



WithersRavenel

Our People, Your Success.

November 27, 2018 *Revised JA*

City of Greensboro, Water Resources
2602 S Elm-Eugene Street
Greensboro, NC 27406

Attn: Virginia Spillman

RE: WR Project #06181054.00
Engineering Services Agreement
Reedy Fork Sewer Outfall

Dear Ms. Spillman:

WithersRavenel (CONSULTANT) is pleased to provide Agreement for Engineering Services to City of Greensboro (CLIENT) for the Reedy Fork Sewer Outfall Project (PROJECT). If you have any questions or concerns about the agreement please do not hesitate to call me at the number listed below.

Sincerely

WithersRavenel

John Akers, P.E.
Project Manager

424 Gallimore Dairy Road, Suite C | Greensboro, NC 27409
Office: 336.605.3009 | Direct: 919.238.0418
Email: jakers@withersravenel.com

Attachments:
Agreement for Professional Services
Project Map

City of Greensboro Reedy Fork Sewer Outfall Agreement for Professional Services

A. Preliminary Matters

This Agreement for Professional Services is hereby included as an addition to and incorporated as part of the Agreement for Professional Services dated 1/29/2014 between City of Greensboro (CLIENT) and WithersRavenel (CONSULTANT) for professional engineering services to be rendered in connection with the Reedy Fork Sewer Outfall Project (PROJECT).

B. Project Description

The CONSULTANT will provide professional services for the design of approximately 6,200 LF of 24-inch sewer outfall extension. The sewer will extend northwest from the end of the existing 24-inch sewer outfall near the Summit Avenue bridge over Reedy Fork Creek to the western terminus of the property of Reedy Fork Associates, LLC, as shown of the attached "Project Vulcan" map. Additionally, as Alternative A to the project, the CONSULTANT will provide professional services for the design of approximately 2,800 LF of 8-inch gravity sewer and 2,200 LF of 12-inch gravity sewer from its connection to proposed 24-inch sewer outfall, north to its terminus at the property of Krawczyk Family Holdings LLC (as shown of the same map).

The services will include topographic and property survey, geotechnical investigation, final design, construction drawings, permitting, easement mapping, specifications, contract documents, bidding services, construction services, and project closeout.

The CONSULTANT will subcontract with Quantex and Cri-Tek to provide geotechnical engineering and erosion control design services, respectively.

C. Scope of Services

Task 1 – Preliminary Design

A. Project Initiation

- ▶ The CONSULTANT will perform an initial investigation of the project requirements, prepare scope and fee and attend a design scoping meeting with the CLIENT to finalize PROJECT requirements and obtain all necessary background information, including maps, drawings, etc. prior to commencing the design

B. Topographic Survey, 24-inch Proposed Sewer Outfall

- ▶ Survey limits include a 100' corridor of approximately 6,200 linear feet of a proposed 24" sewer outfall;
- ▶ Horizontal survey control to be tied to NC State Grid NAD'83 (2011) and vertical survey control to be tied to NAVD'88;
- ▶ Locate existing property corners as necessary to establish the recorded boundary on the base map;
- ▶ Locate existing site improvements within the corridor such as roads, drives, walkways, signs, buildings, overhead utilities, etc.;
- ▶ Locate storm and sanitary sewer structures including top and invert elevations and pipe sizes and types, where such determinations are possible;
- ▶ Locate the next in line off-site storm and sanitary sewer structures for any given storm or sewer line;
- ▶ Locate subsurface wet and dry utilities based on the observation of surface features. Sub Surface Utility Engineering services to mark sub surface utilities is not included in this scope of services;
- ▶ Locate tree lines. Does not include the location of individual trees within wooded areas;
- ▶ Contours to be mapped to a 1' (one-foot) contour interval;
- ▶ Mapping to be prepared at a scale suitable for use as a civil design base map;

C. Topographic Survey, 8-inch Proposed Gravity Sewer

- ▶ Survey limits include a 100' corridor of approximately 2,800 linear feet of a proposed 8-inch gravity sewer;
- ▶ Survey to be completed to the same specifications as outlined in Task 1.B.

D. Topographic Survey, 12-inch Proposed Gravity Sewer

Survey limits include a 100' corridor of approximately 2,200 linear feet of a proposed 12-inch gravity sewer;
Survey to be completed to the same specifications as outlined in Task 1.B.

E. Preliminary Alignment (30% Plans)

- ▶ Based on the topographic survey, CONSULTANT will develop a preliminary design alignment of the sewer and prepared into a base sheet format suitable for design and development of construction drawings.

F. Geotechnical

- ▶ CONSULTANT will subcontract with Quantex to perform a baseline geoprobe type geotechnical survey along the PROJECT route to establish soil profiles and location of subsurface soil, rock and groundwater conditions within the proposed alignment. Probes will be extended approximately every 500 feet along the horizontal alignment of the sewer line and will extend vertically to approximately 2 feet below the anticipated depth to be required by the design. The approximate probe locations will be noted on the plans and the geotechnical report will be included in the specifications and referenced for determination of the rock quantity if it is bid classified or for the contractors' information if bid unclassified.

G. Wetland/Stream/Riparian Buffer Delineation – 24, 12 and 8-inch Sewer Outfall Alignment

- ▶ Review area will consist of a 100' wide corridor along the proposed alignment for the 24-inch sewer outfall line.
- ▶ Obtain preliminary site information including aerial photos, USGS Quadrangle Maps, Guilford County Soil Survey and Guilford County GIS data prior to conducting site visit.
- ▶ Conduct a site review to determine if the review area contains jurisdictional wetlands, streams and surface waters. Jurisdictional wetlands will be determined using criteria set forth in the 1987 US Army Corps of Engineers (USACE) Wetlands Delineation Manual and applicable Regional Supplement. CONSULTANT will delineate jurisdictional wetlands and stream origins in the field using sequentially numbered Wetland Delineation flagging.
- ▶ Review the streams depicted within the review area on the USGS 7.5-minute Quadrangle and the Guilford County Soil Survey to determine subjectivity to the Jordan Lake Riparian Buffer Rules and City of Greensboro's Riparian Buffer Ordinance (UDO Section 30-7-1.8). Streams will be evaluated using the procedures set forth in the 2005 North Carolina Division of Water Quality (NC-DWQ) Stream Classification Method.
- ▶ Locate wetland and stream origin flags within the review area using a mapping grade Trimble GPS unit. The GPS data will be utilized for preparation of the exhibits for the site report and agency verification requests.
- ▶ Prepare a Preliminary Delineation Exhibit documenting the wetlands and riparian buffers to be surveyed and provide to the Client for preliminary planning purposes.



Task 2 – Final Design

WithersRavenel will prepare the following plans in separate Tasks as directed by the City. Task 1 will be for construction of approximately 6,200 linear feet of 24-inch sewer outfall along Reedy Creek. Task 2 will be for approximately 2,800 linear feet of 8-inch gravity sewer. Task 3 will be for approximately 2,200 linear feet of 12-inch gravity sewer.

A. 60% Plan Set

- ▶ Review 30% design with city and address comments
- ▶ Provide full plan sheet sets with cover, notes and details for review by city staff
- ▶ Provide a preliminary engineer's Opinion of Costs
- ▶ Submit 60% plan set for review.

B. 90% Plan Set

- ▶ Review 60% plan set with city and address comments
- ▶ Prepare 90% plans
- ▶ Prepare a sediment and erosion control plan, narrative, and application for submittal to the NC Division of Energy, Mineral and Land Resources. The budget assumes two (2) rounds of review. These services will be provided by CriTek Engineering Group.
- ▶ Prepare prefinal design specifications and bidding documents (consistent with city's standard format) for the PROJECT and submit to the city for review and approval.
- ▶ Prepare 90% engineer's Opinion of Costs

C. 100% Plan Set

- ▶ Review 90% prefinal plan set with city and address comments
- ▶ Prepare final (100%) plans
- ▶ Prepare final design specifications and bidding documents (consistent with city's standard format) for the PROJECT and submit to the city for review and approval.
- ▶ Prepare final engineer's Opinion of Costs

D. Erosion and Sedimentation Control Plan (Subcontracted to CriTek Engineering Group).

1. CriTek shall prepare erosion and sedimentation control drawings suitable for receipt of bids for construction of approximately 6,200 linear feet of 24-inch sewer outfall along Reedy Creek 2,800 LF of 8-inch sewer and 2,200 LF of 12-inch sewer. Throughout final design, CriTek will maintain regular contract with WithersRavenel staff to review the progress of design. Formal design review meetings with WithersRavenel and/or City of Greensboro will be conducted at the project kickoff 60-percent and 90-percent design completion stages. Preliminary drawings will be submitted at the 90% design stage. A final set of construction drawings will be submitted at the 100% design stage along with all necessary erosion and sedimentation control specifications and erosion control permit. The drawings are expected for the project:

- ▶ Erosion and Sediment Control Site Plan (13 sheets)
- ▶ Miscellaneous Details (3 sheets)

2. The following design assumptions were made during development of this Scope of Work:

- ▶ No more than two submittals to the NCDEQ – Division of Energy, Mineral, and Land Resources (DEMLR) will be required for erosion and sedimentation control approval.
- ▶ Deliverable(s): CriTek will prepare and submit preliminary and final design documents (through WithersRavenel) as described above and listed below:
- ▶ One (1) electronic (PDF) set of preliminary drawings at the 60% design review stage.
- ▶ One (1) electronic (PDF) set of preliminary drawings at the 90% design review stage.
- ▶ One (1) electronic (PDF and CAD) set of erosion and sedimentation control specifications will be provided at the 100% design stage.
- ▶ One (1) electronic (Word and PDF) set of erosion and sedimentation control specifications will be provided at the 100% design stage.
- ▶ One (1) complete erosion and sedimentation control application to NCDEQ.

E. US Army Corps of Engineers Jurisdictional Determination and Pre-Construction Notification Application

- ▶ Prepare a Jurisdictional Determination Request in support of the wetland delineation and submit to the US Army Corps of Engineers (USACE).
- ▶ Coordinate with the USACE to schedule a site visit to review and verify the wetland delineation. Upon completion of the field verification, the USACE will issue a Jurisdictional Determination. Any changes to the original wetland line as a result of the USACE field verification will be communicated to the surveyor for incorporation into the final wetland survey.
- ▶ Submit follow-up email to USACE recapping the results of the wetland verification and request USACE to respond concurring. This will provide

adequate documentation for state and local submittals that the USACE has approved the delineation until the actual Jurisdictional Determination has been issued by the USACE, which may take several additional months to be issued.

- ▶ NCDWR Stream/Buffer Determination for Final Sewer Alignments
- ▶ Prepare a request for a formal Buffer Determination and submit to the NC Division of Water Resources (NCDWR) to verify stream/buffer origins and subjectivity to Jordan Lake Riparian Buffers and City of Greensboro Riparian Buffers.
- ▶ Coordinate with NCDWR to schedule a site visit to review and verify the stream locations and buffer subjectivity. Upon completion of the review, NCDWR will issue an official Buffer Determination Letter verifying the stream locations and buffer subjectivity for five years.
- ▶ Prepare and submit to the City a Pre-Construction Notification Application for submittal to the USACE and NCDWR. If the USACE requires an Individual Permit, preparation for such an application shall be considered an Additional Service.

F. Easement Plats

- ▶ Prepare an easement plat for each sewer line;
- ▶ Plats will be prepared in accordance with NC G.S. 47-30 and will be suitable for recording;
- ▶ Fee does not include time and expense for WithersRavenel to submit the easement plat(s) for review and recording; Any such services shall be considered an Additional Service.
- ▶ The setting of easement corner irons as required by the North Carolina general statutes will be invoiced on a time and expense basis.

Task 3 – Construction Phase Services

A. Bidding Phase Services

1. Bidding Documents Assistance

- ▶ Assist the CLIENT with bid documents preparation by providing an electronic version of the signed and sealed construction plans and the specifications for use in preparing and distributing the bid package to interested bidders by Duncan Parnell.

2. Pre-Bid Meeting

- ▶ Attend Pre-Bid Meeting with City representatives and with prospective bidders and material suppliers.

3. Bidding Phase Assistance

- ▶ Address bidder questions and prepare addendum as necessary to answer questions or amend the plans or specifications.

B. Construction Assistance

1. Construction Survey & Stakeout Support

- ▶ Provide an AutoCAD file of the design for use by the contractor to perform the construction survey and stakeout.

2. Construction Requests for Information (RFI)

- ▶ Respond to City inspector or contractor RFIs during construction to address revised field conditions or clarify plans or specification questions or issues. A total of five (5) RFIs are anticipated by this scope to include two (2) site visits.

3. Pre-Construction Meeting

- ▶ Attend the pre-construction meeting.

C. Project Close Out

- ▶ Revise plan and profile sheets to incorporate City provided survey data showing “as-constructed” data and provide to the City for review and approval. Upon approval, provide two (2) paper copies, one original mylar and an AutoCAD file of the Record Drawings.

D. Additional Services

Services that are not included in Section C or are specifically excluded from this AGREEMENT shall be considered Additional Services. The CONSULTANT will furnish or obtain from others Additional Services if requested in writing by the CLIENT and accepted by the CONSULTANT.

- ▶ Boundary Surveying and Construction Staking
- ▶ NCDOT Permitting
- ▶ Geotechnical Services and Structural Design for any piers required for above grade stream crossings
- ▶ Bidding services
- ▶ Execution of Construction Contract
- ▶ Construction administration and observation services
- ▶ Material Testing
- ▶ Review Pay Requests
- ▶ Resident Project Representative Services

E. Client Responsibilities

During the performance of the CONSULTANT's services under this AGREEMENT, the CLIENT will:

- ▶ Provide the City of Greensboro's latest standard specifications for erosion control
- ▶ Provide any information needed to complete the PROJECT not specifically addressed in the Scope of Services
- ▶ Provide all available information pertinent to the PROJECT, including any GIS information, reports, maps, drawings, and any other data relative to the PROJECT
- ▶ Examine all proposals, reports, sketches, estimates and other documents presented by the CONSULTANT and render in writing decisions pertaining thereto within a reasonable period so as not to delay the services of the CONSULTANT
- ▶ Give prompt written notice to the CONSULTANT whenever the CLIENT observes or otherwise becomes aware of any defect in the PROJECT
- ▶ Pay all permit/review fees directly as well as fees associated with recording easement plats.
- ▶ Handle matters requiring an attorney at law

Any changes to the alternatives or PROJECT requirements after CONSULTANT has begun work may require additional fees.

F. Compensation for Services

A. Lump Sum Fee

CONSULTANT proposes to provide the following Scope of Services previously outlined on a Lump Sum Fee basis as described in the table below plus reimbursable expenses. Compensation shall not exceed the total estimated compensation amount unless approved in writing by CLIENT.

Task Name	Lump Sum Fee
TASK 1 – Preliminary Design	
Project Initiation	\$6,300
24-inch Sewer Outfall	
Survey Alignment 24-inch	\$16,800
Geotechnical 24-inch	\$21,000*
Stream/Wetlands Determination 24-inch	\$3,700
Preliminary Alignment 24-inch	\$10,500
8-inch Gravity Sewer	
Survey Alignment 8-inch	\$8,400
Geotechnical 8-inch	\$11,000*
Stream/Wetlands Determination 8-inch	\$2,800
Preliminary Alignment 8-inch	\$4,500
12-inch Gravity Sewer	
Survey Alignment 8-inch	\$8,400
Geotechnical 8-inch	\$11,000*
Stream/Wetlands Determination 8-inch	\$3,000
Preliminary Alignment 8-inch	\$5,000
Subtotal Task 1	\$113,000
TASK 2 – Final Design	
24-inch Sewer Outfall	
Plan Set Submittals 24-inch	\$117,000
Erosion Control (CriTek) 24-inch	\$35,200*
Easement Plat 24-inch	\$2,600
8-inch Gravity Sewer	
Plan Set Submittals 8-inch	\$30,150
Erosion Control (CriTek) 8-inch	\$7,150*
Easement Plat 8-inch	\$1,400
8-inch Gravity Sewer	
Plan Set Submittals 12-inch	\$19,250

Erosion Control (CriTek) 12-inch	\$9,350*
Easement Plat 12-inch	\$1,400
404/401 Approvals and Permitting	\$11,500
Subtotal Task 2	\$245,000
TASK 3 - Construction Phase Services	
Bidding Docs. and Const. Assistance	\$17,000
Total	\$375,000

*Includes 10% markup

1. CONSULTANT may alter the distribution of compensation between individual phases noted herein to be consistent with services rendered but shall not exceed the total Lump Sum amount unless approved in writing by the CLIENT.
2. The Lump Sum includes compensation for CONSULTANT's services. Appropriate amounts have been incorporated in the Lump Sum to account for labor costs, overhead, profit, expenses (other than any expressly allowed Reimbursable Expenses), and Consultant charges.
3. The portion of the Lump Sum amount billed for CONSULTANT's services will be based upon CONSULTANT's estimate of the percentage of the total services completed during the billing period. If any Reimbursable Expenses are expressly allowed, CONSULTANT may also bill for any such Reimbursable Expenses incurred through the billing period.

G. Timeline for Services

CONSULTANT will begin services immediately upon receipt of signed contract.



H. Acceptance

Receipt of an executed copy of this agreement will serve as the written agreement between CONSULTANT and CLIENT for the services outlined.

Submitted by CONSULTANT:

WithersRavenel, Inc.
115 MacKenan Drive
Cary, NC 27511

Authorized Signature

Jeffrey J. Wing, PE, LEED AP
Printed Name

Vice President, Director - Utilities
Title

jwing@withersravenel.com
Email Address

919.469.3340
Phone

Accepted by CLIENT:

City of Greensboro, Water Resources
2602 S Elm-Eugene Street
Greensboro, NC 27406

Authorized Signature

Printed Name

Title

Email Address

Phone

PREAUDIT STATEMENT: This instrument has been preaudited in the manner required by the Local Government Budget and Fiscal Control Act (NC G.S. 159-28(a)).

Signature of Finance Officer:

Printed Name:

Date: