

**Contract Change Order # 3**

Project Name: Aspen Creek Relief Line Project Number: S1307  
 Project Location: Between 121st and 111th following Aspen Creek Date of Application: Tuesday, December 13, 2016  
 Contractor: Triangle Construction LLC Submitted By: Clayton Ullrich

**Summary of Change in Scope of Work**

The following scope of work consisting of work location, work description, established quantities, and timeline for completion has been reviewed and agreed upon by the contractor, the origin funding department, and the Engineering and Construction Department.

**Change of Work Items Included in this Change Order:**

Per RFI #5 submitted on 12-9-16 by Triangle Construction, manholes #2, #7, & #8 cannot pass a vacuum test due to excessive penetrations in the joints that could not be resolved from inside of the manhole. In lieu of excavation around the manholes and grouting the contractor is directed to utilize URETEK HDEP injection per the attached proposal at each of the above stated manholes. The attached

- 1) URETEK proposal is to be assigned to the contractor through this change order to cover within the project bonds and contractor responsibilities. The proposal from the contractor, price noted below, includes the contractors acceptance of the URETEK contract and includes contractors costs for management, coordination, and bonds.

**Change in Contractual Project Time:**

- 1) There is no additional time added to the project for this change.

Plan Sheets or Additional Documents Attached:  Yes  No  Other: URETEK Proposal

**Work Order Quantities**

Item#	(Spec)	Item Description	Units	Price	Quantity	Total Amount
CO3-1	-	URETEK HDEP Injection at (3) Manholes	LS	\$ 9,924.50	1	\$ 9,924.50
Total Change Cost:						\$ 9,924.50

**Summary of Project Costs**

Total Previous Change Orders:	\$ 26,689.00	Original Contract Amount:	\$ 799,938.00
Current Change Order:	\$ 9,924.50	Amended Contract Amount:	\$ 836,551.50
Total Cost of Change Orders:	\$ 36,613.50	Percent Change in Contract:	4.58%
Total Cost Applicable to CBA:	\$ 36,613.50	Percent Change Applicable to CBA:	4.58%

**Change Order Authorization**

Change Order # <u>3</u> in the sum of: \$ <u>9,924.50</u> has been reviewed by all parties and is recommended for approval by:
Contractor Submitting Change Order:
Name _____ Signature _____ Date _____
Construction Division Manager:
Name <u>Timothy S Robins, PE</u> Signature _____ Date _____
Director of Engineering & Construction:
Name <u>Alex Mills, PE</u> Signature _____ Date _____
Assistant City Manager - Operations:
Name <u>Kenneth D Schwab, PE</u> Signature _____ Date _____
City Manager:
Name <u>Michael Spurgeon</u> Signature _____ Date _____

**This Change is Executed Through:**

- This change to the contract documents is authorized by the City Manager's authority in accordance with the applicable state statutes and COBA Code of Ordinances.  
 or  
 This change to the contract documents was approved at the City Council/BAMA meeting held on : Tuesday, December 20, 2016



TRIANGLE CONSTRUCTION & UTILITY  
2241 S. 49TH W. AVE  
TULSA, OK 74107  
PH: 918.933.4151  
FX: 918.933.4155

**JOB:**

**ASPEN CREEK RELIEF LINE**

CONTRACT NO. S.1307

BID NO 16.164

**OWNER:**

**CITY OF BROKEN ARROW**

485 N. POPLAR

BROKEN, ARROW, OK 74012

**CHANGE ORDER #3**

12/13/2016

**MANHOLE 2,7, & 8 URETECK CONCRETE LIFTING**

**\$9,924.50**

URETECK PATENTED HYDRO-INTENSIVITIVE GEO-POLYMER ON  
MANHOLES 2,7,8 FOR CONCRETE LIFTING

**TOTAL CHANGE ORDER \$ 9,924.50**

  
LANDI BLOSSER



5616 S. 122<sup>nd</sup> East Avenue Suite G, Tulsa, Oklahoma 74146 Tulsa 918.250.0205 Toll-Free 866.507.6677  
Concrete Lifting Soil Stabilization Underground Infrastructure Repair

December 7, 2016

City of Broken Arrow  
Mr. Timothy Robins, P.E., CWI  
485 North Poplar Avenue  
Broken Arrow, OK 74013-0610

**Reference: City of Broken Arrow Engineering & Construction Department; Aspen Creek Relief Line MH-2, 7, 8 I & I mitigation of Manholes using URETEK’s patented hydro-insensitive geo-polymer**

URETEK is pleased to present the following proposal of services; this proposal is designed to give you the information you need to understand the scope of our services and proposed project costs.

Our opinions and statements regarding this proposal and our intended scope of services shall remain confidential to you and your representatives and shall not be made available to another party without the expressed written consent of URETEK. All concepts and procedures stated in this proposal shall be deemed as the intellectual property of URETEK.

**PROJECT OVERVIEW:**

URETEK – Oklahoma proposes to inject our patented hydro-insensitive geo-polymer to stop groundwater entering the system through cracks and openings in the manhole walls, bench areas and pass-through lines. The leak repair injections will be made through 5/8” holes drilled through the walls and bench areas from inside the manholes. After holes are drilled the URETEK HDEP will be injected through these holes into the surrounding soils and back-fill surrounding the manholes and will not require excavation of the surrounding soils in order to make these repairs.

The URETEK HDEP material is engineered specifically for geotechnical applications and typically weighs less than 5 lbs/ft<sup>3</sup>. It enters the subgrade as a liquid, quickly expanding and solidifying, filling voids and compressing adjacent soils. Our in place material will have a minimum compressive strength of 60psi, greatly exceeding the structural capacity of typical support soils. The material achieves 90% strength within 15 minutes; allowing the remediated areas to be returned to service immediately following our process. All drilled holes will be filled with a non-shrink cementitious grout (where applicable) upon completion. **It is important to note that this plan of repair applies only to those areas described above: We cannot be responsible for failure associated with areas we have not intended to remediate.**

**COSTS:**

**1) MH-2 Aspen Creek Relief Line**

Design: Round **(DO NOT USE WALL LADDER STEPS – NOT SAFE)**

Construction: Precast Concrete

Depth: approximately 24’

Diameter: 4 ft. (round)

Two (2) 18” Pass-Through Line

One (1) 10” Pass-Through Line

Treatment Area: Precast joint locations & Inlets

**Total: \$3,840.00 w/ mobilization**

**2) MH-7 Aspen Creek Relief Line**

Design: Round (DO NOT USE WALL LADDER STEPS – NOT SAFE)  
Construction: Precast Concrete  
Depth: approximately 16'  
Diameter: 4 ft. (round)  
One (1) 18" Pass-Through Line  
One (1) 12" Pass-Through Line  
Treatment Area: Precast joint locations & Inlets  
**Total: \$2,560.00 w/ mobilization**

**3) MH-8 Aspen Creek Relief Line**

Design: Round (DO NOT USE WALL LADDER STEPS – NOT SAFE)  
Construction: Precast Concrete  
Depth: approximately 13'  
Diameter: 4 ft. (round)  
One (1) 12" Pass-Through Line  
One (1) 15" Pass-Through Line  
Treatment Area: Precast joint locations & Inlets  
**Total: \$2,230.00 w/ mobilization**

<b>Total Cost Four (3) Manholes</b>	<b>Proposal Total</b>	<b>\$8630.00</b>
	<b>TOTAL JOB COST</b>	<b>\$8630.00</b>

**EXCLUSIONS:**

- Testing of materials.
- Clearing, grubbing and/or any grading.
- Location/relocation and internal monitoring of existing utilities.
- Sanitary facilities are to be provided by others.
- Erosion control measures during construction or drainage systems, by others.
- Landscaping including seeding or reseeding.
- Bonding, building or local permits or fees, historical permits or cultural resource surveys.
- No Holiday, Overtime or Weekend work is included.
- Owner to provide post construction survey for as built submittals if required.
- Work or materials not specifically mention in this quotation.
- See attached General Terms and Conditions.

Our final acceptance of any order will be based upon a final site visit to confirm the proposed site conditions and scope of expected services with the owner/contractor. Uretek will work with the owner/contractor to perform the above scope in the most efficient manner possible.

**Please Note: NO Change Order implemented without written authorization.**

Location of any underground utilities is excluded and the responsibility of the owner/general contractor. All utilities in the work area must be clearly marked prior to the start of work. If relocation of utilities is required it is to be done by others prior to our mobilization.

**SCHEDULE:**

City of Broken Arrow  
Broken Arrow, Oklahoma  
URETEK – Oklahoma



- To be determined
- Project completed in 1 to 2 work days however the onset of heavy rains or severe weather has a direct impact on the process and possibly extends the completion time.

## TERMS/CONDITIONS

1. This proposal covers all labor, material, and supervision to implement the patented URETEK Hydro-Insensitive Geopolymer, **THE URETEK METHOD®** the process of polymeric injection on the subject property to fill void cavities beneath the slab within two (2) to eight (8) feet of the injection locations; the process can also be used to raise the slab and improve the horizontal surface alignment within six (6) feet of the injection locations. URETEK ICR does not represent to lift the slab to meet any criteria of levelness, including but not limited to, L/300 or one (1.0) inch of slope over 25 feet. The slab will be lifted as much as is practical, as judged by URETEK or in consultation with the property owner or property owner's engineer, to reduce structural stress on the slab and to improve horizontal alignment. The **Deep Injection®** process will be used to increase the load bearing capacity of foundation soils for built structures (Patent No.6,634,831 B2) This work shall consist of densification of base and sub-base soils under concrete or asphalt pavements, sleeper slab footings, structural foundation footings, etc. by furnishing and injecting geopolymer material into the base soils at locations shown on the plans or as directed by the engineer.

**Manhole Repairs:** this warranty will apply to repairs for each 2 (two) vertical cross section as billed against the contract per man hole. The total vertical feet of area to be treated per each manhole will be specified in the pre-project inspection and quotation. **Pipe Joint Repairs:** this warranty covers repairs at each pipe joint or crack specified in the pre-project inspection and quotation.

2. The customer understands that **THE URETEK METHOD®** involves drilling 5/8" holes through the slab, pavement, soils or interior walls of the infrastructure element at job site determined intervals and injecting the hydro-insensitive geopolymer through the holes which then expands to fill voids, cracks and fissures. All areas where URETEK performs work will be left free from trash and debris related to URETEK's work upon completion of the job.

3. URETEK ICR carries legally required Worker's Compensation and General Liability Insurance.

4. Known and/or unknown structural defects may exist prior to the commencement of the work. URETEK ICR bears no responsibility for these defects or any consequences arising as a result of these defects. Such possible defects include but are not limited to:

- Insufficient or no steel reinforcement in the foundation beam.
- Insufficient or no steel reinforcement in the concrete slab.
- Slabs constructed with less than 4.0" thickness or compressive strength of concrete less than 2000 PSI.
- Decayed or damaged wooden structural members.

5. **Warranty:** URETEK ICR WARRANTS the MATERIAL against shrinkage or deterioration for ten (10) years from the date of initial injection. This guarantee applies to the injection locations completed at initial application and is transferable to any subsequent owners without charge. If any adjustment is necessary due to settlement in the locations specified during the first one (1) year from the job completion date, URETEK ICR will adjust the settled area without cost to the CUSTOMER. After the first one (1) year period, adjustments or re-injections will be made at the rate of USD \$750.00 (seven hundred fifty dollars per injection until the 10 year material warranty expires).

**LIFTING:** THIS WARRANTY EXCLUDES EXTERNAL CAUSES NOT DEPENDENT ON OUR MATERIAL, FOR EXAMPLE, GROUND SUBSIDENCE OR HEAVE OF NATIVE SOILS. SETTLEMENT MAY RESULT FROM STRUCTURAL PROBLEMS, DYNAMIC OR STATIC LOADS MUCH HIGHER THAN THE DESIGN LOADS AT THE TIME OF URETEK ICR INTERVENTION, DAMAGES CAUSED BY EXCAVATIONS, PRODUCT TAMPERING, WEAK OR INADEQUATE CONCRETE, NATURAL CATASTROPHES (STORMS, FLOODS, DROUGHT, TIDES, EARTHQUAKES, EXPLOSIONS, FIRE, ETC.) OR SOIL SHRINKAGE CAUSED BY REDUCTION IN SOIL MOISTURE, SOIL SHRINKAGE MAY RESULT FROM TREE TRANSPIRATION, EVAPORATION, LOWERING OF THE WATER TABLE, IMPROPER SOIL COMPACTION, OR THE DRYING OF SATURATEDSOILS. HEAVE IS DEFINED AS THAT CONDITION CAUSED BY THE ADDITION OF MOISTURE IN ACTIVE CLAY SOILS, WHICH CAUSES THE SOIL TO

SWELL. THIS CONDITION MAY BE CAUSED BY PLUMBING LEAKS, POOR DRAINAGE, RISING WATER TABLE, HYDROSTATIC PRESSURE FROM UPHILL GRADIENT FORCES, OR REBOUND FROM OVER COMPACTED DRY SOILS.

**SEALING:** THIS WARRANTY EXCLUDES EXTERNAL CAUSES NOT DEPENDENT ON OUR MATERIAL, FOR EXAMPLE, GROUND WATER OR GROUNDWATER PRESSURES OR CHANGES IN SURFACE AND GROUNDWATER PATTERNS. LEAKAGE MAY RESULT FROM STRUCTURAL PROBLEMS, CHANGES IN GROUNDWATER LOCATION OR VOLUME OR PRESSURES MUCH GREATER THAN DESIGN OR REPAIR LOADS AT THE TIME OF URETEK ICR INTERVENTION, DAMAGES CAUSED BY EXCAVATIONS, PRODUCT TAMPERING, WEAK OR INADEQUATE CONCRETE, NATURAL CATASTROPHES (STORMS, FLOODS, DROUGHT, TIDES, EARTHQUAKES, EXPLOSIONS, FIRE, ETC.) OR SOIL SATURATION CAUSED BY INCREASES IN SOIL MOISTURE. SOIL SATURATION MAY RESULT FROM CHANGING GROUNDWATER OR SURFACE WATER DRAINAGE PATHS, UNDERGROUND RUPTURE OF WATER LINES, CHANGES IN UNDERGROUND SOIL STRUCTURES, CHANGES (BOTH INCREASES AND DECREASES) OF THE WATER TABLE, IMPROPER SOIL COMPACTION, OR THE INSTALLATION OF NEW UNDERGROUND STRUCTURES ADJACENT TO EXISTING UNDERGROUND STRUCTURES. SUCH CONDITIONS MAY BE CAUSED BY PLUMBING LEAKS, POOR DRAINAGE, RISING WATER TABLE, HYDROSTATIC PRESSURE FROM UPHILL GRADIENT FORCES, OR REBOUND FROM OVERCOMPACTED DRY SOILS.

**MATERIAL FLOW OR TRAVEL:** THIS WARRANTY EXCLUDES DAMAGES CAUSED BY MATERIAL TRAVELLING UP AND THROUGH ANY SUBSURFACE OR SURFACE SOIL CRACKS, JOINTS BETWEEN SURFACE PANELS, JOINTS BETWEEN FOUNDATIONS, SURFACE PANELS AND THE LIKE. URETEK ICR – Oklahoma NOTIFIES THE CUSTOMER THAT THE MATERIAL USED IN SOIL COMPACTION / STABILIZATION, VOID FILL AND STRUCTURE LIFTING IS VERY STICKY AND ADHERES WELL TO VIRTUALLY EVERY SURFACE IT TOUCHES. CUSTOMER AGREES THAT CUSTOMER IS RESPONSIBLE TO REMOVE ANY STRUCTURAL AND OR PERSONAL PROPERTY AWAY FROM ANY AREA THAT MAY ENCOUNTER MATERIAL MIGRATING TO THE SURFACE, THROUGH JOINTS, AROUND FOUNDATIONS, AND THE LIKE. CUSTOMER FURTHER AGREES THAT URETEK ICR HAS NO RESPONSIBILITY OR LIABILITY FOR ANY DAMAGE TO CUSTOMER STRUCTURES OR PERSONAL PROPERTY THAT COMES IN CONTACT WITH THE URETEK GEOPOLYMER MATERIAL THAT MAY TRAVEL TO THE SURFACE.

SUBJECT TO THIS LIMITED WARRANTY, CUSTOMER AGREES THAT THERE ARE NO WARRANTIES, EXPRESS OR IMPLIED, MADE BY URETEK ICR CONCERNING THE WORK CONTEMPLATED BY THIS AGREEMENT. TO THE FULLEST EXTENT PERMITTED BY APPLICABLE LAW, URETEK ICR – Oklahoma HEREBY DISCLAIMS, AND CUSTOMER HEREBY WAVES, ALL IMPLIED WARRANTIES OF MERCHANTABILITY, HABITABILITY, CONSTRUCTION IN A GOOD AND WORKMANLIKE MANNER, CONDITION, SUITABILITY, FITNESS FOR A PARTICULAR PURPOSE, AND ADEQUACY OF THE PLANS. ANY IMPLIED WARRANTIES WHICH CANNOT LAWFULLY BE DISCLAIMED ARE LIMITED IN DURATION TO A ONE (1) YEAR DURATION FROM DATE URETEK ICR – Oklahoma INITIAL INJECTIONS, NOT WORK COVERED BY CHANGE ORDER OR WARRANTY, TO THE EXTENT PERMITTED BY LAW.

6. There always remains a potential for future movement of the Infrastructure Asset, URETEK ICR is in no way responsible for such future movement which is beyond its control such as plumbing leaks, erosion of soil from flooding, excessive moisture content, land drainage, natural springs, trees or large shrubbery located near the foundation or acts of God.

7. **Payment Terms:** Payment shall be due upon completion of the project as described herein. Any amount not paid within terms shall accrue interest at the rate of 18% per annum or the highest lawful rate, whichever is less.

8. The Customer will provide:

- All performance and technical studies necessary to the scope of the project
- Adequate access to the work site(s)
- Any necessary authorizations or permits
- The owner or duly authorized representative onsite for the duration of the project

**PAYMENT TERMS:**

Based upon a set schedule of work and signed contract of services:

- **Payment – Full amount due Net 15 days.**

Accepted:

Date:

Title:

This bid and its terms and conditions becomes an integral part of any contract awarded based upon this bid, whether referenced directly, attached or not to such contract.

Respectfully submitted,  
*Travis Christianson*

URETEK - Oklahoma



Project Name: Aspen Creek Relief Line  
 Project Location: 121<sup>st</sup> and Aspen  
 Prime Contractor: Triangle Construction and Utility, LLC

Project Number: S 1307  
 Contract Number: \_\_\_\_\_  
 Date: 9/9/2016

**REQUEST FOR INFORMATION NO. #5**

**FROM:**

**Name:** Tom Rutherford      **Title:** Foreman      **Company:** Triangle Construction and Utility, LLC

**Contact Information:** 918-830-3146

**Subject:** Manholes not passing test

**Specification:** Existing MH #2 and Existing MH #7 Existing MH #8

**Question:**

David,  
 We tried to seal the three existing Manholes from the inside but they are in bad shape and won't seal off.

**Proposed Resolution:**

The next step would be to dig around the outside of the manholes and try to seal them from the outside. Existing MH #2 will be difficult and take more time than MH #7 because it is 24' deep, the underground water would need to be pumped as we do the repairs taking approximately 3 days. We will have to move the fence again and watch out for all utility's that are located there. MH #8 will take approximately 3 days to do. Please keep in mind that sealing all the joints between risers and pipe gaskets may not solve the problem. We can try this first if you wish but there are no guarantees. The added cost would be \$7,450.00 No Guarantee this will work

Estimated Cost Impact:

Estimated Schedule Impact:

**REPLY TO CONTRACTOR:**

**DATE ANSWERED:**

In lieu of excavation and grouting, please proceed with utilization of URETEK HDEP injection process at each of the above noted manholes. Please see attached for the contract proposal from URETEK. Coordinate with URETEK as an assigned Sub under your contract and provide a change order with your markup to manage said sub-contractor.

*Per the Contract General Conditions, the Contractor shall not proceed with additive or deductive work which has change order implications as a result of this RFI without prior written approval from the City of Broken Arrow.*

**Construction Manager Recommendation**

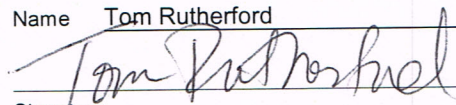
Name Timothy Robins, PE

Signature \_\_\_\_\_

Date \_\_\_\_\_

**Contractor Concurrence**

Name Tom Rutherford

Signature 

11/30/2016

Date