

January 12, 2024

Jason Murphy
Stormwater Program Manager
201 West Gray
Building A
Norman, OK 73069

RE: Imhoff Creek Bank Stabilization, Phase 2 (North of Imhoff Road, revised fee)

Dear Mr. Murphy,

Thank you for the opportunity to provide a revised fee proposal for the Imhoff Creek Bank Stabilization Project. I have made changes to the fees based upon the rate schedule updates for Meshek and our subconsultants for Fiscal Year 2024. I have not made any changes to the scope of the work.

With this fee proposal letter, I am including a Conceptual Cost Estimate and Project Scope of Services outlining the proposed work. The following is a summary of our fee proposal:

1. Services:

- Refer to **Exhibit B** for detailed description of services provided by Meshek
- Refer to **Exhibit C** for detailed descriptions of services provided by Wood.

a. **DESIGN:**

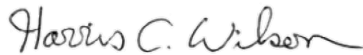
- i. **Project Management:** \$ 51,260.00
 - General Project Management
 - Progress Meetings (16 with Client)
 - Project Meetings (12 with Design Team)
 - Cost Estimating (Updated per Submittal Phase)
 - Quality Assurance/Quality Control (QA/QC)
- ii. **Survey:** \$ 28,402.50
 - Travel
 - Control/Section/Boundary
 - Field Work/LiDAR/Ground Survey
 - Staking
- iii. **Utility Locates** \$ 14,112.00
 - Elec. Locate - 4 Way Swp, 50-ft each side of Crk, 2300 LF
 - **Option** to Pot Hole: 40 Count @ \$348/ea, 6-ft depth. (~\$10,416.00)
 - Includes survey provided by Sidewinder
- iv. **Environmental (Blackbird):** \$ 6,621.88
 - Environmental Permitting for 404 compliance.
 - Clean Water Act, Section 404 Individual Permit application.
 - The permit application will require a comprehensive mitigation plan and an evaluation of direct and indirect impacts. The mitigation plan will present the proposed mitigation associated with the fill activity. This scope of work also includes resolution of general comments provided during the public comment period. Any additional documentation required for this project will be presented to the client and an additional proposal will be prepared.
- v. **Geotechnical:** \$ 26,250.00
 - 1 Boring to approximately 40-ft
 - Standard Penetration Tests
 - Dynamic Cone Penetration Tests
 - Laboratory Testing & Report

2. Conceptual Cost Estimate:

- Conceptual Cost Estimate: (Exhibit A) \$ 4,721,425.00

Fees will be invoiced on a monthly percent complete basis. If you have any questions or need additional information, please do not hesitate to contact me:

Sincerely,



Harris C. Wilson, PE
Design Project Manager
Meshek & Associates, LLC

Cell: 405-229-3260

Email: hwilson@meshekengr.com

EXHIBIT A
CONCEPTUAL COST ESTIMATE

CITY OF NORMAN - IMHOFF CREEK BANK STABILIZATION

CONCEPTUAL COST ESTIMATE

PHASE 2 (SEE MAP)

Item #	DESCRIPTION	UNITS	QUANTITY	UNIT PRICE	AMOUNT
1	OPTION 2 - REVERSE GABION (PARTIAL HEIGHT)	LF	287	\$1,487.38	\$426,878.06
2	OPTION 3 - TYPICAL GABION (PARTIAL HEIGHT)	LF	679	\$2,475.14	\$1,680,620.06
2	OPTION 4 - ROCK TOE DESIGN	LF	705	\$177.00	\$124,785.00
3	CROSS VANES	EA	3	\$46,440.00	\$139,320.00
4	SHEET PILE DROP STRUCTURE	EA	1	\$164,250.00	\$164,250.00
5	PERMANENT EASEMENTS	LSUM	1	\$100,000.00	\$100,000.00
6	TEMPORARY EASEMENTS	LSUM	1	\$50,000.00	\$50,000.00
7	CONSTRUCTION EASEMENTS	LSUM	1	\$300,000.00	\$300,000.00
8	DAMAGES	LSUM	1	\$50,000.00	\$50,000.00
9	CONDEMNATION	LSUM	1	\$100,000.00	\$100,000.00
10	OTHER COSTS (SEE REPORT)	LSUM	1	\$400,000.00	\$400,000.00
				Sub-Total	\$3,535,853.12
YEARS 2017 to 2022			CUMULATIVE INFLATION	8.53%	\$301,608.27
			CONTINGENCY	25.00%	\$883,963.28
			SUB TOTAL 1		\$4,721,424.67
			GRAND TOTAL		\$4,721,424.67

EXHIBIT B
PROJECT SCOPE OF SERVICES

Project Scope of Services

The project scope of services is outlined below. Meshek & Associates, LLC (Meshek) will provide the primary project management services role in the development of the construction plans. Wood Environment & Infrastructure Solutions Inc. (Wood) will provide professional services for the design and construction of the retaining wall structures as outlined in their scope of services. The outline of services is as follows:

Wood's Scope of Services: Refer to Exhibit C

Project Scope of Services Outline

- A. Project Management Service and Coordination,
 - a. Meshek will provide local Project Management coordination with the Design Team elements and City Staff.
- B. Site Investigation, Project Review, & Planning
 - a. Onsite meeting and walk through with project principles.
 - Observe current conditions and document changes to the stream and properties bordering the project.
 - Engage with River Research & Design expertise to develop embankment stabilization strategies to employ in design and construction.
- C. Survey: Topographical using Aerial LiDAR & Ground based GPS data collection.
 - a. Refer to attached proposal from Meshek's survey department.
 - b. Survey includes **\$14,400** to support Real Estate Acquisition.
 - c. The proposal **does not** include a topographic survey of the As-Built condition.
- D. 404 Permitting (Coordination with Blackbird Environmental & Army Corps of Engineers),
 - a. An Individual Permit is anticipated for this project.
- E. Geotechnical Investigation & Analysis
 - a. Wood Environmental & Infrastructure Solutions
 - Provide boring to 40-ft approximate depth
 - Standard Penetration Tests
 - Dynamic Cone Penetration Tests (up to 3)
 - Laboratory Testing & Report
- F. Hydrology & Hydraulics
 - a. Wood Environmental & Infrastructure Solutions
 - Existing Conditions Hydraulics
 - Hydraulic Scenario Modeling
 - Proposed Conditions
 - Scour Analysis
 - LOMR
 - Streambank Erosion Analysis
 - b. Meshek
 - LOMR application review & QA/QC
- G. Design Services
 - a. Preliminary Design (60%)
 - Wood Environmental & Infrastructure Solutions
 - Wall/Embankment Stabilization Design
 - Cross Vane Design/Sheet Pile Wall Drop Structure (North End)
 - Meshek
 - Plan Set Development
 - Plan Review (QA/QC)
 - Cost Estimating
 - b. Final Design (90%)

- Wood Environmental & Infrastructure Solutions
 - Wall/Embankment Stabilization Design
 - Cross Vane Design/Sheet Pile Wall Drop Structure (North End)
 - Special Details
- Meshek
 - Plan Set Revisions & Final Design
 - Plan Review (QA/QC)
 - Cost Estimating
 - Special Details
- c. Submittal Design (100%)
 - Wood Environmental & Infrastructure Solutions
 - Wall/Embankment Stabilization Final Design
 - Cross Vane Design/Sheet Pile Wall Drop Structure (North End)
 - Special Details
 - Meshek
 - Plan Set Final Design
 - Plan Review (QA/QC)
 - Cost Estimating
 - Special Details
- H. Construction Services
 - a. Bid Document Preparation & Bidding
 - Pre-Bid Meeting
 - Respond to RFI's
 - Bid Opening & Contract Recommendations
 - Bid Document Preparation
 - b. Construction Project Management
 - Pre-Construction Meeting
 - On Site Meetings, Construction Progress
 - Final Inspection & Closeout.

Design Approach (60% & 90%)

- A. The project lead will provide general organization for the project
- B. Members of the team will attend an onsite meeting and walk through to document the existing conditions and changes to the channel
- C. Coordinate with Blackbird Environmental to facilitate the 404-permitting process
- D. Coordinate with Wood and the City on LOMR development, submittal, and approval
- E. Coordinate with Wood for Geotech site investigation and report
- F. Coordinate with Meshek's survey team to develop topographic data collection
- G. Coordinate and prepare the Engineering plan set for submittal to the City
 - a. Plans for review will be provided at the 60%, 90%, and Final plan stages
 - b. Plans will be transmitted to the City for review in PDF format
- H. Coordinate and Prepare the construction cost estimate
- I. Specifications (may be included on plans)
 - a. 2019 ODOT Standard Specifications (As applicable)
 - b. Structural Specifications provided on plans.
 - c. General specifications not covered by ODOT standards will be developed separately.
- J. Submit to City for review
 - a. Plan review will be conducted with City staff
 - b. Wood may attend via conference call

Final Design

- A. Prepare Final documents for submittal to the City
- B. Final cost estimate
- C. Provide Quality Assurance/Quality Control Review
- D. Review documents with City
- E. Prepare final documents for bidding

Design Schedule

A detailed schedule will be prepared in consultation with the Client at the start of the project. The schedule will include significant benchmarks. Benchmarks will include the following:

- Topographic Survey
- Geotechnical Investigation
- 404 Permitting (Individual Permit)
- LOMR preparation
- Structural Engineering Design
- 60%, 90%, and Final Plan submittals
- Cost Estimate Development.

Construction Administration Phase Services

- A. Pre-construction conference
- B. Issue clarification/change/field orders/coordinate with the contractor/const. engineering
- C. Coordinate the review of shop drawings associated with construction activities
- D. Prepare and process construction pay estimates and make recommendations for each
- E. Review and make comments on the contractor's proposed construction schedules
- F. Coordinate with City staff during construction
- G. Conduct pre-final inspection with the contractor and prepare the necessary punch lists for distribution.
- H. Verify punch list items have been completed with City staff

EXHIBIT C
SCHEDULE CHART

IMHOFF CREEK AMENDMENT 2 SCHEDULE														
Tasks by Months		1	2	3	4	5	6	7	8	9	10	11	12	13-24
Field Work	SURVEY (Phase 2)													
	UTILITY LOCATES (Sidewinder)													
	GEOTECHNICAL INVESTIGATION													
	ENVIRONMENTAL (Blackbird)	INDIVIDUAL PERMIT							POSSIBLE ADDITIONAL TIME FOR THIS SECTION					
Design Work	HYDROLOGY & HYDRAULICS													
	STRUCTURAL DESIGN													
	DESIGN SERVICES, 30%													
	DESIGN SERVICES, 60%													
	DESIGN SERVICES, 90%													
	DESIGN SERVICES, 100%													
Real Estate Services	REAL ESTATE SERVICES													
	RIGHT OF WAY EXHIBITS & STAKING													
Construcion	CONSTRUCTION SERVICES, PHASE 2													

Indicates Partial Time Frame: 

EXHIBIT D
WOOD ENVIRONMENT & INFRASTRUCTURE SOLUTIONS INC.
PROPOSAL & SCOPE OF SERVICES

WOOD SCOPE OF SERVICES

Imhoff Creek Bank Stabilization Project – Phase 2

PROJECT INFORMATION

We understand that the project consists of installing streambank stabilization systems along Imhoff Creek, upstream of Imhoff Road to minimize risk of further erosion. A permanent gabion basket retaining wall system, rock toe and steel sheet pile drop structures / cross vanes will be used in conjunction with other civil design features.

We based the geo-structural design services proposed herein on the items referenced below, which include:

- *Lower Imhoff Creek Hydraulic & Hydrologic Study Project, Norman, Oklahoma* dated June 2017 and prepared by Meshek & Associates, LLC and Wood (formally Amec Foster Wheeler).

From the above information, we present the following design input parameters:

Document Number (from above)	Relevant Design Input Parameter(s):
1	<ul style="list-style-type: none"> • Subsurface Conditions (Grab Samples 1A, 1B, 1C, 2A, 2B, 2C, 3A & 3B) • Stratum 1 <ul style="list-style-type: none"> • Up to 15 feet below ground surface (bgs) • Silty clay, clayey sand, low plasticity • Pocket penetrometer test = 1.5 to 2.2 tons per square foot (tsf) • Stratum 2 <ul style="list-style-type: none"> • Greater than 15 feet bgs • Lean clay, low plasticity • Pocket penetrometer test = 1.5 to 4.5 tsf • Creek Elevation = varies approximately from EL 1089.2 ft to EL 1094.3 ft
1	<ul style="list-style-type: none"> • Option 1 Gabion Wall Limits <ul style="list-style-type: none"> • Approximate supported height = ± 27 feet • Approximate length of wall = ± 1,100 feet • Sheet Pile Wall Drop Structure Limits <ul style="list-style-type: none"> • Approximate supported height = ± 15 feet • Approximate length of wall = ± 50 feet

PROJECT SCHEDULE

PROJECT PHASE	Timeline
400 – Geotechnical Investigation and Analysis	Refer to Schedule provided by Meshek
500 – Hydrological & Hydraulic Analysis	
700 – Preliminary Engineering & Design (60%)	
800 – Preliminary Engineering & Design (90%)	
900 – Final Engineering & Design	

SCOPE OF SERVICES

Wood shall provide the following services (Scope of Services) to Meshek & Associates for the Project:

PHASE 100 – PROJECT MANAGEMENT

Project management is responsible for general project management, progress and project meetings to discuss the project internally and externally.

Task 101: General Project Management

Project management is responsible for coordination of the various disciplines that have involvement in the project, tracking of work completion, maintenance of project schedule, and project management updates. Wood will assist with preparing a detailed schedule with Client review and input that includes significant benchmarks. Benchmarks to include geotechnical investigation and analysis, hydrological and hydraulic analysis, progress structural engineering and designs, and preliminary cost estimates.

Task 102: Progress Meetings

Key members of the team will meet with the CLIENT monthly as necessary to discuss the project. Progress meetings including the project team will be held after various stages to discuss the project status, critical milestones, review progress submittals and design issues.

- Project kick-off meeting
- Preliminary geotechnical analysis and design review meeting
- Preliminary 60% Design Review Meeting - Submit PDF's of the preliminary structural design plans, profile, and cross-sections.
- Preliminary 90% Design Review Meeting - Submit PDF's of the preliminary structural design plans, profile, and cross-sections.
- FEMA LOMR Comment Review Meeting – Submit PDF's of the FEMA review comments received from the LOMR application and supporting H&H modelling information reviews.
- Final Review Meeting – Submit PDF's of the final design documents and opinion of probable cost for the levee project

Task 103: Project Meetings

Project meetings including the project team will be held with the appropriate agencies and groups to discuss the design and timeline of the project.

- Client Meetings - Conduct review meetings with the Client regarding the project design and timeline, specifically regarding the LOMR application process.

Task 104: Cost Estimating

Wood will also prepare a conceptual cost for the structural and stabilization portion of the project utilizing the preliminary design information with an appropriate contingency given the level of design detail.

Task 105: QC/QA

Formal quality assurance and quality control (QA/QC) reviews will be conducted in parallel to client reviews, specifically at the 90% completion stage and prior to issuance of final design documents. Independent QA/QC reviews will be performed by a senior staff member of Wood for each deliverable.

PHASE 400 - GEOTECHNICAL INVESTIGATION AND ANALYSIS

Task 401: Geotechnical Services

We understand that the project consists of a stream bank restoration over a distance of approximately 2,000 feet, north of Imhoff Road in Norman, Oklahoma. The stream banks are between 20 and 30 feet tall and are nearly vertical. Based on our understanding of the project, we propose to perform the following tasks:

- We propose to perform one (1) geotechnical boring at the site with an approximate depth of 40 feet. Should refusal be encountered, we will core/advance the hole a maximum of an additional 10 feet beyond the refusal depth encountered. We will have a professional staff member on-site to establish the boring location in the field by measuring distances from existing features and using a handheld GPS unit.
- Our staff member will remain on-site to direct our drilling subcontractor and document sampling operations. We plan to have our subcontractor utilize a truck-mounted drill rig to perform the drilling. Our subcontractor will collect relatively “disturbed” soil samples at selected intervals by performing standard penetration tests (SPT) in general accordance with ASTM D1586. Additionally, we will attempt to obtain relatively undisturbed samples with thin wall (Shelby) tubes from predetermined depths at selected borings in general accordance with ASTM D1587, if we encounter fine-grained soil. Upon completion, we will check each hollow stem auger boring for groundwater level. All boreholes will be backfilled with soil cuttings.
- Perform a site walk to observe the site conditions. During the site walk we will collect grab samples of the bank materials to return to our geotechnical laboratory for testing.
- As field locations may allow, and coordinate with proposed gabion wall locations, our field staff may perform up to three (3) dynamic cone penetration (DCP) tests at the toe of existing embankments/proposed walls within the creek bottom. The DCP will be performed in accordance with ASTM D6951 and will measure the insitu material resistance to penetration.
- Perform laboratory testing on select soil samples collected during the site walk. The purpose of the testing will be to provide us with a better understanding of the material types. Laboratory testing of grab samples will include grain size analyses, moisture content tests, and Atterberg limit determinations. Engineering properties, such as strength data, cannot be performed on the grab samples. If we are able to collect undisturbed samples from hand auger borings, then we will attempt to perform direct shear tests for estimating in-site strengths.

PHASE 500 – HYDROLOGICAL & HYDRAULIC ANALYSIS

The proposed project area is located within an effective Zone AE Floodway of Imhoff Creek. Hydrology and hydraulic analyses were performed as part of a conceptual design phase of this project along with supplemental topographic data collection. Given that the proposed project is within the effective Zone AE Floodway it is anticipated that a “no-rise” condition will not be met which would then require a CLOMR Application to FEMA. The extents of this analyses will be limited to Phase I design services including those conceptual design alternatives downstream of Imhoff Road along Imhoff Creek.

Task 501: Existing Conditions Hydraulics

Wood will produce an existing condition, duplicate, and corrected effective models for Imhoff Creek based on the effective Zone AE Study as well as the latest hydrology and hydraulics study from the conceptual phase of this project. Survey and topographic data collected as part of this project will be incorporated as well as any refinements to the cross-section placement and geometry of the HEC-RAS Model. The corrected effective hydraulic models will be the basis for which floodplain impacts will be measured based on the final proposed conditions model.

Task 502: Hydraulic Scenario Modeling

Wood will perform up to two (2) intermediate iterations of the proposed conditions as part of changes or alterations to the design services. It is anticipated that these changes would include grade control structures along Imhoff Creek including 3 to 4 cross vanes and drop structures located upstream of Imhoff Road as well as gabion walls and rock toe protection structures along the Imhoff Creek bank.

Task 503: Proposed Conditions

Upon selection of the final design alternatives Wood will produce a final proposed conditions model for the Phase 2 design study reach. It is anticipated that the final design will be limited to drop structures, grade control structures, rock toe protection and bank stabilization reverse gabion wall designs along Imhoff Creek and upstream of Imhoff Road.

Task 504: Scour Analysis

Wood will perform basic scour analyses using the proposed conditions hydraulic model to support design of the proposed improvements including channel velocities and shear stress.

Task 505: LOMR

It is anticipated that the proposed improvements will not meet the definition of a “no-rise” and will therefore require a CLOMR prior to construction, which has been included in Phase 1. After construction of the project, Wood will prepare the FEMA LOMR Application based on Phase I and Phase 2 design improvements. The following highlights those requirements of the LOMR as well as the party responsible for providing the material.

CLOMR Application Items	Responsible Party
MT-2 Application Forms 1-3, Section E (Overview & Concurrence, Riverine H&H, Riverine Structure)	Wood
Effective FIRM Panel Development	Wood
Proposed FIRM Panel/DFIRM/FIS	Wood
Subdivision Plat Map	Meshek
Property Deed	Meshek
Tax Assessor’s Map	Meshek

CLOMR Application Items	Responsible Party
Elevation Form	Meshek
Community Acknowledgement Form	Wood
Documented Endangered Species Act (ESA)	Meshek
Metes & Bounds Description	Meshek
Public Notification*	Wood / City of Norman
LOMR Fee**	City of Norman
*Wood to provide letter and newspaper article templates in collaboration with City of Norman for public notification.	
**Assume LOMR Based on New Hydrology, Bridge, Culvert, Channel, or Combination Thereof – \$8,250 fee for application and submittal is included in cost estimate as a recoverable expense.	

It is assumed that Meshek will provide Wood with any responsible LOMR application items per the above table. Wood will then submit the LOMR application and supporting documentation to Meshek & City of Norman for review. Once approved then Wood will submit the LOMR application, supporting documentation, and fee to FEMA and address comments.

Task 506: Streambank Erosion Analysis upstream of Imhoff Road

The above mentioned scour analysis, stream flow velocities, shear stress characteristics, historical rate of erosion, and channel thalweg evaluation will be utilized to predict annual rate of erosion and impacts to critical infrastructure, building foundations, and other high value items. The report will include a goespatial analysis to determine the structures impacted by erosion for the life expectancy of the respective assets.

PHASE 700 – PRELIMINARY ENGINEERING & DESIGN (60%)

Wood will prepare preliminary engineering documents for the structural components for the creek stabilization based on the geotechnical investigation and analysis completed in Phase 400. These plans will include stream centerline stationing, cross sections, structural details, and other details necessary to complete permitting and cost estimates.

Task 701: Gabion Wall Design

We propose to provide design services for a permanent gabion basket wall. We propose to analyze one (1) design section having stability requirements meeting those outlined in Table 4-1 of *EM 1110-2-2502 Retaining and Flood Walls*. We propose to perform our design in general accordance with applicable sections of the following:

- *EM 1110-2-2502 Retaining and Flood Walls, US Army Corps of Engineers (1994);*

Our design will address requirements for the following wall components:

- Minimum wire basket strength;
- Minimum wire basket wire size and coating;
- Minimum wire basket size;
- Minimum basket stone type and gradation;
- Minimum wall foundation thickness;
- Minimum wall foundation material;
- Minimum geotextile type;

Our proposed deliverables will include developing the following submittals for the **60% level** of design:

- Design memorandum summarizing the calculations of the permanent gabion wall system;

- Drawing consisting of the following, please note that we do not include as-builts, instrumentation/monitoring systems, contingency plans, pre- or post-condition surveys, or surface water management:
 - Technical notes associated with permanent gabion wall system construction and materials;
 - One design cross sections depicting material size and strength; and
 - Typical gabion-to-gabion connection detail;

Task 702: Sheet Pile Wall Drop Structure / Cross Vane Design

We propose to provide design services for a permanent driven sheet pile wall drop structure. We propose to analyze one (1) design sections having a static, global factor of safety of 1.5. We propose to perform our design in general accordance with applicable sections of the following:

- *EM 1110-2-2504 Design of Sheet Pile Walls, US Army Corps of Engineers (1994);*
- *EM 1110-2-1901 Seepage Analysis and Control for Dams, US Army Corps of Engineers (1993); and*
- *AISC Steel Construction Manual, 14th edition.*

Our design will address requirements for the following steel sheet pile components:

- Minimum steel sheet pile section and strength;
- Minimum sheet pile length (exposed and embedment length);

Our proposed deliverables will include developing the following submittals for the **60% level** of design:

- Design memorandum summarizing the calculations of the permanent steel sheet pile system;
- Drawing consisting of the following, please note that we do not include as-builts, instrumentation/monitoring systems, contingency plans, pre- or post-condition surveys, or surface water management:
 - Technical notes associated with permanent steel sheet piling construction and materials;
 - One design cross section depicting material size and strength.

PHASE 800 – PRELIMINARY ENGINEERING & DESIGN (90%)

Wood will update and progress the design, engineering and cost estimate of the items presented in Phase 700.

Task 801: Gabion Wall Design

Our proposed deliverables will include developing the following submittals for the **90% level** of design:

- Design memorandum summarizing the calculations of the permanent gabion wall system;
- Drawing consisting of the following, please note that we do not include as-builts, instrumentation/monitoring systems, contingency plans, pre- or post-condition surveys, or surface water management:
 - Technical notes associated with permanent gabion wall system construction and materials;
 - One design cross sections depicting material size and strength; and
 - Typical gabion-to-gabion connection detail;

Task 802: Sheet Pile Wall Drop Structure / Cross Vane Design

Our proposed deliverables will include developing the following submittals for the **90% level** of design:

- Design memorandum summarizing the calculations of the permanent steel sheet pile system;
- Drawing consisting of the following, please note that we do not include as-builts, instrumentation/monitoring systems, contingency plans, pre- or post-condition surveys, or surface water management:
 - Technical notes associated with permanent steel sheet piling construction and materials;
 - One design cross section depicting material size and strength.

PHASE 900 – FINAL ENGINEERING & DESIGN

Wood will update and progress the design, engineering and cost estimate of the items presented in Phase 800.

Task 901: Gabion Wall Design

Our proposed deliverables will include developing the following submittals for the IFB level of design:

- Design memorandum summarizing the calculations of the permanent gabion wall system;
- Drawing consisting of the following, please note that we do not include as-builts, instrumentation/monitoring systems, contingency plans, pre- or post-condition surveys, or surface water management:
 - Technical notes associated with permanent gabion wall system construction and materials;
 - One design cross sections depicting material size and strength; and
 - Typical gabion-to-gabion connection detail;

A Professional Engineer registered in the State of Oklahoma will seal the final submittal.

Task 902: Sheet Pile Wall Drop Structure / Cross Vane Design

Our proposed deliverables will include developing the following submittals for the IFB level of design:

- Design memorandum summarizing the calculations of the permanent steel sheet pile system;
- Drawing consisting of the following, please note that we do not include as-builts, instrumentation/monitoring systems, contingency plans, pre- or post-condition surveys, or surface water management:
 - Technical notes associated with permanent steel sheet piling construction and materials;
 - One design cross section depicting material size and strength.

A Professional Engineer registered in the State of Oklahoma will seal the final submittal.

ASSUMPTIONS

Additional assumptions used in developing this proposal are as follows:

- Information provided to Wood by others is accurate, complete, sufficient, and presented in an understandable format and can be relied upon by Wood. Effort associated with analysis of additional data is excluded;
- Environmental services are beyond the scope of this study. Additionally, our proposed scope of services does not address regulatory issues associated with storm water runoff, the identification and modification of regulated wetlands, or ground water recharge areas;
- We assume drill water for geotechnical boring may be obtained from Imhoff Creek.
- We assume Right-of-Entry (ROE) for geotechnical drilling on private property will be obtained by others.
- We assume no maintenance of traffic or flagging will be required for geotechnical boring operation.
- We will produce drawings will using AutoCAD;
- We will produce design calculations in standard Wood format;
- We will provide a portable document format (PDF) copy of all deliverables;
- We will respond to one set of comments from the client after our interim submittal. We assume the client's comments will also include Owner's Comments, if any. Further, we assume the client will provide all comments at one time to Wood for our consideration;
- Comments, other than clear deficiencies and errors in Wood's work, generated by any other parties can be resolved with minimal effort on Wood's part; and
- We assume delivery of the final, PDF submittal concludes all services included in our current design Fee Estimate.

EXCLUSIONS

Our fee does not include:

- Charges for time and expenses involved with meetings and site visits not specifically outlined above;
- Effort to perform site restoration at geotechnical boring location
- Effort needed to complete the design in light of requirements unknown to the CLIENT and/or Wood at the time this proposal was prepared;
- Effort to produce as-built drawings and turnover electronic drawings;
- Effort to perform a pre- and post-condition survey;
- Effort required to integrate Wood's work with other aspects of the project;
- Effort required to convert standard Wood drawings to some other format;
- Effort/fees associated with third-party review beyond Wood's internal Project Review Policy;
- Effort and fees associated with providing engineering services during construction;
- Site-civil engineering (including, but not limited to, site drainage and erosion control);
- Effort to determine and/or mitigate environmental issues;
- On-site construction observation, material testing or performance verification.
- Developing a Benefit Cost Analysis (BCA) for FEMA grant application.

Should Meshek and Associates, LLC request work in addition to the Scope of Services, Wood shall invoice Client for such additional services (Optional Additional Services) at the standard hourly billing labor rate charged for those employees actually performing the work, plus reimbursable expenses if any. Wood shall not commence work on Optional Additional Services without Client's prior written approval.

Wood agrees to provide all of its services in a timely, competent and professional manner, in accordance with applicable standards of care, for projects of similar geographic location, quality and scope.

EXHIBIT E
MESHEK SURVEY SCOPE

October 24, 2022

Mr. Jason Murphy
Stormwater Program Manager
201 West Gray
Building A
Norman, OK 73069

Imhoff Creek Bank Stabilization, Phase 2 Survey Fee Proposal

Dear Mr. Murphy:

Meshek & Associates, LLC, appreciates the opportunity to submit a proposal for Land Surveying Services. The scope of work is based on an approximately 100-foot strip following the alignment of Imhoff Creek north from Imhoff Road bridge approximately 2200-feet. The scope breakdown and fees are outlined as follows.

1. Control/Section/Boundary

- Set ground control on the Oklahoma State Plane South coordinate system
- Locate section corners and property corners in the field
- Determine and plot accurate locations of boundaries, platted lots, and easements in CAD base drawing

Fee: \$7,125.00

2. Field Work – Lidar and Ground Survey

- Lidar scan of site
- Locate stream edge of water, flowline, top of bank and toe
- Natural ground and breakline elevations
- Bridge structures in detail (Bridge apron, wing walls, utility crossings, deck & road)
- Drainage structures in detail (Storm sewer outfalls at creek and inlets)
- Roads and paving
- Fences, walls, building corners, and pertinent visible improvements. (Building proximity to the top of the stream bank is important.)
- Utilities as per field observation (manholes, inlets, electric and telephone pedestals, poles, etc.)
- Data processed and drafted in CAD base drawing

Fee: \$13,430.00

3. Staking

- Calculate property corners for field staking
- Monument necessary boundary and lot corners with 3/8" rebar pins, chiseled crosses, or magnetic nails where applicable, all marked with flagged stakes or marking paint depending on monument used

Fee: \$5,638.00



4. Travel

- Travel to the site (round trips from Tulsa Office)

Fee: \$472.00

SURVEY FEE: _____ \$ 26,665.00

Utility Verification

1. Utility Locates -Sidewinder

- This service provided by Sidewinder Utility Locators, LLC
- Utility location – 4-Way Sweep, 50-ft Ea. Side of Crk Bank for 2300 LF: \$1,942.50
- Pot Hole utilities (Optional) – 40 @ 6-ft deep: \$10,416.00

Fee: \$12,358.50

Right-of-Way Support

1. Right-of-Way Exhibits/Staking

- Write legal descriptions and produce exhibit drawings for temporary or permanent easements
- Monument and stake easements
- This fee billed on a per lot basis.

Fee: \$14,400.00

The estimated fees required to perform the services listed above is as follows:

Survey Fee: _____ \$26,665.00

Utility Verification: _____ \$12,358.50

Right of Way Support: _____ \$14,400.00

To be invoiced on a monthly basis.

Deliverables will include signed and sealed D size topographic drawing in PDF and an AutoCad DWG base file.



2000 N. Classen Blvd.
No. N150
OKC, OK 73106
[o] 405.594.0127
[f] 918.392.5621
meshekengr.com



Surveying will begin within approximately 5 business days of acceptance of receipt of signed agreement. Additional surveying services can be provided for an additional fee and will be negotiated as an addendum to the project.

If you have any questions or need additional information, please don't hesitate to contact me.

Sincerely,

Michael A. Royce, PLS
Survey Manager
Meshek & Associates, LLC
Office: 918-392-5620
Cell: 918-633-5263
Email: mroyce@meshekengr.com



EXHIBIT F
MESHEK RIGHT OF WAY SCOPE

Real Estate Services. Provide services to secure easements from property owners for project. It is assumed that an easement will be needed from each property adjoining the creek. Billing will occur on a per parcel instance as percent complete as described on the Exhibit A. Pass through costs will be billed as actual costs.

These services will include the following:

- 1) Title Investigation: Provide property reports. Either from an abstract company or secures the following from public records or other sources and compiles into a report.
 - a) The current owner's name(s) as they appear on the deed
 - b) Property description as written on deed
 - c) Book and page of the recorded deed or deeds
 - d) Date deed executed and filed
 - e) Type of deed
 - f) Consideration listed on deed
 - g) Monetary value of revenue stamps
 - h) Mortgages (description, amount, and signature pages), leases and recording data for each. (If there are not existing mortgages and/or leases, state this on the Title Investigator's report
 - i) All Public, Private Easements, Lis Pendens, Access Easements, and their recording data
 - j) Past owner for at least the 5-year period immediately preceding the title search or if beyond 5 years, until good title is found.
 - i) Good title is generally defined as warranted and defensible title. Quit Claim Deeds and other non-warranted deeds are not considered good title. If good title cannot be identified, the use of an approved title attorney, abstracting company or other well qualified individual may be suggested and would be billed as a pass-through cost.
- 2) Appraisals
 - a) Provide Appraisal Reports in accordance with Uniform Relocation Act (URA) & Uniform Standards of Professional Appraisal Practice (USPAP) guidelines.
- 3) Appraisal Reviews
 - a) Provide Appraisal Reports in accordance with URA & USPAP guidelines.
- 4) Negotiations services.
 - a) Offer preparation and securing documents preparation including:

- i) Offer Letter
 - ii) Summary Statement
 - iii) Easement Documents
 - iv) Property Rights Brochure/or General Process Letter
 - v) Accounting Forms to process payments
 - vi) Mortgage information forms
 - (1) To obtain permission to discuss with mortgage companies
 - (2) Forms for release/consent to easement
 - vii) Other forms may be added to the packet as requested by City.
 - b) Meetings with landowners. Typical meetings would include:
 - i) Offer Presentation & Explanation of Project
 - ii) Negotiations
 - iii) Meetings to sign securing documents
 - iv) Meetings with tenants to obtain tenant releases & project explanation
 - c) Coordination with mortgage companies to obtain mortgage releases or consent to easement.
 - i) See section 5, Other Direct Costs.
 - d) Coordinate with City for payment to landowners
 - i) Deliver checks if on project site for other business
 - ii) Mail Certified
 - e) File Easements and any applicable releases with County Clerk.
 - f) Completed property PDF file delivered to City.
 - i) Contact log of all contacts
 - ii) Copies of all offer information
 - iii) Copies of all secured documentation
 - iv) Copies of correspondence related to property
 - 5) Other Direct Costs. The costs associated with the following items will be invoiced at cost:
 - a) Filing fees (\$19.00 for first page + \$2.00 for each additional page)
 - i) Easements
 - ii) Mortgage release/consent to easement
 - b) Mortgage release/consent to easement application fees (tbd by each mortgage company)
-

c) Mileage (current GSA rate)

d) Postage Costs



Exhibit A

Description	Amount	Unit	Est Qty	Extended
Real Estate Services				
1 Title Investigation	\$600.00	Parcel	25	\$15,000.00
2 Appraisals*	\$3,500.00	Parcel	25	\$87,500.00
3 Appraisal Reviews*	\$1,100.00	Parcel	25	\$27,500.00
4 Acquisition Negotiation Services	\$4,000.00	Parcel	25	\$100,000.00
				Base Real Estate Services \$230,000.00
5 Other Direct Costs				
Filing Fees (based on 4 pages)	\$24.00	ea.	25	\$600.00
Filing Fee for Mortgage Release/Consent to Easement (based on 1 page with easement document)	\$2.00	ea.	25	\$50.00
Mortgage Release/Consent to Easement Application Fees (determined by Mortgage Company)	\$500.00	ea.	25	\$12,500.00
Mileage (assumed 1 trip per parcel - multiple parcels per trip)	\$150.00	ea.	25	\$3,750.00
Postage	\$10.00	ea.	25	\$250.00
				Other Direct Costs \$17,150.00

* The appraisal costs may be waived and a waiver valuation done in lieu. This cost would only be \$250/parcel. The proposed right-of-way/easements would have to result in a value of less than \$10,000.00 and be uncomplicated. If property is encumbered by mortgage, mortgage companies, typically also require an appraisal to prove no detrimental impact to the value of the property.

***Relocation services not included.

EXHIBIT G
MESHEK HOURLY BILLING RATE

Allowance for Office Work			
Project Principal II	\$ 325.00	GIS Project Principal	\$ 240.00
Project Principal I	\$ 300.00	GIS Project Manager II	\$ 230.00
Project Manager II	\$ 265.00	GIS Project Manager I	\$ 185.00
Project Manager I	\$ 190.00	GIS Specialist II	\$ 145.00
Project Engineer II	\$ 190.00	GIS Specialist I	\$ 115.00
Project Engineer I	\$ 135.00	GIS Analyst	\$ 110.00
Engineering Intern	\$ 130.00	GIS Technician	\$ 95.00
Engineering Technician II	\$ 125.00	GPS Field Technician	\$ 85.00
Engineering Technician I	\$ 100.00	ROW Project Manager II	\$ 230.00
CAD Designer	\$ 100.00	ROW Project Manager I	\$ 210.00
3 Man Survey Crew	\$ 315.00	Assistant ROW Project Manager	\$ 140.00
2 Man Survey Crew	\$ 215.00	Acquisition/Relocation Agent	\$ 120.00
Survey CAD Technician	\$ 95.00	Real Estate Trainee	\$ 90.00
Survey Crew Chief I	\$ 100.00	Planning/Grant Project Manager II	\$ 205.00
Survey Crew Chief II	\$ 130.00	Planning/Grant Project Manager I	\$ 170.00
Survey Crew Technician	\$ 85.00	Planner II	\$ 135.00
Survey Project Manager	\$ 205.00	Planner I	\$ 125.00
LiDAR Survey Crew	\$ 250.00	Contract Administrator	\$ 210.00
LiDAR Data Specialist	\$ 140.00	Administrative	\$ 115.00
Allowance for Travel			
Mileage	Billed at Current IRS Rate		
Per Diem	Billed at Current IRS Rate		
Per Diem	Billed at Current GSA Rate		
Reproduction Costs			
8-1/2"x11" print	\$ 0.15	Billed per page printed	
8-1/2"x14" print	\$ 0.20		
11"x17" print	\$ 0.30		
Black and White Plots	\$ 5.00		
Color Plot	\$ 8.00		
Mylars	\$ 13.00		
Miscellaneous Outside Expenses and Fees			
Outside Direct Project Expenses	Passthrough at Cost		
Subconsultant Services	Cost plus 5% management fee		