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January 17, 2022

Mr. Tim Howe
Director of Water/Wastewater
City of Seguin
P.O. Box 591
Seguin, Texas 78156-0591

RE: Groundwater / Surface Water Interconnect
Water Pipeline Project – Preliminary Engineering
Engineering Services Proposal (Revision 2.0)

Dear Mr. Howe:

TRC Engineers, Inc. (TRC) has prepared this proposal for professional engineering services for the groundwater to surface water pipeline interconnect approximately 8.0 miles long, extending from the Hwy. 123 Elevated Storage Tank, routing north along Hwy. 123 to approximately 0.70 miles north of Cordova Road, crossing beneath I-10 to connection to existing water mains on 8th Street and Guadalupe Street, as shown on the attached map.

The City budgeted a set amount of funds for this fiscal year, which are not sufficient to provide the complete engineering design. The budgeted funds are sufficient to provide the land acquisition services, which is typically the very first stage of work required, and these services will be provided by another company with a separate proposal. The funds are also sufficient to provide preliminary engineering by TRC, as described herein. When the preliminary engineering is completed and at the direction of the City, TRC will provide a second proposal for City consideration to including final design, development of construction plans and specifications, and bidding/construction administration services.

The preliminary engineering provided for this scope of work is summarized as follows with detailed descriptions below:

1. Attend design kickoff meeting with City Staff.
2. Topographical survey services.
3. Boundary surveys (as applicable) and preparation of easement field notes.
4. Geotechnical drilling, engineering and report submittal.
5. Preliminary engineering design, to Include services and submittals to the City for:
    a. Hydraulic water modeling
    b. Determination of routing conflicts including franchise utility conflicts
    c. Preliminary site routing
    d. Preliminary plan and profile sheets
    e. Attend one (1) public outreach meeting (if applicable) to discuss the proposed project

f. Preparation of opinion of probable project costs

6. Environmental and cultural services.

Note the following regarding the proposed pipeline project:

- The pipeline size is estimated to be 24" or 18" diameter but will be confirmed by TRC as part of the preliminary engineering phase.
- This project is part of the City's overall water system master plan and may include a future booster pump station located in the area of 8th Street and New Braunfels Street. The future station would provide a secondary means to supply water to the 123 Tank and upper pressure plane (in addition to the existing Vetter Pump Station). The design of this future booster station and related facilities is not included in this scope of work.
- The proposed pipeline will be fed from the Hwy. 123 elevated storage tank, which forms the City's upper pressure plane, located generally on the north side of I-10. Because the proposed pipe will connect to the lower pressure plane (south of I-10) for an emergency connection, a pressure reducing station will be required to reduce the pressure into the lower plane, and the direction of water flow can only feed from the upper plane into the lower plane.
- The route of the proposed pipeline will provide water service to multiple proposed housing subdivisions.
- The pipeline connection to Guadalupe Street will increase water pressure in this area, which has a history of low-pressure issues.

ENGINEERING SCOPE OF WORK

TRC will perform the following Engineering Scope of Work:

A. Topographical Survey

1. Acquire field topographical data for the design portion of the project on City's coordinate system, to include:
   a. Detailed survey including utility locates (as furnished by the specific utility provider) within the project limits described above.
   b. Provide subsurface utility engineering (SUE) for utility locates (quality level C and D).
2. Set horizontal and vertical primary control points.
   a. Primary control points shall be set at an approximate spacing of 500 ft. and inter-visible with each other where possible, away from possible disturbance from construction activity.
   b. Primary control points shall be used as the primary horizontal and vertical control for the project and as benchmarks for the project.

c. Horizontal and vertical data for primary control shall be based on Static RTK observations using the Leica Smartnet Network.

d. The horizontal datum shall be based on NAD83 (2011) using the Texas Coordinate System, Central Zone (4203),

e. The vertical datum shall be based on NAVD88 using Geoid 12B.

f. Secondary control points shall be set as necessary for conventional ground surveying and terrestrial LiDAR scans

3. Perform necessary research to obtain ownership records for properties affected by the project limits.

   a. Prepare a project ownership spreadsheet and perform right-of-entry (ROE) coordination for site access from property owners to secure access for locating property corners, topographic design surveying within the survey limits and to set proposed right of way (ROW) corners. The City will send the right-of-entry access forms to the various property owners.

4. Provide design level topographic survey data within the project survey limits.

   a. The survey will be performed on the ground utilizing a combination of terrestrial LiDAR with traditional field observation methods to locate found visible features, both horizontally and vertically, including existing on-site structures, drainage features, adjacent and onsite sidewalks, curb lines, pavement, roadway paint striping, driveways, fences and visible above-ground utility appurtenances within the survey limits.

   b. The survey will obtain topographic field elevations throughout the project site at 50-foot station intervals for use in developing a digital terrain model.

   c. Markings from franchise utility services and city utilities will be located at time of survey.

   d. Flowline elevations of found storm water and sanitary sewer manhole inlet structures immediately adjoining the site will be identified.

   e. The survey will field locate found protected trees 6 inches or greater in trunk diameter measured at breast height, in accordance with municipal code. Trees will be tagged in the field and shown on the survey noting trunk diameter, species and canopy size.

   f. Survey deliverable will be an AutoCAD .dwg file showing topographic points, features and 1 ft contours, accompanied by a point file in .csv format and digital terrain model in .xml format.

5. Surveyor will perform necessary research to acquire ROW maps, current adjoining property deeds and subdivision plats for properties affected by the project limits.

   a. Field boundary reconnaissance will be performed to locate found subject property and adjoining property corner monumentation.

b. Results will be compared, and boundary resolutions determined for affected rights-of-way and properties adjoining the project limits.

c. Existing easements of record discovered during abstracting will be shown on the survey.

d. Deliverable will be PDF copies of property research and an AutoCAD .dwg file showing established ROW lines, adjoining property lines, found easements and record property ownership information.

6. Provide survey field notes for:

   a. A maximum of thirty-five (35) land acquisitions including permanent easement and construction access, to include ownership/existing easement title work.

B. Geotechnical

1. All work will be performed by qualified personnel under the supervision of a registered professional engineer.

2. The test borings will be drilled by a local drilling subcontractor under the direction of TRC's geotechnical engineering staff. All field work will be conducted using truck-mounted drilling equipment**.** The City shall arrange for any necessary access and approvals from property owners required for the drill crew to work on the Project during normal daytime working hours (minimum 8-hours per day) without any interruptions. TRC will obtain approval/permits with the City to perform the drilling operations within the City's ROW, if needed. We assume that all test boring locations are open and accessible to standard truck-mounted drilling equipment. Because the borings are located off the roadway, it is assumed that a lane closure will not be required nor will maintenance of traffic, such as cones, signs, and flaggers.

3. The Project surveyor or TRC's drilling subcontractor will mark-out the test boring locations in the field using existing features (e.g., existing buildings, edge of pavement, intersections, etc.) as a reference or a handheld GPS unit, based on the most current plans provided. The Texas811 One-Call utility locator service will be contacted to verify utility locations within public right-of-way and easements where these utilities may exist in the Project. TRC will work with the City to determine the locations of known existing on-site subsurface utilities before the start of our field work. We will work with the City to identify possible underground utility locations and offset borings as necessary to avoid conflicts. Geophysical utility verification consisting of ground penetrating radar and EM induction to identify potential buried objects at the proposed test boring locations prior to drilling is not included in the scope.

4. TRC proposes a total of 30 test borings spaced approximately every 1,400 feet along the new water main each drilled to a depth of 15 FT bgs, except two (2) borings on both sides of I-10 will be 25 FT bgs for jack and boring underneath the interstate. Drilling and sampling will be in accordance with ASTM D 1586. Soil sampling will be conducted every 2.5 FT to the termination depth of the boring or auger refusal (hard rock). Based on our experience, it is assumed that if rock is encountered prior to reaching the target depth of 15 FT, that we will be able to auger through the rock to achieve the target depth. Rock

coring will not be performed as it will be assumed that hard rock below auger refusal will not be able to be excavated with conventional hydraulic equipment and will need to be removed with hoe rams. It is anticipated that relatively undisturbed samples (Shelby tubes) will not be required for this Project.

5. Groundwater measurements will be recorded during drilling and/or shortly after completion of each boring. Borings will then be backfilled with the auger cuttings upon boring completion. Any excess soil materials which does not fit back down the holes will be spread out on the ground surface at the boring location. No additional restoration is included in the scope or cost provided herein.

6. The budget assumes that the drilling will be completed in ten (10) working days. If additional days are required for the field drilling activities due to an increased number of borings or drilling depths, additional time to access boring locations, etc., TRC will discuss with the City the additional cost that can be realized for drilling and sampling beyond the assumed number of days of field work, if needed.

7. Upon completion of the field work the soil samples will be delivered to TRC's AMRL AASHTO/ASTM accredited laboratory where the field classifications will be verified by a member of TRC's geotechnical engineering staff and representative samples will be selected for laboratory testing to evaluate engineering characters and parameters, including, but not limited to moisture content, grain size distribution, and plastic characteristics (Atterberg Limits). Two (2) representative composite samples of the soil materials (5-10 FT bgs) encountered will be sent to an accredited laboratory for corrosivity testing (including electrical resistivity, pH, chlorides, sulfates). An estimated cost for laboratory testing services has been included in this proposal for budgeting purposes. Actual billing will be based on the laboratory tests performed on the basis of actual subsurface conditions encountered and planned construction.

8. Upon completing the field and laboratory testing**,** our engineering staff will summarize the work completed and prepare a Geotechnical Engineering Report (electronic PDF copy). The geotechnical engineering report will summarize TRC's understanding of the proposed construction, site conditions, exploration activities, subsurface conditions and impacts on the proposed construction, and address project specific concerns including but not be limited to issues such as:

    a. Earthwork recommendations for site preparation including placement, compaction and testing of fills, if applicable.

    b. Groundwater conditions including perched conditions and control of groundwater during construction, as applicable.

    c. Recommended side slopes and soil parameters for strength and lateral pressures/resistance (both above and below ground water table) considering active, at rest and passive conditions for use in excavation trench support design by others.

    d. Seismic Site Class parameters as determined by the 2018 International Building Code (ASCE 7-16).

e. It is assumed that pavement design recommendations will not be required as pavement disturbed during waterline installation will be replaced in kind.

f. Other construction-related concerns, as warranted based on site subsurface conditions, based on the proposed construction.

g. Copies of typed test boring logs, a test boring location plan, and the laboratory test results will be included as appendices to the report.

C. Preliminary Engineering

1. Attend preliminary design kickoff meeting with city to discuss project goals and milestones.

2. Perform pipeline hydraulic water modeling, from the current City model, to include the current and proposed water service connections. Results will confirm pipeline size and system flows/pressures along the pipeline route.

3. Determine pipeline routing conflicts including franchise utility conflicts. Acquire information from the franchise utilities (gas, telephone, cable, electrical, etc.) and determine need for relocation. The City will provide direct correspondence with the franchise utilities. Design of existing utility relocations shall be provided by others.

4. Prepare preliminary site routing with landowner property designations.

5. Prepare preliminary plan and profile sheets for proposed pipeline routing for submittal to City Staff. Meet with City Staff to review comments.

6. Attend one (1) public outreach meeting (if applicable) to discuss the proposed project. TRC would prepare visual presentations as needed.

7. Preparation of opinion of probable project costs, with unit costs based on recent projects bid within the area, including discussions with contractors and pipe vendors on any expected cost fluctuations.

8. Attend a maximum of four (4) design meetings with City Staff throughout the design process.

ENVIRONMENTAL SCOPE OF WORK

TRC will perform the following Environmental Scope of Work:

1. TRC will conduct a field investigation to determine the presence of any potential wetlands or other special aquatic site or any other waterbody features (e.g., streams, pond, and impoundments), within the Project area. If present, all aquatic features will be delineated using the methods as described in the 1987 U.S. Army Corps of Engineers (USACE) Wetlands Delineation Manual (USACE Manual), Great Plains Regional Supplement. TRC will also conduct a threatened and endangered (T&E) species habitat assessment in conjunction with the USACE wetlands and waterbody delineation. TRC's results for on-site T&E Habitat Assessment and wetlands and waterbody delineation will be summarized in a Natural Resources Summary Report.

2. TRC will also conduct an archeological file search and cultural review of sources of the Area of Potential Effects (APE) to ensure compliance under the Antiquities Code of Texas (ACT). A consultation letter summarizing the results of the background study will also be sent to the Texas Historical Commission (THC) for review.

TASK 1: Natural Resource Services

Based on a preliminary desktop review of historical aerial imagery, U.S. Fish and Wildlife Service (USFWS) National Wetland Inventory (NWI), U.S. Geological Survey (USGS) topographic maps, and USGS National Hydrography Dataset (NHD), streams are located within the Project area. However, current aerial imagery shows that the ephemeral stream have been filled in by agricultural activities and no longer function as aquatic resources. Therefore, a natural resource field survey and summary report is recommended to determine if wetlands or other special aquatic site or any other surface water features (e.g., streams and impoundments) are present within the Project area.

Wetlands and Waterbody Delineation

TRC will conduct a field investigation to determine the presence of any potential wetlands or other special aquatic site or any other waterbody features (e.g., streams, pond, and impoundments), within the Project area. If present, all aquatic features will be delineated using the methods as described in the 1987 U.S. Army Corps of Engineers (USACE) Wetlands Delineation Manual (USACE Manual), Great Plains Regional Supplement.

Habitat Assessment for Threatened and Endangered Species

In accordance with the Endangered Species Act of 1973, and State of Texas regulations, TRC will perform a background review of existing and available data to determine the potential for protected species to occur within the Project Area. The background data review will include a search for the current listing of federal and state-listed rare, threatened, and endangered species for Guadalupe County; federally-designated Critical Habitat; the TPWD's Texas Natural Diversity Database (TXNDD); as well as other available data to assess the potential for protected species to occur within the Project Area.

Following the background data review, TRC will conduct a survey, concurrent with the WOTUS delineation, for T&E species habitat, vegetation communities, and other sensitive natural resources that may be present within or adjacent to the Project Area. TRC will identify predominant vegetation communities and address their abilities to provide habitat to support T&E species.

TRC will conduct a threatened and endangered (T&E) species habitat assessment in conjunction with the USACE wetlands and waterbody delineation within 14 days of receiving a Notice to Proceed (NTP).

Reporting

TRC's results for on-site T&E Habitat Assessment and wetlands and waterbody delineation will be summarized in a Natural Resources Summary Report. The Natural Resources Summary Report will be submitted to CES/City for review within four weeks of the completion of the field survey for review.

TASK 2: Cultural Resource Services
TRC will perform a desktop review to identify existing conditions and identify documented cultural resources within the APE and within a one-kilometer radius of the APE. This includes an

archeological file search and review of sources, as well as consultation with the THC. The file search will be performed using the THC Archeological and Historic Sites Atlas. Other documents that will be consulted as appropriate include historic aerial photographs and topographic maps, Sanborn maps, and cemetery records. The results of the background review will be compiled in a letter report to be reviewed by City and then sent to the THC for review for compliance with the ACT.

ASSUMPTIONS

As the basis for the preparation for this proposal and the associated cost of service, the following assumptions were made which, if found to be incorrect may result in request(s) from TRC for additional compensation:

1. Where necessary, the City will be responsible for arranging property access prior to commencement of the field survey and/or environmental investigations for properties not located within City right-of-way. TRC will not perform any field investigation on properties where access has not been granted.

2. Subsurface Utility Engineering provided will not relieve the contractor from the duty to comply with applicable utility damage prevention laws and regulations, including, but not limited to, giving notification to utility owners or “One-Call Notification Centers” before excavation.

3. Should the schedule be changed or put on “hold” by the City, all costs incurred by TRC up to notification of change of schedule or “hold” status will be billed to the City. Additional fees that TRC may incur as a result of the change of schedule or “hold” status will be billed to the City once the Project has resumed in addition to the cost of services included in this proposal.

4. The entire project will consist of one (1) bid/construction project.

5. The TxDOT bores (I-10 and Hwy. 123) will be installed by the Jack-and-bore method with steel casing pipe.

6. The geotechnical services do not include testing or other type of investigation regarding the possible presence of hazardous or toxic substances either on-site or in imported materials.

7. Geotechnical test boring locations will be accessible to truck-mounted drilling equipment without the need for clearing or assistance from a dozer.

8. Closure of a lane of traffic or maintenance of traffic will not be required for geotechnical drilling. Due to the anticipated low volume of traffic, if a boring needs to be located near a road it is assumed that cones can be placed to maintain traffic and that a flagger, signs, or lane closure is required.

9. Services of a professional surveyor licensed by the State of Texas to determine the as-drilled boring locations and elevations of the existing ground surface is excluded.

10. Some disturbance to the ground surface may result from the geotechnical drilling operations. We will attempt to minimize any such damage, but the use of matting or restoration or repair of unavoidable damage to the site caused by moving equipment, such as rutting or vegetation disturbance, is not included in the estimate. Boreholes will be backfilled with auger cuttings following the final groundwater level check. All drilling spoils will be spread at the ground surface at the boring locations or in landscape areas upon completion of the field exploration. No funds have been allotted for off-site soil disposal.

11. This SOW does not include a submittal of an Individual Environmental Permit. Should the proposed Project be modified or changed and exceed a loss greater than 1/2-acre of WOUS (loss of stream bed or wetlands) an Individual Permit may be required.

12. This SOW does not include USACE mitigation planning and/or implementation costs or include migratory bird nesting surveys.

13. This SOW covers a prescribed level of effort through the archeological site file search and THC consultation. If after consultation THC requires additional work in the form of an archeological survey, deep testing investigations, archeological testing, and/or monitoring, then TRC will prepare a separate SOW and cost estimate for additional services and submit to the City for approval.

14. No additional environmental services or studies (e.g., USACE waters of the U.S. delineation survey or reporting, ASTM Phase I Environmental Site Assessment, T&E species-specific surveys, biological monitoring, etc.) beyond those already outlined in this SOW will be performed.

15. If it is determined after the project review request letter/desktop study that sensitive cultural resources will be impacted by the proposed project, additional environmental services and fees may be required.

16. Based on a preliminary review of the current project information, the proposed Project would not discharge fill materials into a special aquatic site (wetlands) or any other surface water features (e.g., streams and impoundments). TRC anticipates that the proposed Project would require a NWP 58 (Utility Line Activities) from the USACE – Fort Worth District. However, TRC does not anticipate the proposed Project would exceed 3/100 of an acre of a loss of stream or 1/10 of an acre of a loss of wetlands, therefore, would not require a Pre-Construction Notification to be submitted to the USACE – Fort Worth District.

17. This SOW does not include a preparation of a Pre-Construction Notification to be submitted to the USACE – Fort Worth District or mitigation planning and/or implementation costs. Should the Project be modified or changed and exceed 3/100 of an acre of a loss of stream or 1/10 of an acre of a loss of wetlands, the Project would require a NWP 58 (Utility Line Activities) from the USACE – Fort Worth District Pre-Construction Notification to be submitted to the USACE – Fort Worth District and compensatory mitigation for loss of function to aquatic resources. Should a Pre-Construction Notification and mitigation planning and/or implementation be required, then TRC will prepare a separate SOW and cost estimate for additional services and submit to the City for approval.

18. This SOW does not include migratory bird nesting surveys. Should the City need to clear vegetation between March and August, migratory nesting bird surveys may be necessary to avoid any violations of the Migratory Bird Treaty Act. TRC will prepare a separate SOW and cost estimate for additional services and submit to the City for approval.

EXCLUSIONS

The following items are specifically excluded from the scope of work:

1. Any design services not listed above, including but not limited to design of landscape or irrigation, street total reconstruction, sidewalks or accessibility, electrical or lighting.

2. Final engineering design, plans and specifications.

3. Bidding or construction administration services.

4. Land acquisition services.

5. Design of improvements or relocations for sanitary sewer lines, electrical lines, gas lines, telephone lines or other franchise utilities.

6. Field staking for other purposes.

7. Attendance at or preparation for condemnation hearings, easements (not mentioned above) or plat documents, landowner contact or easement negotiations.

8. Preparation of permits, applications, etc. (not mentioned above).

9. Costs for permitting or application fees or review fees by regulatory authorities.

10. US Army Corps of Engineers (USACE) permit preparation or notification, if applicable.

11. Design of electrical power supply to the pressure reducing station should the City desire electrical supply to the station for SCADA or motorized valve.

COMPENSATION FOR SERVICES

TRC will provide the professional engineering services as outlined herein and within the Master Services Agreement executed between the City and TRC (dated December 16, 2003), for a total lump sum fee as follows:

Environmental/Cultural Services:	$5,800.00
Topographical Surveying:	$65,300.00
Easement Field Notes including Title Work (35 Properties):	$27,300.00
Geotechnical Services:	$29,200.00
Engineering Design:	$240,940.00
Total (lump sum):	**$368,540.00**

This fee includes labor and material costs associated with the Scope of Work identified above.

TRC's fee above is based on a continuous flow of work. Any delays or restrictions, caused by customer or customer's sub consultants, which result in idle-time or inefficiencies, could be cause for additional compensation.

The payment schedule will be via monthly progress billing.

Changes in scope, including additional scenarios or modification to the scenarios identified above will be evaluated for additional services and/or materials cost through a formal change order process, which results in approval of the additional cost prior to executing the additional work.

Fees for services quoted in this Letter of Agreement are valid for a period of time not to exceed 60 days from the date of this letter.

We appreciate the opportunity to assist with this project and are available to proceed immediately with your written approval. Please review this proposal and, upon acceptance, sign in the space provided below, returning a copy for our files.

Sincerely,

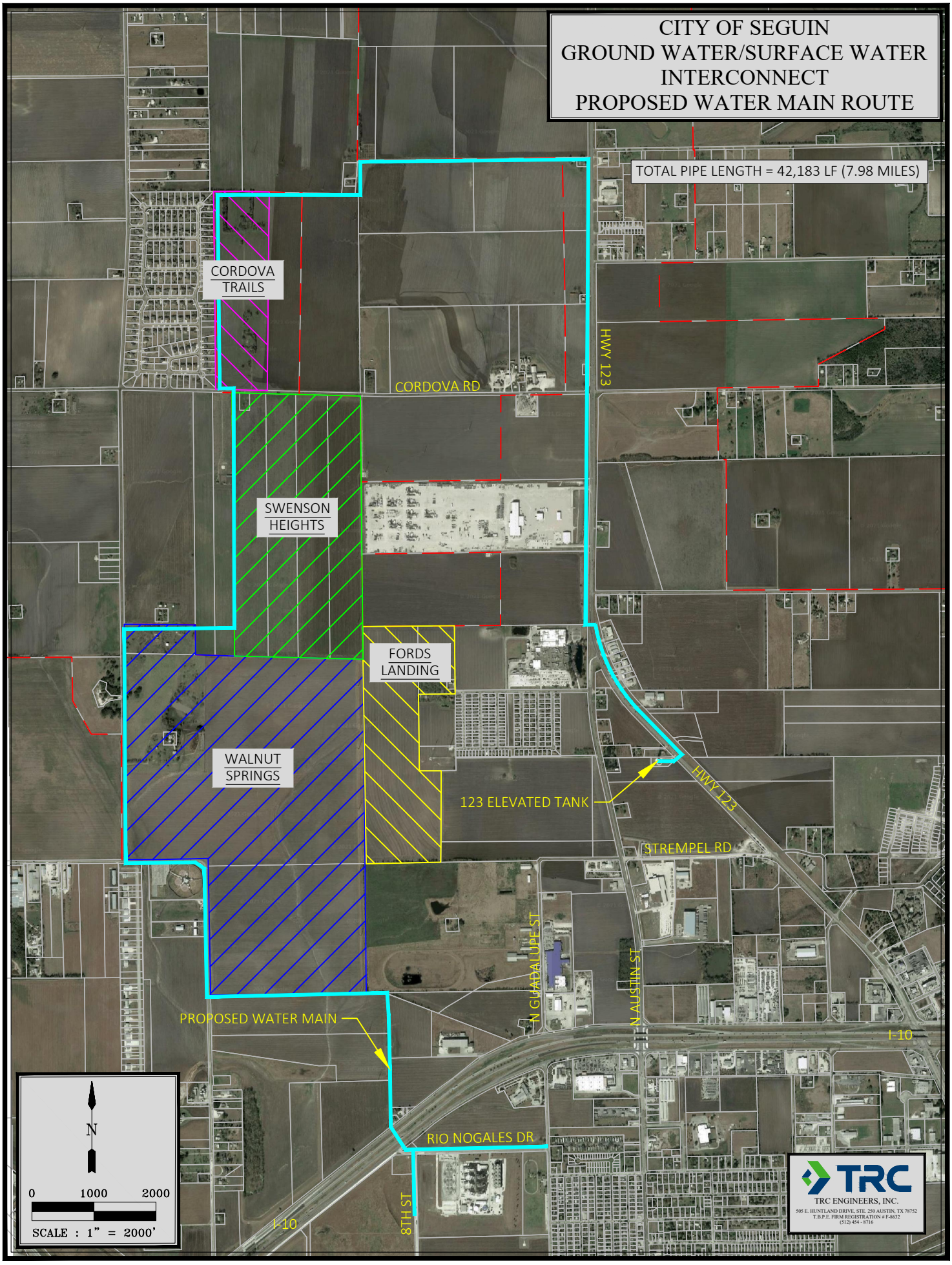
Craig Bell

H. Craig Bell, P.E.
Austin Engineering Director - DMS

City of Seguin

January 17, 2022
Date

Date



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