

**APPENDIX D**  
**Water Resources**



September 18, 2018

Ref: 26228.00

**VIA CERTIFIED MAIL – RETURN RECEIPT REQUESTED**

Mr. Ronald Pinzon  
Chief, Eastern Permits Section  
New York District  
Regulatory Branch  
United States Army Corps of Engineers  
Jacob K. Javits Federal Building  
26 Federal Plaza, Room 1937  
New York, New York 10278-0090

Re: Request for Approved Jurisdictional Determination  
Artificial Pond at Belmont Park  
2150 Hempstead Turnpike  
Elmont, New York 11003

Dear Mr. Pinzon:

VHB Engineering, Surveying, Landscape Architecture and Geology, P.C. (VHB) is serving as environmental consultant to Empire State Development, which is requesting an Approved Jurisdictional Determination (JD) for a 0.12-acre artificial pond (known as the "Duck Pond") located on a 15-acre portion of Belmont Park ("Site A"). Belmont Park is owned by the State of New York (acting by and through the Franchise Oversight Board) and operated by the New York Racing Association as a major thoroughbred horseracing facility. New York Arena Partners, LLC and its affiliates are proposing to construct a sports, hospitality, and entertainment destination at Parcel A and other portions of Belmont Park that would result in the elimination of the Duck Pond.

The Duck Pond was delineated by VHB on August 30, 2018, based upon an evaluation of vegetation, soils and hydrology. The delineation was conducted in accordance with the procedures set forth in the 1987 United States Army Corps of Engineers (USACE) Wetland Delineation Manual and the 2012 USACE Regional Supplement for the Northcentral and Northeast Region.

Mr. Ronald A. Pinzon  
USACE  
Ref: 26228.00  
September 18, 2018  
Page 2



Based on the information presented in the enclosed Pond Delineation Report, the Duck Pond is an isolated, artificial structure with no hydrological connection to other surface waters, wetlands or other waters of the United States, pending U.S. Army Corps of Engineers review. Accordingly, please accept this correspondence as a formal request for an Approved JD for the Duck Pond.

To assist in the processing of this request, VHB has enclosed two paper copies of the Pond Delineation Report for the Duck Pond, which was prepared in accordance with the United States Army Corps of Engineers (USACE) guidance document entitled *Checklist of Information Included with Requests for Jurisdictional Determinations*. The Pond Delineation Report includes a description of existing conditions at the Duck Pond and Site A, and provides a review of government agency maps and data pertaining to local surface waters and wetlands. Also included is a summary and supporting documentation for the delineation of the Duck Pond, as well as a justification for a proposed waters of the United States non-jurisdictional determination.

For your records, contact information for the project sponsor and the property owner are provided below:

Empire State Development  
633 Third Avenue  
New York, NY 10017  
Attn: Rachel Shatz  
Vice President, Planning and Environmental Review  
(212) 803-3252

Franchise Oversight Board  
State Capital  
Albany, New York 12224  
Attn: Robert Williams, Chairman

Additionally, a letter from the property owner authorizing the USACE to inspect Site A in association with this Approved JD request is included as Appendix G of the Pond Delineation Report.

Mr. Ronald A. Pinzon  
USACE  
Ref: 26228.00  
September 18, 2018  
Page 3



Thank you for your cooperation in this matter. Please feel free to contact me at your earliest convenience at 631.787.3400 or at [dkennedy@vhb.com](mailto:dkennedy@vhb.com), to arrange for a field inspection of the subject property or if you require any additional information to process this request.

Sincerely,

VHB Engineering, Surveying and Landscape Architecture, P.C.

A handwritten signature in blue ink, appearing to read "David Kennedy".

David Kennedy  
Project Scientist

# Belmont Park – Site A

Elmont, Town of Hempstead  
Nassau County, New York

PREPARED FOR

---

Empire State Development  
633 Third Avenue  
New York, NY 10017  
Attn: Rachel Shatz  
Vice President,  
Planning and Environmental Review

PREPARED BY

---



VHB Engineering, Surveying,  
Landscape Architecture and Geology,  
P.C.  
100 Motor Parkway, Suite 135  
Hauppauge, New York 11788

September 18, 2018



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# 1.0

## Introduction

This Pond Delineation Report has been prepared by VHB Engineering, Surveying, Landscape Architecture and Geology P.C. (VHB), for a 15-acre portion of Belmont Park located in the hamlet of Elmont, Town of Hempstead, Nassau County, New York (hereinafter, “Site A,” see Appendix A, Figure 1). Site A and Belmont Park are owned by the State of New York, acting by and through the Franchise Oversight Board, and are leased through a ground lease to The New York Racing Association (NYRA).

Site A, which has a topographic elevation that ranges between 72 and 74 feet above mean sea level (see Appendix A, Figure 2), is currently developed with paved parking areas and lawns/landscaping created in association with site usage since 1905 as a major thoroughbred horseracing facility. Parcel A also includes a 0.12-acre, concrete-lined artificial pond (known as the “Duck Pond”) constructed for ornamental purposes. New York Arena Partners, LLC and its affiliates are proposing to construct a sports, hospitality, and entertainment destination at Parcel A and other portions of Belmont Park that would result in the elimination of the Duck Pond.

The Duck Pond boundary was delineated by VHB on August 30, 2018. This Pond Delineation Report includes a description of existing conditions at the Duck Pond and Site A, and provides a review of government agency maps and data pertaining to local surface waters and wetlands. Also included is a summary and supporting documentation for the delineation of the Duck Pond, as well as a justification for a proposed waters of the United States non-jurisdictional determination. This Pond Delineation Report was prepared pursuant to the United States Army Corps of Engineers (USACE) guidance document entitled *Checklist of Information Included with Requests for Jurisdictional Determinations*.<sup>1</sup>

▼  
<sup>1</sup> United States Army corps of Engineers. 2014. *Checklist of Information Included with Requests for Jurisdictional Determinations*. Available online at: <http://www.nan.usace.army.mil/Portals/37/docs/regulatory/Formdoc/JD%20Checklist.pdf> Accessed September 11, 2018.

# 2.0

## Background

Based on review of historical aerial photographs, the Duck Pond is an artificial structure constructed between 1924 and 1951 within the area immediately to the south of the Belmont Park Grandstand (see historical aerial photographs in Appendix B). The pond is concrete-lined and surrounded by a paving stone path, with lawns and ornamental landscaping located beyond the path (see current site photographs in Appendix C). Water depths within the structure are variable and range from 8-to-18± inches, with aeration of the water column provided by a floating, electric-powered aerator/fountain. The primary hydrological source for the pond is municipal water, via a ¾-inch copper pipe located at the west side of the structure. An overflow at the eastern side of the Duck Pond discharges via subgrade piping to a storm drain located 100± feet to the east of the pond. The storm drain is part of a series of connected area drains that comprise the existing stormwater management system at Site A. There are no other inlets or outlets to or from the Duck Pond. The municipal water supply and overflow drain within the Duck Pond, as well as the associated stormwater management system at Site A, have been in existence for at least 43 years, as shown on the 1965 topographic survey of Belmont Park (see Appendix D). According to correspondence and a stormwater drainage map provided by the Nassau County Department of Public Works (NCDPW) (see Appendix E), the area drains are located within the tributary area for Nassau County Groundwater Recharge Basin No. 122, located approximately one mile to the south of the Duck Pond (see Appendix A, Figure 3). As such, municipal water that overflows from the Duck Pond ultimately discharges to the groundwater table, rather than to other surface waters or wetlands.

# 3.0

## Map Review and Pond Delineation

Based on review of the New York State Department of Environmental Conservation (NYSDEC) Freshwater Wetland Map data, the Duck Pond is not regulated by the NYSDEC. Further, there are no NYSDEC-mapped wetlands or surface waters within the 1,500-foot radius surrounding the Duck Pond.<sup>2</sup> The nearest NYSDEC-regulated wetland is 9,875± feet to the northwest of the Duck Pond (see Appendix A, Figures 4 and 5).

The Duck Pond is identified on the United States Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) maps<sup>3</sup> as a PUBHX (Palustrine, Unconsolidated Bottom, Permanently Flooded, Excavated) feature. As defined by the NWI, the latter “Excavated” modifier is indicative of basins or channels that were “*excavated by humans*.”<sup>4</sup> The nearest additional NWI feature is located 1,230± feet to the northeast of the Duck Pond, within the infield of the Belmont Park racetrack (see Appendix A, Figures 4 and 5).

There are no National Hydrography Dataset (NHD) streams located within 1,500 feet of the Duck Pond. The nearest NHD stream is located 3,685± feet to the east-southeast of the Duck Pond (see Appendix A, Figures 4 and 5).

Review of the United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) Web Soil Survey map data (see Appendix A, Figure 6) indicates that soils at and in the vicinity of the Duck Pond are composed of Urban Land, Riverhead Complex, 0-to-3 percent slopes (UrA) and Urban Land (Ug). These two soil types are not included on the National List of Hydric Soils.<sup>5</sup>

▼  
<sup>2</sup> New York State Department of Environmental Conservation. 2017. Environmental Resource Mapper. Available online at: <http://www.dec.ny.gov/animals/38801.html>. Accessed September 11, 2018.

<sup>3</sup> United States Fish and Wildlife Service – National Wetlands Inventory Maps. 2017. Available online at: <https://www.fws.gov/wetlands/Data/Mapper.html>. Accessed September 11, 2018.

<sup>4</sup> United States Fish and Wildlife Service – National Wetlands Inventory. 2017. Wetland Classification Codes. Available online at: <https://www.fws.gov/wetlands/data/wetland-codes.html>. Accessed September 11, 2018.

<sup>5</sup> Natural Resources Conservation Service – United States Department of Agriculture. 2018. Hydric Soils of the United States.

The Duck Pond was delineated by VHB on August 30, 2018 based upon an evaluation of vegetation, soils and hydrology conducted in accordance with the procedures set forth in the 1987 USACE Wetland Delineation Manual<sup>6</sup> and the 2012 USACE Regional Supplement for the Northcentral and Northeast Region.<sup>7</sup> During the delineation, 19 numbered flags were placed along the pond boundary (Flag Nos. P1-101 through P1-119) and USACE Northcentral and Northeast Region wetland delineation data forms were completed for one pond and one upland data plot (see Appendix F). The locations of the pond boundary flags and two data plots were recorded with a global positioning system (GPS) unit (see Appendix A, Figure 7).

As surface water was noted during the delineation and in review of current and historical aerial photographs, wetland hydrology occurs within the Duck Pond. However, due to the concrete liner, there is no hydrological connection between the Duck Pond waters and underlying soils, and no submerged or emergent vegetation grows within the pond. Furthermore, the concrete liner and paving stone perimeter path preclude the existence of pond edge vegetation or bordering wetland communities around the structure. Due to these conditions, hydrophytic vegetation and hydric soils do not occur within or adjacent to the pond. Based on the foregoing, the Duck Pond does not pass the three-parameter wetland determination test set forth in the above-referenced USACE guidance manuals, and therefore is not a wetland, as defined by the USACE.



<sup>6</sup> Environmental Laboratory. 1987. "Corps of Engineers Wetlands Delineation Manual," Technical Report Y-87-1, U.S. Army Engineer Waterways Experiment Station, Vicksburg, MS.

<sup>7</sup> United States Army Corps of Engineers Engineer Research and Development Center. 2012. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region (Version 2.0).

# 4.0

## Summary and Proposed Non-Jurisdictional Determination Justification

Based on the information and supporting documentation presented in Sections 1.0 through 3.0 of this report, the Duck Pond is a 0.12-acre artificial structure constructed between 1924 and 1951. The pond is concrete-lined and surrounded by a brick paving stone path. Due to these conditions, there is no hydrological or biochemical connection between the Duck Pond waters and underlying soils, and no submerged or emergent vegetation grows within the pond. As a result, the Duck Pond does not pass the USACE three-parameter wetland determination test, and therefore is not a wetland, as defined by the USACE.

The primary hydrological source for the Duck Pond is municipal water, and overflow from the pond discharges to a stormwater management system located within the tributary area for Nassau County Groundwater Recharge Basin No. 122. As such, the municipal water that overflows from the Duck Pond ultimately discharges through municipal drainage pipes and structures to the underlying groundwater table, rather than to other surface waters or wetlands. Beyond the aforementioned municipal water source and overflow drain, there are no other inlets to, or outlets from, the Duck Pond. Moreover, no surficial or subsurface connections, or other significant nexus exists between the Duck Pond and other surface waters or wetlands, the nearest of which is located 1,230± feet away.

In *Solid Waste Agency of Northern Cook County v. U.S. Army Corps of Engineers* (the “SWANCC Decision,” 2001), and *Rapanos v. the United States* (the “Rapanos Decision,” 2006), the United States Supreme Court ruled that the USACE’s jurisdiction over ‘waters of the United States’ under Section 404 of the Clean Water Act (CWA) does not extend to isolated wetlands. Further, the Supreme Court ruled that waters or wetlands that do not have a “significant nexus” to a traditional navigable waterway are isolated waters that should not be considered waters of the United States for the purposes of the CWA. Pursuant to the Rapanos Decision, a significant nexus exists when a wetland or waterbody, either by itself or in combination with other similar sites, significantly affects the physical, biological, and chemical integrity of a downstream navigable waterway. Significant nexus is further

defined as *“having a significant effect on the chemical, physical or biological integrity of an interstate water, its tributaries or adjacent wetlands.”*<sup>8</sup>

Based on the foregoing, the Duck Pond is an isolated, artificial structure with no hydrological connection to other surface waters, wetlands or other waters of the United States. Accordingly, pursuant to the legal precedents of the SWANCC and Rapanos Decisions regarding isolated wetlands summarized above, it appears that the Duck Pond would not be subject to USACE jurisdiction under Section 404 of the CWA, due to its isolated status and artificial origin.

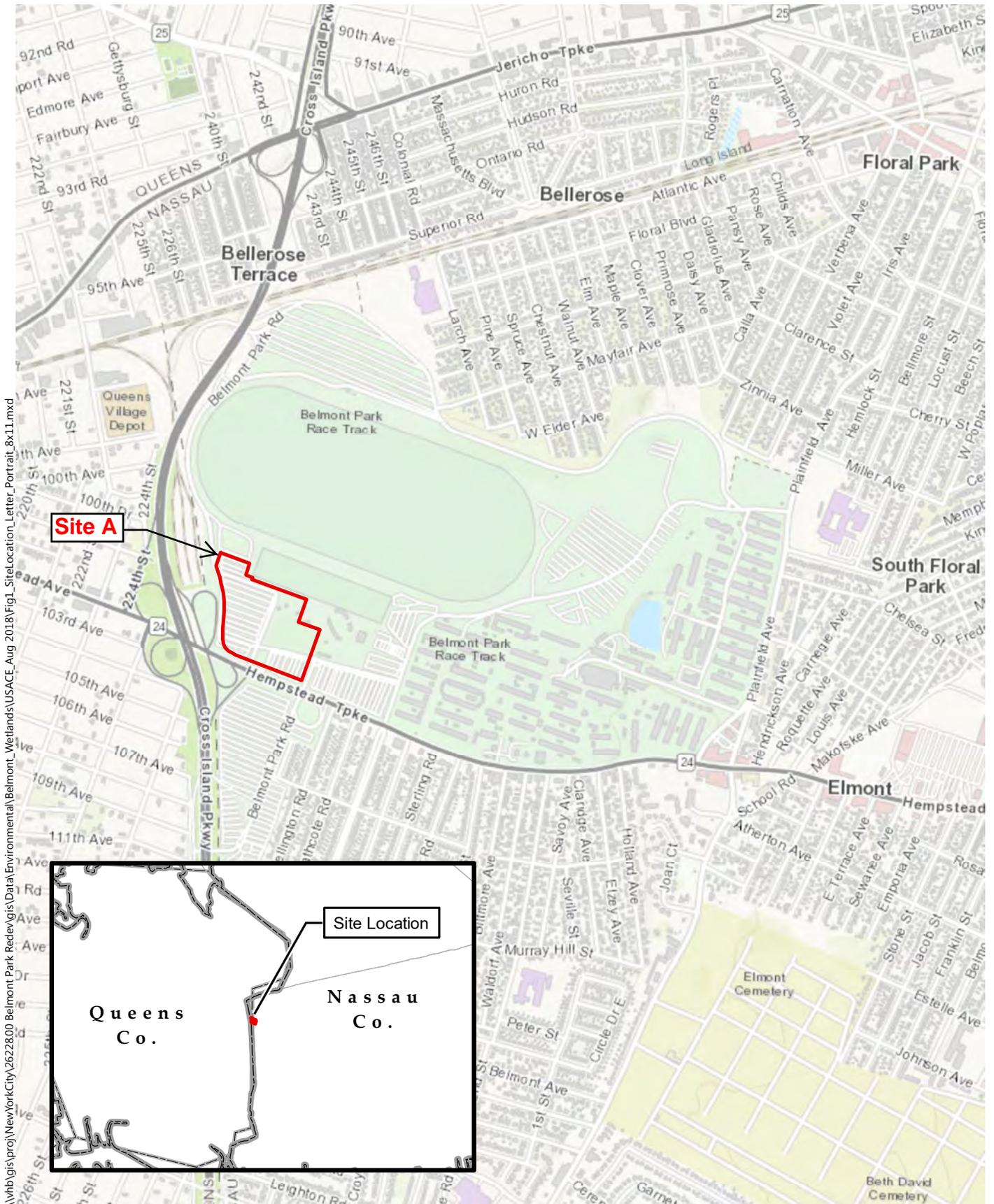
\\v\hb\proj\NewYorkCity\26228.00 Belmont Park Redev\ProjRecords\FinalDocs\USACE JD Request\_20180918\Pond Delineation Report\_20180918\_FINAL.docx



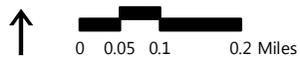
<sup>8</sup> United States Environmental Protection Agency and United States Army Corps of Engineers. 2008. Clean Water Act Jurisdiction Following U.S. Supreme Court's Decision in *Rapanos v. United States* & *Carabell v. United States*.

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# Appendix A



I:\hvb\gis\proj\NewYork\City\2622800 Belmont Park Redevelopment\GIS\Data\Environmental\Belmont\_Wetlands\USACE\_Aug 2018\Fig1\_SiteLocation\_Letter\_Portrait\_8x11.mxd



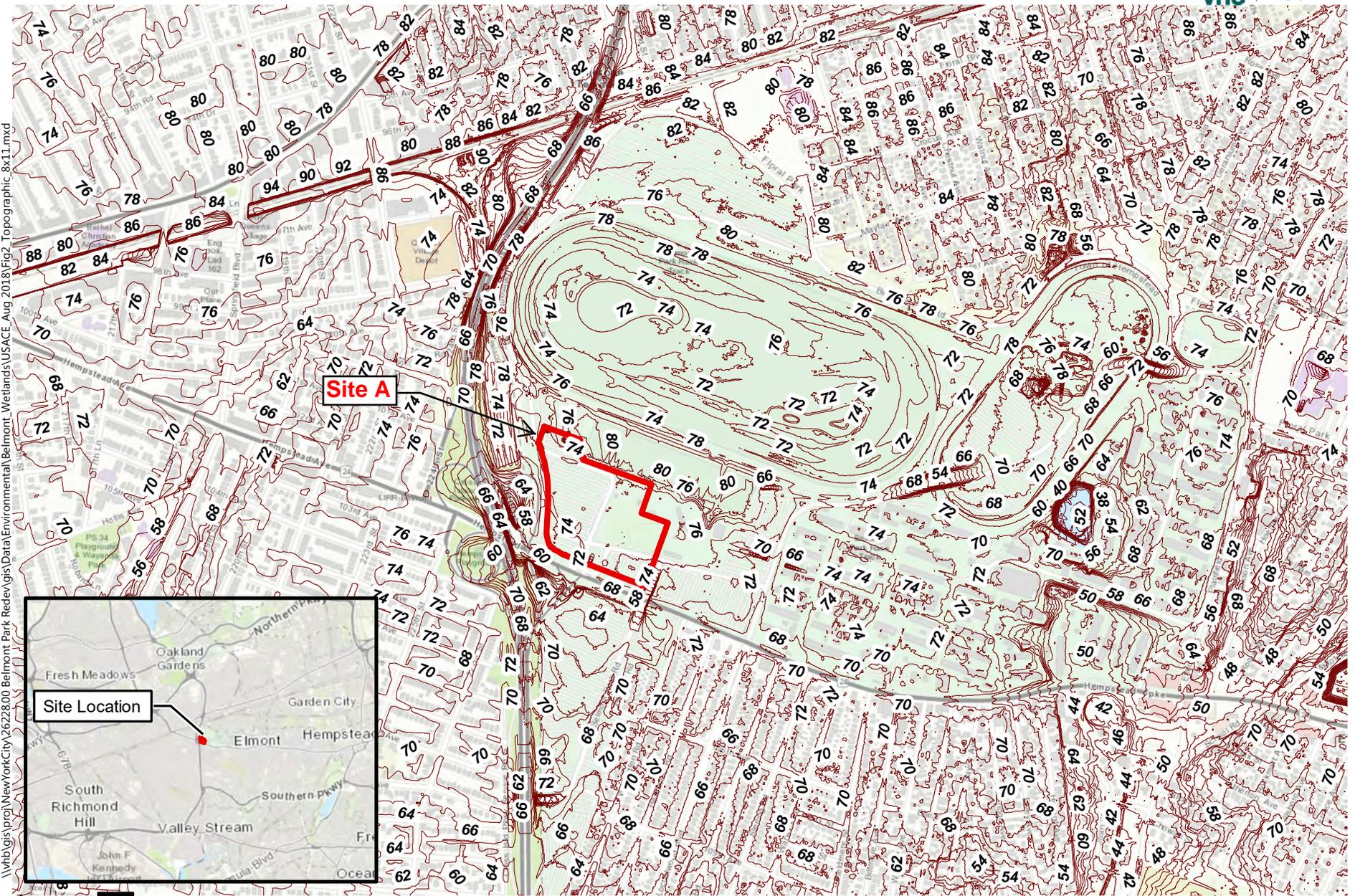
Project Area

**Belmont Park Redevelopment Project**

Town of Hempstead  
Nassau County, New York

**Site Location**

\\vhb\gis\proj\NewYorkCity\26228\00 Belmont Park Redevel\gis\Data\Environmental\Belmont\_Wetlands\USACE\_Aug 2018\Fig2\_Topographic\_8x11.mxd



Site A

Site Location

0 0.05 0.1 0.2 Miles

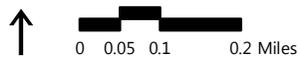
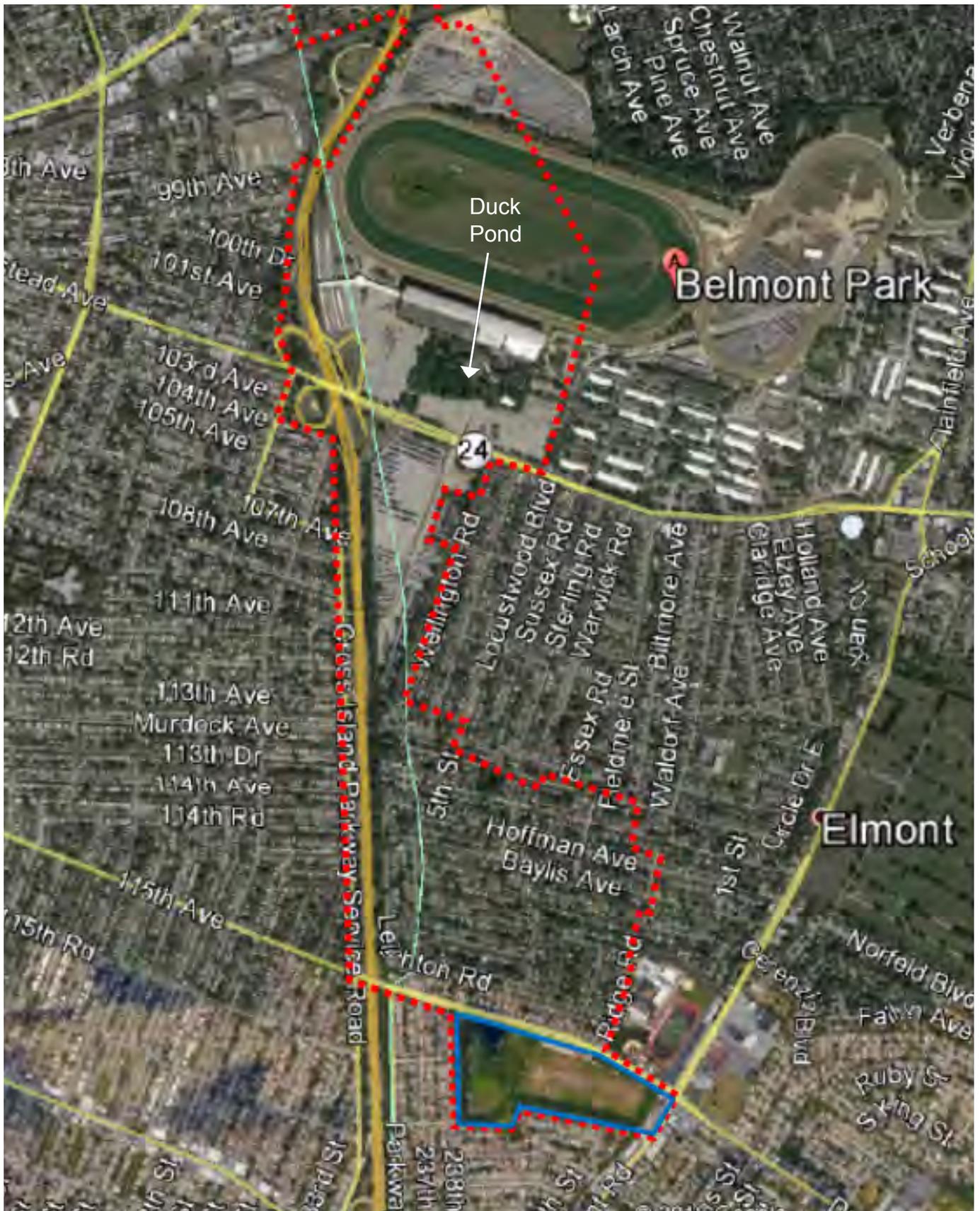
Belmont Park Redevelopment Project

Town of Hempstead  
Nassau County, New York

Project Area — 10' Contour

Topographic Map

Sources: 2013 Aerial: 2013 NYS Digital Ortho-imagery, NYSITS, 2013; Contours by USGS Long Island LiDAR Collection (2014).



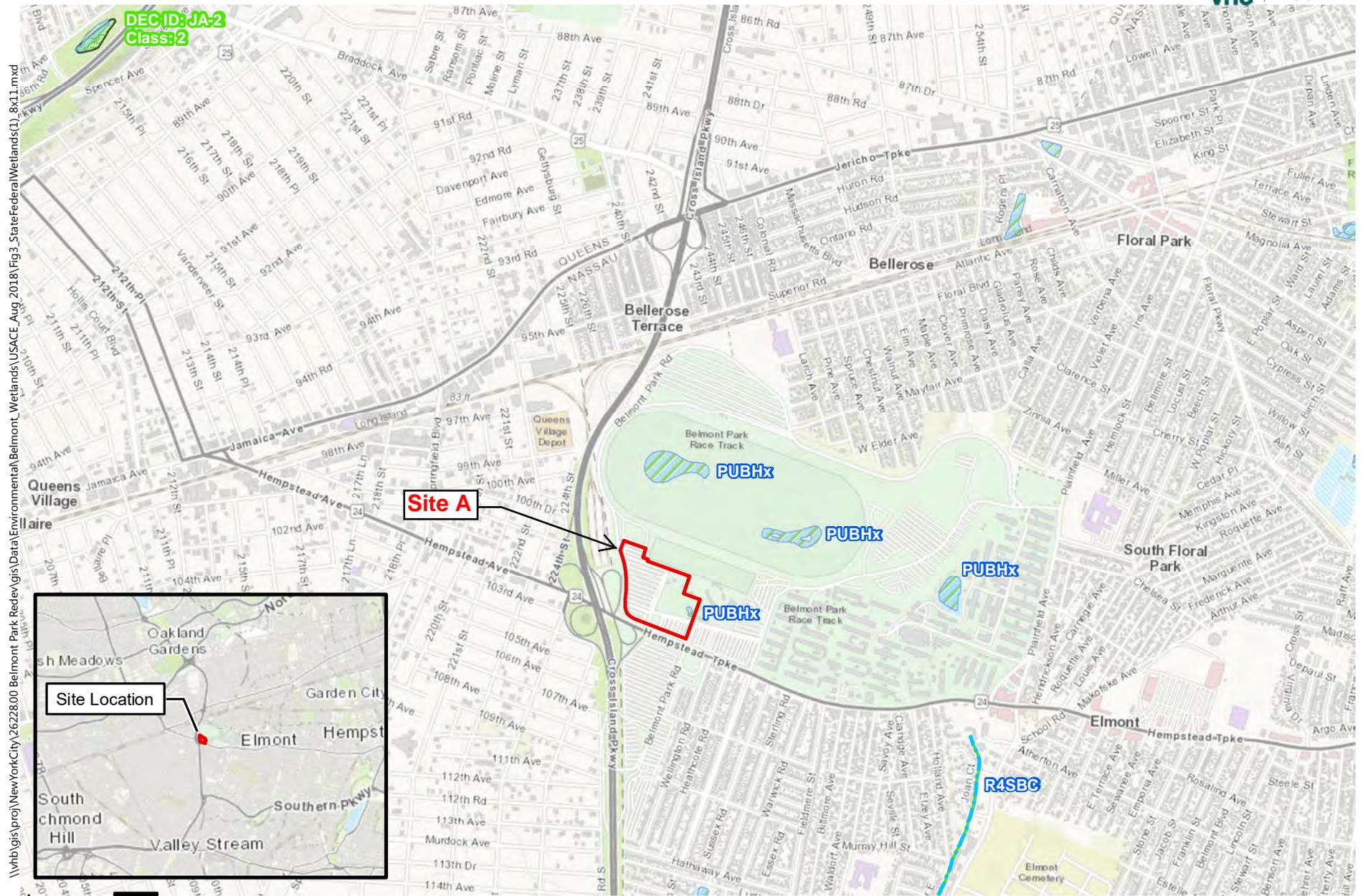
**Belmont Park Redevelopment Project**

Town of Hempstead  
Nassau County, New York

- Tributary Area Boundary
- Recharge Basin No. 122

**Stormwater Drainage Tributary Map**

Sources: 2017 Aerial: Google Earth; Drainage area: NCDPW



\\vhb\gis\proj\NewYorkCity\26228.00 Belmont Park Redevelopment\Belmont\_Wetlands\USACE\_Aug\_2018\Fig\_3\_StateFederalWetlands(1)\_8x11.mxd

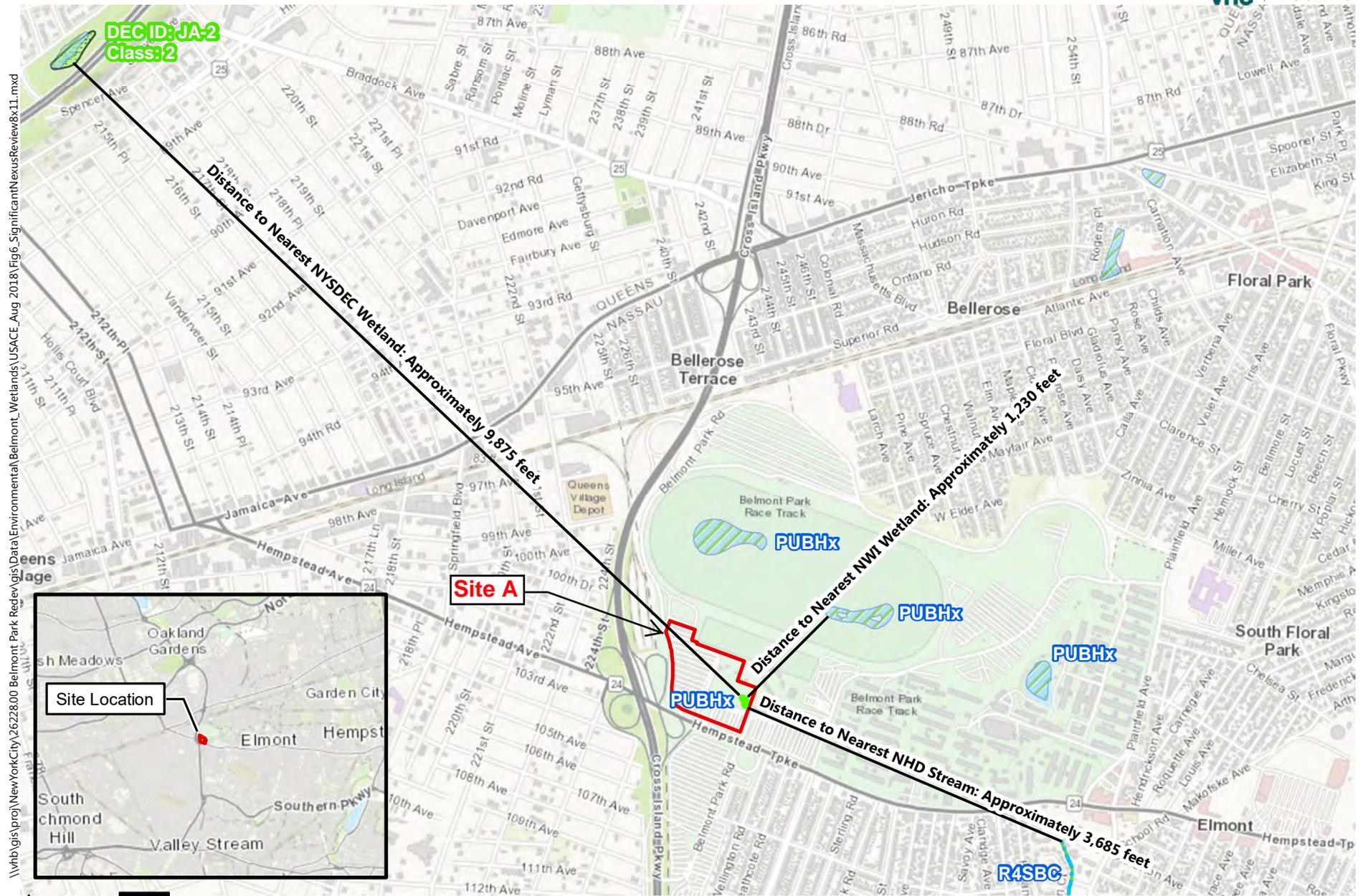
DEC ID: JA-2  
Class: 2

**Belmont Park Redevelopment Project** | Town of Hempstead  
Nassau County, New York

- Project Area
- Wetlands (NYSDEC)
- Wetlands (NWI)
- Streams (NYSDEC)
- Streams (NHD)

**NWI, NHD and NYSDEC Wetlands/Streams**

Sources: 2013 Aerial: 2013 NYS Digital Ortho-imagery, NYSITS, 2013; Wetlands (NYSDEC) from NYSDEC (2002); Wetlands (NWI) from US Wildlife Service (2016); Streams (NHD) from USGS (2014); Streams (NYS DEC) from NYS DEC (2013).



DEC ID: JA-2  
Class: 2

Distance to Nearest NYSDEC Wetland: Approximately 987.5 feet

Distance to Nearest NWI Wetland: Approximately 1,230 feet

Distance to Nearest NHD Stream: Approximately 3,685 feet

Site A

Belmont Park Redevelopment Project | Town of Hempstead  
Nassau County, New York

- Project Area
- Wetlands (NYSDEC)
- Streams (NYSDEC)
- Wetlands (NWI)
- Streams (NHD)
- Wetlands (VHB)

**Significant Nexus Review**

Sources: 2013 Aerial: 2013 NYS Digital Ortho-imagery, NYSITS, 2013; Wetlands (NYSDEC) from NYSDEC (2002); Wetlands (NWI) from US Wildlife Service (2016); Streams (NHD) from USGS (2014); Streams (NYS DEC) from NYS DEC (2013).



\\vhb\gis\proj\New York City\26228\00 Belmont Park Redev\gis\Data\Environmental\Belmont\_Wetlands\USACE\_Aug 2018\Fig5\_WetlandDelineation\_8x11.mxd



**Belmont Park Redevelopment Project** | Town of Hempstead  
Nassau County, New York

- Project Area
- Pond (VHB)
- Wetland Flag (VHB)
- Data Plot (VHB)

**Pond Delineation Map**

Sources: 2013 Aerial: 2013 NYS Digital Ortho-imagery, Wetland by VHB (8/30/2018)

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# Appendix B



**Belmont Park**

2150 Hempstead Turnpike

Floral Park, NY 11001

Inquiry Number: 5408584.1

August 29, 2018

## The EDR Aerial Photo Decade Package



6 Armstrong Road, 4th floor  
Shelton, CT 06484  
Toll Free: 800.352.0050  
[www.edrnet.com](http://www.edrnet.com)

# EDR Aerial Photo Decade Package

08/29/18

**Site Name:**

Belmont Park  
2150 Hempstead Turnpike  
Floral Park, NY 11001  
EDR Inquiry # 5408584.1

**Client Name:**

Vanasse Hangen Brustlin, Inc.  
100 Motor Parkway, Ste. 135  
Hauppauge, NY 11788  
Contact: David Kennedy



Environmental Data Resources, Inc. (EDR) Aerial Photo Decade Package is a screening tool designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDR's professional researchers provide digitally reproduced historical aerial photographs, and when available, provide one photo per decade.

## Search Results:

<u>Year</u>	<u>Scale</u>	<u>Details</u>	<u>Source</u>
2017	1"=500'	Flight Year: 2017	USDA/NAIP
2013	1"=500'	Flight Year: 2013	USDA/NAIP
2009	1"=500'	Flight Year: 2009	USDA/NAIP
2006	1"=500'	Flight Year: 2006	USDA/NAIP
1994	1"=500'	Acquisition Date: April 04, 1994	USGS/DOQQ
1984	1"=500'	Flight Date: March 26, 1984	USGS
1980	1"=500'	Flight Date: April 06, 1980	Aero
1976	1"=500'	Flight Date: March 29, 1976	Aero
1966	1"=500'	Flight Date: February 23, 1966	USGS
1961	1"=500'	Flight Date: December 15, 1961	EDR Proprietary Aerial Viewpoint
1954	1"=500'	Flight Date: January 29, 1954	USGS
1951	1"=500'	Flight Date: April 21, 1951	EDR Proprietary Aerial Viewpoint
1924	1"=500'	Flight Date: July 01, 1924	USGS

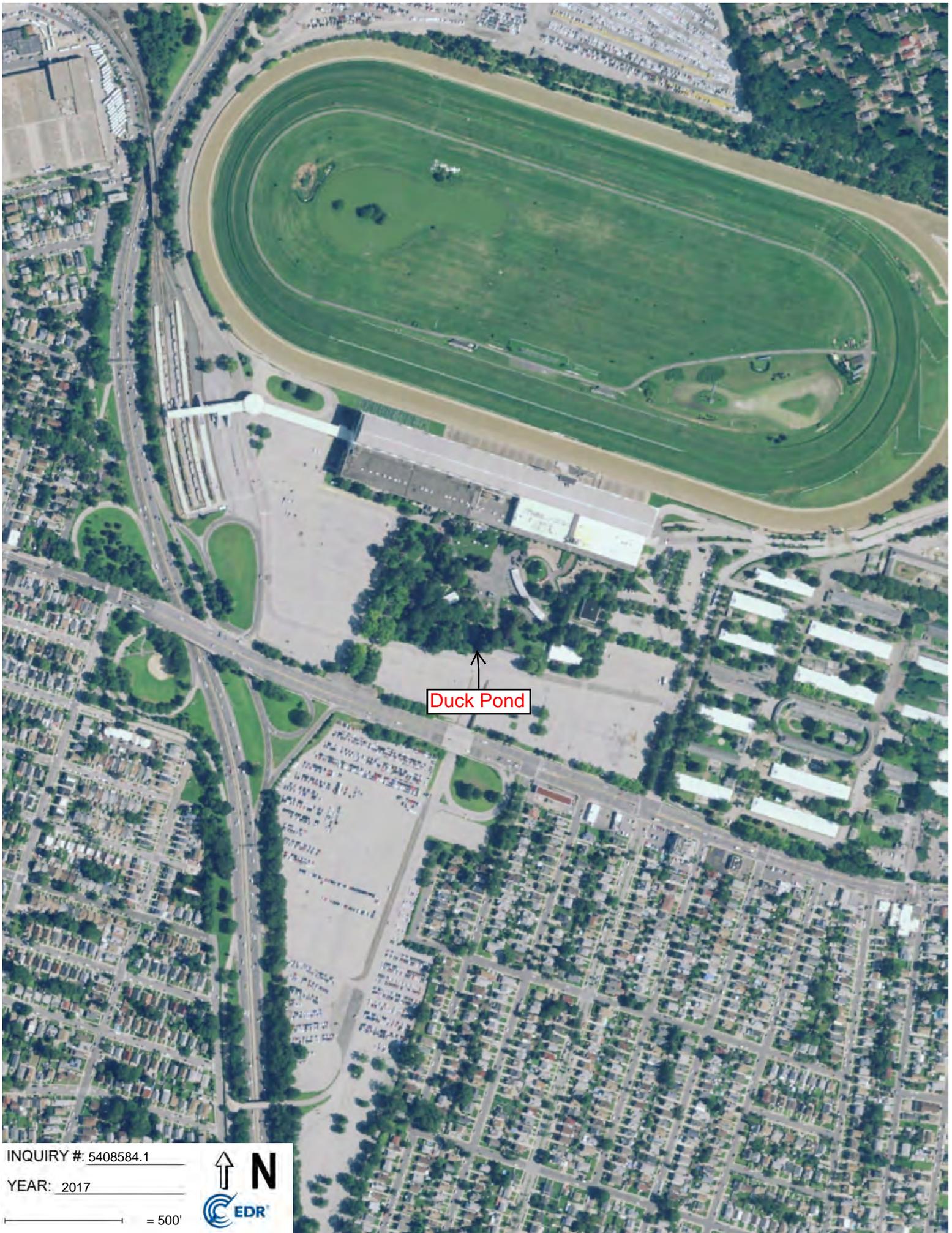
**When delivered electronically by EDR, the aerial photo images included with this report are for ONE TIME USE ONLY. Further reproduction of these aerial photo images is prohibited without permission from EDR. For more information contact your EDR Account Executive.**

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Duck Pond

INQUIRY #: 5408584.1

YEAR: 2017

— = 500'





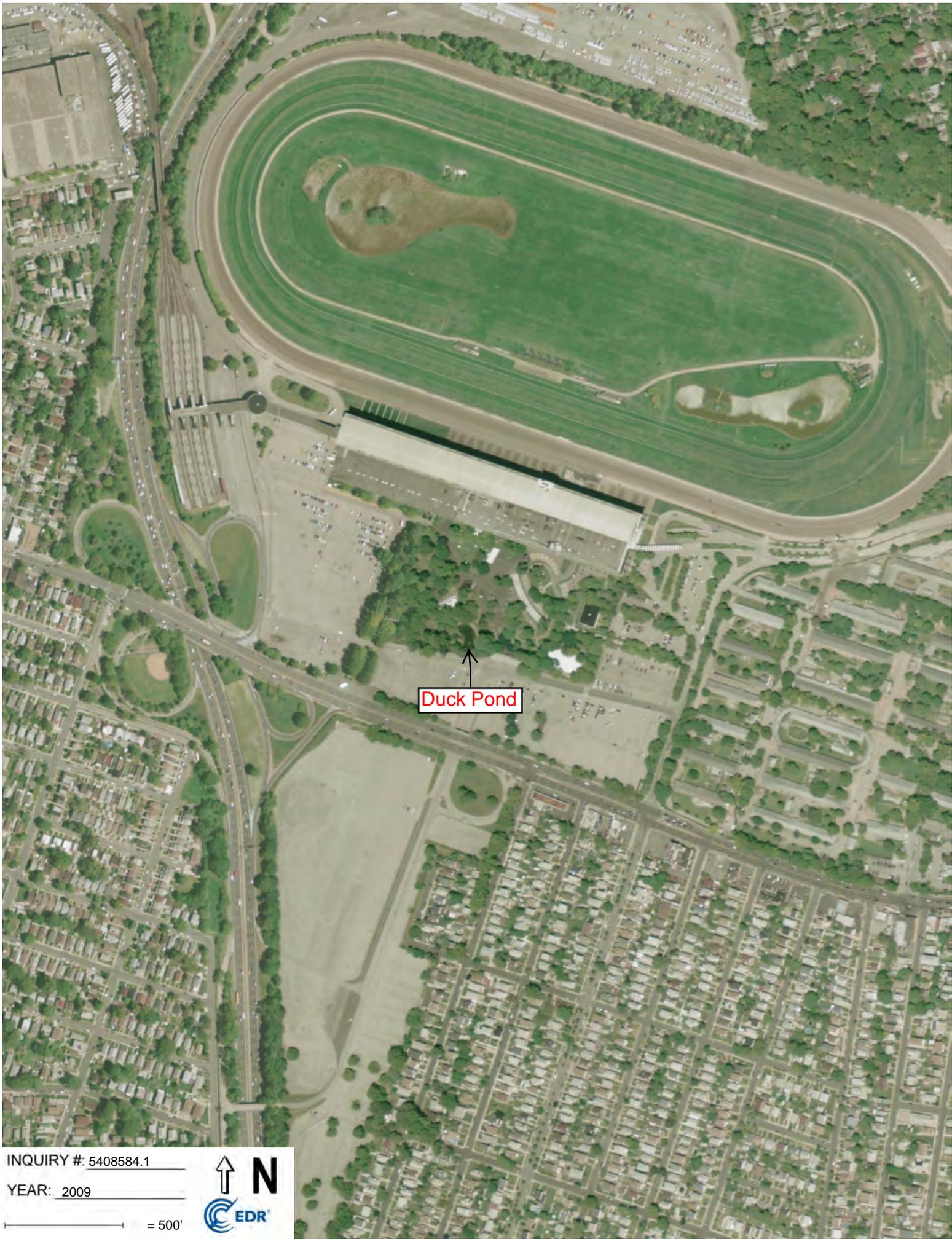
Duck Pond

INQUIRY #: 5408584.1

YEAR: 2013

— = 500'





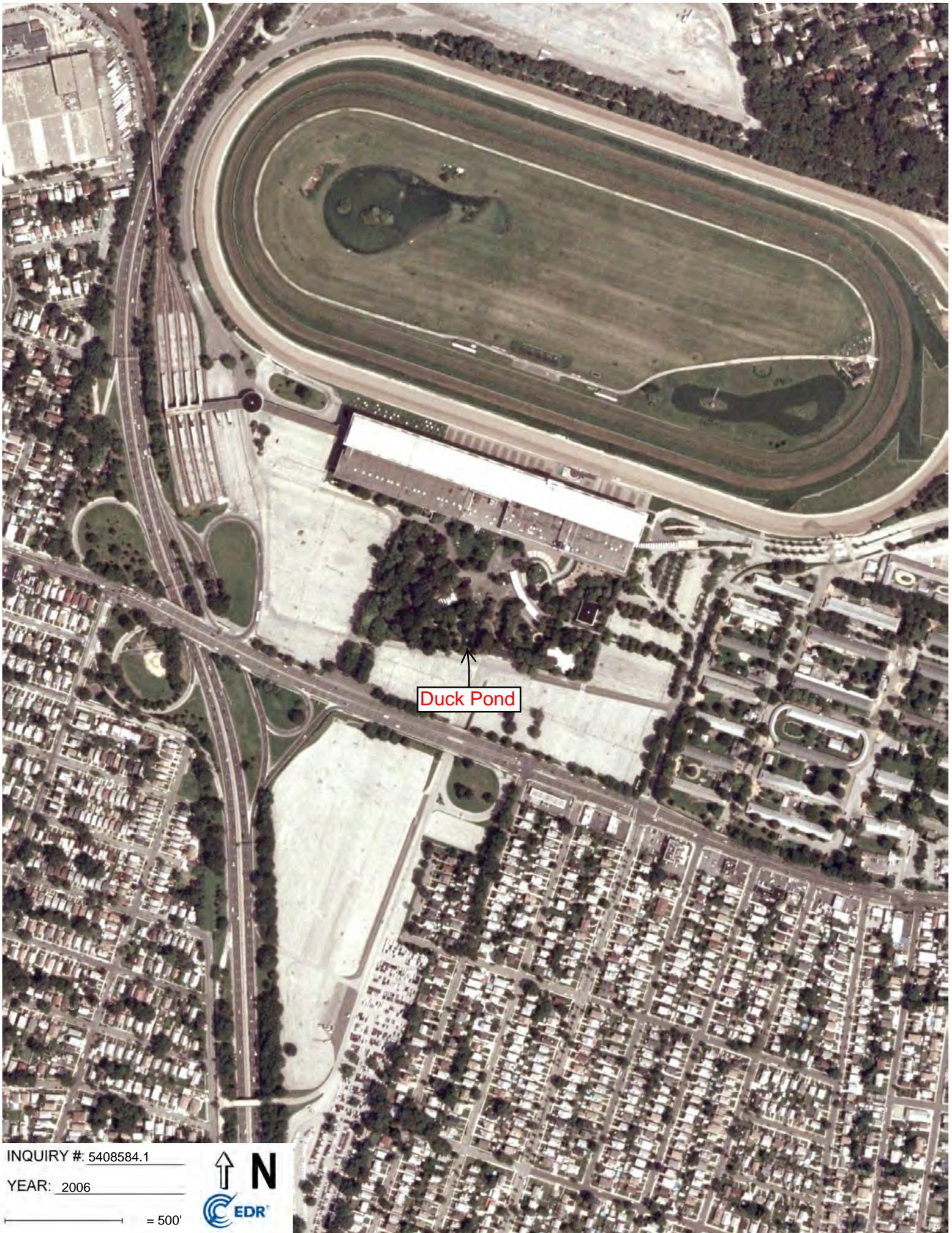
Duck Pond

INQUIRY #: 5408584.1

YEAR: 2009

— = 500'



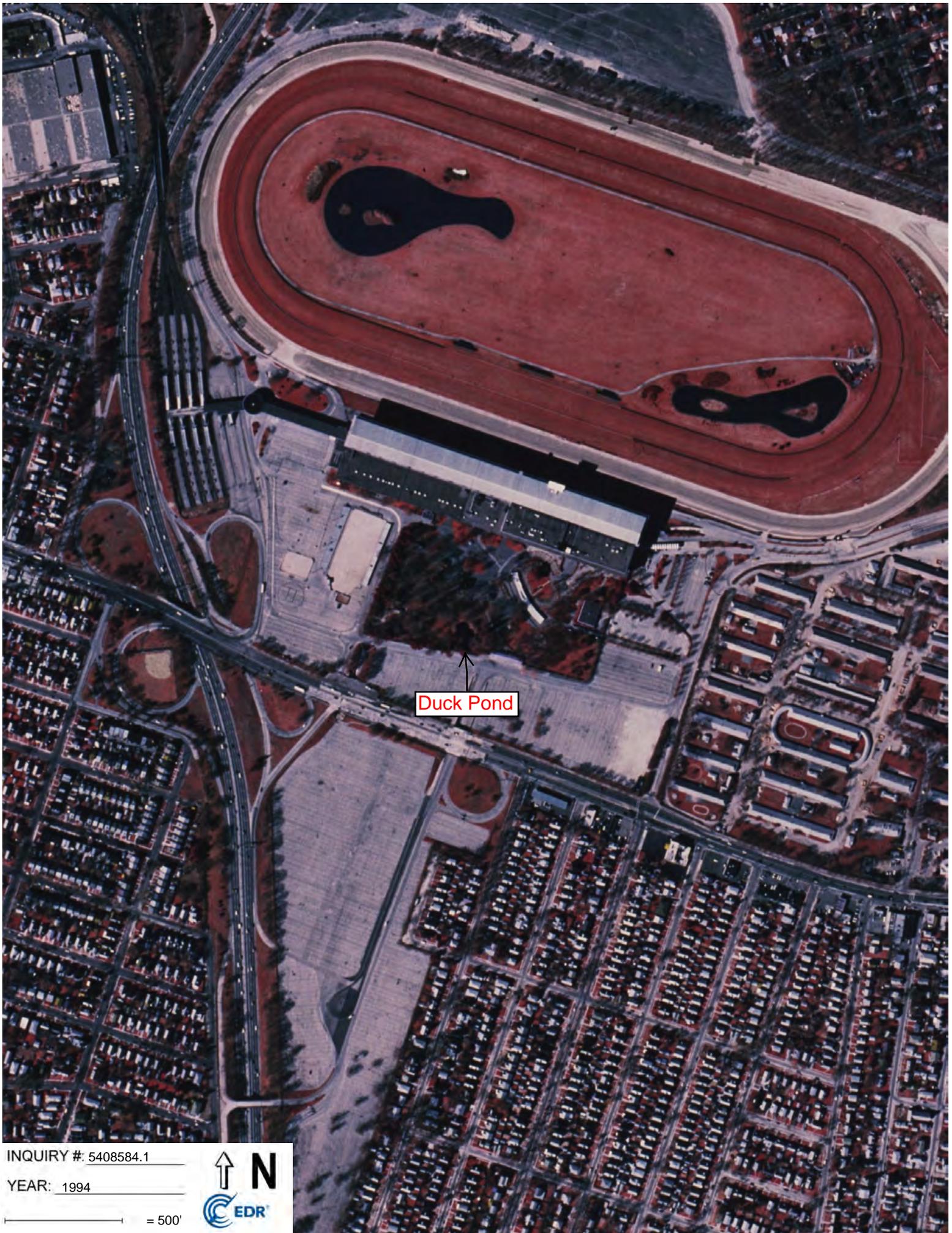


INQUIRY #: 5408584.1

YEAR: 2006

— = 500'





Duck Pond

INQUIRY #: 5408584.1

YEAR: 1994

— = 500'





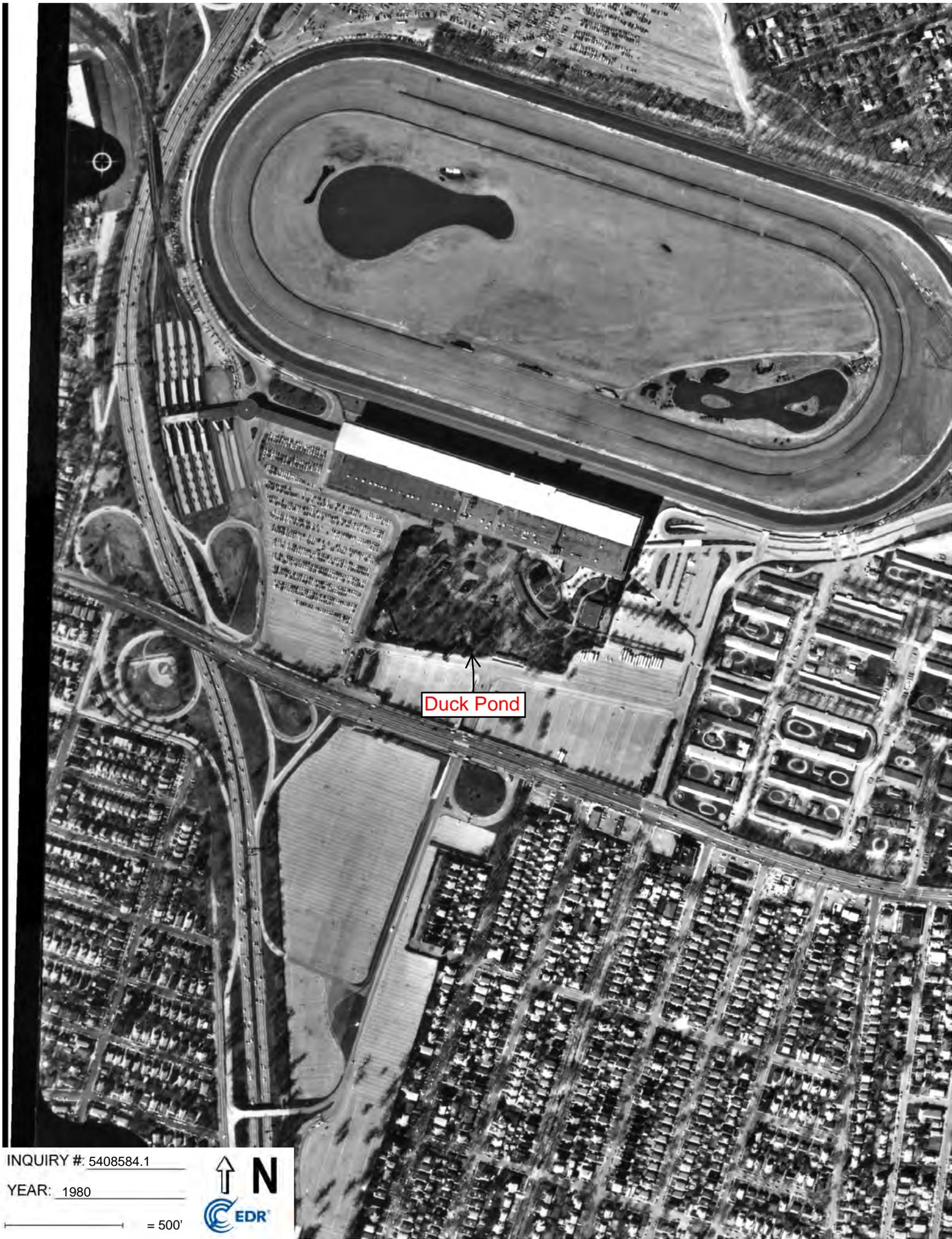
Duck Pond

INQUIRY #: 5408584.1

YEAR: 1984

— = 500'





Duck Pond

INQUIRY #: 5408584.1

YEAR: 1980

— = 500'



29 MAR 76

AGC



Duck Pond

INQUIRY #: 5408584.1

YEAR: 1976

— = 500'





Duck Pond

INQUIRY #: 5408584.1

YEAR: 1966

— = 500'





Duck Pond

INQUIRY #: 5408584.1

YEAR: 1961

— = 500'





Duck Pond

INQUIRY #: 5408584.1

YEAR: 1954

— = 500'





Duck Pond

INQUIRY #: 5408584.1

YEAR: 1951

— = 500'





Future Site of  
Duck Pond

INQUIRY #: 5408584.1

YEAR: 1924

— = 500'



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# Appendix C



**Photograph No. 1:** View of the Duck Pond and paving stone perimeter path, facing north (August 30, 2018).



**Photograph No. 2:** View of the concrete liner and municipal water source (3/4-inch copper pipe) at the west side of the Duck Pond (August 30, 2018).



Photograph No. 3: Municipal water valves associated with the Duck Pond water supply (August 30, 2018).



Photograph No. 4: Overflow drain at the east side of the Duck Pond (August 30, 2018).



Photograph No. 5: View of the storm drain associated with the Duck Pond overflow, with the Duck Pond visible in the background (as indicated by the arrow) (August 30, 2018).



Photograph No. 6: View of the Duck Pond, including the floating aerator/fountain, facing northwest (August 30, 2018).

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# Appendix D

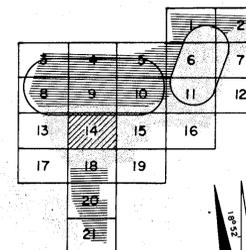
**TOPOGRAPHIC MAP**

By  
Lockwood, Kessler & Bartlett, Inc.  
Consulting Engineers  
Syracuse New York

Frank Bonacci, N.Y.S.L.S. No. 35599

Date: 12-17-64

**SHEET INDEX**



Area of Topography  
Area of Topography & Utilities



**LEGEND**

- Sanitary Sewer and Manhole
- Storm Drain and Manhole
- Catch Basin
- Leaching Basin
- Field Drain
- Septic Tank or Cess Pool
- Water Main and Valve
- Hydrant
- Hose bib
- Sprinkler head
- Fire Alarm
- Fire Alarm Conduits or Cables
- Gas Main and Valve
- Overhead Electric
- Underground Electric
- Utility Pole
- Hedge
- Fence
- Individual tree or shrub
- Woods and Brush, Shrubbery

**NOTE:**  
This map was prepared from actual surveys made in October and November, 1964.  
The plane coordinate grid shown hereon is in an assumed system with the longitudinal axis of the main track held as East-West.  
The intersection of this axis with the existing Finish Line is assumed as N5000 and E2000.  
The underground and overhead utilities shown on this map have been determined by standard survey practice, utilizing field location, available record data and on-site inquiry.  
The user of this map is cautioned that the underground utility locations are not guaranteed, nor is there any guarantee that all utilities are shown on this map.  
The elevations shown hereon refer to the Datum Plane of the Department of Public Works, Nassau County which coincides with U.S.C. & G.S. Mean Sea Level Datum.

2	8/23/65	ELEVATIONS CORRECTED
NO.	DATE	DESCRIPTION
REVISIONS		

**BELMONT PARK RACE TRACK**  
Elmont, L.I., N.Y.  
Made for  
The New York Racing Association, Inc.

Scale: 1" = 40' Drawn by: N.J. Checked by: H.L. Sheet Number: 14  
L.K.B. Job No. 4593 N.Y.R.A.P.O. No. 19124



---

# Appendix E

## Kennedy, David

---

**From:** Sallie, Sean E  
**Sent:** Thursday, August 16, 2018 1:35 PM  
**To:** Kristin DeLuca  
**Cc:** Walsh, Kevin; Ennis, Gerard; Arnold, Kenneth  
**Subject:** [External] NCDPW feedback - Belmont Redevelopment Drainage Design

Hi Kristin,

I hope all is well. We appreciate you taking the time to meet with us earlier this month to discuss the preliminary drainage concepts for the Belmont development proposal. Gerry and I have discuss the project with the Commissioner, and offer the following comments/feedback pertaining to the drainage design parameters. Please do not hesitate to contact me anytime to discuss our comments in greater detail.

### Comments/Feedback

- Based on the current configuration, the proposed development area is within the tributary area for NC Basin #122 on Dutch Broadway. It is DPW's understanding that there are a series of area drains along the western perimeter of the property that collect overland flow and convey it to a 66 inch pipe within the Cross Island Parkway ROW and ultimately south to NC basin #122. The proposed development includes new drainage infrastructure to collect stormwater throughout the site and convey it to the existing 66 inch pipe within the Cross Island Parkway ROW. DPW notes that, even though there is not to be an increase in impervious surface, the new collection system may deliver a greater volume of stormwater and at a higher discharge rate to the 66 inch pipe and recharge basin #122. As a result the developer should perform the following analysis:
  - Evaluate the Time of Concentration (TOC) for the new condition vs. the existing condition in order to confirm that the new condition will not negatively impact the 66" pipe (volume/capacity), recharge basin (capacity) or the TOH property adjacent to the basin (overflow).
- The eastern portion of the Belmont property is currently part of the Elmont Drain watershed. This system is routinely at capacity and has historically contributed to flooding along the southern channel as well as the adjacent Village of Floral Park to the north of the site. In an effort to provide relief to the Elmont Drain and mitigate flooding in the adjacent Floral Park area, the developer should consider the following:
  - Investigate the feasibility of reducing the volume of runoff entering Elmont Drain by interconnecting some of the drainage collection system within Belmont Park on the east side of the development area into the proposed system that will discharge to the CI Parkway system.
- As the proposed development plan contemplates maintaining the existing connection to a municipal system, NCDPW will require stormwater BMP's to reduce/eliminate negative impacts, such as floatables, sediments and petroleum, on the County's system.
- Approval of the proposed drainage system by the NYSDEC may also be required.

**Sean E. Sallie, AICP**  
*Deputy Commissioner*

Nassau County Department of Public Works  
1194 Prospect Avenue, Westbury, NY 11590  
Phone: (516)-571-9342  
Email: [ssallie@nassaucountyny.gov](mailto:ssallie@nassaucountyny.gov)

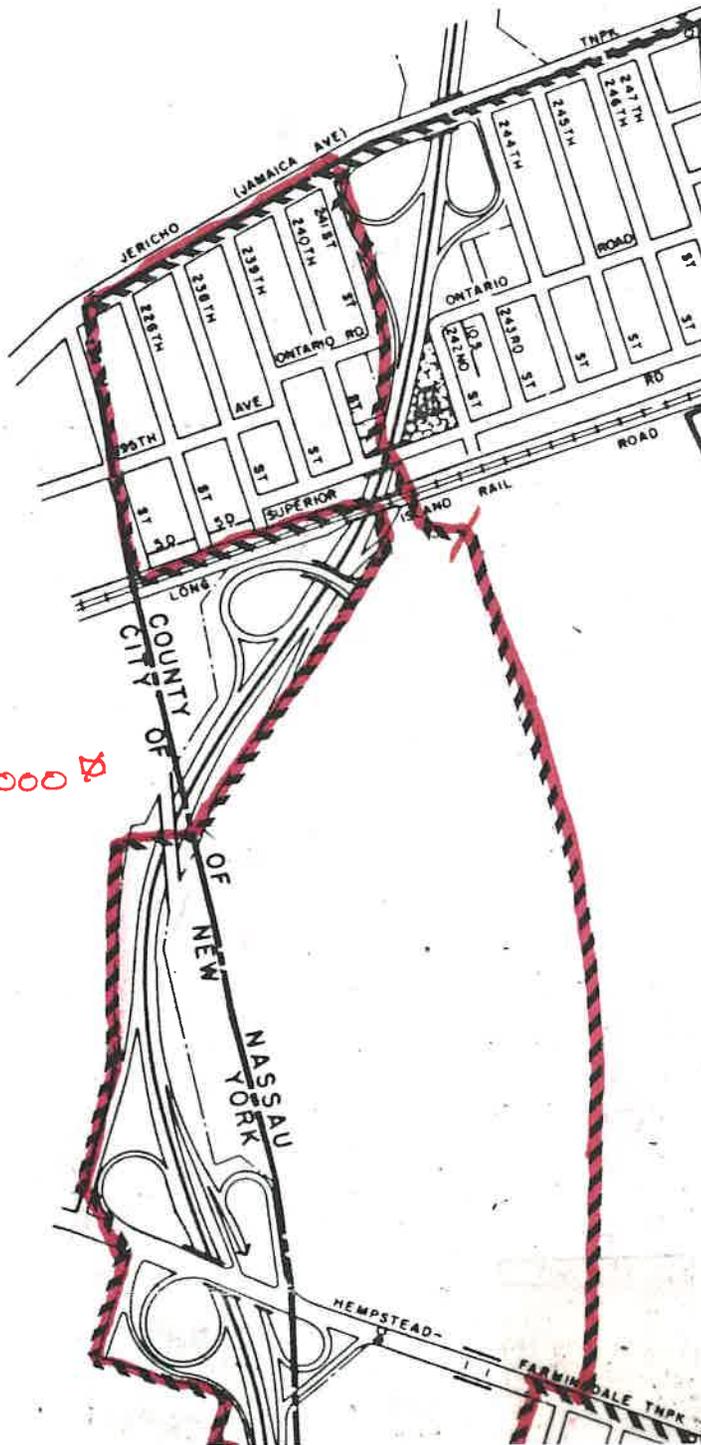
2/19/98

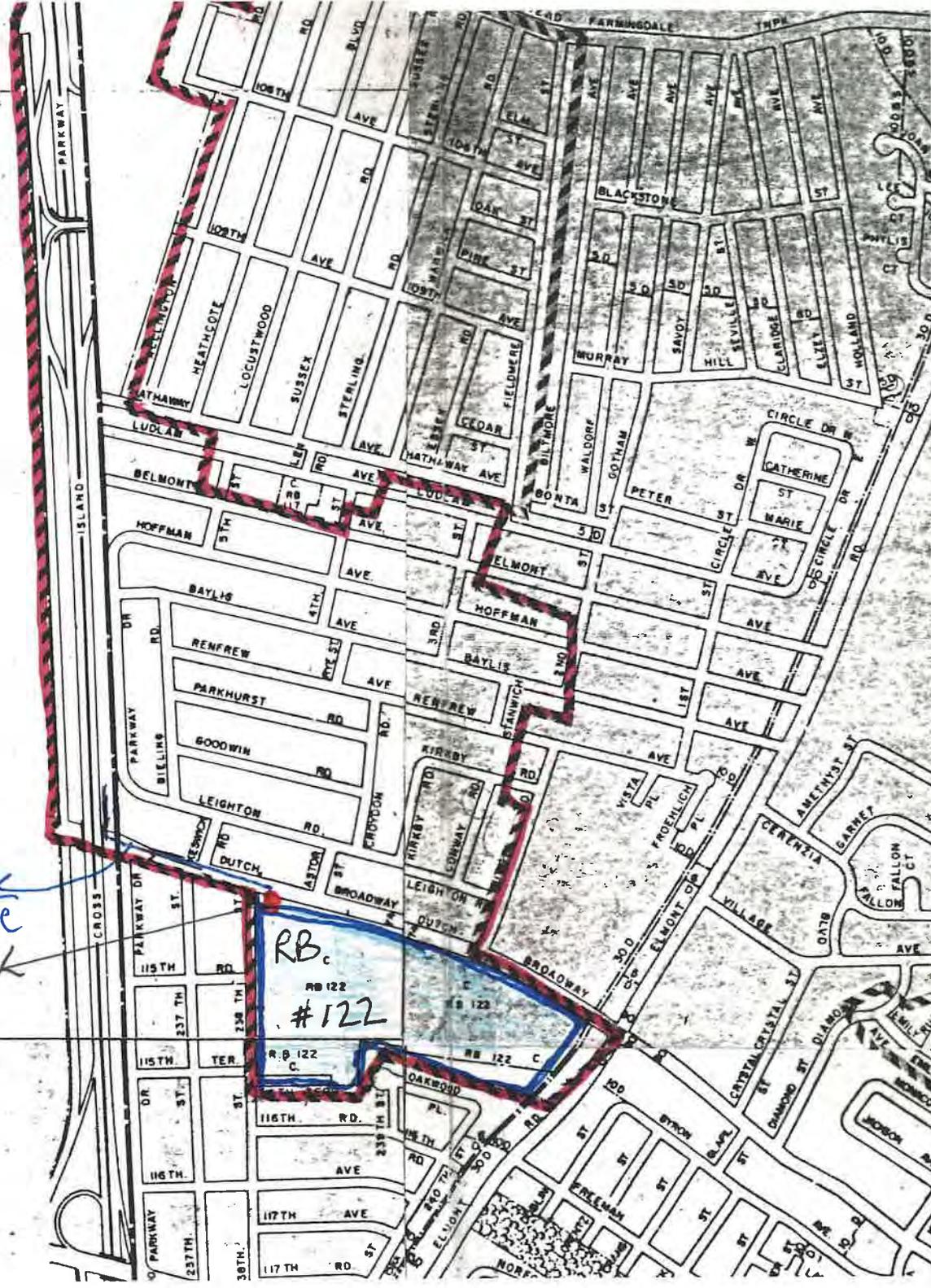
AVAIL = 3,620,000 CF

REQ = 25<sup>#</sup> x 640,000 = 16,000,000 CF

16,000,000 x .40 x 8/12 =

4,266,600 CF





72" pipe  
outfall

RB.  
#122

R.B. 122  
C.

---

# Appendix F

**WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region**

Project/Site: Belmont Park/Site A – Duck Pond City/County: Nassau County Sampling Date: 8/30/18  
 Applicant/Owner: Empire State Development/NYS (Franchise Oversight Board) State: NY Sampling Point: P1  
 Investigator(s): David Kennedy Section, Township, Range: hamlet of Elmont  
 Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none  
 Slope (%): 0 Lat: 40° 42' 39.51" N Long: 73° 43' 26.68" W Datum: WGS 84  
 Soil Map Unit Name: Urban Land, Riverhead Complex, 0-to-3 percent slopes (UrA) NWI classification: PUBHx

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No      (If no, explain in Remarks.)  
 Are Vegetation X, Soil X, or Hydrology X significantly disturbed? Are "Normal Circumstances" present? Yes      No X  
 Are Vegetation     , Soil     , or Hydrology      naturally problematic? (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? Yes <u>    </u> No <u>X</u> Hydric Soil Present? Yes <u>    </u> No <u>X</u> Wetland Hydrology Present? Yes <u>X</u> No <u>    </u>	Is the Sampled Area within a Wetland? Yes <u>    </u> No <u>X</u> If yes, optional Wetland Site ID: <u>    </u>
Remarks: (Explain alternative procedures here or in a separate report.) Isolated, artificial pond with concrete liner, no vegetation and a municipal water source. The pond discharges to the site stormwater management system and ultimately to groundwater at Nassau County Groundwater Recharge Basin No. 122.	

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b> Primary Indicators (minimum of one is required; check all that apply)	Secondary Indicators (minimum of two required)
<input checked="" type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thin Muck Surface (C7) <input checked="" type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5)
<b>Field Observations:</b> Surface Water Present? Yes <u>X</u> No <u>    </u> Depth (inches): <u>    </u> Water Table Present? Yes <u>    </u> No <u>X</u> Depth (inches): <u>    </u> Saturation Present? Yes <u>    </u> No <u>X</u> Depth (inches): <u>    </u> (includes capillary fringe)	Wetland Hydrology Present? Yes <u>X</u> No <u>    </u>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks: Municipal water source via ¾-inch copper pipe at west side of pond.	

**VEGETATION** – Use scientific names of plants.

Sampling Point:   P1  

Tree Stratum (Plot size: <u>  30 feet  </u> )	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Pinus strobus</u>	<u>20</u>	<u>yes</u>	<u>FACU</u>
2. <u>Morus alba</u>	<u>10</u>	<u>yes</u>	<u>FACU</u>
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
<u>30</u> = Total Cover			
<b>Sapling/Shrub Stratum (Plot size: <u>  15 feet  </u>)</b>			
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
_____ = Total Cover			
<b>Herb Stratum (Plot size: <u>  5 feet  </u>)</b>			
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
9. _____	_____	_____	_____
10. _____	_____	_____	_____
11. _____	_____	_____	_____
12. _____	_____	_____	_____
_____ = Total Cover			
<b>Woody Vine Stratum (Plot size: <u>  30 feet  </u>)</b>			
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
_____ = Total Cover			

**Dominance Test worksheet:**

Number of Dominant Species That Are OBL, FACW, or FAC:   0   (A)

Total Number of Dominant Species Across All Strata:   2   (B)

Percent of Dominant Species That Are OBL, FACW, or FAC:   0   (A/B)

**Prevalence Index worksheet:**

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = \_\_\_\_\_

- Hydrophytic Vegetation Indicators:**
- Rapid Test for Hydrophytic Vegetation
  - Dominance Test is >50%
  - Prevalence Index is ≤3.0<sup>1</sup>
  - Morphological Adaptations<sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)
  - Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)
- <sup>1</sup>Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

**Definitions of Vegetation Strata:**

**Tree** – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

**Sapling/shrub** – Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

**Herb** – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

**Woody vines** – All woody vines greater than 3.28 ft in height.

**Hydrophytic Vegetation Present?**      Yes \_\_\_\_\_ No   X  

Remarks: (Include photo numbers here or on a separate sheet.)  
 No vegetation within or immediately adjacent to pond.



**WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region**

Project/Site: Belmont Park/Site A – Duck Pond City/County: Nassau County Sampling Date: 8/30/18

Applicant/Owner: Empire State Development/NYS (Franchise Oversight Board) State: NY Sampling Point: U1

Investigator(s): David Kennedy Section, Township, Range: hamlet of Elmont

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none

Slope (%): 0 Lat: 40° 42' 39.29" N Long: 73° 43' 26.74" W Datum: WGS 84

Soil Map Unit Name: Urban Land, Riverhead Complex, 0-to-3 percent slopes (UrA) NWI classification: PUBHx

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No      (If no, explain in Remarks.)

Are Vegetation     , Soil     , or Hydrology      significantly disturbed? Are "Normal Circumstances" present? Yes X No     

Are Vegetation     , Soil     , or Hydrology      naturally problematic? (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? Yes <u>    </u> No <u>X</u>	Is the Sampled Area within a Wetland? Yes <u>    </u> No <u>X</u>
Hydric Soil Present? Yes <u>    </u> No <u>X</u>	If yes, optional Wetland Site ID: <u>    </u>
Wetland Hydrology Present? Yes <u>    </u> No <u>X</u>	

Remarks: (Explain alternative procedures here or in a separate report.)

Landscaped area to south of Duck Pond.

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b>	<b>Secondary Indicators (minimum of two required)</b>
<i>Primary Indicators (minimum of one is required; check all that apply)</i>	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Moss Trim Lines (B16)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Stunted or Stressed Plants (D1)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Microtopographic Relief (D4)
<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Aquatic Fauna (B13)	
<input type="checkbox"/> Marl Deposits (B15)	
<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	
<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	
<input type="checkbox"/> Presence of Reduced Iron (C4)	
<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	
<input type="checkbox"/> Thin Muck Surface (C7)	
<input type="checkbox"/> Other (Explain in Remarks)	

**Field Observations:**

Surface Water Present? Yes <u>    </u> No <u>X</u> Depth (inches): <u>    </u>	Wetland Hydrology Present? Yes <u>    </u> No <u>X</u>
Water Table Present? Yes <u>    </u> No <u>X</u> Depth (inches): <u>    </u>	
Saturation Present? (includes capillary fringe) Yes <u>    </u> No <u>X</u> Depth (inches): <u>    </u>	

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

**VEGETATION** – Use scientific names of plants.

Sampling Point: U1

Tree Stratum (Plot size: <u>30 feet</u> )	Absolute % Cover	Dominant Species?	Indicator Status
1. <u><i>Pinus strobus</i></u>	<u>40</u>	<u>yes</u>	<u>FACU</u>
2. <u><i>Morus alba</i></u>	<u>10</u>	<u>yes</u>	<u>FACU</u>
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____

50 = Total Cover

**Dominance Test worksheet:**

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 14 (A/B)

**Prevalence Index worksheet:**

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = \_\_\_\_\_

- Hydrophytic Vegetation Indicators:**
- Rapid Test for Hydrophytic Vegetation
  - Dominance Test is >50%
  - Prevalence Index is ≤3.0<sup>1</sup>
  - Morphological Adaptations<sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)
  - Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)
- <sup>1</sup>Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

**Definitions of Vegetation Strata:**

**Tree** – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

**Sapling/shrub** – Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

**Herb** – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

**Woody vines** – All woody vines greater than 3.28 ft in height.

**Hydrophytic Vegetation Present?** Yes \_\_\_\_\_ No X

**Sapling/Shrub Stratum (Plot size: 15 feet)**

1. <u><i>Berberis thunbergii</i></u>	<u>5</u>	<u>yes</u>	<u>FACU</u>
2. <u><i>Rosa rugosa</i></u>	<u>5</u>	<u>yes</u>	<u>FACU</u>
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____

10 = Total Cover

**Herb Stratum (Plot size: 5 feet)**

1. <u><i>Polygonum persicaria</i></u>	<u>5</u>	<u>yes</u>	<u>FAC</u>
2. <u><i>Commelina communis</i></u>	<u>2</u>	<u>yes</u>	<u>FACU</u>
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
9. _____	_____	_____	_____
10. _____	_____	_____	_____
11. _____	_____	_____	_____
12. _____	_____	_____	_____

7 = Total Cover

**Woody Vine Stratum (Plot size: 30 feet)**

1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____

\_\_\_\_\_ = Total Cover

Remarks: (Include photo numbers here or on a separate sheet.)



---

# Appendix G



## Franchise Oversight Board

State Capitol  
Albany, New York 12224

Robert Williams, Chair  
Joseph J. Rabito, Member  
Anthony Rodolakis, Member  
James T. Towne, Jr., Member

Steven M. Lowenstein, Secretary  
David Perino, Counsel

September 6, 2018

Mr. Ronald Pinzon  
Chief, Eastern Permits Section  
United States Army Corps of Engineers  
New York District  
Regulatory Branch  
Jacob K. Javits Federal Building  
26 Federal Plaza, Room 1937  
New York, New York 10278-0090

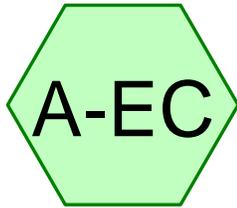
Re: Request for Approved Jurisdictional Determination  
Artificial Pond at Belmont Park  
2150 Hempstead Turnpike  
Elmont, New York 11003

Dear Mr. Pinzon:

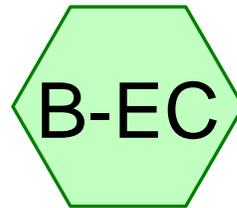
As the owner's authorized representative of the above-referenced property, please accept this letter as authorization for the U.S. Army Corps of Engineers to perform a site inspection in association with the wetland jurisdictional determination request for the property.

Sincerely,

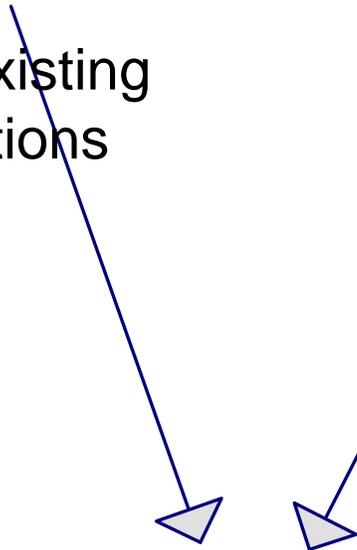
Robert Williams  
Chairman



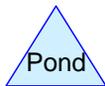
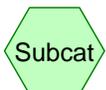
Site A Existing  
Conditions



Site B Existing  
Conditions



Downstream Discharge  
Existing



**N17425\_factored\_oldRainfall**

Prepared by Bohler Engineering

HydroCAD® 10.00-22 s/n 04006 © 2018 HydroCAD Software Solutions LLC

Printed 11/13/2018

Page 2

**Area Listing (selected nodes)**

Area (acres)	CN	Description (subcatchment-numbers)
6.604	69	50-75% Grass cover, Fair, HSG B (A-EC, B-EC)
11.239	98	Impervious (Roof and Pavement) (A-EC)
25.836	98	Impervious (Rooftop/Pavement) (B-EC)
0.134	98	Ponds/Pool (A-EC)
<b>43.813</b>	<b>94</b>	<b>TOTAL AREA</b>

**N17425\_factored\_oldRainfall**

Prepared by Bohler Engineering

HydroCAD® 10.00-22 s/n 04006 © 2018 HydroCAD Software Solutions LLC

Site A+ Site B Existing  
Elmont-NY 24-hr S1 1-yr Rainfall=2.77"

Printed 11/13/2018

Page 3

**Summary for Subcatchment A-EC: Site A Existing Conditions**

Runoff = 25.52 cfs @ 12.18 hrs, Volume= 2.133 af, Depth> 1.71"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Elmont-NY 24-hr S1 1-yr Rainfall=2.77"

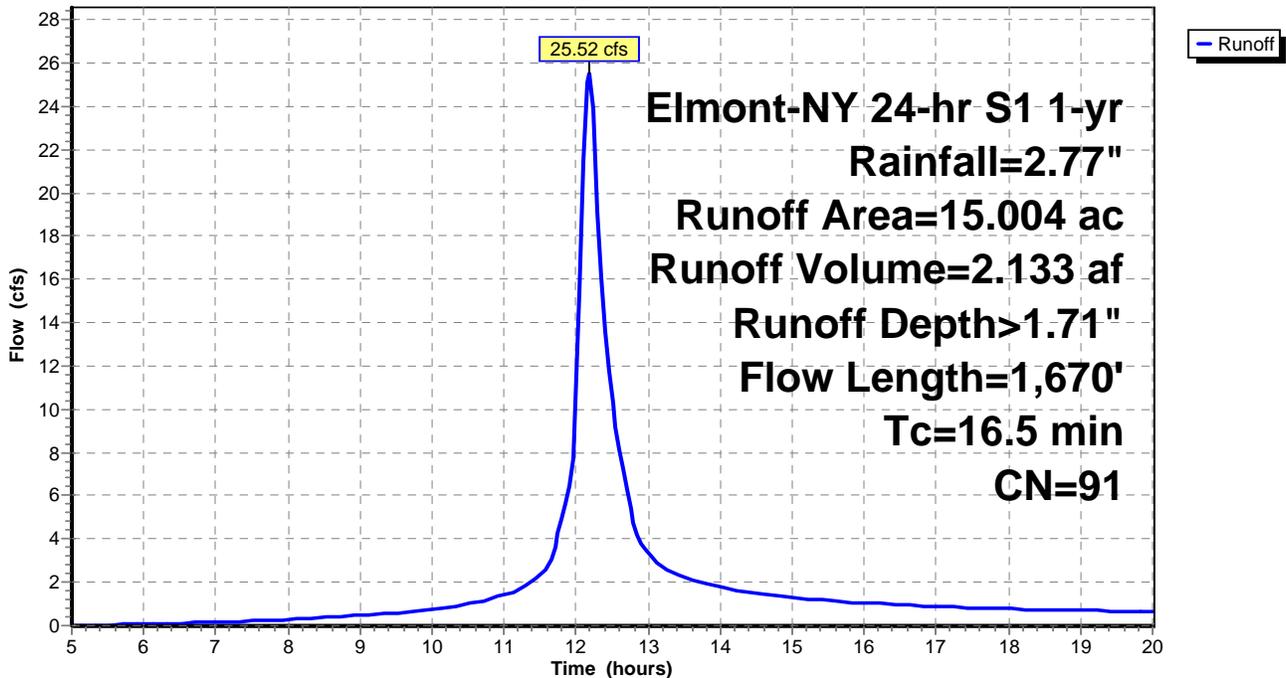
Area (ac)	CN	Description
* 11.239	98	Impervious (Roof and Pavement)
3.631	69	50-75% Grass cover, Fair, HSG B
* 0.134	98	Ponds/Pools
15.004	91	Weighted Average
3.631		24.20% Pervious Area
11.373		75.80% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.9	50	0.0100	0.10		<b>Sheet Flow, Grass Sheet flow</b> Grass: Short n= 0.150 P2= 2.80"
1.0	50	0.0100	0.85		<b>Sheet Flow, Pavement Sheet Flow</b> Smooth surfaces n= 0.011 P2= 2.80"
7.6	1,570	0.0050	3.46	4.24	<b>Pipe Channel, 1500 Ft Pipe flow</b> 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.014 Concrete pipe, bends & connections
16.5	1,670	Total			

**Subcatchment A-EC: Site A Existing Conditions**

Hydrograph



**N17425\_factored\_oldRainfall**

Prepared by Bohler Engineering

HydroCAD® 10.00-22 s/n 04006 © 2018 HydroCAD Software Solutions LLC

Site A+ Site B Existing  
Elmont-NY 24-hr S1 1-yr Rainfall=2.77"

Printed 11/13/2018

Page 4

**Summary for Subcatchment B-EC: Site B Existing Conditions**

Runoff = 56.19 cfs @ 12.18 hrs, Volume= 4.927 af, Depth> 2.05"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Elmont-NY 24-hr S1 1-yr Rainfall=2.77"

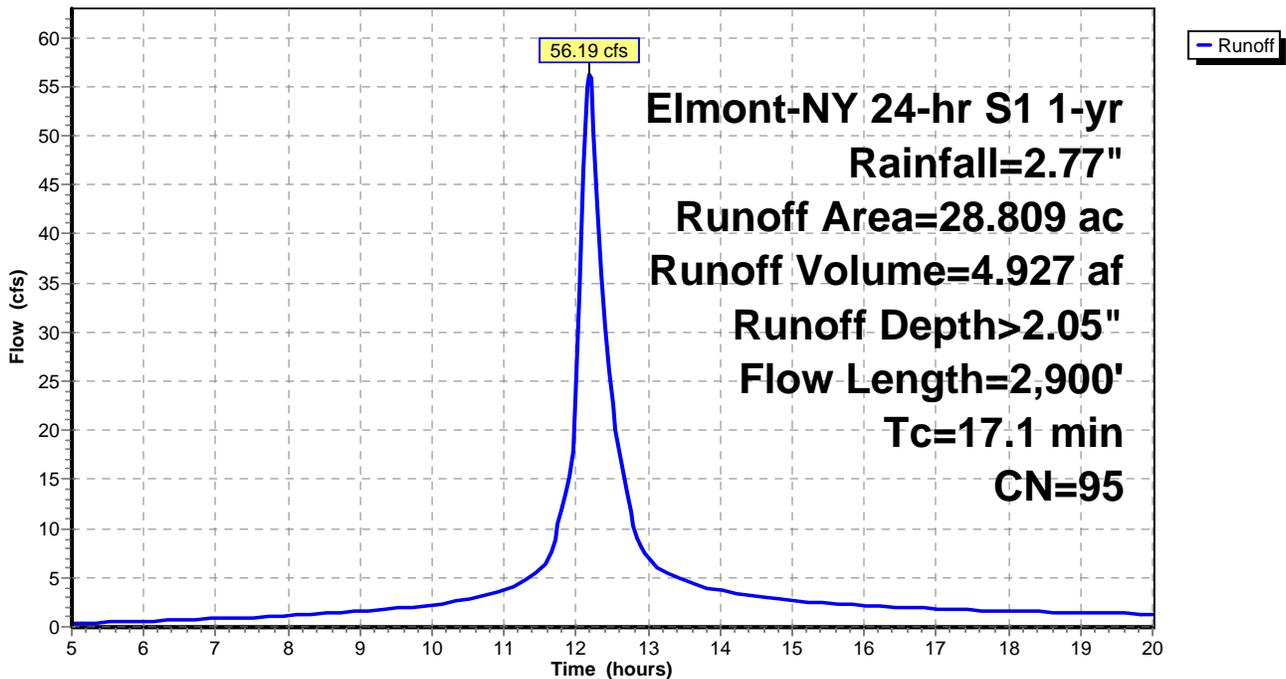
Area (ac)	CN	Description
* 25.836	98	Impervious (Rooftop/Pavement)
2.973	69	50-75% Grass cover, Fair, HSG B
28.809	95	Weighted Average
2.973		10.32% Pervious Area
25.836		89.68% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.7	100	0.0100	0.98		<b>Sheet Flow, 100 Ft Sheet flow</b> Smooth surfaces n= 0.011 P2= 2.80"
15.4	2,800	0.0033	3.02	3.71	<b>Pipe Channel, 2800 Ft Pipe Flow</b> 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.013 Concrete pipe, bends & connections
17.1	2,900	Total			

**Subcatchment B-EC: Site B Existing Conditions**

Hydrograph



# N17425\_factored\_oldRainfall

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Site A+ Site B Existing  
Elmont-NY 24-hr S1 1-yr Rainfall=2.77"

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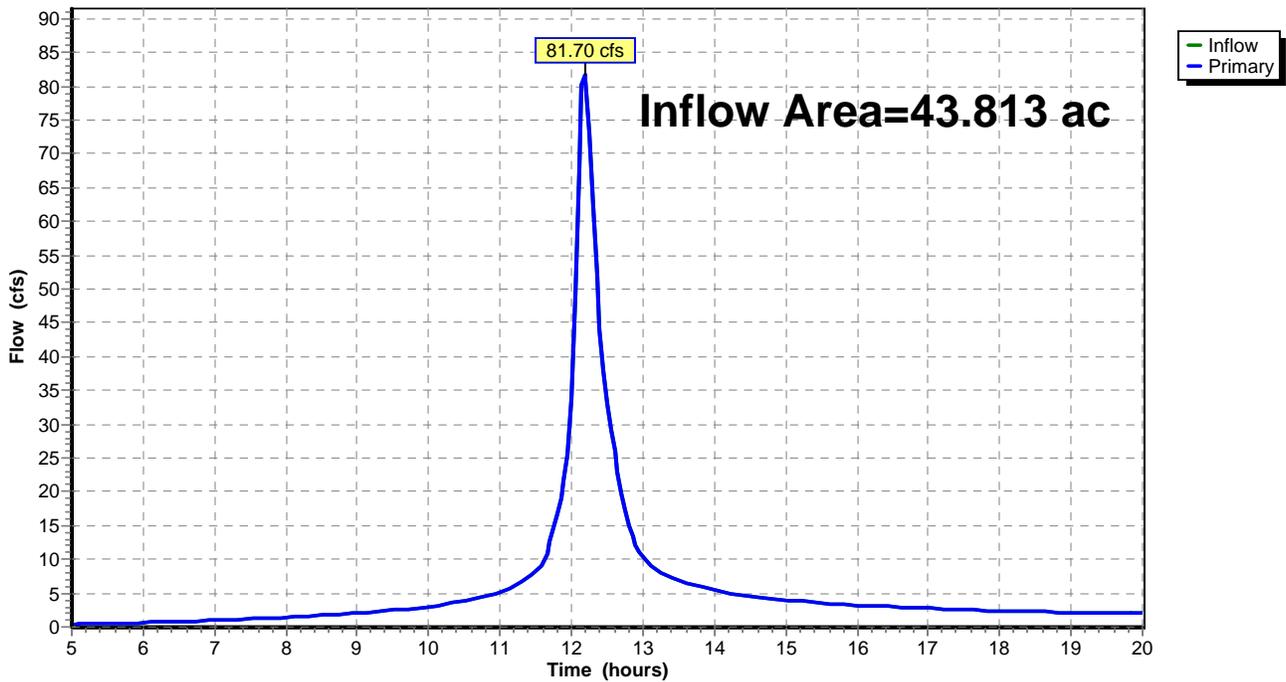
## Summary for Link DD\_E: Downstream Discharge Existing

Inflow Area = 43.813 ac, 84.93% Impervious, Inflow Depth > 1.93" for 1-yr event  
Inflow = 81.70 cfs @ 12.18 hrs, Volume= 7.060 af  
Primary = 81.70 cfs @ 12.18 hrs, Volume= 7.060 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

## Link DD\_E: Downstream Discharge Existing

Hydrograph



**N17425\_factored\_oldRainfall**

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Site A+ Site B Existing  
Elmont-NY 24-hr S1 2-yr Rainfall=3.40"

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**Summary for Subcatchment A-EC: Site A Existing Conditions**

Runoff = 32.81 cfs @ 12.17 hrs, Volume= 2.813 af, Depth> 2.25"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Elmont-NY 24-hr S1 2-yr Rainfall=3.40"

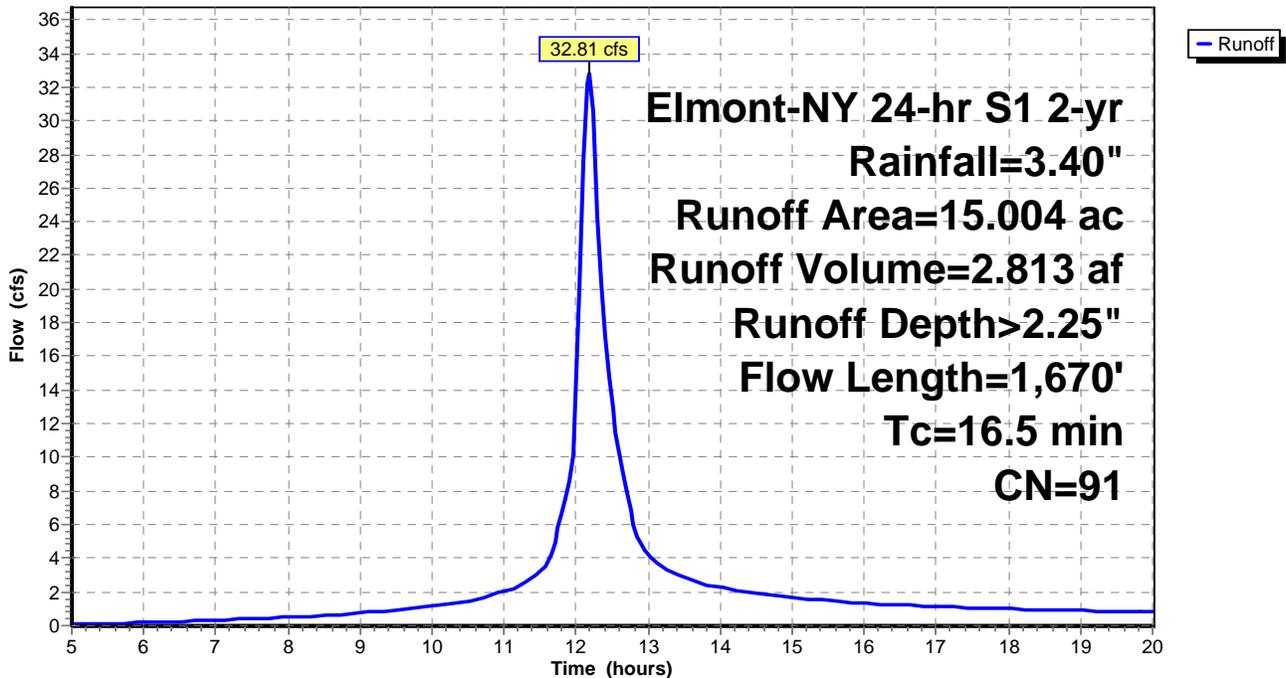
Area (ac)	CN	Description
* 11.239	98	Impervious (Roof and Pavement)
3.631	69	50-75% Grass cover, Fair, HSG B
* 0.134	98	Ponds/Pools
15.004	91	Weighted Average
3.631		24.20% Pervious Area
11.373		75.80% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.9	50	0.0100	0.10		<b>Sheet Flow, Grass Sheet flow</b> Grass: Short n= 0.150 P2= 2.80"
1.0	50	0.0100	0.85		<b>Sheet Flow, Pavement Sheet Flow</b> Smooth surfaces n= 0.011 P2= 2.80"
7.6	1,570	0.0050	3.46	4.24	<b>Pipe Channel, 1500 Ft Pipe flow</b> 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.014 Concrete pipe, bends & connections
16.5	1,670	Total			

**Subcatchment A-EC: Site A Existing Conditions**

Hydrograph



**N17425\_factored\_oldRainfall**

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Site A+ Site B Existing  
Elmont-NY 24-hr S1 2-yr Rainfall=3.40"

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**Summary for Subcatchment B-EC: Site B Existing Conditions**

Runoff = 69.38 cfs @ 12.18 hrs, Volume= 6.268 af, Depth> 2.61"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Elmont-NY 24-hr S1 2-yr Rainfall=3.40"

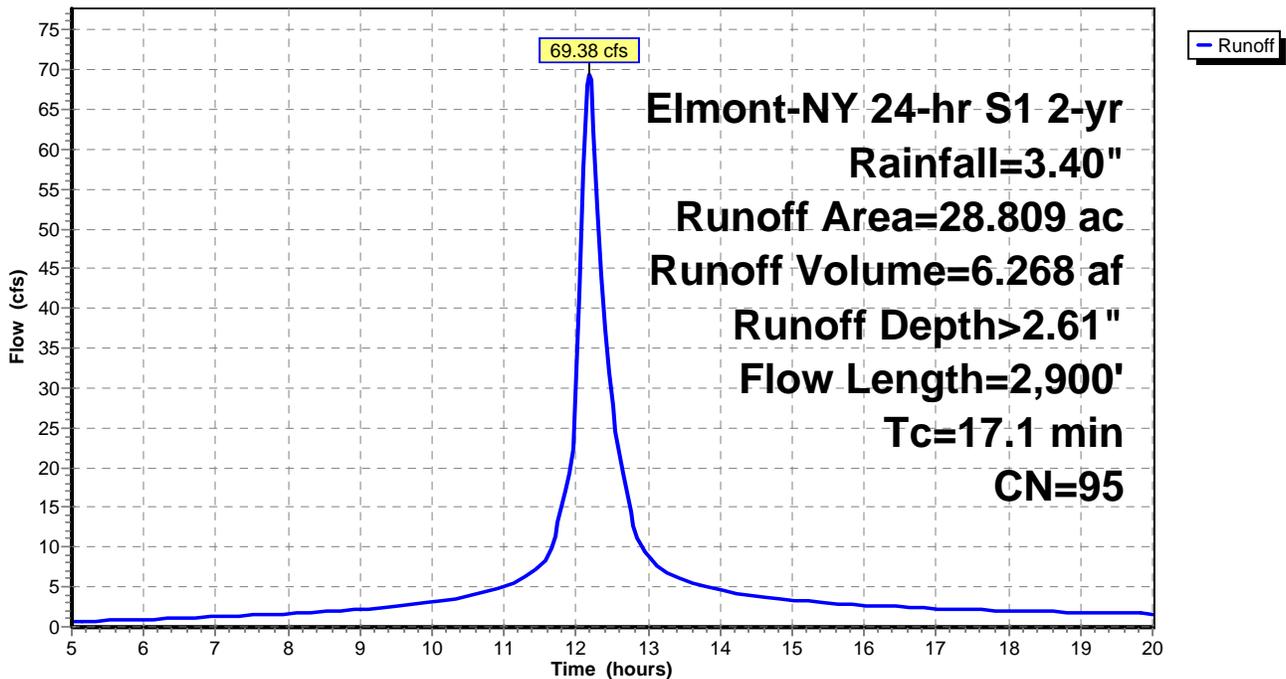
Area (ac)	CN	Description
* 25.836	98	Impervious (Rooftop/Pavement)
2.973	69	50-75% Grass cover, Fair, HSG B
28.809	95	Weighted Average
2.973		10.32% Pervious Area
25.836		89.68% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.7	100	0.0100	0.98		<b>Sheet Flow, 100 Ft Sheet flow</b> Smooth surfaces n= 0.011 P2= 2.80"
15.4	2,800	0.0033	3.02	3.71	<b>Pipe Channel, 2800 Ft Pipe Flow</b> 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.013 Concrete pipe, bends & connections
17.1	2,900	Total			

**Subcatchment B-EC: Site B Existing Conditions**

Hydrograph



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Site A+ Site B Existing  
Elmont-NY 24-hr S1 2-yr Rainfall=3.40"

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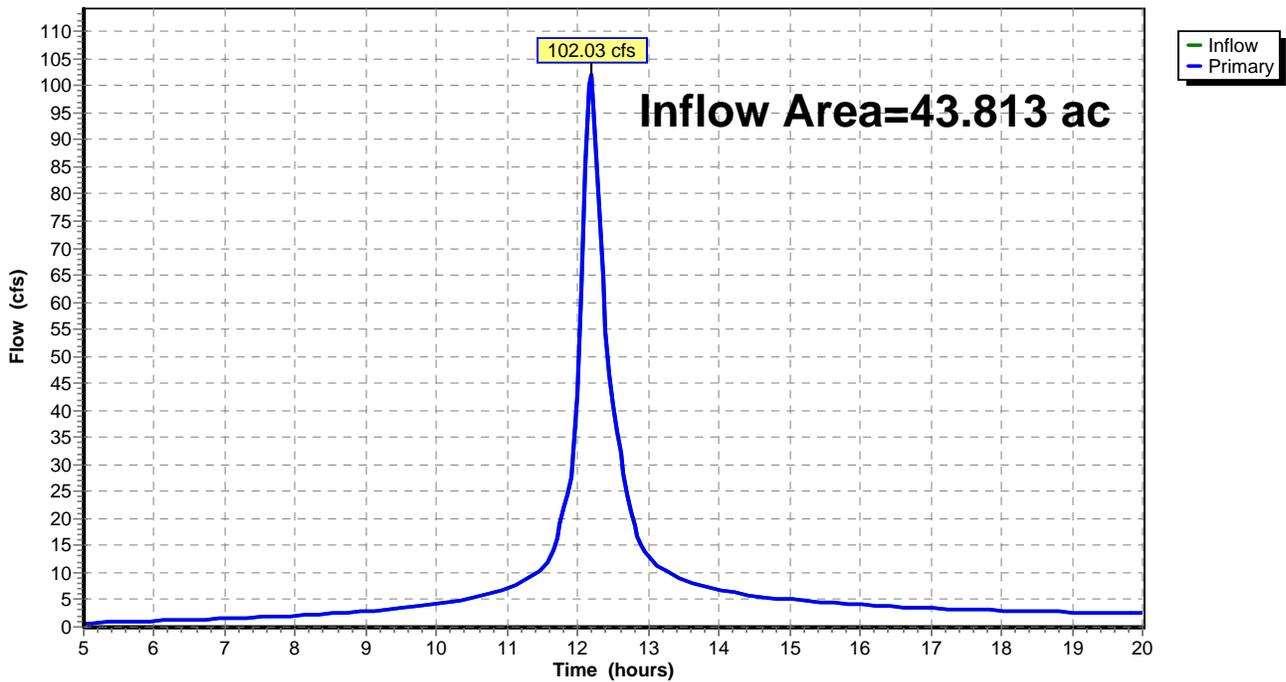
**Summary for Link DD\_E: Downstream Discharge Existing**

Inflow Area = 43.813 ac, 84.93% Impervious, Inflow Depth > 2.49" for 2-yr event  
Inflow = 102.03 cfs @ 12.18 hrs, Volume= 9.080 af  
Primary = 102.03 cfs @ 12.18 hrs, Volume= 9.080 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

**Link DD\_E: Downstream Discharge Existing**

Hydrograph



**N17425\_factored\_oldRainfall**

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Site A+ Site B Existing  
Elmont-NY 24-hr S1 10-yr Rainfall=5.27"

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**Summary for Subcatchment A-EC: Site A Existing Conditions**

Runoff = 53.80 cfs @ 12.17 hrs, Volume= 4.867 af, Depth> 3.89"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Elmont-NY 24-hr S1 10-yr Rainfall=5.27"

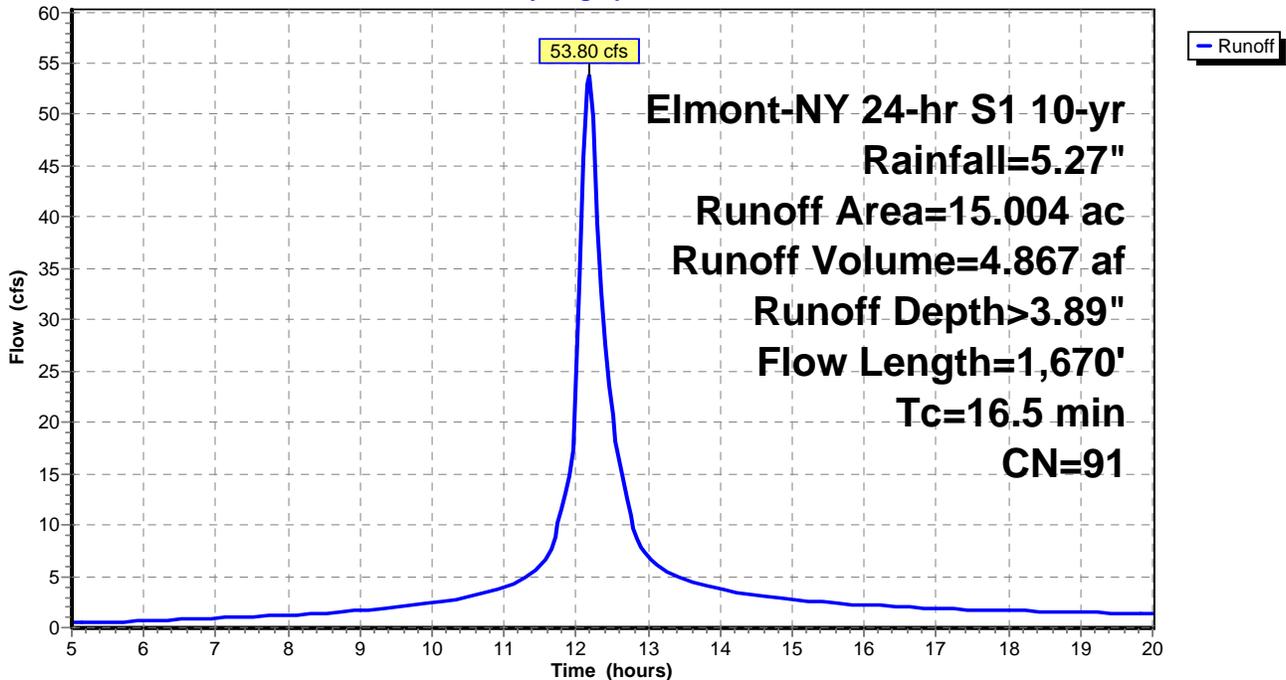
Area (ac)	CN	Description
* 11.239	98	Impervious (Roof and Pavement)
3.631	69	50-75% Grass cover, Fair, HSG B
* 0.134	98	Ponds/Pools
15.004	91	Weighted Average
3.631		24.20% Pervious Area
11.373		75.80% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.9	50	0.0100	0.10		<b>Sheet Flow, Grass Sheet flow</b> Grass: Short n= 0.150 P2= 2.80"
1.0	50	0.0100	0.85		<b>Sheet Flow, Pavement Sheet Flow</b> Smooth surfaces n= 0.011 P2= 2.80"
7.6	1,570	0.0050	3.46	4.24	<b>Pipe Channel, 1500 Ft Pipe flow</b> 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.014 Concrete pipe, bends & connections
16.5	1,670	Total			

**Subcatchment A-EC: Site A Existing Conditions**

Hydrograph



**N17425\_factored\_oldRainfall**

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Site A+ Site B Existing  
Elmont-NY 24-hr S1 10-yr Rainfall=5.27"

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**Summary for Subcatchment B-EC: Site B Existing Conditions**

Runoff = 107.80 cfs @ 12.18 hrs, Volume= 10.233 af, Depth> 4.26"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Elmont-NY 24-hr S1 10-yr Rainfall=5.27"

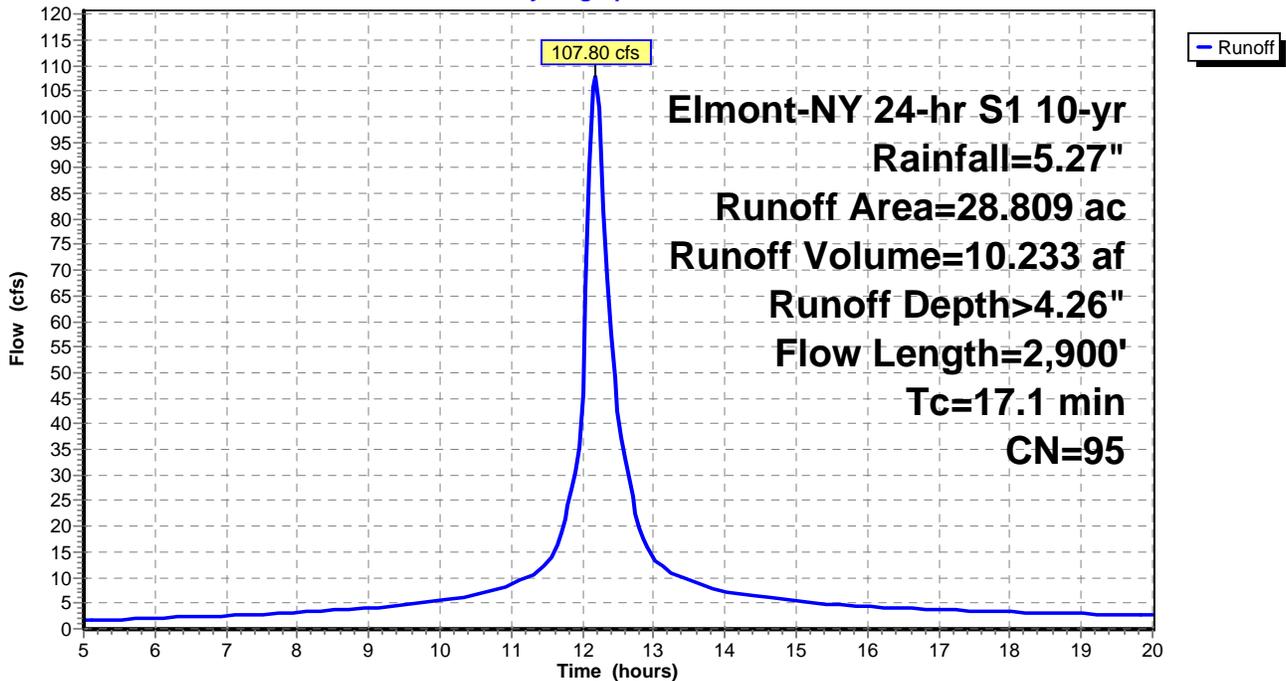
Area (ac)	CN	Description
* 25.836	98	Impervious (Rooftop/Pavement)
2.973	69	50-75% Grass cover, Fair, HSG B
28.809	95	Weighted Average
2.973		10.32% Pervious Area
25.836		89.68% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.7	100	0.0100	0.98		<b>Sheet Flow, 100 Ft Sheet flow</b> Smooth surfaces n= 0.011 P2= 2.80"
15.4	2,800	0.0033	3.02	3.71	<b>Pipe Channel, 2800 Ft Pipe Flow</b> 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.013 Concrete pipe, bends & connections
17.1	2,900	Total			

**Subcatchment B-EC: Site B Existing Conditions**

Hydrograph



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Site A+ Site B Existing  
Elmont-NY 24-hr S1 10-yr Rainfall=5.27"

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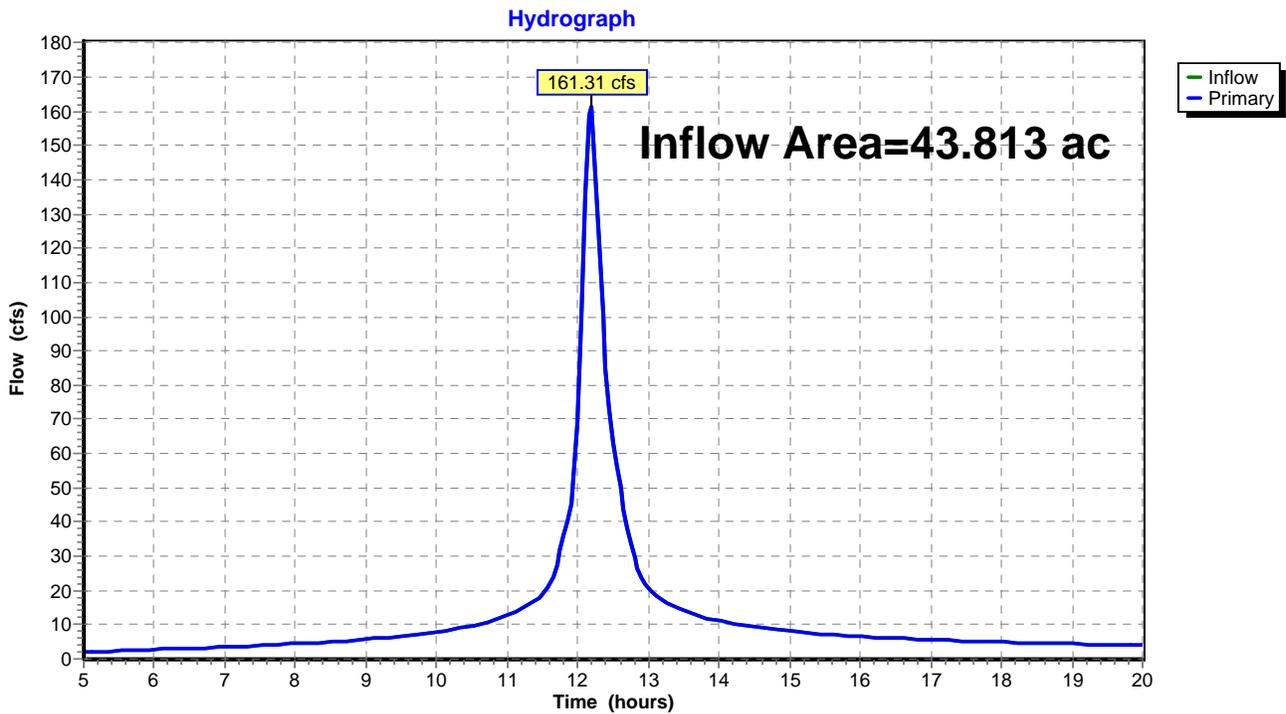
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**Summary for Link DD\_E: Downstream Discharge Existing**

Inflow Area = 43.813 ac, 84.93% Impervious, Inflow Depth > 4.14" for 10-yr event  
Inflow = 161.31 cfs @ 12.18 hrs, Volume= 15.100 af  
Primary = 161.31 cfs @ 12.18 hrs, Volume= 15.100 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

**Link DD\_E: Downstream Discharge Existing**



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Site A+ Site B Existing  
Elmont-NY 24-hr S1 100-yr Rainfall=8.25"

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**Summary for Subcatchment A-EC: Site A Existing Conditions**

Runoff = 86.28 cfs @ 12.17 hrs, Volume= 8.156 af, Depth> 6.52"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Elmont-NY 24-hr S1 100-yr Rainfall=8.25"

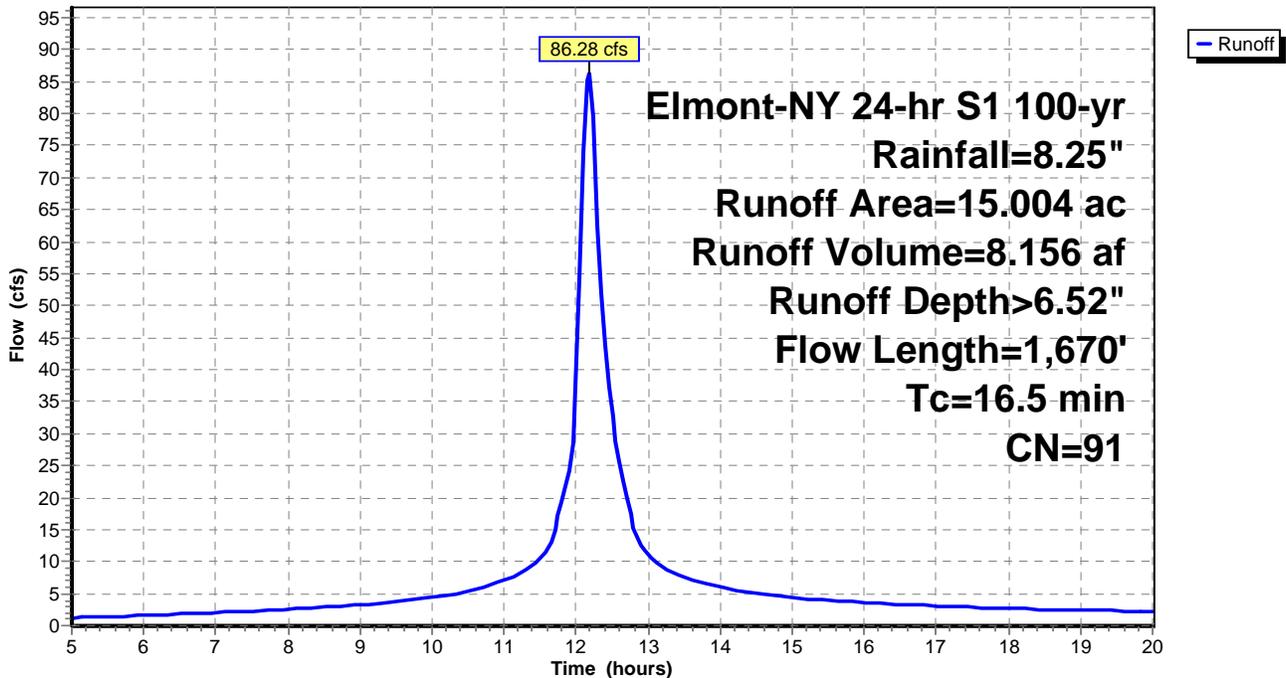
Area (ac)	CN	Description
* 11.239	98	Impervious (Roof and Pavement)
3.631	69	50-75% Grass cover, Fair, HSG B
* 0.134	98	Ponds/Pools
15.004	91	Weighted Average
3.631		24.20% Pervious Area
11.373		75.80% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.9	50	0.0100	0.10		<b>Sheet Flow, Grass Sheet flow</b> Grass: Short n= 0.150 P2= 2.80"
1.0	50	0.0100	0.85		<b>Sheet Flow, Pavement Sheet Flow</b> Smooth surfaces n= 0.011 P2= 2.80"
7.6	1,570	0.0050	3.46	4.24	<b>Pipe Channel, 1500 Ft Pipe flow</b> 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.014 Concrete pipe, bends & connections
16.5	1,670	Total			

**Subcatchment A-EC: Site A Existing Conditions**

Hydrograph



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Site A+ Site B Existing  
 Elmont-NY 24-hr S1 100-yr Rainfall=8.25"

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**Summary for Subcatchment B-EC: Site B Existing Conditions**

Runoff = 167.58 cfs @ 12.18 hrs, Volume= 16.496 af, Depth> 6.87"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
 Elmont-NY 24-hr S1 100-yr Rainfall=8.25"

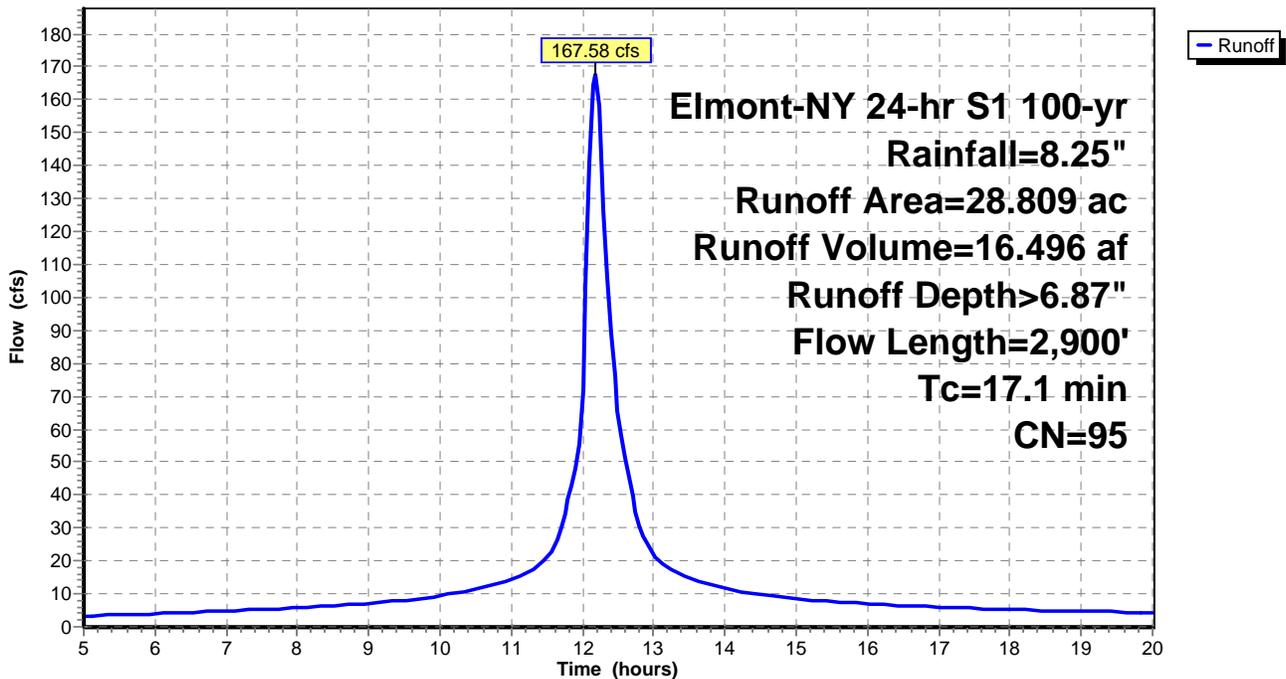
Area (ac)	CN	Description
* 25.836	98	Impervious (Rooftop/Pavement)
2.973	69	50-75% Grass cover, Fair, HSG B
28.809	95	Weighted Average
2.973		10.32% Pervious Area
25.836		89.68% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.7	100	0.0100	0.98		<b>Sheet Flow, 100 Ft Sheet flow</b> Smooth surfaces n= 0.011 P2= 2.80"
15.4	2,800	0.0033	3.02	3.71	<b>Pipe Channel, 2800 Ft Pipe Flow</b> 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.013 Concrete pipe, bends & connections
17.1	2,900	Total			

**Subcatchment B-EC: Site B Existing Conditions**

Hydrograph



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Site A+ Site B Existing

Elmont-NY 24-hr S1 100-yr Rainfall=8.25"

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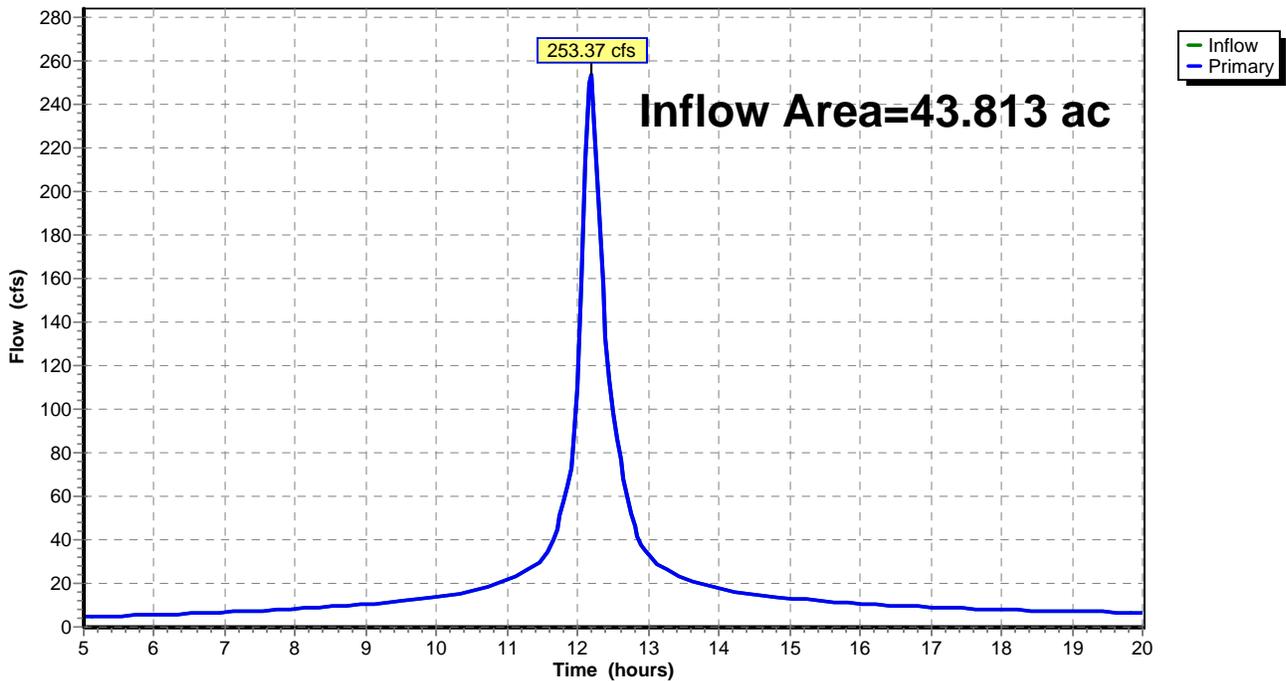
## Summary for Link DD\_E: Downstream Discharge Existing

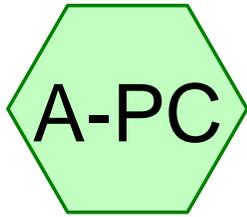
Inflow Area = 43.813 ac, 84.93% Impervious, Inflow Depth > 6.75" for 100-yr event  
Inflow = 253.37 cfs @ 12.18 hrs, Volume= 24.653 af  
Primary = 253.37 cfs @ 12.18 hrs, Volume= 24.653 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

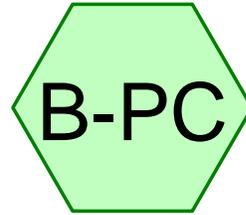
## Link DD\_E: Downstream Discharge Existing

Hydrograph

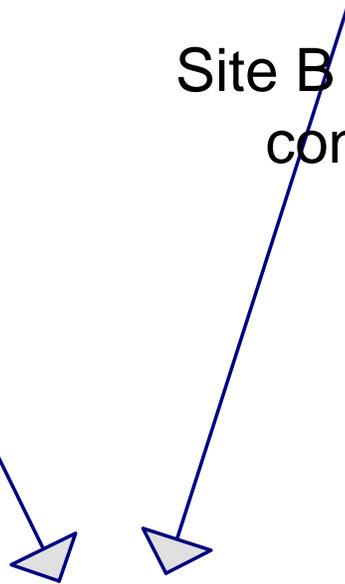




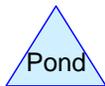
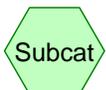
Site A Proposed  
Conditions



Site B Proposed  
conditions



Downstream Discharge  
Proposed



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**Area Listing (selected nodes)**

Area (acres)	CN	Description (subcatchment-numbers)
36.653	98	Impervious (A-PC, B-PC)
6.721	69	Landscaped (A-PC, B-PC)
0.458	98	Ponds (A-PC)
<b>43.832</b>	<b>94</b>	<b>TOTAL AREA</b>

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Site A+ Site B Proposed  
Elmont-NY 24-hr S1 1-yr Rainfall=2.77"

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**Summary for Subcatchment A-PC: Site A Proposed Conditions**

Runoff = 35.34 cfs @ 12.12 hrs, Volume= 2.684 af, Depth> 2.14"

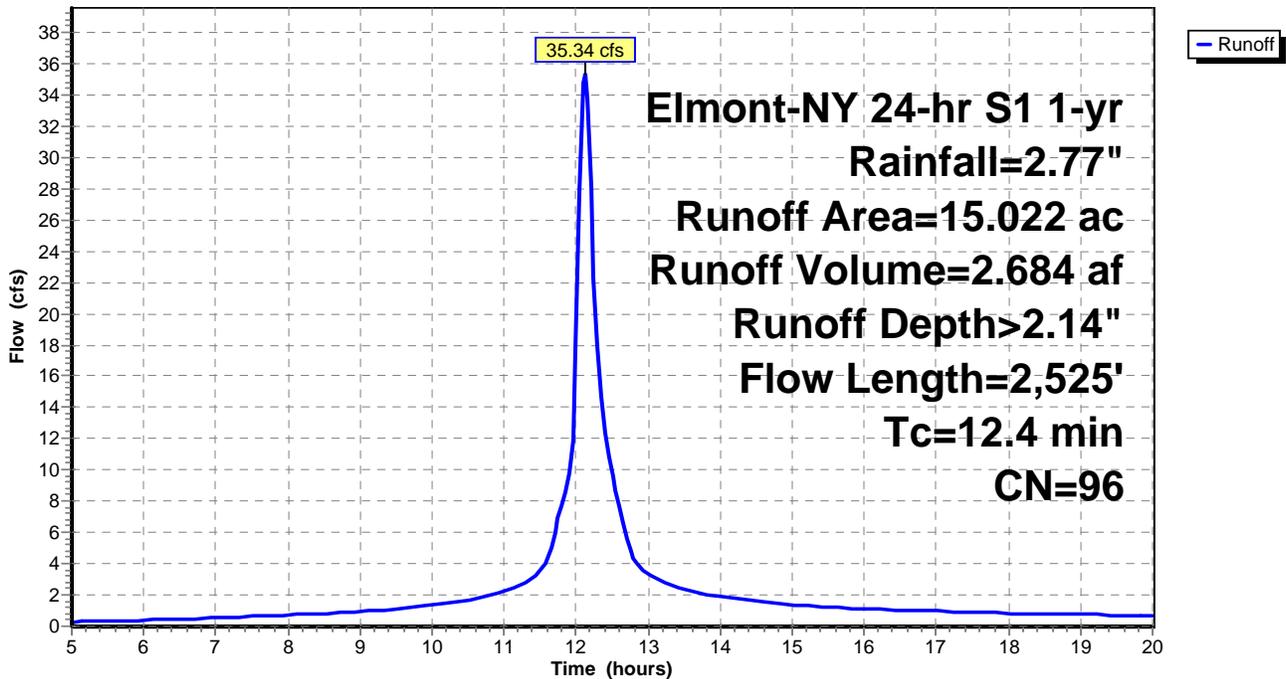
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Elmont-NY 24-hr S1 1-yr Rainfall=2.77"

Area (ac)	CN	Description
* 13.464	98	Impervious
* 1.100	69	Landscaped
* 0.458	98	Ponds
15.022	96	Weighted Average
1.100		7.32% Pervious Area
13.922		92.68% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	175	0.0100	3.38	0.66	<b>Pipe Channel, Roof Drain</b> 6.0" Round Area= 0.2 sf Perim= 1.6' r= 0.13' n= 0.011 Concrete pipe, straight & clean
11.5	2,350	0.0033	3.41	6.03	<b>Pipe Channel, New Storm Line</b> 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.013 Concrete pipe, bends & connections
12.4	2,525	Total			

**Subcatchment A-PC: Site A Proposed Conditions**

Hydrograph



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Site A+ Site B Proposed  
Elmont-NY 24-hr S1 1-yr Rainfall=2.77"

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**Summary for Subcatchment B-PC: Site B Proposed conditions**

Runoff = 47.94 cfs @ 12.21 hrs, Volume= 4.293 af, Depth> 1.79"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Elmont-NY 24-hr S1 1-yr Rainfall=2.77"

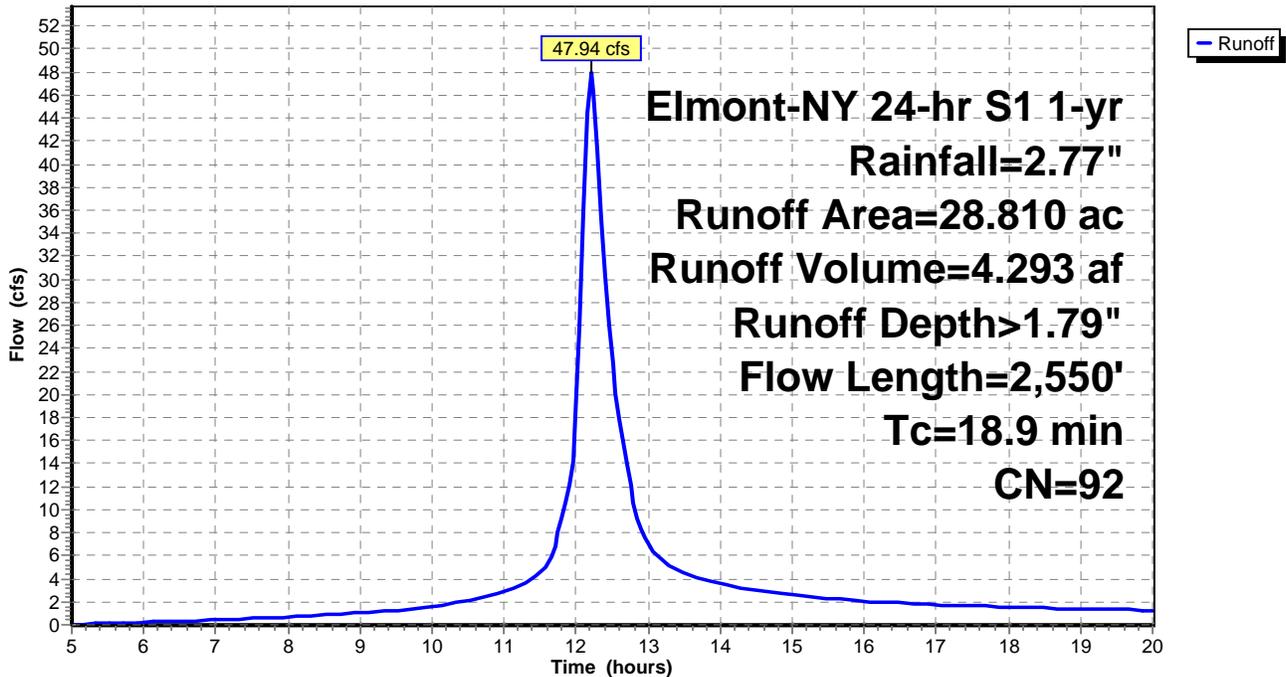
Area (ac)	CN	Description
* 23.189	98	Impervious
* 5.621	69	Landscaped
28.810	92	Weighted Average
5.621		19.51% Pervious Area
23.189		80.49% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.7	50	0.0150	0.12		<b>Sheet Flow, Grass to Drain</b> Grass: Short n= 0.150 P2= 2.80"
12.2	2,500	0.0033	3.41	6.03	<b>Pipe Channel, Pipe</b> 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.013 Concrete pipe, bends & connections
18.9	2,550	Total			

**Subcatchment B-PC: Site B Proposed conditions**

Hydrograph



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Site A+ Site B Proposed

Elmont-NY 24-hr S1 1-yr Rainfall=2.77"

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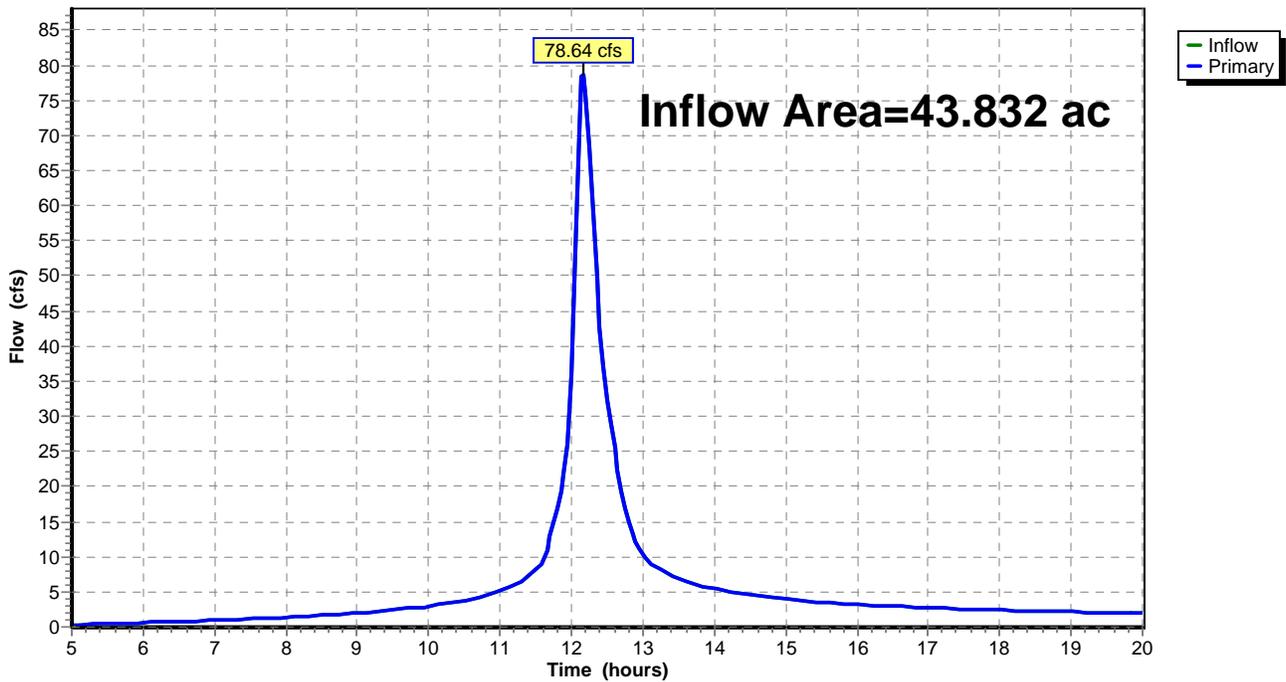
## Summary for Link DD\_P: Downstream Discharge Proposed

Inflow Area = 43.832 ac, 84.67% Impervious, Inflow Depth > 1.91" for 1-yr event  
Inflow = 78.64 cfs @ 12.16 hrs, Volume= 6.977 af  
Primary = 78.64 cfs @ 12.16 hrs, Volume= 6.977 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

## Link DD\_P: Downstream Discharge Proposed

Hydrograph



**N17425\_factored\_oldRainfall**

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Site A+ Site B Proposed  
Elmont-NY 24-hr S1 2-yr Rainfall=3.40"

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**Summary for Subcatchment A-PC: Site A Proposed Conditions**

Runoff = 43.28 cfs @ 12.12 hrs, Volume= 3.382 af, Depth> 2.70"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Elmont-NY 24-hr S1 2-yr Rainfall=3.40"

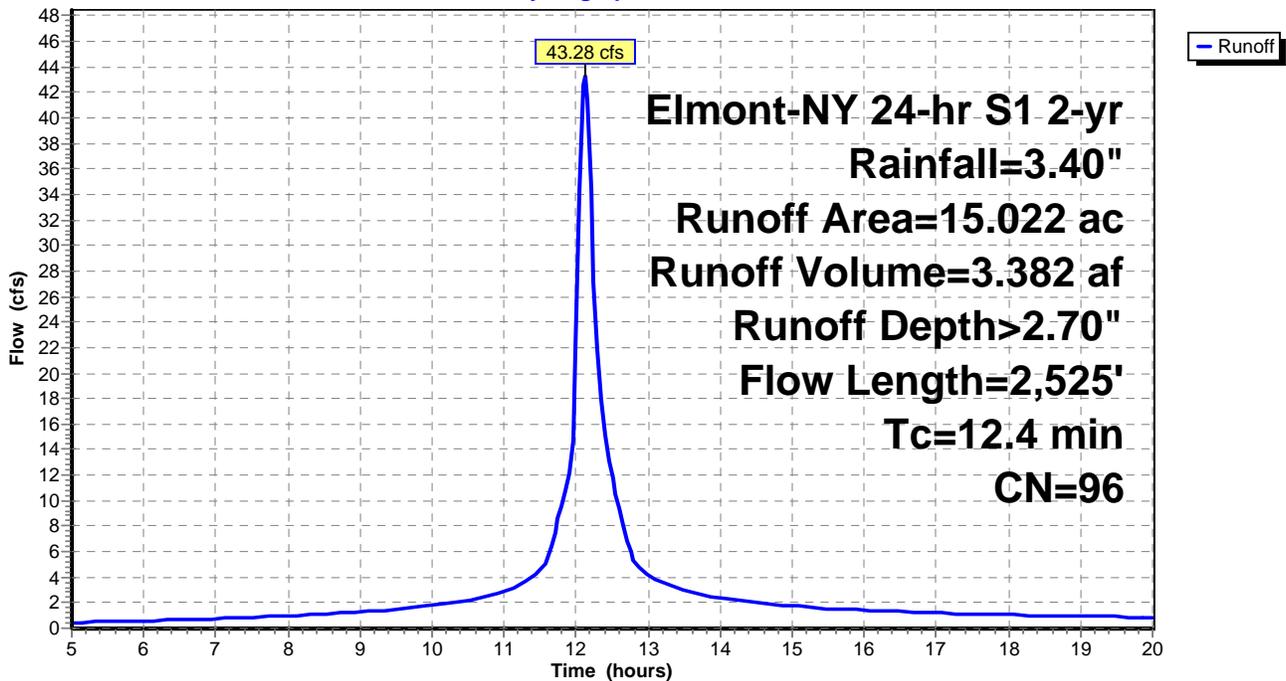
Area (ac)	CN	Description
* 13.464	98	Impervious
* 1.100	69	Landscaped
* 0.458	98	Ponds
15.022	96	Weighted Average
1.100		7.32% Pervious Area
13.922		92.68% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	175	0.0100	3.38	0.66	<b>Pipe Channel, Roof Drain</b> 6.0" Round Area= 0.2 sf Perim= 1.6' r= 0.13' n= 0.011 Concrete pipe, straight & clean
11.5	2,350	0.0033	3.41	6.03	<b>Pipe Channel, New Storm Line</b> 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.013 Concrete pipe, bends & connections
12.4	2,525	Total			

**Subcatchment A-PC: Site A Proposed Conditions**

Hydrograph



**N17425\_factored\_oldRainfall**

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Site A+ Site B Proposed  
Elmont-NY 24-hr S1 2-yr Rainfall=3.40"

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**Summary for Subcatchment B-PC: Site B Proposed conditions**

Runoff = 60.79 cfs @ 12.21 hrs, Volume= 5.612 af, Depth> 2.34"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Elmont-NY 24-hr S1 2-yr Rainfall=3.40"

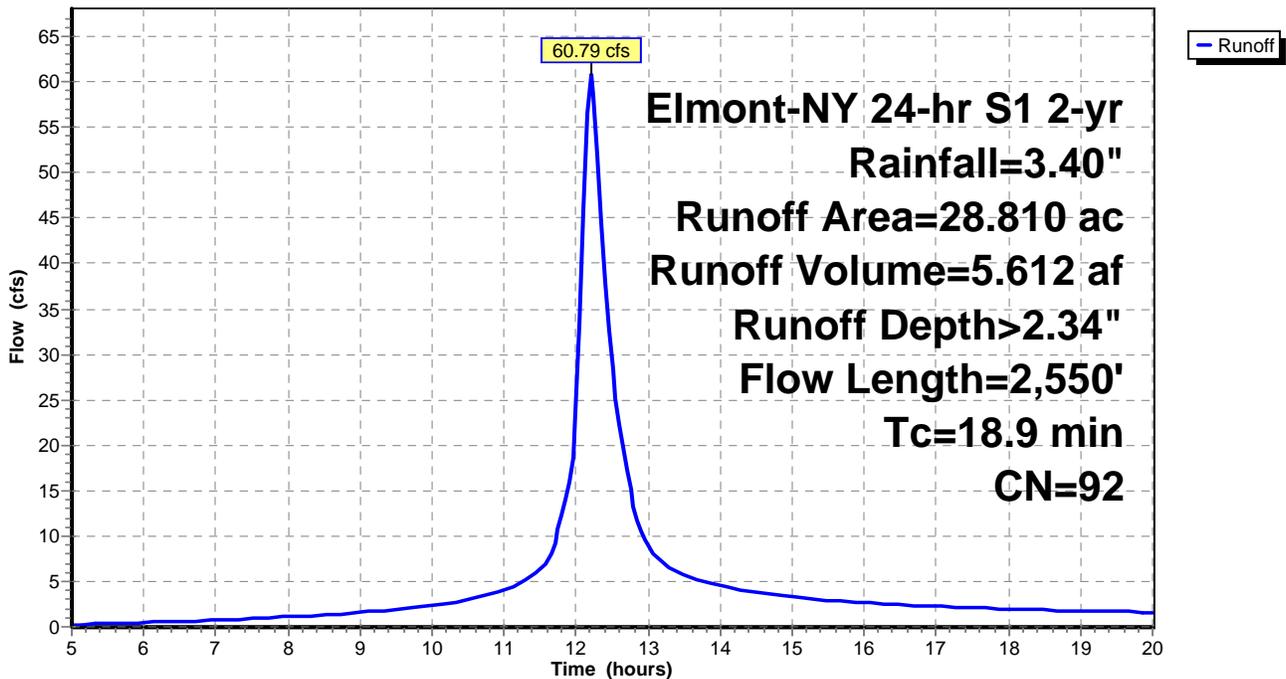
Area (ac)	CN	Description
* 23.189	98	Impervious
* 5.621	69	Landscaped
28.810	92	Weighted Average
5.621		19.51% Pervious Area
23.189		80.49% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.7	50	0.0150	0.12		<b>Sheet Flow, Grass to Drain</b> Grass: Short n= 0.150 P2= 2.80"
12.2	2,500	0.0033	3.41	6.03	<b>Pipe Channel, Pipe</b> 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.013 Concrete pipe, bends & connections
18.9	2,550	Total			

**Subcatchment B-PC: Site B Proposed conditions**

Hydrograph



# N17425\_factored\_oldRainfall

Prepared by Bohler Engineering

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Site A+ Site B Proposed

Elmont-NY 24-hr S1 2-yr Rainfall=3.40"

Printed 11/13/2018

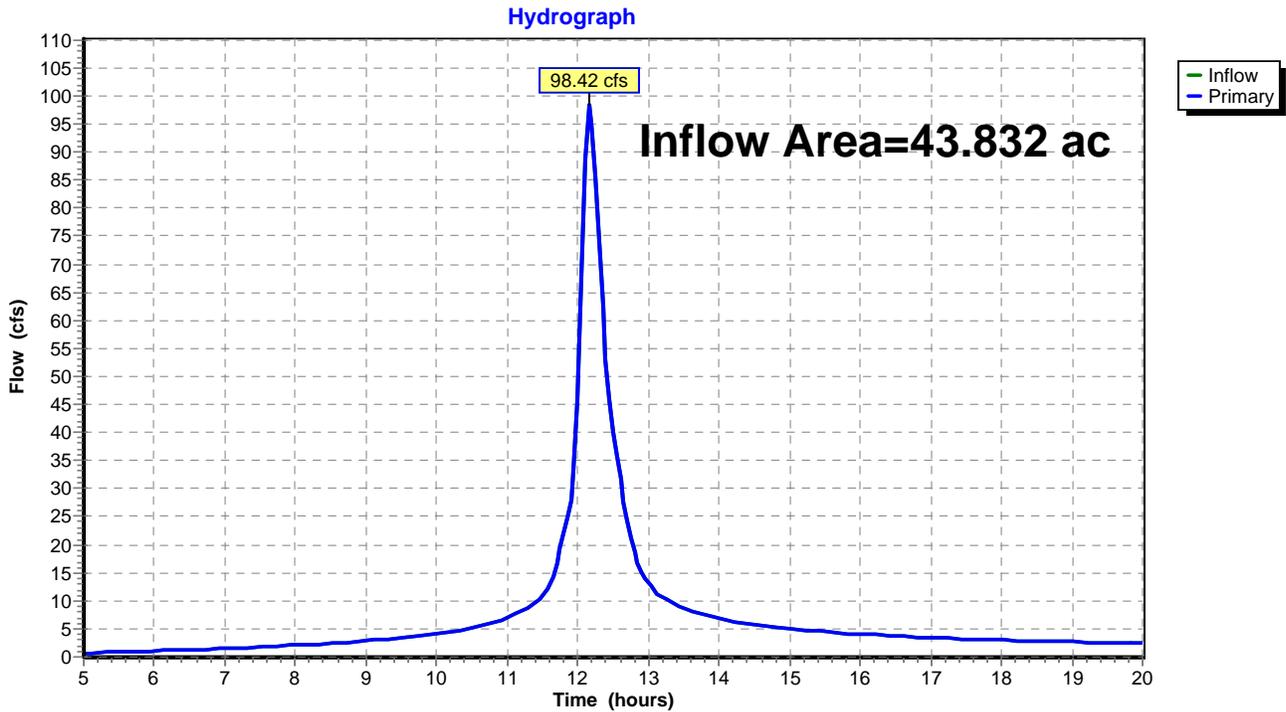
Page 8

## Summary for Link DD\_P: Downstream Discharge Proposed

Inflow Area = 43.832 ac, 84.67% Impervious, Inflow Depth > 2.46" for 2-yr event  
Inflow = 98.42 cfs @ 12.16 hrs, Volume= 8.994 af  
Primary = 98.42 cfs @ 12.16 hrs, Volume= 8.994 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

## Link DD\_P: Downstream Discharge Proposed



**N17425\_factored\_oldRainfall**

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Site A+ Site B Proposed  
 Elmont-NY 24-hr S1 10-yr Rainfall=5.27"

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**Summary for Subcatchment A-PC: Site A Proposed Conditions**

Runoff = 66.50 cfs @ 12.12 hrs, Volume= 5.443 af, Depth> 4.35"

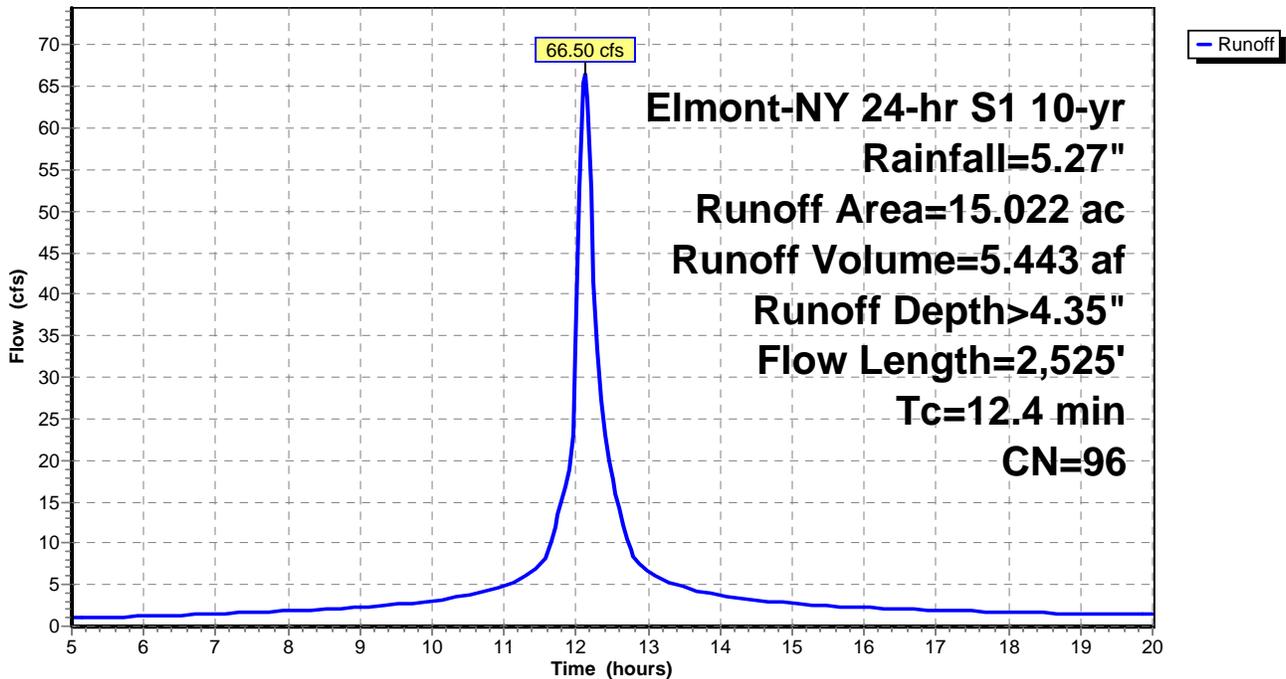
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
 Elmont-NY 24-hr S1 10-yr Rainfall=5.27"

Area (ac)	CN	Description
* 13.464	98	Impervious
* 1.100	69	Landscaped
* 0.458	98	Ponds
15.022	96	Weighted Average
1.100		7.32% Pervious Area
13.922		92.68% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	175	0.0100	3.38	0.66	<b>Pipe Channel, Roof Drain</b> 6.0" Round Area= 0.2 sf Perim= 1.6' r= 0.13' n= 0.011 Concrete pipe, straight & clean
11.5	2,350	0.0033	3.41	6.03	<b>Pipe Channel, New Storm Line</b> 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.013 Concrete pipe, bends & connections
12.4	2,525	Total			

**Subcatchment A-PC: Site A Proposed Conditions**

Hydrograph



**N17425\_factored\_oldRainfall**

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Site A+ Site B Proposed  
 Elmont-NY 24-hr S1 10-yr Rainfall=5.27"

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**Summary for Subcatchment B-PC: Site B Proposed conditions**

Runoff = 98.25 cfs @ 12.21 hrs, Volume= 9.570 af, Depth> 3.99"

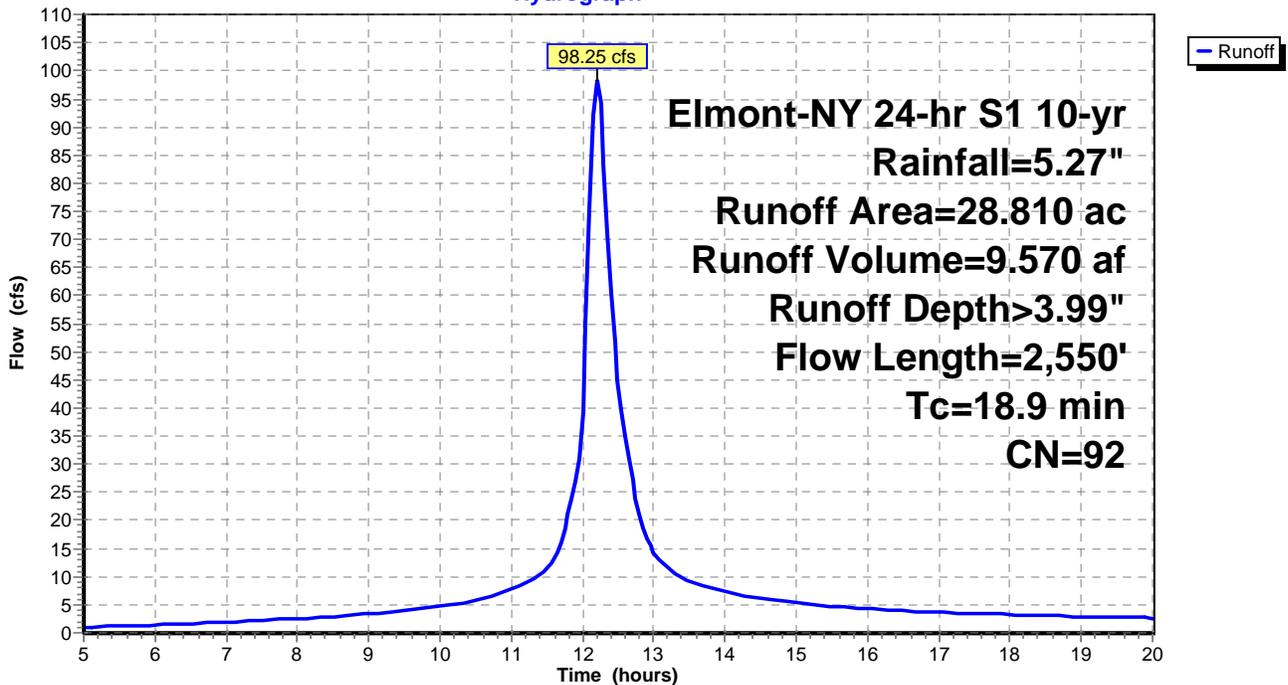
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
 Elmont-NY 24-hr S1 10-yr Rainfall=5.27"

Area (ac)	CN	Description
* 23.189	98	Impervious
* 5.621	69	Landscaped
28.810	92	Weighted Average
5.621		19.51% Pervious Area
23.189		80.49% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.7	50	0.0150	0.12		<b>Sheet Flow, Grass to Drain</b> Grass: Short n= 0.150 P2= 2.80"
12.2	2,500	0.0033	3.41	6.03	<b>Pipe Channel, Pipe</b> 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.013 Concrete pipe, bends & connections
18.9	2,550	Total			

**Subcatchment B-PC: Site B Proposed conditions**

Hydrograph



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Site A+ Site B Proposed  
Elmont-NY 24-hr S1 10-yr Rainfall=5.27"

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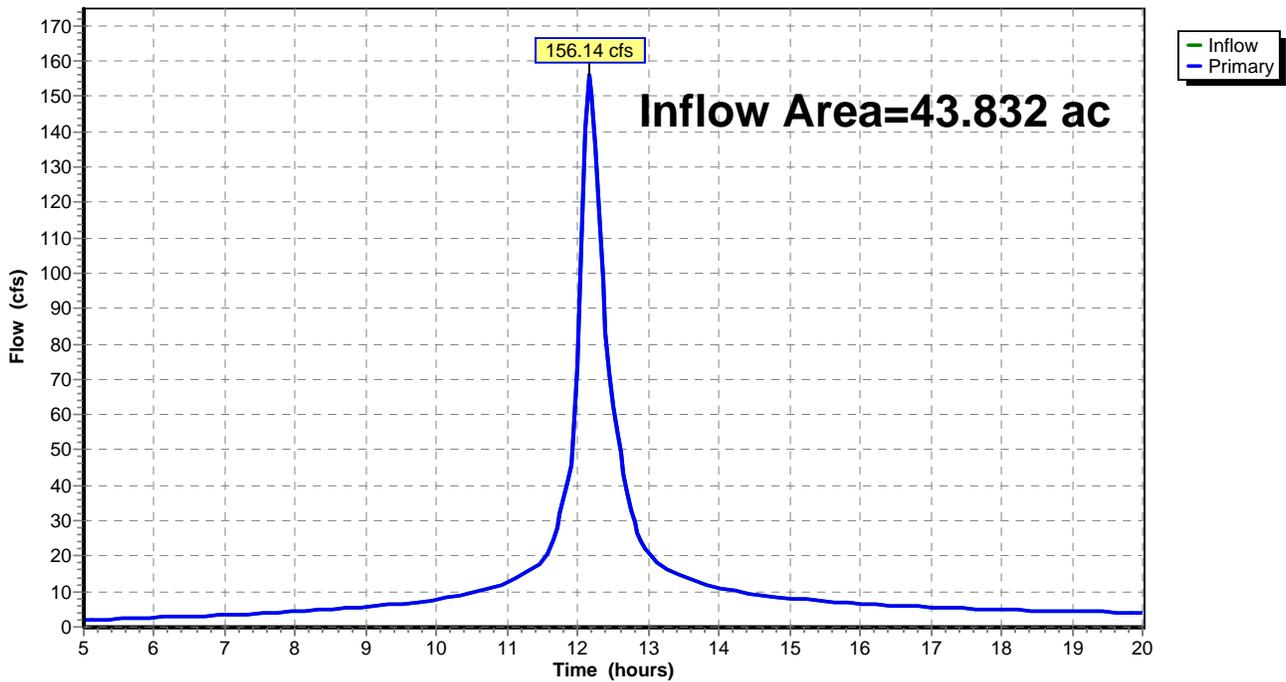
## Summary for Link DD\_P: Downstream Discharge Proposed

Inflow Area = 43.832 ac, 84.67% Impervious, Inflow Depth > 4.11" for 10-yr event  
Inflow = 156.14 cfs @ 12.16 hrs, Volume= 15.013 af  
Primary = 156.14 cfs @ 12.16 hrs, Volume= 15.013 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

## Link DD\_P: Downstream Discharge Proposed

Hydrograph



**N17425\_factored\_oldRainfall**

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Site A+ Site B Proposed  
Elmont-NY 24-hr S1 100-yr Rainfall=8.25"

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**Summary for Subcatchment A-PC: Site A Proposed Conditions**

Runoff = 102.78 cfs @ 12.12 hrs, Volume= 8.694 af, Depth> 6.95"

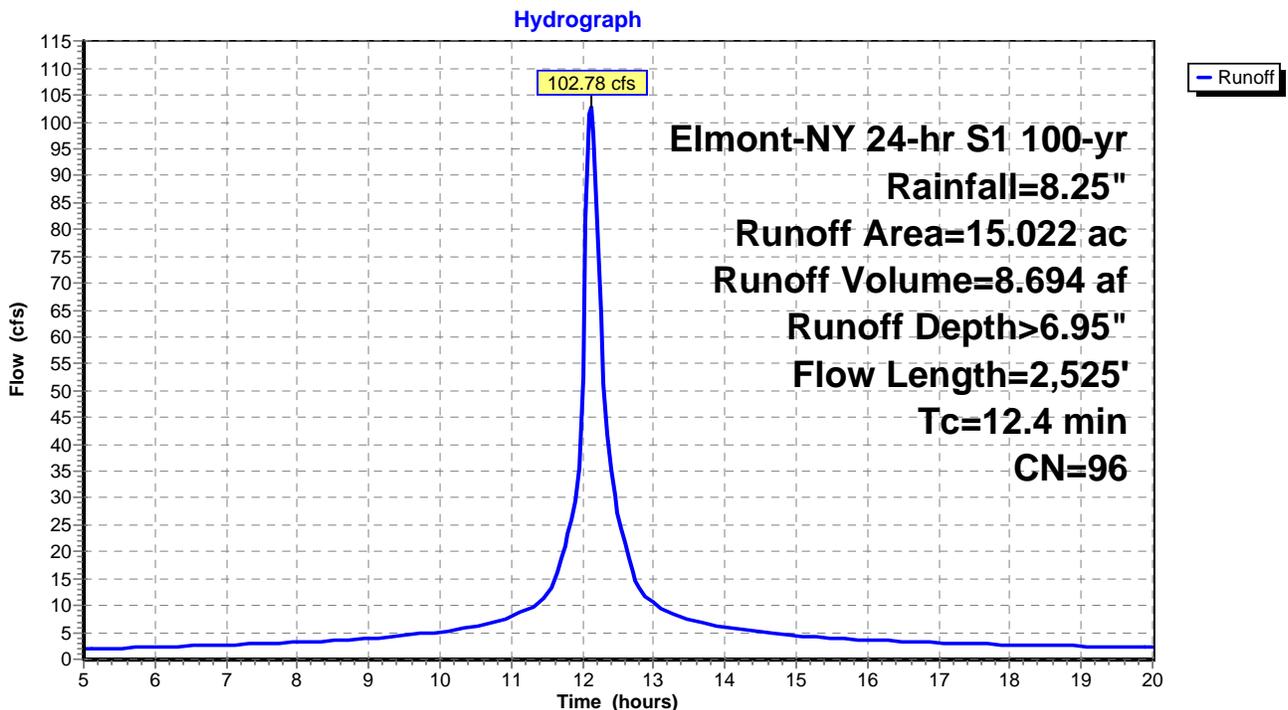
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Elmont-NY 24-hr S1 100-yr Rainfall=8.25"

Area (ac)	CN	Description
* 13.464	98	Impervious
* 1.100	69	Landscaped
* 0.458	98	Ponds
15.022	96	Weighted Average
1.100		7.32% Pervious Area
13.922		92.68% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	175	0.0100	3.38	0.66	<b>Pipe Channel, Roof Drain</b> 6.0" Round Area= 0.2 sf Perim= 1.6' r= 0.13' n= 0.011 Concrete pipe, straight & clean
11.5	2,350	0.0033	3.41	6.03	<b>Pipe Channel, New Storm Line</b> 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.013 Concrete pipe, bends & connections
12.4	2,525	Total			

**Subcatchment A-PC: Site A Proposed Conditions**



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Site A+ Site B Proposed  
 Elmont-NY 24-hr S1 100-yr Rainfall=8.25"

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**Summary for Subcatchment B-PC: Site B Proposed conditions**

Runoff = 156.19 cfs @ 12.20 hrs, Volume= 15.881 af, Depth> 6.61"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
 Elmont-NY 24-hr S1 100-yr Rainfall=8.25"

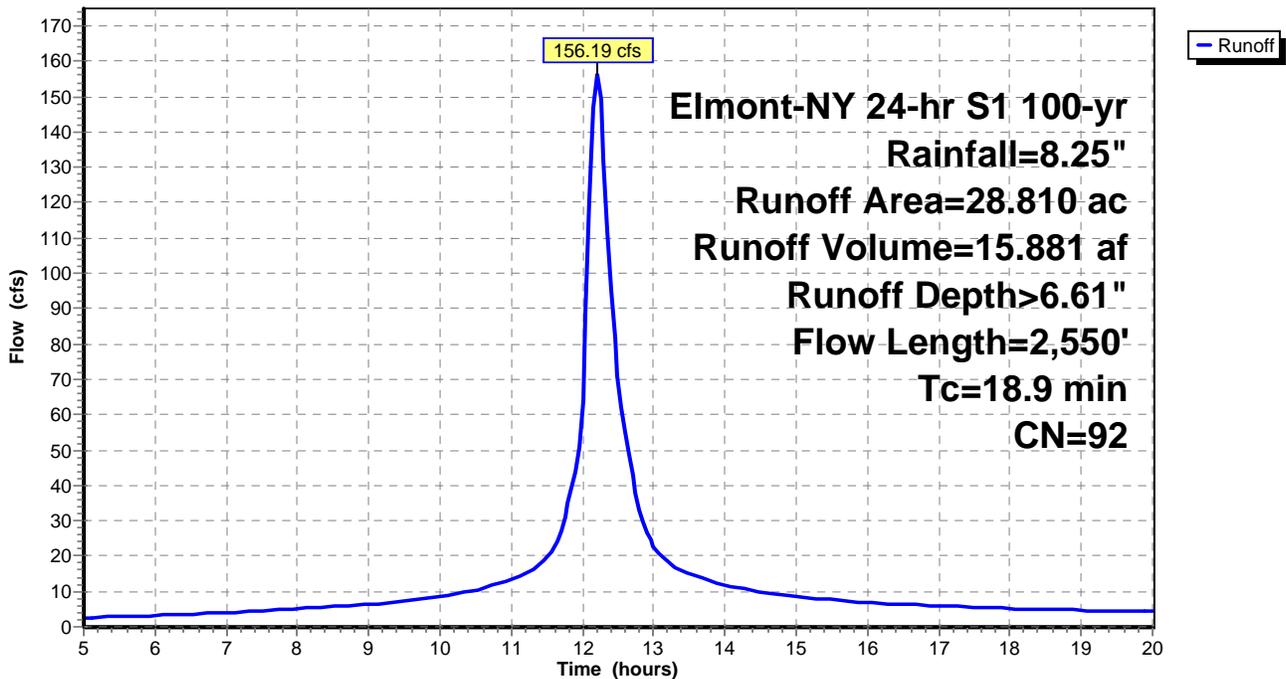
Area (ac)	CN	Description
* 23.189	98	Impervious
* 5.621	69	Landscaped
28.810	92	Weighted Average
5.621		19.51% Pervious Area
23.189		80.49% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.7	50	0.0150	0.12		<b>Sheet Flow, Grass to Drain</b> Grass: Short n= 0.150 P2= 2.80"
12.2	2,500	0.0033	3.41	6.03	<b>Pipe Channel, Pipe</b> 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.013 Concrete pipe, bends & connections
18.9	2,550	Total			

**Subcatchment B-PC: Site B Proposed conditions**

Hydrograph



# N17425\_factored\_oldRainfall

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Site A+ Site B Proposed

Elmont-NY 24-hr S1 100-yr Rainfall=8.25"

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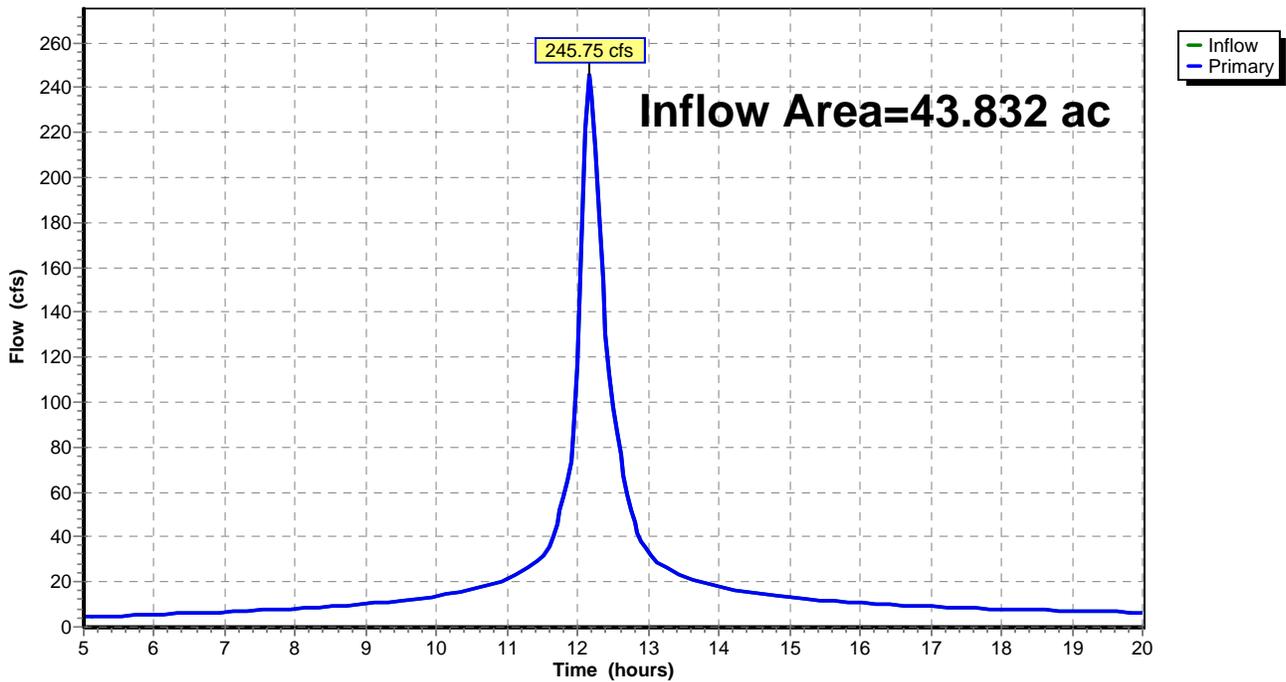
## Summary for Link DD\_P: Downstream Discharge Proposed

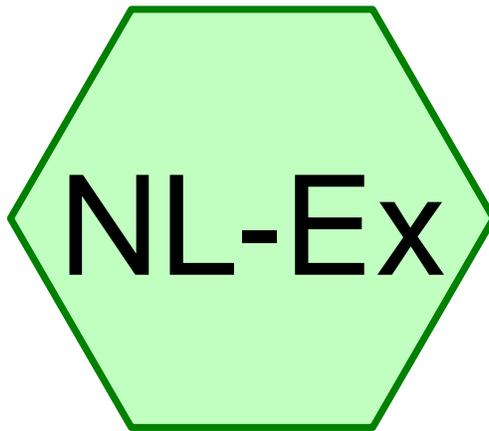
Inflow Area = 43.832 ac, 84.67% Impervious, Inflow Depth > 6.73" for 100-yr event  
Inflow = 245.75 cfs @ 12.16 hrs, Volume= 24.575 af  
Primary = 245.75 cfs @ 12.16 hrs, Volume= 24.575 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

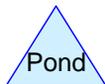
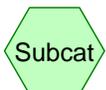
## Link DD\_P: Downstream Discharge Proposed

Hydrograph





# Existing North Lot



## Routing Diagram for N17425

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Page 2

**Area Listing (selected nodes)**

Area (acres)	CN	Description (subcatchment-numbers)
3.050	68	<50% Grass cover, Poor, HSG A (NL-Ex)
22.230	96	Gravel surface, HSG A (NL-Ex)
<b>25.280</b>	<b>93</b>	<b>TOTAL AREA</b>

N17425

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North Lot Existing  
Elmont-NY 24-hr S1 1-yr Rainfall=2.77"

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### Summary for Subcatchment NL-Ex: Existing North Lot

Runoff = 55.06 cfs @ 12.11 hrs, Volume= 3.958 af, Depth> 1.88"

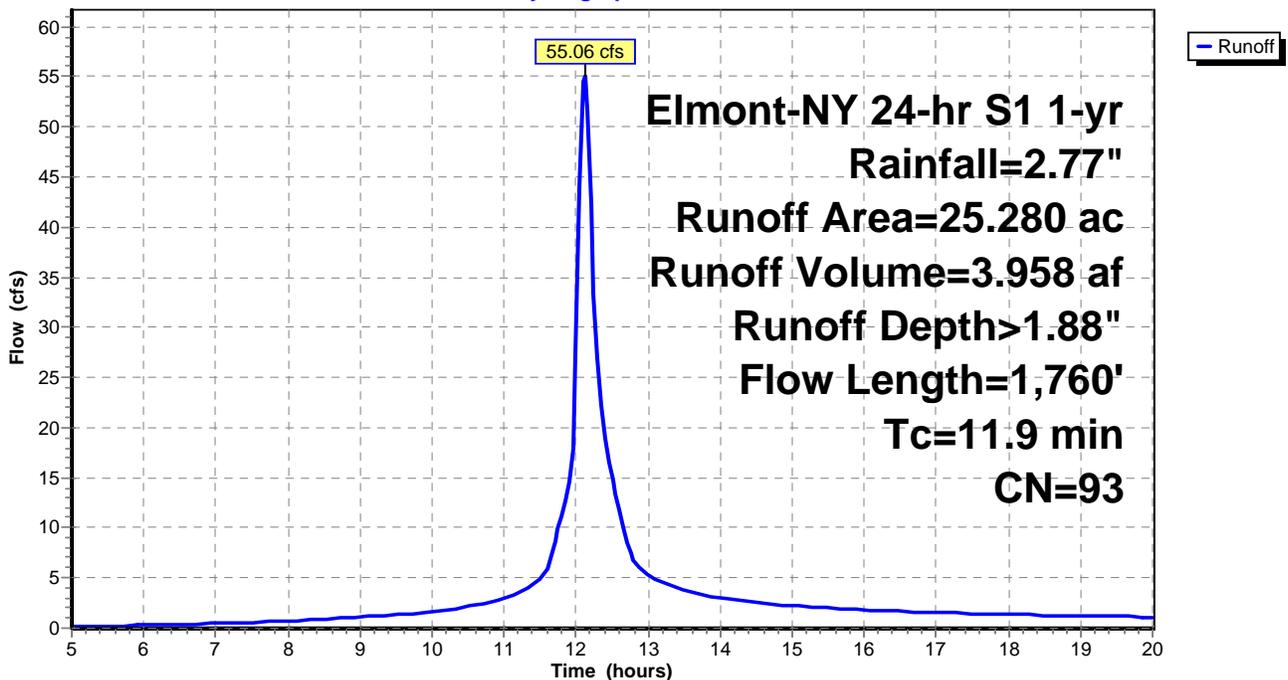
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Elmont-NY 24-hr S1 1-yr Rainfall=2.77"

Area (ac)	CN	Description
22.230	96	Gravel surface, HSG A
3.050	68	<50% Grass cover, Poor, HSG A
25.280	93	Weighted Average
25.280		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.0	300	0.0110	1.26		<b>Sheet Flow, Sheet</b> Smooth surfaces n= 0.011 P2= 2.80"
7.1	1,360	0.0050	3.21	2.52	<b>Pipe Channel, RCP_Round 12"</b> 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Concrete pipe, bends & connections
0.8	100	0.0100	2.03		<b>Shallow Concentrated Flow,</b> Paved Kv= 20.3 fps
11.9	1,760	Total			

### Subcatchment NL-Ex: Existing North Lot

Hydrograph



**N17425**

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North Lot Existing  
Elmont-NY 24-hr S1 2-yr Rainfall=3.40"

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### Summary for Subcatchment NL-Ex: Existing North Lot

Runoff = 69.16 cfs @ 12.11 hrs, Volume= 5.125 af, Depth> 2.43"

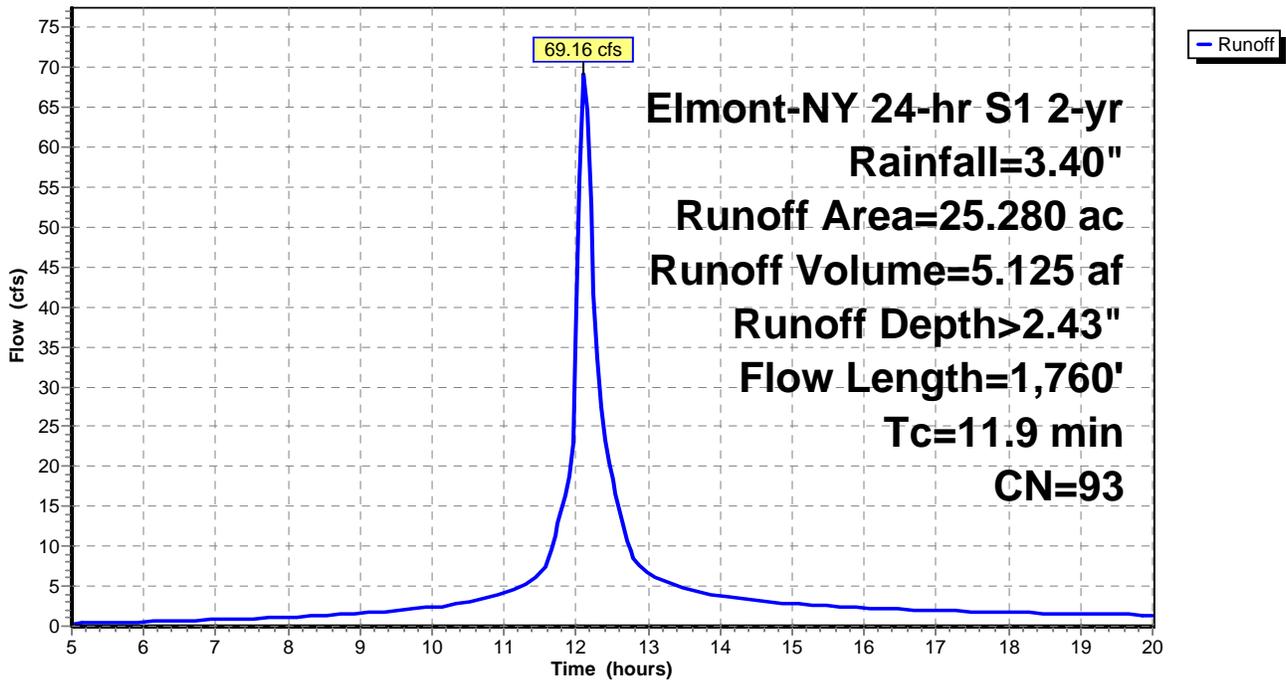
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Elmont-NY 24-hr S1 2-yr Rainfall=3.40"

Area (ac)	CN	Description
22.230	96	Gravel surface, HSG A
3.050	68	<50% Grass cover, Poor, HSG A
25.280	93	Weighted Average
25.280		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.0	300	0.0110	1.26		<b>Sheet Flow, Sheet</b> Smooth surfaces n= 0.011 P2= 2.80"
7.1	1,360	0.0050	3.21	2.52	<b>Pipe Channel, RCP_Round 12"</b> 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Concrete pipe, bends & connections
0.8	100	0.0100	2.03		<b>Shallow Concentrated Flow,</b> Paved Kv= 20.3 fps
11.9	1,760	Total			

### Subcatchment NL-Ex: Existing North Lot

Hydrograph



**N17425**

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North Lot Existing  
Elmont-NY 24-hr S1 10-yr Rainfall=5.27"

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### Summary for Subcatchment NL-Ex: Existing North Lot

Runoff = 110.24 cfs @ 12.11 hrs, Volume= 8.608 af, Depth> 4.09"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Elmont-NY 24-hr S1 10-yr Rainfall=5.27"

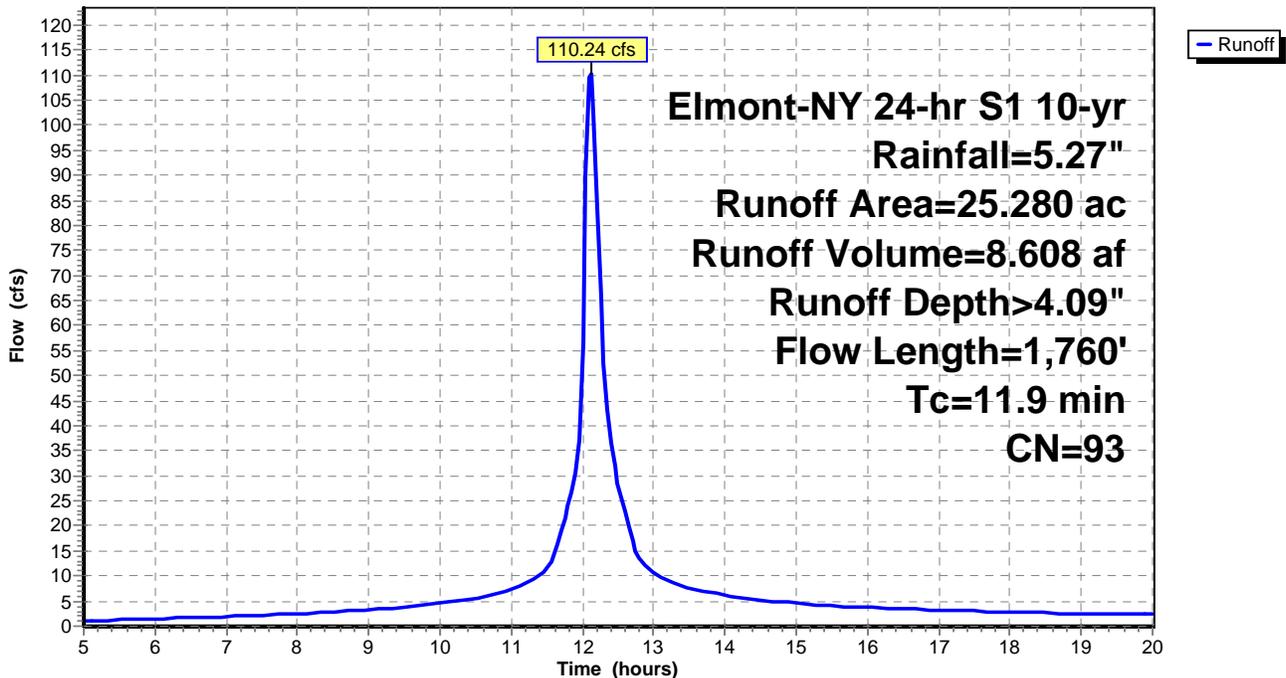
Area (ac)	CN	Description
22.230	96	Gravel surface, HSG A
3.050	68	<50% Grass cover, Poor, HSG A
25.280	93	Weighted Average
25.280		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.0	300	0.0110	1.26		<b>Sheet Flow, Sheet</b> Smooth surfaces n= 0.011 P2= 2.80"
7.1	1,360	0.0050	3.21	2.52	<b>Pipe Channel, RCP_Round 12"</b> 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Concrete pipe, bends & connections
0.8	100	0.0100	2.03		<b>Shallow Concentrated Flow,</b> Paved Kv= 20.3 fps
11.9	1,760	Total			

### Subcatchment NL-Ex: Existing North Lot

Hydrograph



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North Lot Existing  
Elmont-NY 24-hr S1 100-yr Rainfall=8.25"

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### Summary for Subcatchment NL-Ex: Existing North Lot

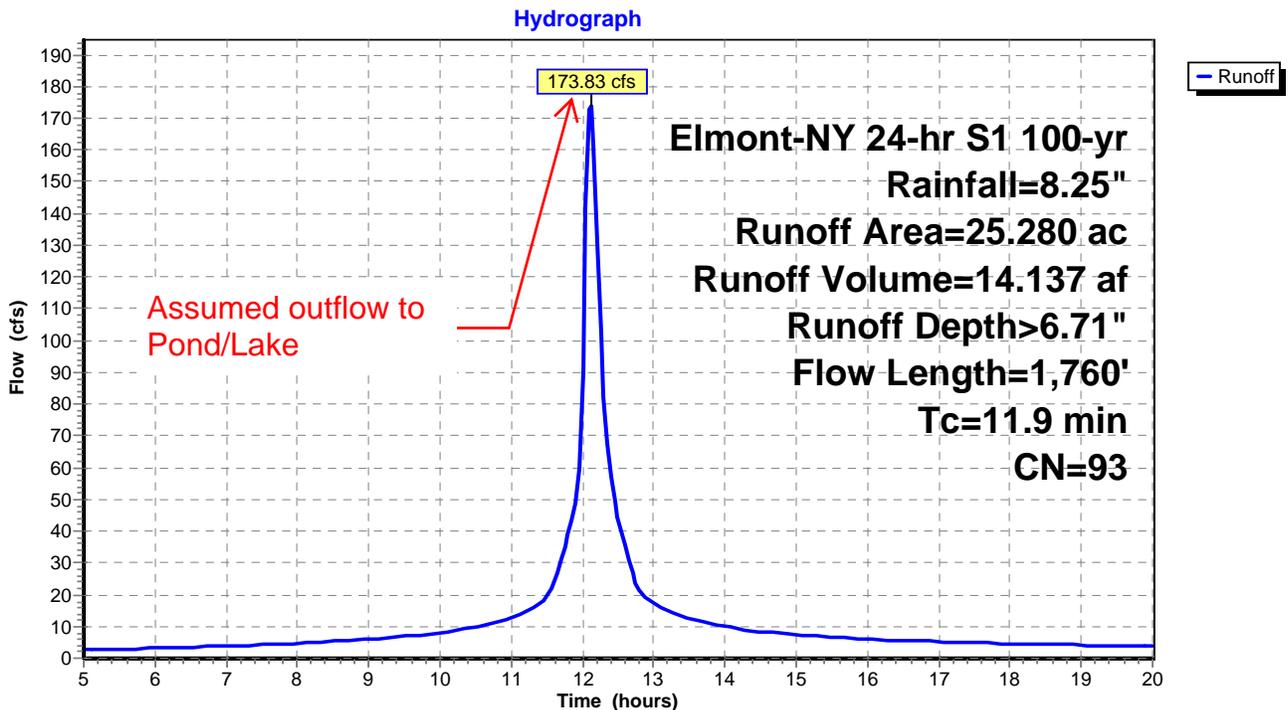
Runoff = 173.83 cfs @ 12.11 hrs, Volume= 14.137 af, Depth> 6.71"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Elmont-NY 24-hr S1 100-yr Rainfall=8.25"

Area (ac)	CN	Description
22.230	96	Gravel surface, HSG A
3.050	68	<50% Grass cover, Poor, HSG A
25.280	93	Weighted Average
25.280		100.00% Pervious Area

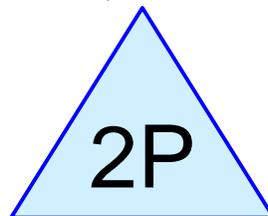
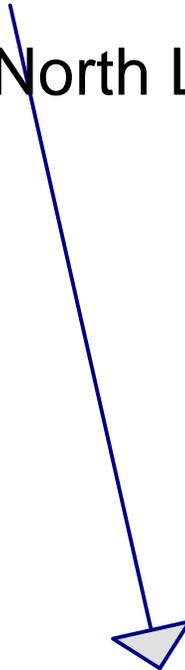
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.0	300	0.0110	1.26		<b>Sheet Flow, Sheet</b> Smooth surfaces n= 0.011 P2= 2.80"
7.1	1,360	0.0050	3.21	2.52	<b>Pipe Channel, RCP_Round 12"</b> 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Concrete pipe, bends & connections
0.8	100	0.0100	2.03		<b>Shallow Concentrated Flow,</b> Paved Kv= 20.3 fps
11.9	1,760	Total			

### Subcatchment NL-Ex: Existing North Lot



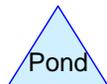
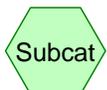


Proposed North Lot



Drywells

(24) 12' DIA 15' EFF  
DEPTH DRYWELLS



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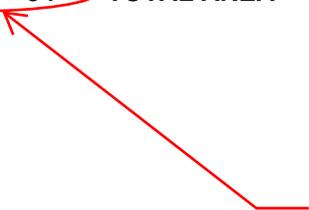
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Page 2

**Area Listing (selected nodes)**

Area (acres)	CN	Description (subcatchment-numbers)
3.700	68	<50% Grass cover, Poor, HSG A (NL-Prop)
23.570	98	Pavement (NL-Prop)
<b>27.270</b>	<b>94</b>	<b>TOTAL AREA</b>

Increase in Area due to proposed change to grading. Also results in increased Weighted Curve Number



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North Lot Proposed  
Elmont-NY 24-hr S1 1-yr Rainfall=2.77"

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### Summary for Subcatchment NL-Prop: Proposed North Lot

Runoff = 64.37 cfs @ 12.10 hrs, Volume= 4.470 af, Depth> 1.97"

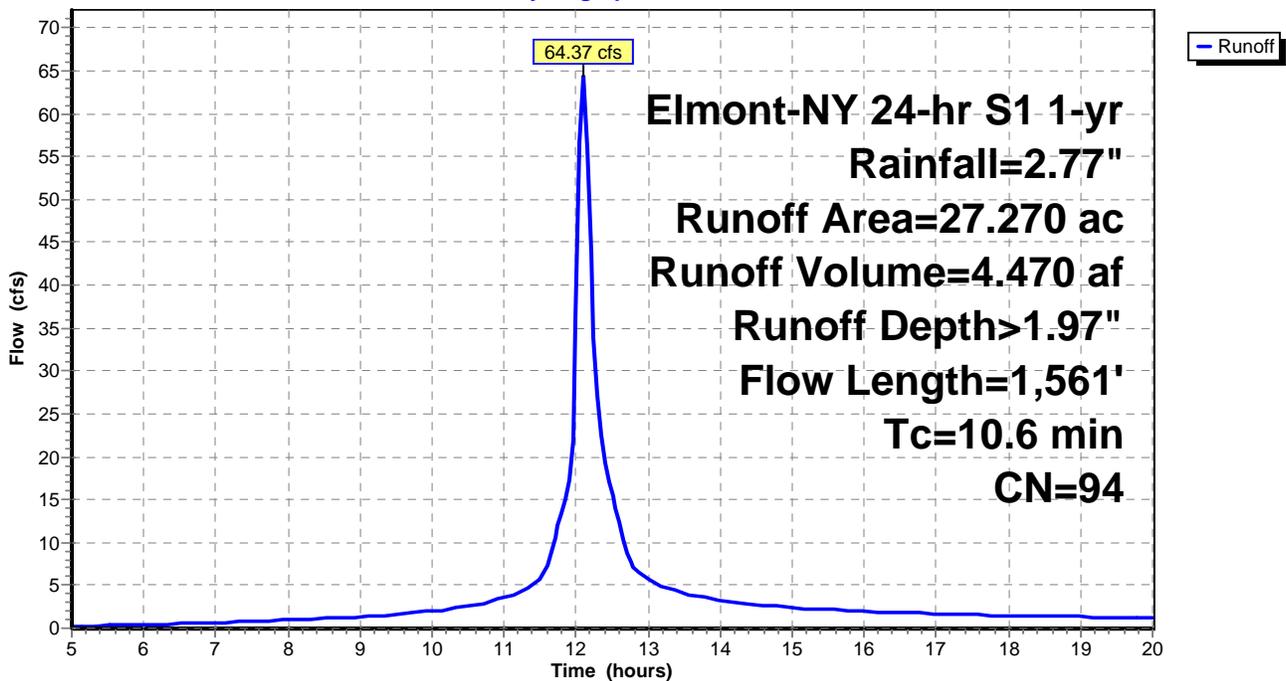
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Elmont-NY 24-hr S1 1-yr Rainfall=2.77"

Area (ac)	CN	Description
* 23.570	98	Pavement
3.700	68	<50% Grass cover, Poor, HSG A
27.270	94	Weighted Average
3.700		13.57% Pervious Area
23.570		86.43% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	25	0.0200	0.98		<b>Sheet Flow, 25</b> Smooth surfaces n= 0.011 P2= 2.80"
1.8	286	0.0033	2.61	2.05	<b>Pipe Channel, RCP_Round 12"</b> 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Concrete pipe, bends & connections
8.4	1,250	0.0150	2.49		<b>Shallow Concentrated Flow,</b> Paved Kv= 20.3 fps
10.6	1,561	Total			

### Subcatchment NL-Prop: Proposed North Lot

Hydrograph



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North Lot Proposed

Elmont-NY 24-hr S1 1-yr Rainfall=2.77"

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### Summary for Pond 2P: Drywells

Inflow Area = 27.270 ac, 86.43% Impervious, Inflow Depth > 1.97" for 1-yr event  
 Inflow = 64.37 cfs @ 12.10 hrs, Volume= 4.470 af  
 Outflow = 52.65 cfs @ 12.17 hrs, Volume= 4.462 af, Atten= 18%, Lag= 4.0 min  
 Discarded = 52.65 cfs @ 12.17 hrs, Volume= 4.462 af  
 Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs / 2  
 Peak Elev= 62.82' @ 12.17 hrs Surf.Area= 0.062 ac Storage= 0.363 af

Plug-Flow detention time= 5.1 min calculated for 4.446 af (99% of inflow)  
 Center-of-Mass det. time= 4.2 min ( 768.1 - 763.9 )

Volume	Invert	Avail.Storage	Storage Description
#1	57.00'	1.246 af	<b>12.00'D x 20.00'H Vertical Cone/Cylinder x 24</b>

Device	Routing	Invert	Outlet Devices
#1	Discarded	57.00'	<b>18.000 in/hr Exfiltration X 24.00 over Wetted area from 57.00' - 72.00'</b> Excluded Wetted area = 0.062 ac
#2	Primary	70.10'	<b>24.0" Round Culvert</b> L= 284.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 70.10' / 67.00' S= 0.0109 1' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 3.14 sf

**Discarded OutFlow** Max=51.82 cfs @ 12.17 hrs HW=62.73' (Free Discharge)

↑**1=Exfiltration** (Exfiltration Controls 51.82 cfs)

**Primary OutFlow** Max=0.00 cfs @ 5.00 hrs HW=57.00' (Free Discharge)

↑**2=Culvert** ( Controls 0.00 cfs)

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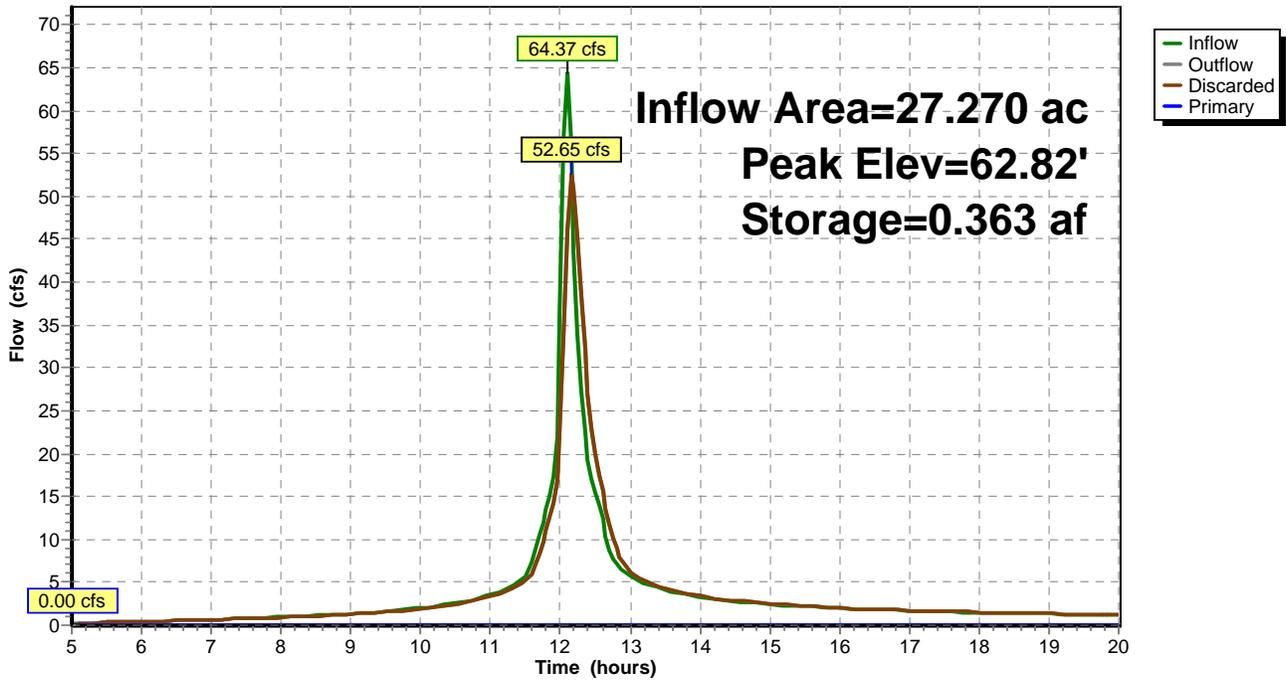
North Lot Proposed  
Elmont-NY 24-hr S1 1-yr Rainfall=2.77"

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### Pond 2P: Drywells

Hydrograph



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North Lot Proposed  
Elmont-NY 24-hr S1 2-yr Rainfall=3.40"

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**Summary for Subcatchment NL-Prop: Proposed North Lot**

Runoff = 80.12 cfs @ 12.10 hrs, Volume= 5.736 af, Depth> 2.52"

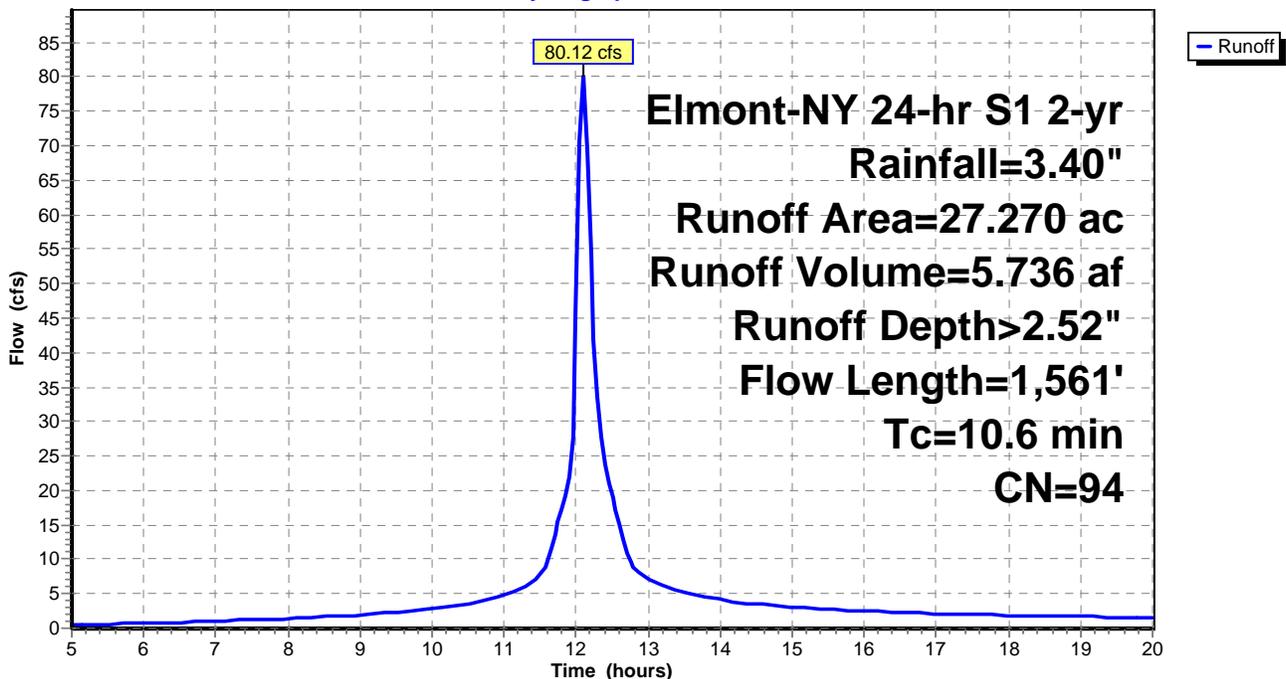
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Elmont-NY 24-hr S1 2-yr Rainfall=3.40"

Area (ac)	CN	Description
* 23.570	98	Pavement
3.700	68	<50% Grass cover, Poor, HSG A
27.270	94	Weighted Average
3.700		13.57% Pervious Area
23.570		86.43% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	25	0.0200	0.98		<b>Sheet Flow, 25</b> Smooth surfaces n= 0.011 P2= 2.80"
1.8	286	0.0033	2.61	2.05	<b>Pipe Channel, RCP_Round 12"</b> 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Concrete pipe, bends & connections
8.4	1,250	0.0150	2.49		<b>Shallow Concentrated Flow,</b> Paved Kv= 20.3 fps
10.6	1,561	Total			

**Subcatchment NL-Prop: Proposed North Lot**

Hydrograph



**Summary for Pond 2P: Drywells**

Inflow Area = 27.270 ac, 86.43% Impervious, Inflow Depth > 2.52" for 2-yr event  
 Inflow = 80.12 cfs @ 12.10 hrs, Volume= 5.736 af  
 Outflow = 65.57 cfs @ 12.17 hrs, Volume= 5.725 af, Atten= 18%, Lag= 4.0 min  
 Discarded = 65.57 cfs @ 12.17 hrs, Volume= 5.725 af  
 Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs / 2  
 Peak Elev= 64.25' @ 12.17 hrs Surf.Area= 0.062 ac Storage= 0.452 af

Plug-Flow detention time= 5.1 min calculated for 5.724 af (100% of inflow)  
 Center-of-Mass det. time= 4.2 min ( 762.8 - 758.6 )

Volume	Invert	Avail.Storage	Storage Description
#1	57.00'	1.246 af	<b>12.00'D x 20.00'H Vertical Cone/Cylinder x 24</b>

Device	Routing	Invert	Outlet Devices
#1	Discarded	57.00'	<b>18.000 in/hr Exfiltration X 24.00 over Wetted area from 57.00' - 72.00'</b> Excluded Wetted area = 0.062 ac
#2	Primary	70.10'	<b>24.0" Round Culvert</b> L= 284.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 70.10' / 67.00' S= 0.0109 1/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 3.14 sf

**Discarded OutFlow** Max=64.57 cfs @ 12.17 hrs HW=64.14' (Free Discharge)  
 ↑1=Exfiltration (Exfiltration Controls 64.57 cfs)

**Primary OutFlow** Max=0.00 cfs @ 5.00 hrs HW=57.01' (Free Discharge)  
 ↑2=Culvert ( Controls 0.00 cfs)

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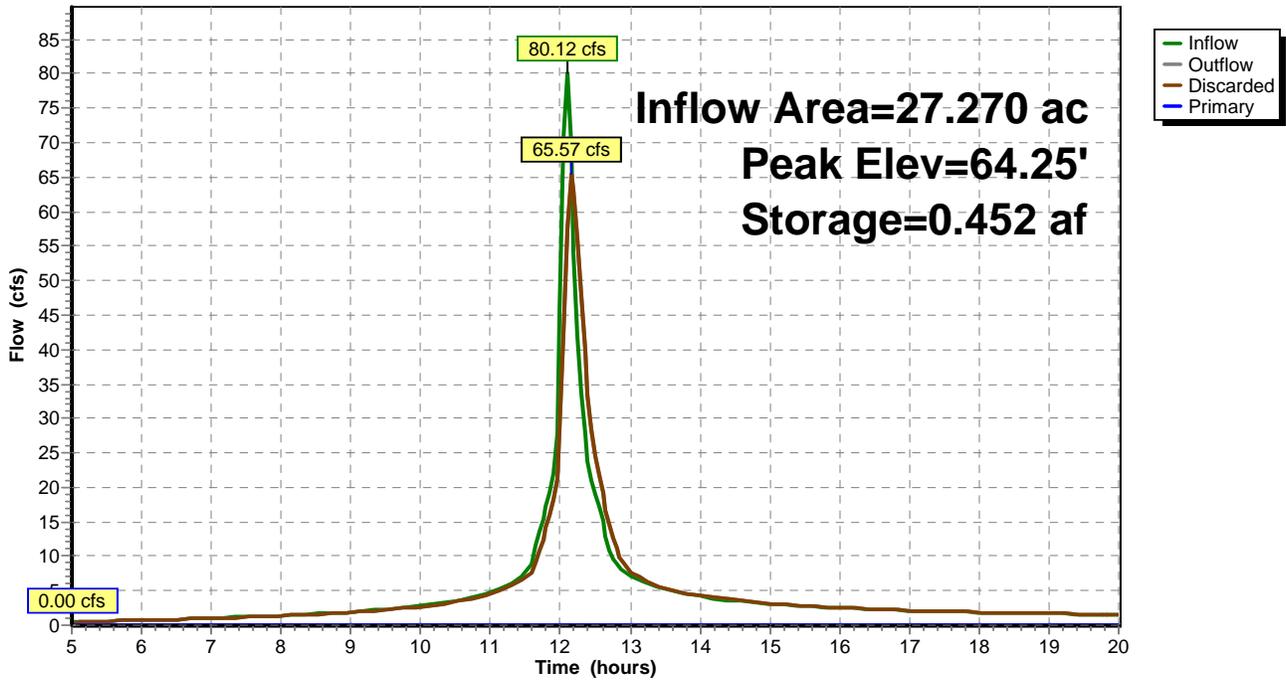
North Lot Proposed  
Elmont-NY 24-hr S1 2-yr Rainfall=3.40"

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### Pond 2P: Drywells

Hydrograph



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North Lot Proposed  
Elmont-NY 24-hr S1 10-yr Rainfall=5.27"

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**Summary for Subcatchment NL-Prop: Proposed North Lot**

Runoff = 125.98 cfs @ 12.10 hrs, Volume= 9.495 af, Depth> 4.18"

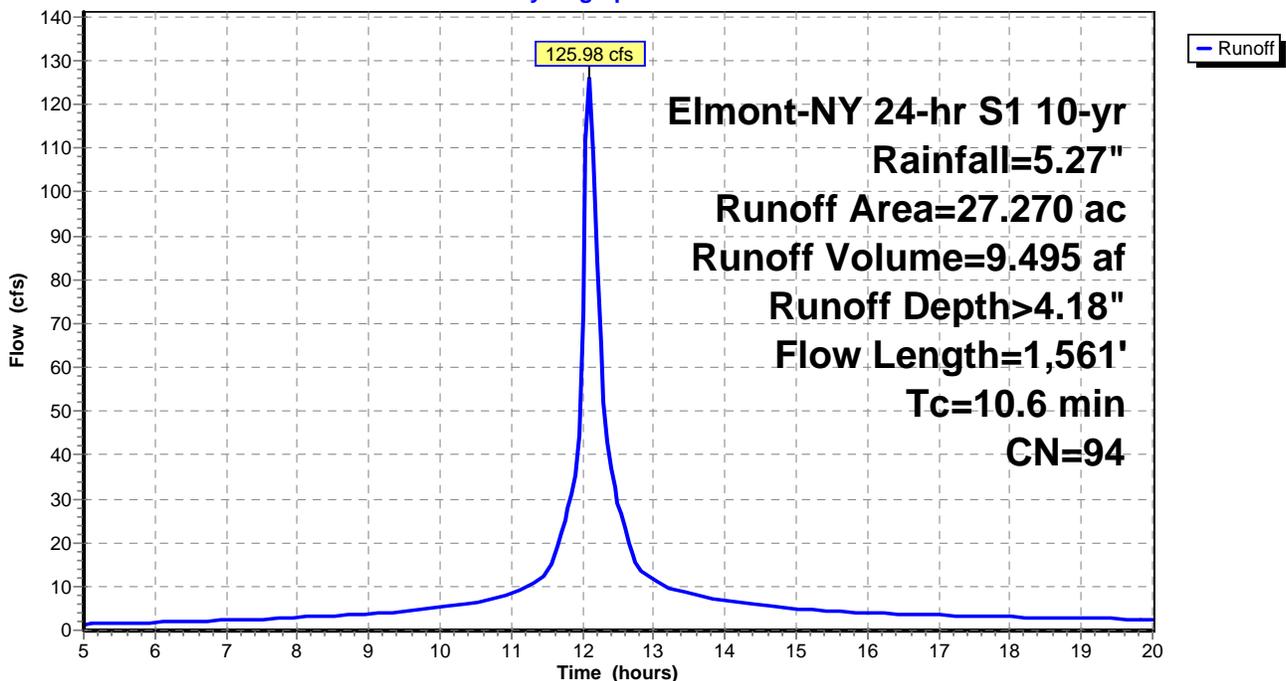
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Elmont-NY 24-hr S1 10-yr Rainfall=5.27"

Area (ac)	CN	Description
* 23.570	98	Pavement
3.700	68	<50% Grass cover, Poor, HSG A
27.270	94	Weighted Average
3.700		13.57% Pervious Area
23.570		86.43% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	25	0.0200	0.98		<b>Sheet Flow, 25</b> Smooth surfaces n= 0.011 P2= 2.80"
1.8	286	0.0033	2.61	2.05	<b>Pipe Channel, RCP_Round 12"</b> 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Concrete pipe, bends & connections
8.4	1,250	0.0150	2.49		<b>Shallow Concentrated Flow,</b> Paved Kv= 20.3 fps
10.6	1,561	Total			

**Subcatchment NL-Prop: Proposed North Lot**

Hydrograph



**N17425**

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North Lot Proposed  
Elmont-NY 24-hr S1 10-yr Rainfall=5.27"

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### Summary for Pond 2P: Drywells

Inflow Area = 27.270 ac, 86.43% Impervious, Inflow Depth > 4.18" for 10-yr event  
 Inflow = 125.98 cfs @ 12.10 hrs, Volume= 9.495 af  
 Outflow = 103.16 cfs @ 12.16 hrs, Volume= 9.476 af, Atten= 18%, Lag= 4.0 min  
 Discarded = 103.16 cfs @ 12.16 hrs, Volume= 9.476 af  
 Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs / 2  
 Peak Elev= 68.40' @ 12.16 hrs Surf.Area= 0.062 ac Storage= 0.710 af

Plug-Flow detention time= 5.2 min calculated for 9.444 af (99% of inflow)  
 Center-of-Mass det. time= 4.2 min ( 753.9 - 749.7 )

Volume	Invert	Avail.Storage	Storage Description
#1	57.00'	1.246 af	<b>12.00'D x 20.00'H Vertical Cone/Cylinder x 24</b>

Device	Routing	Invert	Outlet Devices
#1	Discarded	57.00'	<b>18.000 in/hr Exfiltration X 24.00 over Wetted area from 57.00' - 72.00'</b> Excluded Wetted area = 0.062 ac
#2	Primary	70.10'	<b>24.0" Round Culvert</b> L= 284.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 70.10' / 67.00' S= 0.0109 1/1' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 3.14 sf

**Discarded OutFlow** Max=101.65 cfs @ 12.16 hrs HW=68.24' (Free Discharge)  
 ↑**1=Exfiltration** (Exfiltration Controls 101.65 cfs)

**Primary OutFlow** Max=0.00 cfs @ 5.00 hrs HW=57.02' (Free Discharge)  
 ↑**2=Culvert** ( Controls 0.00 cfs)

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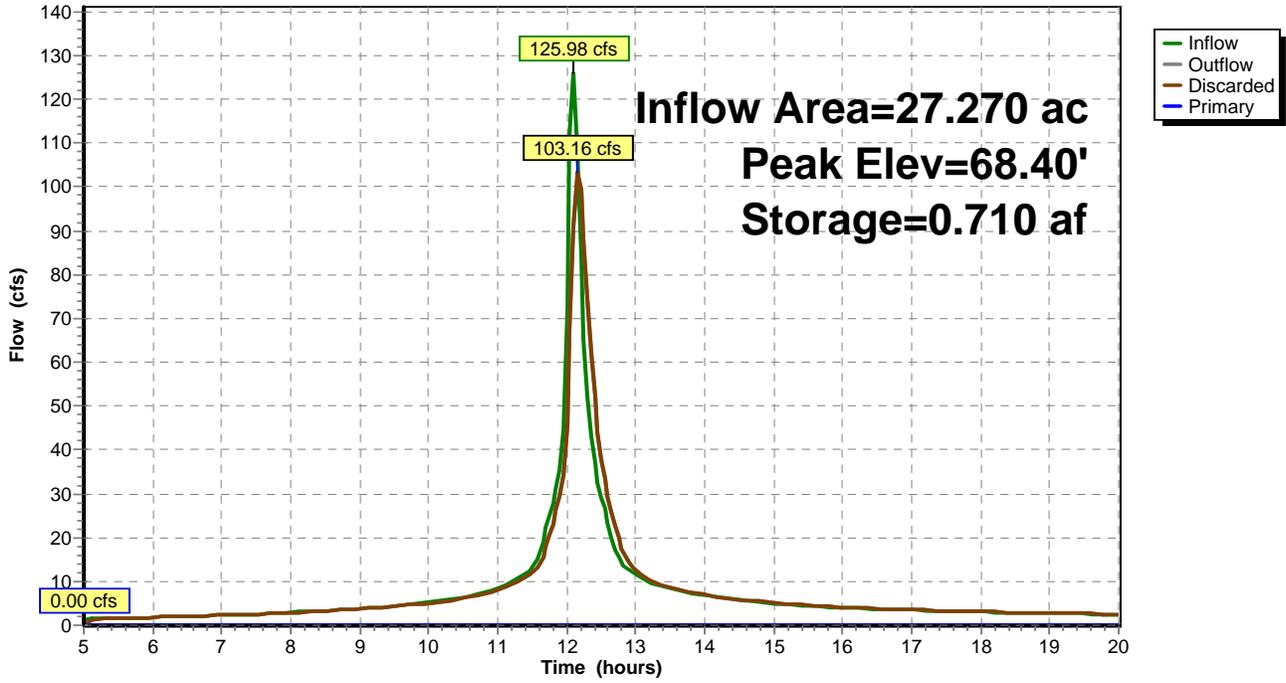
North Lot Proposed  
Elmont-NY 24-hr S1 10-yr Rainfall=5.27"

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### Pond 2P: Drywells

Hydrograph



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North Lot Proposed  
Elmont-NY 24-hr S1 100-yr Rainfall=8.25"

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### Summary for Subcatchment NL-Prop: Proposed North Lot

Runoff = 197.14 cfs @ 12.10 hrs, Volume= 15.444 af, Depth> 6.80"

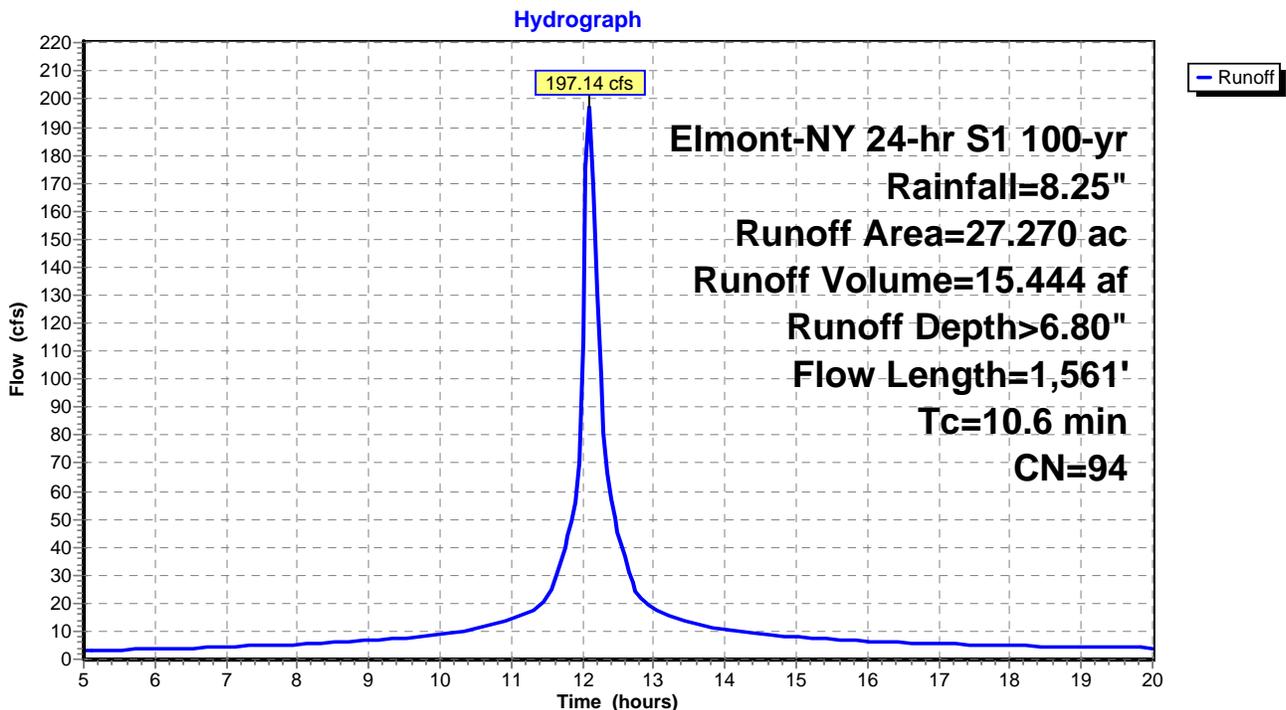
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Elmont-NY 24-hr S1 100-yr Rainfall=8.25"

Area (ac)	CN	Description
* 23.570	98	Pavement
3.700	68	<50% Grass cover, Poor, HSG A
27.270	94	Weighted Average
3.700		13.57% Pervious Area
23.570		86.43% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	25	0.0200	0.98		<b>Sheet Flow, 25</b> Smooth surfaces n= 0.011 P2= 2.80"
1.8	286	0.0033	2.61	2.05	<b>Pipe Channel, RCP_Round 12"</b> 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Concrete pipe, bends & connections
8.4	1,250	0.0150	2.49		<b>Shallow Concentrated Flow,</b> Paved Kv= 20.3 fps
10.6	1,561	Total			

### Subcatchment NL-Prop: Proposed North Lot



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North Lot Proposed  
Elmont-NY 24-hr S1 100-yr Rainfall=8.25"

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### Summary for Pond 2P: Drywells

Inflow Area = 27.270 ac, 86.43% Impervious, Inflow Depth > 6.80" for 100-yr event  
 Inflow = 197.14 cfs @ 12.10 hrs, Volume= 15.444 af  
 Outflow = 158.11 cfs @ 12.17 hrs, Volume= 15.428 af, Atten= 20%, Lag= 4.1 min  
 Discarded = 135.72 cfs @ 12.10 hrs, Volume= 15.155 af  
 Primary = 22.40 cfs @ 12.17 hrs, Volume= 0.273 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs / 2  
 Peak Elev= 74.58' @ 12.17 hrs Surf.Area= 0.062 ac Storage= 1.095 af

Plug-Flow detention time= 4.8 min calculated for 15.426 af (100% of inflow)  
 Center-of-Mass det. time= 4.2 min ( 747.7 - 743.4 )

Volume	Invert	Avail.Storage	Storage Description
#1	57.00'	1.246 af	<b>12.00'D x 20.00'H Vertical Cone/Cylinder x 24</b>

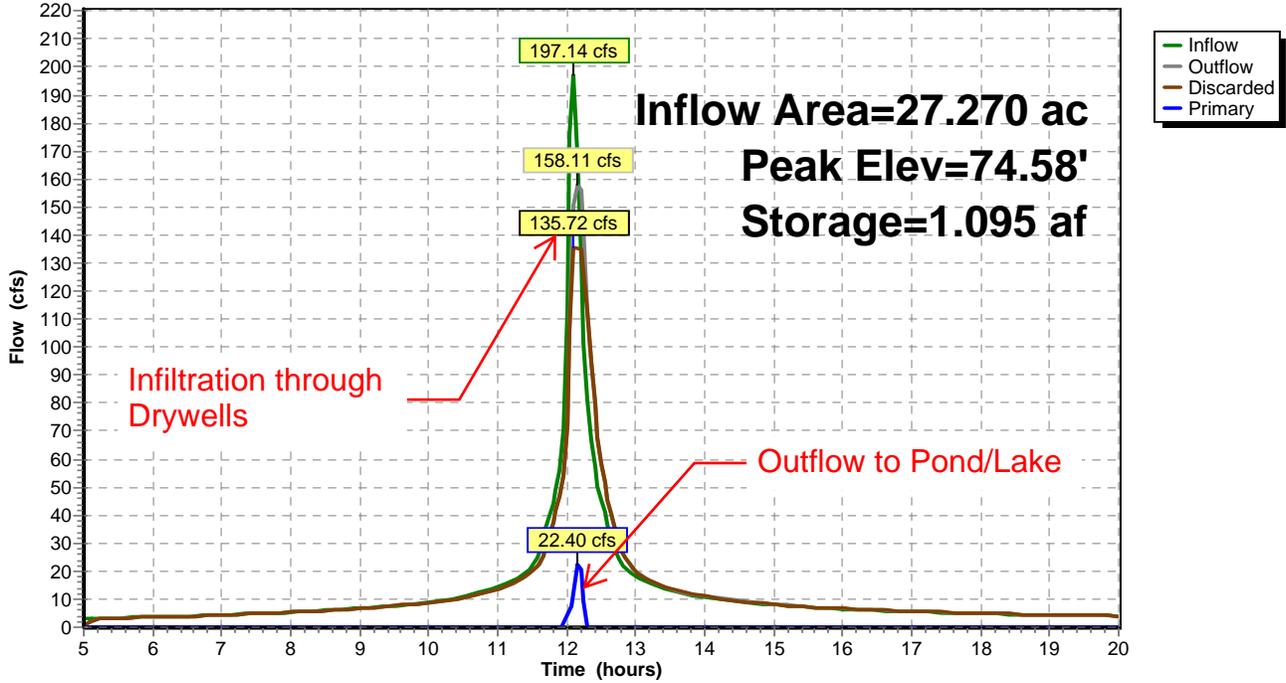
Device	Routing	Invert	Outlet Devices
#1	Discarded	57.00'	<b>18.000 in/hr Exfiltration X 24.00 over Wetted area from 57.00' - 72.00'</b> Excluded Wetted area = 0.062 ac
#2	Primary	70.10'	<b>24.0" Round Culvert</b> L= 284.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 70.10' / 67.00' S= 0.0109 1/1' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 3.14 sf

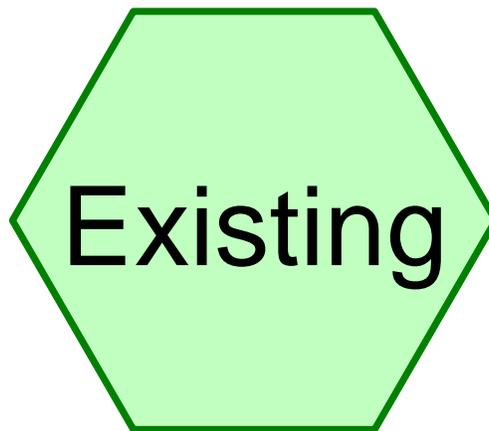
**Discarded OutFlow** Max=135.72 cfs @ 12.10 hrs HW=72.58' (Free Discharge)  
 ↑**1=Exfiltration** (Exfiltration Controls 135.72 cfs)

**Primary OutFlow** Max=21.43 cfs @ 12.17 hrs HW=74.32' (Free Discharge)  
 ↑**2=Culvert** (Inlet Controls 21.43 cfs @ 6.82 fps)

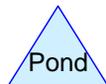
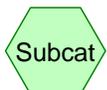
### Pond 2P: Drywells

Hydrograph





# Existing East Lot Area



**N17425-East Lot**

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**Area Listing (selected nodes)**

Area (acres)	CN	Description (subcatchment-numbers)
2.630	77	Existing Dirt (Existing)
7.030	98	Existing Impervious (Existing)
<b>9.660</b>	<b>92</b>	<b>TOTAL AREA</b>

**N17425-East Lot**

Prepared by Bohler Engineering

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East Lot Existing  
Elmont-NY 24-hr S1 1-yr Rainfall=2.77"

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**Summary for Subcatchment Existing: Existing East Lot Area**

Runoff = 17.72 cfs @ 12.16 hrs, Volume= 1.441 af, Depth> 1.79"

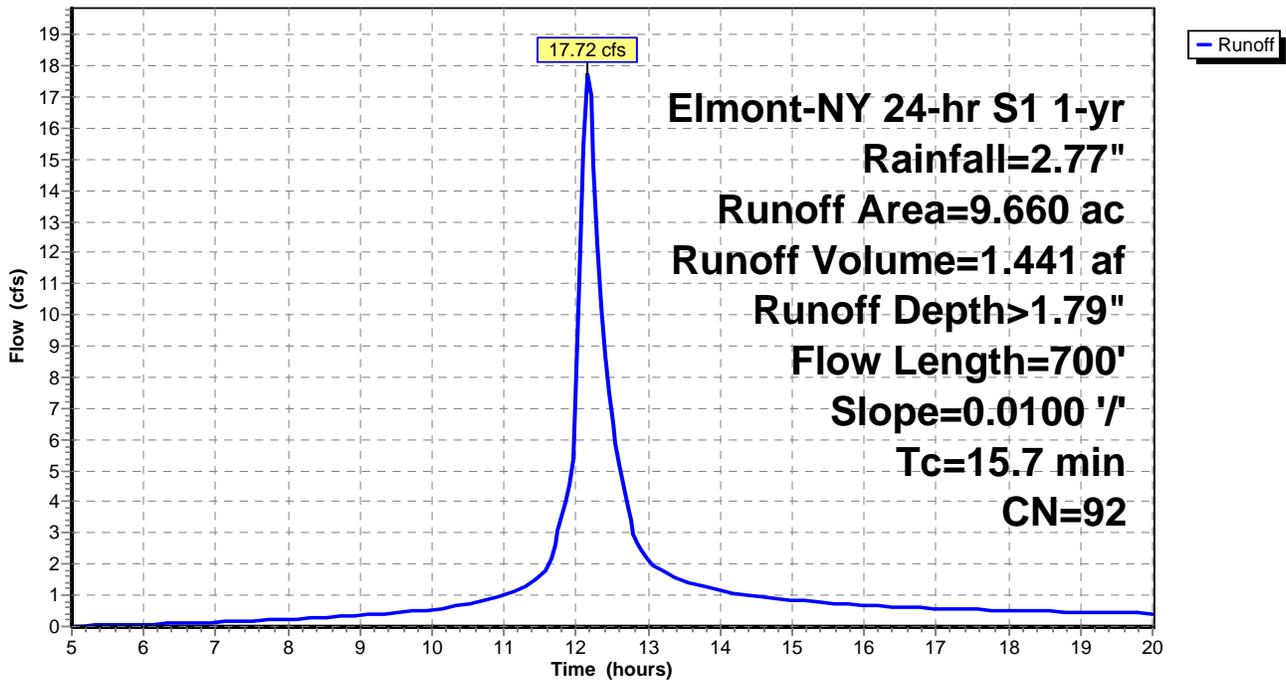
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Elmont-NY 24-hr S1 1-yr Rainfall=2.77"

Area (ac)	CN	Description
* 7.030	98	Existing Impervious
* 2.630	77	Existing Dirt
9.660	92	Weighted Average
2.630		27.23% Pervious Area
7.030		72.77% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.4	300	0.0100	0.40		<b>Sheet Flow,</b> Fallow n= 0.050 P2= 3.50"
3.3	400	0.0100	2.03		<b>Shallow Concentrated Flow,</b> Paved Kv= 20.3 fps
15.7	700	Total			

**Subcatchment Existing: Existing East Lot Area**

Hydrograph



**N17425-East Lot**

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East Lot Existing  
Elmont-NY 24-hr S1 2-yr Rainfall=3.40"

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**Summary for Subcatchment Existing: Existing East Lot Area**

Runoff = 22.48 cfs @ 12.16 hrs, Volume= 1.883 af, Depth> 2.34"

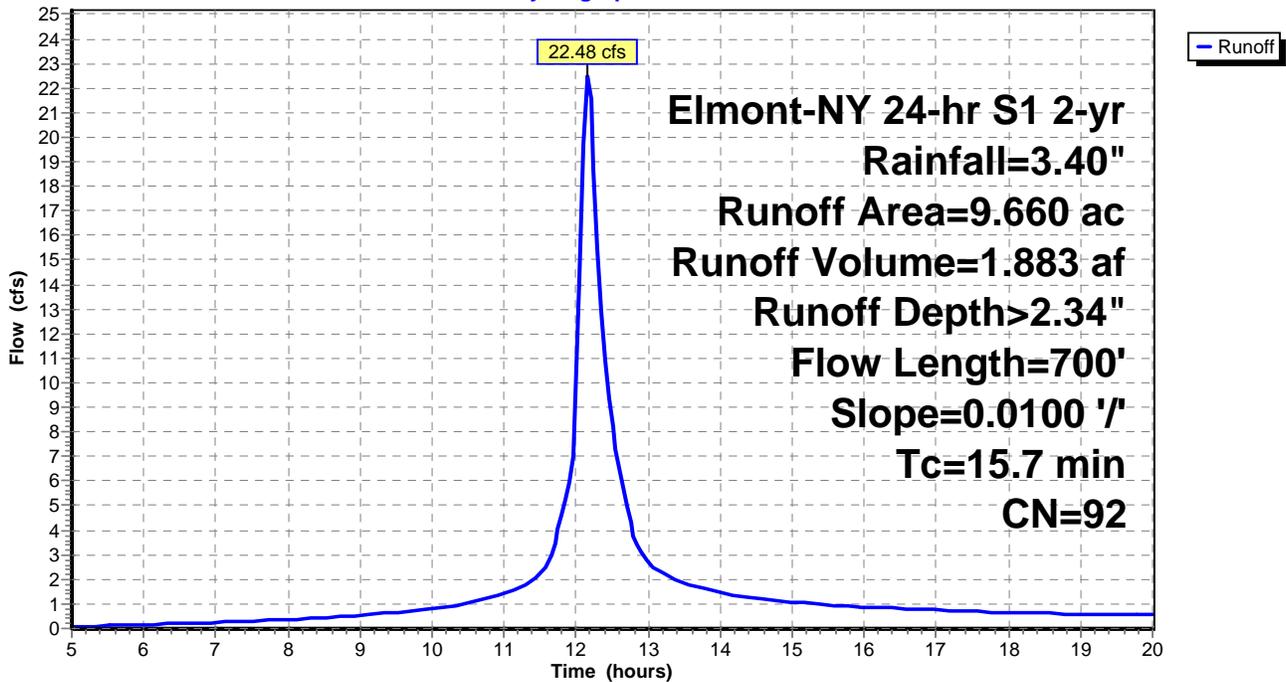
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Elmont-NY 24-hr S1 2-yr Rainfall=3.40"

Area (ac)	CN	Description
* 7.030	98	Existing Impervious
* 2.630	77	Existing Dirt
9.660	92	Weighted Average
2.630		27.23% Pervious Area
7.030		72.77% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.4	300	0.0100	0.40		<b>Sheet Flow,</b> Fallow n= 0.050 P2= 3.50"
3.3	400	0.0100	2.03		<b>Shallow Concentrated Flow,</b> Paved Kv= 20.3 fps
15.7	700	Total			

**Subcatchment Existing: Existing East Lot Area**

Hydrograph



**N17425-East Lot**

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East Lot Existing  
Elmont-NY 24-hr S1 10-yr Rainfall=5.27"

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**Summary for Subcatchment Existing: Existing East Lot Area**

Runoff = 36.32 cfs @ 12.16 hrs, Volume= 3.211 af, Depth> 3.99"

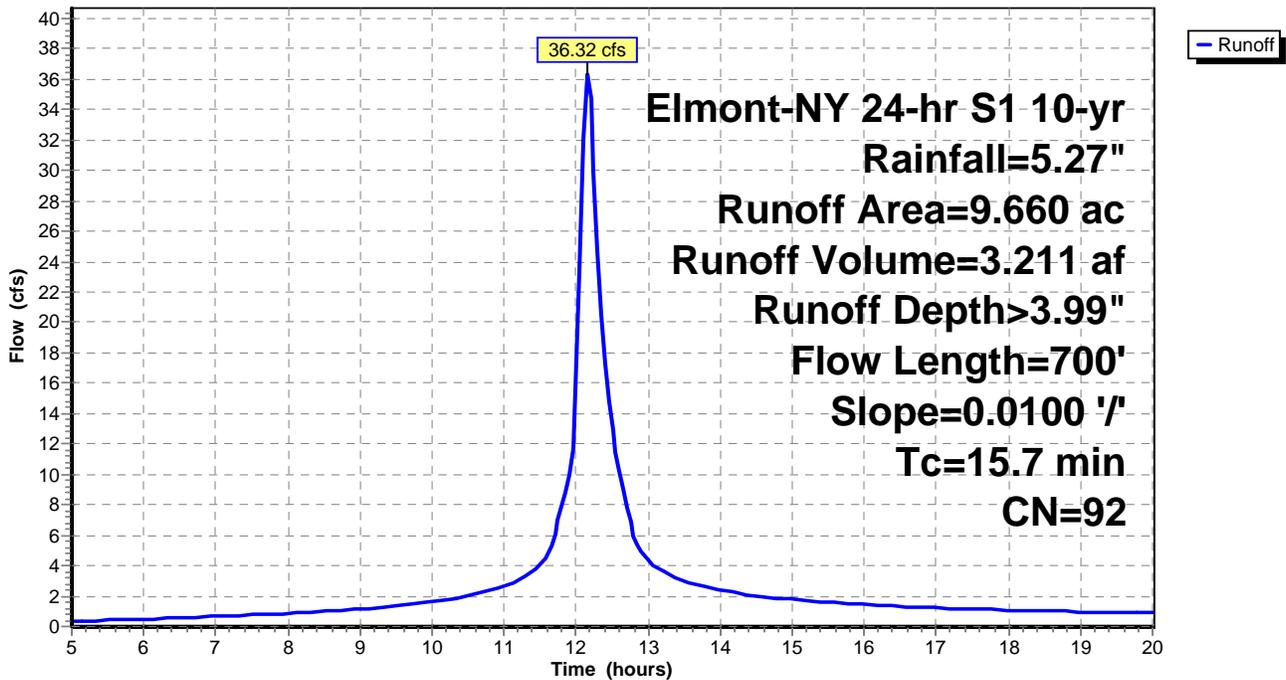
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Elmont-NY 24-hr S1 10-yr Rainfall=5.27"

Area (ac)	CN	Description
* 7.030	98	Existing Impervious
* 2.630	77	Existing Dirt
9.660	92	Weighted Average
2.630		27.23% Pervious Area
7.030		72.77% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.4	300	0.0100	0.40		<b>Sheet Flow,</b> Fallow n= 0.050 P2= 3.50"
3.3	400	0.0100	2.03		<b>Shallow Concentrated Flow,</b> Paved Kv= 20.3 fps
15.7	700	Total			

**Subcatchment Existing: Existing East Lot Area**

Hydrograph



**N17425-East Lot**

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East Lot Existing  
Elmont-NY 24-hr S1 100-yr Rainfall=8.25"

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**Summary for Subcatchment Existing: Existing East Lot Area**

Runoff = 57.74 cfs @ 12.16 hrs, Volume= 5.327 af, Depth> 6.62"

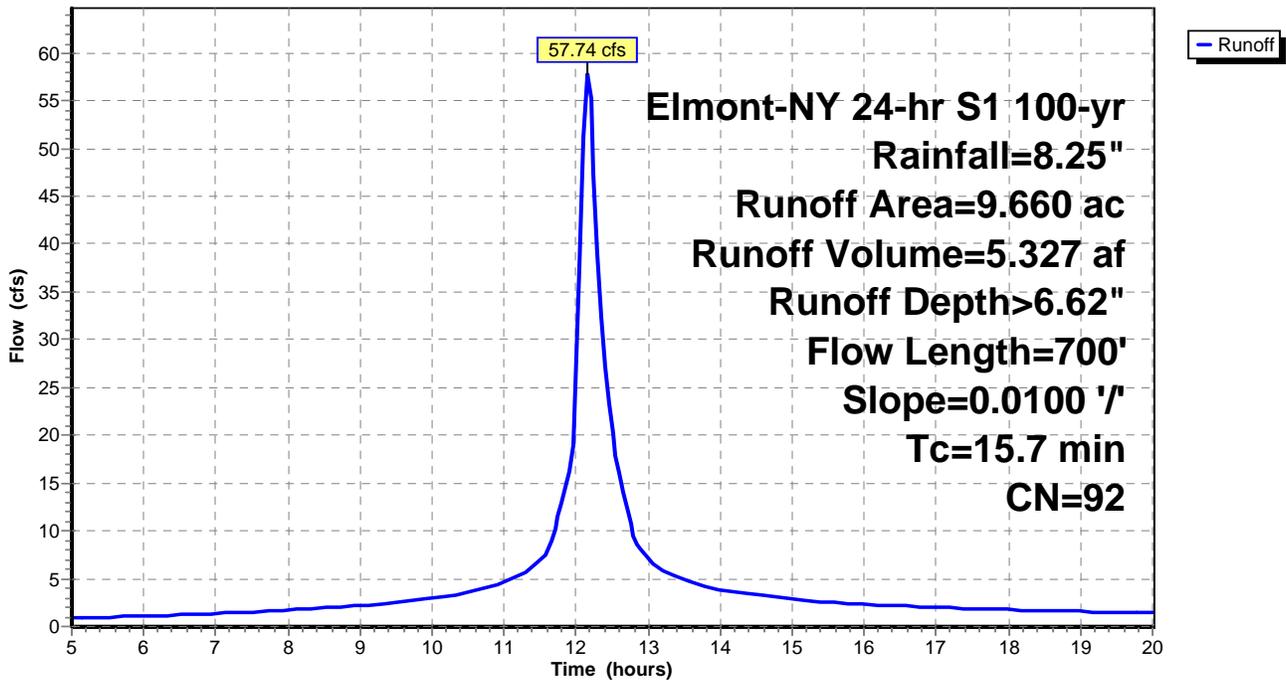
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Elmont-NY 24-hr S1 100-yr Rainfall=8.25"

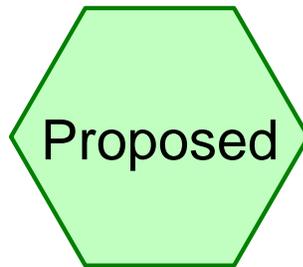
Area (ac)	CN	Description
* 7.030	98	Existing Impervious
* 2.630	77	Existing Dirt
9.660	92	Weighted Average
2.630		27.23% Pervious Area
7.030		72.77% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.4	300	0.0100	0.40		<b>Sheet Flow,</b> Fallow n= 0.050 P2= 3.50"
3.3	400	0.0100	2.03		<b>Shallow Concentrated Flow,</b> Paved Kv= 20.3 fps
15.7	700	Total			

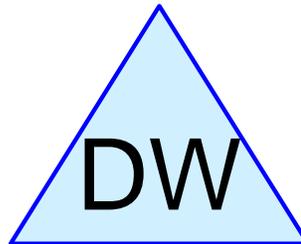
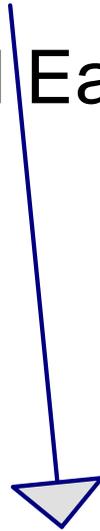
**Subcatchment Existing: Existing East Lot Area**

Hydrograph

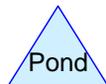
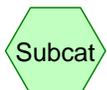




Proposed East Lot



(15) 12' Dia x 15' Eff  
Depth Drywells



**N17425-East Lot**

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**Area Listing (selected nodes)**

Area (acres)	CN	Description (subcatchment-numbers)
9.660	98	Proposed Impervious (Proposed)
<b>9.660</b>	<b>98</b>	<b>TOTAL AREA</b>

**N17425-East Lot**

Prepared by Bohler Engineering

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East Lot Proposed  
Elmont-NY 24-hr S1 1-yr Rainfall=2.77"

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Page 3

**Summary for Subcatchment Proposed: Proposed East Lot**

Runoff = 31.02 cfs @ 12.04 hrs, Volume= 1.863 af, Depth> 2.31"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Elmont-NY 24-hr S1 1-yr Rainfall=2.77"

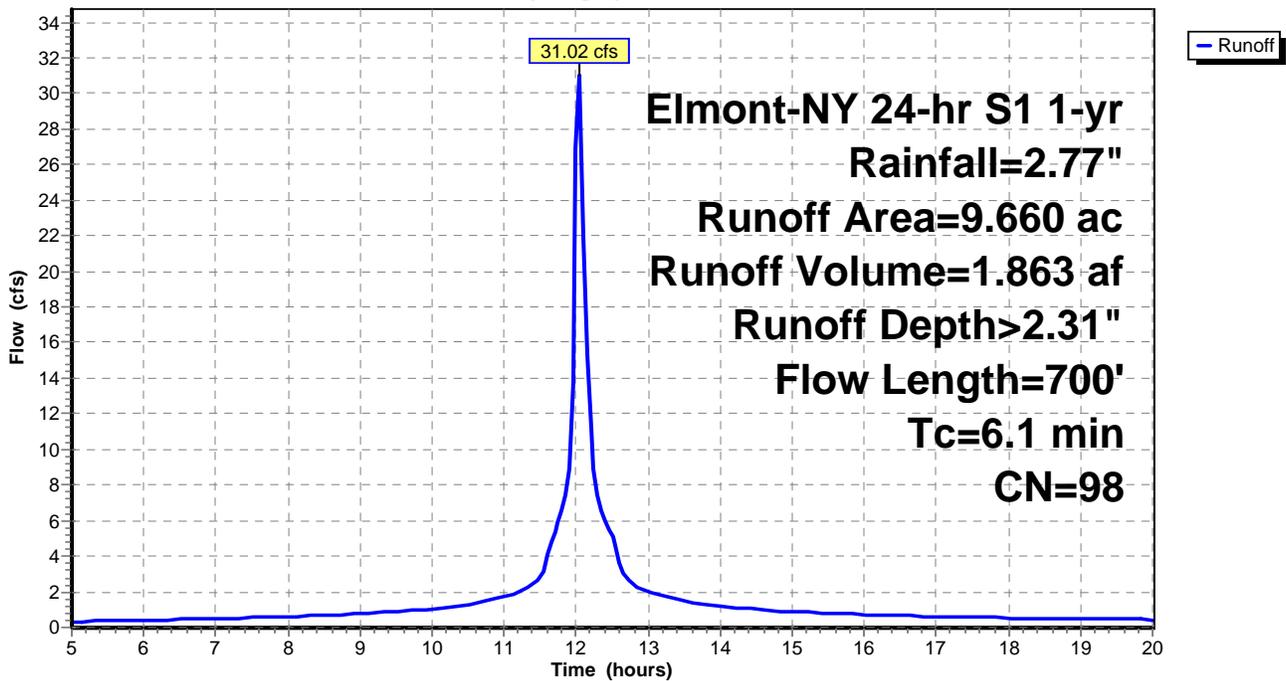
Area (ac)	CN	Description
* 9.660	98	Proposed Impervious
9.660		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.8	300	0.0200	1.79		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.50"
3.3	400	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
6.1	700	Total			

**Subcatchment Proposed: Proposed East Lot**

Hydrograph



**N17425-East Lot**

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East Lot Proposed  
 Elmont-NY 24-hr S1 1-yr Rainfall=2.77"

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**Summary for Pond DW: (15) 12' Dia x 15' Eff Depth Drywells**

Inflow Area = 9.660 ac, 100.00% Impervious, Inflow Depth > 2.31" for 1-yr event  
 Inflow = 31.02 cfs @ 12.04 hrs, Volume= 1.863 af  
 Outflow = 20.31 cfs @ 12.12 hrs, Volume= 1.858 af, Atten= 35%, Lag= 4.7 min  
 Discarded = 20.31 cfs @ 12.12 hrs, Volume= 1.858 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
 Peak Elev= 55.75' @ 12.12 hrs Surf.Area= 0.039 ac Storage= 0.224 af

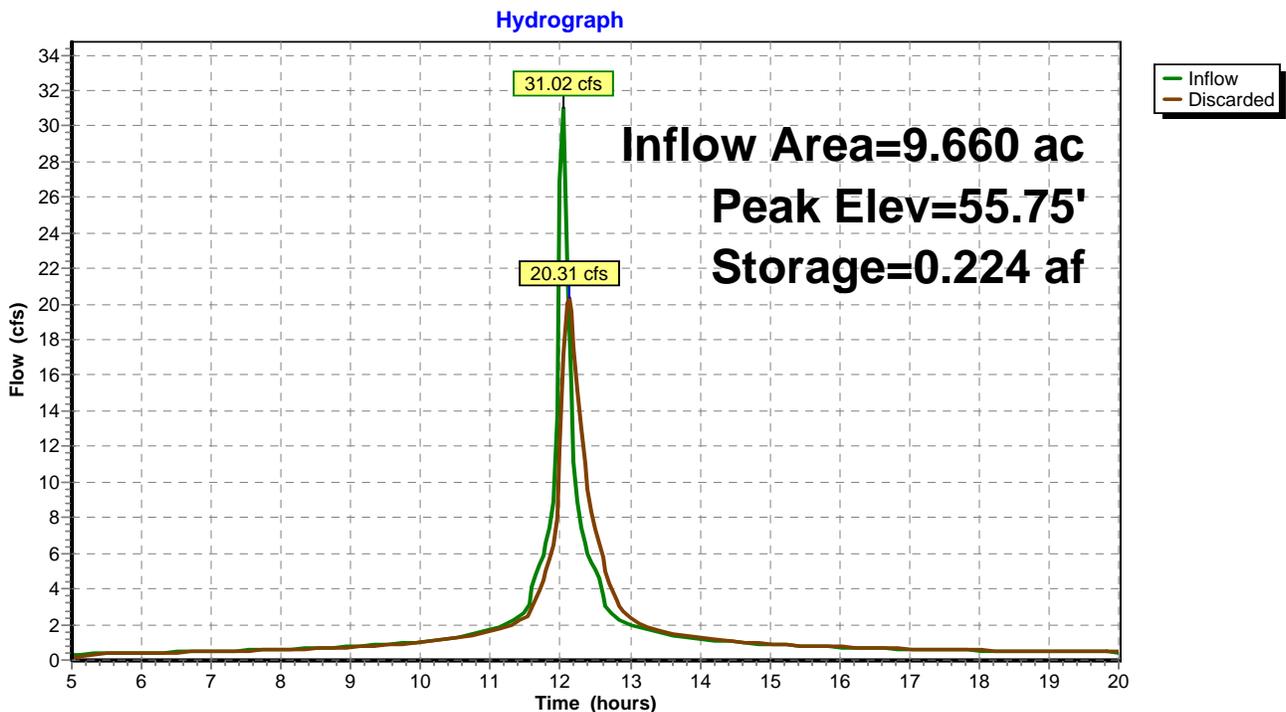
Plug-Flow detention time= 8.3 min calculated for 1.857 af (100% of inflow)  
 Center-of-Mass det. time= 6.8 min ( 746.2 - 739.5 )

Volume	Invert	Avail.Storage	Storage Description
#1	50.00'	0.779 af	<b>12.00'D x 20.00'H Vertical Cone/Cylinder x 15</b>

Device	Routing	Invert	Outlet Devices
#1	Discarded	50.00'	<b>18.000 in/hr Exfiltration X 15.00 over Wetted area from 50.00' - 65.00'</b> Excluded Wetted area = 0.039 ac

**Discarded OutFlow** Max=19.93 cfs @ 12.12 hrs HW=55.64' (Free Discharge)  
 ↑ **1=Exfiltration** (Exfiltration Controls 19.93 cfs)

**Pond DW: (15) 12' Dia x 15' Eff Depth Drywells**



**N17425-East Lot**

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East Lot Proposed  
Elmont-NY 24-hr S1 2-yr Rainfall=3.40"

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**Summary for Subcatchment Proposed: Proposed East Lot**

Runoff = 37.48 cfs @ 12.04 hrs, Volume= 2.307 af, Depth> 2.87"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Elmont-NY 24-hr S1 2-yr Rainfall=3.40"

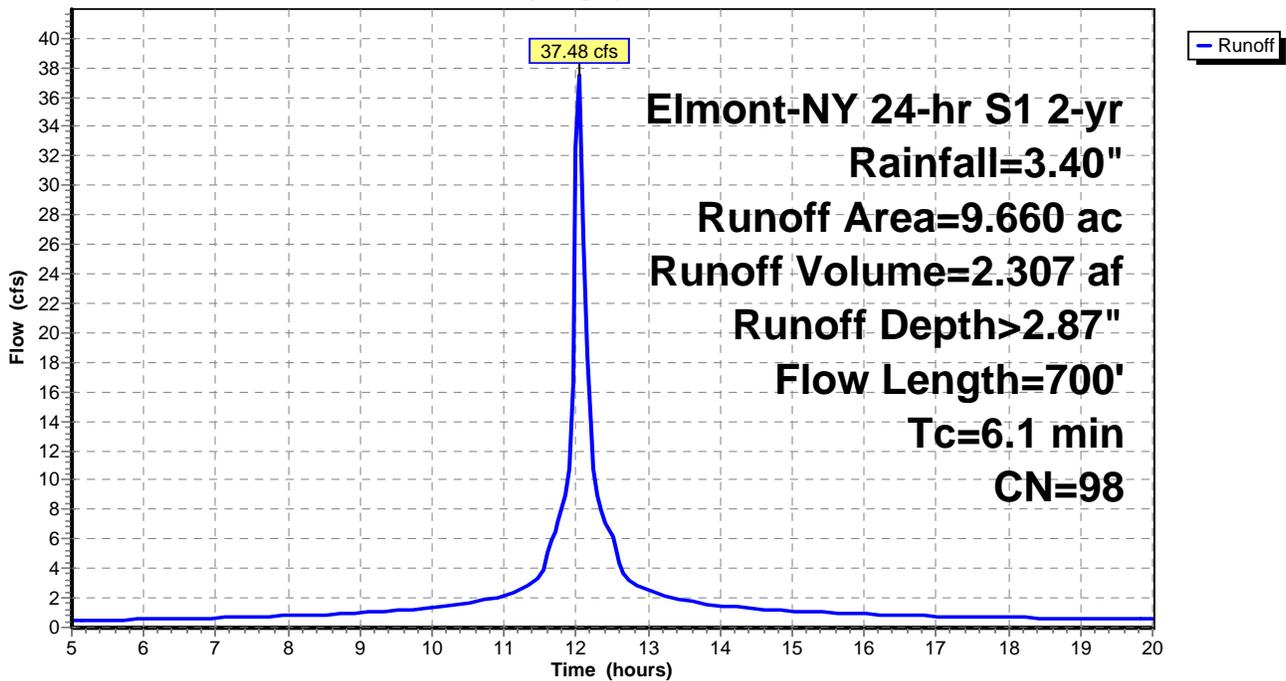
Area (ac)	CN	Description
* 9.660	98	Proposed Impervious
9.660		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.8	300	0.0200	1.79		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.50"
3.3	400	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
6.1	700	Total			

**Subcatchment Proposed: Proposed East Lot**

Hydrograph



**N17425-East Lot**

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East Lot Proposed  
Elmont-NY 24-hr S1 2-yr Rainfall=3.40"

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**Summary for Pond DW: (15) 12' Dia x 15' Eff Depth Drywells**

Inflow Area = 9.660 ac, 100.00% Impervious, Inflow Depth > 2.87" for 2-yr event  
 Inflow = 37.48 cfs @ 12.04 hrs, Volume= 2.307 af  
 Outflow = 24.55 cfs @ 12.12 hrs, Volume= 2.301 af, Atten= 34%, Lag= 4.7 min  
 Discarded = 24.55 cfs @ 12.12 hrs, Volume= 2.301 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
 Peak Elev= 56.95' @ 12.12 hrs Surf.Area= 0.039 ac Storage= 0.271 af

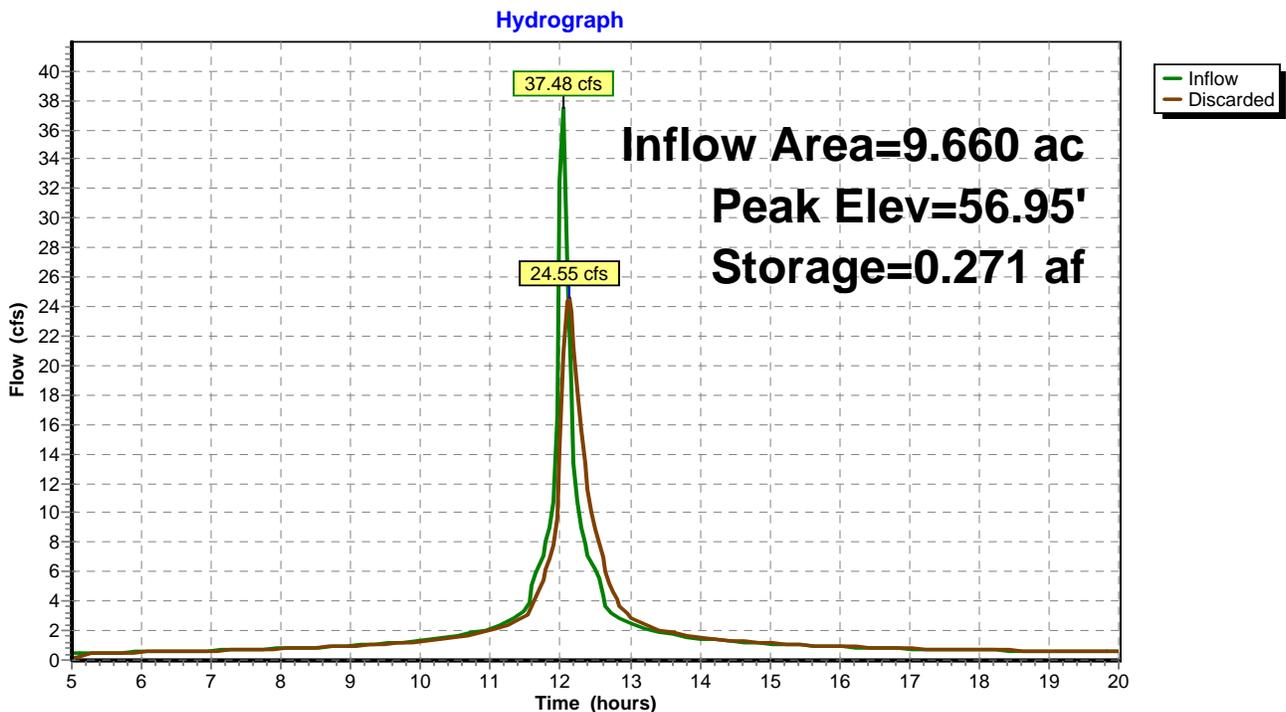
Plug-Flow detention time= 8.3 min calculated for 2.292 af (99% of inflow)  
 Center-of-Mass det. time= 6.8 min ( 744.4 - 737.7 )

Volume	Invert	Avail.Storage	Storage Description
#1	50.00'	0.779 af	<b>12.00'D x 20.00'H Vertical Cone/Cylinder x 15</b>

Device	Routing	Invert	Outlet Devices
#1	Discarded	50.00'	<b>18.000 in/hr Exfiltration X 15.00 over Wetted area from 50.00' - 65.00'</b> Excluded Wetted area = 0.039 ac

**Discarded OutFlow** Max=24.09 cfs @ 12.12 hrs HW=56.82' (Free Discharge)  
 ↳ 1=Exfiltration (Exfiltration Controls 24.09 cfs)

**Pond DW: (15) 12' Dia x 15' Eff Depth Drywells**



**N17425-East Lot**

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East Lot Proposed  
Elmont-NY 24-hr S1 10-yr Rainfall=5.27"

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**Summary for Subcatchment Proposed: Proposed East Lot**

Runoff = 56.59 cfs @ 12.04 hrs, Volume= 3.614 af, Depth> 4.49"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Elmont-NY 24-hr S1 10-yr Rainfall=5.27"

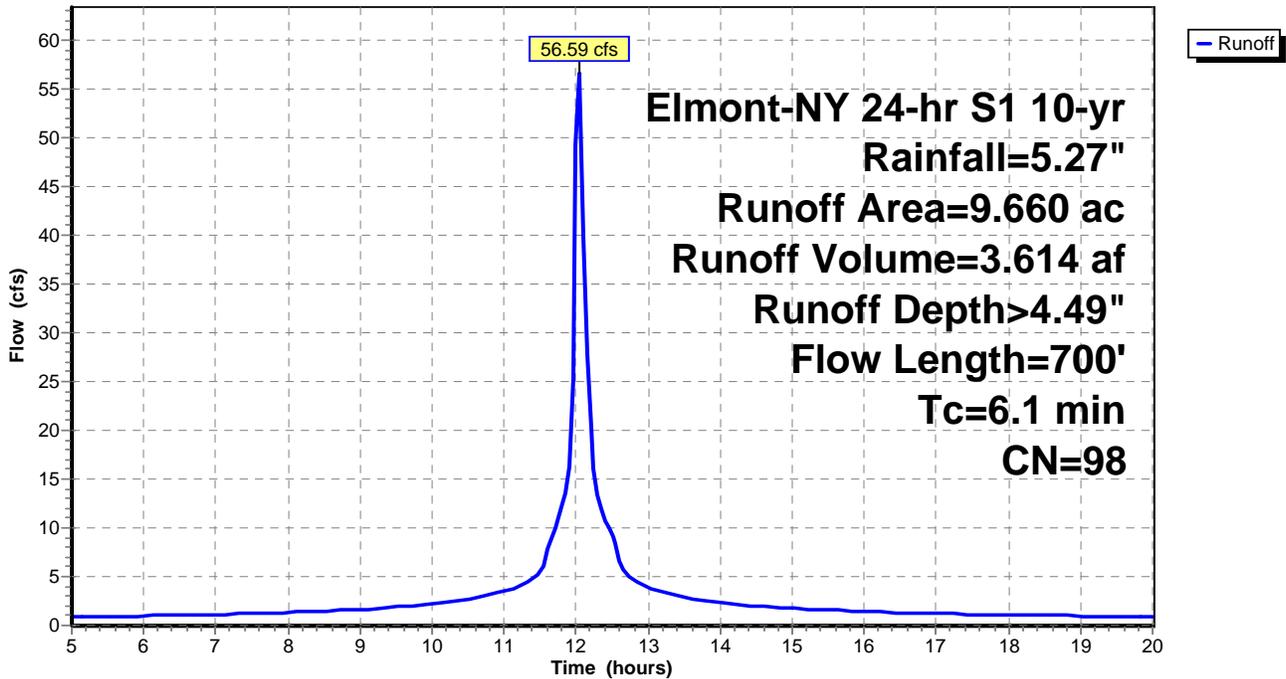
Area (ac)	CN	Description
* 9.660	98	Proposed Impervious
9.660		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.8	300	0.0200	1.79		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.50"
3.3	400	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
6.1	700	Total			

**Subcatchment Proposed: Proposed East Lot**

Hydrograph



**N17425-East Lot**

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East Lot Proposed  
 Elmont-NY 24-hr S1 10-yr Rainfall=5.27"

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**Summary for Pond DW: (15) 12' Dia x 15' Eff Depth Drywells**

Inflow Area = 9.660 ac, 100.00% Impervious, Inflow Depth > 4.49" for 10-yr event  
 Inflow = 56.59 cfs @ 12.04 hrs, Volume= 3.614 af  
 Outflow = 37.07 cfs @ 12.12 hrs, Volume= 3.604 af, Atten= 34%, Lag= 4.7 min  
 Discarded = 37.07 cfs @ 12.12 hrs, Volume= 3.604 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
 Peak Elev= 60.49' @ 12.12 hrs Surf.Area= 0.039 ac Storage= 0.409 af

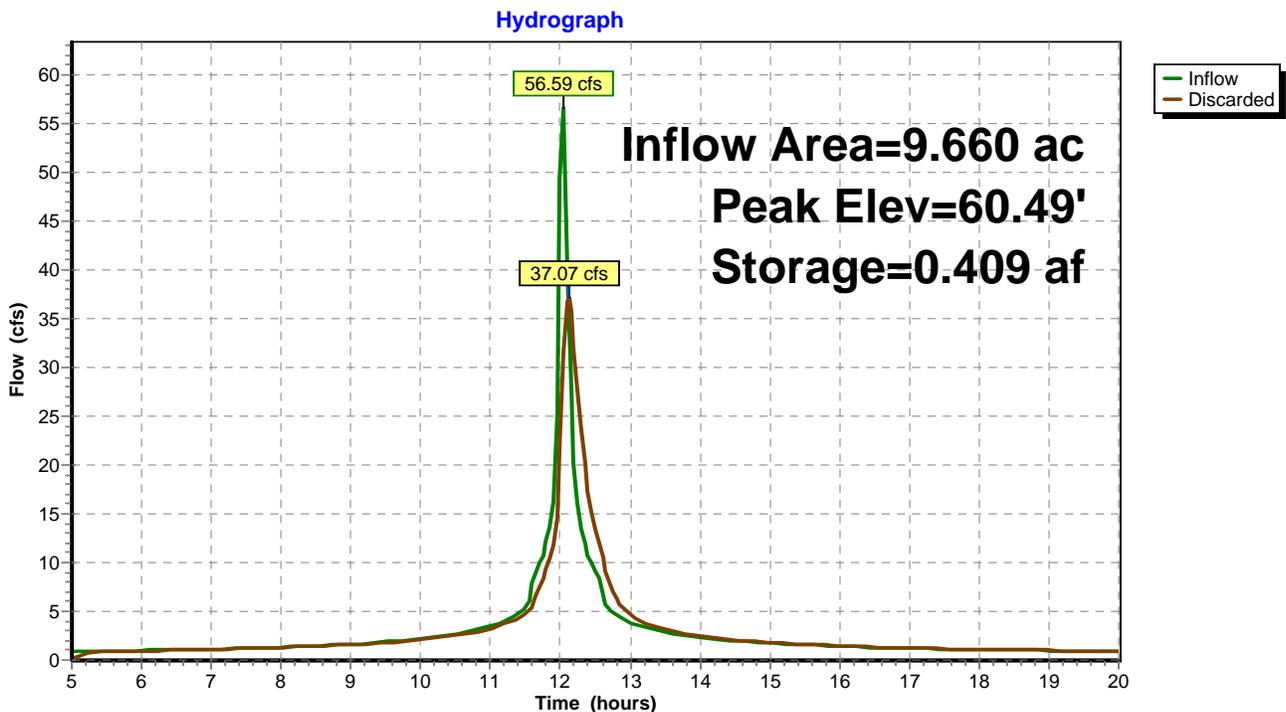
Plug-Flow detention time= 8.3 min calculated for 3.591 af (99% of inflow)  
 Center-of-Mass det. time= 6.7 min ( 741.8 - 735.1 )

Volume	Invert	Avail.Storage	Storage Description
#1	50.00'	0.779 af	<b>12.00'D x 20.00'H Vertical Cone/Cylinder x 15</b>

Device	Routing	Invert	Outlet Devices
#1	Discarded	50.00'	<b>18.000 in/hr Exfiltration X 15.00 over Wetted area from 50.00' - 65.00'</b> Excluded Wetted area = 0.039 ac

**Discarded OutFlow** Max=36.38 cfs @ 12.12 hrs HW=60.29' (Free Discharge)  
 ↳ **1=Exfiltration** (Exfiltration Controls 36.38 cfs)

**Pond DW: (15) 12' Dia x 15' Eff Depth Drywells**



**N17425-East Lot**

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East Lot Proposed  
Elmont-NY 24-hr S1 100-yr Rainfall=8.25"

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**Summary for Subcatchment Proposed: Proposed East Lot**

Runoff = 86.71 cfs @ 12.04 hrs, Volume= 5.682 af, Depth> 7.06"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Elmont-NY 24-hr S1 100-yr Rainfall=8.25"

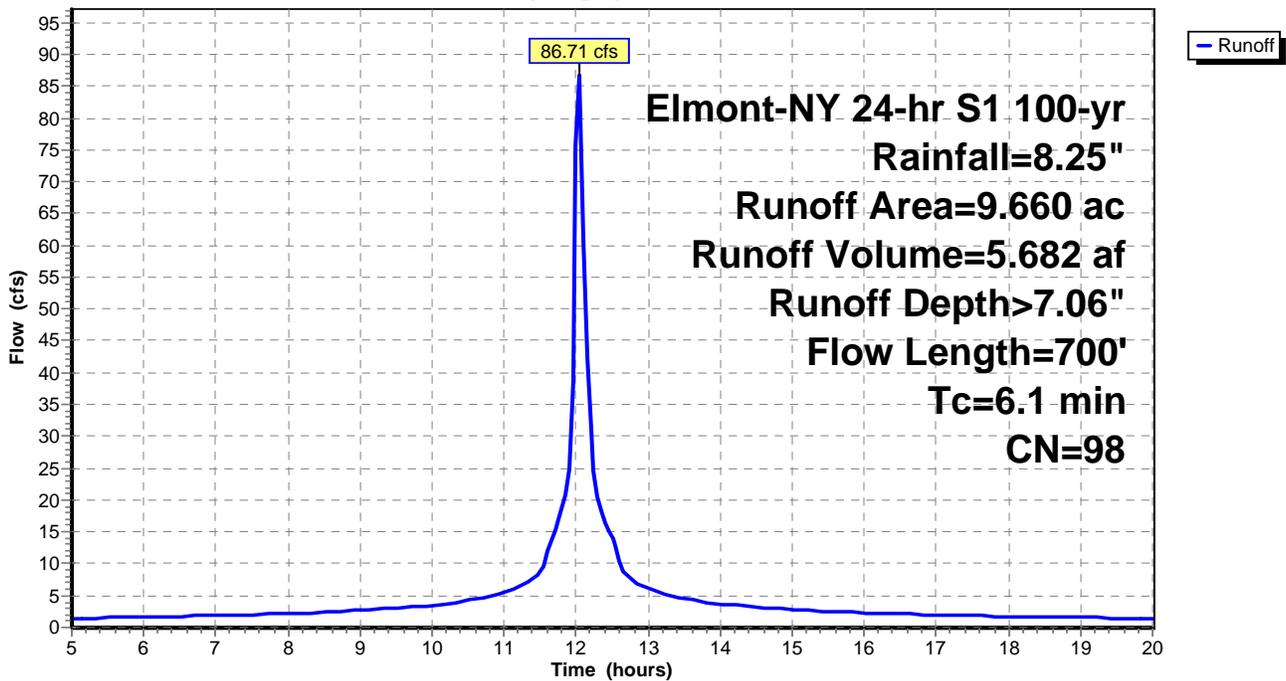
Area (ac)	CN	Description
* 9.660	98	Proposed Impervious
9.660		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.8	300	0.0200	1.79		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.50"
3.3	400	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
6.1	700	Total			

**Subcatchment Proposed: Proposed East Lot**

Hydrograph



**N17425-East Lot**

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East Lot Proposed  
Elmont-NY 24-hr S1 100-yr Rainfall=8.25"

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**Summary for Pond DW: (15) 12' Dia x 15' Eff Depth Drywells**

Inflow Area = 9.660 ac, 100.00% Impervious, Inflow Depth > 7.06" for 100-yr event  
 Inflow = 86.71 cfs @ 12.04 hrs, Volume= 5.682 af  
 Outflow = 53.60 cfs @ 12.13 hrs, Volume= 5.666 af, Atten= 38%, Lag= 5.1 min  
 Discarded = 53.60 cfs @ 12.13 hrs, Volume= 5.666 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
 Peak Elev= 66.34' @ 12.12 hrs Surf.Area= 0.039 ac Storage= 0.636 af

Plug-Flow detention time= 8.4 min calculated for 5.645 af (99% of inflow)  
 Center-of-Mass det. time= 6.7 min ( 740.5 - 733.8 )

Volume	Invert	Avail.Storage	Storage Description
#1	50.00'	0.779 af	<b>12.00'D x 20.00'H Vertical Cone/Cylinder x 15</b>

Device	Routing	Invert	Outlet Devices
#1	Discarded	50.00'	<b>18.000 in/hr Exfiltration X 15.00 over Wetted area from 50.00' - 65.00'</b> Excluded Wetted area = 0.039 ac

**Discarded OutFlow** Max=53.01 cfs @ 12.13 hrs HW=66.01' (Free Discharge)  
 ↑1=Exfiltration (Exfiltration Controls 53.01 cfs)

**Pond DW: (15) 12' Dia x 15' Eff Depth Drywells**

