Item A: CRWS – Meter Station Rehabilitation Group 1, Meter Station MS10_0B – Contract Award, Engineering Services Agreement and Materials Testing Services Agreement
BACKGROUND

• CRWS provides collection and treatment services to 20 customer cities in the DFW Metroplex and DFW Airport

• The Authority owns and operates 122 meter stations in the System to allocate costs to the customer cities and DFW Airport

• 2009: Burgess & Niple, Inc., hired to evaluate all 122 meter stations
  • 33 identified as needing upgrades. Estimated construction cost of $15 million
  • Ten meter stations rehabilitated or replaced through Phases 1A and 1B
  • Eight addressed over the next several years by inserting them in other capital improvement projects
  • 15 remain to be addressed
BACKGROUND

• 2016: CRWS Meter Station Evaluation conducted:
  • The remaining 15 meter stations (of the original 33) are reprioritized and grouped into multiple projects to facilitate timely design and construction

• February 2019: Kimley-Horn and Associates, Inc. (KHA), selected for Preliminary Engineering and Final Design of the three highest priority meter stations (Group 1):
  • MS10_0B (Bear Creek Interceptor)
  • MS15_0E (Elm Fork Interceptor)
  • MS3_0M (Mountain Creek Interceptor)
BACKGROUND

• April 2020: Board approved an amendment to KHA’s scope:
  - Include 550 linear feet (LF) of 90-inch relief sewer (30MC-1) to the CRWS facility
  - Provide additional meter station relocation alternatives for MS3_0M within the limits of the 90-inch relief sewer
  - Prepare separate bid package in 2021

• August 2020: Board approved ESA with Lockwood, Andrews & Newnam, Inc., for Program Management and Preliminary Engineering of 70,000 LF of 36- to 72-inch pipeline in the Elm Fork Interceptor System. MS15_0E will be assessed as part of that project.
BACKGROUND

• December 2020: Approve construction of improvements to MS10_0B (located within limits of DFW Airport):
  • Rehabilitation of existing vault
  • Meter replacement
  • Reroute of 170 LF of 24- to 36-inch sewer to improve hydraulic conditions
# Bid Results – October 21, 2020

Engineer’s OPCC = $600,000

<table>
<thead>
<tr>
<th>Bidders</th>
<th>Total Bid</th>
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<tr>
<td>Schofield Civil Construction, LLC (+9%)</td>
<td>$ 655,615</td>
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<tr>
<td>Flow-Line Construction, Inc.</td>
<td>$ 699,983</td>
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<td>M-Co Construction, Inc.</td>
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<tr>
<td>WILLCO Underground, LLC</td>
<td>$ 749,093</td>
</tr>
<tr>
<td>Mountain Cascade of Texas, LLC</td>
<td>$1,085,197</td>
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</tbody>
</table>
Kimley-Horn and Associates, Inc.
Construction Phase Services

• Meetings/site visits/factory witness testing
• Construction staking
• Review of payment applications, schedule, submittals, “Requests for Information,” “Contract Modification Requests,” etc.
• Documentation of field changes
• Construction survey review
• Meter Station verification
• Record drawings
• Fee: $156,677
Gorrondona & Associates, Inc.  
Construction Materials Testing Services

• Typical testing:
  • Backfill compaction
  • Material gradation
  • Concrete compression strength

• Fee: $25,000
RECOMMENDATIONS

• Award construction contract to Schofield Civil Construction, LLC, in the amount of $655,615;
• Approve contract for professional engineering services related to Construction Phase Services for CRWS Meter Station Rehabilitation Group 1, MS10_0B, to Kimley-Horn and Associates, Inc., in the amount of $156,677; and
• Approve contract for construction materials testing to Gorrondona & Associates, Inc., in the amount of $25,000.
Item B: CRWS – Bear Creek Interceptor Segment 09BC-1 – Interlocal Agreement with the City of Grapevine
BACKGROUND

• CRWS provides collection and treatment services for 20 customer cities in the DFW Metroplex and DFW Airport. Comprised of five major interceptor systems:
  • Bear Creek
  • Elm Fork
  • West Fork
  • Jefferson Tunnel
  • Mountain Creek

• Segment 09BC-1 includes 27,000 LF of 30- to 54-inch unlined reinforced concrete pipe (RCP) located within the Bear Creek Interceptor System
February 2015: Board approved ESA with Plummer Associates, Inc. (Plummer), to complete Final Design of improvements to Segment 09BC-1:

- Project would address needs for additional capacity required to convey future flows and mitigate system corrosion
- Project separated into three construction packages:
  - Phases 1A and 1B are complete
  - Phase 2 will bid in December
    - Most upstream segment
    - Includes approximately 8,900 LF of 48-inch pipeline
Phase 2 is located primarily within City of Grapevine park properties along the Grapevine trail system.

During review of Final Design, it was agreed that the City of Grapevine would be best suited to manage the restoration of park properties utilizing in-house expertise (trail replacement, restoration of vegetation adjacent to trail, and restoration of Bear Creek Athletic Park).

Interlocal Agreement (ILA) between Grapevine and Authority needed.
Bear Creek Athletic Field and Parr Park
Scope of Interlocal Agreement

• Grapevine to donate required easements
• Grapevine to complete park restoration and be reimbursed in the amount of $378,624.63
• Grapevine to be compensated ($476,000) for removal of 436 trees (6-inch diameter and larger) within new easements acquired for the construction of the project
RECOMMENDATION

• Approve an Interlocal Agreement with the City of Grapevine for tree mitigation, park restoration, and easements in the amount of $854,824.63.
Item C: DCRWS – Master Plan Treatment Plant Update – Engineering Services Agreement
Denton Creek Regional Wastewater System Treatment Plant
BACKGROUND

- DCRWS receives wastewater from the cities of Fort Worth, Keller, Roanoke, and Southlake; the towns of Argyle, Flower Mound, Northlake, and Westlake; and the Circle T Municipal Utility District Nos. 1 and 3

- DCRWS wastewater treatment plant began operation in 1990
  - 1990 – Phase 1 (Original Plant)
  - 1998 – Expansion to 2.5 MGD
  - 2005 – Expansion to 5.0 MGD
  - 2011 – Expansion to 11.5 MGD
In February 2014, Plummer Associates, Inc. (Plummer), selected to update the DCRWS Master Plan.

Several of the projects recommended in the 2014 Master Plan have begun or have been completed:

- Electrical Improvements - completed in 2016
- Maintenance Building Improvements - completed in 2017
- Odor Control Improvements Phase 2 - anticipated completion by end of 2020
- Plant Rehabilitation Phase 1 – started construction 2019, anticipated completion in Spring of 2021
- Influent Coarse Screen Improvements – starting construction in December 2020
BACKGROUND

- In 2019, the Authority’s Board of Directors authorized an Infiltration & Inflow Assessment for DCRWS (Black & Veatch)
- Upon completion in 2021, the updated flow projections from that Assessment will be utilized by Plummer to update the Master Plan in order to identify and prioritize future plant improvements and/or expansions
Proposed “Scope of Work”

- Updated information will include:
  - Flow projections
  - Wastewater characteristics
  - Hydraulic and process model results
  - Evaluation of peak flow storage volume
  - Solids management
  - Electrical improvements
  - Proposed future projects (upgrades/expansions)

- Proposed Fee: $1,212,489
RECOMMENDATION

• Approve Engineering Services Agreement with Plummer Associates, Inc., for professional services related to the update of the Master Plan for the Denton Creek Wastewater Treatment Plant in the amount of $1,212,489.
Item D: DCRWS – Odor Control Improvements, Phase 3 – Engineering Services Agreement
BACKGROUND

• DCRWS receives wastewater from the cities of Fort Worth, Keller, Roanoke, and Southlake; the towns of Argyle, Flower Mound, Northlake, and Westlake; and the Circle T Municipal Utility District Nos. 1 and 3

• DCRWS wastewater treatment plant began operation in 1990 and is currently rated at 11.5 MGD
BACKGROUND

• Due to the facility’s proximity to a school and residential development, the Authority has historically employed a proactive approach to address odor concerns at the facility

• 2016 – Phase I: Odor Monitoring
  • Investigation of periodic offsite odor reports
  • Testing for Hydrogen Sulfide at the plant
  • Staff observations

• 2019 – Phase II: Odor Control Improvements
  • Construction of a bio-scrubber to handle odors from various process units at the treatment plant
DCRWS Treatment Plant Odor Plume

Extent of odor plume before Phase 2 Improvements

Extent of odor plume after Phase 2 Improvements

Legend
- Scenario1a_5MIN_10EXC_2018_Pre-Phase2
- Scenario2a_5MIN_10EXC_2020_Phase2
- Plant Boundary
2020 – Phase III: Odor Control Improvements

- Field Assessment by Plummer Associates, Inc. (Plummer), has been concluded

- Additional improvements have been identified:
  - Increase plant water capacity to wash down the Peak Flow Storage Basin
  - Treat air from covered aeration basin influent channels
  - Install redundant foul air blower
Denton Creek Regional Wastewater System Treatment Plant

- AB 1-2 Influent Channels
- School
- Walking Trail
- AB 3 Influent Channel
- Increase Plant Water Capacity at PFSB
- Add’l Blower at Bioscrubber
Proposed “Scope of Work”

- Preliminary Engineering
- Final Design
- 30%, 60%, 90%, and 100% Submittals
- Additional assessments (as required)
- Design of additional improvements
- Bid Phase Services

- Proposed Fee: $379,005
RECOMMENDATION

- Approve Engineering Services Agreement with Plummer Associates, Inc., for professional services related to Preliminary Engineering and Final Design of Odor Control Improvements at the Denton Creek Wastewater Treatment Plant in the amount of $379,005.
Item E:
TMCRWS – Ten Mile Creek Relief Interceptor, Segment 11-40TM-2 Phase 1 – Engineering Services Agreement
Ten Mile Creek Regional Wastewater System

Within Red Oak Creek Basin

Interceptors

Stewart Branch Interceptor
Bee Branch Interceptor
Ten Mile Creek Interceptor

TMCRWS Service Area

Area Shown Trinity River Basin

11-40TM-2

TMCRWS Treatment Plant
BACKGROUND

- TMCRWS provides collection and treatment services to five cities:
  - Cedar Hill
  - Desoto
  - Duncanville
  - Ferris
  - Lancaster

- Ten Mile Creek Interceptor System (Segment 11-40TM-2):
  - 15,500 LF of 39- to 54-inch parallel unlined RCP
  - 500 LF of 66-inch unlined RCP
  - 39-inch constructed in 1972
  - 54-inch and 66-inch constructed in 1992
BACKGROUND

- 2009: TMCRWS Stream Bank Erosion Study
  - Portions of 11-40TM-2 at risk due to erosion of Ten Mile Creek

- 2013: TMCRWS Infiltration/Inflow Assessment Phase II Study conducted
  - 11-40TM-2 determined to need additional capacity for future flows

- 2016: Corrosion caused a failure in a portion of 66-inch concrete pipe downstream of MS_LAN
  - Emergency point repair (approximately 70 LF of 60-inch new RCP installed)
BACKGROUND

• 2019: Condition Assessment and Preliminary Design awarded to Teague Nall & Perkins, Inc. (TNP)
  • Condition assessment determined rehabilitation or replacement required of parallel system (exposed steel reinforcement)

• 2020: Corrosion caused a failure in a portion of 66-inch concrete pipe downstream of previous emergency repair
  • Second emergency point repair (approximately 60 LF of 60-inch new RCP installed)
11-40TM-2 Emergency Repairs

2016 and 2020 Emergency Repair Locations

MS_LAN
2016 and 2020 Pipeline Failures

66-inch Pipeline Failure – Downstream of MS_LAN (2016)

66-inch Pipeline Failure – Downstream of MS_LAN and previous failure (2020)
BACKGROUND

• Preliminary Engineering by TNP concluded that replacement of the parallel system with a new single relief interceptor is the best alternative

• Design and construction to be completed in two phases, with each phase to include approximately 8,000 LF of 72- to 78-inch pipeline

• Phase 1 includes downstream 7,500 LF and the upstream most 500 LF
  • Expedite replacement of MS_LAN to remove turbulence generated by existing 96-inch Parshall flume meter
  • Replace heavily corroded RCP downstream of MS_LAN
Project Phasing for 11-40TM-2

Phase 1

Phase 2

MS_LAN
Project Schedule

• 2020: Board approval of Final Design ESA for Phase 1
• 2021: Start Final Design of Phase 1
• 2022: Phase 1 bid for construction and presented to the Board
• 2022: ESA for Final Design of Phase 2 presented to the Board
• 2023: Phase 2 bid for construction and presented to the Board
Proposed “Scope of Work”

• Project start-up, management, and QA/QC

• Topographic survey, geotechnical investigation, easement legal descriptions, and exhibit preparation

• Permitting
  • TxDOT
  • Dallas County
  • Municipal Permit Coordination
Proposed “Scope of Work”

- Final Design
  - 60%, 90%, and 100% plans and contract documents
  - Includes meter station design (MS_LAN)
- Construction Advertisement
- Special Services
- Proposed Fee: $1,334,361
RECOMMENDATION

• Approve Engineering Services Agreement with Teague Nall and Perkins, Inc., for professional services related to the Final Design of Ten Mile Creek Relief Interceptor, Segment 11-40TM-2 Phase 1, in the amount of $1,334,361.
Item F: TMCRWS – Meter Station Rehabilitation – Engineering Services Agreement
BACKGROUND

• TMCRWS provides collection and treatment services to five cities:
  • Cedar Hill
  • Desoto
  • Duncanville
  • Ferris
  • Lancaster

• The Authority owns and operates nine meter stations in TMCRWS to allocate costs to each customer city
BACKGROUND

• Five Parshall flume meter stations (MS) were identified for rehabilitation or replacement by the Authority’s Collection System Group:
  • MS_BB
  • MS_SB
  • MS_CH
  • MS_HP
  • MS_FER

• Four existing MS enclosures pose a safety risk to access site electronics while completing a secondary Confined Space Entry with a two to three-person crew over the manhole opening and in the presence of hydrogen sulfide

• Project Drivers: safety, capacity, and site hydraulics
Meter Station Rehabilitation

TMCRWS Service Area
Within Red Oak Creek Basin

Interceptors

TMCRWS Service Area

Area Shown Trinity River Basin

TMCRWS Treatment Plant

MS_FER & 1,382 LF 15-inch VCP
BACKGROUND

- 2013: TMCRWS Phase II Infiltration/Inflow Assessment identified additional future capacity requirements for the 1,382 LF segment of 15-inch vitrified clay pipe (VCP) immediately downstream of MS_FER
- 2019: ESA approved with BGE, Inc., to complete Preliminary Engineering of the five MS
  - New MS will be constructed adjacent to the existing MS, minimizing additional land rights acquisition and bypass pumping
Existing 15-inch VCP to be replaced with a 24-inch installed adjacent to the existing VCP
Proposed “Scope of Work”

- Project Start-up, Management, and QA/QC
- Geotechnical Investigation, Environmental and Cultural Resources Evaluation, Easement Legal Descriptions, and Exhibit Preparation
- Final Design
  - 60%, 90%, and 100% plans and contract documents
- Construction Advertisement
- Special Services
- Fee: $528,101
RECOMMENDATION

• Approve Engineering Services Agreement with BGE, Inc., for professional services related to the Final Design of Meter Station Rehabilitation in the Ten Mile Creek Regional Wastewater System, in the amount of $528,101.
System Maps

Central Regional Wastewater System

Tarrant County Water Supply Project

Trinity River Authority of Texas
System Aerials

Central Regional Wastewater System
189 MGD

Tarrant County Water Supply Project
87 MGD
FY 2020-2022 Triennial Evaluation Scope

- Perform an independent review of the facilities, programs, conditions, operation and maintenance capabilities.
- Provide recommendations for improvements in efficiency.
- Evaluate the systems once every three years, with subsequent annual updates.
- Review the Electrical and Electronics Department structure and maintenance practices.
- CRWS:
  - Review the current disinfection process condition.
- TCWSP:
  - Review options for the Raw Water Pump Station as a future redundant raw water intake and conveyance system.
RECOMMENDATION

• Authorize an ESA with Garver, LLC, in the amount of $333,322 for engineering services associated with the Triennial Evaluation for the Central Regional Wastewater System.

• Authorize an ESA with Arcadis, U.S., Inc., in the amount of $263,111 for engineering services associated with the Triennial Evaluation for the Tarrant County Water Supply Project.
Item H: TCRWSS – Expiration of Raw Water and Service Contracts – Discontinuation of Operations
System Map

Trinity County Regional Water Supply System

Legend:
- Facilities
- City Limits
- Basin Boundary
- County Line
- Trinity County WaterLine

Major Roads
Major Streams
Lakes
Service Areas

Map Credits:
tra

Scale: 0 1 2.5 5 7.5 10 Miles

Map Date: J. PEI 3-30-2014
TCRWSS Plant
• Initial Contracts for Raw Water and Operations signed in June 1980 with Cities of Trinity and Groveton, Westwood Shores MUD, Trinity Rural, Glendale and Riverside WSC’s

• System was financed with a 50-50 grant and loan totaling $4.356 million

• System consists of 18 shallow infiltration wells, treatment plant, clearwell, high-service pump station, meter stations and 44 miles of delivery pipeline

• Debt fully retired in 2020

• All existing service and raw water contracts set to expire on Dec. 31, 2020
Recent Events

- Declining production and demand over past 10 years
- Non “Take-or-Pay” contract has prompted customer base to shift to other water supply sources
- Negotiation for past 18 months have failed to produce new agreements under “Take-or-Pay” terms
- Without contractual revenue source, system cannot continue operations
- Service to be discontinued after Dec. 31, 2020
- Facilities will be routinely monitored and equipment exercised by SRSS staff until final disposition can be determined
RECOMMENDATION

No action is required since contracts will automatically expire on Dec. 31, 2020.
Item I: Northern Region Projects and the General Office – Energy Management Consulting – Services Support Agreement
5 Energy Management Consulting Services
Support Agreement

• Professional services include:
  - Strategic energy management
  - Renewable energy procurement services
  - Electric metering management
  - Invoice auditing
  - Rebate and demand reduction programs

• Three-year contract for consulting services at $91,680 annually and $10,000 for special services as authorized by the Authority for additional audits and assessments.

• Existing agreement ends Dec. 31, 2020.
Budget Savings and Revenue

- Current REP contract with TXU Energy is $.0324632 per kWh. NR projects average 144,000,000 kWh annually.

- 5-year REP contract with TXU Energy at $.029147 per kWh (June 1, 2023 through May 31, 2028).

- 4-year REP contract with Reliant Energy Retail, LLC at $.02680 per kWh (June 1, 2028 through May 31, 2032).

- Electricity demand response programs resulted in cost avoidances amounting to $180,000 in 2019 and $100,000 in 2020.

- TMCRWS and DCRWS participated in grid reliability programs, Energy Response Service and Contract Load Management, for energy curtailment. Generated $194,000 in revenue.
Electricity Rates for Northern Region Facilities

Average annual 144,000,000 kWh

- **Rate (kWh)**
- **Projected Annual Expense**

**Savings**
- $2,387,664
- $3,262,003

Rate Effective Period:
- 1/2020 - 6/2023
- 6/2023 - 6/2028
- 6/2028 - 6/2032

Trinity River Authority of Texas
RECOMMENDATION

Management requests to extend the support agreement with 5 for energy management consulting services for 36 months beginning Jan. 1, 2021 and ending Dec. 31, 2023.
Item J: TCWSP – Bid for Grounds Maintenance
Bid Results for Grounds Maintenance
Tarrant County Water Supply Project

Bids were opened on Oct. 5, 2020.

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<th>Bidders</th>
<th>Total Bid</th>
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<tr>
<td>Whitmore and Sons, Inc.</td>
<td>$101,810</td>
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<tr>
<td>SRH Landscapes, LLC</td>
<td>$173,990</td>
</tr>
<tr>
<td>Good Earth Corporation</td>
<td>$394,960</td>
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