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July 3, 2014

City of Elmhurst
209 N. York Street
Elmhurst, IL 60126

Attention: Mr. Jim Grabowski – City Manager

Subject: City of Elmhurst Comprehensive Flood Plan
Park District Properties Peer Review
(CBBEL Project No. 10-0506)

Dear Jim:

As requested at the June 26, 2014 meeting with the City of Elmhurst (City), Christopher B. Burke Engineering, Ltd. (CBBEL) is providing responses to the observations made by V3 Companies, Ltd. (V3) in its peer review of the proposed flood storage facilities on Elmhurst Park District properties. These observations, which were taken from V3's review letter dated May 29, 2014, have been provided along with CBBEL's responses below. The V3 comments following their observations have also been addressed in the CBBEL responses. At the beginning of the meeting on June 26th V3 concurred that they received all the necessary information from CBBEL to complete their review and they were not missing any data.

V3 Observation #1: Three of the four sites reviewed presently serve as playing fields for park district recreation activities. York Commons and East End Parks appear to be used for baseball and/or softball activities. Golden Meadows Park appears to be used for soccer activities.

CBBEL Response #1: The goal of these projects is to convert each of the parks to a dual-purpose facility that maintains the park's recreational uses while also providing flood storage during significant storm events to help prevent homes from flooding. Because the proposed site configurations are concept-level designs, there will be significantly more details that will be developed as the design moves forward. The design will be further refined during final engineering based on a detailed survey and geotechnical investigation of the site. The athletic fields will be graded with a surface slope appropriate to the specific sport and in accordance to guidelines established by the National Park and Recreation Association standards or the Park District's criteria. Sloping the playing fields at 2%, as suggested by V3, is well above the National Park and Recreation Association standards and would not be conducive to many sports. For example, it would be difficult to keep a soccer ball in play at the younger age levels as it would roll out of bounds frequently. To run from home plate to first base on 60

foot bases would require running up over a foot in elevation. Hence, we recommend staying within the National Park and Recreation Association standards or the Park District's criteria.

The suggestion that fields be kept dry for storm events of less than or equal to the 10-year return interval is not possible because the storm sewer system in many parts of the City barely has a 5-year return interval capacity. We also know that for some areas of the City, home flooding occurs at the 10-year return interval. The proposed projects will be designed to utilize the parks to avert home flooding and designed to drain quickly after a storm event recedes so that the fields are playable.

V3 Observation #2: The proposed excavations range in depth from two to eight feet.

CBBEL Response #2: The proposed depths were determined to be the maximum amount of excavation that could be achieved and still allows the facility to drain by gravity to the existing storm sewer system. During the engineering phase, a geotechnical investigation will be completed of each site that will identify any potential groundwater issues that would be anticipated over the limits of the excavation. If groundwater is an issue for any of the sites, the depths will be raised to avoid potential groundwater. An underdrain system will be sized and spaced according to the geotechnical investigation to address fields being playable after storm events.

While drawdown times will vary for each storm depending on the magnitude and duration, the maximum drawdown time following the storm event would be approximately 24 hours, which is within an acceptable level for inundation to vegetation. V3 raised the concern about a 100-year return interval 48-hour storm duration and the inundation associated with the event. It was agreed that none of the existing fields would be playable after 2 days of constant rain and that the proposed fields with an underdrain system would be a significant improvement to what the Park District has today.

V3 Observation #3: The park sites with ball field or soccer recreation activities are proposed to be reconstructed with the playing fields at the lowest elevations within the proposed excavation.

CBBEL Response #3: The playing surface of the athletic fields will be slightly elevated above the surrounding terrain to facilitate surface drainage. This will be indicated with specific spot elevations at key locations on the fields grading plans. To further enhance playability, the playing field portion of the site can be elevated above the bottom of the facility. In addition, the storm sewers leading into and out of the fields will be designed to bypass the first flush of rain so that the fields do not receive runoff from surrounding areas for every runoff event.

V3 Observation #4: At least two of the park sites, the Golden Meadows and East End Parks, are identified as having a restricted outlet to be constructed as part of the flood control improvements.

CBBEL Response #4: The proposed flood storage facilities would not have traditional restrictors (such as those used for detention basins), but rather outlet pipes that are smaller than the inflow pipes to allow the flood storage to be accessed. The outlet pipes will be sized so that the facility can fill during significant storm events but also have the ability to drain down quickly (within 24 hours) following the storm event.

V3 Observation #5: East End Park. The NCalCritical existing condition model describes a short 8-inch diameter pipe (Link673) downstream of the junction of a 36-inch sewer and a 60-inch sewer (60-1). The junction is labeled Diversion and the short 8-inch diameter pipe joins to a 60-inch pipe further downstream (Link665) at node N724 (see Figure 5 below).

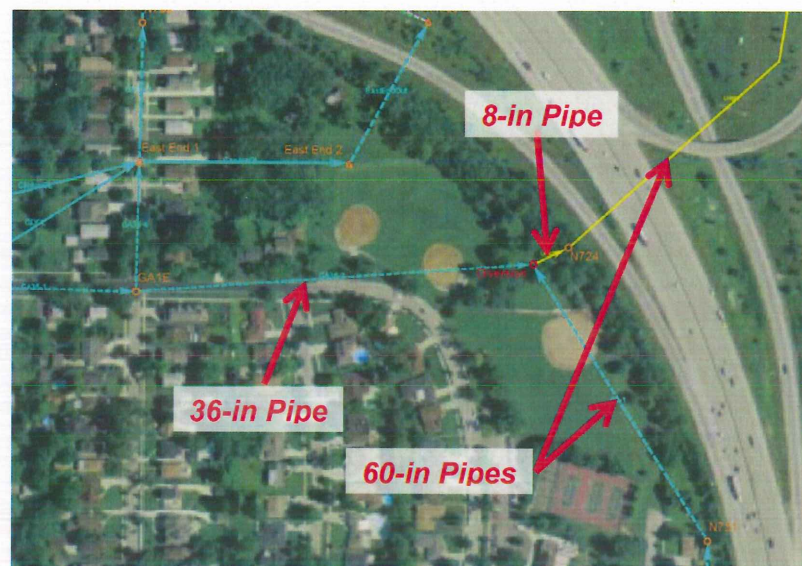


Figure 5. Plan View of EE Site in the CFP NCalCritical Existing Model

CBBEL Response #5: The as-built plans for the Lower Elmhurst Reservoir show a structure in East End Park with a sluice gate that diverts stormwater away from the North Avenue storm sewer system into the Lower Elmhurst Reservoir. Low flows to the diversion structure are bypassed around the sluice gate to the North Avenue storm sewer system through an 8-inch diameter pipe. High flows are designed to backup into the Lower Elmhurst Reservoir. The sluice gate has been field-verified by both CBBEL and City staff and the XP-SWMM hydrologic and hydraulic modeling that was prepared for this study area reflects this configuration.

Because it would send additional water downstream to another known flood problem area (North Avenue), removing the sluice gate in East End Park is not considered a viable solution to the flooding along Geneva Avenue.

V3 Observation #6: The conceptual plan details propose use of an underdrain system in the parks.

CBBEL Response #6: To maximize the playability of the recreational fields, underdrain systems are proposed in each of the dual-purpose facilities. To

achieve quality athletic field turf, it is important that the surface soils have a high infiltration rate. This promotes deeper root zones and reduces the amount of soil compaction that occurs during heavy sport use. During the engineering design phase and based on the results of the geotechnical investigation, an underdrain system will be specified of sufficient size and spacing to adequately drain the playing surface.

A properly designed athletic field with underdrains is in no danger of “drying out” to the point of requiring a full-field irrigation system. The proposed underdrains are only for removing excess water in large storm events and not the continuous “wicking” away of all water. This is achieved by proper mixture of sand and soil and underdrain spacing and depth, which will be determined on a field by field basis by a soil scientist.

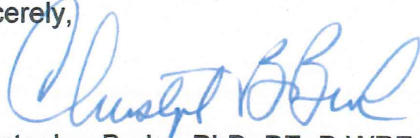
V3 Observation #7: The number of homes benefited through the proposed projects within the Elmhurst park District sites is small compared to the thousands of Elmhurst residents who utilize these parks for recreational activities.

CBBEL Response #7: The goal of these projects is to convert each of the parks to a dual-purpose facility that maintains the park’s recreational uses while also providing flood storage during significant storm events. Residents in flood-prone areas will receive valuable flood reduction benefits without sacrificing the current recreational benefits of the park. We understand that several of the existing fields are poorly-drained in their current configuration, and we believe the proposed projects would result in an improvement in the condition and playability of these facilities.

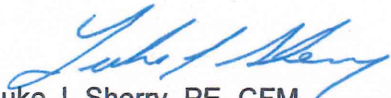
In addition to the above observations made by V3, we were also asked to respond to concerns raised by residents on Cayuga Avenue regarding the use of York Commons Park as a flood storage facility. Because York Commons Park is adjacent to the backyards of homes on the north side of the street, these residents were concerned that additional stormwater would be directed toward them. To alleviate these concerns, we would recommend that a berm be constructed along the south side of the park to further protect the homes in this area. This will ensure that stormwater will always be directed to the west and away from the homes along Cayuga Avenue.

If you have any questions or would like to discuss this further, please do not hesitate to contact us at (847) 823-0500.

Sincerely,



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



Luke J. Sherry, PE, CFM
Senior Water Resources Engineer