1200 Wilmette Avenue
Wilmette, Illinois 60091-0040

NOTICE OF MEETING

of the

VILLAGE BOARD COMMITTEE OF THE WHOLE

Monday, June 26, 2017
7:00 p.m.
Council Chambers, Second Floor
Wilmette Village Hall
1200 Wilmette Avenue, Wilmette, Illinois

I. Call to Order

II. Presentation of Stormwater Value-Engineering Study

III. Public Comment

IV. Adjournment

If you are a person with a disability and need special accommodations to participate in and/or attend any Village public meeting, please notify the Village Manager's Office at (847) 853-7509 or TDD (847) 853-7634. For additional information please call (847) 853-7511, the Village Clerk's Office.

Engineering and Public Works Department

(847) 853-7500
Fax (847) 853-7705

MEETING DATE: June 26, 2017

TO: Timothy J. Frenzer, Village Manager

FROM: Brigitte Berger-Raish, P.E., Director of Engineering and Public Works

SUBJECT: Stormwater Value-Engineering Study

Summary

The purpose of the June 26 Committee of the Whole meeting is to share the results of the Value-Engineering Study conducted by Stantec. Stantec's presentation will show that the proposed stormwater project to provide ten-year storm protection for all properties west of Ridge Road is the most appropriate project to achieve that goal. It will also show the cost of the project could range between $80 million to $95 million in 2017 dollars, including engineering services (12-percent of the construction cost) and a 20-percent contingency.

Background

Within the last ten years, the Village of Wilmette has experienced five storms of record exceeding a ten-year storm event (2.1 inches of rain in one hour). These storms produced rainfall intensities that resulted in widespread flooding and sanitary sewer surcharging across the west side of the Village. In response, the Village approved $26 million in projects to address sanitary sewer overflows and basement sewer backups, including the $18 million West Park Sanitary Reservoir Project. In 2014, the Village also hired Christopher B. Burke Engineering Ltd. (CBBEL) to perform a comprehensive review of the separate storm sewer system.

The goal of the stormwater study was to determine the location of critical "bottlenecks" within the system and identify projects that would improve capacity, thereby reducing overland flooding. The identified performance standard approved by the Municipal Services Committee was to eliminate flooding for the ten-year storm event. This is the industry standard used for the design of modern storm sewer systems.

CBBEL's stormwater study began with public engagement and was followed by a comprehensive hydraulic and hydrologic modeling of the storm sewer system. The analysis by CBBEL indicated the bottleneck in the system is the network of storm sewer pipes, because they are not large enough to efficiently convey stormwater to the pump station on Lake Avenue. As a result of limited conveyance capacity, flood waters can extend across yards and up to homes.

A summary of properties impacted by flooding is provided in Table 1.

Table 1. Summary of Existing Flooding Impacts

Return Storm Interval	Number of Structures Impacted[1]	Number of Parcels Flooded [2]
10-year	120	1,441
25-year	280	2,151
50-year	480	2,661
100-year	700	3,086

[1] Structures are considered "impacted" if water reaches within 1-foot of the highest lot elevation.
[2] Flood levels high enough to reach private property.

CBBEL presented a series of alternatives that would achieve the Village's goal of flood protection during a ten-year storm event. The results of the study and alternatives to address the problem were discussed at a series of Municipal Services Committee meetings in 2015 and 2016. Through these meetings, it was determined that building relief sewers to add capacity to the existing storm system would provide the greatest benefit. Known as Alterative 1, this project consists of building approximately 44,000 feet of new sewer pipe. CBBEL estimates the project would cost $77 million ($80 million in 2017 dollars).

Other alternatives, including centralized and neighborhood detention, were considered, but not chosen because of the impacts to the community and/or open space and the inability to achieve the performance standard of keeping flood levels below street level for the ten-year storm event.

The Village Board met as a Committee of the Whole on September 19 and October 20, 2016 to discuss the stormwater project. Given the high cost and impact of the proposed stormwater project, the Village Board approved $120,000 in the 2017 budget to hire an independent consultant to review and confirm the results of the CBBEL study.

Discussion

On January 24, 2017, the Village Board approved a contract with Stantec in the amount of $114,933 to conduct an independent, value-engineering review of CBBEL's stormwater study. The scope of work includes the following phases:

Phase 1 – Technical Review
Phase 2 – Alternatives Review
Phase 3 – Project Cost Review
Phase 4 – Draft Report and Presentation to the Village Board
Phase 5 – Value-Engineering Analysis
Phase 6 – Final Report

Stantec has completed the first four phases and on June 26 they will present their findings to the community. Phase 5 has not been completed and will only be executed at the Village Board's direction. The purpose of Phase 5 is to identify ways in which the construction cost and/or risks could potentially be reduced and determine if there are efficiencies that could be realized to reduce cost and improve construction productivity.

Technical Review

Stantec's presentation will show that the technical aspects of CBBEL's study are sound and the proposed relief sewer project is the best alternative to achieve ten-year protection for all properties served by the separate sewer area. Stantec did a thorough review of the data collection, model calibration and development, pump station operation and the impact to downstream conditions of the North Branch of the Chicago River. They also took a fresh look at all possible engineering solutions to address flooding in west Wilmette and determined the alternatives presented by CBBEL were appropriate.

Cost Review

Adjusted to 2017 dollars, the original CBBEL cost estimate is $80 million and the Stantec estimate is $95 million.

Given the difference between the two cost estimates, CBBEL requested an opportunity to prepare a technical memo outlining their concerns with the Stantec estimate as well as present supporting information on how their estimate was developed. This information is included as Attachment 2.

Originally, CBBEL prepared the cost estimate using historical unit prices. After reviewing Stantec's estimate, CBBEL engaged other professionals and contractors to develop an estimate utilizing the same methodology. Their supporting documentation includes independent cost reviews by Winston Engineering, two underground utility contractors and a material supplier.

Stantec used a combination of "bottom-up" pricing and unit price comparisons. Bottom up pricing is a method of estimating unit costs in the same manner a construction company would develop unit prices. This methodology uses material and equipment costs and productivity rates to determine unit prices.

Conclusion

Staff believes the methodologies used by the two firms to develop the estimates are sound, therefore the project cost could range between $80 million and $95 million. There is no way to determine the exact cost of the project until it is designed, permitted and competitively bid. Both estimates are based on very conceptual plans with a significant amount of detail yet to be determined. For this reason, the 20-percent contingency for unknown design and construction factors is appropriate at this stage of plan development. Finally, cost estimates are not static. If the Village Board determines the project should advance to 30-percent design, another detailed estimate will be prepared based on a more defined scope of work.

Attachments

1 Village Staff / Stantec Consolidated Presentation
2 Letter and Supporting documents prepared by CBBEL

THE VILLAGE OF Wilmette EST. 1872

VILLAGE OF WILMETTE STORMWATER ACTION PLAN

Committee of the Whole Meeting

June 26, 2017
7:00 PM

Purpose of Tonight's Meeting is to Present the Results of the Stormwater Value-Engineering Study

Meeting Overview

- Review of Wilmette's Sewer Systems
- Why Homes Flood
- Sewer Infrastructure Investments
- Identifying the Problem
- Public Process
- Alternative 1: Benefits and Challenges
- Value-Engineering Results

VILLAGE OF WILMETTE
STORMWATER
ACTION PLAN

Overview of Wilmette's Sewer System

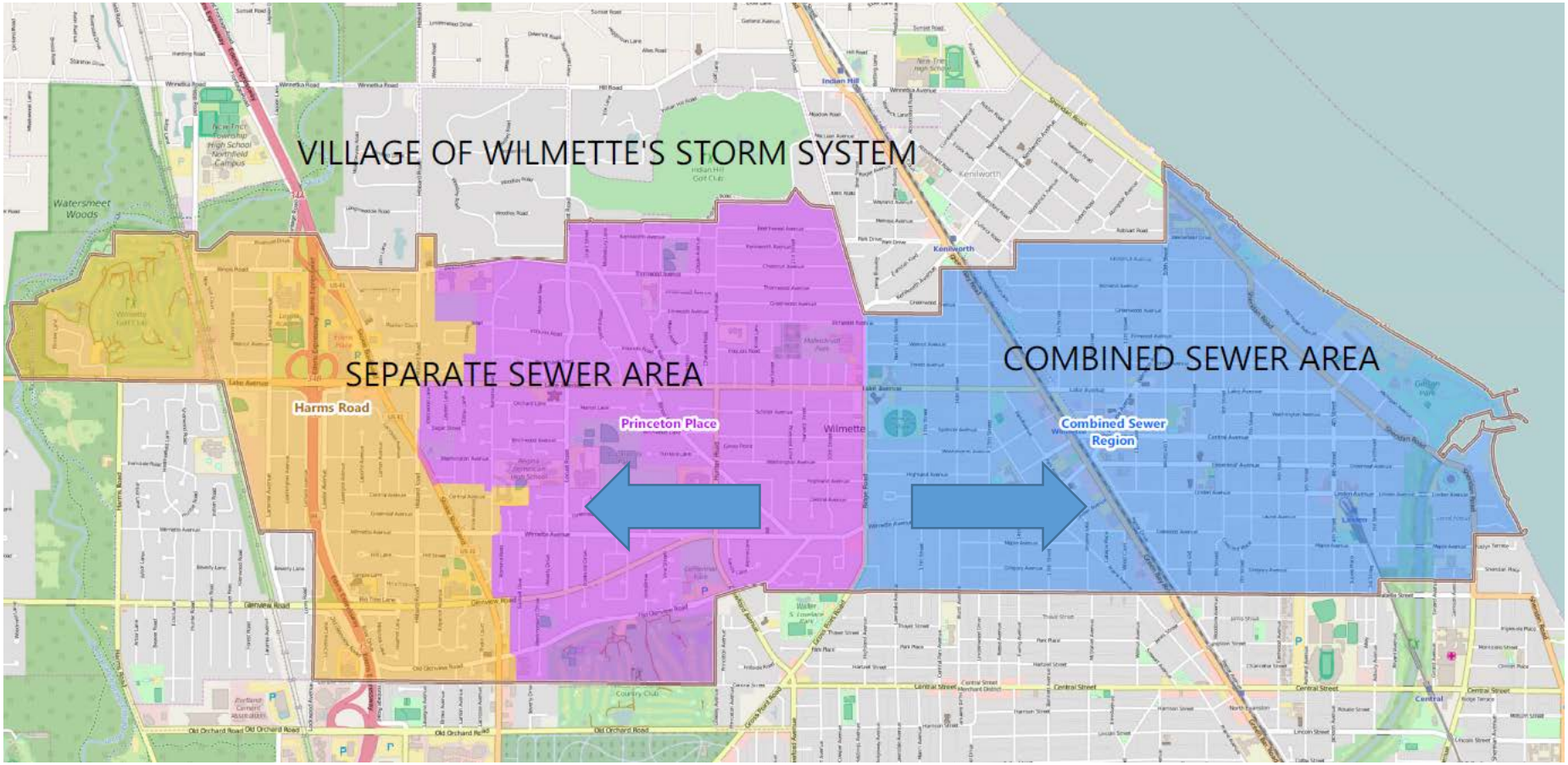
East of Ridge Road:

- Developed late 1800's to 1940's
- Combined Sewer System
- Storm and Sanitary flows to MWRDGC

West of Ridge Road:

- Developed 1930s and later
- Separate Sewer System
- Sanitary System has two outfalls to MWRDGC
- Stormwater conveyed by gravity to the Stormwater Pump Station
- Two discharge pipes to the North Branch of the Chicago River

Village of Wilmette's Sewer Systems



Ridge Road Divides the Combined Sewer Area and the Separate Sewer Area

West of Ridge Road

Separate Systems for Storm and Sanitary Water

Sanitary Sewers

Wastewater

= Basement Sewer Backups

Storm Sewers

Rainwater

= Street, Yard & Structure Flooding

Definitions

10-year storm

Storm with a 10-percent chance of being equaled or exceeded in any given year

This is approx. 2.1” inches of rain in 1 hour

100-year Storm

Storm with a 1-percent chance of being equaled or exceeded in any given year

This is approx. 3.5” inches of rain in 1 hour

Last 10 years: 5 Storms Exceeding 10-Year Event

Why Homes Flood

- Sanitary Backups
- Foundation Seepage
- Overland Flooding
- Window wells, basement doors, depressed garages
- Sump Pump Failure

It is critically important to understand why a home floods so that the appropriate flood protection measures can be installed.

Village-Wide Sewer Infrastructure Improvements

Total investment since 1990
$78 million

Combined Sewer Area

- Relief Sewers, Inlet Restrictors and Drainage Berms in the street to create temporary “street detention”

Separate Sewer Area

- Sanitary Relief Sewers
- Second Stormwater Outfall
- Backup Generator at Stormwater Pump Station

Village-Wide Maintenance

- Sewer Cleaning/ Televising / Lining

Recent Sewer Improvements

Sanitary

$26 million in improvements between 2012 – 2016

- West Park Sanitary Storage Reservoir
- Relief Sewers (Wilmette Ave and Hibbard Rd corridors)
- Manhole Rehabilitation
- Smoke Testing and Dye Flooding (on-going)

Storm

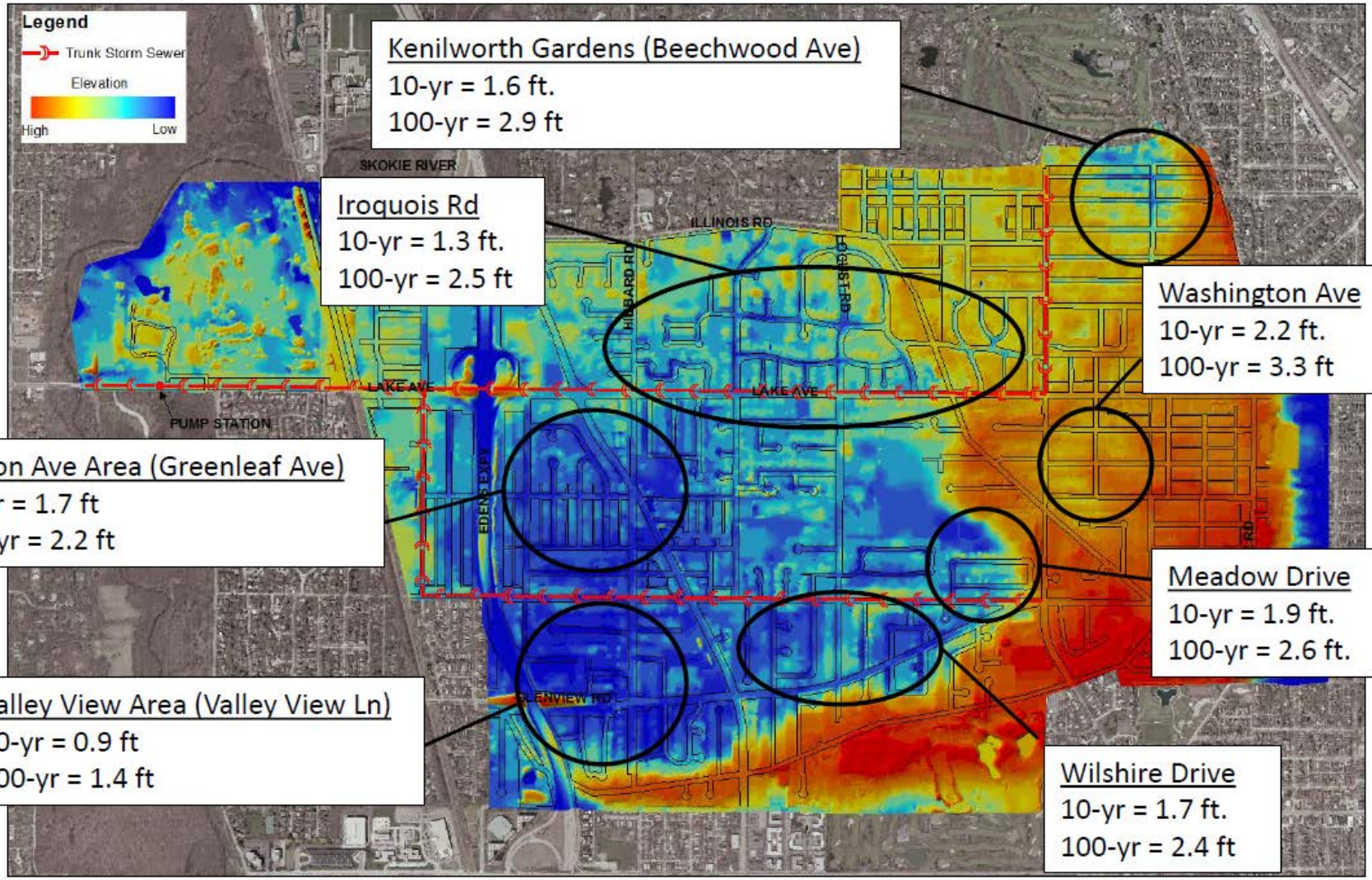
In 2013: The Village hired a consultant (CBBEL) to perform a comprehensive study of the separate storm system.

VILLAGE OF WILMETTE
STORMWATER
ACTION PLAN

Identifying the Problem

- Highly developed land
- Designed without stormwater management practices
- Limited open space
- No defined overflow routes
- **Not enough pipe capacity**

VILLAGE OF WILMETTE
STORMWATER
ACTION PLAN



Kenilworth Gardens (Beechwood Ave)
10-yr = 1.6 ft.
100-yr = 2.9 ft

Iroquois Rd
10-yr = 1.3 ft.
100-yr = 2.5 ft

Washington Ave
10-yr = 2.2 ft.
100-yr = 3.3 ft

Lamon Ave Area (Greenleaf Ave)
10-yr = 1.7 ft
100-yr = 2.2 ft

Meadow Drive
10-yr = 1.9 ft.
100-yr = 2.6 ft.

Valley View Area (Valley View Ln)
10-yr = 0.9 ft
100-yr = 1.4 ft

Wilshire Drive
10-yr = 1.7 ft.
100-yr = 2.4 ft

CBBEL: From Jan 28, 2015 MSC Presentation

VILLAGE OF WILMETTE
STORMWATER
ACTION PLAN

The Result
Existing Conditions

Storm Event	Structures Impacted [1]	Parcels Flooded [2]
10-year	120	1,441 (26%)
25-year	280	2,151
50-year	480	2,661
100-year	700	3,086 (57%)

[1] Flood water to within 1-foot of highest lot elevation
[2] Flood water reaches private property

- 5,444 total parcels west of Ridge

The Public Process

Sept 2013
The Village Board approved a contract with CBBEL for the Separate Storm Sewer Study.

Spring 2014
Held neighborhood open houses to talk to residents.

August 2014
Municipal Services Committee received an update on the Storm Sewer Study.

MSC concurred that 10-year storm protection for all properties was the appropriate performance standard.

The Public Process Continued...

Jan 2015
CBBEL presented the results of the Storm Sewer Study to the MSC.

April 2015
Village Board approved contract to study refinements of the Alternatives.

Sept 2015
CBBEL summarized the Alternatives for the MSC.

April 2016
Staff presented implementation schedule and cost analysis to the MSC.

After reviewing nine alternatives, MSC concurred that building 44,000 feet of new relief sewers (Alternative 1) was the most logical alternative.

The Public Process Continued…

Fall 2016

Committee of the Whole Meetings held to discuss the project.

Jan 2017

Village Board approved contract for a Value-Engineering Study.

Tonight

Stantec will present the results of the Value-Engineering Study.

Alternative 1: Relief Sewers

Benefits

- ✓ 10-year storm protection for all properties west of Ridge
  - No flooding during a 10-year storm
- ✓ Significant reduction in street flooding duration during 100-year storms
- ✓ Reduced surcharging of sanitary sewers
  - An estimated 30-percent reduction in sewer backups during a 10-year storm
- ✓ Less foundation seepage

Alternative 1: Relief Sewers

Challenges

- ✓ High cost: $80-$95 million (2017 dollars)
- ✓ Need funding source
- ✓ High impact – difficult to construct
- ✓ Does not protect from all storm events
  - 43% of properties would still experience some flooding during a 100-year storm

VILLAGE OF WILMETTE
STORMWATER
ACTION PLAN

Given the high cost and high impact of the project, the Village Board determined a second opinion was necessary.

Results

1. For 10-year storm protection, this is the right project
2. Cost estimates range from $80 million - $95 million

Value-Engineering Services Separate Storm Sewer System Study

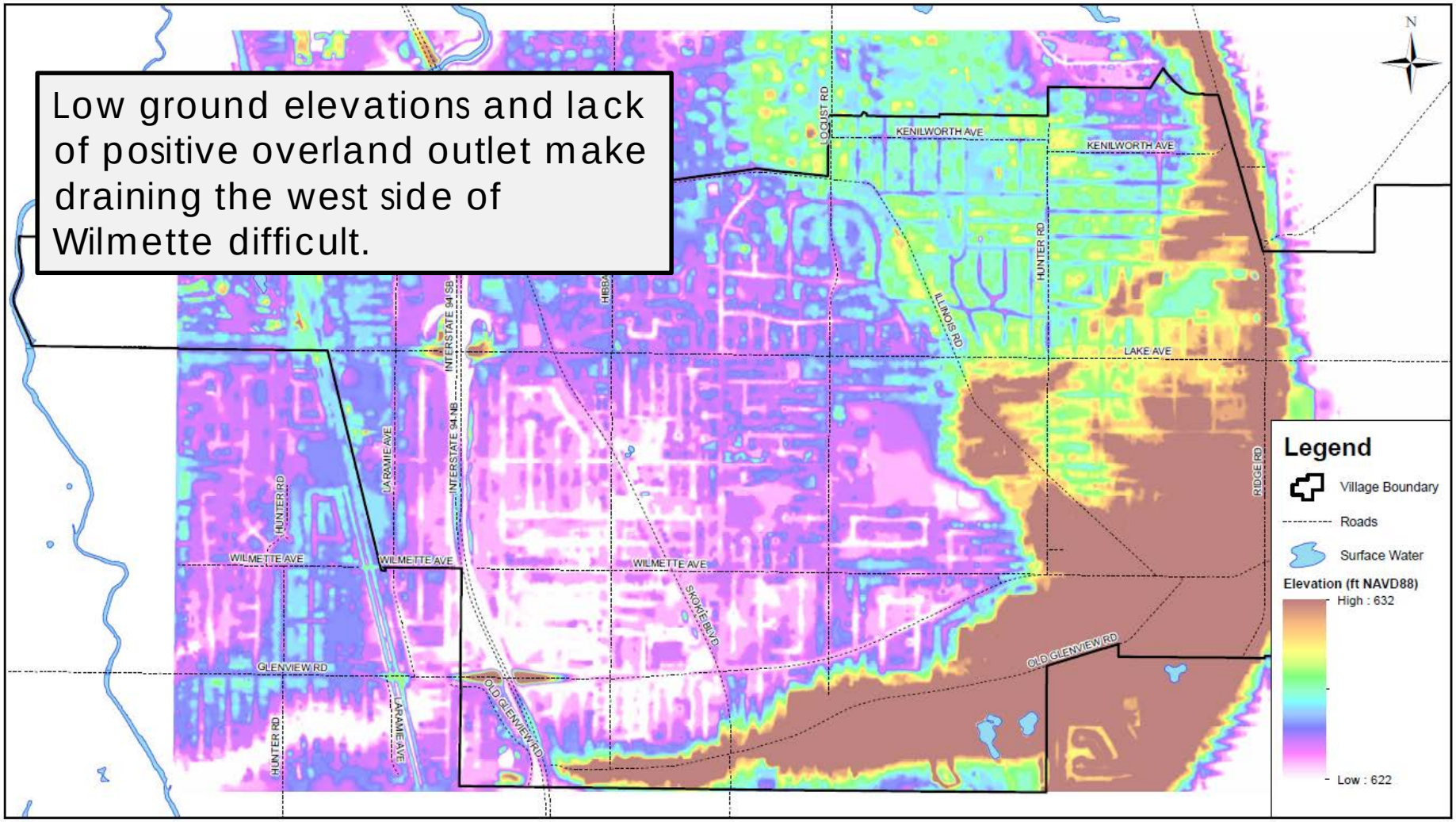
Village of Wilmette, Illinois

June 26, 2017

MWH
now part of
Stantec

Wilmette Topography

Low ground elevations and lack of positive overland outlet make draining the west side of Wilmette difficult.



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Village Objectives

Wilmette seeks to move confidently from analysis to action.

Data, Facts

- Right Solution
- Costs
- Benefits
- Uncertainty, Risks

Plan of Action

- Capital Plan
- Program Schedule
- Financing Strategy

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Stantec Work Plan - Authorized

Phase 1

- Were the data used accurate/reliable?
- Were analysis assumptions/approach appropriate?

Phase 2

- Were reasonable alternatives considered?
- Did the evaluation use the right criteria?

Phase 3

- Does the current estimate represent likely costs?
- Have major cost risk factors been assessed?

Phase 4

- Is the current project the "right" project?
- Does the Village have the information needed to confidently plan next steps?

Stantec Work Plan - Pending

Phase 5

- What refinements could be made to potentially reduce the cost of the proposed project?

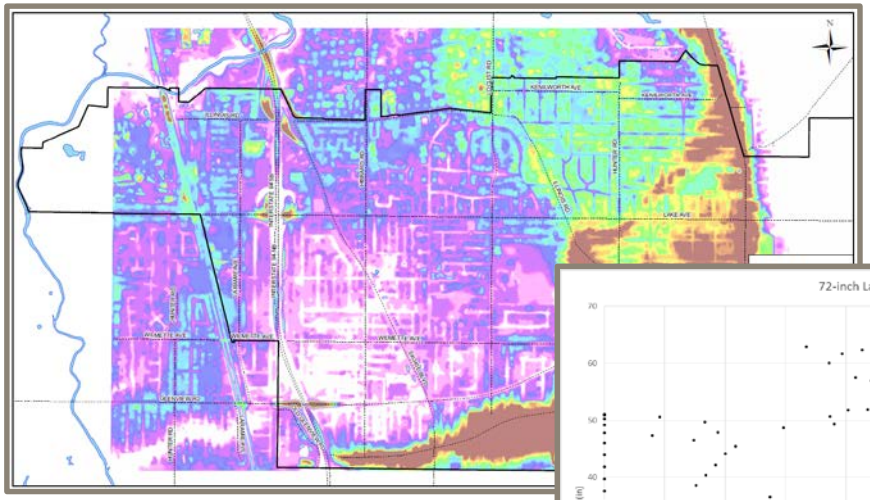
Phase 6

- Presentation of potential project refinements

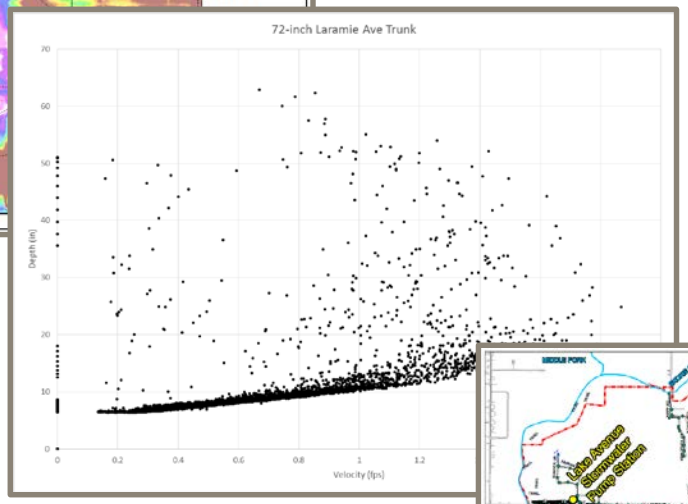
Phase 1 – Technical Review

- Review of 2015 Report and Village Discussions
- Data Collection and Review
- Flow Monitoring Data
- Pumping Station Analysis
- Model Development, Calibration, Results Review

Technical Review Elements

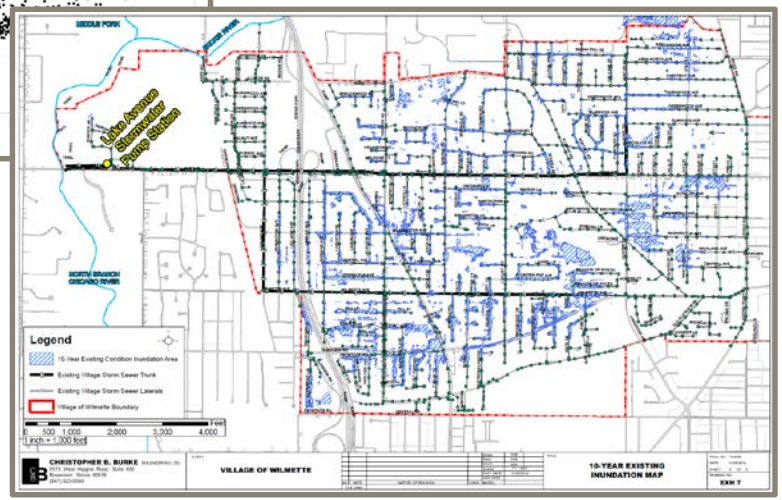


Mapping



Flow Data

Modeling



Mapping and data were used to create a model that represents drainage for the west side of Wilmette

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Key Findings – Technical Review

Phase 1

- Were the data used accurate/reliable?
  - **YES**
- Were analysis assumptions/approach appropriate?
  - **YES**

- Basic data and approach reasonable
- Sewer and surface model representation reasonable
- Calibration provides reasonable level of confidence in model
- Additional details to be developed as design proceeds

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Phase 2 – Alternatives Review

- **Review of Alternatives Set**
- **Model Representation of Alternatives**
- **Non-model Alternative Considerations**
- **Alternative Analysis Review**

Stormwater Management Options

Reduce Runoff

Limit conversion of rainfall to runoff

- Green Stormwater Infrastructure - Public
- Green Stormwater Infrastructure - Private

Manage Ponding

Control overland movement of runoff

- Establish positive overland flow routes

Store Flow

Retain runoff to reduce peak flows

- Distributed Storage
- Centralized Storage

Convey Flow

Capture/direct runoff from low areas

- Surface Inlets
- Storm Sewers
- Real Time Control

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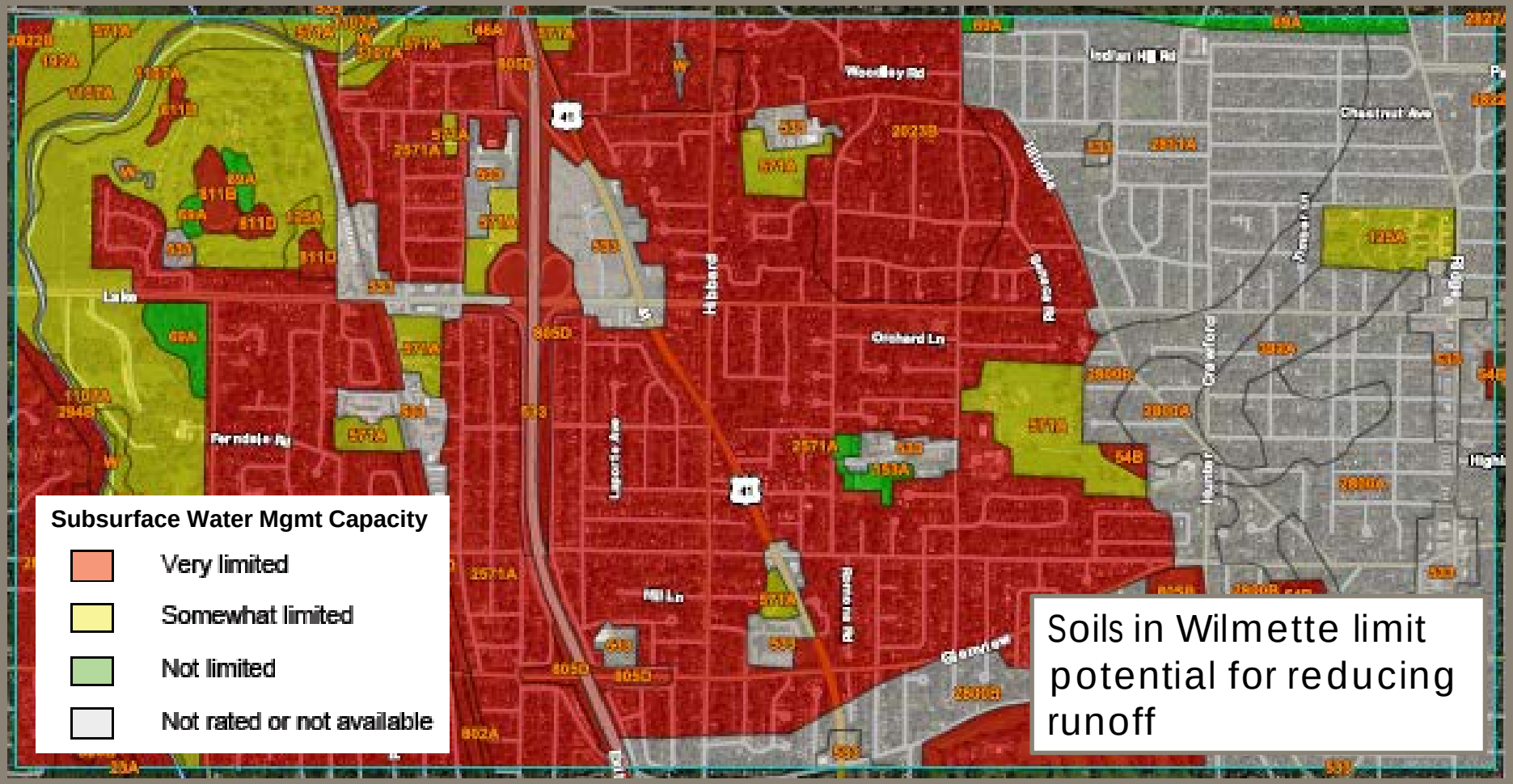
Subsurface Water Management Capacity of Wilmette Soils



Source: Natural Resources Conservation Service. National Cooperative Soil Survey.

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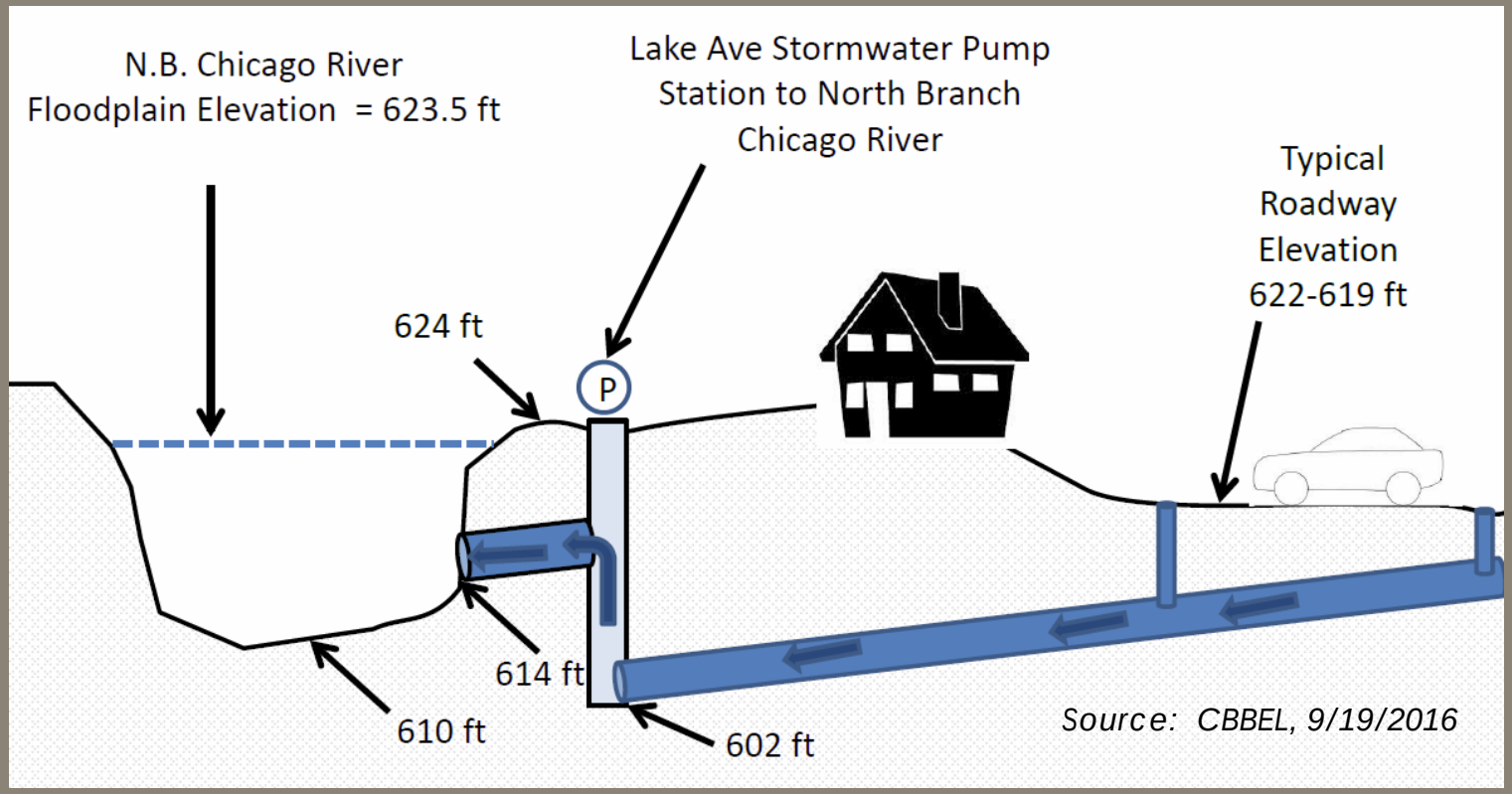
Wilmette Lacks an Overland Outlet



- Lack of natural relief limits potential for increased use of positive overland flow routes.

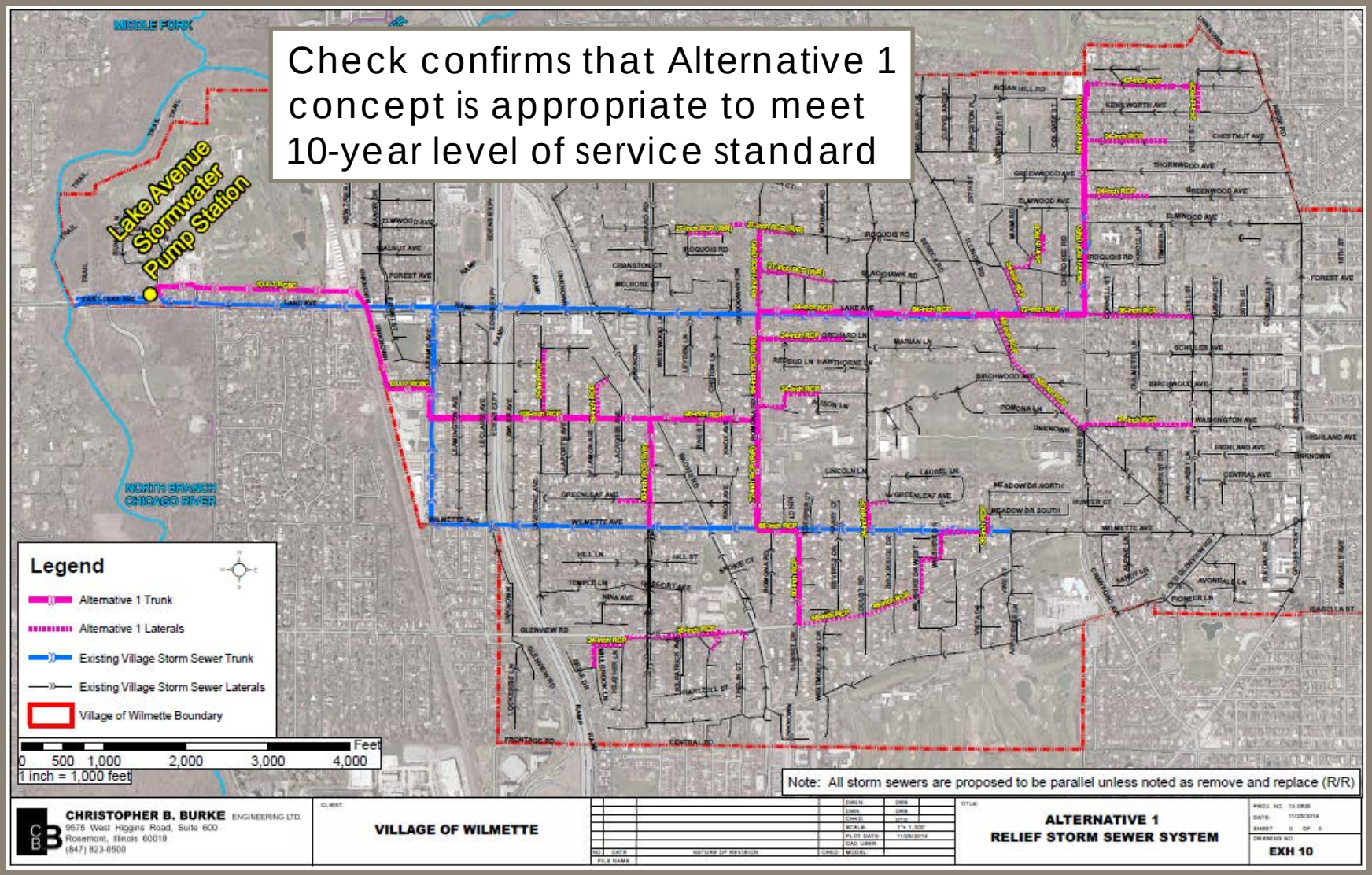
Alternative Evaluation Criteria

+ Positive O Neutral - Negative	Level of Performance	Cost/Structure Protected	Constructability Challenges	Perceived D/S Impact - Permitting	Operations/ Maintenance	Right-of-Way Impacts	Open Space Impacts
Alternative 1: Conveyance	+	**High**	-	-	O	-	O
Alternative 2: Centralized Storage	+	**Higher**	-	+	-	-	-
Alternative 3: Neighborhood Storage	-	**Highest**	O	+	-	O	-
Alternative 3a: Neighborhood Storage Plus	O	**Highest**	-	+	-	-	-

Alternative Evaluation Criteria

+ Positive O Neutral - Negative	Level of Performance	Cost relative to Benefits	Constructability Challenges	Perceived D/S Impact - Permitting	Operations/ Maintenance	Right-of-Way Impacts	Open Space Impacts
Alternative 1: Conveyance	+	**High**	-	-	O	-	O
Alternative 2: Centralized Storage	+	**Higher**	-	+	-	-	-
Alternative 3: Neighborhood Storage	-	**Highest**	O	+	-	O	-
Alternative 3a: Neighborhood Storage Plus	O	**Highest**	-	+	-	-	-

Concept Check/Design Review



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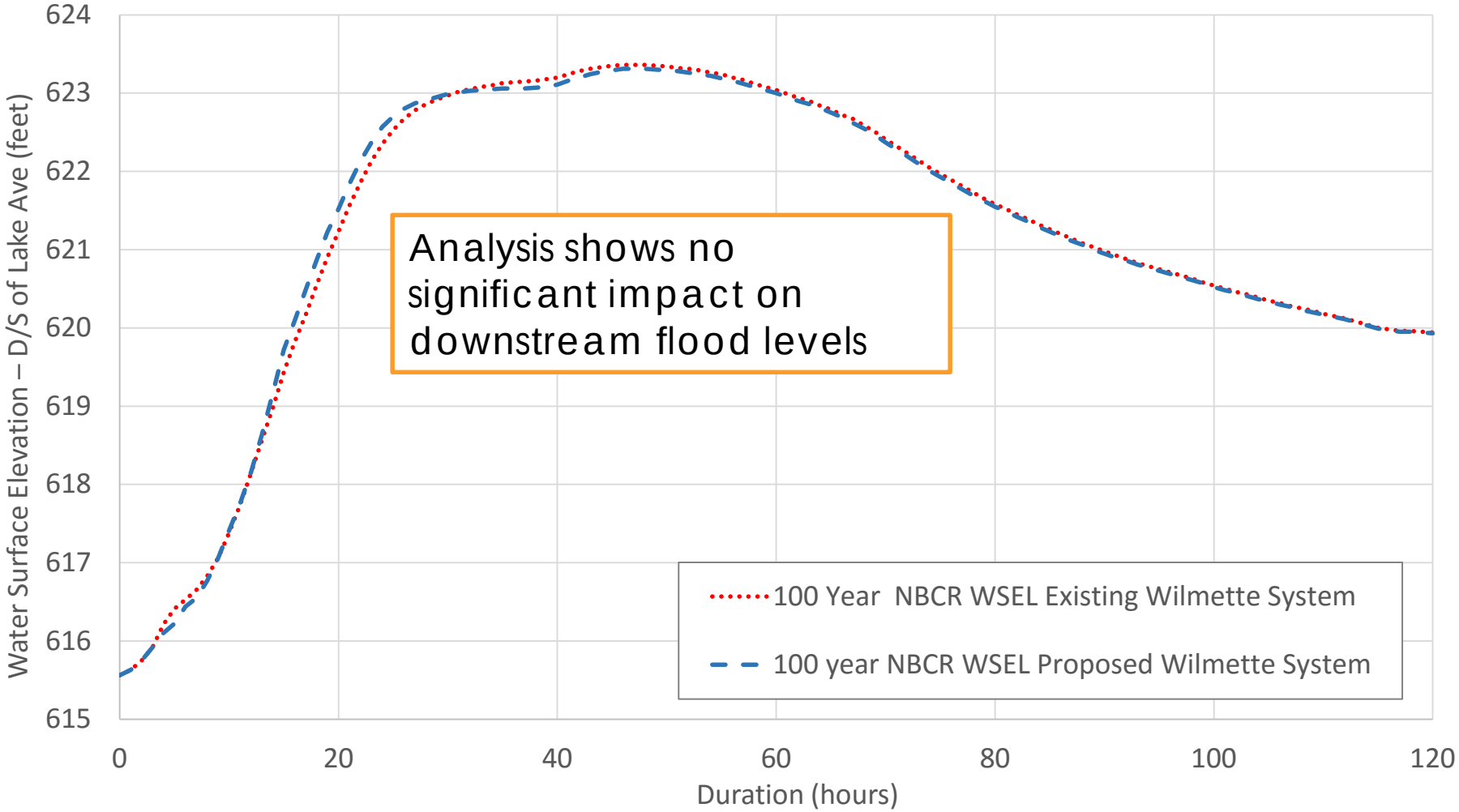
Review of Downstream Impacts on the North Branch Chicago River



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Key Findings – Alternative Review

Phase 2

- Were reasonable alternatives considered?
  - **YES**
- Did the evaluation use the right criteria?
  - **YES**

- Soils and topography limit potential for significant infiltration and/or overland flow improvements
- Lake Avenue Stormwater Pump Station is logical outlet
- Both conveyance and storage alternatives can reduce flooding for design event
- Evaluation criteria favor conveyance (Alternative 1) as preferred alternative

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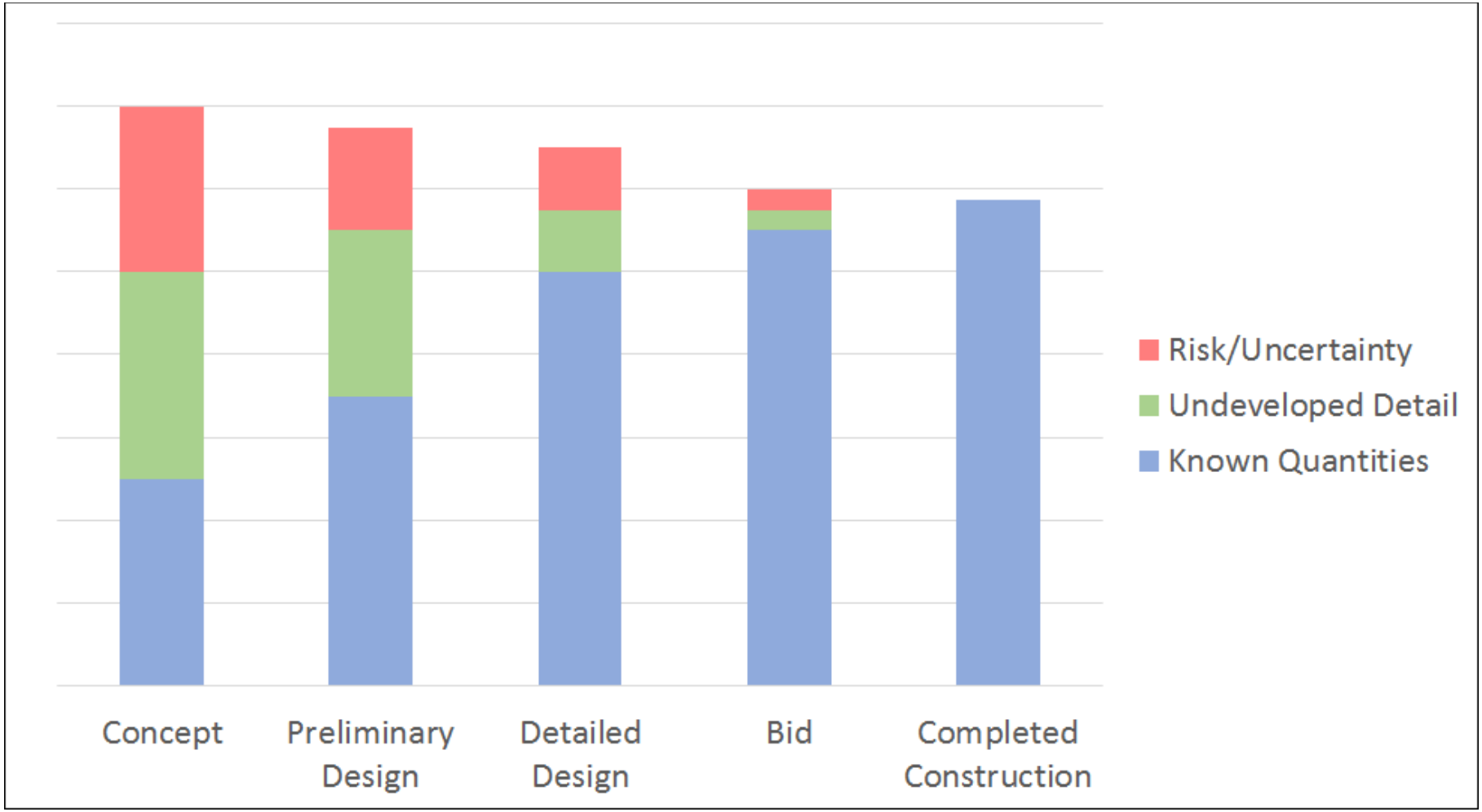
Phase 3 – Cost Review

- Methodology Review
- Design/Quantity Review
- Unit Price/Construction Price Review
- Cost Drivers
- Contingency/Other Considerations

Project Cost Progression



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AACE Estimate Classification Matrix

AACE Estimate Class	5	4	3	2	1
Project Definition	≤ 5%	5% to 20%	20% to 60%	60% to 99%	90% to 100%
End Usage	Project Screening, Capital Budget OOM Estimate	Preliminary Project Estimate, Feasibility Study	Project Funding Estimate, Fair Price Check Estimate	Project Funding Estimate, Bid Estimate	Firm Bid Estimate
Expected Accuracy (at 90% Confidence)	Low: -20% to -50% High: +30% to +100%	Low: -15% to -30% High: +20% to +50%	Low: -10% to -20% High: +10% to +30%	Low: -5% to -15% High: +5% to +20%	Low: -3% to -10% High: +3% to +15%
Typical Contingency	15% to 40%	10% to 25%	5% to 15%	5% to 15% of unexpected funds	3% to 10% of unexpected funds

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Independent Cost Review

CBBEL Approach		Stantec Review
• Modeling • Layout	**Conceptual Design**	• Concept Check • Profile Review
• Conceptual Quantity Take-off	**Estimate of Quantities**	• Quantity Take-off Review
• Bid Tab Comparison	**Unit Price Development**	• Bottom-up Pricing for Major Items • Unit Price Review for Other Items
• Typical Allowance	**Contingency Analysis**	• Risk Analysis

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Construction Challenges

- 8 miles of new storm sewer interconnected with existing storm sewers
- Narrow residential streets with utilities and parkway trees
- County, State Routes
- Challenging Crossings
  - Washington and Skokie Boulevard
  - Eden's Expressway
  - Lake Avenue\ComEd ROW\Skokie Valley Material
- Challenging connection to Pump Station

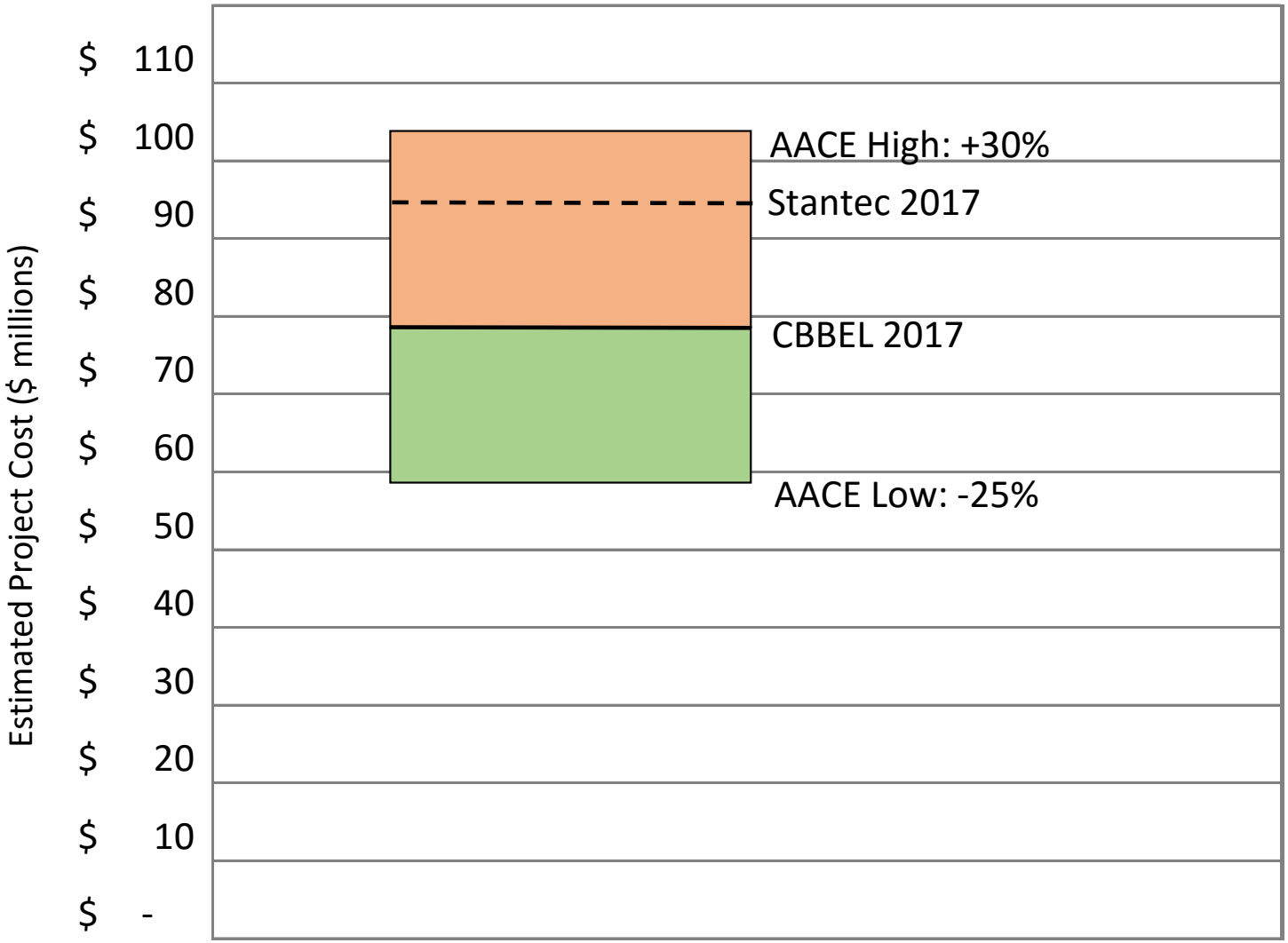
Quantity Review

Pay Item	Unit	Quantity	Quantity Assessment
Storm Sewer – Pipe	Linear Foot	44,380	Reasonable – May need to jack Skokie Boulevard
Trench Backfill	Cubic Yard	145,000	Reasonable (± 10%)
Storm Sewer – Junction Chambers	Each	4	**Low - Need Additional Chambers**
Storm Sewer – Other Structures	Each	168	Reasonable – May be able to use Base-T for some
Pumping Station Improvements	Lump Sum	1	Reasonable for Conceptual Estimate
Utility Relocation – Water, Sanitary	Linear Foot	24,510	Reasonable, but may change during design
Pavement Restoration	Various	Various	Reasonable – Assumes All Bituminous
Golf Course Restoration	Square Yd	5000	Reasonable

Project Cost Comparison

CATEGORY	CBBEL 2016 COST ($ millions)	CBBEL COST ESCALATED TO 2017 ($ millions)	STANTEC ESTIMATED COST 2017 ($ millions)	2017 STANTEC – CBBEL ($ Millions)
CONSTRUCTION COST SUBTOTAL	**$57.5**	**$59.3**	**$70.5**	**$11.2**
CONSTRUCTION CONTINGENCY (20%)	$11.5	$11.9	$14.1	$2.2
CONSTRUCTION TOTAL	**$69.1**	**$71.1**	**$84.6**	**$13.4**
DESIGN ENGINEERING (6%)	$4.1	$4.3	$5.1	$0.8
CONSTRUCTION OBSERVATION (6%)	$4,1	$4.3	$5.1	$0.8
PERMITTING	$0.25	$0.26	$0.26	$0.0
TOTAL PROJECT COST INCLUDING ENGINEERING	**$77.6**	**$79.9**	**$95.0**	**$15.0**
INCREASE OVER CBBEL ESCALATED COST (%)				18.8%

Project Cost Comparison



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Construction Cost Comparison

CATEGORY	CBBEL 2016 COST ($ millions)	CBBEL COST ESCALATED TO 2017 ($ millions)	STANTEC ESTIMATED COST 2017 ($ millions)	POTENTIAL COST INCREASE ($ millions)
UNDERGROUND - SEWER	$30.9	$31.9	$39.0	$7.1
UNDERGROUND - TBF	$4.6	$4.8	$6.5	$1.7
UNDERGROUND - JC	$0.6	$0.6	$1.7	$1.1
UNDERGROUND - STRUC	$1.6	$1.6	$1.8	$0.2
UNDERGROUND - PUMP STA	$0.8	$0.8	$0.8	$0.0
PAVING/RESTORATION	$10.9	$11.2	$11.5	$0.3
WATER/SANITARY RELO	$7.0	$7.2	$7.9	$0.7
MISCELLANEOUS	$1.1	$1.2	$1.2	($0.0)
TOTAL	**$57.5**	**$59.3**	**$70.5**	**$11.2**
INCREASE OVER ESCALATED COST				**18.9%**

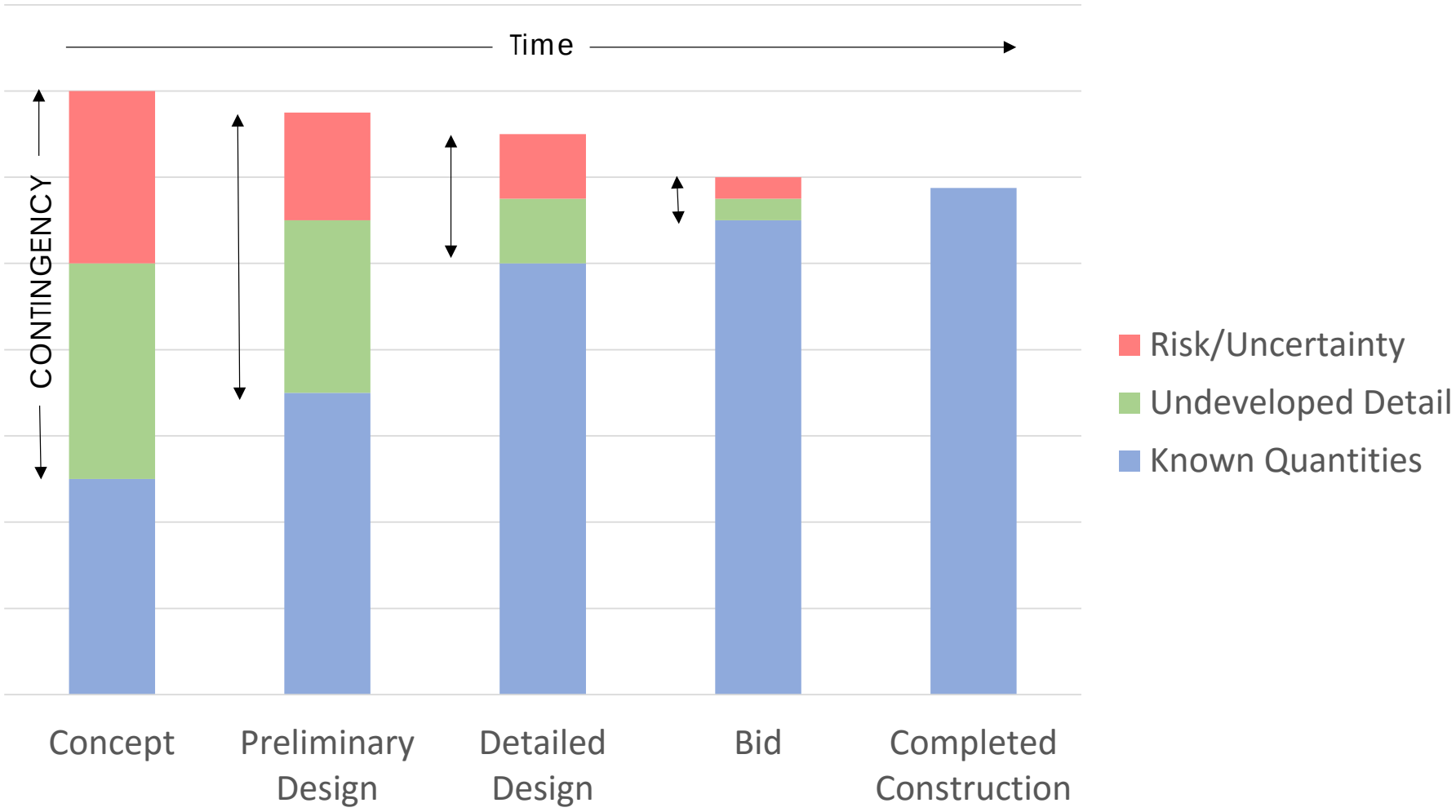
Major Construction Cost Differences

Item	Cost Difference	Comment
10’ x 7’ Reinforced Concrete Box Culvert	$1,545,700	Large Pipe – Staging – Slower Production- Trucking Costs for Excess Excavated Material
10’ x 7’ Reinforced Concrete Box Culvert (Tunneled)	$527,100	One Time Equipment Fabrication Costs – Slow Production
96” Storm Sewer (Trenchless) Hibbard & Skokie Road	$1,350,000	New Item - Trenchless Section added given upcoming IDOT intersection improvement
Storm Sewers 48” through 84” (5 pay items)	$2,932,900	Slower Production due to site constraints - Trucking Costs for Excess Excavated Material
Junction Boxes	$1,120,500	Increase in number of Junction Boxes
Trench Backfill	$1,745,800	Material Cost (CA-7) Based on Contractor Quote, February 2017
Cumulative Difference	**$9,222,000**	**10 pay items accounts for $9.2 million (> 80%) of potential increased costs**

Drivers for Increased Costs

- **Material Costs**
  - Pipe quotes obtained from local manufacturer
  - Trench backfill based on February 2017 contractor quote
- **Trucking Costs**
  - Based on contractor quote, February 2017
- **Productivity**
  - Estimator Judgment Based On:
    - 30 years Contractor Experience, Estimating and Constructing
    - Projects Constructed in the following communities:
      - Evanston - Open Cut, Concrete Structures & Tunnel
      - Elmwood Park – Open Cut & Tunnel
      - IDOT Projects – 6 County Metropolitan Chicago Area
      - City of Houston, Texas – Tunnel, Concrete Structures & Open Cut
    - Working in Constricted Residential Areas
    - Working in High Traffic Flow Areas

Role of Contingency in Estimate



Contingency

Undeveloped Detail

- Final Sewer Route, Profile
- Junction Chamber Design
- Pump Station Modifications
- ROW Restoration
- Golf Course Restoration
- Traffic Control
  - Lake Avenue (Cook County)
  - Hibbard Rd. (Cook County)
  - Glenview Rd. (IDOT)
- Project Phasing

Uncertainty/Risk

- Subsurface Conditions
  - Trenchless Crossings
  - General Excavation
- Utility Conflicts/Protection
  - 24" dia. Water (Washington)
  - 36" dia. Water (Public Works)
  - 42" dia. Water (West Park)
  - 120" dia. Sanitary (Hunter Road)
- Control of Water/Bypass Pumping

20% Contingency appropriate at current level of design

MWH. now part of Stantec

Key Findings

- Conceptual design is appropriate
- Quantities estimated are generally reasonable
  - Need to assess requirements for junction chambers and potential tunnel crossing (Skokie Boulevard)
- Final project cost will depend on details yet to be developed
  - Stantec analysis suggests that sewer construction challenges may increase project costs
  - 19% difference in estimates of project cost is not unexpected for conceptual design
  - Stantec and CBBEL estimates are both within range for current level of design

Key Findings

- 20% Contingency appropriate at this stage of design
- Next steps in project development can be tailored to manage risk related to cost uncertainty

Questions and Discussion

CHRISTOPHER B. BURKE ENGINEERING, LTD.
9575 West Higgins Road Suite 600 Rosemont, Illinois 60018 TEL (847) 823-0500 FAX (847) 823-0520

June 21, 2017

Village of Wilmette – Department of Public Works
711 Laramie Avenue
Wilmette, IL 60091

Attention: Brigitte Berger, PE – Director of Public Works and Engineering Services

Subject: Review of Stantec Cost Estimate
Wilmette Drainage Improvement Project - Alternative 1
(CBBEL Project 13-605.00002)

Dear Brigitte:

Christopher B. Burke Engineering, Ltd. (CBBEL) understands that Stantec was contracted by the Village of Wilmette to review our 2015 Stormwater Management Report for the West Side of the Village (Report). In response to their May 31, 2017 report regarding our cost estimate for Alternative 1 from the study, CBBEL has completed an exhaustive analysis of the probable construction costs. This analysis has been done at our own expense as we adamantly object to the construction costs presented by Stantec. CBBEL believes it would be a disservice to the Village and the residents of the West Side to allow an unrealistic construction cost to potentially stop or delay this project, which would provide much needed flood relief. **CBBEL can be at the June 26th Special Village Board Meeting, as we are ready, willing and able to answer any questions that the Mayor or Village Board may have regarding the attached technical memorandum.**

CBBEL completed our 2015 engineer's estimate of probable cost for the Report using conservative unit prices based on actual bid openings in 2013-2014 for similar projects. This was outlined in our December 15, 2014 memorandum to the Village. Alternative 1 from the Report was the preferred alternative with an engineer's estimate of probable cost of $77M (construction, 20% contingency and engineering) in 2016 dollars. If the engineering and contingencies are removed, the "construction cost" estimate would be approximately $57.5M in 2016 dollars and $59.3M in 2017 dollars (assuming a 3% escalation). The current Stantec estimate for "construction costs" is $70.7M. Our objections to the Stantec estimate are listed below and are presented in detail in the attached technical memorandum:

- Of the 70 line items in CBBEL cost estimate, Stantec only calculated new unit costs for approximately 20 of the items. For the nearly 50 remaining items, Stantec appears to have modified our unit costs by a ratio without any justification. The most common ratio was 1.15, but there were factors as high as 1.40. Only 1 unit cost was adjusted down using a ratio. The arbitrary use of ratios to increase unit costs results in a **$1.9M** increase in "construction cost" above the CBBEL estimate.
- The 20 items that Stantec calculated new unit costs for included large diameter storm sewer pipe of size 48-inch diameter to 108-inch diameter. Based on our discussions with contractors (Bolder Contractors, Inc., Montemayor Construction, Inc. and Welch Brothers, Inc.) and a Professional Engineer (Winston Engineering) as detailed in the attached technical memorandum, the Stantec unit costs for these items are well above the industry standard due to the following:

- The production rate of storm sewer installation used by Stantec in their pipe installation calculations was approximately 25-50% below what contactors would typically use in this area.
- The labor and equipment costs in the Stantec pipe installation calculations were higher than typical contractor labor rates.
- The Stantec overall markup of Home Office Expense, Indirect Costs, Insurance and Bonding of 30.5% for the project is approximately 10% higher than industry standard.

These inflated values result in approximately **$6.7M** increase in "construction cost" above the CBBEL estimate. For perspective on the inflated storm sewer costs, a review of one common line item (48-inch diameter storm sewer) between three recent bid openings and the Stantec estimate, Stantec's estimated unit cost would have been the 24th highest out of the 25 bids received for these three projects.

- Stantec assumed that 10 cast in place junction chambers would be required for large diameter storm sewer connections. Based on our discussion with the leading pre-fabricator in the Chicagoland area, only 7 junction chambers would be required and they could be pre-fabricated to reduce cost. These inflated values result in approximately **$1.25M** increase in "construction costs".
- The Stantec estimate included tunneling the storm sewer under Skokie Road, which may not be required. Their costs for the jacking pits were three times higher than what Bolder would estimate.
- We have re-calculated the engineer's estimate of probable cost for Alternative 1 using 2016 and 2017 unit costs from recent bid openings of similar projects. Even with adding in a 20% "North Shore" escalation factor to these updated estimates, our original estimate of $59.3M in 2017 dollars is approximately 5% above these re-calculated costs. This finding is similar to what other contractors and Professional Engineers have provided us as outlined in the attached technical memorandum.

The items above add at least ($1.9M+$1.25M +$6.7M = $10M) to the construction cost. The Professional Engineers at CBBEL that worked on this project and reviewed Stantec's cost estimate are absolutely confident that our 2015 engineer's estimate of probable cost for this project was done correctly and is conservative. This is based on our firms over 30 years of experience in local drainage improvement projects within the Chicagoland area.

Sincerely,

Christopher B. Burke, PE, PhD, D.WRE
President

Michael Kerr, PE
Executive Vice President

Thomas T. Burke, PE, PhD, D.WRE
Head Water Resources Department
Vice President

Jason Souden, PE
Head Civil Engineering Department
Vice President

Dan Crosson, PE
Construction Department Head
Vice President

John Heinz
Senior Construction Manager

Darren Olson, PE, D.WRE
Senior Water Resources Project Manager

Lee Fell, PE
Senior Project Manager

MEMORANDUM

June 21, 2017

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

FROM: Darren Olson, PE, D.WRE
Lee Fell, PE

SUBJECT: Village of Wilmette Stormwater Action Plan
Summary of Technical Review of Stantec Value Engineering Study
(CBBEL Project 130605.00002)

The purpose of this memorandum is to summarize the Christopher B. Burke Engineering, Ltd. (CBBEL) technical review of the Stantec Value Engineering Study of the 2015 CBBEL Separate Storm Sewer System Stormwater Management Report for the Village of Wilmette (Report). This review was completed at the expense of CBBEL as a service to the Village as it is our professional opinion that the costs presented by Stantec in their study are so high that they are a disservice to the Village and its residents. This review solidifies our absolute confidence in the methodology and conservative cost developed in our 2015 estimate. The following information was provided by Stantec for our review:

- Value Engineering Services Separate Storm Sewer System Study: Cost Review Findings PowerPoint Presentation by Stantec, dated May 5, 2017 and received May 16, 2017.
- Stantec Storm Sewer Estimate Spreadsheet, dated May 18, 2017.
- Stantec Pipe Size Calculations for Large Diameter Storm Sewers, dated May 23, 2017.
- Stantec Separate Storm Sewer Study Backup for Cost Review, dated May 31, 2017.

As outlined in our December 15, 2014 memorandum to the Village, the 2015 CBBEL estimate was based on detailed analysis of bid results from 2013-2014 construction projects of similar size and scope. As part of this analysis, a detailed spreadsheet was developed showing approximately 70 line items, quantities for each item and a unit cost. Alternative 1 from the Stormwater Management Report was the preferred alternative with an engineer's estimate of probable cost of approximately $77M (construction, 20% contingency and engineering) in 2016 dollars. If the engineering and contingencies are removed, the "construction cost" estimate would be approximately $57.5M in 2016 dollars and approximately $59.3M in 2017 dollars (assuming a 3% escalation). The current Stantec estimate for "construction costs" is approximately $70.7M.

A team of CBBEL Professional Engineers completed an exhaustive review of the information provided by Stantec and engaged outside contractors (Welch Brothers, Inc., Bolder Contractors, Inc., and Montemayor Construction, Inc.) and a Professional Engineer (Winston Engineering) to provide supporting calculations and documentation. The following contractors and a Professional Engineer were engaged to review the current Stantec estimate:

- Greg Wilcox, PE (President of Winston Engineering): Greg served as the Chief Operating Officer for DuPage County for over 25 years and managed the completion of over $500M in stormwater and flood management projects.
- Welch Brothers, Inc.: Welch Brothers, Inc. is a leading manufacturer in the Chicagoland area of a wide variety of precast concrete products including storm drainage systems and round and elliptical pipes.
- Bolder Contractors, Inc.: Bolder Contractors, Inc. has over 20 years of professional experience in constructing numerous large diameter storm sewer projects throughout Chicago and more specifically in the North Shore.
- Montemayor Construction, Inc.: Montemayor Construction, Inc. is a full service general contractor with over 30 years of professional experience in the Chicagoland area and in the North Shore.

Based on this work we have divided our objections into separate sections that are detailed below.

Ratios Applied to Unit Costs in Stantec Estimate

The current Stantec cost estimate utilized the 2015 CBBEL engineer's estimate of probable cost spreadsheet as the basis for their calculations. There were approximately 70 line items in the cost estimate. Only a few quantities were changed from the CBBEL estimate, but nearly all of the unit costs were changed by Stantec. Upon our review, approximately 50 of the unit costs were simply increased using a ratio ranging from 1.0 to 1.4. The most common ratio used by Stantec was 1.15, reflecting a 15% increase that was arbitrarily applied to the CBBEL unit costs. Only one unit cost was decreased using a ratio. Based on meetings and phone calls with Stantec, it was our understanding that they were completing a detailed analysis of all costs, but there was no backup in their report provided for these ratios. It is also not clear why some of the CBBEL unit costs were deemed as acceptable to use with a ratio applied and other unit costs were recalculated by Stantec. The following table shows ratios and number of times they were utilized by Stantec.

Stantec Ratio	Number of Times Utilized
1	12
1.1	1
1.12	8
1.15	14
1.2	6
1.03	4
1.0625	1
1.25	1
1.4	1
0.75	1

CBBEL re-calculated the Stantec cost estimate without the ratios and determined that the use of ratios resulted in an increase of approximately $1.9M in the cost estimate. The supporting calculations are shown in the attached spreadsheet in Appendix 5.

Inflated Costs for Large Diameter Storm Sewer Costs in Stantec Estimate

Of the nearly 20 unit costs that were re-calculated by Stantec, seven were large diameter storm sewers ranging in size from 48-inches in diameter to 108-inch in diameter. CBBEL reviewed the Stantec backup data for how the unit costs were developed for these seven items and also had them reviewed by contractors (Bolder Contractors, Inc., Welch Brothers, Inc., and Montemayor Construction, Inc.) and Professional Engineer (Winston Engineering). Based on this review, we have the following comments:

- The production rate of storm sewer installation used by Stantec in their pipe installation calculations was approximately 25-50% below what contactors would typically use in this area.
- The labor and equipment costs in the Stantec pipe installation calculations were higher than typical contractor labor rates.
- The Stantec overall markup of Home Office Expense, Indirect Costs, Insurance and Bonding of 30.5% for the project is approximately 10% higher than industry standard.

As a point of reference for how high the Stantec numbers are for large diameter storm sewers, CBBEL compared the Stantec unit cost for a 48-inch diameter storm sewer ($479/linear foot) with three large diameter storm sewer projects that were constructed from 2014-2017. These projects were located in Winnetka, Elmhurst and Franklin Park and there was a total of 25 bids received for these projects and similar in depth. The low bids for each project were $160/linear foot, $61/linear foot and $146/linear foot, respectively. The average of all the bid costs were $228/linear foot. The CBBEL estimate used in the Report was $338/linear foot, which is nearly 150% of the average (not the low bid) unit cost of all these bids. Finally, of all 25 bids reviewed for these three projects, only one bidder had a unit cost for 48-inch storm sewer that was above the Stantec unit cost. The Stantec unit cost for this item would have been the highest cost in 2 of the 3 projects. Rather than developing an accurate unit cost for this item, it appears that they provided an estimate of the highest potential unit cost. We believe this to be the case for all of their large diameter storm sewer calculations as they used the same methodology to develop all of these unit costs.

The backup information is included from the Professional Engineer (Winston Engineering in Appendix 1) and contractors (Bolder Contractors, Inc. in Appendix 2, Welch Brothers, Inc. in Appendix 3, and Montemayor Construction, Inc. in Appendix 4). Based on their comments, the inflated costs for the large diameter storm sewers increased the project cost by approximately $6.7M.

Additional Junction Chambers and Inflated Cost in Stantec Estimate

The 2015 CBBEL Report assumed that four junction chambers would be required for the project where large diameter storm sewers would connect. The first Stantec estimate assumed that 13 junction chambers would be required at a cost of $173,846 per junction chamber as they assumed the chambers would be poured in place at the job site. They reduced the number of junction chambers to 10 in their subsequent estimate for a total cost of $1.74M. As part of our current review, CBBEL worked with Welch Brothers, Inc. (Welch) to verify the cost and quantity of junction chambers required for the project. Welch is a leading local distributor of concrete construction products. Based on their review, only seven junction chambers would be required. More significantly, the junction chambers are of a size that these chambers can be precast and delivered to the job site. Welch provided estimates for fabrication of the junction chambers that range in cost from $22,000 to $48,000 per junction chamber.

Using these numbers for material cost, Bolder Contractors estimated that the cost to install all seven junction chambers would be approximately $490,000. Based on this, the inflated cost and quantity for junction chambers increased the project cost by approximately $1.25M. The backup information from Welch is provided in Appendix 3 and the Bolder cost estimate is provided in Appendix 2.

Stantec Estimate Unit Costs are Significantly Higher than Recent Bid Costs

To further establish our position that the Stantec estimate is substantially above what would reasonably be expected for a project of this type, CBBEL completed an extensive re-evaluation of the unit costs contained in the spreadsheets.

- CBBEL compiled the 8 bids that were received on a large diameter storm sewer construction project in Franklin Park that was awarded in May 2017. The average bid cost for each item (not the low bid cost) from these bids that was common between the Franklin Park project and the Wilmette project was calculated and an inflation factor of 20% was added to the unit costs to adjust for a “North Shore” factor. When these average unit costs were added into the CBBEL estimate, the estimated construction cost dropped from $59.3M to $56.8M. This was confirmed with the independent construction cost estimates provided by Bolder Construction and Winston Engineering that are $55.8M and $57.8M, respectively.

- The Stantec estimate included tunneling of 150 linear feet of 108-inch diameter storm sewer under the intersection of Skokie Road and Hibbard. The unit cost difference between traditional open cut installation and tunneling was $7,848/linear foot, which added approximately $1.2M to the project cost.

    - The quantity and pricing for the jacking shafts were determined by Bolder to be three times high than would be typical for this work.

- The Stantec estimate incorrectly stated that the pipe size was a 108-inch diameter pipe. The 2015 CBBEL report shows it as a 96-inch diameter pipe at this location.

- The assumption that this section of pipe will have to be installed with tunneling rather than the less expensive traditional open cut.

The revised cost estimate spreadsheets are included in Appendix 6.

Responses to Stantec Storm Sewer Alignment and Hydraulic Modeling Comments

In addition to our strong objection to the Stantec cost estimate for the project, CBBEL would also like to respond to two items raised by Stantec regarding the storm sewer alignment and hydraulic modeling.

- The PowerPoint presentation indicates that there is a “conflict” between the existing storm sewer system and the proposed Alternative 1 storm sewer system. There is no conflict between the existing and proposed systems as they are planned to be connected into each other to provide the maximum drainage benefit at the lowest possible cost. This comment should be removed from the Stantec summary.

- The PowerPoint presentation indicates that hydraulic losses need to be considered. CBBEL took these into consideration as part of the 2015 Report and have since performed additional sensitivity analysis. If the hydraulic losses are increased by 150% in the Alternative 1 XP-SWMM model, the peak water surface elevation changes by 0.06 ft (less than 1 inch). This comment should be removed from the Stantec summary.

DTO

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APPENDIX 1

Winston Engineering

WINSTON
ENGINEERING

Christopher Burke
Christopher B. Burke Engineering
9575 W. Higgins Road
Rosemont, IL

June 14, 2017

Dear Mr. Burke:

Per your request enclosed is our review of the estimated project cost prepared by Christopher B. Burke Engineering (CBBEL) and Stantec Engineering for the Proposed Storm Sewer Improvements for the Village of Wilmette. This review was performed by Gregory Wilcox from Winston Engineering and Jerry Fiordirosa from Rose Consulting. Gregory Wilcox has reviewed concept plan engineering estimates for major stormwater sewer projects for DuPage County for 25 years and managed completion of over $500,000,000 in stormwater and management projects. Jerry Fiordirosa has been in construction business for over 50 years and has estimated and installed large diameter storm and sanitary sewers throughout the North Shore area.

Our review concentrated on the major differences between the Stantec estimate and the CBBEL estimate. Stantec appeared to utilize the very detailed CBBEL estimate and primarily changed the CBBEL unit cost and some quantities to develop the Stantec estimate. For our review, we used the Stantec estimated costs as a base to compare against CBBEL estimate and current market prices. We summarized our findings on the attached spreadsheet and highlighted any changes to the Stantec Cost estimates in the spreadsheet. We first reviewed any differences of quantities between CBBEL and Stantec then adjusted costs to reflect our opinion of market rates for the unit price items.

Quantities:
Stantec added an augured sewer crossing at Hibbard and Skokie Rd. which was not in the CBBEL estimate. We concur with CBBEL that Skokie Blvd can be open cut as it has been done several times in the past. We changed the Stantec detailed estimate quantity to eliminate Skokie Pipe Auger and added 150 ft. to open cut line item. However, we did add a new line item for additional traffic control, temporary paving, IDOT Permitting, overtime if work will be required at night or Sunday, and other miscellaneous cost as IDOT has become more difficult in recent years.

Stantec indicated that 10 junction chambers for the large storm sewers would be required and CBBEL had only estimated 4 were required. CBBEL was assuming all but four chambers could be prefabricated whereas Stantec assumed all 10 would need to be formed in place. After contacting a major local supplier, we determined that all but seven of the structures could easily be prefabricated. Based on this we changed the quantity of the Junction Chambers in the Stantec Estimate to 7. We also discovered that all Junction Chambers can be custom pre-fabricated which would reduce Stantec and CBBEL unit costs for Junction Chambers in half but in keeping with the conservative philosophy of both estimates we did not include this reduction in our estimate.

2256 Southwind Blvd. Bartlett, IL 60103 O: 630.503.5028 F: 630.497.8072

WINSTON
ENGINEERING

Unit Price Items:
We then analyzed Stantec unit price items for all line items that had a delta greater than $15,000 from the CBBEL Estimate. We assumed that the Stantec unit cost was correct for all line items except new large diameter storm sewer pipe installation. We found that Stantec included a mark-up of 30.5% for all unit costs which is much higher than the market rate. Our discussions with several contractors and JF Rose 50 years' experience determined that jobs of this size rarely get 15% markup. But in keeping with the ultra-conservative pricing we adjusted Stantec unit price items to reflect a 20% mark-up. This reduced all line items shown in red by 8.05% on our attached spreadsheet.

For new storm sewer pipe installation, an additional reduction in unit prices was made as production rates for all pipe installation were projected to be ¼ the rate of production quoted by Contractors who have worked in the area and are familiar with the soil conditions which will most likely be encountered. As an example, Stantec estimated for 84 inch diameter pipe installation that they would only lay 3.2 ft./hr. which will take 216 days (@10 hr./day) using a 5.2 yd3 excavator to install this pipe. Stantec estimated total volume removed by excavator to be 41,020 yd3 for the 84 inch pipe – which means 6 yd3 of spoil needs to be removed per foot of pipe. According to several contractors, loading and excavating with 5.5 yd3 machine at these depths the rate will be a minimum of 150 yd3 per hour or take 20 minutes to remove the 48 yd3 of spoil for one length of pipe. Assuming 15 minutes for using the same excavator to set the pipe you should be able to lay an 8 ft section of pipe every 35 min. or 15 lengths of pipe in 9 hrs. of the 10-hour day. This equates to 120 feet in "10" hr. day or 12 feet per hr. This is almost 4 times greater than Stantec estimate for production. For the 108 inch diameter the production rate is even greater as they have dedicated crane for installing pipe. Similarly, all production estimates appear to be off by a factor of four or more. But in keeping with the ultra-conservative pricing we only assumed Stantec production rate to be half the current contractor production rates. This cut labor and equipment costs in half for all pipe installations decreasing the unit price cost on average by 20%. We applied this reduction to all new storm sewer pipe installations and these revised costs are shown on our attached spreadsheet.

Using just these changes above this reduced the Stantec Estimate to $57,781,464 which is about the same as the original CBBEL estimate of June 22, 2016 if you include 3 additional Junction Chambers in the CBBEL estimate. We believe this original CBBEL estimate to be very conservative and more accurate estimate.

It is our opinion that the June 22, 2016 CBBEL estimate is extremely conservative especially when adding 20% contingency. We believe that there will be more reduction in costs during final engineering than unforeseen increase in costs. We would recommend using the original CBBEL estimate of June 22, 2016 with no more than 15% Contingency.

Sincerely,

Gregory W. Wilcox
President

2256 Southwind Blvd. Bartlett, IL 60103 O: 630.503.5028 F: 630.497.8072

APPENDIX 2

Bolder Contractors, Inc.

BOLDER

Contractors, Inc.
Sewer, Watermain and Road Construction

316 Cary Point Drive
Cary, IL 60013

847.236.0785
Fax 847.236.0786

6/7/17

Mr. Lee Fell
CBBEL
9575 W. Higgins
Rosemont, IL 60018

Re: Village of Wilmette Storm Sewer
Opinion of Cost

Dear Sir,

We are happy to provide our input and opinion of probable cost for this potential project. We have engaged in numerous large diameter storm sewer projects in recent years throughout the Chicago area including Wilmette. What we have intended to provide are estimates of likely costs of several key aspects of the project. I have tried to examine most of the unit prices as singling out a few can provide limited information. I would also recommend soil boring information as the ground conditions for this work can play a big role in the cost. The following are my findings relative to the Stantec initial Cost Review. These are not necessarily the unit prices we would use in a bid but are providing this for illustration. We have the CBBEL conceptual plan as it is our understanding that detailed engineering drawings have not been developed.

1) Stantec has assumed a 30.5% markup for overhead and profit. While this is a very conservative approach, it has not been reality. A more accurate percentage would be 20% of the total cost. While this number will change from contractor to contractor, to me it is a likely average and much more in tune with the past and current market. This 10% difference alone provides a large dollar amount.
2) I firmly believe the unit prices for the storm sewers are quite high. I randomly figured costs on 4 various pipe sizes and have provided my backup and logic to these costs. My findings are as follows, using a 20% markup as previously suggested. (Numbers are rounded.)

	Bolder	Stantec	Burke
24" rcp	$128/lf	$230/lf	$192/lf
48" rcp	$280/lf	$480/lf	$328/lf
84" rcp	$710/lf	$1119/lf	$1000/lf
10x7 box culvert	$1205/lf	$2233/lf	$1800/lf

These numbers provide a difference of 57%-85%. What I found is that the Stantec estimate provided for a much larger crew size than is actually used and a much, much slower rate of production installation than we experience. Also, the amount of spoil removal (including bedding stone to 12" over the pipe) seems overly conservative. This seems consistent in the Stantec worksheets I reviewed.

3) I found the quantity and pricing for the Jacking shafts to be quite high. At 25ft deep and rectangular 12'x36' the quantity should be 4800sf for both sides versus the 7200sf in their estimate. Also the $147/sf price for the jacking shaft is likely triple what we would carry for that work.

4) I believe the junction chambers will be precast and therefore much less expensive. Given that the sizes of the chambers and particulars are not known, this item is harder to estimate. However, we have done similar type of work on large chambers and our unit price for this has ranged from $40,000- $95,000 (vs Stantec price of $174,000 each).
5) My opinion is that the trench backfill price is accurate or even low using ca7 material. I do think a cheaper alternative is available using FA6 or CA6. This could save $5-$10/cy.
6) I believe the surface restoration items are mostly accurate in both estimates. I have attached a recent paving quote for a project with substantial paving quantities. I would agree that the class d patch item should be much less ($66/sy vs $104/sy) based on an 8" thick patch.
7) The watermain and sewer relocations/service relocations seem reasonable although the quanity is difficult to identify in this stage of preliminary engineering.
8) We have completed several similar projects recently of larger diameter sewers with significant surface restoration and service relocations. These projects had pipe up to 96" and otherwise similar scope albeit smaller. One project averaged $720/lf while the other was $912/lf of main line sewer. This project has 44,380 feet of main line sewer and using $912/lf would yield an approximate estimate of $40.5M. Given the larger size sewers, large jacking pipe and geographical challenges here I would expect the work in Wilmette to cost at least 10%-20% more than this rough $40.5M estimate. It appears to me that the CBBEL estimate amounts to approximately $1328/lf and the Stantec estimate of $1612/lf.

Please contact me with questions or concerns.

Sincerely,

Bob Gwiasda

Analysis of Estimated Project Costs
Village of Wilmette, Proposed Storm Sewer Improvements
ALTERNATIVE 1 - New Trunk and Lateral Storm

Last Update: 05/19/2017
Last Update by: CBBEL

Instructions:
Columns Q through U are currently set to the escalated CBBEL values and can be used as the template for adding new estimates to the table. To create an updated estimate, copy and past the last 5 columns in the spreadsheet table to the far right end of the table. Then revise the title block and any quantities or unit prices to generate a new total. Delta values are computed relative to the Escalated CBBEL numbers shown in Column K.

Christopher B. Burke Engineering, Ltd. Project Number: 13-0605 Revised: June 22, 2016		Christopher B. Burke Engineering, Ltd. Project Number: 13-0605 Escalation to 2nd Qtr, 2017 (April 30, 2017)		Stantec Project Number: 173440064 Initial Cost Review (April 30, 2017)		Delta from CBBEL Escalated	Winston Engineering L.L.C. JF Rose L.L.C. Revised Stantec Cost 6/9/17	
UNDERGROUND - SEWER	$30,935,930	UNDERGROUND - SEWER	$31,864,008	UNDERGROUND - SEWER	$39,261,336	$7,397,328	UNDERGROUND - SEWER	$30,437,555
UNDERGROUND - TBF	$4,640,000	UNDERGROUND - TBF	$4,779,200	UNDERGROUND - TBF	$6,525,000	$1,745,800	UNDERGROUND - TBF	$6,000,000
UNDERGROUND - JC	$618,000	UNDERGROUND - JC	$618,000	UNDERGROUND - JC	$2,259,998	$1,641,998	UNDERGROUND - JC	$1,119,009
UNDERGROUND - STRUC	$1,573,500	UNDERGROUND - STRUC	$1,620,705	UNDERGROUND - STRUC	$1,809,525	$188,820	UNDERGROUND - STRUC	$1,543,280
UNDERGROUND - PUMP STA	$800,000	UNDERGROUND - PUMP STA	$824,000	UNDERGROUND - PUMP STA	$824,000	$0	UNDERGROUND - PUMP STA	$824,000
UNDERGROUND - REST	$92,500	UNDERGROUND - REST	$95,275	UNDERGROUND - REST	$253,500	$158,225	UNDERGROUND - REST	$233,103
PAVING	$10,638,000	PAVING	$10,957,140	PAVING	$11,276,850	$319,710	PAVING	$8,889,161
WM/SANITARY RELO	$7,135,575	WM/SANITARY RELO	$7,349,642	WM/SANITARY RELO	$8,143,951	$794,309	WM/SANITARY RELO	$7,488,691
MISCELLANEOUS	$1,132,000	MISCELLANEOUS	$1,165,960	MISCELLANEOUS	$1,289,198	$123,238	MISCELLANEOUS	$1,191,664
TOTAL	$57,547,505	TOTAL	$59,273,930	TOTAL	$71,643,358	$12,369,428	TOTAL	$57,726,464

ITEMS	UNIT	Category		QUANTITY	UNIT PRICE	TOTAL COST	QUANTITY	UNIT PRICE ESCALATED 3%	TOTAL COST 2017	QUANTITY	UNIT PRICE	TOTAL COST	Notes	Delta from Escalated CBBEL	QUANTITY	UNIT PRICE	TOTAL COST		Delta from Escalated CBBEL
PRECAST CONCRETE BOX CULVERTS 10' X 7'	FOOT	UNDER-SEWER	1	4,100	$1,800.00	$7,380,000.00	4,100	$1,854.00	$7,601,400.00	4,100	$2,231.00	$9,147,100.00	Length confirmed to be reasonable	$1,545,700.00	4,100	$2,051.49	$8,411,126.44	Overhead Reduction	$809,726.44
PRECAST CONCRETE BOX CULVERTS 10' X 7' (AUGURED)	FOOT	UNDER-SEWER	1	100	$6,500.00	$650,000.00	100	$6,695.00	$669,500.00	100	$11,966.00	$1,196,600.00	Cost assumes box section would be jacked in place	$527,100.00	100	$11,003.22	$1,100,321.84	Overhead Reduction	$430,821.84
STORM SEWER REMOVAL, 12"	FOOT	UNDER-SEWER	1	2,600	$10.00	$26,000.00	2,600	$10.30	$26,780.00	2,600	$10.00	$26,000.00		-$780.00	2,600	$10.00	$26,000.00	Not Reviewed	-$780.00
STORM SEWER REMOVAL, 15"	FOOT	UNDER-SEWER	1	1,020	$10.00	$10,200.00	1,020	$10.30	$10,506.00	1,020	$10.00	$10,200.00		-$306.00	1,020	$10.00	$10,200.00	Not Reviewed	-$306.00
STORM SEWER REMOVAL, 21"	FOOT	UNDER-SEWER	1	454	$10.00	$4,540.00	454	$10.30	$4,676.20	454	$11.00	$4,994.00		$317.80	454	$11.00	$4,994.00	Not Reviewed	$317.80
STORM SEWER REMOVAL, 24"	FOOT	UNDER-SEWER	1	150	$10.00	$1,500.00	150	$10.30	$1,545.00	150	$12.00	$1,800.00		$255.00	150	$12.00	$1,800.00	Not Reviewed	$255.00
STORM SEWER REMOVAL, 27"	FOOT	UNDER-SEWER	1	1,080	$10.00	$10,800.00	1,080	$10.30	$11,124.00	1,080	$15.00	$16,200.00		$5,076.00	1,080	$15.00	$16,200.00	Not Reviewed	$5,076.00
STORM SEWER REMOVAL, 30"	FOOT	UNDER-SEWER	1	1,370	$20.00	$27,400.00	1,370	$20.60	$28,222.00	1,370	$15.00	$20,550.00		-$7,672.00	1,370	$15.00	$20,550.00	Not Reviewed	-$7,672.00
STORM SEWER REMOVAL, 36"	FOOT	UNDER-SEWER	1	665	$20.00	$13,300.00	665	$20.60	$13,699.00	665	$20.00	$13,300.00		-$399.00	665	$20.00	$13,300.00	Not Reviewed	-$399.00
STORM SEWER REMOVAL, 48"	FOOT	UNDER-SEWER	1	604	$20.00	$12,080.00	604	$20.60	$12,442.40	604	$25.00	$15,100.00		$2,657.60	604	$25.00	$15,100.00	Not Reviewed	$2,657.60
STORM SEWER REMOVAL, 54"	FOOT	UNDER-SEWER	1	533	$25.00	$13,325.00	533	$25.75	$13,724.75	533	$25.00	$13,325.00		-$399.75	533	$25.00	$13,325.00	Not Reviewed	-$399.75
STORM SEWER REMOVAL, 60"	FOOT	UNDER-SEWER	1	137	$25.00	$3,425.00	137	$25.75	$3,527.75	137	$35.00	$4,795.00		$1,267.25	137	$35.00	$4,795.00	Not Reviewed	$1,267.25
STORM SEWER REMOVAL, 8"	FOOT	UNDER-SEWER	1	50	$10.00	$500.00	50	$10.30	$515.00	50	$10.00	$500.00		-$15.00	50	$10.00	$500.00	Not Reviewed	-$15.00
STORM SEWERS, 108" RCP	FOOT	UNDER-SEWER	1	2,650	$1,500.00	$3,975,000.00	2,650	$1,545.00	$4,094,250.00	2,650	$1,588.00	$4,208,200.00	Length confirmed to be reasonable	$113,950.00	2,650	$1,168.18	$3,095,687.36	Overhead Reduction and Production Rate Increase	-$998,562.64
STORM SEWERS, 108" RCP (AUGURED) Edens Expressway	FOOT	UNDER-SEWER	1	350	$5,500.00	$1,925,000.00	350	$5,665.00	$1,982,750.00	350	$5,350.00	$1,872,500.00	Length confirmed to be reasonable	-$110,250.00	350	$5,350.00	$1,872,500.00	Maximum Cost per Contacted Contractors	-$110,250.00
STORM SEWERS, 108" RCP (TRENCHLESS) Hibbard & Skokie Road	FOOT	UNDER-SEWER	1							150	$9,436.00	$1,415,400.00	Added 150 feet of jacked pipe for Skokie Road	$1,415,400.00	0	$0.00	$0.00	No open cut historically required	$0.00
STORM SEWERS, 108" RCP Crossing Hibbard & Skokie Road															1	$55,000.00	$55,000.00	Additional IDOT Permitting,Traffic Control, Temporary Pavement, and Overtime Possible	$55,000.00
STORM SEWERS, 24" RCP	FOOT	UNDER-SEWER	1	11,620	$192.00	$2,231,040.00	11,620	$197.76	$2,297,971.20	11,620	$230.40	$2,677,248.00	Length confirmed to be reasonable	$379,276.80	11,620	$169.49	$1,969,469.79	Overhead Reduction and Production Rate Increase	-$328,501.41
STORM SEWERS, 27" RCP	FOOT	UNDER-SEWER	1	1,800	$205.00	$369,000.00	1,800	$211.15	$380,070.00	1,800	$246.00	$442,800.00	Length confirmed to be reasonable	$62,730.00	1,800	$180.97	$325,737.93	Overhead Reduction and Production Rate Increase	-$54,332.07
STORM SEWERS, 30" RCP	FOOT	UNDER-SEWER	1	400	$218.00	$87,200.00	400	$224.54	$89,816.00	400	$261.60	$104,640.00		$14,824.00	400	$261.60	$104,640.00	Overhead Reduction and Production Rate Increase	$14,824.00
STORM SEWERS, 36" RCP	FOOT	UNDER-SEWER	1	2,785	$252.00	$701,820.00	2,785	$259.56	$722,874.60	2,785	$302.40	$842,184.00	Length confirmed to be reasonable	$119,309.40	2,785	$222.46	$619,537.66	Overhead Reduction and Production Rate Increase	-$103,336.94
STORM SEWERS, 42" RCP	FOOT	UNDER-SEWER	1	2,475	$300.00	$742,500.00	2,475	$309.00	$764,775.00	2,475	$360.00	$891,000.00		$126,225.00	2,475	$264.83	$655,448.28	Overhead Reduction and Production Rate Increase	-$109,326.72
STORM SEWERS, 48" RCP	FOOT	UNDER-SEWER	1	4,460	$328.00	$1,462,880.00	4,460	$337.84	$1,506,766.40	4,460	$479.00	$2,136,340.00	Length confirmed to be reasonable	$629,573.60	4,460	$352.37	$1,571,560.46	Overhead Reduction and Production Rate Increase	$64,794.06
STORM SEWERS, 60" RCP	FOOT	UNDER-SEWER	1	2,520	$414.00	$1,043,280.00	2,520	$426.42	$1,074,578.40	2,520	$749.00	$1,887,480.00	Length confirmed to be reasonable	$812,901.60	2,520	$550.99	$1,388,491.03	Overhead Reduction and Production Rate Increase	$313,912.63
STORM SEWERS, 66" RCP	FOOT	UNDER-SEWER	1	480	$468.00	$224,640.00	480	$482.04	$231,379.20	480	$784.00	$376,320.00	Length confirmed to be reasonable	$144,940.80	480	$576.74	$276,833.10	Overhead Reduction and Production Rate Increase	$45,453.90
STORM SEWERS, 72" RCP	FOOT	UNDER-SEWER	1	2,420	$650.00	$1,573,000.00	2,420	$669.50	$1,620,190.00	2,420	$971.00	$2,349,820.00	Length confirmed to be reasonable	$729,630.00	2,420	$714.30	$1,728,603.22	Overhead Reduction and Production Rate Increase	$108,413.22
STORM SEWERS, 84" RCP	FOOT	UNDER-SEWER	1	6,920	$1,000.00	$6,920,000.00	6,920	$1,030.00	$7,127,600.00	6,920	$1,177.00	$8,144,840.00	Length confirmed to be reasonable	$1,017,240.00	6,920	$865.84	$5,991,606.44	Overhead Reduction and Production Rate Increase	-$1,135,993.56
STORM SEWERS, 96" RCP	FOOT	UNDER-SEWER	1	1,300	$1,175.00	$1,527,500.00	1,300	$1,210.25	$1,573,325.00	1,150	$1,254.00	$1,442,100.00	Reduced length by 150 feet for added Skokie Road jacked pipe	-$131,225.00	1,300	$922.48	$1,199,227.59	Overhead Reduction and Production Rate Increase - add 150 ft. for Skokie	-$374,097.41
TRENCH BACKFILL, CA-7	CU YD	UNDER-TBF	2	145,000	$32.00	$4,640,000.00	145,000	$32.96	$4,779,200.00	145,000	$45.00	$6,525,000.00	Estimated quantity less than 10% greater than CBBEL total; Use CBBEL quantity	$1,745,800.00	145,000	$41.38	$6,000,000.00	Overhead Reduction	$1,220,800.00
JUNCTION BOX	EACH	UNDER-JC	3	4	$150,000.00	$600,000.00	4	$154,500.00	$618,000.00	13	$173,846.00	$2,259,998.00	Increased quantity based on analysis of junction requirements	$1,641,998.00	7	$159,858.39	$1,119,008.74	Maximum of 7 required plus Overhead reduction per Pipe Fabricator	$501,008.74
MANHOLES, TYPE A, 10'x10', TYPE 1 FRAME, CLOSED LID	EACH	UNDER-STRUC	4	5	$50,000.00	$250,000.00	5	$51,500.00	$257,500.00	5	$57,500.00	$287,500.00	May be able to replace some structures with Base Tee units; Use CBBEL quantity	$30,000.00	5	$52,873.56	$264,367.82	Overhead Reduction	$6,867.82
MANHOLES, TYPE A, 4'-DIAMETER, TYPE 1 FRAME, CLOSED LID	EACH	UNDER-STRUC	4	58	$4,000.00	$232,000.00	58	$4,120.00	$238,960.00	58	$4,600.00	$266,800.00		$27,840.00	58	$4,229.89	$245,333.33	Overhead Reduction	$6,373.33
MANHOLES, TYPE A, 5'-DIAMETER, TYPE 1 FRAME, CLOSED LID	EACH	UNDER-STRUC	4	24	$5,500.00	$132,000.00	24	$5,665.00	$135,960.00	24	$6,325.00	$151,800.00		$15,840.00	24	$5,816.09	$139,586.21	Overhead Reduction	$3,626.21
MANHOLES, TYPE A, 6'-DIAMETER, TYPE 1 FRAME, CLOSED LID	EACH	UNDER-STRUC	4	9	$7,500.00	$67,500.00	9	$7,725.00	$69,525.00	9	$8,625.00	$77,625.00		$8,100.00	9	$8,625.00	$77,625.00	Not Reviewed	$8,100.00
MANHOLES, TYPE A, 7'-DIAMETER, TYPE 1 FRAME, CLOSED LID	EACH	UNDER-STRUC	4	19	$12,000.00	$228,000.00	19	$12,360.00	$234,840.00	19	$13,800.00	$262,200.00	May be able to replace some structures with Base Tee units; Use CBBEL quantity	$27,360.00	19	$12,689.56	$241,103.45	Overhead Reduction	$6,263.45
MANHOLES, TYPE A, 8'-DIAMETER, TYPE 1 FRAME, CLOSED LID	EACH	UNDER-STRUC	4	17	$17,000.00	$289,000.00	17	$17,510.00	$297,670.00	17	$19,550.00	$332,350.00	May be able to replace some structures with Base Tee units; Use CBBEL quantity	$34,680.00	17	$17,977.01	$305,609.20	Overhead Reduction	$7,939.20
MANHOLES, TYPE A, 9'-DIAMETER, TYPE 1 FRAME, CLOSED LID	EACH	UNDER-STRUC	4	6	$20,000.00	$120,000.00	6	$20,600.00	$123,600.00	6	$23,000.00	$138,000.00	May be able to replace some structures with Base Tee units; Use CBBEL quantity	$14,400.00	6	$0.00	$0.00	Not Reviewed	-$123,600.00
MANHOLES, TYPE A, WITH RISER	EACH	UNDER-STRUC	4	30	$8,500.00	$255,000.00	30	$8,755.00	$262,650.00	30	$9,775.00	$293,250.00		$30,600.00	30	$8,988.51	$269,655.17	Overhead Reduction	$7,005.17
PUMP STATION UPDATED - 6th PUMP	L. SUM	UNDER-PS	5	1	$800,000.00	$800,000.00	1	$824,000.00	$824,000.00	1	$824,000.00	$824,000.00	Not clear if cost includes allowance for new connection to pump station	$0.00	1	$824,000.00	$824,000.00	Not Reviewed	$0.00
SODDING, SPECIAL	SQ YD	UNDER-REST	6	5,000	$11.00	$55,000.00	5,000	$11.33	$56,650.00	13,000	$12.00	$156,000.00		$99,350.00	13,000	$11.03	$143,448.28	Overhead Reduction	$86,798.28
TOPSOIL FURNISH AND PLACE	SQ YD	UNDER-REST	6	5,000	$7.50	$37,500.00	5,000	$7.73	$38,625.00	13,000	$7.50	$97,500.00		$58,875.00	13,000	$6.90	$89,655.17	Overhead Reduction	$51,030.17
AGGREGATE (PRIME COAT)	TON	PAVE	7	300	$20.00	$6,000.00	300	$20.60	$6,180.00	300	$22.40	$6,720.00		$540.00	300	$22.40	$6,720.00	Not Reviewed	$540.00
AGGREGATE BASE COURSE, 10"	SQ YD	PAVE	7	60,000	$16.00	$960,000.00	60,000	$16.48	$988,800.00	60,000	$17.00	$1,020,000.00		$31,200.00	60,000	$15.63	$937,931.03	Overhead Reduction	-$50,868.97
AGGREGATE FOR TEMPORARY ACCESS	TON	PAVE	7	500	$25.00	$12,500.00	500	$25.75	$12,875.00	500	$28.00	$14,000.00		$1,125.00	500	$28.00	$14,000.00	Not Reviewed	$1,125.00
AGGREGATE SUBGRADE IMPROVEMENT	CU YD	PAVE	7	3,000	$55.00	$165,000.00	3,000	$56.65	$169,950.00	3,000	$61.60	$184,800.00		$14,850.00	3,000	$61.60	$184,800.00	Not Reviewed	$14,850.00
BITUMINOUS MATERIALS (PRIME COAT)	GAL	PAVE	7	14,000	$3.50	$49,000.00	14,000	$3.61	$50,470.00	14,000	$3.92	$54,880.00		$4,410.00	14,000	$3.92	$54,880.00	Not Reviewed	$4,410.00
CLASS B PATCH, SPECIAL	SQ YD	PAVE	7	1,200	$90.00	$108,000.00	1,200	$92.70	$111,240.00	1,200	$100.00	$120,000.00		$8,760.00	1,200	$100.00	$120,000.00	Not Reviewed	$8,760.00
CLASS D PATCH, SPECIAL	SQ YD	PAVE	7	33,000	$93.00	$3,069,000.00	33,000	$95.79	$3,161,070.00	33,000	$104.00	$3,432,000.00		$270,930.00	33,000	$95.63	$3,155,862.07	Overhead Reduction	-$5,207.93
COMBINATION CONCRETE CURB AND GUTTER REMOVAL AND REPLACEMENT	FOOT	PAVE	7	50,000	$26.00	$1,300,000.00	50,000	$26.78	$1,339,000.00	50,000	$25.00	$1,250,000.00		-$89,000.00	50,000	$22.99	$1,149,425.29	Overhead Reduction	-$189,574.71
HOT-MIX ASPHALT BINDER COURSE, IL-19.0, N50 6"	TON	PAVE	7	19,500	$83.00	$1,618,500.00	19,500	$85.49	$1,667,055.00	19,500	$85.00	$1,657,500.00		-$9,555.00	19,500	$0.00	$0.00	Not Reviewed	-$1,667,055.00
HOT-MIX ASPHALT SURFACE COURSE, MIX "D", N50 1.5"	TON	PAVE	7	9,000	$90.00	$810,000.00	9,000	$92.70	$834,300.00	9,000	$90.00	$810,000.00		-$24,300.00	9,000	$82.76	$744,827.59	Overhead Reduction	-$89,472.41
HOT-MIX ASPHALT SURFACE COURSE, MIX "D", N50 2.5"	TON	PAVE	7	8,000	$90.00	$720,000.00	8,000	$92.70	$741,600.00	8,000	$88.00	$704,000.00		-$37,600.00	8,000	$80.92	$647,356.32	Overhead Reduction	-$94,243.68
HOT-MIX ASPHALT SURFACE REMOVAL, 2"	SQ YD	PAVE	7	86,000	$5.00	$430,000.00	86,000	$5.15	$442,900.00	86,000	$5.60	$481,600.00		$38,700.00	86,000	$5.15	$442,850.57	Overhead Reduction	-$49.43
LEVELING BINDER (MACHINE METHOD), N50	TON	PAVE	7	4,500	$90.00	$405,000.00	4,500	$92.70	$417,150.00	4,500	$100.80	$453,600.00		$36,450.00	4,500	$92.69	$417,103.45	Overhead Reduction	-$46.55
PAVEMENT REMOVAL	SQ YD	PAVE	7	60,000	$13.75	$825,000.00	60,000	$14.16	$849,750.00	60,000	$15.40	$924,000.00	Quantity may be up to 25% low, but depends on restoration decisions	$74,250.00	60,000	$14.16	$849,655.17	Overhead Reduction	-$94.83
REMOVAL AND DISPOSAL OF UNSUITABLE MATERIAL	CU YD	PAVE	7	3,000	$45.00	$135,000.00	3,000	$46.35	$139,050.00	3,000	$45.00	$135,000.00		-$4,050.00	3,000	$45.00	$135,000.00	Not Reviewed	-$4,050.00
THERMOPLASTIC PAVEMENT MARKINGS	L. SUM	PAVE	7	1	$25,000.00	$25,000.00	1	$25,750.00	$25,750.00	1	$28,750.00	$28,750.00		$3,000.00	1	$28,750.00	$28,750.00	Not Reviewed	$3,000.00
RELOCATE SANITARY SEWER SERVICE LINE	EACH	UTIL RELO	8	219	$2,325.00	$509,175.00	219	$2,394.75	$524,450.25	219	$2,673.75	$585,551.25		$61,101.00	219	$2,458.62	$538,437.90	Overhead Reduction	$13,987.68
RELOCATE WATER SERVICE LINE, LONG SIDE	EACH	UTIL RELO	8	269	$3,600.00	$968,400.00	269	$3,708.00	$997,452.00	269	$3,600.00	$968,400.00		-$29,052.00	269	$3,310.34	$890,482.76	Overhead Reduction	-$106,969.24
REMOVE AND REPLACE SANITARY MAIN	FOOT	UTIL RELO	8	11,660	$175.00	$2,040,500.00	11,660	$180.25	$2,101,715.00	11,660	$201.25	$2,346,575.00	Allowance for about 25% of streets to be impacted by construction	$244,860.00	11,660	$185.06	$2,157,770.11	Overhead Reduction	$56,055.11
REMOVE AND REPLACE WATER MAIN	FOOT	UTIL RELO	8	12,850	$270.00	$3,469,500.00	12,850	$278.10	$3,573,585.00	12,850	$310.50	$3,989,925.00	Allowance for about 25% of streets to be impacted by construction	$416,340.00	12,850	$285.52	$3,668,896.55	Overhead Reduction	$95,311.55
SODDING, SPECIAL - WM/SANITARY RELOCATION	SQ YD	UTIL RELO	8	8,000	$7.50	$60,000.00	8,000	$7.73	$61,800.00	13,000	$7.50	$97,500.00		$35,700.00	13,000	$6.90	$89,655.17	Overhead Reduction	$27,855.17
TOPSOIL FURNISH AND PLACE - WM/SANITARY RELOCATION	SQ YD	UTIL RELO	8	8,000	$11.00	$88,000.00	8,000	$11.33	$90,640.00	13,000	$12.00	$156,000.00		$65,360.00	13,000	$11.03	$143,448.28	Overhead Reduction	$52,808.28
CONSTRUCTION LAYOUT	L. SUM	MISC	9	1	$225,000.00	$225,000.00	1	$231,750.00	$231,750.00	1	$258,750.00	$258,750.00		$27,000.00	1	$237,931.03	$237,931.03	Overhead Reduction	$6,181.03
DETECTABLE WARNINGS	SQ FT	MISC	9	1,000	$50.00	$50,000.00	1,000	$51.50	$51,500.00	1,000	$50.00	$50,000.00		-$1,500.00	1,000	$50.00	$50,000.00	Not Reviewed	-$1,500.00
PORTLAND CEMENT CONCRETE SIDEWALK 5 INCH	SQ FT	MISC	9	2,500	$8.00	$20,000.00	2,500	$8.24	$20,600.00	2,500	$8.00	$20,000.00		-$600.00	2,500	$8.00	$20,000.00	Not Reviewed	-$600.00
SIDEWALK REMOVAL	SQ FT	MISC	9	2,500	$2.50	$6,250.00	2,500	$2.58	$6,437.50	2,500	$2.80	$7,000.00		$562.50	2,500	$2.80	$7,000.00	Not Reviewed	$562.50
TRAFFIC CONTROL	L. SUM	MISC	9	1	$800,000.00	$800,000.00	1	$824,000.00	$824,000.00	1	$920,000.00	$920,000.00		$96,000.00	1	$845,977.01	$845,977.01	Overhead Reduction	$21,977.01
TREE PROTECTION	EACH	MISC	9	50	$150.00	$7,500.00	50	$154.50	$7,725.00	50	$190.00	$9,500.00		$1,775.00	50	$174.71	$8,735.63	Overhead Reduction	$1,010.63
TREE PRUNING (1 TO 10 INCH DIAMETER)	EACH	MISC	9	50	$140.00	$7,000.00	50	$144.20	$7,210.00	50	$144.20	$7,210.00		$0.00	50	$132.60	$6,629.89	Overhead Reduction	-$580.11
TREE PRUNING (OVER 10 INCH DIAMETER)	EACH	MISC	9	50	$175.00	$8,750.00	50	$180.25	$9,012.50	50	$180.25	$9,012.50		$0.00	50	$165.75	$8,287.36	Overhead Reduction	-$725.14
TREE ROOT PRUNING	EACH	MISC	9	50	$150.00	$7,500.00	50	$154.50	$7,725.00	50	$154.50	$7,725.00		$0.00	50	$142.07	$7,103.45	Overhead Reduction	-$621.55
					SUBTOTAL =	$57,547,505.00		**SUBTOTAL =**	**$59,273,930.15**		**SUBTOTAL =**	**$71,643,357.75**		**$12,369,427.60**		**SUBTOTAL =**	**$57,781,464.15**		**-$1,492,466.00**
					CONTINGENCY (20%) =	$11,509,501.00		CONTINGENCY (20%) =	$11,854,786.03		CONTINGENCY (20%) =	$14,328,671.55		$2,819,170.55		CONTINGENCY (15%) =	$8,667,219.62		#VALUE!
					CONSTRUCTION TOTAL =	**$69,057,006.00**		**CONSTRUCTION TOTAL =**	**$71,128,716.18**		**CONSTRUCTION TOTAL =**	**$85,972,029.30**		**$14,843,313.12**		**CONSTRUCTION TOTAL =**	**$66,448,683.77**		**$51,605,370.65**
					DESIGN ENGINEERING (6%) =	$4,143,420.36		DESIGN ENGINEERING (6%) =	$4,267,722.97		DESIGN ENGINEERING (6%) =	$5,158,321.76				DESIGN ENGINEERING (6%) =	$3,986,921.03		
					CONSTRUCTION OBSERVATION (6%) =	$4,143,420.36		CONSTRUCTION OBSERVATION (6%) =	$4,267,722.97		CONSTRUCTION OBSERVATION (6%) =	$5,158,321.76				CONSTRUCTION OBSERVATION (6%) =	$3,986,921.03		
					PERMITTING =	$250,000.00		PERMITTING =	$257,500.00		PERMITTING =	$257,500.00				PERMITTING =	$257,500.00		
					TOTAL PROJECT COST INCLUDING ENGINEERING =	**$77,593,846.72**		**TOTAL PROJECT COST (INCL ENG) =**	**$79,921,662.12**		**TOTAL PROJECT COST (INCL ENG) =**	**$96,546,172.82**		**$16,624,510.69**		**TOTAL PROJECT COST (INCL ENG) =**	**$74,680,025.82**		
						$1,296.70			$1,335.60			$1,614.32							
						$1,556.04			$1,602.72			$1,937.18							

CBBEL 2016 NOTES:
1. THIS ESTIMATE DOES NOT INCLUDE ROW ACQUISTION, TEMPORARY OR CONSTRUCTION EASEMENTS, OR RELOCATING ANY EXISTING UTILITIES.
2. THESE UNIT PRICES ARE BASED ON OUR DESIGN MEMO DATED DECEMBER 5, 2014 AND ARE 2016 CONSTRUCTION COSTS.
3. PAVEMENT THICKNESS REMOVAL WAS ASSUMED TO BE 21".
4. TRENCH BACKFILL IS INCLUDED IN THE COST OF THE WATER MAIN AND SANITARY MAIN REMOVAL AND REPLACEMENT.

APPENDIX 3

Welch Brothers, Inc.

WELCH BROS., INC.

1050 St. Charles Street
P.O. Box 749
Elgin, Illinois 60121-0749

(847) 741-6134
Fax (847) 741-6195
www.welchbrothers.com

June 8, 2017

The following is Welch Brothers analysis of the proposed junction chambers for the Wilmette Relief Sewer. We have worked and priced projects in the Village of Wilmette in the past. Based on the documents we received there were ten locations identified by Stantec for structures. We believe all ten locations can be manufactured as precast items with 4 being base tee manholes. The locations along with existing and proposed sewers are listed below:

Chamber	Location	Sewers
1	Lake and RR ROW	10 X 7 RCBC (N, S), 102" (E, W)
2	Laramie and Washington	108" (E, W), 72" (N, S)
3	Hibbard and Washington	108" (W), 96" (E), 60"(S)
4	Ramona and Washington	96" (W), 84" (N), 72" (S)
5	Lake and Ramona	84" (N, S,), 78" (E, W)
6	Illinois and Lake	84" (W), 66" (E, W), 72" (E), 48"(S)
7	Hunter and Lake	60" (E), 84" (N, S)
8	Hibbard and Wilmette	72" (E), 66" (W), 60" (N), 24" (S)
9	Ramona and Wilmette	72" (N, S), 66" (W), 60" (E)
10	Sunset and Wilmette	60"(S), 66" (W)

Using this information we have calculated the type and size of precast items to be manufactured and the cost. These estimates are based off of 2017 material prices and assumed same inverts for proposed and existing sewers. The heaviest section for all the structures is 40,000 lbs. The following schedule provides cost for the manufactured precast items delivered to the job. Installation is not included.

Chamber	Structure	Cost
1	12 X 13 junction chamber	$41,000
2	12 x 8 junction chamber	$33,000
3	108" Base tee w/reducer & tee	$4,800
4	96" Base tee w/bend & tee	$4,400
	96"bend w/reducer	$2,800

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Chamber	Structure	Cost
5	10 x 10 junction chamber	$33,000
6	2-10 x 4 junction chambers	$48,000
7	10 x 6 junction chamber	$22,000
8	9 x 9 junction chamber	$22,000
9	9 x 9 junction chamber	$22,000
10	66" base tee w/ bend & reducer	$2,000

Should you need any further assistance feel free to call me.

Sincerely

Britt Lienau

Welch Brothers

				SUBCONTRACTOR		MATERIAL		LABOR		HAULING		EQUIPMENT		TOTAL FIELD COST		BID	
ITEM	DESCRIPTION	QUANTITY	UNIT OF MSR	UNIT PRICE	TOTAL	UNIT PRICE	TOTAL	UNIT PRICE	TOTAL	UNIT PRICE	TOTAL	UNIT PRICE	TOTAL	UNIT PRICE	TOTAL	UNIT PRICE	TOTAL
1	PRECAST CONCRETE BOX CULVERTS 10' X 7'	FOOT	4,100	$4.00	$16,400.00	$722.00	$2,960,200.00	$100.00	$410,000.00	$160.00	$656,000.00	$20.00	$82,000.00	$1,006.00	$4,124,600.00	$0.00	$0.00
2	PRECAST CONCRETE BOX CULVERTS 10' X 7'	FOOT	100	$13,000.00	$1,300,000.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$13,000.00	$1,300,000.00	$0.00	$0.00
3	STORM SEWER REMOVAL, 12" - mostly in kind	FOOT	2,600	$0.00	$0.00	$0.00	$0.00	$3.00	$7,800.00	$1.00	$2,600.00	$1.00	$2,600.00	$5.00	$13,000.00	$0.00	$0.00
4	STORM SEWER REMOVAL, 15"	FOOT	1,020	$0.00	$0.00	$0.00	$0.00	$3.00	$3,060.00	$1.00	$1,020.00	$1.00	$1,020.00	$5.00	$5,100.00	$0.00	$0.00
5	STORM SEWER REMOVAL, 21"	FOOT	454	$0.00	$0.00	$0.00	$0.00	$3.00	$1,362.00	$2.00	$908.00	$1.00	$454.00	$6.00	$2,724.00	$0.00	$0.00
6	STORM SEWER REMOVAL, 24"	FOOT	150	$0.00	$0.00	$0.00	$0.00	$3.00	$450.00	$2.00	$300.00	$1.00	$150.00	$6.00	$900.00	$0.00	$0.00
7	STORM SEWER REMOVAL, 27"	FOOT	1,080	$0.00	$0.00	$0.00	$0.00	$4.00	$4,320.00	$3.00	$3,240.00	$1.00	$1,080.00	$8.00	$8,640.00	$0.00	$0.00
8	STORM SEWER REMOVAL, 30"	FOOT	1,370	$0.00	$0.00	$0.00	$0.00	$4.00	$5,480.00	$3.00	$4,110.00	$1.00	$1,370.00	$8.00	$10,960.00	$0.00	$0.00
9	STORM SEWER REMOVAL, 36"	FOOT	665	$0.00	$0.00	$0.00	$0.00	$4.00	$2,660.00	$3.00	$1,995.00	$1.00	$665.00	$8.00	$5,320.00	$0.00	$0.00
10	STORM SEWER REMOVAL, 48"	FOOT	604	$0.00	$0.00	$0.00	$0.00	$5.00	$3,020.00	$4.00	$2,416.00	$1.00	$604.00	$10.00	$6,040.00	$0.00	$0.00
11	STORM SEWER REMOVAL, 54"	FOOT	533	$0.00	$0.00	$0.00	$0.00	$5.00	$2,665.00	$5.00	$2,665.00	$1.00	$533.00	$11.00	$5,863.00	$0.00	$0.00
12	STORM SEWER REMOVAL, 60"	FOOT	137	$0.00	$0.00	$0.00	$0.00	$5.00	$685.00	$6.00	$822.00	$1.00	$137.00	$12.00	$1,644.00	$0.00	$0.00
13	STORM SEWER REMOVAL, 8"	FOOT	50	$0.00	$0.00	$0.00	$0.00	$3.00	$150.00	$1.00	$50.00	$1.00	$50.00	$5.00	$250.00	$0.00	$0.00
14	STORM SEWERS, 108" RCP	FOOT	2,650	$4.00	$10,600.00	$502.00	$1,330,300.00	$100.00	$265,000.00	$186.00	$492,900.00	$20.00	$53,000.00	$812.00	$2,151,800.00	$0.00	$0.00
15	STORM SEWERS, 108" RCP (AUGURED) Edens	FOOT	350	$3,500.00	$1,225,000.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$3,500.00	$1,225,000.00	$0.00	$0.00
16	*jacking and rec pits for 108" and 10x7 box*	sf	9,600	$0.00	$0.00	$8.33	$79,968.00	$13.50	$129,600.00	$0.00	$0.00	$2.70	$25,920.00	$24.53	$235,488.00	$0.00	$0.00
15a	*108" jacked under Skokie*	lf	150	$3,500.00	$525,000.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$3,500.00	$525,000.00	$0.00	$0.00
16a	*jacking and rec pits for 108"*	sf	9,600	$0.00	$0.00	$8.33	$79,968.00	$13.50	$129,600.00	$0.00	$0.00	$2.70	$25,920.00	$24.53	$235,488.00	$0.00	$0.00
17	STORM SEWERS, 24" RCP	FOOT	11,620	$4.00	$46,480.00	$45.00	$522,900.00	$33.75	$392,175.00	$22.00	$255,640.00	$6.75	$78,435.00	$111.50	$1,295,630.00	$0.00	$0.00
18	STORM SEWERS, 27" RCP	FOOT	1,800	$4.00	$7,200.00	$49.00	$88,200.00	$33.75	$60,750.00	$24.00	$43,200.00	$6.75	$12,150.00	$117.50	$211,500.00	$0.00	$0.00
19	STORM SEWERS, 30" RCP	FOOT	400	$4.00	$1,600.00	$60.00	$24,000.00	$38.00	$15,200.00	$27.00	$10,800.00	$7.70	$3,080.00	$136.70	$54,680.00	$0.00	$0.00
20	STORM SEWERS, 36" RCP	FOOT	2,785	$4.00	$11,140.00	$73.00	$203,305.00	$38.00	$105,830.00	$32.40	$90,234.00	$7.70	$21,444.50	$155.10	$431,953.50	$0.00	$0.00
21	STORM SEWERS, 42" RCP	FOOT	2,475	$4.00	$9,900.00	$95.00	$235,125.00	$38.00	$94,050.00	$42.00	$103,950.00	$7.70	$19,057.50	$186.70	$462,082.50	$0.00	$0.00
22	STORM SEWERS, 48" RCP	FOOT	4,460	$4.00	$17,840.00	$116.00	$517,360.00	$54.00	$240,840.00	$53.80	$239,948.00	$10.80	$48,168.00	$238.60	$1,064,156.00	$0.00	$0.00
23	STORM SEWERS, 60" RCP	FOOT	2,520	$4.00	$10,080.00	$168.00	$423,360.00	$67.00	$168,840.00	$70.00	$176,400.00	$13.50	$34,020.00	$322.50	$812,700.00	$0.00	$0.00
24	STORM SEWERS, 66" RCP	FOOT	480	$4.00	$1,920.00	$185.00	$88,800.00	$67.00	$32,160.00	$78.00	$37,440.00	$13.50	$6,480.00	$347.50	$166,800.00	$0.00	$0.00
25	STORM SEWERS, 72" RCP	FOOT	2,420	$4.00	$9,680.00	$223.00	$539,660.00	$67.00	$162,140.00	$98.00	$237,160.00	$13.50	$32,670.00	$405.50	$981,310.00	$0.00	$0.00
26	STORM SEWERS, 84" RCP	FOOT	6,920	$4.00	$27,680.00	$348.00	$2,408,160.00	$100.00	$692,000.00	$122.00	$844,240.00	$20.00	$138,400.00	$594.00	$4,110,480.00	$0.00	$0.00
27	STORM SEWERS, 96" RCP	FOOT	1,300	$4.00	$5,200.00	$404.00	$525,200.00	$100.00	$130,000.00	$158.00	$205,400.00	$20.00	$26,000.00	$686.00	$891,800.00	$0.00	$0.00
28	TRENCH BACKFILL, CA-7	CU YD	145,000	$0.00	$0.00	$36.00	$5,220,000.00	$0.00	$0.00	$20.00	$2,900,000.00	$0.00	$0.00	$56.00	$8,120,000.00	$0.00	$0.00
29	JUNCTION BOX	EACH	7	$0.00	$0.00	$35,000.00	$245,000.00	$10,800.00	$75,600.00	$3,800.00	$26,600.00	$6,000.00	$42,000.00	$55,600.00	$389,200.00	$0.00	$0.00
30	MANHOLES, TYPE A, 10'x10', TYPE 1 FRAME, C	EACH	3	$0.00	$0.00	$10,000.00	$30,000.00	$5,400.00	$16,200.00	$2,000.00	$6,000.00	$1,000.00	$3,000.00	$18,400.00	$55,200.00	$0.00	$0.00
31	MANHOLES, TYPE A, 4'-DIAMETER, TYPE 1 FR	EACH	58	$0.00	$0.00	$1,000.00	$58,000.00	$600.00	$34,800.00	$200.00	$11,600.00	$120.00	$6,960.00	$1,920.00	$111,360.00	$0.00	$0.00
32	MANHOLES, TYPE A, 5'-DIAMETER, TYPE 1 FR	EACH	24	$0.00	$0.00	$1,500.00	$36,000.00	$600.00	$14,400.00	$300.00	$7,200.00	$120.00	$2,880.00	$2,520.00	$60,480.00	$0.00	$0.00
33	MANHOLES, TYPE A, 6'-DIAMETER, TYPE 1 FR	EACH	9	$0.00	$0.00	$2,000.00	$18,000.00	$900.00	$8,100.00	$500.00	$4,500.00	$180.00	$1,620.00	$3,580.00	$32,220.00	$0.00	$0.00
34	MANHOLES, TYPE A, 7'-DIAMETER, TYPE 1 FR	EACH	19	$0.00	$0.00	$3,500.00	$66,500.00	$1,200.00	$22,800.00	$800.00	$15,200.00	$240.00	$4,560.00	$5,740.00	$109,060.00	$0.00	$0.00
35	MANHOLES, TYPE A, 8'-DIAMETER, TYPE 1 FR	EACH	17	$0.00	$0.00	$5,000.00	$85,000.00	$1,800.00	$30,600.00	$1,200.00	$20,400.00	$360.00	$6,120.00	$8,360.00	$142,120.00	$0.00	$0.00
36	MANHOLES, TYPE A, 9'-DIAMETER, TYPE 1 FR	EACH	6	$0.00	$0.00	$8,000.00	$48,000.00	$1,800.00	$10,800.00	$1,400.00	$8,400.00	$360.00	$2,160.00	$11,560.00	$69,360.00	$0.00	$0.00
37	MANHOLES, TYPE A, WITH RISER	EACH	30	$0.00	$0.00	$4,000.00	$120,000.00	$1,200.00	$36,000.00	$0.00	$0.00	$120.00	$3,600.00	$5,320.00	$159,600.00	$0.00	$0.00
38	**PUMP STATION UPDATED - 6th PUMP**	L. SUM	1	**$900,000.00**	$900,000.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$900,000.00	$900,000.00	$0.00	$0.00
39	SODDING, SPECIAL	SQ YD	5,000	$9.00	$45,000.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$9.00	$45,000.00	$0.00	$0.00
40	TOPSOIL FURNISH AND PLACE	SQ YD	5,000	$7.00	$35,000.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$7.00	$35,000.00	$0.00	$0.00
41	AGGREGATE (PRIME COAT)	TON	300	$1.00	$300.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$1.00	$300.00	$0.00	$0.00
42	AGGREGATE BASE COURSE, 10"	SQ YD	60,000	$1.00	$60,000.00	$9.50	$570,000.00	$3.00	$180,000.00	$0.00	$0.00	$1.00	$60,000.00	$14.50	$870,000.00	$0.00	$0.00
43	AGGREGATE FOR TEMPORARY ACCESS	TON	500	$0.00	$0.00	$20.00	$10,000.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$20.00	$10,000.00	$0.00	$0.00
44	AGGREGATE SUBGRADE IMPROVEMENT	CU YD	3,000	$0.00	$0.00	$36.00	$108,000.00	$7.00	$21,000.00	$0.00	$0.00	$2.00	$6,000.00	$45.00	$135,000.00	$0.00	$0.00
45	BITUMINOUS MATERIALS (PRIME COAT)	GAL	14,000	$1.00	$14,000.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$1.00	$14,000.00	$0.00	$0.00
46	CLASS B PATCH, SPECIAL	SQ YD	1,200	$80.00	$96,000.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$80.00	$96,000.00	$0.00	$0.00
47	**CLASS D PATCH, SPECIAL----8"**	SQ YD	33,000	$55.00	$1,815,000.00	$0.00	$0.00	$0.00	$0.00	$5.00	$165,000.00	$0.00	$0.00	$60.00	$1,980,000.00	$0.00	$0.00
48	COMBINATION CONCRETE CURB AND GUTTEI	FOOT	50,000	$20.00	$1,000,000.00	$1.00	$50,000.00	$3.00	$150,000.00	$2.00	$100,000.00	$1.00	$50,000.00	$27.00	$1,350,000.00	$0.00	$0.00
49	HOT-MIX ASPHALT BINDER COURSE, IL-19.0, N	TON	19,500	$65.00	$1,267,500.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$65.00	$1,267,500.00	$0.00	$0.00
50	HOT-MIX ASPHALT SURFACE COURSE, MIX "D	TON	9,000	$75.00	$675,000.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$75.00	$675,000.00	$0.00	$0.00
51	HOT-MIX ASPHALT SURFACE COURSE, MIX "D	TON	8,000	$75.00	$600,000.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$75.00	$600,000.00	$0.00	$0.00
52	HOT-MIX ASPHALT SURFACE REMOVAL, 2"	SQ YD	86,000	$3.00	$258,000.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$3.00	$258,000.00	$0.00	$0.00
53	LEVELING BINDER (MACHINE METHOD), N50	TON	4,500	$75.00	$337,500.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$75.00	$337,500.00	$0.00	$0.00
54	**PAVEMENT REMOVAL- figure 14"**	SQ YD	60,000	$0.00	$0.00	$0.00	$0.00	$2.82	$169,200.00	$9.00	$540,000.00	$1.00	$60,000.00	$12.82	$769,200.00	$0.00	$0.00
55	REMOVAL AND DISPOSAL OF UNSUITABLE MA	CU YD	3,000	$0.00	$0.00	$0.00	$0.00	$5.00	$15,000.00	$20.00	$60,000.00	$1.00	$3,000.00	$26.00	$78,000.00	$0.00	$0.00
56	THERMOPLASTIC PAVEMENT MARKINGS	L. SUM	1	$40,000.00	$40,000.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$40,000.00	$40,000.00	$0.00	$0.00
57	RELOCATE SANITARY SEWER SERVICE LINE	EACH	219	$0.00	$0.00	$1,500.00	$328,500.00	$1,540.00	$337,260.00	$0.00	$0.00	$257.00	$56,283.00	$3,297.00	$722,043.00	$0.00	$0.00
58	RELOCATE WATER SERVICE LINE, LONG SIDE	EACH	269	$0.00	$0.00	$1,610.00	$433,090.00	$1,540.00	$414,260.00	$0.00	$0.00	$257.00	$69,133.00	$3,407.00	$916,483.00	$0.00	$0.00
59	REM/rep w tbf SANITARY 10"-10ft deep	FOOT	11,660	$9.00	$104,940.00	$111.00	$1,294,260.00	$27.00	$314,820.00	$0.00	$0.00	$5.40	$62,964.00	$152.40	$1,776,984.00	$0.00	$0.00
60	REMOVE AND REPLACE WATER MAIN w tbf	FOOT	12,850	$57.00	$732,450.00	$75.00	$963,750.00	$22.00	$282,700.00	$0.00	$0.00	$4.00	$51,400.00	$158.00	$2,030,300.00	$0.00	$0.00
61	SODDING, SPECIAL - WM/SANITARY RELOCAT	SQ YD	8,000	$9.00	$72,000.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$9.00	$72,000.00	$0.00	$0.00
62	TOPSOIL FURNISH AND PLACE - WM/SANITAR	SQ YD	8,000	$7.00	$56,000.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$7.00	$56,000.00	$0.00	$0.00
63	CONSTRUCTION LAYOUT	L. SUM	1	$150,000.00	$150,000.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$150,000.00	$150,000.00	$0.00	$0.00
64	DETECTABLE WARNINGS	SQ FT	1,000	$50.00	$50,000.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$50.00	$50,000.00	$0.00	$0.00
65	PORTLAND CEMENT CONCRETE SIDEWALK 5	SQ FT	**2,500**	$6.00	$15,000.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$6.00	$15,000.00	$0.00	$0.00
66	SIDEWALK REMOVAL	SQ FT	2,500	$2.00	$5,000.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$2.00	$5,000.00	$0.00	$0.00
67	TRAFFIC CONTROL	L. SUM	1	**$200,000.00**	$200,000.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$200,000.00	$200,000.00	$0.00	$0.00
68	TREE PROTECTION	EACH	50	$100.00	$5,000.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$100.00	$5,000.00	$0.00	$0.00
69	TREE PRUNING (1 TO 10 INCH DIAMETER)	EACH	50	$100.00	$5,000.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$100.00	$5,000.00	$0.00	$0.00
70	TREE PRUNING (OVER 10 INCH DIAMETER)	EACH	50	$100.00	$5,000.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$100.00	$5,000.00	$0.00	$0.00
71	TREE ROOT PRUNING	EACH	50	$200.00	$10,000.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$200.00	$10,000.00	$0.00	$0.00
72	catchbasins- two every 300 lf	EACH	300	$0.00	$0.00	$700.00	$210,000.00	$600.00	$180,000.00	$200.00	$60,000.00	$100.00	$30,000.00	$1,600.00	$480,000.00	$0.00	$0.00
73	12" rcp pipe for cb's 15' per cb	lf	4500	$0.00	$0.00	$32.00	$144,000.00	$27.00	$121,500.00	$0.00	$0.00	$4.50	$20,250.00	$63.50	$285,750.00	$0.00	$0.00
74			0	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
75			0	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
	TOTAL BID				$11,779,410.00		$20,064,606.00		$5,494,877.00		$7,338,338.00		$1,157,338.00		$45,834,569.00		$0.00

ca6	1000	0
ca7	500	0
rr	600	0
dh	200	0

1071.13 Days

	MOVES	$100,000.00				
	SUPT.	$0.00	BACKEND	$935,000.00	BASE BID	$0.00
on 55M	BOND	$275,000.00	ADD/DEDUCT	$0.00		
	INS	$0.00				
44days	clean up	$260,000.00	TOTAL COST	$46,769,569.00	MARKUP	-$46,769,569.00
	jetting	$0.00			%MARKUP	-100%
	poor soils?	$0.00				
	Traffic	$0.00	0	$9,000,000.00		
	bypass	$0.00				
	Sweep	$100,000.00	BASE BID	$55,769,569.00		
	Testing	$100,000.00				
250x400	Struct. Adj.	$100,000.00	%MARKUP	19%		
	Layout AsBu	$0.00				
	Trucking	$0.00				
	Labor Inc.	$0.00				
	TOTAL	$935,000.00				

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APPENDIX 4

Montemayor Construction, Inc.

Montemayor Construction, Inc.

1655 North Lancaster Road
South Elgin, IL 60177
847-608-6000
847-608-9233fax
randy@montemayorconstruction.com

June 5, 2017

Mr. Lee Fell
Christopher B.Burke Engineering, Ltd.

Wilmette Storm Sewer Improvements

Mr. Fell,

I have reviewed the calculation sheets provided from Stantec Consulting Services, Inc. Understanding that this work is to be performed on the "North Shore" in Wilmette in a residential area with the size and depths of sewer provided I am able to form the following opinions of their calculations:

1) The labor amount per hour I believe is overstated by 10% to 15%

2) The production per hour on all the large diameter storm sewer is about half of what would be figured for an actual bid

3)On their final markup sheet I believe they included the equipment in with their labor and marked it up 35%. I think that much markup should be on labor only.

4) I find the Home Office Expense Indirect Costs of 15% to be over stated.

5) I feel the overall markup of HOE, Indirect Costs, Insurance, and Bonding should be more 20% to 24% range in lieu of their 30.5%.

These are my opinions on the information given me. I have worked in this area before and understand the congestion problems of materials in and out. There are no soil borings or actual plans to further allow better accuracy of what my bid would be.

Very truly yours,

Randall F.Rathmann
Project Manager

APPENDIX 5

Cost Spreadsheet with Ratios

Analysis of Estimated Project Costs
Village of Wilmette, Proposed Storm Sewer Improvements
ALTERNATIVE 1 - New Trunk and Lateral Storm

Last Update: 05/19/2017
Last Update by: CBBEL

Instructions:
Columns Q through U are currently set to the escalated CBBEL values and can be used as the template for adding new estimates to the table. To create an updated estimate, copy and past the last 5 columns in the spreadsheet table to the far right end of the table. Then revise the title block and any quantities or unit prices to generate a new total. Delta values are computed relative to the Escalated CBBEL numbers shown in Column K.

Christopher B. Burke Engineering, Ltd.
Project Number: 13-0605
Revised: June 22, 2016

UNDERGROUND - SEWER	$30,935,930
UNDERGROUND - TBF	$4,640,000
UNDERGROUND - JC	$600,000
UNDERGROUND - STRUC	$1,573,500
UNDERGROUND - PUMP STA	$800,000
UNDERGROUND - REST	$92,500
PAVING	$10,638,000
WM/SANITARY RELO	$7,135,575
MISCELLANEOUS	$1,132,000
TOTAL	$57,547,505

Christopher B. Burke Engineering, Ltd.
Project Number: 13-0605
Escalation to 2nd Qtr, 2017 (April 30, 2017)

UNDERGROUND - SEWER	$31,864,008
UNDERGROUND - TBF	$4,779,200
UNDERGROUND - JC	$618,000
UNDERGROUND - STRUC	$1,620,705
UNDERGROUND - PUMP STA	$824,000
UNDERGROUND - REST	$95,275
PAVING	$10,957,140
WM/SANITARY RELO	$7,349,642
MISCELLANEOUS	$1,165,960
TOTAL	$59,273,930

Stantec
Project Number: 173440064
Initial Cost Review (April 30, 2017)

UNDERGROUND - SEWER	$39,261,336
UNDERGROUND - TBF	$6,525,000
UNDERGROUND - JC	$2,259,998
UNDERGROUND - STRUC	$1,809,525
UNDERGROUND - PUMP STA	$824,000
UNDERGROUND - REST	$253,500
PAVING	$11,276,850
WM/SANITARY RELO	$8,143,951
MISCELLANEOUS	$1,289,198
TOTAL	$71,643,358

Stantec/CBBEL 2016	ITEMS	UNIT	Category		QUANTITY	UNIT PRICE	TOTAL COST	QUANTITY	UNIT PRICE ESCALATED 3%	TOTAL COST 2017	QUANTITY	UNIT PRICE	TOTAL COST	1.00 RATIO UNIT PRICE	1.00 RATIO TOTAL COST
1.239444444	PRECAST CONCRETE BOX CULVERTS 10' X 7'	FOOT	UNDER-SEWER	1	4,100	$1,800.00	$7,380,000.00	4,100	$1,854.00	$7,601,400.00	4,100	$2,231.00	$9,147,100.00	$2,231.00	$9,147,100.00
1.840923077	PRECAST CONCRETE BOX CULVERTS 10' X 7' (AUGURED)	FOOT	UNDER-SEWER	1	100	$6,500.00	$650,000.00	100	$6,695.00	$669,500.00	100	$11,966.00	$1,196,600.00	$11,966.00	$1,196,600.00
1	STORM SEWER REMOVAL, 12"	FOOT	UNDER-SEWER	1	2,600	$10.00	$26,000.00	2,600	$10.30	$26,780.00	2,600	$10.00	$26,000.00	$10.00	$26,000.00
1	STORM SEWER REMOVAL, 15"	FOOT	UNDER-SEWER	1	1,020	$10.00	$10,200.00	1,020	$10.30	$10,506.00	1,020	$10.00	$10,200.00	$10.00	$10,200.00
1.1	STORM SEWER REMOVAL, 21"	FOOT	UNDER-SEWER	1	454	$10.00	$4,540.00	454	$10.30	$4,676.20	454	$11.00	$4,994.00	$11.00	$4,994.00
1.2	STORM SEWER REMOVAL, 24"	FOOT	UNDER-SEWER	1	150	$10.00	$1,500.00	150	$10.30	$1,545.00	150	$12.00	$1,800.00	$10.30	$1,545.00
1.5	STORM SEWER REMOVAL, 27"	FOOT	UNDER-SEWER	1	1,080	$10.00	$10,800.00	1,080	$10.30	$11,124.00	1,080	$15.00	$16,200.00	$15.00	$16,200.00
0.75	STORM SEWER REMOVAL, 30"	FOOT	UNDER-SEWER	1	1,370	$20.00	$27,400.00	1,370	$20.60	$28,222.00	1,370	$15.00	$20,550.00	$15.00	$20,550.00
1	STORM SEWER REMOVAL, 36"	FOOT	UNDER-SEWER	1	665	$20.00	$13,300.00	665	$20.60	$13,699.00	665	$20.00	$13,300.00	$20.00	$13,300.00
1.25	STORM SEWER REMOVAL, 48"	FOOT	UNDER-SEWER	1	604	$20.00	$12,080.00	604	$20.60	$12,442.40	604	$25.00	$15,100.00	$25.00	$15,100.00
1	STORM SEWER REMOVAL, 54"	FOOT	UNDER-SEWER	1	533	$25.00	$13,325.00	533	$25.75	$13,724.75	533	$25.00	$13,325.00	$25.00	$13,325.00
1.4	STORM SEWER REMOVAL, 60"	FOOT	UNDER-SEWER	1	137	$25.00	$3,425.00	137	$25.75	$3,527.75	137	$35.00	$4,795.00	$35.00	$4,795.00
1	STORM SEWER REMOVAL, 8"	FOOT	UNDER-SEWER	1	50	$10.00	$500.00	50	$10.30	$515.00	50	$10.00	$500.00	$10.00	$500.00
1.058666667	STORM SEWERS, 108" RCP	FOOT	UNDER-SEWER	1	2,650	$1,500.00	$3,975,000.00	2,650	$1,545.00	$4,094,250.00	2,650	$1,588.00	$4,208,200.00	$1,588.00	$4,208,200.00
0.972727273	STORM SEWERS, 108" RCP (AUGURED) Edens Expressway	FOOT	UNDER-SEWER	1	350	$5,500.00	$1,925,000.00	350	$5,665.00	$1,982,750.00	350	$5,350.00	$1,872,500.00	$5,350.00	$1,872,500.00
#DIV/0!	*STORM SEWERS, 108" RCP (TRENCHLESS) Hibbard & Skokie Road*	FOOT	UNDER-SEWER	1							150	$9,436.00	$1,415,400.00	$9,436.00	$1,415,400.00
1.2	STORM SEWERS, 24" RCP	FOOT	UNDER-SEWER	1	11,620	$192.00	$2,231,040.00	11,620	$197.76	$2,297,971.20	11,620	$230.40	$2,677,248.00	$197.76	$2,297,971.20
1.2	STORM SEWERS, 27" RCP	FOOT	UNDER-SEWER	1	1,800	$205.00	$369,000.00	1,800	$211.15	$380,070.00	1,800	$246.00	$442,800.00	$211.15	$380,070.00
1.2	STORM SEWERS, 30" RCP	FOOT	UNDER-SEWER	1	400	$218.00	$87,200.00	400	$224.54	$89,816.00	400	$261.60	$104,640.00	$224.54	$89,816.00
1.2	STORM SEWERS, 36" RCP	FOOT	UNDER-SEWER	1	2,785	$252.00	$701,820.00	2,785	$259.56	$722,874.60	2,785	$302.40	$842,184.00	$259.56	$722,874.60
1.2	STORM SEWERS, 42" RCP	FOOT	UNDER-SEWER	1	2,475	$300.00	$742,500.00	2,475	$309.00	$764,775.00	2,475	$360.00	$891,000.00	$309.00	$764,775.00
1.460365854	STORM SEWERS, 48" RCP	FOOT	UNDER-SEWER	1	4,460	$328.00	$1,462,880.00	4,460	$337.84	$1,506,766.40	4,460	$479.00	$2,136,340.00	$479.00	$2,136,340.00
1.809178744	STORM SEWERS, 60" RCP	FOOT	UNDER-SEWER	1	2,520	$414.00	$1,043,280.00	2,520	$426.42	$1,074,578.40	2,520	$749.00	$1,887,480.00	$749.00	$1,887,480.00
1.675213675	STORM SEWERS, 66" RCP	FOOT	UNDER-SEWER	1	480	$468.00	$224,640.00	480	$482.04	$231,379.20	480	$784.00	$376,320.00	$784.00	$376,320.00
1.493846154	STORM SEWERS, 72" RCP	FOOT	UNDER-SEWER	1	2,420	$650.00	$1,573,000.00	2,420	$669.50	$1,620,190.00	2,420	$971.00	$2,349,820.00	$971.00	$2,349,820.00
1.177	STORM SEWERS, 84" RCP	FOOT	UNDER-SEWER	1	6,920	$1,000.00	$6,920,000.00	6,920	$1,030.00	$7,127,600.00	6,920	$1,177.00	$8,144,840.00	$1,177.00	$8,144,840.00
1.067234043	STORM SEWERS, 96" RCP	FOOT	UNDER-SEWER	1	1,300	$1,175.00	$1,527,500.00	1,300	$1,210.25	$1,573,325.00	1,150	$1,254.00	$1,442,100.00	$1,254.00	$1,442,100.00
1.40625	TRENCH BACKFILL, CA-7	CU YD	UNDER-TBF	2	145,000	$32.00	$4,640,000.00	145,000	$32.96	$4,779,200.00	145,000	$45.00	$6,525,000.00	$45.00	$6,525,000.00
1.158973333	JUNCTION BOX	EACH	UNDER-JC	3	4	$150,000.00	$600,000.00	4	$154,500.00	$618,000.00	13	$173,846.00	$2,259,998.00	$173,846.00	$2,259,998.00
1.15	MANHOLES, TYPE A, 10'x10', TYPE 1 FRAME, CLOSED LID	EACH	UNDER-STRUC	4	5	$50,000.00	$250,000.00	5	$51,500.00	$257,500.00	5	$57,500.00	$287,500.00	$51,500.00	$257,500.00
1.15	MANHOLES, TYPE A, 4'-DIAMETER, TYPE 1 FRAME, CLOSED LID	EACH	UNDER-STRUC	4	58	$4,000.00	$232,000.00	58	$4,120.00	$238,960.00	58	$4,600.00	$266,800.00	$4,120.00	$238,960.00
1.15	MANHOLES, TYPE A, 5'-DIAMETER, TYPE 1 FRAME, CLOSED LID	EACH	UNDER-STRUC	4	24	$5,500.00	$132,000.00	24	$5,665.00	$135,960.00	24	$6,325.00	$151,800.00	$5,665.00	$135,960.00
1.15	MANHOLES, TYPE A, 6'-DIAMETER, TYPE 1 FRAME, CLOSED LID	EACH	UNDER-STRUC	4	9	$7,500.00	$67,500.00	9	$7,725.00	$69,525.00	9	$8,625.00	$77,625.00	$7,725.00	$69,525.00
1.15	MANHOLES, TYPE A, 7'-DIAMETER, TYPE 1 FRAME, CLOSED LID	EACH	UNDER-STRUC	4	19	$12,000.00	$228,000.00	19	$12,360.00	$234,840.00	19	$13,800.00	$262,200.00	$12,360.00	$234,840.00
1.15	MANHOLES, TYPE A, 8'-DIAMETER, TYPE 1 FRAME, CLOSED LID	EACH	UNDER-STRUC	4	17	$17,000.00	$289,000.00	17	$17,510.00	$297,670.00	17	$19,550.00	$332,350.00	$17,510.00	$297,670.00
1.15	MANHOLES, TYPE A, 9'-DIAMETER, TYPE 1 FRAME, CLOSED LID	EACH	UNDER-STRUC	4	6	$20,000.00	$120,000.00	6	$20,600.00	$123,600.00	6	$23,000.00	$138,000.00	$20,600.00	$123,600.00
1.15	MANHOLES, TYPE A, WITH RISER	EACH	UNDER-STRUC	4	30	$8,500.00	$255,000.00	30	$8,755.00	$262,650.00	30	$9,775.00	$293,250.00	$8,755.00	$262,650.00
1.03	PUMP STATION UPDATED - 6th PUMP	L. SUM	UNDER-PS	5	1	$800,000.00	$800,000.00	1	$824,000.00	$824,000.00	1	$824,000.00	$824,000.00	$824,000.00	$824,000.00
1.090909091	SODDING, SPECIAL	SQ YD	UNDER-REST	6	5,000	$11.00	$55,000.00	5,000	$11.33	$56,650.00	13,000	$12.00	$156,000.00	$11.33	$147,290.00
1	TOPSOIL FURNISH AND PLACE	SQ YD	UNDER-REST	6	5,000	$7.50	$37,500.00	5,000	$7.73	$38,625.00	13,000	$7.50	$97,500.00	$7.50	$97,500.00
1.12	AGGREGATE (PRIME COAT)	TON	PAVE	7	300	$20.00	$6,000.00	300	$20.60	$6,180.00	300	$22.40	$6,720.00	$20.60	$6,180.00
1.0625	AGGREGATE BASE COURSE, 10"	SQ YD	PAVE	7	60,000	$16.00	$960,000.00	60,000	$16.48	$988,800.00	60,000	$17.00	$1,020,000.00	$17.00	$1,020,000.00
1.12	AGGREGATE FOR TEMPORARY ACCESS	TON	PAVE	7	500	$25.00	$12,500.00	500	$25.75	$12,875.00	500	$28.00	$14,000.00	$25.75	$12,875.00
1.12	AGGREGATE SUBGRADE IMPROVEMENT	CU YD	PAVE	7	3,000	$55.00	$165,000.00	3,000	$56.65	$169,950.00	3,000	$61.60	$184,800.00	$56.65	$169,950.00
1.12	BITUMINOUS MATERIALS (PRIME COAT)	GAL	PAVE	7	14,000	$3.50	$49,000.00	14,000	$3.61	$50,470.00	14,000	$3.92	$54,880.00	$3.61	$50,540.00
1.111111111	CLASS B PATCH, SPECIAL	SQ YD	PAVE	7	1,200	$90.00	$108,000.00	1,200	$92.70	$111,240.00	1,200	$100.00	$120,000.00	$100.00	$120,000.00
1.11827957	CLASS D PATCH, SPECIAL	SQ YD	PAVE	7	33,000	$93.00	$3,069,000.00	33,000	$95.79	$3,161,070.00	33,000	$104.00	$3,432,000.00	$104.00	$3,432,000.00
0.961538462	COMBINATION CONCRETE CURB AND GUTTER REMOVAL AND REPLACEMENT	FOOT	PAVE	7	50,000	$26.00	$1,300,000.00	50,000	$26.78	$1,339,000.00	50,000	$25.00	$1,250,000.00	$25.00	$1,250,000.00
1.024096386	HOT-MIX ASPHALT BINDER COURSE, IL-19.0, N50 6"	TON	PAVE	7	19,500	$83.00	$1,618,500.00	19,500	$85.49	$1,667,055.00	19,500	$85.00	$1,657,500.00	$85.00	$1,657,500.00
1	HOT-MIX ASPHALT SURFACE COURSE, MIX "D", N50 1.5"	TON	PAVE	7	9,000	$90.00	$810,000.00	9,000	$92.70	$834,300.00	9,000	$90.00	$810,000.00	$90.00	$810,000.00
0.977777778	HOT-MIX ASPHALT SURFACE COURSE, MIX "D", N50 2.5"	TON	PAVE	7	8,000	$90.00	$720,000.00	8,000	$92.70	$741,600.00	8,000	$88.00	$704,000.00	$88.00	$704,000.00
1.12	HOT-MIX ASPHALT SURFACE REMOVAL, 2"	SQ YD	PAVE	7	86,000	$5.00	$430,000.00	86,000	$5.15	$442,900.00	86,000	$5.60	$481,600.00	$5.15	$442,900.00
1.12	LEVELING BINDER (MACHINE METHOD), N50	TON	PAVE	7	4,500	$90.00	$405,000.00	4,500	$92.70	$417,150.00	4,500	$100.80	$453,600.00	$92.70	$417,150.00
1.12	PAVEMENT REMOVAL	SQ YD	PAVE	7	60,000	$13.75	$825,000.00	60,000	$14.16	$849,750.00	60,000	$15.40	$924,000.00	$14.16	$849,600.00
1	REMOVAL AND DISPOSAL OF UNSUITABLE MATERIAL	CU YD	PAVE	7	3,000	$45.00	$135,000.00	3,000	$46.35	$139,050.00	3,000	$45.00	$135,000.00	$45.00	$135,000.00
1.15	THERMOPLASTIC PAVEMENT MARKINGS	L. SUM	PAVE	7	1	$25,000.00	$25,000.00	1	$25,750.00	$25,750.00	1	$28,750.00	$28,750.00	$25,750.00	$25,750.00
1.15	RELOCATE SANITARY SEWER SERVICE LINE	EACH	UTIL RELO	8	219	$2,325.00	$509,175.00	219	$2,394.75	$524,450.25	219	$2,673.75	$585,551.25	$2,394.75	$524,450.25
1	RELOCATE WATER SERVICE LINE, LONG SIDE	EACH	UTIL RELO	8	269	$3,600.00	$968,400.00	269	$3,708.00	$997,452.00	269	$3,600.00	$968,400.00	$3,600.00	$968,400.00
1.15	REMOVE AND REPLACE SANITARY MAIN	FOOT	UTIL RELO	8	11,660	$175.00	$2,040,500.00	11,660	$180.25	$2,101,715.00	11,660	$201.25	$2,346,575.00	$180.25	$2,101,715.00
1.15	REMOVE AND REPLACE WATER MAIN	FOOT	UTIL RELO	8	12,850	$270.00	$3,469,500.00	12,850	$278.10	$3,573,585.00	12,850	$310.50	$3,989,925.00	$278.10	$3,573,585.00
1	SODDING, SPECIAL - WM/SANITARY RELOCATION	SQ YD	UTIL RELO	8	8,000	$7.50	$60,000.00	8,000	$7.73	$61,800.00	13,000	$7.50	$97,500.00	$7.50	$97,500.00
1.090909091	TOPSOIL FURNISH AND PLACE - WM/SANITARY RELOCATION	SQ YD	UTIL RELO	8	8,000	$11.00	$88,000.00	8,000	$11.33	$90,640.00	13,000	$12.00	$156,000.00	$12.00	$156,000.00
1.15	CONSTRUCTION LAYOUT	L. SUM	MISC	9	1	$225,000.00	$225,000.00	1	$231,750.00	$231,750.00	1	$258,750.00	$258,750.00	$231,750.00	$231,750.00
1	DETECTABLE WARNINGS	SQ FT	MISC	9	1,000	$50.00	$50,000.00	1,000	$51.50	$51,500.00	1,000	$50.00	$50,000.00	$50.00	$50,000.00
1	PORTLAND CEMENT CONCRETE SIDEWALK 5 INCH	SQ FT	MISC	9	2,500	$8.00	$20,000.00	2,500	$8.24	$20,600.00	2,500	$8.00	$20,000.00	$8.00	$20,000.00
1.12	SIDEWALK REMOVAL	SQ FT	MISC	9	2,500	$2.50	$6,250.00	2,500	$2.58	$6,437.50	2,500	$2.80	$7,000.00	$2.58	$6,450.00
1.15	TRAFFIC CONTROL	L. SUM	MISC	9	1	$800,000.00	$800,000.00	1	$824,000.00	$824,000.00	1	$920,000.00	$920,000.00	$824,000.00	$824,000.00
1.266666667	TREE PROTECTION	EACH	MISC	9	50	$150.00	$7,500.00	50	$154.50	$7,725.00	50	$190.00	$9,500.00	$190.00	$9,500.00
1.03	TREE PRUNING (1 TO 10 INCH DIAMETER)	EACH	MISC	9	50	$140.00	$7,000.00	50	$144.20	$7,210.00	50	$144.20	$7,210.00	$144.20	$7,210.00
1.03	TREE PRUNING (OVER 10 INCH DIAMETER)	EACH	MISC	9	50	$175.00	$8,750.00	50	$180.25	$9,012.50	50	$180.25	$9,012.50	$180.25	$9,012.50
1.03	TREE ROOT PRUNING	EACH	MISC	9	50	$150.00	$7,500.00	50	$154.50	$7,725.00	50	$154.50	$7,725.00	$154.50	$7,725.00
						SUBTOTAL =	$57,547,505.00		**SUBTOTAL =**	**$59,273,930.15**		**SUBTOTAL =**	**$71,643,357.75**	**SUBTOTAL =**	**$69,723,951.55**
						CONTINGENCY (20%) =	$11,509,501.00		CONTINGENCY (20%) =	$11,854,786.03		CONTINGENCY (20%) =	$14,328,671.55		
						CONSTRUCTION TOTAL =	**$69,057,006.00**		**CONSTRUCTION TOTAL =**	**$71,128,716.18**		**CONSTRUCTION TOTAL =**	**$85,972,029.30**		
						DESIGN ENGINEERING (6%) =	$4,143,420.36		DESIGN ENGINEERING (6%) =	$4,267,722.97		DESIGN ENGINEERING (6%) =	$5,158,321.76		
						CONSTRUCTION OBSERVATION (6%) =	$4,143,420.36		CONSTRUCTION OBSERVATION (6%) =	$4,267,722.97		CONSTRUCTION OBSERVATION (6%) =	$5,158,321.76		
						PERMITTING =	$250,000.00		PERMITTING =	$257,500.00		PERMITTING =	$257,500.00		
						TOTAL PROJECT COST INCLUDING ENGINEERING =	**$77,593,846.72**		**TOTAL PROJECT COST (INCL ENG) =**	**$79,921,662.12**		**TOTAL PROJECT COST (INCL ENG) =**	**$96,546,172.82**		
							$1,296.70			$1,335.60			$1,614.32		
							$1,556.04			$1,602.72			$1,937.18		

Ratio	Number of Times Utilized
1	12
1.1	1
1.12	8
1.15	14
1.2	6
1.03	4
1.0625	1
1.25	1
1.4	1
0.75	1
sum	49

UNIT PRICES CHANGED TO CREATE 1:1 RATIO
RATIO
NON RATIO

CBBEL 2016 NOTES:
1. THIS ESTIMATE DOES NOT INCLUDE ROW ACQUISTION, TEMPORARY OR CONSTRUCTION EASEMENTS, OR RELOCATING ANY EXISTING UTILITIES.
2. THESE UNIT PRICES ARE BASED ON OUR DESIGN MEMO DATED DECEMBER 5, 2014 AND ARE 2016 CONSTRUCTION COSTS.
3. PAVEMENT THICKNESS REMOVAL WAS ASSUMED TO BE 21".
4. TRENCH BACKFILL IS INCLUDED IN THE COST OF THE WATER MAIN AND SANITARY MAIN REMOVAL AND REPLACEMENT.

Analysis of Estimated Project Costs
Village of Wilmette, Proposed Storm Sewer Improvements
ALTERNATIVE 1 - New Trunk and Lateral Storm

Last Update: 05/19/2017
Last Update by: CBBEL

Instructions:
Columns Q through U are currently set to the escalated CBBEL values and can be used as the template for adding new estimates to the table. To create an updated estimate, copy and past the last 5 columns in the spreadsheet table to the far right end of the table. Then revise the title block and any quantities or unit prices to generate a new total. Delta values are computed relative to the Escalated CBBEL numbers shown in Column K.

Christopher B. Burke Engineering, Ltd. **Project Number: 13-0605** **Revised: June 22, 2016**		**Christopher B. Burke Engineering, Ltd.** **Project Number: 13-0605** **Escalation to 2nd Qtr, 2017 (April 30, 2017)**		**Stantec** **Project Number: 173440064** **Initial Cost Review (April 30, 2017)**	
UNDERGROUND - SEWER	$30,935,930	UNDERGROUND - SEWER	$31,864,008	UNDERGROUND - SEWER	$39,261,336
UNDERGROUND - TBF	$4,640,000	UNDERGROUND - TBF	$4,779,200	UNDERGROUND - TBF	$6,525,000
UNDERGROUND - JC	$600,000	UNDERGROUND - JC	$618,000	UNDERGROUND - JC	$2,259,998
UNDERGROUND - STRUC	$1,573,500	UNDERGROUND - STRUC	$1,620,705	UNDERGROUND - STRUC	$1,809,525
UNDERGROUND - PUMP STA	$800,000	UNDERGROUND - PUMP STA	$824,000	UNDERGROUND - PUMP STA	$824,000
UNDERGROUND - REST	$92,500	UNDERGROUND - REST	$95,275	UNDERGROUND - REST	$253,500
PAVING	$10,638,000	PAVING	$10,957,140	PAVING	$11,276,850
WM/SANITARY RELO	$7,135,575	WM/SANITARY RELO	$7,349,642	WM/SANITARY RELO	$8,143,951
MISCELLANEOUS	$1,132,000	MISCELLANEOUS	$1,165,960	MISCELLANEOUS	$1,289,198
TOTAL	$57,547,505	TOTAL	$59,273,930	TOTAL	$71,643,358

ITEMS	UNIT	Category		QUANTITY	UNIT PRICE	TOTAL COST	QUANTITY	UNIT PRICE ESCALATED 3%	TOTAL COST 2017	QUANTITY	UNIT PRICE	TOTAL COST	1.00 RATIO UNIT PRICE	1.00 RATIO TOTAL COST
PRECAST CONCRETE BOX CULVERTS 10' X 7'	FOOT	UNDER-SEWER	1	4,100	$1,800.00	$7,380,000.00	4,100	$1,854.00	$7,601,400.00	4,100	$2,231.00	$9,147,100.00	$2,231.00	$9,147,100.00
PRECAST CONCRETE BOX CULVERTS 10' X 7' (AUGURED)	FOOT	UNDER-SEWER	1	100	$6,500.00	$650,000.00	100	$6,695.00	$669,500.00	100	$11,966.00	$1,196,600.00	$11,966.00	$1,196,600.00
STORM SEWER REMOVAL, 12"	FOOT	UNDER-SEWER	1	2,600	$10.00	$26,000.00	2,600	$10.30	$26,780.00	2,600	$10.00	$26,000.00	$10.00	$26,000.00
STORM SEWER REMOVAL, 15"	FOOT	UNDER-SEWER	1	1,020	$10.00	$10,200.00	1,020	$10.30	$10,506.00	1,020	$10.00	$10,200.00	$10.00	$10,200.00
STORM SEWER REMOVAL, 21"	FOOT	UNDER-SEWER	1	454	$10.00	$4,540.00	454	$10.30	$4,676.20	454	$11.00	$4,994.00	$11.00	$4,994.00
STORM SEWER REMOVAL, 24"	FOOT	UNDER-SEWER	1	150	$10.00	$1,500.00	150	$10.30	$1,545.00	150	$12.00	$1,800.00	$10.30	$1,545.00
STORM SEWER REMOVAL, 27"	FOOT	UNDER-SEWER	1	1,080	$10.00	$10,800.00	1,080	$10.30	$11,124.00	1,080	$15.00	$16,200.00	$15.00	$16,200.00
STORM SEWER REMOVAL, 30"	FOOT	UNDER-SEWER	1	1,370	$20.00	$27,400.00	1,370	$20.60	$28,222.00	1,370	$15.00	$20,550.00	$15.00	$20,550.00
STORM SEWER REMOVAL, 36"	FOOT	UNDER-SEWER	1	665	$20.00	$13,300.00	665	$20.60	$13,699.00	665	$20.00	$13,300.00	$20.00	$13,300.00
STORM SEWER REMOVAL, 48"	FOOT	UNDER-SEWER	1	604	$20.00	$12,080.00	604	$20.60	$12,442.40	604	$25.00	$15,100.00	$25.00	$15,100.00
STORM SEWER REMOVAL, 54"	FOOT	UNDER-SEWER	1	533	$25.00	$13,325.00	533	$25.75	$13,724.75	533	$25.00	$13,325.00	$25.00	$13,325.00
STORM SEWER REMOVAL, 60"	FOOT	UNDER-SEWER	1	137	$25.00	$3,425.00	137	$25.75	$3,527.75	137	$35.00	$4,795.00	$35.00	$4,795.00
STORM SEWER REMOVAL, 8"	FOOT	UNDER-SEWER	1	50	$10.00	$500.00	50	$10.30	$515.00	50	$10.00	$500.00	$10.00	$500.00
STORM SEWERS, 108" RCP	FOOT	UNDER-SEWER	1	2,650	$1,500.00	$3,975,000.00	2,650	$1,545.00	$4,094,250.00	2,650	$1,588.00	$4,208,200.00	$1,242.22	$3,291,883.00
STORM SEWERS, 108" RCP (AUGURED) Edens Expressway	FOOT	UNDER-SEWER	1	350	$5,500.00	$1,925,000.00	350	$5,665.00	$1,982,750.00	350	$5,350.00	$1,872,500.00	$5,350.00	$1,872,500.00
STORM SEWERS, 108" RCP (TRENCHLESS) Hibbard & Skokie Road	FOOT	UNDER-SEWER	1							150	$9,436.00	$1,415,400.00	$9,436.00	$1,415,400.00
STORM SEWERS, 24" RCP	FOOT	UNDER-SEWER	1	11,620	$192.00	$2,231,040.00	11,620	$197.76	$2,297,971.20	11,620	$230.40	$2,677,248.00	$197.76	$2,297,971.20
STORM SEWERS, 27" RCP	FOOT	UNDER-SEWER	1	1,800	$205.00	$369,000.00	1,800	$211.15	$380,070.00	1,800	$246.00	$442,800.00	$211.15	$380,070.00
STORM SEWERS, 30" RCP	FOOT	UNDER-SEWER	1	400	$218.00	$87,200.00	400	$224.54	$89,816.00	400	$261.60	$104,640.00	$224.54	$89,816.00
STORM SEWERS, 36" RCP	FOOT	UNDER-SEWER	1	2,785	$252.00	$701,820.00	2,785	$259.56	$722,874.60	2,785	$302.40	$842,184.00	$259.56	$722,874.60
STORM SEWERS, 42" RCP	FOOT	UNDER-SEWER	1	2,475	$300.00	$742,500.00	2,475	$309.00	$764,775.00	2,475	$360.00	$891,000.00	$309.00	$764,775.00
STORM SEWERS, 48" RCP	FOOT	UNDER-SEWER	1	4,460	$328.00	$1,462,880.00	4,460	$337.84	$1,506,766.40	4,460	$479.00	$2,136,340.00	$360.31	$1,606,982.60
STORM SEWERS, 60" RCP	FOOT	UNDER-SEWER	1	2,520	$414.00	$1,043,280.00	2,520	$426.42	$1,074,578.40	2,520	$749.00	$1,887,480.00	$569.40	$1,434,888.00
STORM SEWERS, 66" RCP	FOOT	UNDER-SEWER	1	480	$468.00	$224,640.00	480	$482.04	$231,379.20	480	$784.00	$376,320.00	$626.17	$300,561.60
STORM SEWERS, 72" RCP	FOOT	UNDER-SEWER	1	2,420	$650.00	$1,573,000.00	2,420	$669.50	$1,620,190.00	2,420	$971.00	$2,349,820.00	$739.65	$1,789,953.00
STORM SEWERS, 84" RCP	FOOT	UNDER-SEWER	1	6,920	$1,000.00	$6,920,000.00	6,920	$1,030.00	$7,127,600.00	6,920	$1,177.00	$8,144,840.00	$878.83	$6,081,503.60
STORM SEWERS, 96" RCP	FOOT	UNDER-SEWER	1	1,300	$1,175.00	$1,527,500.00	1,300	$1,210.25	$1,573,325.00	1,150	$1,254.00	$1,442,100.00	$1,068.58	$1,228,867.00
TRENCH BACKFILL, CA-7	CU YD	UNDER-TBF	2	145,000	$32.00	$4,640,000.00	145,000	$32.96	$4,779,200.00	145,000	$45.00	$6,525,000.00	$45.00	$6,525,000.00
JUNCTION BOX	EACH	UNDER-JC	3	4	$150,000.00	$600,000.00	4	$154,500.00	$618,000.00	13	$173,846.00	$2,259,998.00	$173,846.00	$2,259,998.00
MANHOLES, TYPE A, 10'x10', TYPE 1 FRAME, CLOSED LID	EACH	UNDER-STRUC	4	5	$50,000.00	$250,000.00	5	$51,500.00	$257,500.00	5	$57,500.00	$287,500.00	$51,500.00	$257,500.00
MANHOLES, TYPE A, 4'-DIAMETER, TYPE 1 FRAME, CLOSED LID	EACH	UNDER-STRUC	4	58	$4,000.00	$232,000.00	58	$4,120.00	$238,960.00	58	$4,600.00	$266,800.00	$4,120.00	$238,960.00
MANHOLES, TYPE A, 5'-DIAMETER, TYPE 1 FRAME, CLOSED LID	EACH	UNDER-STRUC	4	24	$5,500.00	$132,000.00	24	$5,665.00	$135,960.00	24	$6,325.00	$151,800.00	$5,665.00	$135,960.00
MANHOLES, TYPE A, 6'-DIAMETER, TYPE 1 FRAME, CLOSED LID	EACH	UNDER-STRUC	4	9	$7,500.00	$67,500.00	9	$7,725.00	$69,525.00	9	$8,625.00	$77,625.00	$7,725.00	$69,525.00
MANHOLES, TYPE A, 7'-DIAMETER, TYPE 1 FRAME, CLOSED LID	EACH	UNDER-STRUC	4	19	$12,000.00	$228,000.00	19	$12,360.00	$234,840.00	19	$13,800.00	$262,200.00	$12,360.00	$234,840.00
MANHOLES, TYPE A, 8'-DIAMETER, TYPE 1 FRAME, CLOSED LID	EACH	UNDER-STRUC	4	17	$17,000.00	$289,000.00	17	$17,510.00	$297,670.00	17	$19,550.00	$332,350.00	$17,510.00	$297,670.00
MANHOLES, TYPE A, 9'-DIAMETER, TYPE 1 FRAME, CLOSED LID	EACH	UNDER-STRUC	4	6	$20,000.00	$120,000.00	6	$20,600.00	$123,600.00	6	$23,000.00	$138,000.00	$20,600.00	$123,600.00
MANHOLES, TYPE A, WITH RISER	EACH	UNDER-STRUC	4	30	$8,500.00	$255,000.00	30	$8,755.00	$262,650.00	30	$9,775.00	$293,250.00	$8,755.00	$262,650.00
PUMP STATION UPDATED - 6th PUMP	L. SUM	UNDER-PS	5	1	$800,000.00	$800,000.00	1	$824,000.00	$824,000.00	1	$824,000.00	$824,000.00	$824,000.00	$824,000.00
SODDING, SPECIAL	SQ YD	UNDER-REST	6	5,000	$11.00	$55,000.00	5,000	$11.33	$56,650.00	13,000	$12.00	$156,000.00	$11.33	$147,290.00
TOPSOIL FURNISH AND PLACE	SQ YD	UNDER-REST	6	5,000	$7.50	$37,500.00	5,000	$7.73	$38,625.00	13,000	$7.50	$97,500.00	$7.50	$97,500.00
AGGREGATE (PRIME COAT)	TON	PAVE	7	300	$20.00	$6,000.00	300	$20.60	$6,180.00	300	$22.40	$6,720.00	$20.60	$6,180.00
AGGREGATE BASE COURSE, 10"	SQ YD	PAVE	7	60,000	$16.00	$960,000.00	60,000	$16.48	$988,800.00	60,000	$17.00	$1,020,000.00	$17.00	$1,020,000.00
AGGREGATE FOR TEMPORARY ACCESS	TON	PAVE	7	500	$25.00	$12,500.00	500	$25.75	$12,875.00	500	$28.00	$14,000.00	$25.75	$12,875.00
AGGREGATE SUBGRADE IMPROVEMENT	CU YD	PAVE	7	3,000	$55.00	$165,000.00	3,000	$56.65	$169,950.00	3,000	$61.60	$184,800.00	$56.65	$169,950.00
BITUMINOUS MATERIALS (PRIME COAT)	GAL	PAVE	7	14,000	$3.50	$49,000.00	14,000	$3.61	$50,470.00	14,000	$3.92	$54,880.00	$3.61	$50,540.00
CLASS B PATCH, SPECIAL	SQ YD	PAVE	7	1,200	$90.00	$108,000.00	1,200	$92.70	$111,240.00	1,200	$100.00	$120,000.00	$100.00	$120,000.00
CLASS D PATCH, SPECIAL	SQ YD	PAVE	7	33,000	$93.00	$3,069,000.00	33,000	$95.79	$3,161,070.00	33,000	$104.00	$3,432,000.00	$104.00	$3,432,000.00
COMBINATION CONCRETE CURB AND GUTTER REMOVAL AND REPLACEMENT	FOOT	PAVE	7	50,000	$26.00	$1,300,000.00	50,000	$26.78	$1,339,000.00	50,000	$25.00	$1,250,000.00	$25.00	$1,250,000.00
HOT-MIX ASPHALT BINDER COURSE, IL-19.0, N50 6"	TON	PAVE	7	19,500	$83.00	$1,618,500.00	19,500	$85.49	$1,667,055.00	19,500	$85.00	$1,657,500.00	$85.00	$1,657,500.00
HOT-MIX ASPHALT SURFACE COURSE, MIX "D", N50 1.5"	TON	PAVE	7	9,000	$90.00	$810,000.00	9,000	$92.70	$834,300.00	9,000	$90.00	$810,000.00	$90.00	$810,000.00
HOT-MIX ASPHALT SURFACE COURSE, MIX "D", N50 2.5"	TON	PAVE	7	8,000	$90.00	$720,000.00	8,000	$92.70	$741,600.00	8,000	$88.00	$704,000.00	$88.00	$704,000.00
HOT-MIX ASPHALT SURFACE REMOVAL, 2"	SQ YD	PAVE	7	86,000	$5.00	$430,000.00	86,000	$5.15	$442,900.00	86,000	$5.60	$481,600.00	$5.15	$442,900.00
LEVELING BINDER (MACHINE METHOD), N50	TON	PAVE	7	4,500	$90.00	$405,000.00	4,500	$92.70	$417,150.00	4,500	$100.80	$453,600.00	$92.70	$417,150.00
PAVEMENT REMOVAL	SQ YD	PAVE	7	60,000	$13.75	$825,000.00	60,000	$14.16	$849,750.00	60,000	$15.40	$924,000.00	$14.16	$849,600.00
REMOVAL AND DISPOSAL OF UNSUITABLE MATERIAL	CU YD	PAVE	7	3,000	$45.00	$135,000.00	3,000	$46.35	$139,050.00	3,000	$45.00	$135,000.00	$45.00	$135,000.00
THERMOPLASTIC PAVEMENT MARKINGS	L. SUM	PAVE	7	1	$25,000.00	$25,000.00	1	$25,750.00	$25,750.00	1	$28,750.00	$28,750.00	$25,750.00	$25,750.00
RELOCATE SANITARY SEWER SERVICE LINE	EACH	UTIL RELO	8	219	$2,325.00	$509,175.00	219	$2,394.75	$524,450.25	219	$2,673.75	$585,551.25	$2,394.75	$524,450.25
RELOCATE WATER SERVICE LINE, LONG SIDE	EACH	UTIL RELO	8	269	$3,600.00	$968,400.00	269	$3,708.00	$997,452.00	269	$3,600.00	$968,400.00	$3,600.00	$968,400.00
REMOVE AND REPLACE SANITARY MAIN	FOOT	UTIL RELO	8	11,660	$175.00	$2,040,500.00	11,660	$180.25	$2,101,715.00	11,660	$201.25	$2,346,575.00	$180.25	$2,101,715.00
REMOVE AND REPLACE WATER MAIN	FOOT	UTIL RELO	8	12,850	$270.00	$3,469,500.00	12,850	$278.10	$3,573,585.00	12,850	$310.50	$3,989,925.00	$278.10	$3,573,585.00
SODDING, SPECIAL - WM/SANITARY RELOCATION	SQ YD	UTIL RELO	8	8,000	$7.50	$60,000.00	8,000	$7.73	$61,800.00	13,000	$7.50	$97,500.00	$7.50	$97,500.00
TOPSOIL FURNISH AND PLACE - WM/SANITARY RELOCATION	SQ YD	UTIL RELO	8	8,000	$11.00	$88,000.00	8,000	$11.33	$90,640.00	13,000	$12.00	$156,000.00	$12.00	$156,000.00
CONSTRUCTION LAYOUT	L. SUM	MISC	9	1	$225,000.00	$225,000.00	1	$231,750.00	$231,750.00	1	$258,750.00	$258,750.00	$231,750.00	$231,750.00
DETECTABLE WARNINGS	SQ FT	MISC	9	1,000	$50.00	$50,000.00	1,000	$51.50	$51,500.00	1,000	$50.00	$50,000.00	$50.00	$50,000.00
PORTLAND CEMENT CONCRETE SIDEWALK 5 INCH	SQ FT	MISC	9	2,500	$8.00	$20,000.00	2,500	$8.24	$20,600.00	2,500	$8.00	$20,000.00	$8.00	$20,000.00
SIDEWALK REMOVAL	SQ FT	MISC	9	2,500	$2.50	$6,250.00	2,500	$2.58	$6,437.50	2,500	$2.80	$7,000.00	$2.58	$6,450.00
TRAFFIC CONTROL	L. SUM	MISC	9	1	$800,000.00	$800,000.00	1	$824,000.00	$824,000.00	1	$920,000.00	$920,000.00	$824,000.00	$824,000.00
TREE PROTECTION	EACH	MISC	9	50	$150.00	$7,500.00	50	$154.50	$7,725.00	50	$190.00	$9,500.00	$190.00	$9,500.00
TREE PRUNING (1 TO 10 INCH DIAMETER)	EACH	MISC	9	50	$140.00	$7,000.00	50	$144.20	$7,210.00	50	$144.20	$7,210.00	$144.20	$7,210.00
TREE PRUNING (OVER 10 INCH DIAMETER)	EACH	MISC	9	50	$175.00	$8,750.00	50	$180.25	$9,012.50	50	$180.25	$9,012.50	$180.25	$9,012.50
TREE ROOT PRUNING	EACH	MISC	9	50	$150.00	$7,500.00	50	$154.50	$7,725.00	50	$154.50	$7,725.00	$154.50	$7,725.00
					SUBTOTAL =	$57,547,505.00		**SUBTOTAL =**	**$59,273,930.15**		**SUBTOTAL =**	**$71,643,357.75**	**SUBTOTAL =**	**$64,913,490.35**
					CONTINGENCY (20%) =	$11,509,501.00		CONTINGENCY (20%) =	$11,854,786.03		CONTINGENCY (20%) =	$14,328,671.55		$12,982,698.07
					CONSTRUCTION TOTAL =	**$69,057,006.00**		**CONSTRUCTION TOTAL =**	**$71,128,716.18**		**CONSTRUCTION TOTAL =**	**$85,972,029.30**		**$77,896,188.42**
					DESIGN ENGINEERING (6%) =	$4,143,420.36		DESIGN ENGINEERING (6%) =	$4,267,722.97		DESIGN ENGINEERING (6%) =	$5,158,321.76		$4,673,771.31
					CONSTRUCTION OBSERVATION (6%) =	$4,143,420.36		CONSTRUCTION OBSERVATION (6%) =	$4,267,722.97		CONSTRUCTION OBSERVATION (6%) =	$5,158,321.76		$4,673,771.31
					PERMITTING =	$250,000.00		PERMITTING =	$257,500.00		PERMITTING =	$257,500.00		$257,500.00
					TOTAL PROJECT COST INCLUDING ENGINEERING =	**$77,593,846.72**		**TOTAL PROJECT COST (INCL ENG) =**	**$79,921,662.12**		**TOTAL PROJECT COST (INCL ENG) =**	**$96,546,172.82**		**$87,501,231.03**
						$1,296.70			$1,335.60			$1,614.32		
						$1,556.04			$1,602.72			$1,937.18		

CHANGES IN UNIT PRICE DUE TO 48"-108" STORM SEWER ADJUSTMENTS

CBBEL 2016 NOTES:
1. THIS ESTIMATE DOES NOT INCLUDE ROW ACQUISTION, TEMPORARY OR CONSTRUCTION EASEMENTS, OR RELOCATING ANY EXISTING UTILITIES.
2. THESE UNIT PRICES ARE BASED ON OUR DESIGN MEMO DATED DECEMBER 5, 2014 AND ARE 2016 CONSTRUCTION COSTS.
3. PAVEMENT THICKNESS REMOVAL WAS ASSUMED TO BE 21".
4. TRENCH BACKFILL IS INCLUDED IN THE COST OF THE WATER MAIN AND SANITARY MAIN REMOVAL AND REPLACEMENT.

APPENDIX 6

Cost Spreadsheet with CBBEL and Stantec Unit Costs

Analysis of Estimated Project Costs
Village of Wilmette, Proposed Storm Sewer Improvements
ALTERNATIVE 1 - New Trunk and Lateral Storm

Last Update: 05/19/2017
Last Update by: CBBEL

Instructions:
Columns Q through U are currently set to the escalated CBBEL values and can be used as the template for adding new estimates to the table. To create an updated estimate, copy and past the last 5 columns in the spreadsheet table to the far right end of the table. Then revise the title block and any quantities or unit prices to generate a new total. Delta values are computed relative to the Escalated CBBEL numbers shown in Column K.

Christopher B. Burke Engineering, Ltd. Project Number: 13-0605 Revised: June 22, 2016		Christopher B. Burke Engineering, Ltd. Project Number: 13-0605 Escalation to 2nd Qtr, 2017 (April 30, 2017)		Stantec Project Number: 173440064 Initial Cost Review (April 30, 2017)			UTILIZING 2017 CBBEL UNIT PRICES FOR ITEMS WITH NO UNIT PRICE — FRANKLIN PARK BID - AVERAGE BID PRICE PLUS 20% (38 ITEMS: MAY 18, 2017)			UTILIZING STANTEC UNIT PRICES FOR ITEMS WITH NO UNIT PRICE — FRANKLIN PARK BID - AVERAGE BID PRICE PLUS 20% (38 ITEMS: MAY 18, 2017)		
						Delta from CBBEL Escalated			Delta from CBBEL Escalated			Delta from CBBEL Escalated
UNDERGROUND - SEWER	$30,935,930	UNDERGROUND - SEWER	$31,864,008	UNDERGROUND - SEWER	$39,261,336	$7,397,328	UNDERGROUND - SEWER	$29,929,831	-$1,934,177	UNDERGROUND - SEWER	$34,002,142	$2,138,134
UNDERGROUND - TBF	$4,640,000	UNDERGROUND - TBF	$4,779,200	UNDERGROUND - TBF	$6,525,000	$1,745,800	UNDERGROUND - TBF	$4,747,300	-$31,900	UNDERGROUND - TBF	$4,747,300	-$31,900
UNDERGROUND - JC	$600,000	UNDERGROUND - JC	$618,000	UNDERGROUND - JC	$2,259,998	$1,641,998	UNDERGROUND - JC	$618,000	$0	UNDERGROUND - JC	$695,384	$77,384
UNDERGROUND - STRUC	$1,573,500	UNDERGROUND - STRUC	$1,620,705	UNDERGROUND - STRUC	$1,809,525	$188,820	UNDERGROUND - STRUC	$1,340,761	-$279,944	UNDERGROUND - STRUC	$1,385,161	-$235,544
UNDERGROUND - PUMP STA	$800,000	UNDERGROUND - PUMP STA	$824,000	UNDERGROUND - PUMP STA	$824,000	$0	UNDERGROUND - PUMP STA	$824,000	$0	UNDERGROUND - PUMP STA	$824,000	$0
UNDERGROUND - REST	$92,500	UNDERGROUND - REST	$95,275	UNDERGROUND - REST	$253,500	$158,225	UNDERGROUND - REST	$111,775	$16,500	UNDERGROUND - REST	$110,650	$15,375
PAVING	$10,638,000	PAVING	$10,957,140	PAVING	$11,276,850	$319,710	PAVING	$11,605,935	$648,795	PAVING	$11,676,330	$719,190
WM/SANITARY RELO	$7,135,575	WM/SANITARY RELO	$7,349,642	WM/SANITARY RELO	$8,143,951	$794,309	WM/SANITARY RELO	$6,522,996	-$826,647	WM/SANITARY RELO	$6,560,405	-$789,238
MISCELLANEOUS	$1,132,000	MISCELLANEOUS	$1,165,960	MISCELLANEOUS	$1,289,198	$123,238	MISCELLANEOUS	$1,142,648	-$23,313	MISCELLANEOUS	$1,267,423	$101,463
TOTAL	$57,547,505	TOTAL	$59,273,930	TOTAL	$71,643,358	$12,369,428	TOTAL	$56,843,245	-$2,430,685	TOTAL	$61,268,794	$1,994,864

ITEMS	UNIT	Category		QUANTITY	UNIT PRICE	TOTAL COST	QUANTITY	UNIT PRICE ESCALATED 3%	TOTAL COST 2017	QUANTITY	UNIT PRICE	TOTAL COST	Delta from Escalated CBBEL	QUANTITY	UNIT PRICE	TOTAL COST	Delta from Escalated CBBEL	QUANTITY	UNIT PRICE	TOTAL COST	Delta from Escalated CBBEL
PRECAST CONCRETE BOX CULVERTS 10' X 7'	FOOT	UNDER-SEWER	1	4,100	$1,800.00	$7,380,000.00	4,100	$1,854.00	$7,601,400.00	4,100	$2,231.00	$9,147,100.00	$1,545,700.00	4,100	$1,854.00	$7,601,400.00	$0.00	4,100	$2,231.00	$9,147,100.00	$1,545,700.00
PRECAST CONCRETE BOX CULVERTS 10' X 7' (AUGURED)	FOOT	UNDER-SEWER	1	100	$6,500.00	$650,000.00	100	$6,695.00	$669,500.00	100	$11,966.00	$1,196,600.00	$527,100.00	100	$6,695.00	$669,500.00	$0.00	100	$11,966.00	$1,196,600.00	$527,100.00
STORM SEWER REMOVAL, 12"	FOOT	UNDER-SEWER	1	2,600	$10.00	$26,000.00	2,600	$10.30	$26,780.00	2,600	$10.00	$26,000.00	-$780.00	2,600	$13.88	$36,088.00	$9,308.00	2,600	$13.88	$36,088.00	$9,308.00
STORM SEWER REMOVAL, 15"	FOOT	UNDER-SEWER	1	1,020	$10.00	$10,200.00	1,020	$10.30	$10,506.00	1,020	$10.00	$10,200.00	-$306.00	1,020	$14.74	$15,034.80	$4,528.80	1,020	$14.74	$15,034.80	$4,528.80
STORM SEWER REMOVAL, 21"	FOOT	UNDER-SEWER	1	454	$10.00	$4,540.00	454	$10.30	$4,676.20	454	$11.00	$4,994.00	$317.80	454	$10.30	$4,676.20	$0.00	454	$10.30	$4,676.20	$0.00
STORM SEWER REMOVAL, 24"	FOOT	UNDER-SEWER	1	150	$10.00	$1,500.00	150	$10.30	$1,545.00	150	$12.00	$1,800.00	$255.00	150	$17.42	$2,613.00	$1,068.00	150	$17.42	$2,613.00	$1,068.00
STORM SEWER REMOVAL, 27"	FOOT	UNDER-SEWER	1	1,080	$10.00	$10,800.00	1,080	$10.30	$11,124.00	1,080	$15.00	$16,200.00	$5,076.00	1,080	$10.30	$11,124.00	$0.00	1,080	$10.30	$11,124.00	$0.00
STORM SEWER REMOVAL, 30"	FOOT	UNDER-SEWER	1	1,370	$20.00	$27,400.00	1,370	$20.60	$28,222.00	1,370	$15.00	$20,550.00	-$7,672.00	1,370	$20.96	$28,715.20	$493.20	1,370	$20.96	$28,715.20	$493.20
STORM SEWER REMOVAL, 36"	FOOT	UNDER-SEWER	1	665	$20.00	$13,300.00	665	$20.60	$13,699.00	665	$20.00	$13,300.00	-$399.00	665	$20.60	$13,699.00	$0.00	665	$20.00	$13,300.00	-$399.00
STORM SEWER REMOVAL, 48"	FOOT	UNDER-SEWER	1	604	$20.00	$12,080.00	604	$20.60	$12,442.40	604	$25.00	$15,100.00	$2,657.60	604	$20.60	$12,442.40	$0.00	604	$25.00	$15,100.00	$2,657.60
STORM SEWER REMOVAL, 54"	FOOT	UNDER-SEWER	1	533	$25.00	$13,325.00	533	$25.75	$13,724.75	533	$25.00	$13,325.00	-$399.75	533	$25.75	$13,724.75	$0.00	533	$25.00	$13,325.00	-$399.75
STORM SEWER REMOVAL, 60"	FOOT	UNDER-SEWER	1	137	$25.00	$3,425.00	137	$25.75	$3,527.75	137	$35.00	$4,795.00	$1,267.25	137	$25.75	$3,527.75	$0.00	137	$35.00	$4,795.00	$1,267.25
STORM SEWER REMOVAL, 8"	FOOT	UNDER-SEWER	1	50	$10.00	$500.00	50	$10.30	$515.00	50	$10.00	$500.00	-$15.00	50	$10.30	$515.00	$0.00	50	$10.00	$500.00	-$15.00
STORM SEWERS, 108" RCP	FOOT	UNDER-SEWER	1	2,650	$1,500.00	$3,975,000.00	2,650	$1,545.00	$4,094,250.00	2,650	$1,588.00	$4,208,200.00	$113,950.00	2,650	$1,545.00	$4,094,250.00	$0.00	2,650	$1,588.00	$4,208,200.00	$113,950.00
STORM SEWERS, 108" RCP (AUGURED) Edens Expressway	FOOT	UNDER-SEWER	1	350	$5,500.00	$1,925,000.00	350	$5,665.00	$1,982,750.00	350	$5,350.00	$1,872,500.00	-$110,250.00	350	$5,665.00	$1,982,750.00	$0.00	350	$5,350.00	$1,872,500.00	-$110,250.00
STORM SEWERS, 108" RCP (TRENCHLESS) Hibbard & Skokie Road	FOOT	UNDER-SEWER	1							150	$9,436.00	$1,415,400.00	$1,415,400.00			$0.00	$0.00			$0.00	$0.00
STORM SEWERS, 24" RCP	FOOT	UNDER-SEWER	1	11,620	$192.00	$2,231,040.00	11,620	$197.76	$2,297,971.20	11,620	$230.40	$2,677,248.00	$379,276.80	11,620	$106.12	$1,233,114.40	-$1,064,856.80	11,620	$106.12	$1,233,114.40	-$1,064,856.80
STORM SEWERS, 27" RCP	FOOT	UNDER-SEWER	1	1,800	$205.00	$369,000.00	1,800	$211.15	$380,070.00	1,800	$246.00	$442,800.00	$62,730.00	1,800	$211.15	$380,070.00	$0.00	1,800	$246.00	$442,800.00	$62,730.00
STORM SEWERS, 30" RCP	FOOT	UNDER-SEWER	1	400	$218.00	$87,200.00	400	$224.54	$89,816.00	400	$261.60	$104,640.00	$14,824.00	400	$147.83	$59,132.00	-$30,684.00	400	$147.83	$59,132.00	-$30,684.00
STORM SEWERS, 36" RCP	FOOT	UNDER-SEWER	1	2,785	$252.00	$701,820.00	2,785	$259.56	$722,874.60	2,785	$302.40	$842,184.00	$119,309.40	2,785	$157.16	$437,690.60	-$285,184.00	2,785	$157.16	$437,690.60	-$285,184.00
STORM SEWERS, 42" RCP	FOOT	UNDER-SEWER	1	2,475	$300.00	$742,500.00	2,475	$309.00	$764,775.00	2,475	$360.00	$891,000.00	$126,225.00	2,475	$309.00	$764,775.00	$0.00	2,475	$360.00	$891,000.00	$126,225.00
STORM SEWERS, 48" RCP	FOOT	UNDER-SEWER	1	4,460	$328.00	$1,462,880.00	4,460	$337.84	$1,506,766.40	4,460	$479.00	$2,136,340.00	$629,573.60	4,460	$265.80	$1,185,468.00	-$321,298.40	4,460	$265.80	$1,185,468.00	-$321,298.40
STORM SEWERS, 60" RCP	FOOT	UNDER-SEWER	1	2,520	$414.00	$1,043,280.00	2,520	$426.42	$1,074,578.40	2,520	$749.00	$1,887,480.00	$812,901.60	2,520	$350.93	$884,343.60	-$190,234.80	2,520	$350.93	$884,343.60	-$190,234.80
STORM SEWERS, 66" RCP	FOOT	UNDER-SEWER	1	480	$468.00	$224,640.00	480	$482.04	$231,379.20	480	$784.00	$376,320.00	$144,940.80	480	$362.63	$174,062.40	-$57,316.80	480	$362.63	$174,062.40	-$57,316.80
STORM SEWERS, 72" RCP	FOOT	UNDER-SEWER	1	2,420	$650.00	$1,573,000.00	2,420	$669.50	$1,620,190.00	2,420	$971.00	$2,349,820.00	$729,630.00	2,420	$669.50	$1,620,190.00	$0.00	2,420	$971.00	$2,349,820.00	$729,630.00
STORM SEWERS, 84" RCP	FOOT	UNDER-SEWER	1	6,920	$1,000.00	$6,920,000.00	6,920	$1,030.00	$7,127,600.00	6,920	$1,177.00	$8,144,840.00	$1,017,240.00	6,920	$1,030.00	$7,127,600.00	$0.00	6,920	$1,177.00	$8,144,840.00	$1,017,240.00
STORM SEWERS, 96" RCP	FOOT	UNDER-SEWER	1	1,300	$1,175.00	$1,527,500.00	1,300	$1,210.25	$1,573,325.00	1,150	$1,254.00	$1,442,100.00	-$131,225.00	1,300	$1,210.25	$1,573,325.00	$0.00	1,300	$1,254.00	$1,630,200.00	$56,875.00
TRENCH BACKFILL, CA-7	CU YD	UNDER-TBF	2	145,000	$32.00	$4,640,000.00	145,000	$32.96	$4,779,200.00	145,000	$45.00	$6,525,000.00	$1,745,800.00	145,000	$32.74	$4,747,300.00	-$31,900.00	145,000	$32.74	$4,747,300.00	-$31,900.00
JUNCTION BOX	EACH	UNDER-JC	3	4	$150,000.00	$600,000.00	4	$154,500.00	$618,000.00	13	$173,846.00	$2,259,998.00	$1,641,998.00	4	$154,500.00	$618,000.00	$0.00	4	$173,846.00	$695,384.00	$77,384.00
MANHOLES, TYPE A, 10'x10', TYPE 1 FRAME, CLOSED LID	EACH	UNDER-STRUC	4	5	$50,000.00	$250,000.00	5	$51,500.00	$257,500.00	5	$57,500.00	$287,500.00	$30,000.00	5	$51,500.00	$257,500.00	$0.00	5	$57,500.00	$287,500.00	$30,000.00
MANHOLES, TYPE A, 4'-DIAMETER, TYPE 1 FRAME, CLOSED LID	EACH	UNDER-STRUC	4	58	$4,000.00	$232,000.00	58	$4,120.00	$238,960.00	58	$4,600.00	$266,800.00	$27,840.00	58	$3,010.05	$174,582.90	-$64,377.10	58	$3,010.05	$174,582.90	-$64,377.10
MANHOLES, TYPE A, 5'-DIAMETER, TYPE 1 FRAME, CLOSED LID	EACH	UNDER-STRUC	4	24	$5,500.00	$132,000.00	24	$5,665.00	$135,960.00	24	$6,325.00	$151,800.00	$15,840.00	24	$4,415.78	$105,978.72	-$29,981.28	24	$4,415.78	$105,978.72	-$29,981.28
MANHOLES, TYPE A, 6'-DIAMETER, TYPE 1 FRAME, CLOSED LID	EACH	UNDER-STRUC	4	9	$7,500.00	$67,500.00	9	$7,725.00	$69,525.00	9	$8,625.00	$77,625.00	$8,100.00	9	$7,056.45	$63,508.05	-$6,016.95	9	$7,056.45	$63,508.05	-$6,016.95
MANHOLES, TYPE A, 7'-DIAMETER, TYPE 1 FRAME, CLOSED LID	EACH	UNDER-STRUC	4	19	$12,000.00	$228,000.00	19	$12,360.00	$234,840.00	19	$13,800.00	$262,200.00	$27,360.00	19	$11,610.00	$220,590.00	-$14,250.00	19	$11,610.00	$220,590.00	-$14,250.00
MANHOLES, TYPE A, 8'-DIAMETER, TYPE 1 FRAME, CLOSED LID	EACH	UNDER-STRUC	4	17	$17,000.00	$289,000.00	17	$17,510.00	$297,670.00	17	$19,550.00	$332,350.00	$34,680.00	17	$16,087.50	$273,487.50	-$24,182.50	17	$16,087.50	$273,487.50	-$24,182.50
MANHOLES, TYPE A, 9'-DIAMETER, TYPE 1 FRAME, CLOSED LID	EACH	UNDER-STRUC	4	6	$20,000.00	$120,000.00	6	$20,600.00	$123,600.00	6	$23,000.00	$138,000.00	$14,400.00	6	$20,600.00	$123,600.00	$0.00	6	$23,000.00	$138,000.00	$14,400.00
MANHOLES, TYPE A, WITH RISER	EACH	UNDER-STRUC	4	30	$8,500.00	$255,000.00	30	$8,755.00	$262,650.00	30	$9,775.00	$293,250.00	$30,600.00	30	$4,050.45	$121,513.50	-$141,136.50	30	$4,050.45	$121,513.50	-$141,136.50
PUMP STATION UPDATED - 6th PUMP	L. SUM	UNDER-PS	5	1	$800,000.00	$800,000.00	1	$824,000.00	$824,000.00	1	$824,000.00	$824,000.00	$0.00	1	$824,000.00	$824,000.00	$0.00	1	$824,000.00	$824,000.00	$0.00
SODDING, SPECIAL	SQ YD	UNDER-REST	6	5,000	$11.00	$55,000.00	5,000	$11.33	$56,650.00	13,000	$12.00	$156,000.00	$99,350.00	5,000	$14.63	$73,150.00	$16,500.00	5,000	$14.63	$73,150.00	$16,500.00
TOPSOIL FURNISH AND PLACE	SQ YD	UNDER-REST	6	5,000	$7.50	$37,500.00	5,000	$7.73	$38,625.00	13,000	$7.50	$97,500.00	$58,875.00	5,000	$7.73	$38,625.00	$0.00	5,000	$7.50	$37,500.00	-$1,125.00
AGGREGATE (PRIME COAT)	TON	PAVE	7	300	$20.00	$6,000.00	300	$20.60	$6,180.00	300	$22.40	$6,720.00	$540.00	300	$20.60	$6,180.00	$0.00	300	$22.40	$6,720.00	$540.00
AGGREGATE BASE COURSE, 10"	SQ YD	PAVE	7	60,000	$16.00	$960,000.00	60,000	$16.48	$988,800.00	60,000	$17.00	$1,020,000.00	$31,200.00	60,000	$16.48	$988,800.00	$0.00	60,000	$17.00	$1,020,000.00	$31,200.00
AGGREGATE FOR TEMPORARY ACCESS	TON	PAVE	7	500	$25.00	$12,500.00	500	$25.75	$12,875.00	500	$28.00	$14,000.00	$1,125.00	500	$26.08	$13,040.00	$165.00	500	$26.08	$13,040.00	$165.00
AGGREGATE SUBGRADE IMPROVEMENT	CU YD	PAVE	7	3,000	$55.00	$165,000.00	3,000	$56.65	$169,950.00	3,000	$61.60	$184,800.00	$14,850.00	3,000	$33.94	$101,820.00	-$68,130.00	3,000	$33.94	$101,820.00	-$68,130.00
BITUMINOUS MATERIALS (PRIME COAT)	GAL	PAVE	7	14,000	$3.50	$49,000.00	14,000	$3.61	$50,470.00	14,000	$3.92	$54,880.00	$4,410.00	14,000	$0.28	$3,920.00	-$46,550.00	14,000	$0.28	$3,920.00	-$46,550.00
CLASS B PATCH, SPECIAL	SQ YD	PAVE	7	1,200	$90.00	$108,000.00	1,200	$92.70	$111,240.00	1,200	$100.00	$120,000.00	$8,760.00	1,200	$92.70	$111,240.00	$0.00	1,200	$100.00	$120,000.00	$8,760.00
CLASS D PATCH, SPECIAL	SQ YD	PAVE	7	33,000	$93.00	$3,069,000.00	33,000	$95.79	$3,161,070.00	33,000	$104.00	$3,432,000.00	$270,930.00	33,000	$97.10	$3,204,300.00	$43,230.00	33,000	$97.10	$3,204,300.00	$43,230.00
COMBINATION CONCRETE CURB AND GUTTER REMOVAL AND REPLACEMENT	FOOT	PAVE	7	50,000	$26.00	$1,300,000.00	50,000	$26.78	$1,339,000.00	50,000	$25.00	$1,250,000.00	-$89,000.00	50,000	$27.54	$1,377,000.00	$38,000.00	50,000	$27.54	$1,377,000.00	$38,000.00
HOT-MIX ASPHALT BINDER COURSE, IL-19.0, N50 6"	TON	PAVE	7	19,500	$83.00	$1,618,500.00	19,500	$85.49	$1,667,055.00	19,500	$85.00	$1,657,500.00	-$9,555.00	19,500	$85.49	$1,667,055.00	$0.00	19,500	$85.00	$1,657,500.00	-$9,555.00
HOT-MIX ASPHALT SURFACE COURSE, MIX "D", N50 1.5"	TON	PAVE	7	9,000	$90.00	$810,000.00	9,000	$92.70	$834,300.00	9,000	$90.00	$810,000.00	-$24,300.00	9,000	$93.26	$839,340.00	$5,040.00	9,000	$93.26	$839,340.00	$5,040.00
HOT-MIX ASPHALT SURFACE COURSE, MIX "D", N50 2.5"	TON	PAVE	7	8,000	$90.00	$720,000.00	8,000	$92.70	$741,600.00	8,000	$88.00	$704,000.00	-$37,600.00	8,000	$93.26	$746,080.00	$4,480.00	8,000	$93.26	$746,080.00	$4,480.00
HOT-MIX ASPHALT SURFACE REMOVAL, 2"	SQ YD	PAVE	7	86,000	$5.00	$430,000.00	86,000	$5.15	$442,900.00	86,000	$5.60	$481,600.00	$38,700.00	86,000	$14.16	$1,217,760.00	$774,860.00	86,000	$14.16	$1,217,760.00	$774,860.00
LEVELING BINDER (MACHINE METHOD), N50	TON	PAVE	7	4,500	$90.00	$405,000.00	4,500	$92.70	$417,150.00	4,500	$100.80	$453,600.00	$36,450.00	4,500	$92.70	$417,150.00	$0.00	4,500	$100.80	$453,600.00	$36,450.00
PAVEMENT REMOVAL	SQ YD	PAVE	7	60,000	$13.75	$825,000.00	60,000	$14.16	$849,750.00	60,000	$15.40	$924,000.00	$74,250.00	60,000	$12.92	$775,200.00	-$74,550.00	60,000	$12.92	$775,200.00	-$74,550.00
REMOVAL AND DISPOSAL OF UNSUITABLE MATERIAL	CU YD	PAVE	7	3,000	$45.00	$135,000.00	3,000	$46.35	$139,050.00	3,000	$45.00	$135,000.00	-$4,050.00	3,000	$37.10	$111,300.00	-$27,750.00	3,000	$37.10	$111,300.00	-$27,750.00
THERMOPLASTIC PAVEMENT MARKINGS	L. SUM	PAVE	7	1	$25,000.00	$25,000.00	1	$25,750.00	$25,750.00	1	$28,750.00	$28,750.00	$3,000.00	1	$25,750.00	$25,750.00	$0.00	1	$28,750.00	$28,750.00	$3,000.00
RELOCATE SANITARY SEWER SERVICE LINE	EACH	UTIL RELO	8	219	$2,325.00	$509,175.00	219	$2,394.75	$524,450.25	219	$2,673.75	$585,551.25	$61,101.00	219	$2,394.75	$524,450.25	$0.00	219	$2,673.75	$585,551.25	$61,101.00
RELOCATE WATER SERVICE LINE, LONG SIDE	EACH	UTIL RELO	8	269	$3,600.00	$968,400.00	269	$3,708.00	$997,452.00	269	$3,600.00	$968,400.00	-$29,052.00	269	$3,708.00	$997,452.00	$0.00	269	$3,600.00	$968,400.00	-$29,052.00
REMOVE AND REPLACE SANITARY MAIN	FOOT	UTIL RELO	8	11,660	$175.00	$2,040,500.00	11,660	$180.25	$2,101,715.00	11,660	$201.25	$2,346,575.00	$244,860.00	11,660	$170.74	$1,990,828.40	-$110,886.60	11,660	$170.74	$1,990,828.40	-$110,886.60
REMOVE AND REPLACE WATER MAIN	FOOT	UTIL RELO	8	12,850	$270.00	$3,469,500.00	12,850	$278.10	$3,573,585.00	12,850	$310.50	$3,989,925.00	$416,340.00	12,850	$218.10	$2,802,585.00	-$771,000.00	12,850	$218.10	$2,802,585.00	-$771,000.00
SODDING, SPECIAL - WM/SANITARY RELOCATION	SQ YD	UTIL RELO	8	8,000	$7.50	$60,000.00	8,000	$7.73	$61,800.00	13,000	$7.50	$97,500.00	$35,700.00	8,000	$14.63	$117,040.00	$55,240.00	8,000	$14.63	$117,040.00	$55,240.00
TOPSOIL FURNISH AND PLACE - WM/SANITARY RELOCATION	SQ YD	UTIL RELO	8	8,000	$11.00	$88,000.00	8,000	$11.33	$90,640.00	13,000	$12.00	$156,000.00	$65,360.00	8,000	$11.33	$90,640.00	$0.00	8,000	$12.00	$96,000.00	$5,360.00
CONSTRUCTION LAYOUT	L. SUM	MISC	9	1	$225,000.00	$225,000.00	1	$231,750.00	$231,750.00	1	$258,750.00	$258,750.00	$27,000.00	1	$231,750.00	$231,750.00	$0.00	1	$258,750.00	$258,750.00	$27,000.00
DETECTABLE WARNINGS	SQ FT	MISC	9	1,000	$50.00	$50,000.00	1,000	$51.50	$51,500.00	1,000	$50.00	$50,000.00	-$1,500.00	1,000	$34.70	$34,700.00	-$16,800.00	1,000	$34.70	$34,700.00	-$16,800.00
PORTLAND CEMENT CONCRETE SIDEWALK 5 INCH	SQ FT	MISC	9	2,500	$8.00	$20,000.00	2,500	$8.24	$20,600.00	2,500	$8.00	$20,000.00	-$600.00	2,500	$6.52	$16,300.00	-$4,300.00	2,500	$6.52	$16,300.00	-$4,300.00
SIDEWALK REMOVAL	SQ FT	MISC	9	2,500	$2.50	$6,250.00	2,500	$2.58	$6,437.50	2,500	$2.80	$7,000.00	$562.50	2,500	$1.69	$4,225.00	-$2,212.50	2,500	$1.69	$4,225.00	-$2,212.50
TRAFFIC CONTROL	L. SUM	MISC	9	1	$800,000.00	$800,000.00	1	$824,000.00	$824,000.00	1	$920,000.00	$920,000.00	$96,000.00	1	$824,000.00	$824,000.00	$0.00	1	$920,000.00	$920,000.00	$96,000.00
TREE PROTECTION	EACH	MISC	9	50	$150.00	$7,500.00	50	$154.50	$7,725.00	50	$190.00	$9,500.00	$1,775.00	50	$154.50	$7,725.00	$0.00	50	$190.00	$9,500.00	$1,775.00
TREE PRUNING (1 TO 10 INCH DIAMETER)	EACH	MISC	9	50	$140.00	$7,000.00	50	$144.20	$7,210.00	50	$144.20	$7,210.00	$0.00	50	$144.20	$7,210.00	$0.00	50	$144.20	$7,210.00	$0.00
TREE PRUNING (OVER 10 INCH DIAMETER)	EACH	MISC	9	50	$175.00	$8,750.00	50	$180.25	$9,012.50	50	$180.25	$9,012.50	$0.00	50	$180.25	$9,012.50	$0.00	50	$180.25	$9,012.50	$0.00
TREE ROOT PRUNING	EACH	MISC	9	50	$150.00	$7,500.00	50	$154.50	$7,725.00	50	$154.50	$7,725.00	$0.00	50	$154.50	$7,725.00	$0.00	50	$154.50	$7,725.00	$0.00
					SUBTOTAL =	$57,547,505.00		**SUBTOTAL =**	**$59,273,930.15**		**SUBTOTAL =**	**$71,643,357.75**	**$12,369,427.60**		**SUBTOTAL =**	**$56,843,244.92**	**-$2,430,685.23**		**SUBTOTAL =**	**$61,268,794.02**	**$1,994,863.87**
					CONTINGENCY (20%) =	$11,509,501.00		CONTINGENCY (20%) =	$11,854,786.03		CONTINGENCY (20%) =	$14,328,671.55	$2,819,170.55		CONTINGENCY (20%) =	$11,368,648.98	-$486,137.05		CONTINGENCY (20%) =	$12,253,758.80	$398,972.77
					CONSTRUCTION TOTAL =	**$69,057,006.00**		**CONSTRUCTION TOTAL =**	**$71,128,716.18**		**CONSTRUCTION TOTAL =**	**$85,972,029.30**	**$14,843,313.12**		**CONSTRUCTION TOTAL =**	**$68,211,893.90**	-$2,916,822.28		**CONSTRUCTION TOTAL =**	**$73,522,552.82**	$2,393,836.64
					DESIGN ENGINEERING (6%) =	$4,143,420.36		DESIGN ENGINEERING (6%) =	$4,267,722.97		DESIGN ENGINEERING (6%) =	$5,158,321.76			DESIGN ENGINEERING (6%) =	$4,092,713.63			DESIGN ENGINEERING (6%) =	$4,411,353.17	
					CONSTRUCTION OBSERVATION (6%) =	$4,143,420.36		CONSTRUCTION OBSERVATION (6%) =	$4,267,722.97		CONSTRUCTION OBSERVATION (6%) =	$5,158,321.76			CONSTRUCTION OBSERVATION (6%) =	$4,092,713.63			CONSTRUCTION OBSERVATION (6%) =	$4,411,353.17	
					PERMITTING =	$250,000.00		PERMITTING =	$257,500.00		PERMITTING =	$257,500.00			PERMITTING =	$257,500.00			PERMITTING =	$257,500.00	
					TOTAL PROJECT COST INCLUDING ENGINEERING =	**$77,593,846.72**		**TOTAL PROJECT COST (INCL ENG) =**	**$79,921,662.12**		**TOTAL PROJECT COST (INCL ENG) =**	**$96,546,172.82**	**$16,624,510.69**		**TOTAL PROJECT COST (INCL ENG) =**	**$76,654,821.17**	-$3,266,840.95		**TOTAL PROJECT COST (INCL ENG) =**	**$82,602,759.16**	$2,681,097.04
						$1,296.70			$1,335.60			$1,614.32									
						$1,556.04			$1,602.72			$1,937.18									

CBBEL 2016 NOTES:
1. THIS ESTIMATE DOES NOT INCLUDE ROW ACQUISTION, TEMPORARY OR CONSTRUCTION EASEMENTS, OR RELOCATING ANY EXISTING UTILITIES.
2. THESE UNIT PRICES ARE BASED ON OUR DESIGN MEMO DATED DECEMBER 5, 2014 AND ARE 2016 CONSTRUCTION COSTS.
3. PAVEMENT THICKNESS REMOVAL WAS ASSUMED TO BE 21".
4. TRENCH BACKFILL IS INCLUDED IN THE COST OF THE WATER MAIN AND SANITARY MAIN REMOVAL AND REPLACEMENT.

SAMPLE UNIT PRICE CALCULATION
LARGE DIAMETER STORM SEWER
WILMETTE STORM SEWER SYSTEM STUDY

Prepared by : Stantec Consulting Service, Inc.
Chicago, IL 60656

	SAMPLE 48-inch Storm Sewer			
Storm Sewer Diameter:	48	inches		
Project Length:	4460	feet		
Average Depth to Invert:	12	feet		
Pipe Class:	CL 4			
Wall Thickness:	5	inches		
Outside Pipe Diameter	58	inches		
Pipe Volume:	18.3	ft2		
Trench Width:	7.6	feet		
Excavation Volume:	15032	CY		
Adjusted Excavation Volume:	11364	CY		
Truck Volume:	10	CY/Load		
Haul-off Loads (includes 1% bulking factor):	1148	Loads		
Bedding Volume:	4903	CY		
Bedding Below Invert:	6	in		
Bedding Above Crown:	12	in		
Bedding Heights:	6.33	ft		
Bedding Density:	1.45	ton/CY		
Bedding Weight:	7109	tons		
Adjusted Bedding Weight:	7439	tons		
Material Costs				
Pipe (Delivered):	$ 72	$/ft	$	322,681
Haul-off:	$ 315	$/load	$	361,557
Bedding:	$ 22.70	$/ton	$	168,857.00
Material Subtotal:			$	853,095
Material Subtotal per foot of Sewer:	$ 191.28			
Pipe Costs Calcs				
Labor/Equipment Costs				
Productivity:	6	ft/hour		
Duration:	743.33	hours		
Labor Cost:	$ 693	$/hour	$	515,330.70
Equipment Cost:	$ 359	$/hour	$	267,116.83
Labor/Equipment Subtotal:			$	782,447.53
Labor/Equipment Subtotal per foot of Sewer:	$ 175.44			
Material, Labor, Equipment			$	1,635,543
Material, Labor, Equipment per foot of Sewer:	$ 366.71			
Markup, HOE, Indirect Costs, Bonding, Insurance				
Factor:				30.50%
Subtotal:			$	498,840.47
Subtotal per foot of Sewer:	$ 111.85			
Total Item Cost:			$	2,134,383
Total Item Cost per foot of Sewer:			**$**	**478.56**

Correction for Bedding to 12" above pipe versus Springline (IDOT) ($25.60)
Extra 16,5 sq ft/ft of stone = 1.13 tons/ft X $22.7/ft=$25.60/ft
$452.96

Prepared by: CBBEL
5/24/2017

INDEPENDENT CONTRACTOR #1 REVISIONS TO STANTEC ESTIMATE

	48-inch Storm Sewer			
Storm Sewer Diameter:				
Project Length:				
Average Depth to Invert:				
Pipe Class:				
Wall Thickness:				
Outside Pipe Diameter				
Pipe Volume:				
Trench Width:				
Excavation Volume:				
Adjusted Excavation Volume:				
Truck Volume:				
Haul-off Loads (includes 1% bulking factor):				
Bedding Volume:				
Bedding Below Invert:				
Bedding Above Crown:	Bedding to Springline of Pipe (per IDOT)			
Bedding Heights:				
Bedding Density:				
Bedding Weight:				
Adjusted Bedding Weight:				
Material Costs				
Pipe (Delivered):				
Haul-off:				
Bedding:				
Material Subtotal:				
Material Subtotal per foot of Sewer:				
Pipe Costs Calcs				
Labor/Equipment Costs				
Productivity:	12	ft/hour		
Duration:	371.67	hours		
Labor/Equipment Cost:	$ 700	$/hour	$	260,166.67
Labor/Equipment Subtotal:			$	260,166.67
Labor/Equipment Subtotal per foot of Sewer:	$ 58.33			
Material, Labor, Equipment			$	1,113,262
Material, Labor, Equipment per foot of Sewer:	$ 249.61			
Markup, HOE, Indirect Costs, Bonding, Insurance				
Factor:				20.00%
Subtotal:			$	222,652.33
Subtotal per foot of Sewer:	$ 49.92			
Total Item Cost:			$	1,335,914
Total Item Cost per foot of Sewer:			**$**	**299.53**

	Low	High	Ave.
Winnetka 2014 (6 Bidders)	$160	$620	$312
Elmhurst 2017 (11 Bidders)	$61	$310	$187
Franklin Park 2017 (8 Bidders)	$146	$270	$222
CBBEL 2017 Estimate			$338

Prepared by: CBBEL
5/25/2017

INDEPENDENT CONTRACTOR #2 REVISIONS TO STANTEC ESTIMATE

	48-inch Storm Sewer			
Storm Sewer Diameter:				
Project Length:				
Average Depth to Invert:				
Pipe Class:				
Wall Thickness:				
Outside Pipe Diameter				
Pipe Volume:				
Trench Width:				
Excavation Volume:				
Adjusted Excavation Volume:				
Truck Volume:				
Haul-off Loads (includes 1% bulking factor):				
Bedding Volume:				
Bedding Below Invert:				
Bedding Above Crown:	Bedding to Springline of Pipe (per IDOT)			
Bedding Heights:				
Bedding Density:				
Bedding Weight:				
Adjusted Bedding Weight:				
Material Costs				
Pipe (Delivered):				
Haul-off:				
Bedding:				
Material Subtotal:				
Material Subtotal per foot of Sewer:				
Pipe Costs Calcs				
Labor/Equipment Costs				
Productivity:	12	ft/hour		
Duration:	371.67	hours		
Labor/Equipment Cost:	$ 600	$/hour	$	223,000.00
	$ 300	$/hour	$	111,500.00
Labor/Equipment Subtotal:			$	334,500.00
Labor/Equipment Subtotal per foot of Sewer:	$ 75.00			
Material, Labor, Equipment			$	1,187,595
Material, Labor, Equipment per foot of Sewer:	$ 266.28			
Markup, HOE, Indirect Costs, Bonding, Insurance				
Factor:				20.00%
Subtotal:			$	237,519.00
Subtotal per foot of Sewer:	$ 53.26			
Total Item Cost:			$	1,425,114
Total Item Cost per foot of Sewer:			**$**	**319.53**

	Low	High	Ave.
Winnetka 2014 (6 Bidders)	$160	$620	$312
Elmhurst 2017 (11 Bidders)	$61	$310	$187
Franklin Park 2017 (8 Bidders)	$146	$270	$222
CBBEL 2017 Estimate			$338

SAMPLE UNIT PRICE CALCULATION
LARGE DIAMETER STORM SEWER
WILMETTE STORM SEWER SYSTEM STUDY

Prepared by : Stantec Consulting Service, Inc.
Chicago, IL 60656

	SAMPLE	SAMPLE	SAMPLE	SAMPLE	SAMPLE	SAMPLE	SAMPLE
	48-inch Storm Sewer	60-inch Storm Sewer	66-inch Storm Sewer	72-inch Storm Sewer	84-inch Storm Sewer	96-inch Storm Sewer	108-inch Storm Sewer
Storm Sewer Diameter:	48 inches	60 inches	66 inches	72 inches	84 inches	96 inches	108 inches
Project Length:	4460 feet	2520 feet	480 feet	2420 feet	6920 feet	1300 feet	2650 feet
Average Depth to Invert:	12 feet	15 feet	15 feet	15 feet	15 feet	18 feet	18 feet
Pipe Class:	CL 4	CL 4	CL 4	CL 4	CL 4	CL 4	CL 4
Wall Thickness:	5 inches	6 inches	6.5 inches	7 inches	8 inches	9 inches	10 inches
Outside Pipe Diameter	58 inches	72 inches	79 inches	86 inches	100 inches	114 inches	128 inches
Pipe Volume:	18.3 ft2	28.3 ft2	34.0 ft2	40.3 ft2	54.5 ft2	70.9 ft2	89.4 ft2
Trench Width:	7.83 feet	9 feet	9.58 feet	10.17 feet	11.33 feet	12.5 feet	13.67 feet
Excavation Volume:	15065 CY	12180 CY	2556 CY	13669 CY	41136 CY	10833 CY	24144 CY
Adjusted Excavation Volume:	11364 CY	12024 CY	2556 CY	13669 CY	41007 CY	10833 CY	24144 CY
Truck Volume:	10 CY/Load	10 CY/Load	10 CY/Load	10 CY/Load	10 CY/Load	10 CY/Load	10 CY/Load
Haul-off Loads (includes 1% bulking factor):	1148 Loads	1215 Loads	259 Loads	1381 Loads	4142 Loads	1095 Loads	2439 Loads
Bedding Volume:	4920 CY	3451 CY	772 CY	4282 CY	12988 CY	3208 CY	7549 CY
Bedding Below Invert:	6 in	6 in	6 in	6 in	6 in	6 in	6 in
Bedding Above Crown:	12 in	12 in	12 in	12 in	12 in	12 in	12 in
Bedding Heights:	6.33 ft	7.50 ft	8.08 ft	8.67 ft	9.83 ft	11.00 ft	12.17 ft
Bedding Density:	1.45 ton/CY	1.45 ton/CY	1.45 ton/CY	1.45 ton/CY	1.45 ton/CY	1.45 ton/CY	1.45 ton/CY
Bedding Weight:	7134 tons	5004 tons	1119 tons	6209 tons	18832 tons	4651 tons	10946 tons
Adjusted Bedding Weight:	7439 tons	4075 tons	1119 tons	6209 tons	18711 tons	4651 tons	10946 tons
Material Costs							
Pipe (Delivered):	$ 72 $/ft $ 322,681	$ 116 $/ft $ 292,320	$ 129 $/ft $ 61,920	$ 158 $/ft $ 382,360	$ 261 $/ft $ 1,806,120	$ 323 $/ft $ 419,250	$ 377 $/ft $ 999,050
Haul-off:	$ 315 $/load $ 361,557	$ 315 $/load $ 382,725	$ 315 $/load $ 81,585	$ 315 $/load $ 435,015	$ 315 $/load $ 1,304,730	$ 315 $/load $ 344,925	$ 315 $/load $ 768,285
Bedding:	$ 22.70 $/ton $ 168,857	$ 22.70 $/ton $ 92,503	$ 22.70 $/ton $ 25,401	$ 22.70 $/ton $ 140,944	$ 22.70 $/ton $ 424,740	$ 22.70 $/ton $ 105,578	$ 22.70 $/ton $ 248,474
Material Subtotal:	$ 853,095	$ 767,548	$ 168,906	$ 958,319	$ 3,535,590	$ 869,753	$ 2,015,809
Material Subtotal per foot of Sewer:	$ 191.28	$ 304.58	$ 351.89	$ 396.00	$ 510.92	$ 669.04	$ 760.68
Pipe Costs Calcs							
Labor/Equipment Costs							
Productivity:	12 ft/hour	8 ft/hour	8 ft/hour	6.4 ft/hour	6.4 ft/hour	6.4 ft/hour	6.4 ft/hour
Duration:	371.67 hours	315.00 hours	60.00 hours	378.13 hours	1,081.25 hours	203.13 hours	414.06 hours
Labor Cost:	$ 589 $/hour $ 218,930.25	$ 589 $/hour $ 185,550.75	$ 589 $/hour $ 35,343.00	$ 589 $/hour $ 222,734.53	$ 589 $/hour $ 636,910.31	$ 589 $/hour $ 119,650.78	$ 589 $/hour $ 243,903.52
Equipment Cost:	$ 719 $/hour $ 267,116.83	$ 770 $/hour $ 242,638.00	$ 770 $/hour $ 46,217.00	$ 821 $/hour $ 310,577.00	$ 828 $/hour $ 895,448.00	$ 828 $/hour $ 168,220.00	$ 1,168 $/hour $ 483,517.00
Labor/Equipment Subtotal:	$ 486,047.08	$ 428,188.75	$ 81,560.00	$ 533,311.53	$ 1,532,358.31	$ 287,870.78	$ 727,420.52
Labor/Equipment Subtotal per foot of Sewer:	$ 108.98	$ 169.92	$ 169.92	$ 220.38	$ 221.44	$ 221.44	$ 274.50
Material, Labor, Equipment	$ 1,339,142	$ 1,195,736	$ 250,466	$ 1,491,631	$ 5,067,948	$ 1,157,623	$ 2,743,230
Material, Labor, Equipment per foot of Sewer:	$ 300.26	$ 474.50	$ 521.80	$ 616.38	$ 732.36	$ 890.48	$ 1,035.18
Markup, HOE, Indirect Costs, Bonding, Insurance							
Factor:	20.00%	20.00%	20.00%	20.00%	20.00%	20.00%	20.00%
Subtotal:	$ 267,828.42	$ 239,147.25	$ 50,093.26	$ 298,326.17	$ 1,013,589.60	$ 231,524.70	$ 548,645.94
Subtotal per foot of Sewer:	$ 60.05	$ 94.90	$ 104.36	$ 123.28	$ 146.47	$ 178.10	$ 207.04
Total Item Cost:	$ 1,606,970	$ 1,434,884	$ 300,560	$ 1,789,957	$ 6,081,538	$ 1,389,148	$ 3,291,876
Total Item Cost per foot of Sewer:	**$ 360.31**	**$ 569.40**	**$ 626.17**	**$ 739.65**	**$ 878.83**	**$ 1,068.58**	**$ 1,242.22**
	$479.00	$749.00	$784.00	$971.00	$1,119.00	$1,254.00	$1,588.00
Correction for Bedding to 12" above pipe versus Springline (IDOT)							
Extra 16,5 sq ft/ft of stone = 1.13 tons/ft X $22.7/ft=$25.60/ft	($25.60)	($25.60)	($25.60)	($25.60)	($25.60)	($25.60)	($25.60)
	$334.71	**$543.80**	**$600.57**	**$714.05**	**$853.23**	**$1,042.98**	**$1,216.62**