McAdams
80 Charlotte Street
Suite 40
Asheville, NC 28801
919. 361. 5000

TOB25004.02

Amendment to Agreement for Professional Services:

BETWEEN Town of Black Mountain (Client) AND McAdams

Original Agreement Dated	10/29/2025	Date	6/17/2026
Project Name	Town Roads	Project Location	Black Mountain, NC
Project Number	TOB25004.02	Change Order Number	1
Client Contact	Matt Begley, MPA		

Client authorizes McAdams to perform the following additional services outlined in the following Scopes of Services for the five engineered sites identified during the Preliminary Site Assessments:

A1.00 TOPOGRAPHIC SURVEY AND ENGINEERED DESIGN – FAIRWAY DRIVE, VALLEY VISTA DRIVE, S. LAUREL CIRCLE DRIVE, N. CHEROKEE AVENUE, OLD LAKEY GAP ROAD:

> FEE: $184,850.00 (by hourly charges)

The detailed efforts of this work are outlined in Exhibit C (attached). The schedule for this work shall be as follows:

Topographic Surveys: Completed within 4 weeks of Notice to Proceed
Engineering Design: Completed within 20 weeks of Notice to Proceed for all Sites
Bid Documents: Completed within 4 weeks of receiving comments on Engineering Design Submittal

Deliverables Shall be in PDF format and submitted to the Town via E-mail.

999.00 REIMBURSABLES:

> FEE: Charged in accordance with the attached Rate Schedule, estimate $733.00

The Fee for these additional services shall be by hourly charges in accordance with the attached Rate Schedule. These charges are estimated to total: $ 185,583.00

The Terms and Conditions of the original Agreement shall apply to this amendment.

Client

By: _____

Printed Name: _____

Title: _____

Date: _____

McAdams

By: _____

Printed Name: _____

Title: _____

Date: _____

McAdams

Hourly Rate Schedule / 2026

1. SPECIFICATIONS FOR CONTRACT BY HOURLY CHARGE, THE FOLLOWING RATES APPLY

Role	Rate
General Counsel	$450 /hour
Chairman / President / Vice President	$300 - 450 /hour
Advisor	$260 - 325 /hour
Director / Group Manager / Practice Lead	$145 - 300 /hour
Technical Manager	$135 - 255 /hour
Project Manager	$130 - 275 /hour
Assistant Project Manager	$110 - 180 /hour
Landscape Architect	$155 - 215 /hour
Planner	$105 - 200 /hour
Project Engineer	$145 - 185 /hour
GIS Staff	$140 - 175 /hour
CAD Tech	$100 - 145 /hour
Graphics + Visualization	$140 - 150 /hour
Designer / Analyst / Design Tech	$105 - 180 /hour
Intern	$60 - 115 /hour
Administrative Services	$85 - 145 /hour
Construction Administrator / Observer	$120 - 230 /hour
Survey Technician	$105 - 125 /hour
2 Man Survey Crew	$165 - 185 /hour
3 Man Survey Crew	$185 - 210 /hour
UAS LiDAR Crew	$305 /hour
SUE Crew Member	$90 - 130 /hour

Hourly services are recorded and rounded to the nearest 1/4 hour.

2. THE FOLLOWING CHARGES APPLY ON ALL CONTRACTS, FOR COPIES OF PLANS AND SPECIFICATIONS SENT OUT OF THE ENGINEER'S OFFICE (TO CLIENT, CITY REGULATORY AGENCIES, BIDDERS, CONTRACTOR, OTHER CONSULTANTS, ETC.)

Item	Fee	Item	Fee	Item	Fee
Oversize + Color Rep.	$3.60 /each	Specifications	$0.12 /each	Mylar Sepia	$18.00 /each
Paper Reproductions	$2.40 /each	Oversize Mylar Sepia	$24.00 /each	Paper Sepia	$6.00 /each

3. THE FOLLOWING RATES ARE CHARGED IN ADDITION TO THE ABOVE FEES

Item	Fee
Fees Paid for Permits and Applications	Cost Plus 10%
Outside Photocopying, Travel, Overnight Delivery, Postage for Mass Mailings	Cost Plus 10%
Subcontractor Invoices	Cost Plus 12.5%

4. FEES ARE SUBJECT TO ADJUSTMENT AT THE BEGINNING OF EACH CALENDAR YEAR.

5. PROJECTS ARE BILLED ON A MONTHLY BASIS AND INVOICES ARE DUE UPON RECEIPT. INVOICES WHICH HAVE BEEN NOT BEEN PAID WITHIN 30 DAYS ARE PAST DUE AND SUBJECT TO FINANCE CHARGES OF 1.5% PER MONTH.

Exhibit C:

Engineered Design Sites

Detailed Scope of Work

McAdams
80 Charlotte Street
Suite 40
Asheville, NC 28801
919. 361. 5000

Project Description

Tropical Storm Helene caused widespread damage to infrastructure owned and maintained by the Town of Black Mountain. There are numerous locations along Fairway Drive that include damage to the pavement surface and the roadway ditches due to the flood event. There is also damage and evidence of soil migration present at the 18" HDPE Cross Road Pipe.

Project Understanding

The surface water flooding has damaged Fairway Drive for a length of approximately 250 linear feet. These damages include:

- Pavement Damage (2 Locations)
- Ditch Erosion (2 Locations)
- Pipe Damage (Suspected failure)

These areas are to be repaired to their pre-storm condition. Resiliency measures to be studied include increasing the size of the cross road pipe and installation of expressway gutter along the roadside ditch to protect the pavement and improve performance of the ditch.

Assumptions

This proposal is based on the following assumptions:

- One plan set to incorporate all five Town Roads Project sites as identified below will be generated. Individual plan sets for each site will not be generated.
  - Fairview Drive
  - North Cherokee Avenue
  - Old Lakey Gap Road
  - South Laurel Circle
  - Valley Vista Drive
- One Project Manual will be generated for all five Town Roads Projects as identified above.
- The five Town Roads Projects identified above will be bid as a single bid package.
- Proposed design will be to provide for repair and remediation of the site to current standards of practice for the facility carried.
- There will be two design submissions for the deliverables for the five Town Roads Projects: 90%, and 100%.
- Project Specifications will be North Carolina Department of Transportation (NCDOT) Standard Specifications for Roads and Structures.
- The Client will be responsible for notification of existing property owners and for assuring access to the site(s).
- Specialized aquatic or terrestrial species surveys, archeological surveys, and specialized cultural resource surveys are not included in the scope of this Agreement. Should formal surveys be required, additional scope and fee will be provided at that time based on the identified species.
- It is assumed that a Grading Permit from the Town of Black Mountain will be required. Scope assumes that the sole authority for issuing any type of Grading, Land Disturbance, or Erosion Control Permit for the project will be the Town of Black Mountain. If coordination with additional agencies becomes required, additional scope and fee may be requested.

- Roadway design for the repairs on Fairway Drive is expected to primarily consist of expressway gutter, pavement repairs and grading.
- It is anticipated that Fairway Drive will be closed to thru traffic, allowing local traffic only, during construction and a posted detour will be provided utilizing Fairway Drive and Hilltop Road. If additional plans are needed pertaining to traffic control measures beyond a road closure, additional scope and fee will be required.
- All roadway and work zone traffic control designs will be in accordance with the following references as of the date of this scope:
  - American Association of State Highway Transportation Officials (AASHTO) A Policy on Geometric Design of Highways and Streets and Errata;
  - AASHTO Roadside Design Guide 4th Edition and Errata;
  - NCDOT Roadway Design Manual;
  - NCDOT Roadway Standard Drawings;
  - NCDOT Guidelines for Transportation Management Plan Development;
  - NCDOT Policy for Providing Temporary Pedestrian Accommodations in Work Zones; and
  - Federal Highway Administration (FHWA) Manual on Uniform Traffic Control Devices (MUTCD).
- All drainage and erosion control designs will be in accordance with the following references as of the date of this scope:
  - NCDOT Guidelines for Drainage Studies and Hydraulic Design
  - NCDOT Stormwater Best Management Practices Toolbox
  - NCDOT Erosion and Sediment Control Design and Construction Manual

Services + Fees

(Alphanumeric task numbers are for internal coding purposes):

Project Administration

Project administration costs will be borne across all projects included in the Town Roads Bid Package. The cost for the Project Administration will be borne across all five Town Roads sites and the fee estimate shown equates to 20% of the total anticipated fee for these activities. The following scope is presented for the project as a whole and is not representative of the effort anticipated for this single site.

A14.10 PROJECT ADMINISTRATION

> FEE: By hourly charges in accordance with the attached Rate Schedule, estimate $1,540.00

McAdams will provide general project administration and include the following meetings:

- Kickoff Meeting (Principal in Charge, Project Manager, Discipline Leads; Virtual Format; one (1) hour);
- Monthly Client Coordination Meetings (four (4); Principal in Charge, Project Manager; Virtual Format; one (1) hour);
- Bi-Weekly Internal Coordination Meetings (eight (8); Principal in Charge, Project Manager, Discipline Leads; Virtual Format; fifteen (15) minutes);
- Pre-Bid Meeting (Principal in Charge); and
- Bid Opening (Principal in Charge).

Project administration services include the creation and maintenance of agendas and minutes for the aforementioned meetings (when applicable), coordination of submittals to the Town, maintenance of project records, general project operation, and pre-bid support services.

Surveying Services

B2.40 TOPOGRAPHIC SURVEY

> FEE: By hourly charges in accordance with the attached Rate Schedule, estimate $4,000.00

Conduct a field survey of the site totaling approximately 0.6 acres of developed land in the damaged location. Prepare a Topographic Survey Map in accordance with North Carolina Minimum Standards for Surveying. Contours will be mapped at 1-foot intervals. Locations of underground utilities will be based on visible above ground structures and utility markings, if provided. For storm drainage and sanitary sewer systems, rims, pipe inverts, pipe material and sizes will be located. Location of individual trees is not included with the exception of the tree at the inlet of the damaged pipe.

B12.30 SUBSURFACE UTILITY (SUE) MARKINGS (LEVEL B):

> FEE: By hourly charges in accordance with the attached Rate Schedule, estimate $2,500.00; Requires owner authorization before proceeding

Field mark underground utilities using electromagnetic equipment and mark them with spray paint. Structures that cannot be directly accessed are to be shown to the extent of available information, including utility maps. No guarantee is made that the underground utilities shown comprise all such utilities in the area, either in service or abandoned, nor that the underground utilities shown are in the exact location indicated, although they will be located as accurately as possible from information available. Physical location of the underground utilities utilizing Subsurface Utility Vacuum Extraction can be quoted if requested.

Construction Drawing + Permitting Phase

Construction drawings are to be prepared for submittal as stated in the Assumptions. Submittals will be in PDF format. McAdams will develop submittals in sufficient detail and appropriate format to clearly illustrate significant design features, dimensions, and clearances for the following Disciplines.

D14.10 ROADWAY DESIGN:

> FEE: By hourly charges in accordance with the attached Rate Schedule, estimate $9,620.00

McAdams will complete the roadway design and produce construction drawings to be compiled into a Roadway Plan Set to repair Fairway Drive, along with the other Town Roads Projects identified. The Roadway Plan Set will be submitted to the Town of Black Mountain for review at two separate stages: 90% and 100% plans. McAdams will respond to review comments and revise plans as may be required for up to two (2) reviews from the Town at the 90% submittal. Upon approval of the 90% plans, McAdams will sign and issue the Sealed Contract Roadway Design Plans to be used for construction.

The roadway design tasks included in this scope are:

- Design Criteria
- Roadway Design

- Develop horizontal and vertical alignments based on design criteria and final survey;
- Layout of roadway improvements; and
- Coordinate with technical disciplines / units;
- 3D Model Development;
  - Generate 3D model of proposed design; and
  - Layout cross sections and limits of construction (slope stakes);

- Roadway Plan Set Preparation consisting of;
  - Title Sheet
  - General Notes Sheet
  - Symbology Sheet
  - One plan sheet that entails a typical section, plan view, profile view, details, and summary of roadway quantities and incorporating drainage improvements identified in Task D4.30.
  - Traffic Management Plans (TMP) (to be generated with Task D14.20)
  - Erosion Control Plans (to be generated with Task D4.40)
  - Cross Section Sheets
- Opinion of Probable Construction Cost (OPCC) and
- Roadway Special Provisions (as necessary) to be incorporated into the Project Manual (Task D14.90)
- Complete Quality Control Procedures.

Deliverables:

- 90% Submittal – Roadway Plan Set showing the proposed concept for review and approval of the Town prior to sealing documents, to be accompanied by draft Roadway Project Special Provisions (as necessary) and an OPCC.
- 100% Submittal – Sealed Contract Roadway Design Plans, Roadway Project Special Provisions (as necessary), and final OPCC as Engineer's Estimate.

D14.20 WORK ZONE TRAFFIC CONTROL DESIGN:

> FEE: By hourly charges in accordance with the attached Rate Schedule, estimate $3,460.00

McAdams will provide Transportation Management Plans (TMP) to account for a road closure to Fairway Drive, allowing access to local traffic only, with all of the needed construction to be completed during the road closure.

- TMP will be incorporated into the 90% and 100% roadway plans, consisting of the following;
  - TMP notes and phasing
  - Plan sheets for road closure and offsite detour;
- Traffic Control Special Provisions (as necessary);
- Quantities and estimate for traffic control to be incorporated into the OPCC; and
- Complete Quality Control Procedures.

Deliverables:

- To be incorporated into the 90% and 100% deliverables identified for Task 14.10.

D4.30 HYDRAULIC DESIGN:

> FEE: By hourly charges in accordance with the attached Rate Schedule, estimate $10,240.00

The Design Team will perform hydraulic analysis for open and closed system drainage, including pipe crossings, storm drainage systems, and ditches along the existing Fairway Drive alignment for incorporation into the roadway plans. This analysis will be based upon the topographical information included in the survey and basemaps. Survey data will be supplemented with GIS contour information, USGS Quad maps, FEMA information, and County provided flown topography mapping. The anticipated tasks associated with the hydraulic analysis and drainage design include:

- Size all cross pipes along roadway alignment;
- Size all closed system drainage along roadway alignment;
- Evaluate ditch section capacities, depths, velocities, and shear stress;
- Evaluate proposed drainage outfalls;
- Evaluate and design necessary revisions to hydraulic structures (culverts, cross pipes, headwalls, drainage structures) that may be impacted by the proposed roadway repairs);

Deliverables:

- Drainage report, including necessary supporting calculations and documentation;
- Pipe and storm drain size/type shown on plans;
- Ditch locations and any applicable ditch details shown on plans;
- Stormwater Management Plan (SMP).

D4.40 EROSION CONTROL DESIGN:

FEE: By hourly charges in accordance with the attached Rate Schedule, estimate $9,120.00

The Design Team will prepare the erosion and sediment control plans by specifying erosion control measures, which minimize erosion and limit off-site sedimentation during construction of the project. The design will be in accordance with the requirements of the NCDOT, the North Carolina Department of Environmental Quality (NCDEQ), and the Division of Energy, Mineral, and Land Resources (DEMLR). Erosion and Sediment Control quantities will be summarized and included as a table on the plan sheet or an appendix to the plans.

The Design Team will analyze flow rates and determine stabilization requirements for channels with erosive velocities and slopes with potential for erosive failure throughout the project. Design Team will show erosion control measures and special details not shown in the Erosion Control Manuals mentioned in the Assumptions as part of the construction plan set.

The ES&C designer will complete the E&SC plans by incorporating appropriate plan and/or title sheet information, required details, and notes on the E&SC plan sheets for project-specific environmental information into the plan. Project-specific vegetation management plans (e.g., reforestation, streambank reforestation, wetland grass or reforestation, etc.) or landscaping as required through project commitments will be included as part of the plans.

Following an initial review by the Town of Black Mountain, McAdams will submit a Town of Black Mountain Land Disturbance Permit if required.

Deliverables:

- E&SC Plans included as a separate series of drawings within the Roadway plan set;
- E&SC Quantities;
- Incorporate details and notes on E&SC plan sheets as needed; and
- Include E&SC Special Provisions as necessary;
- High Quality Water (HQW) Worksheet.

D14.90 CONTRACT STANDARDS AND DEVELOPMENT:

> FEE: By hourly charges in accordance with the attached Rate Schedule, estimate $2,200.00

McAdams will generate one (1) Project Manual for the construction of all five Town Roads Projects utilizing the NCDOT's Standard Specifications and Special Provisions. The cost for the development of this manual will be borne across all five Town Roads and the fee estimate shown equates to 20% of the total anticipated fee for these activities. McAdams will respond to review comments and revise the Project Manual as may be required for two (2) reviews from the Town. Once approved, McAdams will sign and issue the Project Manual to be used in the Town's advertisement and bidding process for the construction of the five Town Roads Projects.

The Project Manual will include the following:

- Cover Sheet;
- Table of Contents;
- Instructions to Bidders;
- Project Special Provisions;
- Standard Special Provisions;
- Unit Project Special Provisions;
- Signatures Sheets and Forms;
- Bid / Pay Item Sheets; and
- Execution of Contract Sheet.

Deliverables:

- Draft Project Manual for review; and
- Final Project Manual.

Construction Period Services (Not Included at This Time, For Information Only)

Construction period services are envisioned to be applied across all sites included in the Town Roads bid package and not individually. The fees for Construction Period have been estimated at 16% of the Construction Contract, included in the overall cost estimate, and will be determined based upon completion of the cost estimates developed with the design services provided in this scope. The following services are not included in this task order at this time and are presented for the Owner's information only. The following is representative of the services that we anticipate will be necessary during the Construction Phase of the project.

H14.99 CONSTRUCTION BID SUPPORT – DESIGN SERVICES:

McAdams will provide technical assistance to respond to Contractor Requests for Information (RFIs) during the bidding process. This estimated fee is an estimate for up to two (2) RFIs per location (ten total) during the bidding process and is based upon 2 hours of time for a senior technical staff member and a designer per request to resolve contractor questions during the bidding process.

H5.40 CONSTRUCTION CONTRACTING ASSISTANCE – ADMINISTRATION SERVICES:

Assistance for the Owner with construction contract bid process. Specific items included within this task are as follows:

- Participation in the Pre-Bid meeting;
- Answering of RFIs;
- Participate in Public Bid opening; and
- Assist with the evaluation of received bids

Fee includes mileage to/from our Raleigh, North Carolina headquarters to Black Mountain for attendance of the two meetings listed.

H5.90 CONSTRUCTION ADMINISTRATION ASSISTANCE:

Provide assistance after award of the Contract for the site construction work (2-Months assumed). Scope for this task includes:

- Attending 1 preconstruction meeting
- Monthly construction progress meeting during construction (2-Visits)
- Weekly site visits for project monitoring (7-Visits)
- RFIs processing + response
- Review/approval of shop drawings
- Monthly Pay Application Review (3 Reviews)
- Substantial Completion Review
- Development of punch lists and pre/final inspections in support of project close-out. (2 Visits)
- Warranty Site Visits and Follow up (2 Visits)

I5.10 RECORD DRAWINGS

Provide record drawings and certifications of installation as required by the Town of Black Mountain and FEMA. Please note this fee assumes field-survey work and a signed/sealed as-built survey shall be provided by others (the Contractor) for use by McAdams in preparing the record drawings and submittal package.

999.00 REIMBURSABLES

FEE: Charged in accordance with the attached Rate Schedule, estimate $385.00

Reimbursables are envisioned to be spread across all sites included in the Town Roads bid package and not intended to be charged individually. The fee for reimbursables is based upon 600 miles of travel associated with site visits, in person meetings with the Town, and attending the pre-bid meeting and bid opening. The charges presented in the estimate and scope of services for this site represent 20% of the anticipated mileage expenses for the Town Roads Project. This particular site includes 2 nights stay and per diem to account for one overnight stay for a field survey crew consisting of two members.

The Fee for the services described herein shall be billed at standard hourly rates in accordance with the attached rate schedule. For a detailed breakdown of the charges, see the attached Fee Estimate for Staffing Services. These charges are estimated to total: $ 43,065.00

Client Responsibilities

Client shall be responsible for the following:

- Notification to proceed;
- Timely approval of sketches presented for Client approval;
- Timely providing of information from other professional services (architect, geotechnical engineer, etc.), as described hereinabove;
- Payment of all application and permit fees;
- Payment of invoices in accordance with Item 1 of Terms and Conditions; and
- Notification to Firm of any problems, in accordance with Item 2 of Terms and Conditions.

Exclusions

The following services are not included in this Agreement:

- Right of Way and Easement Layout;
- Pavement Design;
- Utility Coordination;
- Tenant coordination meetings or conference calls (can be quoted once scope is clarified);
- Wetland and Stream delineations and permitting (will be quoted if required);
- Bridge Survey Report (BSR) or Culvert Survey Report (CSR) (will be quoted if required);
- Scour analysis;
- Structural design of specialty culverts, pipes, drainage boxes, or drainage structures (will be quoted if required);
- Traffic Impact Analysis;
- Preparation of plats for right-of-way acquisition;
- Right-of-way acquisition services;
- Color graphics for meetings or marketing purposes (will be quoted if required);
- Permit application, plans review or re-review fees;
- Revised directives from Client after design has begun;
- Additional submittal of stormwater design for jurisdictional approval by State regulatory organizations such as NCDENR-DWQ, Dam Safety, or the like (can be quoted if determined to be required);
- Additional submittal of erosion control design for approval by North Carolina Department of Environmental Quality (NCDEQ) or North Carolina Division of Energy, Mineral, and Land Resources (NCDEMLR) (can be quoted if determined to be required;
- Court appearances for litigation, or preparation for same;
- Legal advertisements for construction contracts;
- Environmental investigations, wetlands permitting, wetlands surveying;
- Any costs incurred by Client or Contractor due to changes required by the approving authority or their inspectors after construction drawings have been approved;
- Stormwater Control Measures (SCM's) (will be quoted if required).

McAdams
80 Charlotte Street
Suite 40
Asheville, NC 28801
919. 361. 5000

Project Description

Tropical Storm Helene caused widespread damage to infrastructure owned and maintained by the Town of Black Mountain. Valley Vista Drive experienced a pipe failure and corresponding roadway subsidence.

Project Understanding

Surface water flooding has damaged Valley Vista Drive for a length of approximately 30 linear feet. These damages include:

- Pipe Collapse/Deflection
- Loss of shoulder embankment
- Roadway Subsidence

These areas are to be repaired to their pre-storm condition. Resiliency measures to be studied include increasing the size of the cross road pipe and potential armoring of the slopes to prevent erosion in future overtopping events.

Assumptions

This proposal is based on the following assumptions:

- One plan set to incorporate all five Town Roads Project sites as identified below will be generated. Individual plan sets for each site will not be generated.
  - Fairview Drive
  - North Cherokee Avenue
  - Old Lakey Gap Road
  - South Laurel Circle
  - Valley Vista Drive
- One Project Manual will be generated for all five Town Roads Projects as identified above.
- The five Town Roads Projects identified above will be bid as a single bid package.
- Proposed design will be to provide for repair and remediation of the site to current standards of practice for the facility carried.
- There will be two design submissions for this project: 90%, and 100%.
- Project Specifications will follow the North Carolina Department of Transportation (NCDOT) Standard Specifications for Roads and Structures.
- The Client will be responsible for notification of existing property owners and for assuring access to the site(s).
- Specialized aquatic or terrestrial species surveys, archeological surveys, and specialized cultural resource surveys are not included in the scope of this Agreement. Should formal surveys be required, additional scope and fee will be provided at that time based on the identified species.
- It is assumed that a Grading Permit from the Town of Black Mountain will be required. Scope assumes that the sole authority for issuing any type of Grading, Land Disturbance, or Erosion Control Permit for the project will be the Town of Black Mountain. If coordination with additional agencies becomes required, additional scope and fee may be requested.
- Roadway design for the repairs on Valley Vista Drive is expected to primarily consist of roadway design, grading, and paving.

- It is anticipated that Valley Vista Drive will be closed to traffic during construction and a posted detour will be provided utilizing Chapel Road and Dogwood Drive. If additional plans are needed pertaining to traffic control measures beyond a road closure, additional scope and fee will be required.
- All roadway and work zone traffic control designs will be in accordance with the following references as of the date of this scope:
  - American Association of State Highway Transportation Officials (AASHTO) A Policy on Geometric Design of Highways and Streets and Errata;
  - AASHTO Roadside Design Guide 4th Edition and Errata;
  - NCDOT Roadway Design Manual;
  - NCDOT Roadway Standard Drawings;
  - NCDOT Guidelines for Transportation Management Plan Development;
  - NCDOT Policy for Providing Temporary Pedestrian Accommodations in Work Zones; and
  - Federal Highway Administration (FHWA) Manual on Uniform Traffic Control Devices (MUTCD).
- All drainage and erosion control designs will be in accordance with the following references as of the date of this scope:
  - NCDOT Guidelines for Drainage Studies and Hydraulic Design
  - NCDOT Stormwater Best Management Practices Toolbox
  - NCDOT Erosion and Sediment Control Design and Construction Manual

Services + Fees

(Alphanumeric task numbers are for internal coding purposes):

Project Administration

Project administration costs will be borne across all projects included in the Town Roads Bid Package. The cost for the Project Administration will be borne across all five Town Roads sites and the fee estimate shown equates to 20% of the total anticipated fee for these activities. The following scope is presented for the project as a whole and is not representative of the effort anticipated for this single site.

A14.10 PROJECT ADMINISTRATION:

> FEE: By hourly charges in accordance with the attached Rate Schedule, estimate $1,540.00

McAdams will provide general project administration and include the following meetings:

- Kickoff Meeting (Principal in Charge, Project Manager, Discipline Leads; Virtual Format; one (1) hour);
- Monthly Client Coordination Meetings (four (4); Principal in Charge, Project Manager; Virtual Format; one (1) hour);
- Bi-Weekly Internal Coordination Meetings (eight (8); Principal in Charge, Project Manager, Discipline Leads; Virtual Format; fifteen (15) minutes);
- Pre-Bid Meeting (Principal in Charge); and
- Bid Opening (Principal in Charge).

Project administration services include the creation and maintenance of agendas and minutes for the aforementioned meetings (when applicable), coordination of submittals to the Town, maintenance of project records, general project operation, and pre-bid support services.

Surveying Services

B2.40 TOPOGRAPHIC SURVEY:

FEE: By hourly charges in accordance with the attached Rate Schedule, estimate $2,500.00

Conduct a field survey of the site totaling approximately 0.3 acres of developed land in the damaged location. Prepare a Topographic Survey Map in accordance with North Carolina Minimum Standards for Surveying. Contours will be mapped at 1-foot intervals. Locations of underground utilities will be based on visible above ground structures and utility markings, if provided. For storm drainage and sanitary sewer systems, rims, pipe inverts, pipe material and sizes will be located. Location of individual trees is not included.

B12.30 SUBSURFACE UTILITY (SUE) MARKINGS (LEVEL B):

FEE: By hourly charges in accordance with the attached Rate Schedule, estimate $2,000.00; Requires owner authorization before proceeding

Field mark underground utilities using electromagnetic equipment and mark them with spray paint. Structures that cannot be directly accessed are to be shown to the extent of available information, including utility maps. No guarantee is made that the underground utilities shown comprise all such utilities in the area, either in service or abandoned, nor that the underground utilities shown are in the exact location indicated, although they will be located as accurately as possible from information available. Physical location of the underground utilities utilizing Subsurface Utility Vacuum Extraction can be quoted if requested.

Construction Drawing + Permitting Phase

Construction drawings are to be prepared for submittal as stated in the Assumptions. Submittals will be in PDF format. McAdams will develop submittals in sufficient detail and appropriate format to clearly illustrate significant design features, dimensions, and clearances for the following Disciplines.

D14.10 ROADWAY DESIGN:

FEE: By hourly charges in accordance with the attached Rate Schedule, estimate $7,080.00

McAdams will complete the roadway design and produce construction drawings to be compiled into a Roadway Plan Set to repair Valley Vista Drive, along with the other Town Roads Projects identified. The Roadway Plan Set will be submitted to the Town of Black Mountain for review at two separate stages: 90% and 100% plans. McAdams will respond to review comments and revise plans as may be required for up to two (2) reviews from the Town at the 90% submittal. Upon approval of the 90% plans, McAdams will sign and issue the Sealed Contract Roadway Design Plans to be used for construction.

The roadway design tasks included in this scope are:

- Design Criteria
- Roadway Design
  - Develop horizontal and vertical alignments based on design criteria and final survey;
  - Layout of roadway improvements; and
  - Coordinate with technical disciplines / units;
- Roadway Plan Set Preparation consisting of;
  - Title Sheet

  - General Notes Sheet
  - Symbology Sheet
  - One plan sheet that entails a typical section, plan view, profile view, details, and summary of roadway quantities and incorporating drainage improvements identified in Task D4.30.
  - Traffic Management Plans (TMP) (to be generated with Task D14.20)
  - Erosion Control Plans (to be generated with Task D4.40)
- Opinion of Probable Construction Cost (OPCC) and
- Roadway Special Provisions (as necessary) to be incorporated into the Project Manual (Task D14.90)
- Complete Quality Control Procedures.

Deliverables:

- 90% Submittal – Roadway Plan Set showing the proposed concept for review and approval of the Town prior to sealing documents, to be accompanied by draft Roadway Project Special Provisions (as necessary) and an OPCC.
- 100% Submittal – Sealed Contract Roadway Design Plans, Roadway Project Special Provisions (as necessary), and final OPCC as Engineer's Estimate.

D14.20 WORK ZONE TRAFFIC CONTROL DESIGN:

> FEE: By hourly charges in accordance with the attached Rate Schedule, estimate $3,460.00

McAdams will provide a TMP to account for a road closure to Valley Vista Drive with all of the needed construction to be completed during the road closure.

- TMP will be incorporated into the 90% and 100% roadway plans, consisting of the following;
  - TMP notes and phasing
  - Plan sheets for road closure and offsite detour;
- Traffic Control Special Provisions (as necessary);
- Quantities and estimate for traffic control to be incorporated into the OPCC; and
- Complete Quality Control Procedures.

Deliverables:

- To be incorporated into the 90% and 100% deliverables identified for Task 14.10.

D4.30 HYDRAULIC DESIGN:

> FEE: By hourly charges in accordance with the attached Rate Schedule, estimate $7,270.00

McAdams will perform hydraulic analysis for open and closed system drainage, including pipe crossings, storm drainage systems, and ditches along the existing Valley Vista Drive alignment for incorporation into the roadway plans. A resiliency analysis will be performed to evaluate whether all inlets, pipes, and the receiving channel need to be upsized to meet current design standards. Drainage analysis will be based upon the topographical information included in the survey and basemaps. Survey data will be supplemented with GIS contour information, USGS Quad maps, FEMA information, and County provided flown topography mapping. The anticipated tasks associated with the hydraulic analysis and drainage design include:

- Size all cross pipes along roadway alignment;
- Size all closed system drainage along roadway alignment;
- Evaluate ditch section capacities, depths, velocities, and shear stress;
- Evaluate proposed drainage outfalls;
- Evaluate and design necessary revisions to hydraulic structures (culverts, cross pipes, headwalls, drainage structures) that may be impacted by the proposed roadway repairs);

Deliverables:

- Drainage report, including necessary supporting calculations and documentation;
- Pipe and storm drain size/type shown on plans;
- Ditch locations and any applicable ditch details shown on plans;
- Stormwater Management Plan (SMP).

D4.40 EROSION CONTROL DESIGN:

FEE: By hourly charges in accordance with the attached Rate Schedule, estimate $6,290.00

The Design Team will prepare the erosion and sediment control plans by specifying erosion control measures, which minimize erosion and limit off-site sedimentation during construction of the project. The design will be in accordance with the requirements of the North Carolina Department of Transportation (NCDOT), the North Carolina Department of Environmental Quality (NCDEQ), and the Division of Energy, Mineral, and Land Resources (DEMLR). Erosion and Sediment Control quantities will be summarized and included as a table on the plan sheet or an appendix to the plans.

The Design Team will analyze flow rates and determine stabilization requirements for channels with erosive velocities and slopes with potential for erosive failure throughout the project. Design Team will show erosion control measures and special details not shown in the Erosion Control Manuals mentioned in the Assumptions as part of the construction plan set.

The ES&C designer will complete the E&SC plans by incorporating appropriate plan and/or title sheet information, required details, and notes on the E&SC plan sheets for project-specific environmental information into the plan. Project-specific vegetation management plans (e.g., reforestation, streambank reforestation, wetland grass or reforestation, etc.) or landscaping as required through project commitments will be included as part of the plans.

Following an initial review by the Town of Black Mountain, McAdams will submit a Town of Black Mountain Land Disturbance Permit if required.

Deliverables:

- E&SC Plans included as a separate series of drawings within the Roadway plan set;
- E&SC Quantities;
- Incorporate details and notes on E&SC plan sheets as needed; and
- Include E&SC Special Provisions as necessary.

D14.90 CONTRACT STANDARDS AND DEVELOPMENT:

FEE: By hourly charges in accordance with the attached Rate Schedule, estimate $2,200.00

McAdams will generate one (1) Project Manual for the construction of all five Town Roads Projects utilizing the NCDOT's Standard Specifications and Special Provisions. The cost for the development of this manual will be borne across all five Town Roads and the fee estimate shown equates to 20% of the total anticipated fee for these activities. McAdams will respond to review comments and revise the Project Manual as may be required for two (2) reviews from the Town. Once approved, McAdams will sign and issue the Project Manual to be used in the Town's advertisement and bidding process for the construction of the five Town Roads Projects.

The Project Manual will include the following:

- Cover Sheet;
- Table of Contents;
- Instructions to Bidders;
- Project Special Provisions;
- Standard Special Provisions;
- Unit Project Special Provisions;
- Signatures Sheets and Forms;
- Bid / Pay Item Sheets; and
- Execution of Contract Sheet.

Deliverables:

- Draft Project Manual for review; and
- Final Project Manual.

Construction Period Services (Not Included at This Time, For Information Only)

Construction period services are envisioned to be applied across all sites included in the Town Roads bid package and not individually. The fees for Construction Period have been estimated at 16% of the Construction Contract, included in the overall cost estimate, and will be determined based upon completion of the cost estimates developed with the design services provided in this scope. The following services are not included in this task order at this time and are presented for the Owner's information only. The following is representative of the services that we anticipate will be necessary during the Construction Phase of the project.

H14.99 CONSTRUCTION BID SUPPORT – DESIGN SERVICES:

McAdams will provide technical assistance to respond to Contractor Requests for Information (RFIs) during the bidding process. This estimated fee is an estimate for up to two (2) RFIs per location (ten total) during the bidding process and is based upon 2 hours of time for a senior technical staff member and a designer per request to resolve contractor questions during the bidding process.

H5.40 CONSTRUCTION CONTRACTING ASSISTANCE – ADMINISTRATION SERVICES:

Assistance for the Owner with construction contract bid process. Specific items included within this task are as follows:

- Participation in the Pre-Bid meeting;
- Answering of RFIs;

- Participate in Public Bid opening; and
- Assist with the evaluation of received bids

Fee includes mileage to/from our Raleigh, North Carolina headquarters to Black Mountain for attendance of the two meetings listed.

H5.90 CONSTRUCTION ADMINISTRATION ASSISTANCE:

Provide assistance after award of the Contract for the site construction work (2-Months assumed). Scope for this task includes:

- Attending 1 preconstruction meeting
- Monthly construction progress meeting during construction (2-Visits)
- Weekly site visits for project monitoring (7-Visits)
- RFIs processing + response
- Review/approval of shop drawings
- Monthly Pay Application Review (3 Reviews)
- Substantial Completion Review
- Development of punch lists and pre/final inspections in support of project close-out. (2 Visits)
- Warranty Site Visits and Follow up (2 Visits)

I5.10 RECORD DRAWINGS

Provide record drawings and certifications of installation as required by the Town of Black Mountain and FEMA. Please note this fee assumes field-survey work and a signed/sealed as-built survey shall be provided by others (the Contractor) for use by McAdams in preparing the record drawings and submittal package.

999.00 REIMBURSABLES

FEE: Charged in accordance with the attached Rate Schedule, estimate $87.00

Reimbursables are envisioned to be spread across all sites included in the Town Roads bid package and not intended to be charged individually. The fee for reimbursables is based upon 600 miles of travel associated with site visits, in person meetings with the Town, and attending the pre-bid meeting and bid opening. The charges presented in the estimate and scope of services for this site represent 20% of the anticipated mileage expenses for the Town Roads Project.

The Fee for the services described herein shall be billed at standard hourly rates in accordance with the attached rate schedule. For a detailed breakdown of the charges, see the attached Fee Estimate for Staffing Services. These charges are estimated to total: $ 32,427.00

Client Responsibilities

Client shall be responsible for the following:

- Notification to proceed;
- Timely approval of sketches presented for Client approval;

- Timely providing of information from other professional services (architect, geotechnical engineer, etc.), as described hereinabove;
- Payment of all application and permit fees;
- Payment of invoices in accordance with Item 1 of Terms and Conditions; and
- Notification to Firm of any problems, in accordance with Item 2 of Terms and Conditions.

Exclusions

The following services are not included in this Agreement:

- Right of Way and Easement Layout;
- Pavement Design;
- Utility Coordination;
- Tenant coordination meetings or conference calls (can be quoted once scope is clarified);
- Wetland and Stream delineations and permitting (will be quoted if required);
- Bridge Survey Report (BSR) or Culvert Survey Report (CSR) (will be quoted if required);
- Scour analysis;
- Structural design of specialty culverts, pipes, drainage boxes, or drainage structures (will be quoted if required);
- Traffic Impact Analysis;
- Preparation of plats for right-of-way acquisition;
- Right-of-way acquisition services;
- Color graphics for meetings or marketing purposes (will be quoted if required);
- Permit application, plans review or re-review fees;
- Revised directives from Client after design has begun;
- Additional submittal of stormwater design for jurisdictional approval by State regulatory organizations such as NCDENR-DWQ, Dam Safety, or the like (can be quoted if determined to be required);
- Additional submittal of erosion control design for approval by North Carolina Department of Environmental Quality (NCDEQ) or North Carolina Division of Energy, Mineral, and Land Resources (NCDEMLR) (can be quoted if determined to be required);
- Court appearances for litigation, or preparation for same;
- Legal advertisements for construction contracts;
- Environmental investigations, wetlands permitting, wetlands surveying;
- Any costs incurred by Client or Contractor due to changes required by the approving authority or their inspectors after construction drawings have been approved; and
- Stormwater Control Measures (SCM's) (will be quoted if required).

McAdams
80 Charlotte Street
Suite 40
Asheville, NC 28801
919. 361. 5000

Project Description

Tropical Storm Helene caused widespread damage to infrastructure owned and maintained by the Town of Black Mountain. South Laurel Circle experienced a pipe failure and corresponding loss of roadway embankment and pavement.

Project Understanding

Surface water flooding has damaged South Laurel Circle for a length of approximately 50 linear feet. These damages include:

- Loss of Roadway Embankment
- Loss of Pavement
- Pipe Failure

These areas are to be repaired to their pre-storm condition. Resiliency measures to be studied include increasing the size of the cross road pipe and potential armoring of the slopes to prevent erosion in future events.

Assumptions

This proposal is based on the following assumptions:

- One plan set to incorporate all five Town Roads Project sites as identified below will be generated. Individual plan sets for each site will not be generated.
  - Fairview Drive
  - North Cherokee Avenue
  - Old Lakey Gap Road
  - South Laurel Circle
  - Valley Vista Drive
- One Project Manual will be generated for all five Town Roads Projects as identified above.
- The five Town Roads Projects identified above will be bid as a single bid package.
- Proposed design will be to provide for repair and remediation of the site to current standards of practice for the facility carried.
- There will be two design submissions for this project: 90%, and 100%.
- Project Specifications will follow the North Carolina Department of Transportation (NCDOT) Standard Specifications for Roads and Structures.
- The Client will be responsible for notification of existing property owners and for assuring access to the site(s).
- Specialized aquatic or terrestrial species surveys, archeological surveys, and specialized cultural resource surveys are not included in the scope of this Agreement. Should formal surveys be required, additional scope and fee will be provided at that time based on the identified species.
- It is assumed that a Grading Permit from the Town of Black Mountain will be required. Scope assumes that the sole authority for issuing any type of Grading, Land Disturbance, or Erosion Control Permit for the project will be the Town of Black Mountain. If coordination with additional agencies becomes required, additional scope and fee may be requested.
- Roadway design for the repairs on South Laurel Circle is expected to primarily consist of roadway design, grading, and paving.

- It is anticipated that South Laurel Circle will be closed to traffic during construction (in the area of pipe replacement) and a posted detour will be provided utilizing Circle Lane. If additional plans are needed pertaining to traffic control measures beyond a road closure, additional scope and fee will be required.
- All roadway and work zone traffic control designs will be in accordance with the following references as of the date of this scope:
  - American Association of State Highway Transportation Officials (AASHTO) A Policy on Geometric Design of Highways and Streets and Errata;
  - AASHTO Roadside Design Guide 4th Edition and Errata;
  - NCDOT Roadway Design Manual;
  - NCDOT Roadway Standard Drawings;
  - NCDOT Guidelines for Transportation Management Plan Development;
  - NCDOT Policy for Providing Temporary Pedestrian Accommodations in Work Zones; and
  - Federal Highway Administration (FHWA) Manual on Uniform Traffic Control Devices (MUTCD).
- All drainage and erosion control designs will be in accordance with the following references as of the date of this scope:
  - NCDOT Guidelines for Drainage Studies and Hydraulic Design
  - NCDOT Stormwater Best Management Practices Toolbox
  - NCDOT Erosion and Sediment Control Design and Construction Manual

Services + Fees

(Alphanumeric task numbers are for internal coding purposes):

Project Administration

Project administration costs will be borne across all projects included in the Town Roads Bid Package. The cost for the Project Administration will be borne across all five Town Roads sites and the fee estimate shown equates to 20% of the total anticipated fee for these activities. The following scope is presented for the project as a whole and is not representative of the effort anticipated for this single site.

A14.10 PROJECT ADMINISTRATION:

> FEE: By hourly charges in accordance with the attached Rate Schedule, estimate $1,540.00

McAdams will provide general project administration and include the following meetings:

- Kickoff Meeting (Principal in Charge, Project Manager, Discipline Leads; Virtual Format; one (1) hour);
- Monthly Client Coordination Meetings (four (4); Principal in Charge, Project Manager; Virtual Format; one (1) hour);
- Bi-Weekly Internal Coordination Meetings (eight (8); Principal in Charge, Project Manager, Discipline Leads; Virtual Format; fifteen (15) minutes);
- Pre-Bid Meeting (Principal in Charge); and
- Bid Opening (Principal in Charge).

Project administration services include the creation and maintenance of agendas and minutes for the aforementioned meetings (when applicable), coordination of submittals to the Town, maintenance of project records, general project operation, and pre-bid support services.

Surveying Services

B2.40 TOPOGRAPHIC SURVEY:

FEE: By hourly charges in accordance with the attached Rate Schedule, estimate $2,500.00

Conduct a field survey of the site totaling approximately 0.3 acres of developed land in the damaged location. Prepare a Topographic Survey Map in accordance with North Carolina Minimum Standards for Surveying. Contours will be mapped at 1-foot intervals. Locations of underground utilities will be based on visible above ground structures and utility markings, if provided. For storm drainage and sanitary sewer systems, rims, pipe inverts, pipe material and sizes will be located. Location of individual trees is not included.

B12.30 SUBSURFACE UTILITY (SUE) MARKINGS (LEVEL B):

FEE: By hourly charges in accordance with the attached Rate Schedule, estimate $2,000.00; Requires owner authorization before proceeding

Field mark underground utilities using electromagnetic equipment and mark them with spray paint. Structures that cannot be directly accessed are to be shown to the extent of available information, including utility maps. No guarantee is made that the underground utilities shown comprise all such utilities in the area, either in service or abandoned, nor that the underground utilities shown are in the exact location indicated, although they will be located as accurately as possible from information available. Physical location of the underground utilities utilizing Subsurface Utility Vacuum Extraction can be quoted if requested.

Construction Drawing + Permitting Phase

Construction drawings are to be prepared for submittal as stated in the Assumptions. Submittals will be in PDF format. McAdams will develop submittals in sufficient detail and appropriate format to clearly illustrate significant design features, dimensions, and clearances for the following Disciplines.

D14.10 ROADWAY DESIGN:

FEE: By hourly charges in accordance with the attached Rate Schedule, estimate $7,124.00

McAdams will complete the roadway design and produce construction drawings to be compiled into a Roadway Plan Set to repair South Laurel Circle, along with the other Town Roads Projects identified. The Roadway Plan Set will be submitted to the Town of Black Mountain for review at two separate stages: 90% and 100% plans. McAdams will respond to review comments and revise plans as may be required for up to two (2) reviews from the Town at the 90% submittal. Upon approval of the 90% plans, McAdams will sign and issue the Sealed Contract Roadway Design Plans to be used for construction.

The roadway design tasks included in this scope are:

- Design Criteria
- Roadway Design
  - Develop horizontal and vertical alignments based on design criteria and final survey;
  - Layout of roadway improvements; and
  - Coordinate with technical disciplines / units;
- Roadway Plan Set Preparation consisting of;
  - Title Sheet

  - General Notes Sheet
  - Symbology Sheet
  - One plan sheet that entails a typical section, plan view, profile view, details, and summary of roadway quantities and incorporating drainage improvements identified in Task D4.30.
  - Traffic Management Plans (TMP) (to be generated with Task D14.20)
  - Erosion Control Plans (to be generated with Task D4.40)
- Opinion of Probable Construction Cost (OPCC) and
- Roadway Special Provisions (as necessary) to be incorporated into the Project Manual (Task D14.90)
- Complete Quality Control Procedures.

Deliverables:

- 90% Submittal – Roadway Plan Set showing the proposed concept for review and approval of the Town prior to sealing documents, to be accompanied by draft Roadway Project Special Provisions (as necessary) and an OPCC.
- 100% Submittal – Sealed Contract Roadway Design Plans, Roadway Project Special Provisions (as necessary), and final OPCC as Engineer's Estimate.

D14.20 WORK ZONE TRAFFIC CONTROL DESIGN:

> FEE: By hourly charges in accordance with the attached Rate Schedule, estimate $3,460.00

McAdams will provide a TMP to account for a road closure to South Laurel Circle with all of the needed construction to be completed during the road closure.

- TMP will be incorporated into the 90% and 100% roadway plans, consisting of the following;
  - TMP notes and phasing
  - Plan sheets for road closure and offsite detour;
- Traffic Control Special Provisions (as necessary);
- Quantities and estimate for traffic control to be incorporated into the OPCC; and
- Complete Quality Control Procedures.

Deliverables:

- To be incorporated into the 90% and 100% deliverables identified for Task 14.10.

D4.30 HYDRAULIC DESIGN:

> FEE: By hourly charges in accordance with the attached Rate Schedule, estimate $8,810.00

McAdams will perform hydraulic analysis for open and closed system drainage, including pipe crossings, storm drainage systems, and ditches along the existing South Laurel Circle alignment for incorporation into the roadway plans. A resiliency analysis will be performed to evaluate whether all inlets, pipes, and the receiving channel need to be upsized to meet current design standards. Drainage analysis will be based upon the topographical information included in the survey and basemaps. Survey data will be supplemented with GIS contour information, USGS Quad maps, FEMA information, and County provided flown topography mapping. The anticipated tasks associated with the hydraulic analysis and drainage design include:

- Size all cross pipes along roadway alignment;
- Size all closed system drainage along roadway alignment;
- Evaluate ditch section capacities, depths, velocities, and shear stress;
- Evaluate proposed drainage outfalls;
- Evaluate and design necessary revisions to hydraulic structures (culverts, cross pipes, headwalls, drainage structures) that may be impacted by the proposed roadway repairs);

Deliverables:

- Drainage report, including necessary supporting calculations and documentation;
- Pipe and storm drain size/type shown on plans;
- Ditch locations and any applicable ditch details shown on plans;
- Stormwater Management Plan (SMP).

D4.40 EROSION CONTROL DESIGN:

FEE: By hourly charges in accordance with the attached Rate Schedule, estimate $7,480.00

The Design Team will prepare the erosion and sediment control plans by specifying erosion control measures, which minimize erosion and limit off-site sedimentation during construction of the project. The design will be in accordance with the requirements of the North Carolina Department of Transportation (NCDOT), the North Carolina Department of Environmental Quality (NCDEQ), and the Division of Energy, Mineral, and Land Resources (DEMLR). Erosion and Sediment Control quantities will be summarized and included as a table on the plan sheet or an appendix to the plans.

The Design Team will analyze flow rates and determine stabilization requirements for channels with erosive velocities and slopes with potential for erosive failure throughout the project. Design Team will show erosion control measures and special details not shown in the Erosion Control Manuals mentioned in the Assumptions as part of the construction plan set.

The ES&C designer will complete the E&SC plans by incorporating appropriate plan and/or title sheet information, required details, and notes on the E&SC plan sheets for project-specific environmental information into the plan. Project-specific vegetation management plans (e.g., reforestation, streambank reforestation, wetland grass or reforestation, etc.) or landscaping as required through project commitments will be included as part of the plans.

Following an initial review by the Town of Black Mountain, McAdams will submit a Town of Black Mountain Land Disturbance Permit if required.

Deliverables:

- E&SC Plans included as a separate series of drawings within the Roadway plan set;
- E&SC Quantities;
- Incorporate details and notes on E&SC plan sheets as needed; and
- Include E&SC Special Provisions as necessary.

D14.90 CONTRACT STANDARDS AND DEVELOPMENT:

> FEE: By hourly charges in accordance with the attached Rate Schedule, estimate $2,200.00

McAdams will generate one (1) Project Manual for the construction of all five Town Roads Projects utilizing the NCDOT's Standard Specifications and Special Provisions. The cost for the development of this manual will be borne across all five Town Roads and the fee estimate shown equates to 20% of the total anticipated fee for these activities. McAdams will respond to review comments and revise the Project Manual as may be required for two (2) reviews from the Town. Once approved, McAdams will sign and issue the Project Manual to be used in the Town's advertisement and bidding process for the construction of the five Town Roads Projects.

The Project Manual will include the following:

- Cover Sheet;
- Table of Contents;
- Instructions to Bidders;
- Project Special Provisions;
- Standard Special Provisions;
- Unit Project Special Provisions;
- Signatures Sheets and Forms;
- Bid / Pay Item Sheets; and
- Execution of Contract Sheet.

Deliverables:

- Draft Project Manual for review; and
- Final Project Manual.

Construction Period Services (Not Included at This Time, For Information Only)

Construction period services are envisioned to be applied across all sites included in the Town Roads bid package and not individually. The fees for Construction Period have been estimated at 16% of the Construction Contract, included in the overall cost estimate, and will be determined based upon completion of the cost estimates developed with the design services provided in this scope. The following services are not included in this task order at this time and are presented for the Owner's information only. The following is representative of the services that we anticipate will be necessary during the Construction Phase of the project.

H14.99 CONSTRUCTION BID SUPPORT – DESIGN SERVICES:

McAdams will provide technical assistance to respond to Contractor Requests for Information (RFIs) during the bidding process. This estimated fee is an estimate for up to two (2) RFIs per location (ten total) during the bidding process and is based upon 2 hours of time for a senior technical staff member and a designer per request to resolve contractor questions during the bidding process.

H5.40 CONSTRUCTION CONTRACTING ASSISTANCE – ADMINISTRATION SERVICES:

Assistance for the Owner with construction contract bid process. Specific items included within this task are as follows:

- Participation in the Pre-Bid meeting;
- Answering of RFIs;

- Participate in Public Bid opening; and
- Assist with the evaluation of received bids

Fee includes mileage to/from our Raleigh, North Carolina headquarters to Black Mountain for attendance of the two meetings listed.

H5.90 CONSTRUCTION ADMINISTRATION ASSISTANCE:

Provide assistance after award of the Contract for the site construction work (2-Months assumed). Scope for this task includes:

- Attending 1 preconstruction meeting
- Monthly construction progress meeting during construction (2-Visits)
- Weekly site visits for project monitoring (7-Visits)
- RFIs processing + response
- Review/approval of shop drawings
- Monthly Pay Application Review (3 Reviews)
- Substantial Completion Review
- Development of punch lists and pre/final inspections in support of project close-out. (2 Visits)
- Warranty Site Visits and Follow up (2 Visits)

I5.10 RECORD DRAWINGS

Provide record drawings and certifications of installation as required by the Town of Black Mountain and FEMA. Please note this fee assumes field-survey work and a signed/sealed as-built survey shall be provided by others (the Contractor) for use by McAdams in preparing the record drawings and submittal package.

999.00 REIMBURSABLES

FEE: Charged in accordance with the attached Rate Schedule, estimate $87.00

Reimbursables are envisioned to be spread across all sites included in the Town Roads bid package and not intended to be charged individually. The fee for reimbursables is based upon 600 miles of travel associated with site visits, in person meetings with the Town, and attending the pre-bid meeting and bid opening. The charges presented in the estimate and scope of services for this site represent 20% of the anticipated mileage expenses for the Town Roads Project.

The Fee for the services described herein shall be billed at standard hourly rates in accordance with the attached rate schedule. For a detailed breakdown of the charges, see the attached Fee Estimate for Staffing Services. These charges are estimated to total: $ 35,157.00

Client Responsibilities

Client shall be responsible for the following:

- Notification to proceed;
- Timely approval of sketches presented for Client approval;
- Timely providing of information from other professional services (architect, geotechnical engineer, etc.), as described hereinabove;

- Payment of all application and permit fees;
- Payment of invoices in accordance with Item 1 of Terms and Conditions; and
- Notification to Firm of any problems, in accordance with Item 2 of Terms and Conditions.

Exclusions

The following services are not included in this Agreement:

- Right of Way and Easement Layout;
- Pavement Design;
- Utility Coordination;
- Tenant coordination meetings or conference calls (can be quoted once scope is clarified);
- Wetland and Stream delineations and permitting (will be quoted if required);
- Bridge Survey Report (BSR) or Culvert Survey Report (CSR) (will be quoted if required);
- Scour analysis;
- Structural design of specialty culverts, pipes, drainage boxes, or drainage structures (will be quoted if required);
- Traffic Impact Analysis;
- Preparation of plats for right-of-way acquisition;
- Right-of-way acquisition services;
- Color graphics for meetings or marketing purposes (will be quoted if required);
- Permit application, plans review or re-review fees;
- Revised directives from Client after design has begun;
- Additional submittal of stormwater design for jurisdictional approval by State regulatory organizations such as NCDENR-DWQ, Dam Safety, or the like (can be quoted if determined to be required);
- Additional submittal of erosion control design for approval by North Carolina Department of Environmental Quality (NCDEQ) or North Carolina Division of Energy, Mineral, and Land Resources (NCDEMLR) (can be quoted if determined to be required);
- Court appearances for litigation, or preparation for same;
- Legal advertisements for construction contracts;
- Environmental investigations, wetlands permitting, wetlands surveying;
- Any costs incurred by Client or Contractor due to changes required by the approving authority or their inspectors after construction drawings have been approved; and
- Stormwater Control Measures (SCM's) (will be quoted if required).

McAdams
80 Charlotte Street
Suite 40
Asheville, NC 28801
919. 361. 5000

Project Description

Tropical Storm Helene caused widespread damage to infrastructure owned and maintained by the Town of Black Mountain. Old Lakey Gap Road experienced a pipe failure and loss of roadway embankment. The Town of Black Mountain has performed temporary repairs at this location to re-open the road to traffic.

Project Understanding

Surface water flooding has damaged Old Lakey Gap Road for a length of approximately 85 linear feet. The road has been re-opened to traffic due to temporary repairs made by the Town. These damages included:

- Loss of pipe section
- Loss of roadway embankment
- Loss of roadway pavement

These areas are to be repaired to their pre-storm condition. Resiliency measures to be studied include increasing the size of the cross road pipe and potential armoring of the slopes to prevent erosion in future overtopping events.

Assumptions

This proposal is based on the following assumptions:

- One plan set to incorporate all five Town Roads Project sites as identified below will be generated. Individual plan sets for each site will not be generated.
  - Fairview Drive
  - North Cherokee Avenue
  - Old Lakey Gap Road
  - South Laurel Circle
  - Valley Vista Drive
- One Project Manual will be generated for all five Town Roads Projects as identified above.
- The five Town Roads Projects identified above will be bid as a single bid package.
- Proposed design will be to provide for repair and remediation of the site to current standards of practice for the facility carried.
- There will be two design submissions for this project: 90%, and 100%.
- Project Specifications will follow the North Carolina Department of Transportation (NCDOT) Standard Specifications for Roads and Structures.
- The Client will be responsible for notification of existing property owners and for assuring access to the site(s).
- Specialized aquatic or terrestrial species surveys, archeological surveys, and specialized cultural resource surveys are not included in the scope of this Agreement. Should formal surveys be required, additional scope and fee will be provided at that time based on the identified species.
- It is assumed that a Grading Permit from the Town of Black Mountain will be required. Scope assumes that the sole authority for issuing any type of Grading, Land Disturbance, or Erosion Control Permit for the project will be the Town of Black Mountain. If coordination with additional agencies becomes required, additional scope and fee may be requested.
- Roadway design for the repairs on Old Lakey Gap Road are expected to primarily consist of roadway design, grading, and paving.

- It is anticipated that Old Lakey Gap Road will be closed to traffic during construction and a detour consisting of Blue Ridge Road, Cement Road/Armory Drive, and Old Lake Gap Road be used during construction. If additional plans are needed pertaining to traffic control measures beyond a road closure, additional scope and fee will be required.
- All roadway and work zone traffic control designs will be in accordance with the following references as of the date of this scope:
  - American Association of State Highway Transportation Officials (AASHTO) A Policy on Geometric Design of Highways and Streets and Errata;
  - AASHTO Roadside Design Guide 4th Edition and Errata;
  - NCDOT Roadway Design Manual;
  - NCDOT Roadway Standard Drawings;
  - NCDOT Guidelines for Transportation Management Plan Development;
  - NCDOT Policy for Providing Temporary Pedestrian Accommodations in Work Zones; and
  - Federal Highway Administration (FHWA) Manual on Uniform Traffic Control Devices (MUTCD).
- All drainage and erosion control designs will be in accordance with the following references as of the date of this scope:
  - NCDOT Guidelines for Drainage Studies and Hydraulic Design
  - NCDOT Stormwater Best Management Practices Toolbox
  - NCDOT Erosion and Sediment Control Design and Construction Manual

Services + Fees

(Alphanumeric task numbers are for internal coding purposes):

Project Administration

Project administration costs will be borne across all projects included in the Town Roads Bid Package. The cost for the Project Administration will be borne across all five Town Roads sites and the fee estimate shown equates to 20% of the total anticipated fee for these activities. The following scope is presented for the project as a whole and is not representative of the effort anticipated for this single site.

A14.10 PROJECT ADMINISTRATION:

> FEE: By hourly charges in accordance with the attached Rate Schedule, estimate $1,540.00

McAdams will provide general project administration and include the following meetings:

- Kickoff Meeting (Principal in Charge, Project Manager, Discipline Leads; Virtual Format; one (1) hour);
- Monthly Client Coordination Meetings (four (4); Principal in Charge, Project Manager; Virtual Format; one (1) hour);
- Bi-Weekly Internal Coordination Meetings (eight (8); Principal in Charge, Project Manager, Discipline Leads; Virtual Format; fifteen (15) minutes);
- Pre-Bid Meeting (Principal in Charge); and
- Bid Opening (Principal in Charge).

Project administration services include the creation and maintenance of agendas and minutes for the aforementioned meetings (when applicable), coordination of submittals to the Town, maintenance of project records, general project operation, and pre-bid support services.

Surveying Services

B2.40 TOPOGRAPHIC SURVEY:

FEE: By hourly charges in accordance with the attached Rate Schedule, estimate $2,500.00

Conduct a field survey of the site totaling approximately 0.3 acres of developed land in the damaged location. Prepare a Topographic Survey Map in accordance with North Carolina Minimum Standards for Surveying. Contours will be mapped at 1-foot intervals. Locations of underground utilities will be based on visible above ground structures and utility markings, if provided. For storm drainage and sanitary sewer systems, rims, pipe inverts, pipe material and sizes will be located. Location of individual trees is not included.

B12.30 SUBSURFACE UTILITY (SUE) MARKINGS (LEVEL B):

FEE: By hourly charges in accordance with the attached Rate Schedule, estimate $2,000.00; Requires owner authorization before proceeding

Field mark underground utilities using electromagnetic equipment and mark them with spray paint. Structures that cannot be directly accessed are to be shown to the extent of available information, including utility maps. No guarantee is made that the underground utilities shown comprise all such utilities in the area, either in service or abandoned, nor that the underground utilities shown are in the exact location indicated, although they will be located as accurately as possible from information available. Physical location of the underground utilities utilizing Subsurface Utility Vacuum Extraction can be quoted if requested.

Construction Drawing + Permitting Phase

Construction drawings are to be prepared for submittal as stated in the Assumptions. Submittals will be in PDF format. McAdams will develop submittals in sufficient detail and appropriate format to clearly illustrate significant design features, dimensions, and clearances for the following Disciplines.

D14.10 ROADWAY DESIGN:

FEE: By hourly charges in accordance with the attached Rate Schedule, estimate $7,080.00

McAdams will complete the roadway design and produce construction drawings to be compiled into a Roadway Plan Set to repair Old Lakey Gap Road, along with the other Town Roads Projects identified. The Roadway Plan Set will be submitted to the Town of Black Mountain for review at two separate stages: 90% and 100% plans. McAdams will respond to review comments and revise plans as may be required for up to two (2) reviews from the Town at the 90% submittal. Upon approval of the 90% plans, McAdams will sign and issue the Sealed Contract Roadway Design Plans to be used for construction.

The roadway design tasks included in this scope are:

- Design Criteria
- Roadway Design
  - Develop horizontal and vertical alignments based on design criteria and final survey;
  - Layout of roadway improvements; and
  - Coordinate with technical disciplines / units;
- Roadway Plan Set Preparation consisting of;

  - Title Sheet
  - General Notes Sheet
  - Symbology Sheet
  - One plan sheet that entails a typical section, plan view, profile view, details, and summary of roadway quantities and incorporating drainage improvements identified in Task D4.30.
  - Traffic Management Plans (TMP) (to be generated with Task D14.20)
  - Erosion Control Plans (to be generated with Task D4.40)
- Opinion of Probable Construction Cost (OPCC) and
- Roadway Special Provisions (as necessary) to be incorporated into the Project Manual (Task D14.90)
- Complete Quality Control Procedures.

Deliverables:

- 90% Submittal – Roadway Plan Set showing the proposed concept for review and approval of the Town prior to sealing documents, to be accompanied by draft Roadway Project Special Provisions (as necessary) and an OPCC.
- 100% Submittal – Sealed Contract Roadway Design Plans, Roadway Project Special Provisions (as necessary), and final OPCC as Engineer's Estimate.

D14.20 WORK ZONE TRAFFIC CONTROL DESIGN:

> FEE: By hourly charges in accordance with the attached Rate Schedule, estimate $3,460.00

McAdams will provide a TMP to account for a road closure to Old Lakey Gap Road with all of the needed construction to be completed during the road closure.

- TMP will be incorporated into the 90% and 100% roadway plans, consisting of the following;
  - TMP notes and phasing
  - Plan sheets for road closure and offsite detour;
- Traffic Control Special Provisions (as necessary);
- Quantities and estimate for traffic control to be incorporated into the OPCC; and
- Complete Quality Control Procedures.

Deliverables:

- To be incorporated into the 90% and 100% deliverables identified for Task 14.10.

D4.30 HYDRAULIC DESIGN:

> FEE: By hourly charges in accordance with the attached Rate Schedule, estimate $8,560.00

McAdams will perform hydraulic analysis for open and closed system drainage, including pipe crossings, storm drainage systems, and ditches along the existing Old Lakey Gap alignment for incorporation into the roadway plans. A resiliency analysis will be performed to evaluate whether all inlets, pipes, and the receiving channel need to be upsized to meet current design standards. Drainage analysis will be based upon the topographical information included in the survey and basemaps. Survey data will be supplemented with GIS contour

information, USGS Quad maps, FEMA information, and County provided flown topography mapping. The anticipated tasks associated with the hydraulic analysis and drainage design include:

- Size all cross pipes along roadway alignment;
- Size all closed system drainage along roadway alignment;
- Evaluate ditch section capacities, depths, velocities, and shear stress;
- Evaluate proposed drainage outfalls;
- Evaluate and design necessary revisions to hydraulic structures (culverts, cross pipes, headwalls, drainage structures) that may be impacted by the proposed roadway repairs);

Deliverables:

- Drainage report, including necessary supporting calculations and documentation;
- Pipe and storm drain size/type shown on plans;
- Ditch locations and any applicable ditch details shown on plans;
- Stormwater Management Plan (SMP).

D4.40 EROSION CONTROL DESIGN:

FEE: By hourly charges in accordance with the attached Rate Schedule, estimate $6,920.00

The Design Team will prepare the erosion and sediment control plans by specifying erosion control measures, which minimize erosion and limit off-site sedimentation during construction of the project. The design will be in accordance with the requirements of the North Carolina Department of Transportation (NCDOT), the North Carolina Department of Environmental Quality (NCDEQ), and the Division of Energy, Mineral, and Land Resources (DEMLR). Erosion and Sediment Control quantities will be summarized and included as a table on the plan sheet or an appendix to the plans.

The Design Team will analyze flow rates and determine stabilization requirements for channels with erosive velocities and slopes with potential for erosive failure throughout the project. Design Team will show erosion control measures and special details not shown in the Erosion Control Manuals mentioned in the Assumptions as part of the construction plan set.

The ES&C designer will complete the E&SC plans by incorporating appropriate plan and/or title sheet information, required details, and notes on the E&SC plan sheets for project-specific environmental information into the plan. Project-specific vegetation management plans (e.g., reforestation, streambank reforestation, wetland grass or reforestation, etc.) or landscaping as required through project commitments will be included as part of the plans.

Following an initial review by the Town of Black Mountain, McAdams will submit a Town of Black Mountain Land Disturbance Permit if required.

Deliverables:

- E&SC Plans included as a separate series of drawings within the Roadway plan set;
- E&SC Quantities;
- Incorporate details and notes on E&SC plan sheets as needed; and
- Include E&SC Special Provisions as necessary.

D14.90 CONTRACT STANDARDS AND DEVELOPMENT:

> FEE: By hourly charges in accordance with the attached Rate Schedule, estimate $2,200.00

McAdams will generate one (1) Project Manual for the construction of all five Town Roads Projects utilizing the NCDOT's Standard Specifications and Special Provisions. The cost for the development of this manual will be borne across all five Town Roads and the fee estimate shown equates to 20% of the total anticipated fee for these activities. McAdams will respond to review comments and revise the Project Manual as may be required for two (2) reviews from the Town. Once approved, McAdams will sign and issue the Project Manual to be used in the Town's advertisement and bidding process for the construction of the five Town Roads Projects.

The Project Manual will include the following:

- Cover Sheet;
- Table of Contents;
- Instructions to Bidders;
- Project Special Provisions;
- Standard Special Provisions;
- Unit Project Special Provisions;
- Signatures Sheets and Forms;
- Bid / Pay Item Sheets; and
- Execution of Contract Sheet.

Deliverables:

- Draft Project Manual for review; and
- Final Project Manual.

Construction Period Services (Not Included at This Time, For Information Only)

Construction period services are envisioned to be applied across all sites included in the Town Roads bid package and not individually. The fees for Construction Period have been estimated at 16% of the Construction Contract, included in the overall cost estimate, and will be determined based upon completion of the cost estimates developed with the design services provided in this scope. The following services are not included in this task order at this time and are presented for the Owner's information only. The following is representative of the services that we anticipate will be necessary during the Construction Phase of the project.

H14.99 CONSTRUCTION BID SUPPORT – DESIGN SERVICES:

McAdams will provide technical assistance to respond to Contractor Requests for Information (RFIs) during the bidding process. This estimated fee is an estimate for up to two (2) RFIs per location (ten total) during the bidding process and is based upon 2 hours of time for a senior technical staff member and a designer per request to resolve contractor questions during the bidding process.

H5.40 CONSTRUCTION CONTRACTING ASSISTANCE – ADMINISTRATION SERVICES:

Assistance for the Owner with construction contract bid process. Specific items included within this task are as follows:

- Participation in the Pre-Bid meeting;

- Answering of RFIs;
- Participate in Public Bid opening; and
- Assist with the evaluation of received bids

Fee includes mileage to/from our Raleigh, North Carolina headquarters to Black Mountain for attendance of the two meetings listed.

H5.90 CONSTRUCTION ADMINISTRATION ASSISTANCE:

Provide assistance after award of the Contract for the site construction work (2-Months assumed). Scope for this task includes:

- Attending 1 preconstruction meeting
- Monthly construction progress meeting during construction (2-Visits)
- Weekly site visits for project monitoring (7-Visits)
- RFIs processing + response
- Review/approval of shop drawings
- Monthly Pay Application Review (3 Reviews)
- Substantial Completion Review
- Development of punch lists and pre/final inspections in support of project close-out. (2 Visits)
- Warranty Site Visits and Follow up (2 Visits)

I5.10 RECORD DRAWINGS

Provide record drawings and certifications of installation as required by the Town of Black Mountain and FEMA. Please note this fee assumes field-survey work and a signed/sealed as-built survey shall be provided by others (the Contractor) for use by McAdams in preparing the record drawings and submittal package.

999.00 REIMBURSABLES

FEE: Charged in accordance with the attached Rate Schedule, estimate $87.00

Reimbursables are envisioned to be spread across all sites included in the Town Roads bid package and not intended to be charged individually. The fee for reimbursables is based upon 600 miles of travel associated with site visits, in person meetings with the Town, and attending the pre-bid meeting and bid opening. The charges presented in the estimate and scope of services for this site represent 20% of the anticipated mileage expenses for the Town Roads Project.

The Fee for the services described herein shall be billed at standard hourly rates in accordance with the attached rate schedule. For a detailed breakdown of the charges, see the attached Fee Estimate for Staffing Services. These charges are estimated to total: $ 32,427.00

Client Responsibilities

Client shall be responsible for the following:

- Notification to proceed;
- Timely approval of sketches presented for Client approval;

- Timely providing of information from other professional services (architect, geotechnical engineer, etc.), as described hereinabove;
- Payment of all application and permit fees;
- Payment of invoices in accordance with Item 1 of Terms and Conditions; and
- Notification to Firm of any problems, in accordance with Item 2 of Terms and Conditions.

Exclusions

The following services are not included in this Agreement:

- Right of Way and Easement Layout;
- Pavement Design;
- Utility Coordination;
- Tenant coordination meetings or conference calls (can be quoted once scope is clarified);
- Wetland and Stream delineations and permitting (will be quoted if required);
- Bridge Survey Report (BSR) or Culvert Survey Report (CSR) (will be quoted if required);
- Scour analysis;
- Structural design of specialty culverts, pipes, drainage boxes, or drainage structures (will be quoted if required);
- Traffic Impact Analysis;
- Preparation of plats for right-of-way acquisition;
- Right-of-way acquisition services;
- Color graphics for meetings or marketing purposes (will be quoted if required);
- Permit application, plans review or re-review fees;
- Revised directives from Client after design has begun;
- Additional submittal of stormwater design for jurisdictional approval by State regulatory organizations such as NCDENR-DWQ, Dam Safety, or the like (can be quoted if determined to be required);
- Additional submittal of erosion control design for approval by North Carolina Department of Environmental Quality (NCDEQ) or North Carolina Division of Energy, Mineral, and Land Resources (NCDEMLR) (can be quoted if determined to be required);
- Court appearances for litigation, or preparation for same;
- Legal advertisements for construction contracts;
- Environmental investigations, wetlands permitting, wetlands surveying;
- Any costs incurred by Client or Contractor due to changes required by the approving authority or their inspectors after construction drawings have been approved; and
- Stormwater Control Measures (SCM's) (will be quoted if required).

McAdams
80 Charlotte Street
Suite 40
Asheville, NC 28801
919. 361. 5000

Project Description

Tropical Storm Helene caused widespread damage to infrastructure owned and maintained by the Town of Black Mountain. North Cherokee Avenue experienced a slope failure that damaged the roadway surface and removed the roadway embankment.

Project Understanding

Surface water flooding has damaged North Cherokee Avenue for a length of approximately 40 linear feet. These damages include:

- Loss of roadway embankment
- Loss of pavement

These areas are to be repaired to their pre-storm condition. Resiliency measures to be studied include the analysis and potential modification of the drop inlet and cross road pipes in the vicinity of the project that became inundated in the storm. Field crews were unable to verify that the condition of buried components of the system or identify if there was any damage to the existing pipe which could have contributed to the slope failure. Potential armoring of the slopes to prevent erosion in future overtopping events is also included in this scope of work.

Assumptions

This proposal is based on the following assumptions:

- One plan set to incorporate all five Town Roads Project sites as identified below will be generated. Individual plan sets for each site will not be generated.
  - Fairview Drive
  - North Cherokee Avenue
  - Old Lakey Gap Road
  - South Laurel Circle
  - Valley Vista Drive
- One Project Manual will be generated for all five Town Roads Projects as identified above.
- The five Town Roads Projects identified above will be bid as a single bid package.
- Proposed design will be to provide for repair and remediation of the site to current standards of practice for the facility carried.
- There will be two design submissions for this project: 90%, and 100%.
- Project Specifications will follow the North Carolina Department of Transportation (NCDOT) Standard Specifications for Roads and Structures.
- The Client will be responsible for notification of existing property owners and for assuring access to the site(s).
- Specialized aquatic or terrestrial species surveys, archeological surveys, and specialized cultural resource surveys are not included in the scope of this Agreement. Should formal surveys be required, additional scope and fee will be provided at that time based on the identified species.
- It is assumed that a Grading Permit from the Town of Black Mountain will be required. Scope assumes that the sole authority for issuing any type of Grading, Land Disturbance, or Erosion Control Permit for the project will be the Town of Black Mountain. If coordination with additional agencies becomes required, additional scope and fee may be requested.

- Roadway design for the repairs on North Cherokee Avenue is expected to primarily consist of grading and paving.
- It is anticipated that a guardrail warrant exists at this location given the height and steepness of the slope. This proposal assumes that the slope can be graded in a manor that this warrant be removed. Guardrail installation is not included in this proposal.
- It is anticipated that North Cherokee Avenue will be closed to traffic during construction and a posted detour will be provided utilizing North Fork Road, North Occoneechee Avenue, and 10th Street. If additional plans are needed pertaining to traffic control measures beyond a road closure, additional scope and fee will be required.
- All roadway and work zone traffic control designs will be in accordance with the following references as of the date of this scope:
  - American Association of State Highway Transportation Officials (AASHTO) A Policy on Geometric Design of Highways and Streets and Errata;
  - AASHTO Roadside Design Guide 4th Edition and Errata;
  - NCDOT Roadway Design Manual;
  - NCDOT Roadway Standard Drawings;
  - NCDOT Guidelines for Transportation Management Plan Development;
  - NCDOT Policy for Providing Temporary Pedestrian Accommodations in Work Zones; and
  - Federal Highway Administration (FHWA) Manual on Uniform Traffic Control Devices (MUTCD).
- All drainage and erosion control designs will be in accordance with the following references as of the date of this scope:
  - NCDOT Guidelines for Drainage Studies and Hydraulic Design
  - NCDOT Stormwater Best Management Practices Toolbox
  - NCDOT Erosion and Sediment Control Design and Construction Manual

Services + Fees

(Alphanumeric task numbers are for internal coding purposes):

Project Administration

Project administration costs will be borne across all projects included in the Town Roads Bid Package. The cost for the Project Administration will be borne across all five Town Roads sites and the fee estimate shown equates to 20% of the total anticipated fee for these activities. The following scope is presented for the project as a whole and is not representative of the effort anticipated for this single site.

A14.10 PROJECT ADMINISTRATION:

> FEE: By hourly charges in accordance with the attached Rate Schedule, estimate $1,540.00

McAdams will provide general project administration and include the following meetings:

- Kickoff Meeting (Principal in Charge, Project Manager, Discipline Leads; Virtual Format; one (1) hour);
- Monthly Client Coordination Meetings (four (4); Principal in Charge, Project Manager; Virtual Format; one (1) hour);
- Bi-Weekly Internal Coordination Meetings (eight (8); Principal in Charge, Project Manager, Discipline Leads; Virtual Format; fifteen (15) minutes);
- Pre-Bid Meeting (Principal in Charge); and
- Bid Opening (Principal in Charge).

Project administration services include the creation and maintenance of agendas and minutes for the aforementioned meetings (when applicable), coordination of submittals to the Town, maintenance of project records, general project operation, and pre-bid support services.

Surveying Services

B2.40 TOPOGRAPHIC SURVEY:

> FEE: By hourly charges in accordance with the attached Rate Schedule, estimate $4,500.00

Conduct a field survey of the site totaling approximately 0.5 acres of developed land in the damaged location. Prepare a Topographic Survey Map in accordance with North Carolina Minimum Standards for Surveying. Contours will be mapped at 1-foot intervals. Locations of underground utilities will be based on visible above ground structures and utility markings, if provided. For storm drainage and sanitary sewer systems, rims, pipe inverts, pipe material and sizes will be located. Location of individual trees is not included.

B12.30 SUBSURFACE UTILITY (SUE) MARKINGS (LEVEL B):

> FEE: By hourly charges in accordance with the attached Rate Schedule, estimate $3,000.00; Requires owner authorization before proceeding

Field mark underground utilities using electromagnetic equipment and mark them with spray paint. Structures that cannot be directly accessed are to be shown to the extent of available information, including utility maps. No guarantee is made that the underground utilities shown comprise all such utilities in the area, either in service or abandoned, nor that the underground utilities shown are in the exact location indicated, although they will be located as accurately as possible from information available. Physical location of the underground utilities utilizing Subsurface Utility Vacuum Extraction can be quoted if requested.

Construction Drawing + Permitting Phase

Construction drawings are to be prepared for submittal as stated in the Assumptions. Submittals will be in PDF format. McAdams will develop submittals in sufficient detail and appropriate format to clearly illustrate significant design features, dimensions, and clearances for the following Disciplines.

D14.10 ROADWAY DESIGN:

> FEE: By hourly charges in accordance with the attached Rate Schedule, estimate $8,080.00

McAdams will complete the roadway design and produce construction drawings to be compiled into a Roadway Plan Set to repair North Cherokee Avenue, along with the other Town Roads Projects identified. The Roadway Plan Set will be submitted to the Town of Black Mountain for review at two separate stages: 90% and 100% plans. McAdams will respond to review comments and revise plans as may be required for up to two (2) reviews from the Town at the 90% submittal. Upon approval of the 90% plans, McAdams will sign and issue the Sealed Contract Roadway Design Plans to be used for construction.

The roadway design tasks included in this scope are:

- Design Criteria
- Roadway Design
  - Develop horizontal and vertical alignments based on design criteria and final survey;

  - Layout of roadway improvements; and
  - Coordinate with technical disciplines / units;
- Roadway Plan Set Preparation consisting of;
  - Title Sheet
  - General Notes Sheet
  - Symbology Sheet
  - One plan sheet that entails a typical section, plan view, profile view, details, and summary of roadway quantities and incorporating drainage improvements identified in Task D4.30.
  - Traffic Management Plans (TMP) (to be generated with Task D14.20)
  - Erosion Control Plans (to be generated with Task D4.40)
- Opinion of Probable Construction Cost (OPCC) and
- Roadway Special Provisions (as necessary) to be incorporated into the Project Manual (Task D14.90)
- Complete Quality Control Procedures.

Deliverables:
- 90% Submittal – Roadway Plan Set showing the proposed concept for review and approval of the Town prior to sealing documents, to be accompanied by draft Roadway Project Special Provisions (as necessary) and an OPCC.
- 100% Submittal – Sealed Contract Roadway Design Plans, Roadway Project Special Provisions (as necessary), and final OPCC as Engineer's Estimate.

D14.20 WORK ZONE TRAFFIC CONTROL DESIGN:

> FEE: By hourly charges in accordance with the attached Rate Schedule, estimate $3,460.00

McAdams will provide a TMP to account for a road closure to North Cherokee Avenue with all of the needed construction to be completed during the road closure.

- TMP will be incorporated into the 90% and 100% roadway plans, consisting of the following;
  - TMP notes and phasing
  - Plan sheets for road closure and offsite detour;
- Traffic Control Special Provisions (as necessary);
- Quantities and estimate for traffic control to be incorporated into the OPCC; and
- Complete Quality Control Procedures.

Deliverables:
- To be incorporated into the 90% and 100% deliverables identified for Task 14.10.

D4.30 HYDRAULIC DESIGN:

> FEE: By hourly charges in accordance with the attached Rate Schedule, estimate $10,380.00

The Design Team will perform hydraulic analysis for open and closed system drainage, including analysis of the existing closed system beneath N Fork Road and N Cherokee Avenue. A resiliency analysis will be completed to to upsize all inlets and pipes to meet current design standards, and to ensure the receiving channel meet these same standards. Drainage analysis will be based upon the topographical information included in the survey and basemaps. Survey data will be supplemented with GIS contour information, USGS Quad maps, FEMA

information, and County provided flown topography mapping. In addition to the analysis, McAdams will perform a site visit and use of a zoom camera to check the condition of the pipes into and out of the drop inlet structure to ensure post event structural integrity. Summary of results of investigation will be provided in a technical memo. If deemed necessary, additional funds will be requested for CCTV investigation of the pipes within project limits. Scope will be added upon agreement between the Client and McAdams.

The anticipated tasks associated with the hydraulic analysis and drainage design include:

- Size all cross pipes along roadway alignment;
- Size all closed system drainage along roadway alignment;
- Evaluate ditch section capacities, depths, velocities, and shear stress;
- Evaluate proposed drainage outfalls;
- Evaluate and design necessary revisions to hydraulic structures (culverts, cross pipes, headwalls, drainage structures) that may be impacted by the proposed roadway repairs);
- Evaluate the condition of the existing pipes using a zoom camera to determine if further condition assessments are necessary.

Deliverables:

- Drainage report, including necessary supporting calculations and documentation;
- Pipe condition Technical Memo;
- Pipe and storm drain size/type shown on plans;
- Ditch locations and any applicable ditch details shown on plans;
- Stormwater Management Plan (SMP).

D4.40 EROSION CONTROL DESIGN:

> FEE: By hourly charges in accordance with the attached Rate Schedule, estimate $7,340.00

The Design Team will prepare the erosion and sediment control plans by specifying erosion control measures, which minimize erosion and limit off-site sedimentation during construction of the project. The design will be in accordance with the requirements of the North Carolina Department of Transportation (NCDOT), the North Carolina Department of Environmental Quality (NCDEQ), and the Division of Energy, Mineral, and Land Resources (DEMLR). Erosion and Sediment Control quantities will be summarized and included as a table on the plan sheet or an appendix to the plans.

The Design Team will analyze flow rates and determine stabilization requirements for channels with erosive velocities and slopes with potential for erosive failure throughout the project. Design Team will show erosion control measures and special details not shown in the Erosion Control Manuals mentioned in the Assumptions as part of the construction plan set.

The ES&C designer will complete the E&SC plans by incorporating appropriate plan and/or title sheet information, required details, and notes on the E&SC plan sheets for project-specific environmental information into the plan. Project-specific vegetation management plans (e.g., reforestation, streambank reforestation, wetland grass or reforestation, etc.) or landscaping as required through project commitments will be included as part of the plans.

Following an initial review by the Town of Black Mountain, McAdams will submit a Town of Black Mountain Land Disturbance Permit if required.

Deliverables:

- E&SC Plans included as a separate series of drawings within the Roadway plan set;
- E&SC Quantities;
- Incorporate details and notes on E&SC plan sheets as needed; and
- Include E&SC Special Provisions as necessary.

D14.90 CONTRACT STANDARDS AND DEVELOPMENT:

FEE: By hourly charges in accordance with the attached Rate Schedule, estimate $2,200.00

McAdams will generate one (1) Project Manual for the construction of all five Town Roads Projects utilizing the NCDOT's Standard Specifications and Special Provisions. The cost for the development of this manual will be borne across all five Town Roads and the fee estimate shown equates to 20% of the total anticipated fee for these activities. McAdams will respond to review comments and revise the Project Manual as may be required for two (2) reviews from the Town. Once approved, McAdams will sign and issue the Project Manual to be used in the Town's advertisement and bidding process for the construction of the five Town Roads Projects.

The Project Manual will include the following:

- Cover Sheet;
- Table of Contents;
- Instructions to Bidders;
- Project Special Provisions;
- Standard Special Provisions;
- Unit Project Special Provisions;
- Signatures Sheets and Forms;
- Bid / Pay Item Sheets; and
- Execution of Contract Sheet.

Deliverables:

- Draft Project Manual for review; and
- Final Project Manual.

Construction Period Services (Not Included at This Time, For Information Only)

Construction period services are envisioned to be applied across all sites included in the Town Roads bid package and not individually. The fees for Construction Period have been estimated at 16% of the Construction Contract, included in the overall cost estimate, and will be determined based upon completion of the cost estimates developed with the design services provided in this scope. The following services are not included in this task order at this time and are presented for the Owner's information only. The following is representative of the services that we anticipate will be necessary during the Construction Phase of the project.

H14.99 CONSTRUCTION BID SUPPORT – DESIGN SERVICES:

McAdams will provide technical assistance to respond to Contractor Requests for Information (RFIs) during the bidding process. This estimated fee is an estimate for up to two (2) RFIs per location (ten total) during the bidding process and is based upon 2 hours of time for a senior technical staff member and a designer per request to resolve contractor questions during the bidding process.

H5.40 CONSTRUCTION CONTRACTING ASSISTANCE – ADMINISTRATION SERVICES:

Assistance for the Owner with construction contract bid process. Specific items included within this task are as follows:

- Participation in the Pre-Bid meeting;
- Answering of RFIs;
- Participate in Public Bid opening; and
- Assist with the evaluation of received bids

Fee includes mileage to/from our Raleigh, North Carolina headquarters to Black Mountain for attendance of the two meetings listed.

H5.90 CONSTRUCTION ADMINISTRATION ASSISTANCE:

Provide assistance after award of the Contract for the site construction work (2-Months assumed). Scope for this task includes:

- Attending 1 preconstruction meeting
- Monthly construction progress meeting during construction (2-Visits)
- Weekly site visits for project monitoring (7-Visits)
- RFIs processing + response
- Review/approval of shop drawings
- Monthly Pay Application Review (3 Reviews)
- Substantial Completion Review
- Development of punch lists and pre/final inspections in support of project close-out. (2 Visits)
- Warranty Site Visits and Follow up (2 Visits)

I5.10 RECORD DRAWINGS

Provide record drawings and certifications of installation as required by the Town of Black Mountain and FEMA. Please note this fee assumes field-survey work and a signed/sealed as-built survey shall be provided by others (the Contractor) for use by McAdams in preparing the record drawings and submittal package.

999.00 REIMBURSABLES

FEE:	Charged in accordance with the attached Rate Schedule, estimate $87.00

Reimbursables are envisioned to be spread across all sites included in the Town Roads bid package and not intended to be charged individually. The fee for reimbursables is based upon 600 miles of travel associated with site visits, in person meetings with the Town, and attending the pre-bid meeting and bid opening. The charges presented in the estimate and scope of services for this site represent 20% of the anticipated mileage expenses for the Town Roads Project.

The Fee for the services described herein shall be billed at standard hourly rates in accordance with the attached rate schedule. For a detailed breakdown of the charges, see the attached Fee Estimate for Staffing Services. These charges are estimated to total: $ 40,587.00

Client Responsibilities

Client shall be responsible for the following:

- Notification to proceed;
- Timely approval of sketches presented for Client approval;
- Timely providing of information from other professional services (architect, geotechnical engineer, etc.), as described hereinabove;
- Payment of all application and permit fees;
- Payment of invoices in accordance with Item 1 of Terms and Conditions; and
- Notification to Firm of any problems, in accordance with Item 2 of Terms and Conditions.

Exclusions

The following services are not included in this Agreement:

- Right of Way and Easement Layout;
- Pavement Design;
- Utility Coordination;
- Tenant coordination meetings or conference calls (can be quoted once scope is clarified);
- Wetland and Stream delineations and permitting (will be quoted if required);
- Bridge Survey Report (BSR) or Culvert Survey Report (CSR) (will be quoted if required);
- Scour analysis;
- Structural design of specialty culverts, pipes, drainage boxes, or drainage structures (will be quoted if required);
- Traffic Impact Analysis;
- Preparation of plats for right-of-way acquisition;
- Right-of-way acquisition services;
- Color graphics for meetings or marketing purposes (will be quoted if required);
- Permit application, plans review or re-review fees;
- Revised directives from Client after design has begun;
- Additional submittal of stormwater design for jurisdictional approval by State regulatory organizations such as NCDENR-DWQ, Dam Safety, or the like (can be quoted if determined to be required);
- Additional submittal of erosion control design for approval by North Carolina Department of Environmental Quality (NCDEQ) or North Carolina Division of Energy, Mineral, and Land Resources (NCDEMLR) (can be quoted if determined to be required);
- Court appearances for litigation, or preparation for same;
- Legal advertisements for construction contracts;
- Environmental investigations, wetlands permitting, wetlands surveying;
- Any costs incurred by Client or Contractor due to changes required by the approving authority or their inspectors after construction drawings have been approved; and
- Stormwater Control Measures (SCM's) (will be quoted if required)