



CITY of NOVI CITY COUNCIL

Agenda Item M
February 11, 2019

SUBJECT: Approval to award civil engineering services to OHM Advisors for design engineering services associated with the Bishop Creek Streambank Rehabilitation project along the west side of Meadowbrook Road south of the Vincenti Court intersection and north to 11 Mile Road in the amount of \$53,200.

SUBMITTING DEPARTMENT: Department of Public Works, Engineering Division

CITY MANAGER APPROVAL: 

EXPENDITURE REQUIRED	\$ 53,200.00
AMOUNT BUDGETED	\$ 839,938
APPROPRIATION REQUIRED	\$ 0
LINE ITEM NUMBER	210-211.00-865.145

BACKGROUND INFORMATION:

This section of Bishop Creek is exhibiting bank erosion and widening throughout the project limits. The Engineering Division estimates this deterioration could jeopardize existing pathways and the future non-motorized connections planned for this later year.

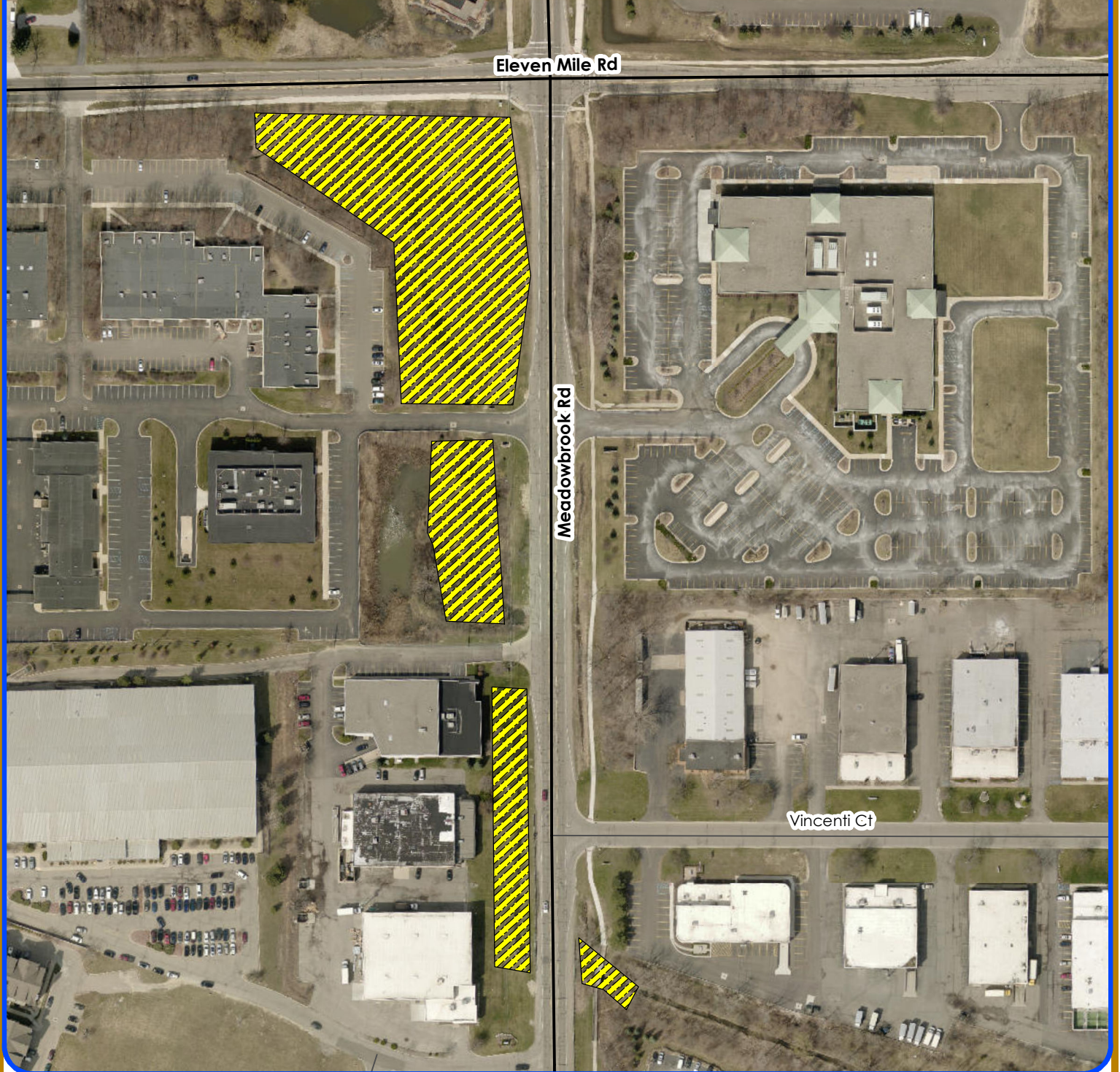
The City has reached out to City Engineering Consultant OHM Advisors to perform an in-depth stream restoration analysis and design site plans. OHM Advisors will provide a streambank study with analysis and alternatives for the site, prepare plans for design, and work with MDEQ for any required permitting that may be required.

The attached *Design Engineering Services* proposal, as executed by City Consulting Engineers, OHM Advisors, outlines the scope of services in more detail. The design fee rate per the proposal is a lump sum for streambank analysis and design. The design cost of the project is a total of \$53,200 (8.75% of the \$608,000 estimated construction costs). The Engineering Division has reviewed the scope of services proposal and recommends approval.

RECOMMENDED ACTION: Approval to award civil engineering services to OHM Advisors for design engineering services associated with the Bishop Creek Streambank Rehabilitation project along the west side of Meadowbrook Road from just south of the Vincenti Court intersection and northward to 11 Mile Road in the amount of \$53,200.

Bishop Creek Streambank Rehabilitation Along Meadowbrook Road at 11 Mile Road

Location Map



Map Author: Joseph Akers
Date: January 28, 2019
Project: Bishop Creek Streambank Stabilization
Version: 1

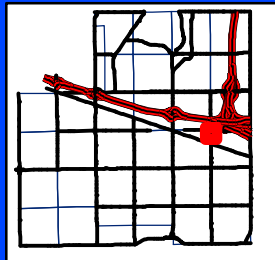
Amended By:
Date:
Department:

MAP INTERPRETATION NOTICE

Map information depicted is not intended to replace or substitute for any official or primary source. This map was intended to meet National Map Accuracy Standards and use the most recent, accurate sources available to the people of the City of Novi. Boundary measurements and area calculations are approximate and should not be construed as survey measurements performed by a licensed Michigan Surveyor as defined in Michigan Public Act 132 of 1970 as amended. Please contact the City GIS Manager to confirm source and accuracy information related to this map.



Proposed
Streambank
Restoration Limits



City of Novi

Engineering Division
Department of Public Works
26300 Lee BeGole Drive
Novi, MI 48375
cityofnovi.org



1 inch = 194 feet



Section 1: The stream in this area appears relatively stable, hence no streambank stabilization measures were identified or recommended. Treatment of invasive Phragmites followed by restoration using wetland seeds and native shrub live stakes would be beneficial to the stream system here. Treatment of invasive buckthorn and restoration with native live stakes and or seed mixes throughout this riparian area is highly recommended.

Section 1

Image of invasive species at 11 Mile and Meadowbrook Roads



Image of stream facing south

Section 2: The stream through this section is incised, recommended restoration includes construction of bankfull shelves on one or both sides which would stabilize banks while minimizing the risk of further downcutting and increasing channel capacity by improving floodplain access. Treatment of invasive buckthorn and restoration with native live stakes and seed mixes throughout this riparian area is highly recommended.

Section 2

Image of stream facing south



Image of culverts from upstream; facing south

Section 3: Bankfull shelf construction and corresponding restoration measures described in section 2 for the west bank of stream will likely be recommended pending bankfull and hydraulic analysis; otherwise naturalization (native seeding/planting) will be recommended for this area.

Image of stream facing south



Section 3

Section 4: Recommend rip-rap to help stabilize ditch that flows south between existing road and sidewalk, to the point where large boulders are present adjacent to culvert. Also, rip-rap needed on south banks of stream to protect bridge abutments and fill in gaps in areas that have already been rip-rapped. Rip-rap is needed to a point approximately 20' downstream of bridge.

Section 4

Image of unprotected abutment on south side of bridge



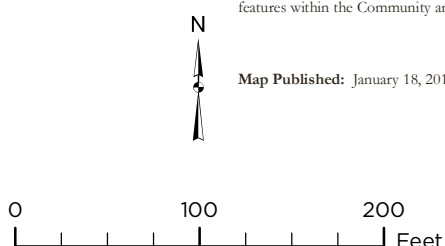
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Bishop Creek Restoration Meadowbrook - Preliminary Cost Estimates -

OHM Advisors does not warrant the accuracy of the data and/or the map. This document is intended to depict the approximate spatial location of the mapped features within the Community and all use is strictly at the user's own risk.

Map Published: January 18, 2019





January 18, 2019

Mr. George Melistas
Engineering Senior Manager
City of Novi - Department of Public Works
26300 Lee BeGole Drive
Novi, MI 48375

**RE: Scope of Design Services
2019 Bishop Creek Streambank Rehabilitation at 11 Mile and Meadowbrook Road**

Dear Mr. Melistas:

Per your request, the following outlines our proposed scope of services and fee to perform a design, cost estimate and prepare bidding documents for the above referenced project. This summary includes our project understanding, proposed scope of work, assumptions, schedule, and fee.

PROJECT UNDERSTANDING

The segment of Bishop Creek targeted by the City for stabilization is located just south of 11 Mile Road, on the west side of Meadowbrook Road. The stream in this location is approximately 15-50 feet wide and has an appropriate depth of approximately 2 feet of flow during our evaluation.

Currently the creek is exhibiting bank erosion and widening along the south side of the creek which, in short time, could jeopardize the pathway in several areas. The City is requesting consulting engineering services to stabilize the banks within this area (approximately 800 feet). Tasks required to complete this project are as follows:

SCOPE OF SERVICES

The following outlines our work plan to accomplish the scope of services for this project related to sidewalk and culvert repairs as noted above:

Task 1 – Stream Survey and Obtain Information

Under this task we will obtain updated cross sections of the creek in the area that is exhibiting bank erosion. Specific work efforts include:

- Obtain six creek cross sections in the area of proposed stream bank rehabilitation. Also, obtain top and bottom of bank elevations and elevations approximately 5 and 10 feet into the creek and 10 feet beyond the top of bank. This data will be obtained every 20 feet upstream and downstream of each cross section. The edges of commercial driveways, streets and significant trees near the bank will also be located.
- Obtain detailed locations and elevations of culverts and storm sewer outlets.
- Plot cross sections to be utilized in determination of floodplain fill quantities and design of the stream rehabilitation.
- Contact utility companies to be assured that conflicts do not exist.



Task 2 – Analysis and Alternatives

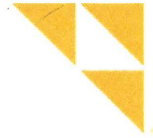
Under this task we will investigate alternatives for rehabilitation of the stream banks. It should be noted that any options will require riprap or boulder toe protection to minimize future bank failure. Restoration for disturbed areas of the floodplain will include a short height native grass/sedge mix. We envision the alternatives to include vegetation, stone toe protection and bank sloping. Specific work efforts include:

- Meet with the MDEQ and City at a pre-application meeting to discuss potential rehabilitation concepts and obtain feedback. This meeting will take place concurrently with pre-application meeting for the Rouge Stream rehabilitation project. The pre-application fees will be the responsibility of the City.
- Based on the previous backwater analysis completed or the FEMA backwater analysis, determine velocities and shear stresses in the area of rehabilitation. Shear stresses will be used to determine adequacy of alternative treatment measures.
- Develop a conceptual plan for each stream section to be rehabilitated. This will include a plan drawing showing the entire stream reach to be rehabilitated including proposed treatment measures and a conceptual drawing/cross section of each treatment measure. Update preliminary construction cost estimate.
- Perform culvert sizing calculations and activities.
- Meet with the City to obtain input and agree on proposed treatment measures.

Task 3 – Plan Development and Permitting

Once all parties are in agreement to the improvements being proposed, we will then undertake the preparation of construction plans and specifications and advertise the project for bidding. Specific work efforts include:

- Compute volumes of cut and fill for MDEQ permitting purposes.
- Based on agreed upon conceptual treatment measures, revise the conceptual plans and submit preliminary plans and a completed Inland Lakes and Streams and Floodplain permit application to the MDEQ. It should be noted that the City will be responsible for MDEQ permit fees.
- Revise the preliminary plans based on City and MDEQ comments. Construction plans will include treatment details for each type of treatment proposed, retaining structure details, soil erosion control details, planting plan and details, an overall plan sheet and plan sheets depicting the locations for each type of treatment.
- Perform wetland delineation assessment.
- Perform culvert and headwall design activities.
- Prepare opinion of probable cost.
- Prepare technical specifications and method of payment entailing materials, equipment, and labor necessary to perform the work.
- Prepare a bid sheet entailing items of work and associated quantities.
- Prepare and place an advertisement for bid. An invoice for advertisement will be sent to the Clerk for payment.
- Prepare preliminary schedule for proposed work including construction start, substantial completion, and final completion dates.
- Produce two (2) copies of contract documents for the City.
- Attend and plan one (1) meeting with the City to review contract documents prior to distribution for bid, if requested.
- Prepare documents to obtain Oakland County Water Resource Commissioner (OCWRC) Soil Erosion permit. If required, a maximum of three (3) submittals will be completed.



- Prepare and evaluate a project bid tab. The bid tab shall include all bidding contractors' total project bids and unit price breakdowns.
- Check references for the three lowest bidding contractors.
- Provide a recommendation of award to the City.

ASSUMPTIONS

The following summarizes our assumptions associated with this proposal:

- The City has all ROW/easements required and no additional ROW/easements will need to be acquired.
- No utility pole relocations are necessary as part of the project.
- Geotechnical services are anticipated to be required for design and construction of this project but are not included in our scope of work.
- The Contractor will be responsible for any permit fees. Permit fees are not included in this proposal.
- We do not anticipate remediation or removal of contaminated or hazardous soils or materials.

SCHEDULE

The following outlines our anticipated schedule milestones of main tasks related to this work:

- 30% plans – April 2019
- 100% plans – June 2019
- Prepare Bid Recommendation for Council Award – July 2019
- Begin Construction – August 2019

FEE

The proposed design fee for the above work per the 2017-2022 Engineering Fee Table is fifty-three thousand two hundred dollars (\$53,200.00).

The fee breakdown is as follows:

Task 1: Stream Survey and Obtain Information	\$12,200
Task 2: Analysis and Alternatives	\$16,000
Task 3: Plan Development and Permitting	\$25,000
TOTAL	\$53,200

Thank you for the opportunity to be of service. If you have any questions or require additional information, please contact us. We look forward to working with you on this project.

Sincerely,
OHM Advisors

Authorization to Proceed



Timothy J. Juidici, P.E.
tim.juidici@ohm-advisors.com
D: 248.751.3104

Signature Date

Printed Name Title

Encl: Project Cost Estimate
Field Sketch
cc: File