

October 22, 2018

Lake County Stormwater Management Commission
500 West Winchester Road
Libertyville, IL 60048

Attention: Michael Warner, PE - Executive Director

Subject: Proposal for Professional Engineering Services
Foxconn Development and Future Wisconsin Development
within the Des Plaines River Watershed
Hydrologic and Hydraulic Model Analysis

Christopher B. Burke Engineering, Ltd. (CBBEL) is pleased to present this proposal for professional engineering services to analyze the Foxconn Development and future developments with the Des Plaines River Watershed in Wisconsin. Included in this proposal are our Understanding of the Assignment, Scope of Services and Fee Estimate.

UNDERSTANDING OF THE ASSIGNMENT

It is our understanding that Lake County Stormwater Management Commission (SMC) would like to complete an analysis of the potential hydrologic and hydraulic impacts of the Foxconn Development and future development within Wisconsin on the Des Plaines River Flood Insurance Study (FIS) flood flows and flood stages within Lake County, IL. The hydrologic modeling will be completed using the regulatory HEC-1 hydrologic model that was utilized by CBBEL as part of previous watershed studies. The regulatory HEC-1 model will be considered the existing conditions watershed hydrologic model. We will analyze up to 5 proposed development scenarios at a macro scale with the hydrologic model. The scenarios will be analyzed for the 100-year return interval event. These scenarios will assume that future development on existing agricultural land (regardless of current zoning or land use plans) will be similar to the Foxconn Phase 1 project which includes:

- Stormwater detention release rates
 - 2-year release rate = 0.04 cfs/acre
 - 100-year release rate = 0.30 cfs/acre
 - NOAA Atlas 14 rainfall depths
- A site impervious percentage of 80% and Curve Number of 93 per the Foxconn Phase 1 Development analysis.

One of the alternatives will analyze the maximum extents of the Foxconn Development and the majority of the remaining alternatives will be focused on future development along the I-94 corridor within the Kilbourn Ditch subwatershed. A full-buildout scenario will also be included which will assume that all remaining agricultural land within the Des Plaines River Watershed will be developed per the criteria above.

The FEMA regulatory hydraulic model for the Des Plaines River in Lake County is a HEC-2 hydraulic model that CBBEL has utilized in past studies. Upon completion of the hydrologic modeling, we will update the Des Plaines River regulatory HEC-2 hydraulic model in Lake County with the resultant 100-year peak flowrates from the HEC-1 hydrologic model. This will be done for each scenario in which the proposed development 100-year peak flowrate is greater than the published FIS flowrate from the regulatory/existing conditions HEC-1 hydrologic model.

The proposed 100-year return interval flood flows and flood elevations will provide guidance on the potential changes to flood flows and flood stages that may occur over time due to development in Wisconsin that can be used for planning purposes. Several assumptions will be made in the hydrologic and hydraulic modeling that will be appropriate to the macro level scale of the analysis. The scope of services does not include detailed hydrologic or hydraulic modeling for the purposes of FEMA Letter of Map Changes (LOMC), permits or

SCOPE OF SERVICES

Task 1 – Proposed Conditions HEC-1 Hydrologic Model Analysis: Using GIS information provided by SMC, CBBEL will develop up to 5 proposed conditions HEC-1 hydrologic model scenarios for future development in the Des Plaines River Watershed within Wisconsin. We will discuss these development scenarios with SMC prior to moving forward with the hydrologic modeling. The regulatory HEC-1 hydrologic model will be considered as the existing conditions model and will be updated with the proposed development scenarios as agreed upon with SMC and CBBEL. The resultant 100-year peak flowrates from the proposed conditions modeling within Lake County will be compared to the FIS regulatory peak flowrates at flow change locations within the County. The flowrates will also be used as input into the hydraulic modeling in the subsequent task.

Task 2 – Proposed Conditions HEC-2 Hydraulic Model Analysis: The 100-year peak flowrates from Task 1 will be used as input into the Des Plaines River regulatory HEC-2 hydraulic model for up to 5 proposed conditions watershed development scenarios. The resultant 100-year flood profiles will be compared to the existing conditions (FIS) 100-year flood profile.

Task 3 – Floodplain Summary Memorandum: The results of the hydrologic and hydraulic analysis will be summarized in a memorandum with a list of assumptions, tables and exhibits.

FEE ESTIMATE

TASK	DESCRIPTION	FEE
1	Proposed Conditions HEC-1 Hydrologic Model Analysis	\$9,500
2	Proposed Conditions HEC-2 Hydraulic Model Analysis	\$5,000
3	Site Analysis Summary Memorandum	\$6,500
	TOTAL *	\$21,000

We will bill you at the hourly rates specified on the attached Schedule of Charges and establish our contract in accordance with the attached General Terms and Conditions. Direct costs for blueprints, photocopying, mailing, overnight delivery, messenger services and report compilation are not included in the fee estimate. These General Terms and Conditions are expressly incorporated into and are an integral part of this contract for professional services. It should be emphasized that additional services are not included in the preceding fee estimate and will be billed at the attached hourly rates. The contract not-to-exceed limit will govern the ultimate expenditure of time. Once billings reach the 80% limit, a task coordination meeting will be held with LCSMC to determine end of contract needs, or if a contract extension is to be pursued.

Please sign and return one copy of this agreement as an indication of acceptance and notice to proceed. Please feel free to contact us anytime.

Sincerely,

Christopher B. Burke, PhD, PE, D.WRE, Dist.M.ASCE
President

Encl. Schedule of Charges,
General Terms and Conditions

THIS PROPOSAL, SCHEDULE OF CHARGES AND GENERAL TERMS AND
CONDITIONS ACCEPTED FOR LAKE COUNTY STORMWATER MANAGEMENT
COMMISSION:

BY: _____

TITLE: _____

DATE: _____