

Proposal for Civil Engineering Consulting Services to Develop Case Studies for the Proposed Low Impact Development Option in the Stormwater Ordinance.

Christopher B. Burke Engineering, LTD (CBBEL) has been working with the Cities of Westfield and Noblesville, Town of Fishers and Hamilton County to update the post construction chapter in the stormwater manual to include revisions to the conventional design method and to add a Low Impact Development (LID) design option. Through the process of reviewing the revised chapter it became evident that there was a need for a design and cost analysis comparison of developing using current design standards, proposed new standard and LID design.

This analysis is critical so we can encourage developers and engineers to consider LID design to improve water quality with less maintenance through more natural methods and/or maximize land use and possibly reduce costs. Current methods create a lot of expensive infrastructure with long term potentially high maintenance commitments and costs to the city.

EMH&T has provided a proposal to CBBEL for preparing three (3) case studies of different development uses and sizes under current ordinance design criteria, proposed conventional methodology and the proposed LID option approach. The three case studies proposed are: Medium Commercial Development (20-25 acres), Urban Infill Commercial Development (1-3 acres) and Medium Density Residential Development (10-15 acres). The scope of services includes Hydraulic Modeling, Exhibits and Summary Narrative and Cost Analyses

The total cost for the proposal is \$19,400 which if divided 4 ways equals a commitment of \$4,850 for the City, if divided 3 ways the cost would be \$6,466.66. Noblesville and Fishers have already committed to paying the \$4850 each but at this time Hamilton County has turned down the opportunity due to limited funding. CBBEL is working with the County to ask them to reconsider.

The Department of Public Works recommends the proposal by EMH&T for approval by the Board of Public Works & Safety and authorizes the Department of Public Works to enter into a contract with Christopher Burke Engineering who is subcontracting with EMH&T for an amount not to exceed \$6,466.66.



Evans, Mechwart, Hambleton & Tilton, Inc.
Engineers, Surveyors, Planners, Scientists

Revised January 22, 2010

Mr. Siavash Beik, PE
Christopher B. Burke Engineering, LTD.
National City Center, Suite 1368 South
115 W. Washington Street
Indianapolis, Indiana 46204

**Subject: Proposal for Civil Engineering Consulting Services
Case Study Preparation for Proposed LID Option
Stormwater Ordinance**

Dear Mr. Beik:

Evans, Mechwart, Hambleton & Tilton, Inc. (EMH&T) appreciates the opportunity to present this proposal for civil engineering consulting services associated with the above referenced project. We understand that Christopher B. Burke Engineering, LTD. (CBBEL) has completed draft ordinance language for proposed amendments to Hamilton county, Indiana's Stormwater Manual titled "Chapter 700: Post-construction Stormwater Quality Management". We understand that CBBEL desires to engage EMH&T to prepare case studies or "sample design scenarios" to evaluate the requirements of the proposed standards and provide comparisons between current ordinance requirements, and proposed conventional and LID design methodology.

Per our discussions, we understand that CBBEL requests preparation of three (3) case studies of different development uses and sizes under current ordinance design criteria, proposed conventional methodology and the proposed LID option approach. We propose to include the following development types/sizes for the three case study scenarios to be analyzed:

1. Medium Commercial Development: 20-25 acres.
2. Urban Infill Commercial Development: 1-3 acres.
3. Medium Density Residential Development: 10-15 acres.

Following is a detailed scope of the civil engineering services to be provided for this project.

I. Scope of Services

A. Hydraulic Modeling

EMH&T will prepare a hydraulic model for each case study development based upon TR-55 methodology to determine the following design solutions:

- 1. Current Ordinance Requirements:** Stormwater Quality Treatment and Stormwater Quantity Reduction (detention) using the current peak discharge

A legacy of **experience**. A reputation for **excellence**.

7400 North Shadeland Avenue, Suite 150, Indianapolis, IN 46250 • Phone 317.913.6930 • Fax 317.913.6928

Columbus • Cincinnati • Indianapolis • Charlotte

emht.com

rate of 0.3 cfs per acre for a 100-year frequency event and current water quality volume calculation criteria and currently approved BMP's. It is anticipated that different types of BMP's will be utilized for the water quality component of the requirements for each of the three case studies including bioretention, vegetated swale, and hydrodynamic separation.

2. **Proposed Conventional Ordinance Approach:** Calculation of Channel Protection Volume as based upon the 1-year 24 hour storm event, Water Quality Volume as based upon current methodology and Stormwater Quantity Reduction (detention) using the current peak discharge rate of 0.3 cfs per acre for a 100-year frequency event.
3. **Proposed LID Option Ordinance Approach:** Each case study site will be evaluated to identify the types of LID techniques that may be incorporated into the stormwater management system to provide distributed storage opportunities, infiltration practices, minimization of imperviousness, and impervious area reduction techniques to achieve a reasonable post-developed LID Curve Number (CN). Such practices may include porous pavement, vegetated roofs, bioretention and vegetated swales. Calculations will be included for the Water Quantity (Detention) Reduction for the 100-year storm event and Channel Protection Volume.

Upon completion of the initial hydraulic modeling results, EMH&T will meet with CBBEL to go over the preliminary findings and any discrepancies/issues encountered relative to the methodology outlined in the proposed ordinance.

B. Exhibits and Summary Narrative

Upon review of the initial hydraulic modeling by CBBEL and validation of the approaches taken within the modeling, EMH&T will adjust the models as required and will prepare exhibit-level drawings showing general site plan background information (buildings, parking, roads, etc..) of each case study site with the following information overlaid thereon:

1. Runoff Patterns
2. Location, type and size of conventional BMP's
3. Location, type and size of detention facilities
4. Location, type and size of LID features (LID option only)

Each exhibit will include a table identifying the following information:

1. Channel Protection Volume Required/Provided
2. Stormwater Quality Volume (or Flow as applicable) Required/Provided
3. Water Quantity Reduction (100-year) Volume Required/Provided
4. Pollutant Removal Efficiency Computations

Additionally, a short narrative/summary will be prepared to include a comparison of the storage volume requirements and developable area impacts imparted upon each

case study site under current, proposed conventional and proposed LID design methodology. Legible, organized copies of methodologies used and calculations will be provided as appendices so that it can be included in the Stormwater Manual as needed.

C. Cost Analyses

Upon completion of the final exhibits and summary reports for each case study site, EMH&T will prepare a cost analyses for the major components of the stormwater management system (detention, stormwater quality, and LID features where applicable) for each scenario modeled (existing ordinance, proposed conventional, and proposed LID). The purpose of the cost analyses will be to provide a baseline cost comparison for the major stormwater management features as may differ amongst the three scenarios modeled for the three case study sites. The cost analyses will not include project costs that are common for each scenario such as conveyance systems, paving, curbs, utilities, etc... Additionally, the cost analyses will not account for potential revenue/income related to differences in developable area amongst the various options and scenarios studied. However, footnotes will be included on the summary cost reports to identify significant increases or decreases in developable land area as may be realized by specific approaches. The detailed cost breakdown for each scenario analyzed (for the items for which cost is being determined by EMHT) will be produced as an exhibit and included with the deliverables.

II. Fee

We propose the following Lump Sum Fee schedule for each Case Study to include hydraulic analyses, exhibits/summary narratives, and cost analyses:

1.	Medium Commercial Development:	\$ 6,800.00
2.	Urban Infill Commercial Development.....	\$ 5,400.00
3.	Medium Density Residential Development.....	<u>\$ 7,200.00</u>
	Total Lump Sum Fee.....	\$ 19,400.00

III. Terms and Conditions

The terms and conditions of this agreement are attached hereto

We look forward to working with CBBEL on this effort and we are able to commence work in accordance with the project schedule. We understand CBBEL desires to have one case study nearly completed prior to the upcoming MS4 Stormwater Workshop on February 10, 2010 with the remaining studies completed by mid to late March 2010. Should you have any questions regarding our proposal, please contact our office at (317) 913-6930.

Respectfully Submitted,

EMH&T, Inc.



Richard J. Kelly, PE
General Manager

**Subject: Proposal for Civil Engineering Consulting Services
Case Study Preparation for Proposed LID Option
Stormwater Ordinance**

ACCEPTED BY Christopher B. Burke Engineering, LTD.:

Authorized Signature

Date

Printed Name & Title

Evans, Mechwart, Hambleton, and Tilton, Inc.
Terms and Conditions of Professional Service

These terms and conditions together with any Proposal attached hereto constitute the entire agreement between EMHT and Client as if they were part of one and the same document.

Definitions:

EMHT: shall refer to Evans, Mechwart, Hambleton, and Tilton, Inc., an Ohio Corporation, and its subcontractors.

Client: shall refer to the person, firm, or corporation that has entered into a contractual relationship with EMHT providing for the performance of professional services related to civil engineering, surveying, environmental science, landscape architecture, planning, or construction observation.

Proposal: shall refer to the written scope of services, unit prices, and/or fixed fee provided by EMHT to Client describing, if applicable, the nature of the services to be performed by EMHT or its subcontractors, and the amount and type of compensation to be paid for those services.

Authorization as Agent

Client authorizes EMHT to take all actions on Client's behalf which EMHT, in its sole discretion, believes to be necessary to perform the services described herein and in the Proposal. Free right of access shall be granted EMHT personnel to enter upon any land owned or controlled by Client so long as such entry is reasonably necessary to perform said services. If EMHT notifies Client that EMHT requires entry onto land not owned or controlled by Client, then Client shall obtain such right of entry without cost to EMHT. Client understands that services provided by EMHT commonly require drilling, sampling, and other activities that may disrupt use of the premises and may disturb, alter, or damage terrain and vegetation. EMHT assumes no responsibility to compensate any owner for such loss and will not restore the site to its original condition.

Standard of Care and Liability

EMHT will exercise reasonable care in the performance of its duties under this Contract. Client agrees that the liability of EMHT, and that of its officers, directors, employees, agents and subcontractors, to Client or any third party due to any negligent professional acts, errors or omissions will be limited to the lesser of EMHT's professional liability insurance coverage available at the time of settlement or judgment, or the fee amount provided in the Proposal.

Client shall provide information the Client reasonably believes to be accurate as to the condition of the project site including the location of any underground utilities, utility services, structures, manholes, and underground storage tanks, and EMHT shall be entitled to rely upon the accuracy and completeness thereof. Client agrees to defend, indemnify, and hold harmless EMHT from any claim or expense, including attorney fees, arising from an allegation that EMHT performance under this Contract resulted in damage to any subterranean or surface structure or facility as a result of errors, omissions, or inaccuracies in information provided by Client.

Hazardous Materials

Both EMHT and Client acknowledge that this Contract does not contemplate the presence at the project site of any hazardous or regulated substances including asbestos. Client agrees to defend, indemnify, and hold harmless EMHT from any claim or expense, including attorney fees, arising from an allegation that EMHT's performance under this Contract resulted in the handling, transportation, or disposal of any hazardous or regulated substance, if Client knew or should have known such substance was present at the site and failed to properly notify EMHT. In the event that the presence becomes known of any hazardous or regulated substances on or near the project site, EMHT may, at its option and without liability for consequential or any other damages, suspend performance of services under this Contract.

Confidentiality of Information

EMHT will utilize reasonable measures to maintain confidentiality of Client information related to services described in the Proposal. Client acknowledges that EMHT does not have a duty of confidentiality and further acknowledges that EMHT may have past or present contractual relationships with other individuals or companies practicing the same or related business in the same geographic area as Client. Client acknowledges that EMHT may have past or present contractual relationships with governmental agencies having regulatory authority over Client's project and acknowledges that EMHT may appear before such agencies on behalf of other individuals or companies practicing the same or related business in the same geographic area as Client.

Opinions of Probable Construction Cost

Opinions of the probable cost of performance in accordance with plans, specifications, reports, or other instruments prepared by EMHT are not warranted to, and may not, reflect the actual cost to Client of such work. Unless otherwise specified, the construction cost of an entire project means the probable total cost to Client of those portions of the project designed and specified by EMHT exclusive of the value and cost of EMHT services, and cost of such things as land, rights of way, and the cost of interest and financing.

Ownership of Documents

Client accepts reports, plans, specifications, logs, calculations, estimates, and test data, including electronic media, as instruments of professional service, not products. All such material is and shall remain the sole and exclusive property of EMHT. Client may make and retain hard (i.e. not electronic) copies of documents for use on the project. Documents are not intended or represented to be suitable for reuse. EMHT shall not be required to provide or deliver electronic copies of documents unless specifically required in the Proposal. In the case of any discrepancy between any electronic files and hard copies of drawings or files, hard copies shall control. Due to the easily alterable nature of electronic files, EMHT makes no warranties, either express or implied, with respect to electronic files if such files are provided. Client agrees to defend, indemnify and hold harmless EMHT against all claims and expenses, including attorney fees, arising out of any use or modification of instruments of service without the express written consent of EMHT.

Non-Public Improvements

Client acknowledges that there is no public agency supervision over construction of improvements such as pavements, utilities, and walks on private property such as may be found

on condominium, apartment, and commercial sites. Unless specifically provided for in the Proposal, EMHT does not provide geotechnical assessment of soil conditions and accepts no responsibility for design of pavement sections, subgrade, underdrainage, backfill, and related items whether or not shown on a plan prepared by EMHT. Client agrees to defend, indemnify, and hold harmless EMHT from any claim or expense, including attorney fees, arising from 1) use of Client standards for non-public improvements, and/or 2) reliance on geotechnical data and designs provided by Client or a Client consultant, and/or 3) construction of any non-public improvements that are not observed and inspected by EMHT pursuant to a construction phase services contract.

Americans with Disabilities Act (ADA) Requirements

Client acknowledges that ADA requirements and implementation guidelines change over time and may vary by jurisdiction. Client further acknowledges that ADA compliance involves fine tolerances that are governed by the means and methods of construction. EMHT will exercise reasonable care in the specification of ADA compliant facilities subject to local standards and requirements. EMHT makes no warranty or representation, either express or implied, that either public or non-public improvements will satisfy ADA requirements, implementation guidelines, and/or local requirements, regardless of whether or not said improvements are constructed in accordance with instruments of service prepared under this Contract. Client is advised to procure an independent assessment of ADA compliance prior to accepting constructed improvements.

Payment

By accepting the Proposal, Client agrees to pay EMHT, in the manner described therein, the full amount set out in the Proposal. In the event the Proposal does not provide for a fixed fee or hourly rate schedule for specific services provided, billing shall be on a value basis in accordance with EMHT Billing Policy. Client will be invoiced and all invoices will be due and payable within 30 days of issuance. Unless prior agreement is made in writing, Client is liable for timely payment of invoiced amounts without regard to whether Client has received financing, payments, or income from any source, including funds related to the project for which services were provided by EMHT. In the event payment is not made in a timely manner, the overdue balance shall bear interest at a rate of 1.5% per month. If the Client fails to make payments when due or otherwise is in breach of this Contract, EMHT may suspend performance of services upon 5 calendar days' notice to Client. In the event legal action is necessary to enforce the payment provisions of this Contract, EMHT shall be entitled to collect from the Client any judgment or settlement sums due, and reasonable attorney fees, court costs, and other expenses incurred by EMHT in connection therewith, together with the value of the time of EMHT employees and expenses spent in connection with such collection action.

Performance, Delay, and Force Majeure

If a schedule is agreed to in the Proposal then EMHT will use its best efforts to perform according to said schedule. Client acknowledges that EMHT's performance often involves public agencies and other businesses and groups who can have substantial impact on scheduling. Neither party shall hold the other responsible for damages or delays in performance caused by force majeure, acts of God, or other events beyond the control of either party which could not have been reasonably foreseen or prevented. Such acts or events shall include unusual weather, floods, epidemics, strikes, lockouts, protest demonstrations, and unanticipated site conditions. Any delay within the scope of this provision that cumulatively exceeds 45 calendar days shall, at the option of either party, make the Contract subject to termination or renegotiation.

Notice

Any notice to be given under this Contract shall be in writing and shall be deemed duly given when delivered personally or by courier, or three business days after deposit in the United States mail, certified or registered, return receipt requested, with postage prepaid addressed to an agent of EMHT.

Applicable Law and Survival

The validity, performance, and interpretation of this Contract shall be according to the laws of the State of Ohio. All obligations arising prior to the termination of this Contract and all provisions of this Contract allocating responsibility or liability between EMHT and Client shall survive the completion of services and the termination of this Contract.

Assignment and Addendum

Neither party shall assign or transfer its interest in this Contract without the written consent of the other party. Consent to such assignment or transfer shall not be unreasonably withheld. This Contract may not be amended except in a writing executed by both EMHT and Client. No alterations or modifications to the Proposal or these terms and conditions shall be effective unless affirmatively agreed to in writing by both parties.

Binding Effect of Agreement

This Contract shall be binding upon and inure to the benefit of the parties thereto, their successors and assigns. If and to the extent that any court of competent jurisdiction holds any provisions or part thereof of this Contract to be invalid or unenforceable as a final nonappealable order, then the remainder of the Contract shall not be affected and each provision of this Contract shall be valid and enforced to the fullest extent permitted by law.

Cancellation and Suspension

This Contract may be terminated by either party providing written notice to the other no less than 10 calendar days in advance of the effective date of the termination. Fees, expenses, and other amounts due EMHT shall be due and payable immediately upon termination including such amounts reasonably incurred by EMHT in the process of stopping work after the notice of termination is received. If the project is suspended for more than 30 calendar days in the aggregate, EMHT shall be compensated for services performed and charges incurred prior to receipt of notice to suspend and, upon resumption, an equitable adjustment in fees to accommodate the resulting remobilization costs. In addition, there shall be equitable adjustment in the project schedule based on the delay caused by the suspension.