MEMORANDUM

August 10, 2015

TO: Brigitte Berger, PE – Village of Wilmette Director of Engineering Services

FROM: Darren Olson, PE, D.WRE
Dave Buckley, PE

SUBJECT: Wilmette Stormwater Action Plan
Drainage Improvements at Lockerbie Lane and LeClaire Avenue
Wilmette and Glenview Coordination
Separate Storm Sewer System Stormwater Management Report
(CBBEL Project 130605.00002)

Christopher B. Burke Engineering, Ltd. (CBBEL) recently completed the Separate Storm Sewer System Stormwater Management Report (Report) for the Village of Wilmette (Village) in January 2015 as part of the Village's Stormwater Action Plan. The Report indicated that the existing separate storm sewer system along Lockerbie Lane and LeClaire Avenue north and south of Glenview Road has approximately a 2-year capacity. This area is approximately 25 acres in size and is currently drained by storm sewers to the Village of Wilmette Pump Station (Figure 1). The depth of street flooding reaches up to approximately 1 foot for the 10-year return interval storm event.

In the Report, CBBEL conceptually identified an improvement project to lower the 10-year hydraulic grade line (HGL) below the street pavement elevation along Lockerbie Lane and LeClaire Avenue in the Village of Wilmette (Figure 1). The concept utilizes the proposed improvements currently under construction within the Village of Glenview. Based on our preliminary discussions with the Village of Glenview (Glenview) and review of the storm sewer inverts, the Lockerbie Lane and LeClaire Avenue area (approximately 25 acres) in the Village of Wilmette could be diverted to the proposed Glenview pump stations at the North Branch of the Chicago River (River). The improvement project for Wilmette is in part feasible due to the proposed stormwater improvements that the Village of Glenview is currently pursuing. This includes Phase I Flood Mitigation Improvements (East of Harms Project) which included two pump stations to reduce flooding for the areas located east of the River in Glenview. According to the Village of Glenview staff, construction the two pump stations will be completed this fall.

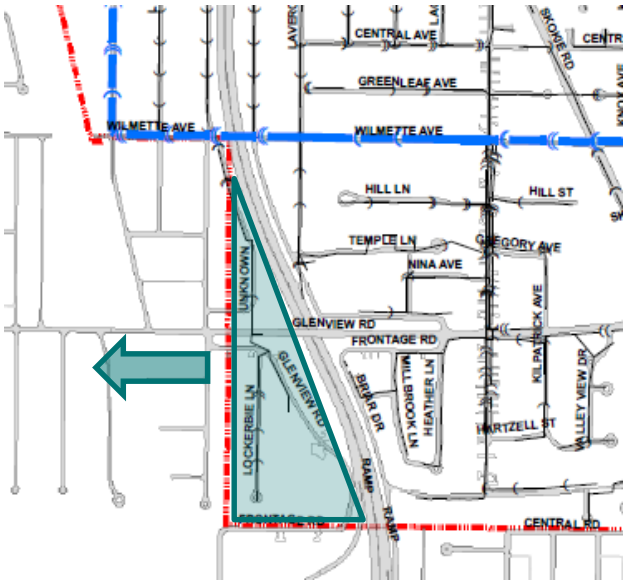

Figure 1. Potential Diversion Area to Glenview

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As part of this follow-up study to the Report, a meeting with Wilmette and Glenview staff confirmed that the 25 acre portion in the Village of Wilmette is tributary to the proposed improvements identified in the East of Harms Project (Figure 1). The proposed Glenview pump stations associated with the improvements have been sized to accommodate the runoff from this area. It was agreed that Wilmette could tie the 25 acres into the Glenview storm sewer system south of Wilmette Avenue (Exhibit 1).

CBBEL used the previously completed XP-SWMM modeling in the Report to analyze a proposed storm sewer connection to the Glenview system at the intersection of Glenview and Long Roads. The criterion used for the new connection was to reduce the 10-year hydraulic grade line (HGL) below the street pavement elevation along Lockerbie Lane and LeClaire Avenue. This is the same criteria used in the previously prepared Report. The analysis of the new connection is based on the proposed condition tailwater information developed in the Glenview analysis for each design storm. The new connection option includes the following improvements in Wilmette as shown on Exhibit 1:

- A proposed 36-inch Reinforced Concrete Pipe (RCP) storm sewer connection to the existing 36-inch RCP along Glenview Road.
- Removal of the existing 15-18 inch RCP storm sewer and replace it with approximately 840 feet of 30-inch RCP along Lockerbie Lane.
- A proposed backflow preventer on the Wilmette storm sewer line draining into the main system at the intersection of Long Road and Wilmette Avenue. This will prevent additional flow from the Wilmette trunk (outside of the 25 acres identified in this analysis) from entering the Glenview system.
- A proposed backflow preventer on the Wilmette storm sewer line draining into the 36-inch Glenview system at the intersection of Long and Glenview Roads. This will prevent backflow flow from the Glenview system entering the Wilmette system.

The resulting water surface elevations from the proposed connection were mapped and the benefits were quantified using the same methodology discussed in the previous Report. This methodology included a desktop GIS analysis to determine the number of structures impacted by flooding based on the property elevation compared to the peak water surface elevation. A structure was considered impacted by flooding if the peak water surface elevation rose to within 1 foot of the highest elevation on the parcel. A summary of the engineer's estimate of probable cost in 2015 dollars have been provided in Table 1 and supporting information has been included with this memorandum. The project costs includes design engineering, construction observation and permitting.

TABLE 1
Summary of Benefits and Costs

Design Storm	Existing	Connection to Glenview Storm Sewer
Number of Structures Impacted by Flooding		
10-year	**120**	115
25-year	**280**	275
50-year	**480**	480
100-year	**700**	700
2015 $		$900,500

The results of the analysis show that the connection would provide very minor flood reduction benefits for this specific area, and do not result in flood reduction benefits for the remainder of Wilmette. The area is too small for the removal of it to significantly impact the capacity of Wilmette's trunk sewer system.

DTO/DRB
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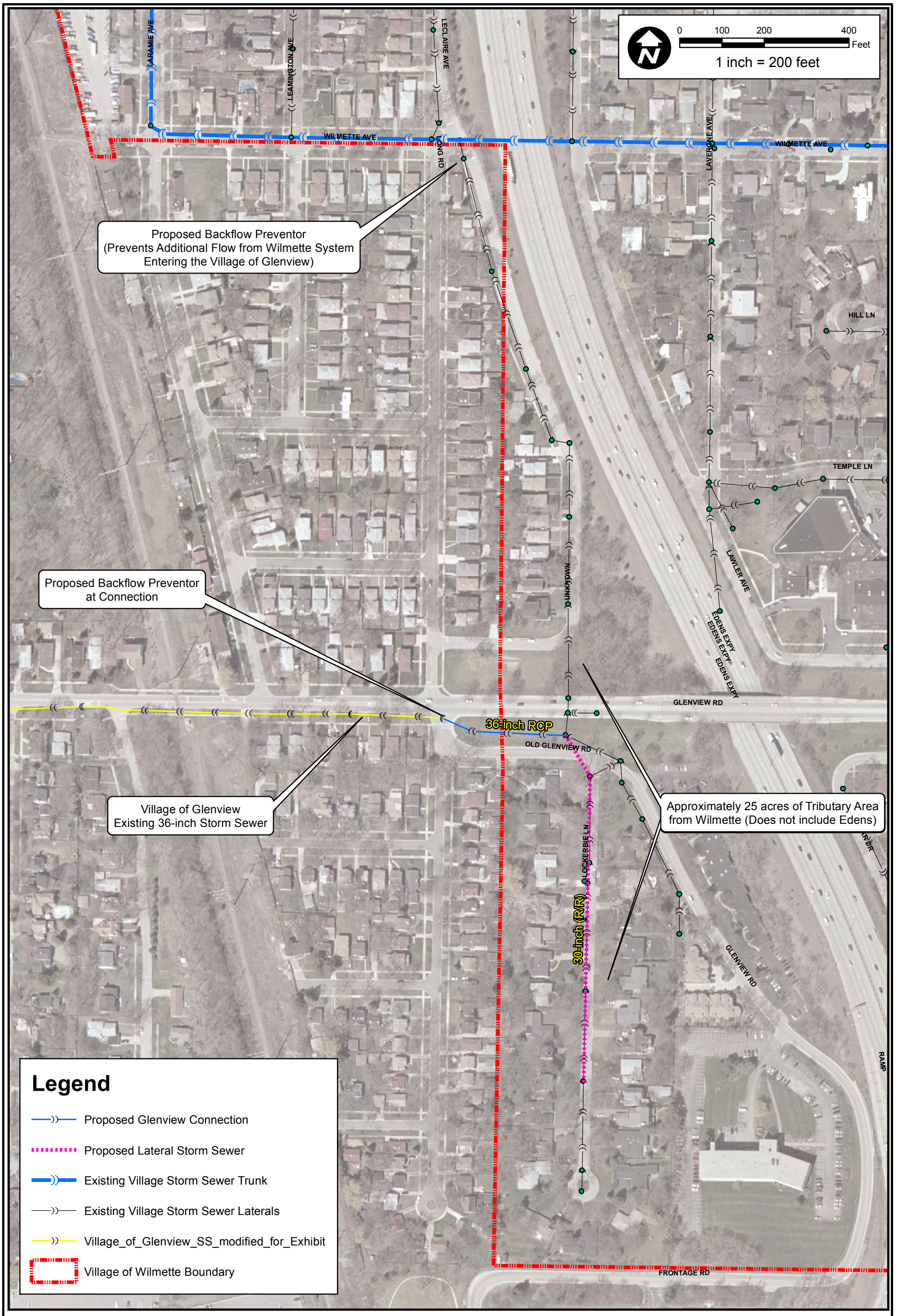

DSGN.	DRB	CHKD.	DTO

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CLIENT: **VILLAGE OF WILMETTE**

PROJECT NO. 13-0605

TITLE: **CONNECTION TO VILLAGE OF GLENVIEW STORM SEWER**

DATE 08/10/15

EXHIBIT 1

Christopher B. Burke Engineering, Ltd.
9575 West Higgins Road, Suite 600
Rosemont, Illinois 60018
Project Number: 13-0605
Date: August 11, 2015

Village of Wilmette, Proposed Storm Sewer Improvements
GLENVIEW CONNECTION

ITEMS	UNIT	QUANTITY	2015 COSTS	
			UNIT PRICE	TOTAL COST
TREE ROOT PRUNING	EACH	10	$150.00	$1,500.00
TREE PRUNING (1 TO 10 INCH DIAMETER)	EACH	5	$135.00	$675.00
TREE PRUNING (OVER 10 INCH DIAMETER)	EACH	5	$175.00	$875.00
TREE PROTECTION	EACH	10	$125.00	$1,250.00
TOPSOIL FURNISH AND PLACE	SQ YD	500	$7.00	$3,500.00
SODDING, SPECIAL	SQ YD	500	$11.00	$5,500.00
REMOVAL AND DISPOSAL OF UNSUITABLE MATERIAL	CU YD	50	$50.00	$2,500.00
TRENCH BACKFILL, CA-7	CU YD	1,000	$32.00	$32,000.00
AGGREGATE FOR TEMPORARY ACCESS	TON	25	$25.00	$625.00
BITUMINOUS MATERIALS (PRIME COAT)	GAL	250	$3.00	$750.00
AGGREGATE (PRIME COAT)	TON	5	$20.00	$100.00
LEVELING BINDER (MACHINE METHOD), N50	TON	120	$110.00	$13,200.00
HOT-MIX ASPHALT SURFACE COURSE, MIX "D", N50 1.5"	TON	240	$95.00	$22,800.00
PORTLAND CEMENT CONCRETE SIDEWALK 5 INCH	SQ FT	200	$6.50	$1,300.00
SIDEWALK REMOVAL	SQ FT	200	$3.00	$600.00
DETECTABLE WARNINGS	SQ FT	50	$50.00	$2,500.00
HOT-MIX ASPHALT SURFACE REMOVAL, 2"	SQ YD	2,500	$5.00	$12,500.00
COMBINATION CONCRETE CURB AND GUTTER REMOVAL AND REPLACEMENT	FOOT	250	$28.00	$7,000.00
CLASS D PATCH, SPECIAL	SQ YD	1,000	$100.00	$100,000.00
STORM SEWER REMOVAL, 15"	FOOT	230	$10.00	$2,300.00
STORM SEWER REMOVAL, 18"	FOOT	575	$10.00	$5,750.00
STORM SEWERS, 30" RCP	FOOT	250	$218.00	$54,500.00
STORM SEWERS, 36" RCP	FOOT	840	$252.00	$211,680.00
DRAINAGE STRUCTURES TO BE REMOVED	EACH	7	$1,000.00	$7,000.00
MANHOLES, TYPE A, 4'-DIAMETER, TYPE 1 FRAME, CLOSED LID	EACH	4	$3,600.00	$14,400.00
MANHOLES, TYPE A, 5'-DIAMETER, TYPE 1 FRAME, CLOSED LID	EACH	1	$5,200.00	$5,200.00
MANHOLES, TYPE A, 6'-DIAMETER, TYPE 1 FRAME, CLOSED LID	EACH	1	$7,300.00	$7,300.00
MANHOLES, TYPE A, 7'-DIAMETER, TYPE 1 FRAME, CLOSED LID	EACH	1	$11,000.00	$11,000.00
MANHOLES, TYPE A, 9'-DIAMETER, TYPE 1 FRAME, CLOSED LID	EACH	1	$20,000.00	$20,000.00
BACKFLOW PREVENTER, 27"	EACH	1	$2,500.00	$2,500.00
BACKFLOW PREVENTER, 36"	EACH	1	$3,000.00	$3,000.00
STABILIZED CONSTRUCTION ENTRANCE	L. SUM	1	$10,000.00	$10,000.00
RELOCATE WATER SERVICE LINE, LONG SIDE	EACH	10	$3,600.00	$36,000.00
RELOCATE SANITARY SEWER SERVICE LINE	EACH	10	$1,900.00	$19,000.00
SOIL EROSION/SEDIMENT CONTROL	L. SUM	1	$5,000.00	$5,000.00
THERMOPLASTIC PAVEMENT MARKINGS	L. SUM	1	$2,500.00	$2,500.00
TRAFFIC CONTROL	L. SUM	1	$25,000.00	$25,000.00
CONSTRUCTION LAYOUT	L. SUM	1	$15,000.00	$15,000.00
			SUBTOTAL =	$666,305.00
			CONTINGENCY (20%) =	$133,261.00
			CONSTRUCTION TOTAL =	**$799,566.00**
			DESIGN ENGINEERING (6%) =	$47,973.96
			CONSTRUCTION OBSERVATION (6%) =	$47,973.96
			PERMITTING =	$5,000.00
			TOTAL PROJECT COST INCLUDING ENGINEERING =	**$900,513.92**

CATEGORY	TOTAL COST
UNDERGROUND	$431,630.00
PAVING	$161,975.00
MISCELLANEOUS	$72,700.00
TOTAL =	**$666,305.00**

NOTES:
1. THIS ESTIMATE DOES NOT INCLUDE ROW ACQUISTION, TEMPORARY OR CONSTRUCTION EASEMENTS, OR RELOCATING ANY EXISTING UTILITIES.
2. PAVEMENT THICKNESS REMOVAL WAS ASSUMED TO BE 21".
3. TRENCH BACKFILL IS INCLUDED IN THE COST OF THE WATER MAIN AND SANITARY MAIN REMOVAL AND REPLACEMENT.