



Agenda
Village of Glen Ellyn
Village Board Workshop
Monday, September 16, 2024
7:00 PM
Glen Ellyn Civic Center, Room 301

Meeting Procedures Statement

Visitors are most welcome to attend all meetings of the Village Board and can find copies of the Agenda in the meeting room or online at www.glenellyn.org prior to the meeting. Any individual with a disability requiring a reasonable accommodation in order to participate in a meeting should contact The Village of Glen Ellyn ADA Coordinator, 630-469-5000, at least five (5) business days in advance of the next scheduled meeting. All matters on the Agenda may be discussed, amended, and acted upon.

- A. Call to Order**
- B. Pledge of Allegiance**
- C. Roll Call**
- D. Audience Participation**

- 1) Open:

Members of the public are welcome to speak to any item not specifically listed on tonight's agenda for up to (3) three minutes. For those items which are on tonight's agenda, the public will have the opportunity to comment at the time the item is discussed. In either case, please complete the Audience Participation form and turn it in to the Village Clerk. It is requested that, if possible, one spokesman for a group be appointed to present the views of the entire group. Speakers who are recognized are requested to step to a microphone and state their name, their topic and the group, if any, they are representing prior to addressing the Village Board. Individuals wishing to address the Board shall exercise proper decorum and respect for the proceedings and the business of the Village Board, and shall refrain from abusive demeanor and language. The practice of ceding time to other speakers shall be prohibited, except in the discretion of the presiding officer of the meeting. Public officials are not obligated to respond to questions.

- E. Intergovernmental Agreement (IGA) between the Village of Glen Ellyn and the City of Wheaton Regarding Jurisdictional Boundaries**

- 1) Discussion of IGA with the City of Wheaton on Jurisdictional Boundaries

- F. Reminders**

- 1) Village Board September 23, 2024 Meeting at 7 pm
- 2) Village Board September 30, 2024 Special Workshop at 7 pm

- G. Adjourn**



Glen Ellyn Village Board
535 Duane Street
Glen Ellyn, IL 60137

Meeting 9/16/2024 7:00 PM
Department: Administration
Department Head:
Category: Agreement
Prepared By:

AGENDA ITEM (ID # 2024-610)

DOC ID: 2024-610

Discussion of IGA with the City of Wheaton on Jurisdictional Boundaries

Statement of the Issue:

Staff is looking for direction and guidance on the resolution of certain Glen Ellyn/Wheaton boundary jurisdictional conflicts that have been identified by the Village of Glen Ellyn and the City of Wheaton. Most notably, Wheaton College officials have approached both communities to request a solution to its property on Pennsylvania being split between both municipalities and have asked for a review and consideration to shift the boundary to the east to allow the entire Wheaton College property to fall within Wheaton.

Analysis:

Last year, the Village Board discussed the potential Intergovernmental Agreement (IGA) with the City of Wheaton with respect to jurisdictional boundaries at two different Village Board workshops. During that discussion, the Village Board directed staff to complete a stormwater assessment of the area around Anthony St., west of Kenilworth. The purpose of the study was to better understand the challenges and potential benefits of development south of this area, if this property owned by Wheaton College were to be redeveloped in the future. The Village hired ERA to perform a stormwater engineering assessment at a cost of approximately \$30K. The scope of work included characterizing the existing drainage conditions:

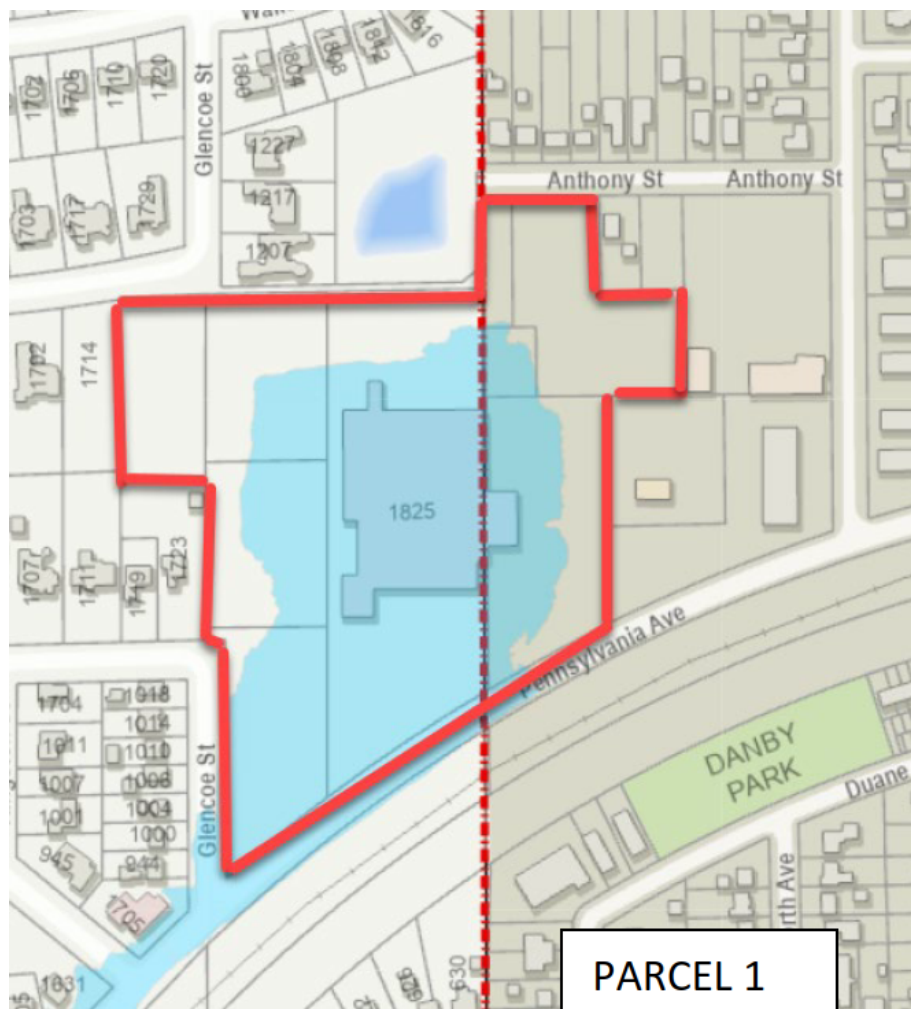
- Investigate potential improvements to reduce the depth of ponding in Anthony Street
- Investigate potential private property improvements to protect homes from flooding
- Prepare a final technical memorandum summarizing the findings and present them to the public

ERA has completed its report. The Village has shared the draft report with the City of Wheaton, DuPage County, and the neighbors in the Anthony Street area via a meeting in late August. Staff intends to share the results of this study with the Village Board through a presentation by ERA. We are seeking feedback from the Village Board as to whether the Village should continue to pursue the IGA with the City of Wheaton. Please note the City of Wheaton approved a prior version of the IGA last year. Wheaton has expressed general agreement with some of the proposed revisions to the IGA, but has not taken the latest version back to its City Council.

Background

In 1963, the Village of Glen Ellyn and the City of Wheaton established a Planning Boundary Agreement used by both communities as a tool to cooperatively manage the growth that was occurring in unincorporated land between the two communities. In 1979, a formalized boundary line was adopted by both communities through a Boundary Agreement. In 1997, that Boundary Agreement was updated and again approved formally by both communities. The most recent Boundary Agreement expired in 2017.

Although the 1997 Agreement addressed most of the jurisdictional conflicts, there were a couple of locations that were not addressed, with one in particular being the Scripture Press property located at the northeast corner of College Avenue and Glencoe Street. The Scripture Press property is made up of a total of nine (9) parcels, shown as “Parcel 1” below. Four (4) of the nine (9) parcels are located in Glen Ellyn and five (5) in Wheaton.



The parcels are currently owned by Wheaton College and College representatives have expressed a desire to work towards an opportunity to have all nine (9) of the parcels under one municipal jurisdiction. Wheaton College believes this will be beneficial for redevelopment of the property by providing clarity related to provision of utilities, flood plain and storm water regulations, public safety response, and zoning and permitting.

Intergovernmental Discussions

In early discussions between Wheaton and Glen Ellyn staff, it was agreed the best approach to address Wheaton College's request was through development of a new Boundary Agreement via an IGA. Over a number of meetings last year, both communities completed a comprehensive review of the 1997 Boundary Agreement and have agreed to basic terms of a modified agreement. This proposed 20-year boundary line agreement has been vetted and tentatively agreed upon by the respective staffs of Glen Ellyn and Wheaton.

The Glen Ellyn Village Board discussed the proposed Boundary Agreement on June 20, 2023 and asked staff to revisit the stormwater provisions in the Agreement to determine if the two properties on Anthony Street should be kept on the Glen Ellyn side of the boundary line. Wheaton College expressed interest in keeping all properties on one side of the boundary line. The College further expressed its opinion that the area on Anthony Street is likely not buildable and therefore could contribute to stormwater management as part of any future development. In addition, staff met with Wheaton College and one potential developer to discuss the site and stormwater challenges and explained the need to include additional language in the agreement to ensure the proper engineering review. It should be noted that the Wheaton College property is currently not under contract with any developer. After subsequent meetings with the City of Wheaton, Glen Ellyn staff proposed, and Wheaton staff tentatively agreed, to the following revisions:

Any development, as defined in the DuPage County Countywide Stormwater and Floodplain Ordinance, of Parcel 1, whether independently or collectively, shall be reviewed and approved by Wheaton. Any development reviewed and approved by Wheaton shall:

- Be residential in nature or a use permitted by Wheaton's current institutional zoning district;
- Prohibit development on Anthony Street other than detention or retention structures.
- Prohibit any roadway connectivity to Anthony Street;
- Be developed in conformance with the DuPage County Countywide Stormwater and Floodplain Ordinance, as amended by the City of Wheaton, and as such, shall demonstrate through stormwater modeling, completed by an appropriately qualified and State Registered Professional Engineer/Design Firm, that the development will not cause any negative impacts to any adjoining and downstream property, including the right-of-way and all parcels to the north along Anthony Street;
- Address the stormwater requirements set forth in paragraph 3-a(iii) to the satisfaction of the Glen Ellyn Village Engineer in conformance with the DuPage County Countywide Stormwater and Floodplain Ordinance and approved by the Glen Ellyn Village Board of Trustees, such approval shall not be unreasonably withheld;
- Improve the overland flow path from the west end of Anthony Street south to restore the overland flow path through Parcel 1, and provide any compensatory storage and detention, i.e., site runoff storage, as needed to meet the requirements of the DuPage County Countywide Stormwater and Floodplain Ordinance, as amended by the City of Wheaton;
- As part of the preparation of the stormwater report for any development on Parcel 1, study the regulatory floodplain limits on Parcel 1 and to the north along Anthony Street in consultation with the Glen Ellyn Village Engineer. If said study determines the regulatory floodplain limits are inaccurate, prepare documentation and submit, if so directed by the Glen Ellyn Village Engineer, a Letter Of Map Revision (LOMR) for Parcel 1 and adjoining

area to the north along Anthony Street using Illinois State Water Survey (ISWS) current practices which would be incorporated into the Parcel 1 development storm water plans.

These changes appear to address the concerns raised by the Village Board at the June 20, 2023 Workshop meeting. Furthermore, attached is the revised Boundary Agreement which includes boundary line maps. The other significant provisions of the draft Boundary Agreement are summarized below:

1. Right of Ways - There are two areas for right of way maintenance clarification - Ott Avenue, Section 4 and Harwarden Street, Section 5. These sections clarify parameters for maintenance responsibility and ownership of utilities.
2. Wheaton College Properties – Section 3 would have the 4 properties that are currently in Glen Ellyn disconnected from Glen Ellyn and then annexed to Wheaton.
 - Redevelopment would be residential in nature, or a use currently permitted by Wheaton’s institutional zoning district, and if residential, an intensity of use that reflects adjacent existing land uses.
 - To compensate for the possible loss in future revenue to Glen Ellyn, subparagraph 3(b) would share with Glen Ellyn 1/3 of Wheaton’s annual property tax revenue received from Parcel 1 until the expiration of the IGA.
 - It should be noted, Wheaton staff has had preliminary discussions with two entities interested in redeveloping Parcel 1, both of which were residential in nature. The biggest challenge in redeveloping Parcel 1 is that about 70% of the properties are in the flood plain (Parcel 1 image).
3. On-Site Parking Facility – Section 6 would have two (2) properties that are currently in Wheaton disconnected from Wheaton and annexed to Glen Ellyn. These two properties serve as parking for the retail development for the former Fresh Market shopping center. The map below identifies the two properties in red.
4. Term – Twenty (20) years from execution. It should be noted that the parcels that are disconnected and annexed would remain with the new jurisdiction.



Conclusion

Staff believes this study provides a good baseline of the stormwater challenges within this area and how future development of the property to the south may best be able to provide additional stormwater compensatory storage. While all the proposed alternatives are expensive, by working in partnership with a developer, this may provide the most efficient and effective approach to alleviate some of the stormwater issues in the area.

Next Steps

After sharing the stormwater assessment study, staff is looking for direction as to whether staff should continue to pursue the IGA with the City of Wheaton. If the IGA is approved in its current form, future public hearings will be required to effectuate the disconnections and annexations through a full public review process.

Budget Impact:

Minimal immediate impact, unless the property is developed and then shared revenue provisions would apply.

Contribution to Strategic Plan

Action Requested:

Discussion Only

Attachments:

1. IGA Glen Ellyn-Wheaton - Update- 2024-09-06

2. Anthony Street Presentation-2024-09-11
3. 2024-09-09 Anthony Study

**INTERGOVERNMENTAL AGREEMENT BETWEEN THE
VILLAGE OF GLEN ELLYN AND THE CITY OF WHEATON
REGARDING JURISDICTIONAL BOUNDARIES**

THIS AGREEMENT is entered into this ____ day of _____, 2023 by and between the VILLAGE OF GLEN ELLYN, DuPage County, Illinois, an Illinois Municipal Corporation (“Glen Ellyn”) and the CITY OF WHEATON, DuPage County, Illinois, an Illinois Municipal Corporation (“Wheaton”), sometimes referred to herein as a “party” and collectively as the “parties”.

WHEREAS, Glen Ellyn and Wheaton recognize the need to provide for logical municipal boundaries in areas of municipal authority between their respective municipalities; and

WHEREAS, Glen Ellyn and Wheaton are units of local government as defined by Article VII, Section 10 of the Constitution of the State of Illinois; and

WHEREAS, units of local government are enabled by Article VII, Section 10 of the Constitution of the State of Illinois to enter into agreements among themselves to obtain or share services and to exercise, combine, or transfer any power or function, in any manner not prohibited by law or ordinance; and

WHEREAS, the Illinois Municipal Code, *65 ILCS 5/11-12-9* provides that municipalities may enter into jurisdictional boundary line agreements (“Boundary Agreement(s)”; and

WHEREAS, Glen Ellyn and Wheaton have given consideration to the natural flow of storm water drainage and single tracts having common ownership within the jurisdiction of Glen Ellyn and Wheaton; and

WHEREAS, Glen Ellyn and Wheaton have previously entered into Boundary Agreements dated July 16, 1979 and January 27, 1997; and

WHEREAS, the January 27, 1997 Boundary Agreement expired on January 27, 2017; and

WHEREAS, Glen Ellyn and Wheaton now desire to reestablish a Boundary Agreement, which will supersede the prior two Boundary Agreements and set forth a revised boundary line, west of which Glen Ellyn will not annex and east of which Wheaton will not annex, which will mark the boundary of the jurisdiction of Glen Ellyn and Wheaton except as may be specifically modified by this Agreement; and

WHEREAS, Glen Ellyn and Wheaton also desire to utilize this agreement to memorialize and clarify responsibilities for infrastructure along Anthony Street, Ott Avenue, Harwarden Avenue, as well as for two potable water main interconnections; and

WHEREAS, Glen Ellyn and Wheaton have authorized the execution of this Agreement as an exercise of their respective authority and as an exercise of their intergovernmental cooperation authority under the Constitution of the State of Illinois.

NOW, THEREFORE, for and in consideration of mutual promises contained herein and upon the further consideration of the recitals hereinabove set forth, it is hereby agreed between Glen Ellyn and Wheaton as follows:

1. **Recitals.** The recitals set forth above are hereby restated and incorporated as if fully set forth herein.
2. **Boundary Maps.** Except as modified in this Agreement and as depicted on the maps, pages 1 through 6, which are attached hereto and made a part hereof as Exhibit A, the jurisdictional boundary line between Glen Ellyn and Wheaton for municipal planning, subdivision control and annexation shall be as depicted in Exhibit A.
3. **Wheaton College Properties.** With respect to the parcels of land lying east of Glencoe Street, west of Kenilworth Avenue, and north of College Avenue/Pennsylvania Avenue, depicted on ~~page 2 of~~ Exhibit A as "Parcel 1", commonly known as the Wheaton College properties, to permit the orderly development and providing of efficient municipal services including but not limited to public safety, utilities and zoning, it is the desire of the current owner, Wheaton College, to develop any and/or all parcels within Wheaton. Therefore, the owner has expressed interest in filing a petition with the respective municipal clerks requesting the four (4) parcels currently within the jurisdiction of Glen Ellyn (PPIs: 05-10-408-011, 05-10-408-003, 05-10-408-002, and 05-10-408-020) be disconnected as provided for in Section 7-1-24 of the Illinois Municipal Code, 65 ILCS 5/7-1-24 and then annexed to Wheaton ("the Parcels").
 - a. Any development, as defined in the DuPage County Countywide Stormwater and Floodplain Ordinance, of Parcel 1, whether independently or collectively, shall be reviewed and approved by Wheaton. Any development reviewed and approved by Wheaton shall:
 - i. Be residential in nature or a use permitted by Wheaton's current institutional zoning district;
 - ii. Prohibit development on Anthony Street other than detention or retention structures.
 - ~~iii.~~ Prohibit any roadway connectivity to Anthony Street;
 - ~~iv.~~ Be developed in conformance with the DuPage County Countywide Stormwater and Floodplain Ordinance, as amended by the City of Wheaton, and as such, shall demonstrate through stormwater modeling, completed by an appropriately qualified and State Registered Professional Engineer/Design Firm, that the development will not cause any negative impacts to any adjoining and downstream property,

including the right-of-way and all parcels to the north along Anthony Street;

~~iv-v.~~ Address the stormwater requirements set forth in paragraph 3-a(iii) to the satisfaction of the Glen Ellyn Village Engineer in conformance with the DuPage County Countywide Stormwater and Floodplain Ordinance and approved by the Glen Ellyn Village Board of Trustees, such approval shall not be unreasonably withheld;

~~v-vi.~~ Improve the overland flow path from the west end of Anthony Street south to restore the overland flow path through Parcel 1, and provide any compensatory storage and detention, i.e., site runoff storage, as needed to meet the requirements of the DuPage County Countywide Stormwater and Floodplain Ordinance, as amended by the City of Wheaton;

~~vi-vii.~~ As part of the preparation of the stormwater report for any development on Parcel 1, study the regulatory floodplain limits on Parcel 1 and to the north along Anthony Street in consultation with the Glen Ellyn Village Engineer. If said study determines the regulatory floodplain limits are inaccurate, prepare documentation and submit, if so directed by the Glen Ellyn Village Engineer, a Letter Of Map Revision (LOMR) for Parcel 1 and adjoining area to the north along Anthony Street using Illinois State Water Survey (ISWS) current practices which would be incorporated into the Parcel 1 development storm water plans.

b. Any future Wheaton municipal property tax generated by any development of Parcel 1 shall be shared with Glen Ellyn based upon Parcel 1's equalized assessed value and Wheaton's annual tax rate. One third (1/3) of the property tax generated by Parcel 1, if any, shall be remitted to Glen Ellyn on August 1st of each year. The obligation to share a portion of the property tax generated by Parcel 1 shall terminate at the end of the term of this Agreement.

4. **Anthony Street.** West of Kenilworth Avenue, the Anthony Street right-of-way and associated public improvements including the roadway pavement, roadway curb and gutter, public sidewalk, driveway approaches, water main, sanitary sewer, street signage, and public trees contained in the right-of-way in the Village of Glen Ellyn shall be the sole responsibility of Glen Ellyn to own, operate, and maintain. The storm sewer structures, pipe, and curb and gutter, pavement, and sidewalk around the storm sewer structures draining the west end of Anthony Street as well as the sidewalk at the west end of Anthony Street (and any future storm sewer draining south from Anthony Street through Parcel 1) shall be the sole responsibility of Wheaton to own, operate, and maintain.

5. **Ott Avenue.** The Ott Avenue right-of-way and associated public improvements including the roadway pavement, roadway curb and gutter, public sidewalk, driveway approaches, water main, sanitary sewer, street signage, and public trees contained in

the Village of Glen Ellyn from a point south of the Harwarden Street/Ott Avenue intersection to a point south of the Evergreen Street/Ott Avenue intersection shall be the sole responsibility of Glen Ellyn to own, operate, and maintain except that the public improvements west of the back of curb on the west side of Ott Avenue including the driveway approaches, public trees, street signage as well as the existing water main owned by Wheaton serving properties within Wheaton adjacent to the Ott Avenue right of way, and the storm sewer in the Ott Avenue right of way including any connecting catch basins shall be the sole responsibility of Wheaton to own, operate and maintain.

6. **Harwarden Street.** That portion of the vacated Harwarden Street thirty-three foot (33') right of way on 200 Lorraine Road, Glen Ellyn, (PPI: 05-15-211-039) now exists as a Public Walkway and Utility Easement which grant rights for Wheaton to maintain an existing concrete public sidewalk, storm sewer main and water main on 200 Lorraine Road, Glen Ellyn. As said easement lies on property under Glen Ellyn's jurisdiction, Glen Ellyn shall within its rights assist Wheaton with ensuring the owner of 200 Lorraine Road does not interfere with Wheaton's exercise of all necessary work within said easement to maintain the existing water and storm sewer mains as well as the public sidewalk. At the intersection of Lorraine and Harwarden, storm sewer and catch basins serving Lorraine north of Harwarden shall be the responsibility of Glen Ellyn. The public improvements on Harwarden between Lorraine and Ott, including the roadway pavement, roadway curb and gutter, public sidewalk, driveway approaches, water main, street signage, and public trees shall be the responsibility of Wheaton to own, operate, and maintain except those public improvements including the driveway approaches and parkway trees located north of the back of curb on the north side of Harwarden as well as the existing Village of Glen Ellyn water main serving properties within Glen Ellyn adjacent to the Harwarden right of way shall be the responsibility of Glen Ellyn to own, operate, and maintain.
7. **On-Site Parking Facility.** With respect to the properties (05-22-200-028 and 05-22-200-027) on the north side of Taft Avenue, depicted on page 3 of Exhibit A as Parcel 2, currently used as on-site parking for the property (05-22-201-037) adjacent and east of said properties, presently within the jurisdiction of Wheaton (05-22-200-028 and 05-22-200-027) be disconnected as provided for in Section 7-1-24 of the Illinois Municipal Code, 65 ILCS 5/7-1-24 and then annexed to Glen Ellyn.
8. **Emergency Water Connections.** The Glen Ellyn and Wheaton potable water systems are interconnected at two locations to provide emergency stand by water supplies in the event of system failures in either community. The unmetered interconnections are located at Lorraine and Harwarden and Evergreen and Ott and would be activated only by agreement by the Public Works Directors of both Glen Ellyn and Wheaton.
9. **Planning Jurisdiction.** This Agreement shall not be construed to limit or adversely affect the right of either party to file a statutory objection to a proposed zoning

application by DuPage County within one and one-half (1-1/2) miles of its corporate limits.

10. **Terms and Assigns.** This Agreement shall inure to the benefit of and be binding upon the parties, their respective successors and assigns for a term of twenty (20) years.
11. **Law and Venue.** This Agreement shall be construed in accordance with the laws of the State of Illinois and venue shall only be in the Circuit Court of DuPage County, Illinois.
12. **Recordation.** Wheaton shall record this Agreement with the DuPage County Recorder of Deeds at its own expense.
13. **Invalidity.** If any section, paragraph, subdivision, clause, sentence, or provision of this Agreement shall be adjudged by any court of competent jurisdiction to be invalid, such judgement should not affect, impair, invalidate or nullify the remainder thereof, which remainder shall remain and continue to be in full force and effect.
14. **Authorization.** Upon execution of this Agreement by the corporate authorities of Glen Ellyn and Wheaton, the municipal clerk of the respective municipality shall each affix their Certification of Adoption of this Agreement to one copy of the Agreement and cause the same to be filed in the office of the Recorder of Deeds, DuPage County, Illinois.

Copies of this Agreement shall be made available in the office of the municipal clerk of each municipality.

IN WITNESS WHEREOF, the parties hereto have caused this Agreement to be executed by the Village President of the Village of Glen Ellyn and the Mayor of the City of Wheaton, attested by their respective municipal clerk, and their corporate seal hereunto affixed, as of the day and year first written above.

Village of Glen Ellyn
an Illinois home rule municipality

City of Wheaton
an Illinois home rule municipality

By: _____
President

By: _____
Mayor

ATTEST:

ATTEST:

Village Clerk

City Clerk

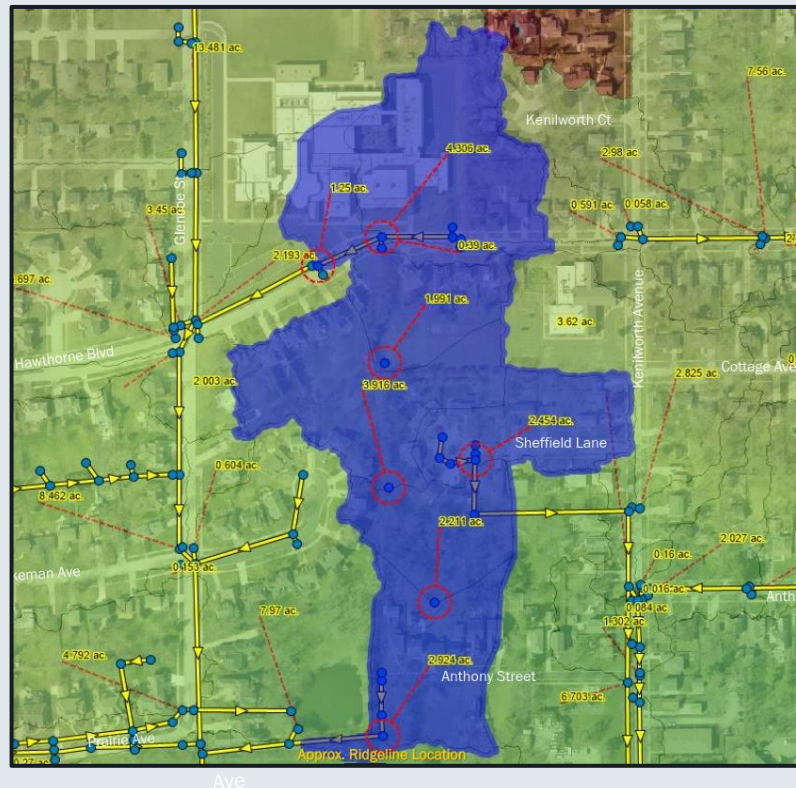
Anthony Street Drainage Study

Presented by:



Existing Conditions

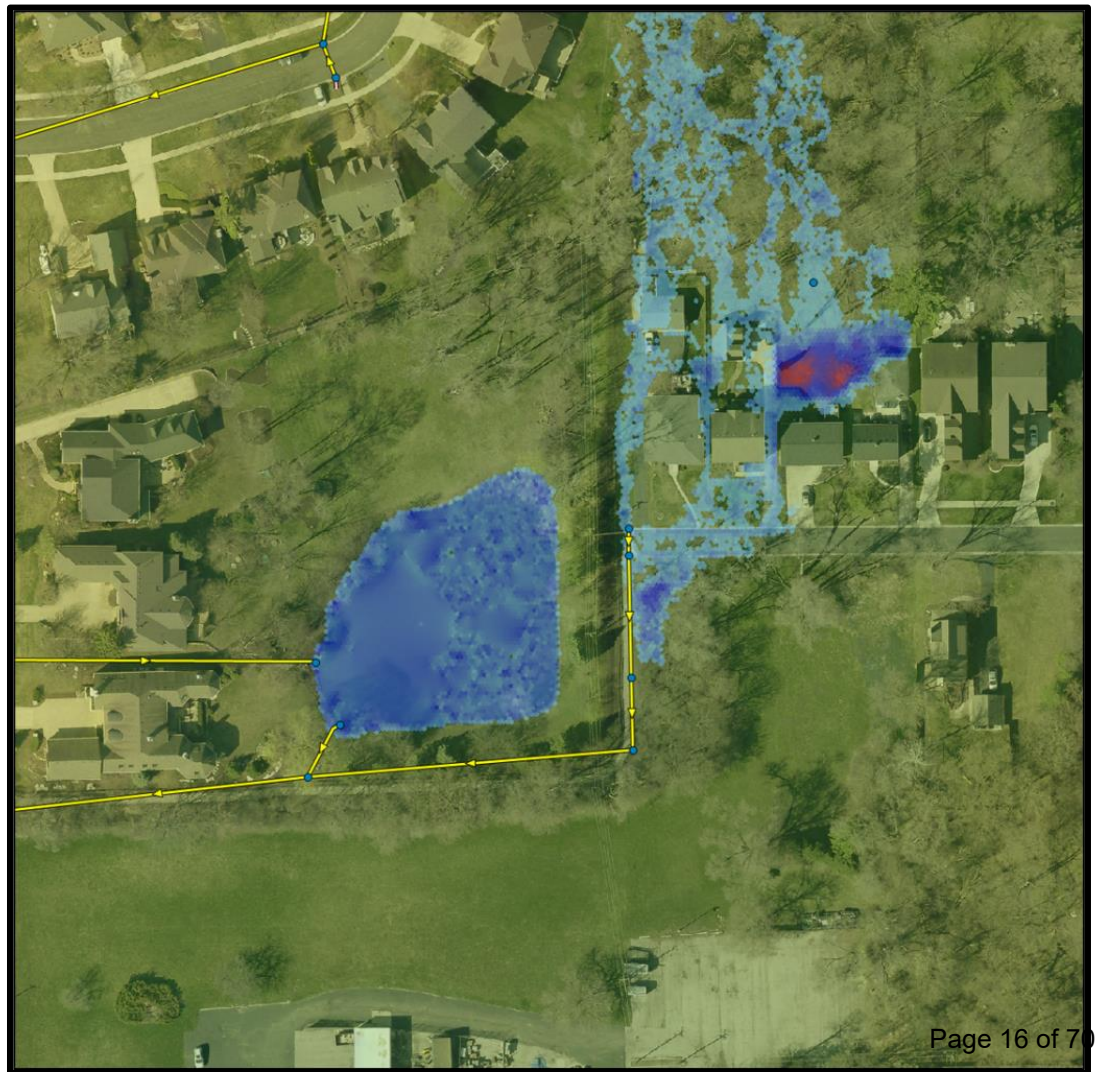
- Approximately 19 acres are tributary to Anthony Street
- A flood event of a certain size is categorized by its likelihood of occurrence each year, colloquially called a “100-yr storm”, “50-yr storm”, etc.
- A “2-year storm” has a 1 in 2 (50%) chance of happening each year.
- A “5-year storm” has a 1 in 5 (20%) chance of happening each year.
- Note: “10-year storm” may happen twice in two years; not every 10-year flood event is separated by exactly 10 years.



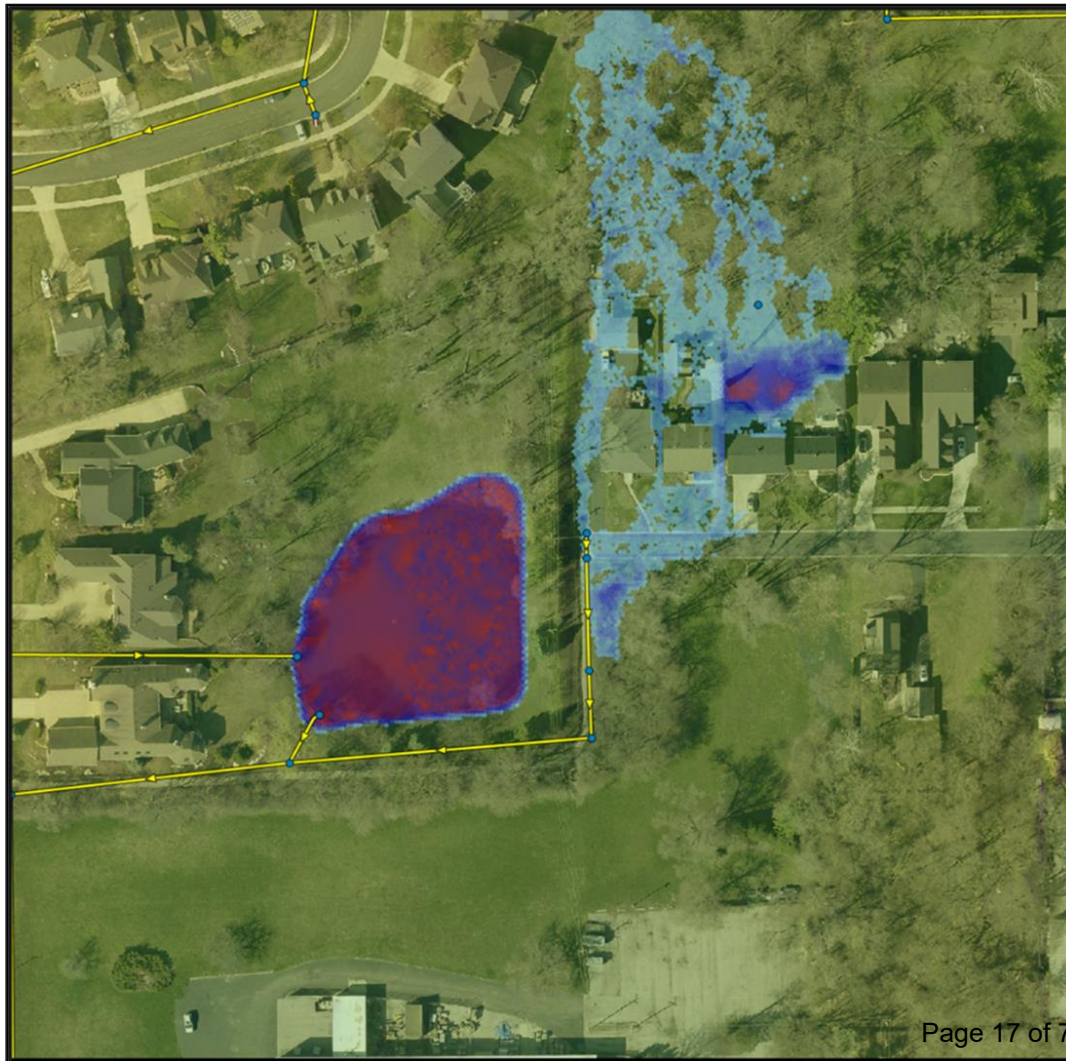
Existing Conditions

- The “level of service” or “level of protection” was determined by comparing the high-water levels for a given storm to the lowest elevation where surface water can enter homes.
- In the study area, the lowest elevations where surface water can enter homes are the tops of foundations
- For Anthony Street, the storm durations shown from the modeling to have the highest water surface elevations are the 2 or 3-hr storms, depending on frequency
- The storms that create the highest water surface elevations are short and intense vs. a longer duration storm that may have higher total rainfall depths.
- A 5 to 10-year existing level of service was determined for Anthony Street

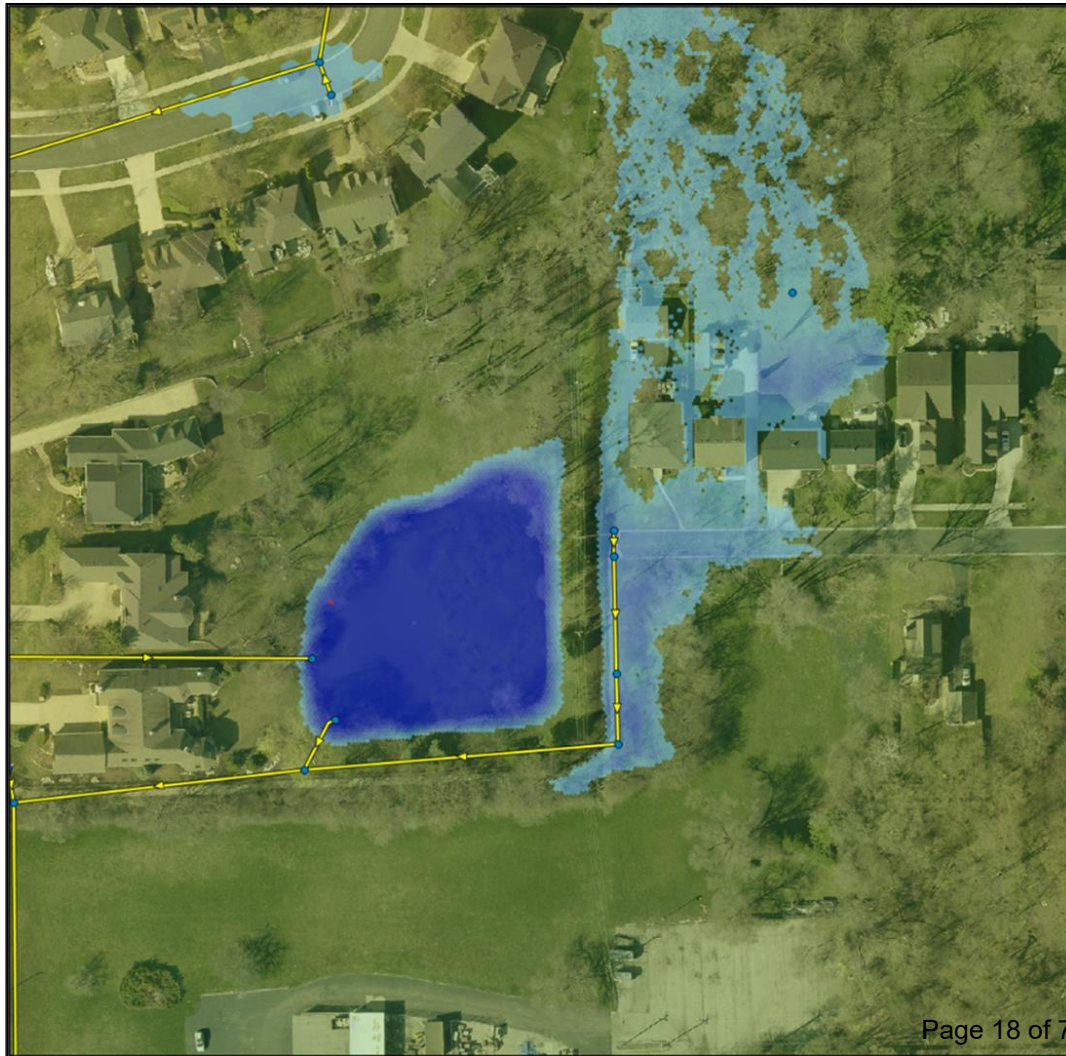
Existing Conditions 1-yr, 2-hr



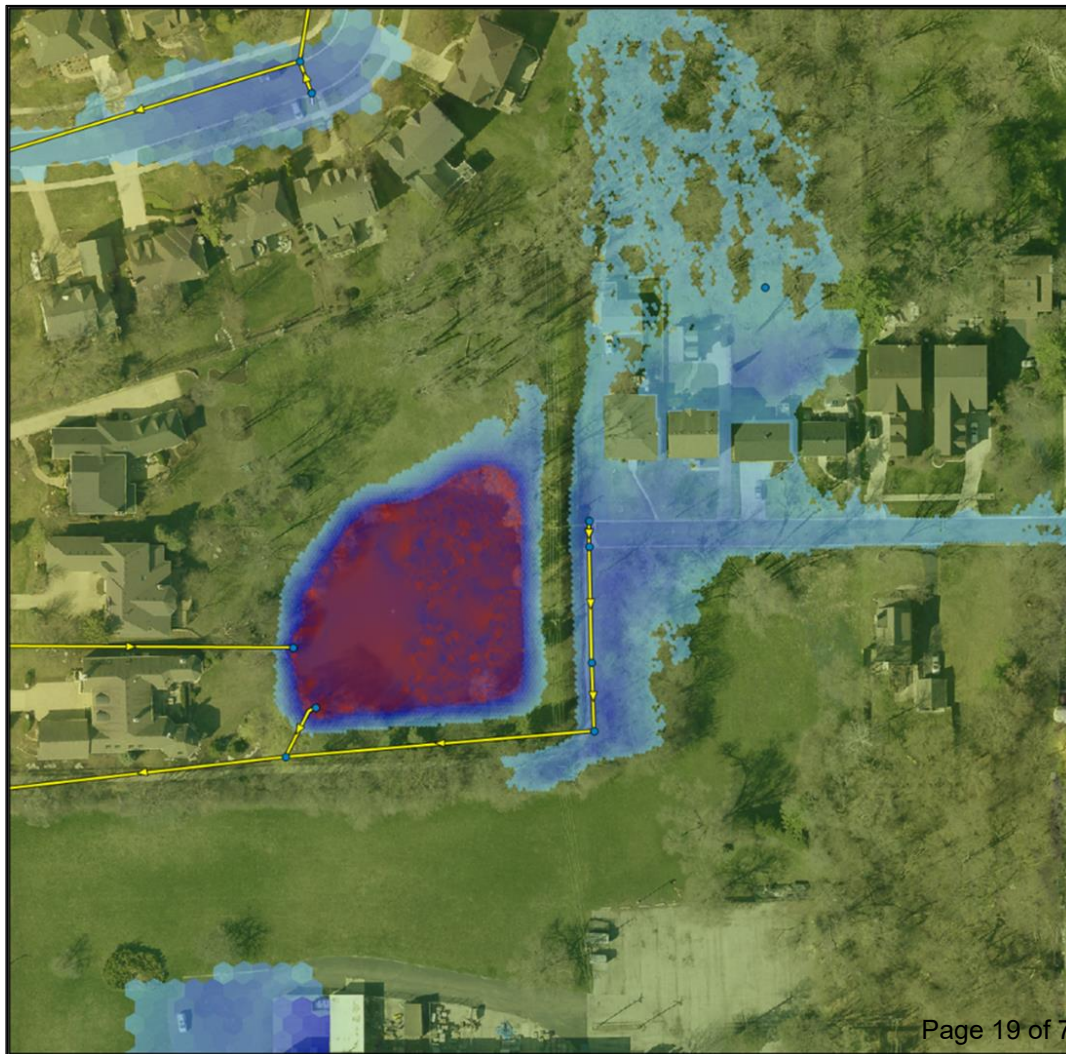
Existing Conditions 2-yr, 2-hr



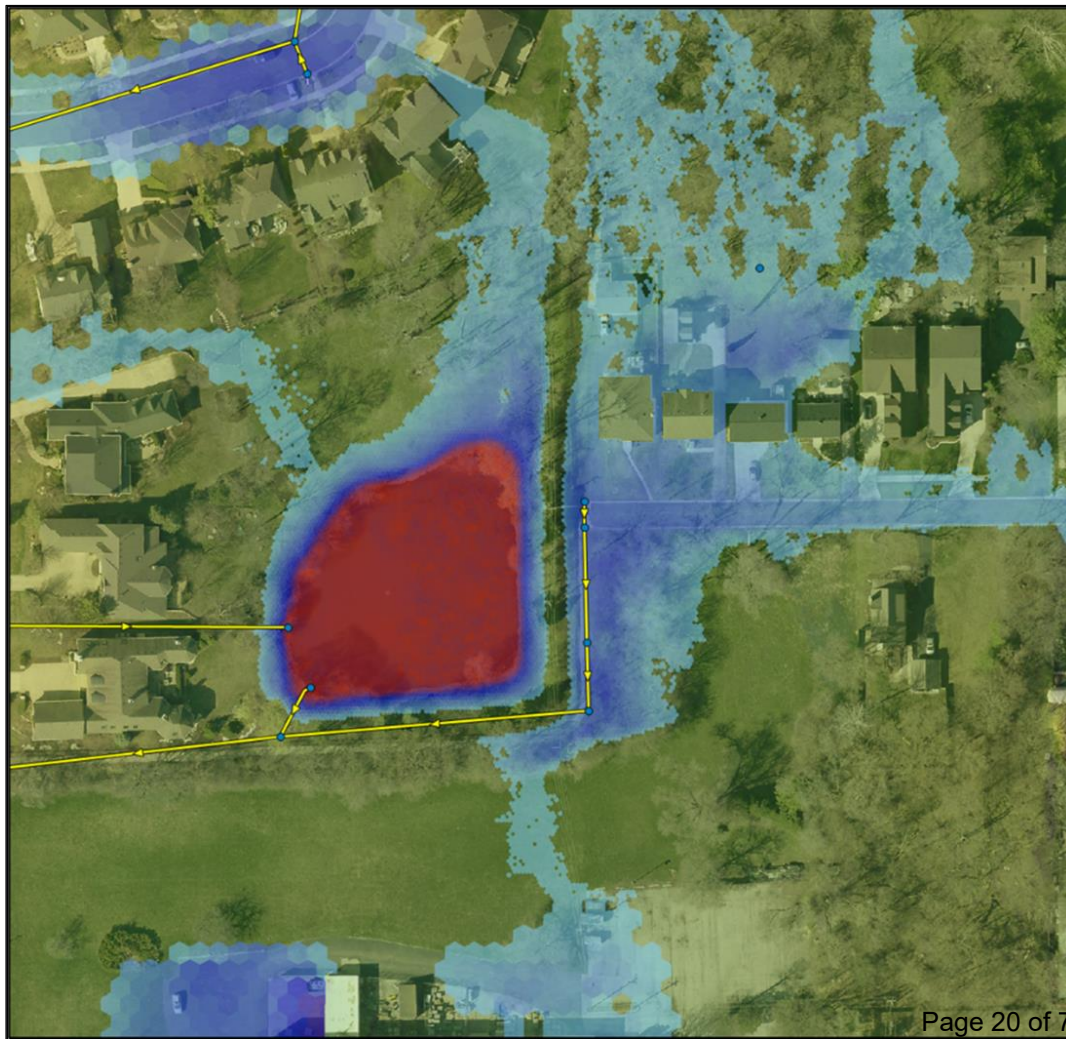
Existing Conditions 5-yr, 2-hr



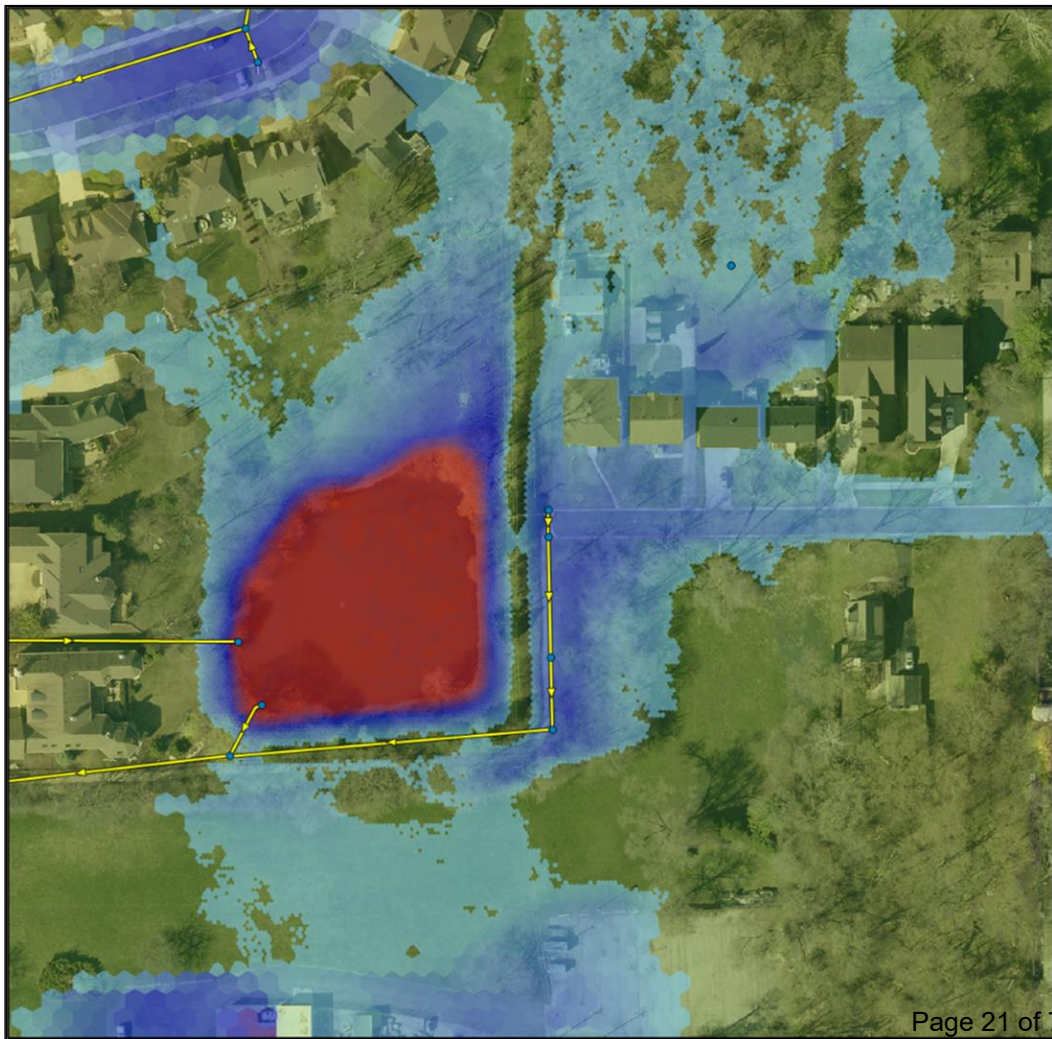
Existing Conditions 10-yr, 3-hr



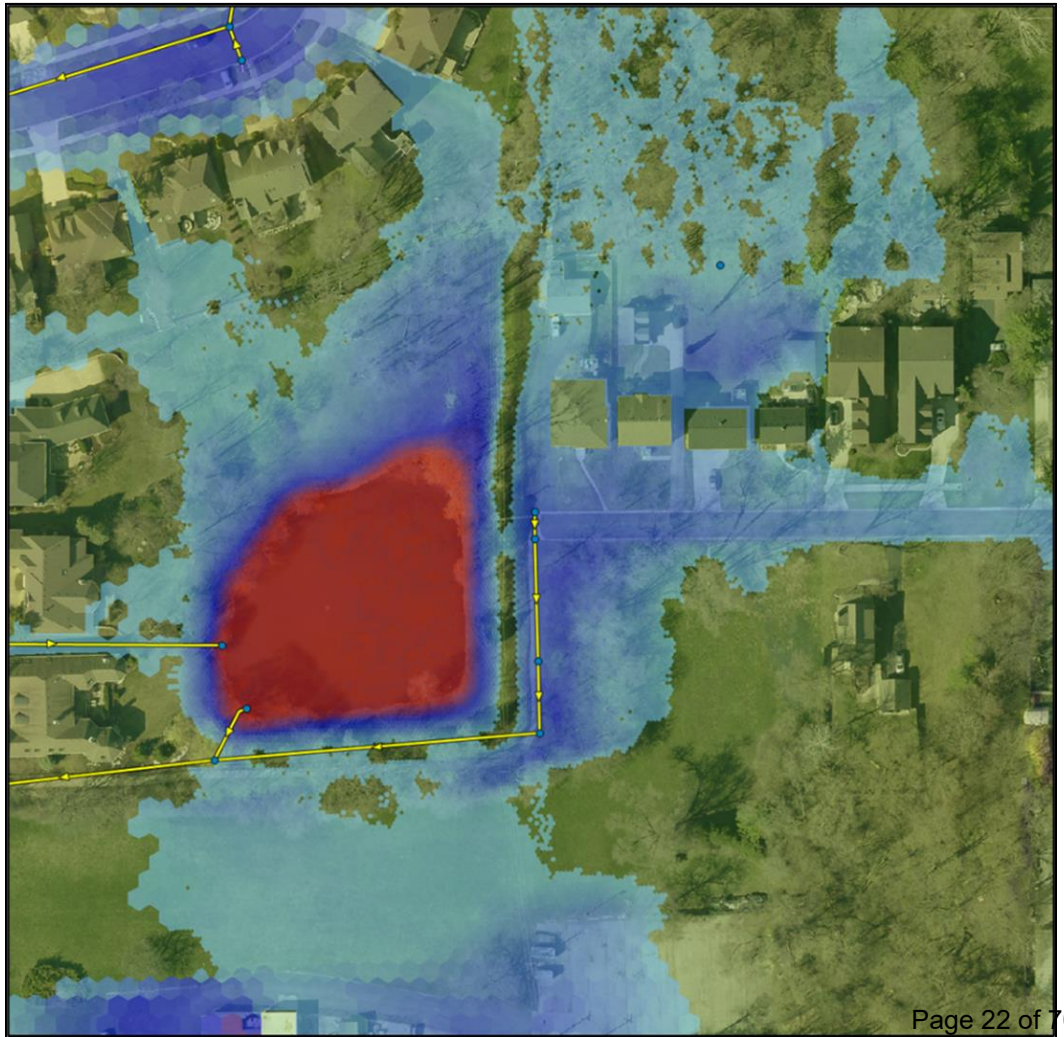
Existing Conditions 25-yr, 3-hr



Existing Conditions 50-yr, 2-hr



Existing Conditions 100-yr, 2-hr

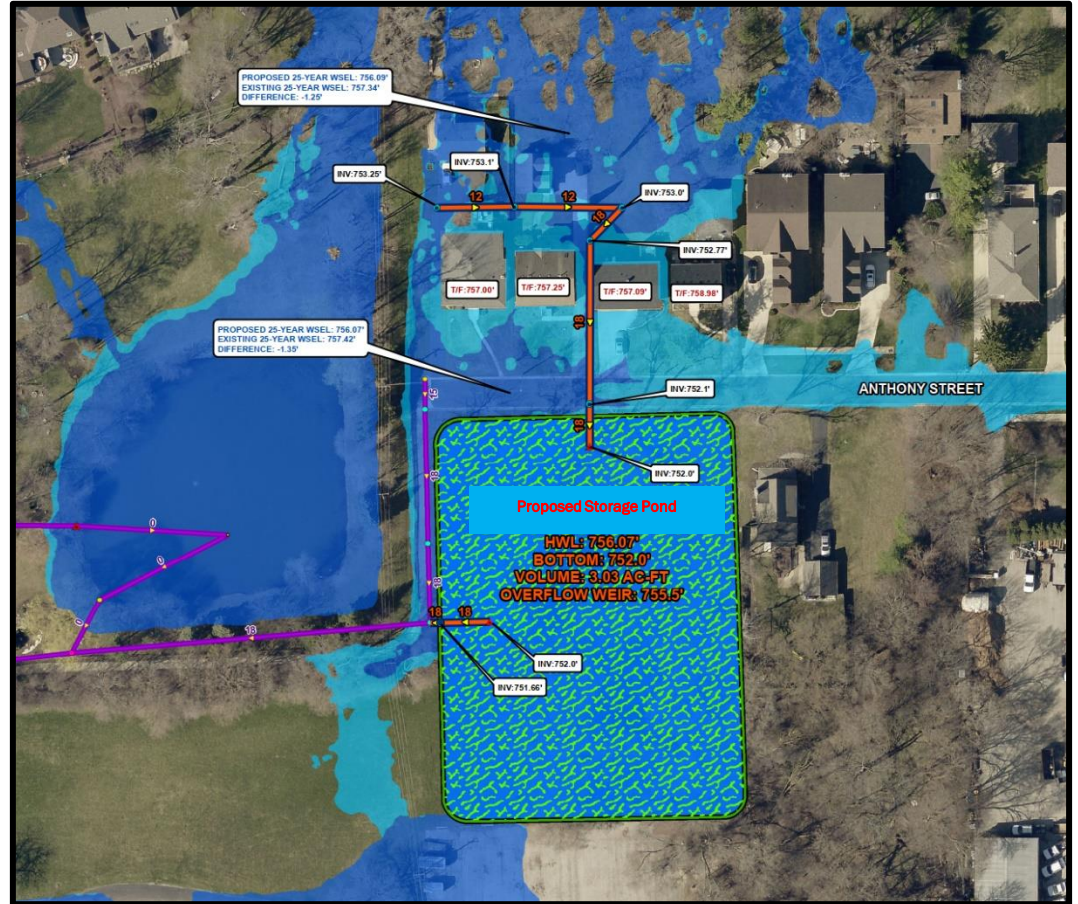


Studied Alternatives for Flood Reduction

- Combination of downstream storage and conveyance (storm sewer) improvements
- Storm sewer improvements are necessary to safely convey flow from rear yards to proposed storage facilities
- The studied alternatives shown on the following slides provide storage volumes required exclusive of any proposed development
- Developments would include fill that would impact total storage required that would need to be determined during final design

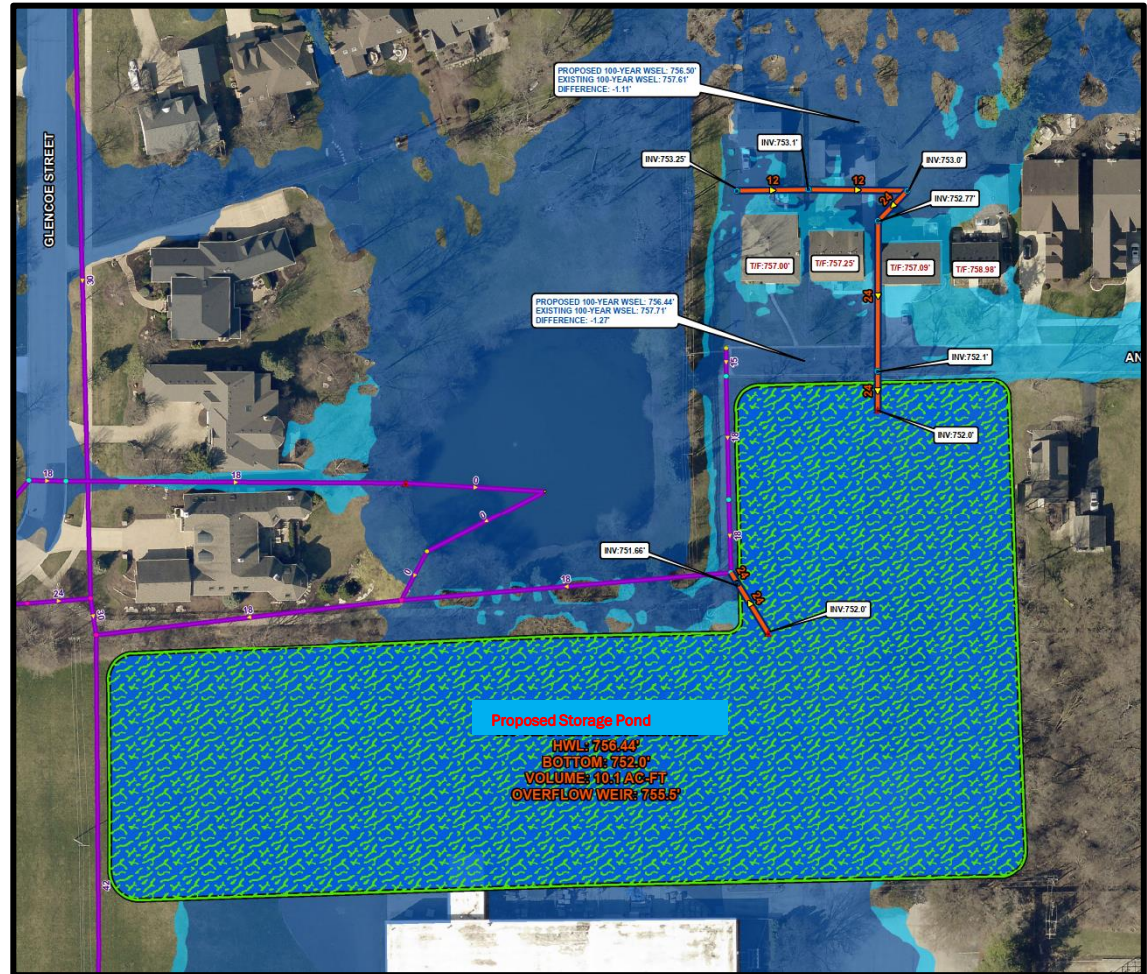
Proposed Pond #1 ~3 ac-ft

This size pond
would lower the
25-yr high water
level by 1.35 ft



Proposed Pond #3 ~10 ac-ft

This size pond
would lower the
100-yr high water
level by 1.27 ft



Questions/Comments?

Anthony St Drainage Study

ERA Project #W24049.00

Prepared For:

Village of Glen Ellyn
30 S. Lambert Rd
Glen Ellyn, IL 60137

Prepared By:

Engineering Resource Associates, Inc.
3S701 West Avenue, Suite 150
Warrenville, IL 60555
630-393-3060



Prepared On:

May 28, 2024
Revised September 9, 2024

Anthony St Drainage Study

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INTRODUCTION

The Village of Glen Ellyn (Village) contracted Engineering Resource Associates, Inc. (ERA) to complete a drainage study of the area located at the western end Anthony Street referred to as the Anthony Street Drainage Study (Study). The study location is shown in Figure 1. The Village of Glen Ellyn has experienced recent, localized, on-street and structural flooding within the Anthony Street drainage basin. Flooding occurs on Anthony Street near the dead end just west of the Kenilworth intersection during severe storm events. The study analyzes the existing system to understand the current extent of flooding and provides recommendations for potential improvements.



Figure 1: Study Location.

STUDY ANALYSIS

OVERVIEW

Approximately 19 acres are tributary to the western dead-end of Anthony Street. In general, flows head from north to south overland within the drainage area. Flows are conveyed overland through the side yards of the homes on the north side of Anthony Street south to the right-of-way. Anthony Street is serviced by an existing 18-inch storm sewer that conveys water to the City of Wheaton 48-inch trunk line on Pennsylvania Avenue. A ridgeline shown below between the Anthony Street right-of-way and the Wheaton College property to the south impounds water within the Anthony Street right-of-way. When ponding in the right-of-way reaches the crest elevation of the ridgeline of 757.3', water is conveyed overland south through the Wheaton College property. The Study subbasin limits are shown in Figure 2.

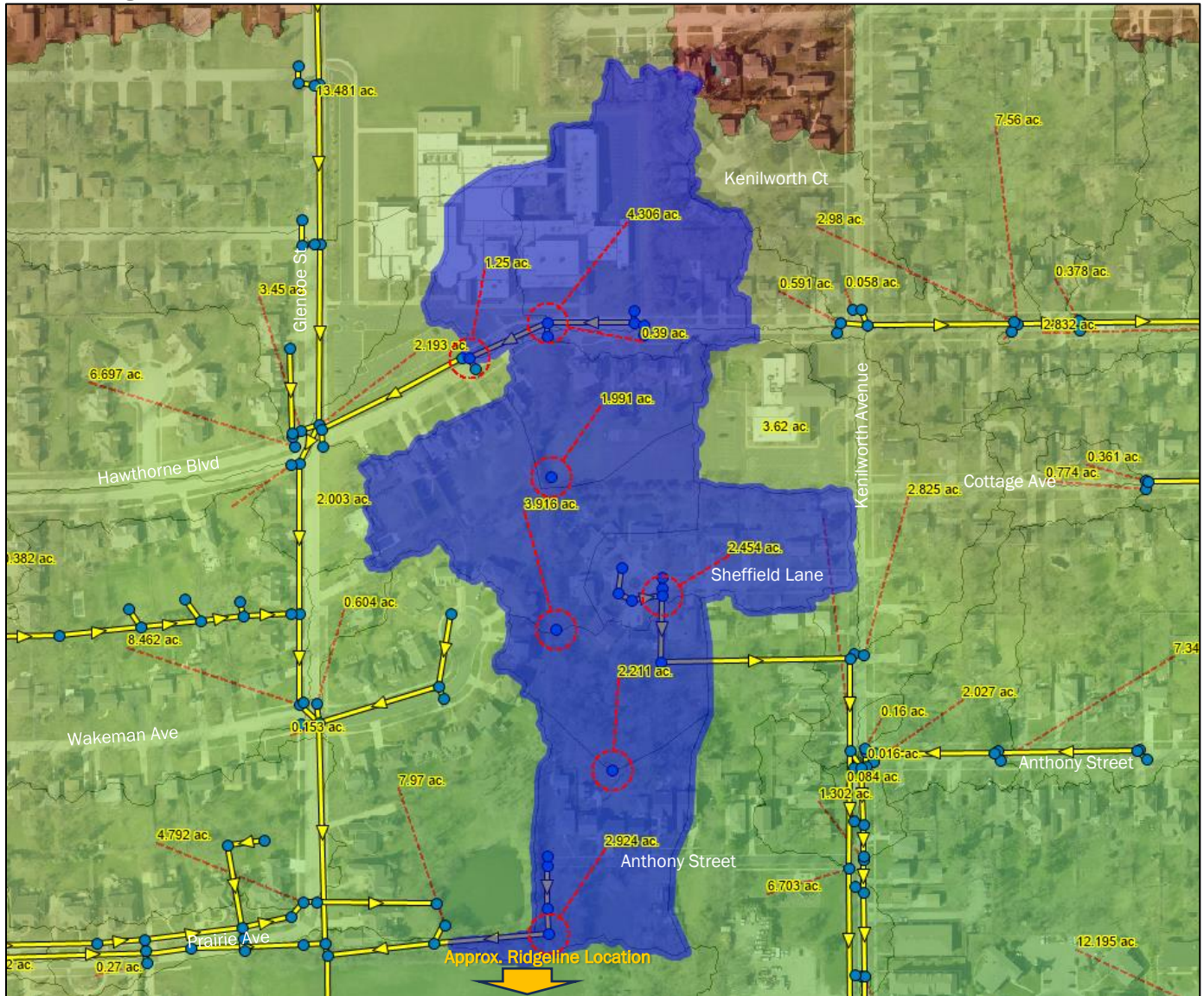


Figure 2: Screenshot of subbasins within Study model. The area tributary (19.4 acres) to the Anthony Street Drainage Study Location is highlighted in blue.

The Wheaton College property contains regulatory floodplain of Springbrook #1. It has a base flood elevation of 756.6'. The floodplain produces a high tailwater on the storm sewer draining Anthony Street. The Wheaton College property is in both the City of Wheaton and the Village of Glen Ellyn. Developers have been discussing potential

redevelopment of the property with both municipalities. The Study will investigate improvements to Anthony Street in the context of a new development in addition to the absence of a new development.

HYDRAULIC AND HYDROLOGIC MODELING

EXISTING CONDITIONS

ERA produced a model in PCSWMM-2D to analyze existing conditions. The following resources were used to construct updated and expanded existing conditions models for study in PCSWMM-2D:

- GIS Data from DuPage County
 - Cadastral data
 - 2022 LiDAR Topographic Data
 - 2021 Aerials
- GIS Data from the Village of Glen Ellyn
 - Storm sewer network data
- GIS Data from the City of Wheaton
 - Storm sewer network data
- Resident flooding reports
- Site visit for localized drainage issues
- Webster, McGrath, & Ahlberg, Ltd. 7/25/14 topographic survey used to confirm location and elevations of ridgeline separating Anthony Street drainage from the property to the south within the LiDAR dataset
- Field survey of low entry points and side yard topography of 236, 240, 244, and 248 Anthony St. The top of foundation was the lowest point of entry for each home.
- Bulletin 75 rainfall depth data for northeastern Illinois & Huff distribution curves.
- Tailwater information from FEMA FIS Report Summary of Stillwater Elevation Table (located in Appendix)

Note that the previous studies utilized Bulletin 70 rainfall data from the Illinois State Water Survey (ISWS). Bulletin 75 includes updated rainfall data as published by the ISWS in March 2020. A comparison of rainfall depths for northeastern Illinois is shown in Table 1 located below.

Table 1: Comparison of rainfall depths from Bulletin 70 & 75

	Bulletin 70 Rainfall Depths for NE Illinois (inches)		Bulletin 75 Rainfall Depths for NE Illinois (inches)	
	10-yr Freq.*	100-yr Freq.	10-yr Freq.	100-yr Freq.
1-hr Duration	2.10	3.56	2.42	4.03
2-hr Duration	2.64	4.47	2.99	4.97
3-hr Duration	2.86	4.85	3.30	5.49
6-hr Duration	3.35	5.68	3.86	6.43
12-hr Duration	3.89	6.59	4.48	7.46
24-hr Duration	4.47	7.58	5.15	8.57

*Storm frequency is categorized by the likelihood of storm occurrence in any given year. Colloquially called the "10-yr storm" or "100-yr storm", and so forth. A "10-yr storm" has a 1 in 10 (10%) chance of occurring any given year. A "100-yr storm" has a 1 in 100 (1%) chance of occurring in any given year.

The hydraulic and hydrologic models used for analysis did not include the following items:

- Groundwater analysis
- Inlet capacity analysis
- Conditions of existing stormwater infrastructure (system assumed to be unclogged and fully functional)

DuPage County's 2022 topographic information was imported into the PCSWMM-2D model to create a digital terrain model (DTM). The DTM is required to create the 2D surface grid needed to perform hydraulic computations for overland flows. GIS data of the sewer network from the City of Wheaton and Village of Glen Ellyn was imported into the model. Tailwater information was entered into the model outfall depending on the storm event from the stillwater elevations provided in the FEMA FIS Report for Springbrook #1. Subbasins were delineated and assigned to appropriate hydraulic nodes as shown in Figure 2.

A critical duration analysis was performed for the study area, which determined that either the 2-hr or 3-hr storm was critical depending on the storm frequency. The following storm frequencies were analyzed to determine the critical duration for each: 1-, 2-, 5-, 10-, 25-, 50-, and 100-year. The following Figures 3-16 show the inundation limits for the critical duration for each storm event analyzed. Full size versions can be found in the Appendix. Detailed tabular information from the critical duration analysis can be found in the Appendix.

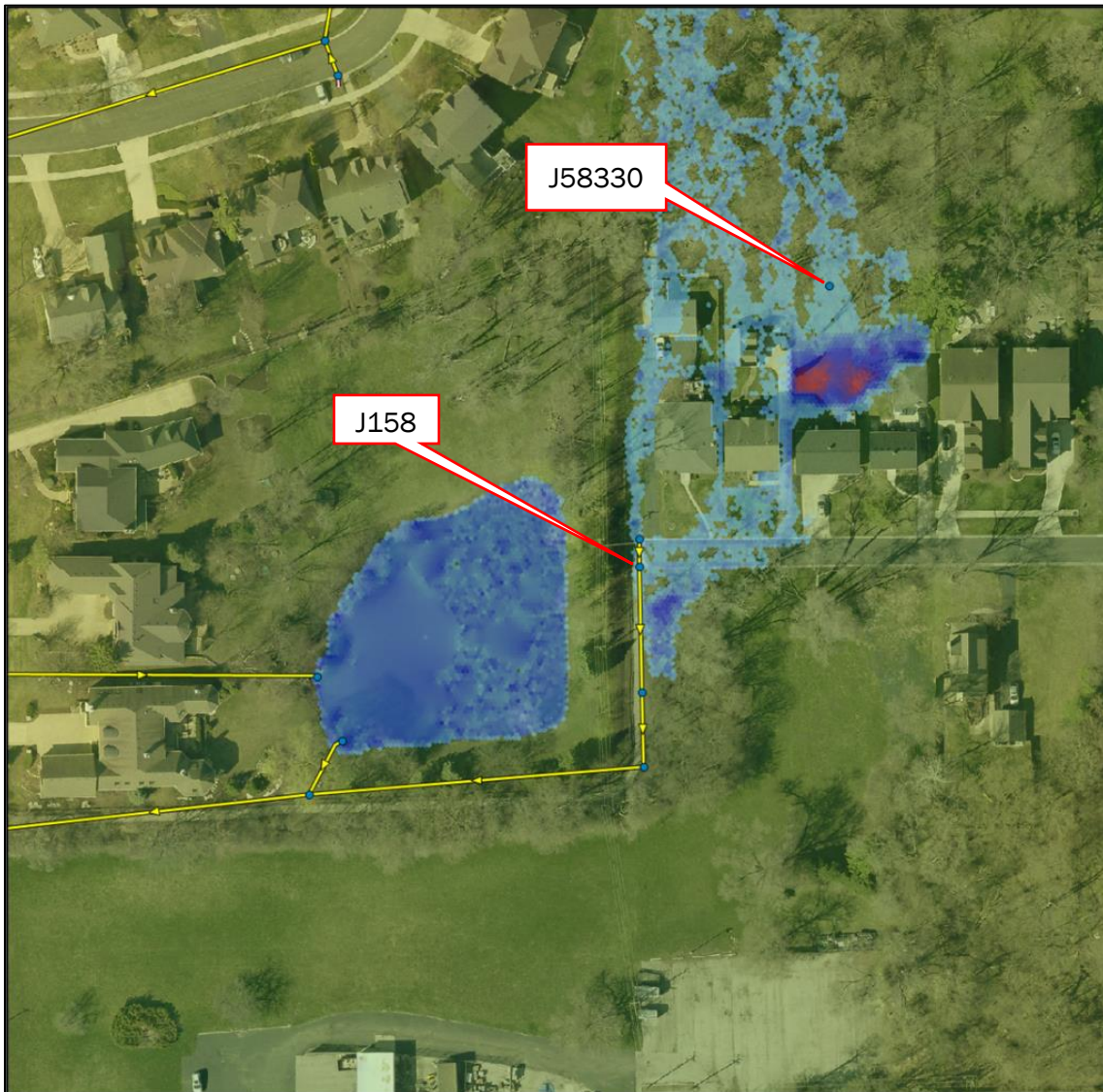


Figure 3: Existing 1-year critical duration (2-hr) inundation limits.



Figure 4: Existing 1-year critical duration (2-hr) inundation limits with maximum water surface spot elevations shown.

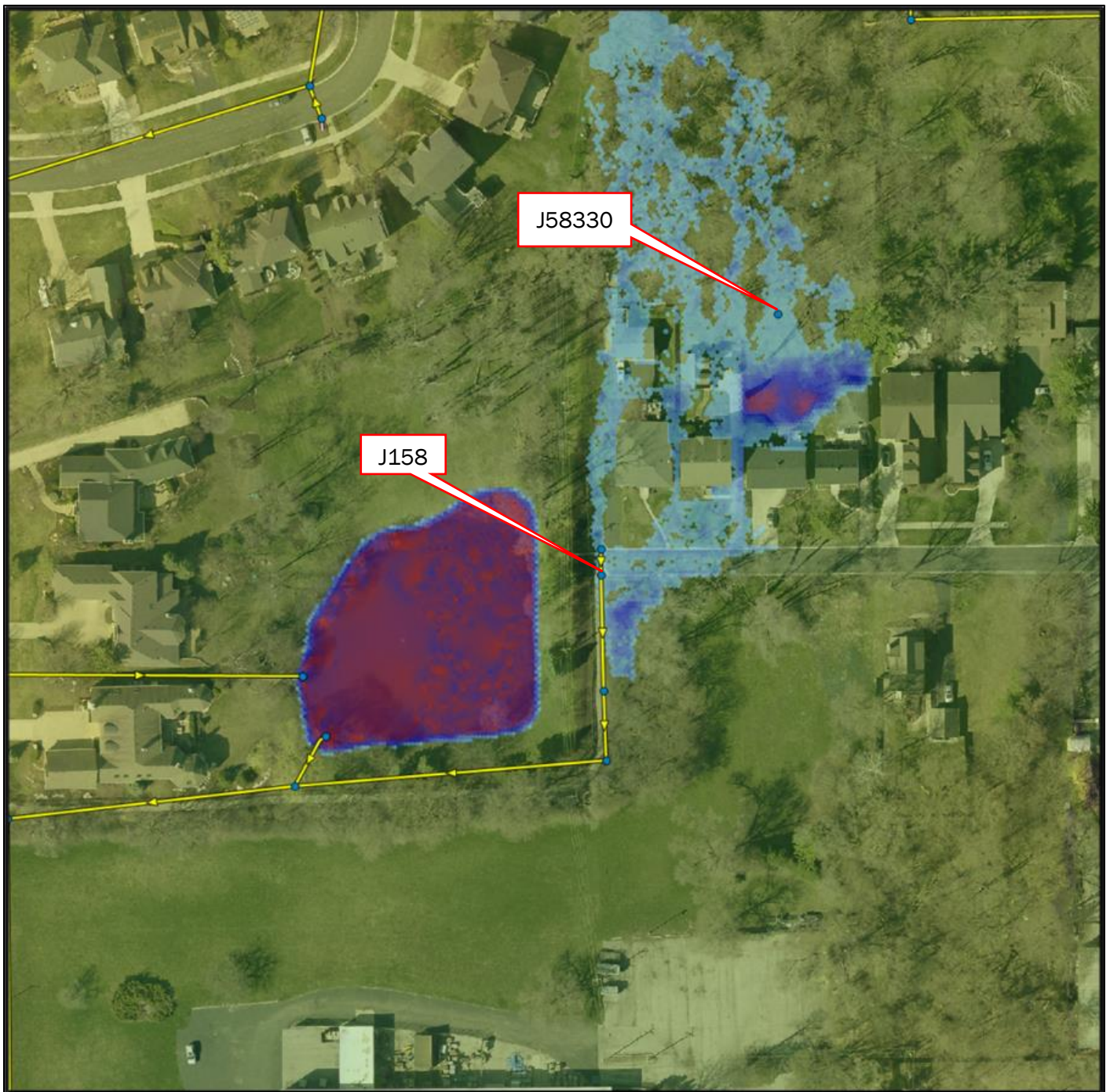


Figure 5: Existing 2-year critical duration (2-hr) inundation limits.



Figure 6: Existing 2-year critical duration (2-hr) inundation limits with maximum water surface spot elevations shown.



Figure 7: Existing 5-year critical duration (2-hr) inundation limits.



Figure 8: Existing 5-year critical duration (2-hr) inundation limits with maximum water surface spot elevations shown.

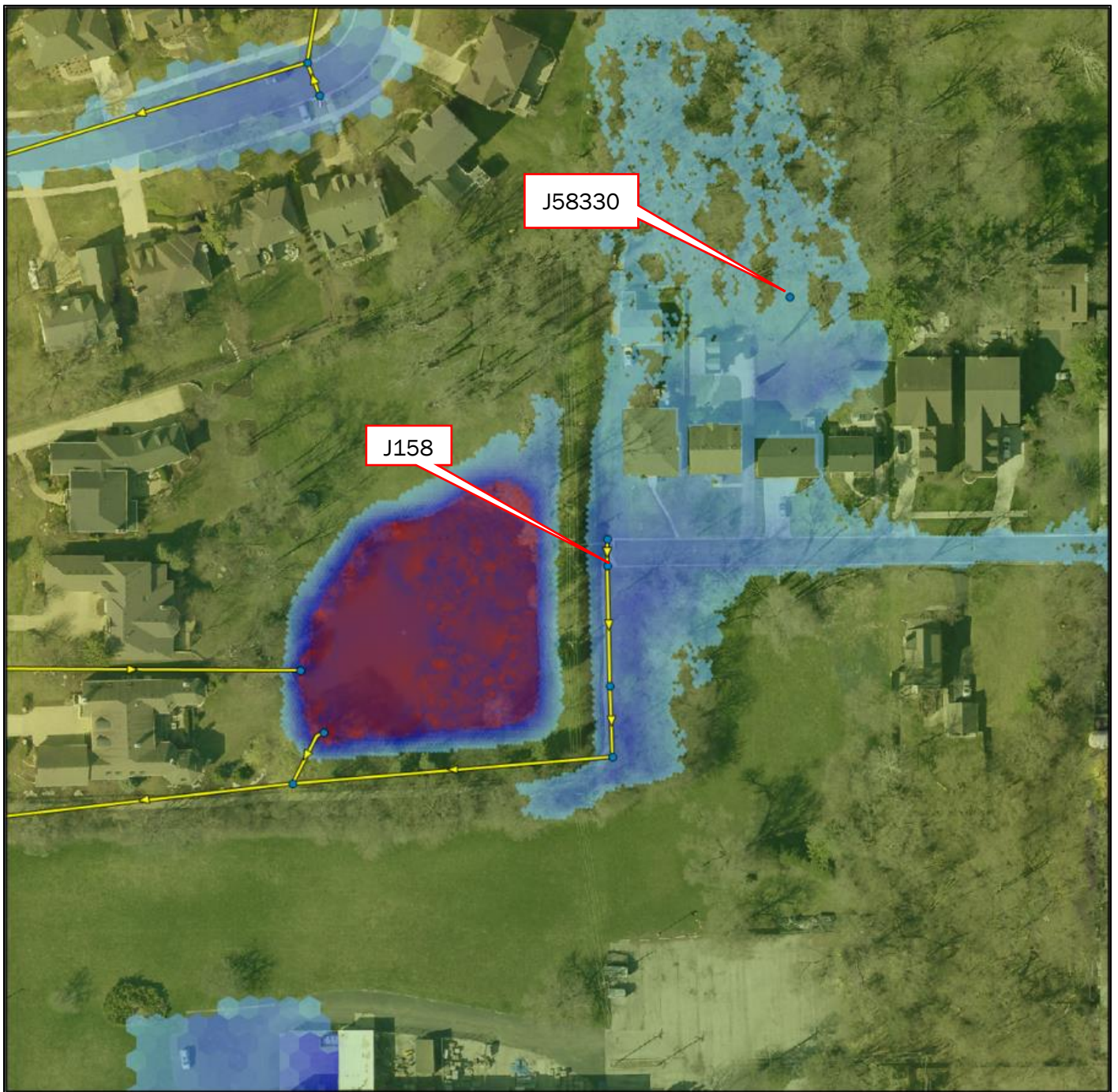


Figure 9: Existing 10-year critical duration (3-hr) inundation limits.



Figure 10: Existing 10-year critical duration (3-hr) inundation limits with maximum water surface spot elevations shown.

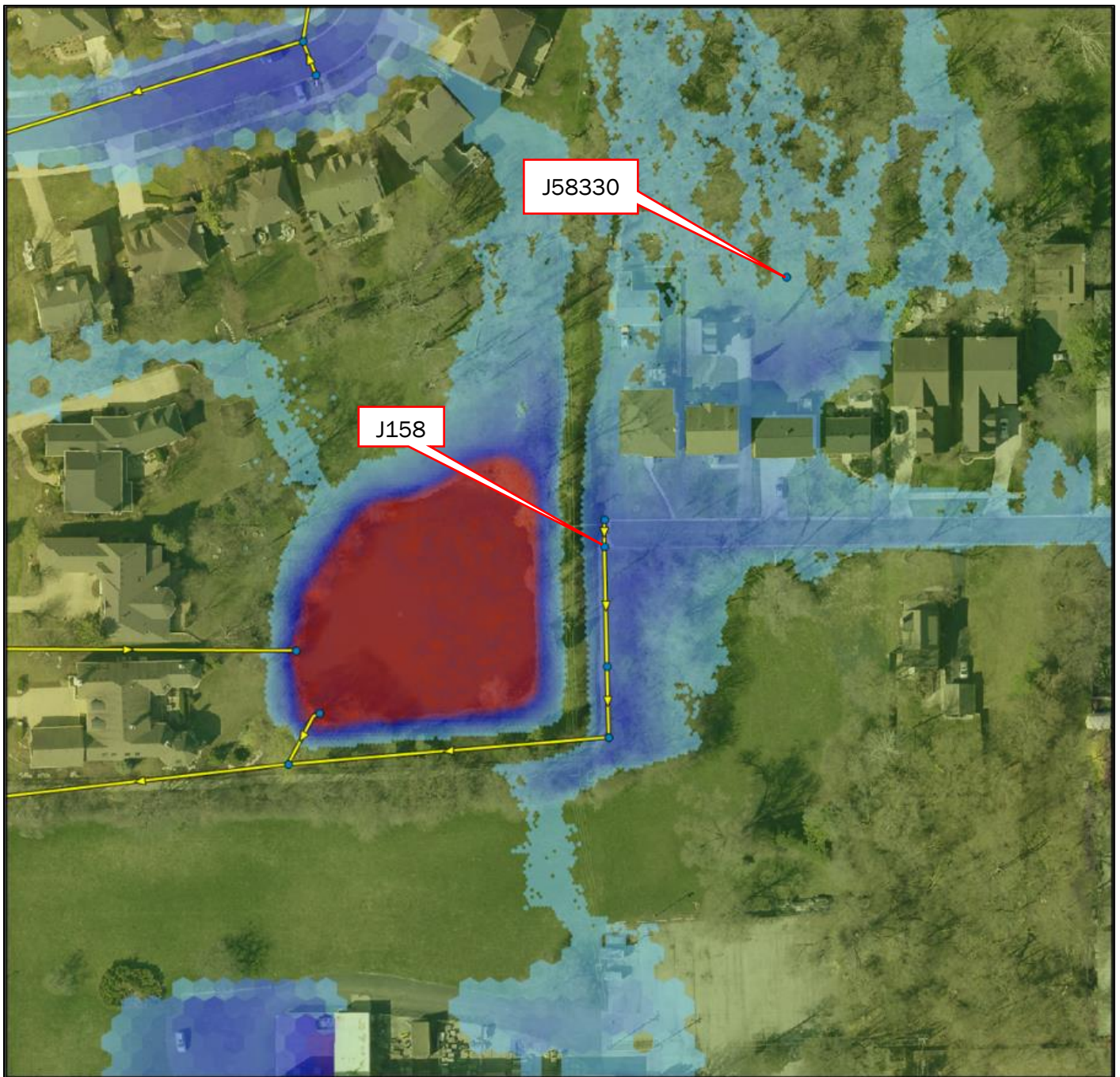


Figure 11: Existing 25-year critical duration (3-hr) inundation limits.

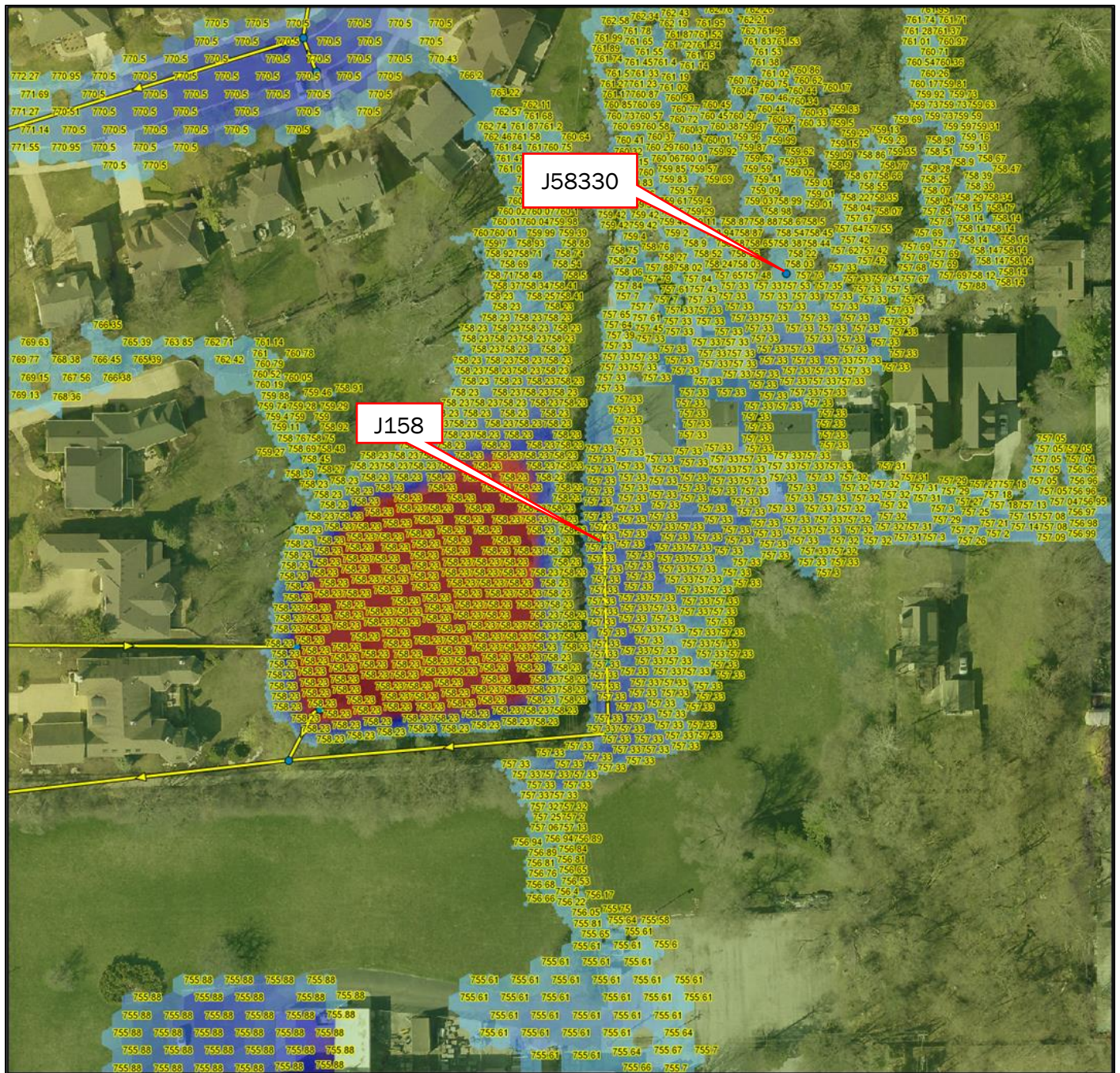


Figure 12: Existing 25-year critical duration (3-hr) inundation limits with maximum water surface spot elevations shown.

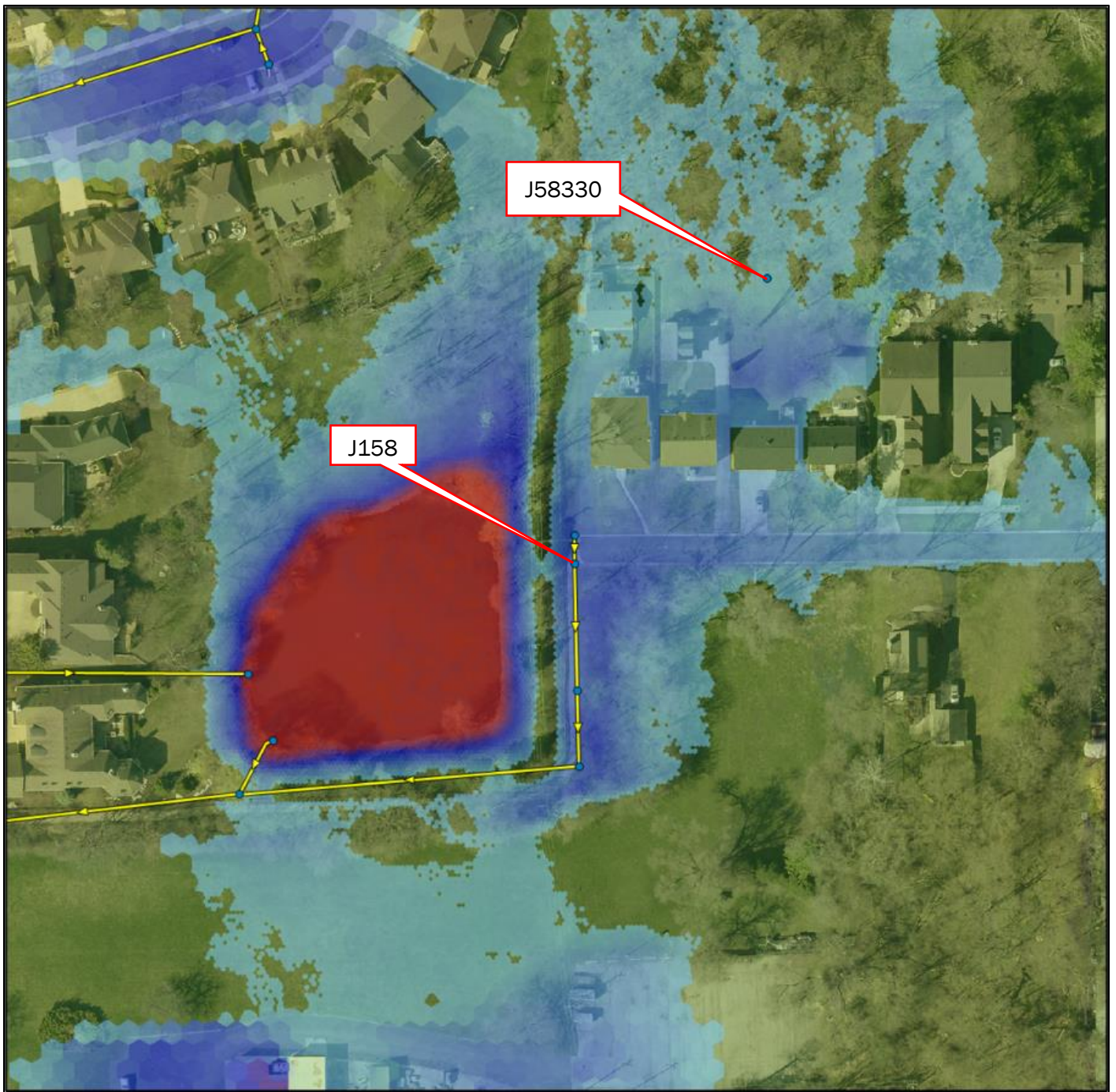


Figure 13: Existing 50-year critical duration (2-hr) inundation limits.

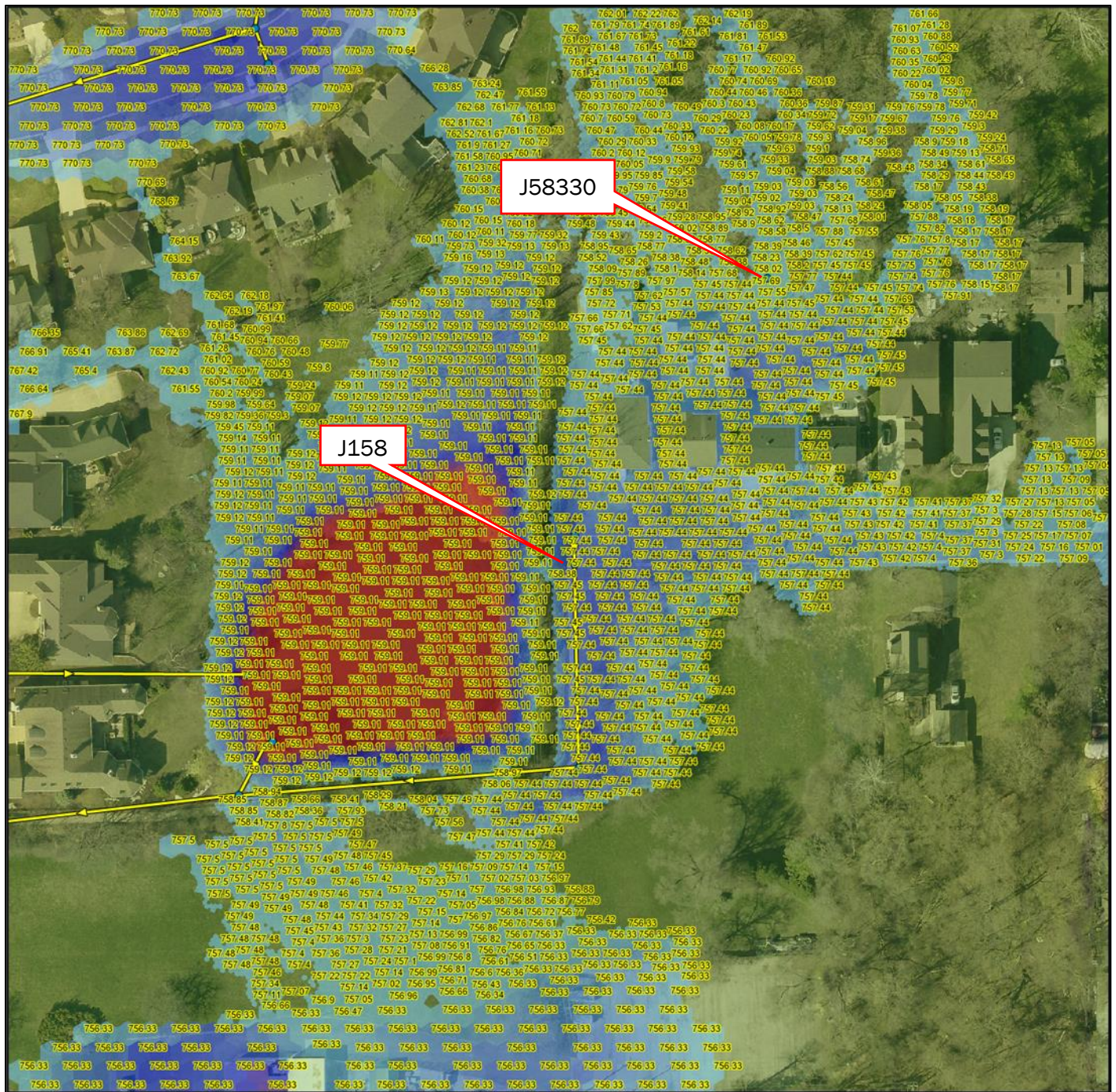


Figure 14: Existing 50-year critical duration (2-hr) inundation limits with maximum water surface spot elevations shown.

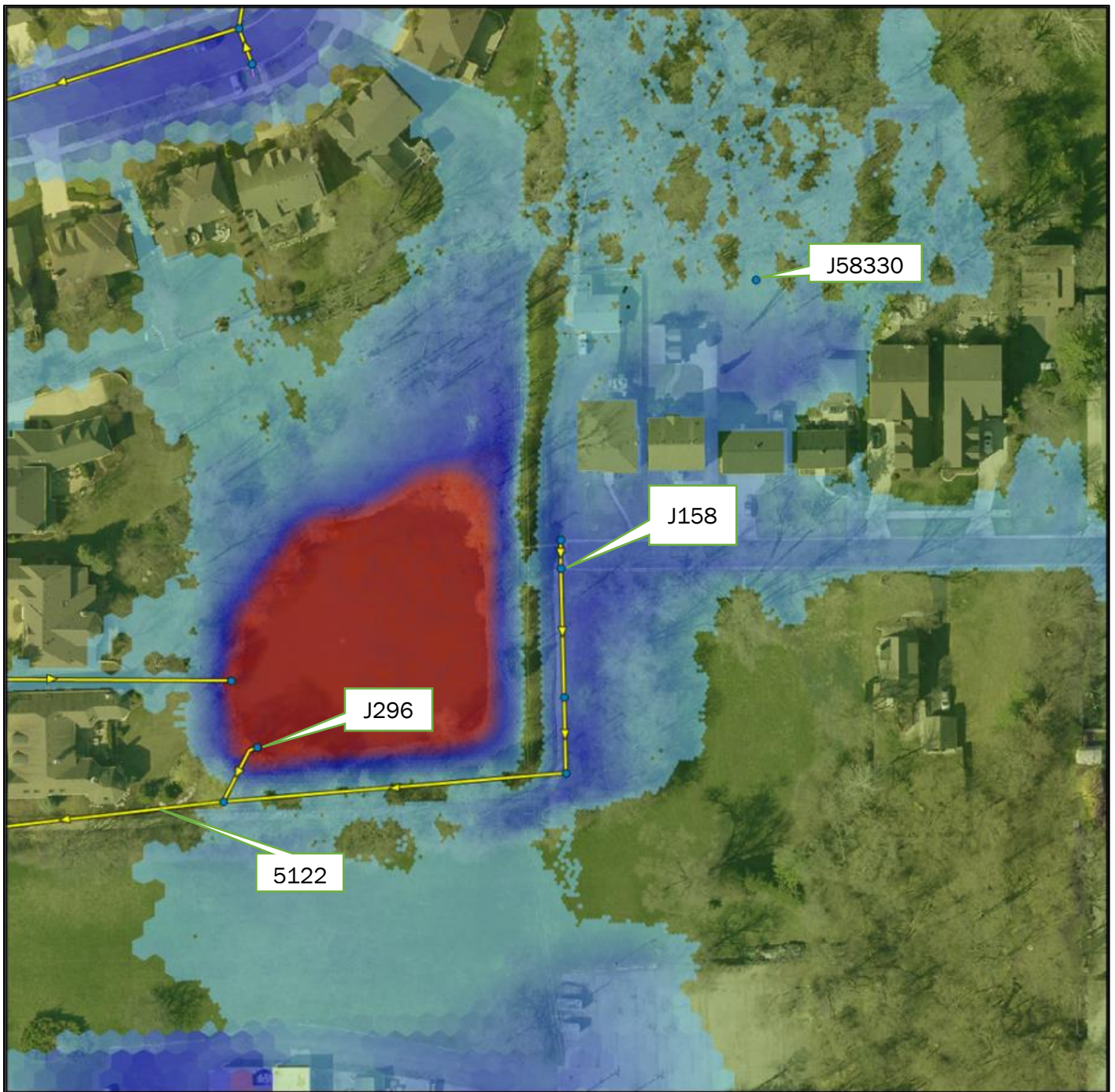


Figure 15: Existing 100-year critical duration (2-hr) inundation limits. Annotated with model object numbers.

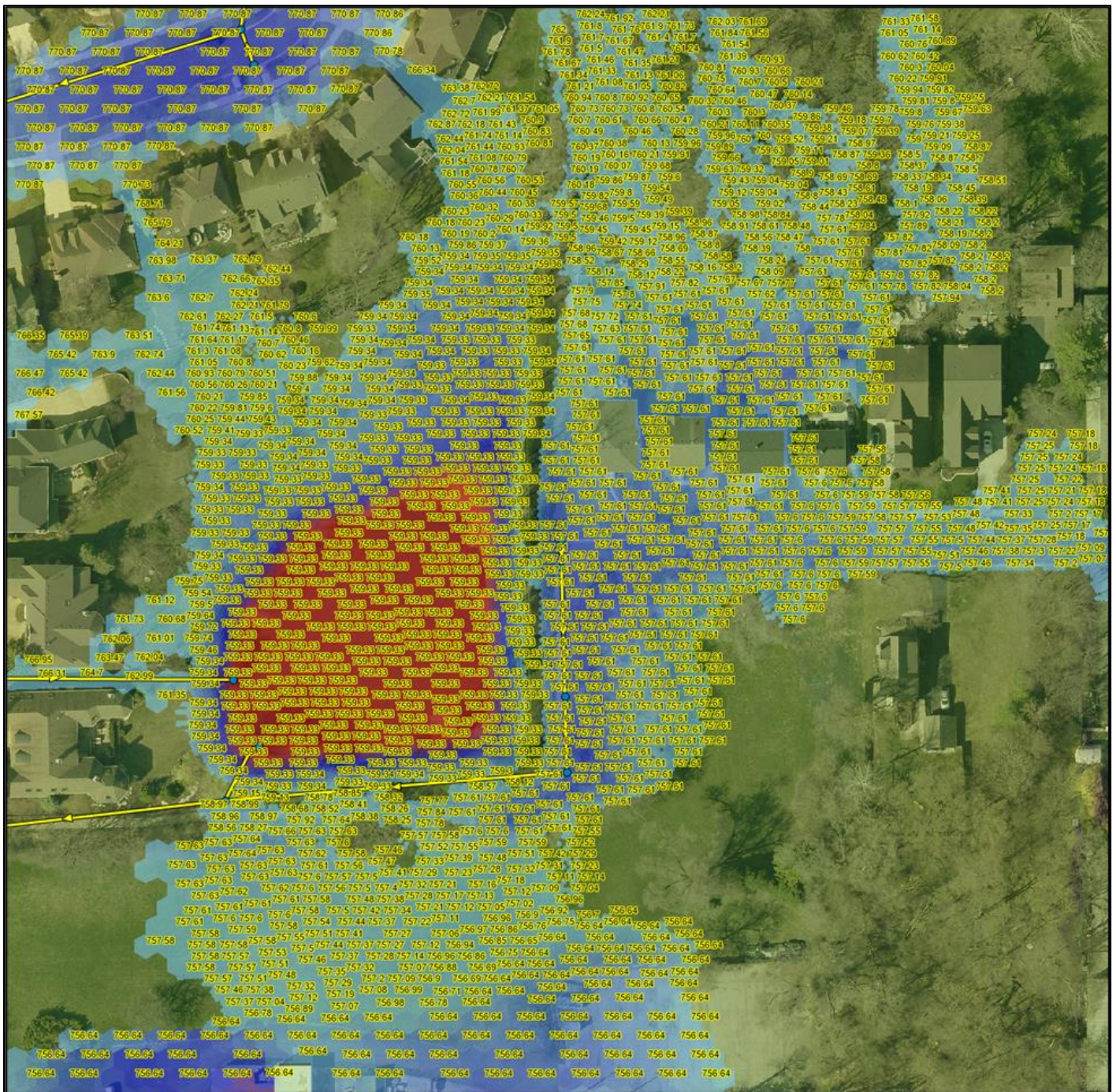


Figure 16: Existing 100-year critical duration (2-hr) inundation limits with maximum water surface spot elevations shown.

Table 2 below provides existing conditions results for each critical duration storm at critical locations within the model. The results either summarize water surface elevations (WSEL) or flows at each location.

Table 2: Summary of Critical Duration Results

Critical Duration Storm Event	Inlet At West End Of Anthony St (Node J158) WSEL (ft)	Detention Pond West of Anthony St (Node J296) WSEL (ft)	Pipe Downstream of Detention Pond (Conduit 5122) Flow (cfs)	Rear Yards of North Side of Anthony St (Node J58330) WSEL (ft)	Manhole Upstream of Railroad Crossing at Pick St (Node J138) WSEL (ft)	Pipe Along West Side of Kenilworth at Anthony St (Conduit 93786) Flow (cfs)	Pipe Along East Side of Kenilworth at Anthony St (Conduit 1135287) Flow (cfs)
100-yr, 2-hr	757.61	759.33	22.75	758.09	756.16	6.82	29.82
50-yr, 2-hr	757.44	759.11	21.25	758.02	755.70	6.80	28.22
25-yr, 3-hr	757.33	758.23	14.28	758.03	755.13	6.29	24.41
10-yr, 3-hr	757.04	757.12	17.85	757.94	754.33	6.08	21.31
5-yr, 2-hr	756.38	756.36	16.32	757.97	753.89	5.66	17.99
2-yr, 2-hr	755.36	754.84	12.68	757.94	753.60	4.35	9.77
1-yr, 2-hr	755.21	753.96	6.87	757.85	753.38	2.59	6.23

The results indicate that homes on the north side of Anthony Street are impacted by the ponding within the right-of-way as the water surface elevations are nearly identical. When the 18" storm sewer reaches capacity, flows pond within the Anthony Street right-of-way as well as the side and rear yards of the homes on the north side of Anthony Street. In the 25-yr storm, ponding reaches the crest elevation of 757.3' of the ridgeline and releases overland towards the Wheaton College property. The downstream floodplain is hydraulically connected and allowed to access Anthony Street via the 18" storm sewer. The capacity issues with the 18" sewer are made worse by the tailwater conditions created by the downstream floodplain.

When analyzing the study area, the highlighted columns from Table 2 are the most critical data points. The water surface elevations in the right-of-way and rear yards of Anthony Street were used to determine whether a residential structure was at risk of flooding. The other data points such as the detention pond and Kenilworth flows were captured to determine potential trends and impacts when vetting potential proposed alternatives. For example, the Kenilworth Ave system is shown to be surcharging and is a known sensitive flooding area as well. Therefore, no proposed alternatives included additional conveyance towards Kenilworth Ave. The water surface elevations at the manhole just north of the railroad were captured for model calibration. The locations of model objects have been added to Figure 15 for reference.

The tops of foundation elevations were determined to be the lowest points of entry for each home. A table summarizing survey information can be found in Table 3 below. Survey field notes showing the elevation of all potential points of entry and survey points exhibit can be found in the Appendix. A comparison of the water surface elevations around the homes to the surveyed lowest points of entry for each home shows that the home are protected for storms somewhere between the 5 and 10-yr storms.

Table 3: Survey Elevation Information			
Address	Top of Foundation Elevation (ft)	First Floor Elevations (ft)	Lowest Point of Entry
236 Anthony	757.03	761.10	Top of Foundation
240 Anthony	757.25	761.32	Top of Foundation
244 Anthony	757.09	758.26	Top of Foundation
248 Anthony	758.98	760.08	Top of Foundation

PROPOSED CONDITIONS

The existing conditions model was used as a baseline to produce proposed alternative models to analyze. The various alternatives analyzed, and their results are described below.

Lower Ridgeline Alternative

The first option investigated the impacts of lowering the ridgeline impounding water within the Anthony Street right-of-way. The ridgeline has a crest elevation of 757.3' at the location shown in Figure 17 below. The option looked at lowering the crest elevation of the ridgeline to 757' for a width of 20'. By lowering the ridgeline by 0.3' the water surface elevation of Anthony Street decreased by 0.2'. However, the downstream floodplain increased in elevation by 0.1'. The increase in downstream water surface elevation is not allowed per regulation standards and therefore this alternative was not seen as viable. Other options of only lowering the ridgeline were not investigated further. If the ridgeline was lowered, additional volume would need to be provided to mitigate downstream impacts to the existing building and property.



Figure 17: Location of ridgeline in red. Overtopping location shown with blue arrow.

Storage Basin Alternatives

ERA modeled three possible stormwater storage basins south of Anthony Street to determine how much flooding could be reduced. These modeling alternatives are "without development" alternatives that do not take into account the filling and regrading of the Wheaton College East Campus site, because the specifics of any development is not known.

The area south of the western end of Anthony Street was chosen as an opportune location to add storage basins. The location is directly south of the ponding within the Anthony Street right-of-way such that flows can enter the storage basins overland without the need for piping. The parcels in this area are open-space and owned by Wheaton College. By adding the storage basins in the northern portion of the Wheaton College East Campus site, they would mesh well with any potential redevelopment of the site since they would be located away from the main access off Pennsylvania Avenue. Stormwater and floodplain management provisions such as compensatory storage, detention or PCBMPs required by redevelopment would likely choose the same location. Storage added to the northern portion of the Wheaton College East Campus site could satisfy stormwater and floodplain management requirements for development and benefit the Anthony Street study area. The amount of required compensatory

storage for a development would depend on the details of any future development. ERA added a rough estimate of the fill on the development site to the model, it was found that the required compensatory storage basin would be need to about 20-25% larger than the largest storage basin (Pond 3).

Storage Basin Option 1

The first storage option provides approximately 3 ac-ft of volume. In the modeling of the 25-yr critical duration storm the flooding depth in and around Anthony Street depth is reduced by 1.3 feet, and flooding is below the lowest top of foundation. It has a proposed design overflow weir with crest elevation 755.5' and 25-yr high-water level of 756.07'. If the improvements from Option 1 were implemented, the lowest top of foundation would be at least half of foot higher than the water surface elevation in the 25-yr critical duration storm. The pond's footprint and 25-yr, 3-hr flooding inundations limits are shown in Figure 18 below and on Exhibit 2 in the appendices of the report. The tabular results are listed in Table 4.

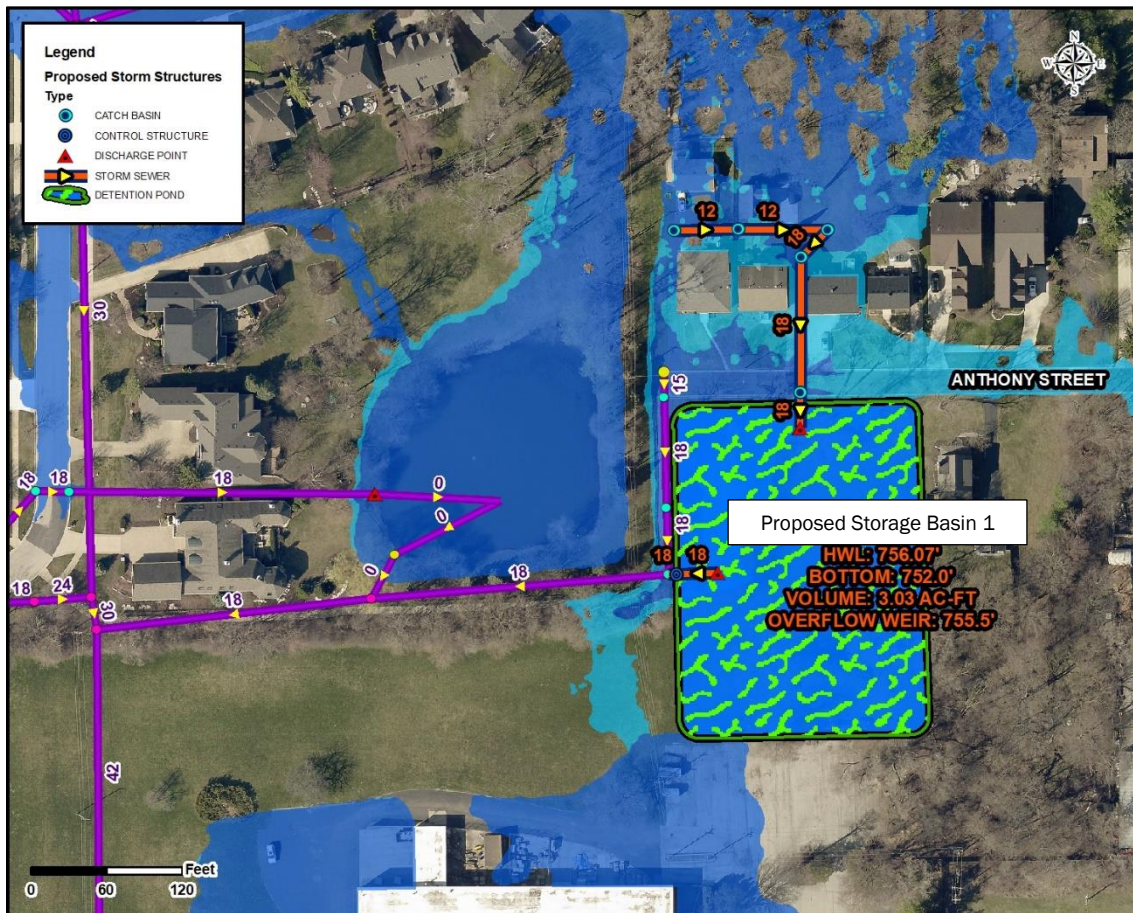


Figure 18: 25-year critical duration (3-hr) inundation limits with proposed Storage Basin Option 1.

Storage Basin Option 2

The second storage option provides approximately 6.75 ac-ft of volume. In the modeling of the 50-yr critical duration storm the flooding depth in and around Anthony Street depth is reduced by 1.29 feet, and flooding is below the lowest top of foundation. It has a proposed design overflow weir with crest elevation 755.5' and 50-yr high-water level of 756.25'. If the improvements from Option 2 were implemented, the lowest top of foundation would be at least half of foot higher than the water surface elevation in the 50-yr critical duration storm. The pond's footprint and 50-yr, 2-hr flooding inundations limits are shown in Figure 19 below and on Exhibit 3 in the appendices of the report. The tabular results are listed in Table 4.

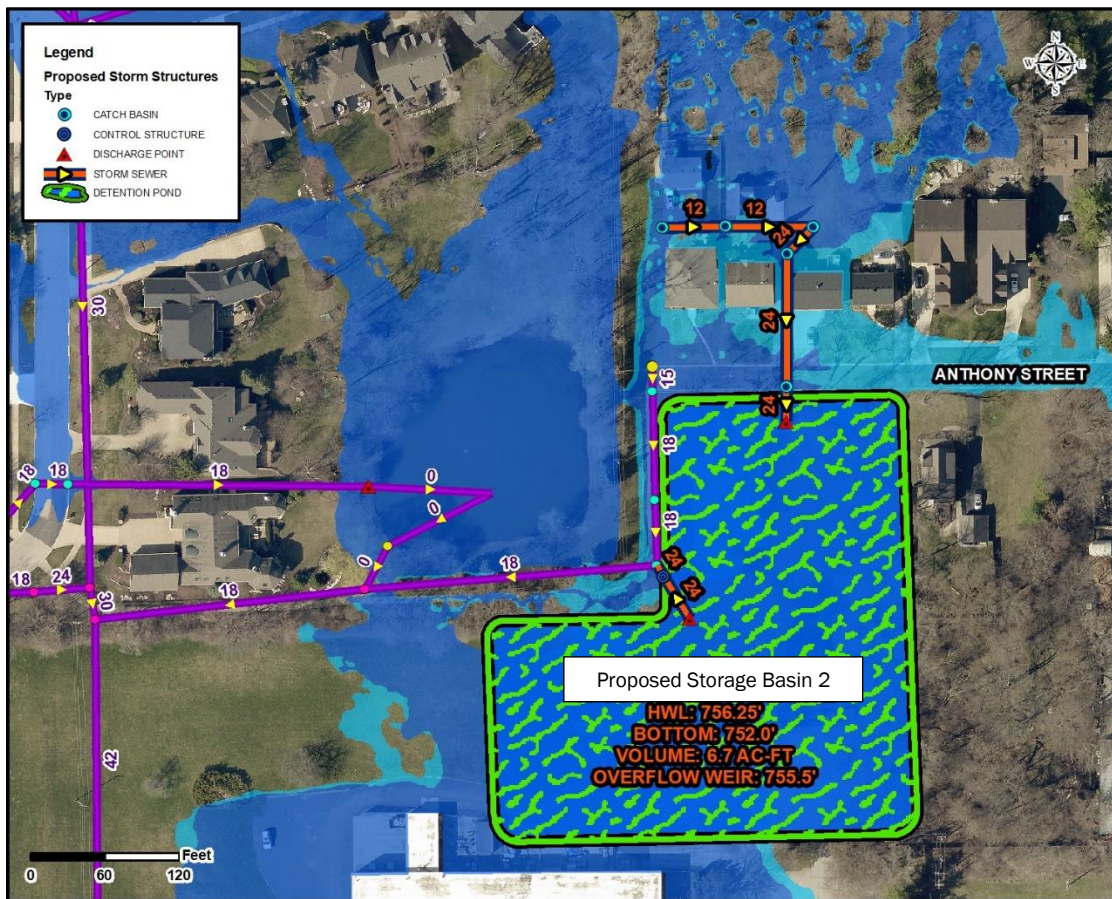


Figure 19: 50-year critical duration (2-hr) inundation limits with proposed Storage Basin Option 2.

Storage Basin Option 3

The third storage option provides approximately 10.1 ac-ft of volume. In the modeling of the 100-yr critical duration storm the flooding depth in and around Anthony Street depth is reduced by 1.27 feet, and flooding is below the lowest top of foundation. It has a proposed design overflow weir with crest elevation 755.5' and 100-yr high-water level of 756.44'. If the improvements from Option 3 were implemented, the lowest top of foundation would be at least half of foot higher than the water surface elevation in the 100-yr critical duration storm. The pond's footprint and 100-yr, 2-hr flooding inundations limits are shown in Figure 20 below and on Exhibit 4 in the appendices of the report. The tabular results are listed in Table 4.

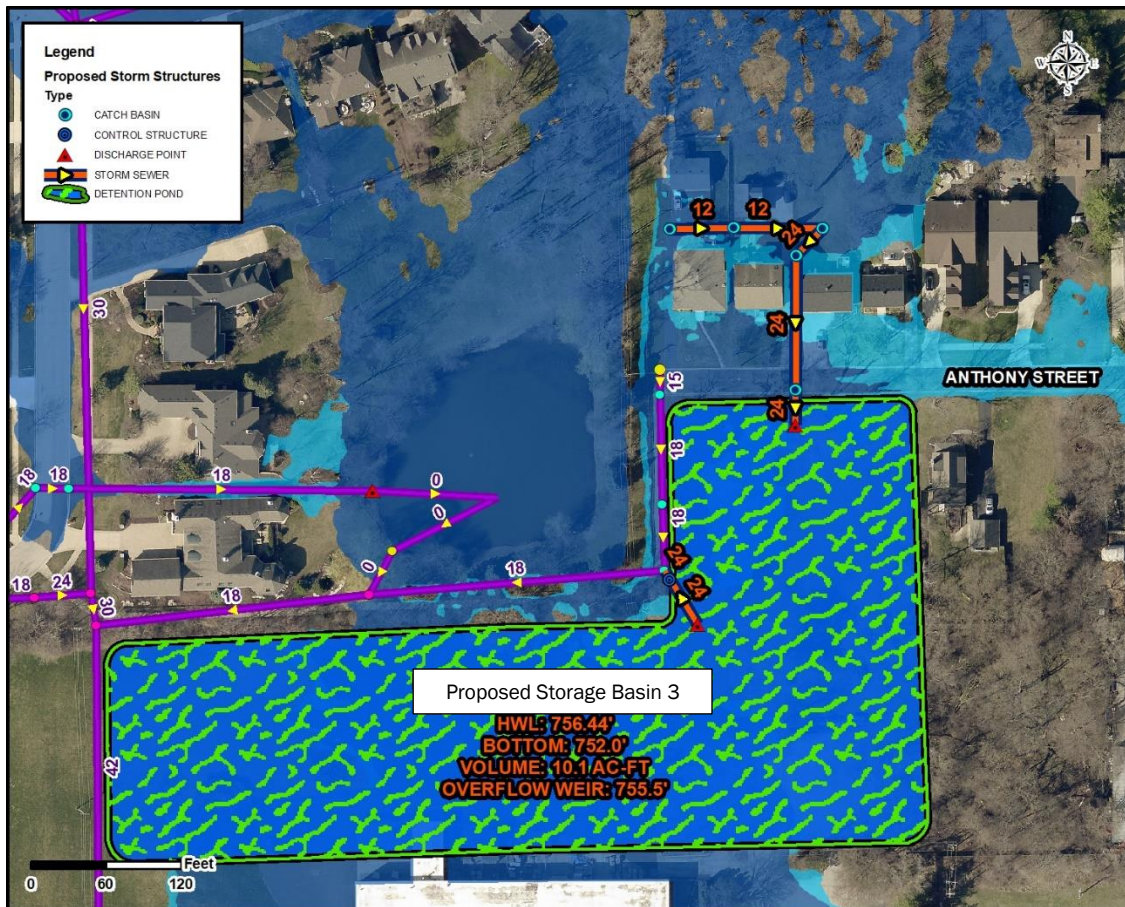


Figure 20: 100-year critical duration (2-hr) inundation limits with proposed Storage Basin Option 3.

Table 4: Summary of Results for Pond Options

Pond Option	LOS	25-yr Pond Volume (ac-ft)	25-yr Pond WSEL	25-yr Rear Yard WSEL	50-yr Pond Volume (ac-ft)	50-yr Pond WSEL	50-yr Rear Yard WSEL	100-yr Pond Volume (ac-ft)	100-yr Pond WSEL	100-yr Rear Yard WSEL
Option 1	25-yr	3.03	756.07	756.09	3.61	756.44	756.52	3.89	756.92	756.92
Option 2	50-yr	5.46	755.87	755.87	6.73	756.25	756.30	7.42	756.76	756.74
Option 3	100-yr	6.60	755.01	755.01	8.91	755.91	755.91	10.14	756.44	756.50

Rear Yard Conveyance

Additional measures are needed to safely convey local flows from the rear yards of the north side of Anthony Street to the right-of-way and storage basins. The flat side and front yards and multiple localized depressional areas in the rear yards make overland conveyance improvements difficult. Instead storm sewers with backflow preventors need to be installed in conjunction with a storage basin option to match what was modeled. The locations of the proposed pipes are shown in the figures for each storage basin option. In general, they are modeled to collect flow from low points in the rear yards to the storage basin. They are sized to convey 100-yr flows with 24" diameter pipes to be conservative in the pond volume design. Sewer locations, diameters, and level of service need to be revisited during final design of an any implemented storage basin option.

Development Implications

Any major redevelopment of the East Campus site will be required to meet today's flood protection regulations. Any proposed buildings will need to have their top of foundation raised at least a foot above the regulatory floodplain. Fill will be required onsite to provide the required flood protection elevations for any proposed buildings. When

floodplain is filled, regulations require that compensatory storage be provided at one and a half times the floodplain volume lost. The proposed pond options could be constructed as part of a redevelopment of the East Campus site to meet regulatory requirements and provide a benefit to the homes at the end of Anthony Street. The design of the pond options each includes an overflow weir low enough that floodplain is allowed to access the ponds to function as a compensatory storage basin required by regulations. As long as the ponds are constructed in the locations shown in Pond Options 1-3, the benefits to Anthony Street could be achieved. Preliminary estimates show that a redevelopment of the entire site would likely have compensatory storage requirements that are larger than 100-yr Pond Option 3. This assumes that the entire site would be filled to at least the BFE to provide a developer area for buildings to meet flood protection requirements. The volume of fill was multiplied by 1.5 to determine the amount of compensatory storage would be required. The actual amounts of required compensatory storage would be dependent on final plans for redevelopment of the site.

When making the improvements to the Anthony Street area, the improvements will lower flood elevations within the existing depressional area in and around the west end of Anthony Street. In doing so, this will effectively reduce the amount of stormwater that is being stored within the depressional area which could adversely impact downstream properties. To counter this effect, compensatory storage needs to be provided for the change in the high-water level (HWL) elevation between the existing 100-yr HWL and the proposed 100-yr HWL for the various improvement options. Using Option 3, which would require the greatest amount of compensatory storage, there is an estimated reduction of 1.1 acre-ft of storage within the Anthony Street depressional area. As the tributary area to the Anthony Street Depression is less than 20 acres, DuPage County Stormwater Staff has indicated that the area can be considered a localized depression and compensatory storage would be required at a 1:1 ratio (i.e. an 1.1 acre-ft of compensatory storage would be required). This compensatory storage volume is separate from any compensatory storage required by development of the Wheaton College properties. As an alternative, if modeling is completed and demonstrates that the reduction of the flooding depth within the Anthony Street depressional area does not adversely impact downstream properties, a variance from the DuPage County Stormwater Ordinance could be requested. The modeling would be based on the final design of a development.

COSTS

Engineer's Opinion of Probable Construction Costs (EOPCCs) were created for each of the three pond options. 2024 DOT estimate for Illinois, recent bid tabs for similar construction done in DuPage County in neighboring municipalities, and professional opinion of construction costs were utilized to prepare these estimates. Costs for land acquisition or intragovernmental agreements were not included in the estimates. Cost estimates for pavement restoration are calculated assuming that only disturbances are to be replaced (patching) and not the full width of the roadway. Items incidental (landscape restoration, utility adjustments, etc.) to the main construction line items were estimated as best as possible from available information.

Cost estimates shall be updated and refined as each project is implemented and field survey is acquired for final design. Pond Option 1 is estimated to cost \$837K. Pond Option 2 is estimated to cost \$1.44 million. Pond Option 3 is estimated to cost \$2.03 million. Detailed cost estimates for each pond option be found in the Appendix. These costs shall be revised as needed as market costs and demands fluctuate.

RECOMMENDATIONS

Additional discussions should occur with any potential developer to explain how locating compensatory storage or detention facilities as required by regulation in the location of the pond options provides an overall benefit to the neighborhood. The final development will dictate what is ultimately required by regulations. A full redevelopment of the site will likely trigger compensatory storage requirements that could be partially satisfied with Pond Option 3 if located properly. On top of the compensatory requirements due to development, an additional 1.1 ac-ft of storage would need to be required to make up for the volume removed from the Anthony Street ponded area. In lieu of providing the additional 1.1 ac-ft, a stormwater variance process can be initiated with a submittal that demonstrates with modeling no adverse downstream impacts. Ultimately, the final storage required by regulations

will depend on the proposed development. The Village and review agencies should meet with any potential developers early to get a concept plan for the development, provide an explanation of requirements for the development *and* Anthony Street improvements, and convey the desired location for the storage basins such that they could meet regulations while also providing a benefit to Anthony Street. Potential partnerships or agreements could potentially be made between the Village and a developer to benefit both parties. But first a concept plan, at the very least, would need to be available to confidently discuss what volumes would be required by regulation.

APPENDIX – EXHIBITS & SUPPORTING INFORMATION

Existing Conditions Critical Duration Exhibit

Exhibit 1: Study Location Existing Conditions Inundation Limits

Proposed Conditions Exhibits

Exhibit 2: Pond Option 1 – 25-yr Inundation Limits

Exhibit 3: Pond Option 2 – 50-yr Inundation Limits

Exhibit 4: Pond Option 3 – 100-yr Inundation Limits

Supporting Information

FEMA FIS Stillwater Elevation Table

FEMA FIRM Panels 17043C0152J & 17043C0064J

Critical Duration Analysis

Survey Elevation Field Notes

Survey Points Exhibit

Preliminary Engineer's Opinion of Probable Cost:

- Pond Option 1

- Pond Option 2

- Pond Option 3

DuPage County Pre-app Meeting Minutes

EXHIBIT 1
EXISTING
CONDITIONS
FLOODING
GLEN ELLYN, IL

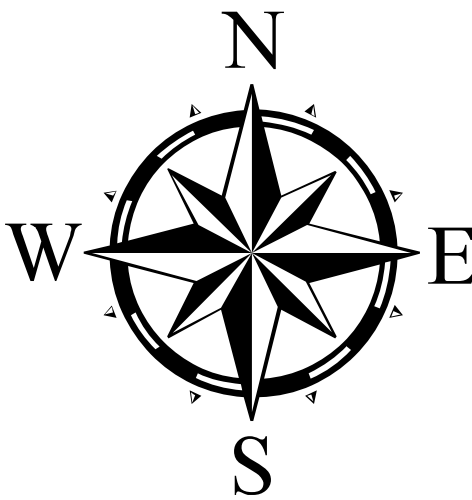
Legend

Storm Structures

- TYPE
- CATCH BASIN
 - CONTROL STRUCTURE
 - DISCHARGE POINT
 - INLET
 - MANHOLE
 - Storm Sewer

Existing Conditions Flooding

- Storm Event
- 5-Year (2-Hour) Storm
 - 10-Year (3-Hour) Storm
 - 25-Year (3-Hour) Storm
 - 50-Year (2-Hour) Storm
 - 100-Year (2-Hour) Storm



ENGINEERING
RESOURCE ASSOCIATES

1 inch = 40 feet

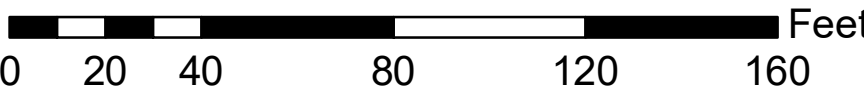


EXHIBIT 2
PROPOSED POND 1
CONDITIONS FLOODING
25-YEAR (3-HOUR) STORM
GLEN ELLYN, IL

Legend

Storm Structures

TYPE

CATCH BASIN

CONTROL STRUCTURE

DISCHARGE POINT

INLET

MANHOLE

Storm Sewer

Flooding Comparison (25-Year Storm)

Condition

Existing Flooding

Proposed Flooding

Proposed Storm Structures

Type

CATCH BASIN

CONTROL STRUCTURE

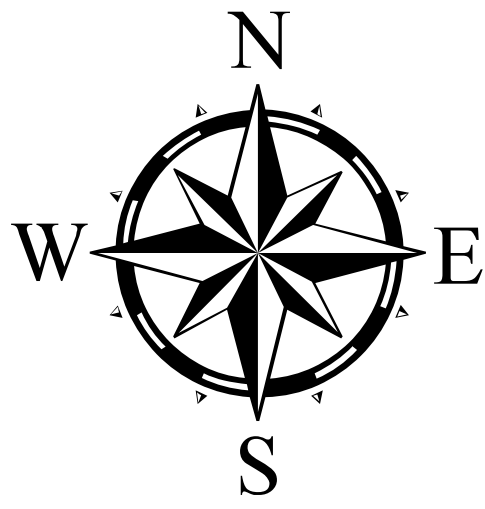
DISCHARGE POINT

PROPOSED STORM SEWER

Proposed Detention Ponds

Storm Event Capacity

25-Year Storm



ENGINEERING
RESOURCE ASSOCIATES

1 inch = 40 feet

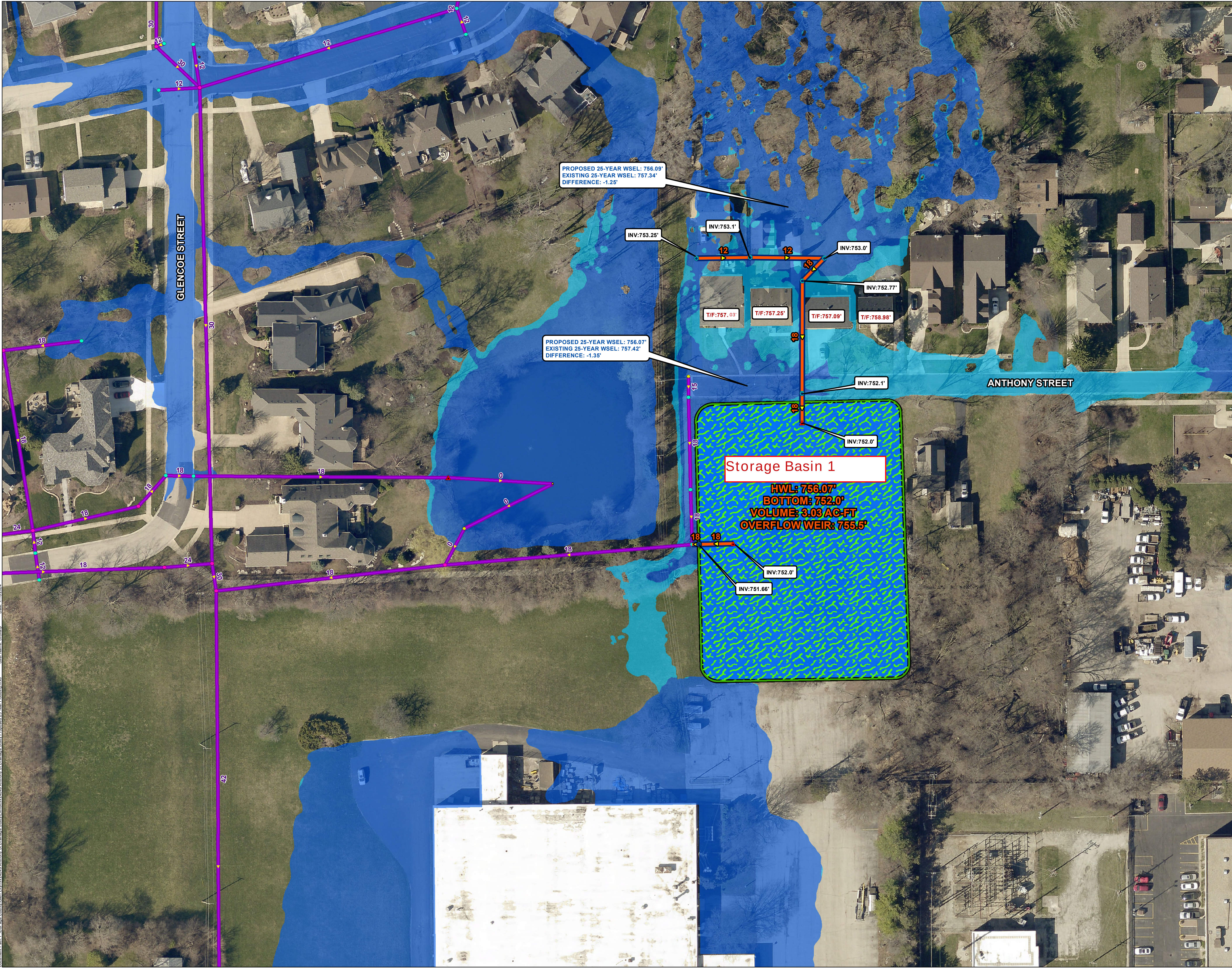
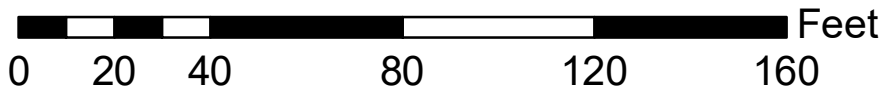


EXHIBIT 3
PROPOSED POND 2
CONDITIONS FLOODING
50-YEAR (2-HOUR) STORM
GLEN ELLYN, IL

Legend
Storm Structures

- TYPE
- CATCH BASIN
 - CONTROL STRUCTURE
 - DISCHARGE POINT
 - INLET
 - MANHOLE
 - Storm Sewer

Flooding Comparison (50-Year Storm)

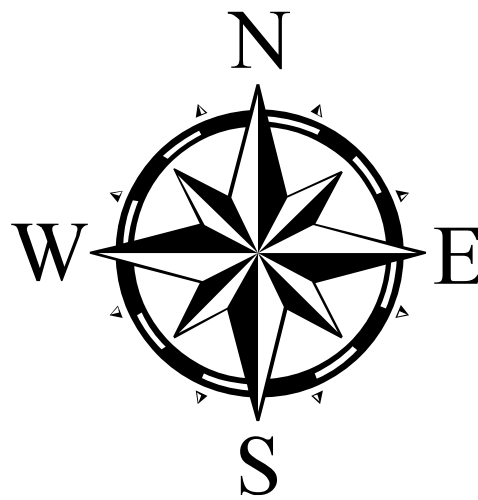
- Condition
- Existing Flooding
 - Proposed Flooding

Proposed Storm Structures

- Type
- CATCH BASIN
 - CONTROL STRUCTURE
 - DISCHARGE POINT
 - PROPOSED STORM SEWER

Proposed Detention Ponds

- Storm Event Capacity
- 50-Year Storm



ENGINEERING
RESOURCE ASSOCIATES

1 inch = 40 feet

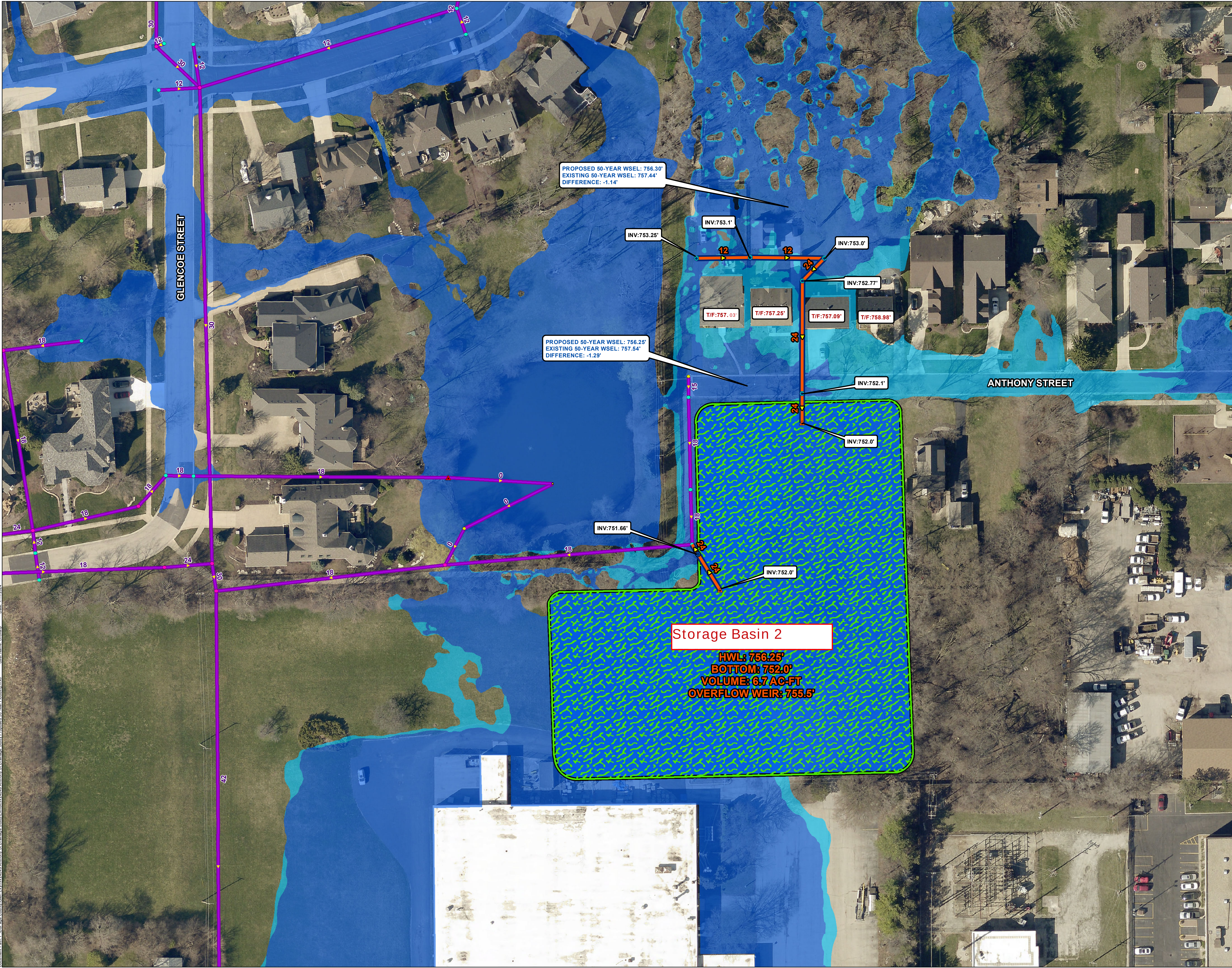
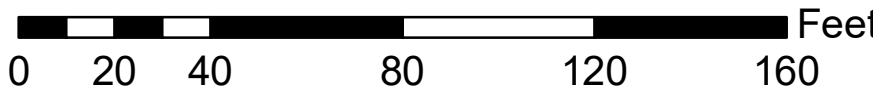


EXHIBIT 4
PROPOSED POND 3
CONDITIONS FLOODING
100-YEAR (2-HOUR) STORM
GLEN ELLYN, IL

Legend

Storm Structures

TYPE

- CATCH BASIN
- CONTROL STRUCTURE
- DISCHARGE POINT
- INLET
- MANHOLE
- Storm Sewer

Flooding Comparison (100-Year Storm)

Condition

- Existing Flooding
- Proposed Flooding

Proposed Storm Structures

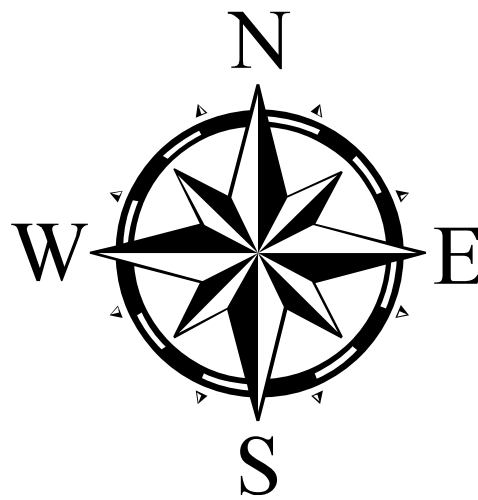
Type

- CATCH BASIN
- CONTROL STRUCTURE
- DISCHARGE POINT
- PROPOSED STORM SEWER

Proposed Detention Ponds

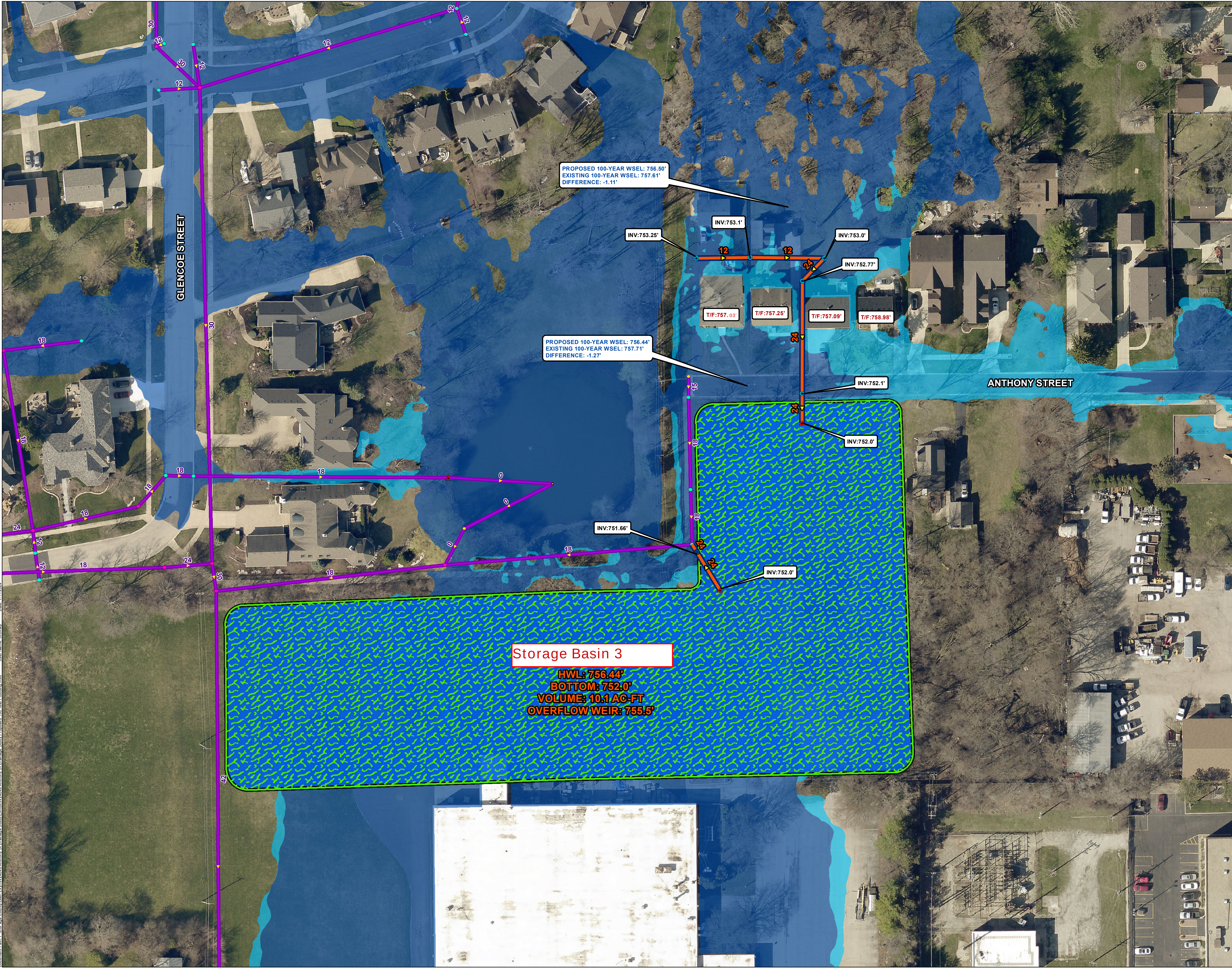
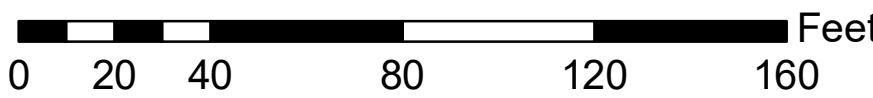
Storm Event Capacity

- 100-Year Storm



ENGINEERING
RESOURCE ASSOCIATES

1 inch = 40 feet



Storage Basin 3

HWL: 756.44'
BOTTOM: 752.0'
VOLUME: 10.1 AC-FT
OVERFLOW WEIR: 755.5'

PROPOSED 100-YEAR WSEL: 756.50'
EXISTING 100-YEAR WSEL: 757.61'
DIFFERENCE: -1.11'

PROPOSED 100-YEAR WSEL: 756.44'
EXISTING 100-YEAR WSEL: 757.71'
DIFFERENCE: -1.27'

INV: 753.25'

INV: 753.1'

INV: 753.0'

INV: 752.77'

T/F: 757.03'

T/F: 757.25'

T/F: 757.09'

T/F: 758.98'

INV: 752.1'

INV: 752.0'

INV: 751.66'

INV: 752.0'

Table 9 - Summary of Stillwater Elevations - continued

<i>Location at Flooding Source</i>	<i>Elevation (feet NAVD 88)</i>			
	<i>10-Percent- Annual-Chance</i>	<i>2-Percent- Annual-Chance</i>	<i>1-Percent- Annual-Chance</i>	<i>0.2-Percent- Annual-Chance</i>
Salt Creek Watershed (SC) - continued				
Salt Creek (SCSC)				
At Unnamed Pond - North of Butterfield Road	*	*	661.0	*
At Unnamed Pond - North of Surf Street	*	*	665.5	*
At Unnamed Pond - North of Van Buren	*	*	660.9	*
Sugar Creek Tributary No. 3 (SCSU)				
At Montini Park Pond	713.7	715.3	715.8	716.8
Sawmill Creek Watershed (SW)				
Argonne Tributary (SWSW)				
At Argonne Tributary Headwaters Pond	726.0	728.0	728.9	730.8
Freund Brook (SWSW)				
At Ponding area north of Westgate Road	745.8	746.4	746.6	747.2
Sawmill Creek Reach No. 4 (SWSW)				
At Detention upstream of Cass Avenue	735.4	737.8	738.7	740.7
Sawmill Creek Reach No. 10 (SWSW)				
At Crest Road Basin	720.7	722.1	722.3	722.6
Wards Creek (SWWD)				
At Carriage Green Country Club Lake	*	*	716.6	*
At Donut Lake	*	*	743.9	744.5
At Lyman Avenue Basin	757.5	759.3	759.9	761.2
At Lake Brookeridge	*	*	743.1	*
At Tara Hill Storage	713.6	714.5	714.6	714.9
West Branch DuPage River Watershed (WB)				
Klein Creek (WBKC)				
At Pond A	*	*	744.7	*
At Pond B	*	*	749.7	*
At Pond C	*	*	750.7	*
At Pond D	*	*	755.7	*
At Pond E	*	*	756.7	*
At Pond F	*	*	758.7	*
At Pond G	*	*	759.7	*
At Pond H	*	*	767.7	*
At Pond I	*	*	768.7	*
At Renaissance Detention Area	*	*	748.3	*
Spring Brook No. 1 (WBSP)				
At Billy Graham Parking Lot Ponding Area	740.2	742.9	743.9	746.2
At Crescent/Chase Ponding Area 1	745.3	745.7	745.8	746.2
At Crescent/Chase Ponding Area 2	745.3	745.7	745.8	746.2
At Glencoe/College Ponding Area	755.1	756.1	756.6	757.7
At Hoffman Park Ponding Area	748.3	748.9	749.4	755.8

*Data not available

Table 9 - Summary of Stillwater Elevations - continued

<i>Location at Flooding Source</i>	<i>Elevation (feet NAVD 88)</i>			
	<i>10-Percent- Annual-Chance</i>	<i>2-Percent- Annual-Chance</i>	<i>1-Percent- Annual-Chance</i>	<i>0.2-Percent- Annual-Chance</i>
West Branch DuPage River Watershed (WB) - continued				
Spring Brook No. 1 (WBSP) - continued				
At Main Street Ponding Area	730.9	732.2	733.2	735.5
At Main/Park Ponding Area	730.8	732.3	733.3	734.6
At Metra Station Ponding Area	747.3	749.2	750.1	751.9
At Naperville/Willow Ponding Area	736.5	737.3	737.6	738.2
At Naperville/Willow Ponding Area 1	736.5	737.3	737.6	738.2
At Naperville/Willow Ponding Area 2	736.5	737.3	737.6	738.2
At Naperville/Willow Ponding Area 3	736.5	737.3	737.6	738.2
At Naperville/Willow Ponding Area 4	736.5	737.3	737.6	738.2
At Pick/College Ponding Area	754.3	755.6	756.2	757.6
At Triangle Park Ponding Area	745.3	747.3	749.4	755.8
Steeple Run (WBSR)				
At Century Hill West	723.7	724.1	724.2	724.4
At Century Hill North	713.0	714.7	715.7	717.6
At Detention Area West of Frances Court	704.1	705.1	705.2	705.3
At Pheasant Glen Detention	707.0	707.5	707.7	708.1
At Steeple Run Central	716.3	718.9	720.3	724.3
At Steeple Run North	714.4	715.4	715.8	717.6
At Steeple Run South	720.3	720.8	721.0	721.4
At Steeple Run West	713.0	714.7	715.7	717.6
At Storage Area at Avon Court	722.3	724.2	724.4	724.9
At Storage Area at Lakewood Drive	721.6	723.9	724.4	724.9
At Storage South of Maple Avenue	726.1	727.3	727.9	729.3
Steeple Run Tributary Reach No. 3 (WBSR)				
At Huntington Commons North	735.8	736.0	736.2	736.4
At Huntington Commons South	737.2	738.8	739.4	741.3
At Naperville Country Club East	724.6	725.3	725.6	726.1
At Naperville Country Club West	724.6	725.3	725.6	726.1
West Branch DuPage River (WBWB)				
At Cantera (Subarea G) Pond 1	*	*	691.1	*
At Cantera (Subarea G) Pond 2	*	*	691.1	*
At Cantera (Subarea G) Pond 3	*	*	691.1	*
At Cantera (Subarea G) Pond 4	*	*	691.1	*
At Cantera (Subarea G) Pond 5	*	*	691.1	*

*Data not available

NOTES TO USERS

This map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. The community map repository should be consulted for possible updated or additional flood hazard information.

To obtain more detailed information in areas where **Base Flood Elevations (BFEs)** and/or **flowways** have been determined, users are encouraged to consult the Flood Profiles and Floodway Data and/or Summary of Stillwater Elevations tables contained within the Flood Insurance Study (FIS) report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole foot elevations. These BFEs are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS report should be utilized in conjunction with the FIRM for purposes of construction and/or flood plain management.

Coastal Base Flood Elevations shown on this map apply only landward of 0.0' North American Vertical Datum of 1988 (NAVD 88). Users of the FIRM should be aware that coastal flood elevations are also provided in the Summary of Stillwater Elevations table in the Flood Insurance Study report for this jurisdiction. Elevations shown in the Summary of Stillwater Elevations table should be used for construction and/or flood plain management purposes when they are higher than the elevations shown on this FIRM.

Boundaries of the **flowways** were computed at cross sections and interpolated between cross sections. The flowways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Flowway widths and other pertinent flowway data are provided in the Flood Insurance Study report for this jurisdiction.

In the State of Illinois, any portion of a stream or watercourse that lies within the **flowway fringe** of a studied (AE) stream may have a state regulated flowway. The FIRM may not depict these state regulated flowways.

Flowways restricted by anthropogenic features such as bridges and culverts are drawn to reflect natural conditions and may not agree with the model computed widths listed in the Floodway Data table in the Flood Insurance Study report.

Multiple **topographic sources** may have been used in the delineation of Special Flood Hazard Areas. See Flood Insurance Study report for details on source resolution and geographic extent.

Certain areas not in Special Flood Hazard Areas may be protected by **flood control structures**. Refer to Section 2.4 "Flood Protection Measures" of the Flood Insurance Study report for information on flood control structures for this jurisdiction.

The **projection** used in the preparation of this map was Universal Transverse Mercator (UTM) zone 16. The **horizontal datum** was NAD 83, GRS80 spheroid. Differences in datum, spheroid, projection or UTM zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this FIRM.

Flood elevations on this map are referenced to the North American Vertical Datum of 1988. These flood elevations must be compared to structure and ground elevations referenced to the same vertical datum. For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, visit the National Geodetic Survey website at www.ngs.noaa.gov or contact the National Geodetic Survey at the following address:

NGS Information Services, NOAA, NNGS12
National Geodetic Survey SSMC-3, #9702
1315 East-West Highway
Silver Spring, Maryland 20910-3282
(301) 713-3242

To obtain current elevation, description, and/or location for **bench marks** shown on this map, please contact the Information Services Branch of the National Geodetic Survey at (301) 713-3242, or visit its website at www.ngs.noaa.gov.

Base map information shown on this FIRM was provided in digital format by the Cook County Board of Commissioners. Color digital orthomages with a 6-inch pixel resolution were photogrammetrically compiled from aerial photography acquired during the leaf-off period of spring 2012.

This map reflects more detailed and up-to-date **stream channel configurations** than those shown on the previous FIRM for this jurisdiction. The Special Flood Hazard Areas and flowways that were transferred from the previous FIRM may have been adjusted to conform to these new stream channel configurations. As a result, the Flood Profiles and Floodway Data tables in the Flood Insurance Study report (which contains authoritative hydraulic data) may reflect stream channel distances that differ from what is shown on this map.

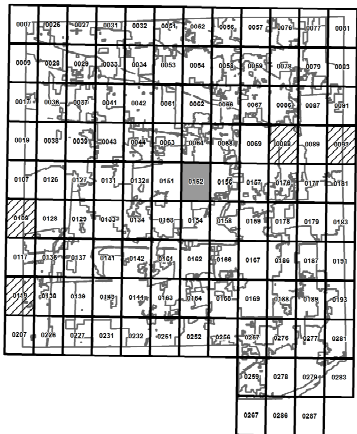
Corporate limits shown on this map are based on the best data available at the time of publication. Because changes due to annexations or de-annexations may have occurred after this map was published, map users should contact appropriate community officials to verify current corporate limit locations.

Please refer to the separately printed **Map Index** for an overview map of the county showing the layout of map panels; community map repository addresses; and a listing of Communities table containing National Flood Insurance Program dates for each community as well as a listing of the panels on which each community is located.

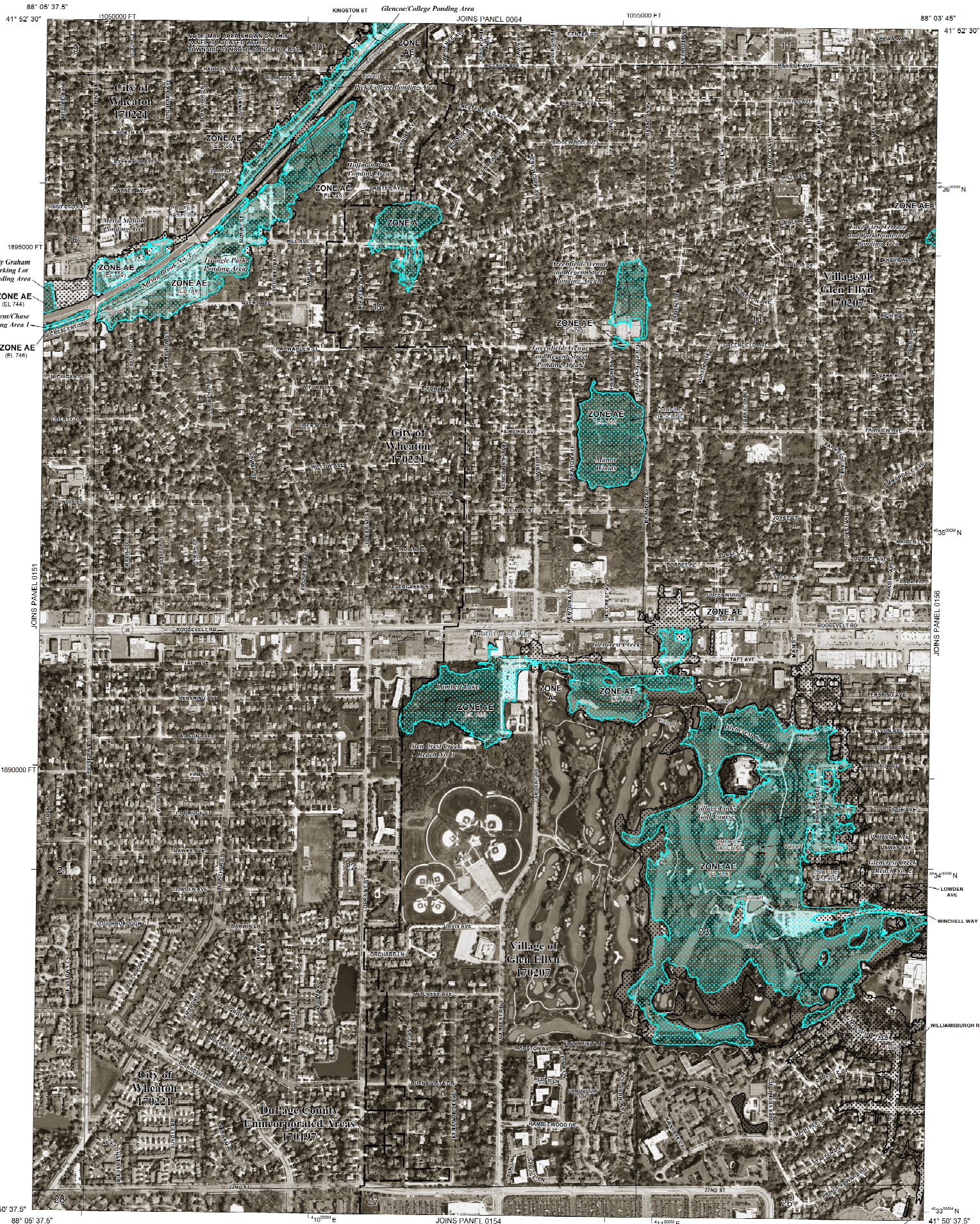
For information on available products associated with this FIRM visit the Map Service Center (MSC) website at <http://www.fema.gov>. Available products may include previously issued Letters of Map Change, a Flood Insurance Study Report, and/or digital versions of this map. Many of these products can be ordered or obtained directly from the MSC website.

If you have **questions about this map**, how to order products or the National Flood Insurance Program in general, please call the **FEMA Map Information Exchange (FMIX)** at 1-877-FEMA-MIX (1-877-336-2627) or visit the FEMA website at <http://www.fema.gov/business/mixp>.

PANEL INDEX



Panel Not Printed



LEGEND

SPECIAL FLOOD HAZARD AREAS (SFHAs) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual chance flood (100-year flood), also known as the **base flood**, is the flood that has a 1% chance of being equaled or exceeded in any given year. The **Special Flood Hazard Area** is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, AV, and VE. The **Base Flood Elevation** is the water-surface elevation of the 1% annual chance flood.

ZONE A No Base Flood Elevations determined.
ZONE AE Base Flood Elevations determined.
ZONE AH Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.
ZONE AO Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
ZONE AR Special Flood Hazard Areas formerly protected from the 1% annual chance flood by a flood control system that was subsequently determined. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.
ZONE AR9 Area to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.
ZONE V Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.
ZONE VE Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

ZONE X Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile, and areas protected by levees from 1% annual chance flood.

OTHER AREAS

ZONE X Areas determined to be outside the 0.2% annual chance floodplain.

ZONE D Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

1% annual chance floodplain boundary

0.2% annual chance floodplain boundary

Flowway boundary

Zone D boundary

CBRS and OPA boundary

Boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths or flood velocities.

Base Flood Elevation line and value; elevation in feet*

Base Flood Elevation value where uniform within zone; elevation in feet*

*Referenced to the North American Vertical Datum of 1988

Cross section line

Transect line

Geographic coordinates referenced to the North American Datum of 1983 (NAD 83)

1000-meter Universal Transverse Mercator grid values, zone 16

5000-foot grid tick; Illinois State Plane East Coordinate System, 3776 zone (FIPS/ZONE 1201) Transverse Mercator

DWG16x; Bench mark (see explanation in Notes to Users section of this FIRM panel)

M1.5 River Mile

MAP REPOSITORIES

Refer to Map Repository list on Map Index

EFFECTIVE DATE OF COUNTYWIDE FLOOD INSURANCE RATE MAP

DECEMBER 10, 2004

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL

August 1, 2019, to change Special Flood Hazard Areas, to add Base Flood Elevations, and to incorporate previously issued Letters of Map Amendment

For community map revision history prior to countywide mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

MAP SCALE 1" = 500'

250 0 500 1000 FEET

150 0 150 300 METERS



PANEL 0152J

FIRM
FLOOD INSURANCE RATE MAP
DU PAGE COUNTY,
ILLINOIS
AND INCORPORATED AREAS

PANEL 152 OF 287
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINING:
COMMUNITY NUMBER PANEL SUFFIX
DU PAGE COUNTY 170107 0152 J
GLEN ELLYN, VILLAGE OF 170207 0152 J
WHEATON, CITY OF 170221 0152 J

Notice to User: The Map Number shown herein should be used when placing map orders: the Community Number shown above should be used on insurance applications for the subject community.

MAP NUMBER
17043C0152J
MAP REVISED
AUGUST 1, 2019

Federal Emergency Management Agency

NOTES TO USERS

This map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. The **community map repository** should be consulted for possible updated or additional flood hazard information.

To obtain more detailed information in areas where **Base Flood Elevations (BFEs)** and/or **flowways** have been determined, users are encouraged to consult the Flood Profiles and Floodway Data and/or Summary of Stillwater Elevations tables contained within the Flood Insurance Study (FIS) report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole-foot elevations. These BFEs are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS report should be utilized in conjunction with the FIRM for purposes of construction and/or flood plan management.

Coastal Base Flood Elevations shown on this map apply only landward of 0.0' North American Vertical Datum of 1988 (NAVD 88). Users of this FIRM should be aware that coastal flood elevations are also provided in the Summary of Stillwater Elevations table in the Flood Insurance Study report for this jurisdiction. Elevations shown in the Summary of Stillwater Elevations table should be used for construction and/or flood plan management purposes when they are higher than the elevations shown on this FIRM.

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Floodways restricted by anthropogenic features such as bridges and culverts are drawn to reflect natural conditions and may not agree with the model computed widths listed in the Floodway Data table in the Flood Insurance Study report.

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NGS Information Services, NOAA, NNGS12
National Geodetic Survey SSMC-3, #9202
1315 East-West Highway
Silver Spring, Maryland 20910-3202
(301) 713-3242

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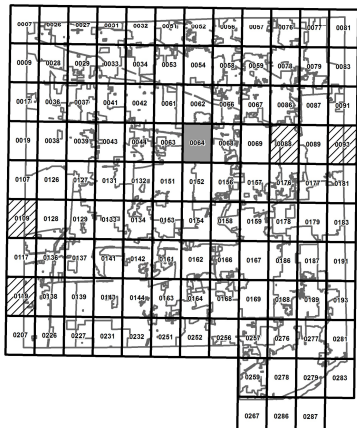
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PANEL INDEX



Panel Not Printed

DuPage County
Unincorporated Areas
170197

Village of
Carol Stream
170202

DuPage County
Unincorporated Areas
170197

Village of
Glendale Heights
170206

DuPage County
Unincorporated Areas
170197

Village of
Glendale Heights
170206

DuPage County
Unincorporated Areas
170197

Village of
Glen Ellyn
170207

DuPage County
Unincorporated Areas
170197

City of
Wheaton
170221

Village of
Glen Ellyn
170207

City of
Wheaton
170221

LEGEND

SPECIAL FLOOD HAZARD AREAS (SFHAS) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V, and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

ZONE A No Base Flood Elevations determined.
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ZONE V Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.
ZONE VE Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

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ZONE D Areas in which flood hazards are undetermined, but possible.

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1% annual chance floodplain boundary

0.2% annual chance floodplain boundary

Floodway boundary

Zone D boundary

CBRS and OPA boundary

Boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths or flood velocities.

Base Flood Elevation line and value; elevation in feet*

(EL 987) Base Flood Elevation value where uniform within zone; elevation in feet*

*Referenced to the North American Vertical Datum of 1988

Cross section line

Transsect line

Geographic coordinates referenced to the North American Datum of 1983 (NAD 83)

1000-meter Universal Transverse Mercator grid values, zone 16

5000-foot grid tick: Illinois State Plane East Coordinate System, 3776 zone (FIPSZONE 1201) Transverse Mercator

Bench mark (see explanation in Notes to Users section of this FIRM panel)

• M1.5 River Mile

MAP REPOSITORIES
Refer to Map Repositories list on Map Index

EFFECTIVE DATE OF COUNTYWIDE FLOOD INSURANCE RATE MAP
DECEMBER 16, 2004

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL
August 1, 2019 - to change Special Flood Hazard Areas, to add Base Flood Elevations, and to incorporate previously issued Letters of Map Revision

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MAP SCALE 1" = 500'

250 0 500 1000 FEET

150 0 150 300 METERS

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0064J

FIRM
FLOOD INSURANCE RATE MAP
DU PAGE COUNTY,
ILLINOIS
AND INCORPORATED AREAS

PANEL 64 OF 287
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
CAROL STREAM, VILLAGE OF	170202	0064	J
DU PAGE COUNTY	170197	0064	J
GLEN ELLYN, VILLAGE OF	170207	0064	J
GLENDALE HEIGHTS, VILLAGE OF	170206	0064	J
WHEATON, CITY OF	170221	0064	J

Notice to User: The Map Number shown below should be used when placing map orders. The Community Number shown above should be used on insurance applications for the subject community.

MAP NUMBER
17043C0064J
MAP REVISED
AUGUST 1, 2019

Federal Emergency Management Agency



Project: Anthony St Drainage Study
Project Location: Glen Ellyn
ERA Project #: W24049.00

Date: 5/28/24
Updated: 6/19/24
Prepared By: MGM

Existing Critical Duration Analysis - 100-yr

Description Pipe / Node Number	End of Anthony J158 Elevation (ft)	Detention Pond J296 Elevation (ft)	D/S Detention Pipe Conduit 5122 Flow (cfs)	N. Rear Yard J58330 Elevation (ft)	U/S R.R. J138 Elevation (ft)	Kenilworth W. 93786 Flow (cfs)	Kenilworth E. 1135287 Flow (cfs)
100-yr, 1-hr	757.650	759.280	8.071	757.560	756.250	6.754	31.300
100-yr, 2-hr	757.710	759.330	22.750	757.610	756.160	6.820	29.820
100-yr, 3-hr	757.690	759.310	12.970	757.590	756.230	6.635	26.490
100-yr, 6-hr	757.600	759.190	12.480	757.500	756.210	6.139	24.630
100-yr, 12-hr	757.540	759.080	11.930	757.450	756.220	5.482	24.700
100-yr, 24-hr	757.460	758.360	16.580	757.370	756.210	5.530	24.880

*2-hr storm is critical

Existing Critical Duration Analysis - 50-yr

Description Pipe / Node Number	End of Anthony J158 Elevation (ft)	Detention Pond J296 Elevation (ft)	D/S Detention Pipe Conduit 5122 Flow (cfs)	N. Rear Yard J58330 Elevation (ft)	U/S R.R. J138 Elevation (ft)	Kenilworth W. 93786 Flow (cfs)	Kenilworth E. 1135287 Flow (cfs)
50-yr, 1-hr	757.480	758.860	7.222	757.390	755.700	6.846	28.830
50-yr, 2-hr	757.540	759.110	21.250	757.440	755.700	6.800	28.220
50-yr, 3-hr	757.540	759.080	13.790	757.440	755.690	6.320	24.590
50-yr, 6-hr	757.480	758.750	13.130	757.390	755.670	6.042	24.870
50-yr, 12-hr	757.460	758.340	11.850	757.380	755.670	5.282	24.590
50-yr, 24-hr	757.400	757.920	11.870	757.320	755.670	5.377	24.320

*2-hr storm is critical

Existing Critical Duration Analysis - 25-yr

Description Pipe / Node Number	End of Anthony J158 Elevation (ft)	Detention Pond J296 Elevation (ft)	D/S Detention Pipe Conduit 5122 Flow (cfs)	N. Rear Yard J58330 Elevation (ft)	U/S R.R. J138 Elevation (ft)	Kenilworth W. 93786 Flow (cfs)	Kenilworth E. 1135287 Flow (cfs)
25-yr, 1-hr	757.290	757.820	4.916	757.220	755.150	6.634	27.450
25-yr, 2-hr	757.410	758.230	20.610	757.330	755.140	6.730	25.300
25-yr, 3-hr	757.420	758.230	14.280	757.340	755.130	6.294	24.410
25-yr, 6-hr	757.370	757.810	14.600	757.300	755.100	5.886	23.850
25-yr, 12-hr	757.370	757.770	13.030	757.290	755.100	5.307	23.800
25-yr, 24-hr	757.230	757.380	13.840	757.180	755.090	4.480	16.960

*3-hr storm is critical

Existing Critical Duration Analysis - 10-yr

Description Pipe / Node Number	End of Anthony J158 Elevation (ft)	Detention Pond J296 Elevation (ft)	D/S Detention Pipe Conduit 5122 Flow (cfs)	N. Rear Yard J58330 Elevation (ft)	U/S R.R. J138 Elevation (ft)	Kenilworth W. 93786 Flow (cfs)	Kenilworth E. 1135287 Flow (cfs)
10-yr, 1-hr	756.770	756.830	0.315	756.910	754.340	6.329	23.260
10-yr, 2-hr	757.050	757.120	18.400	757.040	754.330	6.370	21.660
10-yr, 3-hr	757.110	757.200	17.850	757.080	754.330	6.077	21.310
10-yr, 6-hr	756.930	756.990	17.330	756.960	754.310	5.551	13.800
10-yr, 12-hr	756.880	756.920	15.470	756.910	754.310	4.876	10.730
10-yr, 24-hr	756.420	756.430	14.210	756.790	754.300	3.625	8.253

*3-hr storm is critical

Existing Critical Duration Analysis - 5-yr

Description Pipe / Node Number	End of Anthony J158 Elevation (ft)	Detention Pond J296 Elevation (ft)	D/S Detention Pipe Conduit 5122 Flow (cfs)	N. Rear Yard J58330 Elevation (ft)	U/S R.R. J138 Elevation (ft)	Kenilworth W. 93786 Flow (cfs)	Kenilworth E. 1135287 Flow (cfs)
5-yr, 1-hr	756.080	756.080	7.970	756.850	753.840	6.269	20.070
5-yr, 2-hr	756.350	756.360	16.320	756.850	753.890	5.660	17.990
5-yr, 3-hr	756.340	756.350	15.650	756.840	753.840	5.217	14.700
5-yr, 6-hr	756.010	756.010	14.580	756.800	753.840	4.129	9.293
5-yr, 12-hr	755.910	755.910	12.670	756.790	753.840	3.632	8.278
5-yr, 24-hr	755.510	755.490	11.490	756.760	753.840	2.770	6.520

*2-hr storm is critical

Existing Critical Duration Analysis - 2-yr

Description Pipe / Node Number	End of Anthony J158 Elevation (ft)	Detention Pond J296 Elevation (ft)	D/S Detention Pipe Conduit 5122 Flow (cfs)	N. Rear Yard J58330 Elevation (ft)	U/S R.R. J138 Elevation (ft)	Kenilworth W. 93786 Flow (cfs)	Kenilworth E. 1135287 Flow (cfs)
2-yr, 1-hr	754.670	754.660	9.238	756.740	753.440	4.611	10.410
2-yr, 2-hr	754.860	754.840	12.680	756.760	753.600	4.350	9.770
2-yr, 3-hr	754.720	754.710	12.840	756.760	753.440	3.665	8.398
2-yr, 6-hr	754.290	754.300	9.842	756.740	753.440	2.511	6.021
2-yr, 12-hr	754.290	754.290	9.907	756.740	753.440	2.298	5.554
2-yr, 24-hr	754.020	754.040	8.552	756.720	753.440	1.831	4.568

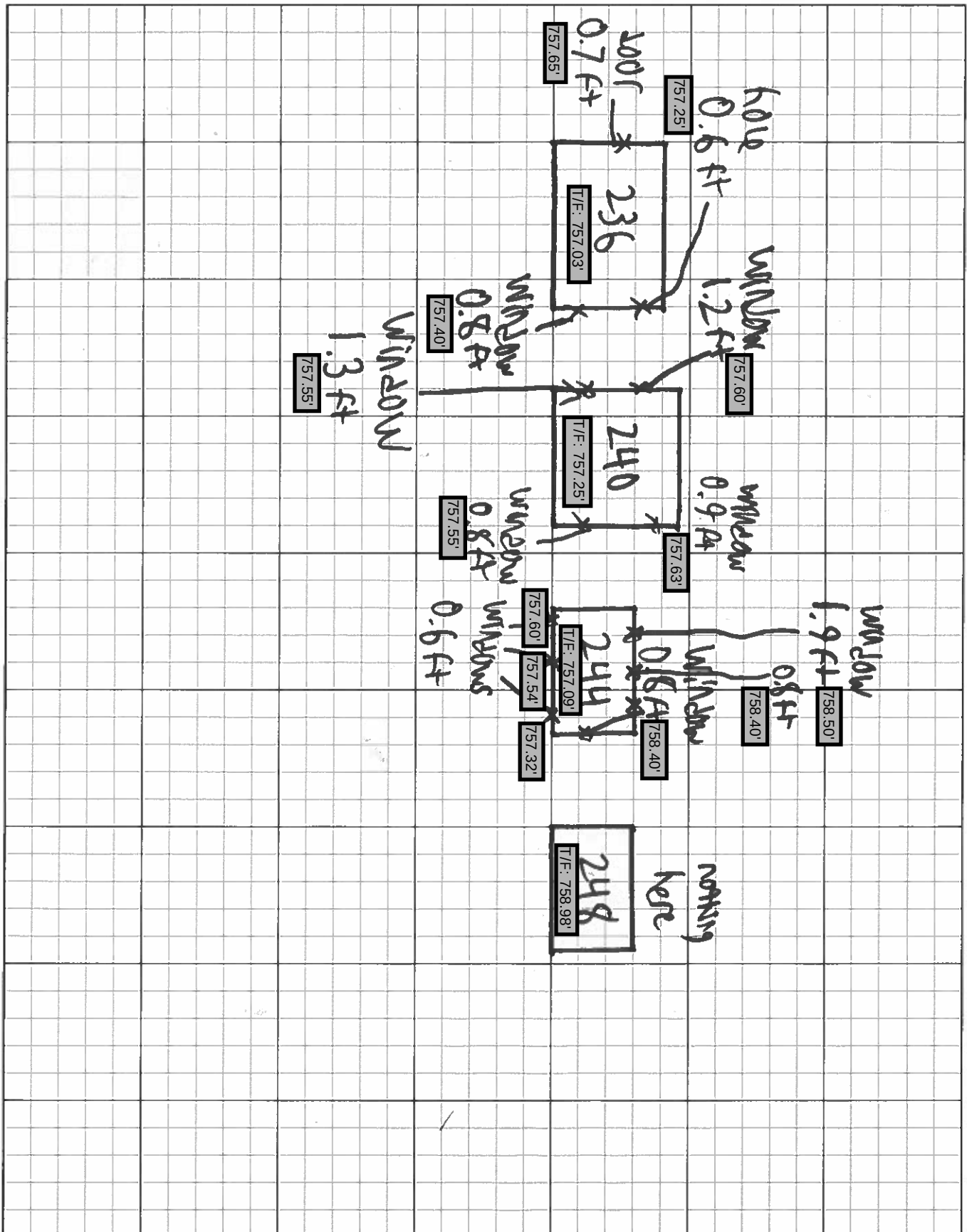
*2-hr storm is critical

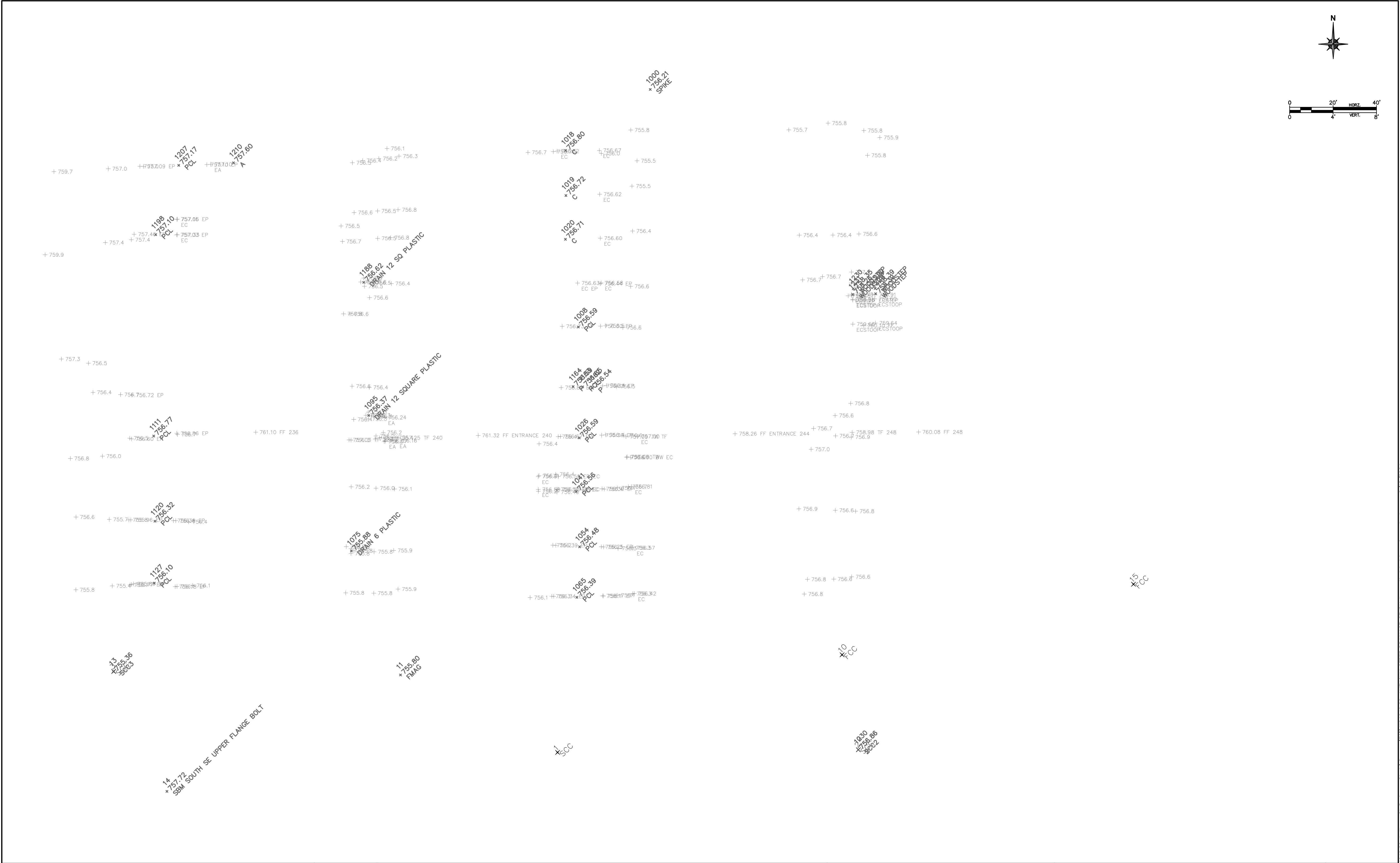
Existing Critical Duration Analysis - 1-yr

Description Pipe / Node Number	End of Anthony J158 Elevation (ft)	Detention Pond J296 Elevation (ft)	D/S Detention Pipe Conduit 5122 Flow (cfs)	N. Rear Yard J58330 Elevation (ft)	U/S R.R. J138 Elevation (ft)	Kenilworth W. 93786 Flow (cfs)	Kenilworth E. 1135287 Flow (cfs)
1-yr, 1-hr	753.670	753.920	5.034	756.670	753.230	2.558	6.165
1-yr, 2-hr	753.660	753.960	6.870	756.700	753.380	2.590	6.230
1-yr, 3-hr	753.460	753.960	6.667	756.700	753.230	2.259	5.509
1-yr, 6-hr	753.180	753.930	5.796	756.690	753.230	1.640	4.182
1-yr, 12-hr	753.280	753.940	6.549	756.700	753.230	1.563	3.995
1-yr, 24-hr	753.150	753.920	5.784	756.690	753.230	1.306	3.427

*2-hr storm is critical

Title Anthony St Sheet 1 of 1
Job No. W24049.00 By SC Date 6/18/24





REVISIONS:						DRAWN BY: XX CHECKED BY: MM APPROVED BY: MM	ENGINEERING RESOURCE ASSOCIATES 35701 WEST AVENUE, SUITE 150 WARRENVILLE, ILLINOIS 60555 PHONE (630) 393-3060 FAX (630) 393-2152 10 S. RIVERSIDE PLAZA , SUITE 875 CHICAGO, ILLINOIS 60606 PHONE (312) 474-7841 FAX (312) 474-6099 2416 GALEN DRIVE CHAMPAIGN, ILLINOIS 61821 PHONE (217) 351-6268 FAX (217) 355-1902	ANTHONY STREET DRAINAGE STUDY	SURVEY POINTS EXHIBIT	TITLE:	
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION					SCALE: N/A	
										DATE: XX/2024	
										JOB NO: W24049	
										SHEET 1 OF XX	

Preliminary Engineer's Opinion of Probable Construction Cost
Village of Glen Ellyn
Anthony St Drainage Study

Prepared by Engineering Resource Associates, Inc.

9-Sep-24
Pond Option 1

	Item	Description	Units	Quantity	Unit Price	Value
1	20101000	TEMPORARY FENCE	FOOT	940	\$ 10.00	\$ 9,400.00
2	20200100	EARTH EXCAVATION	CU YD	7,437	\$ 50.00	\$ 371,872.80
3	20100110	TREE REMOVAL (6 TO 15 UNITS DIAMETER)	UNIT	150	\$ 28.50	\$ 4,275.00
4	20101200	TREE ROOT PRUNING	EACH	14	\$ 130.00	\$ 1,820.00
5	SP	SHRUB REMOVAL	EACH	10	\$ 50.00	\$ 500.00
6	20800150	TRENCH BACKFILL	CU YD	10	\$ 50.00	\$ 500.00
7	SP	CONTAMINATED WASTE DISPOSAL	CU YD	1,487	\$ 75.00	\$ 111,561.84
8	21101615	TOPSOIL FURNISH AND PLACE, 4"	SQ YD	5,930	\$ 6.00	\$ 35,580.00
9	25000100	SEEDING, CLASS 1	ACRE	1.22	\$ 4,400.00	\$ 5,368.00
10	25100630	EROSION CONTROL BLANKET	SQ YD	5,930.00	\$ 1.10	\$ 6,523.00
11	20101700	SUPPLEMENTAL WATERING	UNIT	104	\$ 108.00	\$ 11,232.00
12	SP	INLET FILTERS	EACH	9	\$ 165.00	\$ 1,485.00
13	SP	CLASS D PATCH, 5 INCH (MODIFIED)	SQ YD	100	\$ 100.00	\$ 10,000.00
14	SP	SURFACE PATCH	SQ YD	120	\$ 50.00	\$ 6,000.00
15	550A0340	STORM SEWERS, CLASS A, TYPE 2 12"	FOOT	120	\$ 100.00	\$ 12,000.00
16	550B0410	STORM SEWERS, CLASS B, TYPE 2 18"	FOOT	205	\$ 170.00	\$ 34,850.00
17	SP	PRECAST REINFORCED CONCRETE FLARED END SECTIONS 18"	EACH	2	\$ 2,000.00	\$ 4,000.00
18	60207605	CATCH BASINS, TYPE C, TYPE 8 GRATE	EACH	4	\$ 3,800.00	\$ 15,200.00
19	60219000	MANHOLES, TYPE A, 4'-DIAMETER, TYPE 8 GRATE	EACH	2	\$ 4,000.00	\$ 8,000.00
20	67100100	MOBILIZATION	L SUM	1	\$ 32,600.00	\$ 32,600.00
21	SP	PRECONSTRUCTION VIDEO TAPING	L SUM	1	\$ 2,500.00	\$ 2,500.00
22	SP	CONSTRUCTION LAYOUT, STAKING AND AS-BUILTS	L SUM	1	\$ 4,000.00	\$ 4,000.00
23	SP	TRAFFIC CONTROL AND PROTECTION	L SUM	1	\$ 8,000.00	\$ 8,000.00

SUBTOTAL = \$697,267.64
20% CONTINGENCY = \$139,453.53

TOTAL = \$836,721.17

1. Excludes additional storage required if the site is filled
2. Exclude land acquisition costs
3. Assumed 20% of earth excavation is contaminated soils; could be significantly higher or lower. Need to complete waste screening to confirm.

Preliminary Engineer's Opinion of Probable Construction Cost
Village of Glen Ellyn
Anthony St Drainage Study

Prepared by Engineering Resource Associates, Inc.

9-Sep-24
Pond Option 2

	Item	Description	Units	Quantity	Unit Price	Value
1	20101000	TEMPORARY FENCE	FOOT	1,400	\$ 10.00	\$ 14,000.00
2	20200100	EARTH EXCAVATION	CU YD	13,939	\$ 50.00	\$ 696,959.00
3	20100110	TREE REMOVAL (6 TO 15 UNITS DIAMETER)	UNIT	150	\$ 28.50	\$ 4,275.00
4	20101200	TREE ROOT PRUNING	EACH	14	\$ 130.00	\$ 1,820.00
5	SP	SHRUB REMOVAL	EACH	10	\$ 50.00	\$ 500.00
6	20800150	TRENCH BACKFILL	CU YD	10	\$ 50.00	\$ 500.00
7	SP	CONTAMINATED WASTE DISPOSAL	CU YD	2,788	\$ 75.00	\$ 209,087.70
8	21101615	TOPSOIL FURNISH AND PLACE, 4"	SQ YD	11,202	\$ 6.00	\$ 67,210.00
9	25000100	SEEDING, CLASS 1	ACRE	2.31	\$ 4,400.00	\$ 10,164.00
10	25100630	EROSION CONTROL BLANKET	SQ YD	11,202	\$ 1.10	\$ 12,321.83
11	20101700	SUPPLEMENTAL WATERING	UNIT	104	\$ 108.00	\$ 11,232.00
12	SP	INLET FILTERS	EACH	9	\$ 165.00	\$ 1,485.00
13	SP	CLASS D PATCH, 5 INCH (MODIFIED)	SQ YD	100	\$ 100.00	\$ 10,000.00
14	SP	SURFACE PATCH	SQ YD	120	\$ 50.00	\$ 6,000.00
15	550A0340	STORM SEWERS, CLASS A, TYPE 2 12"	FOOT	120	\$ 100.00	\$ 12,000.00
16	550B0410	STORM SEWERS, CLASS B, TYPE 2 24"	FOOT	215	\$ 170.00	\$ 36,550.00
17	SP	PRECAST REINFORCED CONCRETE FLARED END SECTIONS 24"	EACH	2	\$ 2,000.00	\$ 4,000.00
18	60207605	CATCH BASINS, TYPE C, TYPE 8 GRATE	EACH	4	\$ 3,800.00	\$ 15,200.00
19	60219000	MANHOLES, TYPE A, 4'-DIAMETER, TYPE 8 GRATE	EACH	2	\$ 4,000.00	\$ 8,000.00
20	67100100	MOBILIZATION	L SUM	1	\$ 56,100.00	\$ 56,100.00
21	SP	PRECONSTRUCTION VIDEO TAPING	L SUM	1	\$ 2,500.00	\$ 2,500.00
22	SP	CONSTRUCTION LAYOUT, STAKING AND AS-BUILTS	L SUM	1	\$ 6,100.00	\$ 6,100.00
23	SP	TRAFFIC CONTROL AND PROTECTION	L SUM	1	\$ 12,200.00	\$ 12,200.00

SUBTOTAL = \$1,198,204.53
20% CONTINGENCY = \$239,640.91

TOTAL = \$1,437,845.44

1. Excludes additional storage required if the site is filled
2. Exclude land acquisition costs
3. Assumed 20% of earth excavation is contaminated soils; could be significantly higher or lower. Need to complete waste screening to confirm.

Preliminary Engineer's Opinion of Probable Construction Cost
Village of Glen Ellyn
Anthony St Drainage Study

Prepared by Engineering Resource Associates, Inc.

9-Sep-24
Pond Option 3

	Item	Description	Units	Quantity	Unit Price	Value
1	20101000	TEMPORARY FENCE	FOOT	2,040	\$ 10.00	\$ 20,400.00
2	20200100	EARTH EXCAVATION	CU YD	20,247	\$ 50.00	\$ 1,012,350.00
3	20100110	TREE REMOVAL (6 TO 15 UNITS DIAMETER)	UNIT	150	\$ 28.50	\$ 4,275.00
4	20101200	TREE ROOT PRUNING	EACH	14	\$ 130.00	\$ 1,820.00
5	SP	SHRUB REMOVAL	EACH	10	\$ 50.00	\$ 500.00
6	20800150	TRENCH BACKFILL	CU YD	10	\$ 50.00	\$ 500.00
7	SP	CONTAMINATED WASTE DISPOSAL	CU YD	4,049	\$ 75.00	\$ 303,705.00
8	21101615	TOPSOIL FURNISH AND PLACE, 4"	SQ YD	17,228	\$ 6.00	\$ 103,368.00
9	25000100	SEEDING, CLASS 1	ACRE	3.60	\$ 4,400.00	\$ 15,840.00
10	25100630	EROSION CONTROL BLANKET	SQ YD	17,228.00	\$ 1.10	\$ 18,950.80
11	20101700	SUPPLEMENTAL WATERING	UNIT	104	\$ 108.00	\$ 11,232.00
12	SP	INLET FILTERS	EACH	9	\$ 165.00	\$ 1,485.00
13	SP	CLASS D PATCH, 5 INCH (MODIFIED)	SQ YD	100	\$ 100.00	\$ 10,000.00
14	SP	SURFACE PATCH	SQ YD	120	\$ 50.00	\$ 6,000.00
15	550A0340	STORM SEWERS, CLASS A, TYPE 2 12"	FOOT	120	\$ 100.00	\$ 12,000.00
16	550B0410	STORM SEWERS, CLASS B, TYPE 2 24"	FOOT	220	\$ 170.00	\$ 37,400.00
17	SP	PRECAST REINFORCED CONCRETE FLARED END SECTIONS 24"	EACH	2	\$ 2,000.00	\$ 4,000.00
18	60207605	CATCH BASINS, TYPE C, TYPE 8 GRATE	EACH	4	\$ 3,800.00	\$ 15,200.00
19	60219000	MANHOLES, TYPE A, 4'-DIAMETER, TYPE 8 GRATE	EACH	2	\$ 4,000.00	\$ 8,000.00
20	67100100	MOBILIZATION	L SUM	1	\$ 79,400.00	\$ 79,400.00
21	SP	PRECONSTRUCTION VIDEO TAPING	L SUM	1	\$ 2,500.00	\$ 2,500.00
22	SP	CONSTRUCTION LAYOUT, STAKING AND AS-BUILTS	L SUM	1	\$ 8,300.00	\$ 8,300.00
23	SP	TRAFFIC CONTROL AND PROTECTION	L SUM	1	\$ 16,600.00	\$ 16,600.00

SUBTOTAL = \$1,693,825.80
20% CONTINGENCY = \$338,765.16

TOTAL = \$2,032,590.96

1. Excludes additional storage required if the site is filled
2. Exclude land acquisition costs
3. Assumed 20% of earth excavation is contaminated soils; could be significantly higher or lower. Need to complete waste screening to confirm.



Hampton, Lenzini and Renwick, Inc.

Civil Engineers • Structural Engineers • Land Surveyors • Environmental Specialists
www.hltrengineering.com

Meeting Summary

DuPage County Pre-Application Meeting E24129: Anthony Street Drainage Study (Glen Ellyn)
August 8, 2024 - 1:30 p.m. on Zoom

Attendees

Clayton Heffter, Stormwater Permitting Manager, DuPage County Stormwater Management
David Winklebleck, Senior Project Engineer, DuPage County Stormwater Management
Santos Batista, Senior Civil Engineer, DuPage County Stormwater Management
Joe Tebrugge, Director of Engineering, City of Wheaton
Rich Daubert, Professional Engineer, Village of Glen Ellyn
Ray Fano, Development Engineer, Village of Glen Ellyn
Amy McKenna, Project Manager, HLR - Consulting Engineer to Village of Glen Ellyn

The purpose of the meeting was to discuss a drainage study for the 200 block of Anthony Street at the border of Glen Ellyn and Wheaton. The study prepared by Engineering Resource Associates (ERA) was commissioned by the Village of Glen Ellyn for the purpose of understanding existing flooding conditions and how a possible redevelopment south of the Anthony Street might alleviate some flooding.

Municipal staff provided background information about the redevelopment site and the possibility of a new boundary between Wheaton and Glen Ellyn. The redevelopment site, owned by Wheaton College, is currently in both Wheaton and Glen Ellyn, but will likely be fully within Wheaton. Since Wheaton is a partial waiver community, DuPage County Stormwater Management will ultimately review floodplain aspects of any redevelopment project in Wheaton.

ERA evaluated the construction of ponds at the north end of the redevelopment site to address the compensatory storage requirements for that redevelopment, as much of the site is within the regulatory floodplain. The three ponds modeled in the study would provide protection for the four homes at the west of Anthony Street for the 25, 50, and 100-year storm events; the homes are currently only protected for a storm somewhere between the 5-year and 10-year storm event. The largest of the three compensatory storage ponds (for 100-year protection) would provide 10.1 acre-feet of storage, which is the estimated amount of compensatory storage that would be required to raise the entire redevelopment site to the base flood elevation.

The study model includes new storm sewer pipes from Anthony Street (and the rear yards north of Anthony Street) draining into the proposed compensatory storage ponds on the redevelopment site. This effectively moves additional runoff from Anthony Street to the adjacent redevelopment site.

The municipal engineers asked County staff about ordinance requirements with respect to compensatory storage and downstream impacts. Compensatory storage for fill in FEMA floodplain is generally required at a ratio of 1.5:1. The engineers asked if it would be sufficient to demonstrate with modeling that there were no downstream impacts south of the development, or if additional storage volume would have to be provided for the movement of runoff out of Anthony Street.

County staff stated that while it might be possible to demonstrate that the flow through the compensatory storage pond results in no downstream impacts with modeling (because the proposed storage volume would be 1.5 times the existing floodplain storage), that scenario would require a variance because the lost storage volume in and around Anthony Street is not compensated for directly (as the ordinance requires). If the proposed pond included the compensatory storage volume for Anthony Street in addition to the 10.1 acre-feet of compensatory storage for the development site, then no variation would be required. County staff indicated that the compensatory storage for Anthony Street could be provided at a ratio of 1:1, because it is assumed that the tributary area is less than 20 acres. If the tributary area turns out to be more than 20 Acres, then the compensatory storage rate might need to be at a 1:1.5 ratio.

The group also noted the need for a FEMA LOMR-F (Letter of Map Revision based on fill) for the redevelopment site.

Prepared by Amy McKenna, HLR on 8/8/2024, revised 8/19/2024