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Administrative Action No. 21- 5873

CITY SECRETARY

Contract No. SDM-2021-00017024

STATE OF TEXAS DALLAS, TEXAS

COUNTY OF DALLAS § ACCESS AGREEMENT AND TERMS FOR
§ WATER IS ALIVE PROJECT

THIS CONTRACT is made and entered into by and between the CITY OF DALLAS, a Texas municipal corporation, located in Dallas County, Texas ("City") and WATER IS ALIVE, INC., a Texas nonprofit corporation, with offices at 710 Ida Vista Court, Duncanville, Texas 75116 ("WIA").

1. DESCRIPTION OF WORK

WIA is granted temporary access to a portion of Joe’s Creek solely for a bioremediation project as further described in **Exhibit A**. WIA shall limit all work performed under this agreement to those areas so designated on Exhibit A.

B. All of the documents referred to in Subsection A of this Section 1 are incorporated by reference and made a part of this Contract for all purposes as though each were written word for word in this Contract; provided, however, that in case of a conflict in the language of Exhibit A and this Contract, the terms and conditions of this Contract shall control and are final and binding on both parties. WIA and City further agree that should any dispute or questions arise respecting the true construction or meaning of any of these documents, the true meaning shall be decided by City and such decision shall be binding and conclusive upon WIA.

2. DUE DILIGENCE AND COORDINATION

WIA represents that, prior to submitting the proposal for this project, WIA became and remains thoroughly acquainted with all matters relating to the performance of this Contract, all applicable local, state, and federal laws and all of the terms and conditions of this Contract. All activities under this Contract shall be coordinated under, and performed to the satisfaction of, City’s Director of Dallas Water Utilities or Director’s designated representative, hereinafter called "Director." The Director may modify or bring any work performed under this contract to a temporary or permanent halt upon notice to WIA at the Director’s sole discretion.

3. PAYMENT

No payment shall be due by either party to the other for entering into this contract.

4. TERM; SCHEDULE

The term of this Contract shall commence on June 14, 2021 and terminate on June 13, 2022, unless sooner terminated in accordance with the provisions of this Contract. This contract may be extended in writing by mutual agreement of the parties. For good cause shown by WIA, the Director may extend the time to perform the Services.

5. PERMITS; COMPLIANCE WITH LAWS AND REGULATIONS

A. WIA shall possess or obtain any necessary permits required by City ordinance or State or Federal law for the performance of the Services prior to commencing the Services. WIA SHALL INDEMNIFY AND DEFEND THE CITY FROM ANY ENFORCEMENT ACTIONS OR OTHER MATTERS RELATED TO NON-COMPLIANCE WITH ANY LOCAL, STATE, OR FEDERAL LAWS, REGULATIONS, OR PERMITS.

B. City has developed an Environmental Management System (EMS), based upon International Standards Organization (ISO) Standard 14001. As part of the EMS, City has adopted an environmental policy. WIA acknowledges receipt of the environmental policy and shall adhere to the policy and provide information to City in the form and at the times requested by City in furtherance of the policy.

C. This Contract is entered into subject to and controlled by the Charter and ordinances of the City of Dallas and all applicable laws, rules, and regulations of the State of Texas and the Government of the United States of America. WIA shall, during the course of performance of this Contract, comply with all applicable City codes and ordinances, as amended, and all applicable State and Federal laws, rules and regulations, as amended.

6. INDEPENDENT WIA

WIA's status shall be that of an independent WIA and not an agent, servant, employee, or representative of City in the performance of the Services. WIA shall exercise independent judgment in performing duties under this Contract and is solely responsible for setting working hours, scheduling or prioritizing the work flow and determining how the work is to be performed. No term or provision of this Contract or act of WIA in the performance of this Contract shall be construed as making WIA the agent, servant or employee of City, or making WIA or any of its employees eligible for the fringe benefits, such as retirement, insurance and worker's compensation, which City provides its employees.

7. INDEMNITY

WIA AGREES TO DEFEND, INDEMNIFY AND HOLD CITY, ITS OFFICERS, AGENTS AND EMPLOYEES, HARMLESS AGAINST ANY AND ALL CLAIMS, LAWSUITS, JUDGMENTS, COSTS AND EXPENSES FOR PERSONAL INJURY (INCLUDING DEATH), PROPERTY DAMAGE OR OTHER HARM FOR WHICH RECOVERY OF DAMAGES IS SOUGHT, SUFFERED BY ANY PERSON OR PERSONS, THAT MAY ARISE OUT OF OR BE OCCASIONED BY WIA'S BREACH OF ANY OF THE TERMS OR PROVISIONS OF THIS CONTRACT, OR BY ANY NEGLIGENT OR STRICTLY LIABLE ACT OR OMISSION OF WIA, ITS OFFICERS, AGENTS, EMPLOYEES OR SUBWIAs, IN THE PERFORMANCE OF THIS CONTRACT; EXCEPT THAT THE INDEMNITY PROVIDED FOR IN THIS PARAGRAPH SHALL NOT APPLY TO ANY LIABILITY RESULTING FROM THE SOLE NEGLIGENCE OR

FAULT OF CITY, ITS OFFICERS, AGENTS, EMPLOYEES OR SEPARATE WIAs, AND IN THE EVENT OF JOINT AND CONCURRING NEGLIGENCE OR FAULT OF WIA AND CITY, RESPONSIBILITY AND INDEMNITY, IF ANY, SHALL BE APPORTIONED IN ACCORDANCE WITH THE LAW OF THE STATE OF TEXAS, WITHOUT WAIVING ANY GOVERNMENTAL IMMUNITY AVAILABLE TO CITY UNDER TEXAS LAW AND WITHOUT WAIVING ANY DEFENSES OF THE PARTIES UNDER TEXAS LAW. THE PROVISIONS OF THIS PARAGRAPH ARE SOLELY FOR THE BENEFIT OF THE PARTIES TO THIS CONTRACT AND ARE NOT INTENDED TO CREATE OR GRANT ANY RIGHTS, CONTRACTUAL OR OTHERWISE, TO ANY OTHER PERSON OR ENTITY. WIA AND CITY ACKNOWLEDGE AND AGREE THAT THE PROVISIONS OF THIS SECTION 7 SHALL SURVIVE THE TERMINATION OR EXPIRATION OF THE TERM OF THIS CONTRACT.

8. INSURANCE

WIA shall procure, pay for, and maintain during the term of this Contract, with a company authorized to do business in the State of Texas and otherwise acceptable to City, the minimum insurance coverage, attached to and made a part of this Contract as **Exhibit B**. Approval, disapproval or failure to act by City regarding any insurance supplied by WIA or its subconsultants shall not relieve WIA of full responsibility or liability for damages, errors, omissions or accidents as set forth in this Contract. The bankruptcy or insolvency of WIA's insurer or any denial of liability by WIA's insurer shall not exonerate WIA from the liability or responsibility of WIA set forth in this Contract.

9. TERMINATION

City's Director may, at its option and without prejudice to any other remedy City may be entitled to at law, in equity or elsewhere under this Contract, terminate further work under this Contract in whole or in part for cause or for the convenience of City by giving at least ten (10) days advance written notice of termination to WIA, with the understanding that all performance being terminated shall cease as of a date to be specified in the notice. Upon the completion of the work or upon termination of this contract, WIA shall remove all equipment and other items from the site and restore the site to its original condition.

10. CONFLICT OF INTEREST

A. WIA and its employees, agents or associates are required to make regular, timely, continual and full disclosures to the Director of all significant outside interests and responsibilities that may give rise to a direct or indirect conflict of interest, including, but not limited to, any and all significant outside interests and responsibilities that could reasonably be expected to impair independence of judgment in WIA's performance of all of the services under this Contract. Such disclosures must be made no later than ten (10) days following the event giving rise to the potential or actual conflict of interest for the duration of the Contract term. A potential or actual conflict of interest exists when commitments and obligations to the City or widely recognized professional norms are likely to be compromised in WIA's performance of its duties under this Contract by the existence of WIA's other professional relationships, contracts, obligations, or commitments.

Failure to disclose such a conflict of interest may result in the City's immediate termination of this Contract by the City Manager.

B. The following section of the Charter of the City of Dallas shall be one of the conditions, and a part of, the consideration of this Contract, to wit:

“CHAPTER XXII. Sec. 11. FINANCIAL INTEREST OF EMPLOYEE OR OFFICER PROHIBITED.

(a) No city official or employee shall have any financial interest, direct or indirect, in any contract with the city, or be financially interested, directly or indirectly, in the sale to the city of any land, materials, supplies or services, except on behalf of the city as a city official or employee. Any violation of this section shall constitute malfeasance in office, and any city official or employee guilty thereof shall thereby forfeit the city official's or employee's office or position with the city. Any violation of this section, with knowledge, express or implied, of the person or corporation contracting with the city shall render the contract involved voidable by the city manager or the city council.

(b) The alleged violations of this section shall be matters to be determined either by the trial board in the case of employees who have the right to appeal to the trial board, and by the city council in the case of other employees.

(c) The prohibitions of this section shall not apply to the participation by city employees in federally-funded housing programs, to the extent permitted by applicable federal or state law.

(d) This section does not apply to an ownership interest in a mutual or common investment fund that holds securities or other assets unless the person owns more than 10 percent of the value of the fund.

(e) This section does not apply to non-negotiated, form contracts for general city services or benefits if the city services or benefits are made available to the city official or employee on the same terms that they are made available to the general public.

(f) This section does not apply to a nominee or member of a city board or commission, including a city appointee to the Dallas Area Rapid Transit Board. A nominee or member of a city board or commission, including a city appointee to the Dallas Area Rapid Transit Board, must comply with any applicable conflict of interest or ethics provisions in the state law and the Dallas City Code.”

11. GIFT TO PUBLIC SERVANT

City may terminate this Contract immediately if WIA has offered, or agreed to confer any benefit upon a City employee or official that the City employee or official is prohibited by law from accepting.

For purposes of this section, “benefit” means anything reasonably regarded as pecuniary gain or pecuniary advantage, including benefit to any other person in whose welfare the beneficiary has a direct or substantial interest, but does not include a contribution or expenditure made and reported in accordance with law.

Notwithstanding any other legal remedies, City may require WIA to remove any employee of WIA from the Services who has violated the restrictions of this section or any similar state or federal law, and obtain reimbursement for any expenditures made as a result of the improper offer, agreement to confer, or conferring of a benefit to a City employee or official.

12. NOTICE OF CONTRACT CLAIM

This Contract is subject to the provisions of Section 2-86 of the Dallas City Code, as amended, relating to requirements for filing a notice of a breach of contract claim against City. Section 2-86 of the Dallas City Code, as amended, is expressly incorporated by reference and made a part of this Contract as if written word for word in this Contract. WIA shall comply with the requirements of this ordinance as a precondition of any claim relating to this Contract, in addition to all other requirements in this Contract related to claims and notice of claims.

13. NOTICES

Except as otherwise provided in Section 12, any notice, payment, statement, or demand required or permitted to be given under this Contract by either party to the other may be effected by personal delivery in writing or by mail, postage prepaid. Mailed notices shall be addressed to the parties at the addresses appearing below, but each party may change its address by written notice in accordance with this section. Mailed notices shall be deemed communicated as of three (3) days after mailing.

If intended for City, to:

Director
City of Dallas
Dallas Water Utilities
1500 Marilla Street, Room 4AN
Dallas, Texas 75201

If intended for WIA, to:

Virginia Kilgore
Water is Alive, Inc.
710 Ida Vista Court
Duncanville, Texas 75116

14. EQUAL EMPLOYMENT OPPORTUNITY/NONDISCRIMINATION

A. WIA shall not discriminate against any employee or applicant for employment because of race, age, color, ancestry, national origin, place of birth, religion, sex, sexual orientation, gender identity and expression, military or veteran status, genetic characteristics, or disability unrelated to job performance. WIA shall take affirmative action to ensure that applicants are employed and that employees are treated during their employment without regard to their race, age, color, ancestry, national origin, place of birth, religion, sex, sexual orientation, gender identity and expression, military or veteran status, genetic characteristics, or disability unrelated to job performance. This action shall include, but not be limited to, the following: employment, upgrading, demotion or transfer, recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection of training, including apprenticeship. WIA shall also comply with all applicable requirements of the Americans with Disabilities Act, 42 U.S.C.A. §§12101-12213, as amended. WIA agrees to post in conspicuous places a notice, available to employees and applicants, setting forth the provisions of this non-discrimination clause.

B. WIA shall, in all solicitations or advertisements for employees placed by or on behalf of WIA, state that all qualified applicants will receive consideration for employment without regard to race, age, color, ancestry, national origin, place of birth, religion, sex, sexual orientation, gender identity and expression, military or veteran status, genetic characteristics, or disability unrelated to job performance.

C. WIA shall furnish all information and reports required by the City Manager or his designee and shall permit the City Manager or his designee to investigate its payrolls and personnel records which pertain to current contracts with City for purposes of ascertaining compliance with this equal employment opportunity clause.

D. WIA shall file compliance reports with City as may be required by the City Manager or his designee. Compliance reports must be filed within the time, must contain information as to the employment practices, policies, programs, and statistics of WIA, and must be in the form that the City Manager or his designee prescribes.

E. If WIA fails to comply with the equal employment opportunity provisions of this Contract, it is agreed that City at its option may do either or both of the following:

- (1) Cancel, terminate or suspend this Contract in whole or in part;
- (2) Declare WIA ineligible for further City contracts until it is determined to be in compliance.

15. ASSIGNMENT

WIA shall not sell, assign, transfer its obligations, interest, or rights in the Contract, or any claim or cause of action related thereto in whole or in part, without the prior written consent of the City Manager and such decision shall be solely at the City Manager's discretion. As an express condition of consent to any assignment, WIA shall remain liable for completion of the Contract work in the event of default by the successor WIA or assignee.

16. RIGHT OF REVIEW AND AUDIT

City may review any and all of the services performed by WIA under this Contract. City is granted the right to audit, at City's election, all of WIA's records relating to the performance of this Contract. WIA agrees to retain such records for a minimum of three (3) years following completion of this Contract. Any payment, settlement, satisfaction, or release made or provided during the course of performance of this Contract shall be subject to City's rights as may be disclosed by an audit under this section.

17. VENUE

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

18. GOVERNING LAW

This Contract shall be governed by and construed in accordance with the laws and court decisions of the State of Texas, without regard to conflict of law or choice of law principles of Texas or of any other state.

19. LEGAL CONSTRUCTION

In case any one or more of the provisions contained in this Contract shall for any reason be held to be invalid, illegal, or unenforceable in any respect, such invalidity, illegality, or unenforceability shall not affect any other provision of this Contract, and this Contract shall be considered as if such invalid, illegal, or unenforceable provision had never been contained in this Contract.

20. COUNTERPARTS

This Contract may be executed, including electronically, in one or more counterparts, each of which when so executed shall be deemed to be an original and constitute one and the same instrument. If this Contract is executed in counterparts, then it shall become fully executed only as of the execution of the last such counterpart called for by the terms of this Contract to be executed.

21. CAPTIONS

The captions to the various clauses of this Contract are for informational purposes only and shall not alter the substance of the terms and conditions of this Contract.

22. SUCCESSORS AND ASSIGNS

This Contract shall be binding upon and inure to the benefit of the parties and their respective successors and, except as otherwise provided in this Contract, their assigns.

23. NO INTENDED THIRD-PARTY BENEFICIARIES

This Contract is entered into solely for the benefit of WIA and the City. No third party will be deemed a beneficiary of this Contract, and no third party will have any right to make any claim or assert any right under this Contract.

24. SPECIFIC TERMS AND CONDITIONS

- A. WIA must provide to the city a detailed map of the starting and future location(s) used.
- B. WIA must use City controlled property with safe access to location used. WIA shall not use third-party private entry points of access without the express written authorization by the city and with written agreement by the third-party granting such access.
- C. WIA shall not introduce any non-native and/or any invasive species into the watershed.
- D. WIA shall make all data and interim and final reports available to City.
- E. All Sampling and progress results shall be reported to the Storm Water Office - Water Quality Team (SWO WQ) on a monthly basis.
- F. No City employees, labor, equipment, or supplies will be used during this project.
- G. Water is Alive will inform the SWO WQ Team of all changes in location and plans.
- H. WIA shall provide plans on removing Water is Alive products, equipment, or supplies during heavy rain events and flooding. As directed by the city, such material shall be removed in a timely manner.
- I. The SWO WQ Team has a final decision-making authority on any changes by the Water is Alive program.
- J. WIA shall remove any and all materials related to the Water is Alive project upon completion of the project or as directed by the city.
- K. WIA shall inform the city as provided in the "Notice" section of this contract and also the SWO WQ Team of any issues or problem immediately.
- L. The city may direct additional terms and conditions during the course of the project upon 10 days written notice to WIA.

25. CERTIFICATION OF EXECUTION

The person or persons signing and executing this Contract on behalf of WIA, or representing themselves as signing and executing this Contract on behalf of WIA, do hereby warrant and certify that he, she or they have been duly authorized by WIA to execute this Contract on behalf of WIA and to validly and legally bind WIA to all terms, performances and provisions herein set forth.

26. ENTIRE AGREEMENT; NO ORAL MODIFICATIONS


This Contract (with all referenced Exhibits, attachments, and provisions incorporated by reference) embodies the entire agreement of both parties, superseding all oral or written previous and contemporary agreements between the parties relating to matters set forth in this Contract. Except as otherwise provided elsewhere in this Contract, this Contract cannot be modified without written supplemental agreement executed by both parties.

Remainder of page intentionally blank. Signature page follows.

EXECUTED this, the 20th day of July, 2021, by City, signing by and through its City Manager, duly authorized to execute same by Administrative Action No. 21-5873 approved on July 20th, 2021, and by WIA, acting through its duly authorized official.

APPROVED AS TO FORM:
CHRISTOPHER J. CASO
City Attorney

CITY OF DALLAS
T. C. BROADNAX
City Manager

BY 
Michael Doss (Jul 21, 2021 15:35 CDT)
Assistant City Attorney [*MD*]

BY 
Assistant City Manager

WIA:
WATER IS ALIVE, INC.
a Texas nonprofit corporation

BY Virginia Kilgore
Virginia Kilgore (Jul 21, 2021 13:12 CDT)

PRINTED
NAME Virginia Kilgore

TITLE Founder of Water is Alive

EXHIBIT

A



WATER IS ALIVE

Water Is Alive
Virginia Kilgore
710 Ida Vista Court
Duncanville Tx. 75116
City of Dallas Vendor Number: VC22272

October 4, 2020
Attention: City of Dallas Water & Utilities

Dear Public Administrators of the City of Dallas,

Hello. My name is Virginia Kilgore founder of Water Is Alive, a 501c3 corporation focused on bioremediation education and cleaning contamination in the environment with microorganisms. Following 18 months of planning, Dallas Department of Water & Utilities has invited Water Is Alive to begin the Trinity River Bioremediation Demonstration Project in Joe's Creek, adjacent to the parking lot of Gas Monkey Live at 10110 Technology Boulevard in Dallas. Joe's Creek is owned by the City of Dallas. Attached is the permit request containing maps and a link to a video of the Joe's Creek survey that was conducted in the summer of 2019 by Water Is Alive. The details of how we plan on conducting the Trinity River Bioremediation Demonstration Project are in the attached prospectus. A copy of this Letter of Intent as well as the project budget, the permit request and a prospectus are also in the attachments.

The intention of Water Is Alive and our partner Groundwork Dallas is to clean Joe's Creek, a tributary of the Trinity River. Whereas Groundwork Dallas' focus is on cleaning litter out of the Joe's Creek, Water Is Alive has been invited to focus on reducing e coli levels in the creek. To accomplish this, we are going to place two different kinds of 'bio-filters' in the water. One is a food-grade inoculated substrate that will rest on the sediment, the other is a mycelium inoculated substrate that will float on the surface. The initial tests will experiment with different substrates and demonstrate their abilities to reduce Escherichia coli bacteria as well as examining

971-212-8337



Living Laboratory
710 Ida Vista Court
Duncanville Texas 75116



virginia@waterisalive.org



EXHIBIT A

the 'bio-filters' resilience in streaming water and their biodegradable qualities during storms.

Our goals are to demonstrate the flexible applications food-grade microorganisms as to reduce contamination before it enters the Trinity River in the form of small biodegradable 'bio-filters'. Future applications of this demonstration project will be to accomplish a reduction in environmental contamination by using these same techniques to build household bio-filters, enhanced filter strips, constructed wetlands, and bio-filter buffer zones around waste processing plants, water treatment plants, municipal landfills, Superfund sites and auto salvage operations. We hope to work with the City of Dallas in applying for federal, state and private funding to demonstrate bioremediation as an educational tool and Best Management Practice in other contaminated streams and lakes as well as contaminated soils in Dallas.

For the purposes of the Trinity River Bioremediation Demonstration Project in Joe's Creek, the City of Dallas Department of Water & Utilities has requested we submit this letter of intent and include several stipulations as to arrive at a mutual understanding. The following was requested:

1. Activities will only be conducted in public creeks and not on private properties.
 - As noted on the Dallas Appraisal District maps in the permit request attached to this Letter of Intent, Joe's Creek is owned by The City of Dallas.
2. The project details.
 - The permit request and the project prospectus are attached.
3. Water Is Alive will not hold The City of Dallas responsible for any damage that may occur to us or our apparatus if an incident were to occur while performing this demonstration.
4. Water Is Alive will be responsible for repairs for damage caused to stormwater structures in the creek by this project.



EXHIBIT A

- The bio-filters are small (under 20 pounds each) and biodegradable. The substrates are bound in untreated burlap and tied together and anchored to existing debris in the creek or along the banks with untreated jute or sisal rope and string. The filters are designed to break apart in the event of a storm. Most trees or floating debris will present bigger threats to the stormwater structures and we do not anticipate any damage.
5. Water Is Alive understands this demonstration project will not receive funding from the City of Dallas, except for periodic fecal coliform and e coli testing.

Water Is Alive will follow COVID-19 protocols when working in proximity with employees and volunteers. Water Is Alive and Groundwork Dallas will work together to place and monitor the filters, and as citizen science volunteers for The Texas Stream Team, we will also monitor Joe's Creek for e coli and other water quality factors.

The Water Is Alive biofilter concept and design are intellectual property belonging to Water Is Alive. We hope upon the successful demonstration of our methods, the City of Dallas will engage Water Is Alive contractually for educational and environmental projects. Water Is Alive highly recommends our filters and curriculum for other impaired water projects in Dallas, as well as other bioremediation techniques.

Thank you for notifying Water Is Alive once the City Attorney's Office approves this letter. Please let me know what further information is required for this project.

Thank you for your attention. We look forward to helping improve water quality in our watershed.

Sincerely,

Virginia Kilgore

(c) Water Is Alive 2020

EXHIBIT A

U.S. Army Corps of Engineers (USACE), Fort Worth District Pre-Application Meeting Request



Box 1 Basic Project Information		Date:
Project Name: Trinity River Bioremediation Pilot Plan		November 19, 2019
City Dallas	County Dallas	State Texas
Total Size of Property in Acres 1	Latitude 32.856376 GPS 32°51'22.2"N	Longitude -96.892312 GPS 96°53'32.1"W
Box 2 Property Owner Name		Email
City of Dallas (Arnelle Woods is the Assistant City Manager)		arnelle.woods@dallascityhall.com
Mailing Address 1500 Marilla St. (physical address is: 2301 North Stemmons Freeway)		Phone 214-670-3111
Box 3 Applicant Name		Email
Virginia Kilgore		virginia@waterisalive.org
Mailing Address 710 Ida Vista Ct. Duncanville Texas 75116		Phone 971-212-8337
Box 4 Agent Name		Email
Mailing Address		Phone
Box 5 Information Required to Accompany Request - check as much information as is available:		
Project Description: Provide a brief summary of the proposed project including development plans, size in acres, potential impacts to Waters of the U.S., existing land use/cover, etc.: <input checked="" type="checkbox"/>		
Project Purpose: In Situ bioremediation of contamination and e coli in the Trinity River		
<input checked="" type="checkbox"/> Accurate Location Maps (from County map, USGS Quad Sheet, Aerial Photos, etc.) <input checked="" type="checkbox"/> Map of the Project Site Conceptual Site Plans for the Overall Development <input checked="" type="checkbox"/> Approximate acreage of wetland impact: 2 acres. <input checked="" type="checkbox"/> Approximate linear feet of stream impact: 1584 feet is .3 miles, and with both banks, 3168 linear feet. Impact Type: (e.g., Forested Wetland, Emergent Wetland, Intermittent Stream, etc.) Pre-Application Meeting Agenda		
Box 6 Optional Additional Information: Any information you can provide about the proposal, project site, and/or surrounding area will facilitate a more effective pre-application meeting. Additional information may include, but is not limited to:		
Delineation of the Waters of the U.S. on the Property or a Jurisdictional Determination from the USACE Threatened or Endangered Species Information, and/or Any Coordination With USFWS Historic Properties Cultural Resources Information, and/or Any Coordination With the SHPO <input checked="" type="checkbox"/> Conceptual Mitigation Information <input checked="" type="checkbox"/> Floodplain Information <input checked="" type="checkbox"/> Color Photograph <input checked="" type="checkbox"/> Aerial Photograph <input checked="" type="checkbox"/> Other Authorizations Obtained or Required: Comments from TCEQ and TPWD <input checked="" type="checkbox"/> Other: Video of Joe's Creek with proposed permit locations		

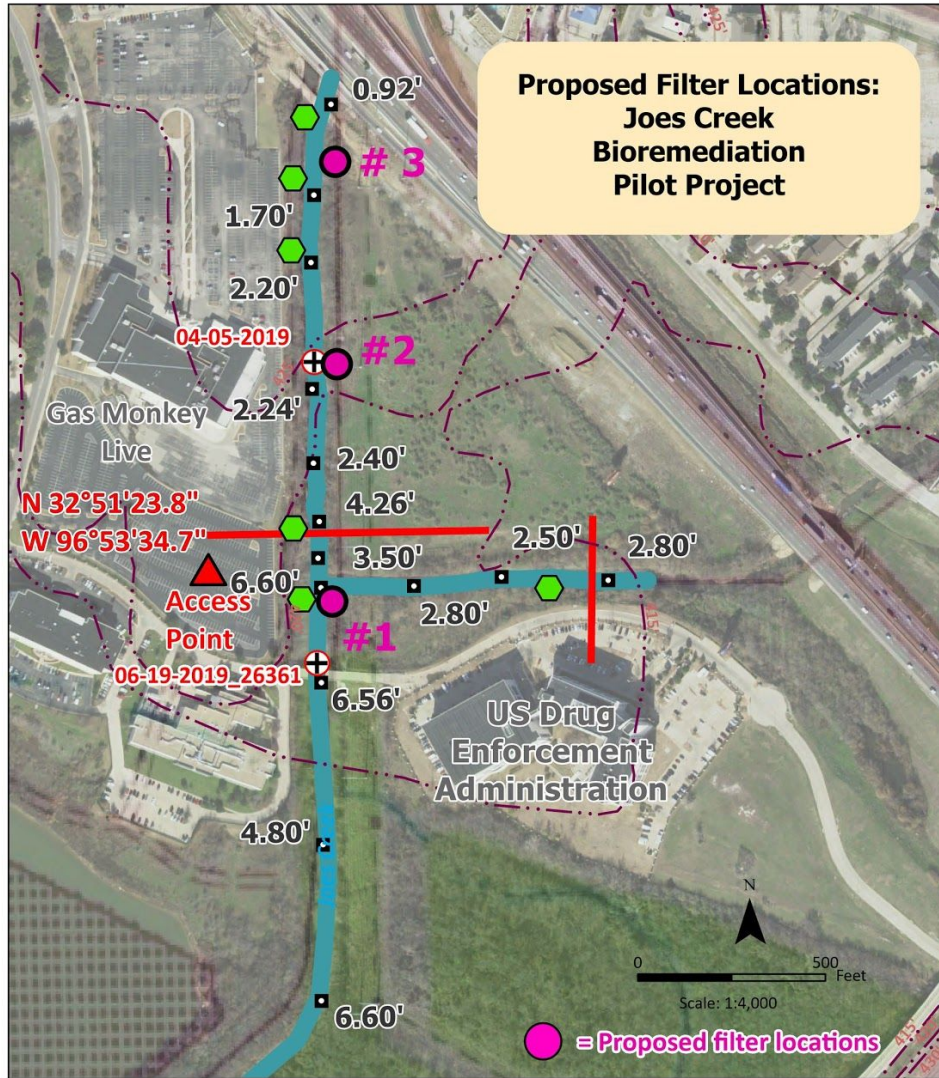
The applicant will be responsible for taking meeting notes and submitting them to the USACE for review.


Copies of this request may be obtained at: <http://www.swf.usace.army.mil/Missions/Regulatory.aspx>

Please mail this form to:

Regulatory Division (CESWF-DE-R)
Fort Worth District U.S. Army Corps of Engineers 819 Taylor Street, Room 3A37 P.O. Box 17300

EXHIBIT A





This product is for informational purposes and may not have been prepared for or be suitable for legal, engineering, or surveying purposes. Portions of the information are derived from on the ground survey conducted on July 28th, 2019 and represents only the approximate relative location of features

Data Sources

Base map: USGS Irving, TX 1989 (1982) 1:24,000
 Contours: Strategic Mapping Program (StratMap).
 StreetMap Images, 1988-02-01. Web. 2019-10-06.
 Survey Data: Garmin GPS (Horizontal).
 Philadelphia Red (Water Depth).
 Date of Survey July 28th, 2019

Spatial Reference
 PCS: NAD 1983 2011 StatePlane Texas North Central FIPS 4202 FZUS
 Projection: Lambert Conformal Conic

- Storm Water Drains
- + Water Quality Samples
- Water Depth Samples (6.70' - Water Depth)
- Sewer Pipeline Crossings
- Contours (5' Intervals)
- ~ Joes Creek

Trinity River Bioremediation Pilot Plan Project Description

Using 3 methods of bioremediation adapted by Water Is Alive, we propose to work with Groundwork Dallas, area schools and other potential stakeholders to bioremediate present e coli threats while addressing other contamination issues in Joe’s Creek, a tributary to the Elm Fork of the Trinity River.

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Joe's Creek Bioremediation Pilot Plan Summary

Water Is Alive and partner organizations are applying to The Army Corps of Engineers for a pilot project permit to place biodegradable microorganism inoculated filters along 50-100 foot stretches in Joe's Creek. These small biodegradable filters may be anchored to existing debris along the creek. Water Is Alive is also suggesting various forms of natural anchors to place the filters in the deeper parts of the creek where the water level is sufficient to keep the filters moist year round.

Water Is Alive proposes producing several kinds of filters. Myceliated filters and filters activated with food grade bacteria, yeasts and fungi. Water Is Alive has been teaching students how to grow these filters since 2017. Prior to filter placement, the myceliated bio filters can produce gourmet mushrooms. 100 small myceliated filters, placed along the middle of the creek and both banks, should be sufficient to notice a change in the contamination levels in Joe's Creek. Current contamination levels, focused on the elevated levels of e coli, are monitored by the City of Dallas Water & Utilities Department and the Texas Stream Team, with the volunteers and staff from Groundwork Dallas.

EXHIBIT A

Concerns regarding the introduction of non-native species of food grade mushrooms as well as non genetically modified microorganisms are addressed in this permit summary, with comments from the TECQ and TPWD.

Our goals are to:

- Improve the water quality in Joe's Creek.
- Raise awareness regarding contamination in the Trinity River.
- Help restore and improve the natural ecology and bioremediation capabilities of the Trinity River Basin.
- Equip students, businesses and individuals with the materials, methods and recipes needed to grow biofilters that will mitigate and metabolize contamination in water and soil.

The survey and accompanying video of Joe's Creek

The video included in the application starts in the "West Fork" of Joe's Creek near the underpass of I-35E. The above map, "Orthomosaic View", details the depths of the creek at 17 locations on both forks of Joe's Creek and follows the joined creeks to the mouth of the creek on the Trinity River. The survey was conducted on July 28, 2019. The water level was down approximately six feet compared to when Groundwork Dallas conducted water monitoring on June 12 of 2019. The difference in water levels was noted during the July 28th survey by measuring the water level between the creek and the sewer main line. In June the water was passing several inches under the sewer main line and on July 28 there was 6 feet of clearance between the creek and the sewer main. Proposed location #1 of the Joe's Creek Bioremediation Pilot Project, is just down-stream of the sewer main line.

Current use of the land

The specific GPS location is near Gas Monkey Live (32°51'22.2"N 96°53'32.1"W). The creek immediately east of the Gas Monkey Live parking lot is north of the conjunction of the East and "West" forks of Joe's Creek. The fork we are applying to bioremediate is runoff water from storm drains and natural drainage from neighborhoods and industrial areas in Northwest Dallas in the Royal Lane/Webb Chapel vicinity. For the purposes of this permit application, the portion of the creek for which we are seeking a permit will be called the "West Fork" of Joe's Creek. Along the stretch of the creek next to the Gas Monkey Live parking lot, approximately .3 miles long, Water Is Alive is proposing 3 locations to place biofilters. Joe's Creek is a very full creek after rains, yet in more arid times of the year, the creek under I-35 is a small trickle of water. The total area covered along the creek could be up to .5 acres, including the surface area of the water between the filters.

The banks of the creek are wooded areas. On the west and east banks of the "West Fork" of Joe's Creek, trees stands approximately 60 feet wide line the creek bed. Inside the 3 proposed locations of the creek are 8 storm drains, and crossing the creek is one sewer main line. A man-hole is present on the west bank of the creek close to Proposed Location #1.

Residential and industrial paths of the two forks of Joe's Creek**The "West Fork" of Joe's Creek**

The specific location where the West Fork of Joe's Creek appears to originate from on Google Maps is Northeast of Webb Chapel Road in the Northaven Road area. A Google

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Maps satellite image of the Joe's Creek headwaters in the form of a storm drain for surface runoff can be seen from Webb Chapel Road at 32°54'03.4"N 96°52'20.9"W.

Continuing down the West fork of Joe's Creek, the creek can be seen passing under Brockbank Drive at: 32°53'32.0"N 96°52'45.8"W. And again, passing under Harry Hines Boulevard at 32°53'04.0"N 96°53'12.7"W. After passing under Allegany Lane at 32°53'20.9"N 96°52'53.6"W, the creek enters a heavily industrialized area. Joe's Creek combines with a branch of the creek running from another heavily industrialized area at: 32.8674988,-96.8916858

A map of this conjunction may be viewed at the following google maps link:

[Conjunction of two West Fork's of Joe's Creek](#)

The West Fork of Joe's Creek continues to run under Loop 12 and Stemmons Highway (I-35 E). A homeless community is located near the underpass of I-35, in the woods near Joe's Creek. This is the northernmost point on the West Fork of Joe's Creek at which we measured a depth of .92 feet on July 28, 2019.

The East Fork of Joe's Creek

20 meters downstream of the sewer main line, Joe's Creek meets the East Fork of Joe's Creek. This branch of Joe's Creek appears to originate near Rosser Park off of Deep Valley Drive. Those GPS coordinates are 32°54'42.6"N 96°50'38.8"W. After winding through five miles of residential neighborhoods, the [East Fork of Joe's Creek enters the industrial area at Brockbank Drive](#).

The East Fork of Joe's Creek only runs two miles through an industrialized area, crossing under Harry Hines, Loop 12, I-35 and [enters the Gas Monkey Live area](#) joining the West Fork of Joe's Creek adjacent to the inlet from the parking lot close to Proposed Location #1.

Bioremediation Methods

Method 1) Biofilters made of biodegradable myceliated woodchips: Semi submerged masses of sawdust and woodchips that have been allowed to harden due to the consumption of the wood by the mycelium. When these small to medium sized myceliated blocks, are solidified with mycelium, we will anchor arrays of these filters onto the banks and into the middle of Joe's Creek.

Method 2) Effective Microorganisms: A product based on 31 species of non-genetically modified food grade microorganisms. These are primarily photosynthetic and lactic acid bacteria, yeast, actinomycetes, and fermenting fungi. The medium Effective Organisms is grown in is filtered water and organic molasses. The Effective Microorganisms reproduce in an anaerobic fermentation process.

The Trinity River Bioremediation Plan Time Line

The pilot project will run at 3-4 week intervals and would start in May of 2020 and run through November of 2020. The two main kinds of filters will be anchored in the creek at 3-4 week intervals from mid spring through the fall. For the purpose of the pilot project, Method 1 using myceliated wood chips, and Method 2 using Effective Microorganisms will be used in alternating intervals, as to be able to empirically observe the effectivity of the different approaches.

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The Texas temperate winters are usually warm enough to allow for slow bacterial growth and mycelium development. Depending on the level of participation from area schools and other interested groups, we could consider running the pilot project through the winter months.

The biofilters can be grown in the winter and early spring of 2020, and the placement of the filters in May, as to benefit from the cooler temperatures and the rains. These conditions are more easily achievable in the winter by controlling a microclimate where the mycelium is growing, thus keeping the filters from freezing and keeping the filters humid.

Method 1) Myceliated Biofilters

Using strains of the Oyster mushroom, the *Pleurotus ostreatus* and the Garden Giant, or *Stropharia rugosoannulata* as well as native species, we will grow 100% biodegradable filters. Grown in cardboard boxes, or another easily obtainable source of casts, the biofilters will be placed along 50-100 foot section(s) of both banks of Joe's Creek. We hope to produce many myceliated filters and anchor them in the creek with natural fiber ropes and large rocks or by fastening the biofilters to debris already present.

The placement of biofilters along the banks and in the creek composed of myceliated (mushroom) substrates such as: myceliated straw bales, wicker baskets containing myceliated corn husks and straw and gunny sacks full of myceliated wood chips. Small to medium grade sawdust will help fully myceliate the entire surface of the substrates. Water Is Alive and interested parties will experiment with other innovative methods to naturally filter the creek water as it is flowing along the filters. As the water flows through the porous and biodegradable biofilters, bacteria and contamination are absorbed and metabolized by the mycelium. To protect the integrity of the filters different biodegradable materials will be tested during the pilot project. The bottom of the myceliated woodchip mass and the plant roots will be submerged in the water. The mycelium will continue to grow as more wood chips are added.

The approximate size of the filters is 17 inches x 11 inches, and the floating filters are the size of paint buckets. The cardboard boxes and bucket molds will be removed prior to placement in the creek. For the deeper parts of the creek, a floating islands of myceliated filters will be developed. This filter will also serve to host plants specific to the remediation of the contaminants found in water. This floating bioremediation project is based on phytoremediating plants interspersed between the linked bucket-sized mycelited biofilters. The mycelium and plants can be sensitive to cold weather and are subject to damage from extreme cold or heat or dryness. Pictures and demonstrations of a myceliated filter will be presented at the pre-permit meeting.

The myceliated biofilters are designed to biodegrade and be carried downstream to continue the inoculation and bioremediation process in the event of rain and high waters. Even in dry conditions, the biofilters will continue to biodegrade and bioremediate the creek bed. In dry and cold conditions the filters are less active.

Method 2: Effective Microorganisms

Effective Microorganism filters are essentially probiotics for the Trinity. This kind of filter is based upon fermenting fruits and is primarily designed as a passive timed-release of

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Effective Microorganisms. The fruits are sources of enzymes. These enzymes are made by living organisms and they help bacteria break down nutrients and rebuild the nutrients into new compounds. Microorganisms such as bacteria gain their energy by transferring energy from an electron donor (sugars in the fruit) to an electron acceptor (oxygen, nitrate, sulfate, carbon dioxide and some pollutants) (17). These sugars are a source of energy (electron donors) the introduced bacteria (Effective Microorganisms) can eat and grow from. Strains of *Lactobacillus* as well as other bacteria in the Effective Microorganisms have been proven in clinical studies of e coli infections in human and animal intestinal tracts to adhere to e coli and inhibit growth and reproduction (2,11). This Trinity River Bioremediation Pilot Plan Method 2 will essentially attempt to treat the tributaries of the river with scientifically proven remedies that can reduce the presence of e coli and suspected and monitored chemicals that are a result of storm runoff waters and industrial pollution. This proposed form of bioremediation has the potential to prove the use of fermented compost processing in the in-situ clean up of contamination.

Some Effective Microorganism biofilters will be located under water, in earth and water permeable metal or ceramic baskets, secured in the creek bed or as integral component inside anchored myceliated biofilters. These biofilters will be anchored to prevent tampering from animals in the area. Combinations of biofilters may be developed by students and researchers in conjunction with the accompanying Water Is Alive curriculum, designed to stimulate the science of bioremediation. The fruit and wood chip filters are designed to biodegrade as the microorganisms and fruit are decomposing. Parameters for student biofilter development will be based on the permit.

Fruits high in fructose will be acquired from markets, wholesalers and grocers and can also be dried fruits that are too old, too ugly, not ripe, etcetera, to be sold for consumption (5). These fruits are inoculated with Effective Microorganisms in an anaerobic setting (airtight buckets) for a period of 2 weeks. After the two weeks the inoculated fruits are anchored and submerged in the creek for a period of 2-4 weeks. Preference will be given to biodegradable containers, that can withstand turtles and animals attempting to eat the sweet contents in the filters.

Biofilms are naturally occurring bacterial layers that adhere to the surface of organic matter, especially in water. To inhibit biofilms from developing around the inoculated fruit, citrus fruit injected with colloidal silver will be included as an ingredient with the inoculated fruit prior to submersion in the creek. While the colloidal silver is also an effective and inexpensive method to treat gram-negative and gram-positive strains (8,10,11) of e coli in open water and effluent, for these purposes, the colloidal silver is used to prevent biofilm growth and promote the dispersion of the Effective Microorganisms into Joe's Creek.

Environmental monitoring before, during and after the first method are required to judge the effectivity of the rate of metabolism of the e coli by the *Lactobacillus* bacteria and other microorganisms present in the Effective Microorganisms. The e coli present in the water from human or avian sources bind naturally with heavy metal contamination. The Effective Microorganisms help in the conversion of heavy metals to less harmful elements to support healthy water and a healthy ecosystem. Effective Microorganisms also aids in the further metabolism of the e coli.

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Effective Microorganisms were developed in the 1970's and 1980's and were originally created with 81 non-genetically modified food-grade microorganisms (1). More recent DNA analysis of Effective Microorganisms has shown the numbers of the diverse microorganisms have decreased. The genetic study did not identify which microorganisms remain in the recipe. This is due to the stronger microorganisms consuming the others. All licensed producers of EM are under obligation not to tamper with the recipe. During the study, depending on the level of interest and participation, Water Is Alive may consider looking at more recently specifically studied and strictly food grade non-genetically engineered microorganisms and potentially applying these as timed released treatments to the Trinity River Bioremediation Pilot Plan. This method could be better at evaluating which specific strains of bacteria and mycelium are most effective in restoring the ecosystems of the Trinity River. Strains of the specific microorganisms studied to remediate contamination problems in open water are commonly available from microbe banks or from the environment.

Typically, 'EM mudballs', where clay is inoculated with Effective Microorganisms and then dried for a week or longer, are added to water bodies to reduce contamination. Effective Microorganisms may also be added to open water as a regular addition as in the release of tons of liquid Effective Microorganisms (EM). The 'EM mudballs' have been applied to large and small bodies of water and the results are inconclusive. The water quality of many rivers around the world has reportedly improved as a result of the addition of Effective Microorganisms (13). Effective Microorganisms have been scientifically proven to naturally remediate certain types of contamination in water and soil (15,16). Water Is Alive proposes utilizing a source of fructose (fruit) together with the EM as to promote the continued organic processes of metabolization and reproduction of the microorganisms while submerged in Joe's Creek.

Phytoremediation, the third line of defense.

Plants and trees that remediate contamination are called phytoremediators. These plants may be grown indoors by nurseries, interested individuals, schools and stakeholders until placement in the floating biofilters. The phytoremediators listed here can be invasive species, once prevalent in the Trinity River Basin.

Two of the native species listed here are cattails and iris's. There are 4 native species of Iris to Texas. In the event these plants establish themselves in the Trinity River, they will continue to aid in the metabolism of e coli as well as other contaminants.

A concerted effort will be made to construct the floating islands only with indigenous species of plants. There are other native reeds and plants that are native to Texas. A small list of native plants that could be included on the island filters are: "*Pontederia cordata* (pickerelweed), *Thalia dealbata* (alligator flag), and *Canna glauca* (golden canna) as they remove excess nitrogen and phosphorus from standing water. Their beautiful flowers enhance the aesthetic value of wet ponds. *Sagittaria* (arrowhead) binds cadmium and zinc to its roots, accumulates heavy metals and may even remediate diesel. *Eleocharis* (spikerush) and *Equisetum* (horsetail) are lead hyperaccumulators. *Schoenoplectus* (bulrush) uptakes zinc and *Justicia* (water willow) uptakes iron. These plants break down or degrade pollutants by acting as filters to improve the quality of water entering our streams and lakes." (19)

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“Salix nigra (black willow) often volunteers in riparian zones. Salix phyto-remediates copper, zinc and lead. Willows also facilitate denitrification (a microbially facilitated process where nitrate is reduced to nitrogen) and provide a more hospitable soil condition for native plant species which are not able to tolerate high soil nitrate levels. Helianthus annuus, the annual sunflower, was used in Chernobyl, Ukraine to remove radioactive contaminants from groundwater.” (19)

Depending on the levels of contamination present in the water and soil, some of the phyto-remediator plants could need to be removed and disposed of, due to absorption of the heavy metals and contaminants, such as willow trees growing in heavily contaminated soil. Focusing on native Texas plants for the floating pilot biofilter, may help restore the population of naturally occurring contamination metabolizers along the Trinity River Basin when the plants go to seed. The plants will be established in a bulk substrate of myceliated wood chips and sawdust with interspersed biodegradable tubes filled with soil to help the native plants establish themselves in the floating filter. The bulk of the mass will naturally float and can be fastened to naturally occurring floating debris in Joe’s Creek.

The introduction of non-native species to The Trinity River

The primary concern is the use of non-native species. Various species of mushrooms including Pleurotus and Stropharia will initially be applied. Indigenous species in the Pleurotus and Stropharia exist in Texas and will be collected and attempts to train these more localized species to metabolize typical contaminants found in the Trinity River will be made.

Joe’s Creek is full of trash. This situation has improved due to the clean-up effort organized by Groundwork Dallas. Water Is Alive believes the proposed food-grade microorganisms are less of a threat to our health and that of the ecosystem than the plastic, styrofoam, metal, paper, biological and chemical contamination found in the Trinity River and her tributaries today. These organisms offer a reasonable chance to improve the water quality, be cost efficient, aid in the use of other 'waste' materials in the bioremediation of the river and will not be harmful for school children, interns, volunteers, and staff to work with when placing and growing the filters. There has been no evidence found that these organisms will harm local wildlife. In the event of an invasive species spread, we could have an outbreak of pollution-eating gourmet mushrooms along the river banks.

Already present mycelium and plant species can be supported by the deposit of substrates and methods to encourage indigenous mycelial and plant growth. Mycelium requires a substrate to grow on, moisture and air.

Implementation:

Part of the mission of Water Is Alive is to advance the understanding and application of bioremediation, or the in-situ clean-up and restoration of depleted and contaminated ground and water. As Method 1 and 2 of the Trinity River Bioremediation Plan are proven to be successful, we would like to continue producing biofilters and improving water quality in the Trinity River and her tributaries.

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The filters can be deposited in areas of acute discharge to assist with the biodegradation and metabolization of toxicity, such as the [“Dallas water and environmental officials investigating murky, pungent discharge into Trinity River”](#), as reported by the Dallas Morning News on July 30 of 2019.

Filters can also be placed in the river and along the banks all year long to assist in the neutralizing of contaminants due to storm water runoff and other sources.

In the event wood chips accumulate as a result of a filter breach or the intentional deposit along the banks of the creek, these wood chips will protect moisture levels in the soil so already present mycelium species can further develop. The presence of wood chips will provide an additional substrate for the indigenous mycelium species to grow on. Deposited wood chips may be inoculated with food-grade microorganisms and mycelium. As the waters surge, the myceliated wood chips will be carried downstream to help metabolize contamination and naturally process e coli.

Signage

Signs will be placed along the banks indicating a test is in progress and to explain the presence and function of the myceliated biofilters. A link to various websites will be listed for interested parties.

Public Outreach

Social media, printed media, on-site signs, web sites, a mobile application and local associations, environmental groups and corporate volunteer support will be sought to foster participation and awareness of a growing bioremediation clean up of the Dallas waterways flowing into the Trinity River. Extreme creativity and involving students are key components to a successful campaign.

Analyses

A baseline bacterial and chemical analysis on a broad spectrum of chemical, metal and bacteriological contaminants in the water is needed. Core samples to observe the initial depth of contamination in the creek bed is wished. This is to document the depths in the sediment at which the various contaminants are located. A toxicological study to evaluate the effect of contaminants on small insects is desired as to identify potential baseline values and hazards of contamination in the sediment.

Potential obstacles

The pilot project expects to be confronted with natural predicaments such as fast running water, floating trees and other debris and wildlife wanting to consume the biodegradable and edible filters. Cages made from bamboo or another biodegradable material may be necessary, as we continue to develop better methods to house the bioremediating filters.

Education through hands-on environmental clean-up and food production.

Method 1, mycelium, is not only a method proven to metabolize contamination, it is also a food source and can be grown in humidity controlled trailers and out-buildings all over the metroplex. After the myceliated filters have produced gourmet mushrooms for consumption, often producing as much weight in edible mushrooms as the weight of the

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substrate they are growing on, they are ready for placement in the water as myceliated filters. Method 2 can be taught “as how to clean up pollution with trash” (composted organic materials) on a small to a large scale.

Method 1 and 2 have been taught by Water Is Alive at a Dallas County Community College District school, and soon more of the district is interested in participating. Composting and the construction of biofilters are skills children and adults can learn. Composting is essential for a sustainable future because the enzymes in organic matter are a nonrenewable resource and from the enzymes, natural bacteria in the environment builds DNA, the basic building blocks of all life.

Involving industry and schools in the DFW area, especially the TMDL I-Plan stakeholders and municipalities will be the key to an affordable and widespread clean-up of contaminants in the Trinity River. This can be a cohesive factor in communities and an opportunity for professionals, educators and students to learn about our individual roles in protecting water quality, storm water issues and the disposal of chemicals and medicines at home. We can feel better about ourselves by contributing to the clean-up of our polluted planet because we care enough to compost and be active in the construction and care of biofilters. The shape of the biofilters depends on the shape of the box or cage or fabric the wood chips are myceliated in. These forms can be grown to function as building materials, furniture and there are many uses of myceliated substrates that have not been discovered yet. These methods will help educate and inspire citizens of the Trinity River Basin to participate in improving water and soil quality as to protect our health.

Partners and Stakeholders

Water Is Alive. A Texas non-profit corporation seeking to establish a multifaceted and ongoing community based bioremediation project to clean the waters of the Trinity River Basin and other waters of the world.

Groundwork Dallas is an environmental non-profit whose mission is to regenerate, sustain, and improve the Dallas Elm Fork Greenbelt and Great Trinity Forest by developing community-based partnerships that educate and empower people, businesses, and organizations to promote environmental stewardship. This mission is carried on by monitoring the water quality in this location along Joe's Creek. Groundwork Dallas has also organized volunteers to clean up the large household debris in the creek. They are currently active in encouraging local business to pick up litter along the creek.

Dallas Zoo, also considering a permit request to participate in the Trinity River Bioremediation Pilot Project for the creek running through the zoo. Benjamin Jones, the Senior Director of Conservation is also a member of the Board of Directors of Groundwork Dallas.

Potential stakeholders:

City of Dallas. Chris Morris is from the Storm Water Management Water Quality Team and coordinates water quality monitoring and water sampling for the Texas Stream Team.

Dallas Water Utilities: Kevin Hurley and Nusrat Munrir. They could help with chemical analysis of the site. The Joe's Creek location is currently only monitored for bacteria and other values, but not for chemical contamination.

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Potential funding sources are: Rotary National fish and wildlife, Urban 5 Star Waters Grant (due in January), Meadows Foundation (Texas Stream Team), Cynthia and John Mitchel Foundation, Harold Simmons Park, and The Trinity Parks Conservancy.

Consultant Howard Sprouse, Founder of The Remediators Incorporated is known for his contribution to the remediation industry as an early commercializer of mycoremediation. A former research consultant to the Pacific Northwest National Laboratory and well known speaker at Washington based universities on environmental cleanup and restoration, Howard is involved in a variety of environmentally based projects in the Pacific Northwest and Alaska. Howard has proven mycoremediation and phytoremediation methods with projects for the U.S. Navy and EPA Region 9.

Other potential stakeholders: TMDL I-Plan stakeholders, parks and developments along the Trinity River, area universities, Texas A&M University, The Dallas County Community College District, area Independent School Districts, local businesses and corporations, environmental groups, and private individuals and foundations working toward social and environmental change.

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Appendix

1) [“Effective Microorganisms \(EM\) Technology for Water Quality Restoration and Potential for Sustainable Water Resources and Management”](#)2) [Bioremediation and Tolerance of Humans to Heavy Metals through Microbial Processes: a Potential Role for Probiotics?](#)

“Halttunen et al. (39) showed that *Lactobacillus* and *Bifidobacterium* species can bind lead and cadmium in solution. They observed a rapid binding phenomenon across all studied species, with the largest amounts of both lead and cadmium bound within 5 min to 1 h (39, 106). Most importantly, the metal remained strongly sequestered by the cell and did not disassociate, even 48 h after testing.

The rapid absorption of the metals from solution indicates cell surface binding. Ibrahim et al. (45) also compared the abilities of *Lactobacillus rhamnosus* LC-705 and *Propionibacterium freudenreichii* to bind and absorb lead and cadmium in solution. They reported a rapid effect of the bacteria to bind maximal amounts of metal after only 1 h of exposure; this was influenced by pH, as in *B. subtilis* and *E. coli* (52).”

“Lactobacilli and potentially other bacterial types used in the food industry or as probiotics are ideal organisms to use as an adjunct tool to prevent/reduce heavy-metal toxicity and prevent absorption of metals into the human body. Lactobacilli have a strong track record of safe application in the food industry and as probiotics, and they have the ability to bind and sequester metals. The use of lactobacilli as a tool to reduce the burden of metal exposure is advantageous, as it can be applied almost immediately; there is no requirement for expensive technology or infrastructure setup, as fermentation capability is either already available or easily set up.”

3) [“Electron donors for biological sulfate reduction”](#)4) https://en.wikipedia.org/wiki/Electron_donor5) [List of high fructose content fruits](#)6) [Microbial electron transport and energy conservation](#) – the foundation for optimizing bioelectrochemical systems

7) Enhanced antibacterial and anti-biofilm activities of silver nanoparticles against Gram-negative and Gram-positive bacteria

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4127560/>

8) [Silver enhances antibiotic activity against gram-negative bacteria.](#)

9) Colloidal silver complex as an alternative to sulphur dioxide in winemaking

<https://www.sciencedirect.com/science/article/pii/S095671351100243X>

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10) Silver nanoparticles as antimicrobial agent: a case study on *E. coli* as a model for Gram-negative bacteria

<https://www.sciencedirect.com/science/article/pii/S0021979704001638>

11) Probiotics Reduce Enterohemorrhagic *Escherichia coli* O157:H7- and Enteropathogenic *E. coli* O127:H6-Induced Changes in Polarized T84 Epithelial Cell Monolayers by Reducing Bacterial Adhesion and Cytoskeletal Rearrangements

<https://iai.asm.org/content/73/8/5183>

“The adhesion of lactobacilli to receptors on surface epithelial cells could compete for binding sites with enteric pathogens. It is also possible that lactic acid-producing bacteria reduce both the viability and the virulence properties of *E. coli* O157:H7 (6) and other diarrheagenic *E. coli* (19). In this study, we have demonstrated that these probiotics affect the virulence of *E. coli* O157:H7 and *E. coli* E2348/69 by factors other than their ability to reduce the pH or produce lactic acid. The ability of these probiotic strains to attenuate the pathogen-induced drop in TER at neutral pH values strongly supports this contention. Several previous reports indicated that factors other than lactic acid produced by probiotics, including bacteriocins, proteinases, peroxides, and exopolysaccharides, could exert antibacterial effects (3, 32).”

“Lactobacilli inhibit adhesion of *E. coli* O157:H7 strain CL-56 and EPEC strain E2348/69 (O127:H7) to epithelial cells.”

12) The water purification activity of the Nihonbashi River and Kanda River led to purification of the moat

<https://emrojapan.com/case/detail/117>

13) Effective Microorganisms® - An Earth Saving Revolution

<https://www.teraganix.com/Effective-Microorganisms-History-and-Availability-s/194.htm>

14) “The Technology Of Effective Microorganisms – Case Studies of Application”

<http://www.futuretechtoday.com/em/sang.htm>

15) “Effective microbial consortia to treat wastewater on site”

<http://www.chemijournal.com/archives/2018/vol6issue3/PartBA/6-4-166-468.pdf>

16) “Phytoremediation of Domestic Wastewater for Reducing Populations of *Escherichia Coli* and MS-2 Coliphage”

<https://www.tandfonline.com/doi/abs/10.1080/09593330.2000.9618954>

16a) Native to Texas: Cattails <https://www.foragingtexas.com/2012/09/cattails.html>

<https://www.fs.fed.us/database/feis/plants/graminoid/typlat/all.html#MANAGEMENT%20CONSIDERATIONS>

“VALUE FOR REHABILITATION OF DISTURBED SITES:

Broadleaf cattail's high wildlife value, potential for erosion control, and tolerance of heavy metals makes it desirable in reclamation or revegetation efforts [176]. Studies found broadleaf cattail grew on "industrially degraded habitats" with heavy metals and high acidity

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in western Pennsylvania and in Ontario [150]. Broadleaf cattail also dominated slime ponds 3 years after phosphate mining was discontinued on Florida's central peninsula [17].”

16b) Iris species

<https://www.wildflower.org/expert/show.php?id=1771>

“There are 26 irises native to North America in our Native Plant Database. Of these, only 4 were shown to be found in Texas. Most of them seemed to favor the West Coast, or cool, wet areas. The four irises tough enough to grow in Texas are [Iris brevicaulis \(zigzag iris\)](#), [Iris fulva \(copper iris\)](#), [Iris hexagona \(Dixie iris\)](#), and [Iris virginica \(Virginia iris\)](#).”

17) Principles of Bioremediation

<https://www.nap.edu/read/2131/chapter/4#21>

18) “Plants and phytoremediation”

<https://www.envirosurvey.com/plants-and-phytoremediation/h>

19) “The Use of Stropharia rugosoannulata Mycelium for the Mycofiltration of Motor Oil in Water”

<https://www.lcps.org/cms/lib/VA01000195/Centricity/Domain/27/1400%20Environmental%20Engineering.pdf>

LCPS RSEF OFFICIAL ABSTRACT - Wonkyung Bae, Alanna Hill 2019

Surface runoff of motor oil into surrounding aquatic environments is a growing issue. While traditional methods such as booms and skimmers are often used in cases of large oil spills, little has been done to remediate cases of smaller-scale oil contamination. Mycofiltration is the use of fungal mycelium combined with a substrate, contained in a breathable covering to filter water. Mycofiltration has been most prominently used to remediate bacterially contaminated stormwater. Studies have proven the ability of the fungal species *Pleurotus ostreatus* to remediate oil in water and *Stropharia rugosoannulata* to remediate oil soil, but not water. This research will compare the efficacy of two mushroom species, *Pleurotus ostreatus*, and *Stropharia rugosoannulata*, to filter oil in water. Mycelium mycofilters were constructed of straw inoculated with *S. rugosoannulata* and *P. ostreatus* encased in linen and compared to non-mycelium inoculated filters. Filters were inoculated for two weeks then added to motor-oil contaminated water for four weeks. The efficacy of mycofilters to remediate the water quality was determined using a toxicology study and percent reduction in oil. Mycelium filters improved *Danio rerio* embryo hatchability rates when compared to non-mycelium filters. Filtered water from *Pleurotus ostreatus* and *Stropharia rugosoannulata* exhibited higher hatchability (6.67%), when compared to non-mycelium filters (0%) at 7 days post fertilization, indicating that both mycelium species improved oil-contaminated water quality. Remaining oil mass will be found using the hydrocarbon-binding polymer, EnviroBond. Mycofilters have the potential to be applied as an eco-friendly method of remediating oil in aquatic environments. Stamets, P., Beutel, M., Taylor, A., Flatt, A., Wolff, M., Brownson, K, (2013). Mycofiltration biotechnology for Pathogen management. Taylor, A., Wetzel, J., Mudrock, E., Cameron, J., King, K., Davis, J., & McIntyre, J. (n.d.). Engineering Analysis of Plant and Fungal Contributions to Bioretention Performance Earth Resources Technologies, under Contract to NOAA, National Marine Fisheries Service. Water, 10. doi:10.3390/w10091226 Thomas, S., Becker, P., Pinza, M.R.,,

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J.Q. Word, 1998. "Mycoremediation of Aged Petroleum Hydrocarbon Contaminants in Soil."
NASA no. 19990031874.

20) Native Grassland Restoration in the Middle Trinity River Basin

<https://agrillifeextension.tamu.edu/library/ranching/native-grassland-restoration-in-the-middle-trinity-river-basin/>

"Even though native grasslands (also known as tallgrass prairies and savannahs) are characteristic of the ecoregions present within the middle Trinity River basin, today true native grassland is believed to occupy only 1% of the historical land cover (Allen, 2007; Table 1)... Once wide-ranging, native grasslands are highly efficient in providing ecosystem services that benefit humans. These services include flood retention, erosion control, livestock forage, wildlife habitat, water filtration, and soil formation. Native grasslands are important to watershed protection due to the extensive root systems that increase the water holding capacity of the soil, reduce erosion by slowing runoff, and promote groundwater recharge by allowing water to infiltrate the soil more efficiently than many introduced grasses, such as bermudagrass (*Cynodon dactylon*; Thurow et al. 1986; Schuster, 2001; Teague et al. 2011)." Source: "Native Grassland Restoration in the Middle Trinity River Basin"

21)"MYCOFILTRATION BIOTECHNOLOGY FOR PATHOGEN MANAGEMENT" 2013 Fungi

Perfecti, LLC Paul Stamets, Marc Beutel, PhD, Alex Taylor, Alicia Flatt, Morgan Wolff, Katie Brownson:

https://assets.fungiperfecti.net/pdf/articles/Fungi_Perfecti_Phase_I_Report.pdf

22)"Filters that contain fungi with powerful antibiotic properties can help remove harmful bacteria from water.":

<https://www.yesmagazine.org/planet/portland-s-e-coli-scary-how-mushrooms-could-have-helped-prevent-it>

23)"Pollan finally finds out that it was the bacteria produced by the wood itself that kept her original cheese E. coli-free.":

<https://www.slowfood.com/cheese-biodiversity-war-bacteria/>

24) Application of EM•1® (Effective Microorganisms®) for Treatment of Diarrheic

Disease in Piglets in Vietnam:

<https://www.teraganix.com/category-s/1189.htm>

Sample Data from Dallas Water and Utilities

AgrSubject: RE: Sample data

Date: 2019-06-19 04:44

From: "Pasley, Jonathan R" <jonathan.pasley@dallascityhall.com>

To: "virginia@waterisalive.org" <virginia@waterisalive.org>

Good Morning Ms. Kilgore,

Attached you will find the bacteria and field results for the 3 sampling events we conducted. Samples were collected to track results between dry and wet periods. The results are as follows:

EXHIBIT A

April 5th 2019

Samples taken at Gas Monkey location

E. Coli: 2,851 MPN/100mL

April 8th 2019

Same location (post rain event the night before)

E. Coli: 15,531 MPN/100mL

April 22nd 2019

3 locations

2551 Lombardy (E. Coli: 256 MPN/100mL)

Gas Monkey (E. Coli: 134 MPN/100mL)

2395 Stemmons Trail (E. Coli: 327 MPN/100mL)

As of right now, this is all the information we have for this location.

Hopefully this gives you something to start with.

Regards,

JON PASLEY

_ Environmental Supervisor – WET Team _

CITY OF DALLAS | DALLASCITYNEWS.NET

Dallas Water Utilities

Sample data from Groundwork Dallas on behalf of the Texas Stream Team

2019-06-26 12:40

Hi Virginia,

I am attaching all the data sheets we have for Joe's creek for your reference. Below you will find the e.coli and total coliform data for easier reference:

Station ID: 81460 - Joe's Creek @Justice Way

08/28/2018

- E.coli Average: 158 cfu/100mL
- Total Coliform: 12,543 cfu/100mL

09/27/2018

- E.coli Average: 1,698 cfu/100mL
- Total Coliform: N/A

04/23/2019

- E.coli Average: 5,960 cfu/100mL
- Total Coliform: 46,775 cfu/100mL

05/17/2019

- E.coli Average: 421.5 cfu/100mL
- Total Coliform: 6,900.5 cfu/100mL

6/26/2019

- E.coli Average: 159.5 cfu/100mL
- Total Coliform: 3,183 cfu/100mL

Hope this is helpful!

Liomari Diaz-Martinez, LEED Green Associate

EXHIBIT A

Green Team Program Coordinator
Groundwork Dallas | GroundworkDallas.org
3001 Quebec, STE 201
Dallas, Texas 75247
C: 817.983.8271
O: 469.859.4705
Liomari@GroundworkDallas.org

13 data sample sheets are available from The Texas Stream Team on monitoring at the Gas Monkey Live location and will be included in the permit request.

Texas Parks and Wildlife Department Comments on concerns about non-native species

Below is the response from our TPWD permit coordinator Monica McGarity who is very knowledgeable about non-native species. From her summary, there is no regulation or permit that pertains to use the materials you suggested. Thus the decision is yours as to whether you use the non-native species or not. However since they are non-native species, it is suggested that more work be done to determine a native species that would work just as good for the biofilters.

Thanks.

Raphael Brock
Texas Parks and Wildlife Department
District Fisheries Biologist
6200 Hatchery Rd
Fort Worth, TX 76114
817-732-0761 - Office
817-233-5792 - Cell

-----Original Message-----

From: Monica McGarity
Sent: Thursday, June 20, 2019 12:21 PM
To: Raphael Brock <Raphael.Brock@tpwd.texas.gov>; Brian VanZee <Brian.VanZee@tpwd.texas.gov>; Cynthia Fox <Cynthia.Fox@tpwd.texas.gov>
Cc: IF permits <IFpermits@tpwd.texas.gov>
Subject: RE: Trinity River Bioremediation Pilot Plan

Thanks for sending this to me--I'm very familiar with all of our TPWD regulations as well as federal AIS laws and am happy to help.

Fungi aren't regulated under TPWD exotic species regulations, as those apply only to fish/shellfish/aquatic plants. The only federal permits for non-native species that I'm aware of that could apply--as these aren't animals--would be USDA-APHIS PPQ permits for import or interstate transit of organisms. Their best course of action to determine whether such a permit would be needed would be to contact APHIS directly--they do have an online system where folks can search for FAQ answers and submit new questions.

<https://www.usda.gov/ask-expert>

Fungi also aren't be regulated under TPWD regulations pertaining to introduction into public waters as those also apply only to fish/shellfish/aquatic plants.

EXHIBIT A

All of the invasive fungi I'm familiar with are pathogens--and of course those are the most high-profile non-native fungi. However, that's not to say that this isn't at all a concern. Fragments of mycelia could break off and escape and potentially invade natural habitats. Edible fungi have been introduced in some areas and escaped into others and, while I'm not aware of any documented impacts, it is hypothesized that introgression with native species like the Texas Pleuronotus could reduce their genetic variation and fitness.

Given that there is a native, closely related fungus species, experimenting with the use of that species FIRST seems to be the most ecologically responsible course of action. However, doing so isn't a requirement under our regulations.

Regards,

Monica E. McGarrity

Senior Scientist for Aquatic Invasive Species Management Inland Fisheries Division – Habitat Conservation Branch Texas Parks and Wildlife Department
4200 Smith School Rd., Austin, TX 78744
Cell: 512-552-3465

-----Original Message-----

From: Raphael Brock

Sent: Thursday, June 20, 2019 10:27 AM

To: Brian VanZee <Brian.VanZee@tpwd.texas.gov>; Cynthia Fox <Cynthia.Fox@tpwd.texas.gov>

Cc: Monica McGarrity <Monica.Mcgarrity@tpwd.texas.gov>

Subject: FW: Trinity River Bioremediation Pilot Plan

I received the information below from this group last week after a lengthy telephone conversation. I haven't reviewed or commented on the proposal yet but they were planning on using biofilters composed of organic material like wood chips and some species of mushrooms to lower E.coli levels of Joe's Creek which is a tributary of the Trinity River near Bachman Lake. She is basically wanting input in regards to making sure the materials she is using is appropriate and if she needs any permits for the materials she will be using from TPWD. The species of mushrooms she is using are non-native. She states this in the "Concerns" sections below (Concerns: The use of non-native species. Various species of mushrooms, Pleurotus and Stropharia, will initially be applied, these are not native to Texas. Indigenous species in the Pleurotus exist in Texas and will be collected and attempts to train these local species to metabolize typical contaminants found in the Trinity River will be made.)

I have included Monica in the email also as she has more knowledge of any permits she will need from us.

Raphael Brock
Texas Parks and Wildlife Department
District Fisheries Biologist
817-732-0761 - Office

EXHIBIT A

817-233-5792 - Cell

Texas Commission on Environmental Quality Comments

Thank you for reminding me about the data. I knew I was forgetting something. Unfortunately, TCEQ does not have any surface water quality monitoring data associated with Joes Creek. Most data we have is for the Elm Fork Trinity River Below Lewisville Lake (Segment 0822).

Please visit the TCEQ Surface Water Quality Viewer <https://www.tceq.texas.gov/gis/segments-viewer> for information.

Dania

2019-06-20 03:25, Dania Grundmann wrote:

Kilgore,

On

Ms.

I enjoyed talking to you earlier this week about the bioremediation project on Joes Creek. Although I cannot provide too much assistance regarding your project we do have some ongoing projects that you may be of interest to you and our organization.

TCEQ works with NCTCOG to implement the bacteria TMDLs in the Greater Trinity River region. The web page for the group is located at <https://www.nctcog.org/envir/natural-resources/tmdl>

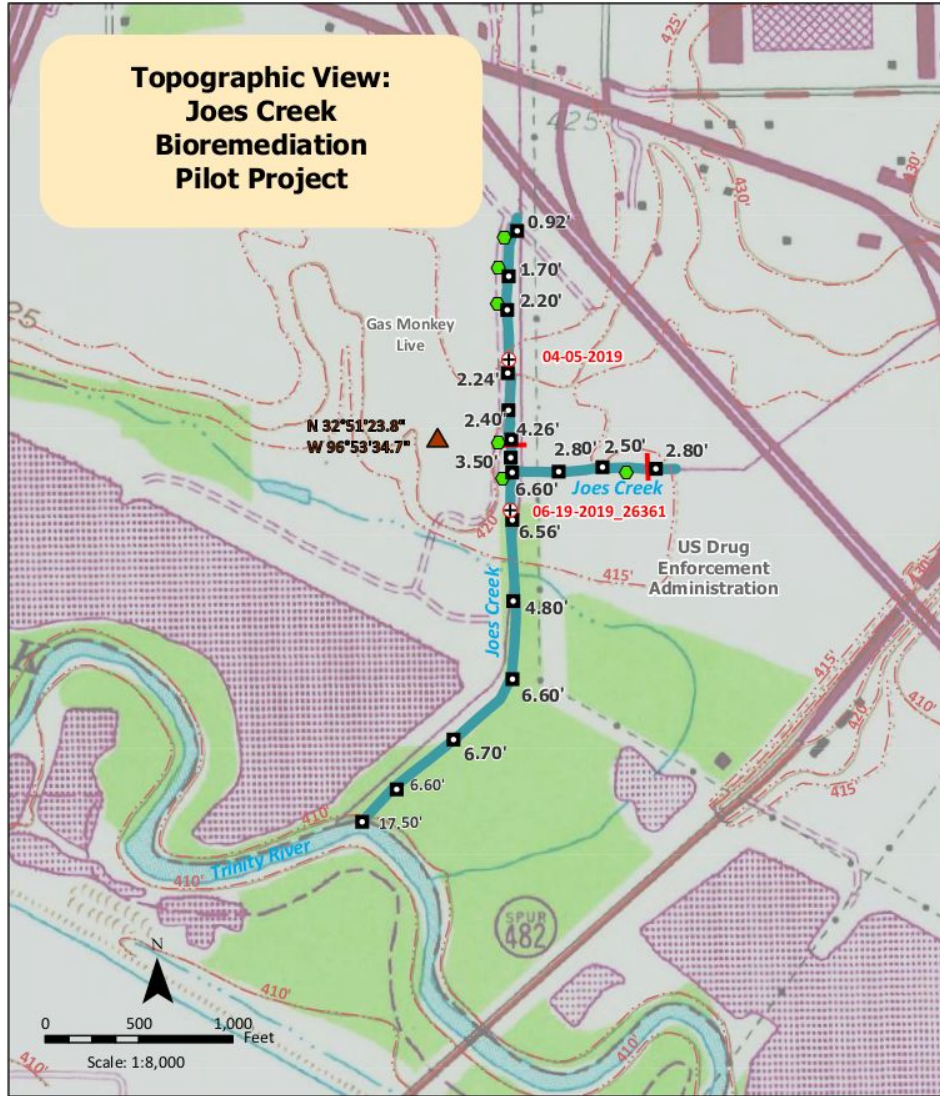
TCEQ also works with NCTCOG to hold semi-annual meetings to discuss approaches like WPPs or TMDLs to address bacteria issues in the Upper Trinity Basin. This web page is located at <https://www.nctcog.org/envir/natural-resources/tmdl> and a meeting is coming up in August. You will find meeting presentations and other information related to WPPs in the region that you may find helpful.

Best Regards,

Dania Grundmann | Project Manager, TMDL Program
Texas Commission on Environmental Quality
Quality Planning Division

Water

EXHIBIT A



WATER IS ALIVE

This product is for informational purposes and may not have been prepared for or be suitable for legal, engineering, or surveying purposes. Portions of the information are derived from on the ground survey conducted on July 28th, 2019 and represent only the approximate relative location of features.
Date Exported: 10/6/2019

Data Sources

Base Map: USGS Irving, TX 1309 (1:80,000)

Contours: Strategic Mapping Program (StratMap), StratMap Project, D99842-01, Web, 2019-10-06

Survey Data: Garmin GPS (Historical), Philadelphia Rd (Water Depth), Date of Survey: July 28th, 2019

Spatial Reference

PCS: NAD 1983 2011 StatePlane Texas North Central FIPS 4202 PLUS
Projection: Lambert Conformal Conic

- Storm Water Drains
- Water Quality Samples
- Water Depth Samples (6.70' - Water Depth)
- Sewer Pipeline Crossings
- Contours (5' Intervals)
- Joes Creek

EXHIBIT A

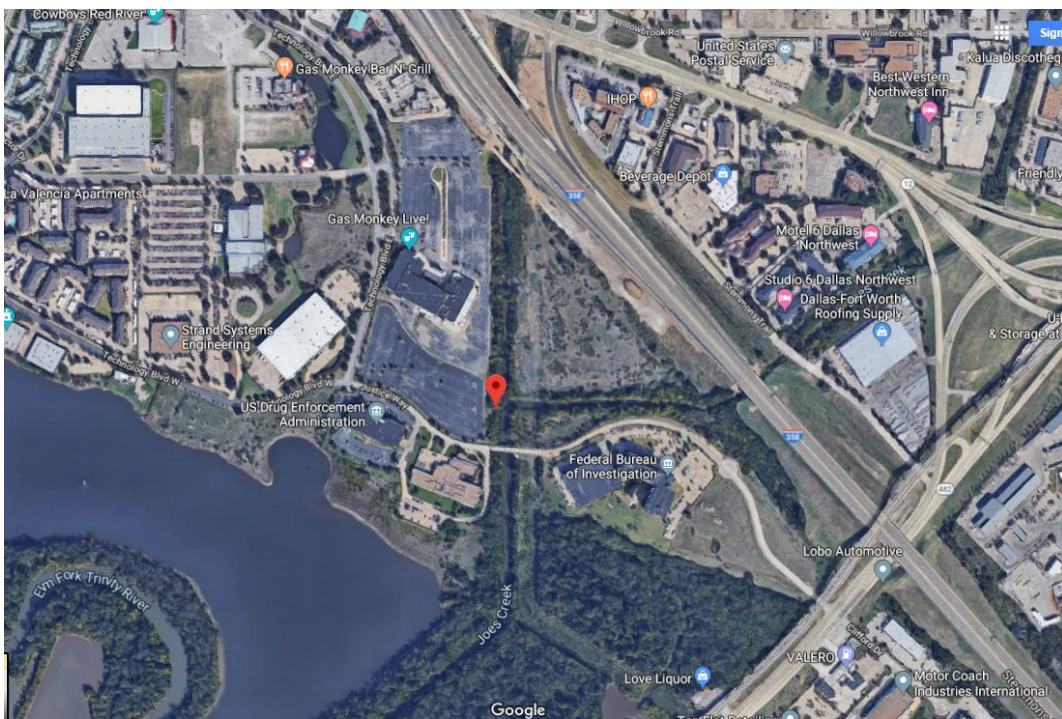
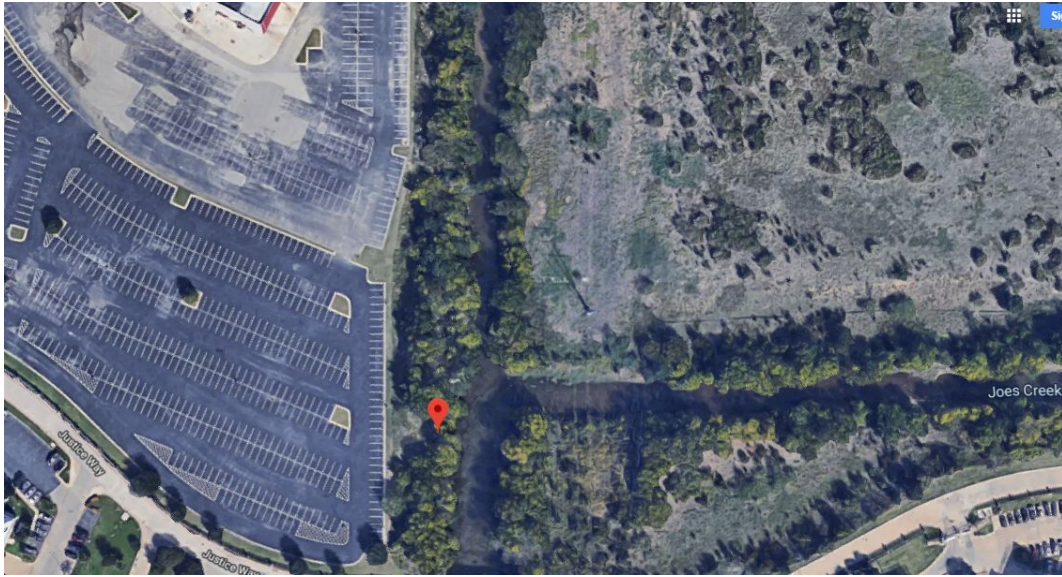


EXHIBIT A

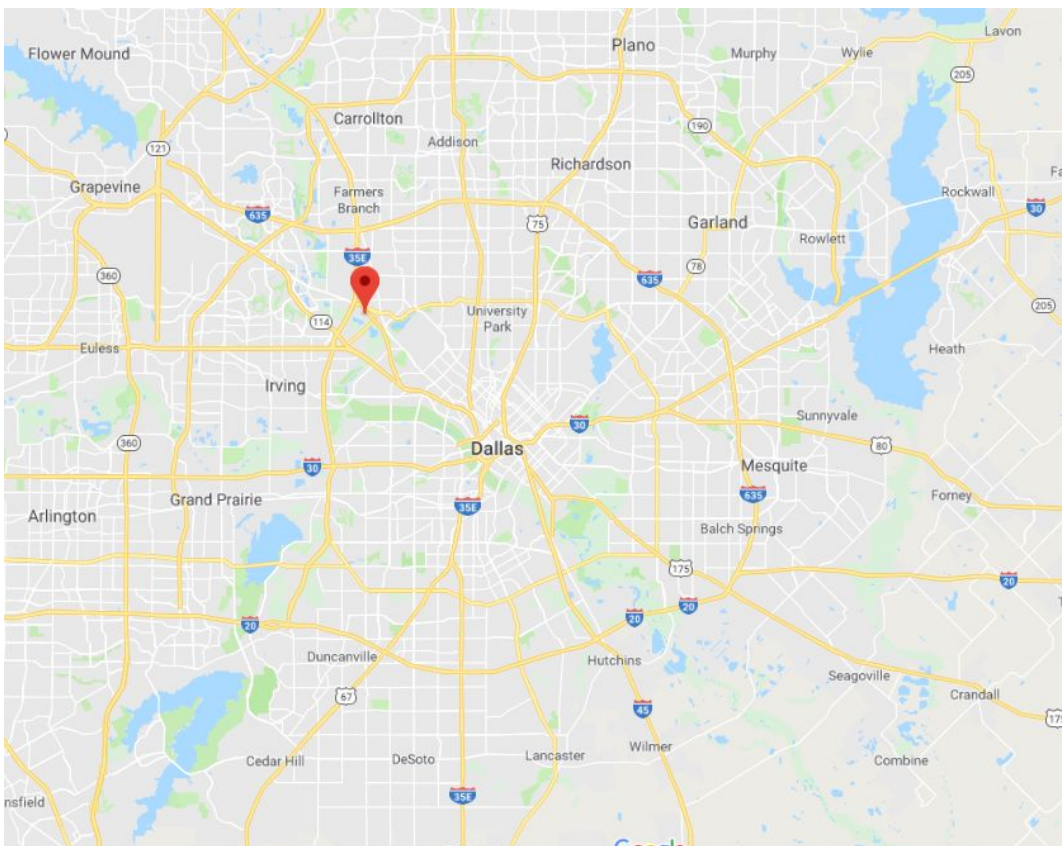
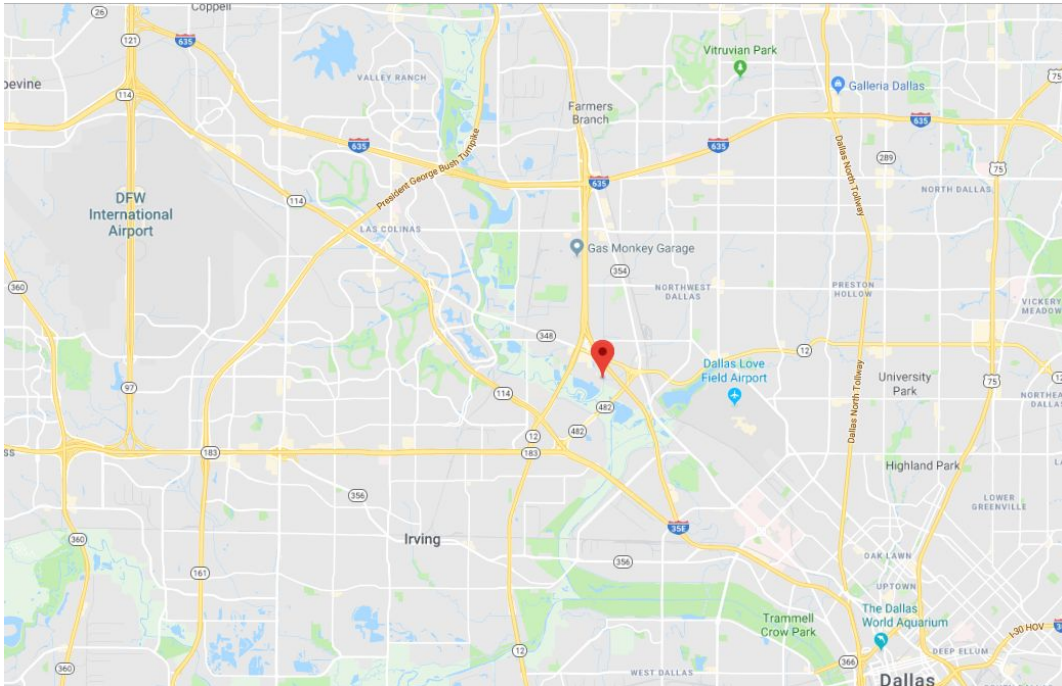


EXHIBIT A

Commercial Account #0064980000000100

[Location](#) [Owner](#) [Legal Desc](#) [Value](#) [Improvements](#) [Land](#) [Exemptions](#) [Estimated Taxes](#) [Building Footprint](#) [History](#)

Location (Current 2020)
 Address: 2301 N STEMMONS FWY
 Market Area: 0
 Mapsco: 32-D (DALLAS)
[DCAD Property Map](#)
[View Photo](#)

Legal Desc (Current 2020)
 1: BLK 6498
 2: SPLIT 1 ACS 11.049
 3: DEAD ENDS INTO NATURE CENTER
 4: VOL5415/243 DD09221960 CO-DC
 5: 6498 000 000 2DA6498 000
 Deed Transfer Date: 11/11/1900

Value	
2019 Certified Values	
Improvement:	N/A
Land:	+ N/A
Market Value:	=N/A
Revaluation Year:	N/A
Previous Revaluation Year:	N/A

[Electronic Documents \(ENS\)](#)
[Print Homestead Exemption Form](#)

Owner (Current 2020)
 DALLAS CITY OF
 1500 MARILLA ST
 DALLAS, TEXAS 752016318

Multi-Owner (Current 2020)

Owner Name	Ownership %
DALLAS CITY OF	100%

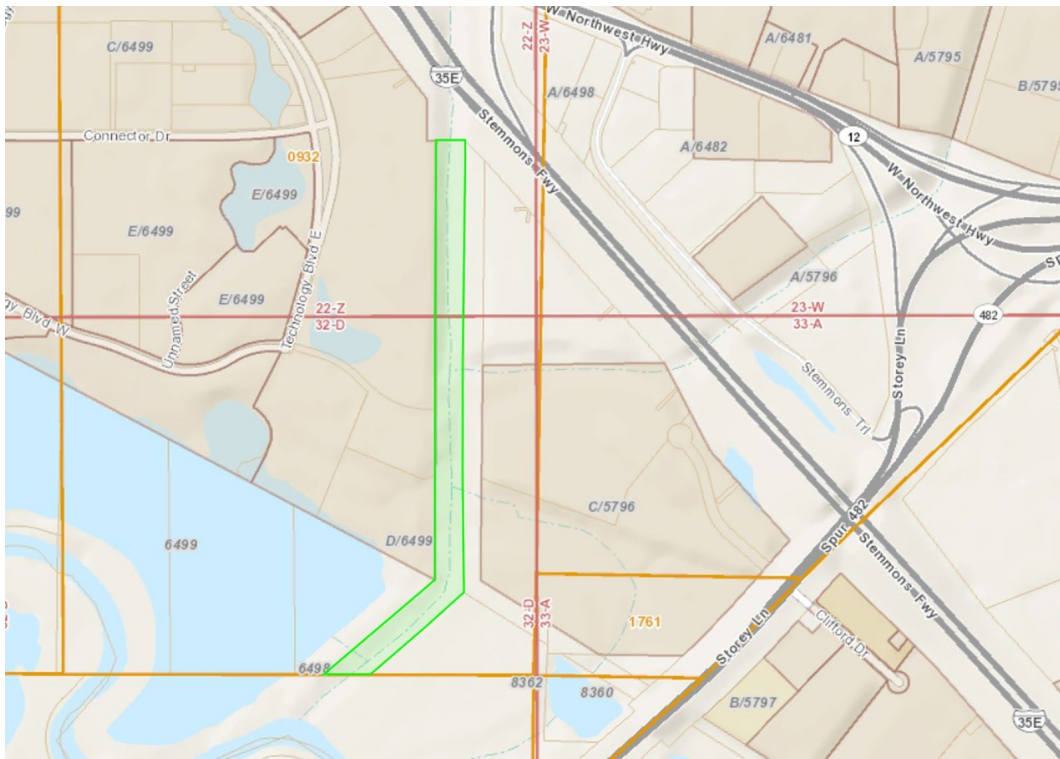
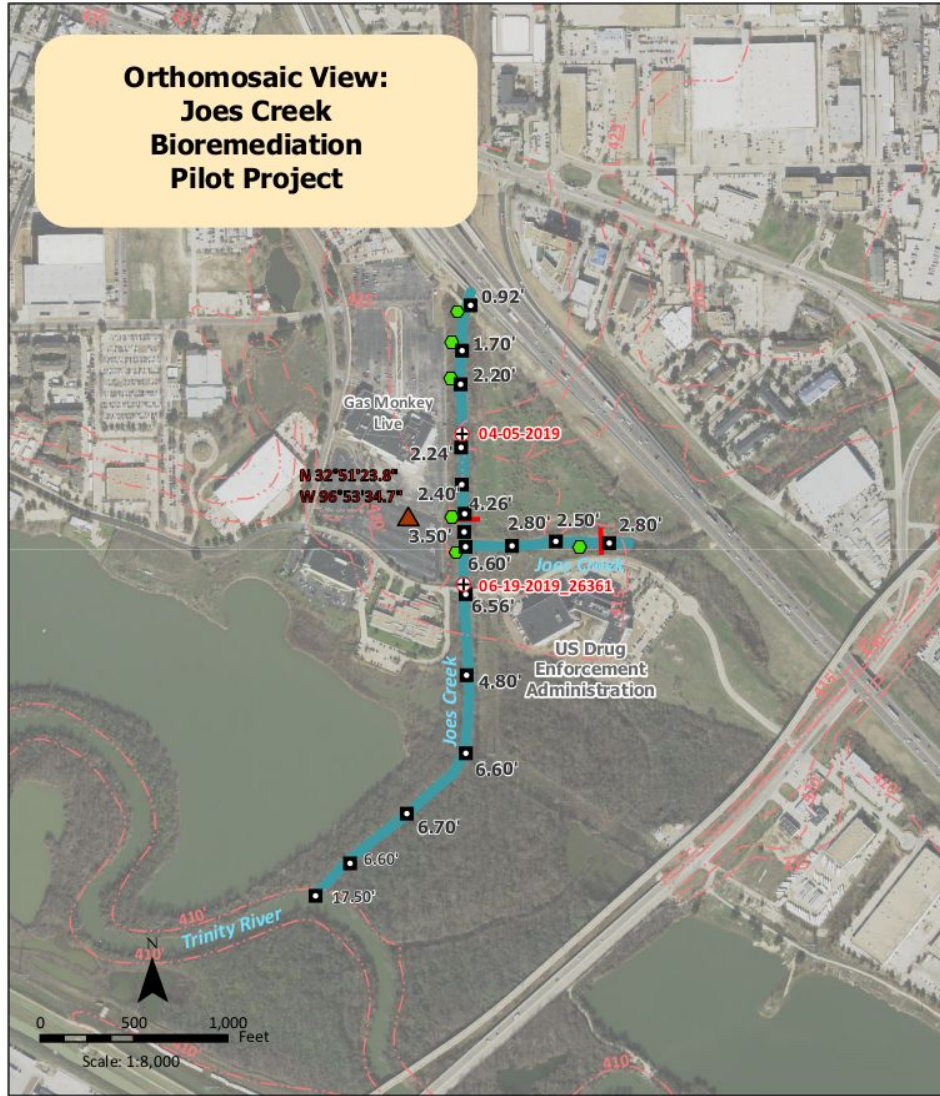


EXHIBIT A



WATER IS ALIVE

This product is for informational purposes and may not have been prepared for or be suitable for legal, engineering, or surveying purposes. Portions of the information are derived from on the ground survey conducted on July 28th, 2019 and represents only the approximate relative location of features.
Date Exported: 10/6/2019

Data Sources

Base map: Texas TOP Imagery 2015, IrvingNW
 Contours: Strategic Mapping Program (StratMap), StratMap Hyps, 1998-02-01, Wbts, 2019-04-04
 Survey Data: Garmin GPS (Horizontal), PhiladelphiA Flood (Water Depth), Date of Survey July 28th, 2019

Spatial Reference
 PCS: NAD 1983 2011 StatePlane Texas North Central FIPS 4202 FUS
 Projection: Lambert Conformal Conic

- Storm Water Drains
- Water Quality Samples
- Water Depth Samples (6.70' - Water Depth)
- Sewer Pipeline Crossings
- Contours (5' Intervals)
- Joes Creek

EXHIBIT A

YouTube address to the video of the Joe's Creek Bioremediation Pilot Plan Survey:

https://www.youtube.com/watch?v=ifK1OsE_rqI&feature=youtu.be

Thank you for your time. We count on your support. Water Is Alive has an accompanying curriculum for schools and interested groups to learn how to make these bio-filters. It is a good time to practice sustainability and clean up our waters. And teach others how to do the same.

Health and Happiness,

Virginia Kilgore
Founder of Water Is Alive
virginia@waterisalive.org

EXHIBIT

B

EXHIBIT B

Insurance Requirements**SECTION A.**

CONTRACTOR shall procure, pay for and maintain the following insurance written by companies approved by the State of Texas and acceptable to CITY. The insurance shall be evidenced by delivery to the CITY, at the address shown in **SECTION C** (a), certificates of insurance executed by the insurer or its authorized agent stating coverages, limits, expiration dates and compliance with all applicable required provisions. The CITY shall be named as an additional insured by endorsement to the policy and thus will be entitled to notice of cancellation of the policy in accordance with Section 1811 of the Texas Insurance Code. Upon request, the CITY shall be entitled to receive without expense, copies of the policies and all endorsements. CITY HAS NO DUTY TO PAY CONTRACTOR UNTIL SUCH CERTIFICATE HAS BEEN DELIVERED TO THE CITY.

SECTION B.

The CITY reserves the right to review the insurance requirements of this section during the effective period of the services or work performed by CONTRACTOR and to modify insurance coverages and their limits when deemed necessary and prudent by City's Office of Risk Management based upon changes in statutory law, court decisions or other relevant factors. The CONTRACTOR shall acquire and ensure execution of requests for deletions, revisions or modifications of particular policy terms, conditions, limitations, or exclusions (except where policy provisions are established by law or regulation binding upon either CITY or CONTRACTOR).

SECTION C. REQUIRED PROVISIONS

The CONTRACTOR agrees, with respect to the required insurance as documented below, all certificate(s) of insurance will contain and state, in writing, the following required provisions:

- a) The certificate of insurance or policy and endorsements shall be evidenced by delivery to:
 - (i) Dallas Water Utilities, Attention: Kevin Hill, 320 E Jefferson Blvd, Dallas, 75203 and
 - (ii) Director, Office of Risk Management, 1500 Marilla, 6A-South, Dallas, Texas 75201.
- b) All certificates of insurance shall identify the service or product being provided, by including the bid number and contract or solicitation name.
- c) All certificates of insurance shall name the City of Dallas as the Certificate Holder.

SECTION D. INSURANCE COVERAGE REQUIRED

Subject to CONTRACTOR'S right to maintain reasonable deductibles, CONTRACTOR shall obtain and maintain in full force and effect for the duration of its engagement with the CITY and any extension hereof, at CONTRACTOR'S sole expense, insurance coverage in the following type(s) and amounts:

EXHIBIT B

Insurance Requirements1. **WORKERS' COMPENSATION and EMPLOYERS' LIABILITY**

Workers' Compensation within the regulations of the Texas Workers' Compensation Act. The minimum policy limits for **Employers Liability** are:

- Bodily Injury by Accident: \$100,000.00 Each Accident
- Bodily Injury by Disease: \$100,000.00 Each Employee
- Bodily Injury by Disease: \$500,000.00 Policy Limit

The policy shall include:

- a) An endorsement to waive subrogation in favor of the City of Dallas, its officers, employees and elected representatives, for bodily injury (including death) or any other loss.
- b) An endorsement to provide thirty (30) days prior written notice in the event of cancellation to the address as shown in Section C, a (i) and (ii), or in accordance with Section 1811.155 of the Texas Insurance Code, Notice of Cancellation in accordance with the Notice of Insured in the policy for cancellation due to non-payment of premium.

NOTES:

- i. If CONTRACTOR will not be providing services under the contract at a City facility, has no employees and/or is operating as a sole owner and single operator, CONTRACTOR shall provide a signed letter, with the current date, on official letterhead stating such to meet the requirement.
- ii. If CONTRACTOR is a non-subscriber or is self-insured, CONTRACTOR shall provide a copy of its Certificate of Authority to Self-Insure from the Texas Department of Insurance, Division of Workers' Compensation Self Insurance Regulation Program, evidence of alternative coverage and internal safety and injury coverage policies and procedures.

2. **BUSINESS AUTOMOBILE LIABILITY INSURANCE**

Business Automobile Liability Insurance covering owned, hired, and non-owned vehicles, with a minimum combined single limit for bodily injury (including death) and property damage limit of \$ 500,000.00 per occurrence.

The policy shall include

- a) An endorsement naming the City of Dallas and its officers, employees and elected representatives as additional insureds.
- b) An endorsement to waive of subrogation in favor of the City of Dallas, its officers and employees, for bodily injury (including death), property damage or any other loss.
- c) An endorsement to provide thirty (30) days prior written notice in the event of cancellation to the address as shown in Section C, a (i) and (ii), or in accordance with Section 1811.155 of the Texas Insurance Code, Notice of Cancellation in accordance with the Notice of Insured in the policy for cancellation due to non-payment of premium.

EXHIBIT B

Insurance Requirements

- d) Provide that CONTRACTOR'S insurance is primary insurance as respects the CITY, its officers, employees and elected representatives.

NOTE:

- i. If CONTRACTOR has no owned, hired and non-owned autos or vehicles and/or no autos or vehicles will not be used in the performance of services under the contract, CONTRACTOR shall provide a letter on official letterhead stating such to meet the requirement for owned autos.

3. **COMMERCIAL GENERAL LIABILITY INSURANCE**

Commercial General Liability Insurance including, but not limited to, Premises/Operations, Personal & Advertising Injury, Products/Completed Operations, Independent Contractors and Contractual Liability with minimum combined bodily injury (including death) and property damage limits of \$500,000.00 per occurrence, \$1,000,000.00 products/completed operations aggregate, \$1,000,000.00 general aggregate.

The policy shall include:

- a) An endorsement naming the City of Dallas and its officers, employees and elected representatives as additional insureds.
- b) An endorsement to waive subrogation in favor of the City of Dallas, its officers and employees, for bodily injury (including death), property damage or any other loss.
- c) An endorsement to provide thirty (30) days prior written notice in the event of cancellation to the address as shown in Section C, a (i) and (ii), or in accordance with Section 1811.155 of the Texas Insurance Code, Notice of Cancellation in accordance with the Notice of Insured in the policy for cancellation due to non-payment of premium.
- d) Provide that CONTRACTOR'S insurance is primary insurance as respects the CITY, its officers, employees and elected representatives.
- e) If this insurance is written on a claims-made form, coverage shall be continuous (by renewal or extended reporting period) for not less than twenty-four (24) months following completion of the contract and acceptance by the City. Coverage, including any renewals, shall have the same retroactive date as the original policy.

4. **PROFESSIONAL LIABILITY INSURANCE**

If CONTRACTOR is a licensed or certified person who renders professional services, then **Professional Liability Insurance** to provide coverage against any claim which the CONTRACTOR becomes legally obligated to pay as damages arising out of the performance of professional services caused by any negligent error, omission or act with minimum limits of \$500,000.00 per claim, \$500,000.00 annual aggregate.

EXHIBIT B

Insurance Requirements

The policy shall include:

- a) An endorsement to provide thirty (30) days prior written notice in the event of cancellation to the address as shown in Section C, a (i) and (ii), or in accordance with Section 1811.155 of the Texas Insurance Code, Notice of Cancellation in accordance with the Notice of Insured in the policy for cancellation due to non-payment of premium.
- b) If this insurance is written on a claims-made form, coverage shall be continuous (by renewal or extended reporting period) for not less than twenty-four (24) months following completion of the contract and acceptance by the City. Coverage, including any renewals, shall have the same retroactive date as the original policy

SECTION E. SUBCONTRACTING LIABILITY

(1) Without limiting any of the other obligations or liabilities of the CONTRACTOR, the CONTRACTOR shall require each Subcontractor performing work under the contract, at the Subcontractor's own expense, to maintain during the engagement with the CITY, types and limits of insurance that are appropriate for the work being performed, comply with all applicable laws and are consistent with industry standards. The Subcontractor's liability insurance shall name CONTRACTOR as an additional insured.

(2) CONTRACTOR shall obtain and monitor the certificates of insurance from each Subcontractor. CONTRACTOR must retain the certificates of insurance for the duration of the contract and shall have the responsibility of enforcing insurance requirements among its subcontractors. The CITY shall be entitled, upon request and without expense, to receive copies of these certificates.

SECTION F. CONTRACTOR LIABILITY

Approval, disapproval or failure to act by the CITY regarding any insurance supplied by CONTRACTOR or its subcontractors shall not relieve CONTRACTOR of full responsibility or liability for damages and accidents as set forth in the contract documents. Neither shall the bankruptcy, insolvency nor denial of liability by the insurance company exonerate CONTRACTOR from liability.

SECTION G. INDEMNITY

CONTRACTOR agrees to defend, indemnify and hold the CITY, its officers, agents and employees, harmless against any and all claims, lawsuits, judgments, costs and expenses for personal injury (including death), property damage or other harm for which recovery of damages is sought, suffered by any person or persons, that may arise out of or be occasioned by CONTRACTOR'S breach of any of the terms or provisions of its engagement with the CITY, or by any negligent or strictly liable act or omission of CONTRACTOR, its officers, agents, employees, or subcontractors, in CONTRACTOR'S performance under its engagement with the CITY; except that the indemnity provided for in this paragraph shall not apply to any liability resulting from the sole negligence or fault of the CITY, its officers, agents or employees and in the

EXHIBIT B

Insurance Requirements


event of joint and concurrent negligence or fault of CONTRACTOR and the CITY, responsibility and indemnity, if any, shall be apportioned comparatively in accordance with the laws of the State of Texas, without waiving any governmental immunity available to the CITY under Texas law and without waiving any defenses of the parties under Texas law. The provisions of this paragraph are solely for the benefit of the parties hereto and are not intended to create or grant any rights, contractual or otherwise, to any other person or entity.

CONTRACTOR (COMPANY NAME): _____

BY: _____
Signature of Authorized Representative



NAME: _____
Name of Authorized Representative (please print)

DATE: _____

 CITY OF DALLAS	<h2 style="margin: 0;">ADMINISTRATIVE ACTION</h2> <p style="margin: 0;">See Administrative Directive 4-05 for additional guidelines and routing. File the approved form and all necessary documentation with the City Secretary's Office to receive an official file stamp.</p>						ADMINISTRATIVE ACTION 215873 EFFECTIVE DATE 8/1/2021 7/12/21																																								
	1. Place an "X" in the appropriate box for the approval of:																																														
	<input type="checkbox"/> a. Contracts of \$70,000 or less resulting from competitive bid or formal proposal process, including service procurements, through interlocal or cooperative agreements. <input type="checkbox"/> b. Amendments to competitively bid or formal proposal contracts: \$50,000 or less (may not increase original contract price by more than 25%). <input type="checkbox"/> c. Professional / Personal / Planning / Other Service contracts: \$50,000 or less, per City Code Sec. 2-34. <input type="checkbox"/> d. Amendments to non-bid contracts: \$50,000 or less, per City Code Sec. 2-34. <input type="checkbox"/> e. WRR-FM expenditures: \$50,000 or less per City Code Sec. 2-79(C) of the City Code. <input checked="" type="checkbox"/> f. Other Services (explain on attachment; for ratifications the Justification Form must be attached): NOTE: Minor services and/or repairs not exceeding \$3,000 and which do not require a contract should be processed by requisition.																																														
2. Is this an amendment to an existing construction contract? If yes, complete an Administrative Change Order.						<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No																																									
3. Any Administrative Actions to this vendor in the last 12 months? If yes, attach copy of AAs within last 12 months.						<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No																																									
4. Is Form 1295 – Certificate of Interested Parties required to comply with House Bill 1295 attached (if applicable)?						<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No																																									
Vendor Name:		Water is Alive, Inc.				Vendor No.		VC22272																																							
Subject:		Granting a temporary license to use a portion of Joe's Creek for a bioremediation project.																																													
Lead Dept:		DWU																																													
Action Requested:		Trinity River Bioremediation Pilot Plan Project Description Using 3 methods of bioremediation adapted by Water Is Alive, we propose to work with Groundwork Dallas, area schools and other potential stakeholders to bioremediate present e coli threats while addressing other contamination issues in Joe's Creek, a tributary to the Elm Fork of the Trinity River																																													
		Contract Number:		SDM-2021-00017024		Contract Term:		8/1/2021 to 8/1/2024																																							
Background:		goals are to: ● Improve the water quality in Joe's Creek. ● Raise awareness regarding contamination in the Trinity River. ● Help restore and improve the natural ecology and bioremediation capabilities of the Trinity River Basin. ● Equip students, businesses and individuals with the materials, methods and recipes needed to grow biofilters that will mitigate and metabolize contamination in water and soil. There is no cost associated with this project.																																													
Funding:		<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>FUND</th> <th>DEPT</th> <th>UNIT</th> <th>ACTV</th> <th>OBJ</th> <th>PROGRAM</th> <th>ENCUMBRANCE TYPE and NUMBER</th> <th>AMOUNT</th> </tr> </thead> <tbody> <tr> <td>n/a</td> <td>n/a</td> <td>n/a</td> <td>n/a</td> <td>n/a</td> <td>n/a</td> <td>- n/a</td> <td>0</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>-</td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>-</td> <td></td> </tr> <tr> <td colspan="6">Financing:</td> <td>TOTAL:</td> <td>0</td> </tr> </tbody> </table>						FUND	DEPT	UNIT	ACTV	OBJ	PROGRAM	ENCUMBRANCE TYPE and NUMBER	AMOUNT	n/a	n/a	n/a	n/a	n/a	n/a	- n/a	0							-								-		Financing:						TOTAL:	0
FUND	DEPT	UNIT	ACTV	OBJ	PROGRAM	ENCUMBRANCE TYPE and NUMBER	AMOUNT																																								
n/a	n/a	n/a	n/a	n/a	n/a	- n/a	0																																								
						-																																									
						-																																									
Financing:						TOTAL:	0																																								
Contract Amendment Information:		Supplemental Agreement No.	Base CR/AA No.	Base Contract Date	Base Contract Amount	Sum of Previous Supplemental Agreements	Total Contract Amount Including this Action	Total Supp'l Agreement Percentage																																							
							\$ 0.00	%																																							

RECEIVED
 2021 JUL 16 PM 3: 15
 CITY SECRETARY
 DALLAS, TEXAS

APPROVAL: Approved as being in accordance with the budget and Chapter 2 of the Dallas City Code.

 Terry Lowery (Jul 12, 2021 10:25 CDT) By Department Director	 Michael Doss (Jul 15, 2021 15:43 CDT) Approved as to Form by City Attorney	07/15/2021 Date
	07/12/2021 By City Manager	Date