Agenda Report

Subject: **Supplemental Flood Risk Reduction Analysis: Northwest Winnetka (Forest Glen Study Area)**

Prepared By: Steven M. Saunders, Director of Public Works/Village Engineer

Date: September 5, 2012

Prior Study and Recommendations

Previously, the Village has engaged Christopher B. Burke Engineering, Ltd. (CBBEL) to evaluate areas of the Village subject to significant flooding during moderate and heavy rainfall events. One such area is a portion of northwestern Winnetka along and north of Tower Road generally west of Vernon Avenue. This is a large watershed, with significant elevation change across the drainage area. In fact, the highest point in the watershed, near Scott Avenue and Lake Street, is over 50 feet higher in elevation than areas near Tower Road and Greenwood Avenue that experience flooding. Because of the significant topographic relief in the upper areas of the watershed, runoff from the higher intensity rainfalls can be conveyed through the watershed via overland flow, generally, but not always, via the roadway system. At the flatter, lower, western end of the watershed, conveyance improvements are needed.

CBBEL evaluated 2 different options to address flooding in the lower regions of the watershed. The first option evaluated was to simply provide increased conveyance all the way into the existing wet-bottom storage reservoir to the south of Tower Road near Forest Way Drive. This alternative relies on very large conveyance pipes under Tower Road to carry the runoff volumes to the pond. The second option consisted of a combination of conveyance improvements and additional flood storage on the site of Corwin Park, near Grove Street and Edgewood Lane. While this option reduces the scope of some of the conveyance improvements needed, the cost associated with constructing underground detention at heavily-used Corwin Park exceeds the savings associated with reduced conveyance requirements.

The improvements for this area consist of new large storm sewers throughout the study area for the 25-, 50- and 100-year level of protection. For the 25- and 50-year level of protection, the recommendations are similar to the 100-year design except smaller diameter storm sewers. The engineer's estimate of probable cost for the 25-, 50- and 100-year level of protection is $2.2 million, $2.3 million and $2.9 million, respectively. These recommendations were presented to the Village Council in October, 2011, and are shown in Attachment #1.

Need to Evaluate Other Areas

After the July 2011 storm event, the Village completed a flooding survey to understand the extent and source of flooding that arose from that storm. That flooding survey

revealed a cluster of overland flooding in the Forest Glen area of the watershed, upstream of the proposed improvements. The flooding results are shown graphically below:

As a result, the Village engaged CBBEL to update their drainage study develop proposed improvements for the Forest Glen Area as well. CBBEL analyzed the drainage system (storm sewers, overland flow routes, depressional storage areas, etc.) using XP-SWMM hydrologic and hydraulic modeling software to identify the existing flood problem areas. CBBEL developed conceptual drainage improvements to increase the level of flood protection for the study area to the 25-, 50-, and 100-year levels of flood protection. Conceptual cost estimates were developed for each of the proposed flood reduction alternatives.

Existing Conditions

CBBEL identified the following conditions in the study area:

- The Forest Glen storm sewer system has less than a 5-year capacity. For storm events greater than or equal to the magnitude of a 5-year return interval, the system will surcharge and stormwater ponding will occur.
- When the capacity of the storm sewer system along Forest Glen Drive North is exceeded, the surcharged flow is directed towards the homes between Forest Glen Drive North and Forest Glen Drive South.
- Ponding occurs at the low spot along Forest Glen Drive East for storm events equal to or greater than a 5-year frequency. There is approximately 0.6 feet of depth between the low spot in the road and the overtopping elevation between the houses on the west side of the street.

Proposed Improvements

CBBEL evaluated two potential approaches to address the existing flooding conditions. The first approach consists of installing larger storm sewers along Forest Glen Drive, and increasing the capacity of Tower Road storm sewer to convey the additional flow from

the Forest Glen area west to the proposed Northwest Winnetka Improvements. The estimated cost of these improvements ranges from $631,000 to $685,000 depending on the level of protection provided. This alternative relies upon constructing the previously proposed improvements for Northwest Winnetka, and is in addition to the estimated $2.2 million to $2.9 million for those improvements.

The second approach evaluated consists of conveying the stormwater runoff from the Forest Glen area to a proposed detention facility located at Bell Woods, which is the only open space in the area. This second approach would significantly disrupt the natural area at Bell Woods and is not recommended.

The existing conditions, proposed improvements, and conceptual cost estimates are shown in CBBEL's report, which is included as Attachment #2.

Stormwater Improvement Budget

The 5-Year Capital Improvement Program for stormwater improvements is shown in Attachment #3 (source p. 79 of FY 2012-13 Budget). The Northwest Winnetka Improvements are scheduled for engineering in 2012 ($250,000) and construction in 2013 ($2,650,000), for a total investment of $2,900,000. The Forest Glen improvements would add about $685,000 to this cost. The Village could proceed along one of three lines:

1. Add the Forest Glen Improvements to the previously proposed Northwest Winnetka (Greenwood) Improvements and proceed with engineering and construction in 2012 and 2013, respectively.

2. Proceed with the previously proposed Northwest Winnetka Improvements, without constructing the Forest Glen Improvements, as anticipated in the budget.

3. Wait for the results of the Baxter and Woodman study of 6 additional drainage areas, and the CBBEL Area F study, to determine how the Forest Glen Improvements should fit in the context of the overall stormwater drainage program. This course of action will likely delay implementation of the previously proposed Northwest Winnetka Improvements by one construction season.

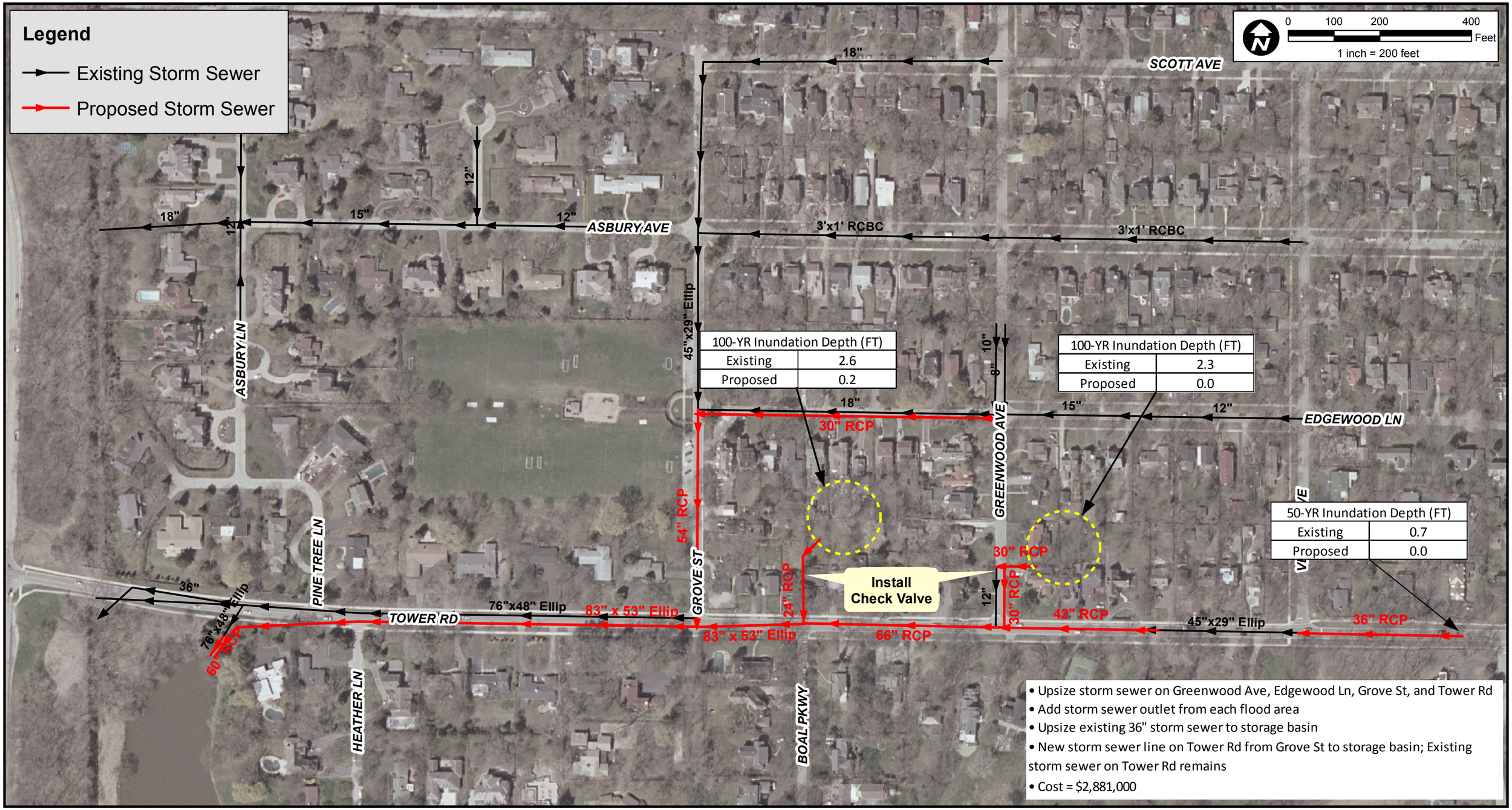
Recommendation:

Provide policy direction.

Attachments:

1. Proposed Northwest Winnetka Improvements
2. CBBEL Report
3. Stormwater Fund Budget

ATTACHMENT #1
PROPOSED NORTHWEST WINNETKA IMPROVEMENTS



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Christopher B. Burke Engineering, Ltd.
9575 West Higgins Road, Suite 600
Rosemont, IL 60018
(847) 823-0500 / FAX (847) 823-0520

CLIENT: Village of Winnetka

PROJECT NO.: 08-0671

TITLE: Alternative #1
Greenwood Ave Study Area Proposed Conditions - 100 Year Protection

DATE: 9/19/11

EXHIBIT 8A

ATTACHMENT #2
CBBEL FOREST GLEN STUDY REPORT

MEMORANDUM

June 22, 2012

TO: Steve Saunders, PE

FROM: Thomas T. Burke, PhD, PE
Luke J. Sherry, PE

SUBJECT: Flood Reduction Analysis - Forest Glen Study Area
(CBBEL Project No. 12-0252)

This memorandum presents the results of the flood reduction analysis of the Forest Glen study area completed by Christopher B. Burke Engineering, Ltd. (CBBEL). The tributary area from the Forest Glen area was included in the 2011 flood reduction analysis as part of the Greenwood Avenue study area, but the drainage system was not analyzed in detail. In the current study, the drainage system (storm sewers, overland flow routes, depressional storage areas, etc.) was analyzed using XP-SWMM hydrologic and hydraulic modeling software to identify the existing flood problem areas. CBBEL developed conceptual drainage improvements to increase the level of flood protection for the study area to the 25-, 50-, and 100-year levels of flood protection. Conceptual cost estimates were developed for each of the proposed flood reduction alternatives.

Figure 1
Overview of Forest Glen Study Area

CHRISTOPHER B. BURKE ENGINEERING, LTD.
9575 W Higgins Road, Suite 600 Rosemont, Illinois 60018-4920 Tel (847) 823-0500 Fax (847) 823-0520

As shown in Figure 1, the tributary area to the Forest Glen study area is approximately 24 acres, which is part of the larger 166-acre Greenwood Avenue study area. The overall drainage patterns of the Forest Glen area are from east to west and north to south. The storm sewer system consists mainly of 10-inch diameter pipes and the outlet for the existing system is the 15-inch diameter pipe located at the southwest corner of the study area. The 15-inch pipe conveys stormwater to the 22-inch diameter storm sewer under Tower Road. When the capacity of the storm sewers is exceeded, stormwater runoff collects in the localized depressional areas throughout the study area. The critical overland flow routes for the area (shown in green on Figure 1) convey stormwater through the side/rear yards of homes. The natural drainage pattern is toward Tower Road to the south, but due to obstructions in the flow paths, significant ponding occurs in several low-lying areas in the study area (shown in yellow on Figure 1).

Existing Conditions

The previously completed XP-SWMM hydrologic and hydraulic modeling of the Greenwood Avenue study area was expanded to include the Forest Glen drainage system. The components of the drainage system were input to the XP-SWMM model using the following information:

- Storm sewer information was taken from the Village's storm sewer atlas.
- Subbasins were delineated based on the Cook County 1-foot aerial topography and storm sewer location.
- Stage-storage relationships for depressional storage areas were taken from the Cook County 1-foot aerial topography.
- Hydrologic parameters, such as Time of Concentration (t_c) and Runoff Curve Number (RCN), were calculated using SCS TR-55 methodology based on topography and current aerial photography.
- Overland flow routes were taken from CBBEL survey information collected throughout the Forest Glen study area.

Model Verification

The July 23rd, 2011 storm event was simulated using the existing conditions XP-SWMM model. The results of the modeling correspond very well to the reported overland flooding locations in the study area. The reported overland flooding locations are based on the residential flood questionnaires following the July 2011 storm event.

Critical Duration Analysis

A critical duration analysis was performed for the study area using Bulletin 70 rainfall depths in conjunction with Huff rainfall distributions. Storm durations of 1-, 2-, 3-, 6-, 12-, 18-, and 24-hour durations were executed using the XP-SWMM model. The critical duration for the Forest Glen study area is the 2-hour duration, which is consistent with the Greenwood Avenue study area. To determine the existing level of flood protection, the 2-hour storm event was simulated for return intervals of 2-, 5-, 10-, 25-, 50, and 100-year return intervals.

Model Results

Based on the results of the existing conditions XP-SWMM modeling results, the following observations were made:

- The Forest Glen storm sewer system has less than a 5-year capacity. For storm events greater than or equal to the magnitude of a 5-year return interval, the system will surcharge and stormwater ponding will occur.
- When the capacity of the storm sewer system along Forest Glen Drive North is exceeded, the surcharged flow is directed towards the homes between Forest Glen Drive North and Forest Glen Drive South.
- Ponding occurs at the low spot along Forest Glen Drive East for storm events equal to or greater than a 5-year frequency. There is approximately 0.6 feet of depth between the low spot in the road and the overtopping elevation between the houses on the west side of the street.

Proposed Conditions

CBBEL analyzed several drainage improvement alternatives to provide an increased level of protection for the Forest Glen study area for 25-, 50-, and 100-year design storm events. After our analysis, we have limited the various trials to two alternatives. Alternative #1 includes storm sewer improvements that work in conjunction with the downstream drainage improvements contained in Alternative #1 from the Greenwood Avenue study area. Alternative #2 functions as a stand-alone option and includes storm sewer improvements in conjunction with the creation of gravity-drained flood storage at Bell Woods. This flood storage is required to offset the increases in flowrates due to the conveyance improvements. The slopes and sizes of the proposed storm sewers were designed to eliminate stormwater ponding for the 25-, 50-, and 100-year design storm events.

In addition to the storm sewer improvements, these two alternatives also involve the creation of berms at three locations along Forest Glen Drive North. These berms facilitate the establishment of the road as the emergency overland flow route instead of the side/rear yards of homes. Additionally, three sanitary sewer manholes are located in stormwater ponding areas. CBBEL recommends that the sanitary manholes be raised and sealed to prevent stormwater from entering the sanitary sewer system. We also recommend re-establishing the overland flow route between the houses on the west side of Forest Glen Drive West.

An engineer's estimate of probable cost for these concept-level alternatives is provided in Table 1.

Alternative #1 – Increase Pipe Sizes in conjunction with Greenwood Avenue Improvements

100-Year Level of Flood Protection (Exhibit 1A)

- 100-Year drainage improvements from Greenwood Avenue Alternative #1
- Upsize 10-inch Forest Glen Drive North storm sewer to 24-inch
- Upsize 12-inch Forest Glen Drive West storm sewer to 30- and 36-inch
- New 33-inch storm sewer along Forest Glen Drive and Forest Glen Drive South
- New 15-inch storm sewer behind homes on Forest Glen Drive South (private property)
- Upsize 22-inch Tower Road storm sewer to 33- and 36-inch
- Berm/regrade three areas along Forest Glen Drive North
- Raise and seal three sanitary manholes in stormwater ponding areas

50-Year Level of Flood Protection (Exhibit 1B)

- 50-Year drainage improvements from Greenwood Avenue Alternative #1
- Upsize 10-inch Forest Glen Drive North storm sewer to 21- and 24-inch
- Upsize 12-inch Forest Glen Drive West storm sewer to 24- and 30-inch
- New 30-inch storm sewer along Forest Glen Drive and Forest Glen Drive South
- New 15-inch storm sewer behind homes on Forest Glen Drive South (private property)
- Upsize 22-inch Tower Road storm sewer to 30-inch
- Berm/regrade three areas along Forest Glen Drive North
- Raise and seal three sanitary manholes in stormwater ponding areas

25-Year Level of Flood Protection (Exhibit 1C)

- 25-Year drainage improvements from Greenwood Avenue Alternative #1
- Upsize 10-inch Forest Glen Drive North storm sewer to 18-inch
- Upsize 12-inch Forest Glen Drive West storm sewer to 24-inch
- New 24-inch storm sewer along Forest Glen Drive and Forest Glen Drive South
- New 12-inch storm sewer behind homes on Forest Glen Drive South (private property)
- Upsize 22-inch Tower Road storm sewer to 24- and 27-inch
- Berm/regrade three areas along Forest Glen Drive North
- Raise and seal three sanitary manholes in stormwater ponding areas

Alternative #2 – Increase Pipe Sizes in conjunction with Bell Woods flood storage

100-Year Level of Flood Protection (Exhibit 2A)

- Provide 2 acre-feet of gravity-drained flood storage at Bell Woods
- Upsize 10-inch Forest Glen Drive North storm sewer to 24-inch
- Upsize 12-inch Forest Glen Drive West storm sewer to 30- and 36-inch
- New 33-inch storm sewer along Forest Glen Drive and Forest Glen Drive South
- New 15-inch storm sewer behind homes on Forest Glen Drive South (private property)
- Upsize 22-inch Tower Road storm sewer to 33- and 36-inch
- Berm/regrade three areas along Forest Glen Drive North
- Raise and seal three sanitary manholes in stormwater ponding areas

50-Year Level of Flood Protection (Exhibit 2B)

- Provide 1.6 acre-feet of gravity-drained flood storage at Bell Woods
- Upsize 10-inch Forest Glen Drive North storm sewer to 21- and 24-inch
- Upsize 12-inch Forest Glen Drive West storm sewer to 24- and 30-inch
- New 30-inch storm sewer along Forest Glen Drive and Forest Glen Drive South
- New 15-inch storm sewer behind homes on Forest Glen Drive South (private property)
- Upsize 22-inch Tower Road storm sewer to 30-inch
- Berm/regrade three areas along Forest Glen Drive North
- Raise and seal three sanitary manholes in stormwater ponding areas

25-Year Level of Flood Protection (Exhibit 2C)

- Provide 0.9 acre-feet of gravity-drained flood storage at Bell Woods
- Upsize 10-inch Forest Glen Drive North storm sewer to 18-inch
- Upsize 12-inch Forest Glen Drive West storm sewer to 24-inch
- New 30-inch storm sewer along Forest Glen Drive and Forest Glen Drive South
- New 15-inch storm sewer behind homes on Forest Glen Drive South (private property)
- Upsize 22-inch Tower Road storm sewer to 30-inch
- Berm/regrade three areas along Forest Glen Drive North
- Raise and seal three sanitary manholes in stormwater ponding areas

Table 1
Forest Glen Study Area Cost Summary

Alternative ID	Engineer's Estimate of Probable Cost		
	100-Year	50-Year	25-Year
Alternative #1	$685,000*	$654,000*	$631,000*
Alternative #2	$873,000	$835,000	$808,000

*Cost is in addition to cost of Greenwood Avenue Alternative #1

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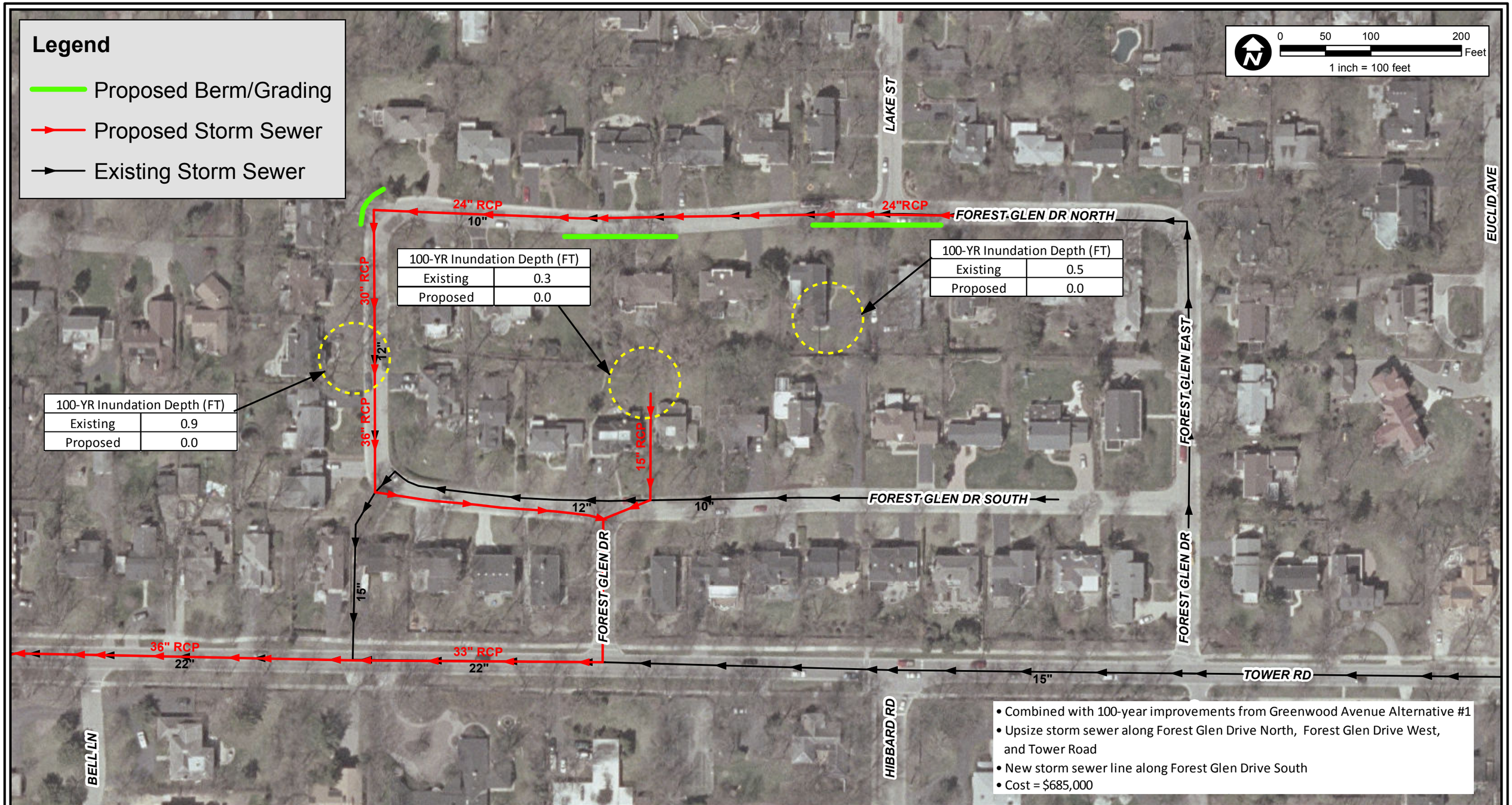

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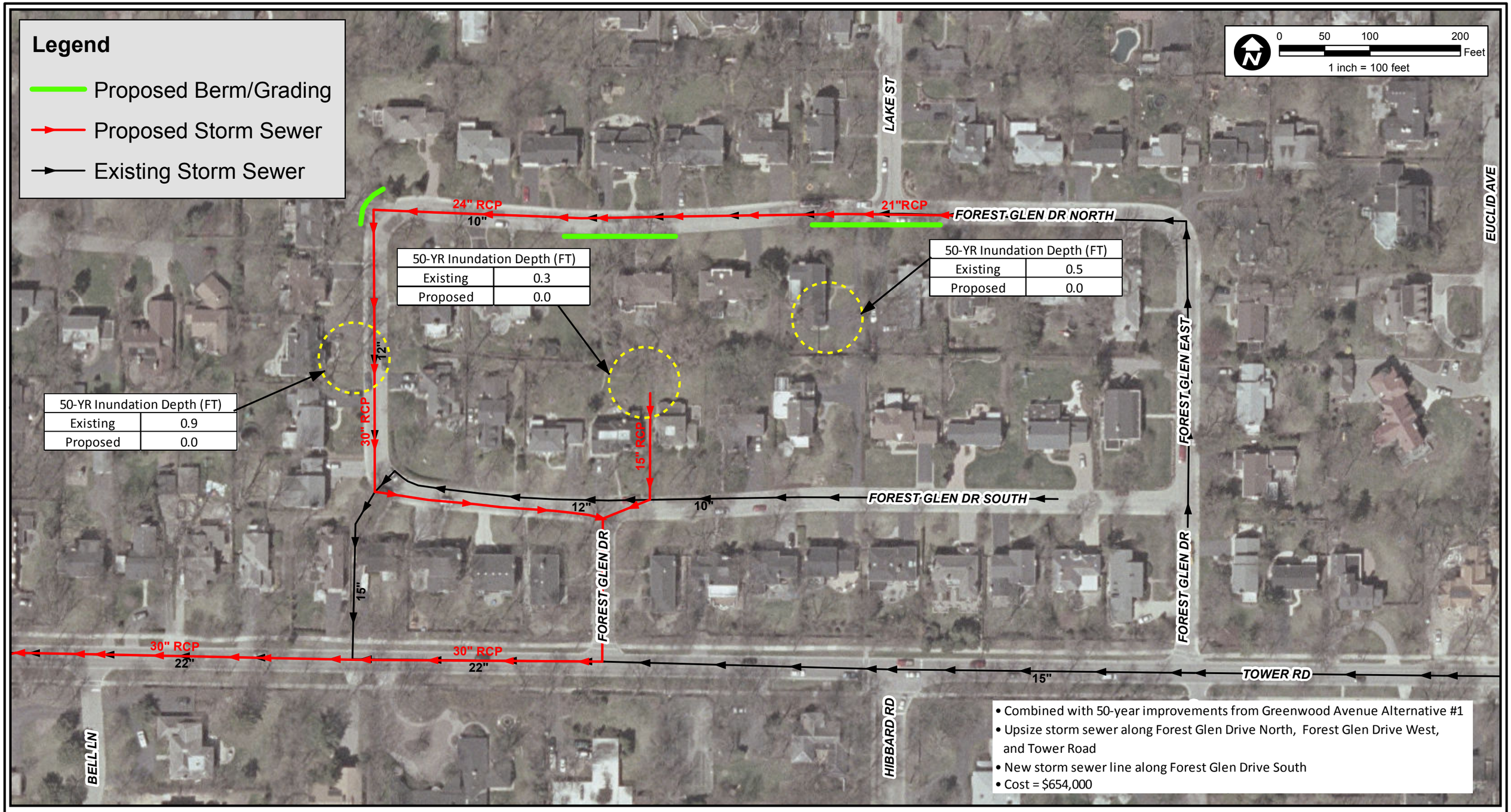
CLIENT	PROJECT NO.	
Village of Winnetka	12-0252	

TITLE

Alternative #1
Forest Glen Study Area Proposed Conditions - 100 Year Protection

DATE 6/15/12

EXHIBIT 1A



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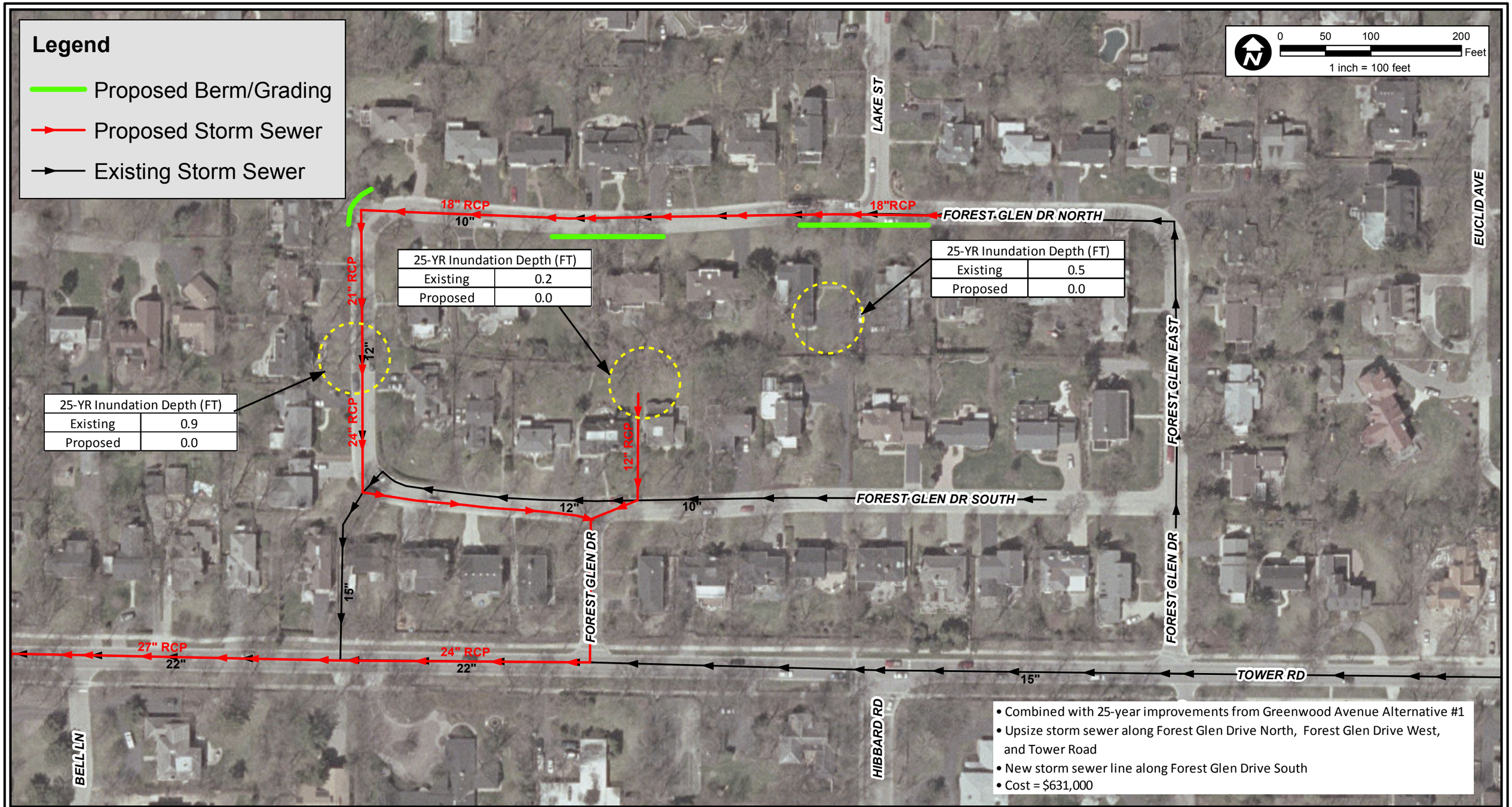
CLIENT	PROJECT NO.	
Village of Winnetka	12-0252	

TITLE

Alternative #1
Forest Glen Study Area Proposed Conditions - 50 Year Protection

DATE 6/15/12

EXHIBIT 1B



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(847) 823-0500 / FAX (847) 823-0520

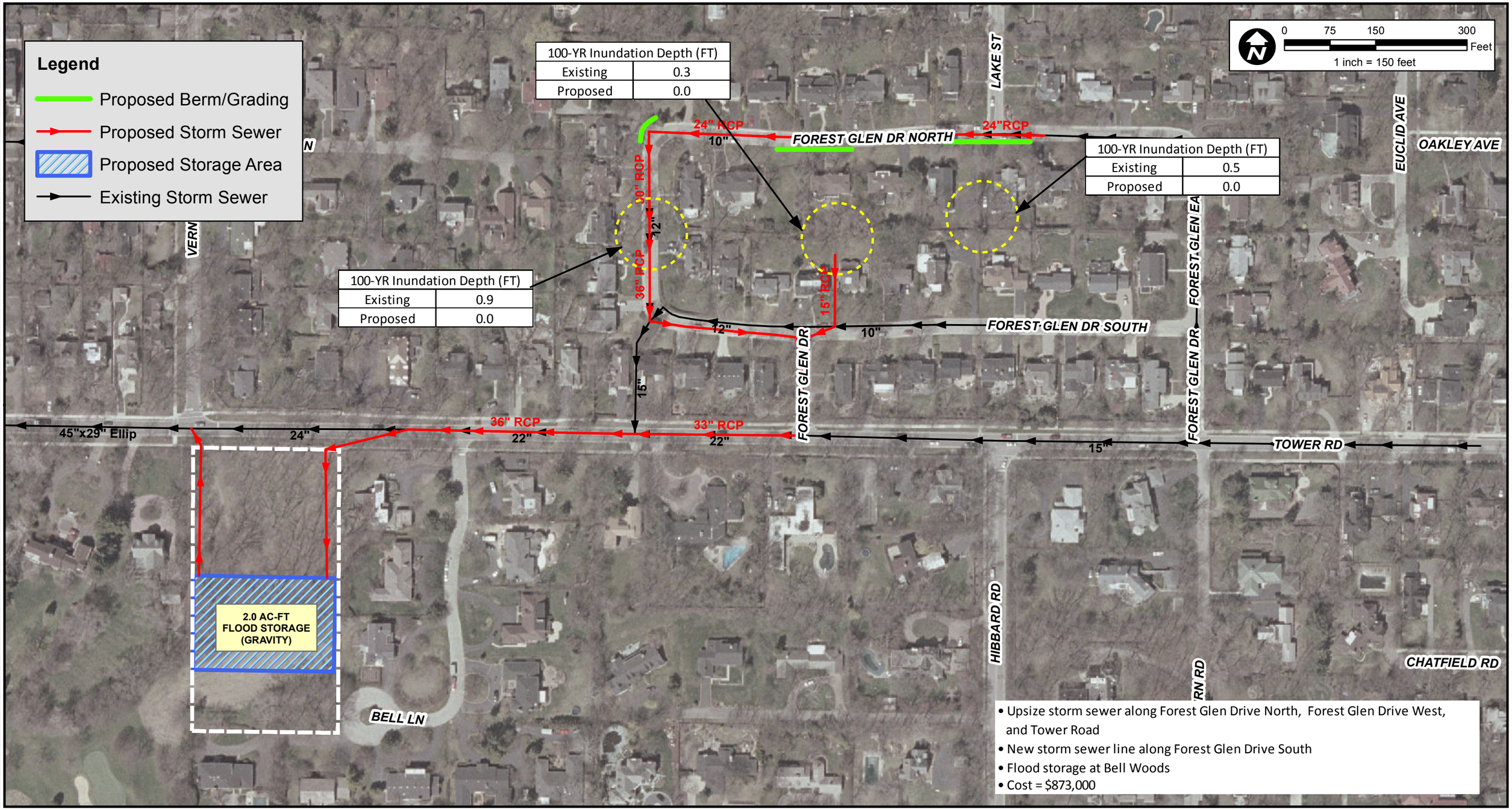
CLIENT	PROJECT NO.	
Village of Winnetka	12-0252	

TITLE

Alternative #1
Forest Glen Study Area Proposed Conditions - 25 Year Protection

DATE 6/15/12

EXHIBIT 1C



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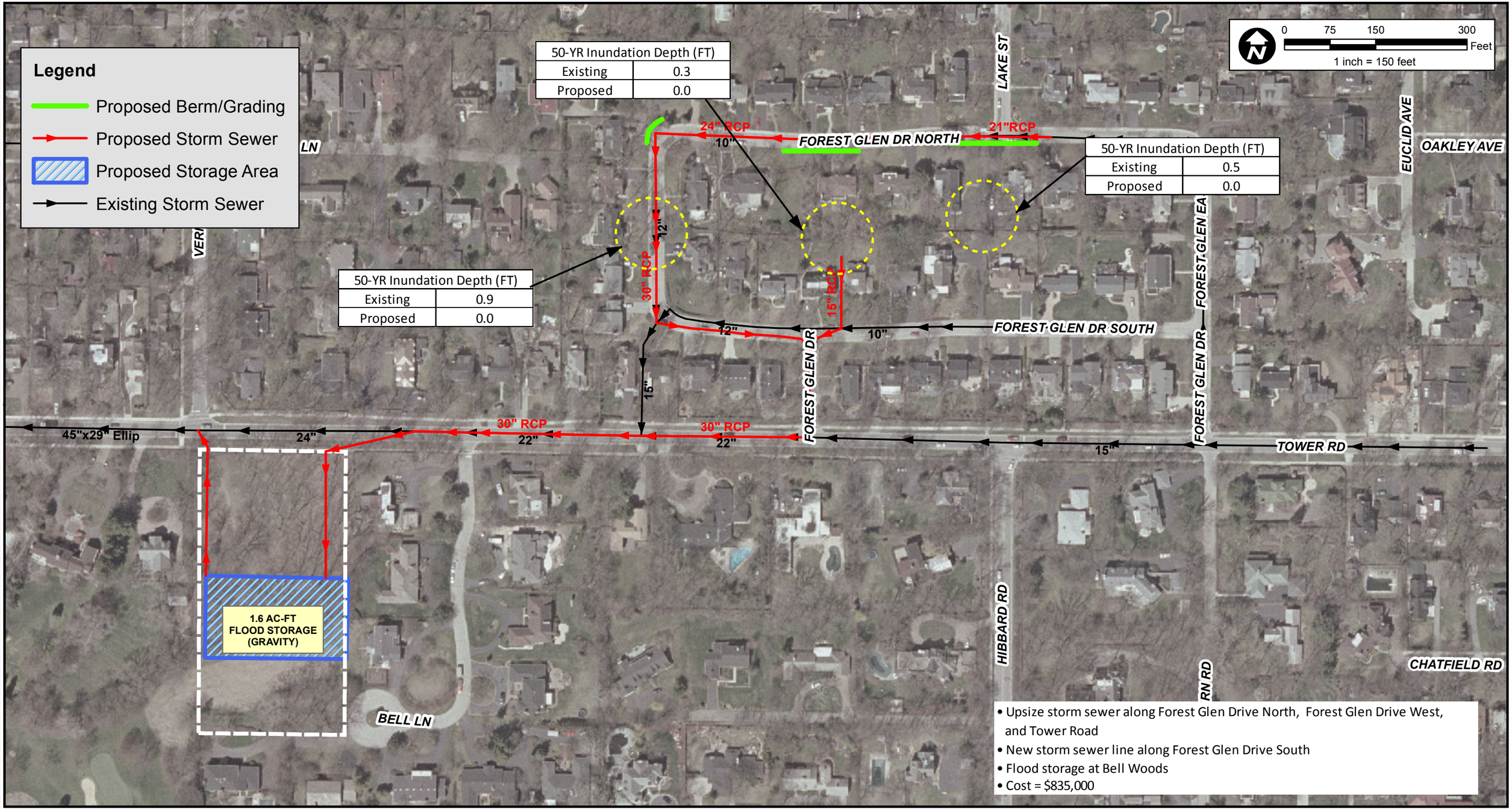
CLIENT: Village of Winnetka

PROJECT NO.: 12-0252

TITLE: Alternative #2
Forest Glen Study Area Proposed Conditions - 100 Year Protection

DATE: 6/15/12

EXHIBIT 2A



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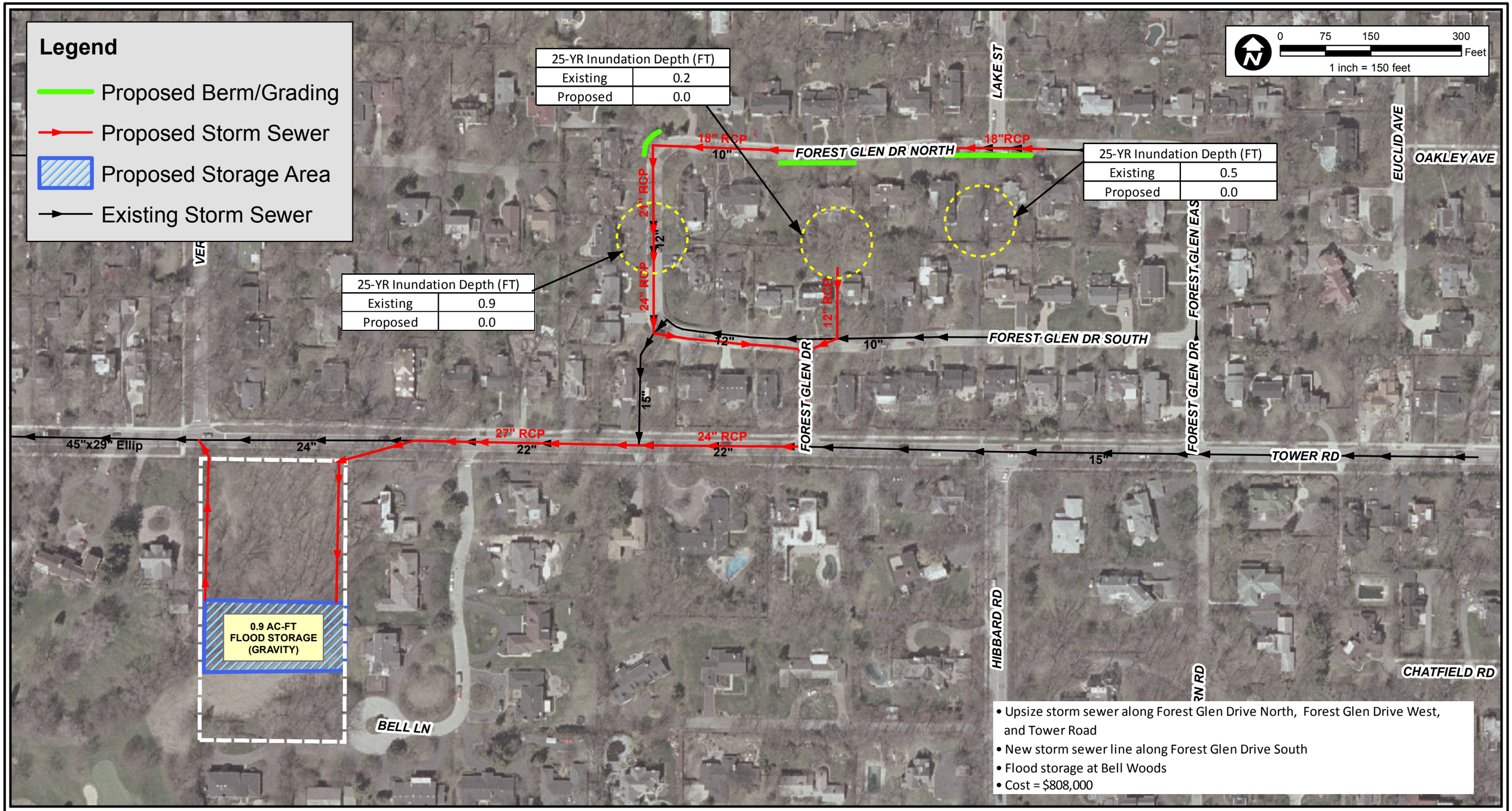
CLIENT: Village of Winnetka

PROJECT NO. 12-0252

TITLE: Alternative #2
Forest Glen Study Area Proposed Conditions - 50 Year Protection

DATE 6/15/12

EXHIBIT 2B



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CLIENT: Village of Winnetka

PROJECT NO. 12-0252

TITLE: Alternative #2
Forest Glen Study Area Proposed Conditions - 25 Year Protection

DATE 6/15/12

EXHIBIT 2C

Christopher B. Burke Engineering, Ltd.
9575 West Higgins Road, Suite 600
Rosemont, Illinois 60018
Project # 120252
Date: June 22, 2012

Village of Winnetka, Proposed Drainage Improvements
FOREST GLEN STUDY AREA - ALTERNATE 1A (100-Year)

ITEMS	UNIT	QUANTITY	UNIT PRICE	TOTAL COST
STORM SEWER, RCP 15"	FOOT	140	$45.00	$6,300.00
STORM SEWER, RCP 24"	FOOT	612	$50.00	$30,600.00
STORM SEWER, RCP 30"	FOOT	160	$65.00	$10,400.00
STORM SEWER, RCP 33"	FOOT	707	$75.00	$53,025.00
STORM SEWER, RCP 36"	FOOT	593	$85.00	$50,405.00
PROPOSED MANHOLE, 4'DIA	EACH	1	$5,000.00	$5,000.00
PROPOSED MANHOLE, 5'DIA	EACH	9	$6,000.00	$54,000.00
CLASS D PATCHES, 12 INCH	SQ YD	1230	$75.00	$92,250.00
TRENCH BACKFILL, SPECIAL	CY	1110	$45.00	$49,950.00
ADJUSTING SANITARY SEWER	FOOT	300	$100.00	$30,000.00
RAISE AND SEAL SANITARY MANHOLES	EACH	3	$600.00	$1,800.00
ADJUSTING WATERMAIN	FOOT	300	$100.00	$30,000.00
TOPSOIL FURNISH AND PLACE, 4"	SQ YD	200	$4.00	$800.00
SEEDING WITH EROSION CONTROL BLANKET	SQ YD	200	$3.00	$600.00
TRAFFIC CONTROL	LSUM	1	$20,000.00	$20,000.00
CONSTRUCTION LAYOUT	LSUM	1	$10,000.00	$10,000.00
CATCHBASIN	EACH	1	$4,000.00	$4,000.00
CURB AND GUTTER REMOVAL AND REPLACEMENT	FOOT	80	$40.00	$3,200.00
DRIVEWAY REMOVAL AND REPLACEMENT	SY	89	$70.00	$6,230.00
EARTH BERM	CY	56	$100.00	$5,600.00

SUB TOTAL =	$464,160.00
CONTINGENCY (25%) =	$116,040.00
CONSTRUCTION TOTAL =	$580,200.00
DESIGN ENGINEERING (7.5%) =	$43,515.00
CONSTRUCTION OBSERVATION (7.5%) =	$43,515.00
PERMITTING (3.0%) =	$17,406.00
TOTAL PROJECT COST INCLUDING ENGINEERING =	$684,636.00

NOTE: THIS ESTIMATE DOES NOT INCLUDE ROW ACQUISTION, TEMPORARY OR CONSTRUCTION EASEMENTS, OR RELOCATING ANY UTILITIES

Christopher B. Burke Engineering, Ltd.
9575 West Higgins Road, Suite 600
Rosemont, Illinois 60018
Project # 120252
Date: June 22, 2012

Village of Winnetka, Proposed Drainage Improvements
FOREST GLEN STUDY AREA - ALTERNATE 1B (50-Year)

ITEMS	UNIT	QUANTITY	UNIT PRICE	TOTAL COST
STORM SEWER, RCP 15"	FOOT	140	$45.00	$6,300.00
STORM SEWER, RCP 21"	FOOT	344	$48.00	$16,512.00
STORM SEWER, RCP 24"	FOOT	428	$50.00	$21,400.00
STORM SEWER, RCP 30"	FOOT	1300	$65.00	$84,500.00
PROPOSED MANHOLE, 4'DIA	EACH	1	$5,000.00	$5,000.00
PROPOSED MANHOLE, 5'DIA	EACH	9	$6,000.00	$54,000.00
CLASS D PATCHES, 12 INCH	SQ YD	1230	$75.00	$92,250.00
TRENCH BACKFILL, SPECIAL	CY	1130	$45.00	$50,850.00
ADJUSTING SANITARY SEWER	FOOT	300	$100.00	$30,000.00
RAISE AND SEAL SANITARY MANHOLES	EACH	3	$600.00	$1,800.00
ADJUSTING WATERMAIN	FOOT	300	$100.00	$30,000.00
TOPSOIL FURNISH AND PLACE, 4"	SQ YD	200	$4.00	$800.00
SEEDING WITH EROSION CONTROL BLANKET	SQ YD	200	$3.00	$600.00
TRAFFIC CONTROL	LSUM	1	$20,000.00	$20,000.00
CONSTRUCTION LAYOUT	LSUM	1	$10,000.00	$10,000.00
CATCHBASIN	EACH	1	$4,000.00	$4,000.00
CURB AND GUTTER REMOVAL AND REPLACEMENT	FOOT	80	$40.00	$3,200.00
DRIVEWAY REMOVAL AND REPLACEMENT	SY	89	$70.00	$6,230.00
EARTH BERM	CY	56	$100.00	$5,600.00

SUB TOTAL =	$443,042.00
CONTINGENCY (25%) =	$110,760.50
CONSTRUCTION TOTAL =	$553,802.50
DESIGN ENGINEERING (7.5%) =	$41,535.19
CONSTRUCTION OBSERVATION (7.5%) =	$41,535.19
PERMITTING (3.0%) =	$16,614.08
TOTAL PROJECT COST INCLUDING ENGINEERING =	$653,486.95

NOTE: THIS ESTIMATE DOES NOT INCLUDE ROW ACQUISTION, TEMPORARY OR CONSTRUCTION EASEMENTS, OR RELOCATING ANY UTILITIES

Christopher B. Burke Engineering, Ltd.
9575 West Higgins Road, Suite 600
Rosemont, Illinois 60018
Project # 120252
Date: June 22, 2012

Village of Winnetka, Proposed Drainage Improvements
FOREST GLEN STUDY AREA - ALTERNATE 1C (25-Year)

ITEMS	UNIT	QUANTITY	UNIT PRICE	TOTAL COST
STORM SEWER, RCP 12"	FOOT	140	$40.00	$5,600.00
STORM SEWER, RCP 18"	FOOT	344	$45.00	$15,480.00
STORM SEWER, RCP 21"	FOOT	428	$48.00	$20,544.00
STORM SEWER, RCP 24"	FOOT	870	$50.00	$43,500.00
STORM SEWER, RCP 27"		430	$60.00	$25,800.00
PROPOSED MANHOLE, 4'DIA	EACH	2	$5,000.00	$10,000.00
PROPOSED MANHOLE, 5'DIA	EACH	8	$6,000.00	$48,000.00
CLASS D PATCHES, 12 INCH	SQ YD	1230	$75.00	$92,250.00
TRENCH BACKFILL, SPECIAL	CY	1210	$45.00	$54,450.00
ADJUSTING SANITARY SEWER	FOOT	300	$100.00	$30,000.00
RAISE AND SEAL SANITARY MANHOLES	EACH	3	$600.00	$1,800.00
ADJUSTING WATERMAIN	FOOT	300	$100.00	$30,000.00
TOPSOIL FURNISH AND PLACE, 4"	SQ YD	200	$4.00	$800.00
SEEDING WITH EROSION CONTROL BLANKET	SQ YD	200	$3.00	$600.00
TRAFFIC CONTROL	LSUM	1	$20,000.00	$20,000.00
CONSTRUCTION LAYOUT	LSUM	1	$10,000.00	$10,000.00
CATCHBASIN	EACH	1	$4,000.00	$4,000.00
CURB AND GUTTER REMOVAL AND REPLACEMENT	FOOT	80	$40.00	$3,200.00
DRIVEWAY REMOVAL AND REPLACEMENT	SY	89	$70.00	$6,230.00
EARTH BERM	CY	56	$100.00	$5,600.00

SUB TOTAL =	$427,854.00
CONTINGENCY (25%) =	$106,963.50
CONSTRUCTION TOTAL =	$534,817.50
DESIGN ENGINEERING (7.5%) =	$40,111.31
CONSTRUCTION OBSERVATION (7.5%) =	$40,111.31
PERMITTING (3.0%) =	$16,044.53
TOTAL PROJECT COST INCLUDING ENGINEERING =	$631,084.65

NOTE: THIS ESTIMATE DOES NOT INCLUDE ROW ACQUISTION, TEMPORARY OR CONSTRUCTION EASEMENTS, OR RELOCATING ANY UTILITIES

Christopher B. Burke Engineering, Ltd.
9575 West Higgins Road, Suite 600
Rosemont, Illinois 60018
Project # 120252
Date: June 22, 2012

Village of Winnetka, Proposed Drainage Improvements
FOREST GLEN STUDY AREA - ALTERNATE 2A (100-Year)

ITEMS	UNIT	QUANTITY	UNIT PRICE	TOTAL COST
STORM SEWER, RCP 12"	FOOT	285	$40.00	$11,400.00
STORM SEWER, RCP 15"	FOOT	140	$45.00	$6,300.00
STORM SEWER, RCP 24"	FOOT	897	$50.00	$44,850.00
STORM SEWER, RCP 30"	FOOT	160	$65.00	$10,400.00
STORM SEWER, RCP 33"	FOOT	707	$75.00	$53,025.00
STORM SEWER, RCP 36"	FOOT	593	$85.00	$50,405.00
PROPOSED MANHOLE, 4'DIA	EACH	2	$8,000.00	$16,000.00
PROPOSED MANHOLE, 5'DIA	EACH	10	$8,000.00	$80,000.00
CLASS D PATCHES, 12 INCH	SQ YD	1547	$75.00	$116,025.00
TRENCH BACKFILL, SPECIAL	CY	1370	$45.00	$61,650.00
ADJUSTING SANITARY SEWER	FOOT	300	$100.00	$30,000.00
RAISE AND SEAL SANITARY MANHOLES	EACH	3	$600.00	$1,800.00
ADJUSTING WATERMAIN	FOOT	300	$100.00	$30,000.00
TOPSOIL FURNISH AND PLACE, 4"	SQ YD	200	$4.00	$800.00
SEEDING WITH EROSION CONTROL BLANKET	SQ YD	200	$3.00	$600.00
TRAFFIC CONTROL	LSUM	1	$20,000.00	$20,000.00
CONSTRUCTION LAYOUT	LSUM	1	$10,000.00	$10,000.00
EARTH EXCAVATION	CY	644	$30.00	$19,320.00
CATCHBASIN	EACH	1	$4,000.00	$4,000.00
OUTLET CONTROL STRUCTURE	EACH	1	$10,000.00	$10,000.00
CURB AND GUTTER REMOVAL AND REPLACEMENT	FOOT	80	$40.00	$3,200.00
DRIVEWAY REMOVAL AND REPLACEMENT	SY	89	$70.00	$6,230.00
EARTH BERM	CY	56	$100.00	$5,600.00

SUB TOTAL =	$591,605.00
CONTINGENCY (25%) =	$147,901.25
CONSTRUCTION TOTAL =	$739,506.25
DESIGN ENGINEERING (7.5%) =	$55,462.97
CONSTRUCTION OBSERVATION (7.5%) =	$55,462.97
PERMITTING (3.0%) =	$22,185.19
TOTAL PROJECT COST INCLUDING ENGINEERING =	$872,617.38

NOTE: THIS ESTIMATE DOES NOT INCLUDE ROW ACQUISTION, TEMPORARY OR CONSTRUCTION EASEMENTS, OR RELOCATING ANY UTILITIES

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Project # 120252
Date: June 22, 2012

Village of Winnetka, Proposed Drainage Improvements
FOREST GLEN STUDY AREA - ALTERNATE 2B (50-Year)

ITEMS	UNIT	QUANTITY	UNIT PRICE	TOTAL COST
STORM SEWER, RCP 12"	FOOT	285	$40.00	$11,400.00
STORM SEWER, RCP 15"	FOOT	140	$45.00	$6,300.00
STORM SEWER, RCP 21"	FOOT	344	$48.00	$16,512.00
STORM SEWER, RCP 24"	FOOT	713	$50.00	$35,650.00
STORM SEWER, RCP 30"	FOOT	1300	$65.00	$84,500.00
PROPOSED MANHOLE, 4'DIA	EACH	2	$8,000.00	$16,000.00
PROPOSED MANHOLE, 5'DIA	EACH	10	$8,000.00	$80,000.00
CLASS D PATCHES, 12 INCH	SQ YD	1547	$75.00	$116,025.00
TRENCH BACKFILL, SPECIAL	CY	1390	$45.00	$62,550.00
ADJUSTING SANITARY SEWER	FOOT	300	$100.00	$30,000.00
RAISE AND SEAL SANITARY MANHOLES	EACH	3	$600.00	$1,800.00
ADJUSTING WATERMAIN	FOOT	300	$100.00	$30,000.00
TOPSOIL FURNISH AND PLACE, 4"	SQ YD	200	$4.00	$800.00
SEEDING WITH EROSION CONTROL BLANKET	SQ YD	200	$3.00	$600.00
TRAFFIC CONTROL	LSUM	1	$20,000.00	$20,000.00
CONSTRUCTION LAYOUT	LSUM	1	$10,000.00	$10,000.00
EARTH EXCAVATION	CY	498	$30.00	$14,940.00
CATCHBASIN	EACH	1	$4,000.00	$4,000.00
OUTLET CONTROL STRUCTURE	EACH	1	$10,000.00	$10,000.00
CURB AND GUTTER REMOVAL AND REPLACEMENT	FOOT	80	$40.00	$3,200.00
DRIVEWAY REMOVAL AND REPLACEMENT	SY	89	$70.00	$6,230.00
EARTH BERM	CY	56	$100.00	$5,600.00

SUB TOTAL =	$566,107.00
CONTINGENCY (25%) =	$141,526.75
CONSTRUCTION TOTAL =	$707,633.75
DESIGN ENGINEERING (7.5%) =	$53,072.53
CONSTRUCTION OBSERVATION (7.5%) =	$53,072.53
PERMITTING (3.0%) =	$21,229.01
TOTAL PROJECT COST INCLUDING ENGINEERING =	$835,007.83

NOTE: THIS ESTIMATE DOES NOT INCLUDE ROW ACQUISTION, TEMPORARY OR CONSTRUCTION EASEMENTS, OR RELOCATING ANY UTILITIES

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Project # 120252
Date: June 22, 2012

Village of Winnetka, Proposed Drainage Improvements
FOREST GLEN STUDY AREA - ALTERNATE 2C (25-Year)

ITEMS	UNIT	QUANTITY	UNIT PRICE	TOTAL COST
STORM SEWER, RCP 12"	FOOT	425	$40.00	$17,000.00
STORM SEWER, RCP 18"	FOOT	629	$45.00	$28,305.00
STORM SEWER, RCP 21"	FOOT	428	$48.00	$20,544.00
STORM SEWER, RCP 24"	FOOT	870	$50.00	$43,500.00
STORM SEWER, RCP 27"	FOOT	430	$60.00	$25,800.00
PROPOSED MANHOLE, 4'DIA	EACH	4	$8,000.00	$32,000.00
PROPOSED MANHOLE, 5'DIA	EACH	8	$8,000.00	$64,000.00
CLASS D PATCHES, 12 INCH	SQ YD	1547	$75.00	$116,025.00
TRENCH BACKFILL, SPECIAL	CY	1480	$45.00	$66,600.00
ADJUSTING SANITARY SEWER	FOOT	300	$100.00	$30,000.00
RAISE AND SEAL SANITARY MANHOLES	EACH	3	$600.00	$1,800.00
ADJUSTING WATERMAIN	FOOT	300	$100.00	$30,000.00
TOPSOIL FURNISH AND PLACE, 4"	SQ YD	200	$4.00	$800.00
SEEDING WITH EROSION CONTROL BLANKET	SQ YD	200	$3.00	$600.00
TRAFFIC CONTROL	LSUM	1	$20,000.00	$20,000.00
CONSTRUCTION LAYOUT	LSUM	1	$10,000.00	$10,000.00
EARTH EXCAVATION	CY	381	$30.00	$11,430.00
CATCHBASIN	EACH	1	$4,000.00	$4,000.00
OUTLET CONTROL STRUCTURE	EACH	1	$10,000.00	$10,000.00
CURB AND GUTTER REMOVAL AND REPLACEMENT	FOOT	80	$40.00	$3,200.00
DRIVEWAY REMOVAL AND REPLACEMENT	SY	89	$70.00	$6,230.00
EARTH BERM	CY	56	$100.00	$5,600.00

SUB TOTAL =	$547,434.00
CONTINGENCY (25%) =	$136,858.50
CONSTRUCTION TOTAL =	$684,292.50
DESIGN ENGINEERING (7.5%) =	$51,321.94
CONSTRUCTION OBSERVATION (7.5%) =	$51,321.94
PERMITTING (3.0%) =	$20,528.78
TOTAL PROJECT COST INCLUDING ENGINEERING =	$807,465.15

NOTE: THIS ESTIMATE DOES NOT INCLUDE ROW ACQUISTION, TEMPORARY OR CONSTRUCTION EASEMENTS, OR RELOCATING ANY UTILITIES

ATTACHMENT #3
FY 2012-2013 STORMWATER FUND BUDGET

1.23.2012

Village of Winnetka
Schedule of Projects
(In Thousands of Dollars)

Dept. / Prog.	Description	Proj. #	Budget 11/12	Estm. 11/12	***----------Projected----------*** 2012 2013	2013 2014	2014 2015	2015 2016	2016 2017	(Est. - 17)
Other Funds						Italics if Project Over $250,000				
Refuse Fund										
Equipment		**R**								
508	Replace two scooters	1			$ -	$ -		$ 60		$ 60
	Vehicle Refurbishments	2		$ 54						
510	Leachate Migration Remediation - $1.5m	3					**	**	**	$ -
******	**Refuse Fund Total**		**$ -**	**$ 54**	**$ -**	**$ -**	**$ -**	**$ 60**	**$ -**	**$ 60**
Motor Fuel Tax Fund		**M**								
902	Street Rehabilitation	1					$ 200	$ 200	$ 200	$ 600
902	Winnetka & Green Bay Traffic Signal	2	*$ 450*		$ 500					$ 500
902	Bridge Painting (Cherry, Oak)	3				$ 110		$ 130		$ 240
902	Willow Road Phase II Engineering (Local Match)	4	$ 125		$ 125					$ 125
902	Green Bay & Oak Traffic Signal	5					*$ 250*			$ 250
902	Green Bay & Elm Traffic Signal	6							*$ 300*	$ 300
902	Willow Road Construction (Local Match)	7				$ 1,250				$ 1,250
******	**MFT Fund Total**		**$ 575**	**$ -**	**$ 625**	**$ 1,360**	**$ 450**	**$ 330**	**$ 500**	**$ 3,265**
Storm Water Fund		**SWF**								
140	Winnetka Avenue Pump Station	1	*In PW*	*In PW*	$ 750					$ 750
140	Lloyd Outlet and Tower Relief Sewer (Eng. & Const.)	2			*$ 180*	*$ 1,720*				$ 1,900
140	Greenwood Area Relief Proj. (Eng. FYE13, Const FYE14)	3			*$ 250*	*$ 2,650*				$ 2,900
140	Willow Rd. Tunnel (Eng. FYE 13-14, Const FYE 15-16)	4			*$ 800*	*$ 800*	*$ 16,000*	*$ 14,900*		$ 32,500
140	Elm St. Storm Sewer Outfall Replacement	5				*$ 250*				$ 250
140	Storm Water Rate Study & Master Plan	6			$ 100					
140	Utility Relocation Expenses	7				*$ 591*				$ 591
******	**Storm Water Fund Total**		**$ -**	**$ -**	**$ 2,080**	**$ 6,011**	**$ 16,000**	**$ 14,900**	**$ -**	**$ 38,891**