

**SEALED BID SPECIFICATIONS
AND CONTRACT DOCUMENTS**



Claremore Public Works Authority

SB-2026-1

***FREDERICK ROAD:
CITY UTILITIES RELOCATION***

April 25th, 2026

***Please return bid documents to:
Finance Office
104 S. Muskogee
Claremore, Ok 74017***



CONSTRUCTION CONTRACT DOCUMENTS

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SB-2026-1

Advertised in the Claremore Progress April 25th, 2026 & May 2nd, 2026.

INVITATION TO BID

FREDERICK ROAD: CITY UTILITIES RELOCATION

Notice is hereby given that the Claremore Public Works Authority/City of Claremore will receive SEALED BIDS # SB-2026-1 at the office of the Finance Department at 104 South Muskogee Avenue, Claremore, OK 74017 until **2:00 p.m., on the 18th day of May, 2026**, at which time bids will be publicly opened and read aloud in the City Hall Council Chambers.

Contract bid documents, specifications and plans may be viewed at the CITY OF CLAREMORE, ENGINEERING DEPARTMENT, 724 RAMM RD, CLAREMORE, OKLAHOMA 74017. For all questions relating to the plans and specifications, contact Levi Hix, City Engineer at 918-341-0457 Ext. 217, or Garrett L. Ball, Public Works Director at 918-341-0457, Ext 209.

Digital copies of the contract bid documents, specifications and plans may be obtained at: www.claremore.com → Development → Community Development Services → Permits and Applications → Building and Trade Permits → Engineering – Plans → Apply Online (enter SB# or Project Title) → Complete information as requested. The fee for a digital set is \$25.00, non-refundable. Once the request is submitted, it will be directed to the Engineering Department for review and plan release.

Hard copies may be obtained at the CITY OF CLAREMORE, PLANNING & DEVELOPMENT DEPARTMENT, 724 RAMM RD, CLAREMORE, OKLAHOMA 74017 upon payment of a non-refundable fee of \$200.00. To view bidding documents or to obtain copies contact Joy Young at (918) 341-0457, Ext 200 or Joy.Young@claremore.com.

Bids filed with the Finance Department shall be publicly opened at the time stated above and considered by the Mayor and Council in the following regular Council meeting. Bids received more than ninety-six (96) hours, excluding Saturdays, Sundays and holidays before the time set for opening of bids, as well as bids received after the time set for opening of bids, will not be considered and will be returned unopened.

Bidders are notified that this Project is governed by the requirements of the Public Competitive Bidding Act of 1974. A cashier's check, a certified check or a surety bond for five percent (5%) of the bid shall accompany the sealed proposal of each bidder. All paperwork in the bids submitted shall be complete. Any incomplete paperwork may be considered an unresponsive bid. Bidders agree to commence Work within ten (10) calendar days after issuance of a Notice to Proceed, and to complete the same within 300 CALENDAR DAYS. The City of Claremore reserves the right to reject any or all bids and to waive minor irregularities. Contractor must have extensive experience with underground utility construction.

A **MANDATORY PRE-BID CONFERENCE** will be held at **2:00 pm on May 4th, 2026** at the City Hall Council Chambers, 104 South Muskogee, Claremore, OK. **ALL PROSPECTIVE BIDDERS ARE REQUIRED TO ATTEND THIS MEETING.**



INFORMATION FOR BIDDERS

Bids will be received by THE CITY OF CLAREMORE (Herein called the "Owner".) at CITY OF CLAREMORE, FINANCE DEPARTMENT, 104 SOUTH MUSKOGEE, CLAREMORE, OKLAHOMA 74017 until 2:00 p.m., on the 18th day of May, 2026.

A public bid opening will take place in THE CITY OF CLAREMORE COUNCIL CHAMBERS at 2:00 p.m. on that date

Each bid submitted by mail must be submitted in a sealed envelope addressed to CITY OF CLAREMORE, ATTN.: DALTON WADE, FINANCE DEPARTMENT 104 S. MUSKOGEE AVE, CLAREMORE, OKLAHOMA 74017

ALL PROSPECTIVE BIDDERS ARE REQUIRED TO ATTEND A MANDATORY PRE-BID CONFERENCE ON MAY 4TH, 2026 AT 2:00 P.M. AT THE CLAREMORE CITY COUNCIL CHAMBERS AT 104 S. MUSKOGEE AVE, CLAREMORE, OK 74017

Each sealed envelope containing a bid must be plainly marked on the outside as "SB-2026-1" and the envelope should bear on the outside the bidder's name, address and license number, if applicable, and the name of the Project for which the bid is submitted. If forwarded by mail, the sealed envelope containing the bid must be enclosed in another envelope addressed to FINANCE DEPARTMENT at 104 S. Muskogee Ave, Claremore, OK 74017

All bids must be made on the required bid form. All blank spaces for bid prices must be filled in, in ink or typewritten, and the bid form must be fully completed and executed when submitted. Two copies of the bid form and required documentation shall be submitted.

The Owner may waive any informalities or minor defects or reject any and all bids. Any bid may be withdrawn prior to the above-scheduled time for the opening of bids or authorized postponement thereof. Any bid received after the time and date specified shall not be considered. No bidder may withdraw a bid within 30 days after the actual date of the opening thereof. Should there be reasons why the contract cannot be awarded within the specified period; the time may be extended by mutual agreement between the Owner and the bidders.

Bidders must satisfy themselves on the accuracy of the estimated quantities in the Bid Schedule by examination of the site and a review of the drawings and specifications, including addenda. After bids have been submitted, no bidder shall assert that there was a misunderstanding concerning the quantities of Work or of the nature of the Work to be done.

Prior to bidding, the Owner shall provide bidders with all information that is pertinent to deadline dates, and describes the land owned and rights-of-way acquired or to be acquired.

The Contract Documents contain the provisions required for the construction of the Project. Information obtained from an officer, agent or employee of the Owner or any other person shall not affect the risks or obligations assumed by the contractor or relieve the contractor from fulfilling any of the conditions of this contract.

Each bid must be accompanied by a bid bond payable to the Owner for five percent of the total amount of the bid. As soon as the bid prices have been compared, the Owner will return the bonds of all except the three lowest responsible bidders. When the agreement is executed, the bonds of the two remaining unsuccessful bidders will be returned. The bid bond of the successful bidder will be retained until the payment bond and

performance bond and/or statutory bond have been executed and approved, after which it will be returned. A certified check may be used in lieu of the bid bond.

A performance bond, a maintenance bond and a payment/statutory bond, each in the amount of 100 percent of the Contract Price and each with a corporate surety approved by the Owner, will be required for the faithful performance of the contract.

Attorneys-in-fact who sign bid bonds, payment bonds and performance bonds must file with each bond a certified copy of their Power of Attorney bearing the effective date.

The party to whom the contract is awarded will be required to execute the agreement and deliver required bonds and insurance certificates within fifteen (15) calendar days from the date when Notice of Contract Award is delivered to the bidder. The Notice of Contract Award shall be accompanied by the necessary agreement and bond forms. In case of failure of the bidder to execute the agreement, the Owner may consider the bidder in default, in which case the bid bond accompanying the proposal shall become the property of the Owner. The Owner shall sign the agreement and return to such party an executed duplicate of the agreement.

The Owner may make such investigations as deemed necessary to determine the ability of the bidder to perform the Work and the bidder shall furnish to the Owner all such information and data for this purpose as the Owner may request. The Owner reserves the right to reject any bid if the evidence submitted by or investigation of such bidder fails to satisfy the Owner that such bidder is properly qualified to carry out the obligations of the agreement and to complete the Work contemplated therein.

A conditional or qualified bid will not be accepted.

Award will be made to the lowest responsible bidder. When alternates are used, the lowest responsible bidder will be determined by totaling the base bid and selected alternate bids.

All applicable laws, ordinances and the rules and regulations of all authorities having jurisdiction over construction of the Project shall apply to the contract throughout.

Each bidder is responsible for inspecting the site and for reading and being thoroughly familiar with the Contract Documents. The failure or omission of any bidder to do any of the foregoing shall in no way relieve any bidder from any obligation with respect to its bid.

When alternate bids are taken, they will be listed in numerical order with the highest priority being number one, second priority being number two, etc.

The low bidder shall supply the names and addresses of major material suppliers and Subcontractors when required to do so by the Owner.

SPECIAL NOTE TO BIDDERS:

As a part of the bid on this Project, the successful bidder will be required to meet all requirements of the Underground Facilities Damage Prevention Act when engaged in Work within the public right-of-way in the same manner as in private right-of-way.



BID PROPOSAL

Proposal of _____
(Hereinafter called "Bidder"), organized and existing under the laws of the State of _____,
doing business as _____ * to **THE CITY OF CLAREMORE**,
(Hereinafter called "Owner"). In compliance with the Advertisement for Bids, Bidder hereby proposes to
perform all Work for the construction of **Frederick Road: City Utilities Relocation** in strict accordance with
the Contract Documents within the time set forth therein and at the prices stated below.

By submission of this bid, each Bidder certifies, and in the case of a joint bid each party certifies as to its own
organization, that this bid has been arrived at independently, without consultation, communication or
agreement as to any matter relating to this bid, with any other Bidder.

Bidder hereby agrees to commence Work under this contract within ten (10) days of the date to be specified
in the **Notice to Proceed** and to complete the Project within **300** consecutive calendar days thereafter.

Bidder further agrees to pay as liquidated damages, and not as a penalty, the sum of \$ **500.00** for each
consecutive calendar day thereafter as provided in Section 15 of the General Conditions.

No Bidder may withdraw a bid within 30 days after the actual opening thereof. Each bid must be accompanied
by a Bid Bond payable to Owner for 5% of the amount bid, a Business Relationship Affidavit, and a Non-
Collusion Affidavit.

Bidder acknowledges receipt of the following **addenda**: _____
_____.

Bidder agrees to perform all the Work described in the Contract Documents for the following unit prices or
lump sum.

*Insert "a corporation", "a partnership" or "an individual", as applicable.

BID SCHEDULE

FREDERICK ROAD ULITILY RELOCATION - BASE BID (COMMON ITEMS)					
ITEM #	ITEM DESCRIPTION	UNIT	ESTIMATED QUANTITY	UNIT PRICE	TOTAL
1	MOBILIZATION/DE-MOBILIZATION	LS	1		\$ -
2	OBSTRUCTION REMOVAL/REPLACEMENT	LS	1		\$ -
3	PAVEMENT DEMO/DISPOSAL	SY	2,100		\$ -
4	TRAFFIC CONTROL	LS	1		\$ -
5	EASEMENT CLEARING	SY	7,000		\$ -
6	ODOT CLASS 'A' CONCRETE	CY	40		\$ -
7	ODOT CLASS 'A' HES CONCRETE	CY	107		\$ -
8	ODOT CLASS 'A' CONCRETE (FIBERMESH)	CY	15		\$ -
9	ODOT CLASS 'C' CONCRETE (FIBERMESH)	CY	30		\$ -
10	ODOT FLOWABLE FILL (CLSM)	CY	10		\$ -
11	ODOT TYPE 'A' AGGREGATE BASE	TON	2,780		\$ -
12	ODOT SUPERPAVE S4 ASPHALT	TON	215		\$ -
13	FENCE RELOCATION (TEMPORARY)	LS	1		\$ -
14	TOPSOIL/SOLID SLAB SOD	SY	7,500		\$ -
15	HYDROSEEDING/MULCH	SY	7,000		\$ -
16	PROJECT CONTINGENCY	-	-		\$ 65,000.00
FREDERICK ROAD ULITILY RELOCATION - BASE BID (SANITARY SEWER)					
ITEM #	ITEM DESCRIPTION	UNIT	ESTIMATED QUANTITY	UNIT PRICE	TOTAL
17	6" SDR35 PVC SEWER (SERVICE LINE)	LF	100		\$ -
18	8" SDR26 PVC SEWER	LF	1,225		\$ -
19	12" SDR26 PVC SEWER	LF	120		\$ -
20	NEW 4' ID PRECAST MANHOLE	EA	5		\$ -
21	EXISTING MANHOLE CONNECTION	EA	3		\$ -
22	SERVICE CONNECTIONS	EA	2		\$ -
23	CUT/CAP 4" & SMALLER SEWER LINE	EA	2		\$ -
24	CUT/CAP 6" & SMALLER SEWER LINE	EA	5		\$ -
25	MANHOLE CLEANING	EA	8		\$ -
26	MANHOLE INTERIOR SURFACE REHAB (GROUTING)	EA	7		\$ -
27	MANHOLE LEAK INJECTION	EA	3		\$ -
28	MANHOLE RING COVER REHAB	EA	6		\$ -
29	MANHOLE RING/COVER REPLACEMENT (NON-BOLTED)	EA	1		\$ -
30	ADJUST MANHOLE RING TO GRADE	EA	3		\$ -
31	TRACER TAPE	LF	1,345		\$ -

FREDERICK ROAD ULITILY RELOCATION - BASE BID (WATER)					
ITEM #	ITEM DESCRIPTION	UNIT	ESTIMATED QUANTITY	UNIT PRICE	TOTAL
32	REMOVE VALVE CAN	EA	6		\$ -
33	REMOVE FIRE HYDRANT	EA	3		\$ -
34	CUT/CAP 6" WATERLINE	EA	1		\$ -
35	CUT/CAP 8" WATERLINE	EA	4		\$ -
36	CUT/CAP 12" WATERLINE	EA	2		\$ -
37	8" GATE VALVE	EA	6		\$ -
38	10" GATE VALVE	EA	1		\$ -
39	12" GATE VALVE	EA	13		\$ -
40	8" MJ FITTING	EA	28		\$ -
41	12" MJ FITTING	EA	55		\$ -
42	1" CTS SDR9 SERVICE LINE	LF	250		\$ -
43	2" CTS SDR9 SERVICE LINE	LF	400		\$ -
44	2" HDPE DR11 SERVICE CASING PIPE	LF	185		\$ -
45	4" HDPE DR11 SERVICE CASING PIPE	LF	260		\$ -
46	6" C900 DR 18 PVC WATERLINE	LF	50		\$ -
47	8" C900 DR 18 PVC WATERLINE	LF	340		\$ -
48	12" C900 DR 18 PVC WATERLINE	LF	2,450		\$ -
49	WATER METER RESET/RECONNECTION	EA	22		\$ -
50	PLUMBER WATER SERVICE RECONNECT	EA	20		\$ -
51	FIRE HYDRANT ASSEMBLY	EA	4		\$ -
52	TRACER TAPE	LF	3,440		\$ -
53	TRACER WIRE	LF	3,440		\$ -
FREDERICK ROAD ULITILY RELOCATION - BASE BID (ELECTRIC)					
ITEM #	ITEM DESCRIPTION	UNIT	ESTIMATED QUANTITY	UNIT PRICE	TOTAL
54	INSTALL 2" HDPE F/O CONDUIT	LF	3,600		\$ -
55	INSTALL 2" SCH40 PVC CONDUIT	LF	140		\$ -
56	INSTALL 3" SCH40 PVC CONDUIT	LF	1,670		\$ -
57	INSTALL 4" SCH40 PVC CONDUIT	LF	3,050		\$ -
58	INSTALL 6" SCH40 PVC CONDUIT	LF	3,700		\$ -
59	INSTALL 2" LONG SWEEP ELBOW	EA	16		\$ -
60	INSTALL 3" LONG SWEEP ELBOW	EA	24		\$ -
61	INSTALL 4" LONG SWEEP ELBOW	EA	50		\$ -
62	INSTALL 6" LONG SWEEP ELBOW	EA	28		\$ -
63	TRACER TAPE	LF	8,410		\$ -
64	ELECTRICAL MARKER POST	EA	15		\$ -



BID SCHEDULE SUMMARY SHEET

TOTAL BASE BID PRICES LISTED BELOW SHALL BE THE INDIVIDUAL PORTIONS INCLUDING COMMON ITEMS, SANITARY SEWER, WATER, AND ELECTRIC.

TOTAL COMMON ITEMS:

(In numbers)

(In words)

TOTAL SANITARY SEWER:

(In numbers)

(In words)

TOTAL WATER BID:

(In numbers)

(In words)

TOTAL ELECTRIC BID:

(In numbers)

(In words)

TOTAL BASE BID PRICES LISTED BELOW SHALL BE A TOTAL SUMMARY OF THE COMMON ITEMS, SANITARY SEWER, WATER, AND ELECTRIC.

TOTAL BASE BID:

(In numbers)

(In words)



EXPERIENCE QUESTIONNAIRE

Submitted to: _____

- _____ A Corporation
- _____ A Co-Partnership
- _____ An Individual

By: _____

Principal Office: _____

1. How many years has your organization been in business as a general Contractor under your present business name? _____

2. How many years of experience in underground utility construction and rehabilitation does your organization have?

a) As a general Contractor: _____?

b) As a sub-contractor: _____?

3. List below the projects your organization has completed, of similar size and scope, within the last five-years:

CONTRACT AMOUNT	TYPE OF PROJECT	WHEN COMPLETED	NAME & ADDRESS OF OWNER

4. List names, addresses and telephone numbers of persons to be contacted for information on projects listed in Question 3:

NAME OF OWNER	NAME, ADDRESS, PHONE NO. OF PERSON TO CONTACT

5. Have you ever failed to complete any work awarded to you? _____
 If so, where and why: _____

6. Has any officer or partner of your organization ever been an officer or partner of any other organization that failed to complete a construction contract? _____
 If so, state the name of the individual, other organization and reason therefore:

7. Has any officer or partner of your organization ever failed to complete a construction contract handled in his own name? _____
 If so, state the name of the individual, name of the owner and reason therefore:

8. In what other lines of business are you financially interested?



SUPERINTENDENT QUESTIONNAIRE

Contract documents require that a competent, resident superintendent be on the Work site at all times. Each BIDDER shall provide the following information, covering the past five years, concerning the superintendent proposed for actual field execution of the Work:

Superintendent's Name: _____

Address: _____

Previous Related Experience (Cover the last five years):

PROJECT NAME	LOCATION	POSITION/TITLE



BUSINESS RELATIONSHIPS AFFIDAVIT

STATE OF OKLAHOMA)
)
 COUNTY OF _____) ss.

_____, of lawful age, being first duly sworn upon oath, states that (s)he is the agent authorized by the Bidder to submit the attached bid. Affiant further states that the nature of any partnership, joint venture or other business relationship presently in effect or which existed within one (1) year prior to the date of this statement with the architect, Engineer or other party to the Project is as follows:

Affiant further states that any such business relationship presently in effect or which existed within one (1) year prior to the date of this statement between any officer or director of the bidding company and any officer or director of the architectural or engineering firm or other party to the Project is as follows:

Affiant further states that the names of all persons having any such business relationships and the positions they hold with their respective companies or firms are as follows:

(if none of the business relationships hereinabove mentioned exist, Affiant should so state.)

 Affiant

Subscribed and sworn to before me this _____ day of _____, 20_____.

 Notary Public
 My Commission Expires:

NOTE: This form must be submitted with the bid.



Non-Collusion Affidavit

STATE OF OKLAHOMA)
) ss
COUNTY OF _____)

_____, of lawful age, being first duly sworn, on oath says:

1. (S)He is the duly authorized agent of _____, the bidder submitting the competitive bid which is attached to this statement, for the purpose of certifying the facts pertaining to the existence of collusion among bidders and between bidders and state officials or employees, as well as facts pertaining to the giving or offering of things of value to government personnel in return for special consideration in the letting of any contract pursuant to the bid to which this statement is attached;
2. (S)He is fully aware of the facts and circumstances surrounding the making of the bid to which this statement is attached and has been personally and directly involved in the proceedings leading to the submission of such bid; and
3. Neither the bidder nor anyone subject to the bidder's direction or control has been a party:
 - a. to any collusion among bidders in restraint of freedom of competition by agreement to bid at a fixed price or to refrain from bidding,
 - b. to any collusion with any state official or employee as to quantity, quality or price in the prospective contract, or as to any other terms of such prospective contract, nor
 - c. in any discussions between bidders and any state official concerning exchange of money or other thing of value for special consideration in the letting of a contract.

Name & Title _____

Address _____

County of _____

State of _____

Subscribed and sworn to before me this _____ day of _____, 20__.

Notary Public: _____

My commission expires: _____

NOTE: This form must be submitted with the bid.



CLAIM OR INVOICE AFFIDAVIT

STATE OF OKLAHOMA)
COUNTY OF _____) ss.

The undersigned, of lawful age, being first duly sworn upon oath, states that this invoice or claim is true and correct. Affiant further states that the work as shown by this invoice or claim, have been completed in accordance with the plans, specifications, orders or requests furnished to the Affiant. Affiant further states that (s)he has not paid, given or donated or agree to pay, give or donate, either directly or indirectly, to any elected official, officer or employee of the State of Oklahoma or The City of Claremore any money or any other thing of value to obtain payment or the award of this contract.

Affiant

Subscribed and sworn to before me this _____ day of _____, 20__.

Notary Public

My Commission Expires:



Bid Bond

KNOW ALL MEN BY THESE PRESENTS, that we, the undersigned, _____ and _____, as Principal, and _____ as Surety, are hereby held and firmly bound unto CITY OF CLAREMORE, of ROGERS COUNTY, OKLAHOMA, (hereinafter called "OWNER"), in the penal sum of _____ DOLLARS (\$) _____) for the payment of which sum, well and truly to be made, we hereby jointly and severally bind ourselves, our heirs, executors, administrators, successors and assigns.

THE CONDITION OF THE ABOVE OBLIGATION is such that, whereas the Principal has submitted to the OWNER a certain BID, attached hereto and made a part hereof, to enter into Contract for _____, Project No. _____.

THE CONDITION OF THIS OBLIGATION is such that, if the OWNER shall make any award to the BIDDER, according to the terms of the advertised bidding documents of BID, made by the BIDDER therefore, and the BIDDER shall duly make and enter into Contract with the OWNER in accordance with the terms of said BID award and shall, in case of failure to do so, pay to the OWNER damages to which the OWNER may suffer by reason of such failure not exceeding the penalty of this Bond, then this obligation shall be null and void; otherwise, it shall be and remain in full force and effect. It being expressly understood and agreed that the liability of the Surety for any and all claims hereunder shall, in no event, exceed the penal amount of this obligation as herein stated.

The Surety, for value received, hereby stipulates and agrees that the obligations of said Surety and its Bonds shall in no way be impaired or affected by any extension of time within which the OWNER may accept such BID. Said Surety does hereby waive notice of any such extension.

IN WITNESS WHEREOF, the Principal and Surety have hereunto set their hands and seals and such of them as are corporations have caused their corporate seals to be hereto affixed, and these presents to be signed by their proper officers, the day and year set forth below.

Signed, seal and dated this _____ day of _____, 20_____.

Principal

By: _____
Printed Name and Title

Surety

By: _____
Printed Name and Title

ATTEST: (If by Corporation)
By: _____
Printed Name and Title

(Corporate Seal)

Address: _____

Subscribed and sworn to before me this _____ day of _____, 20_____.

(SEAL) _____
Notary Public



NOTICE OF CONTRACT AWARD

	CONTRACT #: SB-2026-1

Project Description: **FREDERICK ROAD: CITY UTILITIES RELOCATION**

The Owner has considered the bid submitted by you for the above-described work in response to its Advertisement for Bids dated _____, 20____ and its Information for Bidders.

The City of Claremore Council accepted your Bid on _____, 20____ for the amount of: \$ _____

Written in words _____

If you fail to execute said agreement and to furnish required bonds and insurance certificates within fifteen (15) days from the date of this notice; the Owner will be entitled to consider all your rights arising out of the Owner's acceptance of your bid as abandoned and as a forfeiture of your bid bond. The Owner will be entitled to such other rights as may be granted by law.

You are required to return an acknowledged copy of this Notice of Award to the Owner.

Dated this _____ day of _____, 20____.

City of Claremore

ACCEPTANCE OF NOTICE

Receipt of the above Notice of Award is hereby acknowledged by _____
this _____ day of _____, _____.

By: _____ Title: _____ Date: _____



CONTRACT

This contract, made and entered into by and between the City of Claremore (“Owner”) and (“Contractor”)

for construction services for the FREDERICK ROAD: CITY UTILITIES RELOCATION

WHEREAS: the Contractor is the lowest responsible bidder for:

CITY OF CLAREMORE SB-2026-1

for the base bid, and add alternate prices, as accepted by City of Claremore City Council at the

_____ meeting for \$ _____ (Base Bid).

THEREFORE, the Contractor, for the consideration herein named, hereby agrees to do and complete the work above mentioned in accordance with the plans and specifications contained in the bidding documents as adopted and approved by the Owner and on file in the office of FINANCE DEPARTMENT which plans and specifications are made a part of this contract by reference and in accordance with the following General Conditions, Sections 1-31.

It is further agreed that the Contractor will commence said work within 10 days from the date of the Notice to Proceed and perform the same vigorously and continuously and complete the said Project.

The Notice to Bidders, the Instructions to Bidders, the Special and General provisions of the plans and specifications and the Contractor's Bid Proposal, each of said instruments on file in the office of the FINANCE DEPARTMENT, are, by reference thereto, made a part of this contract as if fully set forth herein or attached hereto.

IN WITNESS WHEREOF, the City of Claremore (“Owner”) and _____,

Contractors hereunto set their hands and seals the ____ day of _____, 20_____.

Debbie Long, Mayor
City of Claremore

SEAL

ATTEST:

Sarah Sharp, CMC, City Clerk

My commission expires

Contractor:

SEAL

_____.

Contractor

ATTEST:

(Signature of notary officer)

Contractor Signature

Typed Name & Title

My commission expires:

GENERAL CONDITIONS

- | | |
|--|---|
| 1. Definitions | 17. Subsurface Conditions |
| 2. Additional Instructions & Detail Drawings | 18. Suspension of Work, Termination & Delay |
| 3. Scheduled, Reports and Records | 19. Payments to Contractor |
| 4. Drawings and Specifications | 20. Acceptance of Final Payment as Release |
| 5. Shop Drawings | 21. Insurance |
| 6. Materials, Services & Facilities | 22. Contract Security |
| 7. Inspection & Testing | 23. Assignments |
| 8. Substitutions | 24. Indemnification |
| 9. Patents | 25. Separate Contracts |
| 10. Surveys, Permits, Regulations | 26. Subcontracting Persons |
| 11. Protection of Work, Property | 27. Engineer's Authority |
| 12. Supervision by Contractor | 28. Land and Rights-of-Way |
| 13. Changes in the Work | 29. Guaranty |
| 14. Changes in Contract Price | 30. Arbitration |
| 15. Time Completion & Liquidated Damages | 31. Taxes |
| 16. Correction of Work | |

1. **DEFINITIONS:** Wherever used in the Contract Documents, the following terms shall have the meanings indicated and shall be applicable to both the singular and plural thereof:
- a. **Addenda:** Written or graphic instruments issued prior to the execution of the Contract which modify or interpret the Contract Documents, Drawings and Specifications by additions, deletions, clarifications or corrections.
 - b. **Bid:** The offer or proposal of the Bidder submitted on the prescribed form setting forth the prices for the Work to be performed.
 - c. **Bidder:** Any person, firm or corporation submitting a bid for the Work.
 - d. **Bonds:** Bid, performance, payment (statutory) and maintenance bonds and other instruments of security furnished by the Contractor and the Contractor's surety in accordance with the Contract Documents.
 - e. **Change Order:** A written order to the Contractor authorizing an addition, deletion or revision in the Work within the general scope of the Contract Documents or authorizing an adjustment in the Contract Price or Contract Time.
 - f. **Contract:** This Contract, including the General Conditions and any written amendments hereto.
 - g. **Contract Documents:** This Contract, including Advertisement for Bids, Information for Bidders, Bid, Bid Bond, Payment (Statutory) Bond, Performance Bond, Notice of Award, Notice to Proceed, Change Order, Drawings, Specifications and Addenda.
 - h. **Contract Price:** The total monies payable to the Contractor under the terms and conditions of the Contract Documents.
 - i. **Contract Time:** The number of calendar days stated in the Contract Documents for the completion of the Work.

- j. Contractor: The person, firm or corporation with whom the Owner has executed the Contract.
- k. Drawings: The parts of the Contract Documents which show the characteristics and scope of the Work to be performed and which have been prepared or approved by the Engineer.
- l. Engineer: The person, firm or corporation named as such in the Contract Documents.
- m. Field Order: A written order effecting a change in the Work not involving an adjustment in the Contract Price or an extension of the Contract Time, issued by the Engineer to the Contractor during construction.
- n. Notice to Proceed: Written communication issued by the Owner to the Contractor authorizing him/her to proceed with the Work and establishing the date for commencement of the Work.
- o. Notice of Award: The written notice by Owner to the apparently successful Bidder stating that, upon compliance by the apparently successful Bidder with the conditions enumerated therein within the time specified, Owner will sign and deliver the Contract.
- p. Owner: The City of Claremore, Oklahoma.
- q. Project: The undertaking to be performed as provided in the Contract Documents.
- r. Resident Project Representative: The authorized representative of the Owner who is assigned to the Project site or any part thereof.
- s. Shop Drawings: All drawings, diagrams, illustrations, brochures, schedules and other data which are prepared by the Contractor, a Subcontractor, manufacturer, Supplier or distributor which illustrate how specific portions of the Work shall be fabricated or installed.
- t. Specifications: A part of the Contract Documents consisting of written descriptions of a technical nature of materials, equipment, construction systems, standards and workmanship.
- u. Subcontractor: An individual, firm or corporation having a direct contract with Contractor or with any other Subcontractor for the performance of a part of the Work at the site.
- v. Substantial Completion: That date certified by the Engineer when the construction of the Project or a specified part thereof is sufficiently completed, in accordance with the Contract Documents, to allow the Project or specified part to be utilized for the purposes for which it is intended.
- w. Supplier: Any person or organization who supplies materials or equipment for the Work, including that fabricated to a special design, but who does not perform labor at the site.
- x. Work: All labor necessary to produce the construction required by the Contract Documents and all materials and equipment incorporated or to be incorporated in the Project.
- y. Written Notice: Any notice in writing to any party to the Contract regarding any part of this Contract. Said Written Notice shall be considered delivered and the service thereof completed when posted by certified or registered mail to said party at their last given address or delivered in person to said party or their authorized representative at the Project site.

2. ADDITIONAL INSTRUCTIONS AND DETAIL DRAWINGS:

- a. The Contractor may be furnished additional instructions and detail Drawings by the Engineer as necessary to carry out the Work required by the Contract Documents.
- b. The additional Drawings and instructions thus supplied will become a part of the Contract Documents. The Contractor shall carry out the Work in accordance with the additional detail Drawings and instructions.

3. SCHEDULES, REPORTS AND RECORDS:

- a. The Contractor shall submit to the Owner such schedule of quantities and costs, progress schedules, payrolls, reports, estimates, records, and other data, where applicable, as are required by the Contract Documents for the Work to be performed.
- b. Prior to the first partial payment estimate, the Contractor shall submit construction progress schedules showing the order in which the Contractor proposes to carry out the Work, including dates at which the various parts of the Work will be started, estimated date of completion of each part and, as applicable:
 - (1) The dates at which special detail Drawings will be required; and
 - (2) Respective dates for submission of Shop Drawings, the beginning of manufacture, the testing and the installation of materials, supplies and equipment.
- c. The Contractor shall also submit a schedule of payments the Contractor anticipates will be earned during the course of the Work.

4. DRAWINGS AND SPECIFICATIONS:

- a. The Drawings and Specifications are tools to be used by the Contractor to enable the Contractor to furnish all labor, materials, tools, equipment and transportation necessary for the proper performance of the Work in accordance with the Contract Documents and all incidental Work necessary to complete the Project in an acceptable manner, ready for use, occupancy or operation by the Owner.
- b. In case of conflict between the Drawings and the Specifications, the Specifications shall govern. Figure dimensions and drawings shall govern over scale dimensions and detail drawings shall govern over general drawings.
- c. Any discrepancies found between the Drawings and Specifications and site conditions or any inconsistencies or ambiguities in the Drawings or Specifications shall be immediately reported, in writing, to the Engineer, who shall promptly correct such inconsistencies or ambiguities in writing. Work done by the Contractor after discovery of such discrepancies, inconsistencies or ambiguities shall be done at the Contractor's risk.

5. SHOP DRAWINGS:

- a. The Contractor shall provide Shop Drawings as may be necessary for the performance of the Work as required by the Contract Documents. The Engineer shall promptly review all Shop Drawings. The Engineer's approval of any Shop Drawing shall not release the Contractor from responsibility for deviations from the Contract Documents. The approval of any Shop Drawing that substantially deviates from the requirement of the Contract Documents shall be evidenced by a Change Order.

- b. When submitted for the Engineer's review, Shop Drawings shall bear the Contractor's certification that he has reviewed, checked and approved the Shop Drawings and that they are in conformance with the requirements of the Contract Documents.

6. MATERIALS, SERVICES AND FACILITIES:

- a. It is understood that, except as otherwise specifically stated in the Contract Documents, the Contractor shall provide and pay for all materials, labor, tools, equipment, water, light, power, transportation, supervision, temporary construction of any nature and all other services and facilities of any nature whatsoever necessary to execute, complete and deliver the Work within the specified time.
- b. Materials and equipment shall be so stored as to preserve their quality and fitness for the Work. Stored materials and equipment to be incorporated in the Work shall be located to facilitate prompt inspection.
- c. Manufactured articles, materials and equipment shall be applied, installed, connected, erected, used, cleaned and conditioned as directed by the manufacturer.
- d. Materials, supplies and equipment shall be in accordance with samples submitted by the Contractor and approved by the Engineer.
- e. Materials, supplies or equipment to be incorporated into the Work shall be purchased by the Contractor or the Subcontractor free and clear of chattel mortgages, conditional sales contracts or other agreements by which an interest is retained by the seller.

7. INSPECTION AND TESTING:

- a. All materials and equipment used in the construction of the Project shall be subject to adequate inspection and testing in accordance with generally accepted standards as required and defined in the Contract Documents.
- b. The Owner shall provide all inspection and testing services not required by the Contract Documents.
- c. The Contractor shall provide, at the Contractor's expense, the testing and inspection services required by the Contract Documents.
- d. If the Contract Documents, laws, ordinance, rules, regulations or orders of any public authority having jurisdiction require any specific work to be inspected, tested or approved by someone other than the Contractor, the Contractor will give the Engineer timely notice of readiness. The Contractor will then furnish the Engineer the required certificates of inspection, testing or approval.
- e. Inspections, tests or approvals by the Engineer or others shall not relieve the Contractor from the obligation to perform the Work in accordance with the requirements of the Contract Documents.
- f. The Engineer and the Engineer's representatives will at all times have access to the Work. In addition, authorized representatives and agents of any participating Federal or State agency shall be permitted to inspect all work, materials, payrolls, records of personnel, invoices of materials and other relevant data and records. The Contractor will provide proper facilities for such access and observation of the Work and for any inspection or testing thereof.

- g. If any Work is covered contrary to the written instructions of the Engineer, it must, if requested by the Engineer, be uncovered for the Engineer's observation and the covering replaced at the Contractor's expense.
 - h. If the Engineer considers it necessary or advisable that covered Work be inspected or tested by others, the Contractor, at the Engineer's request, will uncover, expose or otherwise make available for observation, inspection or testing, as the Engineer may require, that portion of the Work in question, furnishing all necessary labor, materials, tools and equipment. If it is found that such Work is defective, the Contractor will bear all expenses of such uncovering, exposing, observing, inspecting and testing and of satisfactory reconstruction. If, however, such Work is not found to be defective, the Contractor will be allowed an increase in the Contract Price or an extension of the Contract Time, or both, directly attributable to such uncovering, exposing, observing, inspecting, testing and reconstruction and an appropriate Change Order shall be issued.
- 8. **SUBSTITUTIONS:** Whenever a material, article or piece of equipment is identified on the Drawings or Specifications by referenced to brand name or catalog number, it shall be understood that this is referenced for the purpose of defining the performance or other salient requirements and that other products of equal capacities, quality and function may be considered. The Contractor may recommend the substitution of a material, article or piece of equipment of equal substance and function for those referred to in the Contract Documents by reference to brand name or catalog number and if, in the opinion of the Engineer, such material, article or piece of equipment is of equal substance and function to that specified, the Engineer may approve its substitution and use by the Contractor. Any cost differential shall be deductible from the Contract Price and the Contract Documents shall be appropriately modified by Change Order. The Contractor warrants that if substitutes are approved, no major changes in the function or general design of the Project will result. Incidental changes or extra component parts required to accommodate the substitute will be made by the Contractor without a change in the Contract Price or Contract Time.
- 9. **PATENTS:** The Contractor shall pay all applicable royalties and license fees and shall defend all suits or claims for infringement of any patent rights and save the Owner harmless from loss on account thereof, except that the Owner shall be responsible for any such loss when a particular process, design or product of a particular manufacturer or manufacturers is specified; however, if the Contractor has reason to believe that the design, process or product specified is an infringement of a patent, the Contractor shall be responsible for such loss unless the Contractor promptly gives such information to the Engineer.
- 10. **SURVEYS, PERMITS, REGULATIONS:**
 - a. If called for in the Drawings, the Owner shall furnish all boundary surveys and establish all base lines for locating the principal component parts of the Work, together with a suitable number of benchmarks adjacent to the Work as shown in the Contract Documents. The Owner shall develop and make all detail surveys needed for construction, such as slope stakes, stakes for pipe locations and other working points, lines, elevations and cut sheets.
 - b. The Contractor shall carefully preserve benchmarks, reference points and stakes and, in case of willful or careless destruction, shall be charged with the resulting expense and shall be responsible for any mistake that may be caused by their unnecessary loss or disturbance.

- c. Permits and licenses of a temporary nature necessary for the performance of the Work shall be secured and paid for by the Contractor unless otherwise stated in the Supplemental General Conditions. Permits, licenses and easements for permanent structures or permanent changes in existing facilities shall be secured and paid for by the Owner unless otherwise specified. The Contractor shall give all notices and comply with all laws, ordinances, rules and regulations bearing on the conduct of the Work as drawn and specified. If the Contractor observes that the Contract Documents are at variance therewith, the Contractor shall promptly notify the Engineer in writing and any necessary changes shall be adjusted as provided in Section 13, CHANGES IN THE WORK.

11. PROTECTION OF WORK, PROPERTY AND PERSONS:

- a. The Contractor will be responsible for initiating, maintaining and supervising all safety precautions and program in connection with the Work. The Contractor will take all necessary precautions for the safety of and will provide the necessary protection to prevent damage, injury or loss to all employees on the Work and other persons who may be affected thereby and for the protection of all the Work and all materials or equipment to be incorporated therein, whether in storage on or off the site, and other property at the site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures and utilities not designated for removal, relocation or replacement in the course of construction.
- b. The Contractor will comply with all applicable laws, ordinances, rules, regulations and orders of any public body having jurisdiction. The Contractor will erect and maintain, as required by the conditions and progress of the Work, all necessary safeguards for safety and protection. The Contractor will notify owners of adjacent utilities when performance of the Work may affect them. The Contractor will remedy all damage, injury or loss to any property caused, directly or indirectly, in whole or in part, by the Contractor or any Subcontractor or anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, except damage or loss attributable to the fault of the Contract Documents or to the acts or omissions of the Owner or the Engineer or anyone employed by either them or anyone for whose acts either of them may be liable, and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of the Contractor.
- c. In emergencies affecting the safety of persons or the Work or property at the site or adjacent thereto, the Contractor, without special instructions or authorization from the Engineer or Owner, shall act to prevent the threatened damage, injury or loss. The Contractor will give the Engineer prompt written notice of any significant changes in the Work or deviations from the Contract Documents caused thereby and a Change Order shall thereupon be issued covering the changes and deviations involved.

12. SUPERVISION BY CONTRACTOR: The Contractor will supervise and direct the Work. He will be solely responsible for the means, methods, techniques, sequences and procedures of construction. The Contractor will employ and maintain on the Work a qualified supervisor or superintendent who shall have been designated in writing by the Contractor as the Contractor's representative at the site. The supervisor shall have full authority to act on behalf of the Contractor and all communications given to the supervisor shall be as binding as if given to the Contractor. The supervisor shall be present on the site at all times as required to perform adequate supervision and coordination of the Work.

13. CHANGES IN THE WORK:

- a. The Owner may, at any time, as the need arises, order changes within the scope of the Work without invalidating the Contract. If such changes increase or decrease the amount due under the Contract Documents or in the time required for performance of the work, an equitable adjustment shall be authorized by Change Order.
- b. The Engineer may also, at any time, by issuing a field order, make changes in the details of the Work. The Contractor shall proceed with the performance of any changes in the Work so ordered by the Engineer unless the Contractor believes that such field order entitles the Contractor to a change in Contract Price or Time, or both, in which event, the Contractor shall give the Engineer written notice thereof within seven (7) days after the receipt of the ordered change. Thereafter, the Contractor shall document the basis for the change in Contract Price or Time within thirty (30) days. The Contractor shall not execute such changes pending the receipt of an executed Change Order or further instruction from the Owner.

14. CHANGES IN CONTRACT PRICE: The Contract Price may be changed only by a Change Order. The value of any Work covered by a Change Order or of any claim for increase or decrease in the Contract Price shall be determined by one or more of the following methods in the order of precedence listed below:

- a. Unit prices previously approved;
- b. An agreed lump sum.

15. TIME FOR COMPLETION AND LIQUIDATED DAMAGES:

- a. The date of beginning and the time for completion of the Work are essential conditions of the Contract Documents and the Work embraced shall be commenced on a date specified in the Notice to Proceed.
- b. The Contractor will proceed with the Work at such rate of progress as to ensure full completion within the Contract Time. It is expressly understood and agreed by and between the Contractor and the Owner that the Contract Time for the completion of the Work described herein is a reasonable time, taking into consideration the average climatic and economic conditions and other factors prevailing in the locality of the Work.
- c. If the Contractor shall fail to complete the Work within the Contract Time or extension of time granted by the Owner, then the Contractor will pay to the Owner the amount for liquidated damages as specified in the Bid for each calendar day the Contractor shall be in default after the time stipulated in the Contract Documents. The parties agree that it would be extremely difficult or impracticable to fix the amount of Owner's damages sustained by reason of Contractor default in reaching substantial completion of the Work within the Contract Time and that the amount of liquidated damages specified represents the parties' reasonable estimation of actual damages.
- d. The Contractor shall not be charged with liquidated damages or any excess cost when the delay in completion of the Work is due to the following and the Contractor has promptly given written notice of such delay to the Owner or Engineer:
 - (1) Any preference, priority or allocation order duly issued by the Owner;
 - (2) Unforeseeable causes beyond the control and without the fault or negligence of the Contractor, including but not restricted to acts of God, acts of the public enemy, acts or the Owner, acts of another contractor in the performance of a contract with the

Owner, fires, flood, epidemics, quarantine, restrictions, strikes, freight embargoes and abnormal and unforeseeable weather; and

- (3) Any delays of Subcontractors occasioned by any of the causes specified in paragraphs 15d(1) and 15d(2) of this article.

16. CORRECTION WORK:

- a. The Contractor shall promptly remove from the premises all Work rejected by the Engineer for failure to comply with the Contract Documents, whether incorporated in the construction or not, and the Contractor shall promptly replace and re-execute the Work in accordance with the Contract Documents without expense to the Owner and shall bear the expense of making good all the Work of other contractors destroyed or damages by such removal or replacement.
- b. All removal and replacement work shall be done at the Contractor's expense. If the Contractor does not take action to remove such rejected Work within ten (10) days after receipt of written notice, the Owner may remove such Work and store the materials at the expense of the Contractor.

17. SUBSURFACE CONDITIONS:

- a. The Contractor shall promptly, before such conditions are disturbed except in the event of an emergency, notify the Owner by Written Notice of:
- (1) Subsurface or latent physical conditions at the site differing materially from those indicated in the Contract Documents; or
- (2) Unknown physical conditions at the site of an unusual nature which differ materially from those ordinarily encountered and generally recognized as inherent in the Work the character provided for in the Contract Documents.
- b. The Owner shall promptly investigate the conditions and, if it is found that such conditions do so materially differ and cause an increase or decrease, an adjustment shall be made and the Contract Documents shall be modified by a Change Order. Any claim of the Contractor for adjustment hereunder shall not be allowed unless the required Written Notice has been given and provided that the Owner may, if the Owner determines the facts so justify, consider and adjust any claims asserted before the date of final payment.

18. SUSPENSION OF WORK, TERMINATION AND DELAY:

- a. The Owner may suspend the Work or any portion thereof for a period of not more than ninety (90) days or until such further time as agreed upon by the Contractor in a Written Notice to the Contractor and the Engineer fixing the date on which Work shall be resumed. The Contractor will resume that Work on the date so fixed. The Contractor will be allowed an increase in the Contract Price or an extension of the Contract Time, or both, for any costs and/or delays incurred which are directly attributable to any suspension.
- b. If any of the following conditions occur:
- (1) The Contractor is adjudged bankrupt or insolvent or makes a general assignment for the benefit of its creditors;

- (2) A trustee or receiver is appointed for the Contractor or for any of its property;
 - (3) Contractor files a petition to take advantage of any debtor's act or to reorganize under bankruptcy of applicable laws;
 - (4) The Contractor repeatedly fails to supply sufficiently skilled workmen or suitable materials or equipment;
 - (5) The Contractor repeatedly fails to make prompt payments to Subcontractors or for labor, materials or equipment;
 - (6) The Contractor disregards laws, ordinance, rules, regulations or orders of any public body having jurisdiction over the Work;
 - (7) The Contractor disregards the authority of the Engineer or otherwise violates any provision of the Contract Documents; then the Owner may, without prejudice to any other right or remedy and after giving the Contractor and its surety a minimum of ten (10) days from delivery of a Written Notice, terminate the services of the Contractor and take possession of the Project and of all materials, equipment, tools, construction equipment and machinery thereon owned by the Contractor and finish the Work by whatever method the Owner may deem expedient. In such case, the Contractor shall not be entitled to receive any further payment until the Work is finished. If the unpaid balance of the Contract Price exceeds the direct and indirect costs of completing the Project, including compensation for additional professional services, such excess shall be paid to the Contractor. If such costs exceed such unpaid balance, the Contractor will pay the difference to the Owner. Such costs incurred by the Owner will be determined by the Engineer and incorporated in a Change Order
- c. Where the Contractor's services have been so terminated by the Owner, said termination shall not affect any right of the Owner against the Contractor then existing or which may thereafter occur. Any retention or payment of monies by the Owner due the Contractor will not release the Contractor from compliance with the Contract Documents.
- d. After ten (10) days from the delivery of a Written Notice to the Contractor and the Engineer, the Owner may, without cause and without prejudice to any other right or remedy, elect to abandon the Project and terminate the Contract. In such case, the Contractor shall be paid for all Work executed and any expense sustained plus a reasonable profit.
- e. If, through no act or fault of the Contractor, the Work is suspended for a period of more than ninety (90) days by the Owner or under an order of court or other public authority or the Engineer fails to act on any request for payment within thirty (30) days after it is submitted or the Owner fails to pay the Contractor substantially the sum approved by the Engineer or awarded by arbitrators within thirty (30) days of its approval and presentation, then the Contractor may, after ten (10) days from delivery of a Written Notice to the Owner and the Engineer, terminate the Contract and recover from the Owner payment for all Work executed and all expenses sustained.
- In addition to and in lieu of terminating the Contract, if the Engineer has failed to act on a request for payment or if the Owner has failed to make payment as aforesaid, the Contractor may, upon ten (10) days Written Notice to the Owner and Engineer, stop the Work until paid all amounts then due, in which event and upon resumption of the Work, Change Orders shall be issued to adjust the Contract Price or extend the Contract Time, or both, to compensate for the costs and delays attributable to the stoppage of the Work.

- f. If the performance of all or any portion of the Work is suspended, delayed or interrupted is a result of a failure by the Owner or Engineer to act within the time specified in the Contract Documents or if no time is specified, within a reasonable time, an adjustment in the Contract Price or an extension of the Contract Time, or both, shall be made by Change Order to compensate the Contractor for the costs and delays unnecessarily caused by the failure of the Owner or Engineer.

19. PAYMENT TO CONTRACTOR:

- a. At least ten (10) days before each progress payment falls due (but not more often than once a month), the Contractor will submit to the Engineer a partial payment estimate filled out and signed by the Contractor, covering the Work performed during the period covered by the partial payment estimate and supported by such data as the Engineer may reasonably require. If payment is requested on the basis of materials and equipment not incorporated in the Work but delivered and suitably stored at or near the site, the partial payment estimate shall also be accompanied by supporting data, satisfactory to the Owner, which will establish the Owner's title to the material and equipment and protect the Owner's interest therein, including applicable insurance. The Engineer will, within ten (10) days after the receipt of each partial payment estimate, either indicate approval of payment in writing and present the partial payment estimate to the Owner or return the partial payment estimate to the Contractor indicating in writing the reasons for refusing to approve payment. In the latter case, the Contractor may make the necessary corrections and resubmit the partial payment estimate. The Owner will, within ten (10) days of presentation of an approved partial payment estimate, pay the Contractor a progress payment on the basis of the approved partial payment estimate less the retainage. The retainage shall be an amount equal to 5% of said estimate. Upon Substantial Completion of the Work, any amount retained may be paid to the Contractor. When the Work has been Substantially Completed except for work which cannot be completed because of weather conditions, lack of materials or other reasons which, in the judgment of the Owner, are valid reasons for non-completion, the Owner may make additional payments, retaining at all times an amount sufficient to cover 150% of the estimated cost of the Work still to be completed.
- b. The request for payment may also include an allowance for the cost of major materials and equipment suitably stored either at or near the site.
- c. Prior to Substantial Completion, the Owner, with the approval of the Engineer and with the concurrence of the Contractor, may use any completed or substantially completed portions of the Work. Such use shall not constitute an acceptance of such portions of the Work.
- d. The Owner shall have the right to enter the premises for the purpose of doing work not covered by the Contract Documents. This provision shall not be construed as relieving the Contractor of the sole responsibility for the care and protection of the Work or the restoration of any damaged Work except such as may be caused by agents or employees of the Owner.
- e. Upon completion and acceptance of the Work, the Engineer shall issue a certificate attached to the final payment request that the Work has been accepted under the conditions of the Contract Documents. The entire balance found to be due to the Contractor, including the retained percentages, except such sums as may be lawfully retained by the Owner, shall be paid to the Contractor within thirty (30) days of completion and acceptance of the Work.

- f. The Contractor will indemnify and save the Owner or the Owner's agents harmless from all claims growing out of the lawful demand of Subcontractors, laborers, workmen, mechanics, material men and furnishers of machinery and parts therefor, equipment, tools and supplies incurred in the furtherance of the performance of the Work. The Contractor shall, at the Owner's request, furnish satisfactory evidence that all obligations of the nature designated above have been paid, discharged or waived. If the Contractor fails to do so, the Owner may, after having notified the Contractor, either pay unpaid bills or withhold from the Contractor's unpaid compensation a sum of money deemed reasonably sufficient to pay any and all such lawful claims until satisfactory evidence is furnished that all liabilities have been fully discharged, whereupon payment to the Contractor shall be resumed in accordance with the terms of the Contract Documents. In no event shall these provisions be construed to impose any obligations upon the Owner to either the Contractor, the Contractor's surety or any third party. In paying any unpaid bills of the Contractor, any payment so made by the Owner shall be considered as a payment made under the Contract Documents by the Owner to the Contractor and the Owner shall not be liable to the Contractor for any such payments made in good faith.
 - g. If the Owner failed to make payment within thirty (30) days after approval by the Engineer, in addition to other remedies available to the Contractor, there shall be added to each such payment interest at the maximum legal rate commencing on the first day after said payment is due and continuing until the payment is received by the Contractor.
20. ACCEPTANCE OF FINAL PAYMENT AS RELEASE: Acceptance by the Contractor of final payment shall be and shall operate as a release to the Owner of all claims and all liability to the Contractor other than claims in stated amounts as may be specifically excepted by the Contractor for all things done or furnished in connection with this Work and for every act and neglect of the Owner and others, relating or arising out of this Work. Any payment, however, final or otherwise, shall not release the Contractor or its sureties from any obligations under the Contract Documents or the performance of the payment bonds.
21. INSURANCE:
- a. The Contractor shall purchase and maintain such insurance as will protect it from claims set forth below which may arise out of or result from the Contractor's execution of the Work, whether such execution be by the Contractor, any Subcontractor or by anyone directly or indirectly employed by any of them or by anyone for whose acts any of them may be liable.
 - (1) Claims under Workers' Compensation, disability benefit and other similar employee benefit acts;
 - (2) Claims for damages because of bodily injury, occupational sickness or disease or death of employees;
 - (3) Claims for damages because of bodily injury, sickness or disease or death of any person other than employees;
 - (4) Claims for damages covered by the usual personal injury liability coverage which are sustained by:
 - (a) Any person as a result of an offense directly or indirectly related to the employment of such person by the Contractor; or
 - (b) Any other person;

- (5) Claims for damages because of injury to or destruction of tangible property, including loss of use resulting there from.
- b. Certificates of insurance acceptable to Owner shall be filed with the Owner prior to commencement of Work. These certificates shall contain a provision that coverages afforded under the policies will not be cancelled unless at least fifteen (15) days' prior written notice has been given to the Owner.
- c. The Contractor shall procure and maintain, at the Contractor's own expense, during the Contract Time, liability insurance as hereinafter specified:
 - (1) Contractor's general public liability and property damage insurance, including vehicle coverage, issued to the Contractor and protecting the Contractor from all claims for personal injury, including death, and all claims for destruction of or damage to property arising out of or in connection with any operations under the Contract Documents, whether such operations be by the Contractor or by any Subcontractor employed by the Contractor. Insurance shall be written with a limit of liability of not less than \$175,000 for all damages arising out of bodily injury, including death, at any time resulting there from, sustained by any one person in any one accident, and a limit of liability of not less than \$1,000,000 aggregate for any such damages sustained by two or more persons in anyone accident. Insurance shall be written with a limit of liability of not less than \$25,000 for all property damage sustained by anyone person in anyone accident and a limit of liability not less than \$200,000 aggregate for any such damage sustained by two or more persons in any one accident.
 - (2) The Contractor shall acquire and maintain, if applicable, fire and extended coverage insurance upon the Project to the full insurable value thereof for the benefit of the Owner, the Contractor and the Subcontractors, as their interest may appear. This provision shall in no way release the Contractor or the Contractor's surety from obligations under the Contract Documents to fully complete the Project.
- d. The Contractor shall procure and maintain, at the Contractor's own expense, during the Contract Time, in accordance with the provisions of the laws of the State in which the work is performed, Workers' Compensation insurance, including occupational disease provisions, for all of the Contractor's employees at the site of the Project and, in case any Work is sublet, the Contractor shall require such Subcontractor similarly to provide Workers' Compensation insurance, including occupational disease provisions, for all of the latter's employees unless such employees are covered by the protection afforded by the Contractor. In case any class of employees engaged in hazardous work under this contract at the site of the Project is not protected under the Workers' Compensation Statute, the Contractor shall provide and shall cause each Subcontractor to provide adequate and suitable insurance for the protection of its employees not otherwise protected.
- e. The Contractor shall secure, if applicable, "all risk" type Builder's risk insurance for Work to be performed. Unless specifically authorized by the Owner, the amount of such insurance shall not be less than the Contract Price totaled in the Bid. The policy shall cover not less than the losses due to fire, explosion, hail, lightning, vandalism, malicious mischief, wind, collapse, riot, aircraft and smoke during the Contract Time and until the Work is accepted by the Owner. The policy shall name as the insured the Contractor and the Owner.

22. CONTRACT SECURITY:

- a. The Contractor shall, within ten (10) days after the receipt of the Notice of Award, furnish the Owner with a performance bond, a maintenance bond and a payment (statutory) bond in penal sums equal to the amount of the Contract Price, conditioned upon the performance by the Contractor of all undertakings, covenants, terms, conditions and agreements of the Contract Documents and upon the prompt payment by the Contractor to all persons supplying labor and materials in the performance of the Work required by the Contract Documents. Such Bonds shall be executed by the Contractor and a corporate bonding company licensed to transact such business in the State of Oklahoma. The expense of these bonds shall be borne by the Contractor. If, at any time, a surety on any such Bond is declared bankrupt or loses its right to do business in the State of Oklahoma, Contractor shall, within ten (10) days after notice from the Owner, substitute another bond and surety, both of which must be acceptable to Owner. The premiums on such bond shall be paid by the Contractor. No further payment shall be deemed due nor made until the new surety or sureties shall have furnished an acceptable bond to the Owner.

23. ASSIGNMENTS: Neither the Contractor nor the Owner shall sell, transfer, assign or otherwise dispose of the Contract or any portion thereof or of any right, title or interest therein or any obligations thereunder without written consent of the other party.

24. INDEMNIFICATION:

- a. The Contractor will indemnify and hold harmless the Owner and the Engineer and their agents and employees from and against all claims, damages, losses and expenses, including attorney's fees, arising out of or resulting from the performance of the Work, provided that any such claims, damages, loss or expense is attributable to bodily injury, sickness, disease or death or to injury to or destruction of tangible property, including the loss of use resulting therefrom, which is caused in whole or in part by any negligent or willful act or omission of the Contractor, any Subcontractor, anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable.
- b. In any and all claims against the Owner or the Engineer or any of their agents or employees by any employee of the Contractor, any Subcontractor, anyone directly or indirectly employed by an of them or anyone for whose acts any of them may be liable, the indemnification obligation shall not be limited in any way by any limitation on the amount or type of damages, compensation or benefits payable by or for the Contractor or any Subcontractor under the Workers' Compensation Act, disability benefits acts or other employee benefits acts.
- c. The obligation of the Contractor under this paragraph shall not extend to the liability of the Engineer, its agents or employees arising out of the preparation or approval of maps, drawings, opinions, reports, surveys, change orders, designs or specifications.

25. SEPARATE CONTRACTS:

- a. The Owner may perform additional work related to the Project or the Owner may let other contracts containing provisions similar to these. The Contractor will afford the other contractors who are parties to such contracts (or the Owner, if the Owner is performing the additional work) reasonable opportunity for the introduction and storage of materials and equipment and the execution of work and shall properly connect and coordinate the Work with theirs. If the proper execution or results of any part of the Contractor's Work depends upon the work of any other contractor, the Contractor shall inspect and promptly report to the Engineer any defects in such work that render it unsuitable for such proper execution and results.

- b. If the performance of additional work by other contractors or the Owner is not noted in the Contract Documents prior to the execution of the Contract, Written Notice thereof shall be given to the Contractor prior to starting any such additional work. If the Contractor believes the performance of such additional work by the Owner or other involves it in additional expense or entitles it to an extension of the Contract Time, the Contractor may make a claim therefor as provided in Sections 13 and 14.

26. SUBCONTRACTING:

- a. The Contractor may utilize the services of specialty subcontracts on those parts of the Work, which, under normal contracting practices, are performed by specialty Subcontractors.
- b. The Contractor shall not award work to Subcontractor(s) in excess of fifty (50) percent of the Contract Price or in excess of fifty (50) percent of the labor and equipment required to install the Project without prior written approval of the Owner.
- c. The Contractor shall be as fully responsible to the Owner for the acts and omissions of its Subcontractors and of persons either directly or indirectly employed by them as the Contractor is for the acts and omissions of persons directly employed by the Contractor.
- d. The Contractor shall cause appropriate provisions to be inserted in all subcontracts relative to the work to bind Subcontractors to the Contractor by the terms of the Contract Documents insofar as applicable to the Work of Subcontractors' and to give the Contractor the same power regarding termination of any subcontract that the Owner may exercise over the Contractor under any provision of the Contract Documents.
- e. Nothing contained in this Contract shall create any contractual relationship between any Subcontractor and the Owner.

27. ENGINEER'S AUTHORITY:

- a. The Engineer shall act as the Owner's representative during the construction period, shall decide questions which may arise as to quality and acceptability of materials furnished and work performed and shall interpret the intent of the Contract Documents in a fair and unbiased manner. The Engineer will make visits to the site and determine if the Work is proceeding in accordance with the Contract Documents.
- b. The Contractor will be held strictly to the intent of the Contract Documents in regard to the quality of materials, workmanship and execution of the Work. Inspections may be made at the factory or fabrication plant of the source of material supply.
- c. The Engineer will not be responsible for the construction means, controls, techniques, sequences, procedures or construction safety.
- d. The Engineer shall promptly make decisions relative to interpretation of the Contract Documents.

28. LAND AND RIGHTS-OF-WAY:

- a. Prior to issuance of the Notice to Proceed, the Owner shall obtain all land and right-of-way necessary for the carrying out and completion of the Work to be performed pursuant to the Contract Documents, unless otherwise mutually agreed.

- b. The Owner shall provide the Contractor with information that delineates and describes the lands owned and right-of-way acquired.
 - c. The Contractor shall provide, at its own expense and without liability to the Owner, any additional land and access thereto that the Contractor may desire for temporary construction facilities or for storage of materials.
29. **GUARANTEE:** The Contractor shall guarantee all materials and equipment furnished and Work performed for a: period of one (1) year from the date of Substantial Completion. The Contractor warrants, and guarantees for a period of one (1) year from the date of Substantial Completion of the system that the completed system is free from all defects due to faulty materials or, workmanship and the Contractor shall promptly make such corrections as may be necessary by reason of such defects, including the repairs of any damage to other parts of the system resulting from such defects. The Owner will give notice of observed defects with reasonable promptness. In the event the Contractor should fail to make such corrections, the Owner may do so and charge the Contractor the costs thereby incurred. The maintenance bond shall remain in full force and effect throughout the guarantee period.
30. **ARBITRATION BY MUTUAL AGREEMENT:**
- a. All claims, disputes and other matters in question arising out of or relating to the Contract Documents or the breach thereof, except for claims which have been waived by making an acceptance of final payment as provided in Section 20, may be decided by arbitration if the parties mutually agree. Any agreement to arbitrate shall be in writing and shall be specifically enforceable under the prevailing arbitration law. The award rendered by the arbitrators shall be final and judgment may be rendered upon it in any court having jurisdiction thereof.
 - b. Notice of the request for arbitration shall be filed in writing with the other party to the Contract Documents and a copy shall be filed with the Engineer. Request for arbitration shall in no event be made on any claim, dispute or other matter in question that would be barred by the applicable statute of limitations.
 - c. The Contractor will carry on the work and maintain the progress schedule during any arbitration proceedings unless otherwise mutually agreed in writing.
31. **TAXES:** The Owner shall provide the Contractor documentation to provide suppliers of material for the Project to remove sales tax from the cost of materials.

SUPPLEMENTAL GENERAL CONDITIONS

The provisions of the Supplemental General Conditions as described herein change, amend or supplement the General Conditions and shall supersede any conflicting provisions of this contract. All provisions of the General Conditions which are not changed, amended or supplemented remain in force.

- | | |
|--|-------------------------------|
| 1. Contract Approval | 12. Partial Occupancy and Use |
| 2. Contract Change Orders | 13. Permit Requirements |
| 3. Partial Payment Estimates | 14. Cleanup Release |
| 4. Conflict of Interest | 15. Drug and Alcohol Testing |
| 5. Protection of Lives and Property | |
| 6. Remedies Requirements | |
| 7. Gratuities | |
| 8. Non-Resident Requirements | |
| 9. Payment for Material Stored on Site | |
| 10. Change Order Approval | |
| 11. Final Inspection | |

1. CONTRACT APPROVAL:

- a. The Owner and the Contractor will furnish the Owner's attorney such evidence as is required to enable the Owner's attorney to complete and execute "Certificate of Owner's Attorney" (Section 14).

2. PARTIAL PAYMENT ESTIMATES:

- a. "Partial Payment Estimates" shall be used when making application for periodic payments due the Contractor.
- b. The Owner may, after consultation with the architect/Engineer, withhold or, on account of subsequently discovered evidence, nullify, in whole or in part, any approved partial payment estimate to such extent as may be necessary to protect the Owner from loss on account of:
- (1) Defective work not remedied;
 - (2) Claims filed;
 - (3) Failure of Contractor to make payments properly to Subcontractors or suppliers;
 - (4) A reasonable doubt that the Work can be completed for the balance then unpaid;
 - (5) Damage to another contractor;
 - (6) Performance of Work in violation of the terms of the Contract Documents.
- c. Where Work on unit price items is substantially complete but lacks testing, clean-up and/or corrections, amounts shall be deducted from unit prices in partial payment estimates to amply cover such testing, cleanup and/or corrections.
- d. When the items in 2.b. and 2.c. are cured, payment shall be made for amounts withheld because of them.
- e. Payments will not be made that would deplete the retainage or place in escrow any funds required for retainage or invest the retainage for the benefit of the Contract.

3. CONFLICT OF INTEREST:

a. Unacceptable Bidders:

- (1) No Engineer or architect (individual or firm, including persons they employ) who has prepared plans and specifications will be considered an acceptable bidder. Any firm or corporation in which such Engineer or architect (including persons they employ) is an officer or an employee or holds or controls a substantial interest will not be considered an acceptable bidder.
- (2) Contracts or purchases by the Contractor shall not be awarded or made to a supplier or manufacturer if the Engineer or architect (firm or individual) who prepared the plans and specifications has a corporate or financial affiliation with the supplier or manufacturer. Bids will not be awarded to firms or corporations owned or controlled wholly or in part by a member of the governing body of the Owner or to an individual who is such a member.

- b. None of the Owner's officers, employees or agents shall engage in the award or administration of this Contract if a conflict of interest, real or apparent would be involved. Such a conflict would arise when the employee, officer or agent, any member of his immediate family, his partner or an organization which employs him or is about to employ him, or any of the above, has a financial or other interest in the Contractor. None of the Owner's officers, employees or agents shall solicit or accept gratuities, favors or anything of monetary value from the Contractor or Subcontractor.

4. PROTECTION OF LIVES AND PROPERTY:

- a. In order to protect the lives and health of its employees performing the Work under the Contract, the Contractor shall comply with all 4 pertinent provisions of the Occupational Safety and Health, Administration (OSHA) and any State safety and health agency requirements.
- b. The Contractor alone shall be responsible for the safety, efficiency and adequacy of its plant, appurtenances and methods and for any damage, which may result from their failure or their improper construction, maintenance or operation.

5. REMEDIES: Unless otherwise provided in this Contract, all claims, counterclaims, disputes and other matters in question between the Owner and the Contractor arising out of or relating to this contract or the breach thereof will be decided by arbitration, if the parties mutually agree, or in a court of competent jurisdiction with the State in which the Owner is located.

- a. The arbitration provisions of this section may be initiated by either party to this contract by filing with the other party and the Engineer/architect a written request for arbitration.
- b. Upon agreement to arbitrate, each party to this contract will appoint one arbitrator and the two arbitrators will select the third arbitrator.
- c. The arbitrators will select a hearing location as close to the Project site as possible.
- d. The procedure for conducting the hearing will follow the Construction Industry Arbitration Rules of the American Arbitration Association.

6. GRATUITIES:
 - a. If the Contractor or any of the Contractor's agents or representatives offers or gives gratuities (in the form of entertainment, gifts or anything of value) to any official, employee or agent of the Owner in an attempt to secure this Contract or favorable treatment in awarding, amending or making any determinations related to the performance of this Contract, the Owner may, by written notice to the Contractor, terminate this Contract. The Owner may also pursue other rights and remedies that the Law or this Contract provides.
 - b. In the event this Contract is terminated as provided in paragraph 6.a., the Owner may pursue the same remedies against the Contractor as it could pursue in the event of a breach of the Contract by the Contractor.
7. Any non-resident Contractor doing business in the State of Oklahoma shall register with the Oklahoma Tax Commission, the Oklahoma Employment Security Commission, the State Industrial Court and the County Assessor of each county in which contract Work will be performed. This must be done prior to commencing Work under the Contract.
8. PAYMENT FOR MATERIAL STORED ON SITE: The following items will be required if the Contractor requests payment for material stored on the site (see Paragraph 19.b. of the General Conditions):
 - a. Invoices, approved and initialed by the consulting Engineer and the Owner, showing the quantity, size, cost, etc., of the material;
 - b. Payment will be made only for material stored in a location approved by the Owner. The storage area must provide adequate protection from the elements and the material must be stored so it can be promptly inspected. Material strung throughout the job site will not be considered properly stored.
 - c. The five percent retainer that applies to material installed will also apply to materials stored on the site;
 - d. When payment for material stored on the site is received, a paid invoice for that payment from the supplier must be submitted to the Owner prior to the payment of the next partial payment.
9. All Change Orders must be approved by the governing body of Owner or its delegated representative.
10. A final inspection will be made by the Owner before final payment is made. Final payment will not be made until the Owner certifies in writing that the construction has been completed as planned. If the Oklahoma State Department of Health has issued a permit and approved the plans and specifications on this Project, they must concur in the final inspection.
12. PARTIAL OCCUPANCY AND USE: The Owner, upon advance written notification to the Contractor, shall have the right to occupy and use any completed or partially-completed portions of the Project, regardless of the percentage of completion of the entire Project, when such occupancy and use is to the Owner's best interest. Such partial occupancy and use shall be upon the following terms:
 - a. The Engineer shall make an inspection of the portion or portions of the Project concerned and report to the Owner his findings as to the acceptability and completeness of the Work. The Engineer's report shall include a list of items to be completed or corrected before final payment.

- b. The Owner, upon acceptance of the Engineer's report, shall give Written Notice to the Contractor of the Owner's intent to occupy and use said portions of the Project. The Owner's notice shall include a copy of the Engineer's report, shall clearly identify the portions of the Project to be occupied and used and shall establish the date of said occupancy and use.
 - c. From the date thus established, the Owner shall assume all "responsibilities for operation, maintenance and the furnishing of water, gas and electrical power for the portions of the Project thus occupied and used. The Owner shall have the right to exclude the Contractor from those portions of the Project but shall provide the Contractor with reasonable access to complete or correct necessary items of Work.
 - d. The guarantee required by the General Conditions shall not begin until completion and final acceptance of the entire Project except as to items of equipment specified, such as instrumentation, electrical and mechanical equipment, which are thus used by the Owner. For said equipment, the warranty shall start from the date established in the written notice from the Owner.
 - e. Occupancy or use of any space in the Project shall not constitute acceptance of Work not performed in accordance with the Contract or relieve the Contractor of liability to perform any Work required by the Contract but not completed at the time of said occupancy and use.
 - f. The Contractor shall not be held responsible for fair wear and tear or damage resulting from said occupancy except to the extent such damage is covered by the warranty.
 - g. The partial occupancy and use of any portion or portions of the Project by the Owner shall not constitute grounds for claims by the Contractor for release of any amounts retained from payments under the provisions of the Contract. The retained amounts will not be due until completion of the entire Project for final acceptance and final payment as set forth in the General Conditions.
13. The Contractor shall be responsible for contacting all Federal, State, County or railroad personnel required to be contacted and as set forth in any permits with respect to time schedule before commencing any Work for which a permit is required.
14. The Contractor shall secure a cleanup release satisfactory to the Owner from any Federal, State, county or railroad agency after the Work for which a permit has been obtained has been completed.
15. Per revisions to the Oklahoma Standards for Drug and Alcohol Testing Act effective November 1, 2011, all employers, including independent contractors, Subcontractors or employees of an independent contractor, may be subject to a workplace drug or alcohol testing policy under the terms of the contractual agreement when the drug or alcohol testing policy applies to other workers at the job site or workers who are in the same or similar classification or group.



PERFORMANCE BOND

_____, as Principal, and _____,
a corporation organized under the laws of the State of _____ as surety, are held and firmly bound unto _____ in the penal sum of _____ Dollars (\$ _____), in lawful money of the United States of America, for the payment of which, well and truly to be made, we bind ourselves and each of us, our heirs, executors, administrators, trustees, successors and assigns, jointly and severally, firmly by these presents.

The condition of this obligation is such that, whereas said Principal entered into a written contract _____ with _____ dated _____ for _____, all in compliance with the plans and specifications therefor, made a part of said contract and on file in the office of _____.

NOW, THEREFORE, if said Principal shall, in all particulars, well, truly and faithfully perform and abide by said contract and each and every covenant, condition and part thereof and shall fulfill all obligations resting upon said Principal by the terms of said contract and said specifications and if said Principal shall protect and save harmless said _____ from any pecuniary loss resulting from the breach of any of the items, covenants and conditions of said contract resting upon said Principal, then this obligation shall be null and void, otherwise to be and remain in full force and effect.

It is further expressly agreed and understood by the parties hereto that no changes or alterations in said contract and no deviations from the plan or mode of procedures herein fixed shall have the effect of releasing the sureties, or any of them, from the obligations of this Bond.

IN WITNESS WHEREOF, the said Principal has caused these presents to be executed in its name and its corporate seal to be hereunto affixed by its duly-authorized officers and the said Surety has caused these presents to be executed in its name and its corporate seal to be hereunto affixed by its Attorney-In-Fact, duly authorized to do so, the day and year set forth below.

Dated this day of _____ day of _____, _____

PRINCIPAL: _____

ATTEST: _____ By: _____

SURETY: _____

By: _____
Attorney-In-Fact



STATUTORY (PAYMENT) BOND

No. _____

We, _____, as Principal, and _____, a corporation organized under the laws of the State of _____, as Surety, are held and firmly bound unto the State of Oklahoma in the amount of _____ Dollars (\$ _____) for the payment of which we hereby bind ourselves, our heirs, executors, administrators and assigns, jointly and severally, firmly by these presents.

Dated this _____ day of _____, _____.

WHEREAS, the said _____ did on _____ enter into a certain contract with _____ for the construction of _____;

AND WHEREAS, this bond is given in compliance with Oklahoma Statutes Annotated, 194, Title 61, Sections 1 and 2, as amended;

NOW, THEREFORE, the condition of the above obligation is such that, if the Principal shall pay all indebtedness incurred for labor, materials or rental of machinery or equipment furnished in the construction of said public building or in making said public improvements, then this obligation shall be void, otherwise to remain in full force and effect.

IN WITNESS WHEREOF we have hereunto set our hands and seals the day and year first above written.

ATTEST (If by corporation)

By: _____
Bonding Company

By: _____

Attorney-In-Fact



MAINTENANCE BOND
(Defect Bond)

_____, as Principal, and _____, a corporation organized under the laws of the State of _____ and authorized to transact business in the State of Oklahoma, as Surety, are held and firmly bound unto _____, (City, Town or Trust Authority)

in the penal sum of _____ Dollars (\$ _____) in lawful money of the United States of America, said sum being equal to one hundred percent (100%) of the Contract Price, for payment of which, well and truly to be made, we bind ourselves and each of us, our heirs, executors, administrators, trustees, successors and assigns, jointly and severally, firmly by these presents.

The condition of this obligation is such that, whereas said Principal entered into a written contract with _____ (City, Town or Trust) dated _____, _____ for _____

_____ all in compliance with the plans and specifications thereof, made a part of said contract and on file in the office of _____;

NOW, THEREFORE, if said Principal payor shall cause to be paid to _____ (City, Town or Trust Authority) all damage, loss and expense which may result by reason of defective materials and/or workmanship in connection with said work occurring within a period of one (1) year from and after the acceptance of said Project by _____, (City, Town or Trust Authority) then this obligation shall be null and void, otherwise to be and remain in full force and effect.

It is further expressly agreed and understood by the parties that no changes or alterations in said contract and no deviations from the plan or mode of procedures herein fixed shall have the effect of releasing the sureties, or any of them, from the obligations of this Bond.

IN WITNESS WHEREOF, the said Principal has caused these presents to be executed in its name and its corporate seal to be hereunto affixed by its duly authorized officers and the said Surety has caused these presents to be executed in its name and its corporate seal to be hereunto affixed by its Attorney-In-Fact, duly authorized so to do, the day and year set forth below.

Dated this _____ day of _____, _____

PRINCIPAL:

By: _____

ATTEST:

SURETY _____ By: _____ Attorney-In-Fact



INSURANCE REQUIREMENTS

Name of Insured: _____

Description of Work: _____

Location of Work: _____

<u>Kind of Insurance</u>	<u>Coverage From</u>	<u>To</u>	<u>Minimum</u>	<u>Expected Dates</u> <u>Coverage Needed</u>
Workers' Compensation	Legal Amount	_____		
General Public Liability and Property Damage, Including Vehicle Coverage:				
Bodily Injury - Each Person in One Accident	\$175,000	_____		
Bodily Injury – Two or More Persons in Any One Accident	\$1,000,000 (aggregate)	_____		
Property Damage - Each Person in Any One Accident	\$25,000	_____		
Property Damage - Aggregate Limit	\$200,000	_____		
Builder's Risk (If Required)	Full Coverage	_____		

Note: This covers all motor-driven vehicles such as cars, trucks, graders, etc.

In the event of any material change or cancellation of said policies, the company will give fifteen (15) days' written notice to _____, Owner.

Statements such as "will endeavor" and "but failure to notify Owner shall impose no obligation or liability of any kind upon the company" shall not be allowed.

Coverage shall be indicated by checking all boxes applicable. Insurance shall cover any hazards involved with the planned construction. Special coverage for blasting operations shall be listed separately on the certificates.

The Owner shall be listed as the certificate holder.



**ATTORNEY’S CERTIFICATE OF APPROVAL OF
CONTRACT AND BONDS FOR CITY OF CLAREMORE**

I, the undersigned , the City Attorney for The City of Claremore, Rogers County, Oklahoma, do hereby certify as follows:

I have examined the construction contract between _____ (“Contractor”) and the City of Claremore, Oklahoma (“City”) approved by the City Council of the City on _____, 20____ (“Contract”), and the surety bonds given by the Contractor in connection with the performance of said Contract including the manner of execution of the Contract and surety bonds. On the basis of the forgoing, I am of the opinion that the surety bonds are in proper form and content pursuant to the Oklahoma Public Competitive Bidding Act of 1974 and that the Contract has been duly authorized and executed by the City, acting through its duly authorized representatives, that said representatives have full power and authority to execute said Contract on behalf of the City and that the foregoing Contract constitutes a valid and legally binding obligation upon the City enforceable in accordance with the terms, conditions and provisions thereof.

Dated this _____ day of _____, 20_____.

City Attorney



**GEOTECHNICAL ENGINEERING REPORT
FREDERICK ROAD TASK ORDER 1
FROM FUTURE STATE HIGHWAY 20 TO
COUNTRY CLUB ROAD
CLAREMORE, OKLAHOMA
PROJECT NO. 20212086.001A**

NOVEMBER 12, 2020

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**ONLY THE CLIENT OR ITS DESIGNATED REPRESENTATIVES MAY USE THIS DOCUMENT AND ONLY FOR
THE SPECIFIC PROJECT FOR WHICH THIS REPORT WAS PREPARED.**

A Report Prepared for:

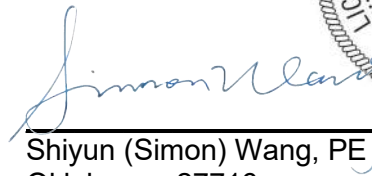
Mr. Danny Powell, PE
MKEC Engineering, Inc.
205 NW 63rd St., Suite 240
Oklahoma City, OK 73116

**GEOTECHNICAL ENGINEERING REPORT
FREDERICK ROAD TASK ORDER 1
FROM FUTURE STATE HIGHWAY 20 TO COUNTRY CLUB ROAD
CLAREMORE, OKLAHOMA**

Prepared by:



Bobby Goblen
Staff Professional I



Shiyun (Simon) Wang, PE
Oklahoma: 27716



Xavier C. Barrett, PE
Internal Technical Reviewer (ITR)

KLEINFELDER
12727 E. 61st Street, Suite A
Tulsa, OK 74146
Phone: 918.627.6161

November 12, 2020
Kleinfelder Project No. 20212086.001A



November 12, 2020
Kleinfelder Project No. 20212086.001A

Mr. Danny Powell, PE
MKEC Engineering, Inc.
205 NW 63rd St., Suite 240
Oklahoma City, OK 73116

**Subject: Geotechnical Engineering Report
Frederick Road Task Order 1
From Future State Highway 20 to Country Club Road
Claremore, Oklahoma**

Dear Mr. Powell:

Kleinfelder has completed the authorized subsurface exploration and geotechnical engineering evaluation for the above-referenced project. The purpose of the geotechnical study was to explore and evaluate the subsurface conditions in order to provide recommendations for the proposed Frederick Road improvements from future State Highway 20 to Country Club Road (Scissortail Avenue) in Claremore, Oklahoma.

The attached Kleinfelder report contains a description of the findings of our field exploration and laboratory testing program, our engineering interpretation of the results with respect to the project characteristics, and our geotechnical site development recommendations as well as construction guidelines for the planned project.

Recommendations provided herein are contingent on the provisions outlined in the ADDITIONAL SERVICES and LIMITATIONS sections of this report. The project Owner should become familiar with these provisions in order to assess further involvement by Kleinfelder and other potential impacts to the proposed project.

We appreciate the opportunity to be of service to you on this project and are prepared to provide the recommended additional services. Please call us if you have any questions concerning this report.

Sincerely,
KLEINFELDER, INC.
Certificate of Authorization #7292, Expires 6/30/21

Bobby Gobin
Staff Professional I

Simon Wang, PE
Senior Professional

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FIGURE

- 1 Exploration Location Plan and Vicinity Map

APPENDICES

- A Field Exploration Program
- B Laboratory Testing Program
- C GBA Document

**GEOTECHNICAL ENGINEERING REPORT
FREDERICK ROAD TASK ORDER 1
FROM FUTURE STATE HIGHWAY 20 TO COUNTRY CLUB ROAD
CLAREMORE, OKLAHOMA**

1. INTRODUCTION

1.1 GENERAL

Kleinfelder has completed the authorized subsurface exploration and geotechnical engineering evaluation for the proposed Frederick Road improvements from future State Highway (SH) 20 to Country Club Road (Scissortail Avenue) in Claremore, Oklahoma. The services provided were in general accordance with our scope of work described in the proposal number TUL19P99286 dated August 6, 2019.

This report includes our geotechnical investigation results for the proposed roadway areas of the project related to the aspects of pavement design and construction. Conclusions and recommendations presented in the report are based on the subsurface information collected at the locations of our exploration and the provisions and requirements outlined in the **ADDITIONAL SERVICES** and **LIMITATIONS** sections of this report.

In addition, an article prepared by the Geoprofessional Business Association (GBA), *Important Information About This Geotechnical Engineering Report*, has been included in **APPENDIX C**. We recommend that all individuals read the report limitations along with the included GBA document.

1.2 PROPOSED CONSTRUCTION

It is our understanding that Frederick Road will be improved from future SH 20 to Country Club Road (Scissortail Avenue). The improvements will consist of constructing a newly paved three-lane or four-lane roadway. The new section of roadway will be curb and gutter with underground storm drain and ADA accessible sidewalks on both sides.

A geotechnical field exploration was performed to evaluate subgrade soil properties and the subsurface conditions of the proposed project areas at six (6) locations. The scope of the

exploration and engineering evaluation for this study, as well as the conclusions and recommendations in this report, were based on our understanding of the project as described above. If pertinent details of the project have changed or otherwise differ from our descriptions, we must be notified and engaged to review the changes and modify our recommendations, if needed.

2. SITE CONDITIONS

2.1 SITE DESCRIPTION

In general, the project site is located east of State Highway 66 (SH 66) in southern Claremore Oklahoma. The proposed Frederick Road Improvement project will be located in between Country Club Road and King Road. The general locations of the site are shown on top right corner of the Figure 1, Exploration Location Plan and Vicinity Map. The project site is surrounded by neighborhoods to east and south, and commercial business and SH 66 to the north and west. Existing overhead and underground utilities were noted within the current right-of-way during our field exploration.

2.2 SUBSURFACE CONDITIONS

Kleinfelder explored the subsurface conditions at the site by drilling and sampling six (6) borings (B-1 through B-6) on October 19, 2020 along the proposed alignment. Approximate boring locations are shown on Figure 1, Exploration Location Plan and Vicinity Map. The results of the field exploration and laboratory testing programs are presented in APPENDIX A and APPENDIX B, respectively.

Overburden: Fill overburden soils consisting of primarily lean clay with varying amounts of sand and gravel, clayey gravel with varying amounts sand, and sand with varying amounts of silt and gravel were encountered underneath the asphalt pavement and continued to depths ranging from 3 to 5 feet below existing ground surface. Native overburden soils consisting of primarily lean clay with varying amounts sand and fat clay underneath the fill layer and continued to depths ranging from 7 to 8.5 feet below existing ground surface. The consistency of the clay soils in the fill and overburden layers ranged from medium stiff to very stiff. The relative density of the sand and gravel soils in the fill layers ranged from loose to medium dense.

Bedrock: Highly weathered shale and shale interbedded with sandstone bedrock was encountered at depths ranging from 3 to 8.5 feet below existing ground surface in the borings. The shale bedrock was generally very weak.

2.3 GROUNDWATER OBSERVATIONS

No groundwater was encountered in any of the borings during and at completion of drilling operations. The materials encountered in the test borings have a wide range of permeabilities and observations over an extended period of time through use of piezometers or cased borings would be required to better define current groundwater conditions. Piezometers were not installed at the site during this subsurface exploration. Fluctuations of groundwater levels can occur due to seasonal variations in the amount of rainfall, runoff, and other factors not evident at the time the borings were performed. The possibility of groundwater level fluctuations should be considered when developing the design and construction plans for the project.

3. CONCLUSIONS AND RECOMMENDATIONS

3.1 GENERAL

The primary geotechnical concerns for this project are the moderately high plasticity clay soils and shallow bedrock. Recommendations addressing these primary geotechnical concerns as well as general recommendations regarding geotechnical aspects of the project design and construction are presented below.

The considerations submitted herein are based, in part, upon data obtained from our subsurface explorations. The nature and extent of subsurface variations that may exist at the proposed project site will not become evident until construction. If variations appear evident, then the recommendations presented in this report should be reevaluated. In the event that any changes in the nature, design, or location of the proposed project are planned, the conclusions and recommendations contained in this report will not be considered valid unless the changes are reviewed, and our recommendations modified in writing.

3.2 GEOTECHNICAL CONSIDERATIONS

3.2.1 Moderately High Plasticity Clay Soils

Clay soils that have a moderately high shrink-swell potential ($PI > 22$) were observed in borings B-2 through B-6. Depending upon the design grades, these materials could be exposed at finished subgrade level. Undercutting or stabilization of these soils should be anticipated.

It is recommended that in areas where the moderately high plasticity clay soils are exposed at the pavement subgrade level, a 9-inch thick layer of stabilized subgrade or removal/replacement with 9 inches of ODOT Type "A" aggregate base in conjunction with the use of an ODOT Type 2 Geogrid be considered to reduce the shrink/swell potential of the high plasticity clay soils underneath the pavements.

Typical remedial measures include treating or stabilizing of these soils with hydrated lime. A complete soil stabilization mix design is beyond the scope of this project but should be considered

during construction in accordance with Oklahoma Department of Transportation (ODOT) “OHD L-50 Soil Stabilization Mix Design Procedure.”

3.2.2 Shallow Bedrock

Weathered shale and shale bedrock were encountered at relatively shallow depths (3 to 8.5 feet below existing grade) in the borings. Depending upon the finished grades, shale bedrock may be encountered during excavation. If bedrock is encountered at finished subgrade elevation, over excavation of 9 inches of bedrock and replacement with controlled structural fill or ODOT type “A” crushed rock to provide a uniform subgrade support will be required.

If excavation extends to or below bedrock elevation, contractor should expect heavy duty excavator or pneumatic hammer to achieve the bearing elevation. Excavatability/rippability study of the bedrock is beyond the scope of this project.

3.3 PAVEMENT RECOMMENDATIONS

3.3.1 General

Kleinfelder performed the pavement design in general accordance with the AASHTO’s (American Association of State Highway and Transportation Officials) Guide for Design of Pavement Structures (1993). Based on information provided by MKEC, observations and measurements recorded from our field investigations and laboratory testing, Kleinfelder has completed the pavement design for the proposed roadway improvement as presented in the following sections.

A traffic study (report date February 2020) along with AADT (Annual Average Daily Traffic) was provided by MKEC. Truck percentages were estimated by Kleinfelder. If actual traffic volume is greater than that anticipated, a shortened pavement life would be expected. The following traffic information was used in the pavement design:

AADT.....	4,354
Roadway Type	Local
Design Life for New Pavement	20 Years

Kleinfelder assumed the following pavement design parameters for this project:

Directional Distribution.....	60%
Design Lane Distribution	100%
Growth Rate (assumed).....	2%
Percent Trucks	6%
2 Axle Trucks.....	2%
3 Axle Trucks.....	1%
4 Axle Trucks.....	0.5%
5 Axle Trucks.....	2%
6-plus Axle Trucks	0.5%
Initial Serviceability	4.2
Terminal Serviceability	2.5
Reliability.....	85%
Drainage Coefficient.....	1.0
Base Thickness	9 inches
Base Resilient Modulus	20,000 psi

The pavement design was based on fair drainage provided with the planned drainage system. Kleinfelder should be contacted if our assumptions are inconsistent with the proposed design requirements.

3.3.2 Flexible Pavement

In addition to the design variables detailed in Section 3.3.1, the flexible pavement design was based on the following variables:

CBR value (from lab test)	3.6
Standard Deviation	0.45
Structural Coefficient of New Hot Mixed Asphalt (HMA).....	0.44/in
Structural Coefficient of Aggregate Base	0.14/in

Based on the provided traffic information, new flexible pavement structure was designed for a total ESAL (Equivalent Single Axle Load) of 2,724,880 for a 20-years design life. Using this design

ESAL and the design variables stated above, the following flexible pavement section in Table 3-1 is recommended for the proposed Frederick Road.

Table 3-1. Flexible Pavement Recommendation		
Type of Flexible Pavement	Thickness (inches)	ODOT Specifications
AC Type S4 w/ PG 70-28	2	411 & 708
AC Type S3 w/ PG 64-22	3	411 & 708
AC Type S3 w/ PG 64-22	3	411 & 708
ODOT Type "A" Aggregate Base	9	303 & 703
Geotextile Separator Fabric	-	325 & 712
Re-compacted / Stabilized Subgrade	9	310/307

The geotextile separator fabric is recommended to prevent the migration of fines into the aggregate base layers. Proper care should be taken when placing the geotextile separator to ensure the fabric is not punctured or torn.

3.3.3 Rigid Pavement

In addition to the design variables detailed in Section 3.3.1, the rigid pavement design was performed based on the following variables:

CBR value (from lab test)	3.6
Standard Deviation	0.35
Load Transfer Coefficient	2.7
Flexural Strength of Concrete.....	650 psi
Modulus of Elasticity of Concrete.....	4,400,000 psi

Based on the provided traffic information and the assumptions/estimations made by Kleinfelder as described, a design ESAL of 3,935,633 was determined for the proposed roadway. Using this design ESAL values and the design variables stated previously, the following rigid pavement section as shown in Table 3-2 is recommended.

Table 3-2. Rigid Pavement Recommendation
7.5-inches Jointed Plain Concrete Pavement w/ Dowels (JPCP) 9-inches ODOT Type "A" Aggregate Base Geotextile Separator Fabric 9.0-inches Recompacted/Stabilized Subgrade

The geotextile separator fabric is recommended to prevent the migration of fines into the aggregate base layers. Proper care should be taken when placing the geotextile separator to ensure the fabric is not punctured or torn.

3.3.4 Pavement Construction Considerations

Handling and placing of pavement materials should be performed in accordance with the procedures specified by the Oklahoma Department of Transportation (ODOT) "Standard Specifications for Highway Construction" (2019).

Proper drainage below the pavement section helps prevent softening of the subgrade and has a significant impact on pavement performance and pavement life of all pavement types. Therefore, we recommend that a granular blanket drain be constructed at all storm sewer inlets within the pavement areas. The blanket drain should be wrapped with appropriate geotextile materials (Tencate-Mirafi S2000 or equivalent). The blanket drain should consist of clean, crushed stone aggregate extending a minimum of 6 inches below pavement subgrade level. The blanket drains should extend a minimum of 8 feet away from the curb at all storm sewer inlets and should be a minimum of 8 feet wide. The grade within the blanket drain should be sloped toward the storm sewer inlet, and weep holes should be drilled through the inlet to provide drainage of the granular section into the inlet. Placement of geotextile filter fabric across the weep holes should be considered to prevent loss of soil through the weep holes.

Construction traffic on the pavements has not been considered in the design. If construction scheduling dictates the pavements will be subject to traffic by construction equipment/vehicles, the design should be reconsidered to include the effects of the additional traffic loading.

4. EARTHWORK AND SITE DEVELOPMENT

4.1 CLEARING AND GRUBBING

Clearing and grubbing should be performed in accordance with the more stringent of the procedures outlined in this section or as specified by the Oklahoma Department of Transportation (ODOT) “Standard Specifications for Highway Construction (2019)”, Section 201. We recommend that all unsuitable materials be removed from the site prior to placement of structural fill. We recommend that qualified engineering personnel monitor the stripping operations to observe that all unsuitable materials have been removed. Soils removed during stripping operations could be wasted outside of the project site. Care should be exercised to separate these materials to avoid incorporation of the organic matter in structural fill sections.

Care should be taken during required tree excavations to thoroughly remove all root systems from the proposed construction area. Materials disturbed during removal of stumps should be undercut and replaced with structural fill.

4.2 DEMOLITION

Initial site preparation for the proposed project should commence with demolition of any existing structures within proposed construction areas. All broken asphalt, concrete, bricks, and other debris from demolition should be totally removed from the site and should not be used as backfill anywhere within the project limits. Areas disturbed during demolition should be thoroughly evaluated by the geotechnical engineer prior to placement of structural fill. All disturbed soils should be undercut to stable material prior to placement of structural fill.

4.3 EXISTING UTILITY TRENCHES

Any planned relocation or removal of existing utility lines along the proposed alignment should be completed as part of the site preparation. Excavations created by removal of the existing lines should be cut wide enough to allow for use of appropriate construction equipment to compact the backfill. As an alternative, excavations can also be backfilled with controlled low strength materials (CLSM). In addition, the base of the excavations should be thoroughly evaluated by a

geotechnical engineer or engineering technician prior to placement of backfill. All backfill should be placed in accordance with the recommendations presented in Section 4.8 of this report.

If existing utilities will remain within proposed reconstruction areas, the trench backfill should be thoroughly evaluated. The trench backfill should be evaluated by proof-rolling, and any areas which exhibit soft or inconsistent soils should be thoroughly evaluated to determine the composition and consistency of the backfill material. If unsuitable material is encountered, it should be undercut and replaced with structural fill or CLSM.

4.4 SCARIFICATION, MOISTURE CONDITIONING, AND COMPACTION

Prior to placement of structural fill, the moisture content of the exposed subgrade soils should be evaluated. Depending on the in-situ moisture content of the soils exposed, moisture conditioning of the exposed grade may be required prior to proof-rolling and/or fill placement. The moisture content of the exposed subgrade soil in the fill areas should be adjusted to the moisture range recommended in Section 4.8.2 of this report, to allow the exposed material to be compacted to a minimum of 95 percent of the standard Proctor density.

Extremely wet or unstable areas that hamper compaction of the subgrade may require undercutting and replacement with structural fill or other stabilization techniques. If the soils are desiccated and have a high swell potential, additional undercutting may also be required. Suitable structural fill should be placed to the finished subgrade elevation as soon as practical to avoid moisture changes in the underlying soils. If bedrock is encountered at the finished subgrade elevation, no scarification, moisture conditioning, and compaction is required.

4.5 PROOFROLLING

Following moisture conditioning and prior to placement of structural fill (if required), it is recommended that the exposed grade be proof rolled. Proof-rolling of the subgrade provides identification soft or disturbed areas. Unsuitable areas identified by the proof-rolling operation should be undercut and replaced with structural fill. If large areas of soft or unstable soil conditions extend to depths greater than 18 inches below the finished pavement subgrade elevation, we should be notified to provide additional recommendations concerning appropriate stabilization methods.

Proofrolling should be accomplished with multiple passes of a fully loaded, tandem-axle dump truck or similar equipment providing an equivalent subgrade loading. If any significant event, such as precipitation, occurs after proof rolling, the subgrade should be reviewed by qualified geotechnical engineering personnel immediately prior to placing the pavement. The subgrade should be in its finished form at the time of the final review.

4.6 CLIMATIC CONDITIONS

Weather conditions will influence the required site preparation. Following periods of rainfall, the moisture content of the near surface soils may be significantly above the optimum moisture content. These conditions could seriously impede grading by causing an unstable subgrade condition. Typical remedial measures include aerating the wet subgrade to dry followed by re-compaction, removal of the wet materials and replacing them with dry materials or treating the wet materials with Class 'C' Fly Ash, hydrated lime or cement kiln dust (CKD).

If site grading commences during summer months, moisture contents may be low and higher plasticity clay soils could have a high swell potential. Typically disking and moisture conditioning of the exposed subgrade materials to the moisture content criteria outlined in the Section 4.8 will reduce the swell potential of the dry clay soils. As an alternative, the dry clay soils could be undercut and replaced with a minimum of 9 inches structural fill materials.

If construction of the project is to be performed during winter months, appropriate measures should be taken to prevent the soils from freezing. In no case should fill or pavements be placed on or against frozen or partially frozen materials. Frozen materials should be removed and replaced with suitable materials and should not be included in any compacted fills.

4.7 CHEMICAL STABILIZATION/MODIFICATION

If unstable areas are encountered, consideration could be given to stabilizing at least the top 9 inches of the unstable soils with hydrated lime. In lieu of chemical stabilization, removal/replacement of 9 inches of the existing subgrade with ODOT Type "A" aggregate base as recommended in Tables 3-1 and 3-2 could be performed. If hydrated lime is used as the stabilizing agent, a hydrated lime content of 4 to 6 percent on a dry weight basis is generally sufficient to achieve the desired stabilization.

In addition to reducing the swell potential of the soils, stabilization of the subgrade will provide a more stable subgrade, less subject to disturbance during construction. Laboratory tests will be necessary to determine the actual amount required and to determine the moisture content to achieve maximum potential strength. The stabilizing agent should be placed, mixed, and compacted in accordance with ODOT “Standard Specifications for Highway Construction, Section 307” (2019).

The producer of the proposed stabilizing/modifying agent should submit chemical analysis sheets to Kleinfelder for review and approval prior to beginning construction. A complete soil stabilization mix design is beyond the scope of this project and it should be performed during construction in accordance with Oklahoma Department of Transportation (ODOT) “OHD L-50 SOIL STABILIZATION MIX DESIGN PROCEDURE”.

4.8 STRUCTURAL FILL

4.8.1 Materials

All structural fill required to achieve design grades should consist of approved materials, free of organic matter and debris. All structural fill placed within the pavement footprint should consist of non-plastic to lower plasticity, sand, clayey sand, lean clay, or sandy lean clay type of soil with a Plasticity Index (PI) less than 22, as determined by the Atterberg limits test ASTM D4318, wet preparation procedure.

4.8.2 Compaction Criteria

Fill should be placed in lifts having a maximum loose lift thickness of 9 inches. All fill should be compacted to a minimum of 95 percent of the material's maximum dry density (MDD) and within the moisture range specified in Table 4-1, as determined by ASTM D698 (Standard Proctor compaction). Moisture contents of the fill at the time of compaction should be maintained within the range as specified in Table 4-1 until completion of the subgrade preparation.

Table 4-1. Compaction Criteria		
Material	Required Moisture Content (%)	Percent Compaction (%)
PI > 12	0% to 4% above optimum	95% of MDD
PI ≤ 12	Within 2% of optimum	95% of MDD

5. ADDITIONAL SERVICES

5.1 PLANS AND SPECIFICATIONS REVIEW

We recommend that Kleinfelder conduct a general review of the final plans and specifications to evaluate that our earthwork recommendations have been properly interpreted and implemented during design. In the event Kleinfelder is not retained to perform this recommended review, we will assume no responsibility for misinterpretation of our recommendations.

5.2 CONSTRUCTION OBSERVATION AND TESTING

We recommend that all earthworks during construction be monitored by a representative from Kleinfelder. Construction observations should include site preparation, placement of all engineered fill, and construction of the roadway subgrades. The purpose of these services would be to provide Kleinfelder the opportunity to observe the soil conditions encountered during construction, evaluate the applicability of the recommendations presented in this report to the soil conditions encountered, and recommend appropriate changes in design or construction procedures if conditions differ from those described herein.

The following section outlines geotechnical engineering and construction testing services necessary to implement the recommendations presented in this report. To effectively achieve the intent of these recommendations and maintain continuity from design through construction, Kleinfelder should be retained to provide these services:

1. An experienced engineering technician should observe the subgrade throughout the proposed construction area immediately following demolition to identify areas requiring additional undercutting and to evaluate the suitability of the exposed surface for fill placement.
2. An experienced engineering technician should evaluate the moisture condition of the pavement subgrade throughout the proposed construction area to determine if moisture conditioning of the subgrade would be required.

3. An experienced engineering technician should monitor and test all fill placed within the pavement areas to determine whether the type of material, moisture content and degree of compaction are within recommended limits.

4. The condition of the subgrade in all pavement areas should be evaluated immediately prior to commencing paving operations. Proofrolling would aid in evaluation of the subgrade. Proofrolling of stabilized subgrades is not recommended and evaluation of these subgrades should be based on visual observations.

6. 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. The scope of our services did not include any environmental assessment or exploration for the presence of hazardous or toxic materials in the soil, surface water, groundwater, or air, on, below or around this site.

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 report. Land use, site conditions (both on-site and off-site), regulations, or other factors may change over time, and additional work may be required with the passage of time. Any party other than the client who wishes to use this report shall notify Kleinfelder of such intended use. Based on the intended use of the report, Kleinfelder may require that additional work be performed and that an updated report be issued. Non-compliance with any of these requirements by the client or anyone else will release Kleinfelder from any liability resulting from the use of this report by any unauthorized party and client agrees to defend, indemnify and hold harmless Kleinfelder from any claim or liability associated with such unauthorized or non-compliance.

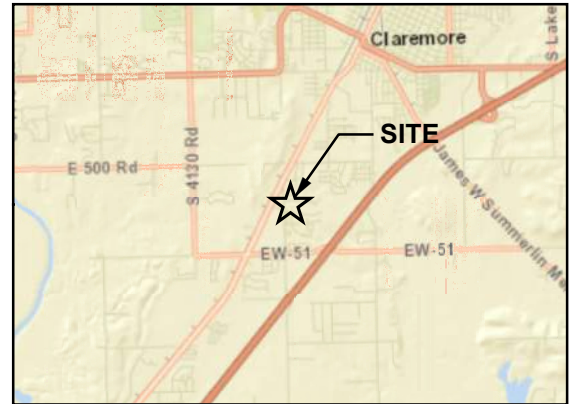
The work performed was based on project information provided by Client. If Client does not retain Kleinfelder to review any plans and specifications, including any revisions or modifications to the plans and specifications, Kleinfelder assumes no responsibility for the suitability of our recommendations. In addition, if there are any changes in the field to the plans and specifications, 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.

FIGURE

FIGURE 1. EXPLORATION LOCATION PLAN AND VICINITY MAP

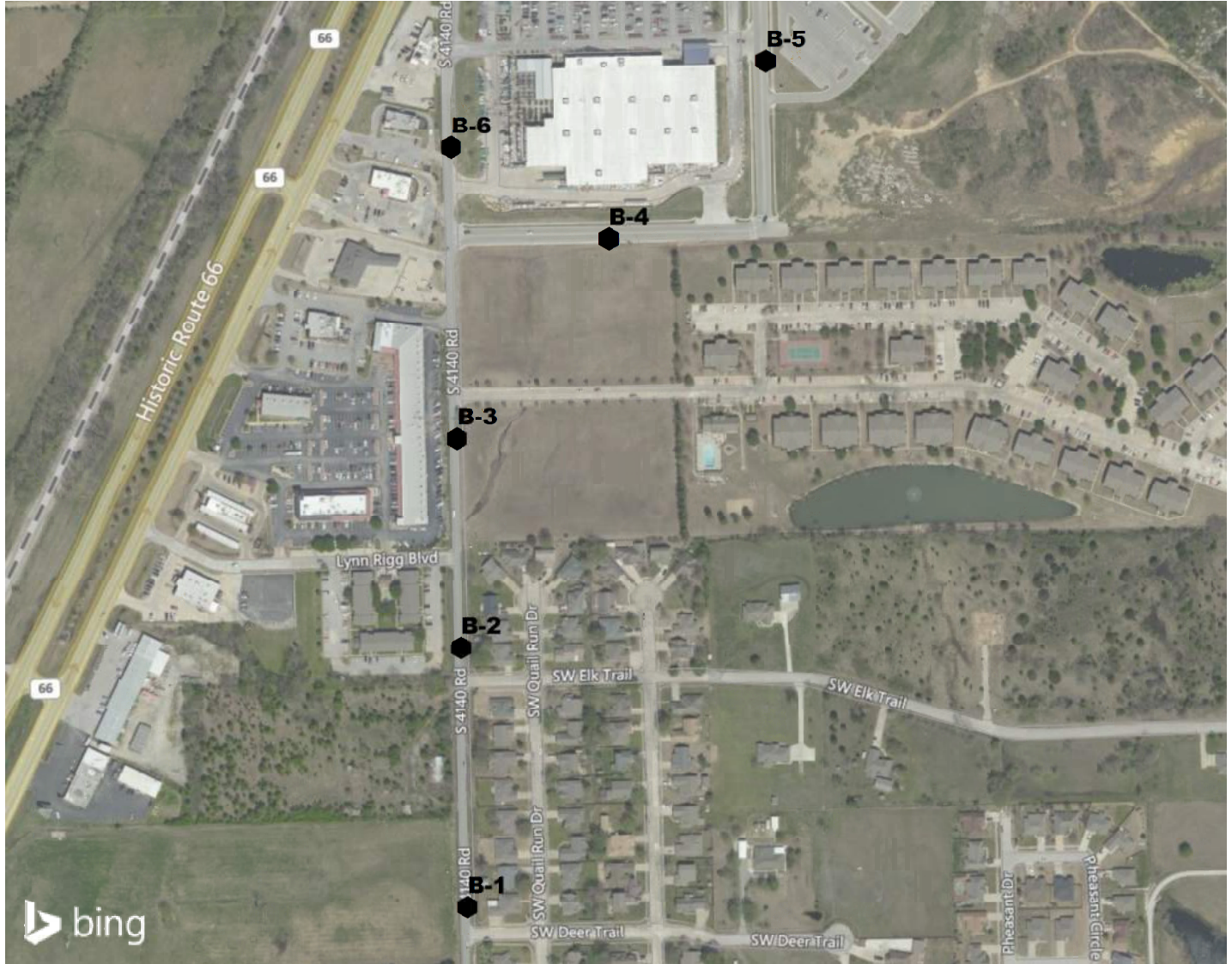


LEGEND	
●	SOIL BORING




VICINITY MAP NOT TO SCALE

NOTE:
 BASE MAPPING AND VICINITY MAP CREATED FROM LAYERS
 COMPILED BY ESRI PRODUCTS AND 2020 MICROSOFT CORPORATION.
 COORDINATE SYSTEM: NAD 1983 2011 STATEPLANE OKLAHOMA NORTH FIPS
 3501



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	PROJECT NO. 20212086.001A	EXPLORATION LOCATION PLAN AND VICINITY MAP	FIGURE
	DRAWN BY: BGoben CHECKED BY: S. Wang DATE: 10-23-2020	Frederick Road Task Order #1 From Future SH 20 to Country Club Road Claremore, Oklahoma	1

APPENDIX A

FIELD EXPLORATION PROGRAM

APPENDIX A



FIELD EXPLORATION PROGRAM

Kleinfelder conducted the field explorations on October 19, 2020 at six (6) locations along the proposed roadway alignment as indicated on Figure 1, Exploration Location Plan and Vicinity Map. Representatives of Kleinfelder established the boring locations in the field using a handheld Global Positioning System (GPS) with an accuracy of approximately 15 feet. Elevations at the boring locations were not obtained. Locations of the borings should be considered accurate only to the degree implied by the methods used to obtain them.





The borings were performed with truck mounted (CME-75), rotary drill rig using hollow-stem augers. Soil samples were obtained by Standard Penetration test (SPT) using a 2-inch split-barrel sampler. Split-barrel sampling was conducted in general accordance with ASTM D1586. The split-barrel sampler is driven into the bottom of the boring over an 18-inch sampling interval by a 140-pound hammer that is dropped a distance of 30 inches. A CME automatic SPT hammer with a reported hammer efficiency of 78% was used to advance the split-barrel sampler. The SPT N-value, recorded on the boring log, is the number of blows required to drive the split-barrel sampler the final 12 inches of the 18-inch sampling interval. In addition, two composite samples were collected from each hole. The samples were sealed and returned to our laboratory for further examination and classification. The borings were backfilled in with auger cuttings.

Boring logs included in this APPENDIX present such data as soil and bedrock descriptions, consistency, relative density, and relative hardness evaluations, depths, sampling intervals, and observed groundwater conditions. Conditions encountered in each of the borings were monitored and recorded by field engineer. Field logs included visual classification of the materials encountered during drilling, as well as drilling characteristics. Our final boring logs, as presented in this APPENDIX, represent an interpretation of the field logs combined with laboratory observation of the samples. Visual classifications were made in accordance with the Unified Soil Classification System presented on the Graphics Key and Soil Description Key that are also presented as figures in this appendix. Stratification boundaries indicated on the boring logs and cross section were based on observations during our fieldwork, an extrapolation of information obtained by examining samples from the borings and comparisons of soils with similar engineering characteristics. Locations of these boundaries are approximate, and the transitions between material types may be gradual rather than clearly defined.

SAMPLE/SAMPLER TYPE GRAPHICS

	HOLLOW STEM AUGER
	STANDARD PENETRATION SPLIT SPOON SAMPLER (2 in. (50.8 mm.) outer diameter and 1-3/8 in. (34.9 mm.) inner diameter)

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, i.e., GW-GM, GP-GM, GW-GC, GP-GC, GC-GM, SW-SM, SP-SM, SW-SC, SP-SC, SC-SM.
- If sampler is not able to be driven at least 6 inches then 50/X indicates number of blows required to drive the identified sampler X inches with a 140 pound hammer falling 30 inches.

ABBREVIATIONS

- WOH - Weight of Hammer
- WOR - Weight of Rod

UNIFIED SOIL CLASSIFICATION SYSTEM (ASTM D 2487)

GRAVELS (More than half of coarse fraction is larger than the #200 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	
	COARSE GRAINED SOILS (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 (Half or more 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		
	SILTS AND CLAYS (Liquid Limit 50 or greater)		OL	ORGANIC SILTS & ORGANIC SILTY CLAYS OF LOW PLASTICITY		
			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			

NOTE: USE MATERIAL DESCRIPTION ON THE LOG TO DEFINE A GRAPHIC THAT MAY NOT BE PROVIDED ON THIS LEGEND.



PROJECT NO.:
20212086.001A

DRAWN BY: B. GOBEN

CHECKED BY: SYW

DATE: 10/27/2020

GRAPHICS KEY

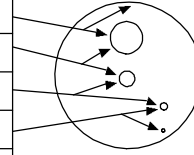
Frederick Road Task Order #1
From Future SH 20 to Country Club Road
Claremore, Oklahoma

APPENDIX

A-2

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 - #40	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



SECONDARY CONSTITUENT

Term of Use	AMOUNT	
	Secondary Constituent is Fine Grained	Secondary Constituent is Coarse Grained
Trace	<5%	<15%
With	≥5 to <15%	≥15 to <30%
Modifier	≥15%	≥30%

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

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

CONSISTENCY - FINE-GRAINED SOIL

CONSISTENCY	SPT - N ₆₀ (# blows / ft)	Pocket Pen (tsf)	UNCONFINED COMPRESSIVE STRENGTH (Q _u)(psf)	VISUAL / MANUAL CRITERIA
Very Soft	<2	PP < 0.25	<500	Thumb will penetrate more than 1 inch (25 mm). Extrudes between fingers when squeezed.
Soft	2 - 4	0.25 ≤ PP <0.5	500 - 1000	Thumb will penetrate soil about 1 inch (25 mm). Remolded by light finger pressure.
Medium Stiff	4 - 8	0.5 ≤ PP <1	1000 - 2000	Thumb will penetrate soil about 1/4 inch (6 mm). Remolded by strong finger pressure.
Stiff	8 - 15	1 ≤ PP <2	2000 - 4000	Can be imprinted with considerable pressure from thumb.
Very Stiff	15 - 30	2 ≤ PP <4	4000 - 8000	Thumb will not indent soil but readily indented with thumbnail.
Hard	>30	4 ≤ PP	>8000	Thumbnail will not indent soil.

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

FROM TERZAGHI AND PECK, 1948

PLASTICITY

DESCRIPTION	LL	PI
Non-Plastic	NP	NP
Low	< 30	< 15
Medium	30 - 50	15 - 25
High	> 50	> 25

LL is from Casagrande, 1948. PI is from Holtz, 1959.

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.

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.



PROJECT NO.: 20212086.001A
 DRAWN BY: B. GOBEN
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 DATE: 10/27/2020

SOIL DESCRIPTION KEY

Frederick Road Task Order #1
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 Claremore, Oklahoma

APPENDIX

A-3

INFILLING TYPE

NAME	ABBR	NAME	ABBR
Albite	Al	Muscovite	Mus
Apatite	Ap	None	No
Biotite	Bi	Pyrite	Py
Clay	Cl	Quartz	Qz
Calcite	Ca	Sand	Sd
Chlorite	Ch	Sericite	Ser
Epidote	Ep	Silt	Si
Iron Oxide	Fe	Talc	Ta
Manganese	Mn	Unknown	Uk

DENSITY/SPACING OF DISCONTINUITIES

DESCRIPTION	SPACING CRITERIA
Unfractured	>6 ft. (>1.83 meters)
Slightly Fractured	2 - 6 ft. (0.061 - 1.83 meters)
Moderately Fractured	8 in - 2 ft. (203.20 - 609.60 mm)
Highly Fractured	2 - 8 in (50.80 - 203.30 mm)
Intensely Fractured	<2 in (<50.80 mm)

ADDITIONAL TEXTURAL ADJECTIVES

DESCRIPTION	RECOGNITION
Pit (Pitted)	Pinhole to 0.03 ft. (3/8 in.) (>1 to 10 mm.) openings
Vug (Vuggy)	Small openings (usually lined with crystals) ranging in diameter from 0.03 ft. (3/8 in.) to 0.33 ft. (4 in.) (10 to 100 mm.)
Cavity	An opening larger than 0.33 ft. (4 in.) (100 mm.), size descriptions are required, and adjectives such as small, large, etc., may be used
Honeycombed	If numerous enough that only thin walls separate individual pits or vugs, this term further describes the preceding nomenclature to indicate cell-like form.
Vesicle (Vesicular)	Small openings in volcanic rocks of variable shape and size formed by entrapped gas bubbles during solidification.

ADDITIONAL TEXTURAL ADJECTIVES

DESCRIPTION	CRITERIA
Unweathered	No evidence of chemical / mechanical alteration; rings with hammer blow.
Slightly Weathered	Slight discoloration on surface; slight alteration along discontinuities; <10% rock volume altered.
Moderately Weathered	Discoloring evident; surface pitted and alteration penetration well below surface; Weathering "halos" evident; 10-50% rock altered.
Highly Weathered	Entire mass discolored; Alteration pervading most rock, some slight weathering pockets; some minerals may be leached out.
Decomposed	Rock reduced to soil with relic rock texture/structure; Generally molded and crumbled by hand.

RELATIVE HARDNESS / STRENGTH DESCRIPTIONS

GRADE	UCS (Mpa)	FIELD TEST
R0	Extremely Weak 0.25 - 1.0	Indented by thumbnail
R1	Very Weak 1.0 - 5.0	Crumbles under firm blows of geological hammer, can be peeled by a pocket knife.
R2	Weak 5.0 - 25	Can be peeled by a pocket knife with difficulty, shallow indentations made by firm blow with point of geological hammer.
R3	Medium Strong 25 - 50	Cannot be scraped or peeled with a pocket knife, specimen can be fractured with a single firm blow of a geological hammer.
R4	Strong 50 - 100	Specimen requires more than one blow of geological hammer to fracture it.
R5	Very Strong 100 - 250	Specimen requires many blows of geological hammer to fracture it.
R6	Extremely Strong > 250	Specimen can only be chipped with a geological hammer.

ROCK QUALITY DESIGNATION (RQD)

DESCRIPTION	RQD (%)
Very Poor	0 - 25
Poor	25 - 50
Fair	50 - 75
Good	75 - 90
Excellent	90 - 100

APERTURE

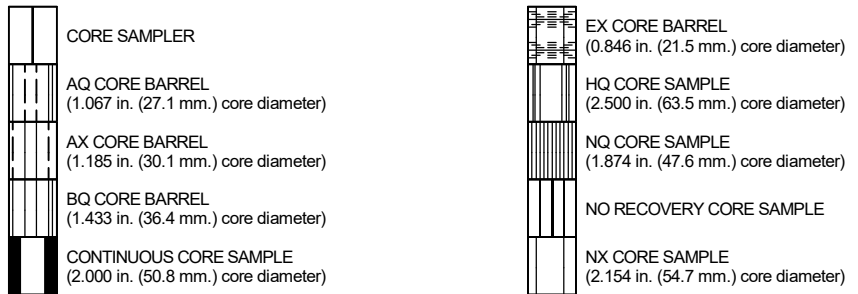
DESCRIPTION	CRITERIA [in (mm)]
Tight	<0.04 (<1)
Open	0.04 - 0.20 (1 - 5)
Wide	>0.20 (>5)

BEDDING CHARACTERISTICS

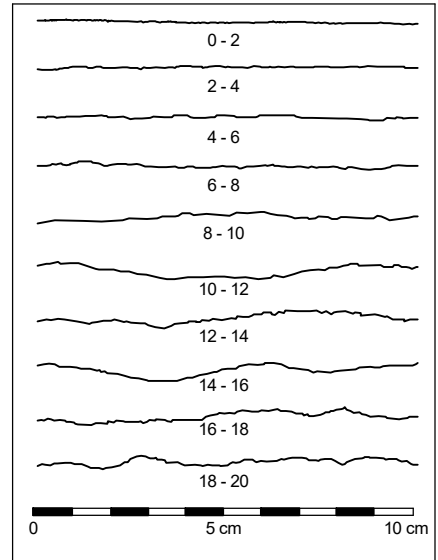
DESCRIPTION	Thickness [in (mm)]
Very Thick Bedded	>36 (>915)
Thick Bedded	12 - 36 (305 - 915)
Moderately Bedded	4 - 12 (102 - 305)
Thin Bedded	1 - 4 (25 - 102)
Very Thin Bedded	0.4 - 1 (10 - 25)
Laminated	0.1 - 0.4 (2.5 - 10)
Thinly Laminated	<0.1 (<2.5)

Bedding Planes Planes dividing the individual layers, beds, or stratigraphy of rocks.
 Joint Fracture in rock, generally more or less vertical or traverse to bedding.
 Seam Applies to bedding plane with unspecified degree of weather.

CORE SAMPLER TYPE GRAPHICS



JOINT ROUGHNESS COEFFICIENT (JRC)



From Barton and Choubey, 1977

RQD Rock-quality designation (RQD) Rough measure of the degree of jointing or fracture in a rock mass, measured as a percentage of the drill core in lengths of 10 cm. or more.



PROJECT NO.: 20212086.001A
 DRAWN BY: B. GOBEN
 CHECKED BY: SYW
 DATE: 10/27/2020

ROCK DESCRIPTION KEY

Frederick Road Task Order #1
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 Claremore, Oklahoma

APPENDIX


A-4

PLOTTED: 11/09/2020 11:43 AM BY: BGoben

Date Begin - End: 10/19/2020	Drilling Company: Mohawk Drilling, Inc.	BORING LOG B-1	
Logged By: B. Goben	Drill Crew: T. Swyden		
Hor.-Vert. Datum: Not Available	Drilling Equipment: CME-75 (truck-mounted)		Hammer Type - Drop: 140 lb. Auto - 30 in.
Plunge: -90 degrees	Drilling Method: Hollow Stem Auger		Hammer Efficiency: 78%
Weather: Not Available	Exploration Diameter: 6 in. O.D.		Hammer Cal. Date: Unknown

Depth (feet)	Graphical Log	FIELD EXPLORATION					LABORATORY RESULTS							Additional Tests/ Remarks
		Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	
	Latitude: 36.28330° N Longitude: -95.63281° E Surface Condition: Asphalt													
	ASPHALT: 7 inches													
	Fill - Silty Sand with Gravel (SM): dark brown, moist, medium dense	SS-1		BC=13 11 6	15"	SM	11.0		79	36	NP	NP		
	Fill - Sandy Lean Clay with Gravel (CL): dark brown, moist, very stiff	SS-2		BC=4 8 19	18"	CL	20.4		82	55	40	21		
5	Weathered SHALE: brown to light brown, very weak	SS-3		BC=9 27 35	18"									
	SHALE interbedded with Sandstone: light brown, very weak	SS-4		BC=50/5"	5"									
10	The boring was terminated at approximately 9 ft. below ground surface. The boring was backfilled with auger cuttings on October 19, 2020.					GROUNDWATER LEVEL INFORMATION: Groundwater was not observed during drilling or after completion. GENERAL NOTES: A Handheld GPS unit was used to locate the exploration with an accuracy of 15 feet.								

OFFICE FILTER: TULSA
PROJECT NUMBER: 20212086.001A
GINT TEMPLATE: E:KLF_STANDARD_GINT_LIBRARY_2021.GLB [_KLF_BORING/TEST PIT SOIL LOG]

	PROJECT NO.: 20212086.001A	BORING LOG B-1	BORING
	DRAWN BY: B. GOBEN CHECKED BY: SYW DATE: 10/27/2020	Frederick Road Task Order #1 From Future SH 20 to Country Club Road Claremore, Oklahoma	B-1
			PAGE: 1 of 1

PLOTTED: 11/09/2020 11:43 AM BY: BGoben

Date Begin - End: 10/19/2020	Drilling Company: Mohawk Drilling, Inc.	BORING LOG B-2	
Logged By: B. Goben	Drill Crew: T. Swyden		
Hor.-Vert. Datum: Not Available	Drilling Equipment: CME-75 (truck-mounted)		Hammer Type - Drop: 140 lb. Auto - 30 in.
Plunge: -90 degrees	Drilling Method: Hollow Stem Auger		Hammer Efficiency: 78%
Weather: Not Available	Exploration Diameter: 6 in. O.D.		Hammer Cal. Date: Unknown

Depth (feet)	Graphical Log	FIELD EXPLORATION				LABORATORY RESULTS							Additional Tests/ Remarks	
		Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit		Plasticity Index (NP=NonPlastic)
	Latitude: 36.28502° N Longitude: -95.63281° E Surface Condition: Asphalt													
	ASPHALT: 7 inches													
	Fill - Sandy Lean Clay with Gravel (CL): dark brown, moist, stiff	SS-1		BC=6 4 7	6"	CL	16.3		82	51	44	26		
	Weathered SHALE interbedded with Sandstone: light brown, very weak	SS-2		BC=13 32 42	18"									
5		SS-3		BC=28 42 36	18"									
10		SS-4		BC=9 18 26	18"									
15	SHALE interbedded with Sandstone: gray, very weak	SS-5		BC=50/1.25	1"									

The boring was terminated at approximately 12.5 ft. below ground surface. The boring was backfilled with auger cuttings on October 19, 2020.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.
GENERAL NOTES:
A Handheld GPS unit was used to locate the exploration with an accuracy of 15 feet.

PROJECT NUMBER: 20212086.001A
 OFFICE FILTER: TULSA
 GINT TEMPLATE: E:KLF_STANDARD_GINT_LIBRARY_2021.GLB [_KLF_BORING/TEST PIT SOIL LOG]



PROJECT NO.: 20212086.001A
 DRAWN BY: B. GOBEN
 CHECKED BY: SYW
 DATE: 10/27/2020

BORING LOG B-2

Frederick Road Task Order #1
 From Future SH 20 to Country Club Road
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BORING
B-2

PAGE: 1 of 1

PLOTTED: 11/09/2020 11:43 AM BY: BGoben

Date Begin - End: 10/19/2020	Drilling Company: Mohawk Drilling, Inc.	BORING LOG B-3	
Logged By: B. Goben	Drill Crew: T. Swyden		
Hor.-Vert. Datum: Not Available	Drilling Equipment: CME-75 (truck-mounted)		Hammer Type - Drop: 140 lb. Auto - 30 in.
Plunge: -90 degrees	Drilling Method: Hollow Stem Auger		Hammer Efficiency: 78%
Weather: Not Available	Exploration Diameter: 6 in. O.D.		Hammer Cal. Date: Unknown

Depth (feet)	Graphical Log	FIELD EXPLORATION					LABORATORY RESULTS							Additional Tests/ Remarks
		Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	
	Latitude: 36.28642° N Longitude: -95.63280° E Surface Condition: Asphalt													
	ASPHALT: 7 inches													
	Fill - Lean Clay with Sand (CL): dark brown, moist, medium stiff to stiff	SS-1	BC=4 3 4	10"										
		SS-2	BC=3 4 6	18"		CL	18.5		97	71	38	23		
5	Lean CLAY (CL): brown, moist, stiff	SS-3	BC=2 5 6	18"		CL	21.4		99	82	48	29		
	Weathered SHALE: light brown, very weak													
	SHALE interbedded with Sandstone: light brown, very weak	SS-4	BC=28 50/3"	9"										
10	The boring was terminated at approximately 9.5 ft. below ground surface. The boring was backfilled with auger cuttings on October 19, 2020.					GROUNDWATER LEVEL INFORMATION: Groundwater was not observed during drilling or after completion. GENERAL NOTES: A Handheld GPS unit was used to locate the exploration with an accuracy of 15 feet.								

PROJECT NUMBER: 20212086.001A
 OFFICE FILTER: TULSA
 GINT TEMPLATE: E:KLF_STANDARD_GINT_LIBRARY_2021.GLB [_KLF_BORING/TEST PIT SOIL LOG]



PROJECT NO.: 20212086.001A
 DRAWN BY: B. GOBEN
 CHECKED BY: SYW
 DATE: 10/27/2020

BORING LOG B-3

Frederick Road Task Order #1
 From Future SH 20 to Country Club Road
 Claremore, Oklahoma

BORING
B-3

PAGE: 1 of 1

PLOTTED: 11/09/2020 11:44 AM BY: BGoben

Date Begin - End: 10/19/2020	Drilling Company: Mohawk Drilling, Inc.	BORING LOG B-4	
Logged By: B. Goben	Drill Crew: T. Swyden		
Hor.-Vert. Datum: Not Available	Drilling Equipment: CME-75 (truck-mounted)		Hammer Type - Drop: 140 lb. Auto - 30 in.
Plunge: -90 degrees	Drilling Method: Hollow Stem Auger		Hammer Efficiency: 78%
Weather: Not Available	Exploration Diameter: 6 in. O.D.	Hammer Cal. Date: Unknown	

Depth (feet)	Graphical Log	FIELD EXPLORATION				LABORATORY RESULTS								
		Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	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
		Latitude: 36.28772° N Longitude: -95.63151° E Surface Condition: Asphalt												
		ASPHALT: 7 inches												
		Fill - Lean Clay (CL): dark brown, moist, medium stiff to stiff	SS-1		BC=5 2 4	8"	CL	24.7		100	90	37	20	
			SS-2		BC=3 4 5	16"								
5		Fat CLAY (CH): brown, moist, medium stiff	SS-3		BC=3 3 4	9"	CH	26.0		100	87	53	33	
		Weathered SHALE interbedded with Sandstone: light brown, very weak	SS-4		BC=11 14 50/6"	18"								
10		<p>The boring was terminated at approximately 10 ft. below ground surface. The boring was backfilled with auger cuttings on October 19, 2020.</p> <p>GROUNDWATER LEVEL INFORMATION: Groundwater was not observed during drilling or after completion.</p> <p>GENERAL NOTES: A Handheld GPS unit was used to locate the exploration with an accuracy of 15 feet.</p>												

OFFICE FILTER: TULSA

PROJECT NUMBER: 20212086.001A

gINT FILE: KLF_gint_master_2021
gINT TEMPLATE: E:KLF_STANDARD_GINT_LIBRARY_2021.GLB [KLF_BORING/TEST PIT SOIL LOG]



PROJECT NO.:
20212086.001A

DRAWN BY: B. GOBEN

CHECKED BY: SYW

DATE: 10/27/2020

BORING LOG B-4

Frederick Road Task Order #1
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Claremore, Oklahoma

BORING

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PAGE: 1 of 1

PLOTTED: 11/09/2020 11:44 AM BY: BGoben

Date Begin - End: 10/19/2020	Drilling Company: Mohawk Drilling, Inc.	BORING LOG B-5	
Logged By: B. Goben	Drill Crew: T. Swyden		
Hor.-Vert. Datum: Not Available	Drilling Equipment: CME-75 (truck-mounted)		Hammer Type - Drop: 140 lb. Auto - 30 in.
Plunge: -90 degrees	Drilling Method: Hollow Stem Auger		Hammer Efficiency: 78%
Weather: Not Available	Exploration Diameter: 6 in. O.D.		Hammer Cal. Date: Unknown

Depth (feet)	Graphical Log	FIELD EXPLORATION					LABORATORY RESULTS							Additional Tests/ Remarks
		Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	
		Latitude: 36.28888° N Longitude: -95.63018° E Surface Condition: Asphalt												
		ASPHALT: 7 inches												
		Fill - Clayey Gravel with Sand (GC): dark brown, moist, loose	SS-1		BC=5 3 3	9"	GC	14.7		68	39	33	14	
		Fat CLAY (CH): brown, moist, stiff	SS-3		BC=3 5 8	18"	CH	21.6		100	87	55	35	
		Weathered SHALE interbedded with Sandstone: light brown, very weak												
		SHALE interbedded with Sandstone: light brown, very weak	SS-4		BC=35 50/2"	8"								
5														
10														

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
A Handheld GPS unit was used to locate the exploration with an accuracy of 15 feet.

The boring was terminated at approximately 9 ft. below ground surface. The boring was backfilled with auger cuttings on October 19, 2020.

PROJECT NO.:
20212086.001A

DRAWN BY: B. GOBEN

CHECKED BY: SYW

DATE: 10/27/2020

BORING LOG B-5

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BORING

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PAGE: 1 of 1



GINT FILE: KLF_gint_master_2021
 GINT TEMPLATE: E:KLF_STANDARD_GINT_LIBRARY_2021.GLB [_KLF_BORING/TEST PIT SOIL LOG]
 OFFICE FILTER: TULSA
 PROJECT NUMBER: 20212086.001A

PLOTTED: 11/09/2020 11:44 AM BY: BGoben


Date Begin - End: 10/19/2020	Drilling Company: Mohawk Drilling, Inc.	BORING LOG B-6	
Logged By: B. Goben	Drill Crew: T. Swyden		
Hor.-Vert. Datum: Not Available	Drilling Equipment: CME-75 (truck-mounted)		Hammer Type - Drop: 140 lb. Auto - 30 in.
Plunge: -90 degrees	Drilling Method: Hollow Stem Auger		Hammer Efficiency: 78%
Weather: Not Available	Exploration Diameter: 6 in. O.D.		Hammer Cal. Date: Unknown

Depth (feet)	Graphical Log	FIELD EXPLORATION				LABORATORY RESULTS							Additional Tests/ Remarks	
		Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit		Plasticity Index (NP=NonPlastic)
	Latitude: 36.28835° N Longitude: -95.63279° E Surface Condition: Asphalt													
	ASPHALT: 7 inches													
	Fill - Lean Clay with Sand (CL): dark brown, moist, very stiff to stiff	SS-1		BC=12 15 6	9"									
		SS-2		BC=2 4 5	18"	CL	24.2		99	76	44	26		
5	Lean CLAY with Sand (CL): brown, moist, stiff	SS-3		BC=3 5 9	15"	CL	20.3		97	75	37	21		
	Weathered SHALE: light brownish gray, very weak	SS-4		BC=24 30 23	18"									
10		SS-5		BC=25 30 50/6"	18"									
15	SHALE interbedded with Sandstone: light brownish gray, very weak													

The boring was terminated at approximately 15 ft. below ground surface. The boring was backfilled with auger cuttings on October 19, 2020.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.
GENERAL NOTES:
A Handheld GPS unit was used to locate the exploration with an accuracy of 15 feet.

PROJECT NUMBER: 20212086.001A OFFICE FILTER: TULSA
 GINT TEMPLATE: E:KLF_STANDARD_GINT_LIBRARY_2021.GLB [KLF_BORING/TEST PIT SOIL LOG]
 GINT FILE: Kf_gint_master_2021

	PROJECT NO.: 20212086.001A	BORING LOG B-6 Frederick Road Task Order #1 From Future SH 20 to Country Club Road Claremore, Oklahoma	BORING
	DRAWN BY: B. GOBEN CHECKED BY: SYW DATE: 10/27/2020		B-6
			PAGE: 1 of 1

APPENDIX B

LABORATORY TESTING PROGRAM

APPENDIX B

LABORATORY TESTING PROGRAM

Laboratory tests were performed on select, representative samples to evaluate pertinent engineering properties of these materials. We directed our laboratory testing program primarily toward classifying the subsurface materials and measuring index values of the on-site materials. Laboratory tests were performed in general accordance with applicable standards. The results of the laboratory tests are presented on the attached summary sheet. The laboratory testing program consisted of the following:

- **Moisture content tests**, AASHTO T-265, Standard Test Method for Laboratory Determination of Moisture Content of Soils.
- **Soil Classification**, AASHTO T-87, T-88, T-89 and T-90, Standard Method for Test for Dry preparation of Disturbed Soil and Soil Aggregate Samples of Test, Standard Method for Test for Particle Size Analysis of Soils, Standard Method for Test for Determining the Liquid Limit of Soils, and Standard Method for Test for Determining the Plastic Limit and Plasticity Index of Soils, respectively.
- **Moisture Density Test**, AASHTO T-99, Standard Method for Test for Moisture-Density Relations of Soils Using a 2.5-kg (5.5 lbs.) Rammer and a 305-mm (12-in.) Drop.
- **California Bearing Ratio (CBR)**, AASHTO T-193, Standard Method for Test for Determining the California Bearing Ratio.
- **Visual classification**, ASTM D2488, Standard Practice for Description and Identification of Soils (Visual-Manual Procedure).

Exploration ID	Depth (ft.)	Sample No.	Sample Description	USCS	AASHTO	OKLAHOMA SOIL INDEX (OSI)	Water Content (%)	Atterberg Limits			Sieve Analysis (%)				
								Liquid Limits	Plastic Limits	Plasticity Index	Passing #4	Passing #10	Passing #40	Passing #100	Passing #200
B-1	0.5 - 2.0	SS-1	SILTY SAND WITH GRAVEL	SM	A-4		11.0	NP	NP	NP	79	70	62	46	36
B-1	2.5 - 4.0	SS-2	SANDY LEAN CLAY WITH GRAVEL	CL	A-6		20.4	40	19	21	82	79	75	61	55
B-2	0.5 - 2.0	SS-1	SANDY LEAN CLAY WITH GRAVEL	CL	A-7-6		16.3	44	18	26	82	77	71	60	51
B-3	2.5 - 4.0	SS-2	LEAN CLAY WITH SAND	CL	A-6		18.5	38	15	23	97	94	89	79	71
B-3	5.0 - 6.5	SS-3	LEAN CLAY WITH SAND	CL	A-7-6		21.4	48	19	29	99	99	98	88	82
B-4	0.5 - 2.0	SS-1	LEAN CLAY	CL	A-6		24.7	37	17	20	100	99	98	95	90
B-4	5.0 - 6.5	SS-3	FAT CLAY	CH	A-7-6		26.0	53	20	33	100	100	98	89	87
B-5	0.5 - 2.0	SS-1	CLAYEY GRAVEL WITH SAND	GC	A-6		14.7	33	19	14	68	59	47	42	39
B-5	5.0 - 6.5	SS-3	FAT CLAY	CH	A-7-6		21.6	55	20	35	100	100	98	89	87
B-6	2.5 - 4.0	SS-2	LEAN CLAY WITH SAND	CL	A-7-6		24.2	44	18	26	99	98	95	88	76
B-6	5.0 - 6.5	SS-3	LEAN CLAY WITH SAND	CL	A-6		20.3	37	16	21	97	94	91	83	75
COMP	0.0 - 15.0		LEAN CLAY WITH SAND	CL	A-6		19.2	39	16	23	100	99	96	87	80

Refer to the Geotechnical Evaluation Report or the supplemental plates for the method used for the testing performed above.
 NP = Nonplastic
 NA = Not Available



PROJECT NO.:
20212086.001A

DRAWN BY: B. GOBEN

CHECKED BY: SYW

DATE: 10/27/2020

**LABORATORY TEST
RESULT SUMMARY**

Frederick Road Task Order #1
From Future SH 20 to Country Club Road
Claremore, Oklahoma

TABLE

B-1

Laboratory Test Report

Client: **MKEC Engineering Consultants, Inc.**
 Project: **20212086.001A**
MKEC Frederick Road Improvements
01-000L - Lab Testing

Report No.: **20-TUL-00680 Rev. 0**
 Sampled by: **Bobby Goben**
 Submitted by: **Bobby Goben**

Issued: **10/28/2020**
 Field ID: **Composite**
 Date: **10/19/2020**
 Date: **10/20/2020**

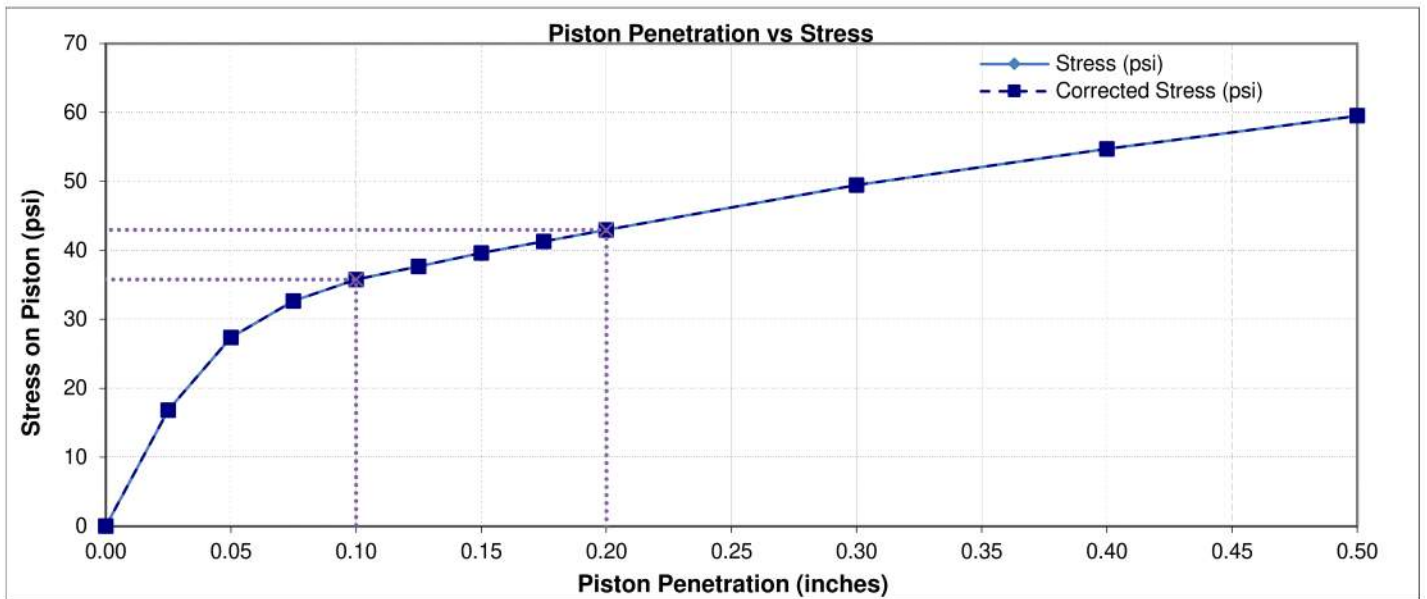
Sample Source: **Boring Composite**
 Sample ID: **Comp A**
 Sample Description: **Lean Clay with Sand, brown and olive**
 Material Used: **< #4 Sieve**
 Surcharge Weight: **10 lbs**

Date Tested: **10/23/2020**
 Tested By: **S. Symsack**
 Condition of Sample: **Soaked**
 Time Soaked: **96 hrs**

AASHTO T-193 Standard Test Method for California Bearing Ratio (CBR) of Laboratory-Compacted of Soils

Dry Unit Wgt Before Soaking (pcf): **105.4**
 Water Content Before Soaking (%): **20.1**
 Water Content After Soak, Top in. (%): **23.8**
 Swell (%): **0.87**
 CBR (Corrected CBR) @ 0.1 in. Penetration: **3.6 (3.6)**
 CBR (Corrected CBR) @ 0.2 in. Penetration: **2.9 (2.9)**
 CBR: **3.6**

Compaction Method: **Manual**
 Max. Dry Unit Weight: **107.6 pcf**
 Optimum Water Content: **19.2 %**
 (0.1 in. Piston Penetration)



Remarks:

Reviewed on 10/28/2020 by Steve Symsack,
 Lab Supervisor

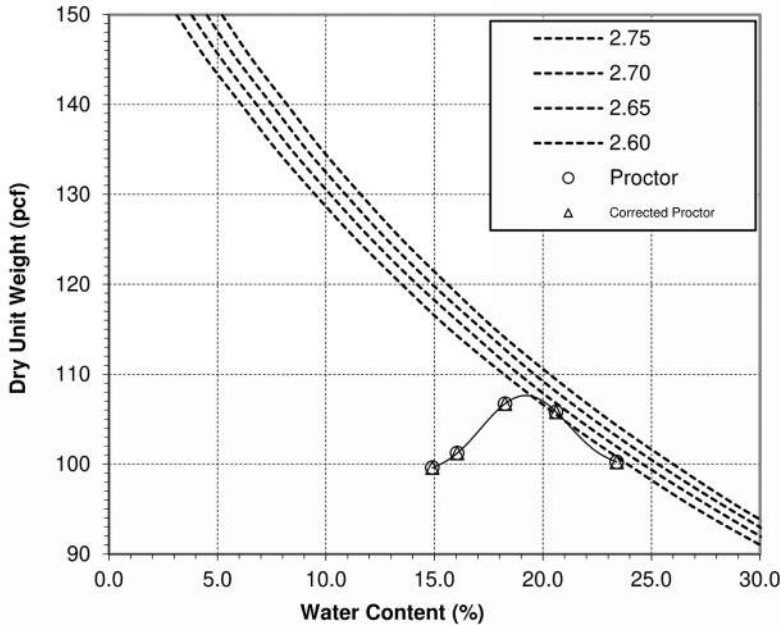
Laboratory Test Report

Client: **MKEC Engineering Consultants, Inc.**
 Project: **20212086.001A**
MKEC Frederick Road Improvements
01-000L - Lab Testing

Report No.: **20-TUL-00680 Rev. 0**
 Sampled by: **Bobby Goben**
 Submitted by: **Bobby Goben**

Issued: **10/28/2020**
 Field ID: **Composite**
 Date: **10/19/2020**
 Date: **10/20/2020**

Tested on **10/20/2020** by **S. Williamson**
 Material Description: **Lean Clay with Sand, brown and olive**
 Location: **Boring Composite**



Sieve Test Method:		AASHTO T88
US Standard Sieve Size		% Passing
3 Inch	75-mm	100
3/4 Inch	19-mm	100
3/8 Inch	9.5-mm	100
No. 4	4.75-mm	100
No. 10	2.00-mm	99
No. 40	425-um	96
No. 100	150-um	87
No. 200	75-um	80

Test Method: AASHTO T99 A	Uncorrected	Corrected
Maximum Dry Unit Weight (pcf)	107.6	na
Optimum Water Content (%)	19.2	na
Oversize Fraction, retained on No. 4 (%)		<5
Bulk Specific Gravity of Oversize Fraction		na

Atterberg Limits:		AASHTO T89/T90
Test Method:		
Liquid Limit		39
Plastic Limit		16
Plasticity Index		23

Rammer Type: Mechanical
 Specimen Preparation: Dry

Soil Classification Method:		AASHTO M145
Soil Classification		
		A-6(17)

Reviewed on 10/28/2020 by Steve Symsack,
 Lab Supervisor

APPENDIX C

GBA DOCUMENT

Important Information about This

Geotechnical-Engineering Report

Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes.

While you cannot eliminate all such risks, you can manage them. The following information is provided to help.

The Geoprofessional Business Association (GBA) has prepared this advisory to help you – assumedly a client representative – interpret and apply this geotechnical-engineering report as effectively as possible. In that way, you can benefit from a lowered exposure to problems associated with subsurface conditions at project sites and development of them that, for decades, have been a principal cause of construction delays, cost overruns, claims, and disputes. If you have questions or want more information about any of the issues discussed herein, contact your GBA-member geotechnical engineer. Active engagement in GBA exposes geotechnical engineers to a wide array of risk-confrontation techniques that can be of genuine benefit for everyone involved with a construction project.

Understand the Geotechnical-Engineering Services Provided for this Report

Geotechnical-engineering services typically include the planning, collection, interpretation, and analysis of exploratory data from widely spaced borings and/or test pits. Field data are combined with results from laboratory tests of soil and rock samples obtained from field exploration (if applicable), observations made during site reconnaissance, and historical information to form one or more models of the expected subsurface conditions beneath the site. Local geology and alterations of the site surface and subsurface by previous and proposed construction are also important considerations. Geotechnical engineers apply their engineering training, experience, and judgment to adapt the requirements of the prospective project to the subsurface model(s). Estimates are made of the subsurface conditions that will likely be exposed during construction as well as the expected performance of foundations and other structures being planned and/or affected by construction activities.

The culmination of these geotechnical-engineering services is typically a geotechnical-engineering report providing the data obtained, a discussion of the subsurface model(s), the engineering and geologic engineering assessments and analyses made, and the recommendations developed to satisfy the given requirements of the project. These reports may be titled investigations, explorations, studies, assessments, or evaluations. Regardless of the title used, the geotechnical-engineering report is an engineering interpretation of the subsurface conditions within the context of the project and does not represent a close examination, systematic inquiry, or thorough investigation of all site and subsurface conditions.

Geotechnical-Engineering Services are Performed for Specific Purposes, Persons, and Projects, and At Specific Times

Geotechnical engineers structure their services to meet the specific needs, goals, and risk management preferences of their clients. A geotechnical-engineering study conducted for a given civil engineer

will not likely meet the needs of a civil-works constructor or even a different civil engineer. Because each geotechnical-engineering study is unique, each geotechnical-engineering report is unique, prepared *solely* for the client.

Likewise, geotechnical-engineering services are performed for a specific project and purpose. For example, it is unlikely that a geotechnical-engineering study for a refrigerated warehouse will be the same as one prepared for a parking garage; and a few borings drilled during a preliminary study to evaluate site feasibility will not be adequate to develop geotechnical design recommendations for the project.

Do not rely on this report if your geotechnical engineer prepared it:

- for a different client;
- for a different project or purpose;
- for a different site (that may or may not include all or a portion of the original site); or
- before important events occurred at the site or adjacent to it; e.g., man-made events like construction or environmental remediation, or natural events like floods, droughts, earthquakes, or groundwater fluctuations.

Note, too, the reliability of a geotechnical-engineering report can be affected by the passage of time, because of factors like changed subsurface conditions; new or modified codes, standards, or regulations; or new techniques or tools. *If you are the least bit uncertain* about the continued reliability of this report, contact your geotechnical engineer before applying the recommendations in it. A minor amount of additional testing or analysis after the passage of time – if any is required at all – could prevent major problems.

Read this Report in Full

Costly problems have occurred because those relying on a geotechnical-engineering report did not read the report in its entirety. Do not rely on an executive summary. Do not read selective elements only. *Read and refer to the report in full.*

You Need to Inform Your Geotechnical Engineer About Change

Your geotechnical engineer considered unique, project-specific factors when developing the scope of study behind this report and developing the confirmation-dependent recommendations the report conveys. Typical changes that could erode the reliability of this report include those that affect:

- the site's size or shape;
- the elevation, configuration, location, orientation, function or weight of the proposed structure and the desired performance criteria;
- the composition of the design team; or
- project ownership.

As a general rule, *always* inform your geotechnical engineer of project or site changes – even minor ones – and request an assessment of their impact. *The geotechnical engineer who prepared this report cannot accept*

responsibility or liability for problems that arise because the geotechnical engineer was not informed about developments the engineer otherwise would have considered.

Most of the “Findings” Related in This Report Are Professional Opinions

Before construction begins, geotechnical engineers explore a site’s subsurface using various sampling and testing procedures. *Geotechnical engineers can observe actual subsurface conditions only at those specific locations where sampling and testing is performed.* The data derived from that sampling and testing were reviewed by your geotechnical engineer, who then applied professional judgement to form opinions about subsurface conditions throughout the site. Actual sitewide-subsurface conditions may differ – maybe significantly – from those indicated in this report. Confront that risk by retaining your geotechnical engineer to serve on the design team through project completion to obtain informed guidance quickly, whenever needed.

This Report’s Recommendations Are Confirmation-Dependent

The recommendations included in this report – including any options or alternatives – are confirmation-dependent. In other words, they are not final, because the geotechnical engineer who developed them relied heavily on judgement and opinion to do so. Your geotechnical engineer can finalize the recommendations *only after observing actual subsurface conditions* exposed during construction. If through observation your geotechnical engineer confirms that the conditions assumed to exist actually do exist, the recommendations can be relied upon, assuming no other changes have occurred. *The geotechnical engineer who prepared this report cannot assume responsibility or liability for confirmation-dependent recommendations if you fail to retain that engineer to perform construction observation.*

This Report Could Be Misinterpreted

Other design professionals’ misinterpretation of geotechnical-engineering reports has resulted in costly problems. Confront that risk by having your geotechnical engineer serve as a continuing member of the design team, to:

- confer with other design-team members;
- help develop specifications;
- review pertinent elements of other design professionals’ plans and specifications; and
- be available whenever geotechnical-engineering guidance is needed.

You should also confront the risk of constructors misinterpreting this report. Do so by retaining your geotechnical engineer to participate in prebid and preconstruction conferences and to perform construction-phase observations.

Give Constructors a Complete Report and Guidance

Some owners and design professionals mistakenly believe they can shift unanticipated-subsurface-conditions liability to constructors by limiting the information they provide for bid preparation. To help prevent the costly, contentious problems this practice has caused, include the complete geotechnical-engineering report, along with any attachments or appendices, with your contract documents, *but be certain to note*

conspicuously that you’ve included the material for information purposes only. To avoid misunderstanding, you may also want to note that “informational purposes” means constructors have no right to rely on the interpretations, opinions, conclusions, or recommendations in the report. Be certain that constructors know they may learn about specific project requirements, including options selected from the report, *only* from the design drawings and specifications. Remind constructors that they may perform their own studies if they want to, and *be sure to allow enough time* to permit them to do so. Only then might you be in a position to give constructors the information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions. Conducting prebid and preconstruction conferences can also be valuable in this respect.

Read Responsibility Provisions Closely

Some client representatives, design professionals, and constructors do not realize that geotechnical engineering is far less exact than other engineering disciplines. This happens in part because soil and rock on project sites are typically heterogeneous and not manufactured materials with well-defined engineering properties like steel and concrete. That lack of understanding has nurtured unrealistic expectations that have resulted in disappointments, delays, cost overruns, claims, and disputes. To confront that risk, geotechnical engineers commonly include 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 personnel, equipment, and techniques used to perform an environmental study – e.g., a “phase-one” or “phase-two” environmental site assessment – differ significantly from those used to perform a geotechnical-engineering study. For that reason, a geotechnical-engineering report does not usually provide environmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. *Unanticipated subsurface environmental problems have led to project failures.* If you have not obtained your own environmental information about the project site, ask your geotechnical consultant for a recommendation on how to find environmental risk-management guidance.

Obtain Professional Assistance to Deal with Moisture Infiltration and Mold

While your geotechnical engineer may have addressed groundwater, water infiltration, or similar issues in this report, the engineer’s services were not designed, conducted, or intended to prevent migration of moisture – including water vapor – from the soil through building slabs and walls and into the building interior, where it can cause mold growth and material-performance deficiencies. Accordingly, *proper implementation of the geotechnical engineer’s recommendations will not of itself be sufficient to prevent moisture infiltration.* **Confront the risk of moisture infiltration** by including building-envelope or mold specialists on the design team. **Geotechnical engineers are not building-envelope or mold specialists.**



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