

STATEMENT OF QUALIFICATIONS PREPARED FOR THE BRAZOS VALLEY GROUNDWATER CONSERVATION DISTRICT



Brazos Valley

GROUNDWATER CONSERVATION DISTRICT

Request for Qualifications for Hydrogeology Services Related to Groundwater Management RFQ# 07-2022

Due by: Friday, August 12, 2022 at 5 pm



COLLIER
CONSULTING

Geoscience & Engineering

F-8170

Federal HUBZone-Certified Small Businesses

State of Texas HUB

North Central Texas Regional Certification Agency WBE

South Central Texas Regional Certification Agency WBE



August 10, 2022

Brazos Valley GCD
Attn: Alan M. Day, General Manager
P.O. Box 528
Hearne, TX 77859



Dear Mr. Day and other reviewers,

Collier Consulting (Collier) appreciates this opportunity to provide a statement of qualifications for Hydrogeology Services Related to Groundwater Management for Brazos Valley Groundwater Conservation District (the District).

Collier staff have extensive experience in groundwater modeling, well permitting, groundwater geochemistry, aquifer testing, and groundwater availability studies for an array of clients including developers, water providers, petroleum companies, state agencies, and groundwater conservation districts (GCDs). Sample project descriptions within Region G and GMA 12 are included in this submittal.

Additionally, we have ongoing relationships with several GCDs to provide water well data management services. We are familiar with a multitude of application and permitting processes, rules, and spacing requirements. Our HYDROS software team has developed multiple custom tools to help our clients gain efficiency in operations, management, planning, and reporting.

Collier would be pleased to serve the District as a technical and professional resource by reviewing water well permit applications, assessing the impacts of proposed or existing water wells, and providing professional opinions regarding activities that may impact the groundwater resources in the District.

Please contact me at 254-968-8741 or by email at aaron@collierconsulting.com if you have any questions or need additional information.

Sincerely,

Collier Consulting, Inc.
Aaron Collier, P.G.
Vice President

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II. SUBMISSION OF STATEMENT OF QUALIFICATIONS

II.A. HISTORY OF FIRM

Collier Consulting, Inc. is a Texas Corporation that has been in business for 24 years and has enjoyed sustained growth throughout its history. Collier Consulting is HUBZone certified, State of Texas HUB, as well as North-Central and South-Central Texas Women-Owned Business Enterprise (WBE). In 2018 Collier Geophysics was incorporated as an affiliated company to Collier Consulting.

The firm's Principals are:

Gail Collier, President

gail@collierconsulting.com

Hughbert Collier, Ph.D., P.G., Sr. Vice President

hughbert@collierconsulting.com

II.B. FINANCIAL STATUS

Collier Consulting is a stable and financially viable company with \$2.7 million in assets. Our family-owned small business model allows Clients direct access to senior professionals and company management. We pride ourselves in timely and cost-effective project delivery for all of our clients, big or small. Our work spans from small hydrogeological studies to large well fields in excess of 1 million dollars.

II.C. QUALIFICATIONS AND PROFESSIONAL REGISTRATIONS OF KEY PERSONNEL



Aaron Collier, P.G.

Vice President

aaron@collierconsulting.com

(254) 396-3002

Education

M.S. Geology,
University of Texas
at San Antonio

Registration

Texas P.G. License-
11201

Industry Tenure

20 years

Collier Tenure

20 years

Location

Stephenville, TX

Aaron is geoscientist with 20 years of professional experience in all facets of sub-surface investigations and engineering projects. During his career, Aaron's responsibilities have ranged from on-site supervision of drilling and description of well cuttings in mixed carbonate and siliciclastic environments to technical lead/project management of several of Collier Consulting's geoscience projects. For the last 7 years, Aaron has overseen the operations of Collier Consulting and its sister company Collier Geophysics. Projects during Aaron's tenure have included local and regional hydrogeological investigations throughout Texas, designing groundwater databases, groundwater modeling, borehole and surface geophysical investigations throughout the United States, water resource engineering, development of SAAS software for management of water assets, regulatory compliance, and environmental litigation.

Professional Experience

Hydrogeologic Investigations

Aaron has supervised the creation of groundwater models for various clients to be used in the management of aquifers throughout Texas. Interpreted the lithostratigraphic and hydrostratigraphic boundaries for numerous aquifers using surface/borehole geophysics, driller's logs, and drill cuttings. He has created geologic cross sections, fence diagrams, and 3 dimensional models from the interpreted hydrogeologic information. Integrated the geologic descriptions with borehole and surface geophysics to more accurately define the aerial extent of various water qualities. Performed numerous pumping tests to obtain aquifer parameters. Identified, established, and conducted water level monitoring programs.

Water Resource Engineering

Aaron provided 24-hour supervision of drilling for a number of public water supply wells. He conducted detailed geologic descriptions of the entire stratigraphic column from drill cuttings in a variety of public water supply wells ranging in depth from < 100 feet to > 2,000 feet. Aaron integrated the geologic descriptions with borehole and surface geophysics to determine sand thickness, screen settings, and future well locations. He used surface seismic to delineate stratigraphic contacts, geologic thickness, and regional faulting. Reviewed Schlumberger's Formation Micro Image, Ultrasonic Borehole Imager, and Optical Televiwer logs in an effort to integrate the regional faulting seen in surface seismic with the local faulting/fracturing at the borehole scale.

Geophysical Investigations

Aaron has provided supervision of drilling for a number of geotechnical/environmental borings and integrated the geological description with borehole and surface geophysics to more accurately define the aerial extent of subsurface contaminants.



Brad L. Cross, P.G. Senior Hydrogeologist

bcross@collierconsulting.com
(512) 851-8740

Education

B.S., Geology, University of Texas at El Paso

Registrations

Texas P.G.
License 1401

Louisiana P.G.
License 306

Industry Tenure

40 years

Collier Consulting Tenure

1 year

Location

Round Rock, TX

Additional Training

40-Hour
HAZWOPER -2019

8-Hour HAZWOPER
Refresher-2021

Professional Memberships

Ground Water
Protection Council

Brad Cross is a Senior Hydrogeologist with Collier Consulting, Inc. and has over 40 years of experience assisting public water supply systems with development and implementation of source water assessment and protection programs, public water supply rules and regulations, groundwater resource evaluations, hydrogeologic studies, environmental assessments, underground injection wells, and project management. Throughout his 15 years at the Texas Commission on Environmental Quality (TCEQ) and contract work with the U.S. Environmental Protection Agency (EPA), Mr. Cross gained extensive experience and knowledge on the development of rules, regulations, and guidelines associated with the public drinking water program. He developed and directed Texas' statewide drinking water protection program and provided site-specific technical assistance to over 300 communities throughout the state. He was responsible for developing public education strategies and coordination of local, regional, state, and federal representatives to assure comprehensive program coordination. He also managed and provided oversight of a \$3 million joint funding agreement with the U. S. Geological Survey in the development and implementation of a statewide source water assessment program. Mr. Cross also spent 21 years with a private consulting firm conducting hydrogeological studies for clients and through a contract with TCEQ, implementing source water protection programs throughout the state.

Professional Experience

Source Water Assessment and Protection Program, Statewide Program Design
Architect of TCEQ's Source Water Protection Program. Activities included program design, securing program approval by EPA, and statewide implementation.

Public Water Supply Protection Strategies, Various Cities, TX

Responsible for developing site-specific drinking water protection strategies for more than 300 public water supply systems. The strategies included evaluating groundwater and surface-water availability, modeling zones of contribution, field identification and inventorying of potential sources of contamination within the zone of contribution, developing protection strategies, and providing technical assistance to stakeholders in implementing best management practices.

Statewide Anthropogenic Groundwater Contamination Study

Conducted TWDB statewide study of potential and existing groundwater contamination. The study examined potential sources of contamination from business, industry, waste disposal, and agricultural activities. Project report and

maps are utilized as a tool for Regional Water Planning Groups when considering future groundwater development as a water management strategy.

Statewide Characterization of Major and Minor Aquifers

Developed a general characterization of major and minor aquifers in Texas for a major oil company, provided client with an evaluation of the potential availability of groundwater, selected aquifer characterizations, and general information on groundwater conservation districts as well as regional water planning activities.

Groundwater Availability Certifications, Statewide

Mr. Cross has significant experience in conducting Groundwater Availability Certifications in a number of Texas counties. Title 30, Texas Administrative Code, Chapter 230 provides local governments the authority to require certification that adequate groundwater is available for a proposed subdivision if groundwater under that land is to be the source of water supply. Project activities, in addition to completion of the Groundwater Availability Certification form, include identification of the aquifer and specific aquifer properties at the site; identification of all known existing, abandoned, and inoperative wells within the proposed subdivision; projected water demand estimates; determination of groundwater quality; determination of groundwater availability; and availability and usability statements such as drawdown of the aquifer at the pumped well(s) over 10-year and 30-year periods, and minimum spacing limits; and whether available groundwater is or is not of sufficient quantity and quality to meet the intended use of the platted subdivision.

Environmental Risk Assessments and Audits

Conducted over 500 environmental risk assessments and audits for global insurance firms. Activities included comprehensive overview of operations and processes, facility history, surrounding environment and land use, evaluation of raw materials, waste materials, storage areas, loading/unloading facilities and procedures, disposal units, evaluation of permits, general regulatory compliance, groundwater monitoring, emergency response plans, and corporate environmental processes and guidelines.

Delineation of Procedures and Tools to Delineate Areas Designated or Used for Class II Well Wastewater Injectate

On project team that developed tools to aid the TWDB in determining the most appropriate and science-based designation of buffer zones for Class II injection wells within brackish groundwater production zones in accordance with the Texas Water Code. Because there is such a large volume of brackish groundwater in Texas, it was critical to develop scientifically defensible procedures and tools that rely on publicly available data so a standardized process could be developed for the TWDB.'

Injection Well Permitting and Aquifer Exemption, El Paso, TX

Developed five Class V/I injection well applications and associated permits for the City of El Paso's 27.5 mgd brackish water desalination plant. Responsibilities included developing injection well applications, drilling and completion oversight, annual mechanical integrity testing, and reporting. An Aquifer Exemption was also secured to address injection of concentrate that does not meet state and federal primary drinking water standards.

Injection Well Permitting, San Antonio, TX

Assisted in the development of three Class I UIC General Permit Applications for San Antonio Water System's 10 mgd brackish water desalination plant.

Electrical Resistivity Survey of Pipeline Crossing on Colorado River, San Saba and Burnet Counties, TX

Project manager for 15 high-resolution multi-node electrical resistivity river bottom surveys to provide preliminary subsurface information along a proposed pipeline right-of-way and to identify geologic hazards such as faults, fractures and voids in the subsurface material that may impact horizontal directional drilling activities.

Excavatability Study of Proposed Pipeline Route, Reeves County to Waller County, TX

Determined bedrock and characterization of excavatability of materials encountered along a 470-mile proposed pipeline route from the Waha hub in northeast Reeves County to Waller County. The assessment presented the results in terms of excavation techniques that would be needed to cut the pipeline trench. The assessment was used to help determine the 42-inch pipeline construction costs.

Assessment of Groundwater Contamination in the Gulf Coast Aquifer, Refugio County, TX

Assessed and remediated produced water release from a failed Class II disposal well. Tasks include evaluation of water-quality and geophysical data on a regional basis, modeling of contaminant plume, supervision of drilling and geophysical logging activities, groundwater sampling, groundwater monitoring, water quality analysis, and development of remediation strategy.

Identification of Water and Wastewater Resources, Sweetwater, TX

Conducted a reconnaissance-level evaluation of the availability of water and wastewater resources within a 50-mile radius of Sweetwater, Texas for a proposed power generation plant.

Enbridge Line 6A Release Emergency Response, Romeoville, IL

Participated in the Incident Command Structure for the emergency response activities for a 6,000-barrel crude oil release. The project required the excavation and disposal of more than 15,000 tons of contaminated soil and treatment and disposal of more than four million gallons of water located in an area with numerous utilities.

Longhorn Pipeline, Austin area, TX

Field geologist responsible for supporting the permitting process for the 19-mile pipeline replacement that crossed the Edwards Aquifer recharge and contributing zones.

Development of Nation's First Regional Protection Program, El Paso, TX and Ciudad Juarez, Chihuahua, Mexico

Program director responsible for developing the nation's first regional drinking water protection program for the City of El Paso and Cd. Juarez. The U. S. EPA used this bi-national effort as a model for other programs across the nation. Key components included international public coordination, development of hydrogeological settings map, identification and data entry of all regional potential sources of contamination, development of a regional protection strategy for nonpoint sources of pollution, development of contingency plans, and development of bilingual educational materials.

Geologic Field Mapping, Ciudad Chihuahua, Chihuahua, Mexico

Responsible for conducting geologic field mapping of over 500 square miles north of Cd. Chihuahua, Mexico. This remote region had never been mapped. The survey was conducted using plane table and alidade, and later served as a base map for several economic geology studies.

Critical Area Delineation, Statewide, TX

Field geologist responsible for assisting in the initial program development and delineation of statewide critical areas (now known as "Priority Groundwater Management Areas"). Led technical team in the evaluation and delineation of all statewide areas.

Phase I Environmental Site Assessments, Dell City, TX

Project manager responsible for conducting multiple Phase I Environmental Site Assessments to identify environmental conditions on numerous farm and ranch properties purchased by client for future water supply use.



Peter George, Ph.D., P.G. Senior Hydrogeologist

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(512) 699-0697

Education

Ph.D. Geology,
Louisiana State
University

M.S. Geology, Texas
A&M University

B.S. Geology, Duke
University

Registration

Texas P.G. License
10344

Industry Tenure

30 years

Collier Consulting

Tenure
9 years

Location

Round Rock, TX

Dr. George has been working as a geoscientist for 30 years. During that time, he has worked in academic research, the mining industry, the oil and gas industry, state agencies, and currently at Collier Consulting. At the Universities of Texas and Wyoming he worked on field and lab-based studies involving structural geology and geochronology. He worked as a field geologist on mining projects in the western United States and managed testing of Halliburton's petrophysical software. At the Texas Water Developed Board he produced reports on the hydrogeology of the State's aquifers and at the Railroad Commission of Texas he worked on protecting groundwater resources during oil and gas production. At Collier Consulting he has worked on a variety of projects related to groundwater production in Texas.

Professional Experience

Aquifer of Texas Report

Dr. George adjusted the boundaries of the Blaine, Bone Spring-Victorio Peak, Edwards (Balcones Fault Zone), Ingeous, Lipan, Ogallala, Pecos Valley, Seymour, and Trinity aquifers.

Bone Spring-Victorio Peak Aquifer

Dr. George characterized Hudspeth County's groundwater in terms of availability and water quality, and assessed the boundary of the Bone Spring-Victorio Peak Aquifer.

Carrizo-Wilcox Aquifer Study

Completed a study on the geology of the Carrizo-Wilcox Aquifer for the Texas Water Development Board Report #374.

State of Texas Transborder Aquifer Study

Contributed to a study on shared aquifers bordering the State of Texas. The study included interpreting stratigraphy, constructing maps, and analyzing groundwater chemistry.



Alyson K. McDonald, Ph.D., P.G. Sr. Geoscientist

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(432) 290-3096

Education

Ph.D., Water Management and Hydrological Science, Texas A&M University

Registration

Texas P.G. License 11823

Industry Tenure

19 years

Collier Tenure

3 years

Location

Stephenville, TX

Alyson specializes in ecohydrology of semi-arid environments. She has conducted a variety of water resource investigations across west Texas with the cooperation of landowners, as well as state and federal agencies. Surface water experience includes stream discharge measurements from the Pecos Valley and Yegua Jackson aquifers, baseflow recession analysis, standard of identity study to assess hydraulic connection between groundwater and spring water in the Queen City and Sparta aquifers. Groundwater expertise includes rainfall recharge in the Edwards Trinity Plateau aquifer, low-flow sampling from the Queen City aquifer, borehole sampling, core logging, and packer testing in the Dockum aquifer, and installation and maintenance of monitoring well networks in the Pecos Valley aquifer and Rio Grande alluvium.

Professional Experience

Stream-Aquifer Interaction

Assessed impacts of Tamarix (saltcedar) trees on streamflow and groundwater in the Pecos River Valley, Texas. Characterized alluvial aquifer along the Pecos River, Texas. Established and maintained monitoring well network. Constructed groundwater contour maps. Conducted soil particle size analysis and constructed lithologic cross-sections. Calculated transmissivity of alluvial aquifer using slug and bail-down methods. Measured stream discharge and completed seepage runs. Conducted hydrograph separation analyses. Constructed telescoping groundwater model. Installed and maintained water quality monitoring equipment in cooperation with AgriLife Research, the International Boundary and Water Commission, and Texas Commission on Environmental Quality.

Rainfall Recharge

Estimated impacts of brush control on soil moisture flux and aquifer recharge in three west Texas counties using chloride mass balance approach. Results indicate inter-mountain recharge may be as little as 0.07 mm yr⁻¹, which is between one and two orders of magnitude less than the often estimated 2% of annual rainfall. Work included soil sampling, soil particle size analyses, estimation of soil bulk density, calculation of time to chloride accumulation and deep drainage (recharge), analysis of National Climate Data Center precipitation records for local stations, and vegetation inventory.

Accomplishments include successful grantsmanship, popular and peer reviewed publications, and more than 100 presentations to agriculture producers, landowners, youth, and scientists.



Peter M. Schulmeyer, P.G. Senior Hydrogeologist

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Education

M.S. Hydrogeology,
University of Iowa

B.S. Geophysics, Uni-
versity of
Colorado

Registration

Texas P.G License-
11085

Wyoming P.G.
License- 3624

Industry Tenure

30 years

Collier Tenure

12 years

Location

Stephenville, TX

Peter is a Senior Hydrogeologist with Collier Consulting, Inc. and has more than 30 years of experience working in groundwater, water resources, and environmental industries. His experience includes groundwater modeling, geophysical log interpretation, hydrogeologic, groundwater, and water chemistry data analysis and interpretation, hydrogeologic and environmental investigation, environmental forensics, hydrogeologic cross section, GIS mapping and data analysis. He has worked for the USGS in Colorado, Iowa, and various other consulting firms in Colorado, Wyoming, and New York with project experience across the nation. He has conducted subsurface mapping, geophysical log interpretation, and constructed cross-sections for formations in the Gulf Coast Aquifer System, Permian, Pennsylvanian, Triassic, and Cretaceous Systems across many counties in Texas. Peter has conducted water quality assessment for wells completed in various aquifers. He has performed water resources analysis for the planning of well placement and production, contaminant transport analysis to determine the impact and movement of contaminants, and aquifer tests to determine hydraulic properties of aquifers.

Professional Experience

Paleozoic (Cross Timbers) Aquifer, Cooke County, TX

A 3-D multi-layer groundwater flow model was developed to investigate the effect of a well field on area water level in the Paleozoic (Cross Timbers) aquifers in Cooke County, Texas. A maximum of twelve Paleozoic (Cross Timbers) wells were planned for the well field. MODFLOW was used to simulate water level changes, optimize well field design, and determine any interaction between the Paleozoic (Cross Timbers) and the Antlers Aquifers that may result from multi-well aquifer tests. Analyzed pumping tests for aquifer storativity, transmissivity, and hydraulic conductivity.

Gulf Coast Aquifer, Galveston County, TX

Developed a 3-D multi-layer numerical groundwater flow model (MODFLOW and SEAWAT) in the Gulf Coast Aquifer to investigate the effect of planned Aquifer Storage and Recovery wells on land surface subsidence, saltwater intrusion, and area water levels. Several hundred geophysical logs were analyzed for model development. The study integrated geochemical modeling to examine effects of mixing different waters during aquifer storage and recovery.

Chicot Aquifer, Freeport, Brazoria County, TX

Analyzed more than 300 geophysical logs to determine the area's hydrostratigraphy for development of a MODFLOW and SEAWAT groundwater flow model to investigate the effect of a well field on area water level, land surface subsidence, and saltwater intrusion in the Chicot Aquifer.

Gulf Coast Aquifer, Cameron County, TX

This study was conducted to explore potential groundwater resources with total dissolved solids less than 5,000 mg/L. Examined over 500 geophysical well logs to investigate the hydrostratigraphy of the Gulf Coast Aquifer.

Whitsett, Live Oak County, TX

Developed a MODFLOW groundwater flow model to investigate the possible sources of groundwater flow in a well blowout. Analyzed over 600 geophysical logs to determine the area's hydrostratigraphy.

Chicot and Evangeline Aquifers, Waller County, TX

Used the Houston Area Groundwater Model to investigate the effect of a well field on area water level and land surface subsidence in the Chicot and Evangeline Aquifers. Analyzed geophysical logs to determine the area's hydrostratigraphy, aquifer thickness, and determine the location of 20 wells.

Drilling Projects

Analyzed geophysical logs and prepared lithologic sections for various drilling projects to determine the hydrostratigraphy, aquifer thickness, and propose well depths in Andrews, Brown, Brewster, Burleson, Collin, Cooke, Crockett, Dallas, Denton, Gains, Henderson, Irion, Jeff Davis, Johnson, Lee Martin, Midland, Mitchell, Nola, Pecos, Reagan, Reeves, Schleicher, Waller, and Winkler Counties. Analyzed pumping test data to estimate aquifer storativity, transmissivity, hydraulic conductivity, and well efficiency.

Equus Beds Aquifer, McPhearson, KS

A 3-D multi-layer groundwater flow and contaminant transport model was developed to optimize the use of saline recovery wells and locate a new water well at an active refinery in McPhearson, Kansas. The model simulated the flow of groundwater through the unconsolidated material of the Equus beds aquifer.

West Valley, NY

A 3-D multi-layer groundwater model (MODFLOW) was developed to simulate groundwater flow conditions and a contaminant plume on the North Plateau of the West Valley Demonstration Project. The model simulated the groundwater flow through a sequence comprised of a surficial gravel unit and the un-weathered till that acted as a confining layer. The model was also used to simulate flow through an earthen cover that would be placed over the facility and surrounded by a hydraulic barrier to entomb it to determine the amount of water accumulation within the barrier over a period of 100 years.

Cedar Rapids Municipal Well Fields, Iowa

A 3-D multi-layer groundwater flow model (MODFLOW) was constructed to simulate the groundwater flow system of the alluvial aquifer that is used by The City of Cedar Rapids as a drinking water supply. The model consisted of 5 layers simulating the unconsolidated material of the alluvial aquifer, glacial till, loess, and Silurian and Devonian bedrock. The surface water-groundwater interactions were simulated to determine the susceptibility of the aquifer to agricultural chemicals and determine zones of transport for the wells. Six collector wells were located and simulated. Other studies conducted for The City of Cedar Rapids include groundwater under direct influence (GWDI) of surface water.



Lauren E. Swientek, M.S. Hydrogeologist

lswientek@collierconsulting.com
(210) 422-5552

Education

M.S. Hydrogeology,
Baylor University,
Waco, TX.

B.S. Geology,
Univ. of Texas of the
Permian Basin

Industry Tenure

10 months

Collier Tenure

10 months

Location

Stephenville, TX

Lauren's Master's Thesis investigated impacts of sewage effluent and unconventional recharge sources to the Brazos River Alluvium Aquifer using field studies alongside surface water and groundwater modeling. She has 14 months of professional experience encompassing various types of environmental and hydrogeological work. This includes aquifer tests to determine hydraulic properties in multiple aquifers, water quality assessments for existing and future wells, geophysical log interpretation, and constructing cross sections. Lauren also uses groundwater models to investigate sustainability and optimal placement of new wells pertaining to current growth in North and Central Texas.

Professional Experience

Hydrogeologic Investigations

Lauren has developed multiple hydrogeologic reports to provide groundwater conservation districts (GCDs) with hydrogeological information pertinent to implications new wells may have on existing wells and desired future conditions of the attributed aquifer. She determined aquifer parameters using multiple methods including but not limited to: interpreting geophysical logs using GeoGraphix to locate aquifer boundaries and thicknesses, creating and translating hydrographs to investigate current and historic groundwater levels, investigate water quality parameters through AquaChem, and determining physical characteristics using AQTESOLV. Lauren used these methods to determine sustainable production of local aquifers and is most familiar with those in north and central Texas (Carrizo-Wilcox, Cross Timbers, Trinity, Woodbine Aquifers).

Geographic Information Systems (GIS)

Lauren has used GIS to solve a number of hydrogeologic problems, from examining drawdown trends in the Trinity Aquifer to determining the most efficient well layout according to GCD requirements and aquifer sustainability.

Groundwater Modeling

Lauren has assisted in developing numerical groundwater flow models to investigate the effects of a well field on local groundwater level. MODFLOW (2005) was used to simulate water level changes and determine the possibility of vertical flow between separate aquifers that may result from pumping. Explorer well logs and groundwater availability models (GAM) were used to determine the hydrostratigraphy of the area and aquifer tests were used to validate the model.

Environmental Remediation

Lauren performed a site investigation in Anderson County, Texas that included a brine leak from oil and gas pipelines on private property. She documented

damages that included vegetation and livestock losses and conducted soil and water sampling for remediation strategies. She assisted in designing a monitor well system to determine the extent of possible groundwater contamination from the leak throughout the property.

Field Studies

Lauren oversaw a 36-hour pump test to verify stable production according to initial well design and the well's rated capacity. She performed hourly measurements and ensured the production remained consistent throughout the test to confirm data integrity for TCEQ requirements.

II.D. GENERAL STATEMENT OF QUALIFICATIONS

Collier Consulting (Collier) is a geoscience and engineering consulting firm specializing in water resources engineering and groundwater studies. Our company strength is the integration of water supply engineering services with hydrogeology (groundwater modeling, subsurface mapping, aquifer testing, construction management, surface/borehole geophysics). We have about 50 employees, which is relatively small compared to many of the companies that assist Texas GCDs. We believe our size allows for better communication with our clients, which in turn produces a higher quality product. Many of our clients have worked with us for a number of years and we have developed close relationships with them.

The company was incorporated in 1998 and has enjoyed sustained growth throughout its history. Collier Consulting is HUBZone certified, State of Texas HUB, as well as North-Central and South-Central Texas Women-Owned Business Enterprise (WBE).

Company headquarters is in Stephenville, Texas with satellite offices in Round Rock and Houston, Texas, Denver, Colorado, Oak Ridge, Tennessee, Milwaukee, Wisconsin, Atlanta, Georgia, Raleigh, North Carolina, and Boston, Massachusetts.



Collier senior staff members are recognized in Texas, as well as nationally, for the application of hydrogeologic and geophysical principles. Senior staff have taught short courses and lectured internationally and throughout the U.S. on hydrogeology, geophysics, and borehole geophysical log interpretation. Dr. Collier is the author of Texas Water Development Board (TWDB) Report 343, *Borehole Geophysical Techniques for Determining the Water Quality and Reservoir Parameters of Fresh and Saline Water Aquifers in Texas*, and Dr. Peter George is the principal author of TWDB Report 380, *Aquifers of Texas*. Dr. John Jansen was the 2013 NGWA McElhiney Distinguished Lecturer in Water Well Technology and the 2012 recipient of the NGWA Keith A. Anderson Award for service to the groundwater industry.

WATER RESOURCES EXPERIENCE

The staff has conducted a number of local and regional hydrogeological studies, including studies for innovative water supplies such as aquifer storage and recovery (ASR), and brackish water. These studies have utilized thousands of borehole geophysical logs, driller's logs, water analyses, well construction diagrams, pumping tests, published literature, and production data. Our staff frequently use groundwater availability models (GAMs) to simulate proposed well production to calculate aquifer drawdown, radius of influence, well interference, and impact on modeled available groundwater (MAG) and desired future conditions (DFCs).

Collier has a strong working relationship with water agencies and organizations that include, but are not limited to, the Texas Commission on Environmental Quality (TCEQ), Groundwater Conservation Districts (GCD), Groundwater Management Areas (GMA), and Texas Alliance of Groundwater Districts (TAGD).

GROUNDWATER MANAGEMENT AND JOINT PLANNING IN TEXAS

Collier staff are well versed in the required elements of GCD Management Plans specified in statutes of Chapter 36 Texas Water Code, also outlined in the Texas Water Development Board checklist. While we have not

developed and implemented a management plan for a GCD client, our groundwater modelers are adept at running the GAMs to estimate rainfall recharge, estimate discharge from aquifers to streams & springs, and estimate hydraulic communication among aquifers.

Additionally, we routinely access projected water supply and demand volumes published in the State Water Plan, from Texas Water Development Board Water Planning Database and Planning Data Dashboard. Our staff frequently compare requests for permitted pumping volumes with Managed Available Groundwater (MAG) volumes provided by TWDB. A Senior staff member has served on the Brazos Region G Water Planning Group since 2015.

EXPERT WITNESS SERVICES

Collier staff have provided litigation support for groundwater investigations in New Mexico, California, Missouri, Louisiana, and throughout Texas, including cases in Martin, Haskell, Montgomery, Parker, Wise, Throckmorton, Rusk, Goliad, and Leon Counties.

GEOPHYSICAL EXPERIENCE

Geophysical investigations have become an integral part of site assessment and characterization studies, feasibility studies, and engineering design. Investigations are planned and performed by professional geophysicists using state-of-the-art equipment, processing software, 2-D and 3-D data visualization, GIS, and modeling techniques to provide useful solutions. We offer surface, borehole, airborne, marine, and drone-enabled geophysical services.

II.E. PROJECT EXPERIENCE

Project Title: Rules for Water Well Permitting and Impaired Water Frac Pits

Client: University Lands

Collier developed rules for water well permitting for University Lands. This included an Application for Construction of a Well, a Well Completion checklist, an Application to Pump a Well, and Water Use Reporting. Collier also developed the Impaired Water Frac Pit Lease document, which specifies design, construction, repair, maintenance, monitoring, closure, and reclamation of such pits on University Lands. This project extended to the design, construction, and completion of rig wells in Reagan, Crockett, and Irion Counties to include geophysical logging, aquifer testing and analysis, and water quality sampling.

Project Title: Third Party Technical Review of GMA 8 Groundwater Availability Model Revision

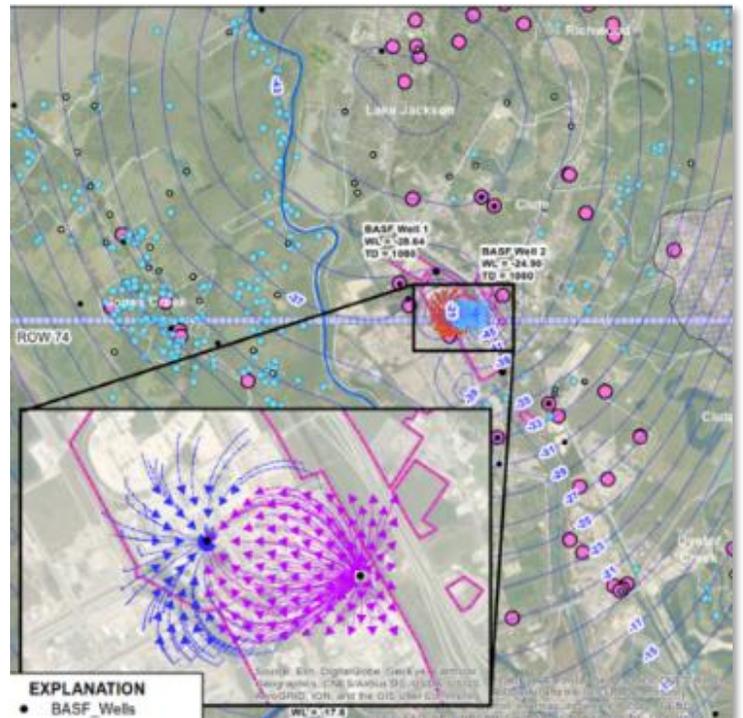
Client: Groundwater Management Area 8

Collier Consulting was appointed by the North Texas Groundwater Conservation District to sit on the technical review committee for the GMA 8 Groundwater Availability Model revision. Collier reviewed all aspects of the technical data used in the creation of the new model (e.g. borehole geophysical logs, water levels, water quality data, and pumping tests). Collier led an effort to work conjunctively with the participating groundwater conservation districts and their constituents to educate those involved.

Project Title: Hydrogeological Assessment for Conjunctive Use, and Aquifer Storage and Recovery, Brazoria County, TX

Client: BASF Corporation

Collier assisted BASF Corporation in developing a conjunctive water use plan that included the utilization of their purchased surface water and the use of local fresh and brackish groundwater resources to supply the needs of their facility. Collier evaluated potential impacts of new water wells on the local groundwater system using several 3-D groundwater flow models developed to investigate the potential drawdown at existing wells, the impact of subsidence rate, and potential saltwater intrusion from the Gulf of Mexico. The models simulated the placement and impact of up to six wells at the main facility, multiple wells at a remote site, and the use of these wells for Aquifer Storage and Recover (ASR) over a period of 50 years. Collier investigated the feasibility of utilizing the upper, middle, and lower sand units of the Chicot Aquifer to produce groundwater by constructing a 10-layer transient groundwater flow model covering an area of 552-square miles surrounding the facility. Over 100 borehole geophysical logs were used to determine the subsurface geology in the model area, create lithologic cross-sections, determine net sand thickness, and evaluate possible locations for additional production wells. Six possible zones were identified as possible production zone(s) for use with ASR. A geochemical analysis of



samples of surface water and groundwater were integral to the evaluation of potential impacts of ASR injection and recovery of water from the aquifer. Particle tracking analysis was performed to determine flow paths of water from the ASR injection wells and for saltwater intrusion from the Gulf of Mexico. Over 30 different pumping scenarios were evaluated for the water use plan. Collier was also responsible for the engineering design, drilling construction supervision of two production water wells, and evaluating the efficiency of the well after construction by performing pumping tests. The two 1,100-foot-deep industrial water wells produce about 1,000 gpm each.

Project Title: Development of Pumping Volumes, Locations, and Aquifers for Selected Study Areas

Client: Texas Water Development Board

Members of our staff previously served under contract to the TWDB and were tasked with improving the estimated historical pumping rates, both spatially and temporally, for numerical groundwater flow models (Groundwater Availability Models [GAMS]) of the major and minor aquifers in Texas. In the past, the TWDB's Water Use Survey Program gathered pumping data and provided broad estimates of groundwater use on a regional (county, basin) basis. The pumping estimates were obtained using transient and undocumented processes especially those used to assign aquifers for various water use categories such as livestock, mining, rural domestic, and irrigation. Due to non-reporting entities, there were additional data gaps that needed to be addressed. A goal of the study was to develop a well-documented and consistent process for evaluating the TWDB Water Use Survey and to identify and flag counties that may have missing data or inconsistencies. The improved data is used for modeling projects in the TWDB GAM Program.

II.F. CLIENTS IN BRAZOS VALLEY GCD

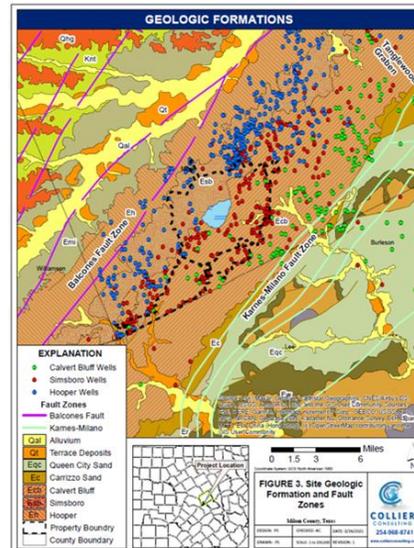
Collier Consulting does not have clients with water wells producing in Robertson or Brazos Counties.

II.G. AQUIFER EXPERIENCE

Project Title: Review of Groundwater Related Issues for The Sandow Lakes Ranch, Milam and Lee Counties, North-Central, Texas

Client: Sandow Lakes Ranch

Collier examined water quality data, production data, water levels in the principle aquifers, and rules of local groundwater conservation districts (GCDs). An analysis of the data found no significant issues with regard to developing groundwater on the property. There was some concern of possible seepage in one area of the property where a confining layer, separating mine spoils from the Simsboro Aquifer, is thin. Data acquired from mine reports allowed Collier to determine local hydraulic conductivity and porosity values, and water level data were used to calculate hydraulic gradients across the confining layer. Further calculations using local parameters and estimated hydraulic gradients suggested that seepage through the thin confining layer is a possibility over a time period of less than 20 years.



Project Title: Evaluation of Brackish Groundwater Resources in Texas

Client: Texas Water Development Board

Select Collier staff (Brad Cross, P.G.) were part of the LBG-Guyton Associates' evaluation of the brackish water resources in all of the major and minor aquifers in the state of Texas. The state-wide hydrogeologic assessment included the Brazos Valley Groundwater Conservation District's groundwater resources within the Carrizo-Wilcox, Queen City, Sparta, and Yegua aquifers, as well as smaller aquifers located within the two-county area of the District.

The purpose of the evaluation was to develop a comprehensive overview of the occurrence of brackish groundwater in the state that might be used as water supplies through the use of desalination and develop hydrogeologic and water quality maps that can be easily used to assess potential brackish water resources for planning purposes. The research also summarized the significant engineering factors that should be considered in the development of water management strategies that include desalination of brackish groundwater.

The reports included GIS maps for each of the aquifers that included the footprint of the aquifer, available water chemistry data, and estimated isocontours for 1,000, 3000, and 10000 mg/L TDS. These maps can be used to help identify potential areas where entities may want to consider using brackish groundwater as a source of drinking water or as a supplemental source for existing supplies.

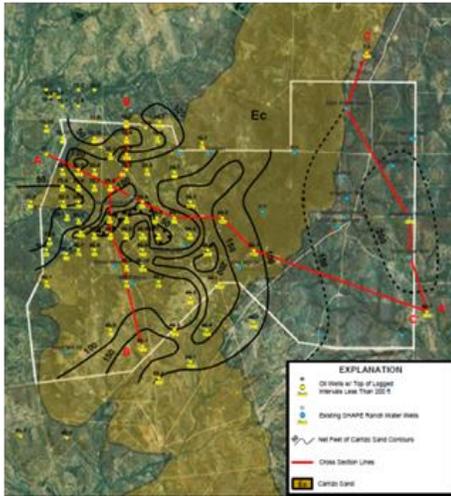
Project Title: Myrtle Springs WSC Hydrogeological Study, Van Zandt County, Texas

Client: Myrtle Spring Water Supply Corporation (WSC)

Myrtle Springs WSC hired Collier to investigate groundwater resources in the vicinity of the WSC, identify possible well locations, and assess the potential for increasing production in the existing wells. Collier assembled multiple datasets of hydrogeological data including, but not limited to, historical water level data, aquifer tests, and borehole geophysical logs in order to map the Wilcox aquifer. The final report included recommended sites for new wells accompanied by a series of maps, cross sections, hydrographs, and water well diagrams.

Project Title: Hydrogeology of the SHAPE Ranch, Dimmit County, Texas

Client: Hugh Fitzsimons



Collier Consulting conducted a hydrogeological study of the SHAPE Ranch that included borehole geophysical logging, subsurface mapping, water level monitoring, water quality sampling, and pumping tests. Extensive use was made of petroleum logs to delineate and map the Carrizo and Wilcox aquifers. This study provided the local oil and gas companies with viable water supply options for their fracing operations, while minimizing the impact on shallower domestic wells.



ADDITIONAL REMARKS SCHEDULE

AGENCY WinStar Insurance Group LLC		NAMED INSURED Collier Consulting, Inc ,& Collier Geophysics LLC PO Box 1137 Stephenville, TX 76401	
POLICY NUMBER SEE PAGE 1			
CARRIER SEE PAGE 1	NAIC CODE SEE P 1	EFFECTIVE DATE: SEE PAGE 1	

ADDITIONAL REMARKS

THIS ADDITIONAL REMARKS FORM IS A SCHEDULE TO ACORD FORM,
FORM NUMBER: ACORD 25 FORM TITLE: Certificate of Liability Insurance

**ADDITIONAL NAMED INSURED
COLLIER GEOPHYSICS, LLC**

THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.

**PRIMARY AND NON-CONTRIBUTORY ADDITIONAL
INSURED WITH WAIVER OF SUBROGATION FOR PROJECT OR
CONTRACT**

This endorsement modifies insurance provided under the following:

COMMERCIAL GENERAL LIABILITY COVERAGE PART
CONTRACTORS POLLUTION LIABILITY COVERAGE PART
ERRORS AND OMISSIONS LIABILITY COVERAGE PART

SCHEDULE

Name of Person(s) or Organization(s)
Blanket when specifically required in a written contract with the named insured.
Designated Project or Contract:
Blanket when specifically required in a written contract with the named insured.
Information required to complete this Schedule, if not shown above, will be shown in the Declarations.

- A. **SECTION III – WHO IS AN INSURED** within the Common Provisions is amended to include as an additional insured the person(s) or organization(s) indicated in the Schedule shown above, but solely with respect to “claims” caused in whole or in part, by “your work” for that person or organization performed by you, or by those acting on your behalf.
- This insurance shall be primary and non-contributory, but only in the event of a named insured’s sole negligence.
- B. We waive any right of recovery we may have against the person(s) or organization(s) indicated in the Schedule shown above because of payments we make for “damages” arising out of “your work” performed under a designated project or contract with that person(s) or organization(s).
- C. This Endorsement does not reinstate or increase the Limits of Insurance applicable to any “claim” to which the coverage afforded by this Endorsement applies.

ALL OTHER TERMS AND CONDITIONS OF THE POLICY REMAIN UNCHANGED.

WAIVER OF OUR RIGHT TO RECOVER FROM OTHERS ENDORSEMENT

We have the right to recover our payments from anyone liable for an injury covered by this policy. We will not enforce our right against the person or organization named in the Schedule. (This agreement applies only to the extent that you perform work under a written contract that requires you to obtain this agreement from us.)

This agreement shall not operate directly or indirectly to benefit anyone not named in the Schedule.

Schedule

Any person or organization that you perform work for that is liable for an injury, covered by this policy, that prior to the injury has written contract requiring a waiver of our right to recover from them.

This endorsement changes the policy to which it is attached and is effective on the date issued unless otherwise stated.

(The information below is required only when this endorsement is issued subsequent to preparation of the policy.)

Endorsement Effective 01/01/2022 Policy No. WCV6180838-03 Endorsement No.
Insured Collier Consulting, Inc & Collier Geophysics, LLC Premium \$

Insurance Company Accident Fund National Ins. Countersigned by _____

II.I. CONFLICTS OF INTEREST

Collier is not aware of any conflicts of interest with the District or its Board of Directors, including the filing of any statements required under Chapter 176, Local Government Code.

II.J. ANTI-BOYCOTT CERTIFICATION

House Bill 89 Verification

I, Jerry K. Weldon II, the undersigned representative of (company or business name) Collier Consulting, LLC (heretofore referred to as company) being an adult over the age of eighteen (18) years of age, after being duly sworn by the undersigned notary, do hereby depose and verify under oath that the company named above, under the provisions of Subtitle F, Title 10, Government Code Chapter 2270:

1. Does not boycott Israel currently; and
2. Will not boycott Israel during the term of the contract.

Pursuant to Section 2270.001, Texas Government Code:

1. "Boycott Israel" means refusing to deal with, terminating business activities with, or otherwise taking any action that is intended to penalize, inflict economic harm on, or limit commercial relations specifically with Israel, or with a person or entity doing business in Israel or in an Israeli-controlled territory, but does not include an action made ordinary business purposes; and

2. "Company" means a for-profit sole proprietorship, organization, association, corporation, partnership, joint venture, limited partnership, limited liability partnership, or an limited liability company, including a wholly owned subsidiary, majority-owned subsidiary, parent company or affiliate of those entities or business association that exist to make a profit.

Jerry K. Weldon II
Signature of Company Representative

July 11, 2022
Date

On this 11th day of July, 2022, personally appeared

Jerry K. Weldon, the above named person, who after by me being duly sworn, did swear and confirm that the above is true and correct.

Notary Seal

Jessica White
Notary Signature

07/11/2022
Date

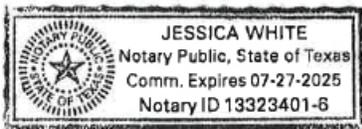


EXHIBIT B

EXHIBIT B

CERTIFICATION OF NON-DISCRIMINATION

TO BE EXECUTED BY RESPONDENT AND SUBMITTED WITH STATEMENT OF QUALIFICATIONS

Respondent hereby certifies in performing work or providing services for the District, there shall be no unlawful discrimination in its hiring or employment practices, and Respondent shall comply with applicable federal and Texas anti-discrimination laws.

IN WITNESS WHEREOF, the undersigned has executed this Certificate of Non-Discrimination this 10 day of August, 2022.

RESPONDENT:

Type or print complete legal name of firm)

BY: 
(Signature)

NAME: Alyson McDonald
(Type or Print)

TITLE: Senior Hydrologist
(Type or Print)

ADDRESS: 590 E. Santa Loop

CITY Stephenville STATE TX

ZIP 76401

EXHIBIT C

EXHIBIT C

REFERENCES

Respondent shall provide a minimum of three (3) References with three (3) or more years' experience with the Respondent.

REFERENCE 1	
NAME	Richard Brantley, Senior Vice President, Operations, University Lands
ADDRESS	704 W. Dengar Ave.
CITY, STATE ZIP CODE	Midland, Texas 79705-5319
TELEPHONE #	(432)686-4747
CONTACT	rbrantley@utsystem.edu
DATES OF SERVICE	2013-2017
DESCRIPTION OF SERVICES	CCINC developed rules for water well permitting for University Lands. This included an Application for Construction of a Well, a Well Completion checklist, an Application to Pump a Well, and Water Use Reporting.

REFERENCE 2	
NAME	Meredith Allen, General Manager, Kimble County GCD
ADDRESS	731 Main Street, STE. B / P.O. Box 31
CITY, STATE ZIP CODE	Junction, Texas 76849
TELEPHONE #	(325)446-4826
CONTACT	kimblecountygcd@gmail.com
DATES OF SERVICE	Current
DESCRIPTION OF SERVICES	Collier Consulting was selected in July 2022 to serve as the District Hydrogeologist.

REFERENCE 3	
NAME	Drew Satterwhite, P.E., General Manager, North Texas Groundwater Conservation District
ADDRESS	5100 Airport Drive
CITY, STATE ZIP CODE	Denison, Texas 75020
TELEPHONE #	(855)426-4433
CONTACT	d.satterwhite@northtexasgcd.org
DATES OF SERVICE	on-going
DESCRIPTION OF SERVICES	Collier Consulting coordinates closely, on a continual basis, with North Texas GCD on behalf of our clients.