

February 9, 2012

OHM

est. 1962

The Honorable Rebecca W. Stinchcomb
Mayor
City of Gahanna
200 S. Hamilton Road
Gahanna, OH 43230

Subject: Souder Ditch Stream Restoration

Dear Mayor Stinchcomb:

Thank you for the opportunity to submit this proposal for services to assist the City with the Souder Ditch Stream Restoration. We have prepared the attached Scope of Services to be provided by Orchard, Hiltz & McCliment, Inc. (OHM) based on our discussions with Karl Wetherholt. The proposal also includes a cost and hours estimate, our standard contract terms and conditions, and an hourly rate schedule. To indicate your acceptance, please have both copies of this agreement signed by the appropriate officials and have one returned to us at your earliest convenience.

SCOPE OF SERVICES

See the attached Scope of Services for the Statement of Understanding and the project Work Plan.

SCHEDULE

OHM is prepared to begin the project immediately upon notification to proceed by the City of Gahanna. Please note, the first three tasks described in the attached Scope of Services; Information Gathering, Stream Inventory and Assessment, and Stream Survey, are based upon the work being completed prior to blooming of the tree canopy.

PROPOSED COMPENSATION

The services outlined in the Scope of Services will be performed on an hourly basis for the not to exceed amount of fifty two thousand five hundred sixty dollars (\$52,560.00), inclusive of all reimbursable expenses. The City will be invoiced on a monthly basis. An hourly rate schedule is also attached.

AUTHORIZATION

If you find this proposal to be acceptable, please provide OHM with authorization to proceed by signing below, and returning a copy of the signed proposal to us. Also, please indicate authorization for Task 8 in the space provided. We appreciate the opportunity to provide the City this proposal and look forward to working with you on this important project. Should you have any questions or desire additional information, please do not hesitate to contact me at (614) 418-0600 or Ron Cavallaro at (734) 466-4467.

Sincerely,
Orchard, Hiltz & McCliment, Inc.



Rhonda M. Harris, PE
Director of Engineering Services, Bird Houk Division

Attachments: Scope of Services
 Cost and Hours Estimate
 Standard Terms and Conditions
 2012 Hourly Rate Schedule

City of Gahanna
Souder Ditch Stream Restoration

Signature

Date

Honorable Rebecca W. Stinchcomb
Name

Mayor
Title



STATEMENT OF UNDERSTANDING

A 2500 foot portion of Souder Ealy ditch between Farm Creek Drive and 204 Ashley court is experiencing severe stream bank erosion. It appears that the stream through this reach is primarily widening with a small degree of incision. The watershed is approximately 650 acres and has had its land use converted to mostly residential development over the last 30 years. Some of the development projects included storm water management measures, however, more than likely the measures did not take into account higher frequency event controls and did not include both rate and volume controls. Therefore, due to the increase in impervious surfaces and lack of storm water management controls, the frequency of bank full events has increased. This has caused the stream banks to erode, adjusting to the changed hydrologic conditions. The City is concerned that if the erosion continues, residential structures and public roadway culverts could be jeopardized.

It is our understanding that the City is in the design phase of a regional detention basin which should reduce the number of bank full events and peak flows for a variety of events. Now that the detention facility is near completion, the City desires to address the stream bank erosion issues before private or public facilities are damaged.

From our review of this reach of the stream, several residents have taken it upon themselves to address stream bank erosion failures. Treatment methods range from installation of retaining walls to gabions to outlet and stream toe stone protection. It appears that there are 6 or 7 specific areas that still need addressing and that typical treatment methods will include toe protection (boulder or coir logs) and/or upper stream bank stabilization with geogrids, regrading/native plant installation. Once the hydraulic analysis is complete and based on the results, we may also recommend widening sections of the stream and/or adding bank full shelves to reduce shear stresses and provide a channel that maintains long-term stability.

WORK PLAN

We have divided our work plan into 6 tasks, with the goal of obtaining input and ultimately consensus on the bank erosion solutions. Specific tasks to complete the preliminary plan phase of the project are as follows:

Task 1: Information Gathering

Under this task, OHM will meet with City staff to kick off the project, refine the scope and project schedule and obtain available information. Specific work efforts include:

1. Meet with the City to kick off the project (discuss project scope, project team and schedule).
2. Obtain information from the City including development plans, GIS data, area historical drainage information, wetland inventory maps, existing studies, Franklin Soil and Water Conservation District Stream Assessment, resident complaints on file and other available information.
3. Existing utilities in the proximity of the stream will be identified as part of this task. The utility plans will be requested by contacting the individual private and public utility owners. These utilities will be shown on the preliminary plans.

4. Meet with area residents to obtain a historical perspective of what has occurred (flooding, development work, road work, etc.). We have assumed we would talk with 3 residents and review photographs and other information they can provide. A summary of each discussion will be provided to the City.

Deliverable:

- Resident meeting notes

Task 2: Stream Inventory & Assessment

As the first major task, we will complete a stream inventory. Based on our experience, we have found it to be more effective to perform the stream inventory prior to the survey as it allows us to identify the highest priority areas first, and concentrate survey efforts on those areas. For this reason, we have placed the stream inventory before the survey efforts.

An inventory will be performed for the 2500 foot reach to identify specific problem areas and supplement the work completed by the Franklin Soil & Water Conservation District. OHM will walk the stream and riparian corridor to assess the bed and bank conditions. The assessment will include identifying bank problem areas, locating outfalls, culvert crossings, groundwater seeps, log jams and other obstructions; photographing and obtaining GPS coordinates of each. Specific work efforts include:

1. Perform a field inventory of the stream collecting data on a tablet computer that includes a method such as the modified Pfankuch stability rating, Bank Erosion Hazard index (BEHI), and near bank stress (NBS) assessment. OHM will walk the creek to document existing conditions related to the degree of bank erosion, habitat conditions, soil types and seep locations, channel conditions (degree of incision, bank full depth, bank slope, percent of vegetative cover, existence of obstructions, man made feature, access potential, hydraulic controls, riffle/pool locations, substrate, etc.) and determine initial recommended treatment. GPS coordinates and photos will be obtained at each identified location.
2. Obtain sediment core samples from point bars. We have assumed 2 core samples will be obtained for this project. Also, at the location of each core sample a pebble count will be performed.
3. Obtain sediment core samples from riffles. We have assumed 2 core samples will be obtained for this project. Also, at the location of each core sample a pebble count will be performed.
4. Perform a sieve analysis and obtain D16, D35, D50, D84 and D95 for each sample. This information will be plotted along with obtaining a survey cross section in each location and computing the hydraulic radius of each cross section.
5. The collected data will be organized into an inventory database which will serve as the basis of design. The sites will be prioritized based on their bank characteristics and resulting BEHI value. We have found from past experience on similar urban streams that high and some medium priority sites need to be treated while other lower priority sites can be left alone to "self heal".



6. The electronically collected data will also be used for creating a log of rehabilitation sites and a "rehabilitation area" plan sheet/access sheet for the construction plans. The photographs for identified/agreed upon rehabilitation sites can be used in the appendix of the contract documents to provide the contractor with a visual representation of each rehabilitation site. We have found that this information helps contractors identify sites and results in more consistent bids.
7. Compile data and develop the Inventory portion of the Design Basis Report.

Deliverable:

- Inventory portion of Design Basis

Task 3: Stream Survey

Under this task OHM will obtain cross sections of the stream at key locations. The survey will be based on the FEMA datum, to match the datum of the existing FEMA study. Specific work efforts include:

1. Obtain horizontal and vertical survey control. We expect that control can be obtained in the "leaf off" condition and with GPS equipment.
2. Obtain stream cross sections in areas where significant changes in the cross section occur. Cross sections will include the stream centerline, toe of slopes, top of bank, top of sediment, hard bottom, and ground point at a minimum of 25 feet from the top of bank. Locate and record the size and invert elevations of each stream/road crossing. The size, length, material, inverts, and depth of sediment will be documented at each stream crossing. The dimension, material type, and overall condition of these crossings, including headwalls, will be documented. We estimate that 30 cross sections will be obtained (including cross sections at road crossings).
3. Process topographic survey for development of base drawings. The surveyed data and the utility data will be collected onto 24" x 36" drawings, with appropriate scales, using AutoCAD 2007 software. Survey plans will include plan (1"=100'), profile (1"=5' vertical) and cross sections (1"-10' vertical). Survey base drawings will include approximate property boundaries, property ownership and drain crossing ownership. We have assumed that this information will be available from the City/County GIS.

Deliverable:

- Base plans

Task 4: Hydrology and Hydraulics

It is our understanding that a hydrologic analysis was not developed as part of the detention basin retrofit project. Therefore, we will obtain peak flows by use of the USGS Ohio Stream Stats program for use in developing the hydraulic analysis. Bank full discharge values (1 or 2-year recurrence interval) will be checked from direct field measurements from a reference reach, if one can be found in the locality. Otherwise, bank full discharge/bank height will be determined by locating a stream "bench" and measuring the height to compute the discharge.

OHM will develop an existing and proposed condition steady, one-dimensional flow backwater analysis in HEC-RAS to determine existing hydraulic parameters (water surface, energy grade, velocity, flow depth, shear stress, etc). The

existing model along with physical stream measurements will be used to determine the required size of a stable channel and protection measures needed. Specific work efforts are as follows:

1. Obtain peak by use of the USGS Ohio Stream Stats program for the bank full, 10 & 100-year recurrence interval events for use in developing the hydraulic analysis.
2. Develop a backwater analysis using the ACOE HEC-RAS program for the existing and proposed conditions to obtain open channel hydraulic parameters. The data will be tabulated in an open channel summary that identifies, in locations of significance, the channel cross section location, cross section area, channel grade along with hydraulic parameters at each cross section. The summary will be developed for the bank full, 10 and 100-year events. It is our understanding that a detailed Flood Insurance Study (FIS) was performed for this area. We will use the FIS information to compare to our hydraulics to verify our results.
3. Perform bank full dimensionless shear stress computations in HEC-RAS and check with hand computations using core sample and cross section data. These computations will aid in determination of the stable channel condition. It should be noted that to maintain stability, a stream must be able to transport the largest size of sediment and have the capacity to transport the load on an annual basis. These will be performed as per methods outlined in the NRCS NEH Part 64 Stream Restoration Guide.
4. Perform scour computations to determine bury depth of proposed toe/in-stream stabilization measures.
5. Prepare the hydraulic portion of the design basis outlining hydraulic findings.

Deliverable:

- * Hydraulic portion of Design Basis

Task 5: Design Basis Report

Under this task, OHM will compile data from the previous tasks and develop conceptual alternatives and preliminary cost estimates into a design basis report. Specific work efforts include:

1. Compile the Stream Inventory and Hydrology & Hydraulics information into the report.
2. Based on the proposed condition hydraulic results, prepare conceptual sketches for restoration measures at priority locations. Conceptual plan views will be developed with GIS aerial backgrounds with property lines to provide a preliminary indication of property and utility impacts. Conceptual details will also be provided.
3. Identify permits required and determine permitting requirements based on the proposed restoration sites and measures. A summary of the required permits will be made part of the design basis.



4. Identify potential utility conflicts and potential property owner issues. This information will be summarized in the design basis.
5. Prepare planning level cost estimates for anticipated restoration measures.
6. Identify potential funding mechanisms (state and federal grants). A summary of potential funding mechanisms will be made part of the design basis.
7. Compile information into a design basis report and submit to the City for review.
8. Meet with the City and modify the Design Basis based on City comments. Once the recommendations in the report are agreed upon, we will initiate preliminary design.

Deliverable:

- Design Basis

Task 6: Public Involvement Meeting

Under this task, OHM will prepare for and attend a public meeting. We have assumed that the public meeting would take place prior to completion of preliminary plans. Specific work efforts include:

1. Prepare handouts and display boards depicting proposed restoration concepts for display and distribution at the meeting.
2. Meet with the City prior to the public meeting to prepare and present information at the public meeting. Also, meet with the City after the meeting to discuss citizen comments and decide on next steps.

Deliverables:

- Hard copy handouts & display boards

City of Gahanna
Souder Ditch Stream Restoration
Cost and Hours Estimate
February 9, 2012

	Principal/QA/QC Ron Cavallaro, P.E.	Permitting - Rhonda Harris, P.E.	Project Manager Tim Kuhns, P.E.	Graduate Engineer Bryan Dage	GIS Tech Scott Kaiser, GISP, CFM	Civil Technician (cadd)	Professional Surveyor Schipsema, P.S.	Survey Crew	Ecologist Steve Niswander, Ph.D.	Admin.	BUDGET TOTALS
Tasks	\$160.00	\$140.00	\$118.00	\$94.00	\$94.00	\$80.00	\$112.00	\$175.00	\$115.00	\$50.00	
TASK 1 - Information Gathering											
1. Kick-off meeting	2	2	2								
2. Obtain and review existing information		1	2								
3. Obtain existing utility information		4	2								
4. Meet with 3 residents and provide summaries			6	6					4		
TOTAL HOURS	2	7	12	6	0	0	0	0	4	0	31
TOTAL COSTS	\$320	\$980	\$1,416	\$564	\$0	\$0	\$0	\$0	\$460	\$0	\$3,740
TASK 2 - Creek Inventory and Assessment											
1. Walk creek, collect site specific data	2		16	16					16		
2, 3. Obtain soil samples from point bars and riffles (lime included in #1 above)											
4. Perform sieve analysis					6						
5. Compile data and organize database			2	16							
6. Create preliminary access plan	1		4	16	2	16					
7. Prepare Inventory portion of design basis report	2		8	16					4	2	
TOTAL HOURS	5	0	30	64	8	16	0	0	20	2	145
TOTAL COSTS	\$800	\$0	\$3,540	\$6,016	\$752	\$1,280	\$0	\$0	\$2,300	\$100	\$14,788
TASK 3 - Survey											
1. Coordinate survey and obtain horizontal and vertical control	1		1				8	4			
2. Obtain topographic survey cross sections and bridge crossing information			2				2	20			
3. Process survey data and prepare base plans			2	4		24	2				
TOTAL HOURS	1	0	5	4	0	24	12	24	0	0	70
TOTAL COSTS	\$160	\$0	\$590	\$376	\$0	\$1,920	\$1,344	\$4,200	\$0	\$0	\$8,590
TASK 4 - Hydrology & Hydraulics											
1. Obtain flow/recurrence interval information and review				2							
2. Input data & run existing and proposed condition HEC-RAS model.	1		8	32							
3. Perform shear stress computations for existing/proposed conditions.			2	16							
4. Perform scour computations for existing/proposed conditions.			1	4							
5. Prepare hydraulic portion of design basis	2		2	16						2	
TOTAL HOURS	3	0	13	70	0	0	0	0	0	2	88
TOTAL COSTS	\$480	\$0	\$1,534	\$6,580	\$0	\$0	\$0	\$0	\$0	\$100	\$8,694

	Principal/QA/QC Ron Cavaliaro, P.E.	Permitting - Rhonda Harris, P.E.	Project Manager Tim Kühns, P.E.	Graduate Engineer Bryan Dage	GIS Tech Scott Kaiser, GISP, CFM	Civil Technician (add)	Professional Surveyor Andy Schripsema, P.S.	Survey Crew	Ecologist Steve Niswander, Ph.D.	Admin.	BUDGET TOTALS
Tasks	\$160.00	\$140.00	\$118.00	\$94.00	\$94.00	\$80.00	\$112.00	\$175.00	\$115.00	\$50.00	
Task 5 - Design Basis Report											
1. Compile Stream Inventory and hydraulic data (included in task 2)											
2. Prepare conceptual sketches (assumed 6 sites)	4		8	40		40					
3. Identify permitting requirements		8									
4. Prepare cost estimate			2	8							
5. Identify potential funding mechanisms		8									
6. Compile and submit report to City	1										
7. Meet with City and revise report based on comments	4	2	4								
TOTAL HOURS	9	18	14	48	0	40	0	0	0	0	129
TOTAL COSTS	\$1,440	\$2,520	\$1,852	\$4,512	\$0	\$3,200	\$0	\$0	\$0	\$0	\$13,324
Task 6 - Public Involvement Meeting											
1. Prepare presentation and handouts	2		6	12						2	
2. Meet with the City and attend public meeting. Download after the meeting with City.	8	2	8						8		
TOTAL HOURS	8	2	8	0	0	0	0	0	8	0	26
TOTAL COSTS	\$1,280	\$280	\$944	\$0	\$0	\$0	\$0	\$0	\$920	\$0	\$3,424
Total Hours											
	28	27	82	192	8	80	12	24	32	4	489
										Total Base Fee	\$52,560

STANDARD TERMS and CONDITIONS

1. THE AGREEMENT – These Standard Terms and Conditions and the attached Proposal or Scope of Services, upon their acceptance by the Owner, shall constitute the entire Agreement between Orchard, Hiltz & McCliment, Inc. (OHM), registered in the State of Ohio, and the Owner. The Agreement shall supersede all prior negotiations or agreements, whether written or oral, with respect to the subject matter herein. The Agreement may be amended only by mutual agreement between OHM and the Owner and said amendments must be in written form.

2. SERVICES TO BE PROVIDED – OHM will perform the services as set forth in the attached proposal or scope of services which is hereby made a part of the Agreement.

3. SERVICES TO BE PROVIDED BY OWNER – The Owner shall at no cost to OHM:

- a) Provide OHM personnel with access to the work site to allow timely performance of the work required under this Agreement.
- b) Provide to OHM within a reasonable time frame, any and all data and information in the Owners possession as may be required by OHM to perform the services under this Agreement.
- c) Designate a person to act as Owners representative who shall have the authority to transmit instructions, receive information, and define Owner policies and decisions as they relate to services under this Agreement.

4. PERIOD OF SERVICE – The services called for in this Agreement shall be completed within the time frame stipulated in the Proposal or Scope of Services, or if not stipulated shall be completed within a time frame which may reasonably be required for completion of the work. OHM shall not be liable for any loss or damage due to failure or delay in rendering any service called for under this agreement resulting from any cause beyond OHM's reasonable control.

5. COMPENSATION – The Owner shall pay OHM for services performed in accordance with the method of payment as stated in the Proposal or Scope of Services. Method of compensation may

be lump sum, hourly; based on a rate schedule, percentage of the construction cost, or cost plus a fixed fee. The Owner shall pay OHM for reimbursable expenses for subconsultant services, equipment rental or other special project related items at a rate of 1.15 times the invoice amount.

6. TERMS OF PAYMENT – Invoices shall be submitted to the Owner not more often than monthly for services performed during the preceding period. Owner shall pay the full amount of the invoice within thirty days of the invoice date. If payment is not made within thirty days, the amount due to OHM shall include a charge at the rate of one percent per month from said thirtieth day.

7. LIMIT OF LIABILITY – OHM shall perform professional services under this Agreement in a manner consistent with the degree of care and skill in accordance with applicable professional standards of services of this type of work. To the fullest extent permitted by law, and not withstanding any other provision of this Agreement, the total liability in the aggregate, of OHM and its Officers, Directors, Partners, employees, agents, and subconsultants, and any of them, to the Owner and anyone claiming by, through or under the Owner, for any and all claims, losses, costs or damages of any nature whatsoever arises out of, resulting from or in any way related to the project or the Agreement from any cause or causes, including but not limited to the negligence, professional errors or omissions, strict liability, breach of contract or warranty, express or implied, of OHM or OHM's Officers, Directors, employees, agents or subconsultants, or any of them shall not exceed the amount of \$25,000 or OHM's fee, whichever is greater.

8. ASSIGNMENT – Neither party to this Agreement shall transfer, sublet, or assign any duties, rights under or interest in this Agreement without the prior written consent of the other party.

9. NO WAIVER – Failure of either party to enforce, at anytime, the provisions of this Agreement shall not constitute a waiver of such provisions or the right of either party at any time to avail themselves

of such remedies as either may have for any breach or breaches of such provisions.

10. GOVERNING LAW – The laws of the State of Ohio will govern the validity of this Agreement, its interpretation and performance.

11. DOCUMENTS OF SERVICE – The Owner acknowledges OHM's reports, plans and construction documents as instruments of professional services. Nevertheless, the plans and specifications prepared under this Agreement shall become the property of the Owner upon completion of the work and payment in full of all monies due OHM, however, OHM shall have the unlimited right to use such drawings, specifications and reports and the intellectual property therein. The Owner shall not reuse or make any modifications to the plans and specifications without prior written authorization by OHM. In accepting and utilizing any drawings or other data on any electronic media provided by OHM, the Owner agrees that they will perform acceptance tests or procedures on the data within 30 days of receipt of the file. Any defects the Owner discovers during this period will be reported to OHM and will be corrected as part of OHM's basic Scope of Services.

12. TERMINATION – Either party may at any time terminate this Agreement upon giving the other party 7 calendar days prior written notice. The Owner shall within 45 days of termination, pay OHM for all services rendered and all costs incurred up to the date of termination in accordance with compensation provisions in this Agreement.

13. OHM'S RIGHT TO SUSPEND ITS SERVICES – In the event that the Owner fails to pay OHM the amount shown on any invoice within 60 days of the date of the invoice, OHM may, after giving 7 days notice to the Owner, suspend its services until payment in full for all services and expenses is received.

14. OPINIONS OF PROBABLE COST – OHM's preparation of Opinions of Probable Cost represent OHM's best judgment as a design professional familiar with the industry. The Owner must recognize that OHM has no control over costs or the prices of labor, equipment or materials, or over the contractor's method of pricing. OHM makes no warranty, expressed or implied, as to the accuracy of such opinions as compared to bid or actual cost.

15. JOB SITE SAFETY – Neither the professional activities of OHM, nor the presence of OHM or our employees and subconsultants at a construction site shall relieve the General Contractor or any other entity of their obligations, duties, and responsibilities including, but not limited to, construction means, methods, sequences, techniques or procedures necessary for performing, superintending or coordinating all portions of the work of construction in accordance with the contract documents and the health or safety precautions required by any regulatory agency. OHM has no authority to exercise any control over any construction contractor or any other entity or their employees in connection with their work or any health or safety precautions. The Owner agrees that the General Contractor is solely responsible for jobsite safety, and warrants that this intent shall be made clear in the Owners agreement with the General Contractor. The Owner also agrees that OHM shall be indemnified and shall be made additional insureds under the General Contractors general liability insurance policy.

16. DISPUTE RESOLUTION – In an effort to resolve any conflicts that arise during the design or construction of the project or following the completion of the project, the Owner and OHM agree that all disputes between them arising out of or relating to this Agreement shall be submitted to nonbinding mediation, unless the parties mutually agree otherwise.