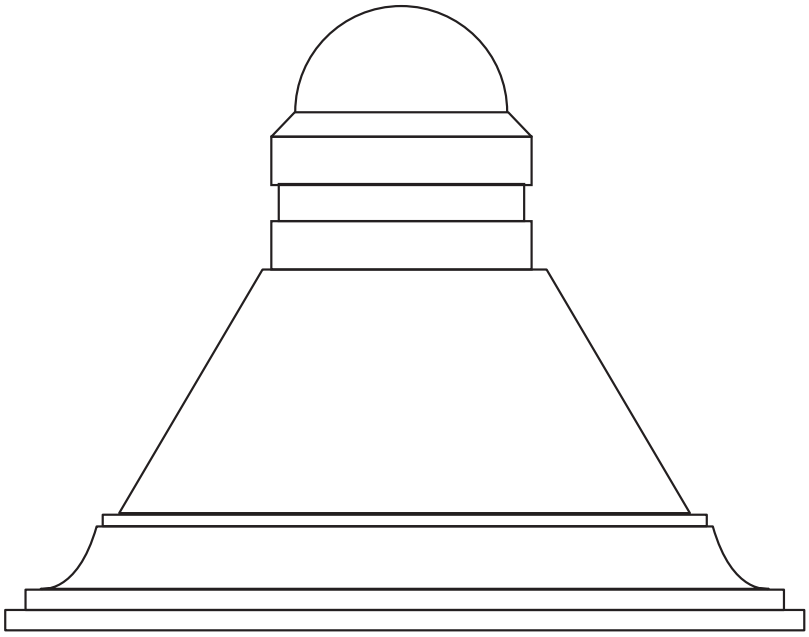


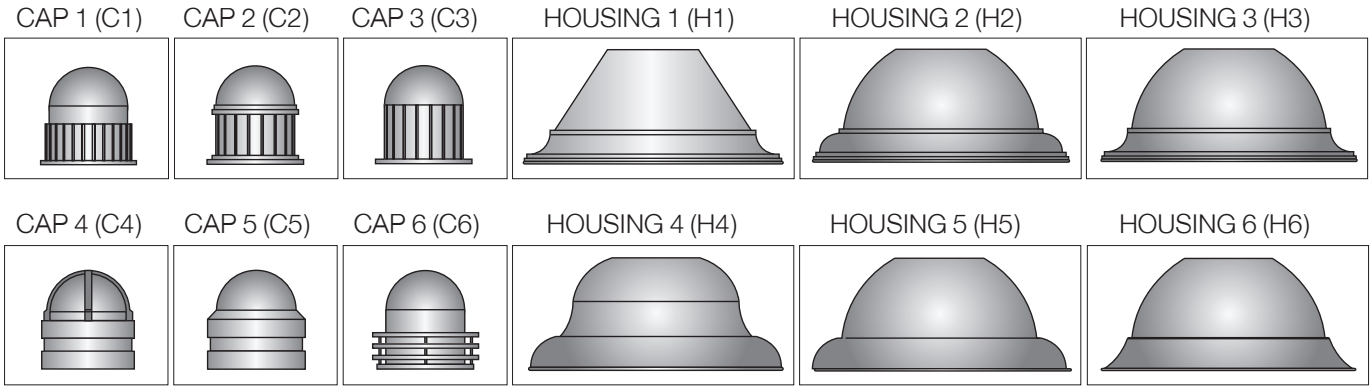
EPA Data

Fixture	Fixture Only	Fixture with VA110-S1	2 Fixtures with VA110-D2	Fixture with VA107-S1	2 Fixtures with VA107-D2
ODN-1	1.2	2.2	4.1	3.5	5.6
ODN-2	2.6	3.6	6.6	4.9	8.3
ODN-3	3.5	4.5	8.6	5.8	9.8

Dimensions

Size 1		Size 2		Size 3	
Width:	ODN-1 20”	**Width:**	ODN-2 25”	**Width:**	ODN-3 30”
Height:	ODN-1 19.5”	**Height:**	ODN-2 22.5”	**Height:**	ODN-3 24”
Weight:	40 LBS	**Weight:**	53 LBS	**Weight:**	74 LBS





VISIONAIRE LIGHTING

LED Specifications ODEN

ODEN DATA																															
	# LEDs	mA	Type 1	B	U	G	LPW	Type 2	B	U	G	LPW	Type 3	B	U	G	LPW	Type 4	B	U	G	LPW	Type 5	B	U	G	LPW	Type 5W	B	U	G	LPW	Watts
ODN-1	16	350	2561	1	0	1	142	2399	1	0	1	133	2443	1	0	1	136	2288	1	0	1	127	2568	1	0	1	143	2486	2	0	1	138	18
		530	3665	2	0	2	134	3433	1	0	1	126	3496	1	0	1	128	3275	1	0	1	120	3675	2	0	1	134	3558	2	0	1	130	27
		700	4572	2	0	2	124	4283	1	0	2	116	4361	1	0	1	118	4085	1	0	1	110	4585	2	0	1	124	4438	2	0	1	120	37
	32	350	4875	2	0	2	135	4566	1	0	2	127	4649	1	0	1	129	4355	1	0	1	121	4888	2	0	1	136	4732	3	0	1	131	36
		530	7225	3	0	3	132	6767	2	0	2	124	6891	1	0	1	126	6455	1	0	2	118	7245	3	0	1	133	7013	3	0	1	128	55
		700	9013	3	0	3	129	8442	2	0	2	121	8596	1	0	2	123	8053	2	0	2	115	9037	3	0	1	129	8748	3	0	2	125	70
	48	350	7701	3	0	3	144	7213	2	0	2	135	7345	1	0	1	137	6880	1	0	2	129	7722	3	0	1	144	7474	3	0	1	140	54
		530	11414	3	0	3	139	10690	2	0	3	130	10886	2	0	2	133	10198	2	0	2	124	11445	3	0	1	140	11078	3	0	2	135	82
		700	14237	3	0	3	133	13335	3	0	3	125	13580	2	0	2	127	12721	2	0	2	119	14276	3	0	2	133	13819	4	0	2	129	107
ODN-2	48	350	7701	3	0	3	144	7213	2	0	2	135	7345	1	0	1	137	6880	1	0	2	129	7722	3	0	1	144	7474	3	0	1	140	54
		530	11414	3	0	3	139	10690	2	0	3	130	10886	2	0	2	133	10198	2	0	2	124	11445	3	0	1	140	11078	3	0	2	135	82
		700	14237	3	0	3	133	13335	3	0	3	125	13580	2	0	2	127	12721	2	0	2	119	14276	3	0	2	133	13819	4	0	2	129	107
	64	350	10058	3	0	3	140	9421	2	0	3	131	9593	2	0	2	133	8986	2	0	2	125	10085	3	0	1	140	9763	3	0	2	136	72
		530	14224	3	0	3	135	13323	3	0	3	127	13567	2	0	2	129	12709	2	0	2	121	14263	3	0	2	136	13807	4	0	2	131	105
		700	17919	4	0	4	128	16784	3	0	3	120	17091	2	0	2	122	16011	3	0	3	114	17969	4	0	2	128	17393	4	0	2	124	140
	80	350	12294	3	0	3	138	11515	3	0	3	129	11726	2	0	2	132	10984	2	0	2	123	12328	3	0	2	139	11933	4	0	2	134	89
		530	17187	3	0	3	132	16098	3	0	3	124	16393	2	0	2	126	15356	3	0	3	118	17234	4	0	2	133	16683	4	0	2	128	130
		700	21635	4	0	4	122	20265	3	0	4	114	20636	3	0	3	117	19331	3	0	3	109	21695	4	0	2	123	21000	4	0	2	119	177
	96	350	14832	3	0	3	136	13892	3	0	3	127	14146	2	0	2	130	13252	2	0	2	122	14872	3	0	2	136	14396	4	0	2	132	109
		530	21334	4	0	4	133	19982	3	0	3	125	20348	3	0	3	127	19061	3	0	3	119	21392	4	0	2	134	20707	4	0	2	129	160
		700	26644	4	0	4	127	24956	3	0	4	119	25412	3	0	3	121	23805	3	0	3	113	26717	4	0	2	127	25861	5	0	3	123	210
ODN-3	96	350	14832	3	0	3	136	13892	3	0	3	127	14146	2	0	2	130	13252	2	0	2	122	14872	3	0	2	136	14396	4	0	2	132	109
		530	21334	4	0	4	133	19982	3	0	3	125	20348	3	0	3	127	19061	3	0	3	119	21392	4	0	2	134	20707	4	0	2	129	160
		700	26644	4	0	4	127	24956	3	0	4	119	25412	3	0	3	121	23805	3	0	3	113	26717	4	0	2	127	25861	5	0	3	123	210
	128	350	18258	4	0	4	127	17101	3	0	3	119	17415	2	0	2	121	16313	3	0	3	113	18308	4	0	2	127	17722	4	0	2	123	144
		530	25821	4	0	4	123	24186	3	0	4	115	24628	3	0	3	117	23071	3	0	3	110	25892	4	0	2	123	25063	5	0	3	119	210
		700	32530	5	0	4	119	30469	4	0	5	111	31026	3	0	4	113	29064	3	0	4	106	29064	5	0	3	119	31837	5	0	3	115	274

Visit www.VisionaireLighting.com for up-to-the-minute chart information, including types not listed here. *Multiply 4K values by 0.96 5K / 0.95 3K

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ODEN LED Specifications

ODEN CLS - 3K LUMEN DATA										
	# Leds	Current (mA)	T1	T2	T3	T4	T5	T5W	T5WR	Watts
ODN-1-L	16	350	1776	1664	1694	1587	1781	1724	1738	18
		530	2542	2381	2425	2271	2549	2467	2488	27
		700	3171	2970	3024	2833	3180	3078	3103	37
ODN-1-L	32	350	3381	3166	3224	3020	3390	3281	3308	36
		530	5011	4693	4779	4477	5024	4864	4904	55
		700	6250	5854	5962	5585	6267	6067	6117	70
ODN-1-L	48	350	5340	5002	5094	4771	5355	5184	5227	54
		530	7915	7414	7550	7072	7937	7683	7747	82
		700	9874	9248	9417	8822	9901	9584	9664	107
ODN-2-L	48	350	5340	5002	5094	4771	5355	5184	5227	54
		530	7915	7414	7550	7072	7937	7683	7747	82
		700	9874	9248	9417	8822	9901	9584	9664	107
ODN-2-L	64	350	6975	6533	6653	6232	6994	6770	6827	72
		530	9864	9240	9409	8814	9891	9575	9654	105
		700	12427	11640	11853	11103	12461	12062	12163	140
ODN-2-L	80	350	8526	7986	8132	7618	8549	8276	8345	89
		530	11919	11164	11369	10650	11952	11569	11666	130
		700	15004	14054	14311	13406	15045	14564	14685	177
ODN-2-L	96	350	10286	9634	9810	9190	10314	9984	10067	109
		530	14795	13858	14111	13219	14835	14361	14480	160
		700	18477	17307	17624	16509	18528	17935	18084	210
ODN-3-L	96	350	10286	9634	9810	9190	10314	9984	10067	109
		530	14795	13858	14111	13219	14835	14361	14480	160
		700	18477	17307	17624	16509	18528	17935	18084	210
ODN-3-L	128	350	12662	11860	12077	11313	12697	12290	12392	144
		530	17907	16773	17080	16000	17956	17381	17526	210
		700	22559	21130	21517	20156	22621	21897	22080	274
ODEN CLS - 4K LUMEN DATA										
	# Leds	Current (mA)	T1	T2	T3	T4	T5	T5W	T5WR	Watts
ODN-1-L	16	350	1870	1751	1783	1671	1875	1815	1830	18
		530	2676	2506	2552	2391	2683	2597	2619	27
		700	3338	3126	3184	2982	3347	3240	3267	37
ODN-1-L	32	350	3559	3333	3394	3179	3568	3454	3483	36
		530	5274	4940	5031	4712	5289	5120	5162	55
		700	6579	6162	6275	5878	6597	6386	6439	70
ODN-1-L	48	350	5621	5265	5362	5023	5637	5456	5502	54
		530	8332	7804	7947	7444	8355	8087	8155	82
		700	10393	9735	9913	9286	10422	10088	10172	107
ODN-2-L	48	350	5621	5265	5362	5023	5637	5456	5502	54
		530	8332	7804	7947	7444	8355	8087	8155	82
		700	10393	9735	9913	9286	10422	10088	10172	107
ODN-2-L	64	350	7342	6877	7003	6560	7362	7127	7186	72
		530	10384	9726	9904	9277	10412	10079	10163	105
		700	13081	12252	12477	11688	13117	12697	12803	140
ODN-2-L	80	350	8975	8406	8560	8019	8999	8711	8784	89
		530	12547	11752	11967	11210	12581	12178	12280	130
		700	15794	14793	15064	14111	15837	15330	15458	177
ODN-2-L	96	350	10827	10141	10327	9674	10857	10509	10597	109
		530	15574	14587	14854	13915	15616	15116	15242	160
		700	19450	18218	18551	17378	19503	18879	19036	210
ODN-3-L	96	350	10827	10141	10327	9674	10857	10509	10597	109
		530	15574	14587	14854	13915	15616	15116	15242	160
		700	19450	18218	18551	17378	19503	18879	19036	210
ODN-3-L	128	350	13328	12484	12713	11909	13365	12937	13045	144
		530	18850	17655	17979	16842	18901	18296	18449	210
		700	23747	22242	22649	21217	23812	23049	23241	274

VISIONAIRE LIGHTING

ODEN CLS - 5K LUMEN DATA										
	# Leds	Current (mA)	T1	T2	T3	T4	T5	T5W	T5WR	Watts
ODN-1-L	16	350	1794	1680	1711	1603	1799	1742	1743	18
		530	2567	2405	2449	2294	2575	2492	2494	27
		700	3203	3000	3055	2862	3212	3109	3111	37
ODN-1-L	32	350	3415	3198	3257	3051	3424	3314	3317	36
		530	5061	4741	4827	4522	5075	4913	4917	55
		700	6314	5914	6022	5641	6331	6128	6133	70
ODN-1-L	48	350	5394	5052	5145	4819	5409	5236	5240	54
		530	7995	7489	7626	7144	8017	7761	7766	82
		700	9973	9342	9513	8911	10001	9681	9688	107
ODN-2-L	48	350	5394	5052	5145	4819	5409	5236	5240	54
		530	7995	7489	7626	7144	8017	7761	7766	82
		700	9973	9342	9513	8911	10001	9681	9688	107
ODN-2-L	64	350	7045	6599	6720	6295	7065	6839	6844	72
		530	9964	9333	9504	8902	9992	9672	9679	105
		700	12552	11757	11973	11216	12587	12184	12193	140
ODN-2-L	80	350	8612	8067	8214	7695	8636	8359	8366	89
		530	12040	11277	11484	10757	12073	11687	11695	130
		700	15156	14196	14455	13541	15197	14711	14722	177
ODN-2-L	96	350	10389	9732	9910	9283	10418	10084	10092	109
		530	14945	13998	14254	13352	14985	14506	14517	160
		700	18664	17481	17802	17227	18715	18116	18130	210
ODN-3-L	96	350	10389	9732	9910	9283	10418	10084	10092	109
		530	14945	13998	14254	13352	14985	14506	14517	160
		700	18664	17481	17802	17227	18715	18116	18130	210
ODN-3-L	128	350	12790	11980	12199	11427	12825	12414	12424	144
		530	18088	16942	17252	16161	18138	17557	17570	210
		700	22787	21344	21734	20360	22850	22118	22134	274

ODEN LED Specifications

ODEN CLS - 3K LUMEN PER WATT DATA										
	# Leds	Current (mA)	T1	T2	T3	T4	T5	T5W	T5WR	Watts
ODN-1-L	16	350	99	92	94	88	99	96	97	18
		530	93	87	89	83	93	90	91	27
		700	86	80	82	77	86	83	84	37
ODN-1-L	32	350	94	88	90	84	94	91	92	36
		530	92	86	87	82	92	89	90	55
		700	89	84	85	80	90	87	87	70
ODN-1-L	48	350	100	93	95	89	100	97	98	54
		530	97	90	92	86	97	94	94	82
		700	92	86	88	82	93	90	90	107
ODN-2-L	48	350	100	93	95	89	100	97	98	54
		530	97	90	92	86	97	94	94	82
		700	92	86	88	82	93	90	90	107
ODN-2-L	64	350	97	91	92	87	97	94	95	72
		530	94	88	90	84	94	91	92	105
		700	89	83	85	79	89	86	87	140
ODN-2-L	80	350	96	90	91	86	96	93	94	89
		530	92	86	87	82	92	89	90	130
		700	85	79	81	76	85	82	83	177
ODN-2-L	96	350	94	88	90	84	95	92	92	109
		530	92	87	88	83	93	90	91	160
		700	88	82	84	79	88	85	86	210
ODN-3-L	96	350	94	88	90	84	95	92	92	109
		530	92	87	88	83	93	90	91	160
		700	88	82	84	79	88	85	86	210
ODN-3-L	128	350	88	82	84	79	88	85	86	144
		530	85	80	81	76	86	83	83	210
		700	82	77	79	74	83	80	81	274
ODEN CLS - 4K LUMEN PER WATT DATA										
	# Leds	Current (mA)	T1	T2	T3	T4	T5	T5W	T5WR	Watts
ODN-1-L	16	350	104	97	99	93	104	101	102	18
		530	98	92	93	87	98	95	96	27
		700	90	84	86	81	90	88	88	37
ODN-1-L	32	350	99	93	94	88	99	96	97	36
		530	96	90	92	86	97	94	94	55
		700	94	88	90	84	94	91	92	70
ODN-1-L	48	350	105	98	100	94	105	102	103	54
		530	102	95	97	91	102	99	99	82
		700	97	91	93	87	97	94	95	107
ODN-2-L	48	350	105	98	100	94	105	102	103	54
		530	102	95	97	91	102	99	99	82
		700	97	91	93	87	97	94	95	107
ODN-2-L	64	350	102	96	97	91	102	99	100	72
		530	99	93	94	88	99	96	97	105
		700	93	88	89	83	94	91	91	140
ODN-2-L	80	350	101	94	96	90	101	98	99	89
		530	97	90	92	86	97	94	94	130
		700	89	84	85	80	89	87	87	177
ODN-2-L	96	350	99	93	95	89	100	96	97	109
		530	97	91	93	87	98	94	95	160
		700	93	87	88	83	93	90	91	210
ODN-3-L	96	350	99	93	95	89	100	96	97	109
		530	97	91	93	87	98	94	95	160
		700	93	87	88	83	93	90	91	210
ODN-3-L	128	350	93	87	88	83	93	90	91	144
		530	90	84	86	80	90	87	88	210
		700	87	81	83	77	87	84	85	274

VISIONAIRE LIGHTING

ODEN CLS - 5K LUMEN PER WATT DATA										
	# Leds	Current (mA)	T1	T2	T3	T4	T5	T5W	T5WR	Watts
ODN-1-L	16	350	100	93	95	89	100	97	97	**18**
		530	94	88	90	84	94	91	91	**27**
		700	87	81	83	77	87	84	84	**37**
ODN-1-L	32	350	95	89	90	85	95	92	92	**36**
		530	93	87	88	83	93	90	90	**55**
		700	90	84	86	81	90	88	88	**70**
ODN-1-L	48	350	101	94	96	90	101	98	98	**54**
		530	97	91	93	87	98	95	95	**82**
		700	93	87	89	83	93	90	91	**107**
ODN-2-L	48	350	101	94	96	90	101	98	98	**54**
		530	97	91	93	87	98	95	95	**82**
		700	93	87	89	83	93	90	91	**107**
ODN-2-L	64	350	98	92	93	87	98	95	95	**72**
		530	95	89	91	85	95	92	92	**105**
		700	90	84	86	80	90	87	87	**140**
ODN-2-L	80	350	97	91	92	86	97	94	94	**89**
		530	93	87	88	83	93	90	90	**130**
		700	86	80	82	77	86	83	83	**177**
ODN-2-L	96	350	95	89	91	85	96	93	93	**109**
		530	93	87	89	83	94	91	91	**160**
		700	89	83	85	82	89	86	86	**210**
ODN-3-L	96	350	95	89	91	85	96	93	93	**109**
		530	93	87	89	83	94	91	91	**160**
		700	89	83	85	82	89	86	86	**210**
ODN-3-L	128	350	89	83	85	79	89	86	86	**144**
		530	86	81	82	77	86	84	84	**210**
		700	83	78	79	74	83	81	81	**274**

ODEN LED Specifications

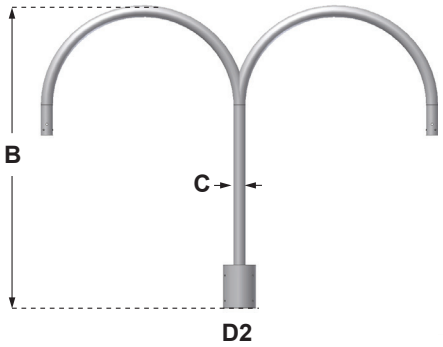
ODEN CLS - 3K LUMEN PER WATT DATA																							
	# Leds	Current (mA)	T1			T2			T3			T4			T5			T5W			T5WR			Watts
			B	U	G	B	U	G	B	U	G	B	U	G	B	U	G	B	U	G	B	U	G	
ODN-1-L	16	350	1	0	1	0	0	1	0	0	1	0	0	1	1	0	1	1	0	1	1	0	1	18
		530	1	0	1	1	0	1	1	0	1	1	0	1	1	0	1	1	0	1	1	0	1	27
		700	1	0	1	1	0	1	1	0	1	1	0	1	1	0	1	1	0	1	1	0	1	37
ODN-1-L	32	350	1	0	1	1	0	2	1	0	1	1	0	1	1	0	1	1	0	1	1	0	1	36
		530	2	0	2	1	0	2	1	0	2	1	0	2	1	0	1	2	0	2	2	0	2	55
		700	2	0	2	1	0	2	1	0	2	1	0	2	2	0	1	2	0	2	2	0	2	70
ODN-1-L	48	350	2	0	2	1	0	2	1	0	2	1	0	2	1	0	1	2	0	2	2	0	2	54
		530	2	0	2	1	0	3	1	0	2	1	0	2	2	0	2	2	0	2	2	0	2	82
		700	3	0	3	1	0	3	2	0	3	2	0	3	2	0	2	3	0	3	3	0	3	107
ODN-2-L	48	350	2	0	2	1	0	2	1	0	2	1	0	2	1	0	1	2	0	2	2	0	2	54
		530	2	0	2	1	0	3	1	0	2	1	0	2	2	0	2	2	0	2	2	0	2	82
		700	3	0	3	1	0	3	2	0	3	2	0	3	2	0	2	3	0	3	3	0	3	107
ODN-2-L	64	350	2	0	2	1	0	2	1	0	2	1	0	2	2	0	1	2	0	2	2	0	2	72
		530	3	0	3	1	0	3	2	0	3	2	0	3	2	0	2	3	0	3	3	0	3	105
		700	3	0	3	2	0	3	2	0	3	2	0	3	2	0	2	3	0	3	3	0	3	140
ODN-2-L	80	350	2	0	2	1	0	3	2	0	2	1	0	2	2	0	2	2	0	2	2	0	2	89
		530	3	0	3	2	0	3	2	0	3	2	0	3	2	0	2	3	0	3	3	0	3	130
		700	3	0	3	2	0	3	2	0	3	2	0	3	3	0	3	3	0	3	3	0	3	177
ODN-2-L	96	350	3	0	3	2	0	3	2	0	3	2	0	3	2	0	2	3	0	3	3	0	3	109
		530	3	0	3	2	0	3	2	0	3	2	0	3	3	0	3	3	0	3	3	0	3	160
		700	3	0	3	2	0	4	3	0	3	2	0	3	3	0	3	3	0	3	3	0	3	210
ODN-3-L	96	350	3	0	3	2	0	3	2	0	3	2	0	3	2	0	2	3	0	3	3	0	3	109
		530	3	0	3	2	0	3	2	0	3	2	0	3	3	0	3	3	0	3	3	0	3	160
		700	3	0	3	2	0	4	3	0	3	2	0	3	3	0	3	3	0	3	3	0	3	210
ODN-3-L	128	350	3	0	3	2	0	3	2	0	3	2	0	3	2	0	2	3	0	3	3	0	3	144
		530	3	0	3	2	0	4	3	0	3	2	0	3	3	0	3	3	0	3	3	0	3	210
		700	4	0	4	3	0	4	3	0	4	3	0	4	3	0	3	3	0	4	3	0	4	274
ODEN CLS - 4K LUMEN PER WATT DATA																								
	# Leds	Current (mA)	T1			T2			T3			T4			T5			T5W			T5WR			Watts
			B	U	G	B	U	G	B	U	G	B	U	G	B	U	G	B	U	G	B	U	G	
ODN-1-L	16	350	1	0	1	0	0	1	1	0	1	0	0	1	1	0	1	1	0	1	1	0	1	18
		530	1	0	1	1	0	1	1	0	1	1	0	1	1	0	1	1	0	1	1	0	1	27
		700	1	0	1	1	0	2	1	0	1	1	0	1	1	0	1	1	0	1	1	0	1	37
ODN-1-L	32	350	1	0	1	1	0	2	1	0	1	1	0	1	1	0	1	1	0	1	1	0	1	36
		530	2	0	2	1	0	2	1	0	2	1	0	2	1	0	1	2	0	2	2	0	2	55
		700	2	0	2	1	0	2	1	0	2	1	0	2	2	0	1	2	0	2	2	0	2	70
ODN-1-L	48	350	2	0	2	1	0	2	1	0	2	1	0	2	1	0	1	2	0	2	2	0	2	54
		530	2	0	2	1	0	3	2	0	2	1	0	2	2	0	2	2	0	2	2	0	2	82
		700	3	0	3	2	0	3	2	0	3	2	0	3	2	0	2	3	0	3	3	0	3	107
ODN-2-L	48	350	2	0	2	1	0	2	1	0	2	1	0	2	1	0	1	2	0	2	2	0	2	54
		530	2	0	2	1	0	3	2	0	2	1	0	2	2	0	2	2	0	2	2	0	2	82
		700	3	0	3	2	0	3	2	0	3	2	0	3	2	0	2	3	0	3	3	0	3	107
ODN-2-L	64	350	2	0	2	1	0	3	1	0	2	1	0	2	2	0	2	2	0	2	2	0	2	72
		530	3	0	3	2	0	3	2	0	3	2	0	3	2	0	2	3	0	3	3	0	3	105
		700	3	0	3	2	0	3	2	0	3	2	0	3	2	0	2	3	0	3	3	0	3	140
ODN-2-L	80	350	3	0	3	1	0	3	2	0	2	1	0	2	2	0	2	2	0	2	2	0	2	89
		530	3	0	3	2	0	3	2	0	3	2	0	3	2	0	2	3	0	3	3	0	3	130
		700	3	0	3	2	0	3	2	0	3	2	0	3	3	0	3	3	0	3	3	0	3	177
ODN-2-L	96	350	3	0	3	2	0	3	2	0	3	2	0	3	2	0	2	3	0	3	3	0	3	109
		530	3	0	3	2	0	3	2	0	3	2	0	3	3	0	3	3	0	3	3	0	3	160
		700	3	0	4	2	0	4	3	0	3	3	0	3	3	0	3	3	0	4	3	0	3	210
ODN-3-L	96	350	3	0	3	2	0	3	2	0	3	2	0	3	2	0	2	3	0	3	3	0	3	109
		530	3	0	3	2	0	3	2	0	3	2	0	3	3	0	3	3	0	3	3	0	3	160
		700	3	0	4	2	0	4	3	0	3	3	0	3	3	0	3	3	0	4	3	0	3	210
ODN-3-L	128	350	3	0	3	2	0	3	2	0	3	2	0	3	2	0	2	3	0	3	3	0	3	144
		530	3	0	3	2	0	4	3	0	3	3	0	3	3	0	3	3	0	4	3	0	3	210
		700	4	0	4	3	0	4	3	0	4	3	0	4	3	0	3	3	0	4	4	0	4	274

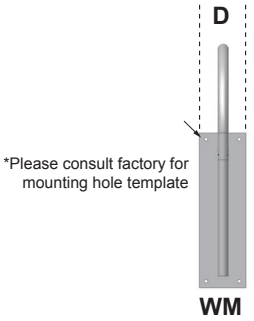
VISIONAIRE LIGHTING

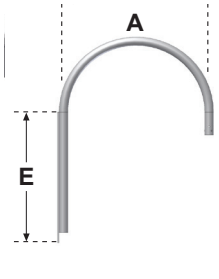
ODEN CLS - 5K LUMEN PER WATT DATA																								
	# Leds	Current (mA)	T1			T2			T3			T4			T5			T5W			T5WR			Watts
			B	U	G	B	U	G	B	U	G	B	U	G	B	U	G	B	U	G	B	U	G	
ODN-1-L	16	350	1	0	1	0	0	1	0	0	1	0	0	1	1	0	1	1	0	1	1	0	1	18
		530	1	0	1	1	0	1	1	0	1	1	0	1	1	0	1	1	0	1	1	0	1	27
		700	1	0	1	1	0	1	1	0	1	1	0	1	1	0	1	1	0	1	1	0	1	37
ODN-1-L	32	350	1	0	1	1	0	2	1	0	1	1	0	1	1	0	1	1	0	1	1	0	1	36
		530	2	0	2	1	0	2	1	0	2	1	0	2	1	0	1	2	0	2	2	0	2	55
		700	2	0	2	1	0	2	1	0	2	1	0	2	2	0	1	2	0	2	2	0	2	70
ODN-1-L	48	350	2	0	2	1	0	2	1	0	2	1	0	2	1	0	1	2	0	2	2	0	2	54
		530	2	0	2	1	0	3	1	0	2	1	0	2	2	0	2	2	0	2	2	0	2	82
		700	3	0	3	2	0	3	2	0	3	2	0	3	2	0	2	3	0	3	3	0	3	107
ODN-2-L	48	350	2	0	2	1	0	2	1	0	2	1	0	2	1	0	1	2	0	2	2	0	2	54
		530	2	0	2	1	0	3	1	0	2	1	0	2	2	0	2	2	0	2	2	0	2	82
		700	3	0	3	2	0	3	2	0	3	2	0	3	2	0	2	3	0	3	3	0	3	107
ODN-2-L	64	350	2	0	2	1	0	2	1	0	2	1	0	2	2	0	2	2	0	2	2	0	2	72
		530	3	0	3	2	0	3	2	0	3	2	0	3	2	0	2	3	0	3	3	0	3	105
		700	3	0	3	2	0	3	2	0	3	2	0	3	2	0	2	3	0	3	3	0	3	140
ODN-2-L	80	350	2	0	2	1	0	3	2	0	2	1	0	2	2	0	2	2	0	2	2	0	2	89
		530	3	0	3	2	0	3	2	0	3	2	0	3	2	0	2	3	0	3	3	0	3	130
		700	3	0	3	2	0	3	2	0	3	2	0	3	3	0	3	3	0	3	3	0	3	177
ODN-2-L	96	350	3	0	3	2	0	3	2	0	3	2	0	3	2	0	2	3	0	3	3	0	3	109
		530	3	0	3	2	0	3	2	0	3	2	0	3	3	0	3	3	0	3	3	0	3	160
		700	3	0	3	2	0	4	3	0	3	3	0	3	3	0	3	3	0	4	3	0	3	210
ODN-3-L	96	350	3	0	3	2	0	3	2	0	3	2	0	3	2	0	2	3	0	3	3	0	3	109
		530	3	0	3	2	0	3	2	0	3	2	0	3	3	0	3	3	0	3	3	0	3	160
		700	3	0	3	2	0	4	3	0	3	3	0	3	3	0	3	3	0	4	3	0	3	210
ODN-3-L	128	350	3	0	3	2	0	3	2	0	3	2	0	3	2	0	2	3	0	3	3	0	3	144
		530	3	0	3	2	0	4	3	0	3	2	0	3	3	0	3	3	0	3	3	0	3	210
		700	4	0	4	3	0	4	3	0	4	3	0	4	3	0	3	3	0	4	3	0	4	274

VA100

Project Name:	Catalog Number:	Type





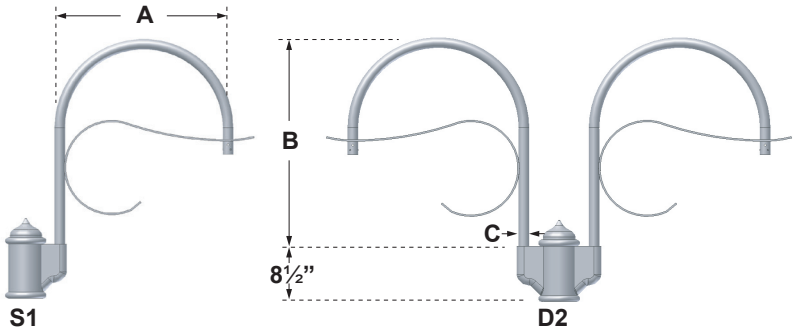


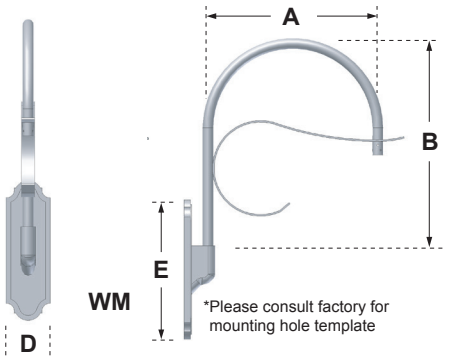
The **VA100-L** and **VA100-M** crook arm dimensions are for standard size 2 or size 3 Architectural luminaires only. **VA100-S** is standard for smaller, size 1 luminaires. Please consult factory for custom options.

Fixture	A	B	C	D	E	EPA S1	EPA D2	EPA WM
VA100-L	26”	42”	2⅜” Ø	7”	24”	1.2	1.9	1.1
VA100-M	26”	42”	1⅝” Ø	7”	24”	.9	1.3	.9
VA100-S	16½”	36”	1⅝” Ø	7”	20”	.7	1.0	.6
VA100 S1				**VA100 D2**				

Model	Mounting	Pole or Tenon Size	Finish
VA100-L **VA100-M** **VA100-S**	Single **(S1)** Double **(D2)** Wall Mount **(WM)**	2⅜” dia. **(2⅜)** 3” dia. **(3)** 3½” dia. **(3½)** 4” dia. **(4)** 4½” dia. **(4½)**	Bronze **(BZ)** Black **(BK)** White **(WH)** Sandstone **(SN)** Weathered Brown **(WB)** Silver Metallic **(SL)** Verdigris **(VG)** Forest Green **(FG)** Custom Color **(CC)**

VA101





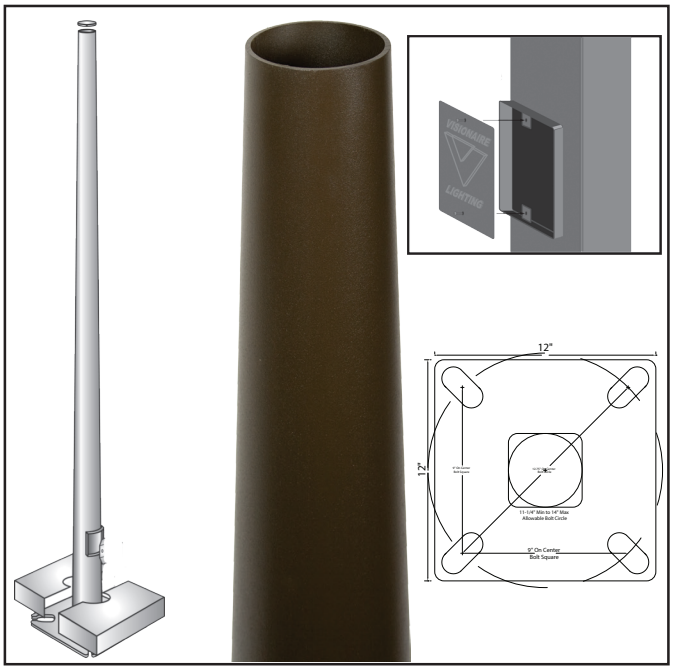
The **VA101-L** crook arm dimensions are for standard size 2 or size 3 Architectural luminaires only. **VA 101-S** is standard for smaller, size 1 luminaires. Please consult factory for custom options.

Fixture	A	B	C	D	E	EPA S1	EPA D2	EPA WM
VA101-L	26”	33¾”	2⅜” Ø	7”	22”	1.5	2.8	1.4
VA101-M	26”	33¾”	1⅝” Ø	7”	22”	1.2	2.2	1.1
VA101-S	16½”	26”	1⅝” Ø	7”	22”	1.2	1.9	.9
VA101 S1				**VA101 D2**				

Model	Mounting	Pole or Tenon Size	Finish
VA101-L **VA101-M** **VA101-S**	Single **(S1)** Double **(D2)** Wall Mount **(WM)**	3½” dia. **(3½)** 4” dia. **(4)** 4½” dia. **(4½)** 5” dia. **(5)**	Bronze **(BZ)** Black **(BK)** White **(WH)** Sandstone **(SN)** Weathered Brown **(WB)** Silver Metallic **(SL)** Verdigris **(VG)** Forest Green **(FG)** Custom Color **(CC)**

VISIONAIRE LIGHTING
Performance In A Whole New Light®

RTSP Specifications



Project Name:

Catalog Number:

Type:

Round Tapered Steel Pole

Pole Shaft
• Fabricated from coil stock, weldable grade, hot rolled commercial quality structural steel tube which has a wall thickness of 11 gauge or 7 gauge. Shaft conforms to ASTM specifications. Meets or exceeds minimum yield strength of 55,000 PSI. Shaft is furnished with ground lug inside pole, opposite hand hole opening.

Base Plate
• Fabricated from structural quality hot rolled steel. Meets or exceeds minimum yield strength of 36,000 PSI. Base is circumferentially welded to pole shaft. Bolt holes slotted to provide 1" flexibility on either side of bolt circle. Consult factory for pole base templates.
• Base templates provided with order. Do not pre-pour.

Base Cover
• Standard base cover is square and fabricated from heavy gauge quality aluminum. Two piece cover for easy installation.

Pole Cap
• Color-impregnated polymer snap-to-close pole cap provided in black.

Finish
• All poles are lightly shot-blasted prior to painting. A Quali-Guard® textured thermoset polyester powder coat is then applied to a minimum of 3 millimeters and then oven-baked at a temperature of 400 ºF to promote exceptional adherence and finish hardness. Pole finish is warranted for a full two (2) years.

Anchor Bolts
• Poles are provided with hot-dip galvanized anchor bolts, with a "J" bend on one end and two flat hex bolts end and two flat washers per bolt. Anchor bolts meet or exceed a minimum of 36,000 PSI. Anchor bolts conform to ASTM F1554 grade 36 and are provided.

Ordering Information

MODEL	HEIGHT	GAUGE	BASE	ANCHORAGE	MOUNTING	FINISH	OPTIONS
RTSP Round Tapered Steel Pole	**20'** **24'** **25'** **30'** **35'** **39'**	**11** **7**	**12BC** 12" Base *12¾" BC **CBC** Custom Bolt Circle *Consult Factory **Direct Burial** *Consult Factory	**136** 1" × 36"	**Bolt-On Arm** **S1** Single **D2** Double 180° **D9** Double 90° **T9** Triple 90° **T1** Triple 120° **QD** Quad **Tenon Options** **T238R** 2.375" **T3R** 3" **T3.5R** 3½"	**BZ** Bronze **BK** Black **SBK** Smooth Black **WH** White **SWH** Smooth White **GP** Graphite **GY** Grey **SL** Silver Metallic **GN** Tennis Green **TG** Tennis Green **FG** Forest Green **VD** Verdigris **CC** Custom Color	**GFI** GFI Receptacle *Standard location is in hand hole **CUP** Coupling *Specify size and location **RBC** Round Base Cover **HCR** Rust-Inhibiting Internal Coating & Primer

VISIONAIRE LIGHTING

updated 3/10/20

Pole EPA for Round Tapered Steel Poles

Pole Height	Maximum Allowable EPA (ft²) with 1.3 gust factor									Base Diameter	Pole Gauge	Bolt Circle	Anchor Bolt Size	Pole Weight
	90 mph	100 mph	110 mph	120 mph	130 mph	140 mph	150 mph	160 mph	170 mph					
20'	20.6	15.8	14.5	16.7	13.3	11.0	9.1	7.6	6.3	6⅜"	11	12¾"	1" × 36"	144
20'	32.2	25.2	23.2	26.0	20.9	17.7	14.9	12.7	10.8	6⅜"	7	12¾"	1" × 36"	192
25'	20.3	15.3	13.9	14.4	11.0	8.9	7.1	5.6	4.3	7⅛"	11	12¾"	1" × 36"	209
25'	32.7	25.3	23.2	23.4	18.6	15.2	12.7	10.5	8.7	7⅛"	7	12¾"	1" × 36"	284
30'	16.3	11.7	10.4	11.9	8.8	6.7	5.0	3.6	2.4	7¾"	11	12¾"	1" × 36"	255
30'	31.3	23.9	21.8	20.5	16.0	12.8	10.3	8.3	6.6	7¾"	7	12¾"	1" × 36"	374
35'	14.8	10.2	8.9	10.0	6.9	4.7	3.0	1.7	N/A	8⅜"	11	12¾"	1" × 36"	315
35'	30.0	22.5	20.4	18.5	14.3	11.2	8.7	6.6	4.6	8⅜"	7	12¾"	1" × 36"	420
39'	15.5	10.4	9.0	8.7	5.7	3.6	1.8	N/A	N/A	9⅛"	11	12¾"	1" × 36"	359
39'	32.2	24.0	21.7	17.5	13.2	10.0	7.4	5.2	3.4	9⅛"	7	12¾"	1" × 36"	510

• CAUTION: If any additional stress such as flags, banners, streamers, ropes, or any other such items are added to poles, Visionaire Lighting's normal product guarantee is null and void. Additionally, adding such items to any pole may create severely hazardous conditions. Poles are calculated to withstand steady wind velocities of between 70 and 100 mph wind zones with a 1.3 gust factor depending on height, wall thickness, and width/ diameter. For an exact rating on a specific order, contact Visionaire directly.

Guidelines for Use of Company Property by Others

October 2008

Oncor Electric Delivery Company Policy

It is the policy of Oncor to not unreasonably withhold the granting of easements, rights-of -way and licenses on its real estate property for street, road, utility and drainage crossings, and other approved uses. **The following set of guidelines are intended to state Oncor Electric Delivery Company's general policy for use of it's right of way by others and are not all inclusive in nature nor do they imply approval of any kind by Oncor.** Each request for use is reviewed individually, and must be approved by Transmission Engineering, Transmission Operating, Distribution Engineering, Transmission Planning and any other Company organization having a vested interest in the request. Approval must be obtained from all organizations in order to grant the request.

All requests should be addressed to Oncor Electric Delivery Company, Right of Way, 115 W. 7th Street, Suite 1125, Fort Worth TX 76102. Each request should be accompanied by a description of the rights sought, surveys, maps, drawings, statement of purpose and any other information deemed necessary. A $250 non-refundable administration fee, paid at the time of the request, is charged to cover Company review and document preparation**.** An application form for use of Oncor Right of Way will be furnished upon request.

Fees will be based on county appraisal values.

Fee Simple Property

Easement rights for crossings of Oncor fee owned rights-of-way that do not interfere with the construction, reconstruction, operation and maintenance of Oncor facilities may be granted if the crossing is not less than 45 degrees to the centerline of the right-of-way.

Fire Lanes are not included in crossings and will be considered only when crossing at 90 degrees. Each **Fire Lane** request will be reviewed individually for approval.

Longitudinal rights will not be granted for the placement of utilities, roads, pipelines, fences, or other uses along Oncor rights-of-way.

Licenses for parking, agricultural, and other surface uses may be granted provided the applicant is the adjacent landowner. The license will be personal, revocable and non-assignable. Licenses for parking will be granted for over flow parking only; **no code required parking will be allowed**. The licensee will be responsible for all mowing and maintenance of the right-of-way affected by the licensed area.

Fees for easements and licenses will be based on county appraisal values of adjacent properties.

Easement Right of Way

Encroachment by third parties on Oncor easement rights-of-ways that meet the above criteria for approval may be granted by an Encroachment Agreement. The proposed user will be required to obtain whatever rights and permission, other than Oncor's that are necessary from the property owner.

Construction Limitations

When a request is granted, Right of Way Services will prepare the appropriate document for signatures by Oncor and the grantee. In addition to the provisions of the Agreement, the approved facility will be subject to the following construction limitations:

1. You are notified, and should advise your employees, representatives, agents, and contractors, who enter the property that they will be working in the vicinity of high voltage electrical facilities and should take proper precautions, included but not limited to the following stipulations and in compliance, at all times, with Chapter 752, V.T.C.A., Health & Safety Code.
2. Blasting is not to be permitted on Oncor right-of-way or under Oncor lines.

3. Construction on electric transmission line easements acquired by Oncor after January 1, 2003 shall comply with the requirements of Public Utility Commission Substantive Rules §25.101, as amended from time to time.
4. Grading will be done in order to leave the right-of-way as near as possible to present condition. Spoil dirt will be removed from the right-of-way and no trash is to be left on right-of-way. Slopes shall be graded so that trucks can go down the right-of-way when required and such that they can be mechanically maintained.
5. Equipment and materials will not be stored on the right-of-way during construction without written approval of the Supervisor of Regional Transmission.
6. Street or road crossings are to be based on drawings submitted. Any change in alignment or elevation will be resubmitted for approval.
7. Runways or air take off and landing strips are not permitted on the right-of-way.
8. No signs, lights or guard lights will be permitted on the right-of-way.
9. Equipment shall not be within fifteen (15) feet of the lowest conductor.
10. Any pre-approved fencing will not exceed eight (8) feet in height, and if metal in nature, will be grounded, at ten (10) feet intervals, with an appropriate driven ground. Gates should be at least sixteen (16) feet in width to allow Oncor access to the right-of-way.
11. No dumpsters will be allowed on Oncor right-of-way or fee owned property.
12. Drag lines will not be used under the line or on Oncor right-of-way.
13. The existing grade shall not be disturbed, excavated or filled within 25 feet of the nearest edge of any tower.
14. Right-of-way will be protected from washing and erosion by Oncor approved method before any permits are granted.
15. No obstruction shall be installed on the right-of-way that would interfere with access to Oncor structures or prevent mechanical maintenance.
16. Before any work is done under Oncor lines or by Oncor structures notify the Region Transmission Department.
17. No hazardous materials will be stored on the right of way.
18. For purposes of this document, "Hazardous Materials" means and includes those substances, including, without limitation, asbestos-containing material containing more than one percent (1%) asbestos by weight, or the group of organic compounds known as polychlorinated biphenyls, flammable explosives, radioactive materials, chemicals known to cause cancer or reproductive toxicity and includes any items included in the definition of hazardous or toxic waste, materials or substances under any Hazardous Material Law. "Hazardous Material Laws" collectively means and includes any present and future local, state and federal law relating to the environment and environmental conditions including, without limitation, the Resource Conservation and Recovery Act of 1976 ("RCRA"), 42 U.S.C. §6901 et seq., the Comprehensive Environmental Response, Compensation and Liability Act of 1980, ("CERCLA"), 42 U.S.C. §§9601-9657, as amended by the Superfund Amendments and Reauthorization Act of 1986 ("SARA"), the Hazardous Material Transportation Act, 49 U.S.C. §6901 et seq., the Federal Water Pollution Control Act, 33 U.S.C. §1251, et seq., the Clean Air Act, 42 U.S.C. §741 et seq., the Clean Water Act, 33 U.S.C. §7401 et seq., the Toxic Substances Control Act, 15 U.S.C. §§2601-2629, the Safe Drinking Water Act, 42 U.S.C. §§300f-330j, and all the regulations, orders, and decrees now or hereafter promulgated thereunder.
19. Brush and cut timber will not be piled or stacked on Oncor right-of-way or will not be burned upon or in close proximity to the conductors or towers.
20. No structures or obstructions, such as buildings, garages, barns, sheds, guard houses, etc., will be permitted on the right-of-way.

Landscaping on Oncor Right of Way

Landscaping on Oncor right-of-way is permitted when landscaping plans are approved in writing by Oncor.

No lighting or sprinkler systems are allowed on the right-of-way.

The following is a list of typical trees permitted on the right-of-way. In no case shall a tree with a mature height of more than 15 feet be permitted.

Texas Mountain Laurel – Sophora secundiflora
Japanese Maple – Acer palmatum var.
Yaupon Holly – Ilex vomitoria
Rusty Black Haw – Viburnum rufidulum
Flame Leaf Sumac – Rhus lanceolata
Rough-leaf Dogwood – Cornus drummondii
Vitex – Vitex angus-castus
Mexican Plum – Prunus Mexicana
Viburnam – Viburnam spp.
Chinese Photinia – Photinia serrulata
Texas Persimmon – Diospyros texana
Mexican Buckeye – Ungnadia speciosa
Peach – Prunus persica
Possumhaw – Ilex decidua

Right of Way
Suite 1125
115 W. 7th Street
Fort Worth, Texas 76102
817.898.4ROW
817.898.4769

HEALTH AND SAFETY CODE

TITLE 9. SAFETY

SUBTITLE A. PUBLIC SAFETY

CHAPTER 752. HIGH VOLTAGE OVERHEAD LINES

Sec. 752.001. DEFINITIONS. In this chapter:

(1) "High voltage" means more than 600 volts measured between conductors or between a conductor and the ground.

(2) "Overhead line" means a bare or insulated electrical conductor installed above ground but does not include a conductor that is de-energized and grounded or that is enclosed in a rigid metallic conduit.

Acts 1989, 71st Leg., ch. 678, Sec. 1, eff. Sept. 1, 1989.

Sec. 752.002. EXEMPTION FOR CERTAIN EMPLOYEES AND ACTIVITIES. (a) This chapter does not apply to the construction, reconstruction, operation, or maintenance by an authorized person of overhead electrical or communication circuits or conductors and their supporting structures and associated equipment that are part of a rail transportation system, an electrical generating, transmission, or distribution system, or a communication system.

(b) In this section, "authorized person" means:

(1) an employee of a light and power company, an electric cooperative, or a municipality working on his employer's electrical system;

(2) an employee of a transportation system working on the system's electrical circuits;

(3) an employee of a communication utility;

(4) an employee of a state, county, or municipal agency that has authorized circuit construction on the poles or structures that belong to an electric power company, an electric cooperative, a municipal or transportation system, or a communication system;

(5) an employee of an industrial plant who works on the plant's electrical system; or

(6) an employee of an electrical or communications contractor who is working under the contractor's supervision.

Acts 1989, 71st Leg., ch. 678, Sec. 1, eff. Sept. 1, 1989.

Sec. 752.003. TEMPORARY CLEARANCE OF LINES. (a) A person, firm, corporation, or association responsible for temporary work or a temporary

activity or function closer to a high voltage overhead line than the distances prescribed by this chapter must notify the operator of the line at least 48 hours before the work begins.

(b) A person, firm, corporation, or association may not begin the work, activity, or function under this section until the person, firm, corporation, or association responsible for the work, activity, or function and the owner or operator, or both, of the high voltage overhead line have negotiated a satisfactory mutual arrangement to provide temporary de-energization and grounding, temporary relocation or raising of the line, or temporary mechanical barriers to separate and prevent contact between the line and the material or equipment or the person performing the work, activity, or function.

(c) The person, firm, corporation, or association responsible for the work, activity, or function shall pay the operator of the high voltage overhead line the actual expense incurred by the operator in providing the clearance prescribed in the agreement. The operator may require payment in advance and is not required to provide the clearance until the person, firm, corporation, or association responsible for the work, activity, or function makes the payment.

(d) If the actual expense of providing the clearance is less than the amount paid, the operator of the high voltage overhead line shall refund the surplus amount.

Acts 1989, 71st Leg., ch. 678, Sec. 1, eff. Sept. 1, 1989.

Sec. 752.004. RESTRICTION ON ACTIVITIES NEAR LINES. (a) Unless a person, firm, corporation, or association effectively guards against danger by contact with the line as prescribed by Section 752.003, the person, firm, corporation, or association, either individually or through an agent or employee, may not perform a function or activity on land, a building, a highway, or other premises if at any time it is possible that the person performing the function or activity may:

(1) move or be placed within six feet of a high voltage overhead line while performing the function or activity; or

(2) bring any part of a tool, equipment, machine, or material within six feet of a high voltage overhead line while performing the function or activity.

(b) A person, firm, corporation, or association may not require an employee to perform a function or activity prohibited by Subsection (a).

Acts 1989, 71st Leg., ch. 678, Sec. 1, eff. Sept. 1, 1989.

Sec. 752.005. RESTRICTION ON OPERATION OF MACHINERY AND PLACEMENT OF

STRUCTURES NEAR LINES. Unless a person, firm, corporation, or association effectively guards against danger by contact with the line as prescribed by Section 752.003, the person, firm, corporation, or association, either individually or through an agent or employee, may not:

(1) erect, install, transport, or store all or any part of a house, building, or other structure within six feet of a high voltage overhead line;

(2) install, operate, transport, handle, or store all or any part of a tool, machine, or equipment within six feet of a high voltage overhead line; or

(3) transport, handle, or store all or any part of supplies or materials within six feet of a high voltage overhead line.

Acts 1989, 71st Leg., ch. 678, Sec. 1, eff. Sept. 1, 1989.

Sec. 752.007. CRIMINAL PENALTY. (a) A person, firm, corporation, or association or an agent or employee of a person, firm, corporation, or association commits an offense if the person, firm, corporation, association, agent, or employee violates this chapter.

(b) An offense under this section is punishable by a fine of not less than $100 or more than $1,000, confinement in jail for not more than one year, or both.

Acts 1989, 71st Leg., ch. 678, Sec. 1, eff. Sept. 1, 1989.

Sec. 752.008. LIABILITY FOR DAMAGES. If a violation of this chapter results in physical or electrical contact with a high voltage overhead line, the person, firm, corporation, or association that committed the violation is liable to the owner or operator of the line for all damages to the facilities and for all liability that the owner or operator incurs as a result of the contact.

Acts 1989, 71st Leg., ch. 678, Sec. 1, eff. Sept. 1, 1989.

SAFETY SMART.
KNOW THE LAW.

ATTENTION:

This document is a brief overview only. Please take the time to read completely through the full text of each related regulation. To assist contractors with compliance with OSHA's Crane and Derrick final rule, OSHA has developed a webpage containing fact sheets, frequently asked questions, a presentation covering the final rule and other important information.

This information can be found online at: osha.gov/cranes-derricks

Other OSHA regulations can be found online at: osha.gov

FOOTNOTES

[1] *Code of Federal Regulations, Title 29, Part 1910.180, 1910.333, 1926.416, 1926.417 and 1926.550*

[2] *Occupational Safety and Health Administration Small Entity Compliance Guide for Final Rule for Cranes and Derricks in Construction*

[3] *DEENERGIZE AND GROUND: The employer must rely on the power line's owner or operator to take these steps. You must assume that all power lines are energized unless the utility owner/operator confirms that the power line has been and continues to be de-energized and the line is visibly grounded at the work site*

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FORM 8171

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SAFETY SMART.
KNOW THE LAW.

Oncor wants you to be aware of the dangers of making contact with power lines. Electricity, powerful enough to kill, will flow through any metal or other conductive object and an electric arc flash can occur if a conductive object gets too close or touches electric lines.

For this reason special care must be taken when working near power lines. No one should ever let any object touch an electric line except trained personnel using tools and equipment especially made for this purpose, which have been properly maintained, tested and inspected.

If it is possible during the course of work for someone to move to, or place any objects, within **TEN feet*** of any high voltage overhead electric line you must first notify the operator of that electric line (at least 48 hours in advance of beginning any planned work closer to the line than those distances) and arrange with the operator for permission to complete the work. For lines to be turned off, moved, or other arrangements, contact Oncor.

*** WARNING – this distance should be increased for voltages above 50KV (see #4 of Excerpts from OSHA regulations).**

Texas Health and Safety Code, Chapter 752:
If a violation of these requirements results in physical or electrical contact with a high voltage overhead electric line, persons who committed that violation are liable to the owner or operator of the line for all damages to the facilities and for all liability that the owner or operator incurs as a result of the contact.

The federal Occupational Safety and Health Administration (OSHA), and the National Electric Safety Code (NESC) also regulate or impose minimum clearance restrictions, relating to work on or around high voltage overhead electric lines as well as special requirements for Cranes and Derricks. Local codes and ordinances may also apply.

FEDERAL LAW:
EXCERPTS FROM OSHA REGULATIONS [1]

1. **Employers must establish safety-related work practices** to protect employees against the danger of contacting power lines.

2. **Before any work is begun**, the employer must determine whether the work may bring any worker, tool, or machines near a power line. If so, the employer must post warning signs, advise employees of the location of the lines, the hazards involved, and protective measures to take.

3. **Every power line must be treated as energized** unless and until the utility indicates that it is not energized.

4. **For power lines of 50,000 volts and below**, a worker or any part of a conductive material, tool, piece of equipment or machine must not come within ten (10) feet of an energized line. For power lines above 50,000 volts, this minimum clearance requirement increases four (4) inches for every 10,000 volts.

5. **The only exception to these requirements** is when the parties responsible for the work have effectively guarded against the danger of contacting the lines. Those parties responsible for the work must notify the electric utility at least 48 hours BEFORE the work begins to arrange for measures to guard against contact with the lines. The work may not begin until those parties and the utility have negotiated and taken proper safety precautions, such as de-energizing the lines.

6. **Responsible parties that violate these requirements** could subject to criminal penalties. In addition, if a violation results in contact with a power line, they are also liable to the utility for all damages and liability it incurs due to the contact.

EXCERPTS FROM OSHA'S CRANE AND DERRICK REGULATION [2]

The first step – could the crane get closer than 20 feet to a power line? Keeping a safe distance from power lines is the key to preventing power line accidents. Therefore, the first step you must take when planning to operate a crane on a site where a power line is present is to identify the crane's work zone and use that work zone to determine how close it could come to the power line.

If you determine that no part of the crane, load, or load line could get closer than 20 feet to a power line, no further precautions are required. If the initial plan for the crane's use changes during the project, you must reevaluate whether the equipment could get closer than 20 feet to the power line.

*[**Note:** If the line's voltage is over 350,000 volts, a 50-foot, rather than 20-foot, minimum clearance must be maintained. This Guide assumes that the voltage is less than 350,000 volts and uses the 20-foot clearance distance.]*

Alternative to 20-foot clearance (Table A):

If you know the line's voltage, you may use the minimum clearance distance in Table A in lieu of 20 feet.

TABLE A (ABBREVIATED)
Minimum Clearance Distances to 350kV

VOLTAGE (Nominal, Alternating Current)	**MINIMUM CLEARANCE DISTANCE** (Feet)
50 kV and below	10 feet
Over 50kV to 200kV	15 feet
Over 200kV to 350kV	20 feet

One way to determine the line's voltage is to ask the line's owner or operator. The utility must respond to such a voltage inquiry within two working days.

If you use Table A to determine the minimum clearance distance, you must determine whether any part of the crane, load, or load line could get closer than the Table A distance to a power line if the equipment is operated up to its maximum working radius in the work zone.

If you determine that part of the crane, load, or load line could come closer to the power line than the required minimum clearance distance (either 20 feet or the Table A clearance), you must either **de-energize and ground the line** or take specified steps to **maintain the required minimum clearance distance**.[3]

GENERAL RESTRICTIONS WITHIN BRAZOS ELECTRIC COOPERATIVE'S ELECTRIC TRANSMISSION LINE EASEMENTS:

- No trash dumpsters, toxic substances or flammable materials will be allowed on the Brazos Electric easement.

- The grade or elevation of the easement area shall not be raised unless approved in writing by Brazos Electric.

- No permanent improvements, including any pipeline related appurtenances, shall be placed above ground within the Brazos electric easement.

- There will be no activity, including but not limited to trenching, within twenty feet (20') of any transmission line structure.

- Access along the Brazos Electric easement shall not be impeded at any time due to construction activities or at any other time thereafter.

- **Use of draglines, backhoes or other boom-type equipment in connection with any work to be performed on the Brazos Electric easement by any employees, agents, representatives or contractors must comply with Chapter 752, Texas Health and Safety Code, the National Electrical Safety Code, current OSHA requirements and any other clearance requirements. Brazos Electric's dispatcher in Waco, Texas, telephone number 254/750-6500 shall be notified at least forty eight (48) hours prior to the use of any boom-type equipment on Brazos Electric's easement. This notice and phone number shall be placed on every sheet of the construction drawings where Brazos Electric's facilities are involved. Brazos Electric reserves the right to refuse permission to use boom-type equipment.**

- Brazos Electric makes no representations or warranties as to the Brazos Electric easement or any rights conferred therein, and by this agreement confers no rights in or to the Brazos Electric easement. Your company/client/city shall be solely responsible for obtaining its rights, permits, etc. from any governmental authority for all property affected by its construction within the Brazos Electric easement, including the right to construct and use any improvements.

GEOTECHNICAL STUDY

Mesquite Heritage Trail Phase 2
Mesquite, Texas

Project 20143095.001A
July 2, 2014

July 2, 2014
Project 20143095.001A

Brown and Gay Engineers, Inc.
2595 Dallas Parkway, Suite 204
Frisco, Texas 75034

Attention: Mr. Gary Stringer, PE
Senior Project Manager

Subject: Geotechnical Study
Mesquite Heritage Trail Phase 2
Mesquite, Texas

Dear Mr. Stringer:

This report transmits the findings of our geotechnical study for the Mesquite Heritage Trail Phase 2 project in Mesquite, Texas. The results of study are included along with our recommendations for use during the design of the proposed pedestrian bridge, retaining walls, and pedestrian trail.

We appreciate the opportunity to be of service to you on this project. If we can be of additional assistance as the design progresses, please contact us at 972-868-5900.

Sincerely,

KLEINFELDER CENTRAL, INC.
Texas Registered Engineering Firm F-5592

John Buller, EIT
Staff Engineer

Sri Dinakaran, PE
Senior Project Manager

Copies Submitted: 1 via email & mail

Distribution: (1) Addressee

7805 Mesquite Bend Drive, Suite 100, Irving, TX 75063 **p |** 972.868.5900 **f |** 972.409.0008

A Report Prepared for:

Brown and Gay Engineers, Inc.
Frisco, Texas

GEOTECHNICAL STUDY
Mesquite Heritage Trail Phase 2
Mesquite, Texas

Project 20143095.001A
July 2, 2014

Prepared by:

John Buller, EIT
Staff Engineer

Sri Dinakaran, PE
Senior Project Manager

STATE OF TEXAS
SRI DINAKARAN
85434
July 02, 2019
LICENSED PROFESSIONAL ENGINEER

KLEINFELDER
Bright People. Right Solutions.

7805 Mesquite Bend Dr., Suite 100
Irving, Texas 75063
p| 972.868.5900
f | 972.409.0008
Texas Registered Engineering Firm F-5592

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Important Information About Your

Geotechnical Engineering Report

Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes

The following information is provided to help you manage your risks.

Geotechnical Services Are Performed for Specific Purposes, Persons, and Projects

Geotechnical engineers structure their services to meet the specific needs of their clients. A geotechnical engineering study conducted for a civil engineer may not fulfill the needs of a construction contractor or even another civil engineer. Because each geotechnical engineering study is unique, each geotechnical engineering report is unique, prepared *solely* for the client. No one except you should rely on your geotechnical engineering report without first conferring with the geotechnical engineer who prepared it. *And no one - not even you* - should apply the report for any purpose or project except the one originally contemplated.

Read the Full Report

Serious problems have occurred because those relying on a geotechnical engineering report did not read it all. Do not rely on an executive summary. Do not read selected elements only.

A Geotechnical Engineering Report Is Based on A Unique Set of Project-Specific Factors

Geotechnical engineers consider a number of unique, project-specific factors when establishing the scope of a study. Typical factors include: the client's goals, objectives, and risk management preferences; the general nature of the structure involved, its size, and configuration; the location of the structure on the site; and other planned or existing site improvements, such as access roads, parking lots, and underground utilities. Unless the geotechnical engineer who conducted the study specifically indicates otherwise, do not rely on a geotechnical engineering report that was:

- not prepared for you,
- not prepared for your project,
- not prepared for the specific site explored, or
- completed before important project changes were made.

Typical changes that can erode the reliability of an existing geotechnical engineering report include those that affect:

- the function of the proposed structure, as when it's changed from a parking garage to an office building, or from alight industrial plant to a refrigerated warehouse,
- elevation, configuration, location, orientation, or weight of the proposed structure,
- composition of the design team, or
- project ownership.

As a general rule, *always* inform your geotechnical engineer of project changes - even minor ones - and request an assessment of their impact. *Geotechnical engineers cannot accept responsibility or liability for problems that occur because their reports do not consider developments of which they were not informed.*

Subsurface Conditions Can Change

A geotechnical engineering report is based on conditions that existed at the time the study was performed. *Do not rely on a geotechnical engineering report* whose adequacy may have been affected by: the passage of time; by man-made events, such as construction on or adjacent to the site; or by natural events, such as floods, earthquakes, or groundwater fluctuations. *Always* contact the geotechnical engineer before applying the report to determine if it is still reliable. A minor amount of additional testing or analysis could prevent major problems.

Most Geotechnical Findings Are Professional Opinions

Site exploration identifies subsurface conditions only at those points where subsurface tests are conducted or samples are taken. Geotechnical engineers review field and laboratory data and then apply their professional judgment to render an opinion about subsurface conditions throughout the site. Actual subsurface conditions may differ-sometimes significantly from those indicated in your report. Retaining the geotechnical engineer who developed your report to provide construction observation is the most effective method of managing the risks associated with unanticipated conditions.

A Report's Recommendations Are *Not* Final

Do not overrely on the construction recommendations included in your report. *Those recommendations are not final*, because geotechnical engineers develop them principally from judgment and opinion. Geotechnical engineers can finalize their recommendations only by observing actual

subsurface conditions revealed during construction. The geotechnical engineer who developed your report cannot assume responsibility or liability for the report's recommendations if that engineer does not perform construction observation.

A Geotechnical Engineering Report Is Subject to Misinterpretation

Other design team members' misinterpretation of geotechnical engineering reports has resulted in costly problems. Lower that risk by having your geotechnical engineer confer with appropriate members of the design team after submitting the report. Also retain your geotechnical engineer to review pertinent elements of the design team's plans and specifications. Contractors can also misinterpret a geotechnical engineering report. Reduce that risk by having your geotechnical engineer participate in prebid and preconstruction conferences, and by providing construction observation.

Do Not Redraw the Engineer's Logs

Geotechnical engineers prepare final boring and testing logs based upon their interpretation of field logs and laboratory data. To prevent errors or omissions, the logs included in a geotechnical engineering report should *never* be redrawn for inclusion in architectural or other design drawings. Only photographic or electronic reproduction is acceptable, *but recognize that separating logs from the report can elevate risk.*

Give Contractors a Complete Report and Guidance

Some owners and design professionals mistakenly believe they can make contractors liable for unanticipated subsurface conditions by limiting what they provide for bid preparation. To help prevent costly problems, give contractors the complete geotechnical engineering report, *but* preface it with a clearly written letter of transmittal. In that letter, advise contractors that the report was not prepared for purposes of bid development and that the report's accuracy is limited; encourage them to confer with the geotechnical engineer who prepared the report (a modest fee may be required) and/or to conduct additional study to obtain the specific types of information they need or prefer. A prebid conference can also be valuable. *Be sure contractors have sufficient time* to perform additional study. Only then might you be in a position to give contractors the best information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions.

Read Responsibility Provisions Closely

Some clients, design professionals, and contractors do not recognize that geotechnical engineering is far less exact than other engineering disciplines. This lack of understanding has created unrealistic expectations that have led to disappointments, claims, and disputes. To help reduce the risk of such outcomes, geotechnical engineers commonly include a variety of explanatory provisions in their reports. Sometimes labeled "limitations" many of these provisions indicate where geotechnical engineers' responsibilities begin and end, to help others recognize their own responsibilities and risks. *Read these provisions closely.* Ask questions. Your geotechnical engineer should respond fully and frankly.

Geoenvironmental Concerns Are Not Covered

The equipment, techniques, and personnel used to perform a *geoenvironmental* study differ significantly from those used to perform a *geotechnical* study. For that reason, a geotechnical engineering report does not usually relate any geoenvironmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. *Unanticipated environmental problems have led to numerous project failures.* If you have not yet obtained your own geoenvironmental information, ask your geotechnical consultant for risk management guidance. *Do not rely on an environmental report prepared for someone else.*

Obtain Professional Assistance To Deal with Mold

Diverse strategies can be applied during building design, construction, operation, and maintenance to prevent significant amounts of mold from growing on indoor surfaces. To be effective, all such strategies should be devised for the express purpose of mold prevention, integrated into a comprehensive plan, and executed with diligent oversight by a professional mold prevention consultant. Because just a small amount of water or moisture can lead to the development of severe mold infestations, a number of mold prevention strategies focus on keeping building surfaces dry. While groundwater, water infiltration, and similar issues may have been addressed as part of the geotechnical engineering study whose findings are conveyed in-this report, the geotechnical engineer in charge of this project is not a mold prevention consultant; ***none of the services performed in connection with the geotechnical engineer's study were designed or conducted for the purpose of mold prevention. Proper implementation of the recommendations conveyed in this report will not of itself be sufficient to prevent mold from growing in or on the structure involved.***

Rely on Your ASFE-Member Geotechnical Engineer For Additional Assistance

Membership in ASFE/The Best People on Earth exposes geotechnical engineers to a wide array of risk management techniques that can be of genuine benefit for everyone involved with a construction project. Confer with your ASFE-member geotechnical engineer for more information.

ASFE
The Best People on Earth

8811 Colesville Road/Suite G106, Silver Spring, MD 20910
Telephone:' 301/565-2733 Facsimile: 301/589-2017
e-mail: info@asfe.org www.asfe.org

IIGER06045.0M

GEOTECHNICAL STUDY
MESQUITE HERITAGE TRAIL PHASE 2
MESQUITE, TEXAS

1 INTRODUCTION

1.1 PROJECT DESCRIPTION

This report presents the results of a geotechnical study for the proposed Mesquite Heritage Trail Phase 2 project in Mesquite, Texas. The project will consist of the construction of a 12 foot wide trail from the intersection of Highway 635 and Towne Centre Drive across Mesquite Creek and extending the trail south to the turnaround at the Westover Greenbelt Trail, located near the intersection of Jane Street and Gross Road. The trail will be parallel to the existing Mesquite Creek. The proposed project will include the trail, pedestrian bridges, box culverts, retaining walls, and trail crossings under Highway 80 and its frontage roads.

1.2 SITE DESCRIPTION

The project alignment is in the vicinity of US Highway 80 and along Mesquite Creek. The properties adjacent to the project alignment include business development towards the east and west, and undeveloped land to the north and south. Site vegetation consists of overgrown brush and weeds, mowed grass, and numerous mature trees along the banks of Mesquite Creek. Site drainage appeared to be sloping gently east towards the Mesquite Creek which flows southward.

1.3 PURPOSE AND SCOPE

This study was performed based upon Attachment “D” - Geotechnical Detailed Scope of Basic Services presented in Brown and Gay Engineering, Inc.’s Subcontract for Consultant Services (Contract No. BGE 2163-00), dated January 30, 2014. The purpose of the study is to provide geotechnical recommendations for use during the design of the Mesquite Heritage Trail Phase 2 project. To accomplish this purpose, the study has been conducted based on the following scope:

- Drilled seven borings to obtain samples for observation and testing, and assess subsurface conditions;
- Performed laboratory tests on select samples to determine classification and engineering properties of the subsurface materials; and,
- Performed analyses using the collected data to develop geotechnical engineering recommendations and parameters for use during the design of drilled shaft foundations, retaining wall structures and soil nail parameters.

The recommendations contained herein are based on data supplied by Brown and Gay Engineering, Inc. and our stated assumptions. Once the design is complete and available, the recommendations in this report should be reviewed by Kleinfelder with respect to the design project plans and specifications. It is possible that modification of our recommendations may be required based upon the final design.

2 FIELD EXPLORATION AND LABORATORY TESTING

2.1 FIELD EXPLORATION

Subsurface conditions were studied by drilling and sampling seven borings with a truck-mounted drilling rig. Borings B-01 through B-04 were drilled for the pedestrian bridges while Borings C-01 through C-03 were drilled for the proposed culverts. Bridge Borings (B-02, B-03, and B-04) were also used for the retaining wall recommendations. A schedule of the borings is presented in Table 2.1, and the approximate location of these borings is presented on the Plan of Borings in the Appendix, Plate 2.

Table 2.1 - Schedule of Borings

Boring No.	Depth	Date Drilled	Latitude	Longitude
B-01	35 feet	February 14, 2014	32.80016	-96.63110
B-02	30 feet	February 14, 2014	32.79323	-96.62807
B-03	30 feet	February 14, 2014	32.79288	-96.62773
B-04	35 feet	February 14, 2014	32.79216	-96.62777
C-01	25 feet	February 14, 2014	32.79908	-96.63083
C-02	25 feet	February 14, 2014	32.79798	-96.63047
C-03	25 feet	February 14, 2014	32.79071	-96.62830

The borings were located in the field using a site plan and measurements from existing landmarks. The boring coordinates were obtained using a hand-held GPS unit. These locations were not surveyed by a land surveyor, and should be considered accurate only to the extent implied by the technique used in their determination. If point control is required, then a licensed land surveyor should be retained to record the location and elevation of the borings.

Continuous-hollow stem auger and push sampling drilling techniques were used without drilling fluids. When present, seepage and groundwater levels were recorded, as discussed in a following section. Upon the completion of drilling operations, each boring was backfilled with auger cuttings up to and slightly above the existing ground surface.

A log of each boring is presented in the Appendix, along with a key to the symbols and terms used on the logs. The logs indicate the material types, depths, and other details encountered for each boring. Soil and rock descriptions presented upon the boring logs resulted from a combination of field and laboratory test data. Stratigraphy lines correspond to the approximate boundary between strata. However, the in-situ subsurface transition can be, and is often, gradual.

Relatively undisturbed samples of cohesive soils were collected by using the drilling rig to push a seamless, steel tube sampler into the soil (based upon ASTM D1587). The depths at which these samples were collected are indicated on the boring logs. After a tube was recovered, the sample was extruded in the field, examined and logged. The sample was then sealed in a plastic bag to reduce moisture loss and protect the sample.

During logging, an estimate of the sample consistency was obtained using a pocket penetrometer. This test provides relative strength data that is used as an approximate indicator of shear strength. The result of the penetrometer reading is recorded at a corresponding depth on the boring logs. Note that a reported value of “4.5+” indicates that the capacity of the penetrometer device was exceeded.

Rock and rock-like materials were evaluated in place using the Texas Department of Transportation (TxDOT) cone penetrometer test. This test evaluates the shear strength of the tested material by driving a steel cone into the material using a free-falling hammer (based upon Method TEX 132-E). During the test, the logger records either the number of blows producing 12 inches of penetration, or the total inches of penetration due to two successive applications of 50 blows, for a total of 100 blows. The results of the test are recorded on the boring logs at the corresponding test depth.

2.2 LABORATORY TESTING

Laboratory testing was performed on selected samples collected from the borings during drilling. These samples were selected as being generally representative of that stratum and/or boring(s). Testing was performed to allow for material classification according to the Unified Soil Classification System (ASTM D 2487), and to determine the engineering properties of the materials. These tests included:

- Moisture content
- Unit dry weight

- Atterberg limits (liquid and plastic limits)
- Percent passing No. 200 sieve
- One-dimensional swell with overburden pressure
- Unconfined compressive strength
- Lime vs. PH
- Soluble sulfates

The results of these tests are presented at the corresponding depth on each boring log, individual report plate and/or in the Laboratory Tests Results Summary in the Appendix, Plates 5 through 19.

3 SUBSURFACE CONDITIONS

3.1 GEOLOGY

The Dallas Sheet of the Geologic Atlas of Texas locates the project is located within a mapped outcropping of the Taylor Marl geologic formation. This formation typically consists of clays overlying the marl bedrock. The thickness of the clay above the marl varies, but may extend to relatively deep depths. The upper portions of the marl are generally weathered, and light brownish-gray to gray in color. Some zones of severely (highly) weathered marl that are clay-like can be present above the weathered material. The underlying primary marl is generally harder than the weathered marl and is gray to dark gray in color.

3.2 SUBSURFACE STRATIGRAPHY

Based on the results of the borings, the subsurface conditions at the site can be generalized as 19 to 23 feet of clay with calcareous nodules over weathered and fresh marl. The upper 9 to 20 feet of clay indicate high plasticity clays. A sand fill material, about 4 feet in thickness, was encountered in Boring B-04. The color of the clay soil ranges from dark brown, reddish brown, olive brown to gray. The consistency of the clay ranges from stiff to hard. The marl is gray to dark gray to olive brown in color

Atterberg limit testing (liquid and plastic limits) was performed on representative soils that exhibited plastic behavior. The liquid limit of these soils were found to vary from 36 to 69 while the plasticity indices (PI) varied from 19 to 47 with 42 to 98 percent passing the No. 200 sieve. The strength of relatively undisturbed soil samples was evaluated with unconfined compression tests. The results of the testing indicate that the unconfined compressive strength of these soils varies from 1.7 to 2.1 tons per square foot (tsf). Refer to the Logs of Borings and the Laboratory Test Summary in the Appendix for specific laboratory test results at each boring location.

3.3 GROUNDWATER OBSERVATIONS

The borings were advanced using techniques that allow for direct and indirect observations of seepage and groundwater during drilling operations. Seepage was not observed at the time of drilling. At the end of drilling activities the borings were checked for ground water and then backfilled with cuttings.

These observations do not preclude the possibility of encountering seepage or groundwater along the trail alignment, and are only indicative of conditions at the time and place indicated. The occurrence and variations of groundwater can vary due to many factors. These factors include seasonal changes, site topography, surface runoff, the layering and permeability of subsurface strata, water levels in waterways, utilities, and other factors not evident at the time this study. The possibility of groundwater and its fluctuation should be considered when drilling the pier excavation and installing the drilled shafts and for the design and construction of the soil nail walls.

3.4 EXPANSIVE SOIL CHARACTERISTICS

The subgrade along the trail alignment includes expansive soil that will exhibit shrink and swell behavior. The amount of shrink/swell behavior that can occur will depend upon moisture fluctuations that occur over the life of the structure and/or pavement. The total magnitude of the shrink/swell behavior will also be dependent upon the thickness of the expansive soil and the depth of the active moisture zone. Moisture fluctuations occur due to seasonal cycles, but can also be influenced to varying degrees by drainage conditions; site grades/sloping ground, landscaping, irrigation practices, the presence of vegetation, groundwater, and the presence of flatwork or other impervious barriers. This large number of variables complicates the determination of the magnitude of shrink/swell movements that could occur.

An estimate of the potential expansive soil movement was made using a variety of methods, including the Potential Vertical Rise (PVR) Method 124-E published by TxDOT, the results of laboratory index and swell testing, engineering judgment, and experience. Based on this information, the estimated soil movement, or PVR, is 2.5 to 4.5 inches for a dry moisture condition. Swell tests indicate PVR of about 2 to 3 inches at in-situ moisture contents. It should be recognized that this value range is not an exact value, and is only an indication of the potential movements due to expansive soil for seasonal moisture fluctuations. Actual movements may be significantly larger than estimated due to inadequate site grading, poor drainage, ponding surface water, and/or leaks in utility lines. Significant changes to existing site grade can also alter actual PVR movements by changing the thickness of the expansive soil and/or altering the active moisture zone depth.

4 ANALYSIS AND RECOMMENDATIONS

We understand that the proposed pedestrian bridges will be supported on drilled shaft foundations. Geotechnical recommendations for the design and construction of the drilled shafts and associated development are provided below.

4.1 DRILLED SHAFT FOUNDATIONS

The drilled shafts should be straight-sided, steel reinforced concrete, and designed based on the recommendations presented in Table 4.1.

Table 4.1 - Drilled Shaft Design Values

Design Item	Design Value
Shaft type	Auger-excavated, straight-sided
Bearing Stratum Description	Gray Marl
Approximate Bearing Stratum Depth	19 to 23 feet below existing grade
Minimum Penetration	Two shaft diameters or 6 feet, whichever is greater, into bearing stratum
Maximum Allowable Bearing Pressure	20,000 psf
Maximum Allowable Side Shear, Compression/Tension	3,200/2,400 psf, within bearing stratum
Side Shear to Neglect	Upper 1 foot of bearing stratum
Minimum Shaft Diameter	24 inches

The design values have been selected to include a minimum factor of safety of three with regard to shear failure. Properly constructed foundations designed based on these values should experience minor settlement due to loading, but we recommend that the design account for one-half inch of potential settlement. Because of potential variations in the depth of the bearing material, the depth of the shafts should be based upon the recommended penetration into the bearing stratum, and not upon a predetermined elevation.

The expansive subgrade will subject the shafts to uplift pressures and may create tensile forces within the shafts. Accordingly, each shaft should be reinforced with steel to withstand these forces. The actual uplift forces (due to expansive soils) will vary with depth and moisture condition, but steel reinforcement design for the soil uplift pressures may be modeled using 1,500 psf acting over the entire shaft perimeter of the upper 10 feet of the shaft. This reinforcement should not preclude the need for additional reinforcement due to structural design, or as required by codes.

4.2 DRILLED SHAFT CONSTRUCTION CONSIDERATIONS

Drilled shaft construction should be observed by Kleinfelder to observe 1) the proper identification of bearing material, 2) that adequate penetration of the shaft excavation into the bearing layer is provided, 3) that the base and sides of the shaft excavation are clean of loose cuttings, and 4) that if seepage is encountered, whether it is of sufficient amount to require the use of temporary steel casing for straight-sided shafts. Note that these items and the following discussion are intended to benefit the Owner and maintain the intent of the design during construction. This discussion is not intended to prescribe means and methods for construction.

Groundwater was not noted during this study. If significant seepage occurs during construction, it will require the use of temporary casings. If casings are used, Kleinfelder must observe that the necessary and continuous head of concrete is maintained within the casing during casing extraction to reduce the caving of the excavation and/or inflow of groundwater.

The concrete placement should occur as soon as possible after completion of the excavation and observation of the shaft, and no longer than 8 hours after completion of the excavation. Prolonged exposure or inundation of the bearing surface with groundwater could deteriorate the bearing material. Shaft excavations should be deepened to provide a suitable bearing surface, if delays occur.

Precautions are required during reinforcing steel and concrete placement to prevent loose soil and debris from falling into the excavation. The concrete should not be allowed to strike the reinforcing cage or the sides of the excavation during placement. Mushrooming of the drilled shaft near or at the surface should not be allowed to prevent the formation of a horizontal surface that will be subject to expansive uplift pressures.

4.3 LATERAL LOAD RESISTANCE

We recommend the following parameters be used in the lateral behavior analysis of the drilled shaft with the computer LPILE (latest version), developed by Ensoft, Inc.

Table 4.2 – LPILE Parameters for Soil

LPILE Soil Type	Cohesion, psf	Friction Angle	Unit Wt, pcf[(1)]	Modulus KS, pci
Neglect upper 0 – 5 feet	---	---	---	---
Stiff Clay w/o free water (above water table)	1,500	---	125[(1)]	500 (static) 200 (cyclic)

(1) Represents total unit weight. In conditions where soils are below the water table, submerged unit weights should be used. Submerged unit weight is obtained by subtracting the unit weight of water (62.4 pcf) from the total unit weight.

Table 4.3 – LPILE Parameters for Rock

LPILE Rock Type	Uniaxial Compressive strength, psi	Initial Modulus of Rock Mass, psi	RQD, %	Unit Wt, pcf	K_{rm}
Weak Rock (Marl)	200	1,800	70	130	0.0005

4.4 WATER SOLUBLE SULFATE

Soil samples were tested to determine the water soluble sulfate on a selected number of subgrade samples. The results are presented in Table 4.4.

Table 4.4 – Water Soluble Sulfate Test Results

Boring No.	Depth (feet)	Sulfate (ppm)
B-1	6 to 8	280
B-2	4 to 5	800
B-3	1 to 2	980
B-4	18 to 20	120

Sulfate content of the selected soil samples range from 120 to 980 ppm. The American Concrete Institute (ACI) rates the aggressiveness to concrete as negligible when the sulfate content is less than 1,000 ppm.

This chemical test was performed on a discrete sample and is not intended to be a complete representation of all soil types along the alignment. The test results are general and should be considered only a random survey. If a comprehensive evaluation is warranted, we recommend that a corrosion/concrete specialist be retained for consultation on this project.

4.5 SOIL NAIL WALLS

4.5.1 General Design Recommendations

We understand that soil nail walls are being considered for the trail at the intersection with Highway 80. Results of the field exploration, laboratory testing, published geologic maps, visual examination and our experience in the area of the project were used to develop design and construction recommendations for the proposed retaining walls. Soil nail wall layout drawings for 60 percent submittal were provided by Brown & Gay Engineers, Inc. via an email dated June 2014. Soil nail wall layouts were provided at abutment locations for Highway 80 eastbound and westbound and Highway 80 NW and SW frontage road. The parameters used for the global stability analysis are provided in the Appendix, Plates 20 through 26. The cohesion, friction, and bond stress values assumed for the analyses are based on advancing the nail holes using dry auger or dry (air) rotary methods. If a water rotary method is used to install the nails then the design assumptions could vary and this could affect the soil nail lengths. The general design recommendations for the walls are provided below:

The following geotechnical parameters were used to develop these recommendations:

Table 4.5 – Soil Nail Design Parameters

DESIGN PARAMETER	CLAY (CH)
Density	125 pcf
Friction angle	18 degrees (effective stress)
Cohesion	1,500 psf (total stress)
Bond Skin Friction	500 psf
Punching Stress	22 kips
Yield Strength of Reinforcement	60 ksi

The global stability analysis indicated factors of safety of 1.5 and 3.9 for the effective and total stress conditions. A minimum factor of safety of 1.5 is considered to be adequate. The analyses were performed based on the subsurface conditions encountered in the borings at the time of the field exploration and for soil nail lengths of 25 feet.

Groundwater was not encountered in the borings at the time of the field exploration. The design of soil nails could change if groundwater is encountered, during construction. It is recommended that the groundwater depths be verified prior to construction of the soil nail walls. Seasonal seepage could occur at various depths in cut areas; therefore, provisions should be made to provide drainage behind the walls. Drainage recommendations are provided in Section 4.5.3, Construction Recommendations.

4.5.2 Soil Nail Test Anchors

It is recommended that both verification and proof testing of designated test nails be performed as determined by the structural engineer. Pre-production verification testing should be performed prior to installation of production nails to verify the contractor's installation methods and nail pullout resistance. A minimum of two verification tests should be performed in different soil/rock units and for each different drilling/grouting method proposed to be used, at each wall location. Verification test nails will be sacrificial and should not be incorporated as production nails. Proof testing on 5 percent (1 in 20) of the production nails in each row or minimum of 1 per row should be performed. The locations should be designated by the structural engineer.

4.5.3 Construction Recommendations

The drainage system for the soil nail walls is recommended to consist of 12 inch wide panels of prefabricated soil drainage material emptying into a weep hole or subdrain at the base of the wall. The drainage mats should be placed against the exposed cut at five foot centers measured horizontally. A drainage gutter consisting of concrete rip rap is recommended to be constructed at the top of the wall to minimize infiltration of surface water behind the wall.

The cut for the retaining wall should be excavated in lifts. The depth of each lift is recommended to be limited to the amount necessary to install a single horizontal row of soil nails. At no time should more than 5 feet of unnailed vertical soil be exposed. Test pits or small test cuts are recommended at the time of construction to assess whether the excavation face will stand while temporarily unsupported during staged excavations. If there are certain locations where the

exposed soils will slough and cave, then the face of the cut will need to be stepped or benched during installation of the soil nails. The length of each lift excavated is recommended to be limited to the amount that can be nailed in one day. At no time should any unnailed cut faces be exposed for over 48 hours. Upon completion of each day's installation of nails, pneumatically placed concrete (PPC) construction facing, with a minimum 3,000 pounds per square inch (psi) strength is recommended to be applied to the cut face. The construction facing is recommended to be reinforced with a single layer of Welded Wire Reinforcing Fabric. Anchor plates and nuts should be tightened up to the face of the PPC until the permanent facing is installed. The permanent facing is recommended to be installed within 45 working days of the completion of soil nailing. A permanent shotcrete can be placed against the construction facing. A free draining fill material should be placed between any void which exists between the back of the permanent facing and the nailed supported construction facing.

The design of the soil nail wall should be performed by a specialty contractor. We recommend that the specialty contractor visit each soil nail wall location to determine conflicts that may hamper proper installation. Some movement of the cut areas in the zone of soil nails could occur near other structures in the area of the installation. Soil movement will be required to develop the soil nail capacity. Documentation of the existing other structures should identify the presence of any cracking or other distress existing prior to the construction.

Additionally, any drainage culverts, utilities along the private property lines and any other existing structures in or near the soil nailing zones should be accurately determined by surveying methods, prior to the soil nailing installation. Kleinfelder can perform a review of the design for the Owner; however the review is not a part of the scope of this study.

4.6 CAST-IN-PLACE RETAINING WALLS

Cast-In-Place (CIP) retaining walls for the trail are planned to be designed in areas away from the bridge locations. We recommend an allowable bearing pressure of 2,000 pounds per square foot (psf) when bearing on undisturbed onsite soil or compacted fill material, without a downward slope (perpendicular to wall length) at the toe of the wall. The footings should bear a minimum of 24 inches below the lowest grade along the length of the wall. The soil in the area of the footing must be protected from erosion, and positive drainage away from the wall foundation must be provided. The footings will be subject to expansive soil movement. The movement will vary with site grading and footing depth, but is estimated to be 2 to 3 inches at the recommended bearing depth. These movements can be reduced by increasing the depth of the footing. Failure to provide positive drainage may result movements greater than calculated.

The walls will experience lateral pressures from the backfill soil and water. Depending on the wall type, the design condition could be active, at-rest or passive. The active condition occurs when the structure moves slightly away from the soil in response to the load. The at-rest condition generally develops for rigid structures that do not allow movement, such as basement walls. The passive condition occurs when forces move the structure into the soil. Equivalent fluid pressures are provided in Table 4.6, and may be used for horizontal backfill. The provided values do not include load factors and should be applied using a triangular distribution. If a drained condition is selected, then the wall must include a back-drainage system.

Table 4.6 - Equivalent Fluid Pressures

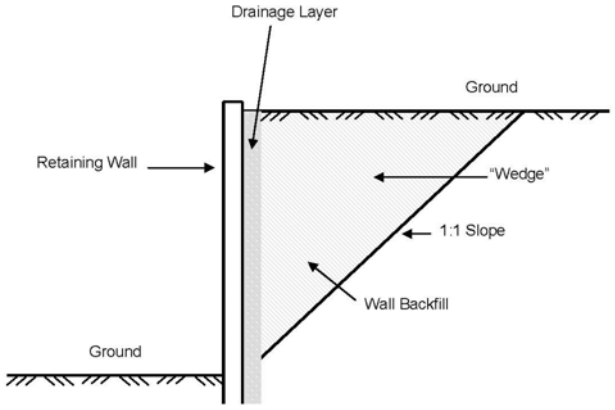
Material	Earth Pressure Condition	Equivalent Fluid Pressure, psf/ft	
		Drained	Undrained*
Granular/Select Fill ϕ=30°, γ_t=120 pcf	At-rest, k_o=0.50	60	90
	Active, k_a=0.33	40	85
	Passive, k_p=3.00	360	235
Onsite Clay Fill ϕ=18°, γ_t=120 pcf	At-rest, k_o=0.69	85	105
	Active, k_a=0.52	65	95
	Passive, k_p=1.89	230	175

*Undrained condition includes the effects of hydrostatic conditions.

Backfill should be placed and compacted as recommended in the EARTHWORK section of this report. Over-compaction will result in excessive lateral earth pressures. Hand-operated tampers or other lightweight compactors are preferred in the 3-foot area adjacent to the wall. The impact of surcharge loads (if present) should be included in design. Surcharge loads can include construction equipment, vehicular loads, soil and materiel stockpiles, and other items. The additional lateral loads due to these surcharge items can be factored using the earth-pressure coefficients provided in Table 4.6.

Equivalent fluid pressures values for the select fill and/or granular material require a triangular wedge of the material behind the wall. The material should slope upward and away from the bottom of the wall at a slope of 1:1 or flatter, as noted on Figure 4.1. The upper 18 inches should consist of plastic clay to reduce surface water infiltration into the fill.

Figure 4.1: Lateral Earth Diagram



Lateral forces on the foundation can cause sliding of the walls. These forces can be resisted by a variety of components, including friction between the footing and soil, passive pressure on shear keys, and possibly the shear strength of the soil. For frictional resistance, a coefficient of friction of 0.3 may be used for onsite soils. If a higher coefficient of friction is required then we recommend a minimum of 18 inches of TxDOT Item 247, Type D material under the footing. A coefficient of friction of 0.4 may be used for TxDOT Item 247 Type D flex base material. The frictional force may be calculated by using the dead weight of the wall, and the soil that is above the footing. The flexible base material should be placed at a minimum of 95 percent of ASTM D 698 maximum dry density within -3 to +3 percent of the optimum moisture content.

To depend upon passive pressures, there must be a certainty of no soil loss of soil in this area. Due to possible soil disturbance, passive pressure should only be counted for a shear key, if present, below the bottom of the footing.

4.6.1 CIP Global Stability Analysis

Global stability was analyzed for proposed CIP walls to be constructed for the Mesquite Heritage Trail Phase 2. Two stations were analyzed, 8+00 and 22+00. The external stability of the wall will be performed by others. Kleinfelder performed the global stability analyses for the CIP walls based on the CIP dimensions and cross sections provided by Brown and Gay Engineers, Inc. The global stability factors of safety for the long and short term analyses are presented in Table 4.7 below.

Table 4.7. CIP Wall Global Stability Factors of Safety

Wall Station	Geometry	Wall or Slope Height (feet)	FOS Long Term	FOS Short Term
8+00	Simple, Level	13	1.3	3.8
22+00	3H:1V Slope	5.5	1.9	6.5

For the CIP wall at Station 8+00, ground improvement is proposed to be used below the base the wall. A block sliding analyses was performed at this location to determine if the thickness of the ground improvement was sufficient. The ground improvement was intended to improve the sliding condition of the CIP wall. Our block sliding analyses indicated a factor of safety of 3.1 which indicates that the proposed thickness of the ground improvement is sufficient.

Global stability analysis results should be evaluated and repeated if the wall geometry and/or alignment change in the final design drawing. The computer outputs of the stability analysis that include additional information are presented in the Appendix, Plates 21 to 26. The global stability computations indicate that the CIP wall configuration achieves a calculated FOS of at least 1.3 against global stability at the critical section of the wall provided by Brown and Gay Engineers, Inc.

4.7 PEDESTRIAN TRAIL

Subgrade soils along the alignment for the proposed pedestrian trail are anticipated to generally consist of highly active clays. If borrow material from other areas of the site or off site are required, the properties of these materials could vary from the near surface soils and should be evaluated prior to importing them to the project.

The subgrade performance of the surficial on-site clay soils can be improved by stabilization with hydrated lime. It is estimated that the clay soils below the walkways will require at least 7 percent (42 lbs / sq. yard for 8 inch depth) hydrated lime by dry unit weight. It is recommended that the subgrades be observed and sampled after rough grading to evaluate the required percentage of hydrated lime for site specific areas. Additionally, any borrow material used as fill for pavement grades will need to be evaluated to determine the percent of hydrated lime required for stabilization.

The stabilized clays should be compacted to a minimum of 95 percent of the maximum density in a moisture content range of1 to 4 percent above the soil/lime mixtures' optimum moisture contents as determined by ASTM D-698. A minimum stabilized subgrade depth of 8 inches is required below the bottom of the proposed trail pavement. Lime stabilization, if used, should extend at least one foot beyond each edge of the pavement.

Project specifications should allow for a curing period of at least 48 hours between initial and final mixing of the lime/soil mixture. After initial mixing, the subgrade should be lightly rolled and maintained at a moisture content of at least 3 percent above its optimum moisture content until final mixing and compaction. The gradation requirements provided in Table 4.8 are recommended for the stabilized materials prior to final compaction. All non-slaking aggregates retained on the No. 4 sieve should be removed prior to testing.

Table 4.8 – Lime Stabilization Gradation Requirements

PARTICLES	PERCENT
Minimum Passing 1-3/4" Sieve	100
Minimum Passing No. 4 Sieve	60

The lime stabilized subgrade should be protected and moist cured or sealed with a bituminous material until the pavement materials are placed. Finished pavement subgrade areas should be graded at all times to prevent ponding and infiltration of excessive moisture on or adjacent to the pavement subgrade surface.

If lime stabilization of the concrete trail subgrades will not be performed, then we recommend a flexible base material (with a minimum thickness of 6 inches) be used as a leveling course rather than low plasticity sand. The base material should not extend outside the limits of the trail. Grades around finished trail areas should be graded at all times to prevent ponding and infiltration of excessive moisture on or adjacent to the trail surfaces.

The flexible base material planned to be used for the trail base course should comply with the TxDOT Standard Specifications for Construction and Maintenance of Highways, Streets and Bridges published in 2004 (TxDOT) Item 247, Grade 1 Type D guidelines. Aggregate base satisfying the requirements should be placed on the compacted subgrade. The base material should be moistened to within 2 percent of its optimum moisture content and compacted to not less than 95 percent of the maximum dry density as determined by ASTM D 698.

The concrete surfaced trail, according to the Mesquite Paving Sheet Three Engineering Division Standard Details for a sidewalk typical section, should consist of approximately 4 to 6 inches of Portland cement concrete reinforced by number 3 bars on 24 inch centers. Half inch expansion joints with expansion joint filler should be placed with a maximum spacing of 120 foot with tooled grooves spaced every five feet. Two foot long smooth number 4 dowel bars should be used at each expansion joint on 24 inch centers. The concrete strength should be 3,600 psi with a maximum slump of 5 inches.

4.8 BOX CULVERTS

Borings C-01, C-02, and C-03 were drilled for the proposed box culverts. Bottom elevations for the proposed culverts were not provided at the time of this report. Based on the borings near the culvert areas, the soils consist of high plasticity clay soil underlain by marl. We anticipate that the exposed subgrade materials may be soft and unstable within the existing drainage area; thus, additional undercutting and replacement with structural fill or placement of a lean concrete or grout “mud slab” or a geogrid/aggregate section may be required to improve and create an adequate bearing and level working surface for quality construction. The excavated material may be reutilized as fill material with proper moisture conditioning to within 1 foot of the bottom of the box culverts. The excavated material should moisture conditioned to between the optimum to four percent above the optimum moisture content (0 to + 4 percent). The material should then be compacted to a minimum of 95 percent of ASTM D-698 (Standard Proctor). The upper foot of subgrade beneath the culvert should consist of a “mudslab’ or aggregate base section. The “mudslab” should have a minimum compressive strength of 500 psi after 28 days.

Box culverts bearing on the prepared native or existing fill subgrade may be designed for a maximum allowable bearing pressure of 1,800 pounds per square foot (psf), which will provide a minimum factor of safety of 3, based upon a settlement of about 1 inch.

4.9 ADDITIONAL DESIGN CONSIDERATIONS

4.9.1 Flatwork

It must be recognized that the flatwork at the bridge approaches will move in response to PVR movements. This will create differential movement between the bridge and the surrounding flatwork. Therefore, bridge approaches should be designed to tolerate vertical movement without inhibiting access or creating drainage problems. The moisture content of the subgrade

below the flatwork must be maintained up to the time of concrete placement. If subgrade soils are allowed to dry below the specified moisture content, scarification and moisture conditioning of the soils will be required. Kleinfelder should evaluate the moisture content of the subgrade before concrete placement.

Concrete flatwork will form cracks due to normal shrinkage during curing and thermal effects and also due to the soil movement with fluctuations in the moisture content. Therefore, concrete should be steel reinforced to reduce the size of cracks. Flatwork should also include frequent and regularly spaced expansion/control joints, and dowels should be used to limit vertical offsets between neighboring flatwork slabs. Joints should be cut as soon as the concrete has cured enough to allow for equipment access and cutting. Delays in joint cutting will increase the risk of the formation of uncontrolled cracks.

These recommendations are intended to reduce the appearance of distress in exterior flatwork, but they are not intended to prevent the formation of cracks, or movement/vertical offsets between flatwork slabs.

4.9.2 Surface Drainage

Proper drainage is critical to the performance and condition of the flatwork. Positive surface drainage must be provided that directs surface water away from the flatwork. If water collects next to or below the flatwork, then undesirable soil movements can occur, and these movements can exceed the values used in design. It is recommended that a slope of at least 1½ percent be provided, with steeper slopes up to 5 percent recommended in those areas without restrictions. The slopes should direct water away from the structure, and must be maintained throughout construction and the life of the structures.

4.10 EARTHWORK

The project sites should be stripped of vegetation, roots, organic material, existing construction materials (if present) and other undesirable debris. Obstructions that could hinder preparation of the site should also be removed, with special attention given to tree stumps and associated root systems. A typical stripping depth is 6 inches, but the actual depth will vary and should be based on field observations. After stripping, the area should suitable for the support of construction equipment. Unsuitable areas (such as those with wet, soft, yielding, and/or pumping subgrade) should be corrected before construction proceeds.

Continuous proof rolling should be used to detect areas of soft and/or pumping soil. Proof rolling should be based upon TxDOT Standard Specification Item 216, and performed using a heavy tired vehicle weighing at least 25 tons, with the tires inflated to the manufacturer's specified operating pressure. The entire area should be proof rolled, with each succeeding pass offset by not greater than one tire width. Proof rolling should be performed within flatwork areas adjacent to the new bridge. Kleinfelder should be present during proof rolling activities to assist with the identification of unsuitable soil. Unsuitable soil should be undercut and reworked, or otherwise improved in a manner that is suitable to the engineer. When fill is planned, proof rolling should occur before the fill is placed. After proof rolling, and before fill placement, the subgrade should be scarified to a depth of 8 inches, and re-compacted to the specified density and moisture content.

Borrow materials required for any fills should have a plasticity index (PI) of 25 or less, and classify as CL or SC by the Unified Soil Classification System. The fill soils should be spread in loose relatively horizontal lifts no greater than about 9 inches maximum thickness and be compacted to a minimum density of 95 percent of the Standard Proctor density in a moisture content range of 0 to +4 percent of the material's optimum moisture content as determined by ASTM D-698. Some variation in the moisture content ranges may be necessary where the soils contain significant quantities of gravel, limestone fragments and calcareous deposits.

It is important that the soil subgrades be as uniform as practical in both moisture content and density. In all areas to be paved, subgrade earthwork operations should be performed under the supervision of qualified contractor personnel working in conjunction with the project geotechnical or materials testing engineer. Adequate field moisture content and density tests should be performed on the compacted subgrade and all fill throughout all areas to be paved. Also, it is important that proper surface drainage be provided so that infiltration of surface water along the unpaved areas adjacent to the trail is minimized.

5 LIMITATIONS

This work was performed in a manner consistent with that level of care and skill ordinarily exercised by other members of Kleinfelder's profession practicing in the same locality, under similar conditions, and at the date the services are provided. Our conclusions, opinions, and recommendations are based on a limited number of observations and data. It is possible that conditions could vary between or beyond the data evaluated. Kleinfelder makes no other representation, guarantee or warranty, express or implied, regarding the services, communication (oral or written), report, opinion, or instrument of service provided. This report may be used only by the Client and the registered design professional in responsible charge and only for the purposes stated for this specific engagement within a reasonable time from its issuance, but in no event later than two (2) years from the date of the study.

The work performed was based on project information provided by the Client. If the Client does not retain Kleinfelder to review any plans and specifications, including any revisions or modifications to the plans and specifications, Kleinfelder assumes no responsibility for the suitability of our recommendations. In addition, if there are any changes in the field to the plans and specifications, the Client must obtain written approval from Kleinfelder's engineer that such changes do not affect our recommendations. Failure to do so will vitiate Kleinfelder's recommendations.

Recommendations contained in this study are based on our field observations and subsurface explorations, limited laboratory tests, and our present knowledge of the proposed construction. It is possible that soil, rock or groundwater conditions could vary between or beyond the points explored. If soil, rock or groundwater conditions are encountered during construction that differ from those described herein, the client is responsible for ensuring that Kleinfelder is notified immediately so that we may reevaluate the recommendations of this report. If the scope of the proposed construction changes from that described in this report, the conclusions and recommendations contained herein are not considered valid unless the changes are reviewed, and the conclusions of this report are modified or approved in writing, by Kleinfelder.

As the geotechnical engineering firm that performed the geotechnical evaluation for this project, Kleinfelder should be retained to confirm that the recommendations of this report are properly incorporated in the design of this project, and properly implemented during construction. This may avoid misinterpretation of the information by other parties and will allow us to review and

modify our recommendations if variations in the soil conditions are encountered. As a minimum Kleinfelder should be retained to provide the following continuing services for the project:

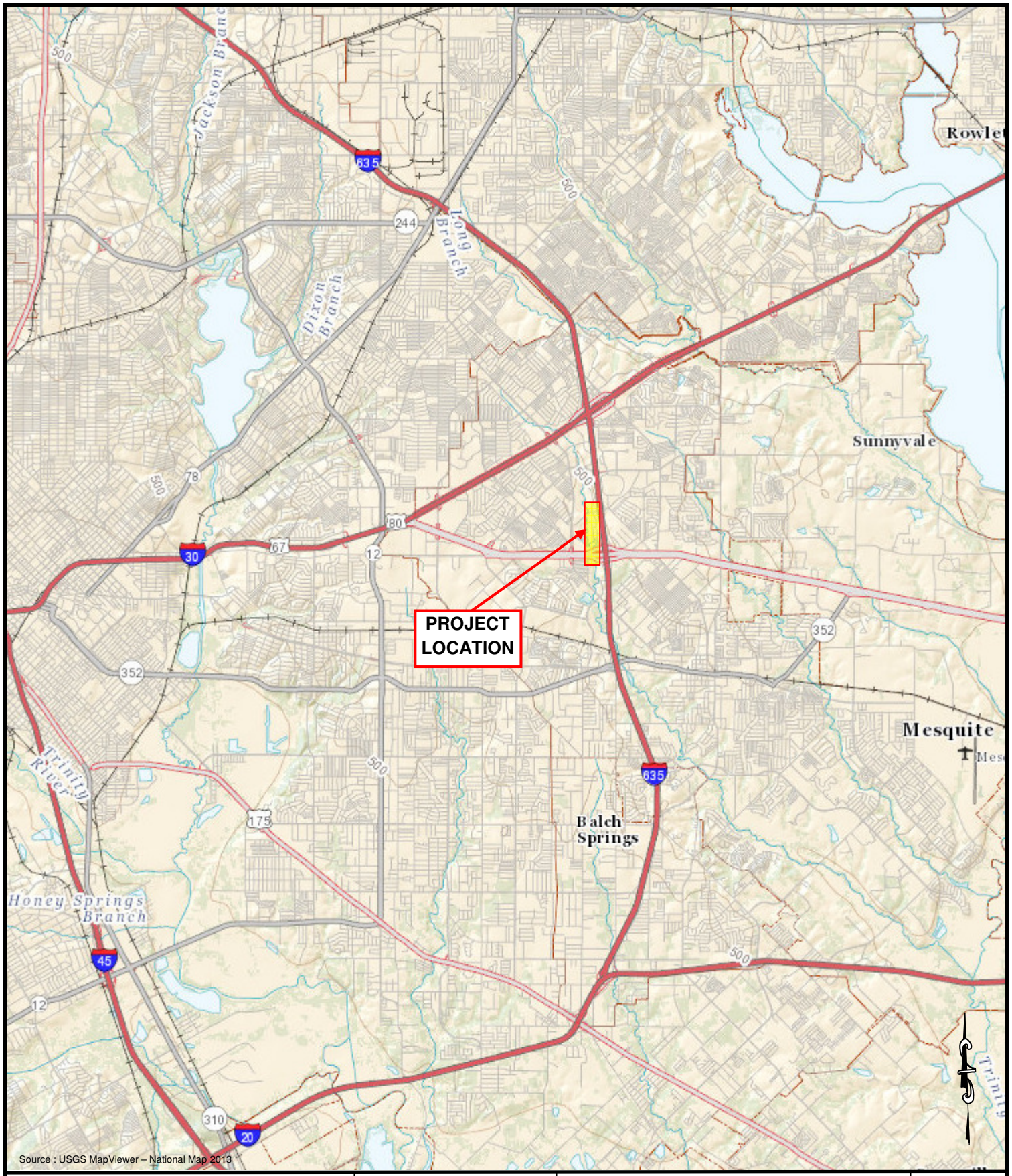
- Review the project plans and specifications, including any revisions or modifications;
- Observe and evaluate the site earthwork operations to confirm subgrade soils are suitable for construction of foundations; and
- Observe foundation bearing soils to confirm conditions are as anticipated.

Kleinfelder cannot be responsible for interpretation by others of this report or the conditions encountered in the field. Kleinfelder must be retained so that all geotechnical aspects of construction will be monitored on a full-time basis by a representative from Kleinfelder, including site preparation, preparation of foundations, installation of piles, and placement of engineered fill and trench backfill. These services provide Kleinfelder the opportunity to observe the actual soil, rock and groundwater conditions encountered during construction and to evaluate the applicability of the recommendations presented in this study to the site conditions. If Kleinfelder is not retained to provide these services, we will cease to be the engineer of record for this project and will assume no responsibility for any potential claim during or after construction on this project. If changed site conditions affect the recommendations presented herein, Kleinfelder must also be retained to perform a supplemental evaluation and to issue a revision to our original report.

This study, and any future addenda or studies regarding this site, may be made available to bidders to supply them with only the data contained in the report regarding subsurface conditions and laboratory test results at the point and time noted. Bidders may not rely on interpretations, opinion, recommendations, or conclusions contained in the report. Because of the limited nature of any subsurface study, the contractor may encounter conditions during construction which differ from those presented in this report. In such event, the contractor should promptly notify the owner so that Kleinfelder's geotechnical engineer can be contacted to confirm those conditions. Contingency funds should be reserved for potential problems during earthwork and foundation construction.

This report has been prepared for use in developing an overall design concept. Paragraphs, statements, test results, boring logs, diagrams, etc., should not be taken out of context, nor utilized without a knowledge and awareness of their intent within the overall concept of this report. The reproduction of this report, or any part thereof, supplied to persons other than the owner, should indicate that this study was made for foundation and pavement design purposes only and that verification of the subsurface conditions for purposes of determining difficulty of excavation, trafficability, etc., are responsibilities of the contractor.

APPENDIX



Source : USGS MapViewer – National Map 2013

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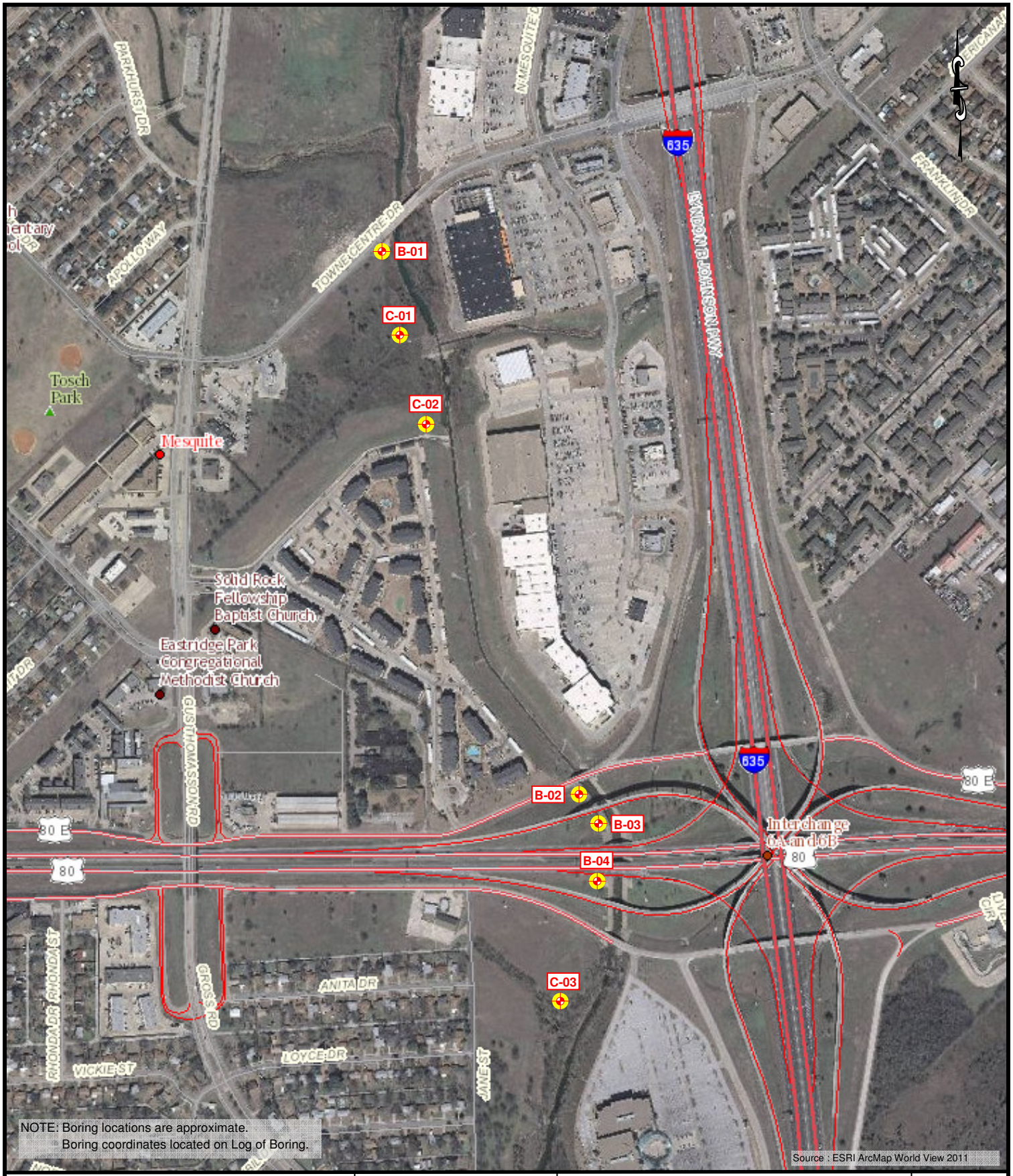
CHECKED BY:	SD
FILE NAME:	G: / Geotech / DFW Projects / 20143095.001A Mesquite Trail Ph 2 / Plate 1

SITE VICINITY MAP

Mesquite Heritage Trail Phase 2
Mesquite, Texas

PLATE
1



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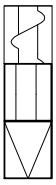
CHECKED BY:	SD
FILE NAME:	G: / Geotech / DFW Projects / 20143095.001A Mesquite Trail Ph 2 / Plate 2

PLAN OF BORINGS

Mesquite Heritage Trail Phase 2
Mesquite, Texas

PLATE
2

SAMPLE/SAMPLER TYPE GRAPHICS



AUGER CUTTINGS

SHELBY TUBE SAMPLER

TEXAS CONE PENETRATION

GROUND WATER GRAPHICS

WATER LEVEL (level where first observed)

WATER LEVEL (level after exploration completion)

WATER LEVEL (additional levels after exploration)

OBSERVED SEEPAGE

NOTES

- The report and graphics key are an integral part of these logs. All data and interpretations in this log are subject to the explanations and limitations stated in the report.
- Lines separating strata on the logs represent approximate boundaries only. Actual transitions may be gradual or differ from those shown.
- No warranty is provided as to the continuity of soil or rock conditions between individual sample locations.
- Logs represent general soil or rock conditions observed at the point of exploration on the date indicated.
- In general, Unified Soil Classification System designations presented on the logs were based on visual classification in the field and were modified where appropriate based on gradation and index property testing.
- Fine grained soils that plot within the hatched area on the Plasticity Chart, and coarse grained soils with between 5% and 12% passing the No. 200 sieve require dual USCS symbols, ie., GW-GM, GP-GM, GW-GC, GP-GC, GC-GM, SW-SM, SP-SM, SW-SC, SP-SC, SC-SM.

50/X indicates number of blows required to drive the identified sampler X inches with a 140 pound hammer falling 30 inches.

- TCP-Texas Cone Penetrometer

UNIFIED SOIL CLASSIFICATION SYSTEM (ASTM D 2487)

COARSE GRAINED SOILS (More than half of material is larger than the #200 sieve)	**GRAVELS** (More than half of coarse fraction is larger than the #4 sieve)	CLEAN GRAVEL WITH <5% FINES	Cu ≥4 and 1≤ Cc≤3		**GW**	WELL-GRADED GRAVELS, GRAVEL-SAND MIXTURES WITH LITTLE OR NO FINES
			Cu <4 and/ or 1>Cc >3		**GP**	POORLY GRADED GRAVELS, GRAVEL-SAND MIXTURES WITH LITTLE OR NO FINES
		GRAVELS WITH 5% TO 12% FINES	Cu ≥4 and 1≤ Cc≤3		**GW-GM**	WELL-GRADED GRAVELS, GRAVEL-SAND MIXTURES WITH LITTLE FINES
					GW-GC	WELL-GRADED GRAVELS, GRAVEL-SAND MIXTURES WITH LITTLE CLAY FINES
			Cu <4 and/ or 1>Cc >3		**GP-GM**	POORLY GRADED GRAVELS, GRAVEL-SAND MIXTURES WITH LITTLE FINES
					GP-GC	POORLY GRADED GRAVELS, GRAVEL-SAND MIXTURES WITH LITTLE CLAY FINES
		GRAVELS WITH > 12% FINES			**GM**	SILTY GRAVELS, GRAVEL-SILT-SAND MIXTURES
					GC	CLAYEY GRAVELS, GRAVEL-SAND-CLAY MIXTURES
					GC-GM	CLAYEY GRAVELS, GRAVEL-SAND-CLAY-SILT MIXTURES
	SANDS (More than half of coarse fraction is smaller than the #4 sieve)	CLEAN SANDS WITH <5% FINES	Cu ≥6 and 1≤ Cc≤3		**SW**	WELL-GRADED SANDS, SAND-GRAVEL MIXTURES WITH LITTLE OR NO FINES
			Cu <6 and/ or 1>Cc >3		**SP**	POORLY GRADED SANDS, SAND-GRAVEL MIXTURES WITH LITTLE OR NO FINES
		SANDS WITH 5% TO 12% FINES	Cu ≥6 and 1≤ Cc≤3		**SW-SM**	WELL-GRADED SANDS, SAND-GRAVEL MIXTURES WITH LITTLE FINES
					SW-SC	WELL-GRADED SANDS, SAND-GRAVEL MIXTURES WITH LITTLE CLAY FINES
			Cu <6 and/ or 1>Cc >3		**SP-SM**	POORLY GRADED SANDS, SAND-GRAVEL MIXTURES WITH LITTLE FINES
					SP-SC	POORLY GRADED SANDS, SAND-GRAVEL MIXTURES WITH LITTLE CLAY FINES
		SANDS WITH > 12% FINES			**SM**	SILTY SANDS, SAND-GRAVEL-SILT MIXTURES
					SC	CLAYEY SANDS, SAND-GRAVEL-CLAY MIXTURES
					SC-SM	CLAYEY SANDS, SAND-SILT-CLAY MIXTURES

FINE GRAINED SOILS (More than half of material is smaller than the #200 sieve)	SILTS AND CLAYS (Liquid Limit less than 50)	**ML**	INORGANIC SILTS AND VERY FINE SANDS, SILTY OR CLAYEY FINE SANDS, SILTS WITH SLIGHT PLASTICITY
		CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
		CL-ML	INORGANIC CLAYS-SILTS OF LOW PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
		OL	ORGANIC SILTS & ORGANIC SILTY CLAYS OF LOW PLASTICITY
	SILTS AND CLAYS (Liquid Limit greater than 50)	**MH**	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILT
		CH	INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS
		OH	ORGANIC CLAYS & ORGANIC SILTS OF MEDIUM-TO-HIGH PLASTICITY

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GRAPHICS KEY

Mesquite Heritage Trail Phase 2
Mesquite, Texas

PLATE

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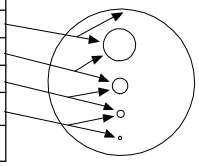
GRAIN SIZE

DESCRIPTION		SIEVE SIZE	GRAIN SIZE	APPROXIMATE SIZE
Boulders		>12 in. (304.8 mm.)	>12 in. (304.8 mm.)	Larger than basketball-sized
Cobbles		3 - 12 in. (76.2 - 304.8 mm.)	3 - 12 in. (76.2 - 304.8 mm.)	Fist-sized to basketball-sized
Gravel	coarse	3/4 -3 in. (19 - 76.2 mm.)	3/4 -3 in. (19 - 76.2 mm.)	Thumb-sized to fist-sized
	fine	#4 - 3/4 in. (#4 - 19 mm.)	0.19 - 0.75 in. (4.8 - 19 mm.)	Pea-sized to thumb-sized
Sand	coarse	#10 - #4	0.079 - 0.19 in. (2 - 4.9 mm.)	Rock salt-sized to pea-sized
	medium	#40 - #10	0.017 - 0.079 in. (0.43 - 2 mm.)	Sugar-sized to rock salt-sized
	fine	#200 - #10	0.0029 - 0.017 in. (0.07 - 0.43 mm.)	Flour-sized to sugar-sized
Fines		Passing #200	<0.0029 in. (<0.07 mm.)	Flour-sized and smaller



Munsell Color

NAME	ABBR
Red	R
Yellow Red	YR
Yellow	Y
Green Yellow	GY
Green	G
Blue Green	BG
Blue	B
Purple Blue	PB
Purple	P
Red Purple	RP
Black	N

ANGULARITY

DESCRIPTION	CRITERIA
Angular	Particles have sharp edges and relatively plane sides with unpolished surfaces
Subangular	Particles are similar to angular description but have rounded edges
Subrounded	Particles have nearly plane sides but have well-rounded corners and edges
Rounded	Particles have smoothly curved sides and no edges

PLASTICITY

DESCRIPTION	LL	FIELD TEST
Non-plastic	NP	A 1/8-in. (3 mm.) thread cannot be rolled at any water content.
Low (L)	< 30	The thread can barely be rolled and the lump or thread cannot be formed when drier than the plastic limit.
Medium (M)	30 - 50	The thread is easy to roll and not much time is required to reach the plastic limit. The thread cannot be rerolled after reaching the plastic limit. The lump or thread crumbles when drier than the plastic limit
High (H)	> 50	It takes considerable time rolling and kneading to reach the plastic limit. The thread can be rerolled several times after reaching the plastic limit. The lump or thread can be formed without crumbling when drier than the plastic limit

MOISTURE CONTENT

DESCRIPTION	FIELD TEST
Dry	Absence of moisture, dusty, dry to the touch
Moist	Damp but no visible water
Wet	Visible free water, usually soil is below water table

REACTION WITH HYDROCHLORIC ACID

DESCRIPTION	FIELD TEST
None	No visible reaction
Weak	Some reaction, with bubbles forming slowly
Strong	Violent reaction, with bubbles forming immediately

APPARENT / RELATIVE DENSITY - COARSE-GRAINED SOIL

APPARENT DENSITY	SPT-N_{60} (# blows/ft)	MODIFIED CA SAMPLER (# blows/ft)	CALIFORNIA SAMPLER (# blows/ft)	RELATIVE DENSITY (%)
Very Loose	<4	<4	<5	0 - 15
Loose	4 - 10	5 - 12	5 - 15	15 - 35
Medium Dense	10 - 30	12 - 35	15 - 40	35 - 65
Dense	30 - 50	35 - 60	40 - 70	65 - 85
Very Dense	>50	>60	>70	85 - 100

NOTE: AFTER TERZAGHI AND PECK, 1948

CONSISTENCY - FINE-GRAINED SOIL

CONSISTENCY	UNCONFINED COMPRESSIVE STRENGTH (q_u)(psf)	CRITERIA
Very Soft	< 1000	Thumb will penetrate soil more than 1 in. (25 mm.)
Soft	1000 - 2000	Thumb will penetrate soil about 1 in. (25 mm.)
Firm	2000 - 4000	Thumb will indent soil about 1/4-in. (6 mm.)
Hard	4000 - 8000	Thumb will not indent soil but readily indented with thumbnail
Very Hard	> 8000	Thumbnail will not indent soil

STRUCTURE

DESCRIPTION	CRITERIA
Stratified	Alternating layers of varying material or color with layers at least 1/4-in. thick, note thickness
Laminated	Alternating layers of varying material or color with the layer less than 1/4-in. thick, note thickness
Fissured	Breaks along definite planes of fracture with little resistance to fracturing
Slickensided	Fracture planes appear polished or glossy, sometimes striated
Blocky	Cohesive soil that can be broken down into small angular lumps which resist further breakdown
Lensed	Inclusion of small pockets of different soils, such as small lenses of sand scattered through a mass of clay; note thickness
Homogeneous	Same color and appearance throughout

CEMENTATION

DESCRIPTION	FIELD TEST
Weakly	Crumbles or breaks with handling or slight finger pressure
Moderately	Crumbles or breaks with considerable finger pressure
Strongly	Will not crumble or break with finger pressure

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SOIL DESCRIPTION KEY

Mesquite Heritage Trail Phase 2
Mesquite, Texas

PLATE

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Date Begin - End:	2/14/2014	**Drilling Company:**	Texplor	**BORING LOG B-01**	
Logged By:	N. Frohman	**Drill Crew:**	S. Cambell		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-75	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Cloudy	**Auger Diameter:**	7.25 in. O.D.		

Latitude: 32.80016° N
Longitude: -96.63110° W
Ground Surface Elevation Not Available
Surface Condition: Grass

Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Pocket Pen(PP)= tsf Texas Cone(TC)= blows/6"	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
		Fat CLAY with Sand (CH): dark brown and brown, hard to very stiff, with calcareous nodules	U-1		PP=4.5+									
			U-2		PP=4.5+									
5			U-3		PP=4.5+		CH	19.5			85	63	47	
			U-4		PP=4.0									
			U-5		PP=3.0			25.7	97.9					**Unc. Comp. Str.=** q_u: 2.1 tsf Strain at Failure: 10.0%
10														
		Fat CLAY with Sand (CH): olive brown and gray, stiff to hard, marly with calcareous nodules	U-6		PP=2.5		CH	26.1			83	54	39	
15														
			U-7		PP=4.5+									
20		- slickensided with block structure below 19 feet												
		MARL: dark gray, hard, calcareous	U-8		PP=4.5+			15.7						
25			T-1		TC=50/1" 50/1"									
30			T-2		TC=50/1" 50/½"									
35			T-3		TC=50/1" 50/½"									

The exploration was terminated at approximately 35 ft. below ground surface. The exploration was backfilled with auger cuttings on February 14, 2014.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not encountered during drilling or after completion.
GENERAL NOTES:

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BORING LOG B-01

Mesquite Heritage Trail Phase 2
Mesquite, Texas

PLATE 5

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BORING LOG B-02

Date Begin - End:	2/14/2014	**Drilling Company:**	Texplor		
Logged By:	N. Frohman	**Drill Crew:**	S. Cambell		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-75	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Cloudy	**Auger Diameter:**	7.25 in. O.D.		

Latitude: 32.79323° N
Longitude: -96.62807° W
Ground Surface Elevation Not Available
Surface Condition: Grass

Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Pocket Pen(PP)= tsf Texas Cone(TC)= blows/6	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
		Fat CLAY (CH): dark brown and brown, stiff to hard, calcareous	U-1		PP=3.25									
			U-2		PP=3.0									
			U-3		PP=2.5									
			U-4		PP=2.5		CH	25.6			86	59	39	
5			U-5		PP=2.5									
			U-6		PP=3.0									
		- becoming gray and reddish brown below 6 feet	U-7		PP=3.0									
			U-8		PP=3.0									
			U-9		PP=4.5									
10			U-10		PP=4.0									
		- with blocky structure below 14 feet	U-11		PP=4.5+		CH	24.9			96	68	43	
15														
		MARL: dark gray, gray and olive brown, hard, calcareous, with iron oxide staining	U-12		PP=4.5+			22.5						
20			T-1		TC=50/1½" 50/1½"									
25			T-2		TC=50/1½" 50/1"									
			T-3		TC=50/1" 50/1"									
30														
35														

The exploration was terminated at approximately 30 ft. below ground surface. The exploration was backfilled with auger cuttings on February 14, 2014.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not encountered during drilling or after completion.
GENERAL NOTES:

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BORING LOG B-02

Mesquite Heritage Trail Phase 2
Mesquite, Texas

PLATE
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BORING LOG B-03

Date Begin - End:	2/14/2014	**Drilling Company:**	Texplor		
Logged By:	N. Frohman	**Drill Crew:**	S. Cambell		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-75	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Cloudy	**Auger Diameter:**	7.25 in. O.D.		

Latitude: 32.79288° N
Longitude: -96.62773° W
Ground Surface Elevation Not Available
Surface Condition: Grass

Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Pocket Pen(PP)= tsf / Texas Cone(TC)= blows/6"	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
		Fat CLAY (CH): dark brown and brown, stiff to hard, calcareous	U-1		PP=2.0									
			U-2		PP=4.5+									
			U-3		PP=3.0									
		- becoming reddish brown and gray below 3 feet	U-4		PP=4.0		CH	27.9			97	69	46	
5		- sand seam below 4 feet	U-5		PP=2.5									
			U-6		PP=4.5									
			U-7		PP=3.5									
		- becoming dark brown below 7 feet	U-8		PP=4.0									
			U-9		PP=3.0									
		Lean CLAY with Sand (CL): dark brown, very stiff, marly	U-10		PP=3.5		CL	22.5			72	45	27	
10														
			U-11		PP=3.5			20.9	104.7					**Unc. Comp. Str.=** q_u: 1.7 tsf Strain at Failure: 14.8%
15														
		MARL: dark gray, gray, hard, calcareous	U-12		PP=4.5+									
20			T-1		TC=50/1½" 50/1"									
25			T-2		TC=50/2" 50/1½"									
			T-3		TC=50/1½" 50/1½"									
30														
35														

The exploration was terminated at approximately 30 ft. below ground surface. The exploration was backfilled with auger cuttings on February 14, 2014.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not encountered during drilling or after completion.
GENERAL NOTES:

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BORING LOG B-03

Mesquite Heritage Trail Phase 2
Mesquite, Texas

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Date Begin - End:	2/14/2014	**Drilling Company:**	Texplor	**BORING LOG B-04**	
Logged By:	N. Frohman	**Drill Crew:**	S. Cambell		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-75	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Cloudy	**Auger Diameter:**	7.25 in. O.D.		

Latitude: 32.79216° N
Longitude: -96.62777° W
Ground Surface Elevation Not Available
Surface Condition: Grass

Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Pocket Pen(PP)= tsf / Texas Cone(TC)= blows/6"	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
		FILL :**Clayey SAND with Gravel**: brown, reddish brown and gray, hard, with sand	U-1		PP=4.5+									
			U-2		PP=4.5+		SC	12.6			42	36	19	
			U-3		PP=4.5+									
			U-4		PP=4.5+									
5		**Fat CLAY (CH)**: brown and dark brown, stiff to hard, with calcareous nodules	U-5		PP=2.5									
			U-6		PP=2.5									
			U-7		PP=2.5									
			U-8		PP=3.5									
			U-9		PP=3.0									
10							CH	26.1			86	69	49	
		- becoming reddish brown and olive gray below 13 feet	U-10		PP=3.0			21.8	103.0					**Unc. Comp. Str.=** q_u: 1.8 tsf Strain at Failure: 12.8%
15														
		- blocky structure below 18 feet	U-11		PP=4.5+									
20														
		MARL: dark gray and gray, hard, calcareous	U-12		PP=4.5+									
25			T-1		TC=50/1½" 50/1"									
30			T-2		TC=50/1" 50/1"									
35			T-3		TC=50/1" 50/½"									

The exploration was terminated at approximately 35 ft. below ground surface. The exploration was backfilled with auger cuttings on February 14, 2014.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not encountered during drilling or after completion.
GENERAL NOTES:

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BORING LOG B-04

Mesquite Heritage Trail Phase 2
Mesquite, Texas

PLATE 8

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Date Begin - End:	2/14/2014	**Drilling Company:**	Texplor		**BORING LOG C-01**
Logged By:	N. Frohman	**Drill Crew:**	S. Cambell		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-75	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Cloudy	**Auger Diameter:**	7.25 in. O.D.		

Latitude: 32.79908° N
Longitude: -96.63083° W
Ground Surface Elevation Not Available
Surface Condition: Grass

Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Pocket Pen(PP)= tsf Texas Cone(TC)= blows/6	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
		Fat CLAY (CH): dark brown and brown, very stiff to hard, with calcareous nodules	U-1		PP=3.0									
			U-2		PP=4.5+									
5			U-3		PP=4.5+									
		- with occasional sand seams below 8 feet	U-4		PP=4.5+		CH	18.3			85	59	38	
			U-5		PP=3.5		CH	24.1			98	63	44	
10														
		Fat CLAY (CH): olive brown and gray, hard, marly, with calcareous nodules	U-6		PP=4.25									
15														
		- gray, reddish and yellowsh brown and slickensided below 18 feet	U-7		PP=4.5+									
20														
		MARL: dark gray, hard, calcareous	U-8		PP=4.5+									
			T-1		TC=50/½" 50/½"									
25														
30														
35														

The exploration was terminated at approximately 25 ft. below ground surface. The exploration was backfilled with auger cuttings on February 14, 2014.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not encountered during drilling or after completion.
GENERAL NOTES:

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BORING LOG C-01

Mesquite Heritage Trail Phase 2
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Date Begin - End:	2/14/2014	**Drilling Company:**	Texplor		**BORING LOG C-02**
Logged By:	N. Frohman	**Drill Crew:**	S. Cambell		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-75	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Cloudy	**Auger Diameter:**	7.25 in. O.D.		

Latitude: 32.79798° N
Longitude: -96.63047° W
Ground Surface Elevation Not Available
Surface Condition: Grass

Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Pocket Pen(PP)= tsf / Texas Cone(TC)= blows/6"	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
		Fat CLAY with Sand (CH): dark brown and brown, stiff to hard, with calcareous nodules	U-1		PP=2.25									
			U-2		PP=4.5+									
		- with sand seams between 2 to 4 feet					CH	24.3			84	58	38	
5			U-3		PP=4.5+									
			U-4		PP=4.5+									
			U-5		PP=4.5		CH	18.5			80	52	35	
			U-6		PP=3.5									
10														
			U-7		PP=4.25									
15														
		- becomes gray and olive brown below 18 feet	U-8		PP=4.25									
20														
		MARL: gray, dark gray, hard, calcareous	U-9		PP=4.5+									
			T-1		TC=50/1" 50/1½"									
25														
30														
35														

The exploration was terminated at approximately 25 ft. below ground surface. The exploration was backfilled with auger cuttings on February 14, 2014.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not encountered during drilling or after completion.
GENERAL NOTES:

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BORING LOG C-02

Mesquite Heritage Trail Phase 2
Mesquite, Texas

PLATE
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Date Begin - End:	2/14/2014	**Drilling Company:**	Texplor		**BORING LOG C-03**
Logged By:	N. Frohman	**Drill Crew:**	S. Cambell		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-75	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Cloudy	**Auger Diameter:**	7.25 in. O.D.		

Latitude: 32.79071° N
Longitude: -96.62830° W
Ground Surface Elevation Not Available
Surface Condition: Grass

Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Pocket Pen(PP)= tsf Texas Cone(TC)= blows/6	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
		Fat CLAY (CH): brown, dark brown, olive, stiff to hard, with calcareous nodules	U-1		PP=3.5									
			U-2		PP=3.5									
			U-3		PP=3.5									
			U-4		PP=3.5		CH	22.8			84	64	43	
			U-5		PP=4.5									
5		- roots at 5 feet	U-6		PP=2.0									
		Fat CLAY (CH): brown, olive brown, gray, very stiff to hard, with calcareous nodules	U-7		PP=4.5									
			U-8		PP=3.75									
			U-9		PP=3.0		CH	22.5			81	63	44	
10			U-10		PP=3.0									
		- becoming reddish and yellowish brown and gray, blocky shaly structure, slickensided below 14 feet	U-11		PP=4.5+									
15														
		MARL: gray, dark gray, hard, calcareous	U-12		PP=4.5+									
20			T-1		TC=50/1" 50/1"									
			T-2		TC=50/1" 50/½"									
25														
30														
35														

The exploration was terminated at approximately 25 ft. below ground surface. The exploration was backfilled with auger cuttings on February 14, 2014.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not encountered during drilling or after completion.
GENERAL NOTES:

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BORING LOG C-03

Mesquite Heritage Trail Phase 2
Mesquite, Texas

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PAGE: 1 of 1

gINT FILE: L:\gint\projects\dfw Project Logs\20143095 Mesquite Heritage Trail Ph 2.gpj R:KLF_STANDARD_GINT_LIBRARY_2014.GLB [KLF_BORING/TEST PIT SOIL LOG]

Exploration ID	Depth (ft.)	Sample No.	Sample Description	Water Content (%)	Dry Unit Wt. (pcf)	Sieve Analysis (%)			Atterberg Limits			Additional Tests
						Passing 3/4"	Passing #4	Passing #200	Liquid Limit	Plastic Limit	Plasticity Index	
B-01	4.0	U-3	FAT CLAY with SAND (CH)	19.5				85	63	16	47	
B-01	8.0	U-5		25.7	97.9							**Unconfined Compressive Strength=**
												q_u: 2.1 tsf Strain at Failure: 10.0%
B-01	13.0	U-6	FAT CLAY with SAND (CH)	26.1				83	54	15	39	
B-01	23.0	U-8		15.7								
B-02	3.0	U-4	FAT CLAY (CH)	25.6				86	59	20	39	
B-02	14.0	U-11	FAT CLAY (CH)	24.9				96	68	25	43	
B-02	19.0	U-12		22.5								
B-03	3.0	U-4	FAT CLAY (CH)	27.9				97	69	23	46	
B-03	9.0	U-10	LEAN CLAY with SAND (CL)	22.5				72	45	18	27	
B-03	13.0	U-11		20.9	104.7							**Unconfined Compressive Strength=**
												q_u: 1.7 tsf Strain at Failure: 14.8%
B-04	1.0	U-2	CLAYEY SAND (SC)	12.6				42	36	17	19	
B-04	9.0		FAT CLAY (CH)	26.1				86	69	20	49	
B-04	13.0	U-10		21.8	103.0							**Unconfined Compressive Strength=**
												q_u: 1.8 tsf Strain at Failure: 12.8%
C-01	6.0	U-4	FAT CLAY (CH)	18.3				85	59	21	38	
C-01	8.0	U-5	FAT CLAY (CH)	24.1				98	63	19	44	
C-02	3.0		FAT CLAY with SAND (CH)	24.3				84	58	20	38	
C-02	8.0	U-5	FAT CLAY with SAND (CH)	18.5				80	52	17	35	
C-03	3.0	U-4	FAT CLAY with SAND (CH)	22.8				84	64	21	43	
C-03	8.0	U-9	FAT CLAY with SAND (CH)	22.5				81	63	19	44	

Refer to the Geotechnical Evaluation Report or the supplemental plates for the method used for the testing performed above.
NP = NonPlastic
NA = Not Available

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PROJECT NO.:	20143095
DRAWN BY:	GW
CHECKED BY:	SD
DATE:	2/25/2014
REVISED:	-

LABORATORY TEST RESULT SUMMARY

Mesquite Heritage Trail Phase 2
Mesquite, Texas

PLATE

12

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Geotechnical Engineering, Enviromental Services, and
Construction Materials Engineering and Testing

Swell at Overburden Pressure Test Results

Project Name: Mesquite Heritage Trail - PH 2
Location:
Material Description: Clay, dk. brown & brown, with calcerous nodules

Project No.: 20143095
Boring No.: B-1
Sample Depth (ft.): 2.0' - 4.0'

Tested By: E. Arapi
Date Tested: 2/18/2014
Oedometer ID: 1

Soil Classification Properties

Liquid Limit =

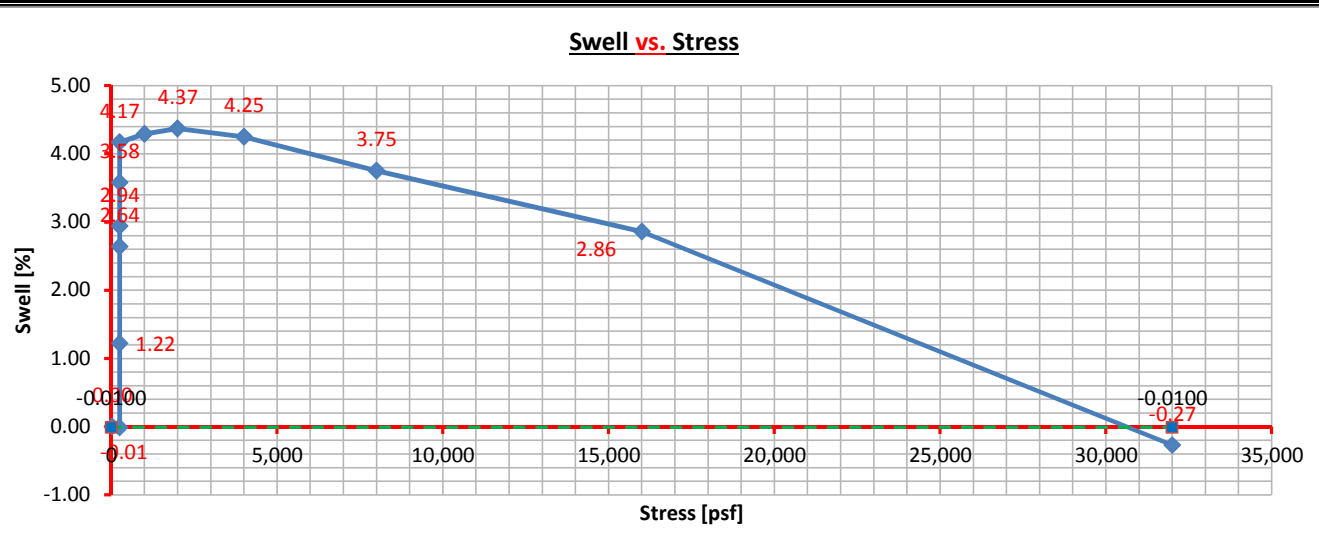
Plastic Limit =

Plasticity Index =

% Passing #200 Sieve =

	Initial	Final
Load Applied (psf) =	250	32000
Moisture Content (%) =	19.3	19.4
Wet Unit Weight (pcf) =	130.1	125.1
Dry Unit Weight (pcf) =	109.1	104.7

One-Dimensional Swell at Overburden Pressure = 4.2%
Swell Pressure = 30250 psf



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Geotechnical Engineering, Enviromental Services, and
Construction Materials Engineering and Testing

Swell at Overburden Pressure Test Results

Project Name: Mesquite Heritage Trail - PH 2
Location:
Material Description: Clay, dk. brown, with calcerous nodules

Project No.: 20143095
Boring No.: B-1
Sample Depth (ft.): 4.0' - 6.0'

Tested By: E. Arapi
Date Tested: 2/18/2014
Oedometer ID: 2

Soil Classification Properties

Liquid Limit =

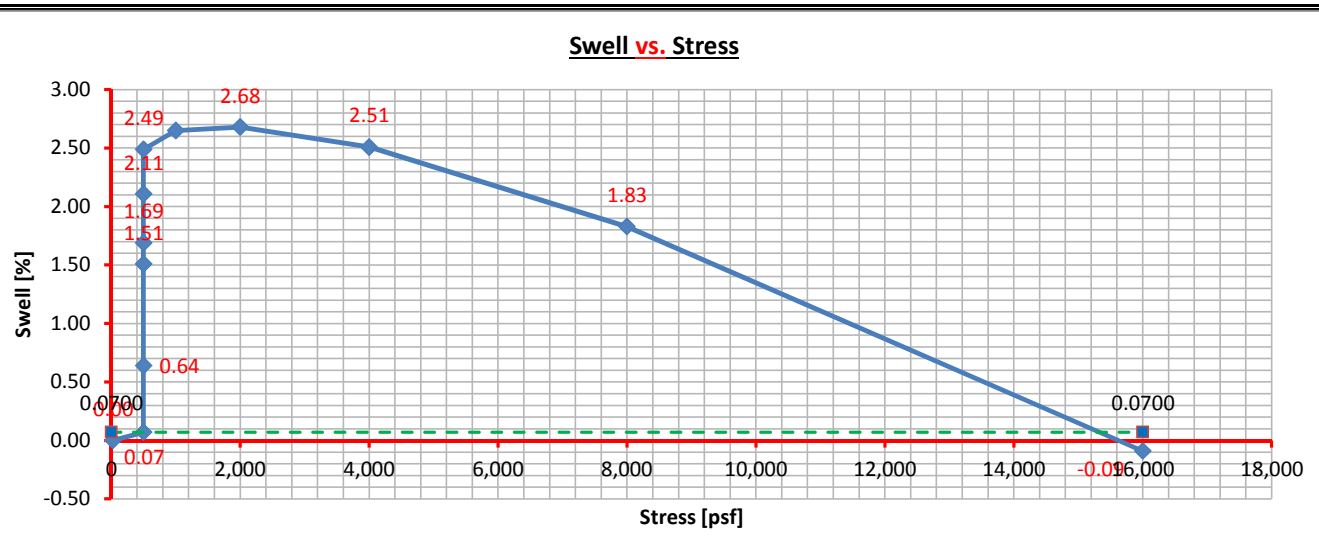
Plastic Limit =

Plasticity Index =

% Passing #200 Sieve =

	Initial	Final
Load Applied (psf) =	500	16000
Moisture Content (%) =	16.8	19.6
Wet Unit Weight (pcf) =	131.0	130.9
Dry Unit Weight (pcf) =	112.1	109.5

One-Dimensional Swell at Overburden Pressure = 2.4%
Swell Pressure = 14900 psf



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Geotechnical Engineering, Enviromental Services, and
Construction Materials Engineering and Testing

Swell at Overburden Pressure Test Results

Project Name: Mesquite Heritage Trail - PH 2
Location:
Material Description: Clay, brown, with sand & calcerous nodules

Project No.: 20143095
Boring No.: B-1
Sample Depth (ft.): 8.0' - 10.0'

Tested By: E. Arapi
Date Tested: 2/18/2014
Oedometer ID: 3

Soil Classification Properties

Liquid Limit =

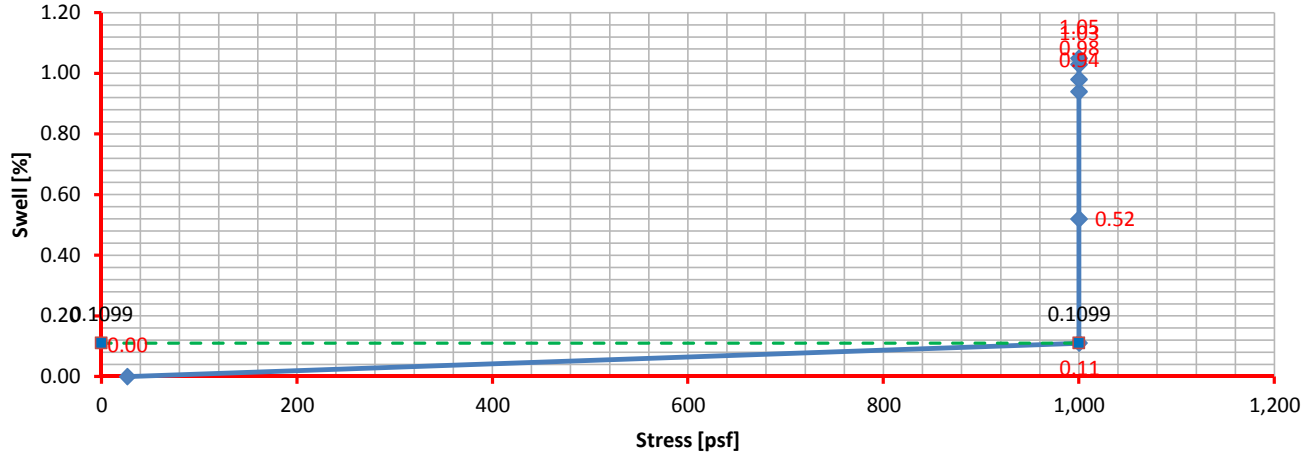
Plastic Limit =

Plasticity Index =

% Passing #200 Sieve =

	Initial	Final
Load Applied (psf) =	1000	1000
Moisture Content (%) =	27.6	29.2
Wet Unit Weight (pcf) =	121.6	122.0
Dry Unit Weight (pcf) =	95.3	94.4

One-Dimensional Swell at Overburden Pressure = 0.9%



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Geotechnical Engineering, Enviromental Services, and
Construction Materials Engineering and Testing

Swell at Overburden Pressure Test Results

Project Name: Mesquite Heritage Trail - PH 2
Location:
Material Description: Clay, dk. brown & brown, with gravel & calcerous nodules

Project No.: 20143095
Boring No.: B-3
Sample Depth (ft.): 2.0' - 3.0'

Tested By: E. Arapi
Date Tested: 2/18/2014
Oedometer ID: 4

Soil Classification Properties

Liquid Limit =

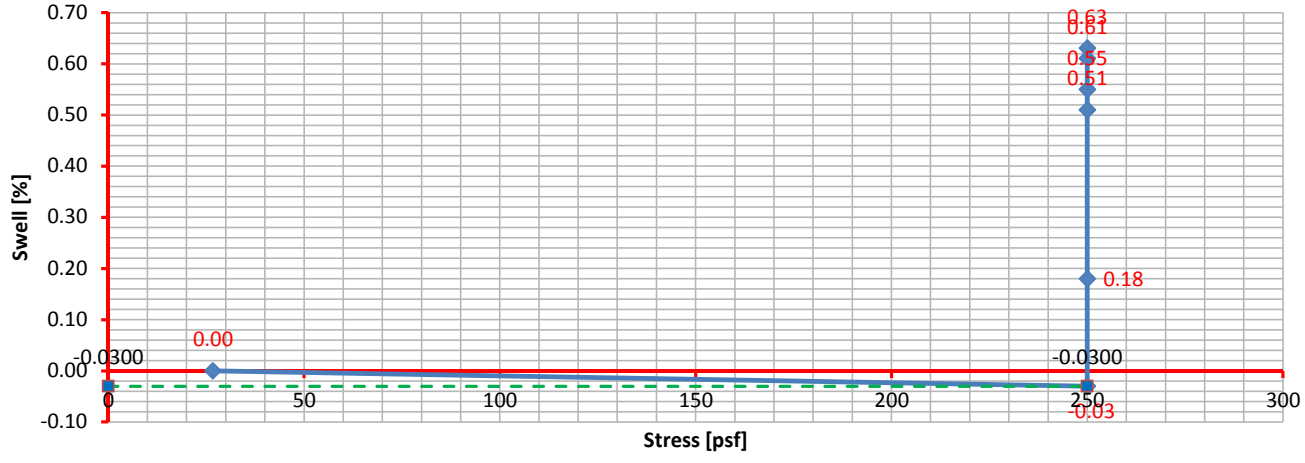
Plastic Limit =

Plasticity Index =

% Passing #200 Sieve =

	Initial	Final
Load Applied (psf) =	250	250
Moisture Content (%) =	21.8	23.1
Wet Unit Weight (pcf) =	124.1	124.6
Dry Unit Weight (pcf) =	101.9	101.2

One-Dimensional Swell at Overburden Pressure = 0.7%



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Geotechnical Engineering, Enviromental Services, and
Construction Materials Engineering and Testing

Swell at Overburden Pressure Test Results

Project Name: Mesquite Heritage Trail - PH 2
Location:
Material Description: Clay, lt. brown & yellow, with fine sand & calcerous nodules

Project No.: 20143095
Boring No.: B-3
Sample Depth (ft.): 4.0' - 5.0'

Tested By: E. Arapi
Date Tested: 2/18/2014
Oedometer ID: 5

Soil Classification Properties

Liquid Limit =

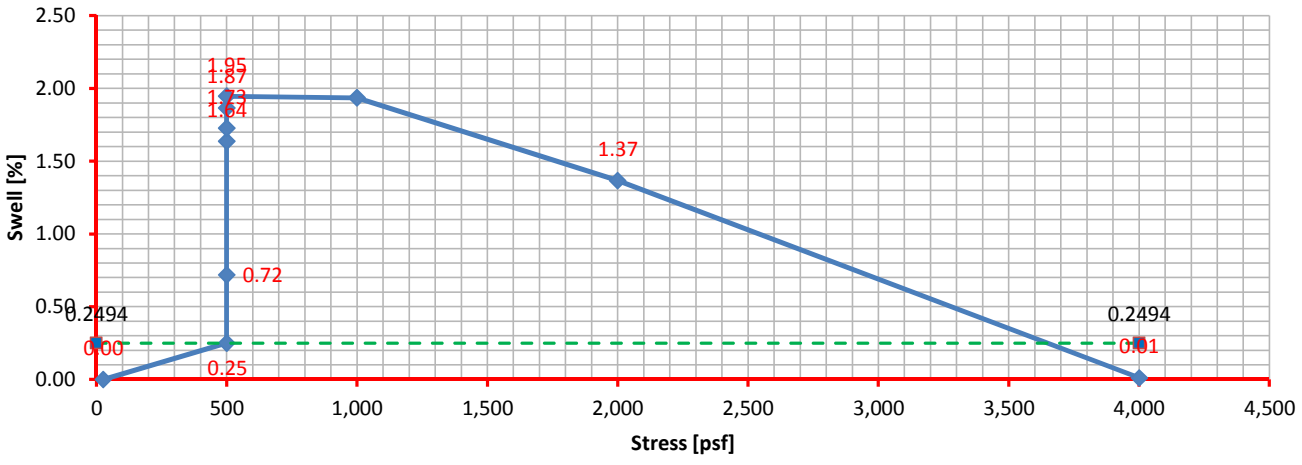
Plastic Limit =

Plasticity Index =

% Passing #200 Sieve =

	Initial	Final
Load Applied (psf) =	500	4000
Moisture Content (%) =	27.2	27.8
Wet Unit Weight (pcf) =	123.5	121.9
Dry Unit Weight (pcf) =	97.0	95.4

One-Dimensional Swell at Overburden Pressure = 1.7%
Swell Pressure = 3150 psf



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Geotechnical Engineering, Enviromental Services, and
Construction Materials Engineering and Testing

Swell at Overburden Pressure Test Results

Project Name: Mesquite Heritage Trail - PH 2
Location:
Material Description: Clay, dk. brown, fat

Project No.: 20143095
Boring No.: B-3
Sample Depth (ft.): 8.0' - 10.0'

Tested By: E. Arapi
Date Tested: 2/18/2014
Oedometer ID: 6

Soil Classification Properties

Liquid Limit =

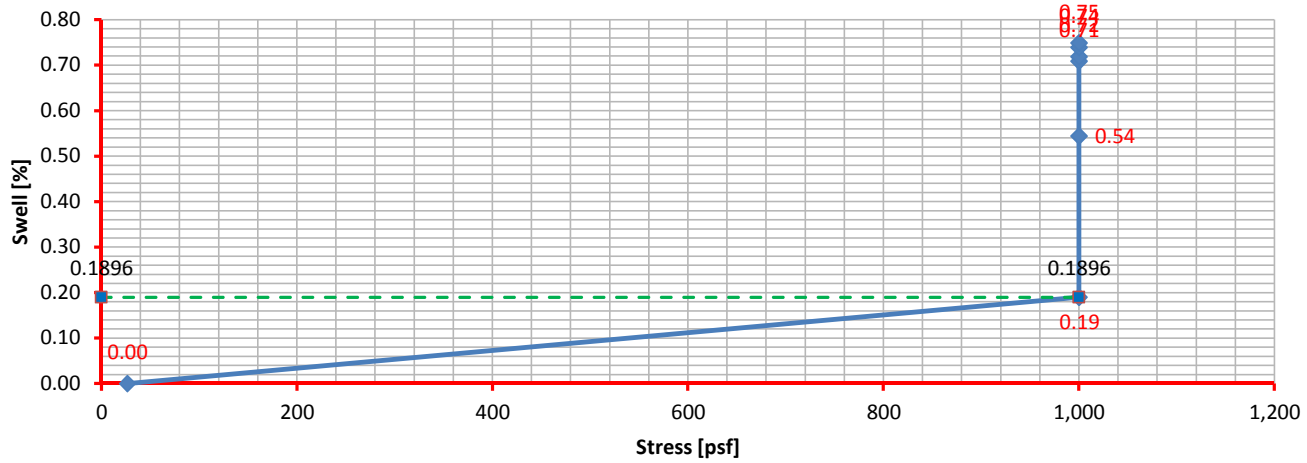
Plastic Limit =

Plasticity Index =

% Passing #200 Sieve =

	Initial	Final
Load Applied (psf) =	1000	1000
Moisture Content (%) =	22.6	23.6
Wet Unit Weight (pcf) =	125.1	125.4
Dry Unit Weight (pcf) =	102.0	101.4

One-Dimensional Swell at Overburden Pressure = 0.6%

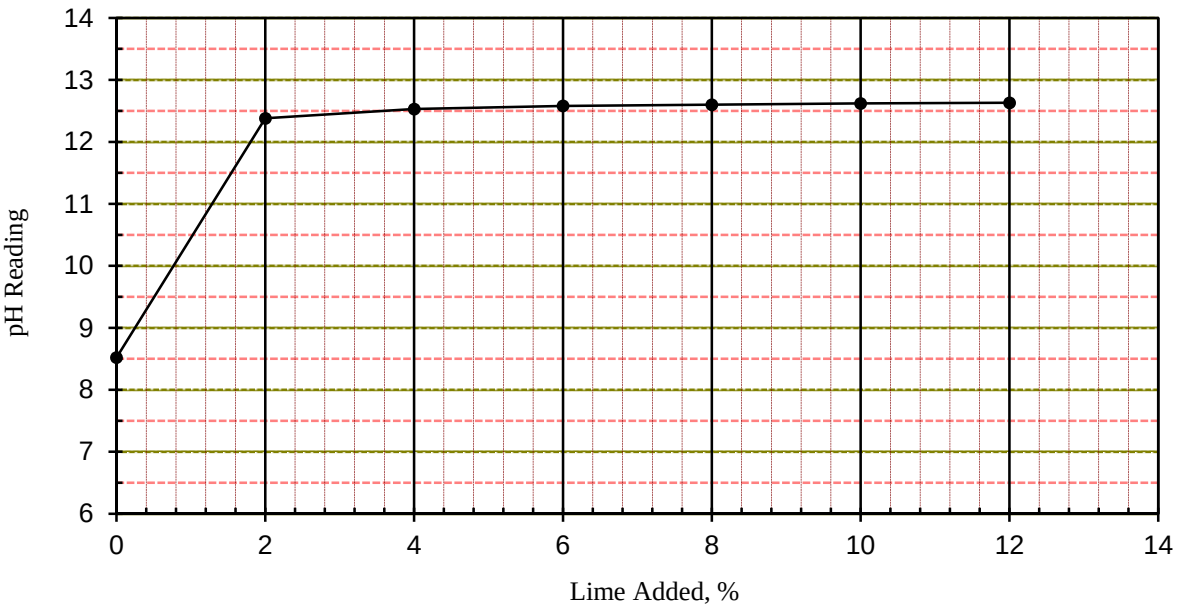


pH Lime Series Test Results

Project Name:	Mesquite Heritage Trail Phase 2
Project Location:	Mesquite, Texas
Material Description:	FAT CLAY (CH), dark brown

Project No.:	20143095	**Tested By:**	R. Brewer
Boring No.:	C-1	**Date Tested:**	2/24/14
Depth (ft.):	2.0' - 4.0'	**pH Meter ID:**	54549

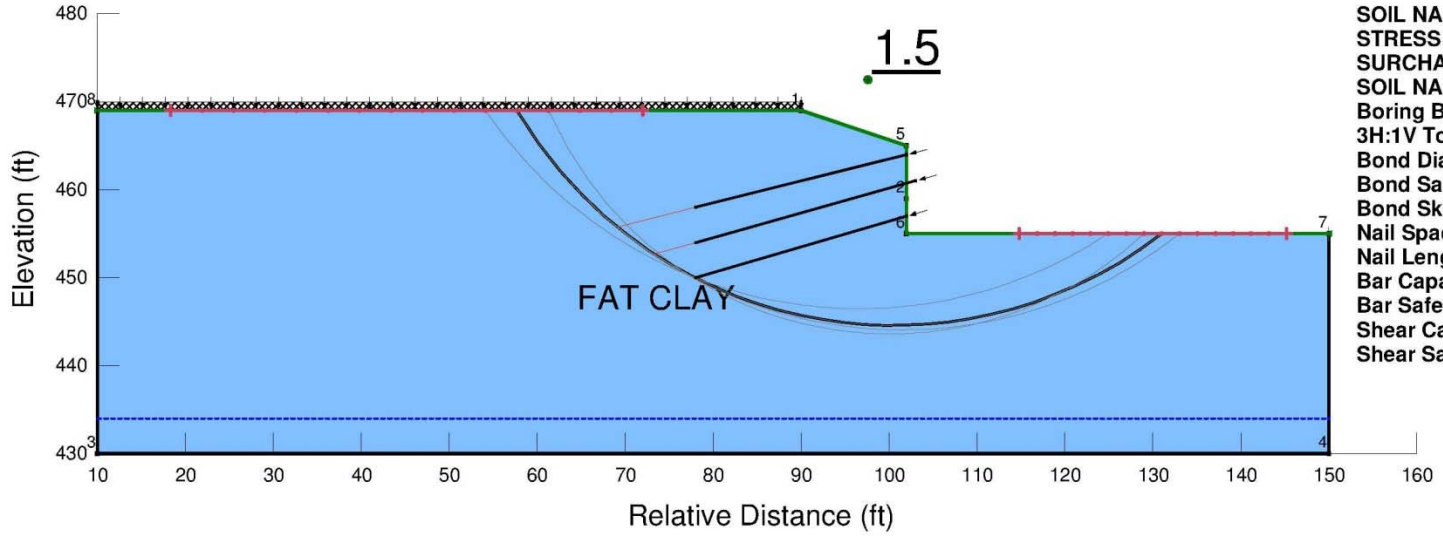
% Lime Added	pH Reading
0	8.52
2	10.30
4	12.30
6	12.38
8	12.50
10	12.50
12	12.50



The results shown on this report are for the exclusive use of the client for whom they were obtained and apply only to the samples tested and/or inspected. They are not intended to be indicative of the qualities of apparently identical products. The use of our name must receive prior written approval. Reports must be reproduced in their entirety. Test method based on ASTM C 977 (Eades and Grim).

MODEL INFORMATION
FILE NAME: Soil Nail Effective 60% submittal.gsz
ANALYSIS PROGRAM: GeoStudio 2007
ANALYSIS TYPE: Bishop, Ordinary and Janbu
FAILURE SURFACE: Circular
MODEL TYPE: 2-Dimensional

Name: FAT CLAY Model: Mohr-Coulomb Unit Weight: 125 pcf Cohesion: 0 psf Phi: 18 °



SOIL NAIL INFORMATION
STRESS CONDITION: Drained
SURCHARGE LOADS: 250.0 lb./sq. ft
SOIL NAIL WALL HEIGHT: 10.0 ft
Boring B-3
3H:1V Top Slope
Bond Diameter: 0.08 ft (1-in)
Bond Safety Factor: 1.5
Bond Skin Friction: 500 psf
Nail Spacing: 5 ft
Nail Length: 25 ft
Bar Capacity: 60 ksi
Bar Safety Factor: 1.5
Shear Capacity: 60 ksi
Shear Safety Factor: 1.5

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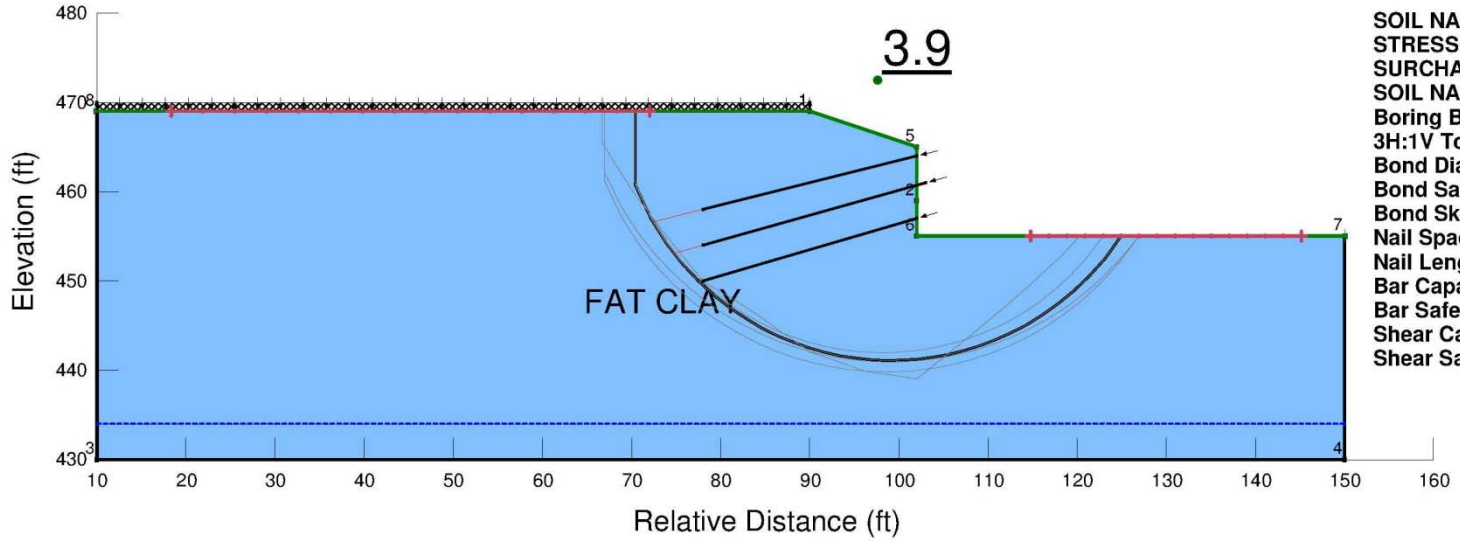
Drawn: 07/01/14, By HM
Checked: 07/02/14, By SD

Global Stability Analysis
Soil Nail Wall US 80
Effective Stress

Mesquite Heritage Trail Phase 2
Mesquite, Texas
Project 20143095.001A July 2014

MODEL INFORMATION
FILE NAME: Soil Nail Total 60% submittal.gsz
ANALYSIS PROGRAM: GeoStudio 2007
ANALYSIS TYPE: Bishop, Ordinary and Janbu
FAILURE SURFACE: Circular
MODEL TYPE: 2-Dimensional

Name: FAT CLAY Model: Mohr-Coulomb Unit Weight: 125 pcf Cohesion: 1500 psf Phi: 0 °



SOIL NAIL INFORMATION
STRESS CONDITION: UnDrained
SURCHARGE LOADS: 250.0 lb./sq. ft
SOIL NAIL WALL HEIGHT: 10.0 ft
Boring B-3
3H:1V Top Slope
Bond Diameter: 0.08 ft (1-in)
Bond Safety Factor: 1.5
Bond Skin Friction: 500 psf
Nail Spacing: 5 ft
Nail Length: 25 ft
Bar Capacity: 60 ksi
Bar Safety Factor: 1.5
Shear Capacity: 60 ksi
Shear Safety Factor: 1.5

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Drawn: 07/01/14, By HM
Checked: 07/02/14, By SD

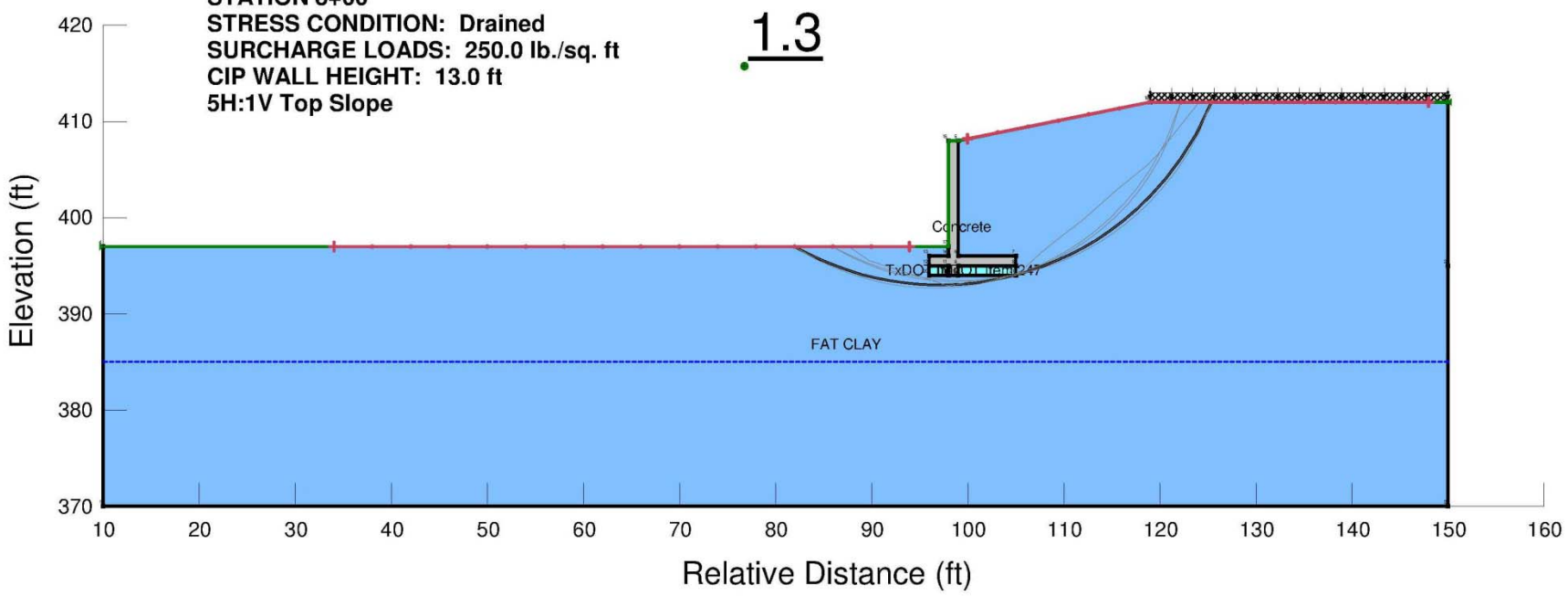
Global Stability Analysis
CIP Wall Station 8+00
Effective Stress Block Sliding Analysis

Mesquite Heritage Trail Phase 2
Mesquite, Texas
Project 20143095.001A July 2014

Name: FAT CLAY Model: Mohr-Coulomb Unit Weight: 125 pcf Cohesion: 100 psf Phi: 18 °
Name: Concrete Model: Mohr-Coulomb Unit Weight: 145 pcf Cohesion: 15000 psf Phi: 45 °
Name: TxDOT Item 247 Model: Mohr-Coulomb Unit Weight: 135 pcf Cohesion: 0 psf Phi: 35 °

MODEL INFORMATION
FILE NAME: CIP Wall 8+00 Effective.gsz
ANALYSIS PROGRAM: GeoStudio 2007
ANALYSIS TYPE: Bishop, Ordinary and Janbu
FAILURE SURFACE: Circular
MODEL TYPE: 2-Dimensional

CIP WALL INFORMATION
Mesquite Heritage Trail Phase 2
STATION 8+00
STRESS CONDITION: Drained
SURCHARGE LOADS: 250.0 lb./sq. ft
CIP WALL HEIGHT: 13.0 ft
5H:1V Top Slope



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Drawn: 06/05/14, By HM
Checked: 06/05/14, By SD

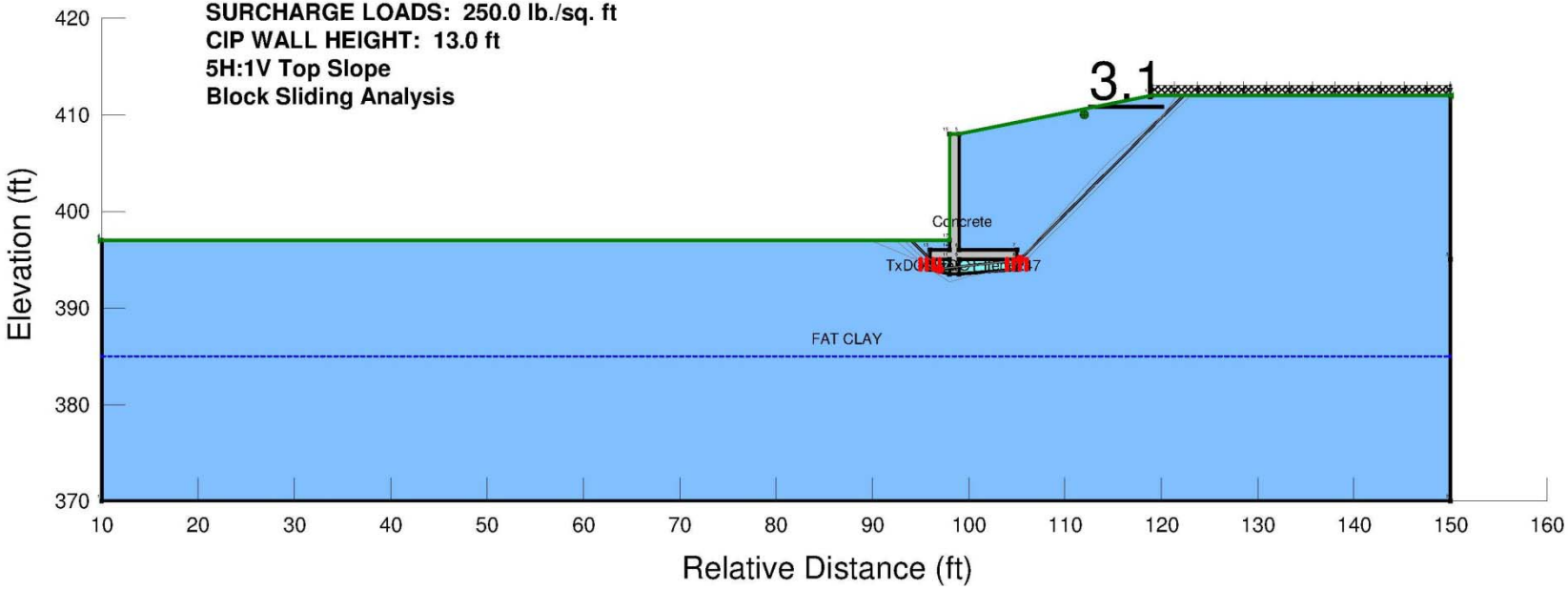
Global Stability Analysis
CIP Wall Station 8+00
Effective Stress

Mesquite Heritage Trail Phase 2
Mesquite, Texas
Project 20143095.001A June 2014

Name: FAT CLAY Model: Mohr-Coulomb Unit Weight: 125 pcf Cohesion: 100 psf Phi: 18 °
Name: Concrete Model: Mohr-Coulomb Unit Weight: 145 pcf Cohesion: 15000 psf Phi: 45 °
Name: TxDOT Item 247 Model: Mohr-Coulomb Unit Weight: 135 pcf Cohesion: 0 psf Phi: 35 °

MODEL INFORMATION
FILE NAME: CIP Wall 8+00 Effective Block Sliding.gsz
ANALYSIS PROGRAM: GeoStudio 2007
ANALYSIS TYPE: Bishop, Ordinary and Janbu
FAILURE SURFACE: Circular
MODEL TYPE: 2-Dimensional

CIP WALL INFORMATION
Mesquite Heritage Trail Phase 2
STATION 8+00
STRESS CONDITION: Drained
SURCHARGE LOADS: 250.0 lb./sq. ft
CIP WALL HEIGHT: 13.0 ft
5H:1V Top Slope
Block Sliding Analysis



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Drawn: 06/05/14, By HM
Checked: 06/05/14, By SD

Global Stability Analysis
CIP Wall Station 8+00
Effective Stress Block Sliding Analysis

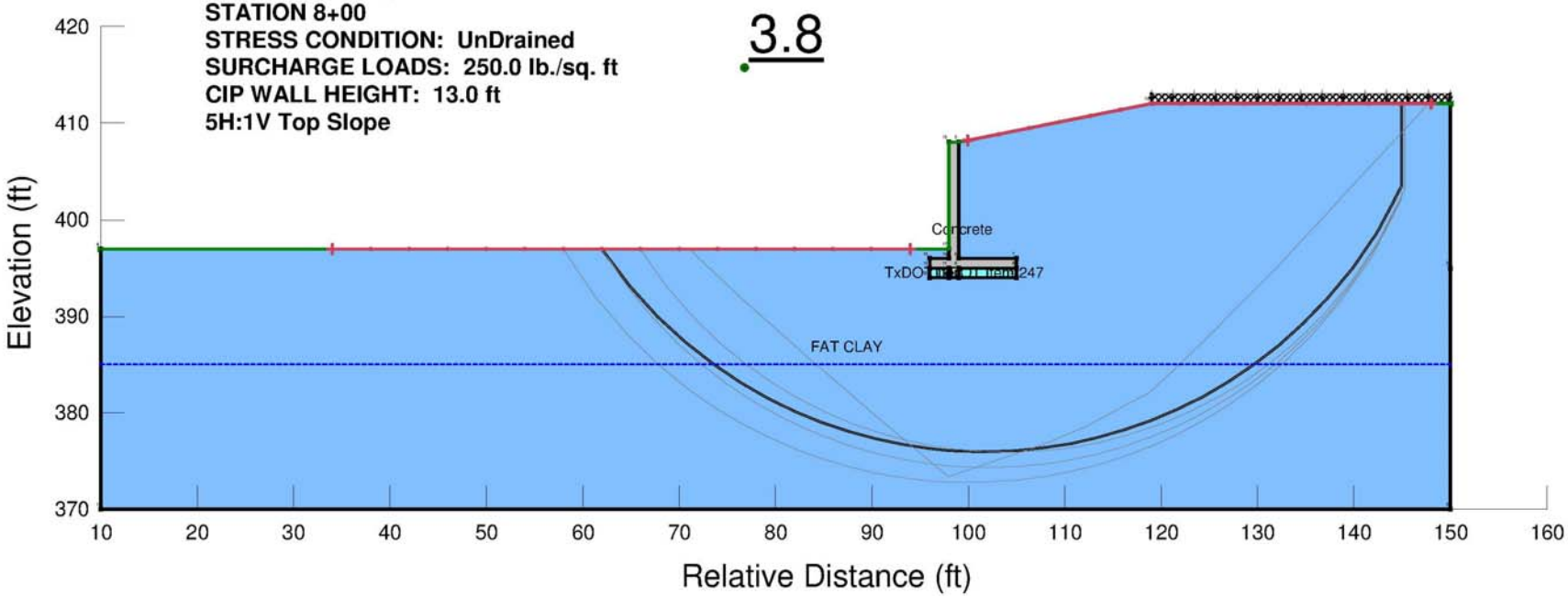
Mesquite Heritage Trail Phase 2
Mesquite, Texas
Project 20143095.001A June 2014

Name: FAT CLAY Model: Mohr-Coulomb Unit Weight: 125 pcf Cohesion: 1500 psf Phi: 0 °
Name: Concrete Model: Mohr-Coulomb Unit Weight: 145 pcf Cohesion: 15000 psf Phi: 45 °
Name: TxDOT Item 247 Model: Mohr-Coulomb Unit Weight: 135 pcf Cohesion: 0 psf Phi: 35 °

MODEL INFORMATION
FILE NAME: CIP Wall 8+00 Total.gsz
ANALYSIS PROGRAM: GeoStudio 2007
ANALYSIS TYPE: Bishop, Ordinary and Janbu
FAILURE SURFACE: Circular
MODEL TYPE: 2-Dimensional

CIP WALL INFORMATION
Mesquite Heritage Trail Phase 2
STATION 8+00
STRESS CONDITION: UnDrained
SURCHARGE LOADS: 250.0 lb./sq. ft
CIP WALL HEIGHT: 13.0 ft
5H:1V Top Slope

3.8



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Drawn: 06/05/14, By HM
Checked: 06/05/14, By SD

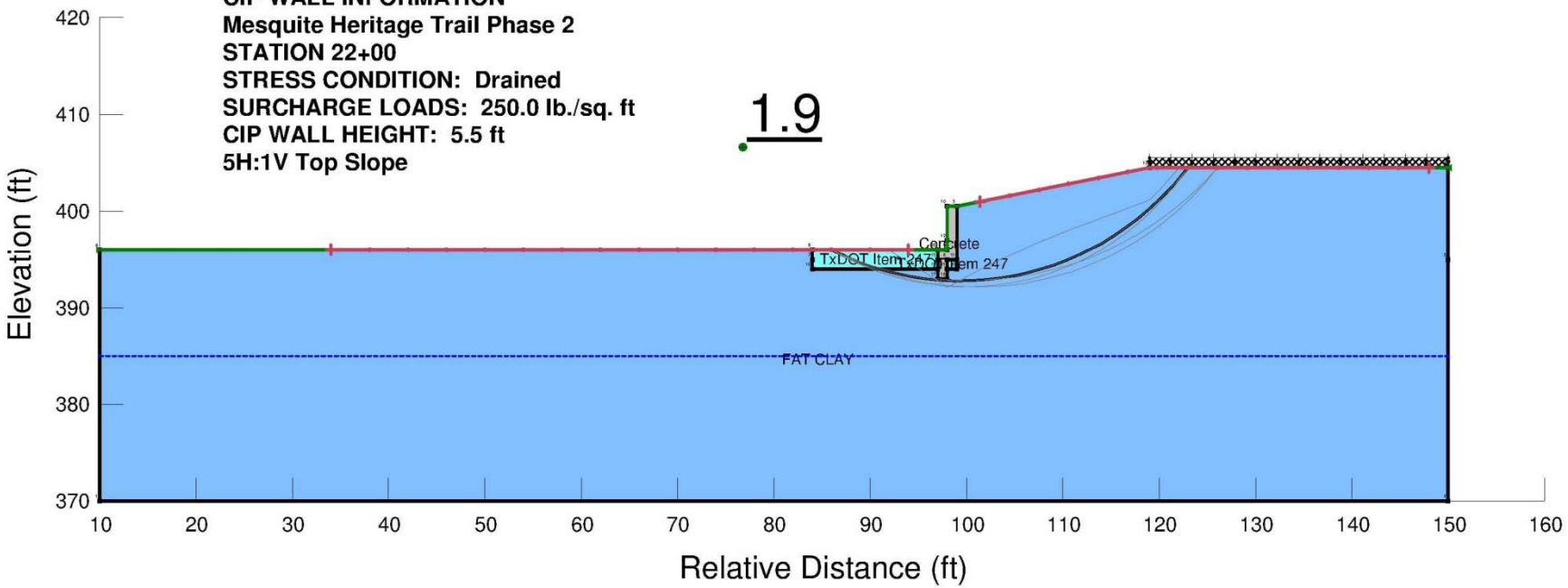
Global Stability Analysis
CIP Wall Station 8+00
Total Stress

Mesquite Heritage Trail Phase 2
Mesquite, Texas
Project 20143095.001A June 2014

Name: FAT CLAY Model: Mohr-Coulomb Unit Weight: 125 pcf Cohesion: 100 psf Phi: 18 °
Name: Concrete Model: Mohr-Coulomb Unit Weight: 145 pcf Cohesion: 15000 psf Phi: 45 °
Name: TxDOT Item 247 Model: Mohr-Coulomb Unit Weight: 135 pcf Cohesion: 0 psf Phi: 35 °

MODEL INFORMATION
FILE NAME: CIP Wall 22+00 Effective.gsz
ANALYSIS PROGRAM: GeoStudio 2007
ANALYSIS TYPE: Bishop, Ordinary and Janbu
FAILURE SURFACE: Circular
MODEL TYPE: 2-Dimensional

CIP WALL INFORMATION
Mesquite Heritage Trail Phase 2
STATION 22+00
STRESS CONDITION: Drained
SURCHARGE LOADS: 250.0 lb./sq. ft
CIP WALL HEIGHT: 5.5 ft
5H:1V Top Slope



KLEINFELDER
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Drawn: 06/05/14, By HM
Checked: 06/05/14, By SD

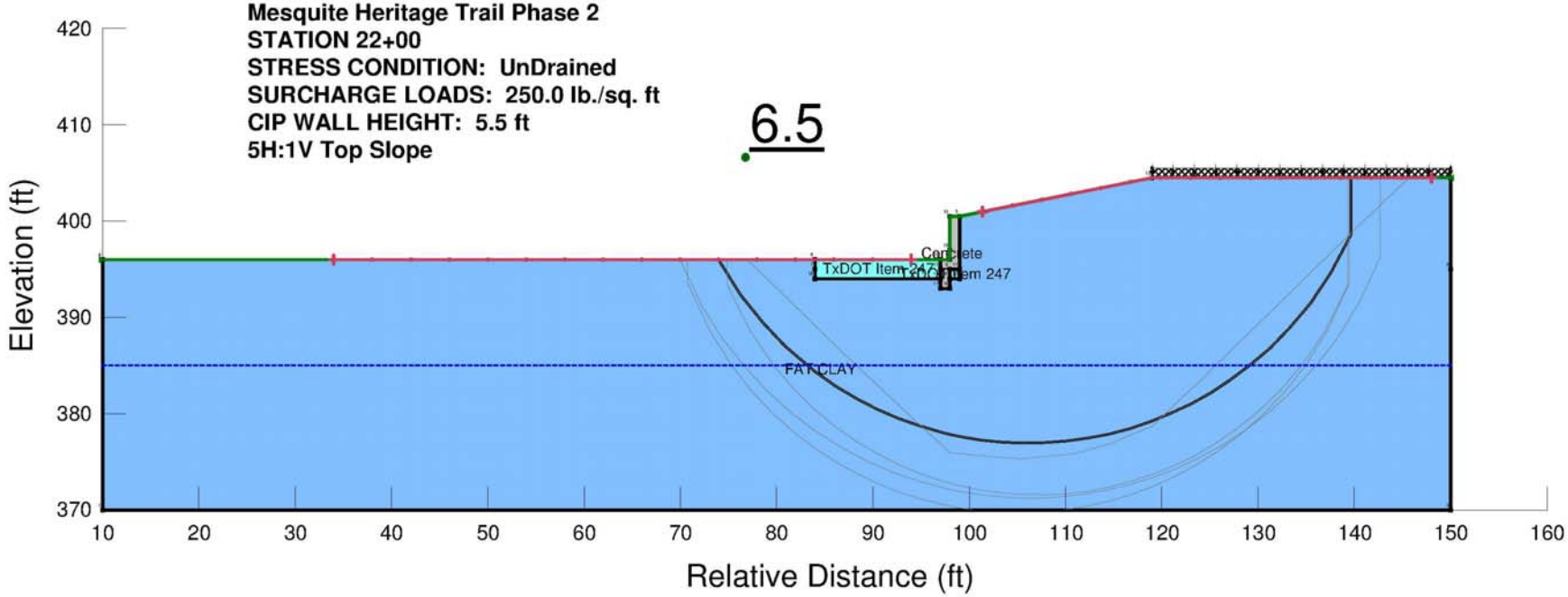
Global Stability Analysis
CIP Wall Station 22+00
Effective Stress

Mesquite Heritage Trail Phase 2
Mesquite, Texas
Project 20143095.001A June 2014

Name: FAT CLAY Model: Mohr-Coulomb Unit Weight: 125 pcf Cohesion: 1500 psf Phi: 0 °
Name: Concrete Model: Mohr-Coulomb Unit Weight: 145 pcf Cohesion: 15000 psf Phi: 45 °
Name: TxDOT Item 247 Model: Mohr-Coulomb Unit Weight: 135 pcf Cohesion: 0 psf Phi: 35 °

MODEL INFORMATION
FILE NAME: CIP Wall 22+00 Total.gsz
ANALYSIS PROGRAM: GeoStudio 2007
ANALYSIS TYPE: Bishop, Ordinary and Janbu
FAILURE SURFACE: Circular
MODEL TYPE: 2-Dimensional

CIP WALL INFORMATION
Mesquite Heritage Trail Phase 2
STATION 22+00
STRESS CONDITION: UnDrained
SURCHARGE LOADS: 250.0 lb./sq. ft
CIP WALL HEIGHT: 5.5 ft
5H:1V Top Slope



KLEINFELDER
Bright People. Right Solutions.

Drawn: 06/05/14, By HM
Checked: 06/05/14, By SD

Global Stability Analysis
CIP Wall Station 22+00
Total Stress

Mesquite Heritage Trail Phase 2
Mesquite, Texas
Project 20143095.001A June 2014

TO THE BIDDER / VENDOR

DID YOU REMEMBER TO?

- Abide by the General and Special Conditions
- Make note of the opening date and time. All bids must be submitted by 2:00 p.m. Bids received after 2:00 p.m. will not be accepted.
- Fill in the **unit** and **extended price** on your bid proposal.
- Fill in the **total amount**.
- Fill in the **alternate bid amounts**, if requested.
- Fill in the terms, if requested.
- Acknowledge receipt of all addendums.
- Fill in the **delivery time** or the **calendar days** (if applicable).
- Fill in the **company name, address and phone number**.
- **Sign bid proposal**.
- Include on the front of your sealed envelope the following information: **Company name, address, bid number, opening date and time**.

Mailing Address:

City of Mesquite
P.O. Box 850137
Mesquite, TX 75185-0137

Purchasing Office
972-216-6201
972-216-6397 Fax

Physical Address:

City of Mesquite
757 N. Galloway
Mesquite, TX 75149