VOLUME 2 OF APPENDICES OF

DRAFT ENVIRONMENTAL IMPACT STATEMENT

DATE:	July 11, 2024
LOCATION OF PROECT SITE:	0 Big Tree Road & 0 Wilson Drive
LEAD AGENCY:	Town of Hamburg Planning Board 6100 South Park Avenue - Hamburg, NY 14075
PROJECT SPONSOR:	Wetzl Development, LLC Sean Hopkins, Esq. Hopkins Sorgi & McCarthy PLLC 5500 Main Street, Suite 343 Williamsville, NY 14221 Tel: 716.510.4338 E-mail: shopkins@hsmlegal.com
DGEIS PREPARED BY:	Waves A/E 2410 N. Forest Road, Suite 301 Amherst, NY 14068 Hopkins Sorgi & McCarthy, PLLC 5500 Main Street, Suite 343 Williamsville, NY 14221 Carmina Wood Design 487 Main Street Buffalo, NY 14203

List of Appendices:

VOLUME 1:

Appendix A: **Part 1 of the Full Environmental Assessment Form Prepared by the Project Sponsor dated January 11, 2021 and Parts 2 and 3 of the Full Environmental Assessment Form Prepared by the Town of Hamburg Planning Board dated May 2021**

Appendix B: **Positive Declaration Issued by the Planning Board on September 15, 2021**

Appendix C: **Final Scoping Document Issued by Planning Board March 15, 2023**

Appendix D: **Correspondence Related to Project Positive Declaration**

D1: Correspondence Before Positive Declaration:

1. Letter from Sean Hopkins to Sarah desJardins dated September 09, 2021 with attached Exhibit 1 consisting of Updated Riparian Buffer Plan [Drawing RB-100] dated September 09, 2021, prepared by Earth Dimensions, Inc.

2. Letter from Sean Hopkins to Sarah desJardins dated August 26, 2021, consisting of project support letter from Arthur Wiscik of 4755 Big Tree Road dated August 25, 2021

3. E-mail from Edward Rutkowski of NYS Department of Transportation to Sarah desJardins, dated August 18, 2021, consisting of two comments relating to the Conceptual Site Plan [Drawing C-100] dated June 1, 2021

4. Letter from Sean Hopkins to Planning Board Chairman William Clark, regarding Wetzel Project SEQRA Submission, dated August 18, 2021

5. Letter from Chris Wood, P.E. to Planning Board, consisting of a summary of the manner by which runoff from impervious surfaces on the Project Site will be properly handled dated August 13, 2021

6. Letter from Sean Hopkins to Sarah desJardins dated June 21, 2021 with attached f Exhibit 1 – Reduced Size Copy of Updated Concept Site Plan Prepared by Carmina Wood Morris DPC, Drawing C-100 dated June 1, 2021

7. Glenn Wetzl Letter to Planning Board certifying only organic fertilizer will be used for the project dated June 9, 2021

8. Letter from Christopher Wood, P.E., to Town Planning Board consisting of response to Question 3c of Part 2 of the Full EAF regarding dredging more than 100cy of material from a wetland or water body dated June 8, 2021

9. Letter from Sean Hopkins to Sarah desJardins dated June 3, 2021 with attached Exhibit 1 consisting of the No Impact Determination Letter of Josalyn Ferguson, Ph.D of the NYS office of Parks, Recreation and Historic Preservation dated June 02, 2021

10. Letter from Sean Hopkins to Sarah desJardins dated May 02, 2021, submitting the Cultural Resources Report prepared by UB Anthropology Dept. dated April 29, 2021

11. Letter from Sean Hopkins to Sarah desJardins dated April 10, 2021, submitting the Jurisdictional Determination issued by the US Army Corps of Engineers dated April 9, 2021

12. Memorandum from the Conservation Advisory Board to the Town Planning Board dated March 29, 2021

13. Letter from Sean Hopkins to Sarah desJardins dated March 19, 2021 consisting of an enclosed letter from Christopher Fiume of the Erie County Division of Sewer Management dated March 10, 2021 verifying capacity of the ECSD #3 Collection System after review of the DSCA.

14. Letter from Timothy German of the Erie County DEP to Sarah desJardins dated February 11, 2021 consisting of lead concurrence of the Erie County DEP and with comments related to the Project including additional comments by Joseph McNamera, Assistant Sanitary Engineer for the Erie County Division of Sewerage Management ("ECDSM")

15. Letter from Sarah Gatti of the Erie County DEP to Sarah desJardins dated February 11, 2021 consisting of concurrence by the Erie County DEP that the Town of Hamburg act as Lead Agency for the Project and provided comments related to the Project including additional comments by Joseph McNamera, Assistant Sanitary Engineer for EC DSM

16. Letter from Sean Hopkins to the Planning Board dated February 8, 2021, consisting of Proposed Zoning Conditions

17. Town of Hamburg Planning Board Notice of Lead Agency Solicitation Letter dated January 12, 2021

18. Letter from Sean Hopkins to Tom Zimmerman dated November 11, 2020, consisting of a copy of the Concept Plan [Drawing C-100 - dated November 02, 2020).

19. Letter from Sean Hopkins to Sarah desJardins dated November 10, 2020, consisting of an updated project submission

20. Letter from Sean Hopkins to William Clark dated November 9, 2020, consisting of an updated Concept Plan dated November 02, 2020 and attached Exhibits 1 to 3

21. E-mail from Sarah desJardins to Sean Hopkins dated October 8, 2020, consisting of an outreach effort made by Sarah desJardins to the Sled HSC snowmobile organization dated October 8, 2020

D2: Correspondence After Issuance of Positive Declaration:

1. Letter from Sean Hopkins to Joshua Rogers dated May 17, 2023, containing a copy of the Nationwide Permit No. 29 issued by the USACE dated May 11, 2023

2. E-mail from Casey Gordon, NYSDOT to Joshua Rogers of Wendel Companies dated March 15, 2023, consisting of three comments pertaining to the project

3. Letter from Michelle Woznick, NYS DEC Deputy Permit Admin., to Joshua Rogers, Wendel Companies, dated March 15, 2023, containing the response by the NYS DEC pertaining to the Draft Scoping Document

4. Letter from Sean Hopkins to Sarah desJardins dated January 31, 2023, containing the Draft Scoping Document submitted on behalf of Wetzl Development, LLC for review by the Planning Board

5. Letter from Sean Hopkins to Sarah desJardins dated September 18, 2021, requesting a copy of the positive declaration issued by the Town of Hamburg Planning Board dated September 15, 2021

Appendix E: Minutes of Meetings of the Town of Hamburg Planning Board

1. Minutes of Planning Board Meeting on March 15, 2023
2. Minutes of Planning Board Meeting on March 01, 2023
3. Minutes of Planning Board Meeting on June 16, 2021
4. Minutes of Planning Board Meeting on June 02, 2021
5. Minutes of Planning Board Meeting on May 19, 2021
6. Minutes of Planning Board Meeting on May 05, 2021
7. Minutes of Planning Board Meeting on February 17, 2021
8. Minutes of Planning Board Meeting on February 02, 2021

9. Minutes of Planning Board Meeting on October 07, 2020

10. Minutes of Planning Board Meeting on June 16, 2021

Appendix F: Minutes of Meetings of the Town of Hamburg Town Board

1. Minutes of the Town Board Meeting on March 22, 2021

2. Minutes of the Town Board Meeting on October 05, 2020

Appendix G: Project Alternatives Plans

G1: Alternative Plan 1: Conceptual Site Plan consisting of mix-Use commercial development with subdivision, Drawing C-100, prepared by Christopher Wood, P.E. of Carmina Wood Morris dated December 07, 2021

G2: Alternative Plan 2: Preferred Alternative - Conceptual Site Plan consisting of multi-family development with 20.1 acres of As-of-Right Plan, Drawing C-100, prepared by Christopher Wood, P.E. of Carmina Wood Morris dated June 01, 2021

G3: Alternative Plan 3: Conceptual Site Plan with Multi-Family Development with Sub-division, Drawing C-100, prepared by Christopher Wood, P.E. of Carmina Wood Morris dated August 25, 2020

Appendix H: Downstream Sanitary Sewer Capacity Analysis (DSCA) by Christopher Wood, P.E. of Carmina Wood Morris dated January 5, 2021

VOLUME 2:

Appendix I: Traffic Impact Study prepared by SRF Associates dated April 2, 2021

Appendix J: Storm Water Management Summary Letter of Christopher Wood, P.E., of Carmina Wood Design dated April 18, 2024

Appendix K: Letter from Sean Hopkins to Sarah desJardins dated September 9, 2021 with Exhibits 1 and 2, consisting of the Riparian Buffer Plan dated September 9, 2021 and the Method of Riparian Buffer Design as prepared by Earth Dimensions Inc. dated September 9, 2021.

Appendix L: Wetland Delineation Report prepared by Earth Dimensions, Inc. dated June 11, 2020

Appendix M: Jurisdictional Determination issued by the United States Army Corps of Engineers dated May 13, 2021

Appendix N: Cultural Resources Report prepared by UB Anthropology Dept. dated April 29, 2021

Appendix O: Habitat Assessment Report prepared by Earth Dimensions; Inc. dated November 15, 2021

Appendix P: No Impact Determination Letter issued by Josalyn Ferguson, Ph.D. of the New York State Office of Parks, Recreation and Historic Preservation dated June 2, 2021

Appendix Q: Jurisdictional Federal Wetland Permit Application prepared by Earth Dimensions, Inc. dated December 23, 2021

Appendix R: Nationwide Permit issued by the United States Amry Corps of Engineers on May 11, 2023

Appendix S: Amended Rezoning Application dated January 11, 2020 with Exhibits 1 to 5 as follows:

Exhibit 1: Description of Requested Rezoning and Proposed Project

Exhibit 2: Survey of Project Site as Prepared by Creekside Boundary Land Surveying, PLLC

Exhibit 3: Concept Site Plan [Drawing C-100 – Date: 11-02-20] as Prepared by Carmina Wood Morris DPC

Exhibit 4: Parcel Reports for 0 Big Tree Road and 0 Wilson Road from Erie County GIS

Exhibit 5: Legal Description of Property to be Rezoned from R-1 to R-3, prepared by Creekside Boundary Land Surveying, PLLC

Appendix F

Traffic Impact Study
Prepared by SRF Associates

Traffic Impact Study

for the proposed

Residential Projects at Big Tree Road and Parker Road

Town of Hamburg
Erie County, New York

April 2, 2021

Project No. 41019

Prepared For:

Mr. Dave Manko
Parker Road Development LLC
4534 Clinton St
West Seneca, New York 14224

Mr. Glenn Wetzl
Wetzl Development LLC
7071 Liebler Road
Colden, New York 14033

Prepared By:

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1. Highway Capacity Manual 6th Edition. Transportation Research Board (TRB). The National Academies, Washington, DC. 2016.
2. Trip Generation, 10th Edition. Institute of Transportation Engineers (ITE). Washington, DC. 2017.
3. New York State Department of Transportation (NYSDOT) Traffic Data Viewer. 2021. Retrieved from https://www.dot.ny.gov/tdv.
4. NCHRP Report 279. Intersection Channelization Design Guide. TRB. 1985.
5. OnTheMap. U.S. Census Bureau. 2020.
6. Transportation Data Management System. Greater Buffalo-Niagara Regional Transportation Council (GBNRTC). Retrieved from http://www.gbnrtc.org/maps/. 2021.
7. Highway Design Manual. NYSDOT. Retrieved from https://www.dot.ny.gov/divisions/engineering/design/dqab/hdm.

EXECUTIVE SUMMARY

OVERVIEW

The purpose of this report is to evaluate the potential traffic impacts related to two proposed residential projects located along the south side of Big Tree Road and west side of Parker Road in the Town of Hamburg, NY. Within this report, the operating characteristics of the proposed access drives and impacts to the adjacent roadway network are identified and evaluated, and mitigating measures, if needed, are provided to minimize capacity or safety concerns.

To define traffic impact, this analysis establishes existing baseline traffic conditions, projects background traffic flow including area growth, and determines the traffic operations that would result from the proposed project.

As stated, this report evaluates two separate residential projects in this singular report. One of the residential projects consists entirely of single-family homes (located along Parker Road) and one consists entirely of multifamily apartment units (located along Big Tree Road). It is important to mention that the two proposed residential projects are not dependent on each other since they involve different project sponsors and do not involve vehicular connections (roadway, driveways, etc.) between the two separate project sites. It is our understanding that the Town of Hamburg Planning Board requested that the potential traffic impacts of both residential projects be evaluated simultaneously given the geographic proximity of the project sites to determine if there would be cumulative potentially significant adverse traffic impacts.

The single-family residential subdivision project site is bounded by residential development to the north, Parker Road to the east, residential development to the south, and undeveloped lands to the west. The multifamily project site is bounded by Big Tree Road to the north, primarily undeveloped lands to the east, residential development to the south, and commercial development to the west. Each project site is currently undeveloped.

Land uses in the vicinity of the proposed projects include commercial, educational, and residential. The study area includes the following existing intersections:

- Big Tree Road/Southwestern Boulevard
- Big Tree Road/Parker Road
- Big Tree Road/Abbott Road
- Parker Road/Marilyn Drive

The proposed projects consist of a 156-unit multifamily complex along Big Tree Road and a 67-lot single-family residential subdivision along Parker Road. It is important to mention that the project site for the multifamily project will include 20.1 acre of Permanent Open (nearly 50% of the approximately 42-acre site) that will remain permanently undeveloped via a deed restriction to be recorded at the Erie County Clerk's Office and that there will not be any roadway or driveway connections (including no gated emergency access driveway) from the multifamily project site onto Wilson Road. The original Concept Plan for the multifamily project site included a proposed 18 lot residential subdivision that would have included a public roadway connecting to Wilson Drive opposite of Tomaka Drive. However, the 18-lot residential subdivision was eliminated based on input received during the review process.

Access to the multifamily project will be provided via two new driveways along Big Tree Road. Access to the residential subdivision will be provided via two new driveways along Parker Road; of which one will be at the existing intersection of Parker Road/Marilyn Drive. Figures 5

(multifamily project) and 6 (single-family residential subdivision) depict the proposed site plans for each project.

Construction of both residential projects are anticipated to reach full build-out in approximately two to three years depending on market conditions. Town of Hamburg personnel were contacted to discuss any other specific projects that are currently approved or under construction that would generate additional traffic in the study area. No projects were identified.

In addition, to account for normal increases in background traffic growth, including any unforeseen developments in the project study area, and given the length of time (3 years) associated with full build-out of the proposed project, a growth rate of 0.5% has been applied to the existing traffic volumes in the study area based upon a review of historical traffic information obtained from the NYSDOT. All ambient growth calculations are included in the Appendices.

CONCLUSIONS & RECOMMENDATIONS

This Traffic Impact Study identifies and evaluates the potential traffic impacts that can be expected from the two proposed residential projects in the Town of Hamburg, New York, as described in this study. The results of this study determined that the existing transportation network can adequately accommodate the cumulative projected traffic volumes from both proposed residential projects and the resulting minor impacts to study area intersections with the noted improvements in place. The following sets forth the conclusions and recommendations based upon the results of the analyses:

1. The proposed residential projects are expected to generate approximately 30 entering/95 exiting vehicle trips during the AM peak hour and 98 entering/59 exiting vehicle trips during the PM peak hour.

2. The existing crash investigation did not reveal inherent safety deficiencies related to the geometric design of the study area intersections.

3. The left-turn warrant investigation at the proposed driveways along Big Tree Road determined that the proposed Driveway multifamily project Big Tree Road/Proposed Multifamily Easterly Driveway during the PM peak hour was satisfied; no other peak hours at either the proposed westerly or easterly intersections for the proposed multifamily family project were satisfied.

4. At the intersection of Big Tree Road/Proposed Multifamily Westerly Driveway, the existing striping pattern should be restriped to legally accommodate drivers turning left from Big Tree Road onto the proposed driveway via a two-way left-turn lane (TWLTL) treatment. This maintains the ability for drivers to turn left onto the commercial driveway west of the proposed driveway location while accommodating drivers to exit the proposed westerly driveway.

5. The projected traffic impacts resulting from full development of both of the proposed residential projects during both peak hours can be accommodated by the existing transportation network with the noted improvements in place.

6. For purposes of the environmental review of the proposed residential projects pursuant to the State Environmental Quality Review Act (SEQRA), it is our firm's professional opinion that the proposed residential projects will not result in any cumulative potentially significant adverse traffic impacts to the study area intersections. Given that both proposed residential projects will not result in any cumulative potentially significant traffic impacts, our firm's professional opinion as state above also applies to each of the two proposed residential projects if they had been evaluated separately.

I. INTRODUCTION

The purpose of this report is to evaluate the potential traffic impacts related to the proposed residential projects located along the south side of Big Tree Road and west side of Parker Road in the Town of Hamburg, NY. Within this report, the operating characteristics of the proposed access drives and impacts to the adjacent roadway network are identified and evaluated, and mitigating measures, if needed, are provided to minimize capacity or safety concerns.

To define traffic impact, this analysis establishes existing baseline traffic conditions, projects background traffic flow including area growth, and determines the traffic operations that would result from the proposed project.

II. LOCATION

As stated previously above, this report evaluates two separate residential projects located in close geographic proximity in this singular report as requested by the Town of Hamburg Planning Board. One of the residential projects consists entirely of single-family homes (located along Parker Road) and one consists entirely of multifamily units (located along Big Tree Road with no vehicular connections to Wilson Drive).

The single-family development is bounded by residential development to the north, Parker Road to the east, residential development to the south, and undeveloped lands to the west. The multifamily development is bounded by Big Tree Road to the north, primarily undeveloped lands to the east, residential development to the south, and commercial development to the west. Each of the project sites are currently undeveloped.

Land uses in the vicinity of the proposed projects include commercial, educational, and residential. The study area includes the following existing intersections:

- Big Tree Road/Southwestern Boulevard
- Big Tree Road/Parker Road
- Big Tree Road/Abbott Road
- Parker Road/Marilyn Drive

The site location and study area are illustrated in Figure 1 (all figures are included at the end of this report).

III. EXISTING HIGHWAY SYSTEM

The following information outlined in Table I provides a description of the existing roadway network within project study area. Figure 2 illustrates the lane geometry at each of the study intersections and the Annual Average Daily Traffic (AADT) volumes on the study roadways. The AADTs reflect the most recently collected data obtained from the New York State Department of Transportation (NYSDOT)

TABLE I: EXISTING HIGHWAY SYSTEM

ROADWAY[1]	CLASS[2]	AGENCY[3]	SPEED LIMIT[4]	# OF TRAVEL LANES[5]	TRAVEL PATTERN/ DIRECTION	EST. AADT[6] & SOURCE[7]
Southwestern Blvd (US-20)	14	NYSDOT	50	6	Two-way/ Northeast-Southwest	21,267 NYSDOT (2016)
Big Tree Road (US-20A)	14	NYSDOT	45	2	Two-way/ East-West	12,584 NYSDOT (2018)
Abbott Road (CR-4)	16	ECDPW	45	4	Two-way/ North-South	7,586 NYSDOT (2018)
Parker Road	19	Town	30	2	Two-way/ North-South	1,500 SRF (2021)
Marilyn Drive	19	Town	30	2	Two-way/ East-West	280 SRF (2021)

Notes:
1. Route Name/Number: "NY" = New York; "CR" = County Road
2. State Functional Classification of Roadway (All are Urban): 14 = Principal Arterial, 16 = Minor Arterial, 19 = Local
3. Jurisdictional Agency of Roadway. "NYSDOT" = New York State Department of Transportation; "ECDPW" = Erie County Department of Public Works
4. Posted or Statewide Limit in Miles per Hour (mph).
5. Excludes turning/auxiliary lanes developed at intersections.
6. Estimated AADT in Vehicles per Day (vpd).
7. AADT Source (Year). SRF data estimated based upon an extrapolation of turning movement counts.

PEDESTRIAN & BICYCLE FACILITIES

There are sidewalks along both sides of Southwestern Boulevard and there is a short segment of sidewalk along the south side Big Tree Rd that extends from Southwestern Boulevard to the commercial plaza driveway.

There are no dedicated bicycle lanes or trails although cyclists are permitted to share the road on all roadways within the study area.

TRANSIT FACILITIES

Public transit service within the study area is provided by the Niagara Frontier Transit Metro System, Inc (NFTA). NFTA currently provides service via Route 72 along Abbott Road and Big Tree Road (east of Abbott Road).

IV. EXISTING TRAFFIC CONDITIONS

A. *Peak Intervals for Analysis*

Given the functional characteristics of the corridors, adjacent land uses, and the proposed land use for the project sites (residential), the peak hours selected for analysis are the weekday commuter AM and PM peak periods. The combination of site traffic and adjacent through traffic produces the greatest demand during these time periods.

B. Existing Traffic Volume Data

Turning movement traffic counts were collected by SRF at the study area intersections described. Traffic counts were conducted on a typical weekday between 7:00-9:00 AM and 4:00-6:00 PM and on the dates noted in Table II. The peak hour traffic periods for each study intersection are noted in the table. The unadjusted weekday AM and PM peak hour volumes are reflected in Figure 3A. Traffic data for the Big Tree Road/Abbott Road intersection was obtained from the GBNRTC database. This data was collected on Tuesday, September 10, 2019 and inflated using the growth rate discussed in *Section V* to establish representative 2021 peak hour volumes.

TABLE II: STUDY INTERSECTION PEAK HOURS

INTERSECTION	DATE OF STUDY	AM PEAK HOUR	PM PEAK HOUR
Southwestern Boulevard/Big Tree Road	March 4, 2021	7:30-8:30 AM	4:00-5:00 PM
Big Tree Road/Parker Road/ECC Driveway	March 4, 2021	7:15-8:15 AM	4:00-5:00 PM
Big Tree Road/Abbott Road	September 10, 2019	7:30-8:30 AM	4:00-5:00 PM
Parker Road/Marilyn Drive	March 4, 2021	7:15-8:15 AM	4:00-5:00 PM

It is noted, however, that traffic volumes are currently lower than normal because of business restrictions resulting from COVID-19 pandemic. Traffic volumes were compared to traffic data obtained in various locations before the COVID-19 pandemic by the NYSDOT and adjusted to reflect 2021 representative traffic conditions by increasing the collected traffic volumes. This is consistent with NYSDOT and ITE methodology for adjustments related to collected traffic volumes affected by the COVID-19 pandemic. The collected traffic volumes were generally 20% lower during the peak periods.

Given the proximity to ECC South Campus, this study researched the effect of the pandemic on in-person sessions at the campus. ECC personnel stated that approximately 20% of sessions are held in-person. Therefore, this study increased the volume of traffic related to ECC South Campus, using the traffic counts obtained at the Big Tree Road/Parker Road/ECC Driveway, to reflect typical ECC South Campus conditions.

Figure 3B illustrates the representative 2021 weekday AM and PM peak hour base volumes used for analysis purposes in this study.

C. Field Observations

The study intersections were observed during both peak intervals to assess current traffic operations. Signal timing information was obtained from the NYSDOT through a Freedom of Information (FOIL) request to determine peak hour phasing plans and phase durations during each interval. This information was used to support and/or calibrate capacity analysis models described in detail later in this report.

D. Existing Crash Investigation

The purpose of this crash analysis is to identify inherent safety issues by studying and quantifying historical crashes at the study intersections and identifying potential crash patterns and clusters.

A crash cluster is defined as an abnormal occurrence of similar crash types occurring at approximately the same location or involving the same geometric features. The severity of the crashes should also be considered. A history of crashes is an indication that further analysis is required to determine the cause(s) of the crash(es) and to identify what actions, if any, could be taken to mitigate the crashes.

A crash investigation within the study area was conducted to assess the safety history from January 1, 2018 through December 31, 2020. The data was provided by the New York State Department of Motor Vehicles (NYSDMV) through a Freedom of Information (FOIL) request.

Reportable (non-injury, injury, and fatal injury) type crashes are defined as damage to one person's property in the amount of $1,001 or more. The Non-Reportable type crashes result in property damage of $1,000 or less. Crash rates were computed for the study intersections and compared with New York State Department of Transportation average crash rates for similar intersections, as summarized in the following table. Intersection rates are listed as accidents (crashes) per million entering vehicle (Acc/MEV). Pertinent crash data is provided in the Appendices.

TABLE III: EXISTING ACCIDENT INVESTIGATION

INTERSECTION	TOTAL NO. OF ACCIDENTS	ACTUAL CRASH RATE	STATEWIDE AVERAGE CRASH RATE
Southwestern Boulevard/Big Tree Road	28	0.88	0.23
Big Tree Road/Parker Road	3	0.26	0.31
Big Tree Road/Abbott Road	15	0.74	0.23
Parker Road/Marilyn Drive	0	0.00	0.18

Two of the four study intersections had a crash rate lower than the statewide average. The results of the two intersections with calculated rates higher than the statewide average are described in greater detail.

Southwestern Boulevard/Big Tree Road

As shown in Table III, the study intersection has a crash rate that is 3.8 times higher than the statewide average crash rate for similar intersections. Of the 28 crashes, one was fixed object related and one was animal related. When discounting these two crashes from the total rate, the actual crash rate decreases to 0.81 Acc/MEV. Notable crash clusters—approaches with three or greater identifiable consistent crash patterns—at this location include:

- Rear-end (nine total crashes)
    - Eastbound (four crashes)
    - Westbound (three crashes)
- Right angle
    - Westbound (three crashes)

The frequency of rear-end crashes is characteristic of signalized intersections along heavily trafficked corridors, such as Southwestern Boulevard. Most of these crashes, in addition to the other reported crashes, were caused by driver inattention, following too closely, or disregard of the traffic control device. Despite the number of crashes, no inherent safety deficiencies exist related to the geometric conditions of the intersection.

Big Tree Road/Abbott Road

As shown in Table III, the study intersection has a crash rate that is 3.2 times higher than the statewide average crash rate for similar intersections. Of the 15 total crashes, three right angle crashes occurred in the northbound direction. These crashes were reportedly caused by a failure to yield the right of way. No other discernible crash patterns were identified related to geometric conditions and no apparent safety deficiencies exist.

V. FUTURE AREA DEVELOPMENT AND LOCAL GROWTH

Construction of both residential projects are anticipated to reach full build-out in approximately two to three years depending on market conditions. Town of Hamburg personnel were contacted to discuss any other specific projects that are currently approved or under construction that would generate additional traffic in the study area. No projects were identified.

In addition, to account for normal increases in background traffic growth, including any unforeseen developments in the project study area, and given the length of time (3 years) associated with full build-out of the proposed project, a growth rate of 0.5% has been applied to the existing traffic volumes in the study area based upon a review of historical traffic information obtained from the NYSDOT. All ambient growth calculations are included in the Appendices. The background traffic volumes are depicted in Figure 4.

VI. PROPOSED DEVELOPMENT

A. Description

The proposed projects consist of a 156-unit multifamily complex along Big Tree Road and a 67-lot single-family residential subdivision along Parker Road. It is important to mention that the project site for the multifamily project will include 20.1 acre of Permanent Open (nearly 50% of the approximately 42-acre site) that will remain permanently undeveloped via a deed restriction to be recorded at the Erie County Clerk's Office and that there will not be any roadway or driveway connections (including no gated emergency access driveway) from the multifamily project site onto Wilson Road. The original Concept Plan for the multifamily project site included a proposed 18 lot residential subdivision that would have included a public roadway connecting to Wilson Drive opposite of Tomaka Drive. However, the 18-lot residential subdivision was eliminated based on input received during the review process.

B. Site Traffic

The volume of traffic generated by a site is dependent on the intended land use and size of the development. Trip generation is an estimate of the number of trips generated by a specific building or land use. These trips represent the volume of traffic entering and exiting the development. Trip Generation, 10th Edition (2017) published by the Institute of Transportation Engineers (ITE) is used as a reference for this information. The trip rate for the peak hour of the generator may or may not coincide in time or volume with the trip rate for the peak hour of adjacent street traffic. Volumes generated during the peak hour of the adjacent street traffic and proposed land uses, in this case, the weekday commuter AM and PM peaks, represent a more critical volume when analyzing the capacity of the system; those intervals will provide the basis of this analysis.

Table IV shows the total site generated trips for the weekday commuter AM and PM peak hours for the proposed project. All trip generation information has been included in the Appendices.

TABLE IV: SITE GENERATED TRIPS

DESCRIPTION	ITE LUC[1]	SIZE	AM PEAK HOUR		PM PEAK HOUR	
			ENTER	EXIT	ENTER	EXIT
Multifamily Project	220	156 Units	17	56	55	33
Single-Family Project	210	67 Lots	13	39	43	26
Total Site Generated Trips			**30**	**95**	**98**	**59**

Note:
1. LUC = Land Use Code.

The proposed projects are expected to generate approximately 30 entering/95 exiting vehicle trips during the AM peak hour and 98 entering/59 exiting vehicle trips during the PM peak hour.

C. *Site Traffic Distribution*

The cumulative effect of site-generated traffic on the transportation network is dependent on the origins and destinations of that traffic and the location of the access drives serving the site. The proposed arrival/departure distribution of traffic generated by the proposed project is considered a function of several parameters, including:

- Employment centers using Census Data (e.g., OnTheMap)
- Commercial centers and schools
- Site access driveway locations
- Existing traffic patterns
- Existing traffic conditions and controls

Figure 7A shows the anticipated trip distribution pattern percentages for the traffic from the proposed multifamily project, Figure 7B shows the anticipated project trip distribution pattern percentages for the traffic from the proposed single-family project. Figures 8A and 8B illustrate the peak hour project site generated traffic based on those percentages for the multifamily and single-family projects, respectively. Figure 8C illustrates the combined total site generated trips from both projects.

VII. FULL DEVELOPMENT VOLUMES

Proposed design hour traffic volumes are developed for the AM and PM peak hours by combining the background traffic conditions (Figure 4) and the new site generated traffic volumes (Figure 8C) to yield the traffic volumes under full development conditions. The resulting design hour volumes for the proposed project are illustrated in Figure 9 under full build-out conditions.

VIII. CAPACITY ANALYSIS

A. Description of Capacity Analysis

Capacity analysis is a technique used for determining a measure of effectiveness for a section of roadway and/or intersection based on the number of vehicles during a specific time period. The measure of effectiveness used for the capacity analysis is referred to as a Level of Service (LOS). Levels of Service are calculated to provide an indication of the amount of delay that a motorist experiences while traveling along a roadway or through an intersection. Since the most amount of delay to motorists usually occurs at intersections, capacity analysis focuses on intersections, as opposed to highway segments.

Six Levels of Service are defined for analysis purposes. They are assigned letter designations, from "A" to "F", with LOS "A" representing the conditions with little to no delay, and LOS "F" conditions with very long delays. Suggested ranges of service capacity and an explanation of Levels of Service are included in the Appendices.

The standard procedure for capacity analysis of signalized and unsignalized intersections is outlined in the Highway Capacity Manual (HCM 2016) published by the Transportation Research Board. Traffic analysis software, Synchro 10, which is based on procedures and methodologies contained in the HCM, was used to analyze operating conditions at study area intersections. The procedure yields a Level of Service based on the HCM as an indicator of how well intersections operate. This study used HCM 2000 methodology for determining operations at the unsignalized intersections in accordance with local NYSDOT Region 5 guidelines.

B. Capacity Analysis Results

Existing and background operating conditions during the peak study periods are evaluated to determine a basis for comparison with the projected future conditions. The future traffic conditions generated by the project were analyzed to assess the operation of the study area intersections. Capacity results for existing, background and full development conditions are listed in Table V. The discussion following the table summarizes capacity conditions.

TABLE V: CAPACITY ANALYSIS RESULTS

INTERSECTION	2021 EXISTING BASE CONDITIONS				2024 NO BUILD CONDITIONS				2024 FULL BUILD CONDITIONS				2024 FULL BUILD CONDITIONS W/ IMPROVEMENTS			
	AM		PM		AM		PM		AM		PM		AM		PM	
1. SOUTHWESTERN BOULEVARD/BIG TREE ROAD (S)																
EB Left - Southwestern Boulevard	A	8.9	B	13.1	A	7.0	B	13.3	A	8.1	B	13.8				
EB Thru - Southwestern Boulevard	A	7.6	B	18.9	A	7.7	B	17.2	B	10.0	B	17.9				
EB Right - Southwestern Boulevard	A	0.7	A	0.9	A	0.7	A	0.9	A	0.8	A	1.0				
WB Left - Southwestern Boulevard	A	7.1	B	12.9	A	7.2	B	13.0	A	8.2	B	13.5				
WB Thru/Right - Southwestern Boulevard	A	9.0	C	21.5	A	9.1	C	21.9	B	10.2	C	22.8	NA		NA	
NB Left - Big Tree Road	E	60.6	D	54.9	E	60.8	D	54.6	E	59.3	D	53.6				
NB Left/Thru/Right - Big Tree Road	E	59.6	D	54.6	E	59.6	D	54.2	E	57.3	D	53.5				
SB Left - Redigan's	E	55.3	E	55.1	E	55.3	E	55.1	E	55.3	E	55.1				
SB Thru/Right - Redigan's	D	41.4	C	34.0	D	41.4	C	34.0	D	41.4	C	34.0				
Overall LOS	***B***	***13.6***	***C***	***23.6***	***B***	***13.7***	***C***	***23.7***	***B***	***15.8***	***C***	***24.0***				
Volume-to-Capacity (v/c) Ratio	***0.61***		***0.72***		***0.62***		***0.72***		***0.65***		***0.73***					
2. BIG TREE ROAD/PARKER ROAD/ECC DRIVEWAY (U)																
EB - Big Tree Road	A	0.5	A	0.4	A	0.5	A	0.3	A	0.5	A	0.3				
WB - Big Tree Road	A	0.5	A	0.9	A	0.5	A	0.9	A	0.7	A	1.5	NA		NA	
NB - Parker Road	C	15.2	C	20.8	C	15.3	C	21.2	C	18.3	D	28.0				
SB - ECC Dwy	C	15.7	C	16.5	C	15.9	C	16.7	C	17.8	C	18.7				
3. BIG TREE ROAD/ABBOTT ROAD (S)																
EB Left - Big Tree Road	B	10.3	A	9.8	B	10.4	A	10.0	B	10.9	B	10.8				
EB Thru/Right - Big Tree Road	B	14.8	B	12.4	B	14.7	B	12.5	B	15.6	B	13.0				
WB Left - Big Tree Road	B	10.5	B	11.8	B	10.5	B	12.1	B	10.8	B	12.5				
WB Thru/Right - Big Tree Road	B	13.1	B	15.0	B	13.2	B	15.2	B	13.4	B	16.4	NA		NA	
NB Left - Abbott Road	B	13.8	B	15.6	B	14.1	B	15.7	B	14.5	B	16.1				
NB Thru/Right - Abbott Road	B	16.4	B	16.0	B	17.0	B	15.2	B	17.3	B	15.4				
SB Left - Abbott Road	B	19.2	B	16.6	B	20.0	B	16.8	C	20.5	B	17.1				
SB Thru/Right - Abbott Road	B	12.0	B	17.9	B	12.3	B	18.1	B	12.3	B	18.6				
Overall LOS	***B***	***14.5***	***B***	***14.7***	***B***	***14.8***	***B***	***14.9***	***B***	***15.2***	***B***	***15.5***				
Volume-to-Capacity (v/c) Ratio	***0.57***		***0.64***		***0.57***		***0.65***		***0.62***		***0.66***					
4. PARKER ROAD/MARILYN DRIVE/PROPOSED SF NORTHERLY DWY (U)																
EB - Proposed Driveway	NA		NA		NA		NA		A	9.6	B	10.2				
WB - Marilyn Drive	A	8.8	A	8.9	A	8.8	A	8.9	A	8.9	A	9.1	NA		NA	
NB - Parker Road	NA		NA		NA		NA		A	0.0	A	0.1				
SB - Parker Road	A	1.5	A	2.1	A	1.6	A	2.1	A	1.9	A	2.7				
5. PARKER ROAD/PROPOSED SF SOUTHERLY DWY (U)																
EB - Proposed Driveway	NA		NA		NA		NA		A	9.2	A	9.4	NA		NA	
NB - Parker Road									A	0.0	A	0.1				
6. BIG TREE ROAD/PROPOSED MF EASTERLY DWY (U)																
WB - Big Tree Road	NA		NA		NA		NA		A	0.3	A	0.7	NA		NA	
NB - Proposed Driveway									B	13.5	C	18.6				
7. BIG TREE ROAD/PROPOSED MF WESTERLY DWY (U)																
WB Left - Big Tree Road	NA		NA		NA		NA		A	8.1	A	8.5	A	8.1	A	8.5
WB Thru - Big Tree Road									A	0.0	A	0.0	A	0.0	A	0.0
NB - Proposed Driveway									B	13.1	C	18.4	B	11.1	B	12.9

Notes:

1. A(2.8) = Level of Service (Delay in seconds per vehicle)
2. EB = Eastbound, WB = Westbound, NB = Northbound, SB = Southbound
3. (S) = Signalized; (U) = Unsignalized
4. N/A = Approach does not exist and/or was not analyzed during this condition
5. Green shaded cells indicate low delays, yellow shaded cells indicate moderate delays, red shaded cells indicate long delays.
6. The v/c ratio, also referred to as degree of saturation, represents the sufficiency of an intersection to accommodate the vehicular demand. A v/c ratio less than 0.85 generally indicates that adequate capacity is available and vehicles are not expected to experience significant queues and delays. A v/c ratio between 0.85 and 0.95 generally indicates an intersection is nearing capacity. Intersections with a v/c ratio of 1.0 or greater generally indicate conditions at or above capacity.

1. Southwestern Boulevard/Big Tree Road

All movements operate at LOS "E" or better under existing and projected no build conditions during both peak hours with short to moderate delays. In urbanized conditions, LOS "D" is considered an acceptable condition. The movements resulting in LOS "E", namely the northbound left/thru/right and southbound left, are near borderline conditions, as the threshold between LOS "D" and "E" is 55.0 seconds of delay per vehicle for signalized intersections.

Between no build and full build conditions, the eastbound thru and westbound thru/right movements change from LOS "A" to "B" during the AM peak hour; a borderline condition as the threshold is 10.0 seconds of delay per vehicle. No other movements are projected to change in LOS because of the proposed residential projects during either peak hour and no improvements are warranted nor recommended at this location.

2. Big Tree Road/Parker Road/ECC South Campus Driveway

All movements operate at a highly acceptable LOS "C" or better under existing and projected no build conditions during both peak hours. Between no build and full build conditions, the northbound movement changes from LOS "C" to an acceptable "D" during the PM peak hour; a change that occurs at 25.0 seconds of delay per vehicle. The projected minor impacts resulting from the proposed residential projects can be sufficiently accommodated by the existing intersection and no improvements are warranted nor recommended at this location.

3. Big Tree Road/Abbott Road

All movements operate at LOS "B" or better under existing and projected no build conditions during both peak hours. Between no build and full build conditions, the southbound left movement changes from LOS "B" to a highly acceptable "C" during the AM peak hour; a borderline condition as the change that occurs at 20.0 seconds of delay per vehicle. The projected minor impacts resulting from the proposed residential projects can be sufficiently accommodated by the existing intersection and no improvements are warranted nor recommended at this location.

4. Parker Road/Marilyn Drive/Proposed Single Family Northerly Driveway

All approaches operate at LOS "A" or better under existing and projected no build conditions during both peak hours. Under full build conditions, the eastbound approach from the proposed project is projected to operate at LOS "B". No changes in LOS are projected because of the proposed residential projects and the projected minor impacts can be sufficiently accommodated by the existing intersection; thus, no improvements are warranted nor recommended at this location. The proposed driveway should consist of one entering and one exiting lane.

5. Parker Road/Proposed Single Family Southerly Driveway

All approaches are projected to operate at LOS "A" under full build conditions. No improvements are warranted nor recommended at this location. The proposed driveway should consist of one entering and one exiting lane.

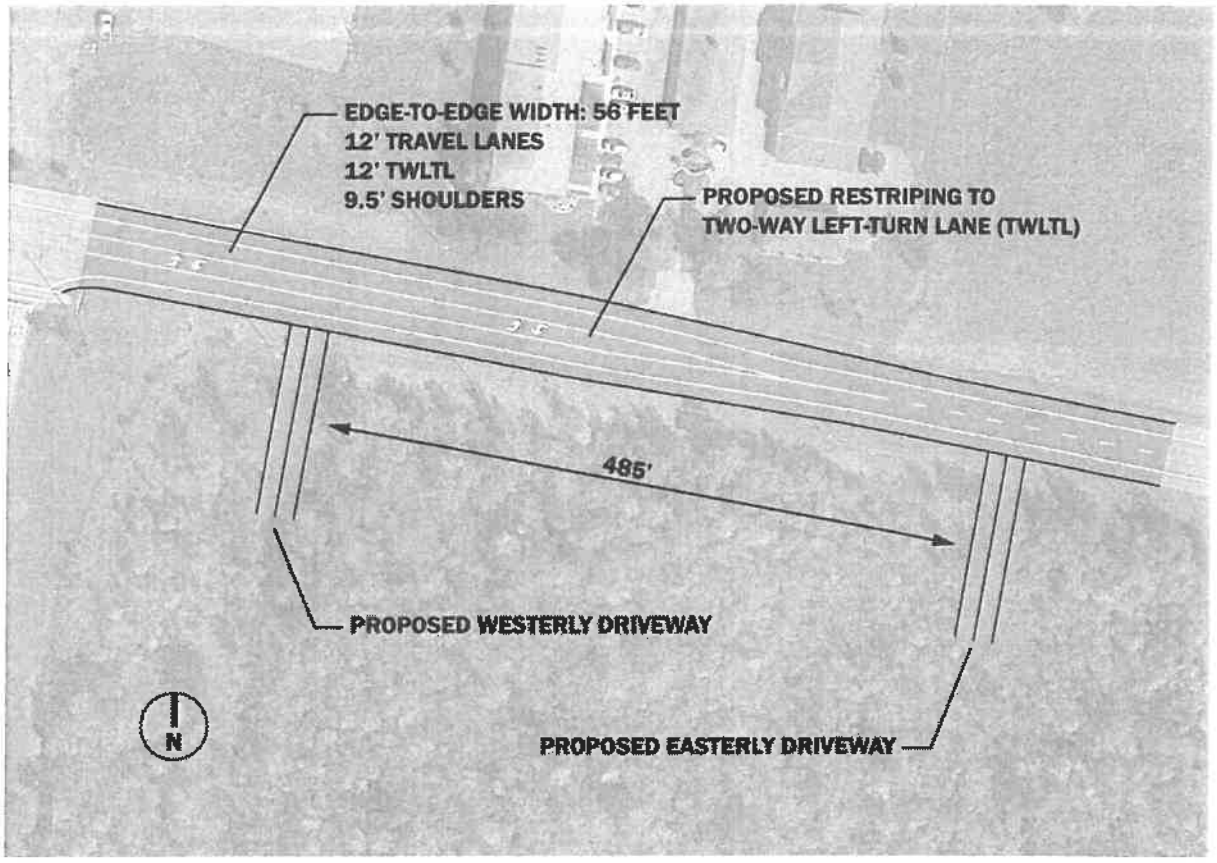
6. Big Tree Road/Proposed Multifamily Easterly Driveway

The proposed northbound approach is projected to operate at LOS "B" and "C" under full build conditions during the AM and PM peak hours, respectively. Big Tree Road approaches are projected to operate at LOS "A".

This study evaluated warrants for a left-turn treatment at this location and determined that they are only satisfied during the PM peak hour. This evaluation is discussed in greater detail in the following section. There are 22 left-turn vehicles entering the Proposed Multifamily Easterly Driveway (one vehicle every 2.7 minutes). Based upon the projected vehicle trips and capacity analysis results, no improvements are recommended at this location.

7. Big Tree Road/Proposed Multifamily Westerly Driveway

The proposed northbound approach is projected to operate at LOS "B" and "C" under full build conditions during the AM and PM peak hours, respectively. Big Tree Road approaches are projected to operate at LOS "A". The warrants for a left-turn treatment were not satisfied during both peak hours. However, the existing striping pattern should be restriped to legally accommodate drivers turning left from Big Tree Road onto the proposed driveway via a two-way left-turn lane (TWLTL) treatment. This concept is illustrated in the following figure. This maintains the ability for drivers to turn left onto the commercial driveway west of the proposed driveway location while accommodating drivers to exit the Proposed Multifamily Westerly Driveway. The Proposed Multifamily Westerly Driveway should consist of one entering and one exiting lane.



IX. LEFT TURN TREATMENT INVESTIGATION

Volume warrants for left turn treatments at the proposed driveways for the multifamily project along Big Tree Road were investigated using the Transportation Research Board's NCHRP Report 279, Intersection Channelization Design Guide. Provisions for left turn lane facilities should be established where traffic volumes are high enough and safety considerations are sufficient to warrant the additional lane. All warrant calculations are included in the Appendices.

Warrants were investigated for full build conditions of the multifamily project site during both peak hours analyzed. For the intersection of Big Tree Road/Proposed Multifamily Easterly Driveway, the proposed traffic volumes turning left onto the proposed driveway from Big Tree Road indicates that the warrants for a westbound left turn lane are not satisfied during the AM peak hour but are satisfied during the PM peak hour. It should be noted that the projected volumes turning left onto the multifamily project site at this location is 22 vehicles per hour (one vehicle every 2.7 minutes).

For the intersection of Big Tree Road/Proposed Multifamily Westerly Driveway, the proposed traffic volumes turning left onto the proposed driveway from Big Tree Road indicates that the warrants for a westbound left turn lane are not satisfied during both peak hours studied.

X. CONCLUSIONS & RECOMMENDATIONS

This Traffic Impact Study identifies and evaluates the potential traffic impacts that can be expected from the proposed project in the Town of Hamburg, New York, as described in this study. The results of this study determined that the existing transportation network can adequately accommodate the projected traffic volumes and resulting minor impacts to study area intersections with the noted improvements in place. The following sets forth the conclusions and recommendations based upon the results of the analyses:

1. The proposed residential projects are expected to generate approximately 30 entering/95 exiting vehicle trips during the AM peak hour and 98 entering/59 exiting vehicle trips during the PM peak hour.

2. The existing crash investigation did not reveal inherent safety deficiencies related to the geometric design of the study area intersections.

3. The left-turn warrant investigation at the proposed driveways along Big Tree Road determined that the proposed Driveway multifamily project Big Tree Road/Proposed Multifamily Easterly Driveway during the PM peak hour was satisfied; no other peak hours at either the proposed westerly or easterly intersections for the proposed multifamily family project were satisfied.

4. At the intersection of Big Tree Road/Proposed Multifamily Westerly Driveway, the existing striping pattern should be restriped to legally accommodate drivers turning left from Big Tree Road onto the proposed driveway via a two-way left-turn lane (TWLTL) treatment. This maintains the ability for drivers to turn left onto the commercial driveway west of the proposed driveway location while accommodating drivers to exit the proposed westerly driveway.

5. The projected traffic impacts resulting from full development of both of the proposed residential projects during both peak hours can be accommodated by the existing transportation network with the noted improvements in place.

6. For purposes of the environmental review of the proposed residential projects pursuant to the State Environmental Quality Review Act (SEQRA), it is our firm's professional opinion that the proposed residential projects will not result in any cumulative potentially significant adverse traffic impacts to the study area intersections. Given that both proposed residential projects will not result in any cumulative potentially significant traffic impacts, our firm's professional opinion as state above also applies to each of the two proposed residential projects if they had been evaluated separately.

XI. FIGURES

Figures 1 through 9 are included on the following pages.

FIGURE 1: SITE LOCATION AND STUDY AREA

Key

- Study Intersection
- Proposed Intersection
- Study/Proposed Intersection
- Study Area
- Site Location

PROPOSED RESIDENTIAL PROJECTS AT BIG TREE ROAD AND PARKER ROAD

TOWN OF HAMBURG, ERIE COUNTY, NEW YORK

N

0 600

Project No: 41019

SRF ASSOCIATES

Transportation Planning / Engineering / Design

Notes:

1. All AADT volumes by those noted:
   1.1. NYSDOT = New York State Department of Transportation.
2. V.P.D. = Vehicles per Day.

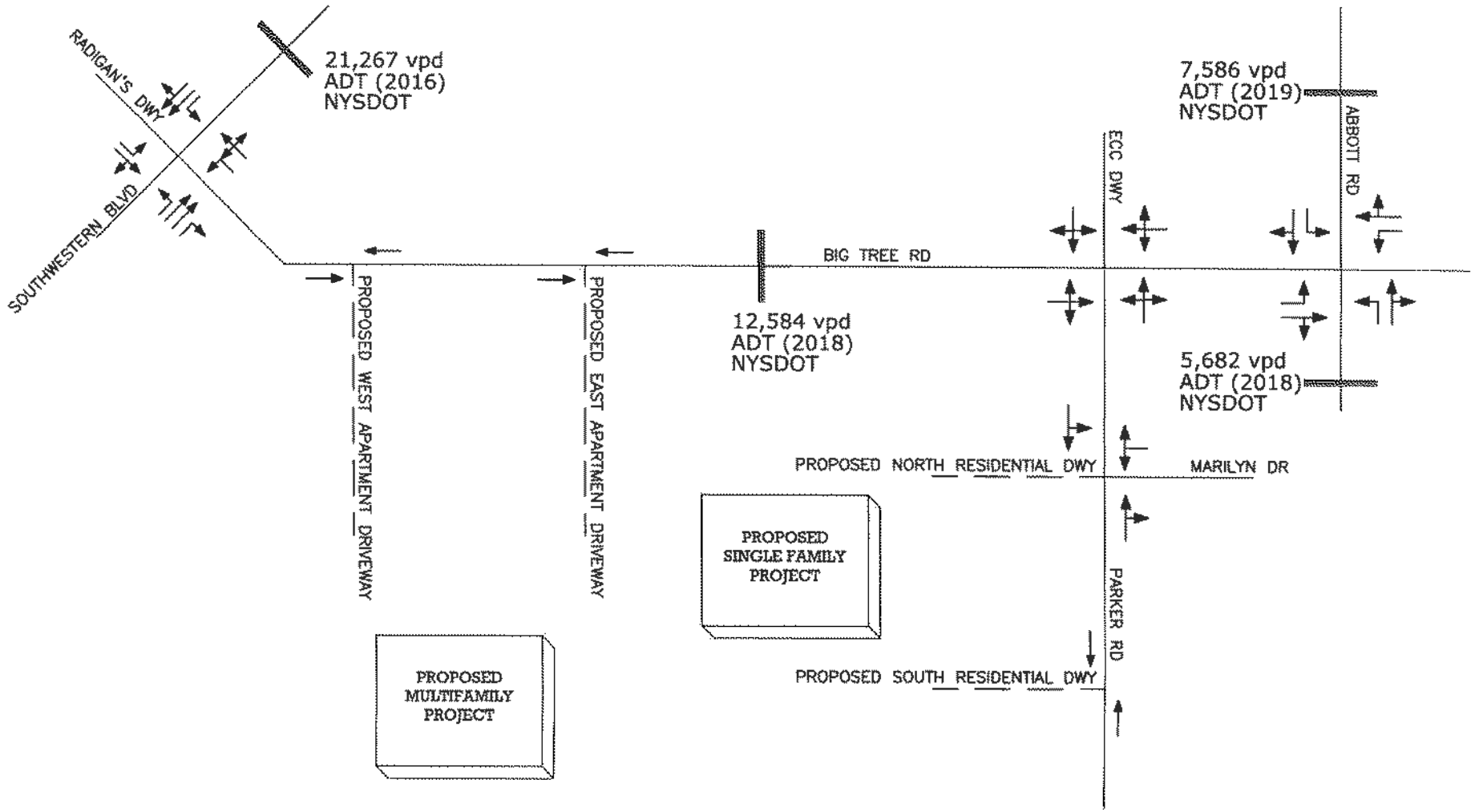


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FIGURE 2

LANE GEOMETRY &
AVERAGE DAILY TRAFFIC

PROPOSED BIG TREE RESIDENTIAL PORJECTS
TOWN OF HAMBURG, NY

KEY

PROJECT NO: 41019

Notes:

1. Data for the Big Tree Rd/Abbott Rd intersection was obtained the GBNRTC database. Data for this intersection is from 2019.
2. Data for the remaining intersections is from 2021.

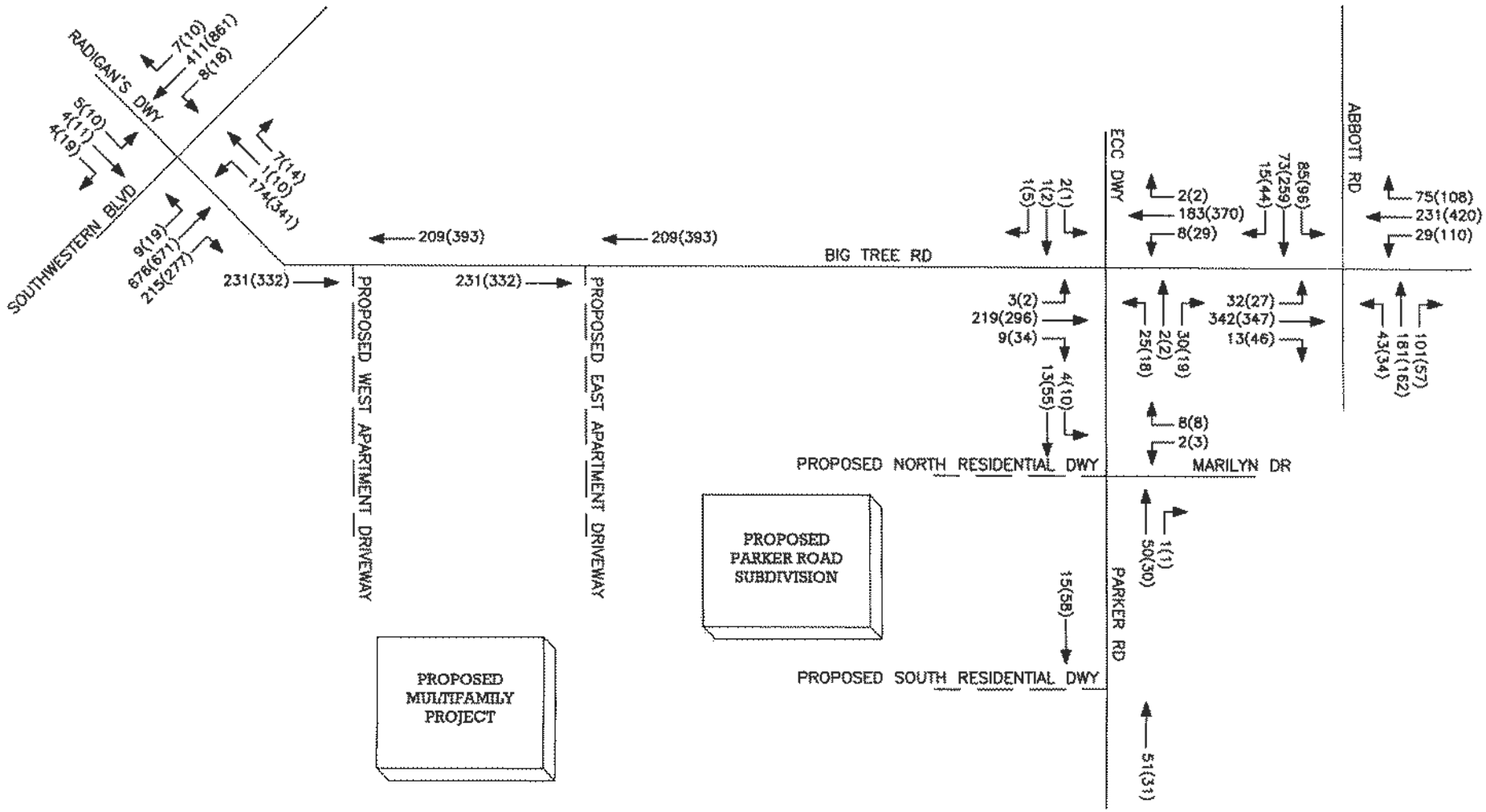

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FIGURE 3A

PEAK HOUR VOLUMES
EXISTING CONDITIONS

PROPOSED BIG TREE RESIDENTIAL PORJECTS
TOWN OF HAMBURG, NY

KEY

00(00) = AM(PM)

PROJECT NO: 41018

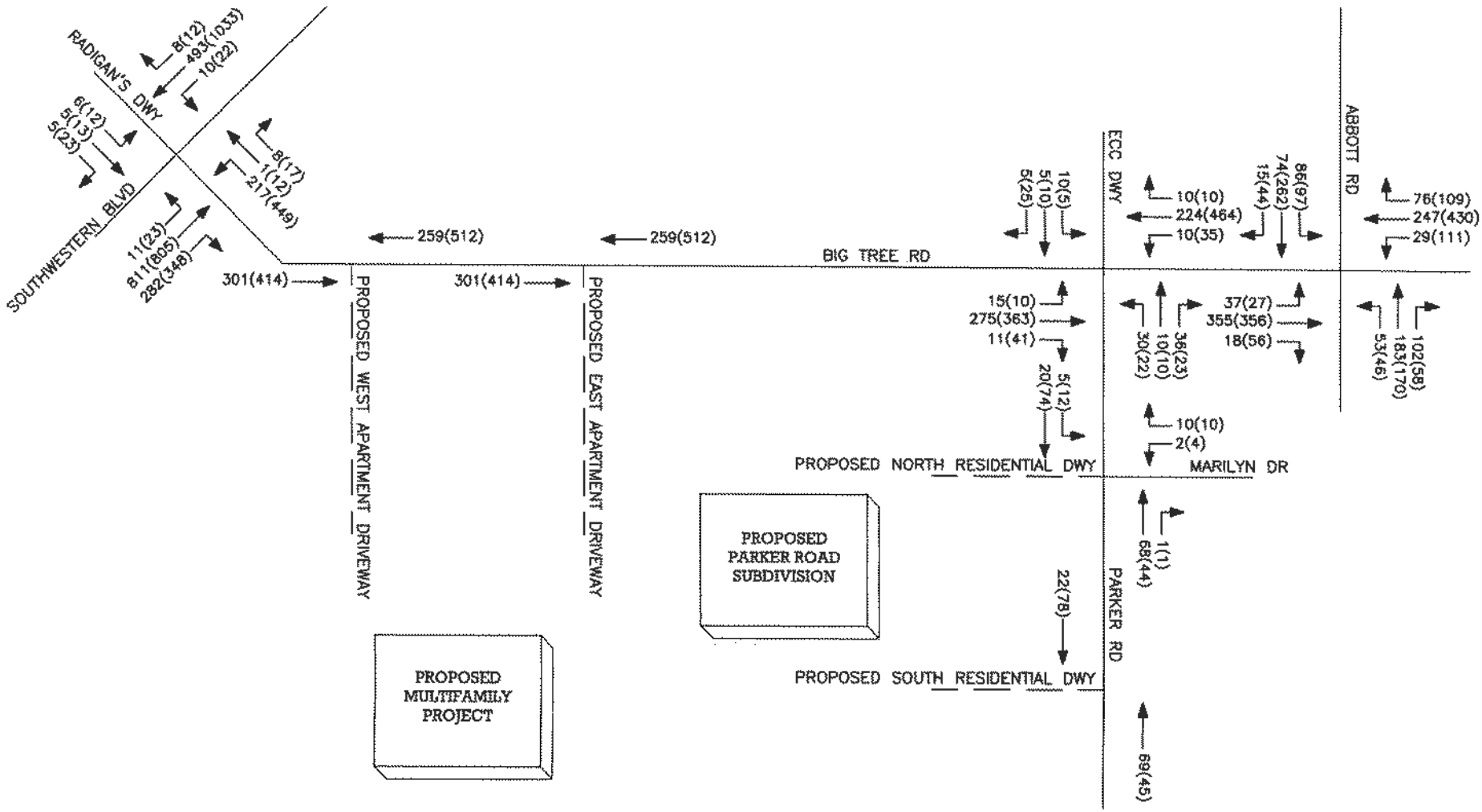

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FIGURE 3B

PEAK HOUR VOLUMES
2021 ADJUSTED BASE CONDITIONS

PROPOSED BIG TREE RESIDENTIAL PORJECTS
TOWN OF HAMBURG, NY

KEY

00(00) = AM(PM)

PROJECT NO: 41019

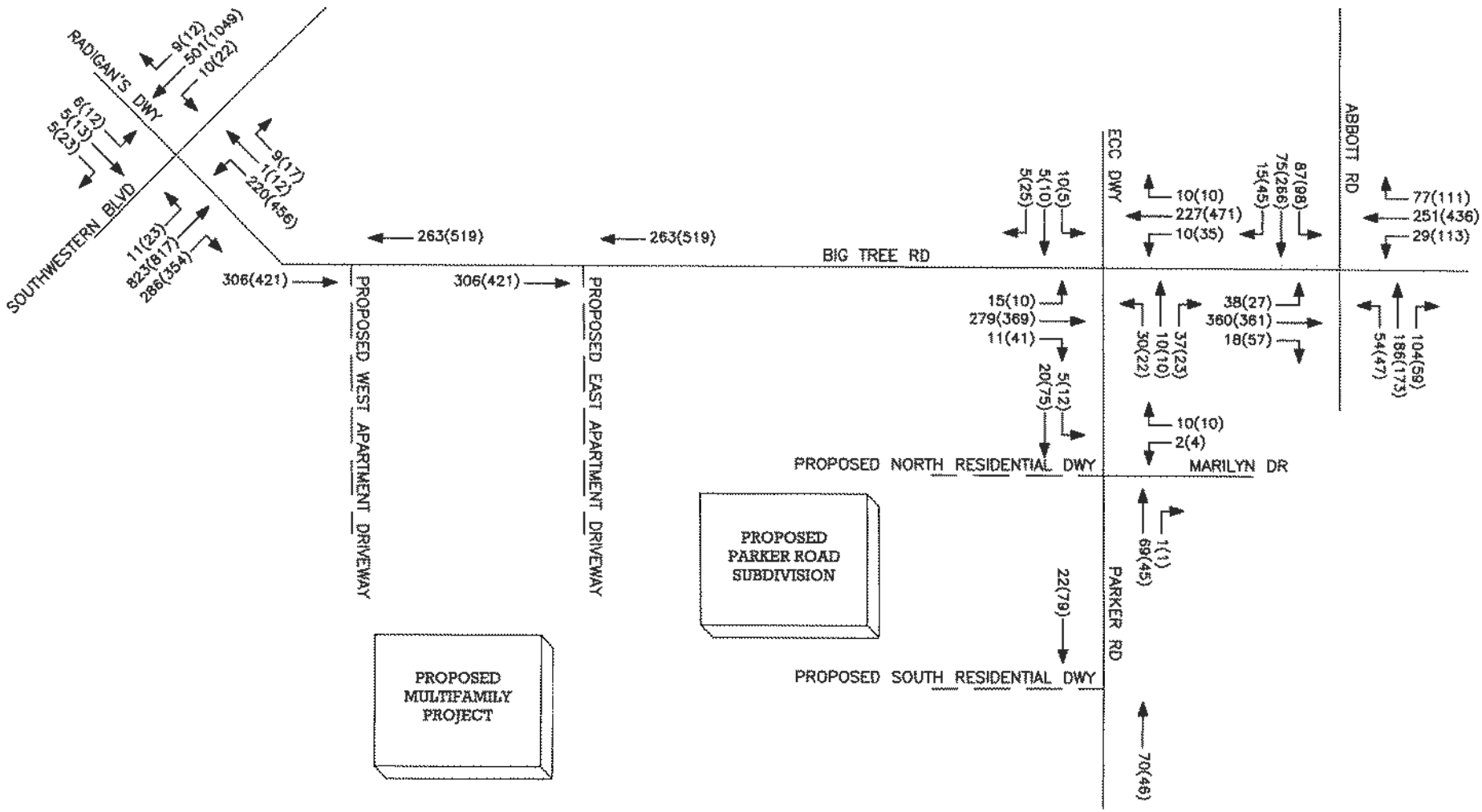

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FIGURE 4

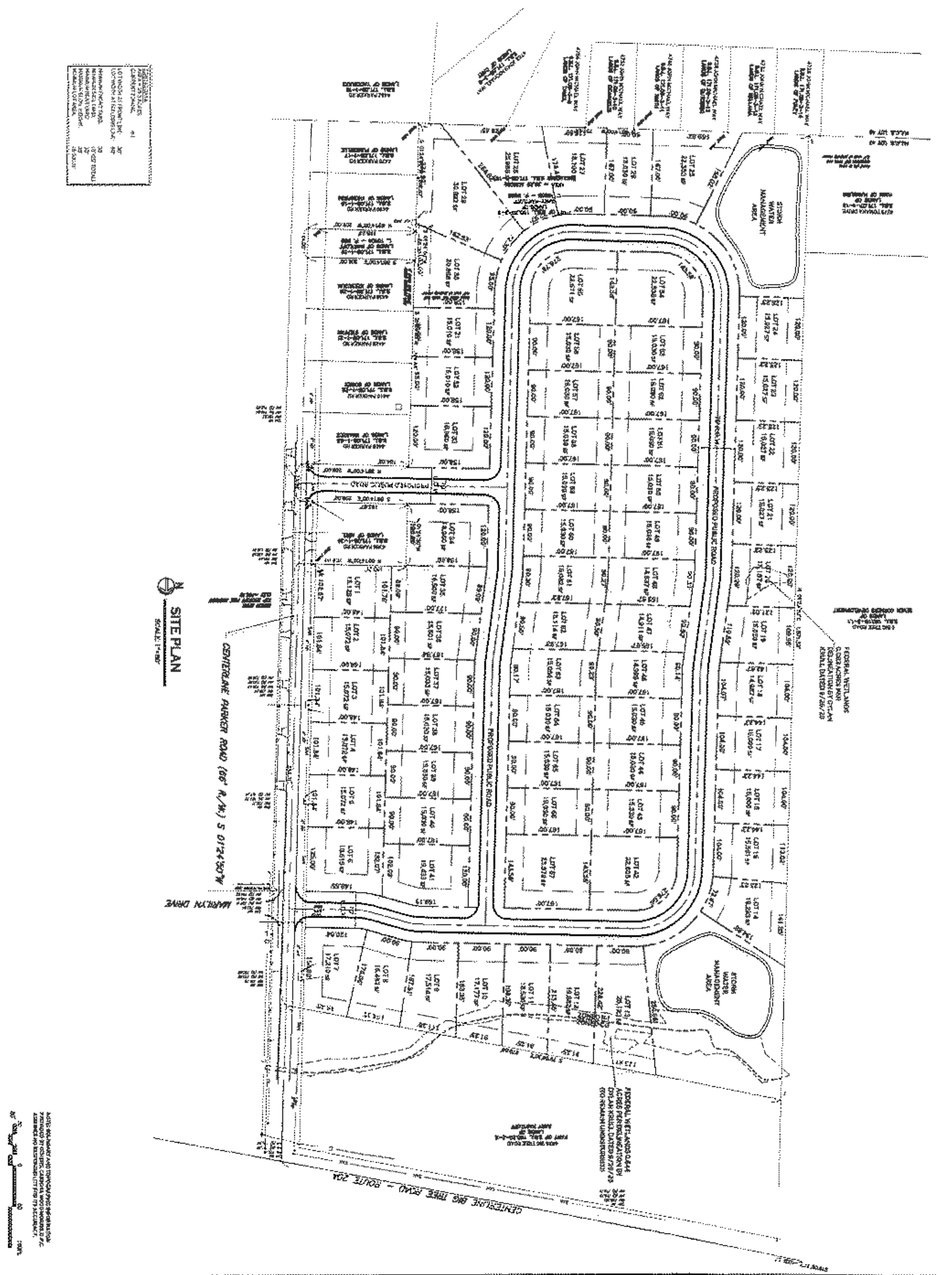
PEAK HOUR VOLUMES
2024 BACKGROUND CONDITIONS

PROPOSED BIG TREE RESIDENTIAL PORJECTS
TOWN OF HAMBURG, NY

KEY

00(00) = AM(PM)

PROJECT NO: 41019



PROJECT NAME:

New Construction

Single Family Subdivision

Parker Rd & Rte 20A
Hamburg, New York

REVISIONS:

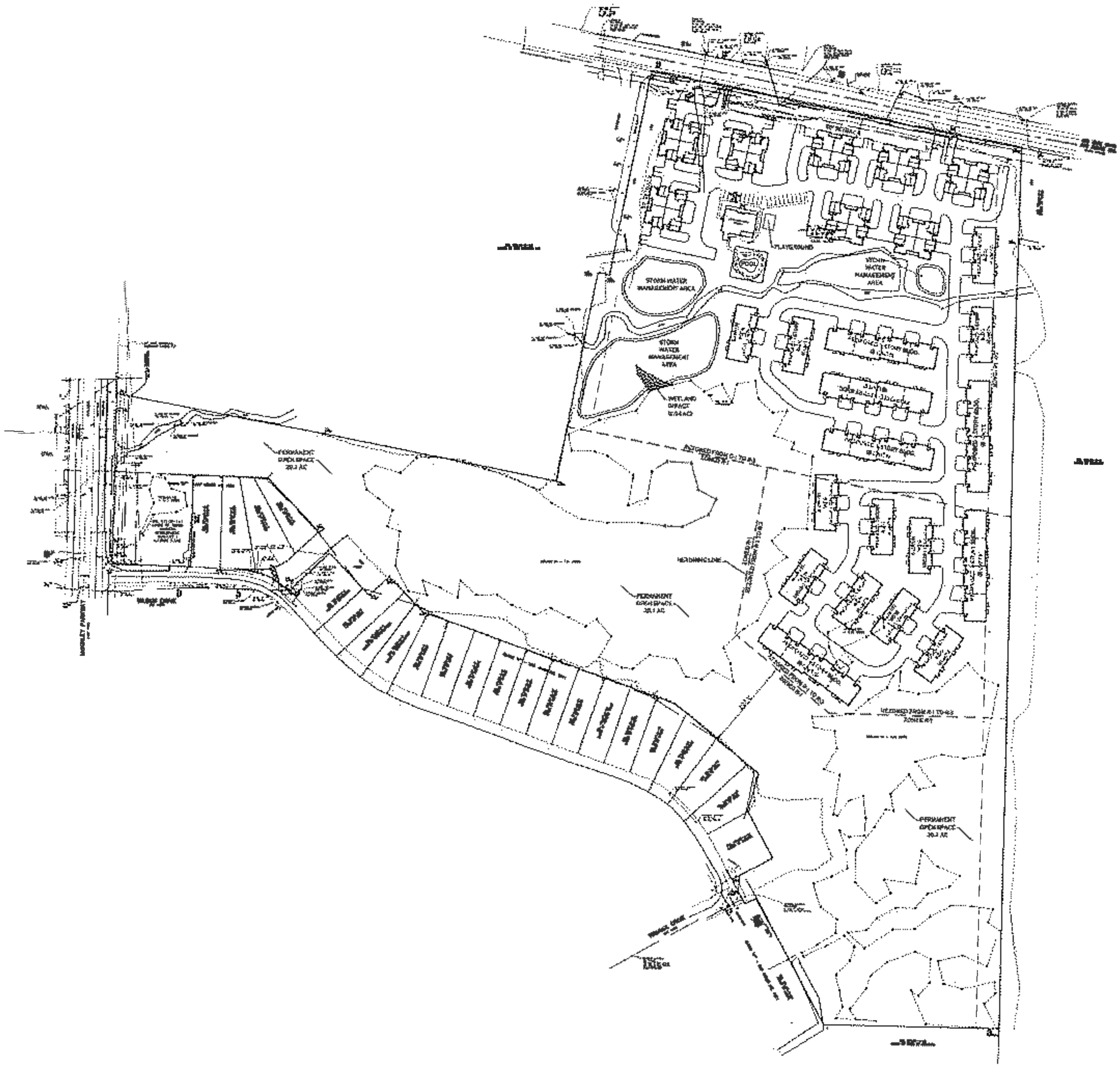
No.	Description	Date

DRAWING NAME:
Preliminary Plat Plan

DRAWING NO.
C-100

Project no.: 19.241

Carmina Wood Morris



SITE DATA - R3 AREA

SITE AREA: [illegible]
ZONED: [illegible]
DESCRIPTION: [illegible]

	REQUIRED	PROVIDED
SETBACKS - BUILDING		
FRONT	[illegible]	[illegible]
SIDE	[illegible]	[illegible]
REAR	[illegible]	[illegible]
SETBACKS - PARKING		
FRONT	[illegible]	[illegible]
SIDE	[illegible]	[illegible]
REAR	[illegible]	[illegible]
PRINCIPAL BLDG. SEPARATION		
BETWEEN VERTICAL WALLS OF BLDGS.	[illegible]	[illegible]
GREENSPACE		
TOTAL SITE	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
PARKING	AS	[illegible]
[illegible]	DETERMINED	[illegible]
	[illegible]	[illegible] TOTAL
LOT FRONTAGE		
LOT WIDTH AT FRONT LOT LINE	[illegible]	[illegible]

NOTE: BOUNDARY AND TOPOGRAPHIC INFORMATION PROVIDED BY OTHERS. CARMINA WOOD MORRIS, D.P.C. ASSUMES NO RESPONSIBILITY FOR ITS ACCURACY.

100 0 100 200FT.

Carmina Wood Morris

REVISIONS:
No. Description Date

PROJECT NAME:

New Construction

Multi-Family Development

Big Tree Road
Town of Hamburg, New York

DRAWING NAME:

Concept Site Plan

DRAWING NO.

C-100

Project no.: 20.052

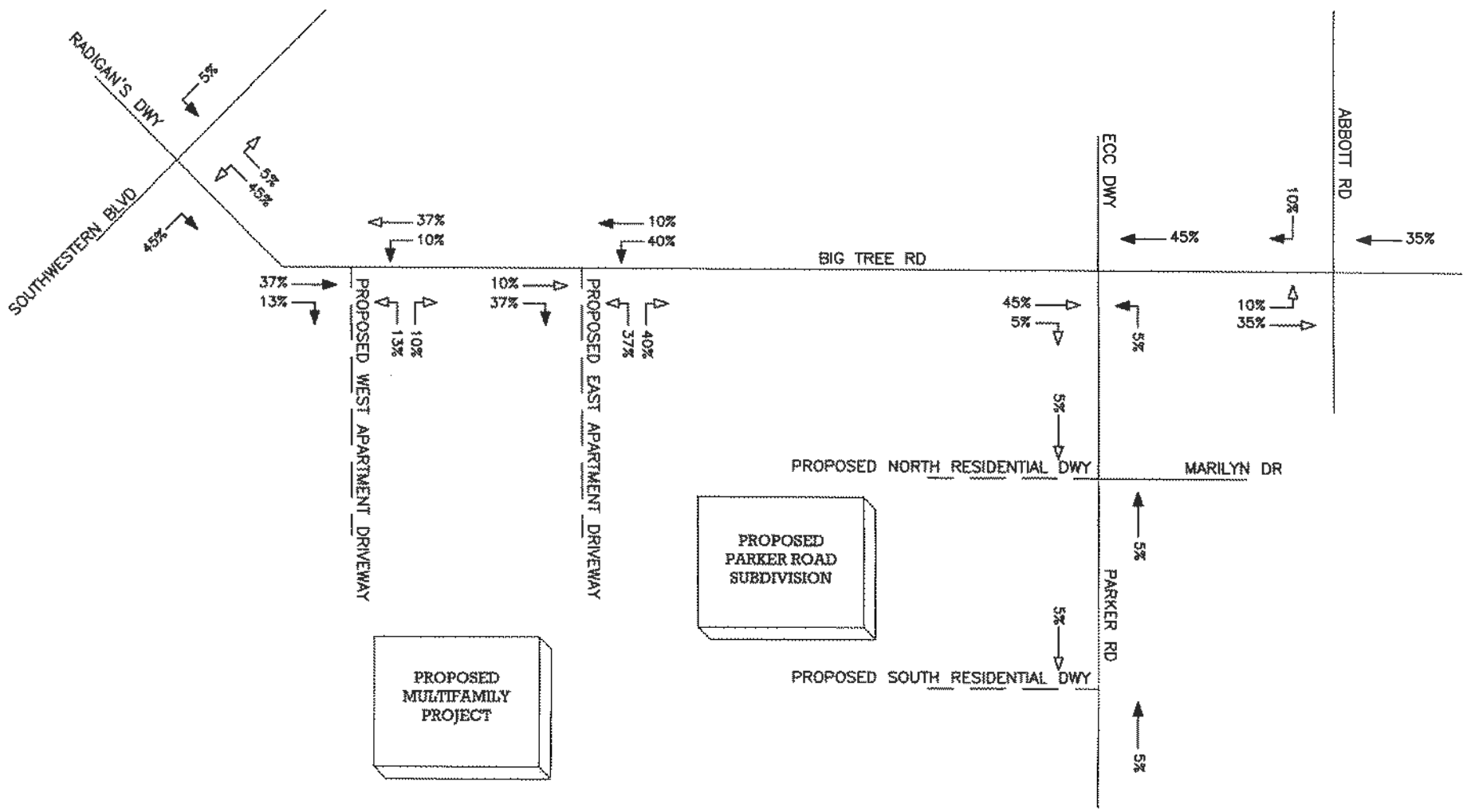


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FIGURE 7A

MULTIFAMILY PROJECT TRIP DISTRIBUTION

PROPOSED BIG TREE RESIDENTIAL PORJECTS
TOWN OF HAMBURG, NY

KEY

00(00) = AM(PM)
→ = ENTERING TRIPS
→ = EXITING TRIPS

PROJECT NO: 41019

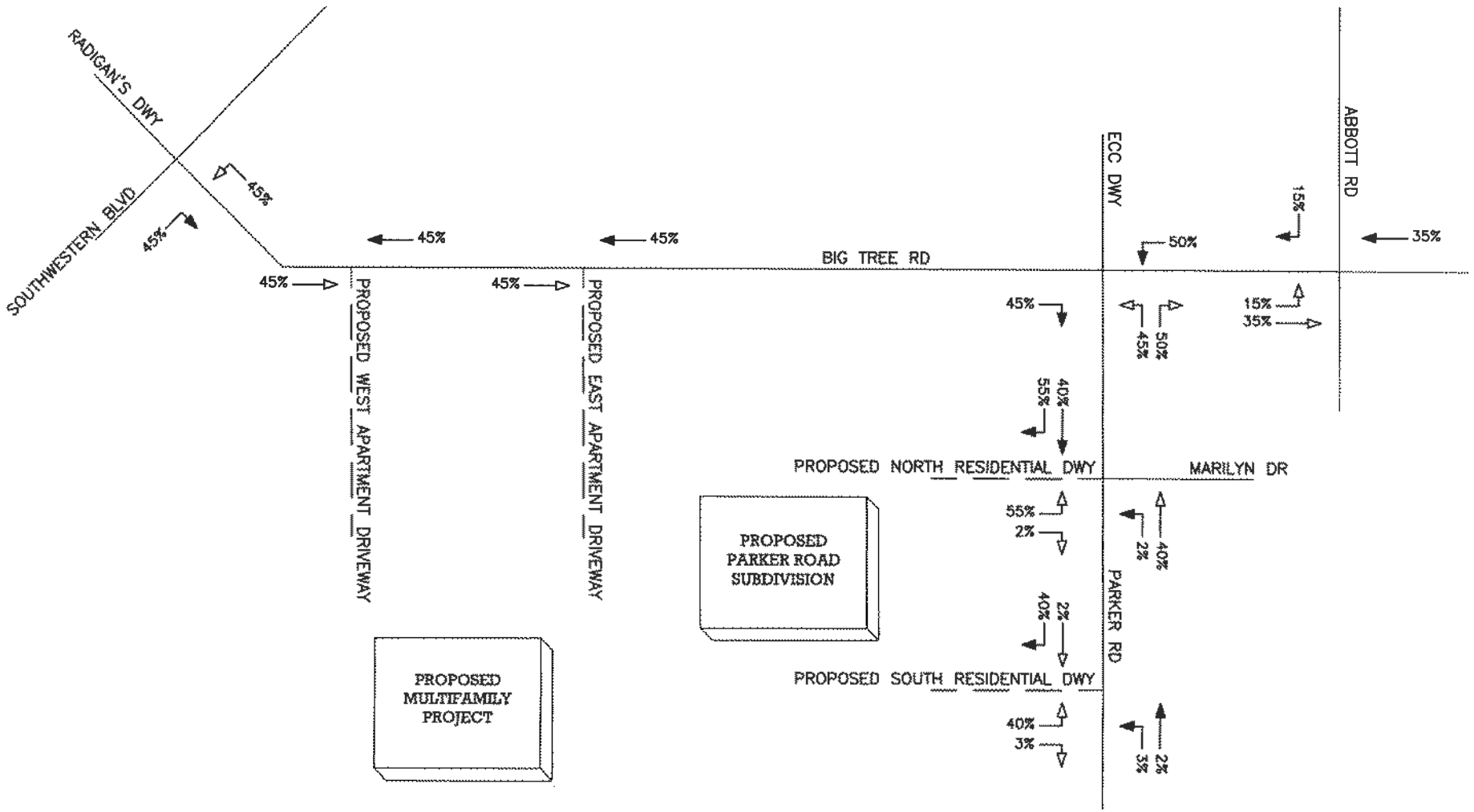

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FIGURE 7B

PARKER RD SUBDIVISION TRIP DISTRIBUTION

PROPOSED BIG TREE RESIDENTIAL PORJECTS
TOWN OF HAMBURG, NY

KEY

00(00) = AM(PM)
→ = ENTERING TRIPS
→ = EXITING TRIPS

PROJECT NO: 41019

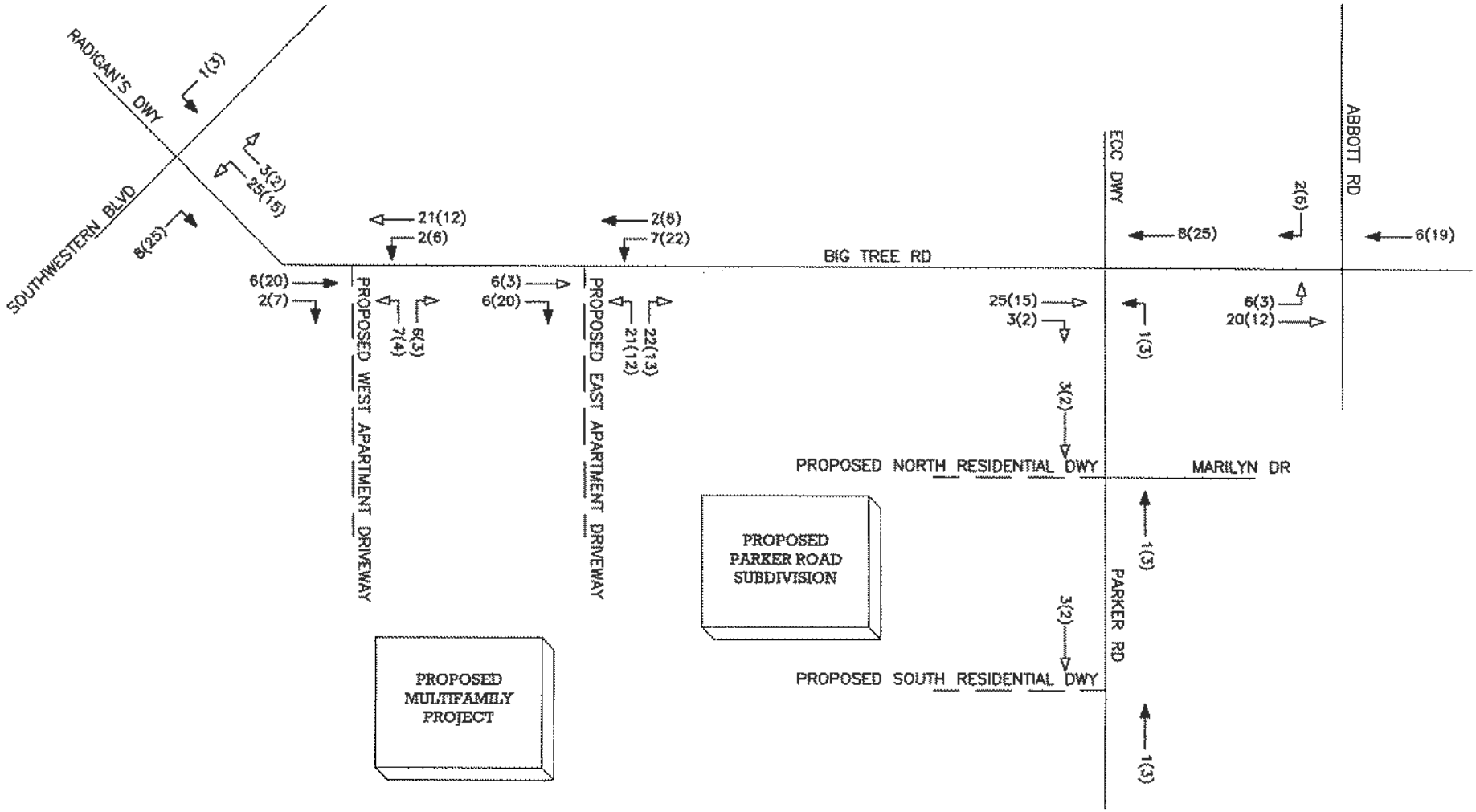

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FIGURE 8A

MULTIFAMILY PROJECT SITE GENERATED TRIPS

PROPOSED BIG TREE RESIDENTIAL PORJECTS
TOWN OF HAMBURG, NY

KEY

00(00) = AM(PM)
→ = ENTERING TRIPS
→ = EXITING TRIPS

PROJECT NO: 41019

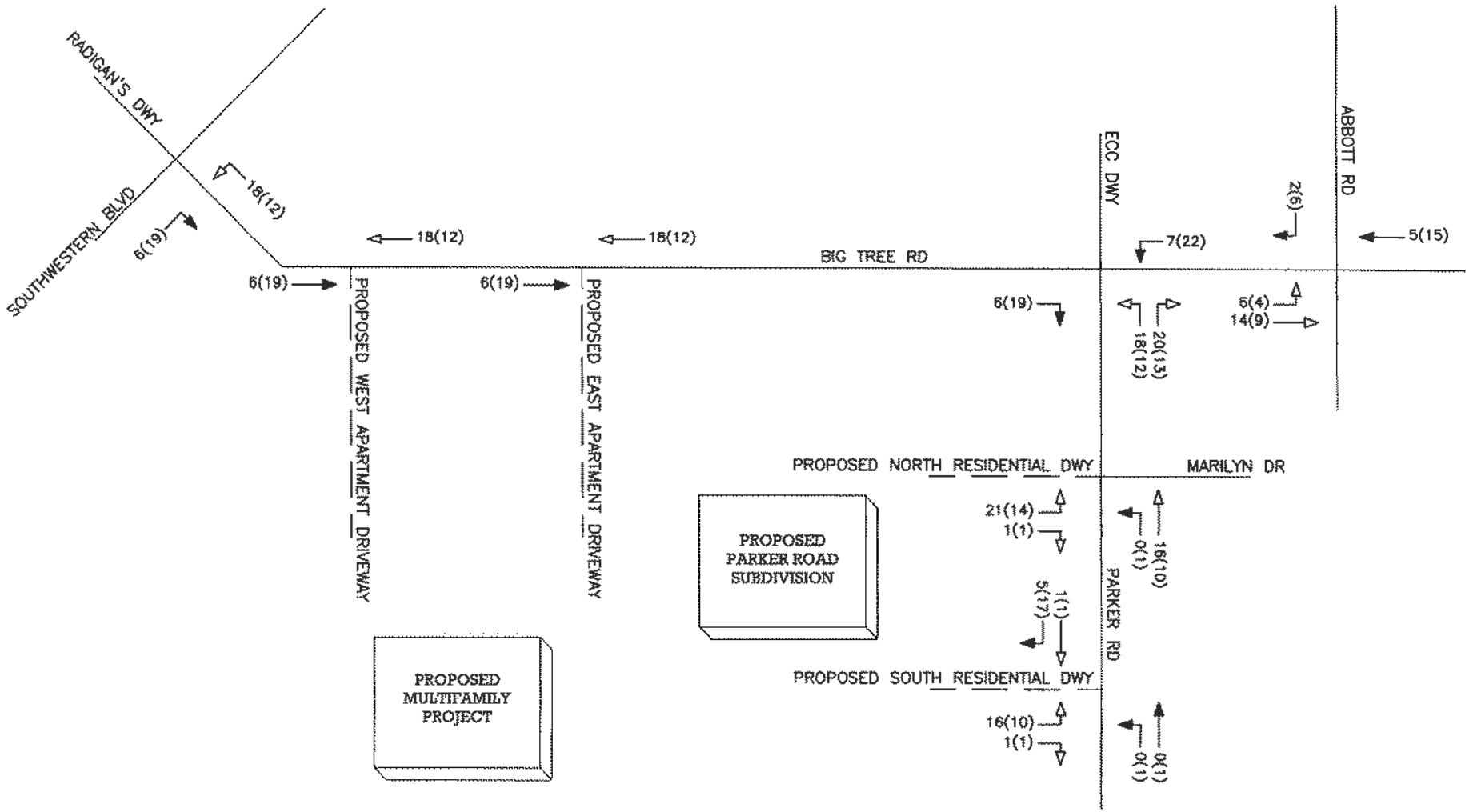

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FIGURE 8B

PARKER RD SUBDIVISION TRIP DISTRIBUTION

PROPOSED BIG TREE RESIDENTIAL PORJECTS
TOWN OF HAMBURG, NY

KEY

00(00) = AM(PM)
→ = ENTERING TRIPS
→ = EXITING TRIPS

PROJECT NO: 41019

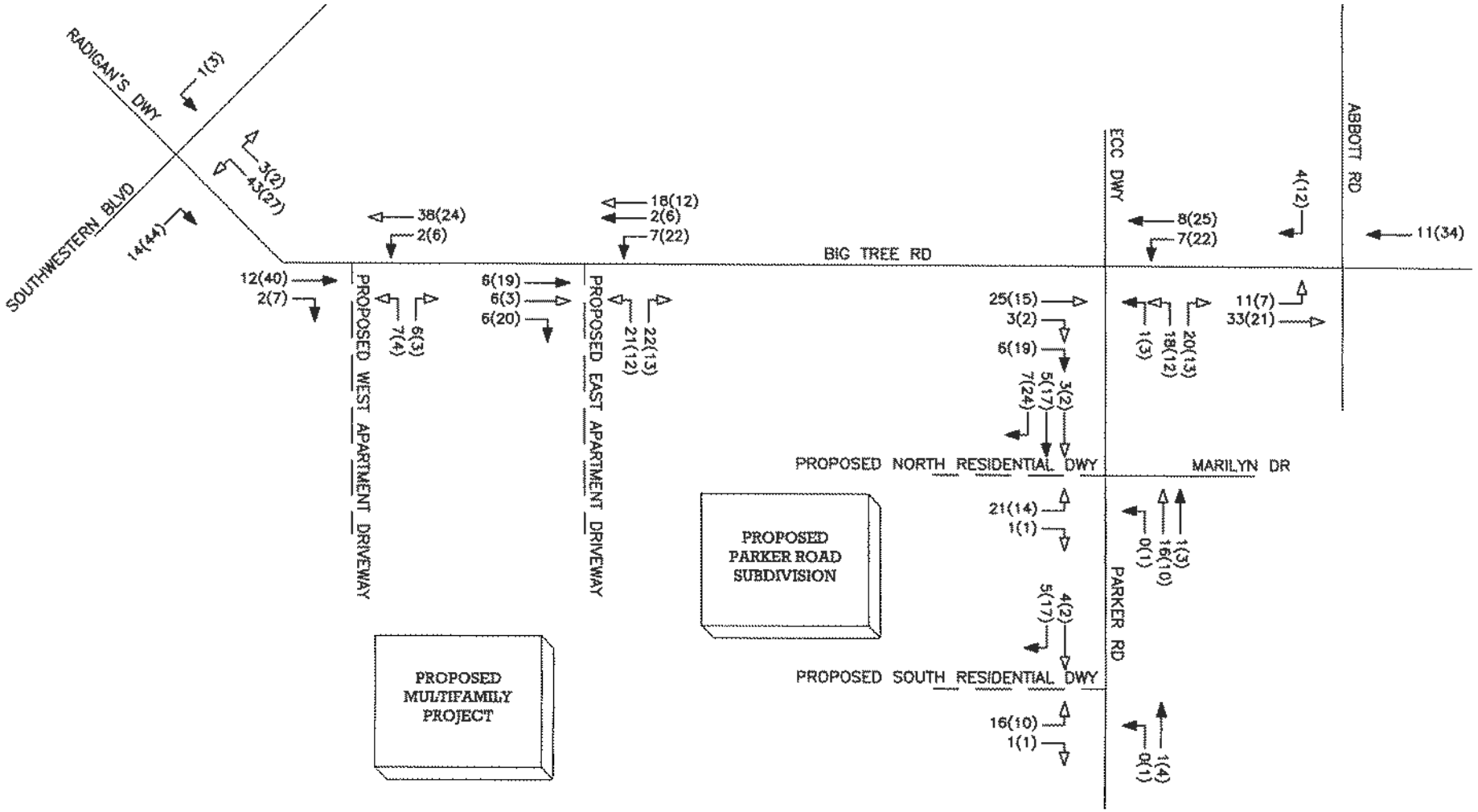

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FIGURE 8C

TOTAL SITE GENERATED TRIPS

PROPOSED BIG TREE RESIDENTIAL PORJECTS
TOWN OF HAMBURG, NY

KEY

00(00) = AM(PM)
→ = ENTERING TRIPS
→ = EXITING TRIPS

PROJECT NO: 41019

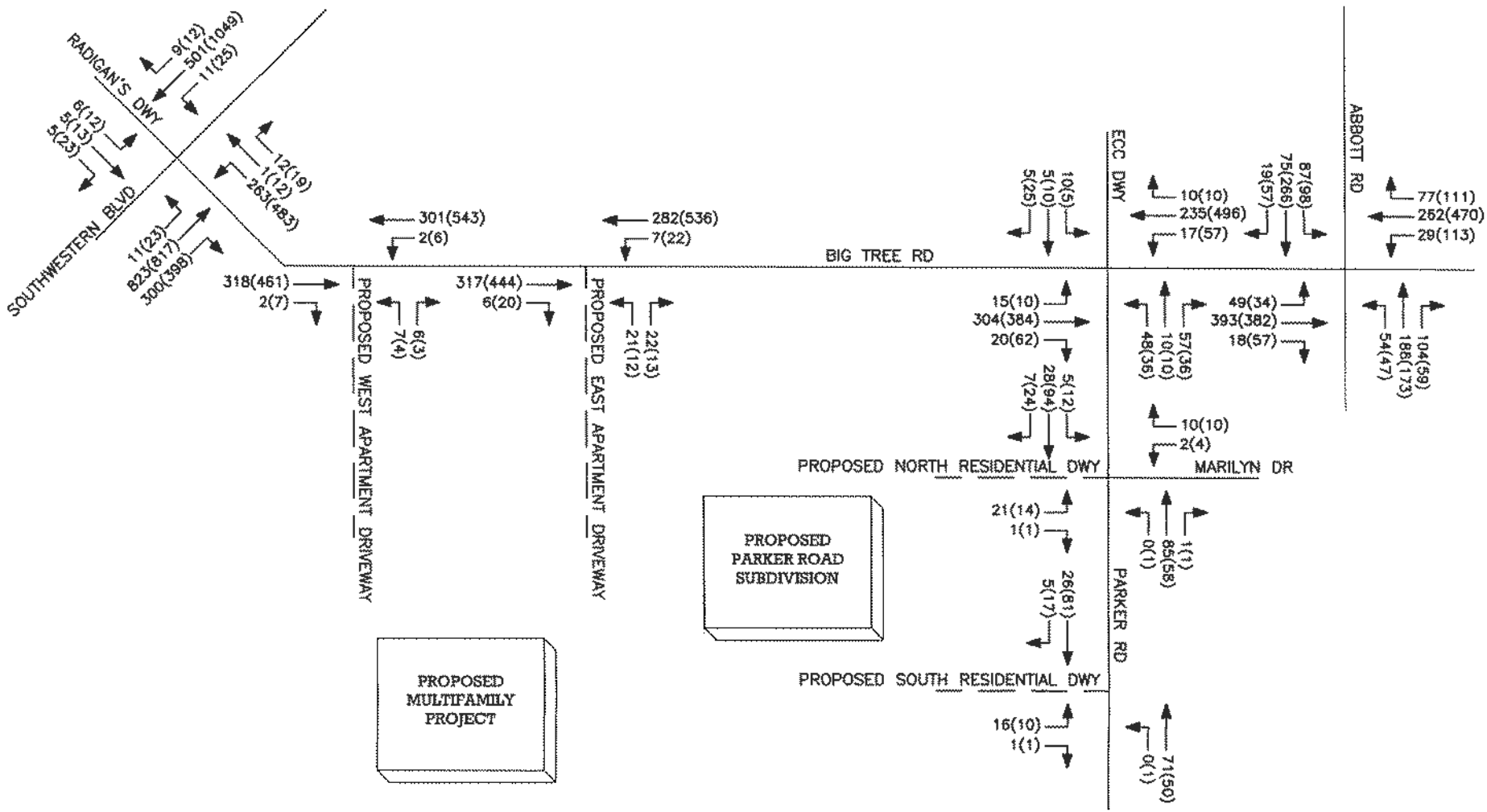

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FIGURE 9

PEAK HOUR VOLUMES
FULL DEVELOPMENT CONDITIONS

PROPOSED BIG TREE RESIDENTIAL PORJECTS
TOWN OF HAMBURG, NY

KEY

00(00) = AM(PM)

PROJECT NO: 41019

APPENDICES

A1

Collected Traffic Volume Data

Peak Hour Data for Intersection

Int ID: 270
Community: Orchard Park
Road 1: Abbott Rd
Road 2: Big Tree Rd

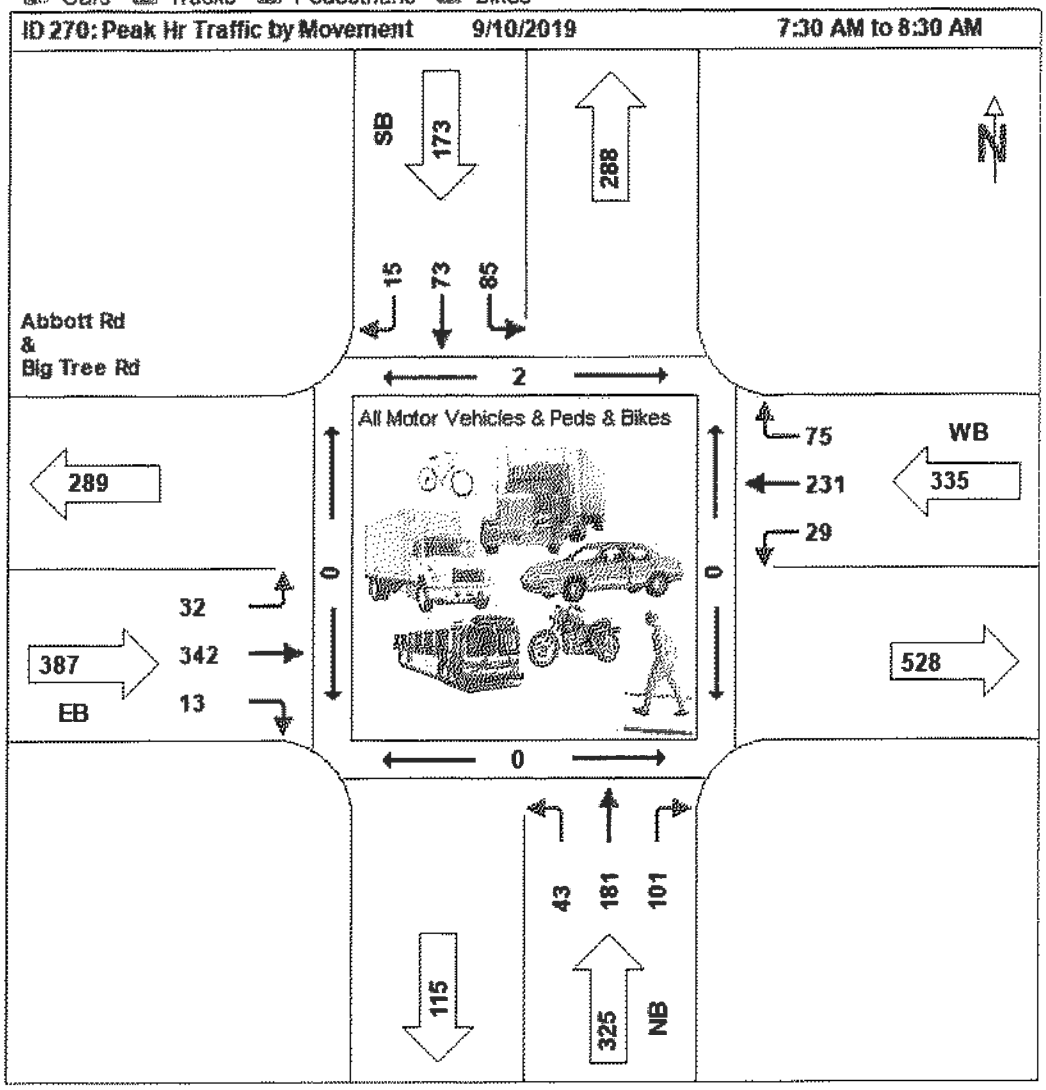
Corridor: NA
Road 3:
Road 4:

|<< | < | > | >>| 1-2 of 2

AM Peak Hour
09/10/2019

Start Time	NB Left	NB Thru	NB Right	NB Ped	NB App Total	EB Left	EB Thru	EB Right	EB Ped	EB App Total	SB Left	SB Thru	SB Right	SB Ped	SB App Total	WB Left	WB Thru	WB Right	WB Ped	WB App Total	Int Total
7:30 AM	11	50	23	0	84	8	65	4	0	97	19	31	2	0	52	5	66	22	2	93	326
7:45 AM	14	60	37	0	111	12	108	1	0	121	30	12	4	0	46	7	67	22	0	96	374
8:00 AM	7	34	20	0	61	7	77	4	0	88	17	15	5	0	37	9	49	18	0	76	262
8:15 AM	11	37	21	0	69	5	72	4	0	81	19	15	4	0	38	8	49	13	0	70	258
Total	43	181	101	0	325	32	342	13	0	387	85	73	15	0	173	29	231	75	2	335	1220
PHF	0.77	0.75	0.68		0.73	0.67	0.79	0.81		0.80	0.71	0.69	0.75		0.83	0.81	0.86	0.85		0.87	
HV %	2	4	1			3	4	15			11	4	0			7	6	11			

☑ Cars ☑ Trucks ☑ Pedestrians ☑ Bikes

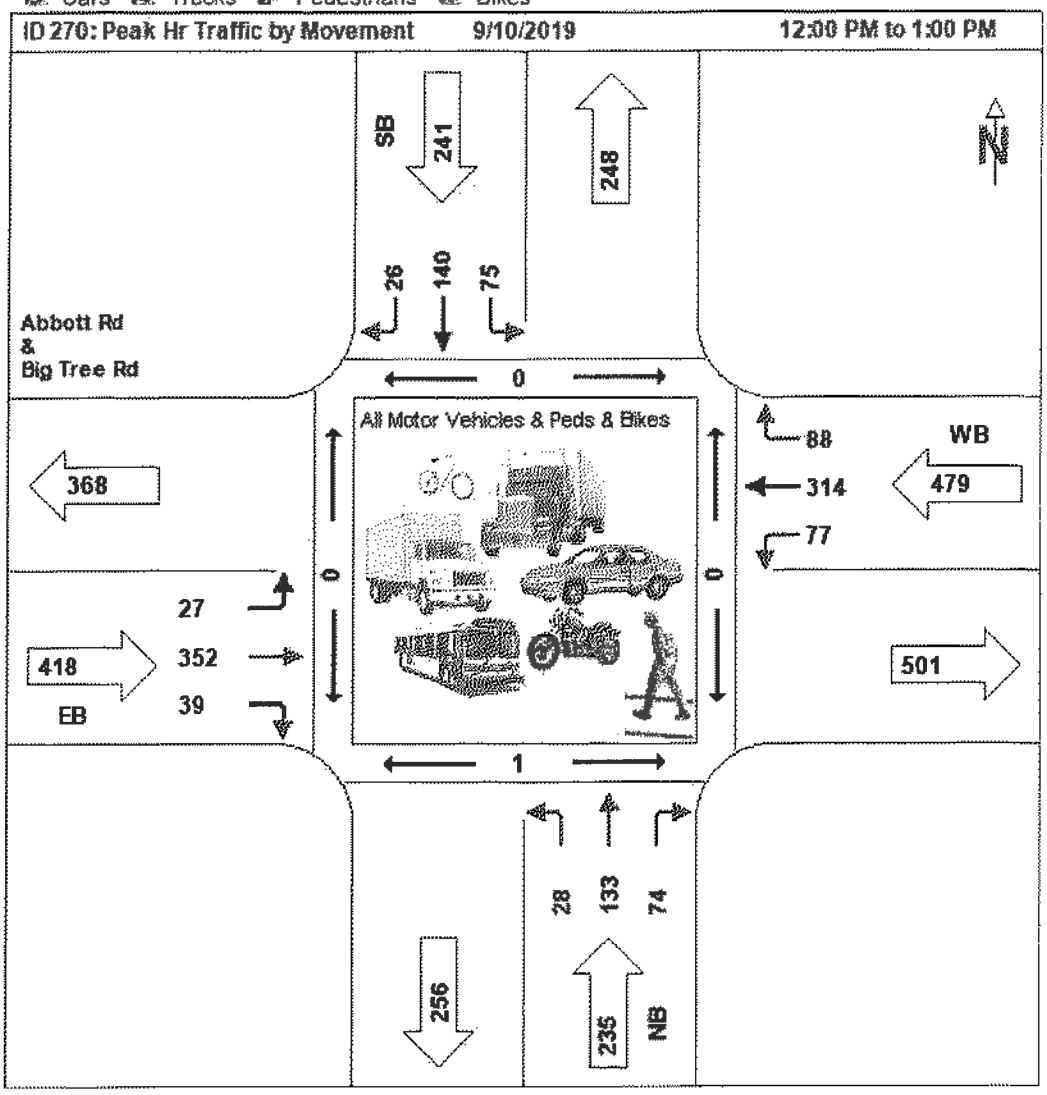


Midday Peak Hour
09/10/2019

Start Time	NB Left	NB Thru	NB Right	NB Ped	NB App Total	EB Left	EB Thru	EB Right	EB Ped	EB App Total	SB Left	SB Thru	SB Right	SB Ped	SB App Total	WB Left	WB Thru	WB Right	WB Ped	WB App Total	Int Total
12:00 PM	5	33	18	0	56	1	65	9	0	75	21	31	4	0	56	34	101	38	0	173	360

12:15 PM	8	27	19	0	54	8	116	13	1	137	21	30	9	0	60	18	78	16	0	112	363
12:30 PM	6	33	20	0	59	9	89	12	0	110	13	33	10	0	56	13	71	17	0	101	326
12:45 PM	9	40	17	0	66	0	82	5	0	96	20	46	3	0	69	12	64	17	0	93	324
Total	28	133	74		235	37	382	39	1	419	75	140	31	0	241		314		0		1373
PHF	0.78	0.83	0.93															0.56			
HV %	0	2	4												4						

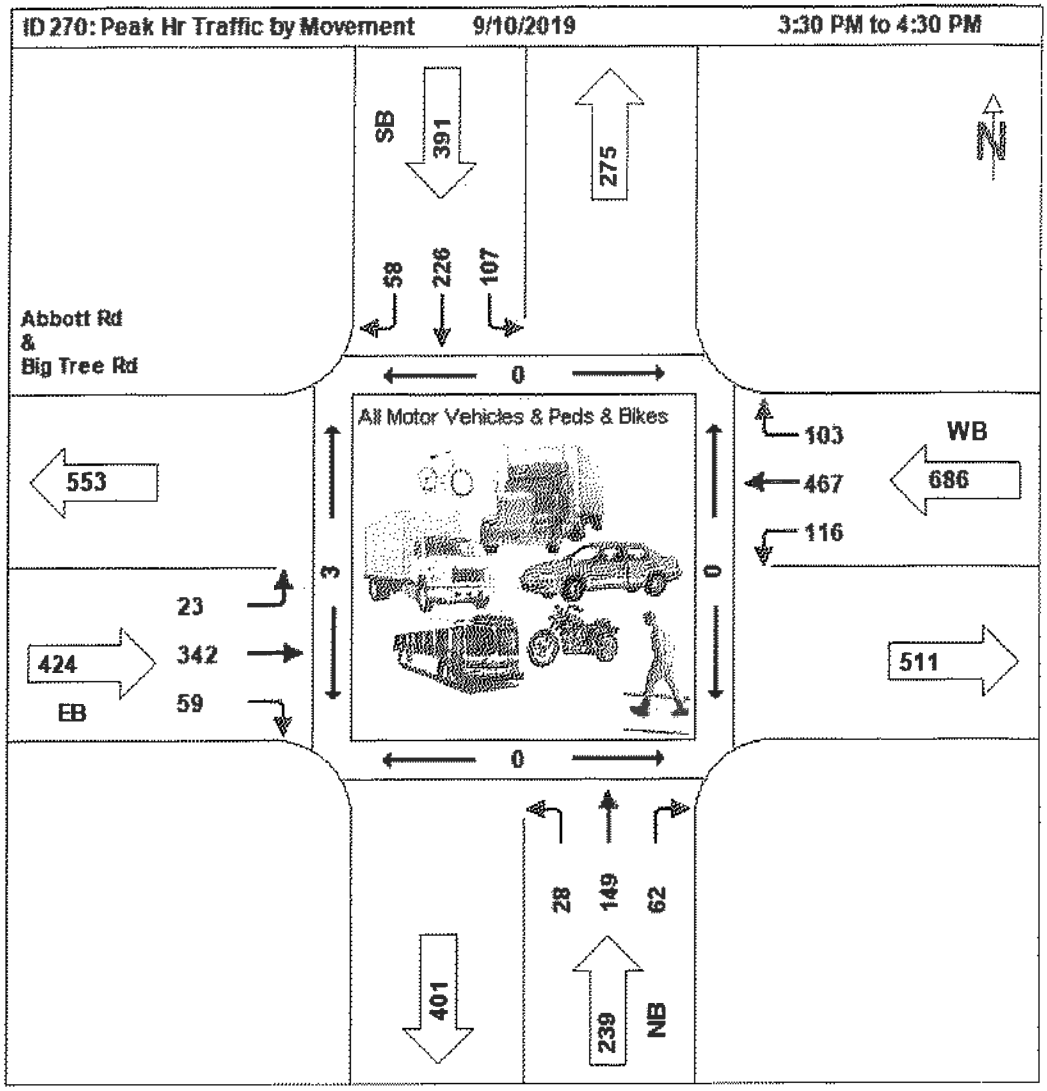
Cars Trucks Pedestrians Bikes



PM Peak Hour
09/10/2019

Start Time	NB Left	NB Thru	NB Right	NB Ped	NB App Total	EB Left	EB Thru	EB Right	EB Ped	EB App Total	SB Left	SB Thru	SB Right	SB Ped	SB App Total	WB Left	WB Thru	WB Right	WB Ped	WB App Total	Int Total
3:30 PM	4	31	10	0	45	7	79	11	0	97	31	59	12	3	102	42	130	28	0	200	444
3:45 PM	8	37	21	0	66	5	94	16	0	115	23	55	16	0	94	22	127	23	0	172	447
4:00 PM	4	38	13	0	55	5	82	18	0	105	29	61	17	0	107	29	101	33	0	163	430
4:15 PM	12	43	18	0	73	6	87	14	0	107	24	51	13	0	88	23	109	19	0	151	419
Total	28	149	62	0	239	23	342	59	0	424	107	226	58	3	391	116	467	103	0	686	1740
PHF	0.58	0.87	0.74		0.82	0.82	0.91	0.82		0.92	0.86	0.93	0.85		0.91	0.69	0.90	0.78		0.86	
HV %	0	1	5			4	2	3			5	1	3			2	1	5			

Cars Trucks Pedestrians Bikes


ID 270: Peak Hr Traffic by Movement
9/10/2019
3:30 PM to 4:30 PM
SB
391
275
N
58
226
107
Abbott Rd
&
Big Tree Rd
0
All Motor Vehicles & Peds & Bikes
553
103
WB
467
686
116
3
0
23
424
342
59
EB
511
0
28
149
62
401
239
NB

File Name : Big Tree Rd-Abbott PM
Site Code : 00000000
Start Date : 9/10/2019
Page No : 1

Groups Printed- Class 1 - Class 2

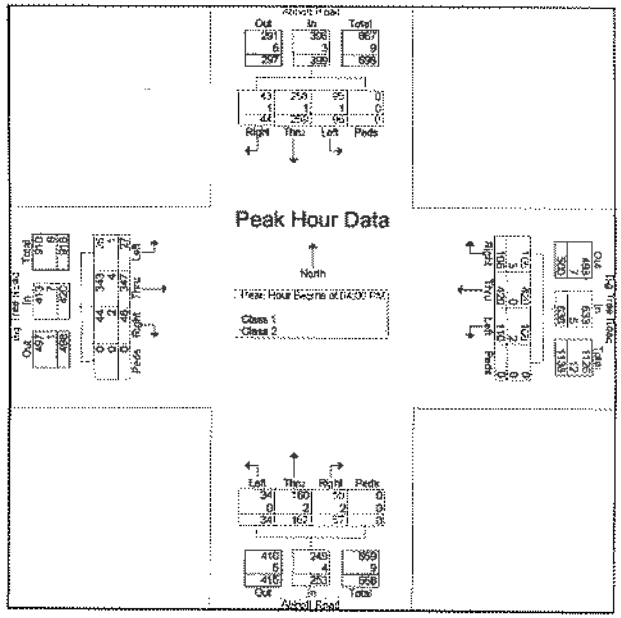
	Abbott Road Southbound				Big Tree Road Westbound				Abbott Road Northbound				Big Tree Road Eastbound				
	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	
04:00 PM	16	81	29	0	33	100	29	0	13	38	4	0	18	82	5	0	428
04:15 PM	13	51	24	0	19	109	23	0	18	43	12	0	14	57	6	0	419
04:30 PM	10	70	16	0	31	110	32	0	12	41	8	0	8	91	7	0	434
04:45 PM	5	77	27	0	25	101	26	0	14	40	10	0	8	87	9	0	429
Total	44	259	96	0	108	420	110	0	57	162	34	0	48	347	27	0	1710
Grand Total	44	259	96	0	108	420	110	0	57	162	34	0	48	347	27	0	1710
Apprch %	11	64.9	24.1	0	15.9	65.8	17.2	0	22.5	64	13.4	0	11	82.6	6.4	0	
Total %	2.6	15.1	5.6	0	6.3	24.6	6.4	0	3.3	9.5	2	0	2.7	20.3	1.6	0	
Class 1	43	259	95	0	105	420	108	0	55	160	34	0	44	343	26	0	1691
% Class 1	97.7	99.6	99	0	97.2	100	99.2	0	96.5	98.8	100	0	95.7	98.8	96.3	0	98.9
Class 2	1	1	1	0	3	0	2	0	2	2	0	0	2	4	1	0	19
% Class 2	2.3	0.4	1	0	2.8	0	1.8	0	3.5	1.2	0	0	4.3	1.2	3.7	0	1.1

SRF ASSOCIATES, D.P.C.

3495 Winton Place, Building E, Suite 110
Rochester, New York 14623

File Name : Big Tree Rd-Abbott PM
Site Code : 00000000
Start Date : 9/10/2019
Page No : 2

	Abbott Road Southbound					Big Tree Road Westbound					Abbott Road Northbound					Big Tree Road Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:00 PM																					
04:00 PM	16	81	29	0	106	33	100	29	0	162	13	38	4	0	55	18	82	5	0	105	428
04:15 PM	13	51	24	0	88	19	109	23	0	151	18	43	12	0	73	14	57	6	0	107	419
04:30 PM	10	70	16	0	96	31	110	32	0	173	12	41	8	0	61	8	91	7	0	104	434
04:45 PM	5	77	27	0	109	25	101	26	0	152	14	40	10	0	64	8	87	9	0	104	429
Total Volume	44	259	96	0	399	108	420	110	0	638	57	162	34	0	253	48	347	27	0	420	1710
% App. Total	11	64.9	24.1	0		16.9	65.8	17.2	0		22.5	64	13.4	0		11	82.6	6.4	0		
PHF	.688	.841	.828	.000	.915	.818	.955	.859	.000	.922	.792	.842	.708	.000	.866	.839	.953	.750	.000	.981	.985
Class 1	43	256	95	0	396	105	420	108	0	633	55	160	34	0	249	44	343	26	0	413	1691
% Class 1	97.7	98.8	99.0	0	99.2	97.2	100	98.2	0	99.2	96.5	98.8	100	0	98.4	95.7	98.8	96.3	0	98.3	98.9
Class 2	1	1	1	0	3	3	0	2	0	5	2	2	0	0	4	2	4	1	0	7	19
% Class 2	2.3	0.4	1.0	0	0.8	2.8	0	1.8	0	0.8	3.5	1.2	0	0	1.6	4.3	1.2	3.7	0	1.7	1.1



TRI-STATE TRAFFIC DATA

www.TSTData.com
184 Baker Rd

Coatesville, Pennsylvania, United States 19320
610-466-1469
Serving Transportation Professionals Since 1995

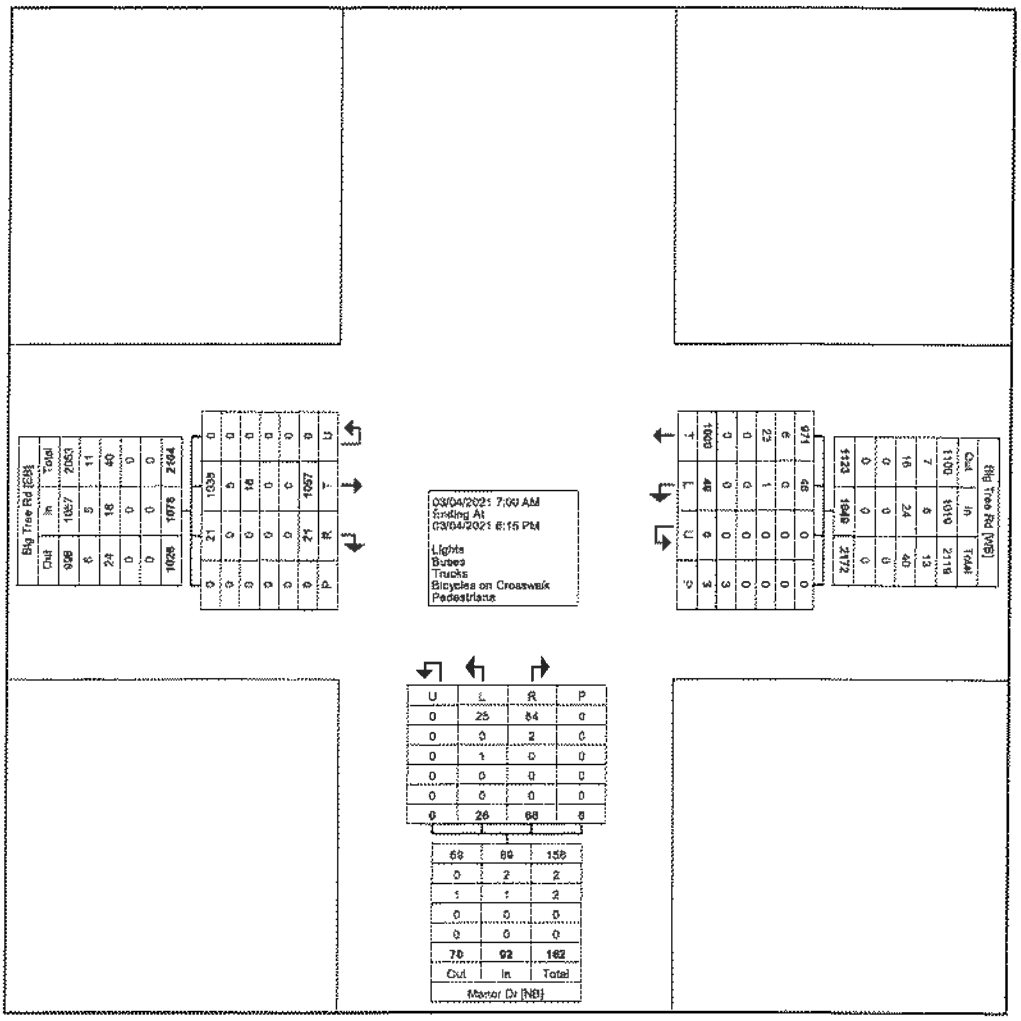
Hamburg, NY

Thursday, March 4, 2021
Location: 42.768041, -78.79735

Count Name: Big Tree Rd/Manor Dr
Site Code:
Start Date: 03/04/2021
Page No: 1

Turning Movement Data

Start Time	Big Tree Rd Westbound					Manor Dr Northbound					Big Tree Rd Eastbound					Int. Total
	Thru	Left	U-Turn	Peds	App. Total	Right	Left	U-Turn	Peds	App. Total	Right	Thru	U-Turn	Peds	App. Total	
7:00 AM	34	0	0	0	34	5	0	0	0	5	0	46	0	0	46	85
7:15 AM	36	3	0	1	39	7	1	0	0	8	2	51	0	0	53	100
7:30 AM	47	0	0	0	47	2	4	0	0	6	0	69	0	0	69	122
7:45 AM	60	1	0	0	61	7	2	0	0	9	1	73	0	0	74	144
Hourly Total	177	4	0	1	181	21	7	0	0	28	3	239	0	0	242	451
8:00 AM	41	2	0	0	43	5	0	0	0	5	2	50	0	0	52	100
8:15 AM	31	0	0	0	31	6	1	0	0	7	1	49	0	0	50	88
8:30 AM	45	0	0	0	45	6	4	0	0	10	1	56	0	0	57	112
8:45 AM	45	0	0	0	45	4	2	0	0	6	0	60	0	0	60	111
Hourly Total	162	2	0	0	164	21	7	0	0	28	4	215	0	0	219	411
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-
4:00 PM	96	6	0	0	102	4	0	0	0	4	2	76	0	0	78	184
4:15 PM	89	8	0	0	97	6	3	0	0	9	4	65	0	0	69	175
4:30 PM	110	5	0	0	115	2	2	0	0	4	1	76	0	0	77	196
4:45 PM	93	5	0	0	98	1	2	0	0	3	8	84	0	0	90	191
Hourly Total	388	24	0	0	412	13	7	0	0	20	13	301	0	0	314	746
5:00 PM	79	7	0	0	86	0	3	0	0	3	1	85	0	0	86	175
5:15 PM	65	3	0	1	68	5	1	0	0	6	0	82	0	0	82	156
5:30 PM	61	4	0	1	65	2	0	0	0	2	0	66	0	0	66	133
5:45 PM	68	5	0	0	73	4	1	0	0	5	0	69	0	0	69	147
Hourly Total	273	19	0	2	292	11	5	0	0	16	1	302	0	0	303	611
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	1000	49	0	3	1049	66	26	0	0	92	21	1057	0	0	1078	2219
Approach %	95.3	4.7	0.0		-	71.7	28.3	0.0	-	-	1.9	98.1	0.0		-	-
Total %	45.1	2.2	0.0		47.3	3.0	1.2	0.0	-	4.1	0.9	47.6	0.0		48.6	-
Lights	971	48	0	-	1019	64	25	0	-	89	21	1036	0		1057	2165
% Lights	97.1	98.0	-	-	97.1	97.0	96.2	-	-	96.7	100.0	98.0	-		98.1	97.6
Buses	6	0	0	-	6	2	0	0	-	2	0	5	0		5	13
% Buses	0.6	0.0	-	-	0.6	3.0	0.0	-	-	2.2	0.0	0.5	-	-	0.5	0.6
Trucks	23	1	0	-	24	0	1	0	-	1	0	16	0		16	41
% Trucks	2.3	2.0	-	-	2.3	0.0	3.8	-	-	1.1	0.0	1.5	-	-	1.5	1.8
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	0.0	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	3	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	100.0	-	-	-	-	-	-	-	-	-		-	-



Turning Movement Data Plot

TRI-STATE TRAFFIC DATA

www.TSTData.com
184 Baker Rd

Coatesville, Pennsylvania, United States 19320
610-466-1469
Serving Transportation Professionals Since 1995

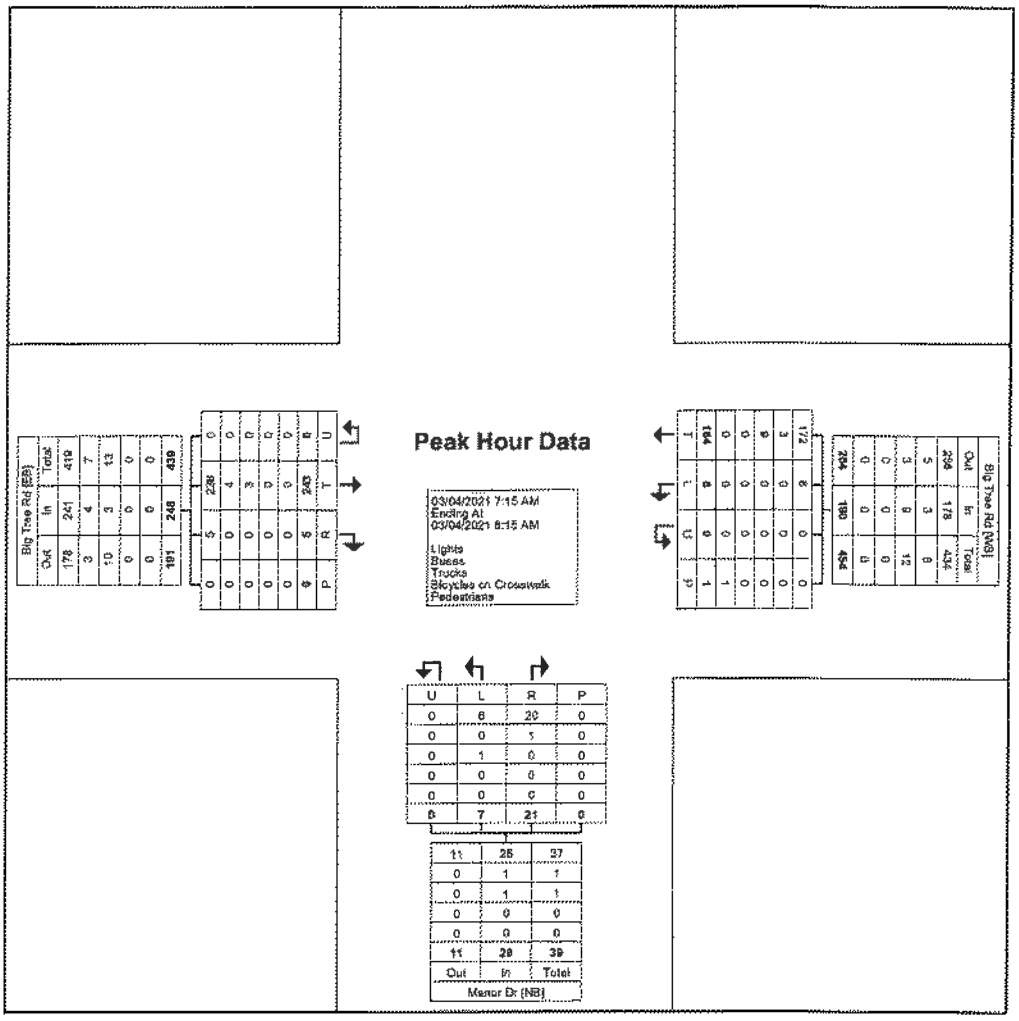
Hamburg, NY

Thursday, March 4, 2021
Location: 42.768041, -78.79735

Count Name: Big Tree Rd/Manor Dr
Site Code:
Start Date: 03/04/2021

Turning Movement Peak Hour Data (7:15 AM)

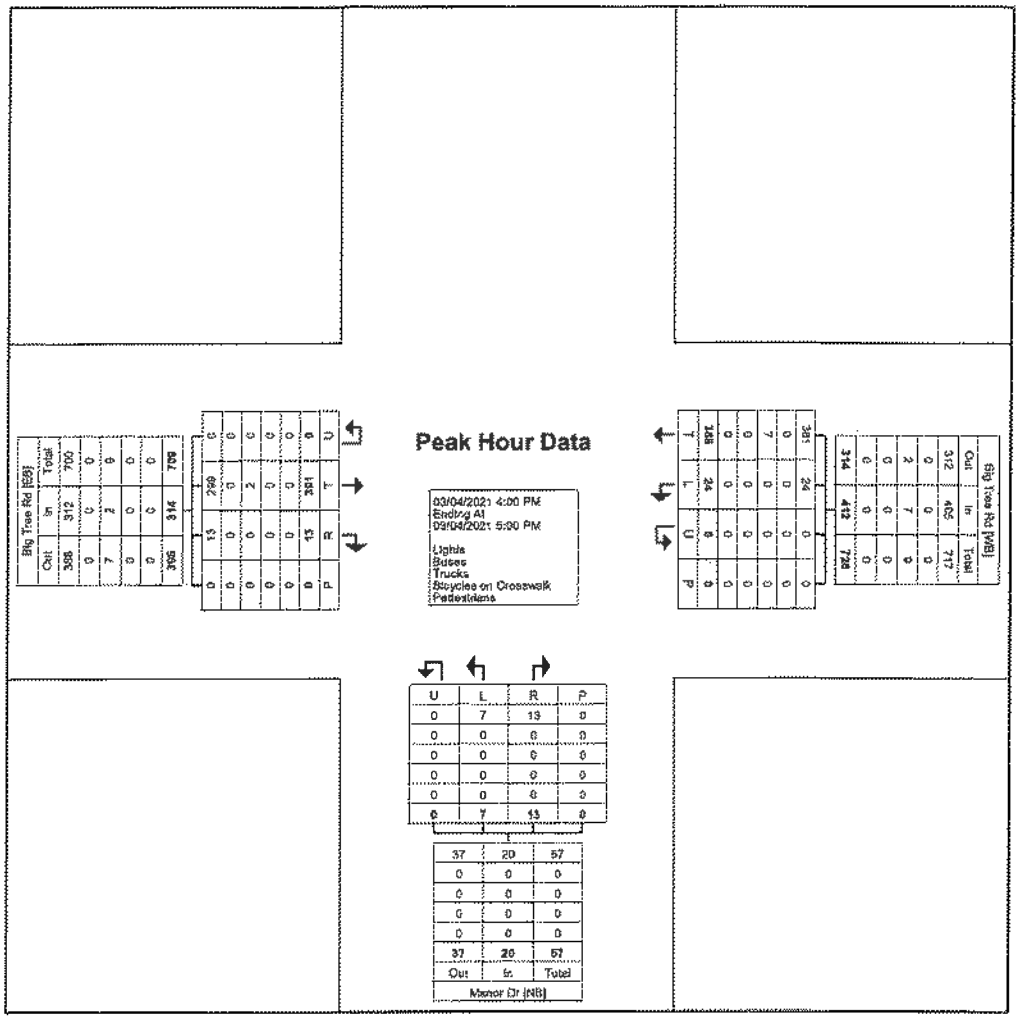
Start Time	Big Tree Rd Westbound					Manor Dr Northbound					Big Tree Rd Eastbound					
	Thru	Left	U-Turn	Peds	App. Total	Right	Left	U-Turn	Peds	App. Total	Right	Thru	U-Turn	Peds	App. Total	Int. Total
7:15 AM	36	3	0	1	39	7	1	0	0	8	2	51	0	0	53	100
7:30 AM	47	0	0	0	47	2	4	0	0	6	0	69	0	0	69	122
7:45 AM	60	1	0	0	61	7	2	0	0	9	1	73	0	0	74	144
8:00 AM	41	2	0	0	43	5	0	0	0	5	2	50	0	0	52	100
Total	184	6	0	1	190	21	7	0	0	28	5	243	0	0	248	466
Approach %	96.8	3.2	0.0		-	75.0	25.0	0.0	-	-	2.0	98.0	0.0		-	-
Total %	39.5	1.3	0.0		40.8	4.5	1.5	0.0		6.0	1.1	52.1	0.0	-	53.2	-
PHF	0.767	0.500	0.000		0.779	0.750	0.438	0.000		0.778	0.625	0.832	0.000	-	0.838	0.809
Lights	172	6	0		178	20	6	0		26	5	236	0	-	241	445
% Lights	93.5	100.0	-	-	93.7	95.2	85.7	-	-	92.9	100.0	97.1	-		97.2	95.5
Buses	3	0	0	-	3	1	0	0	-	1	0	4	0		4	8
% Buses	1.6	0.0	-	-	1.6	4.8	0.0	-	-	3.6	0.0	1.6	-	-	1.6	1.7
Trucks	9	0	0	-	9	0	1	0	-	1	0	3	0	-	3	13
% Trucks	4.9	0.0	-	-	4.7	0.0	14.3	-	-	3.6	0.0	1.2	-	-	1.2	2.8
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	0.0	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	1	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	100.0	-	-	-	-		-	-	-	-	-	-	-



Turning Movement Peak Hour Data Plot (7:15 AM)

Turning Movement Peak Hour Data (4:00 PM)

Start Time	Big Tree Rd Westbound					Manor Dr Northbound					Big Tree Rd Eastbound					Int. Total
	Thru	Left	U-Turn	Peds	App. Total	Right	Left	U-Turn	Peds	App. Total	Right	Thru	U-Turn	Peds	App. Total	
4:00 PM	98	6	0	0	102	4	0	0	0	4	2	76	0	0	78	184
4:15 PM	89	8	0	0	97	6	3	0	0	9	4	65	0	0	69	175
4:30 PM	110	5	0	0	115	2	2	0	0	4	1	76	0	0	77	196
4:45 PM	93	5	0	0	98	1	2	0	0	3	6	84	0	0	90	191
Total	388	24	0	0	412	13	7	0	0	20	13	301	0	0	314	746
Approach %	94.2	5.8	0.0	-	-	65.0	35.0	0.0	-	-	4.1	95.9	0.0	-	-	-
Total %	52.0	3.2	0.0	-	55.2	1.7	0.9	0.0	-	2.7	1.7	40.3	0.0	-	42.1	-
PHF	0.882	0.750	0.000		0.896	0.542	0.583	0.000		0.556	0.542	0.896	0.000	-	0.872	0.952
Lights	381	24	0	-	405	13	7	0	-	20	13	299	0		312	737
% Lights	98.2	100.0	-	-	98.3	100.0	100.0	-	-	100.0	100.0	99.3	-		99.4	98.8
Buses	0	0	0	-	0	0	0	0	-	0	0	0	0		0	0
% Buses	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0
Trucks	7	0	0	-	7	0	0	0	-	0	0	2	0	-	2	9
% Trucks	1.8	0.0	-	-	1.7	0.0	0.0	-	-	0.0	0.0	0.7	-	-	0.6	1.2
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-



Turning Movement Peak Hour Data Plot (4:00 PM)

TRI-STATE TRAFFIC DATA

www.TSTData.com
184 Baker Rd

Coatesville, Pennsylvania, United States 19320
610-466-1469
Serving Transportation Professionals Since 1995

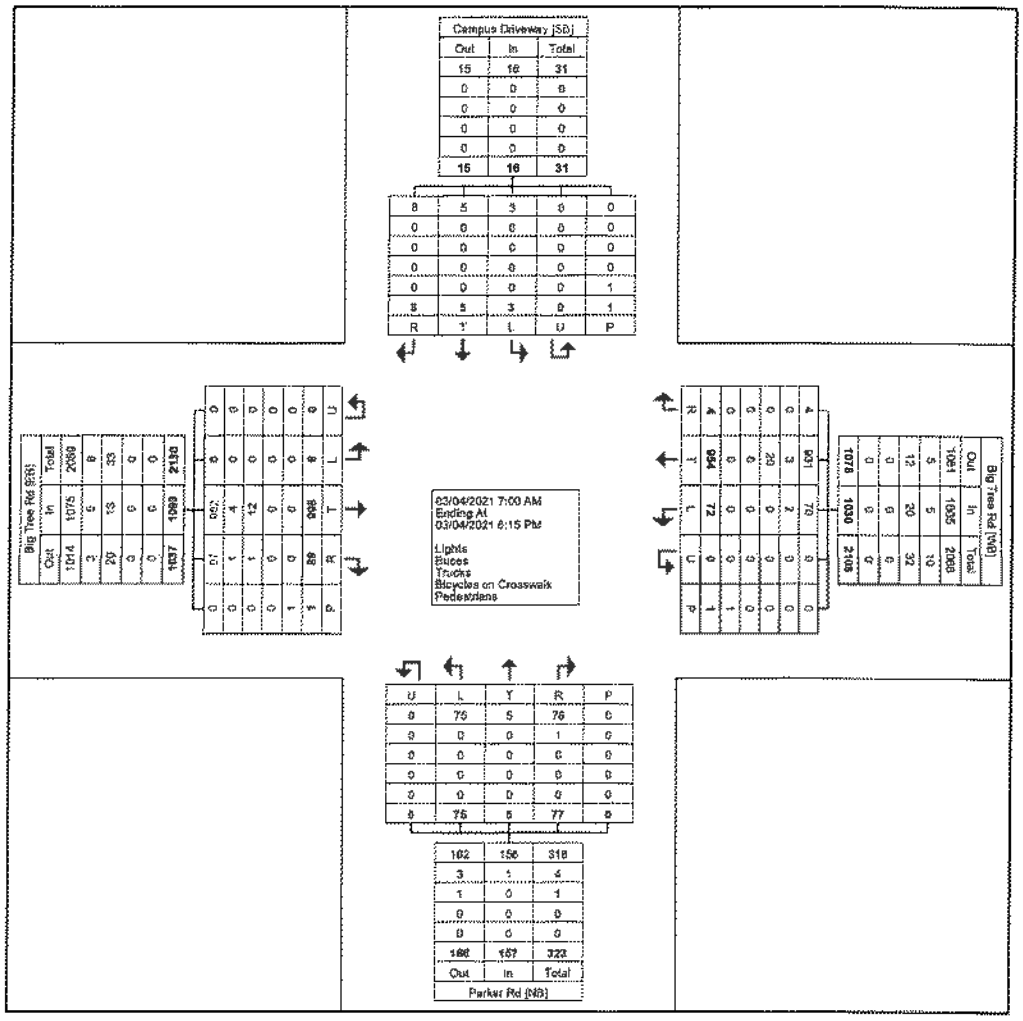
Hamburg, NY

Thursday, March 4 2021
Location: 42.768461, -78.800467

Count Name: Parker Rd/Big Tree Rd
Site Code:
Start Date: 03/04/2021
Page No: 1

Turning Movement Data

Start Time	Campus Driveway Southbound						Big Tree Rd Westbound						Parker Rd Northbound						Big Tree Rd Eastbound						Int. Total
	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	
7:00 AM	0	0	0	0	0	0	0	31	1	0	0	32	4	0	2	0	0	6	0	40	1	0	0	41	79
7:15 AM	0	0	0	0	0	0	0	36	1	0	0	37	7	1	6	0	0	14	2	44	0	0	1	46	97
7:30 AM	0	0	0	0	0	0	0	52	2	0	0	54	8	0	5	0	0	13	3	61	1	0	0	65	132
7:45 AM	1	0	1	0	0	2	2	57	2	0	0	61	8	1	6	0	0	15	3	69	2	0	0	74	152
Hourly Total	1	0	1	0	0	2	2	176	6	0	0	184	27	2	19	0	0	48	8	214	4	0	1	228	460
8:00 AM	0	1	1	0	0	2	0	38	3	0	0	41	7	0	8	0	0	15	1	45	0	0	0	46	104
8:15 AM	0	1	0	0	0	1	0	31	1	0	0	32	4	0	7	0	0	11	2	47	0	0	0	49	93
8:30 AM	0	0	0	0	0	0	0	49	1	0	0	50	6	0	3	0	0	9	11	49	0	0	0	60	119
8:45 AM	1	0	0	0	0	1	0	44	4	0	0	48	5	0	4	0	0	9	2	58	0	0	0	60	118
Hourly Total	1	2	1	0	0	4	0	162	9	0	0	171	22	0	22	0	0	44	16	199	0	0	0	215	434
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4:00 PM	2	0	0	0	0	2	0	89	10	0	0	99	5	2	5	0	0	12	6	74	0	0	0	80	193
4:15 PM	1	1	0	0	0	2	0	88	6	0	0	94	6	0	5	0	0	11	12	63	1	0	0	76	183
4:30 PM	0	1	1	0	1	2	1	102	8	0	1	111	4	0	4	0	0	8	9	75	1	0	0	85	206
4:45 PM	2	0	0	0	0	2	1	91	5	0	0	97	4	0	4	0	0	8	7	84	0	0	0	91	198
Hourly Total	5	2	1	0	1	8	2	370	29	0	1	401	19	2	18	0	0	39	34	296	2	0	0	332	780
5:00 PM	0	0	0	0	0	0	0	76	8	0	0	83	2	0	2	0	0	4	7	86	0	0	0	93	180
5:15 PM	0	1	0	0	0	1	0	62	4	0	0	66	2	1	4	0	0	7	12	76	0	0	0	88	162
5:30 PM	0	0	0	0	0	0	0	48	7	0	0	55	1	0	5	0	0	6	4	68	0	0	0	72	133
5:45 PM	1	0	0	0	0	1	0	61	9	0	0	70	4	0	5	0	0	9	8	59	0	0	0	67	147
Hourly Total	1	1	0	0	0	2	0	246	28	0	0	274	9	1	16	0	0	26	31	289	0	0	0	320	622
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	8	5	3	0	1	16	4	954	72	0	1	1030	77	5	75	0	0	157	89	996	6	0	1	1093	2296
Approach %	50.0	31.3	18.8	0.0	-	-	0.4	92.6	7.0	0.0	-	-	49.0	3.2	47.8	0.0		-	8.1	91.3	0.5	0.0	-	-	-
Total %	0.3	0.2	0.1	0.0	-	0.7	0.2	41.6	3.1	0.0	-	44.9	3.4	0.2	3.3	0.0		6.8	3.9	43.5	0.3	0.0	-	47.6	-
Lights	8	5	3	0	-	16	4	931	70	0	-	1005	76	5	75	0		156	87	982	6	0	-	1075	2252
% Lights	100.0	100.0	100.0	-	-	100.0	100.0	97.6	97.2	-	-	97.6	98.7	100.0	100.0	-		99.4	97.8	98.4	100.0	-	-	98.4	98.1
Buses	0	0	0	0	-	0	0	3	2	0	-	5	1	0	0	0		1	1	4	0	0	-	5	11
% Buses	0.0	0.0	0.0	-	-	0.0	0.0	0.3	2.8	-	-	0.5	1.3	0.0	0.0	-	-	0.6	1.1	0.4	0.0	-	-	0.5	0.5
Trucks	0	0	0	0	-	0	0	20	0	0	-	20	0	0	0	0	-	0	1	12	0	0	-	13	33
% Trucks	0.0	0.0	0.0	-	-	0.0	0.0	2.1	0.0	-	-	1.9	0.0	0.0	0.0	-	-	0.0	1.1	1.2	0.0	-	-	1.2	1.4
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-	-	-	-		-	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	-	1	-	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	1	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-		-	-	-	-	-	100.0	-	-



Turning Movement Data Plot

TRI-STATE TRAFFIC DATA

www.TSTData.com
184 Baker Rd

Coatesville, Pennsylvania, United States 19320
610-466-1469
Serving Transportation Professionals Since 1995

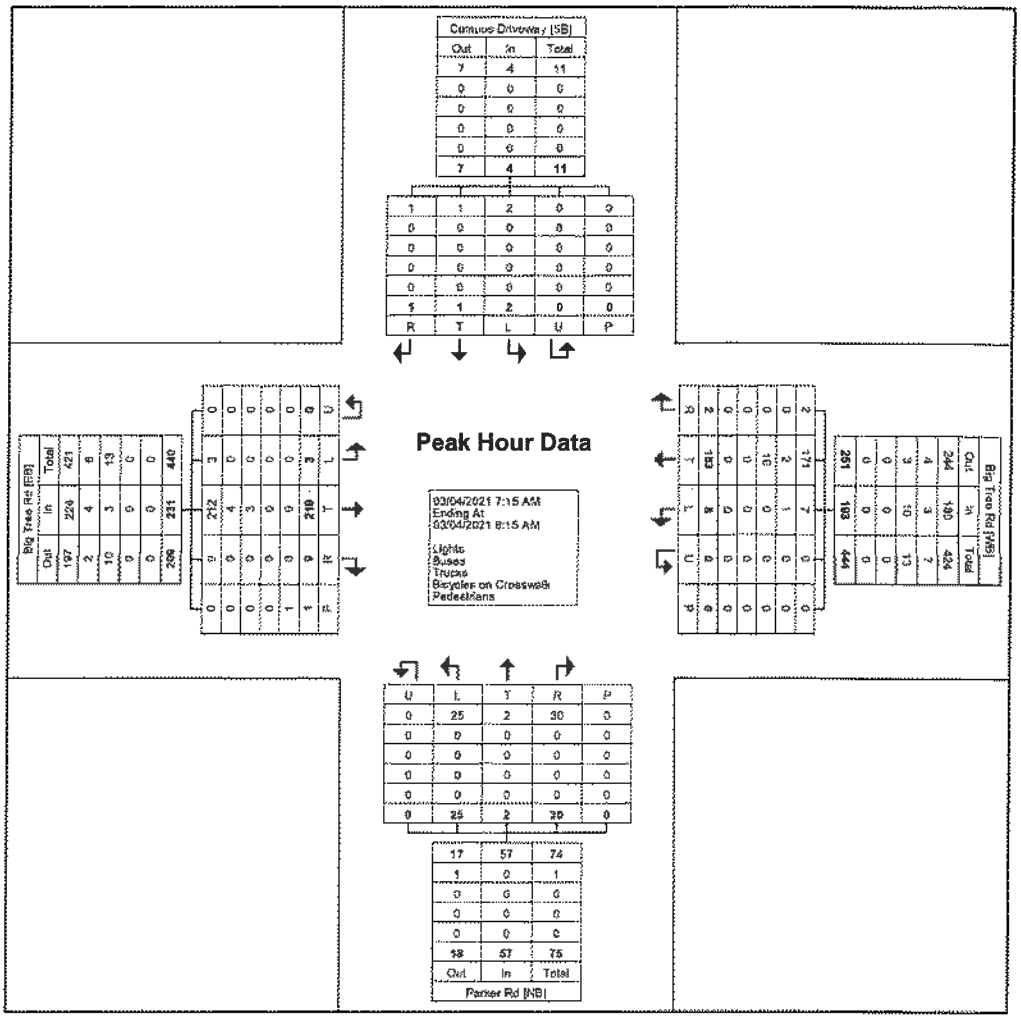
Hamburg, NY

Thursday, March 4 2021
Location: 42.768461, -78.800467

Count Name: Parker Rd/Big Tree Rd
Site Code:
Start Date: 03/04/2021
Page No: 3

Turning Movement Peak Hour Data (7:15 AM)

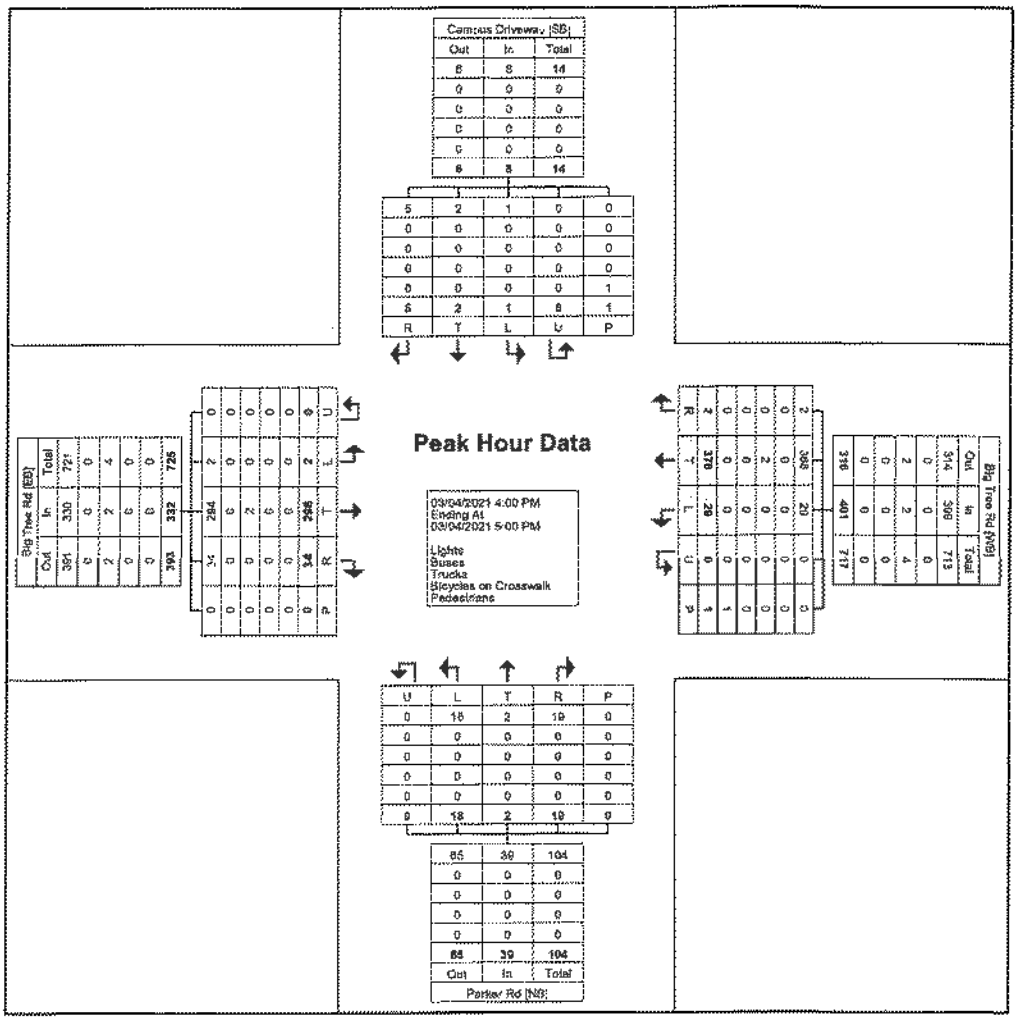
Start Time	Campus Driveway Southbound						Big Tree Rd Westbound						Parker Rd Northbound						Big Tree Rd Eastbound						Int. Total
	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	
7:15 AM	0	0	0	0	0	0	0	36	1	0	0	37	7	1	6	0	0	14	2	44	0	0	1	46	97
7:30 AM	0	0	0	0	0	0	0	52	2	0	0	54	8	0	5	0	0	13	3	61	1	0	0	65	132
7:45 AM	1	0	1	0	0	2	2	57	2	0	0	61	6	1	8	0	0	15	3	69	2	0	0	74	152
8:00 AM	0	1	1	0	0	2	0	38	3	0	0	41	7	0	6	0	0	15	1	45	0	0	0	46	104
Total	1	1	2	0	0	4	2	183	8	0	0	193	30	2	25	0	0	57	9	219	3	0	1	231	485
Approach %	25.0	25.0	50.0	0.0	-	-	1.0	94.8	4.1	0.0	-	-	52.6	3.5	43.9	0.0	-	-	3.9	94.8	1.3	0.0	-	-	-
Total %	0.2	0.2	0.4	0.0	-	0.8	0.4	37.7	1.6	0.0	-	39.8	6.2	0.4	5.2	0.0	-	11.8	1.9	45.2	0.6	0.0	-	47.6	-
PHF	0.250	0.250	0.500	0.000	-	0.500	0.250	0.803	0.667	0.000		0.791	0.938	0.500	0.781	0.000	-	0.950	0.750	0.793	0.375	0.000	-	0.780	0.798
Lights	1	1	2	0	-	4	2	171	7	0		180	30	2	25	0	-	57	9	212	3	0	-	224	465
% Lights	100.0	100.0	100.0	-	-	100.0	100.0	93.4	87.5	-		93.3	100.0	100.0	100.0	-	-	100.0	100.0	96.8	100.0	-	-	97.0	95.9
Buses	0	0	0	0	-	0	0	2	1	0		3	0	0	0	0	-	0	0	4	0	0	-	4	7
% Buses	0.0	0.0	0.0	-	-	0.0	0.0	1.1	12.5	-	-	1.6	0.0	0.0	0.0	-		0.0	0.0	1.8	0.0	-	-	1.7	1.4
Trucks	0	0	0	0	-	0	0	10	0	0	-	10	0	0	0	0		0	0	3	0	0	-	3	13
% Trucks	0.0	0.0	0.0	-	-	0.0	0.0	5.5	0.0	-	-	5.2	0.0	0.0	0.0	-		0.0	0.0	1.4	0.0	-	-	1.3	2.7
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	1	-	-
% Pedestrians	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100.0	-	-



Turning Movement Peak Hour Data Plot (7:15 AM)

Turning Movement Peak Hour Data (4:00 PM)

Start Time	Campus Driveway Southbound						Big Tree Rd Westbound						Parker Rd Northbound						Big Tree Rd Eastbound						Int. Total
	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	
4:00 PM	2	0	0	0	0	2	0	89	10	0	0	99	5	2	5	0	0	12	6	74	0	0	0	80	193
4:15 PM	1	1	0	0	0	2	0	86	6	0	0	94	6	0	5	0	0	11	12	63	1	0	0	76	183
4:30 PM	0	1	1	0	1	2	1	102	8	0	1	111	4	0	4	0	0	8	9	75	1	0	0	85	206
4:45 PM	2	0	0	0	0	2	1	91	5	0	0	97	4	0	4	0	0	8	7	84	0	0	0	91	198
Total	5	2	1	0	1	8	2	370	29	0	1	401	19	2	18	0	0	39	34	296	2	0	0	332	780
Approach %	62.5	25.0	12.5	0.0	-	-	0.5	92.3	7.2	0.0	-	-	48.7	5.1	46.2	0.0	-	-	10.2	89.2	0.6	0.0	-	-	-
Total %	0.6	0.3	0.1	0.0	-	1.0	0.3	47.4	3.7	0.0	-	51.4	2.4	0.3	2.3	0.0	-	5.0	4.4	37.9	0.3	0.0	-	42.6	-
PHF	0.625	0.500	0.250	0.000	-	1.000	0.500	0.907	0.725	0.000	-	0.903	0.792	0.250	0.900	0.000	-	0.813	0.708	0.881	0.500	0.000		0.912	0.947
Lights	5	2	1	0	-	8	2	368	29	0		399	19	2	18	0	-	39	34	294	2	0	-	330	776
% Lights	100.0	100.0	100.0	-	-	100.0	100.0	99.5	100.0	-	-	99.5	100.0	100.0	100.0	-	-	100.0	100.0	99.3	100.0	-	-	99.4	99.5
Buses	0	0	0	0	-	0	0	0	0	0		0	0	0	0	0	-	0	0	0	0	0		0	0
% Buses	0.0	0.0	0.0	-		0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Trucks	0	0	0	0		0	0	2	0	0		2	0	0	0	0		0	0	2	0	0	-	2	4
% Trucks	0.0	0.0	0.0	-	-	0.0	0.0	0.5	0.0	-		0.5	0.0	0.0	0.0	-	-	0.0	0.0	0.7	0.0	-	-	0.6	0.5
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	1	-	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Turning Movement Peak Hour Data Plot (4:00 PM)

TRI-STATE TRAFFIC DATA

www.TSTData.com
184 Baker Rd

Coatesville, Pennsylvania, United States 19320
610-466-1469
Serving Transportation Professionals Since 1995

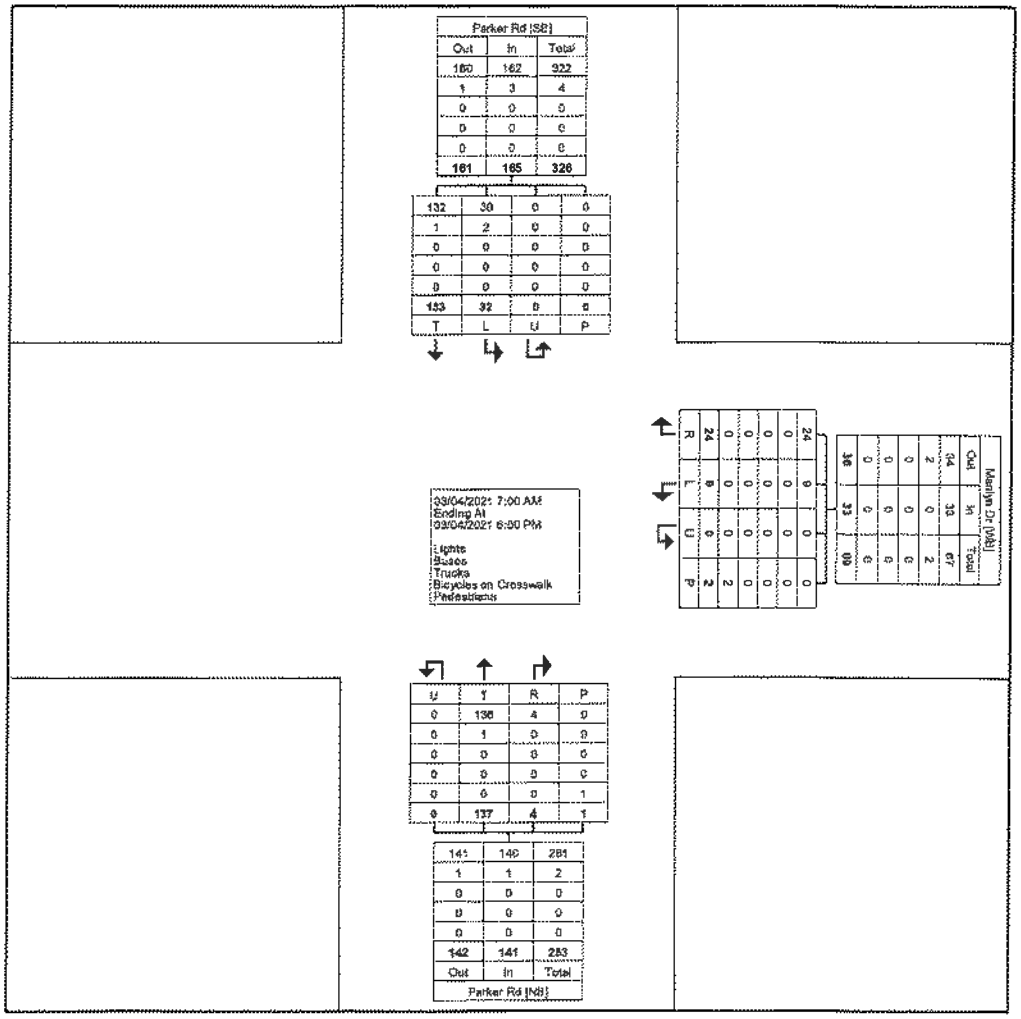
Hamburg, NY

Thursday, March 4, 2021
Location: 42.767123, -78.800485

Count Name: Parker Rd/Marilyn Dr
Site Code:
Start Date: 03/04/2021
Page No: 1

Turning Movement Data

Start Time	Parker Rd Southbound					Marilyn Dr Westbound					Parker Rd Northbound					Int. Total
	Thru	Left	U-Turn	Peds	App. Total	Right	Left	U-Turn	Peds	App. Total	Right	Thru	U-Turn	Peds	App. Total	
7:00 AM	1	0	0	0	1	0	1	0	0	1	0	6	0	0	6	8
7:15 AM	1	2	0	0	3	4	0	0	0	4	0	11	0	0	11	18
7:30 AM	4	1	0	0	5	2	0	0	0	2	1	10	0	0	11	18
7:45 AM	4	1	0	0	5	1	2	0	0	3	0	15	0	0	15	23
Hourly Total	10	4	0	0	14	7	3	0	0	10	1	42	0	0	43	67
8:00 AM	4	0	0	0	4	1	0	0	0	1	0	14	0	0	14	19
8:15 AM	4	1	0	0	5	2	0	0	0	2	1	9	0	0	10	17
8:30 AM	6	4	0	0	10	1	0	0	0	1	0	7	0	0	7	18
8:45 AM	6	1	0	0	7	0	0	0	0	0	0	12	0	0	12	19
Hourly Total	20	6	0	0	26	4	0	0	0	4	1	42	0	0	43	73
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4:00 PM	14	1	0	0	15	4	1	0	1	5	0	8	0	0	8	28
4:15 PM	14	6	0	0	20	3	1	0	0	4	0	8	0	0	8	32
4:30 PM	17	1	0	0	18	0	0	0	0	0	1	7	0	0	8	26
4:45 PM	10	2	0	0	12	1	1	0	0	2	0	7	0	0	7	21
Hourly Total	55	10	0	0	65	8	3	0	1	11	1	30	0	0	31	107
5:00 PM	11	3	0	0	14	1	1	0	0	2	0	4	0	0	4	20
5:15 PM	15	3	0	0	18	0	1	0	0	1	0	7	0	1	7	26
5:30 PM	9	2	0	0	11	2	1	0	1	3	0	3	0	0	3	17
5:45 PM	13	4	0	0	17	2	0	0	0	2	1	9	0	0	10	29
Hourly Total	48	12	0	0	60	5	3	0	1	8	1	23	0	1	24	92
Grand Total	133	32	0	0	165	24	9	0	2	33	4	137	0	1	141	339
Approach %	80.6	19.4	0.0	-	-	72.7	27.3	0.0	-	-	2.8	97.2	0.0	-	-	-
Total %	39.2	9.4	0.0	-	48.7	7.1	2.7	0.0		9.7	1.2	40.4	0.0	-	41.6	-
Lights	132	30	0	-	162	24	9	0		33	4	136	0	-	140	335
% Lights	99.2	93.8	-	-	98.2	100.0	100.0	-	-	100.0	100.0	99.3	-	-	99.3	98.8
Buses	1	2	0	-	3	0	0	0	-	0	0	1	0	-	1	4
% Buses	0.8	6.3	-	-	1.8	0.0	0.0	-	-	0.0	0.0	0.7	-	-	0.7	1.2
Trucks	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Trucks	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	0.0	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	0	-	-	-	-	2	-	-	-	-	1	-	-
% Pedestrians	-	-	-	-	-	-	-	-	100.0	-	-	-	-	100.0	-	-



Turning Movement Data Plot

TRI-STATE TRAFFIC DATA

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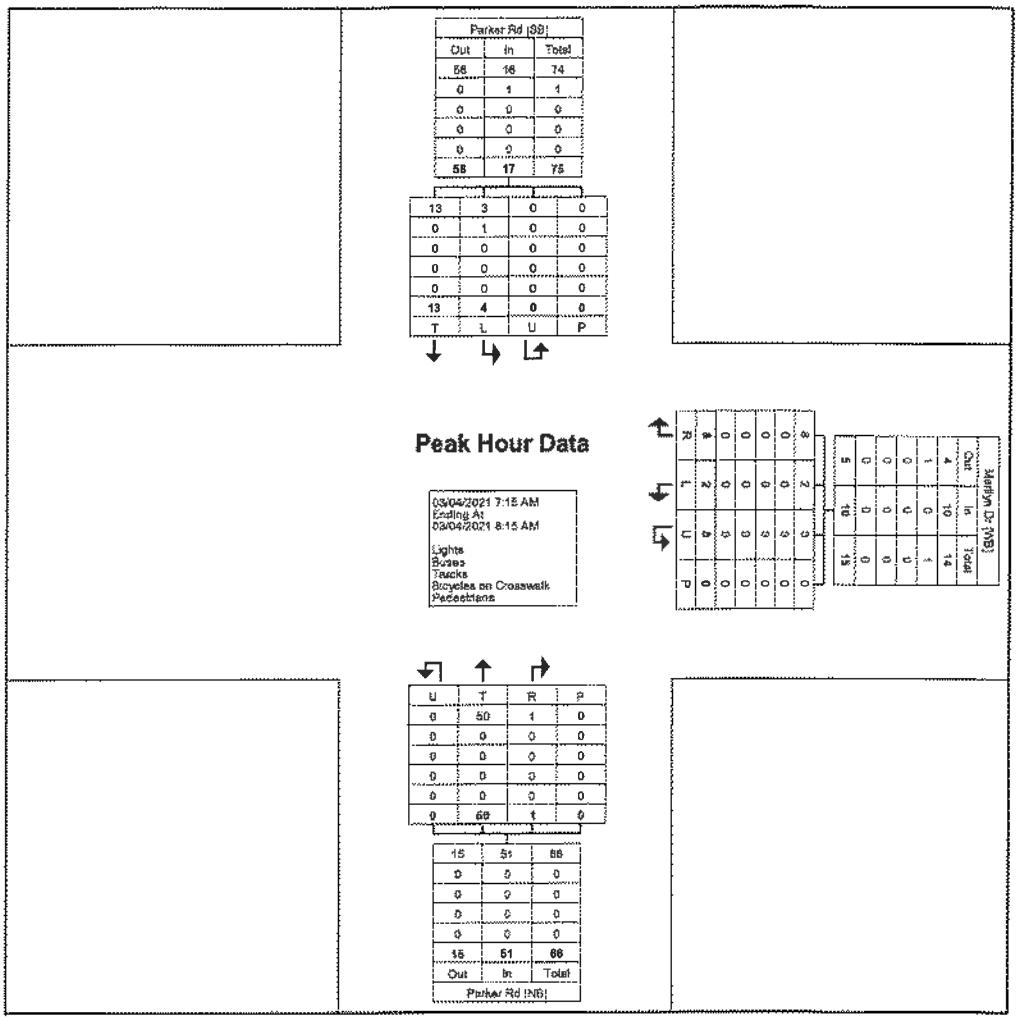
Hamburg, NY

Thursday, March 4, 2021
Location: 42.767123, -78.800485

Count Name: Parker Rd/Marilyn Dr
Site Code:
Start Date: 03/04/2021

Turning Movement Peak Hour Data (7:15 AM)

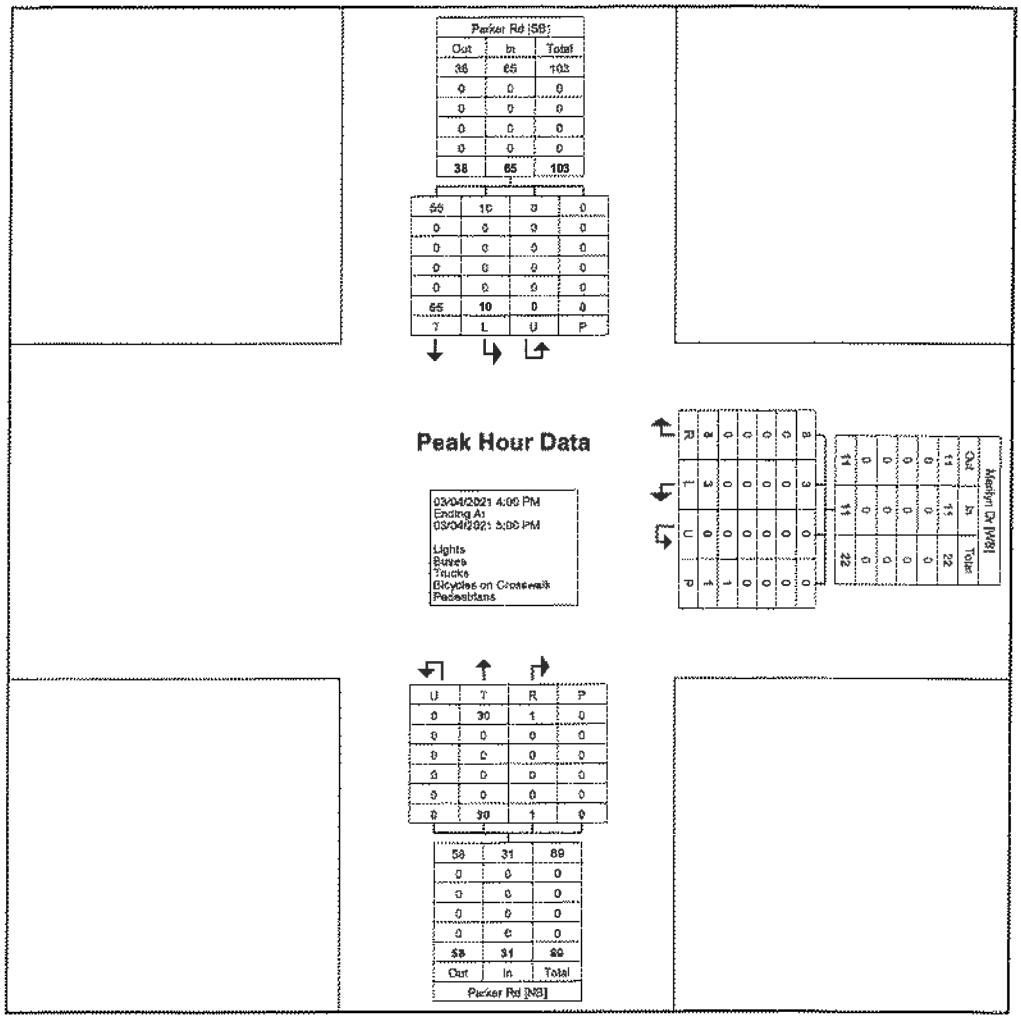
Start Time	Parker Rd Southbound					Marilyn Dr Westbound					Parker Rd Northbound					Int. Total
	Thru	Left	U-Turn	Peds	App. Total	Right	Left	U-Turn	Peds	App. Total	Right	Thru	U-Turn	Peds	App. Total	
7:15 AM	1	2	0	0	3	4	0	0	0	4	0	11	0	0	11	18
7:30 AM	4	1	0	0	5	2	0	0	0	2	1	10	0	0	11	18
7:45 AM	4	1	0	0	5	1	2	0	0	3	0	15	0	0	15	23
8:00 AM	4	0	0	0	4	1	0	0	0	1	0	14	0	0	14	19
Total	13	4	0	0	17	8	2	0	0	10	1	50	0	0	51	78
Approach %	76.5	23.5	0.0	-	-	80.0	20.0	0.0	-	-	2.0	98.0	0.0	-	-	-
Total %	16.7	5.1	0.0	-	21.8	10.3	2.6	0.0	-	12.8	1.3	64.1	0.0		65.4	-
PHF	0.813	0.500	0.000		0.850	0.500	0.250	0.000	-	0.625	0.250	0.833	0.000		0.850	0.848
Lights	13	3	0		16	8	2	0	-	10	1	50	0		51	77
% Lights	100.0	75.0	-	-	94.1	100.0	100.0	-	-	100.0	100.0	100.0	-	-	100.0	98.7
Buses	0	1	0	-	1	0	0	0	-	0	0	0	0	-	0	1
% Buses	0.0	25.0	-	-	5.9	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	1.3
Trucks	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Trucks	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Turning Movement Peak Hour Data Plot (7:15 AM)

Turning Movement Peak Hour Data (4:00 PM)

Start Time	Parker Rd Southbound					Marilyn Dr Westbound					Parker Rd Northbound					Int. Total
	Thru	Left	U-Turn	Peds	App. Total	Right	Left	U-Turn	Peds	App. Total	Right	Thru	U-Turn	Peds	App. Total	
4:00 PM	14	1	0	0	15	4	1	0	1	5	0	8	0	0	8	28
4:15 PM	14	6	0	0	20	3	1	0	0	4	0	8	0	0	8	32
4:30 PM	17	1	0	0	18	0	0	0	0	0	1	7	0	0	8	26
4:45 PM	10	2	0	0	12	1	1	0	0	2	0	7	0	0	7	21
Total	55	10	0	0	65	8	3	0	1	11	1	30	0	0	31	107
Approach %	84.6	15.4	0.0	-	-	72.7	27.3	0.0	-	-	3.2	96.8	0.0	-	-	-
Total %	51.4	9.3	0.0		60.7	7.5	2.8	0.0	-	10.3	0.9	28.0	0.0	-	29.0	-
PHF	0.809	0.417	0.000		0.813	0.500	0.750	0.000	-	0.550	0.250	0.938	0.000	-	0.969	0.836
Lights	55	10	0	-	65	8	3	0		11	1	30	0	-	31	107
% Lights	100.0	100.0	-	-	100.0	100.0	100.0	-		100.0	100.0	100.0	-	-	100.0	100.0
Buses	0	0	0	-	0	0	0	0		0	0	0	0	-	0	0
% Buses	0.0	0.0	-	-	0.0	0.0	0.0	-		0.0	0.0	0.0	-	-	0.0	0.0
Trucks	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Trucks	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	0.0	-	-	-	-	-	-	-
Pedestrians	-	-	-	0	-	-	-	-	1	-	-	-	-	0	-	-
% Pedestrians	-	-	-		-	-	-	-	100.0	-	-	-	-		-	-



Turning Movement Peak Hour Data Plot (4:00 PM)

TRI-STATE TRAFFIC DATA

www.TSTData.com
184 Baker Rd

Coatesville, Pennsylvania, United States 19320
610-466-1469
Serving Transportation Professionals Since 1995

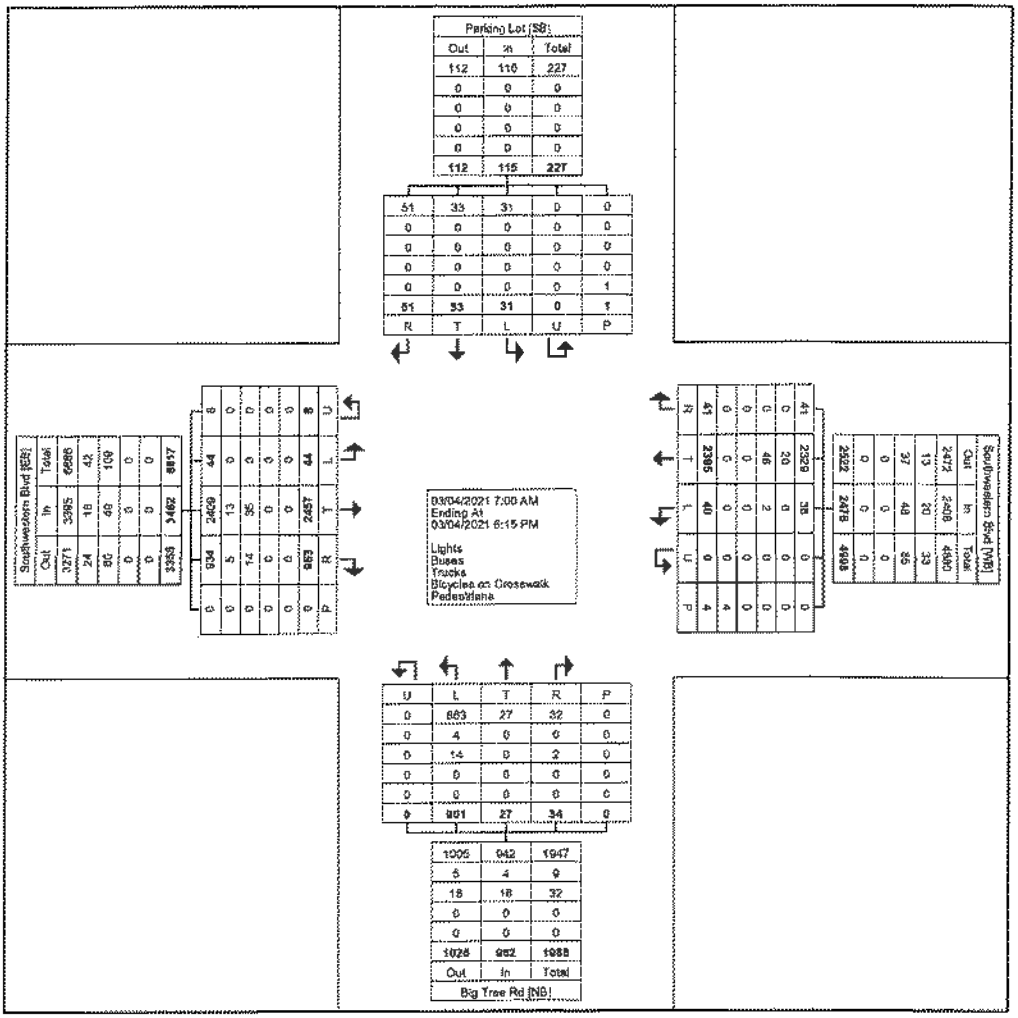
Hamburg, NY

Thursday, March 4, 2021
Location: 42.770732, -78.809658

Count Name: Southwestern Blvd/Big Tree Rd
Site Code:
Start Date: 03/04/2021
Page No: 1

Turning Movement Data

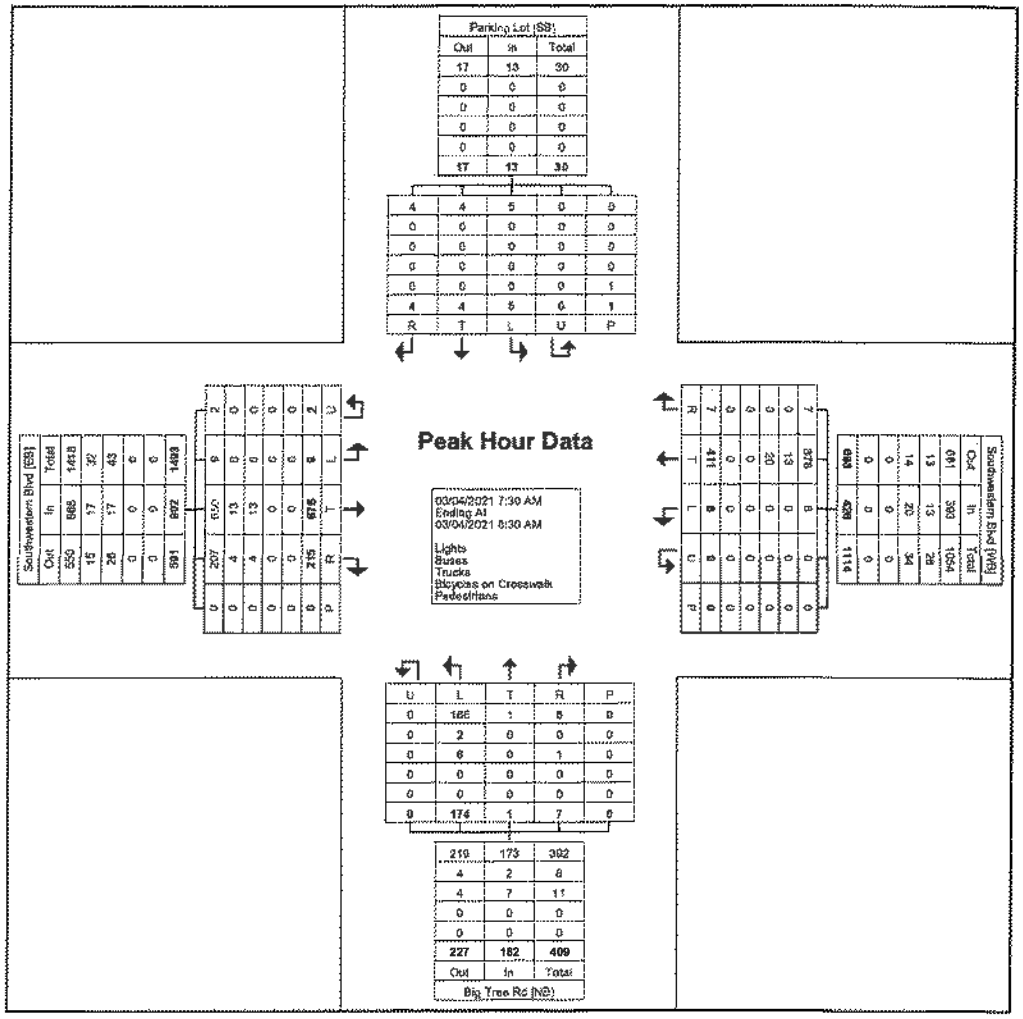
Start Time	Parking Lot Southbound							Southwestern Blvd Westbound							Big Tree Rd Northbound							Southwestern Blvd Eastbound							Int. Total
	Right	Right on Red	Thru	Left	U-Turn	Peds	App. Total	Right	Right on Red	Thru	Left	U-Turn	Peds	App. Total	Right	Right on Red	Thru	Left	U-Turn	Peds	App. Total	Right	Right on Red	Thru	Left	U-Turn	Peds	App. Total	
7:00 AM	0	0	0	0	0	0	0	1	0	81	0	0	0	82	0	0	0	32	0	0	32	41	2	124	0	1	0	168	282
7:15 AM	0	1	0	2	0	0	3	1	0	89	1	0	0	91	0	0	1	33	0	0	34	41	4	139	2	0	0	186	314
7:30 AM	0	1	1	1	0	0	3	2	0	99	3	0	0	104	0	0	0	47	0	0	47	48	12	181	2	1	0	244	398
7:45 AM	1	1	3	2	0	1	7	1	0	128	3	0	0	132	0	2	1	55	0	0	58	50	13	176	3	0	0	242	439
Hourly Total	1	3	4	5	0	1	13	5	0	397	7	0	0	409	0	2	2	167	0	0	171	180	31	620	7	2	0	840	1433
8:00 AM	0	0	0	1	0	0	1	0	0	92	2	0	0	94	4	0	0	42	0	0	46	39	8	163	3	1	0	214	355
8:15 AM	0	1	0	1	0	0	2	4	0	92	0	0	0	96	1	0	0	30	0	0	31	38	7	156	1	0	0	202	331
8:30 AM	1	0	0	1	0	0	2	0	1	98	2	0	0	101	0	0	1	44	0	0	45	46	11	141	1	0	0	199	347
8:45 AM	0	1	0	0	0	0	1	0	1	110	1	0	0	112	3	2	2	41	0	0	48	47	6	144	0	0	0	197	358
Hourly Total	1	2	0	3	0	0	6	4	2	392	5	0	0	403	8	2	3	157	0	0	170	170	32	604	5	1	0	812	1391
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4:00 PM	9	2	1	5	0	0	17	1	1	221	7	0	0	230	3	0	1	85	0	0	89	50	13	187	4	0	0	254	590
4:15 PM	3	1	2	1	0	0	7	1	0	209	2	0	0	212	1	2	1	80	0	0	84	66	4	162	7	1	0	240	543
4:30 PM	2	0	6	4	0	0	12	3	0	244	7	0	0	254	4	0	6	82	0	0	92	42	26	180	2	0	0	250	608
4:45 PM	2	0	2	0	0	0	4	4	0	187	2	0	0	193	3	1	2	94	0	0	100	61	15	142	6	1	0	225	522
Hourly Total	16	3	11	10	0	0	40	9	1	861	18	0	0	889	11	3	10	341	0	0	365	219	58	671	19	2	0	969	2263
5:00 PM	1	2	4	2	0	0	9	4	0	236	1	0	2	241	2	0	5	70	0	0	77	40	23	152	4	0	0	219	546
5:15 PM	9	3	5	5	0	0	22	3	0	197	3	0	0	203	2	1	2	51	0	0	56	49	25	135	6	1	0	216	497
5:30 PM	4	4	3	4	0	0	15	6	1	161	2	0	0	170	1	1	3	55	0	0	60	54	14	151	1	1	0	221	466
5:45 PM	1	1	6	2	0	0	10	5	1	151	4	0	2	161	0	1	2	60	0	0	63	44	14	124	2	1	0	185	419
Hourly Total	15	10	18	13	0	0	56	18	2	745	10	0	4	775	5	3	12	236	0	0	256	187	76	562	13	3	0	841	1928
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	33	18	33	31	0	1	115	36	5	2395	40	0	4	2476	24	10	27	901	0	0	962	756	197	2457	44	8	0	3462	7015
Approach %	28.7	15.7	28.7	27.0	0.0	-	-	1.5	0.2	96.7	1.6	0.0	-	-	2.5	1.0	2.8	93.7	0.0	-	-	21.8	5.7	71.0	1.3	0.2	-	-	-
Total %	0.5	0.3	0.5	0.4	0.0	-	1.6	0.5	0.1	34.1	0.6	0.0	-	35.3	0.3	0.1	0.4	12.8	0.0	-	13.7	10.8	2.8	35.0	0.6	0.1	-	49.4	-
Lights	33	18	33	31	0	-	115	36	5	2329	38	0	-	2408	22	10	27	883	0	-	942	740	194	2409	44	8	-	3395	6860
% Lights	100.0	100.0	100.0	100.0	-	-	100.0	100.0	100.0	97.2	95.0	-	-	97.3	91.7	100.0	100.0	98.0	-	-	97.9	97.9	98.5	98.0	100.0	100.0	-	98.1	97.8
Buses	0	0	0	0	0	-	0	0	0	20	0	0	-	20	0	0	0	4	0	-	4	5	0	13	0	0	-	18	42
% Buses	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.8	0.0	-	-	0.8	0.0	0.0	0.0	0.4	-	-	0.4	0.7	0.0	0.5	0.0	0.0	-	0.5	0.6
Trucks	0	0	0	0	0	-	0	0	0	46	2	0	-	48	2	0	0	14	0	-	16	11	3	35	0	0	-	49	113
% Trucks	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	1.9	5.0	-	-	1.9	8.3	0.0	0.0	1.6	-	-	1.7	1.5	1.5	1.4	0.0	0.0	-	1.4	1.6
Bicycles on Crosswalk	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	0.0	-	-	-	-	-	-	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	-	1	-	-	-	-	-	-	4	-	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Turning Movement Data Plot

Turning Movement Peak Hour Data (7:30 AM)

Start Time	Parking Lot Southbound							Southwestern Blvd Westbound							Big Tree Rd Northbound							Southwestern Blvd Eastbound							Int. Total
	Right	Right on Red	Thru	Left	U-Turn	Peds	App. Total	Right	Right on Red	Thru	Left	U-Turn	Peds	App. Total	Right	Right on Red	Thru	Left	U-Turn	Peds	App. Total	Right	Right on Red	Thru	Left	U-Turn	Peds	App. Total	
7:30 AM	0	1	1	1	0	0	3	2	0	99	3	0	0	104	0	0	0	47	0	0	47	48	12	181	2	1	0	244	398
7:45 AM	1	1	3	2	0	1	7	1	0	128	3	0	0	132	0	2	1	55	0	0	58	50	13	176	3	0	0	242	439
8:00 AM	0	0	0	1	0	0	1	0	0	92	2	0	0	94	4	0	0	42	0	0	46	39	8	163	3	1	0	214	355
8:15 AM	0	1	0	1	0	0	2	4	0	92	0	0	0	96	1	0	0	30	0	0	31	38	7	156	1	0	0	202	331
Total	1	3	4	5	0	1	13	7	0	411	8	0	0	426	5	2	1	174	0	0	182	175	40	676	9	2	0	902	1523
Approach %	7.7	23.1	30.8	38.5	0.0	-	-	1.6	0.0	96.5	1.9	0.0		-	2.7	1.1	0.5	95.6	0.0	-	-	19.4	4.4	74.9	1.0	0.2	-	-	-
Total %	0.1	0.2	0.3	0.3	0.0		0.9	0.5	0.0	27.0	0.5	0.0	-	28.0	0.3	0.1	0.1	11.4	0.0	-	12.0	11.5	2.6	44.4	0.6	0.1	-	59.2	-
PHF	0.250	0.750	0.333	0.625	0.000	-	0.464	0.438	0.000	0.803	0.667	0.000	-	0.807	0.313	0.250	0.250	0.791	0.000	-	0.784	0.875	0.769	0.934	0.750	0.500	-	0.924	0.867
Lights	1	3	4	5	0		13	7	0	378	8	0	-	393	4	2	1	166	0	-	173	168	39	650	9	2	-	868	1447
% Lights	100.0	100.0	100.0	100.0	-		100.0	100.0	-	92.0	100.0	-	-	92.3	80.0	100.0	100.0	95.4	-		95.1	96.0	97.5	96.2	100.0	100.0		96.2	95.0
Buses	0	0	0	0	0	-	0	0	0	13	0	0	-	13	0	0	0	2	0	-	2	4	0	13	0	0	-	17	32
% Buses	0.0	0.0	0.0	0.0	-	-	0.0	0.0	-	3.2	0.0	-	-	3.1	0.0	0.0	0.0	1.1	-	-	1.1	2.3	0.0	1.9	0.0	0.0	-	1.9	2.1
Trucks	0	0	0	0	0	-	0	0	0	20	0	0	-	20	1	0	0	8	0	-	7	3	1	13	0	0	-	17	44
% Trucks	0.0	0.0	0.0	0.0	-	-	0.0	0.0	-	4.9	0.0	-	-	4.7	20.0	0.0	0.0	3.4	-	-	3.8	1.7	2.5	1.9	0.0	0.0	-	1.9	2.9
Bicycles on Crosswalk	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	-	1	-	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-		-	-



Turning Movement Peak Hour Data Plot (7:30 AM)

TRI-STATE TRAFFIC DATA

www.TSTData.com
184 Baker Rd

Coatesville, Pennsylvania, United States 19320
610-466-1469
Serving Transportation Professionals Since 1995

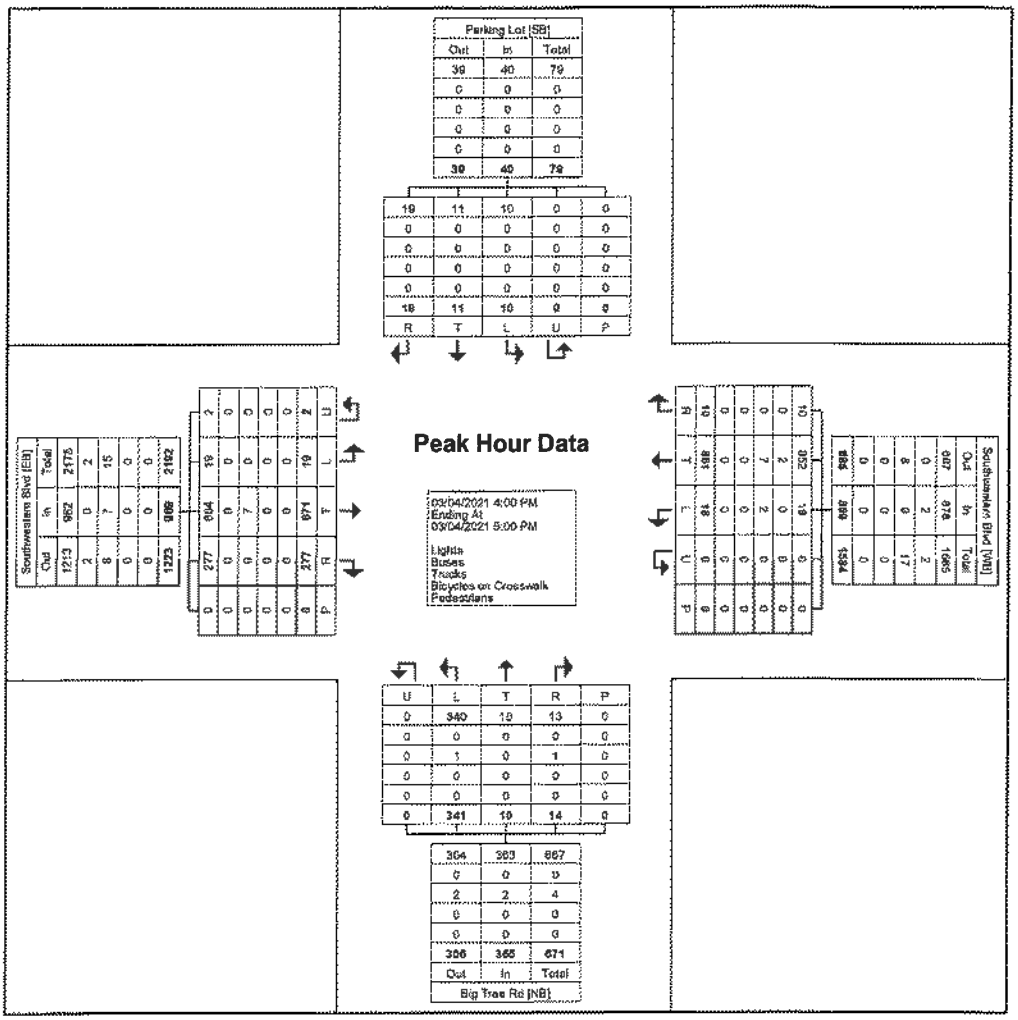
Hamburg, NY

Thursday, March 4, 2021
Location: 42.770732, -78.809658

Count Name: Southwestern Blvd/Big Tree Rd
Site Code:
Start Date: 03/04/2021
Page No: 5

Turning Movement Peak Hour Data (4:00 PM)

Start Time	Parking Lot Southbound							Southwestern Blvd Westbound							Big Tree Rd Northbound							Southwestern Blvd Eastbound							Int. Total
	Right	Right on Red	Thru	Left	U-Turn	Peds	App. Total	Right	Right on Red	Thru	Left	U-Turn	Peds	App. Total	Right	Right on Red	Thru	Left	U-Turn	Peds	App. Total	Right	Right on Red	Thru	Left	U-Turn	Peds	App. Total	
4:00 PM	9	2	1	5	0	0	17	1	1	221	7	0	0	230	3	0	1	85	0	0	89	50	13	187	4	0	0	254	590
4:15 PM	3	1	2	1	0	0	7	1	0	209	2	0	0	212	1	2	1	80	0	0	84	66	4	162	7	1	0	240	543
4:30 PM	2	0	6	4	0	0	12	3	0	244	7	0	0	254	4	0	6	82	0	0	92	42	26	180	2	0	0	250	608
4:45 PM	2	0	2	0	0	0	4	4	0	187	2	0	0	193	3	1	2	94	0	0	100	61	15	142	6	1	0	225	522
Total	16	3	11	10	0	0	40	9	1	861	18	0	0	889	11	3	10	341	0	0	365	219	58	671	19	2	0	969	2263
Approach %	40.0	7.5	27.5	25.0	0.0	-	-	1.0	0.1	96.9	2.0	0.0	-	-	3.0	0.8	2.7	93.4	0.0	-	-	22.6	6.0	69.2	2.0	0.2	-	-	-
Total %	0.7	0.1	0.5	0.4	0.0	-	1.8	0.4	0.0	38.0	0.8	0.0	-	39.3	0.5	0.1	0.4	15.1	0.0	-	16.1	9.7	2.6	29.7	0.8	0.1	-	42.8	-
PHF	0.444	0.375	0.458	0.500	0.000	-	0.588	0.583	0.250	0.882	0.643	0.000	-	0.875	0.688	0.375	0.417	0.907	0.000	-	0.913	0.830	0.558	0.897	0.679	0.500	-	0.954	0.931
Lights	16	3	11	10	0	-	40	9	1	852	16	0	-	878	10	3	10	340	0	-	363	219	58	664	19	2	-	962	2243
% Lights	100.0	100.0	100.0	100.0	-	-	100.0	100.0	100.0	99.0	88.9	-	-	98.8	90.9	100.0	100.0	99.7	-	-	99.5	100.0	100.0	99.0	100.0	100.0	-	99.3	99.1
Buses	0	0	0	0	0	-	0	0	0	2	0	0	-	2	0	0	0	0	0	-	0	0	0	0	0	0	-	0	2
% Buses	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.2	0.0	-	-	0.2	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	0.0	0.0	-	0.0	0.1
Trucks	0	0	0	0	0	-	0	0	0	7	2	0	-	9	1	0	0	1	0	-	2	0	0	7	0	0	-	7	18
% Trucks	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.8	11.1	-	-	1.0	9.1	0.0	0.0	0.3	-	-	0.5	0.0	0.0	1.0	0.0	0.0	-	0.7	0.8
Bicycles on Crosswalk	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Turning Movement Peak Hour Data Plot (4:00 PM)

A2

Miscellaneous Traffic Data and Calculations

SRF ASSOCIATES
Transportation Planning / Engineering / Design

Proposed Residential Projects, Town of Hamburg, Erie County, NY

Documentation of Ambient Traffic Volume Growth

Roadway	Segment starts at	Segment end at	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Annual Growth
SW Blvd	Big Tree Rd	Milestrip Rd	16,649			17,631			21,267					4.16%
Big Tree Rd	SW Blvd	Rte 219	12,059			11,602			12,281		12,584			0.53%
Abbott Rd	Orchard Park TL	Big Tree Rd	6,421					5,722			5,682			-1.52%
Abbott Rd	SW Blvd	Big Tree Rd	8,604					7,074				7,586		-1.39%
													AVERAGE	0.45%

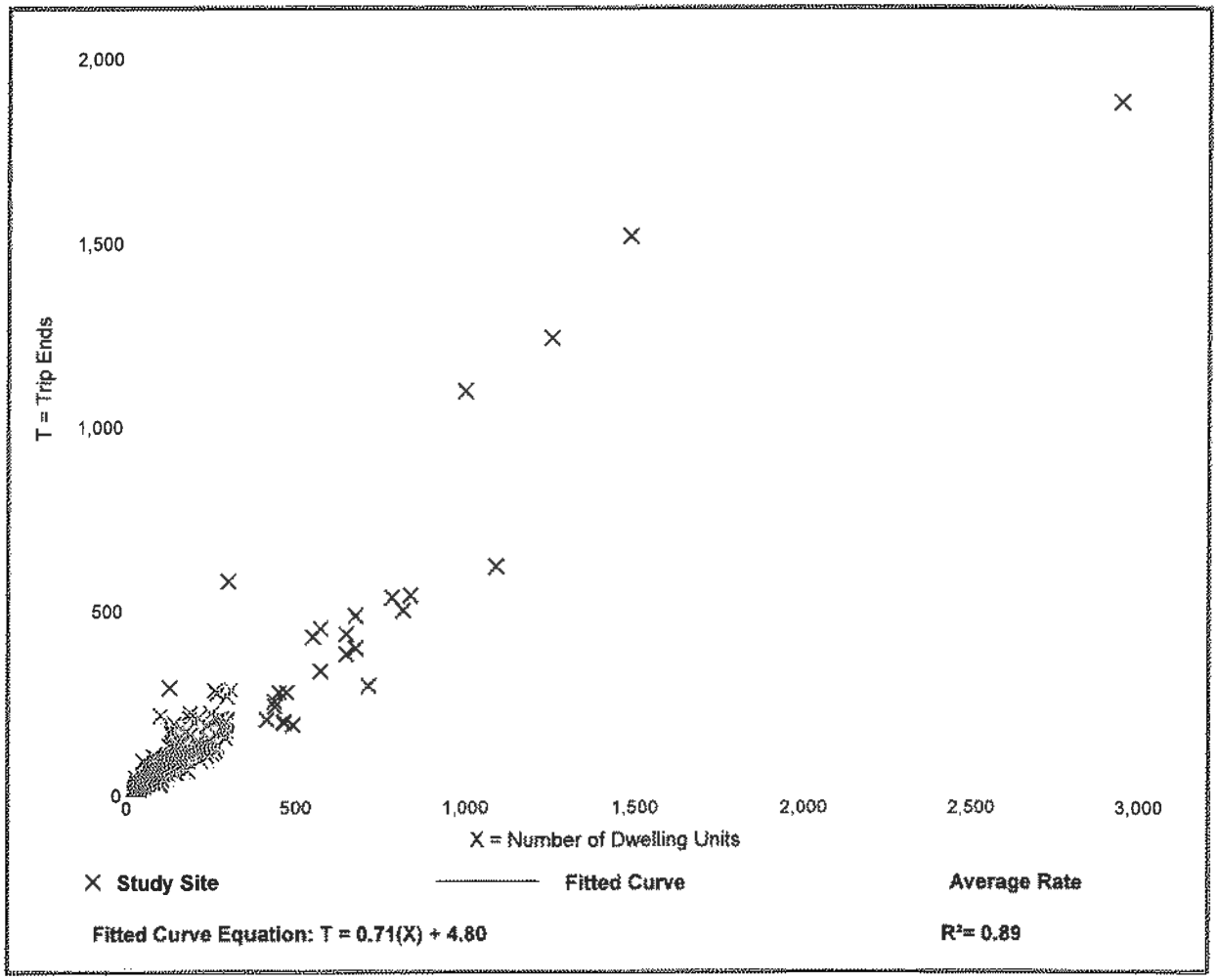
Single-Family Detached Housing
(210)

Vehicle Trip Ends vs: **Dwelling Units**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.
Setting/Location: **General Urban/Suburban**
Number of Studies: 173
Avg. Num. of Dwelling Units: 219
Directional Distribution: 25% entering, 75% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.74	0.33 - 2.27	0.27

Data Plot and Equation



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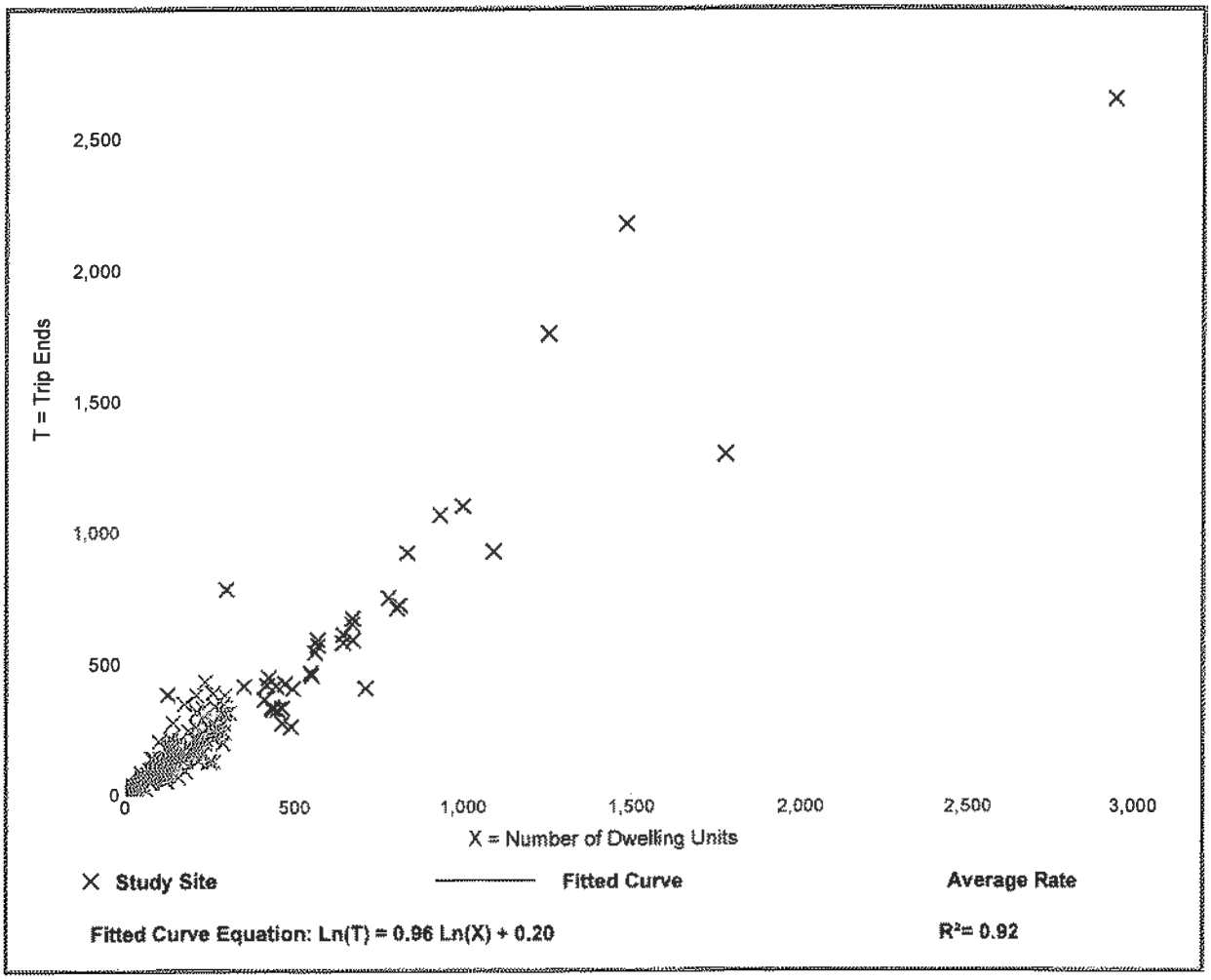
Single-Family Detached Housing
(210)

Vehicle Trip Ends vs: **Dwelling Units**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.
Setting/Location: **General Urban/Suburban**
Number of Studies: 190
Avg. Num. of Dwelling Units: 242
Directional Distribution: 63% entering, 37% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.99	0.44 - 2.98	0.31

Data Plot and Equation



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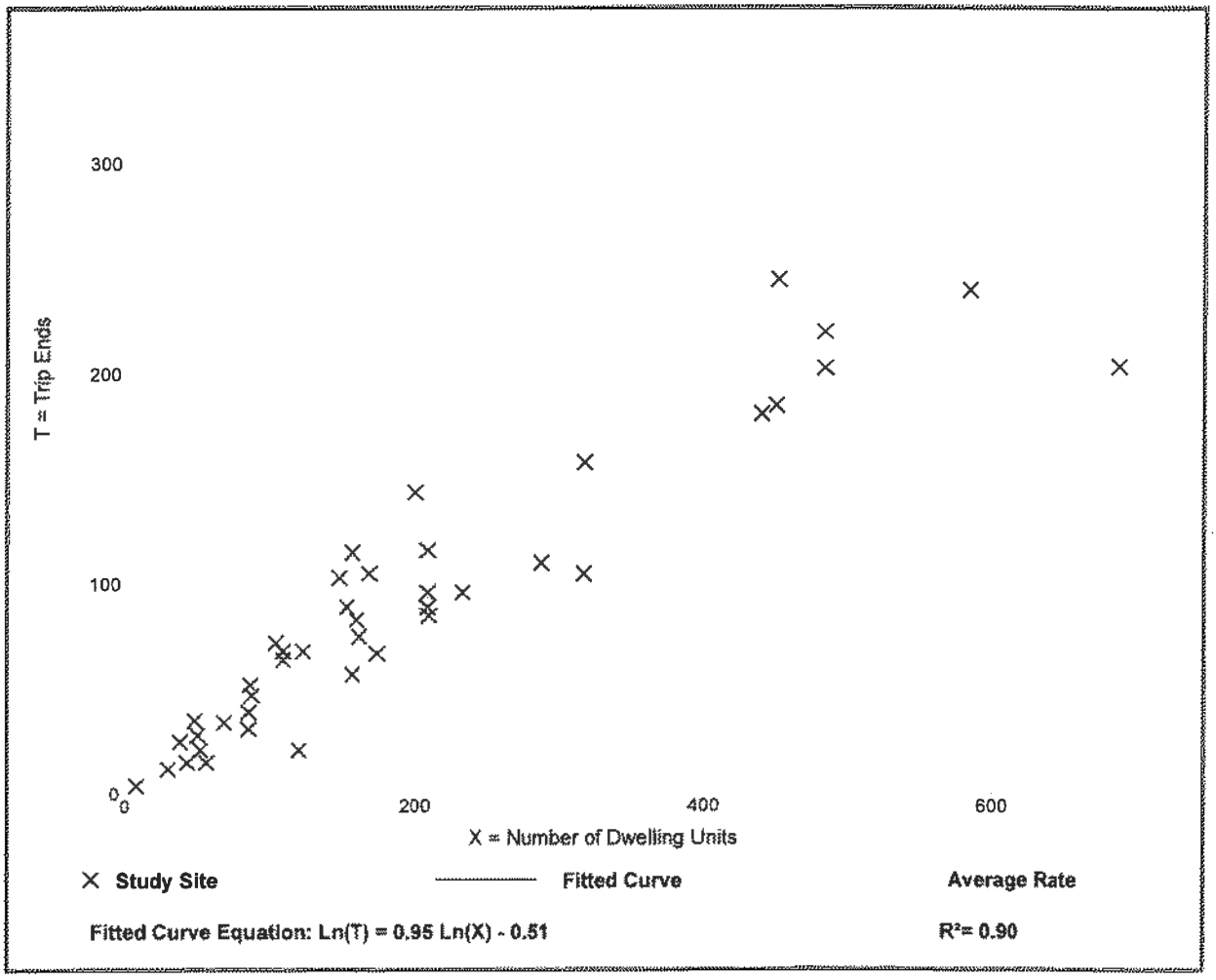
Multifamily Housing (Low-Rise)
(220)

Vehicle Trip Ends vs: **Dwelling Units**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.
Setting/Location: **General Urban/Suburban**
Number of Studies: 42
Avg. Num. of Dwelling Units: 199
Directional Distribution: 23% entering, 77% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.46	0.18 - 0.74	0.12

Data Plot and Equation



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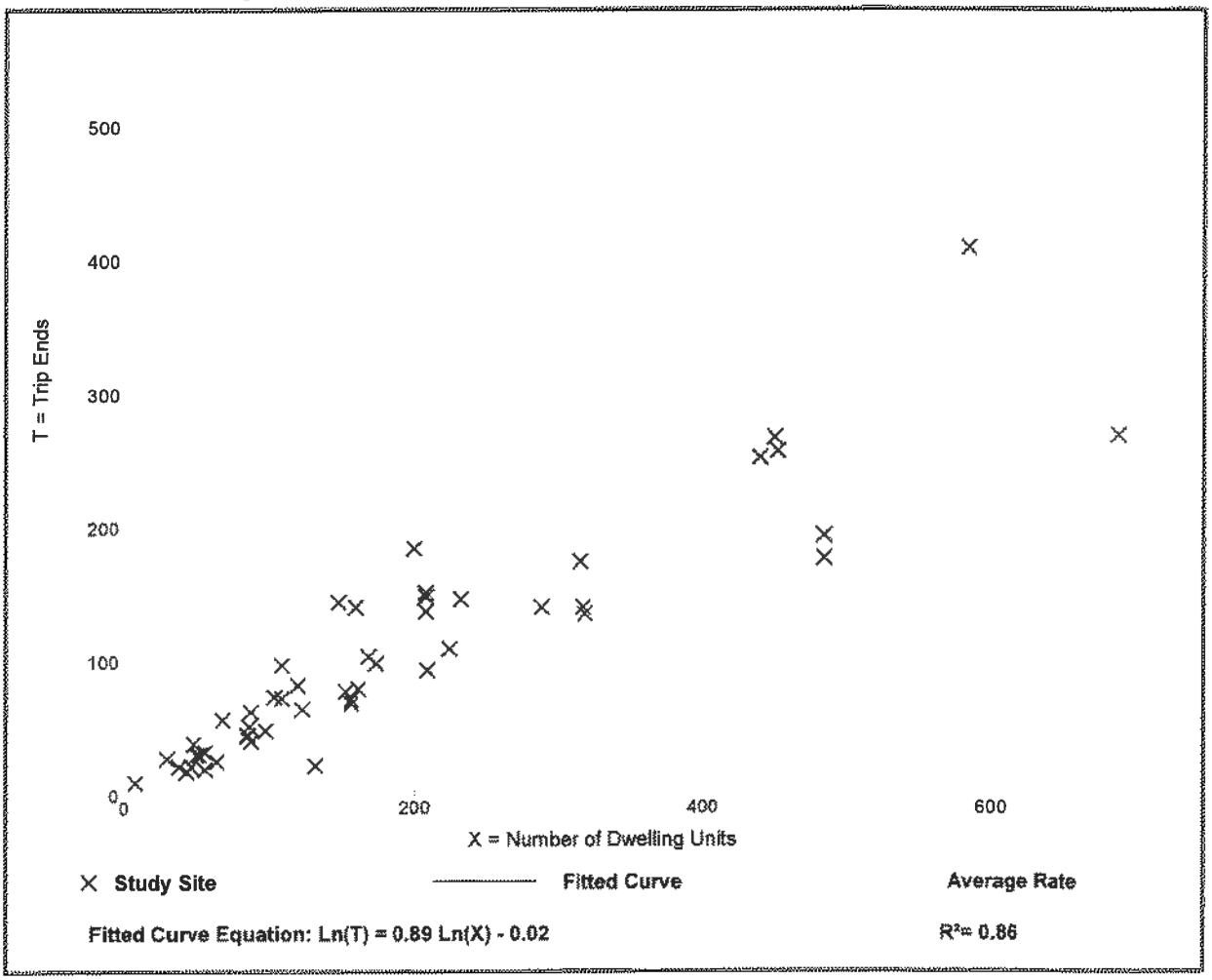
Multifamily Housing (Low-Rise)
(220)

Vehicle Trip Ends vs: **Dwelling Units**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.
Setting/Location: **General Urban/Suburban**
Number of Studies: 50
Avg. Num. of Dwelling Units: 187
Directional Distribution: 63% entering, 37% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.56	0.18 - 1.25	0.16

Data Plot and Equation



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PROJECT: Proposed Big Tree Residential Projects
LOCATION: Big Tree Rd, Town of Hamburg, New York
PEAK HOUR: AM Peak

Figure Number: 3A 3B 4 6A 7A 8B 7B 7C 8

Num of yrs 3

LOCATION NUMBER	INTERSECTION DESCRIPTION	2019 Volumes	2021 Unadjusted Volumes	2021 Adjusted Base	ECC South Campus (west dwy)	ECC South Campus (east dwy)	2023 Trips ECC South Adjus.	2024 Bkgd Vol + 0.5%	Proposed Multifamily Project Enter Dist. %	Exit Dist. %	Trips IN 17	Trips OUT 58	Total Multifamily Trips	Proposed Parker Rd Subdivision Enter Dist. %	Exit Dist. %	Trips IN 13	Trips OUT 39	Total Parker Rd Trips	Total Site Generated Trips	Full Build Volumes
1	Southwestern Blvd/ Big Tree Rd/Redlynn's Dwy			Covid-19 1.20																
	SR		4	5			5	5												5
	ST - Redlynns		4	5			5	5												5
	SL		5	6			6	6												6
	WR		7	8			8	9												9
	WT - SW Blvd		411	488			493	501												501
	WL		8	10			10	10	5%		1		1					1	1	11
	NR		7	8			8	8		5%		3	3					3	3	11
	NT - Big Tree Rd		1	1			1	1												1
	NL		174	209	4	4	217	226		45%		25	25		45%		18	18	43	269
	ER		215	256	12	12	292	295	45%		8		8	45%		6		6	14	309
	ET - SW Blvd		676	811			811	823												823
	EL		9	11			11	11												11
2	Big Tree Rd/ Parker Rd/ECC Dwy																			
	SR		1	1	5		5	5												5
	ST		1	1	5		5	5												5
	SL		2	2	10		10	10												10
	WR		2	2	10		10	10												10
	WT		183	220		4	224	227	45%		6		6						6	233
	WL		8	10			10	10						50%		7		7	17	17
	NR		30	36			36	37							50%		20	20	57	57
	NT		2	2	10		10	10												10
	NL		25	30			30	30	5%		1		1		45%		18	18	48	48
	ER		9	11			11	11		5%		3	3	45%		6		6	20	20
	ET		219	263		12	275	279		45%		25	25						25	304
	EL		3	3	15		15	15												15
3	Big Tree Rd/ Abbott Rd			0.5%																
	SR	15		15			15	15	10%		2		2	15%		2		2	4	19
	ST	73		74			74	75												75
	SL	86		86			86	87												87
	WR	75		76			76	77												77
	WT	231		233	6	8	247	251	35%		6		6	35%		5		5	11	262
	WL	28		28			28	28												28
	NR	101		102			102	104												104
	NT	181		183			183	185												185
	NL	43		43	2	8	53	54												54
	ER	13		13	1	4	18	18		35%		20	20		35%		14	14	33	33
	ET	342		345	5	5	355	360		10%		6	6		15%		5	5	11	49
	EL	32		32	2	3	37	38												49
4	Parker Rd/Marilyn Dr/ Proposed Northerly SF Home Dwy																			
	SR													55%		7		7	7	7
	ST		13	16	4		20	20		5%		3	3	40%		5		5	8	28
	SL		4	5			5	5												5
	WR		8	10			10	10												10
	WT																			
	WL		2	2			2	2												2
	NR		1	1			1	1												1
	NT		50	60	8		68	69	5%		1		1		40%		15	15	16	85
	NL													2%		0		0	0	0
	ER														2%		1	1	1	1
	ET														55%		21	21	21	21
	EL																			
5	Parker Rd/ Proposed Southerly SF Home Dwy																			
	SR													40%		5		5	5	5
	ST		15	18	4		22	22		5%		3	3		2%		1	1	4	26
	SL																			
	WR																			
	WT																			
	WL																			
	NR																			
	NT		61	61	5		66	70	5%		1		1	2%		0		0	1	71
	NL													3%		0		0	0	0
	ER														3%		1	1	1	1
	ET														40%		15	15	15	15
	EL																			
6	Big Tree Rd/ Proposed Easterly Multifamily Dwy																			
	SR																			
	ST																			
	SL																			
	WR																			
	WT		209	251	4	4	259	263	10%		2		2		45%		18	18	18	282
	WL								40%		7		7							7
	NR									40%		22	22						22	22
	NT									37%		21	21						21	21
	NL																			
	ER								37%		6		6						6	6
	ET		231	277	12	12	301	306		10%		6	6	45%		8		8	11	317
	EL																			
7	Big Tree Rd/ Proposed Westerly Multifamily Dwy																			
	SR																			
	ST																			
	SL																			
	WR																			
	WT		209	251	4	4	259	263		37%		21	21		45%		18	18	38	301
	WL								10%		2		2						2	2
	NR									15%		6	6						6	6
	NT									13%		7	7						7	7
	NL																			
	ER								13%		2		2						2	2
	ET		231	277	12	12	301	306	37%		6		6	45%		6		6	12	318
	EL																			

PROJECT: Proposed Big Tree Residential Projects
LOCATION: Big Tree Rd, Town of Hamburg, New York
PEAK HOUR: PM Peak

Figure Number: 3A | 3B | 4 | 6A | 7A | 6B | 7B | 7C | 8

Num of yrs: 3

LOCATION NUMBER	INTERSECTION DESCRIPTION	2019 Volumes	2021 Unadjusted Volumes	2021 Adjusted Base	ECC South Campus (west dwy)	ECC South Campus (east dwy)	2021 Incl. ECC South Adjust	2024 Bkgd Vol 0.5%	Proposed Multifamily Project: Enter Dist. %	Exit Dist. %	Trips IN 55	Trips OUT 33	Total Multifamily Trips	Proposed Parker Rd Subdivision: Enter Dist. %	Exit Dist. %	Trips IN 43	Trips OUT 26	Total Parker Rd Trips	Total Site Generated Trips	Full Build Volumes
1	Southwestern Blvd/ Big Tree Rd/Rustigian's Dwy			Covid-19 1.20																
	SR		19	23			23	23												23
	ST - Rustigian's		11	13			13	13												13
	SL		10	12			12	12												12
	WR		10	12			12	12												12
	WT - SW Blvd		861	1033			1033	1049												1049
	WL		18	22			22	22	5%		3		3						3	25
	NR		14	17			17	17		8%		2	2						2	19
	NT - Big Tree Rd		10	12			12	12												12
	NL		341	409	20	20	449	498		45%		15	15		45%		12	12	27	483
	ER		277	332	6	9	347	354	45%		25		25	45%		19		19	44	398
	ET - SW Blvd		671	805			805	817												817
	EL		15	23			23	23												23
2	Big Tree Rd/ Parker Rd/ECC dwy																			
	SR		5	5	25		30	30												30
	ST		2	2	10		10	10												10
	SL		1	1	5		6	6												6
	WR		2	2	10		10	10												10
	WT		370	444		20	464	471	45%		25		25						25	496
	WL		29	35			35	35						50%		22		22	22	57
	NR		19	23			23	23							50%		13	13	13	36
	NT		2	2	10		10	10												10
	NL		18	22			22	22	5%		3		3		45%		12	12	14	36
	ER		34	41			41	41		5%		2	2	45%		19		19	21	62
	ET		266	355		8	363	369		45%		15	15						15	384
	EL		2	2	10		10	10												10
3	Big Tree Rd/ Abbott Rd			2 0.5%																
	ER	44		44			44	45	10%		6		6	15%		6		6	12	57
	ST	255		262			262	266												266
	SL	96		97			97	98												98
	WR	108		109			109	111												111
	WT	420		424	6		430	436	35%		19		19	35%		15		15	34	470
	WL	110		111			111	113												113
	NR	57		58			58	65												65
	NT	162		164		6	170	173												173
	NL	34		34	2	10	46	47												47
	ER	46		46	1	9	56	57												57
	ET	347		350	3	3	356	361		35%		12	12		35%		9	9	21	382
	EL	27		27			27	27		15%		3	3		15%		4	4	7	34
4	Parker Rd/Multifam Dwy/ Proposed Northerly SF Home Dwy																			
	SR													60%		24		24	24	24
	ST		56	69	8		74	76		5%		2	2	40%		17		17	19	94
	SL		10	12			12	12												12
	WR		8	10			10	10												10
	WT																			
	WL		3	4			4	4												4
	NR		1	1			1	1												1
	NT		30	36	8		44	45	5%		3		3		40%		10	10	13	58
	NL													2%		1		1	1	1
	ER														2%		1	1	1	1
	ET																			
	EL														58%		14	14	14	14
5	Parker Rd/ Proposed Southerly SF Home Dwy																			
	SR													40%		17		17	17	17
	ST		56	70	8		78	78		5%		2	2		2%		1	1	2	81
	SL																			
	WR																			
	WT																			
	WL																			
	NR													2%		1		1	4	4
	NT		31	37	8		45	46	5%		3		3	3%		1		1	1	50
	NL																			
	SR														3%		1	1	1	1
	ET																			
	EL														40%		10	10	10	10
6	Big Tree Rd/ Proposed Eastern Multifamily Dwy																			
	SR																			
	ST																			
	SL																			
	WR																			
	WT		393	472	20	20	512	519	10%		6		6		45%		12	12	17	536
	WL								40%		22		22						22	22
	NR									40%		13	13						13	13
	NT																			
	NL									37%		12	12						12	12
	ER								37%		20		20						20	20
	ET		332	398	8	8	414	421		10%		3	3	45%		19		19	23	444
	EL																			
7	Big Tree Rd/ Proposed Westerly Multifamily Dwy																			
	SR																			
	ST																			
	SL																			
	WR																			
	WT		393	472	20	20	512	519		37%		12	12		45%		12	12	24	543
	WL								10%		6		6						6	6
	NR									10%		3	3						3	3
	NT									13%		4	4						4	4
	ER								13%		7		7						7	7
	ET		332	398	8	8	414	421	37%		20		20	45%		19		19	40	461
	EL																			

INTERSECTION CRASH RATE CALCULATIONS

$$\text{Rate per MEV} = \frac{\text{\# of Crashes} \times 1{,}000{,}000}{\text{Total No. of Entering Vehicles}} =$$

$$\text{Rate} = \frac{\text{\# of Crashes} \times 1{,}000{,}000}{\text{Veh./Day} \times \text{Duration of Study}} =$$

Crashes per million entering vehicles (Crash / MEV)

---

1 Southwestern Boulevard/Big Tree Road

ADT = Peak hour entering volume / k factor

ADT = 2769 VPH / 0.095 = 29147 VPD

$$\text{Rate} = \frac{28 \text{ Acc.} \times 1{,}000{,}000}{29147 \text{ VPD} \times 365 \text{ Days} \times 3.000 \text{ Yrs.}} = 0.88 \text{ Crash / MEV}$$

2 Big Tree Road/Parker Road

ADT = Peak hour entering volume / k factor

ADT = 1018 VPH / 0.095 = 10716 VPD

$$\text{Rate} = \frac{3 \text{ Acc.} \times 1{,}000{,}000}{10716 \text{ VPD} \times 365 \text{ Days} \times 3.000 \text{ Yrs.}} = 0.26 \text{ Crash / MEV}$$

3 Big Tree Road/Abbott Road

ADT = Peak hour entering volume / k factor

ADT = 1766 VPH / 0.095 = 18589 VPD

$$\text{Rate} = \frac{15 \text{ Acc.} \times 1{,}000{,}000}{18589 \text{ VPD} \times 365 \text{ Days} \times 3.000 \text{ Yrs.}} = 0.74 \text{ Crash / MEV}$$

4 Parker Road/Marilyn Drive

ADT = Peak hour entering volume / k factor

ADT = 145 VPH / 0.095 = 1526 VPD

$$\text{Rate} = \frac{0 \text{ Acc.} \times 1{,}000{,}000}{1526.3 \text{ VPD} \times 365 \text{ Days} \times 3.000 \text{ Yrs.}} = 0.00 \text{ Crash / MEV}$$

Guideline for determining left-turn Lane at a two-way stop-controlled intersection

TWO LANE ROADWAY

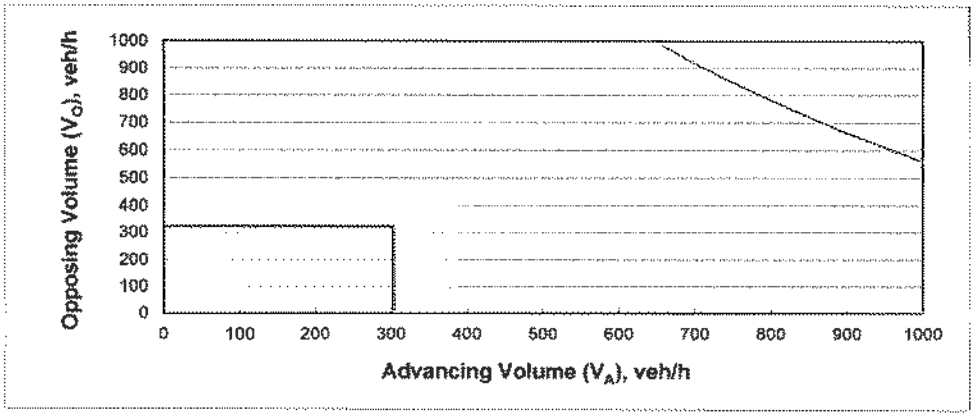
INPUT

Variable	Value
Major Approach	Big Tree Road @ Westerly MF Dwy
Approach	Westbound (AM Peak Hour)
Design Speed Limit - MPH	50
Percent of left-turns in advancing volume (V_A), %:	1%
Advancing volume (V_A), veh/h:	303
Opposing volume (V_O), veh/h:	320

CALIBRATION CONSTANTS

Variable	Value
Average time for making left-turn, s:	3.0
Critical headway, s:	5.0
Average time for left-turn vehicle to clear the advancing lane, s:	1.9

PLOT - LINE 1		PLOT - LINE 2	
0	320	303	0
303	320	303	320



OUTPUT

Variable	Value
Limiting advancing volume (V_A), veh/h:	1286
Guidance for determining the need for a major-road left-turn bay:	
Westbound (AM Peak Hour) Left-turn treatment NOT warranted at Big Tree Road @ Westerly MF Dwy Int	

p	0.015
f =	0.79
Wait Time	1.296 s
Service Rate	962 veh/h
Arrival Rate	1286 veh/h

Vo	Time_tw
0	0.0
100	0.4
200	0.8
300	1.2
400	1.7
500	2.2
600	2.8
700	3.5
800	4.2
900	5.0
1000	5.8

Vo	Serv_rate
0	1200
100	1121
200	1046
300	976
400	910
500	848
600	789
700	735
800	683
900	635
1000	590

% LT veh.	1%	10%	15%	20%	40%
Vo	V_A	V_A	V_A	V_A	V_A
0	1862	503	422	377	308
100	1649	445	374	334	273
200	1468	396	333	297	243
300	1314	355	298	266	217
400	1180	319	268	239	195
500	1063	287	241	215	176
600	960	259	218	194	159
700	868	234	197	176	143
800	786	212	178	159	130
900	713	192	162	144	118
1000	647	175	147	131	107

Guideline for determining left-turn Lane at a two-way stop-controlled intersection

TWO LANE ROADWAY

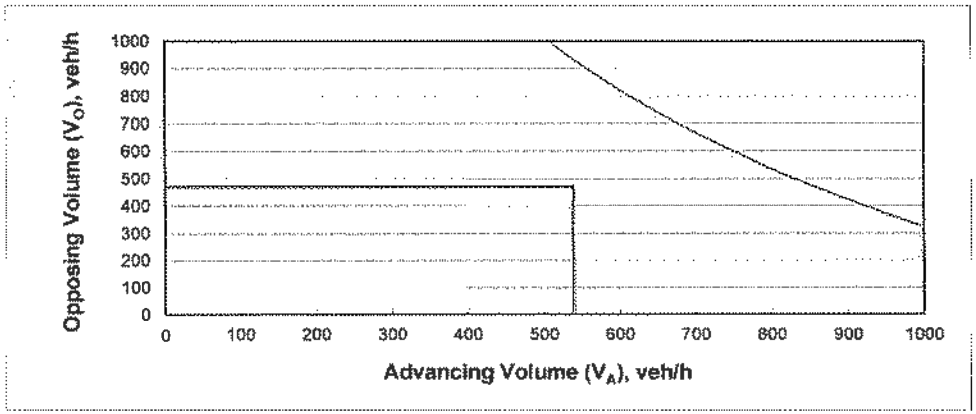
INPUT

Variable	Value
Major Approach	Big Tree Road @ Westerly MF Dwy
Approach	Westbound (PM Peak Hour)
Design Speed Limit - MPH	50
Percent of left-turns in advancing volume (V_A), %:	1%
Advancing volume (V_A), veh/h:	539
Opposing volume (V_O), veh/h:	468

CALIBRATION CONSTANTS

Variable	Value
Average time for making left-turn, s:	3.0
Critical headway, s:	5.0
Average time for left-turn vehicle to clear the advancing lane, s:	1.9

PLOT - LINE 1		PLOT - LINE 2	
0	468	539	0
539	468	539	468



OUTPUT

Variable	Value
Limiting advancing volume (V_A), veh/h:	856
Guidance for determining the need for a major-road left-turn bay:	
Westbound (PM Peak Hour) Left-turn treatment NOT warranted at Big Tree Road @ Westerly MF Dwy Int	

p	0.015
f =	0.79
Wait Time	2.043 s
Service Rate	867 veh/h
Arrival Rate	856 veh/h

Vo	Time_tw
0	0.0
100	0.4
200	0.8
300	1.2
400	1.7
500	2.2
600	2.8
700	3.5
800	4.2
900	5.0
1000	5.8

Vo	Serv_rate
0	1200
100	1121
200	1046
300	976
400	910
500	848
600	789
700	735
800	683
900	635
1000	590

% LT veh.	1%	10%	15%	20%	40%
Vo	V_A	V_A	V_A	V_A	V_A
0	1450	503	422	377	308
100	1284	445	374	334	273
200	1144	396	333	297	243
300	1023	355	298	266	217
400	919	319	268	239	195
500	828	287	241	215	176
600	747	259	218	194	159
700	676	234	197	176	143
800	612	212	178	159	130
900	555	192	162	144	118
1000	504	175	147	131	107

Guideline for determining left-turn Lane at a two-way stop-controlled intersection
TWO LANE ROADWAY

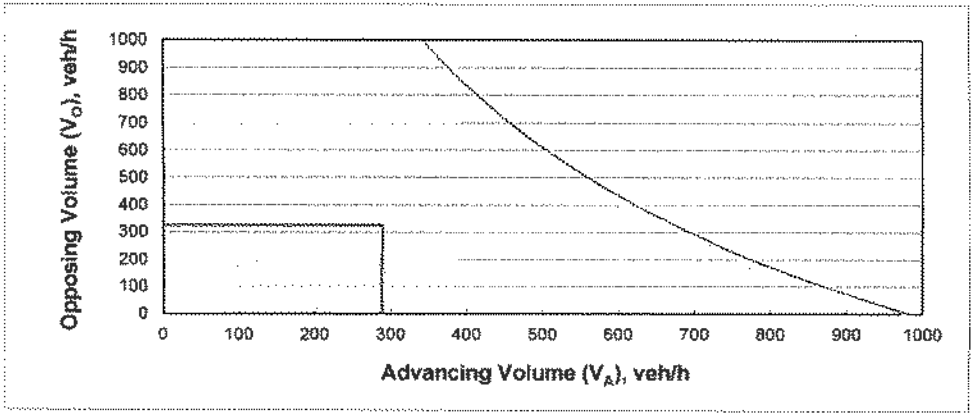
INPUT

Variable	Value
Major Approach	Big Tree Road @ Easterly MF Dwy
Approach	Westbound (AM Peak Hour)
Design Speed Limit - MPH	50
Percent of left-turns in advancing volume (V_A), %:	2%
Advancing volume (V_A), veh/h:	289
Opposing volume (V_O), veh/h:	323

CALIBRATION CONSTANTS

Variable	Value
Average time for making left-turn, s:	3.0
Critical headway, s:	5.0
Average time for left-turn vehicle to clear the advancing lane, s:	1.9

PLOT - LINE 1		PLOT - LINE 2	
0	323	289	0
289	323	289	323



OUTPUT

Variable	Value
Limiting advancing volume (V_A), veh/h:	675
Guidance for determining the need for a major-road left-turn bay:	
Westbound (AM Peak Hour) Left-turn treatment NOT warranted at Big Tree Road @ Easterly MF Dwy Int	

p	0.015
f =	0.79
Wait Time	1.310 s
Service Rate	960 veh/h
Arrival Rate	675 veh/h

Vo	Time_tw
0	0.0
100	0.4
200	0.8
300	1.2
400	1.7
500	2.2
600	2.8
700	3.5
800	4.2
900	5.0
1000	5.8

Vo	Serv_rate
0	1200
100	1121
200	1046
300	976
400	910
500	848
600	789
700	735
800	683
900	635
1000	590

% LT veh.	2%	10%	15%	20%	40%
Vo	V_A	V_A	V_A	V_A	V_A
0	981	503	422	377	308
100	868	445	374	334	273
200	773	396	333	297	243
300	692	355	298	266	217
400	622	319	268	239	195
500	560	287	241	215	176
600	505	259	218	194	159
700	457	234	197	176	143
800	414	212	178	159	130
900	376	192	162	144	118
1000	341	175	147	131	107

Guideline for determining left-turn Lane at a two-way stop-controlled intersection
TWO LANE ROADWAY

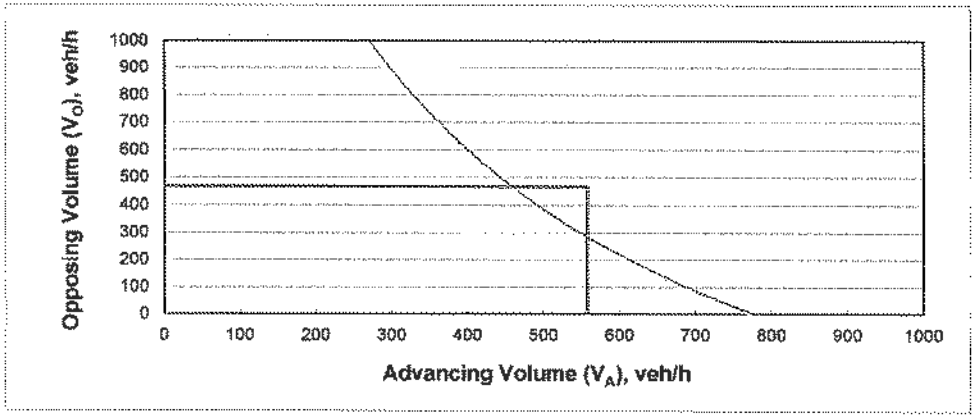
INPUT

Variable	Value
Major Approach	Big Tree Road @ Easterly MF Dwy
Approach	Westbound (PM Peak Hour)
Design Speed Limit - MPH	50
Percent of left-turns in advancing volume (V_A), %:	4%
Advancing volume (V_A), veh/h:	558
Opposing volume (V_O), veh/h:	464

CALIBRATION CONSTANTS

Variable	Value
Average time for making left-turn, s:	3.0
Critical headway, s:	5.0
Average time for left-turn vehicle to clear the advancing lane, s:	1.9

PLOT - LINE 1		PLOT - LINE 2	
0	464	558	0
558	464	558	464



OUTPUT

Variable	Value
Limiting advancing volume (V_A), veh/h:	459
Guidance for determining the need for a major-road left-turn bay:	
Westbound (PM Peak Hour) Left-turn treatment warranted at Big Tree Road @ Easterly MF Dwy intersec	

p	0.015
f =	0.79
Wait Time	2.021 s
Service Rate	870 veh/h
Arrival Rate	459 veh/h

Vo	Time_tw
0	0.0
100	0.4
200	0.8
300	1.2
400	1.7
500	2.2
600	2.8
700	3.5
800	4.2
900	5.0
1000	5.8

Vo	Serv_rate
0	1200
100	1121
200	1046
300	976
400	910
500	848
600	789
700	735
800	683
900	635
1000	590

% LT veh.	4%	10%	15%	20%	40%
Vo	V_A	V_A	V_A	V_A	V_A
0	775	503	422	377	308
100	686	445	374	334	273
200	611	396	333	297	243
300	547	355	298	266	217
400	491	319	268	239	195
500	442	287	241	215	176
600	399	259	218	194	159
700	361	234	197	176	143
800	327	212	178	159	130
900	297	192	162	144	118
1000	269	175	147	131	107

A3

Level of Service: Criteria and Definitions

Level of Service Criteria

Highway Capacity Manual 2016

SIGNALIZED INTERSECTIONS

Level of Service is a qualitative measure describing operational conditions within a traffic stream, based on service measures such as speed and travel time, freedom to maneuver, traffic interruptions, comfort, and convenience. Level of Service for signalized intersections is defined in terms of delay specifically, average total delay per vehicle for a 15 minute analysis period. The ranges are as follows:

Level of Service	Control Delay per vehicle (seconds)
A	< 10
B	10 – 20
C	20 – 35
D	35 – 55
E	55 – 80
F	>80

UNSIGNALIZED INTERSECTIONS

Level of Service for unsignalized intersections is also defined in terms of delay. However, the delay criteria are different from a signalized intersection. The primary reason for this is driver expectation that a signalized intersection is designed to carry higher volumes than an unsignalized intersection. The total delay threshold for any given Level of Service is less for an unsignalized intersection than for a signalized intersection. The ranges are as follows:

Level of Service	Control Delay per vehicle (seconds)
A	< 10
B	10 – 15
C	15 – 25
D	25 – 35
E	35 - 50
F	>50

A4

Level of Service Calculations: Existing Conditions

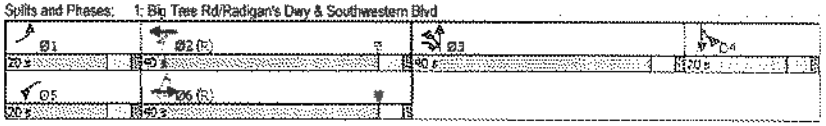
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	11	811	282	10	493	8	217	1	8	6	5	6
Future Volume (vph)	11	811	282	10	493	8	217	1	8	6	5	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	45		190	140		0	205		0	0		0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	105			120			25			25		
Lane Util. Factor	1.00	0.91	1.00	1.00	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00
Frt			0.850		0.998			0.990			0.925	
Flt Protected	0.959			0.950			0.950	0.956		0.950		
Satd. Flow (prot)	1805	4988	1553	1805	3340	0	1633	1617	0	1805	1758	0
Flt Permitted	0.411			0.283			0.950	0.956		0.950		
Satd. Flow (perm)	781	4988	1553	538	3340	0	1633	1617	0	1805	1758	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			324		1			3			6	
Link Speed (mph)		50			50			45			10	
Link Distance (ft)		720			735			884			251	
Travel Time (s)		9.8			10.0			13.4			17.1	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	0%	4%	4%	0%	8%	0%	5%	0%	15%	0%	0%	0%
Adj. Flow (vph)	13	932	324	11	567	9	249	1	9	7	6	6
Shared Lane Traffic (%)							46%					
Lane Group Flow (vph)	13	932	324	11	576	0	129	130	0	7	12	0
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA		Split	NA		Split	NA	
Protected Phases	1	6	3	5	2		3	3		4	4	
Permitted Phases	6		6	2								
Detector Phase	1	6	3	5	2		3	3		4	4	
Switch Phase												
Minimum Initial (s)	6.0	20.0	6.0	6.0	20.0		6.0	6.0		6.0	6.0	
Minimum Split (s)	11.0	27.0	37.0	11.0	27.0		37.0	37.0		37.0	37.0	
Total Split (s)	20.0	40.0	40.0	20.0	40.0		40.0	40.0		20.0	20.0	
Total Split (%)	16.7%	33.3%	33.3%	16.7%	33.3%		33.3%	33.3%		16.7%	16.7%	
Maximum Green (s)	15.0	35.0	35.0	15.0	35.0		35.0	35.0		15.0	15.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5		1.5	1.5		1.5	1.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lead		Lag	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max	None	None	C-Max		None	None		None	None	
Walk Time (s)		7.0	7.0		7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		15.0	25.0		15.0		25.0	25.0		25.0	25.0	
Pedestrian Calls (#/hr)		0	0		0		0	0		0	0	
Act Effct Green (s)	88.6	87.4	110.9	87.6	85.1		15.6	15.6		6.4	6.4	
Actuated g/C Ratio	0.74	0.73	0.92	0.73	0.71		0.13	0.13		0.05	0.05	
v/c Ratio	0.02	0.26	0.22	0.02	0.24		0.61	0.61		0.07	0.12	
Control Delay	6.9	7.6	0.7	7.1	9.0		60.6	59.6		55.3	41.4	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.8	0.0		0.0	0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	6.9	7.6	0.7	7.1	9.0		60.6	59.6		55.3	41.4	
LOS	A	A	A	A	A		E	E		E	D	
Approach Delay		5.8			8.9			60.1			46.5	
Approach LOS		A			A			E			D	
Queue Length 50th (ft)	2	57	0	2	50		101	98		5	5	
Queue Length 95th (ft)	11	170	17	10	159		153	152		20	23	
Internal Link Dist (ft)		640			655			804			171	
Turn Bay Length (ft)	45		190	140			205					
Base Capacity (vph)	711	3631	1520	560	2370		476	473		225	225	
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	
Reduced v/c Ratio	0.02	0.26	0.21	0.02	0.24		0.27	0.27		0.03	0.05	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow
Natural Cycle: 115
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.61
Intersection Signal Delay: 13.6 Intersection LOS: B
Intersection Capacity Utilization 40.0% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 1: Big Tree Rd/Radigan's Dwy & Southwestern Blvd



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	15	275	11	10	224	10	30	10	36	10	5	5
Future Volume (vph)	15	275	11	10	224	10	30	10	36	10	5	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.995			0.994			0.937			0.968	
Flt Protected		0.997			0.998			0.981			0.975	
Satd. Flow (prot)	0	1835	0	0	1763	0	0	1746	0	0	1793	0
Flt Permitted		0.997			0.998			0.981			0.975	
Satd. Flow (perm)	0	1835	0	0	1763	0	0	1746	0	0	1793	0
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		1782			2441			480			334	
Travel Time (s)		27.0			37.0			10.9			7.6	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Heavy Vehicles (%)	0%	3%	0%	12%	7%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	19	344	14	13	280	13	38	13	45	13	6	6
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	377	0	0	306	0	0	96	0	0	25	0
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 32.6%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (veh/h)	15	275	11	10	224	10	30	10	36	10	5	5
Future Volume (Veh/h)	15	275	11	10	224	10	30	10	36	10	5	5
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Hourly flow rate (vph)	19	344	14	13	280	13	38	13	45	13	6	6
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	293			358			710	708	351	753	708	286
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	293			358			710	708	351	753	708	286
tC, single (s)	4.1			4.2			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.3			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	98			99			89	96	94	96	98	99
cM capacity (veh/h)	1280			1147			337	353	697	293	352	757

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	377	306	96	25
Volume Left	19	13	38	13
Volume Right	14	13	45	6
cSH	1280	1147	448	360
Volume to Capacity	0.01	0.01	0.21	0.07
Queue Length 95th (ft)	1	1	20	6
Control Delay (s)	0.5	0.5	15.2	15.7
Lane LOS	A	A	C	C
Approach Delay (s)	0.5	0.5	15.2	15.7
Approach LOS			C	C

Intersection Summary			
Average Delay	2.7		
Intersection Capacity Utilization	32.6%	ICU Level of Service	A
Analysis Period (min)	15		

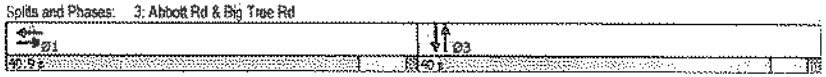
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	37	355	18	29	247	76	53	163	102	86	74	15
Future Volume (vph)	37	355	18	29	247	76	53	163	102	86	74	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	140		0	70		0	100		0	0		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25			25			130			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.993			0.955			0.946			0.975	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1752	1805	0	1687	1711	0	1770	1746	0	1626	1793	0
Flt Permitted	0.479			0.417			0.687			0.456		
Satd. Flow (perm)	884	1805	0	740	1711	0	1280	1746	0	781	1793	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4			24			44			16	
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		2441			661			550			398	
Travel Time (s)		37.0			10.0			8.3			6.0	
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Heavy Vehicles (%)	3%	4%	15%	7%	6%	11%	2%	4%	1%	11%	4%	0%
Adj. Flow (vph)	45	433	22	35	301	93	65	223	124	105	90	18
Shared Lane Traffic (%)												
Lane Group Flow (vph)	45	455	0	35	394	0	65	347	0	105	108	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		1			1			3			3	
Permitted Phases	1			1			3			3		
Detector Phase	1	1		1	1		3	3		3	3	
Switch Phase												
Minimum Initial (s)	20.0	20.0		20.0	20.0		15.0	15.0		15.0	15.0	
Minimum Split (s)	25.9	25.9		25.9	25.9		22.5	22.5		22.5	22.5	
Total Split (s)	40.9	40.9		40.9	40.9		40.0	40.0		40.0	40.0	
Total Split (%)	50.6%	50.6%		50.6%	50.6%		49.4%	49.4%		49.4%	49.4%	
Maximum Green (s)	35.0	35.0		35.0	35.0		35.0	35.0		35.0	35.0	
Yellow Time (s)	4.7	4.7		4.7	4.7		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.2	1.2		1.2	1.2		1.5	1.5		1.5	1.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.9	5.9		5.9	5.9		5.0	5.0		5.0	5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Min	Min		Min	Min		None	None		None	None	
Act Effct Green (s)	23.2	23.2		23.2	23.2		18.0	18.0		18.0	18.0	
Actuated g/C Ratio	0.44	0.44		0.44	0.44		0.34	0.34		0.34	0.34	
v/c Ratio	0.12	0.57		0.11	0.51		0.15	0.55		0.39	0.17	
Control Delay	10.3	14.6		10.5	13.1		13.8	16.4		19.2	12.0	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	10.3	14.6		10.5	13.1		13.8	16.4		19.2	12.0	
LOS	B	B		B	B		B	B		B	B	
Approach Delay		14.2			12.8			16.0			15.5	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS		B			B			B			B	
Queue Length 50th (ft)	7	83		5	65		12	63		21	17	
Queue Length 95th (ft)	25	185		21	152		39	149		64	51	
Internal Link Dist (ft)		2361			581			470			318	
Turn Bay Length (ft)	140			70			100					
Base Capacity (vph)	607	1241		508	1182		678	1212		536	1237	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.07	0.37		0.07	0.33		0.07	0.29		0.20	0.09	

Intersection Summary

Area Type: Other
Cycle Length: 80.9
Actuated Cycle Length: 52.4
Natural Cycle: 50
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.57
Intersection Signal Delay: 14.5 Intersection LOS: B
Intersection Capacity Utilization 72.3% ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 3: Abbott Rd & Big Tree Rd



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	2	10	68	1	5	20
Future Volume (vph)	2	10	68	1	5	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.864		0.998			
Flt Protected	0.993					0.990
Satd. Flow (prot)	1666	0	1896	0	0	1791
Flt Permitted	0.993					0.990
Satd. Flow (perm)	1666	0	1896	0	0	1791
Link Speed (mph)	30		30			30
Link Distance (ft)	742		1530			480
Travel Time (s)	16.9		34.8			10.9
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles (%)	0%	0%	0%	0%	25%	0%
Adj. Flow (vph)	2	12	80	1	6	24
Shared Lane Traffic (%)						
Lane Group Flow (vph)	14	0	81	0	0	30
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	15.4%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	2	10	68	1	5	20
Future Volume (Veh/h)	2	10	68	1	5	20
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	2	12	80	1	6	24
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	116	80			81	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	116	80			81	
tC, single (s)	6.4	6.2			4.3	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.4	
p0 queue free %	100	99			100	
cM capacity (veh/h)	881	985			1383	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	14	81	30
Volume Left	2	0	6
Volume Right	12	1	0
cSH	969	1700	1383
Volume to Capacity	0.01	0.05	0.00
Queue Length 95th (ft)	1	0	0
Control Delay (s)	8.8	0.0	1.5
Lane LOS	A		A
Approach Delay (s)	8.8	0.0	1.5
Approach LOS	A		

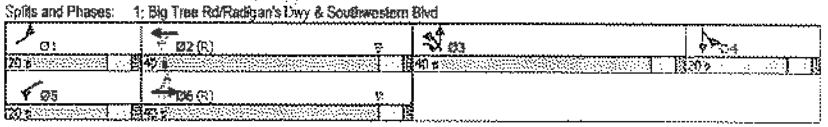
Intersection Summary				
Average Delay	1.4			
Intersection Capacity Utilization	15.4%	ICU Level of Service		A
Analysis Period (min)	15			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	23	805	348	22	1033	12	449	12	17	12	13	23
Future Volume (vph)	23	805	348	22	1033	12	449	12	17	12	13	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	45		190	140		0	205		0	0		0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	105			120			25			25		
Lane Util. Factor	1.00	0.91	1.00	1.00	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00
Frt			0.850		0.998			0.990			0.994	
Flt Protected	0.950			0.950			0.950	0.998		0.950		
Satd. Flow (prot)	1805	5136	1615	1626	3568	0	1698	1689	0	1805	1718	0
Flt Permitted	0.168			0.282			0.950	0.998		0.950		
Satd. Flow (perm)	319	5136	1615	483	3568	0	1698	1689	0	1805	1718	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			374		1			3			25	
Link Speed (mph)		50			50			45			10	
Link Distance (ft)		720			736			884			251	
Travel Time (s)		9.8			10.0			13.4			17.1	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	0%	1%	0%	11%	1%	0%	1%	0%	7%	0%	0%	0%
Adj. Flow (vph)	25	866	374	24	1111	13	483	13	18	13	14	25
Shared Lane Traffic (%)							47%					
Lane Group Flow (vph)	25	866	374	24	1124	0	256	258	0	13	39	0
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA		Split	NA		Split	NA	
Protected Phases	1	6	3	5	2		3	3		4	4	
Permitted Phases	6		6	2								
Detector Phase	1	6	3	5	2		3	3		4	4	
Switch Phase												
Minimum Initial (s)	6.0	20.0	6.0	6.0	20.0		6.0	6.0		6.0	6.0	
Minimum Split (s)	11.0	27.0	37.0	11.0	27.0		37.0	37.0		37.0	37.0	
Total Split (s)	20.0	40.0	40.0	20.0	40.0		40.0	40.0		20.0	20.0	
Total Split (%)	16.7%	33.3%	33.3%	16.7%	33.3%		33.3%	33.3%		16.7%	16.7%	
Maximum Green (s)	15.0	35.0	35.0	15.0	35.0		35.0	35.0		15.0	15.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5		1.5	1.5		1.5	1.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lead		Lag	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max	None	None	C-Max		None	None		None	None	
Walk Time (s)		7.0	7.0		7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		15.0	25.0		15.0		25.0	25.0		25.0	25.0	
Pedestrian Calls (#/hr)		0	0		0		0	0		0	0	
Act Effct Green (s)	71.9	67.8	99.0	72.0	57.9		25.2	25.2		7.1	7.1	
Actuated g/C Ratio	0.60	0.56	0.82	0.60	0.57		0.21	0.21		0.06	0.06	
v/c Ratio	0.09	0.30	0.27	0.07	0.56		0.72	0.72		0.12	0.31	
Control Delay	13.1	16.9	0.9	12.9	21.5		54.9	54.6		55.1	34.0	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	13.1	16.9	0.9	12.9	21.5		54.9	54.6		55.1	34.0	
LOS	B	B	A	B	C		D	D		E	C	
Approach Delay		12.1			21.4			54.8			39.3	
Approach LOS		B			C			D			D	
Queue Length 50th (ft)	7	136	0	7	310		195	194		10	11	
Queue Length 95th (ft)	24	212	23	24	482		264	265		30	46	
Internal Link Dist (ft)		640			656			804			171	
Turn Bay Length (ft)	45		190	140			205					
Base Capacity (vph)	394	2903	1459	444	2018		495	494		225	236	
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	
Reduced v/c Ratio	0.07	0.30	0.26	0.05	0.56		0.52	0.52		0.06	0.17	

Intersection Summary
Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow
Natural Cycle: 125
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.72
Intersection Signal Delay: 23.5 Intersection LOS: C
Intersection Capacity Utilization 57.2% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 1: Big Tree Rd/Radigan's Dwy & Southwestern Blvd



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	10	363	41	35	464	10	22	10	23	5	10	25
Future Volume (vph)	10	363	41	35	464	10	22	10	23	5	10	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.987			0.997			0.944			0.916	
Flt Protected		0.999			0.997			0.981			0.994	
Satd. Flow (prot)	0	1857	0	0	1872	0	0	1760	0	0	1736	0
Flt Permitted		0.999			0.997			0.981			0.994	
Satd. Flow (perm)	0	1857	0	0	1872	0	0	1760	0	0	1736	0
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		1782			2441			480			334	
Travel Time (s)		27.0			37.0			10.9			7.6	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	11	382	43	37	488	11	23	11	24	5	11	26
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	436	0	0	536	0	0	56	0	0	42	0
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 56.5%		ICU Level of Service B	
Analysis Period (min) 15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (veh/h)	10	363	41	35	464	10	22	10	23	5	10	25
Future Volume (Veh/h)	10	363	41	35	464	10	22	10	23	5	10	25
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	11	382	43	37	488	11	23	11	24	5	11	26
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	499			425			1024	998	404	1022	1914	494
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	499			425			1024	998	404	1022	1914	494
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			97			86	95	96	97	95	96
cM capacity (veh/h)	1075			1145			192	235	651	194	230	588

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	436	536	58	42
Volume Left	11	37	23	5
Volume Right	43	11	24	26
cSH	1075	1145	285	355
Volume to Capacity	0.01	0.03	0.20	0.12
Queue Length 95th (ft)	1	3	19	10
Control Delay (s)	0.3	0.9	20.8	16.5
Lane LOS	A	A	C	C
Approach Delay (s)	0.3	0.9	20.8	16.5
Approach LOS			C	C

Intersection Summary				
Average Delay		2.4		
Intersection Capacity Utilization		56.5%	ICU Level of Service	B
Analysis Period (min)		15		

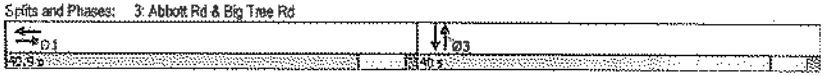
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	27	356	56	111	431	109	46	170	58	97	262	43
Future Volume (vph)	27	356	56	111	431	109	46	170	58	97	262	43
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	140		0	70		0	100		0	0		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25			25			130			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.979			0.970			0.962			0.979	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1736	1834	0	1770	1832	0	1805	1792	0	1787	1839	0
Flt Permitted	0.339			0.461			0.497			0.607		
Satd. Flow (perm)	619	1834	0	859	1832	0	944	1792	0	1142	1839	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		12			28			27			13	
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		2441			661			550			398	
Travel Time (s)		37.0			10.0			8.3			6.0	
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Heavy Vehicles (%)	4%	1%	4%	2%	0%	3%	0%	2%	2%	1%	1%	2%
Adj. Flow (vph)	27	360	57	112	435	110	46	172	59	98	265	43
Shared Lane Traffic (%)												
Lane Group Flow (vph)	27	417	0	112	545	0	46	231	0	98	308	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		1			1			3			3	
Permitted Phases	1			1			3			3		
Detector Phase	1	1		1	1		3	3		3	3	
Switch Phase												
Minimum Initial (s)	20.0	20.0		20.0	20.0		15.0	15.0		15.0	15.0	
Minimum Split (s)	25.9	25.9		25.9	25.9		22.5	22.5		22.5	22.5	
Total Split (s)	40.9	40.9		40.9	40.9		40.0	40.0		40.0	40.0	
Total Split (%)	50.6%	50.6%		50.6%	50.6%		49.4%	49.4%		49.4%	49.4%	
Maximum Green (s)	35.0	35.0		35.0	35.0		35.0	35.0		35.0	35.0	
Yellow Time (s)	4.7	4.7		4.7	4.7		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.2	1.2		1.2	1.2		1.5	1.5		1.5	1.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.9	5.9		5.9	5.9		5.0	5.0		5.0	5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Min	Min		Min	Min		None	None		None	None	
Act Effct Green (s)	24.6	24.6		24.6	24.6		17.7	17.7		17.7	17.7	
Actuated g/C Ratio	0.46	0.46		0.46	0.46		0.33	0.33		0.33	0.33	
v/c Ratio	0.10	0.49		0.28	0.64		0.15	0.38		0.26	0.56	
Control Delay	9.8	12.4		11.8	15.0		15.6	15.0		16.5	17.9	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	9.8	12.4		11.8	15.0		15.6	15.0		16.5	17.9	
LOS	A	B		B	B		B	B		B	B	
Approach Delay		12.2			14.4			15.1			17.5	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS		B			B			B			B	
Queue Length 50th (ft)	4	72		18	102		9	42		20	64	
Queue Length 95th (ft)	19	176		59	248		36	118		64	168	
Internal Link Dist (ft)		2361			581			470			318	
Turn Bay Length (ft)	140			70			100					
Base Capacity (vph)	416	1237		577	1238		634	1213		767	1240	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.06	0.34		0.19	0.44		0.07	0.19		0.13	0.25	

Intersection Summary

Area Type: Other
Cycle Length: 80.9
Actuated Cycle Length: 53.6
Natural Cycle: 60
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.64
Intersection Signal Delay: 14.7 Intersection LOS: B
Intersection Capacity Utilization 93.0% ICU Level of Service F
Analysis Period (min) 15

Splits and Phases: 3: Abbott Rd & Big Tree Rd



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	4	10	44	1	12	74
Future Volume (vph)	4	10	44	1	12	74
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.905		0.997			
Flt Protected	0.986					0.993
Satd. Flow (prot)	1695	0	1894	0	0	1887
Flt Permitted	0.986					0.993
Satd. Flow (perm)	1685	0	1894	0	0	1887
Link Speed (mph)	30		30			30
Link Distance (ft)	742		1530			480
Travel Time (s)	16.9		34.8			10.9
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	5	12	52	1	14	88
Shared Lane Traffic (%)						
Lane Group Flow (vph)	17	0	53	0	0	102
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 21.2%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	4	10	44	1	12	74
Future Volume (Veh/h)	4	10	44	1	12	74
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84
Hourly flow rate (vph)	5	12	52	1	14	88
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	168	52			53	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	168	52			53	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	99	99			99	
cM capacity (veh/h)	819	1021			1566	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	17	53	102
Volume Left	5	0	14
Volume Right	12	1	0
cSH	952	1700	1566
Volume to Capacity	0.02	0.03	0.01
Queue Length 95th (ft)	1	0	1
Control Delay (s)	8.9	0.0	1.1
Lane LOS	A		A
Approach Delay (s)	8.9	0.0	1.1
Approach LOS	A		

Intersection Summary			
Average Delay		1.5	
Intersection Capacity Utilization		21.2%	ICU Level of Service A
Analysis Period (min)		15	

A5

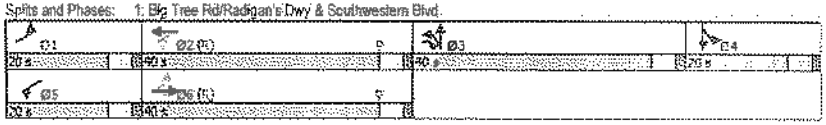
Level of Service Calculations: Background Conditions

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	11	823	286	10	501	8	220	1	9	6	5	5
Future Volume (vph)	11	823	286	10	501	8	220	1	9	6	5	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	45		190	140		0	205		0	0		0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	105			120			25			25		
Lane Util. Factor	1.00	0.91	1.00	1.00	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00
Frt			0.850		0.998			0.989			0.925	
Flt Protected	0.950			0.950			0.950	0.956		0.950		
Satd. Flow (prot)	1805	4988	1553	1805	3340	0	1633	1614	0	1805	1758	0
Flt Permitted	0.406			0.278			0.950	0.956		0.950		
Satd. Flow (perm)	771	4988	1553	528	3340	0	1633	1614	0	1805	1758	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			329		1			3			6	
Link Speed (mph)		50			50			45			10	
Link Distance (ft)		720			735			884			251	
Travel Time (s)		9.8			10.0			13.4			17.1	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	0%	4%	4%	0%	8%	0%	5%	0%	15%	0%	0%	0%
Adj. Flow (vph)	13	946	329	11	576	9	253	1	10	7	6	6
Shared Lane Traffic (%)							46%					
Lane Group Flow (vph)	13	946	329	11	585	0	132	132	0	7	12	0
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA		Split	NA		Split	NA	
Protected Phases	1	6	3	5	2		3	3		4	4	
Permitted Phases	6		6	2								
Detector Phase	1	6	3	5	2		3	3		4	4	
Switch Phase												
Minimum Initial (s)	6.0	20.0	6.0	6.0	20.0		6.0	6.0		6.0	6.0	
Minimum Split (s)	11.0	27.0	27.0	11.0	27.0		37.0	37.0		37.0	37.0	
Total Split (s)	20.0	40.0	40.0	20.0	40.0		40.0	40.0		20.0	20.0	
Total Split (%)	16.7%	33.3%	33.3%	16.7%	33.3%		33.3%	33.3%		16.7%	16.7%	
Maximum Green (s)	15.0	35.0	35.0	15.0	35.0		35.0	35.0		15.0	15.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5		1.5	1.5		1.5	1.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lead		Lag	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max	None	None	C-Max		None	None		None	None	
Walk Time (s)		7.0	7.0		7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		15.0	25.0		15.0		25.0	25.0		25.0	25.0	
Pedestrian Calls (#/hr)		0	0		0		0	0		0	0	
Act Effct Green (s)	68.5	87.2	110.9	87.4	85.0		15.8	15.8		6.4	6.4	
Actuated g/C Ratio	0.74	0.73	0.92	0.73	0.71		0.13	0.13		0.05	0.05	
v/c Ratio	0.02	0.26	0.23	0.02	0.25		0.62	0.62		0.07	0.12	
Control Delay	7.0	7.7	0.7	7.2	9.1		60.8	59.6		55.3	41.4	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	7.0	7.7	0.7	7.2	9.1		60.8	59.6		55.3	41.4	
LOS	A	A	A	A	A		E	E		E	D	
Approach Delay		5.9			9.0			60.2			46.5	
Approach LOS		A			A			E			D	
Queue Length 50th (ft)	2	59	0	2	51		103	101		5	5	
Queue Length 95th (ft)	11	173	17	10	163		156	154		20	23	
Internal Link Dist (ft)		640			655			804			171	
Turn Bay Length (ft)	45		190	140			205					
Base Capacity (vph)	703	3623	1519	553	2365		476	472		225	225	
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	
Reduced v/c Ratio	0.02	0.26	0.22	0.02	0.25		0.28	0.28		0.03	0.05	

Intersection Summary
Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow
Natural Cycle: 115
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.62
Intersection Signal Delay: 13.7 Intersection LOS: B
Intersection Capacity Utilization 40.2% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 1: Big Tree Rd/Radigan's Dwy & Southwestern Blvd



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	15	279	11	10	227	10	30	10	37	10	5	5
Future Volume (vph)	15	279	11	10	227	10	30	10	37	10	5	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.995			0.994			0.938			0.968	
Flt Protected		0.998			0.998			0.981			0.975	
Satd. Flow (prot)	0	1836	0	0	1763	0	0	1745	0	0	1793	0
Flt Permitted		0.998			0.998			0.981			0.975	
Satd. Flow (perm)	0	1836	0	0	1763	0	0	1745	0	0	1793	0
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		1782			2441			480			334	
Travel Time (s)		27.0			37.0			10.9			7.6	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Heavy Vehicles (%)	0%	3%	0%	12%	7%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	19	349	14	13	284	13	38	13	46	13	6	6
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	382	0	0	310	0	0	97	0	0	25	0
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 32.9%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (veh/h)	15	279	11	10	227	10	30	10	37	10	5	5
Future Volume (Veh/h)	15	279	11	10	227	10	30	10	37	10	5	5
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Hourly flow rate (vph)	19	349	14	13	284	13	38	13	46	13	6	6
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	297			363			720	717	356	763	718	290
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	297			363			720	717	356	763	718	290
tC, single (s)	4.1			4.2			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.3			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			99			89	98	93	98	98	99
cM capacity (veh/h)	1276			1142			332	348	693	288	348	753

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	382	310	97	25
Volume Left	19	13	38	13
Volume Right	14	13	46	6
cSH	1276	1142	445	395
Volume to Capacity	0.01	0.01	0.22	0.07
Queue Length 95th (ft)	1	1	21	6
Control Delay (s)	0.5	0.5	15.3	15.9
Lane LOS	A	A	C	C
Approach Delay (s)	0.5	0.5	15.3	15.9
Approach LOS			C	C

Intersection Summary			
Average Delay	2.7		
Intersection Capacity Utilization	32.9%	ICU Level of Service	A
Analysis Period (min)	15		

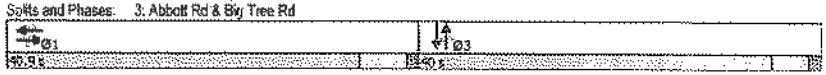
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	36	360	18	29	251	77	54	186	104	87	75	15
Future Volume (vph)	36	360	18	29	251	77	54	186	104	87	75	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	140		0	70		0	100		0	0		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25			25			139			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.993			0.965			0.946			0.975	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1752	1805	0	1687	1711	0	1770	1746	0	1626	1793	0
Flt Permitted	0.473			0.411			0.687			0.445		
Satd. Flow (perm)	873	1805	0	730	1711	0	1280	1746	0	762	1793	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4			24			44			16	
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		2441			661			559			398	
Travel Time (s)		37.0			10.0			8.3			6.0	
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Heavy Vehicles (%)	3%	4%	15%	7%	5%	11%	2%	4%	1%	11%	4%	0%
Adj. Flow (vph)	46	439	22	35	306	94	66	227	127	106	91	18
Shared Lane Traffic (%)												
Lane Group Flow (vph)	46	461	0	35	400	0	66	354	0	106	109	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		1			1			3			3	
Permitted Phases	1			1			3			3		
Detector Phase	1	1		1	1		3	3		3	3	
Switch Phase												
Minimum Initial (s)	20.0	20.0		20.0	20.0		15.0	15.0		15.0	15.0	
Minimum Split (s)	25.9	25.9		25.9	25.9		22.5	22.5		22.5	22.5	
Total Split (s)	40.9	40.9		40.9	40.9		40.0	40.0		40.0	40.0	
Total Split (%)	50.6%	50.6%		50.6%	50.6%		49.4%	49.4%		49.4%	49.4%	
Maximum Green (s)	35.0	35.0		35.0	35.0		35.0	35.0		35.0	35.0	
Yellow Time (s)	4.7	4.7		4.7	4.7		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.2	1.2		1.2	1.2		1.5	1.5		1.5	1.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.9	5.9		5.9	5.9		5.0	5.0		5.0	5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Min	Min		Min	Min		None	None		None	None	
Act Effct Green (s)	23.6	23.6		23.6	23.6		16.2	16.2		16.2	16.2	
Actuated g/C Ratio	0.45	0.45		0.45	0.45		0.34	0.34		0.34	0.34	
v/c Ratio	0.12	0.57		0.11	0.52		0.15	0.66		0.41	0.17	
Control Delay	10.4	14.7		10.5	13.2		14.1	17.0		20.0	12.3	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	10.4	14.7		10.5	13.2		14.1	17.0		20.0	12.3	
LOS	B	B		B	B		B	B		B	B	
Approach Delay		14.3			13.0			16.5			16.1	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS		B			B			B			B	
Queue Length 50th (ft)	7	85		5	67		12	65		21	17	
Queue Length 95th (ft)	26	189		21	155		40	158		67	53	
Internal Link Dist (ft)		2361			581			470			318	
Turn Bay Length (ft)	140			70			100					
Base Capacity (vph)	595	1232		497	1174		873	1204		519	1228	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.08	0.37		0.07	0.34		0.08	0.29		0.20	0.09	

Intersection Summary

Area Type: Other
Cycle Length: 80.9
Actuated Cycle Length: 53
Natural Cycle: 60
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.57
Intersection Signal Delay: 14.8 Intersection LOS: B
Intersection Capacity Utilization 73.5% ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 3: Abbott Rd & Big Tree Rd



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	2	10	69	1	5	20
Future Volume (vph)	2	10	69	1	5	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.864		0.998			
Flt Protected	0.993					0.990
Satd. Flow (prot)	1668	0	1896	0	0	1791
Flt Permitted	0.993					0.990
Satd. Flow (perm)	1668	0	1896	0	0	1791
Link Speed (mph)	30		30			30
Link Distance (ft)	742		1530			480
Travel Time (s)	16.9		34.8			10.9
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles (%)	0%	0%	0%	0%	25%	0%
Adj. Flow (vph)	2	12	81	1	6	24
Shared Lane Traffic (%)						
Lane Group Flow (vph)	14	0	82	0	0	30
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 15.4%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	2	10	69	1	5	20
Future Volume (Veh/h)	2	10	69	1	5	20
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	2	12	81	1	6	24
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	118	82			82	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	118	82			82	
tC, single (s)	6.4	6.2			4.3	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.4	
p0 queue free %	100	99			100	
cM capacity (veh/h)	879	984			1382	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	14	82	30
Volume Left	2	0	6
Volume Right	12	1	0
cSH	967	1700	1382
Volume to Capacity	0.01	0.05	0.00
Queue Length 95th (ft)	1	0	0
Control Delay (s)	8.8	0.0	1.6
Lane LOS	A		A
Approach Delay (s)	8.8	0.0	1.6
Approach LOS	A		

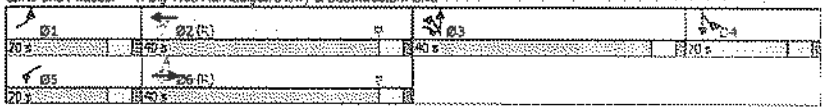
Intersection Summary				
Average Delay		1.3		
Intersection Capacity Utilization		15.4%	ICU Level of Service	A
Analysis Period (min)		15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	23	817	354	22	1049	12	456	12	17	12	13	23
Future Volume (vph)	23	817	354	22	1049	12	456	12	17	12	13	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	45		190	140		0	205		0	0		0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	105			120			25			25		
Lane Util. Factor	1.00	0.91	1.00	1.00	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00
Frt			0.850		0.998			0.990			0.904	
Flt Protected	0.950			0.950			0.950	0.956		0.950		
Satd. Flow (prot)	1805	5136	1615	1626	3568	0	1698	1689	0	1805	1718	0
Flt Permitted	0.162			0.277			0.950	0.956		0.950		
Satd. Flow (perm)	306	5136	1615	474	3568	0	1698	1689	0	1805	1718	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			381		1			3			25	
Link Speed (mph)		50			50			45			10	
Link Distance (ft)		720			736			884			251	
Travel Time (s)		9.8			10.0			13.4			17.1	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	0%	1%	0%	11%	1%	0%	1%	0%	7%	0%	0%	0%
Adj. Flow (vph)	25	878	381	24	1128	13	490	13	18	13	14	25
Shared Lane Traffic (%)							47%					
Lane Group Flow (vph)	25	878	381	24	1141	0	260	251	0	13	39	0
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA		Split	NA		Split	NA	
Protected Phases	1	6	3	5	2		3	3		4	4	
Permitted Phases	6		6	2								
Detector Phase	1	6	3	5	2		3	3		4	4	
Switch Phase												
Minimum Initial (s)	6.0	20.0	6.0	6.0	20.0		6.0	6.0		6.0	6.0	
Minimum Split (s)	11.0	27.0	37.0	11.0	27.0		37.0	37.0		37.0	37.0	
Total Split (s)	20.0	40.0	40.0	20.0	40.0		40.0	40.0		20.0	20.0	
Total Split (%)	16.7%	33.3%	33.3%	16.7%	33.3%		33.3%	33.3%		16.7%	16.7%	
Maximum Green (s)	15.0	35.0	35.0	15.0	35.0		35.0	35.0		15.0	15.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5		1.5	1.5		1.5	1.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lead		Lag	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max	None	None	C-Max		None	None		None	None	
Walk Time (s)		7.0	7.0		7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		15.0	25.0		15.0		25.0	25.0		25.0	25.0	
Pedestrian Calls (#/hr)		0	0		0		0	0		0	0	
Act Effct Green (s)	71.5	67.4	99.0	71.5	67.5		25.5	25.5		7.1	7.1	
Actuated g/C Ratio	0.60	0.56	0.82	0.60	0.56		0.21	0.21		0.06	0.06	
v/c Ratio	0.10	0.30	0.27	0.07	0.57		0.72	0.72		0.12	0.31	
Control Delay	13.3	17.2	0.9	13.0	21.9		54.6	54.2		55.1	34.0	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	13.3	17.2	0.9	13.0	21.9		54.6	54.2		55.1	34.0	
LOS	B	B	A	B	C		D	D		E	C	
Approach Delay		12.3			21.8			54.4			39.3	
Approach LOS		B			C			D			D	
Queue Length 50th (ft)	7	140	0	7	317		198	197		10	11	
Queue Length 95th (ft)	24	217	24	24	493		268	267		30	46	
Internal Link Dist (ft)		640			656			804			171	
Turn Bay Length (ft)	45		190	140			205					
Base Capacity (vph)	378	2885	1456	436	2007		495	494		225	236	
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	
Reduced v/c Ratio	0.07	0.30	0.26	0.05	0.57		0.53	0.53		0.06	0.17	

Intersection Summary
Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow
Natural Cycle: 125
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.72
Intersection Signal Delay: 23.7 Intersection LOS: C
Intersection Capacity Utilization 57.8% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 1: Big Tree Rd/Radigan's Dwy & Southwestern Blvd



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	10	369	41	35	471	10	22	10	23	5	10	25
Future Volume (vph)	10	369	41	35	471	10	22	10	23	5	10	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.987			0.997			0.944			0.916	
Flt Protected		0.999			0.997			0.981			0.994	
Satd. Flow (prot)	0	1857	0	0	1872	0	0	1760	0	0	1730	0
Flt Permitted		0.999			0.997			0.981			0.994	
Satd. Flow (perm)	0	1857	0	0	1872	0	0	1760	0	0	1730	0
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		1782			2441			480			334	
Travel Time (s)		27.0			37.0			10.9			7.6	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	11	388	43	37	496	11	23	11	24	5	11	26
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	442	0	0	544	0	0	58	0	0	42	0
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 57.0%	ICU Level of Service B
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (veh/h)	10	369	41	35	471	10	22	10	23	5	10	25
Future Volume (Veh/h)	10	369	41	35	471	10	22	10	23	5	10	25
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	11	388	43	37	496	11	23	11	24	5	11	26
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	507			431			1038	1012	410	1036	1028	502
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	507			431			1038	1012	410	1036	1028	502
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			97			88	95	96	97	95	95
cM capacity (veh/h)	1068			1139			187	231	646	190	226	574

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	442	544	58	42
Volume Left	11	37	23	5
Volume Right	43	11	24	26
cSH	1068	1139	280	349
Volume to Capacity	0.01	0.03	0.21	0.12
Queue Length 95th (ft)	1	3	19	10
Control Delay (s)	0.3	0.9	21.2	16.7
Lane LOS	A	A	C	C
Approach Delay (s)	0.3	0.9	21.2	16.7
Approach LOS			C	C

Intersection Summary			
Average Delay	2.4		
Intersection Capacity Utilization	57.0%	ICU Level of Service	B
Analysis Period (min)	15		

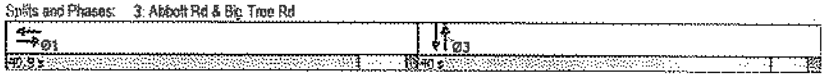
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	27	361	57	113	436	111	47	173	59	98	266	45
Future Volume (vph)	27	361	57	113	436	111	47	173	59	98	265	45
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	140		0	70		0	100		0	0		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25			25			130			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.979			0.970			0.962			0.979	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1736	1834	0	1770	1832	0	1805	1792	0	1787	1839	0
Flt Permitted	0.331			0.454			0.439			0.600		
Satd. Flow (perm)	605	1834	0	846	1832	0	929	1792	0	1129	1839	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		12			20			27			13	
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		2441			661			550			398	
Travel Time (s)		37.0			10.0			8.3			6.0	
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Heavy Vehicles (%)	4%	1%	4%	2%	0%	3%	0%	2%	2%	1%	1%	2%
Adj. Flow (vph)	27	365	58	114	440	112	47	175	60	99	269	45
Shared Lane Traffic (%)												
Lane Group Flow (vph)	27	423	0	114	552	0	47	235	0	99	314	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		1			1			3			3	
Permitted Phases	1			1			3			3		
Detector Phase	1	1		1	1		3	3		3	3	
Switch Phase												
Minimum Initial (s)	20.0	20.0		20.0	20.0		15.0	15.0		15.0	15.0	
Minimum Split (s)	25.9	25.9		25.9	26.9		22.5	22.5		22.5	22.5	
Total Split (s)	40.9	40.9		40.9	40.9		40.0	40.0		40.0	40.0	
Total Split (%)	50.6%	50.6%		50.6%	50.6%		49.4%	49.4%		49.4%	49.4%	
Maximum Green (s)	35.0	35.0		35.0	35.0		35.0	35.0		35.0	35.0	
Yellow Time (s)	4.7	4.7		4.7	4.7		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.2	1.2		1.2	1.2		1.5	1.5		1.5	1.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.9	5.9		5.9	5.9		5.0	5.0		5.0	5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Min	Min		Min	Min		None	None		None	None	
Act Effct Green (s)	24.8	24.8		24.8	24.8		17.9	17.9		17.9	17.9	
Actuated g/C Ratio	0.46	0.46		0.46	0.46		0.33	0.33		0.33	0.33	
v/c Ratio	0.10	0.50		0.29	0.65		0.15	0.38		0.26	0.51	
Control Delay	10.0	12.5		12.1	15.2		15.7	15.2		16.8	18.1	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	10.0	12.5		12.1	15.2		15.7	15.2		16.8	18.1	
LOS	A	B		B	B		B	B		B	B	
Approach Delay		12.4			14.7			15.3			17.8	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS		B			B			B			B	
Queue Length 50th (ft)	4	73		18	104		9	44		20	67	
Queue Length 95th (ft)	19	182		61	255		36	120		65	169	
Internal Link Dist (ft)		2361			581			470			318	
Turn Bay Length (ft)	140			70			100					
Base Capacity (vph)	404	1231		566	1233		622	1208		755	1235	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.07	0.34		0.20	0.45		0.08	0.19		0.13	0.25	

Intersection Summary

Area Type: Other
Cycle Length: 80.9
Actuated Cycle Length: 53.9
Natural Cycle: 50
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.65
Intersection Signal Delay: 14.9 Intersection LOS: B
Intersection Capacity Utilization 93.8% ICU Level of Service F
Analysis Period (min) 15

Splits and Phases: 3: Abbott Rd & Big Tree Rd



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	4	10	45	1	12	75
Future Volume (vph)	4	10	45	1	12	75
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.905		0.998			
Flt Protected	0.966					0.993
Satd. Flow (prot)	1695	0	1896	0	0	1887
Flt Permitted	0.966					0.993
Satd. Flow (perm)	1695	0	1896	0	0	1887
Link Speed (mph)	30		30			30
Link Distance (ft)	742		1530			480
Travel Time (s)	16.9		34.8			10.9
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	5	12	54	1	14	89
Shared Lane Traffic (%)						
Lane Group Flow (vph)	17	0	55	0	0	103
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 21.3%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	4	10	45	1	12	75
Future Volume (Veh/h)	4	10	45	1	12	75
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84
Hourly flow rate (vph)	5	12	54	1	14	89
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	172	54			55	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	172	54			55	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	99	99			99	
cM capacity (veh/h)	816	1018			1563	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	17	55	103
Volume Left	5	0	14
Volume Right	12	1	0
cSH	949	1700	1563
Volume to Capacity	0.02	0.03	0.01
Queue Length 95th (ft)	1	0	1
Control Delay (s)	8.9	0.0	1.1
Lane LOS	A		A
Approach Delay (s)	8.9	0.0	1.1
Approach LOS	A		

Intersection Summary			
Average Delay		1.5	
Intersection Capacity Utilization		21.3%	ICU Level of Service A
Analysis Period (min)		15	

A6

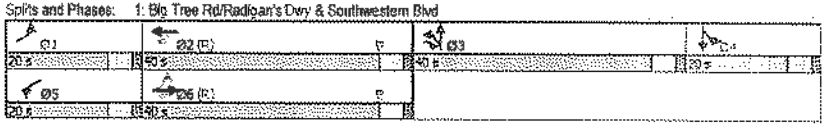
Level of Service Calculations: Full Development Conditions

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	11	823	300	11	501	9	263	1	12	6	5	5
Future Volume (vph)	11	823	300	11	501	9	263	1	12	6	5	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	45		190	140		0	205		0	0		0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	105			120			25			25		
Lane Util. Factor	1.00	0.91	1.00	1.00	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00
Frt			0.850		0.998			0.987			0.925	
Flt Protected	0.950			0.950			0.950	0.957		0.950		
Satd. Flow (prot)	1805	4868	1553	1805	3340	0	1633	1611	0	1805	1758	0
Flt Permitted	0.409			0.270			0.950	0.957		0.950		
Satd. Flow (perm)	777	4868	1553	513	3340	0	1633	1611	0	1805	1758	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			345		1			4			6	
Link Speed (mph)		50			50			45			10	
Link Distance (ft)		720			735			884			251	
Travel Time (s)		9.8			10.0			13.4			17.1	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	0%	4%	4%	0%	8%	0%	5%	0%	15%	0%	0%	0%
Adj. Flow (vph)	13	946	345	13	576	9	302	1	14	7	6	6
Shared Lane Traffic (%)							47%					
Lane Group Flow (vph)	13	946	345	13	585	0	160	157	0	7	12	0
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA		Split	NA		Split	NA	
Protected Phases	1	6	3	5	2		3	3		4	4	
Permitted Phases	6		6	2								
Detector Phase	1	6	3	5	2		3	3		4	4	
Switch Phase												
Minimum Initial (s)	6.0	20.0	6.0	6.0	20.0		6.0	6.0		6.0	6.0	
Minimum Split (s)	11.0	27.0	27.0	11.0	27.0		27.0	27.0		27.0	27.0	
Total Split (s)	20.0	40.0	40.0	20.0	40.0		40.0	40.0		20.0	20.0	
Total Split (%)	16.7%	33.3%	33.3%	16.7%	33.3%		33.3%	33.3%		16.7%	16.7%	
Maximum Green (s)	15.0	35.0	35.0	15.0	35.0		35.0	35.0		15.0	15.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5		1.5	1.5		1.5	1.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lead		Lag	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max	None	None	C-Max		None	None		None	None	
Walk Time (s)		7.0	7.0		7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		15.0	25.0		15.0		25.0	25.0		25.0	25.0	
Pedestrian Calls (#/hr)		0	0		0		0	0		0	0	
Act Effct Green (s)	85.1	82.6	108.7	85.1	82.6		16.1	16.1		6.4	6.4	
Actuated g/C Ratio	0.71	0.69	0.91	0.71	0.69		0.15	0.15		0.05	0.05	
v/c Ratio	0.02	0.28	0.24	0.03	0.25		0.65	0.64		0.07	0.12	
Control Delay	8.1	10.0	0.8	8.2	10.2		59.3	57.3		55.3	41.4	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	8.1	10.0	0.8	8.2	10.2		59.3	57.3		55.3	41.4	
LOS	A	B	A	A	B		E	E		E	D	
Approach Delay		7.6			10.2			58.3			46.5	
Approach LOS		A			B			E			D	
Queue Length 50th (ft)	2	65	0	2	56		124	118		5	5	
Queue Length 95th (ft)	12	188	17	12	174		178	173		20	23	
Internal Link Dist (ft)		640			655			804			171	
Turn Bay Length (ft)	45		190	140			205					
Base Capacity (vph)	692	3431	1484	533	2298		476	472		225	225	
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	
Reduced v/c Ratio	0.02	0.28	0.23	0.02	0.25		0.34	0.33		0.03	0.05	

Intersection Summary
Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow
Natural Cycle: 115
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.65
Intersection Signal Delay: 15.8 Intersection LOS: B
Intersection Capacity Utilization 41.1% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 1: Big Tree Rd/Radigan's Dwy & Southwestern Blvd



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	15	304	20	17	235	10	48	10	57	10	5	5
Future Volume (vph)	15	304	20	17	235	10	48	10	57	10	5	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.992			0.995			0.933			0.968	
Flt Protected		0.998			0.997			0.986			0.975	
Satd. Flow (prot)	0	1832	0	0	1761	0	0	1737	0	0	1793	0
Flt Permitted		0.998			0.997			0.986			0.975	
Satd. Flow (perm)	0	1832	0	0	1761	0	0	1737	0	0	1793	0
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		1126			2441			480			334	
Travel Time (s)		17.1			37.0			10.9			7.6	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Heavy Vehicles (%)	0%	3%	0%	12%	7%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	19	380	25	21	294	13	60	13	71	13	6	6
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	424	0	0	328	0	0	144	0	0	25	0
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 36.1%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (veh/h)	15	304	20	17	235	10	48	10	57	10	5	5
Future Volume (Veh/h)	15	304	20	17	235	10	48	10	57	10	5	5
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Hourly flow rate (vph)	19	380	25	21	294	13	60	13	71	13	6	6
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	307			405			782	780	392	850	786	300
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	307			405			782	780	392	850	786	300
tC, single (s)	4.1			4.2			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.3			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	98			98			80	96	89	95	98	99
cM capacity (veh/h)	1265			1102			299	318	661	238	316	744

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	424	328	144	25
Volume Left	19	21	60	13
Volume Right	25	13	71	6
cSH	1265	1102	413	306
Volume to Capacity	0.02	0.02	0.35	0.08
Queue Length 95th (ft)	1	1	38	7
Control Delay (s)	0.5	0.7	18.3	17.8
Lane LOS	A	A	C	C
Approach Delay (s)	0.5	0.7	18.3	17.8
Approach LOS			C	C

Intersection Summary			
Average Delay	3.8		
Intersection Capacity Utilization	36.1%	ICU Level of Service	A
Analysis Period (min)	15		

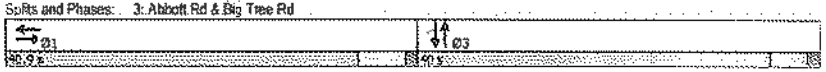
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	49	393	18	29	262	77	54	186	104	87	75	19
Future Volume (vph)	49	393	18	29	262	77	54	186	104	87	75	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	140		0	70		0	100		0	0		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25			25			130			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.993			0.966			0.946			0.970	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1752	1806	0	1687	1713	0	1770	1746	0	1626	1786	0
Flt Permitted	0.459			0.373			0.684			0.442		
Satd. Flow (perm)	847	1806	0	662	1713	0	1274	1746	0	757	1786	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4			23			44			20	
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		2441			661			559			398	
Travel Time (s)		37.0			10.0			8.3			6.0	
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Heavy Vehicles (%)	3%	4%	15%	7%	6%	11%	2%	4%	1%	11%	4%	0%
Adj. Flow (vph)	60	479	22	35	320	94	66	227	127	106	91	23
Shared Lane Traffic (%)												
Lane Group Flow (vph)	60	501	0	35	414	0	66	354	0	106	114	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		1			1			3			3	
Permitted Phases	1			1			3			3		
Detector Phase	1	1		1	1		3	3		3	3	
Switch Phase												
Minimum Initial (s)	20.0	20.0		20.0	20.0		15.0	15.0		15.0	15.0	
Minimum Split (s)	25.9	25.9		25.9	25.9		22.5	22.5		22.5	22.5	
Total Split (s)	40.9	40.9		40.9	40.9		40.0	40.0		40.0	40.0	
Total Split (%)	50.6%	50.6%		50.6%	50.6%		49.4%	49.4%		49.4%	49.4%	
Maximum Green (s)	35.0	35.0		35.0	35.0		35.0	35.0		35.0	35.0	
Yellow Time (s)	4.7	4.7		4.7	4.7		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.2	1.2		1.2	1.2		1.5	1.5		1.5	1.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.9	5.9		5.9	5.9		5.0	5.0		5.0	5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Min	Min		Min	Min		None	None		None	None	
Act Effct Green (s)	24.2	24.2		24.2	24.2		18.4	18.4		18.4	18.4	
Actuated g/C Ratio	0.45	0.45		0.45	0.45		0.34	0.34		0.34	0.34	
v/c Ratio	0.16	0.62		0.12	0.53		0.15	0.57		0.41	0.18	
Control Delay	10.9	15.6		10.8	13.4		14.5	17.3		20.5	12.3	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	10.9	15.6		10.8	13.4		14.5	17.3		20.5	12.3	
LOS	B	B		B	B		B	B		C	B	
Approach Delay		15.1			13.2			16.9			16.3	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS		B			B			B			B	
Queue Length 50th (ft)	9	97		5	72		12	66		21	17	
Queue Length 95th (ft)	32	209		21	152		40	158		68	54	
Internal Link Dist (ft)		2361			581			470			318	
Turn Bay Length (ft)	140			70			100					
Base Capacity (vph)	569	1215		444	1158		856	1187		509	1207	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.11	0.41		0.08	0.36		0.08	0.30		0.21	0.09	

Intersection Summary

Area Type: Other
Cycle Length: 80.9
Actuated Cycle Length: 53.9
Natural Cycle: 50
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.62
Intersection Signal Delay: 15.2 Intersection LOS: B
Intersection Capacity Utilization 82.8% ICU Level of Service E
Analysis Period (min) 15

Splits and Phases: 3: Abbott Rd & Big Tree Rd



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	21	0	1	2	0	10	0	85	1	5	28	7
Future Volume (vph)	21	0	1	2	0	10	0	85	1	5	28	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.995			0.884			0.999			0.977	
Flt Protected		0.954			0.993						0.994	
Satd. Flow (prot)	0	1804	0	0	1668	0	0	1898	0	0	1788	0
Flt Permitted		0.954			0.993						0.994	
Satd. Flow (perm)	0	1804	0	0	1668	0	0	1898	0	0	1788	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		453			742			825			480	
Travel Time (s)		10.3			16.9			18.8			10.9	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	25%	0%	0%
Adj. Flow (vph)	25	0	1	2	0	12	0	100	1	6	33	8
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	26	0	0	14	0	0	101	0	0	47	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 17.9%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (veh/h)	21	0	1	2	0	10	0	85	1	5	28	7
Future Volume (Veh/h)	21	0	1	2	0	10	0	85	1	5	28	7
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	25	0	1	2	0	12	0	100	1	6	33	8
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	162	159	37	150	154	100	41			191		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	162	159	37	150	154	100	41			101		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.3		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.4		
p0 queue free %	97	100	100	100	100	99	100			100		
cM capacity (veh/h)	795	742	1041	818	739	960	1581			1359		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	26	14	101	47
Volume Left	25	2	0	6
Volume Right	1	12	1	8
cSH	803	937	1581	1359
Volume to Capacity	0.03	0.01	0.00	0.00
Queue Length 95th (ft)	3	1	0	0
Control Delay (s)	9.6	8.9	0.0	1.0
Lane LOS	A	A		A
Approach Delay (s)	9.6	8.9	0.0	1.0
Approach LOS	A	A		

Intersection Summary			
Average Delay	2.2		
Intersection Capacity Utilization	17.9%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	16	1	0	71	26	5
Future Volume (vph)	16	1	0	71	26	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.994				0.977	
Flt Protected	0.954					
Satd. Flow (prot)	1802	0	0	1900	1856	0
Flt Permitted	0.954					
Satd. Flow (perm)	1802	0	0	1900	1856	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	587			500	625	
Travel Time (s)	13.3			11.4	14.8	
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	21	1	0	95	35	7
Shared Lane Traffic (%)						
Lane Group Flow (vph)	22	0	0	95	42	0
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	13.7%
	ICU Level of Service A
Analysis Period (min)	15

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	16	1	0	71	26	5
Future Volume (Veh/h)	16	1	0	71	26	5
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75
Hourly flow rate (vph)	21	1	0	95	35	7
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	134	38	42			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	134	38	42			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	96	100	100			
cM capacity (veh/h)	865	1039	1580			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	22	95	42
Volume Left	21	0	0
Volume Right	1	0	7
cSH	872	1580	1700
Volume to Capacity	0.03	0.00	0.02
Queue Length 95th (ft)	2	0	0
Control Delay (s)	9.2	0.0	0.0
Lane LOS	A		
Approach Delay (s)	9.2	0.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	1.3		
Intersection Capacity Utilization	13.7%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	317	6	7	282	21	22
Future Volume (vph)	317	6	7	282	21	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.997				0.930	
Flt Protected				0.999	0.976	
Satd. Flow (prot)	1840	0	0	1777	1725	0
Flt Permitted				0.999	0.976	
Satd. Flow (perm)	1840	0	0	1777	1725	0
Link Speed (mph)	45			45	30	
Link Distance (ft)	462			1126	359	
Travel Time (s)	7.3			17.1	8.0	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80
Heavy Vehicles (%)	3%	0%	0%	7%	0%	0%
Adj. Flow (vph)	396	8	9	353	26	28
Shared Lane Traffic (%)						
Lane Group Flow (vph)	404	0	0	362	54	0
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 30.5%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	317	6	7	282	21	22
Future Volume (Veh/h)	317	6	7	282	21	22
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80
Hourly flow rate (vph)	396	8	9	353	26	28
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			404		771	400
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			404		771	400
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		93	96
cM capacity (veh/h)			1166		368	654

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	404	362	54
Volume Left	0	9	26
Volume Right	8	0	28
cSH	1700	1166	476
Volume to Capacity	0.24	0.01	0.11
Queue Length 95th (ft)	0	1	10
Control Delay (s)	0.0	0.3	13.5
Lane LOS		A	B
Approach Delay (s)	0.0	0.3	13.5
Approach LOS			B

Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	30.5%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	318	2	2	301	7	6
Future Volume (vph)	318	2	2	301	7	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		0	100		0	0
Storage Lanes		0	1		1	0
Taper Length (ft)			25		25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.999				0.936	
Flt Protected			0.950		0.974	
Satd. Flow (prot)	1843	0	1805	1776	1732	0
Flt Permitted			0.950		0.974	
Satd. Flow (perm)	1843	0	1805	1776	1732	0
Link Speed (mph)	45			45	30	
Link Distance (ft)	172			482	455	
Travel Time (s)	2.6			7.3	10.3	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80
Heavy Vehicles (%)	3%	0%	0%	7%	0%	0%
Adj. Flow (vph)	398	3	3	376	9	8
Shared Lane Traffic (%)						
Lane Group Flow (vph)	401	0	3	376	17	0
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 26.9%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	318	2	2	301	7	6
Future Volume (Veh/h)	318	2	2	301	7	6
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80
Hourly flow rate (vph)	398	3	3	376	9	8
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	1056					
pX, platoon unblocked						
vC, conflicting volume			401		782	400
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			401		782	400
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		98	99
cM capacity (veh/h)			1169		365	655

Direction, Lane #	EB 1	WB 1	NB 2	NB 1
Volume Total	401	3	376	17
Volume Left	0	3	0	9
Volume Right	3	0	0	8
cSH	1700	1169	1700	461
Volume to Capacity	0.24	0.00	0.22	0.04
Queue Length 95th (ft)	0	0	0	3
Control Delay (s)	0.0	8.1	0.0	13.1
Lane LOS		A		B
Approach Delay (s)	0.0	0.1		13.1
Approach LOS				B

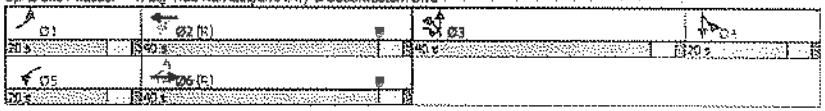
Intersection Summary				
Average Delay		0.3		
Intersection Capacity Utilization		26.9%	ICU Level of Service	A
Analysis Period (min)		15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	23	817	398	25	1049	12	483	12	19	12	13	23
Future Volume (vph)	23	817	398	25	1049	12	483	12	19	12	13	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	45		190	140		0	205		0	0		0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	105			120			25			25		
Lane Util. Factor	1.00	0.91	1.00	1.00	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00
Frt			0.850		0.998			0.989			0.904	
Flt Protected	0.950			0.950			0.950	0.998		0.950		
Satd. Flow (prot)	1805	5136	1615	1626	3568	0	1698	1687	0	1805	1718	0
Flt Permitted	0.157			0.274			0.950	0.998		0.950		
Satd. Flow (perm)	298	5136	1615	469	3568	0	1698	1687	0	1805	1718	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			428		1			3			25	
Link Speed (mph)		50			50			45			10	
Link Distance (ft)		720			735			884			251	
Travel Time (s)		9.8			10.0			13.4			17.1	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	0%	1%	0%	11%	1%	0%	1%	0%	7%	0%	0%	0%
Adj. Flow (vph)	25	878	428	27	1128	13	519	13	20	13	14	25
Shared Lane Traffic (%)							47%					
Lane Group Flow (vph)	25	878	428	27	1141	0	275	277	0	13	39	0
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA		Split	NA		Split	NA	
Protected Phases	1	6	3	5	2		3	3		4	4	
Permitted Phases	6		6	2								
Detector Phase	1	6	3	5	2		3	3		4	4	
Switch Phase												
Minimum Initial (s)	6.0	20.0	6.0	6.0	20.0		6.0	6.0		6.0	6.0	
Minimum Split (s)	11.0	27.0	37.0	11.0	27.0		37.0	37.0		37.0	37.0	
Total Split (s)	20.0	40.0	40.0	20.0	40.0		40.0	40.0		20.0	20.0	
Total Split (%)	16.7%	33.3%	33.3%	16.7%	33.3%		33.3%	33.3%		16.7%	16.7%	
Maximum Green (s)	15.0	35.0	35.0	15.0	35.0		35.0	35.0		15.0	15.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5		1.5	1.5		1.5	1.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lead		Lag	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max	None	None	C-Max		None	None		None	None	
Walk Time (s)		7.0	7.0		7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		15.0	25.0		15.0		25.0	25.0		25.0	25.0	
Pedestrian Calls (#/hr)		0	0		0		0	0		0	0	
Act Effct Green (s)	70.1	66.0	98.9	70.4	66.2		26.9	26.9		7.1	7.1	
Actuated g/C Ratio	0.58	0.55	0.82	0.59	0.55		0.22	0.22		0.06	0.06	
v/c Ratio	0.10	0.31	0.30	0.08	0.58		0.72	0.73		0.12	0.31	
Control Delay	13.8	17.9	1.0	13.5	22.8		53.6	53.6		55.1	34.0	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	13.8	17.9	1.0	13.5	22.8		53.6	53.5		55.1	34.0	
LOS	B	B	A	B	C		D	D		E	C	
Approach Delay		12.4			22.6			53.5			39.3	
Approach LOS		B			C			D			D	
Queue Length 50th (ft)	8	145	0	8	329		208	207		10	11	
Queue Length 95th (ft)	24	217	25	26	493		284	285		30	46	
Internal Link Dist (ft)		640			655			804			171	
Turn Bay Length (ft)	45		190	140			205					
Base Capacity (vph)	370	2625	1457	430	1966		495	494		225	236	
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	
Reduced v/c Ratio	0.07	0.31	0.29	0.06	0.58		0.56	0.56		0.06	0.17	

Intersection Summary
Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow
Natural Cycle: 125
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.73
Intersection Signal Delay: 24.0 Intersection LOS: C
Intersection Capacity Utilization 58.7% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 1: Big Tree Rd/Radigan's Dwy & Southwestern Blvd



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Volume (vph)	10	384	62	57	496	10	36	10	36	5	10	25
Future Volume (vph)	10	384	62	57	496	10	36	10	36	5	10	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.982			0.997			0.941			0.916	
Flt Protected		0.999			0.995			0.979			0.994	
Satd. Flow (prot)	0	1846	0	0	1866	0	0	1750	0	0	1730	0
Flt Permitted		0.999			0.995			0.979			0.994	
Satd. Flow (perm)	0	1846	0	0	1866	0	0	1750	0	0	1730	0
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		1130			2441			466			334	
Travel Time (s)		17.1			37.0			10.9			7.6	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	11	404	65	60	522	11	38	11	38	5	11	26
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	480	0	0	593	0	0	87	0	0	42	0
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 74.7%	ICU Level of Service D
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Volume (veh/h)	10	384	62	57	496	10	36	10	36	5	10	25
Future Volume (Veh/h)	10	384	62	57	496	10	36	10	36	5	10	25
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	11	404	65	60	522	11	38	11	38	5	11	26
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	533			469			1138	1112	436	1150	1138	528
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	533			469			1138	1112	436	1150	1138	528
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			95			76	94	94	97	94	95
cM capacity (veh/h)	1045			1103			156	197	624	151	190	555

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	480	593	87	42
Volume Left	11	60	38	5
Volume Right	65	11	38	26
cSH	1045	1103	242	309
Volume to Capacity	0.01	0.05	0.36	0.14
Queue Length 95th (ft)	1	4	39	12
Control Delay (s)	0.3	1.5	28.0	18.7
Lane LOS	A	A	D	C
Approach Delay (s)	0.3	1.5	28.0	18.7
Approach LOS			D	C

Intersection Summary			
Average Delay	3.5		
Intersection Capacity Utilization	74.7%	ICU Level of Service	D
Analysis Period (min)	15		

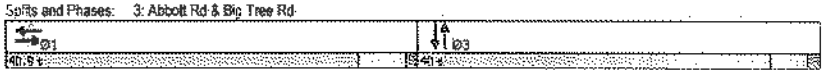
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	34	382	57	113	470	111	47	173	59	98	266	57
Future Volume (vph)	34	382	57	113	470	111	47	173	59	98	266	57
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	140		0	70		0	100		0	0		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25			25			130			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.960			0.971			0.962			0.973	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1736	1836	0	1770	1834	0	1805	1792	0	1787	1827	0
Flt Permitted	0.300			0.433			0.468			0.597		
Satd. Flow (perm)	548	1836	0	807	1834	0	889	1792	0	1123	1827	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		12			18			27			17	
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		2441			861			550			398	
Travel Time (s)		37.0			13.0			8.3			6.0	
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Heavy Vehicles (%)	4%	1%	4%	2%	0%	3%	0%	2%	2%	1%	1%	2%
Adj. Flow (vph)	34	386	58	114	475	112	47	175	60	99	269	58
Shared Lane Traffic (%)												
Lane Group Flow (vph)	34	444	0	114	587	0	47	235	0	99	327	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		1			1			3			3	
Permitted Phases	1			1			3			3		
Detector Phase	1	1		1	1		3	3		3	3	
Switch Phase												
Minimum Initial (s)	20.0	20.0		20.0	20.0		15.0	15.0		15.0	15.0	
Minimum Split (s)	25.9	25.9		25.9	25.9		22.5	22.5		22.5	22.5	
Total Split (s)	40.9	40.9		40.9	40.9		40.0	40.0		40.0	40.0	
Total Split (%)	50.6%	50.6%		50.6%	50.6%		49.4%	49.4%		49.4%	49.4%	
Maximum Green (s)	35.0	35.0		35.0	35.0		35.0	35.0		35.0	35.0	
Yellow Time (s)	4.7	4.7		4.7	4.7		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.2	1.2		1.2	1.2		1.5	1.5		1.5	1.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.9	5.9		5.9	5.9		5.0	5.0		5.0	5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Min	Min		Min	Min		None	None		None	None	
Act Effct Green (s)	25.4	25.4		25.4	25.4		18.2	18.2		18.2	18.2	
Actuated g/C Ratio	0.46	0.46		0.46	0.46		0.33	0.33		0.33	0.33	
v/c Ratio	0.13	0.52		0.31	0.68		0.16	0.38		0.27	0.53	
Control Delay	10.8	13.0		12.5	16.4		16.1	15.4		17.1	18.6	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	10.8	13.0		12.5	16.4		16.1	15.4		17.1	18.6	
LOS	B	B		B	B		B	B		B	B	
Approach Delay		12.8			15.8			15.5			18.2	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS		B			B			B			B	
Queue Length 50th (ft)	5	81		19	119		10	46		21	73	
Queue Length 95th (ft)	24	198		63	267		36	119		65	175	
Internal Link Dist (ft)		2361			581			470			318	
Turn Bay Length (ft)	140			70			100					
Base Capacity (vph)	360	1211		530	1211		584	1187		738	1207	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.09	0.37		0.22	0.48		0.08	0.20		0.13	0.27	

Intersection Summary

Area Type: Other
Cycle Length: 80.9
Actuated Cycle Length: 54.9
Natural Cycle: 55
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.68
Intersection Signal Delay: 15.5 Intersection LOS: B
Intersection Capacity Utilization 96.3% ICU Level of Service F
Analysis Period (min) 15

Splits and Phases: 3: Abbott Rd & Big Tree Rd



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	14	0	1	4	0	10	1	58	1	12	94	24
Future Volume (vph)	14	0	1	4	0	10	1	58	1	12	94	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.992			0.906			0.998			0.975	
Flt Protected		0.955			0.986			0.999			0.996	
Satd. Flow (prot)	0	1800	0	0	1695	0	0	1894	0	0	1845	0
Flt Permitted		0.955			0.986			0.999			0.996	
Satd. Flow (perm)	0	1800	0	0	1695	0	0	1894	0	0	1845	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		397			742			825			480	
Travel Time (s)		9.0			16.9			18.8			10.9	
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	17	0	1	5	0	12	1	69	1	14	112	29
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	18	0	0	17	0	0	71	0	0	155	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 23.4%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (veh/h)	14	0	1	4	0	10	1	58	1	12	94	24
Future Volume (Veh/h)	14	0	1	4	0	10	1	58	1	12	94	24
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Hourly flow rate (vph)	17	0	1	5	0	12	1	69	1	14	112	29
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	238	226	126	227	240	70	141			70		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	238	226	126	227	240	70	141			70		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	98	100	100	99	100	99	100			99		
cM capacity (veh/h)	707	670	929	726	658	999	1455			1544		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	18	17	71	155
Volume Left	17	5	1	14
Volume Right	1	12	1	29
cSH	716	906	1455	1544
Volume to Capacity	0.03	0.02	0.00	0.01
Queue Length 95th (ft)	2	1	0	1
Control Delay (s)	10.2	9.1	0.1	0.7
Lane LOS	B	A	A	A
Approach Delay (s)	10.2	9.1	0.1	0.7
Approach LOS	B	A		

Intersection Summary			
Average Delay	1.8		
Intersection Capacity Utilization	23.4%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	10	1	1	50	81	17
Future Volume (vph)	10	1	1	50	81	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.950				0.977	
Flt Protected	0.956			0.999		
Satd. Flow (prot)	1798	0	0	1898	1856	0
Flt Permitted	0.956			0.999		
Satd. Flow (perm)	1798	0	0	1898	1856	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	475			850	825	
Travel Time (s)	10.8			19.3	18.8	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	12	1	1	59	95	20
Shared Lane Traffic (%)						
Lane Group Flow (vph)	13	0	0	60	115	0
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	15.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	10	1	1	50	81	17
Future Volume (Veh/h)	10	1	1	50	81	17
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	12	1	1	59	95	20
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	166	105	115			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	166	105	115			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	99	100	100			
cM capacity (veh/h)	829	955	1487			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	13	60	115
Volume Left	12	1	0
Volume Right	1	0	20
cSH	837	1487	1700
Volume to Capacity	0.02	0.00	0.07
Queue Length 95th (ft)	1	0	0
Control Delay (s)	9.4	0.1	0.0
Lane LOS	A	A	
Approach Delay (s)	9.4	0.1	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	15.3%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	444	20	22	536	12	13
Future Volume (vph)	444	20	22	536	12	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.994				0.930	
Flt Protected				0.998	0.976	
Satd. Flow (prot)	1671	0	0	1676	1725	0
Flt Permitted				0.998	0.976	
Satd. Flow (perm)	1671	0	0	1676	1725	0
Link Speed (mph)	45			45	30	
Link Distance (ft)	488			1130	435	
Travel Time (s)	7.4			17.1	9.9	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles (%)	1%	0%	0%	1%	0%	0%
Adj. Flow (vph)	522	24	26	631	14	15
Shared Lane Traffic (%)						
Lane Group Flow (vph)	546	0	0	657	29	0
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	56.0%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	444	20	22	536	12	13
Future Volume (Veh/h)	444	20	22	536	12	13
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	522	24	26	631	14	15
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			546		1217	534
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			546		1217	534
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			97		93	97
cM capacity (veh/h)			1033		197	550

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	546	657	29
Volume Left	0	26	14
Volume Right	24	0	15
cSH	1700	1033	294
Volume to Capacity	0.32	0.03	0.10
Queue Length 95th (ft)	0	2	8
Control Delay (s)	0.0	0.7	18.6
Lane LOS		A	C
Approach Delay (s)	0.0	0.7	18.6
Approach LOS			C

Intersection Summary			
Average Delay	0.8		
Intersection Capacity Utilization	56.0%	ICU Level of Service	B
Analysis Period (min)	15		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	461	7	6	563	4	3
Future Volume (vph)	461	7	6	563	4	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		0	100		0	0
Storage Lanes		0	1		1	0
Taper Length (ft)			25		25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.998				0.940	
Flt Protected			0.950		0.973	
Satd. Flow (prot)	1878	0	1805	1881	1738	0
Flt Permitted			0.950		0.973	
Satd. Flow (perm)	1878	0	1805	1881	1738	0
Link Speed (mph)	45			45	30	
Link Distance (ft)	164			488	465	
Travel Time (s)	2.5			7.4	10.6	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles (%)	1%	0%	0%	1%	0%	0%
Adj. Flow (vph)	542	8	7	662	5	4
Shared Lane Traffic (%)						
Lane Group Flow (vph)	550	0	7	662	9	0
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 39.6%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	461	7	6	563	4	3
Future Volume (Veh/h)	461	7	6	563	4	3
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	542	8	7	662	5	4
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	1048					
pX, platoon unblocked						
vC, conflicting volume			550		1222	546
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			550		1222	546
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		97	99
cM capacity (veh/h)			1030		199	541

Direction, Lane #	EB 1	WB 1	WB 2	NB 1
Volume Total	550	7	662	9
Volume Left	0	7	0	5
Volume Right	8	0	0	4
cSH	1700	1030	1700	277
Volume to Capacity	0.32	0.01	0.39	0.03
Queue Length 95th (ft)	0	1	0	3
Control Delay (s)	0.0	8.5	0.0	18.4
Lane LOS		A		C
Approach Delay (s)	0.0	0.1		18.4
Approach LOS				C

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	39.8%	ICU Level of Service	A
Analysis Period (min)	15		

A7

Level of Service Calculations: Full Development Conditions with Mitigation

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	318	2	2	301	7	6
Future Volume (Veh/h)	318	2	2	301	7	6
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80
Hourly flow rate (vph)	398	3	3	376	9	8
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL			TWLTL		
Median storage veh)	2			2		
Upstream signal (ft)	1056					
pX, platoon unblocked						
vC, conflicting volume			401		782	400
vC1, stage 1 conf vol					400	
vC2, stage 2 conf vol					382	
vCu, unblocked vol			401		782	400
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)					5.4	
tF (s)			2.2		3.5	3.3
p0 queue free %			100		98	99
cM capacity (veh/h)			1169		566	655

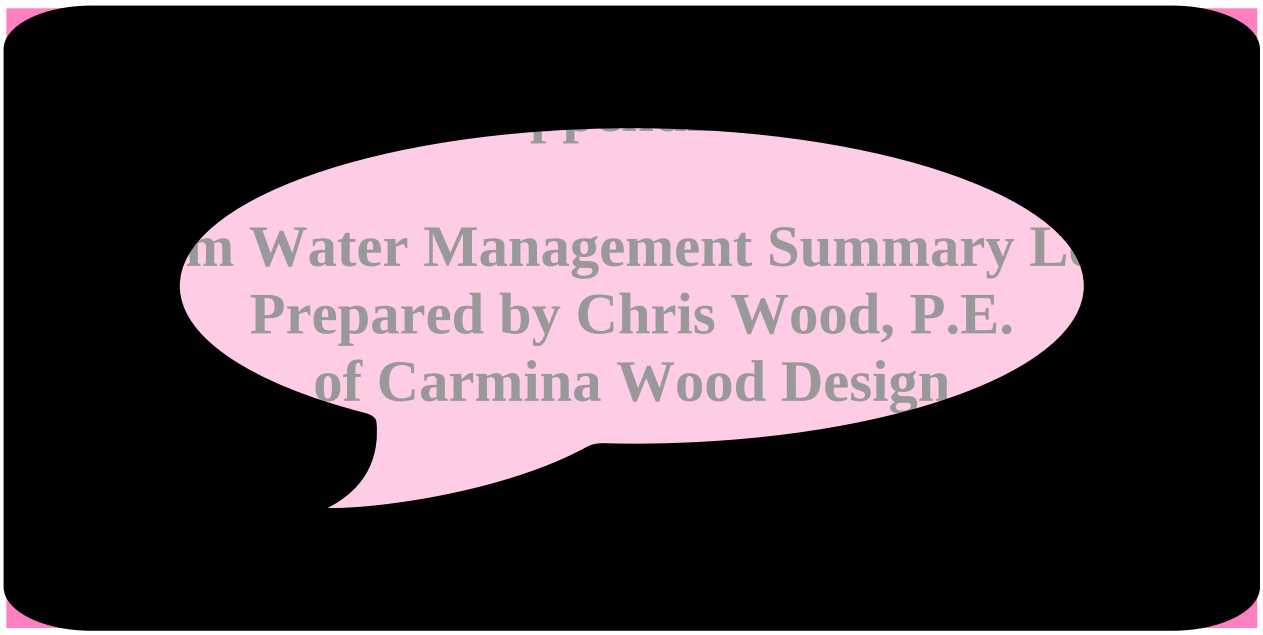
Direction, Lane #	EB 1	WB 1	WB 2	NB 1
Volume Total	401	3	376	17
Volume Left	0	3	0	9
Volume Right	3	0	0	8
cSH	1700	1169	1700	604
Volume to Capacity	0.24	0.00	0.22	0.03
Queue Length 95th (ft)	0	0	0	2
Control Delay (s)	0.0	8.1	0.0	11.1
Lane LOS		A		B
Approach Delay (s)	0.0	0.1		11.1
Approach LOS				B

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	26.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	461	7	6	563	4	3
Future Volume (Veh/h)	461	7	6	563	4	3
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	542	8	7	662	5	4
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL			TWLTL		
Median storage veh)	2			2		
Upstream signal (ft)	1048					
pX, platoon unblocked						
vC, conflicting volume			550		1222	546
vC1, stage 1 conf vol					546	
vC2, stage 2 conf vol					676	
vCu, unblocked vol			550		1222	546
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)					5.4	
tF (s)			2.2		3.5	3.3
p0 queue free %			99		99	99
cM capacity (veh/h)			1030		416	541

Direction, Lane #	EB 1	WB 1	WB 2	NB 1
Volume Total	550	7	662	9
Volume Left	0	7	0	5
Volume Right	8	0	0	4
cSH	1700	1030	1700	463
Volume to Capacity	0.32	0.01	0.39	0.02
Queue Length 95th (ft)	0	1	0	1
Control Delay (s)	0.0	8.5	0.0	12.9
Lane LOS		A		B
Approach Delay (s)	0.0	0.1		12.9
Approach LOS				B

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	39.6%	ICU Level of Service	A
Analysis Period (min)	15		


m Water Management Summary L
Prepared by Chris Wood, P.E.
of Carmina Wood Design

CARMINAWOOD
DESIGN

April 18, 2024

Cynthia Gronachan, Chairwoman
Town of Hamburg Planning Board
6100 South Park Avenue
Hamburg, New York 14075

Re: **Proposed Multifamily Project – 0 Big Tree Road and 0 Wilson Road**
Applicant/Project Sponsor: Wetzl Development, LLC
Town of Hamburg Planning Board

Dear Chairwoman Gronachan and Members of the Planning Board:

This letter has been prepared for the purpose of providing the Planning Board with a summary of the manner by which runoff from impervious surfaces on the Project Site will be properly handled. In connection with the coordinated environmental review of the proposed multifamily project pursuant to SEQRA, questions have been raised regarding potential stormwater impacts. As a result of the need to install an on-site stormwater management complying the stringent applicable standards, the proposed project will not result in any potentially significant adverse stormwater impacts.

In connection with the Planning Board's evaluation of potential stormwater runoff impacts, it is important to mention that the Engineer's Report to be prepared by our firm will provide calculations that confirm that the storm water management system to be constructed as part of the multifamily project will comply with the applicable stringent stormwater quality and quantity standards of the New York State Department of Environmental Conservation ("NYSDEC") SPDES General Permit for Stormwater Discharges from Construction Activity Permit No. GP-0-20-001 and the Town of Hamburg. The fully engineered plans, Engineer's Report and SWPPP will need to be reviewed and approved by the Camie Jarrell, P.E., of GHD and the Town's Engineering Department in connection with the future Site Plan Application review process prior to the commencement of any on-site construction activities.

The following sections of this letter provide a summary of the manner by which runoff from the impervious surfaces within the project will be handled.

I. Storm Water Design Narrative:

A storm water collection system is proposed for the impervious surfaces including the driveway connection to Big Tree Road, access aisles, parking

spaces and the proposed multifamily buildings and clubhouse. This system will consist of catch basins placed on the Project Site to collect runoff from impervious surfaces. The proposed catch basins will be connected by a series of storm pipes which will convey the runoff to the storm water management areas. The storm water management areas will be designed in accordance with the New York State Department of Environmental Conservation ("NYSDEC") Stormwater Management Design Manual. These areas will provide both water quality and water quantity storage components.

The existing drainage path of the Project Site runoff under existing conditions is generally towards the ditch that crosses the site from east to west. In the developed condition, any developed areas will be conveyed to the storm water management area and ultimately discharge to the existing ditch. This will prevent water from the developed areas of the site from sheet draining offsite. The discharge from the storm water management area will be controlled by our engineered outlet control structures to not exceed the current existing rate of runoff to the existing ditch under all storm events which include the 10 year, 25 year & 100 year storm events.

Detention System:

The proposed storm water management area will consist of bioretention areas followed by dry detention basins which will provide runoff reduction, volume attenuation and water quality treatment. The Concept Plan for the proposed multifamily project prepared by our firm shows the storm water management areas located along the existing ditch on the north and south sides. These locations will maintain the general drainage paths, similar to existing conditions. These storm water management areas will be designed based on the applicable stringent standards to ensure they provide adequate stormwater runoff capacity.

The NYSDEC Stormwater Management Design Manual requires (5) five different criteria be considered when designing a storm water management system. Those criteria are Water Quality, Runoff Reduction Volume, Channel Protection, Overbank Flooding and Extreme Storm Protection. Below is a summary of each item and how it will be incorporated into the proposed multifamily project.

Water Quality:

The NYSDEC requires water quality treatment prior to discharge. The goal of the design will be to achieve 100% of the water quality volume requirement by applying a practice recognized in the design manual, a Standard SMP with Runoff Reduction capacity. Standard SMP's include bioretention which will be incorporated into this project.

Runoff Reduction Volume:

As stated above, the goal is for the total water quality volume for the site to be reduced by the implementation of a Standard SMP used to achieve the Water quality requirement. The design methodology will be based on the NYSDEC Stormwater Management Design Manual five-step process for Stormwater Management Planning as outlined in Chapter 3.

This project will incorporate several Runoff Reduction techniques such as:

- Preservation of natural resources;
- Implementation of riparian buffers; and
- Tree planting

Channel Protection:

The NYSDEC requires that extended detention be provided for the proposed 1-year storm event. The storage volume will be accommodated in the proposed storm water management areas and the outlet will be restricted through the use of an engineered outlet structures designed in accordance with NYSDEC criteria.

Overbank Flooding:

The NYSDEC requires that the 10-year proposed storm event be attenuated with detention and that the outlet be restricted to the 10-year existing storm event. The storage volume will be accommodated in the proposed storm water management areas and the outlet will be restricted through the use of an engineered outlet structures designed in accordance with NYSDEC criteria.
Extreme Storm Protection:

The NYSDEC requires that the 100-year proposed storm event be attenuated with detention and that the outlet be restricted to the 100-year existing storm event. The storage volume will be accommodated in the proposed storm water management areas and the outlet will be restricted through the use of an engineered outlet structures designed in accordance with NYSDEC criteria.

Design Criteria:

Storm pipes: 10-year storm

Detention: Designed to contain the 1-year, 10-year, 25-year, 50-year and the 100-year 24-hour design storms for the post-development peak rates of runoff,

while restricting the outflow rate equal to the 1-year, 10-year, 25-year, 50-year and the 100-year 24-hour design storms for the pre-development peak rates of runoff respectively.

In accordance with Town of Hamburg and NYSDEC requirements a Notice of Intent and Stormwater Pollution Prevention Plan ("SWPPP") will be prepared for the proposed project due to the total disturbance of greater than one (1) acre.

As demonstrated by the above overview, the proposed multifamily development will include storm water management improvements per the applicable stringent standards of both the Town of Hamburg and the NYSDEC. This will ensure that the project will not result in any potentially significant drainage or flooding impacts.

II. Conclusion:

As outlined in detail above, the installation of an on-site stormwater management system complying with the applicable stringent stormwater quality and quantity standards as described above, ensures the proposed multifamily project will not result in any potentially significant adverse drainage impacts.

The fully engineered plans, Engineer's Report and SWPPP will need to be reviewed by the GHD, the Town Engineering Department and involved agencies to confirm compliance with the applicable stormwater quality and quantity standards of the NYSDEC.

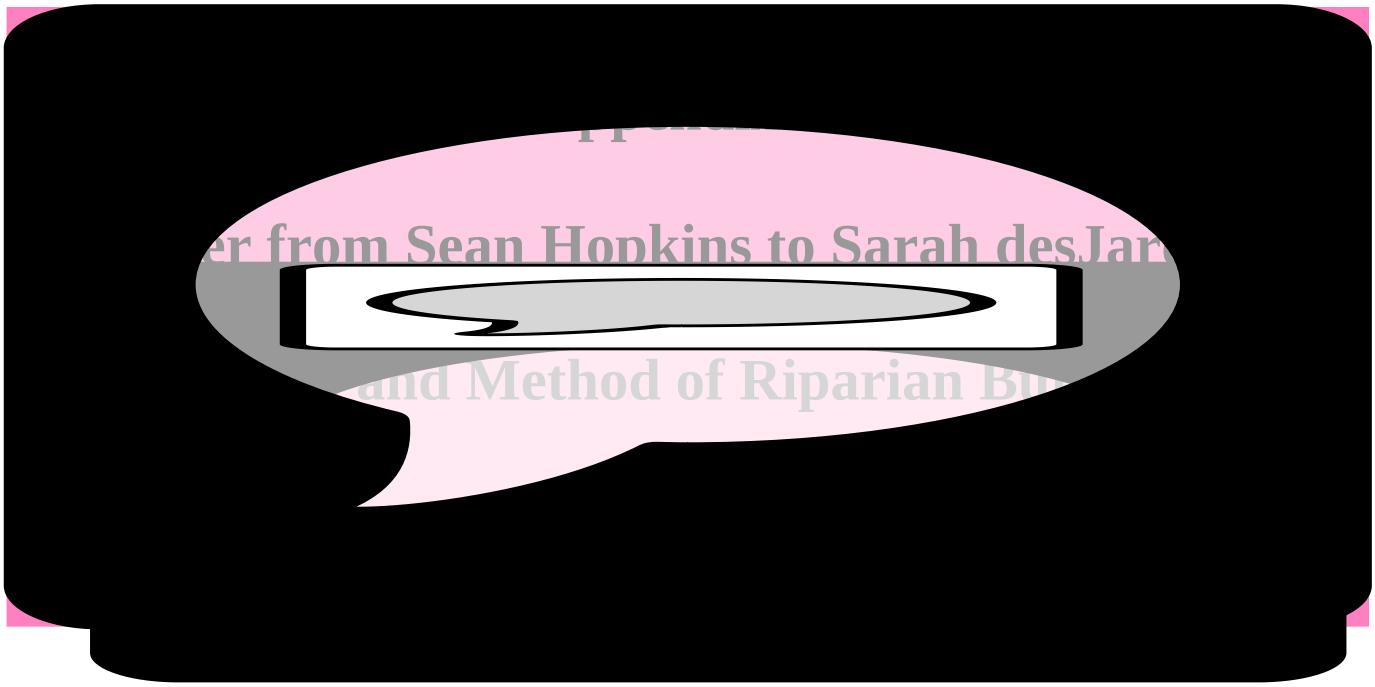
Please contact me at 716-550-3342 with any questions regarding this letter or the proposed multifamily project.

Sincerely,

Carmina Wood Design

R. Christopher Wood, P.E.

Cc: Dan Szewc, Vice Chairman
Dennis Chapman, Secretary
Kaitlin McCormick
William Clark
Margaux Valenti
Kaitlin McGee-Chmura
Joseph Gogan, Planning Board Attorney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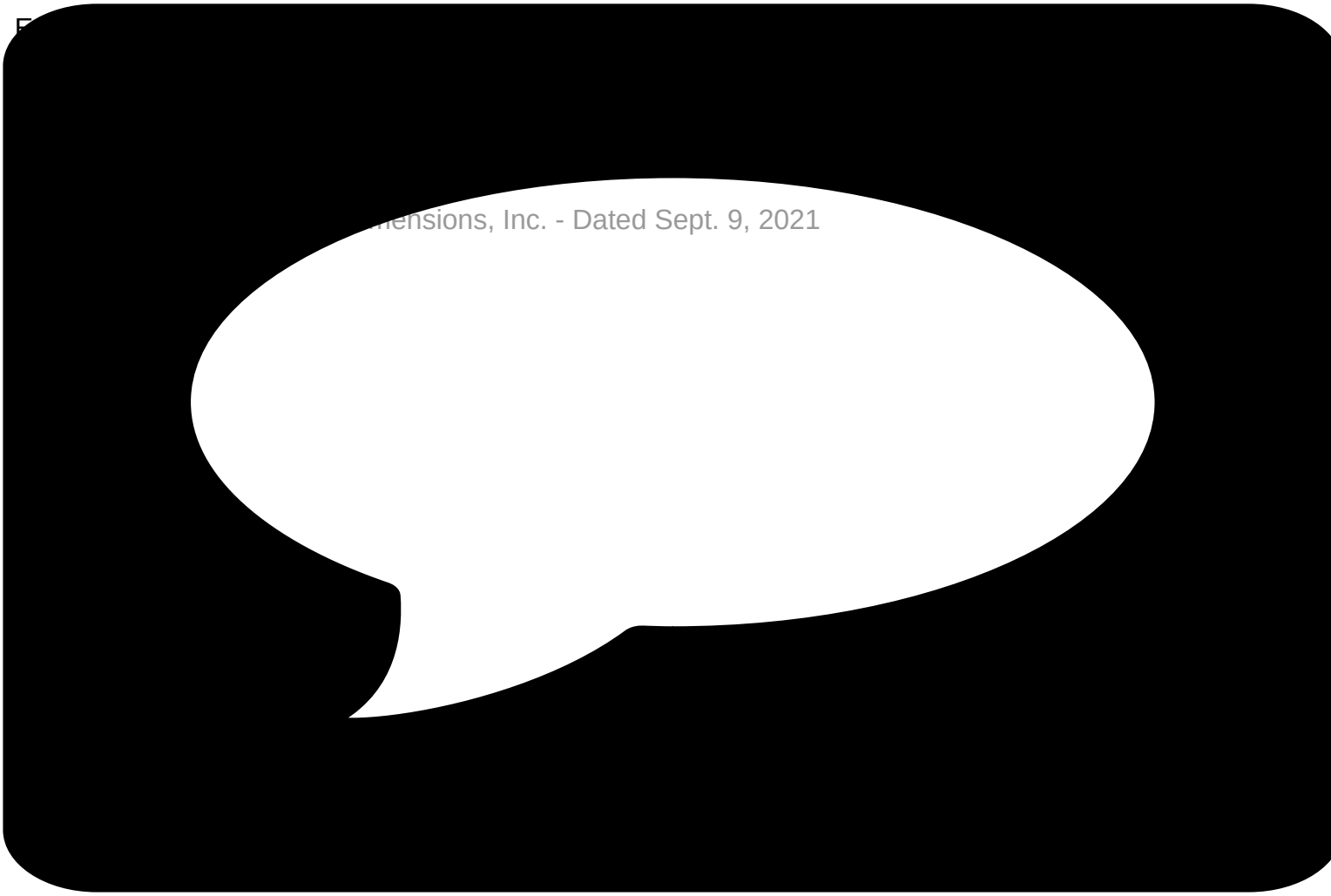

nensions, Inc. - Dated Sept. 9, 2021

HSM

September 9, 2021

Sarah desJardins
Town of Hamburg Planning Department
6100 South Park Avenue
Hamburg, New York 14075

Re: Proposed Wetzl Multifamily Project & Proposed Manko Residential Subdivision
Applicants/Project Sponsors: Wetzl Development, LLC & David Manko
Town of Hamburg Planning Board

Dear Sarah:

This letter is being submitted on behalf of Wetzl Development, LLC and David Manko in connection with the proposed residential projects being reviewed by the Planning Board. During the meeting of the Planning Board held on August 18th, Jody Celeste of Earth Dimensions presented the Riparian Buffer Plan presented by Earth Dimensions, Inc. for the protection of the stream corridor that bisects portions of both project sites.

The Planning Board provided input regarding the Riparian Buffer Plan presented on August 18th including a request that the plan be updated to include the portion of the stream corridor closest to Parker Road that is not part of the Manko subdivision project site and Earth Dimensions, Inc. was also asked to provide an overview of the methodology utilized in preparing the Riparian Buffer Plan.

Attached as Exhibit "1" is an updated version the Riparian Buffer Plan [Drawing RB -100 – Date: 09/09/21] that depicts the riparian buffer being extended to include the portion of the stream closest to Parker Road. The plan has also been updated to reflect that with the exception of a small segment of the stream corridor on the Wetzl project site, the riparian buffer will have a width of 25 ft. on each side of the stream corridor. The stream corridor has an approximate width of 4 ft. A small segment of the riparian buffer on the Wetzl project site will have a width of 10 ft. on each side of the steam corridor as it crosses between two of the proposed multifamily buildings. The planting schedule for the riparian buffer is included on the Riparian Buffer Plan [Drawing RB -100 – Date: 09/09/21] and the proposed plantings consist of a diverse mixture of trees and shrubs selected by Earth Dimensions.

Attached as Exhibit "2" is a narrative prepared by Jody Celeste of Earth Dimension, Inc. providing an overview of the methodology utilized with the respect to the design of the proposed riparian buffer. As set forth in the narrative, the objectives of the proposed riparian buffer are to protect the stream channel, trap sediments, pollutants and runoff, provide shade to the channel and stabilize the soils to prevent erosion.

The Project Sponsors have made a deliberate effort over the course of many months to incorporate input received by the Planning Board into the design of both projects. The implementation of a riparian buffer as depicted on the updated Riparian Buffer Plan ensures the proposed projects will

not result in any adverse environmental impacts to the tributary to Rush Creek that bisects portions of both project sites.

If there are any questions regarding the updated Riparian Buffer Plan or the extensive documentation previously submitted by the Project Sponsors in connection with the coordinated environmental reviews of each of the proposed projects pursuant to the State Environmental Quality Review Act ("SEQRA"), please feel free to contact me at 510-4338 or via e-mail at shopkins@hsmlegal.com.

Sincerely,

HOPKINS SORGI & MCCARTHY PLLC

Sean W. Hopkins, Esq.

cc: William Clark, Chairman
Doug Schawel, Planning Board
Kaitlin McCormick, Planning Board
Al Monaco, Planning Board
Bob Mahoney, Planning Board
Dennis Chapman, Planning Board
Meghan Comerford, Planning Board
Jennifer Puglisi, Esq., Planning Board Attorney
Camie Jarrell, P.E., Project Engineer, GHD
Andrew C. Reilly, PE, AICP, Planning Department
Glenn Wetzl [Via e-mail and mail]
David Manko [Via e-mail and mail]
Jody Celeste, Ecologist, Earth Dimensions, Inc. [Via e-mail]
Christopher Wood, P.E., Carmina Wood Morris DPC [Via e-mail]

Exhibit 1 – Riparian Buffer Plan [Drawing RB-100] as Prepared by Earth Dimensions, Inc. dated September 9, 2021

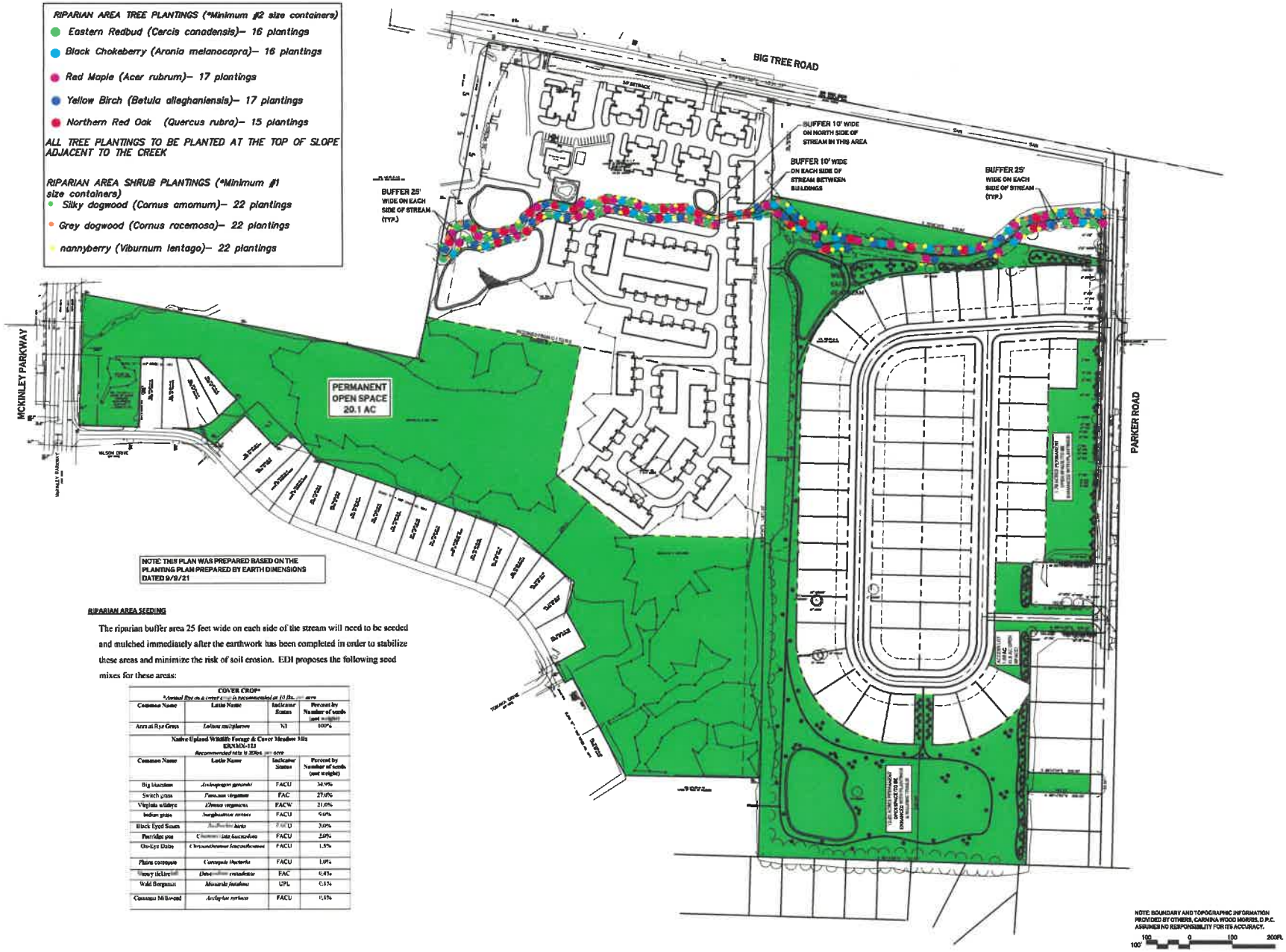
*RIPARIAN AREA TREE PLANTINGS (*Minimum #2 size containers)*

- *Eastern Redbud (Cercis canadensis)– 16 plantings*
- *Black Chokeberry (Aronia melanocarpa)– 16 plantings*
- *Red Maple (Acer rubrum)– 17 plantings*
- *Yellow Birch (Betula alleghaniensis)– 17 plantings*
- *Northern Red Oak (Quercus rubra)– 15 plantings*

ALL TREE PLANTINGS TO BE PLANTED AT THE TOP OF SLOPE ADJACENT TO THE CREEK

*RIPARIAN AREA SHRUB PLANTINGS (*Minimum #1 size containers)*

- *Silky dogwood (Cornus amomum)– 22 plantings*
- *Grey dogwood (Cornus racemosa)– 22 plantings*
- *nannyberry (Viburnum lentago)– 22 plantings*



RIPARIAN AREA SEEDING

The riparian buffer area 25 feet wide on each side of the stream will need to be seeded and mulched immediately after the earthwork has been completed in order to stabilize these areas and minimize the risk of soil erosion. EDI proposes the following seed mixes for these areas:

COVER CROP*

*Annual Rye on a cover crop is recommended at 10 lbs. per acre

Common Name	Latin Name	Indicator Status	Percent by Number of seeds (not weight)
Annual Rye Grass	*Lolium multiflorum*	NI	100%

Native Upland Wildlife Forage & Cover Meadow Mix ERNMX-132

Recommended rate is 30lbs. per acre

Common Name	Latin Name	Indicator Status	Percent by Number of seeds (not weight)
Big bluestem	*Andropogon gerardi*	FACU	34.9%
Switch grass	*Panicum virgatum*	FAC	27.0%
Virginia wildrye	*Elymus virginicus*	FACW	21.0%
Indian grass	*Sorghastrum nutans*	FACU	9.0%
Black Eyed Susan	*Rudbeckia hirta*	FACU	3.0%
Partridge pea	*Chamaecrista fasciculata*	FACU	2.0%
Ox-Eye Daisy	*Chrysanthemum leucanthemum*	FACU	1.5%
Plains coreopsis	*Coreopsis tinctoria*	FACU	1.0%
Showy tickseed	*Desmodium canadense*	FAC	0.4%
Wild Bergamot	*Monarda fistulosa*	UPL	0.1%
Common Milkweed	*Asclepias syriaca*	FACU	0.1%

Carmina Wood Morris DPC
497 Main Street Suite 600
Buffalo, New York 14203
P 716.842.1185
F 716.842.0263

EARTH DIMENSIONS, INC

REVISIONS:
No. Description Date

PROJECT NAME:
New Construction
Residential Developments
Big Tree & Parker Roads
Town of Hamburg, New York

Date: 9/9/21
Drawn by: C. Wood
Scale: AS Noted

DRAWING NAME:
Riperian Buffer Exhibit

DRAWING NO.
RB-100

Project no.: 20.082

Exhibit 2 – Methods of Riparian Buffer Design Narrative as Prepared by Jody M. Celeste, Ecologist, Earth Dimensions, Inc.

EARTH DIMENSIONS, INC.
1091 Jamison Road | Elma, NY 14059
(716) 655-1717 | www.earthdimensions.com

METHOD OF RIPARIAN BUFFER DESIGN

DATED: 09-09-2021

W5D93d -Big Tree Road and Parker Road projects, Town of Hamburg

Earth Dimensions, Inc. (EDI) designed the riparian buffer for the Big Tree and Parker Road developments based on an "Urban Buffer" approach. This is not a documented method however it has been successfully approved and implemented on other projects as part of stream enhancement and mitigation, under the USACE (United States Army Corps of Engineers) and NYSDEC (New York State Department of Environmental Conservation). In addition, two documents by NYSDEC were consulted for the design of this plan. They include: "Riparian Buffers- NYS Dept. if Environmental Conservation" (https://www.dec.ny.gov/docs/lands_forests_pdf/t4tbuffersfs.pdf) and "Stream Buffers- A Tool for Watershed Protection- NYS Dept. if Environmental Conservation" (https://www.dec.ny.gov/chemical/106345.html). Under this design concept, trees and/or shrubs are densely planted along areas of the channel and a buffer is set on each side of the channel that will be seeded with a Native seed mix.

Streams adjacent to development typically are subject to degradation from adjacent land uses. EDI designed the proposed buffer to have three layers of vegetative protection (tree layer, shrub layer and herbaceous layer). In addition, a native wildflower and grass mix will be utilized in the stream buffer. The stream channel is approximately 4 feet wide. A buffer area was implemented demarcating a 25 foot corridor on each side of the stream (wherever possible). The main objectives of this buffer plan are to protect the stream channel, trap sediments, pollutants and runoff, provide shade to the channel and stabilize the soils to prevent erosion. Densely planted trees and shrubs tend to deter human use. The tree and shrub species and seed mix selected are also utilized to increase diversity as well as aesthetic appeal to adjacent neighbors. The intent is that the buffer area is not to be mowed to allow the trees, shrubs and herbaceous layer to flourish.

Appendix E

Wetland Delineation Report
Prepared by Earth Dimensions Inc

REPORT SUMMARIZING
THE RESULTS OF
A WETLAND DELINEATION SURVEY OF

0 Big Tree Road & 0 Wilson Drive

Prepared for Submission to:

U.S. ARMY CORPS OF ENGINEERS
1776 NIAGARA STREET
BUFFALO, NEW YORK 14207

Prepared By:

EARTH DIMENSIONS, INC.
1091 JAMISON ROAD
ELMA, NEW YORK 14059

Prepared For:

GLENN WETZL
7071 LIEBLER ROAD
COLDEN, NEW YORK 14033

REPORT DATE: June 11, 2020

EDI PROJECT CODE: W5D93c

PROJECT INFORMATION

Project Name	0 Big Tree Road & 0 Wilson Drive
Street Address	0 Big Tree Road & 0 Wilson Drive
SBL Numbers	160.19-2-1.1 & 171.07-1-1
Town	Hamburg
County	Erie
State	New York
Latitude/Longitude (NAD83)	42.76688°N, 78.80592°W
Investigation Area	42.52± Acres
USGS 7.5 Minute Topographical Map	Buffalo SE Quadrangle
Waterway	Rush Creek
Hydrologic Unit Code	04120103
Date of Delineation	March 30, 2020
Consultant	Earth Dimensions, Inc. 1091 Jamison Road Elma, New York 14095
Point of Contact	Scott Livingstone (716)655-1717 slivingstone@earthdimensions.com
Engineer	Carmina Wood Morris
Property Owner	Seven Corners Development
Authority	Section 404
Permit/Letter Being Requested	Jurisdictional Determination

TABLE OF CONTENTS

EXECUTIVE SUMMARY

Glenn Wetzl has proposed the development of a 42.52± acre project located along the south side of Big Tree Road in the Town of Hamburg, County of Erie, and State of New York. Glenn Wetzl has retained Earth Dimensions, Inc. (EDI) to complete a wetland delineation report that would allow the U.S. Army Corps of Engineers (USACE) and New York State Department of Environmental Conservation (NYSDEC) to determine their jurisdictional authority over the investigation area, pursuant to Section 404 of the Clean Water Act and Articles 15 (Protection of Waters) and 24 (Freshwater Wetlands) of the New York State Environmental Conservation Law.

A preliminary review of available information pertaining to vegetation, soils, and hydrology in the project area was implemented prior to conducting a field investigation at the site. Sources of information included the United States Geological Survey (USGS), Natural Resources Conservation Service (NRCS), National Wetland Inventory (NWI), and NYSDEC Freshwater Wetland maps. The USGS, NRCS and NWI maps indicate the potential for wetlands under federal jurisdiction.

EDI applied methodology specified by the Corps of Engineers Wetlands Delineation Manual (January 1987) and Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region Version 2.0 (January 2012) to perform a delineation of Federal jurisdictional wetlands within the site. EDI identified four (4) wetland areas totaling 11.03± acres within the investigation area. Rush Creek flows through the northern portion of the investigation area. The identification number of the wetlands, their acreage and boundary flags are as follows:

TABLE 1: WETLAND SUMMARY

Wetland Identification #	Geographic Center (NAD83)		Boundary Flag #	Total Acreage On-site	Wetland Type (Cowardin)	Wetland Type (Reschke)	Jurisdictional Determination
	Latitude	Longitude					
Wetland 1	42.76637	78.80715	W1-1 through W1-90	7.51±	PFO1B	Hardwood Swamp	Jurisdictional
Wetland 2	42.76675	78.81092	W2-1 through W2-11	0.11±	PSS1B	Scrub-shrub	Non-jurisdictional
Wetland 3	42.76597	78.80536	W3-1 through W3-10	0.15±	PSS1B	Scrub-shrub	Non-Jurisdictional
Wetland 4	42.76530	78.80498	W4-1 through W4-102	3.26±	PFO1B	Hardwood Swamp	Jurisdictional
Total Wetland Acreage:				11.01±			

TABLE 2: STREAM & DRAINAGE SUMMARY

Stream Identification #	Waterway	DEC Class	Linear Feet On-site	Highwater Width (Ft)	Flow Regime	Substrate	Classification (Cowardin)	Jurisdictional Determination
Stream 1	Rush Creek	C	1153 feet	4 feet	Perennial	Gravel & Cobble	R4SB6	Jurisdictional

SECTION I: INTRODUCTION

Glenn Wetzl has proposed the development of a 42.52± acre project on the south side of Big Tree Road in the Town of Hamburg, County of Erie, and State of New York. The project has been given the name 0 Big Tree Road & 0 Wilson Drive and is located on USGS 7.5 minute quadrangle map indexed as Buffalo SE/2002 DeLorme (Figure 1). The field work was completed on March 30, 2020 using a Trimble Geo 7X GPS to locate wetland and drainage boundaries.

Glenn Wetzl has retained Earth Dimensions, Inc. (EDI) to complete a wetland delineation study at this site. The investigation was designed to facilitate a determination of the extent of USACE and NYSDEC jurisdiction over the project area pursuant to Section 404 of the Clean Water Act and Articles 15 (Protection of Waters) and 24 (Freshwater Wetlands) of the New York State Environmental Conservation Law.

EDI has performed a wetland delineation study at the site under guidelines specified by the *Corps of Engineers Wetlands Delineation Manual*, dated January 1987 (referred to hereafter as the Corps Manual) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region version 2.0* (January 2012) (referred to hereafter as the Northcentral and Northeast Regional Supplement). The purpose of this report is to present EDI's methods, results, conclusions and recommendations with respect to the 0 Big Tree Road & 0 Wilson Drive project site.

SECTION II: SITE DESCRIPTION

The 0 Big Tree Road & 0 Wilson Drive project area is comprised of a 42.52± acre irregular shaped investigation area on the south side of Big Tree Road, east of McKinley Parkway and north of Wilson Drive, and is outlined on Figure 1 and depicted on the Wetland Delineation Map included in Appendix A (Figure 6). The investigation area includes two (2) parcels.

The natural topography of the 0 Big Tree Road & 0 Wilson Drive site is flat to gently sloping. The upland within the investigation area consisted of successional shrubland, pine-hardwood forest and successional northern hardwood communities. The wetland areas were found to consist of scrub-shrub swamp and hardwood swamp communities. The vegetative communities of the investigation area are described according to *Ecological Communities of New York State* (Edinger et al. 2014).

SECTION III: PRELIMINARY DATA REVIEW

A. SUMMARY OF FINDINGS

Several sources of information may be reviewed to facilitate the completion of a wetland delineation study. In some cases it is even possible to make a preliminary office wetland determination based upon available vegetation, soils, and hydrologic information for a project area. EDI completed a preliminary review of several data sources at the onset of this study. The results of the review are summarized as follows:

1. USGS 7.5 MINUTE TOPOGRAPHICAL MAP

Figure 1 depicts the 0 Big Tree Road & 0 Wilson Drive project site on the Buffalo SE/2002 DeLorme quadrangle map. The figure depicts the flat to gently sloping topography of the site. Rush Creek flows westward through the northern portion of the investigation area.

2. USFWS NATIONAL WETLANDS INVENTORY MAP

The National Wetlands Inventory (NWI) map obtained from the USFWS Wetland Mapper http://www.fws.gov/wetlands/Data/Mapper.html displays four (4) wetland types, PEM1E, PFO1B, PFO1C and R4SBC within the investigation area. The wetlands can be decoded as:

[P] Palustrine, [EM] Emergent, [1] Persistent, [E] Seasonally flooded/saturated

[P] Palustrine, [FO] Forested, [1] Broad leaved-deciduous, [B] Saturated

[P] Palustrine, [FO] Forested, [1] Broad leaved-deciduous, [C] Seasonally flooded

[R] Riverine, [4] Intermittent, [SB] Streambed, [C] Seasonally flooded

3. NATURAL RESOURCES CONSERVATION SERVICE SOILS MAP

Figure 3 presents the project area outlined on a copy of the Erie County Soil Survey map from the National Cooperative Soil Survey. As shown on that figure, the site has the following soil types:

Soil Conservation Service Legend

Map Unit Symbol	Map Unit Name	Hydric Soil/Inclusions?
Cc	Canandaigua silt loam	Hydric Soil
CtB	Collamer silt loam, till substratum, 3 to 8% slopes	Inclusions Unlikely
DbA	Darien silt loam, 0 to 3% slopes	Inclusions Possible

DdB	Darien silt loam, 3 to 8% slopes	Inclusions Possible
Fu	Fluvaquents and Udifluvents, frequently flooded	Hydric Soil
Nh	Niagara silt loam, till substratum	Inclusions Possible
Wd	Wayland soils complex, 0 to 3% slopes, frequently flooded	Hydric Soil

Canandaigua Series: The Canandaigua series consists of very deep, poorly and very poorly drained soils formed in silty glacio-lacustrine sediments. These soils are on lowland lake plains and in depressional areas on glaciated uplands. Slope ranges from 0 to 3 percent. Mean annual temperature is 49°F and mean annual precipitation is 39 inches.

Collamer Series: The Collamer series consists of very deep, moderately well drained soils formed in silty glacio-lacustrine sediments. They are on lake plains and till plains that have a thick mantle of lake sediments. Slope ranges from 0 to 25 percent. Mean annual precipitation is about 94 cm and mean annual air temperature is about 9°C.

Darien Series: The Darien series consists of very deep, somewhat poorly drained soils formed in Wisconsinan age till on till plains, drumlins, and moraines. Permeability is moderately slow in the subsoil and slow in the substratum. Slope ranges from 0 to 25 percent. Mean annual temperature is about 49°F and mean annual precipitation is about 36 inches.

Fluvaquents & Udifluvents: These are nearly level to gently sloping, poorly drained to well drained soils that formed in recent stream deposits. These soils consist mainly of silty, sandy, or loamy alluvial sediments and varying amount of small stone fragments. They are subject to frequent flooding.

Niagara Series: The Niagara series consists of very deep, somewhat poorly drained soils formed in silty glacio-lacustrine deposits. These soils are in level to slightly concave areas on lake plains and in valleys. Slope ranges from 0 to 15 percent. The mean annual air temperature is 48°F and mean annual precipitation is 37 inches.

Wayland Series: The Wayland series consists of very deep, poorly drained and very poorly drained, nearly level soils formed in recent alluvium. These soils are in low areas or slackwater areas on flood plains. Saturated hydraulic conductivity is moderately high or high in the mineral soil. Slope ranges

from 0 through 3 percent. Mean annual temperature is about 46°F and mean annual precipitation is about 42.5 inches.

The U.S. Department of Agriculture's National Technical Committee for Hydric Soils Criteria has developed a list of soils that often display hydric soil characteristics. Hydric soil typically forms in places of the landscape where surface water periodically collects for some time and/or where groundwater discharges sufficient to create waterlogged or anaerobic soils. Such anaerobic soils can support the growth and survival of hydrophytic vegetation that is tolerant of such conditions. Canandaigua, Wayland and Fluvaquents & Udifluvents are hydric soils and therefore may support wetland vegetation. Wetland hydrologic conditions, hydric soils, and hydrophytic vegetation are the three criteria of a wetland.

4. NYSDEC Freshwater Wetlands Map

The NYSDEC Freshwater Wetlands map obtained from the online NYSDEC Environmental Resource Mapper displays no state jurisdictional Freshwater Wetlands within or adjacent to the investigation area. Rush Creek, a Class C stream, is depicted within the investigation area.

B. RESULTS OF AGENCY INFORMATION REVIEW

The preliminary data review revealed that the Corps may have jurisdiction over wetlands at the project location. The evidence consisted of potential federally regulated wetlands on the NWI map (Figure 2) and hydric soils and soils with possible inclusions depicted within the project area as shown on the NRCS map (Figure 3). Therefore, it was considered necessary to perform a field investigation at the site in order to confirm the presence of federal and state protected wetlands. The methods specified in the Corps of Engineers Wetlands Delineation Manual (January 1987) and Northcentral and Northeast Regional Supplement Version 2.0 (January 2012) were employed during the field investigation. Procedures, results, and conclusions of the wetland delineation study are presented in the remainder of this report.

SECTION IV: FIELD INVESTIGATION PROCEDURES

WETLANDS:

Step 1

EDI applied methodology specified by the 1987 Corps of Engineers Wetlands Delineation Manual and Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region to perform a delineation of Federal jurisdictional wetlands within the site. EDI used the Level 2 Routine Determination method (on-site inspection necessary) since insufficient information was available for making a determination for the entire project area. This methodology is consistent with Part IV, Section D of the Corps Manual.

Step 2

EDI's initial evaluation of the project area revealed that no atypical situations existed. If an atypical situation had existed, EDI would have used methodology outlined in Part IV, Section F of the Corps manual and/or Section 5 of the Northcentral and Northeast Supplement.

Step 3

EDI made the determination that normal environmental conditions were present, as the area was not lacking hydrophytic vegetation or hydrologic indicators due to annual, seasonal or long-term fluctuations in precipitation, surface water, or groundwater levels. The Northcentral and Northeast Supplement defines the growing season as beginning when one of the following indicators of biological activity are evident in a given year: (1) above-ground growth and development of vascular plants and/or (2) soil temperature measured at 12" below ground surface reaches 41°F. The end of the growing season is defined as the point at which deciduous species lose their leaves or the last herbaceous plants cease flowering and their leaves become dry or brown, whichever comes latest.

Step 4

In order to accurately identify the limits of various vegetative communities and extent of wetlands on-site, a routine determination method was used. As depicted in Appendix A and included in Appendix B, ten (10) data points were used to characterize the site.

Step 5

The plant community inhabiting each observation point was characterized in accordance with methods specified in the Northcentral and Northeast Regional Supplement. Dominant plant species were identified within four vegetative strata (i.e. herb, sapling/shrub, tree and liana (woody vines) at each sampling point. The Northcentral and Northeast Regional Supplement defines the vegetative strata in the following manner:

Herb – A non-woody individual of a macrophytic species. Seedlings of woody plants (including vines) that are less than 3.28 feet in height are considered to be herbs.

Sapling/Shrub – A layer of vegetation composed of woody plants < 3.0 inches in diameter at breast height but greater than 3.28 feet in height, exclusive of woody vines.

Tree – A woody plant > 3.0 inches in diameter at breast height, regardless of height (exclusive of woody vines)

Liana – A layer of vegetation in forested plant communities that consist of woody vines greater than 3.28 feet in height.

As outlined in the manual, the quadrant sizes used for the vegetative strata were (i) a 3.28-foot radius for herbs; (ii) a ten-foot radius for saplings/shrubs and woody vines; and (iii) a 30-foot radius for trees. Dominant plant species were estimated using aerial coverage methods. Dominant species are defined in the Corps Manual as the most abundant plant species that when ranked in descending order of abundance and cumulatively totaled immediately exceed 50 percent of the total dominance measure for the stratum, plus any additional species comprising 20 percent or more of the total dominance measure.

The wetland indicator status (OBL, FACW, FAC, FACU, or UPL) listed for each identified species by the U.S. Fish and Wildlife Service in the National List of Plant Species that Occur in Wetlands: Northeast (Region 1) was recorded. The U.S. Fish and Wildlife wetland indicator status listings are defined as follows:

OBL – Plants that occur almost always (estimated probability >99 percent) in wetlands under natural conditions, but which may also occur rarely (estimated probability < 1 percent) in nonwetlands.

FACW – Plants that occur usually (estimated probability >67 percent to 99 percent) in wetlands, but also occur (estimated probability 1 percent to 33 percent) in nonwetlands.

FAC – Plants with a similar likelihood (estimated probability 33 percent to 67 percent) of occurring in both wetlands and nonwetlands.

FACU – Plants that occur sometimes (estimated probability 1 percent to <33 percent) in wetlands, but occur more often (estimated probability >67 percent to 99 percent) in nonwetlands.

UPL – Plants that occur rarely (estimated probability < 1 percent) in wetlands, but occur almost always (estimated probability >99 percent) in nonwetlands under natural conditions.

The plant community data was summarized on the data forms provided in the Northcentral and Northeast Regional Supplement included in this report as Appendix B.

Step 6

Plant data from each observation point were tested against the hydrophytic vegetation criterion specified in the Corps Manual and Northcentral and Northeast Regional Supplement. The Northcentral and Northeast Regional Supplement identifies a four-tiered approach for making a determination of whether or not the hydrophytic vegetation criteria is met for a sample plot. Indicator 1 (Rapid Test for Hydrophytic Vegetation) was first applied to determine if all dominant species across all strata are rated OBL and/or FACW. If Indicator 1 did not meet the hydrophytic vegetation criteria, Indicator 2 was then applied (dominance test); if greater than 50% of all plant species across all strata were rated OBL, FACW, or FAC, the hydrophytic vegetation criteria was considered met. In rare cases, when Indicators 1 and 2 did not meet the hydrophytic vegetation criteria but soils and hydrology criteria were met, Indicators 3 (Prevalence Index) and 4 (Morphological Adaptations) were used to make a final determination. All observation points that met the hydrophytic vegetation criterion were considered potential wetlands. Soils were then characterized.

Step 7

The Corps Manual specifies that soils need not be characterized (and are assumed hydric soils) at sampling points meeting the hydrophytic vegetation criterion if: (i) all dominant plant species have an indicator status of OBL, or (ii) all dominant species have an indicator status of OBL and/or FACW, and the wetland boundary is abrupt (at least one dominant OBL species must be present). All observation points sampled during this field investigation were examined directly for soil and hydrologic characteristics.

Step 8

At observation points requiring a soil evaluation, soil borings were performed by an EDI Soil Scientist using methods specified in the Northcentral and Northeast Regional Supplement. Soil pits were dug using a tile spade. Testpits were generally dug to a depth of 20 inches below ground surface. Soils were examined for any of the hydric soil indicators, as outlined in the Field Indicators of Hydric Soils in the United States. A determination was made as to whether or not the hydric soil criterion was met. Soils data was recorded on the data forms included in Appendix B of this report.

Step 9

EDI's Soil Scientist examined hydrologic indicators using methods specified by the Northcentral and Northeast Regional Supplement at each observation point. The wetland hydrology criterion was met if: (i) one or more primary field indicators was materially present, (ii) available hydrologic records provided necessary evidence, or (iii) two or more secondary indicators were present. Results were recorded on data forms taken from the Corps Manual and are included in this report as Appendix B.

Step 10

A wetland determination was made for every observation point. If a sample plot met the hydrophytic vegetation, hydric soil, and wetland hydrology criteria, the area was considered to be wetland.

Step 11

Based on the results of the transected data, wetland boundaries were established for each identified wetland using survey ribbon labeled "wetland delineation" and numbered consecutively along each wetland boundary. As outlined in the Corps Manual, the placement of flags was based on the limits of areas where all three parameters were met. Wetland flags were labeled W1-1 through W1-90, W2-1 through W2-11, W3-1 through W3-10 and W4-1 through W4-102.

STREAMS & DRAINAGES:

The federally regulated Ordinary High Water (OHW) mark of streams within the Project area were delineated utilizing the definitional criteria as presented in Title 33, Code of Federal Regulations, Part 328, and the USACE Regulatory Guidance Letter 05-05 – Guidance on Ordinary

High Water Mark Identification. Each stream is categorized in regard to its flow regime as perennial, intermittent, or ephemeral, as defined by the USACE. The Ordinary High Water (OHW) mark for each stream is surveyed using the Trimble Geo 7X GPS. Each stream is assigned a letter designation, and survey points are numbered consecutively. Substrate characteristics and water depth are noted. Streams classified as AA, A, B, C, C(t), C(ts) and D in the State of New York are regulated by NYSDEC under Article 15 Use and Protection of Waters. Streams are given classifications which designate the level of protection afforded to each waterbody. Class AA and A are assigned to sources of drinking water. Class B streams are best suited for swimming and other contact recreation, but not drinking water. Class C streams identify waters that support fishing and non-contact activities. A classification with (t) designated a stream with the potential to support trout populations. A classification of (ts) identifies waters that may support trout spawning. Class D waters are the lowest classification, and are often highly imperiled.

SECTION V: RESULTS AND CONCLUSIONS

Earth Dimensions, Inc. (EDI) has completed a wetland delineation study at the 0 Big Tree Road & 0 Wilson Drive site located in the Town of Hamburg, County of Erie, and State of New York. A field investigation was conducted by a Soil Scientist and a Wetland Ecologist from EDI. The wetland delineation study identified four (4) wetlands totaling 11.01± acres present within the 0 Big Tree Road & 0 Wilson Drive site. In addition, a 1153 foot portion of Rush Creek, a Class C stream, was identified. No waterbodies were identified within the investigation area.

Figure 5 depicts the vegetative communities as they existed at the time of the investigation. The uplands within the investigation area were comprised of successional shrubland, pine-hardwood forest and successional northern hardwood communities. The wetland areas were found to consist of scrub-shrub swamp and hardwood swamp communities. The vegetative communities of the investigation area are described according to Ecological Communities of New York State (Edinger et al. 2014).

The successional shrubland community was dominated by the following species: red pine (*Pinus resinosa*), tatarian honeysuckle (*Lonicera tatarica*), white ash (*Fraxinus americana*), gray dogwood (*Cornus racemosa*) and summer grape (*Vitis aestivalis*).

The pine-hardwoods community was dominated by the following species: red pine (*Pinus resinosa*), white ash (*Fraxinus americana*), cockspur hawthorn (*Crataegus crus-galli*), tatarian honeysuckle (*Lonicera tatarica*) and summer grape (*Vitis aestivalis*).

The successional northern hardwood community was dominated by the following species: black cherry (*Prunus serotina*), shagbark hickory (*Carya ovata*), red pine (*Pinus resinosa*), white ash (*Fraxinus americana*), common serviceberry (*Amelanchier arborea*), red maple (*Acer rubrum*), tatarian honeysuckle (*Lonicera tatarica*), eastern hophornbeam (*Ostrya virginiana*), garlic mustard (*Alliaria petiolata*), Virginia strawberry (*Fragaria virginiana*), eastern woodland sedge (*Carex blanda*) and summer grape (*Vitis aestivalis*).

Wetland W1 is a 7.51± acre hardwood swamp dominated by red maple (*Acer rubrum*), silver maple (*Acer saccharinum*), silky dogwood (*Cornus amomum*), green ash (*Fraxinus pennsylvanica*), creeping bentgrass (*Agrostis stolonifera*) and summer grape (*Vitis aestivalis*). Soils within wetland W1 are mapped as Collamer silt loam and had a topsoil color of 10YR4/1 with 10% 10YR5/8 mottles and a subsoil color of 10YR5/1 with 20% 10YR5/6-5/8 mottles. The texture is silt loam. This soil fits the NRCS F3 indicator (Depleted Matrix). Hydrology indicators present in Wetland W1 included surface water (A1), high water table (A2), saturation (A3) and Water-Stained Leaves (B9). It is EDI's professional opinion that Wetland W1 is Federally jurisdictional under Section 404 due to apparent connectivity to Rush Creek.

Wetland W2 is a 0.11± acre scrub-shrub swamp dominated by eastern cottonwood (*Populus deltoides*), red maple (*Acer rubrum*), silky dogwood (*Cornus amomum*), purple loosestrife (*Lythrum salicaria*) and common rush (*Juncus effusus*). Soils within wetland W2 are mapped as Fluvaquents & Udifluvents and had a topsoil color of 10YR4/2 with 10% 10YR5/8 mottles and a subsoil color of 10YR5/1 with 10% 10YR5/8 mottles. The texture is silt loam and silty clay loam. This soil fits the NRCS F3 indicator (Depleted Matrix). Hydrology indicators present in Wetland W2 included surface water (A1), high water table (A2), saturation (A3) and Water-Stained Leaves (B9). It is EDI's professional opinion that Wetland W2 has no apparent connection to Rush Creek and is non-jurisdictional under Section 404.

Wetland W3 is a 0.15± acre scrub-shrub swamp dominated by green ash (*Fraxinus pennsylvanica*), silky dogwood (*Cornus amomum*), sensitive fern (*Onoclea sensibilis*) and woolgrass (*Scirpus cyperinus*). Soils within wetland W3 are mapped as Niagara silt loam and had a topsoil color of 10YR4/1 with 3% 10YR5/8 mottles and a subsoil color of 2.5Y5/1 with 7% 2.5Y5/8 mottles. The texture is silt loam. This soil fits the NRCS F3 indicator (Depleted Matrix). Hydrology indicators present in Wetland W3 included high water table (A2) and saturation (A3). It is EDI's professional opinion that Wetland W3 has no apparent connection to Rush Creek and is non-jurisdictional under Section 404.

Wetland W4 is a 3.26± acre hardwood swamp dominated by shagbark hickory (*Carya ovata*), silver maple (*Acer saccharinum*), pin oak (*Quercus palustris*), gray dogwood (*Cornus racemosa*), reed canarygrass (*Phalaris arundinacea*), upright sedge (*Carex stricta*) and fowl mannagrass (*Glyceria striata*). Soils within wetland W4 are mapped as Niagara silt loam and had a topsoil color of 2.5Y4/1

with 5% 2.5Y5/8 mottles and a subsoil color of 2.5Y5/1 with 30% 2.5Y5/8 mottles. The texture is silt loam and silty clay loam. This soil fits the NRCS F3 indicator (Depleted Matrix). Hydrology indicators present in Wetland W4 included high water table (A2), saturation (A3) and Water-Stained Leaves (B9). It is EDI's professional opinion that Wetland W4 is Federally jurisdictional under Section 404 due to apparent connectivity to Rush Creek.

Stream 1 is identified as Rush Creek and flows westerly through the northern portion of the site. This perennial channel is identified as a Class C stream by NYSDEC standards. The substrate consists of cobble and gravel, with dense woody vegetation along the banks. Within the project area, Stream 1 is approximately 4 feet wide with an average water depth of 18 inches.

A map which depicts the site boundaries and the location of all observation points established during the field survey is included as Figure 6 in Appendix A of this report. Data forms are included as Appendix B. Appendix C includes representative photographs of the project area. Appendix D notes the references used during the preparation of this report and during the field investigation. Appendix E provides the names, addresses and phone numbers of the survey personnel involved in the wetland delineation study.

SECTION VI: RECOMMENDATIONS

Four (4) wetland areas and one (1) stream were identified during the course of a field investigation based upon the three parameter technique (vegetation, soils, and hydrology) outlined in the Corps Manual and Northcentral and Northeast Regional Supplement. It is EDI's professional opinion that wetland W1 and W4 and Rush Creek are regulated by the USACE under Section 404 of the Clean Water Act. It is also EDI's professional opinion that wetlands W2 and W3 have no apparent connection to a traditionally navigable water and are therefore non-jurisdictional under Section 404. USACE approaches their regulatory analyses by first considering avoidance of wetlands and minimization of wetland losses. EDI recommends the following:

(1) Submit this report to USACE with a request for a wetland boundary confirmation and jurisdictional determination.

(2) If no impacts are proposed to federally regulated wetlands or Rush Creek based on the outcome of the jurisdictional determination, it is the professional opinion of EDI that the project may proceed without the need for a Section 404 Permit.

(3) If any federally jurisdictional wetland or stream impacts are proposed, it is EDI's recommendation that a Joint Application for Permit and supporting documentation be submitted to the USACE and NYSDEC with a request for a Section 404 Permit and Section 401 Water Quality Certification.

0 Big Tree Road & 0 Wilson Drive

Appendix A - Figures

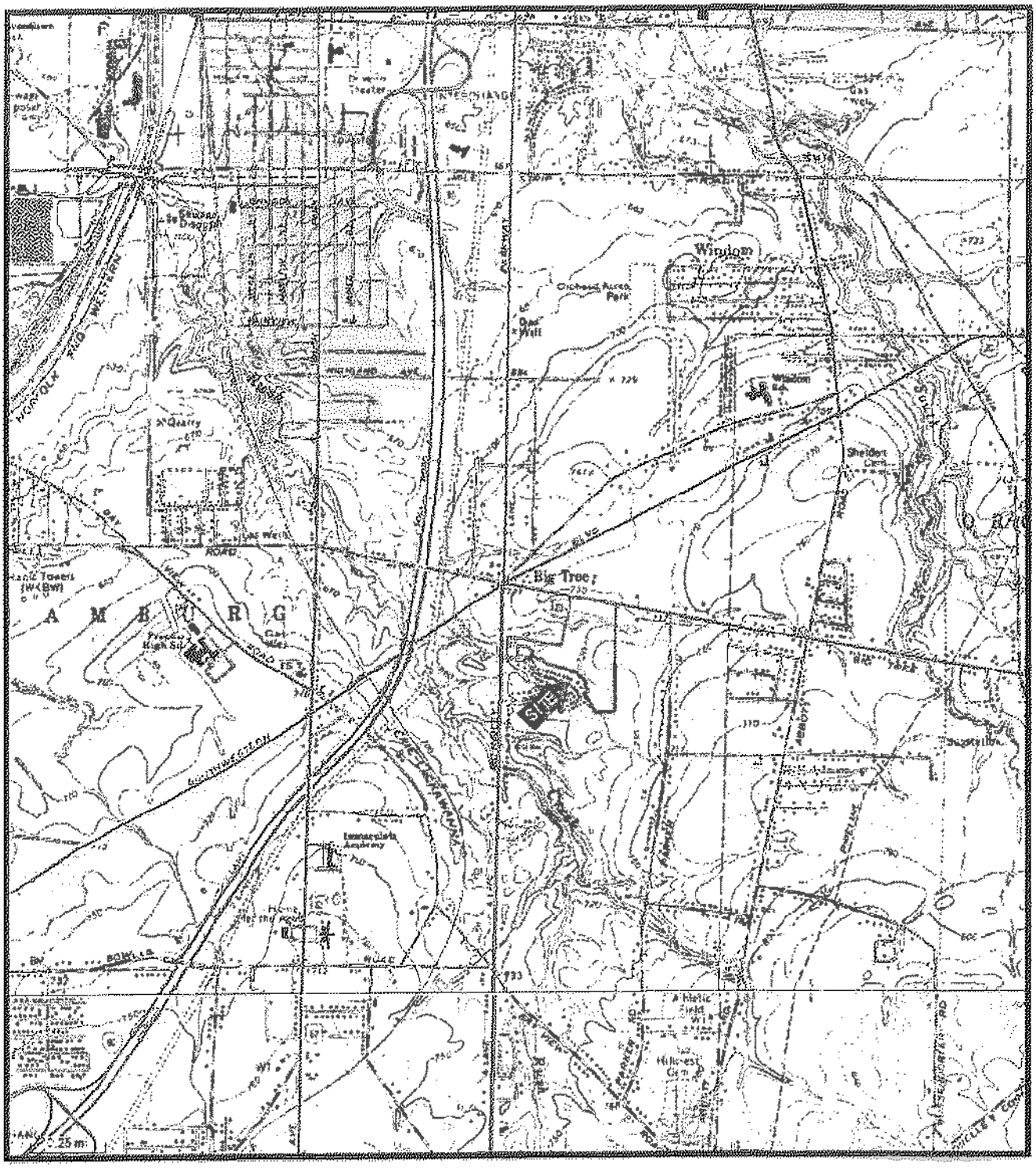


FIGURE 1: USGS 7.5 MINUTE TOPOGRAPHICAL MAP

Buffalo SE Quadrangle / 2002 DeLorme

0 Big Tree Road & 0 Wilson Drive

Town of Hamburg, Erie County, New York

FIGURE 2: NATIONAL WETLANDS INVENTORY MAP

http://www.fws.gov/wetlands/data/mapper.HTML (Visited 4/1/2020)

0 Big Tree Road & 0 Wilson Drive

Town of Hamburg, Erie County, New York

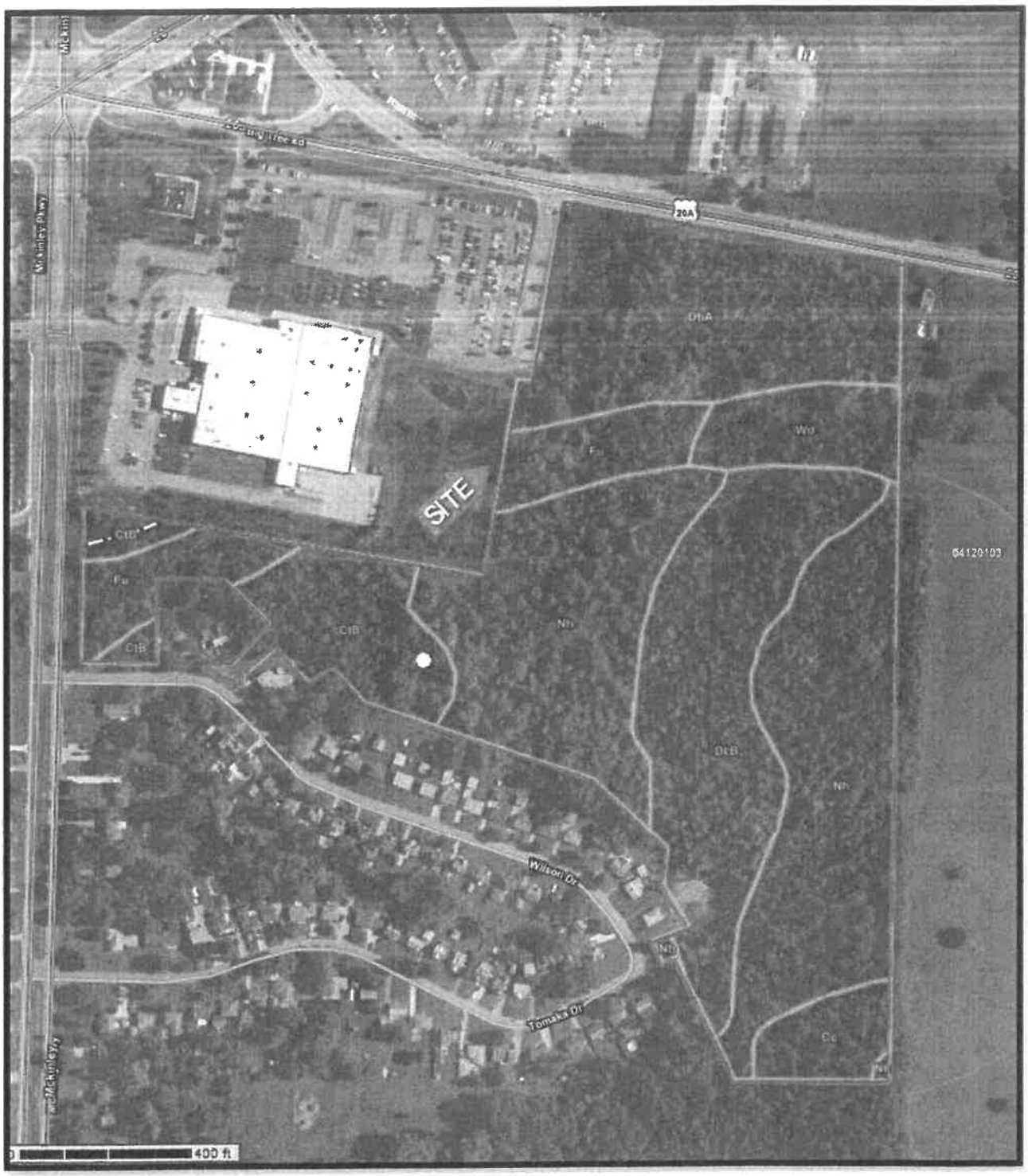


FIGURE 3: NRCS ERIE COUNTY SOIL SURVEY MAP

http://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx (Visited 4/1/2020)

0 Big Tree Road & 0 Wilson Drive

Town of Hamburg, Erie County, New York

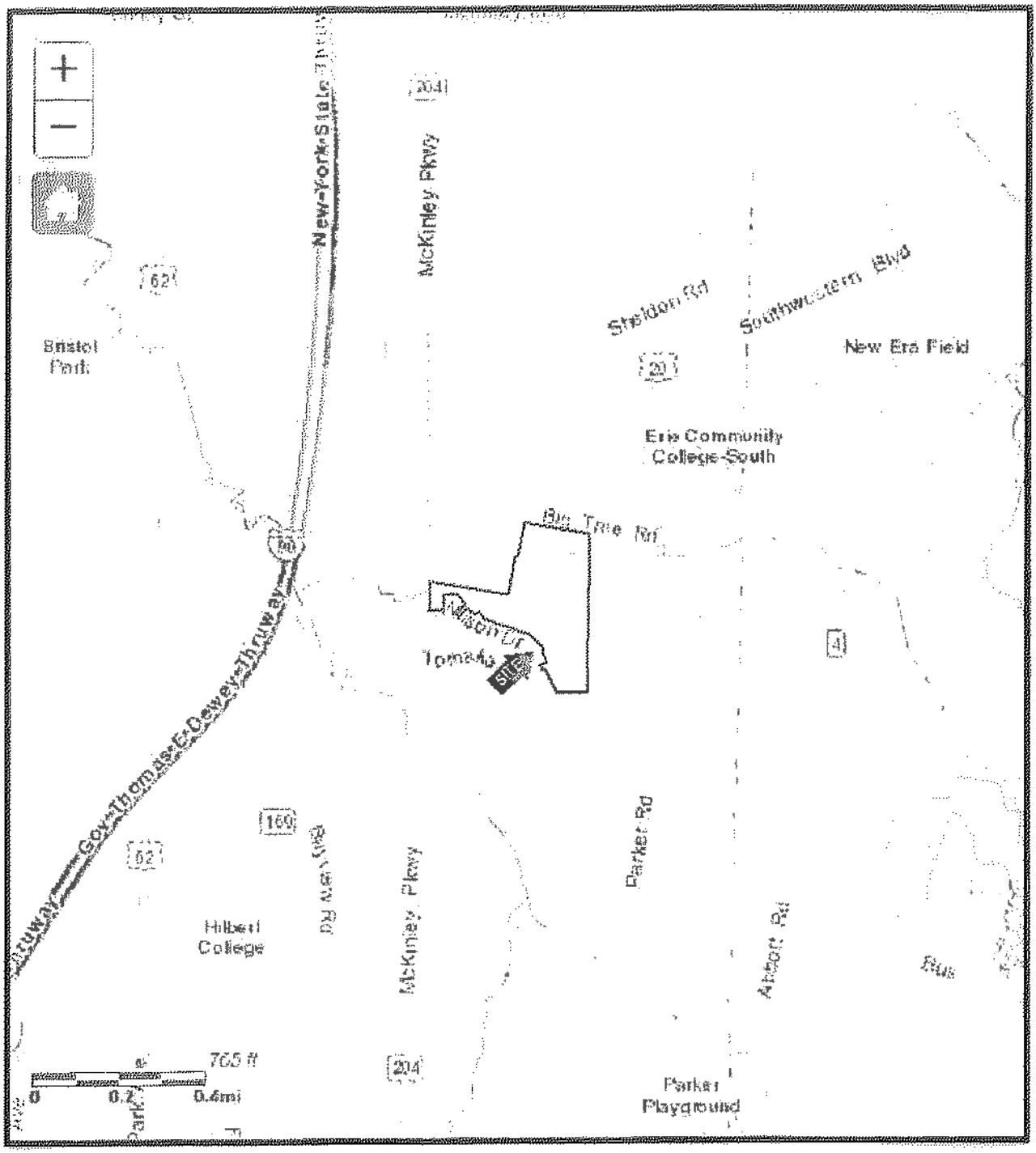


FIGURE 4: NYSDEC ENVIRONMENTAL RESOURCE MAPPER

http://www.dec.ny.gov/imsmaps/ERM/viewer.htm (Visited 4/1/2020)

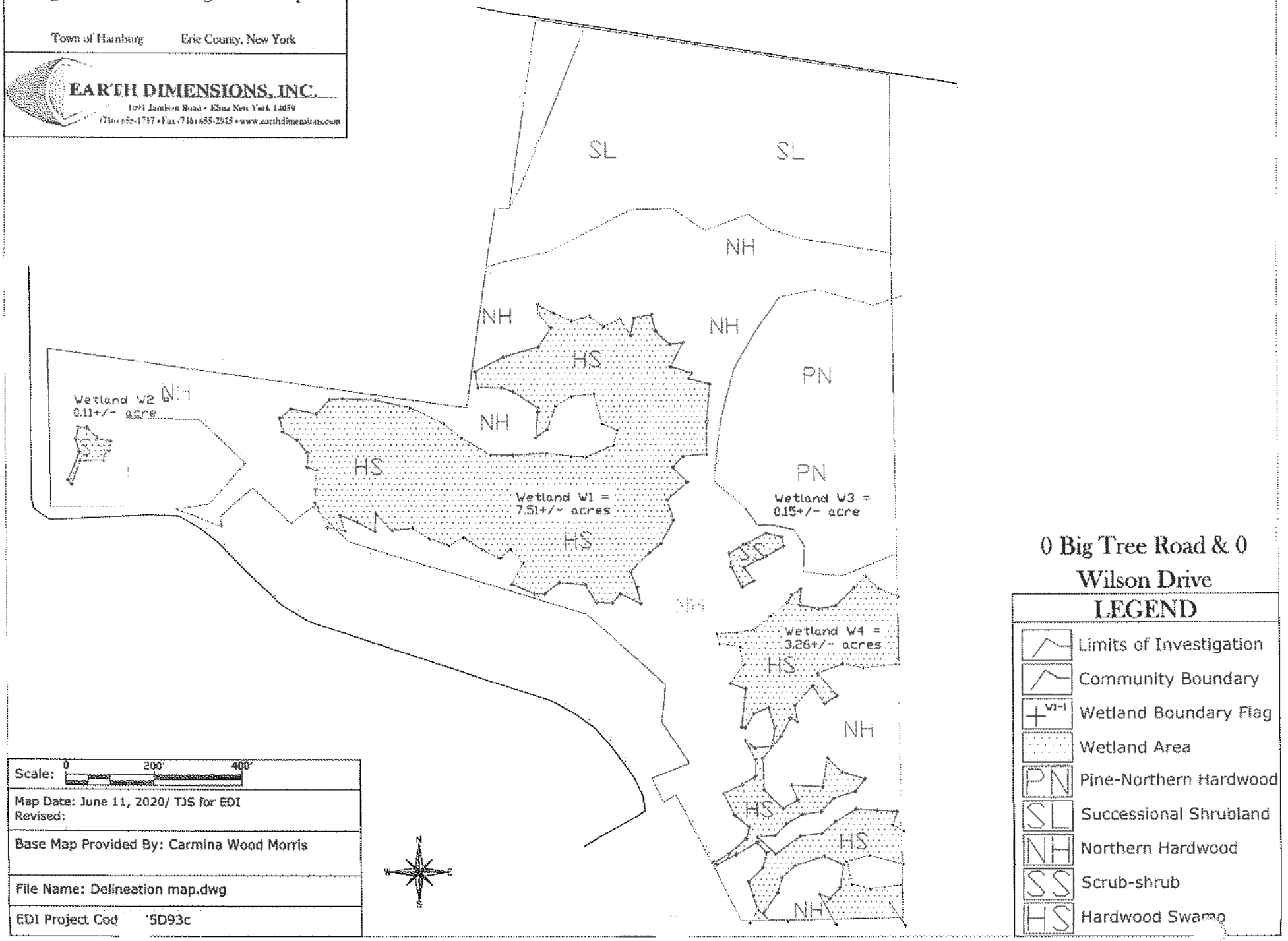
0 Big Tree Road & 0 Wilson Drive

Town of Hamburg, Erie County, New York

Figure 5 - General Vegetation Map

Town of Hamburg Erie County, New York

EARTH DIMENSIONS, INC.
1091 Jamison Road • Elma New York 14059
(716) 655-1717 • Fax (716) 655-2918 • www.earthdimensions.com



0 Big Tree Road & 0 Wilson Drive

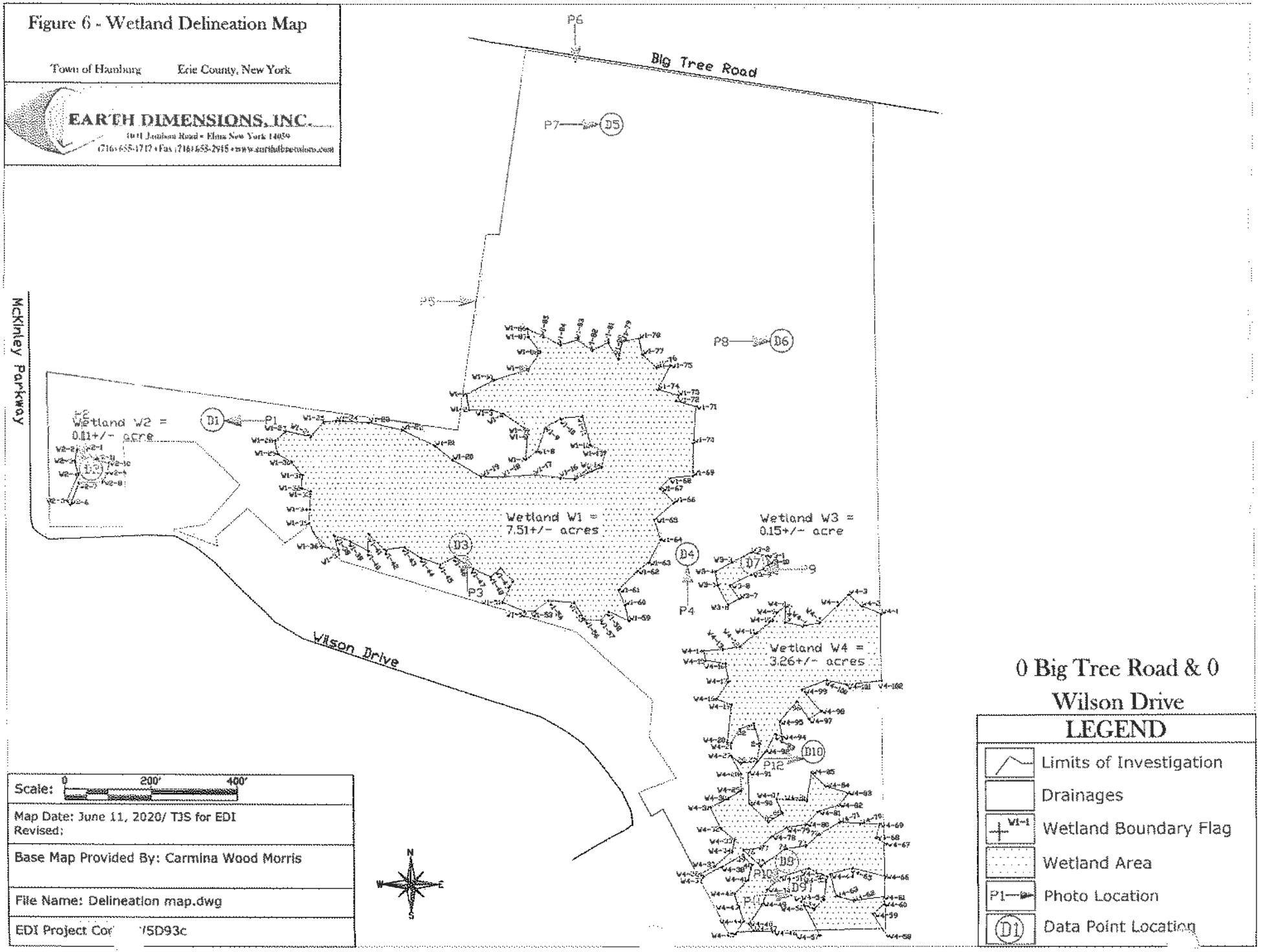
LEGEND

- Limits of Investigation
- Community Boundary
- Wetland Boundary Flag (WI-1)
- Wetland Area
- PN — Pine-Northern Hardwood
- SL — Successional Shrubland
- NH — Northern Hardwood
- SS — Scrub-shrub
- HS — Hardwood Swamp

Figure 6 - Wetland Delineation Map

Town of Hamburg Erie County, New York

EARTH DIMENSIONS, INC.
4611 Jenison Road • Elma New York 14059
(716) 655-1717 • Fax (716) 658-2915 • www.earthdimensions.com



Scale: 0 200' 400'

Map Date: June 11, 2020/ TJS for EDI
Revised:

Base Map Provided By: Carmina Wood Morris

File Name: Delineation map.dwg

EDI Project Cor '/5D93c

0 Big Tree Road & 0 Wilson Drive

LEGEND

- Limits of Investigation
- Drainages
- W1-1 Wetland Boundary Flag
- Wetland Area
- P1 Photo Location
- D1 Data Point Location

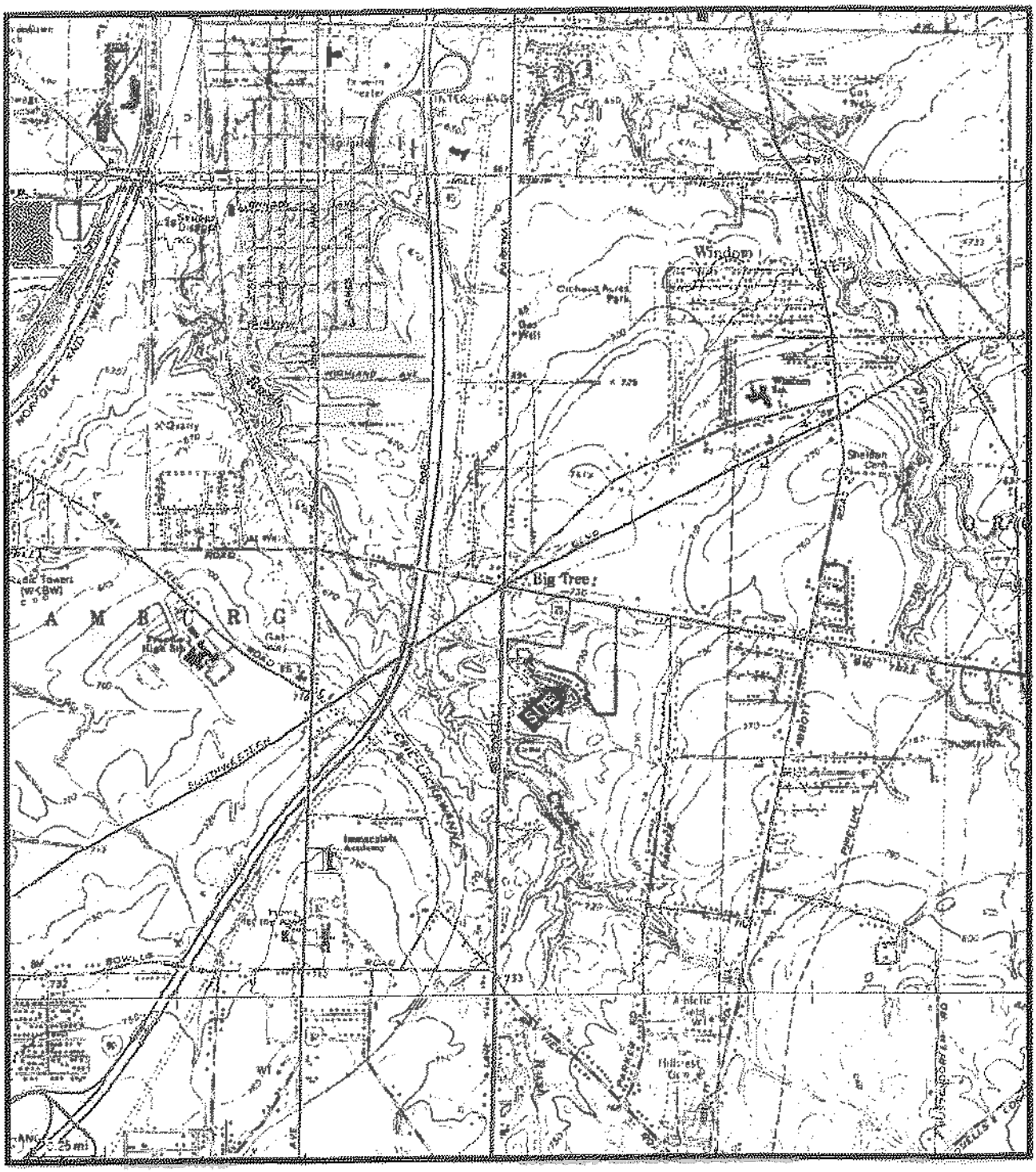


FIGURE 7: DRAINAGE MAP

Buffalo SE Quadrangle / 2002 DeLorme

0 Big Tree Road & 0 Wilson Drive

Town of Hamburg, Erie County, New York

FIGURE 8: SITE AERIAL PHOTOGRAPH

http://gis2.erie.gov/HTML5/ErieCountyNY/PublicLaunchPage.aspx (Visited 4/1/2020)

0 Big Tree Road & 0 Wilson Drive

Town of Hamburg, Erie County, New York

0 Big Tree Road & 0 Wilson Drive

Appendix B – Data Sheets

Project Code: W5D938 C

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Big Tree Road & Wilson Drive Town/County: Hamburg/Erie County Sampling Date: March 30, 2020

Applicant/Owner: Glenn Wetzl State: New York Sampling Point: D1

Investigator(s): Scott Livingstone & Tom Somerville Section, Township, Range: 160.19-2-1.1 & 171.07-1-1

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): CONVEX Slope (%): 10

Subregion (LRR or MLRA) LRRL Lat: Long: Datum: NAD83

Soil Map Unit Name: COLLAMER SILT LOAM, Till Substratum NWI classification: N/A

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 ____	No X	Is the Sampled Area within a Wetland? Yes ____ No X
Hydric Soil Present?	Yes ____	No X	
Wetland Hydrology Present?	Yes ____	No X	If yes, optional Wetland Site ID: N/A

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

UPLAND WOODS

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ____	No X	Depth (inches): N/A
Water Table Present?	Yes ____	No X	Depth (inches): N/A
Saturation Present? (includes capillary fringe)	Yes ____	No X	Depth (inches): N/A

Wetland Hydrology Present? Yes ____ No X

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

Remarks:

Project Code: W5D93[illegible] C

VEGETATION : Use scientific names of plants.

Sampling Point: D1

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Prunus Serotina	20	Y	FACU
2. Amelanchier arborea	15	Y	FACU
3. Acer rubrum	12	Y	FAC
4. Populus tremuloides	10	N	FACU
5.			
6.			
7.			
	57	= Total Cover	

Sapling/Shrub Stratum (Plot size: 15')			
1. Amelanchier arborea	20	Y	FACU
2. Lonicera tatarica	18	Y	FACU
3. Rosa multiflora	8	N	FACU
4. Pyrus spp.	5	N	NI
5. Crataegus crus-galli	4	N	FAC
6.			
7.			
	55	= Total Cover	

Herb Stratum (Plot size: 5')			
1. Alliaria petiolata	7	Y	FACU
2. Fragaria virginiana	6	Y	FACU
3. Carex gracillima	3	N	FACU
4. Potentilla simplex	2	N	FACU
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	18	= Total Cover	

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
		= 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:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is < 3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]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.

Community Type: S. Northern Hardwoods

Hydrophytic Vegetation Present? Yes ___ No X

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

Photo # D1 Direction of Photo West

Project Code: W5D93# C

SOIL

Sampling Point: D1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR4/2	100					SiL	
8-16	10YR5/4	100					SiL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR R, MLRA 149B)**
- ___ Polyvalue Below Surface (S8) **(LRR R, MLRA 149B)**
- ___ Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
- ___ Loamy Mucky Mineral (F1) **(LRR K, L)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(LRR K, L, MLRA 149B)**
- ___ Coast Prairie Redox (A16) **(LRR K, L, R)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR K, L, R)**
- ___ Dark Surface (S7) **(LRR K, L, M)**
- ___ Polyvalue Below Surface (S8) **(LRR K, L)**
- ___ Thin Dark Surface (S9) **(LRR K, L)**
- ___ Iron-Manganese Masses (F12) **(LRR K, L, R)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149B)**
- ___ Mesic Spodic (TA6) **(MLRA 144A, 145, 149B)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: NONE

Depth (inches): N/A

Hydric Soil Present? Yes _____ No X

Remarks:

Project Code: W5D93 C

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Big Tree Road & Wilson Drive Town/County: Hamburg/Erie County Sampling Date: March 30, 2020

Applicant/Owner: Glenn Wetzl State: New York Sampling Point: DZ

Investigator(s): Scott Livingstone & Tom Somerville Section, Township, Range: 160.19-2-1.1 & 171.07-1-1

Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): CONCAVE Slope (%): 0

Subregion (LRR or MLRA) LRRL Lat: Long: Datum: NAD83

Soil Map Unit Name: FLUVAQUENTS & UDIFLUVENTS, FLOODED NWI classification: PSS

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 X	No ____	Is the Sampled Area within a Wetland? Yes X No ____
Hydric Soil Present?	Yes X	No ____	
Wetland Hydrology Present?	Yes X	No ____	If yes, optional Wetland Site ID: WZ

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

DEPRESSIONAL SCRUB/SHRUB WETLAND

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- X Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- X Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes X	No ____	Depth (inches): 4"
Water Table Present?	Yes X	No ____	Depth (inches): INUNDATED
Saturation Present? (includes capillary fringe)	Yes X	No ____	Depth (inches): INUNDATED

Wetland Hydrology Present? Yes X No ____

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

Remarks:

Project Code: W5D938 C

VEGETATION : Use scientific names of plants.

Sampling Point: D2

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Populus deltoides	20	Y	FAC
2. Acer rubrum	10	Y	FAC
3.			
4.			
5.			
6.			
7.			
	30	= Total Cover	

Sapling/Shrub Stratum (Plot size: 15')			
1. Cornus amomum	30	Y	FACW
2. Acer rubrum	15	Y	FAC
3. Salix discolor	12	N	FACW
4. Cornus racemosa	10	N	FAC
5. Lonicera tatarica	7	N	FACU
6. Ulmus americana	6	N	FACW
7. Rhamnus cathartica	5	N	FAC
	85	= Total Cover	

Herb Stratum (Plot size: 5')			
1. Lythrum salicaria	15	Y	FACW
2. Juncus effusus	7	Y	OBL
3. Solidago gigantea	5	N	FACW
4. Onoclea sensibilis	3	N	FACW
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	30	= Total Cover	

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
		= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (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:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is < 3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]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.

Community Type: Scrub-shrub PSS1B

Hydrophytic Vegetation Present? Yes X No ___

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

Photo # P2 Direction of Photo South

Wetland W2

Project Code: W5D93# C

SOIL

Sampling Point: D2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 4/2	90	10YR 5/8	10	C	M	S:L	
8-16	10YR 5/1	90	10YR 5/8	10	C	M	S:cL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR R, MLRA 149B)**
- ___ Polyvalue Below Surface (S8) **(LRR R, MLRA 149B)**
- ___ Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
- ___ Loamy Mucky Mineral (F1) **(LRR K, L)**
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(LRR K, L, MLRA 149B)**
- ___ Coast Prairie Redox (A16) **(LRR K, L, R)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR K, L, R)**
- ___ Dark Surface (S7) **(LRR K, L, M)**
- ___ Polyvalue Below Surface (S8) **(LRR K, L)**
- ___ Thin Dark Surface (S9) **(LRR K, L)**
- ___ Iron-Manganese Masses (F12) **(LRR K, L, R)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149B)**
- ___ Mesic Spodic (TA6) **(MLRA 144A, 145, 149B)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: NONE

Depth (inches): N/A

Hydric Soil Present? Yes X No ___

Remarks:

Project Code: W5D93B C

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Big Tree Road & Wilson Drive Town/County: Hamburg/Erie County Sampling Date: March 30, 2020

Applicant/Owner: Glenn Wetzl State: New York Sampling Point: D3

Investigator(s): Scott Livingstone & Tom Somerville Section, Township, Range: 160.19-2-1.1 & 171.07-1-1

Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): CONCAVE Slope (%): 1

Subregion (LRR or MLRA) LRR L Lat: Long: Datum: NAD83

Soil Map Unit Name: COLLAMER SILT LOAM, Till Substratum NWI classification: PFO1Ss

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 X No ____	Is the Sampled Area within a Wetland?	Yes X No ____
Hydric Soil Present?	Yes X No ____		
Wetland Hydrology Present?	Yes X No ____	If yes, optional Wetland Site ID:	W1

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

- LARGE FORESTED & SCRUB/SHRUB WETLAND

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- X Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- X Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes X No X	Depth (inches):	0-1" (20²)
Water Table Present?	Yes X No ____	Depth (inches):	2"
Saturation Present? (includes capillary fringe)	Yes X No ____	Depth (inches):	Surface

Wetland Hydrology Present? Yes X No ____

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

Remarks:

Project Code: W5D93W C

VEGETATION : Use scientific names of plants.

Sampling Point: D3

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer rubrum	40	Y	FAC
2. Acer saccharinum	15	Y	FACW
3. Fraxinus pennsylvanica	12	N	FACW
4.			
5.			
6.			
7.			
	67	= Total Cover	

Sapling/Shrub Stratum (Plot size: 15')			
1. Cornus amomum	15	Y	FACW
2. Fraxinus pennsylvanica	12	Y	FACW
3. Acer rubrum	8	N	FAC
4. Frangula alnus	6	N	FAC
5. Cornus racemosa	3	N	FAC
6.			
7.			
	44	= Total Cover	

Herb Stratum (Plot size: 5')			
1. Agrostis stolonifera	30	Y	FACW
2. Solidago gigantea	8	N	FACW
3. Symphyotrichum lateriflorum	7	N	FAC
4. Glyceria striata	5	N	OBL
5. Geum canadense	3	N	FAC
6. Juncus effusus	2	N	OBL
7.			
8.			
9.			
10.			
11.			
12.			
	55	= Total Cover	

Woody Vine Stratum (Plot size: 30')			
1. Vitis aestivalis	10	Y	FACU
2.			
3.			
4.			
	10	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 83% (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:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is < 3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]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.

Community Type: Hardwood Swamp PFO2B

Hydrophytic Vegetation Present? Yes X No ___

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

Photo # 93 Direction of Photo North

wetland W1

Project Code: WSD93b c

SOIL

Sampling Point: D3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-7	10YR 4/1	90	10YR 5/8	10	C	M	SiL	
7-16	10YR 5/1	80	10YR 5/1-5/8	20	C	M	SiL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR R, MLRA 149B)**
- ___ Polyvalue Below Surface (S8) **(LRR R, MLRA 149B)**
- ___ Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
- ___ Loamy Mucky Mineral (F1) **(LRR K, L)**
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(LRR K, L, MLRA 149B)**
- ___ Coast Prairie Redox (A16) **(LRR K, L, R)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR K, L, R)**
- ___ Dark Surface (S7) **(LRR K, L, M)**
- ___ Polyvalue Below Surface (S8) **(LRR K, L)**
- ___ Thin Dark Surface (S9) **(LRR K, L)**
- ___ Iron-Manganese Masses (F12) **(LRR K, L, R)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149B)**
- ___ Mesic Spodic (TA6) **(MLRA 144A, 145, 149B)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: NONE

Depth (inches): N/A

Hydric Soil Present? Yes X No ___

Remarks:

Project Code: W5D938 C

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Big Tree Road & Wilson Drive Town/County: Hamburg/Erie County Sampling Date: March 30, 2020

Applicant/Owner: Glenn Wetzl State: New York Sampling Point: D4

Investigator(s): Scott Livingstone & Tom Somerville Section, Township, Range: 160.19-2-1.1 & 171.07-1-1

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): CONVEX Slope (%): 5

Subregion (LRR or MLRA) LRRL Lat: Long: Datum: NAD83

Soil Map Unit Name: COLLAMER SILT LOAM, Till Substratum NWI classification: N/A

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 ____	No X	Is the Sampled Area within a Wetland? Yes ____ No X
Hydric Soil Present?	Yes ____	No X	
Wetland Hydrology Present?	Yes ____	No X	If yes, optional Wetland Site ID: N/A

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

UPLAND SCRUB/SHRUB Community

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required: check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ____	No X	Depth (inches): N/A
Water Table Present?	Yes ____	No X	Depth (inches): N/A
Saturation Present? (includes capillary fringe)	Yes ____	No X	Depth (inches): N/A

Wetland Hydrology Present? Yes ____ No X

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

Remarks:

Project Code: W5D938 C

VEGETATION : Use scientific names of plants.

Sampling Point: D4

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Pinus resinosa	25	Y	FACU
2. Fraxinus americana	22	Y	FACU
3. Acer rubrum	10	N	FAC
4.			
5.			
6.			
7.			
	57	= Total Cover	

Sapling/Shrub Stratum (Plot size: 15')			
1. Lonicera tatarica	35	Y	FACU
2. Fraxinus americana	15	Y	FACU
3. Acer saccharum	12	N	FACU
4. Cornus racemosa	8	N	FAC
5. Frangula alnus	6	N	FAC
6.			
7.			
	76	= Total Cover	

Herb Stratum (Plot size: 5')			
1. Carex blanda	6	Y	FAC
2. Carex gracillima	2	N	FACU
3. Fragaria virginiana	2	N	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	10	= Total Cover	

Woody Vine Stratum (Plot size: 30')			
1. Vitis aestivalis	10	Y	FACU
2.			
3.			
4.			
	10	= 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: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 17% (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:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is < 3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]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.

Community Type: S. Northern Hardwood

Hydrophytic Vegetation Present? Yes ___ No X

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

Photo # 94 Direction of Photo North

Project Code: W5D93# C

SOIL

Sampling Point: D4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	2.5Y 5/2	100					S:L	
6-16	2.5Y 5/3	75	2.5Y 5/1	15	D	M	S:CL	
			2.5Y 5/6	10	C	M		

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR R, MLRA 149B)**
- ___ Polyvalue Below Surface (S8) **(LRR R, MLRA 149B)**
- ___ Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
- ___ Loamy Mucky Mineral (F1) **(LRR K, L)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(LRR K, L, MLRA 149B)**
- ___ Coast Prairie Redox (A16) **(LRR K, L, R)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR K, L, R)**
- ___ Dark Surface (S7) **(LRR K, L, M)**
- ___ Polyvalue Below Surface (S8) **(LRR K, L)**
- ___ Thin Dark Surface (S9) **(LRR K, L)**
- ___ Iron-Manganese Masses (F12) **(LRR K, L, R)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149B)**
- ___ Mesic Spodic (TA6) **(MLRA 144A, 145, 149B)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: NONE

Depth (inches): N/A

Hydric Soil Present? Yes ___ No X

Remarks:

Project Code: W5D938 C

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Big Tree Road & Wilson Drive Town/County: Hamburg/Erie County Sampling Date: March 30, 2020

Applicant/Owner: Glenn Wetzl State: New York Sampling Point: DS

Investigator(s): Scott Livingstone & Tom Somerville Section, Township, Range: 160.19-2-1.1 & 171.07-1-1

Landform (hillslope, terrace, etc.): Ridge Local relief (concave, convex, none): CONVEX Slope (%): 5

Subregion (LRR or MLRA) LRRL Lat: Long: Datum: NAD83

Soil Map Unit Name: DARIEN SILT LOAM, 0-3% SLOPES NWI classification: N/A

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 ____	No X	Is the Sampled Area within a Wetland? Yes ____ No X
Hydric Soil Present?	Yes ____	No X	
Wetland Hydrology Present?	Yes ____	No X	If yes, optional Wetland Site ID: N/A

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

A UPLAND SCRUB/SHRUB COMMUNITY WITH PINES

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ____	No X	Depth (inches): N/A
Water Table Present?	Yes ____	No X	Depth (inches): N/A
Saturation Present? (includes capillary fringe)	Yes ____	No X	Depth (inches): N/A

Wetland Hydrology Present? Yes ____ No X

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

Remarks:

Project Code: W6D93B C

VEGETATION: Use scientific names of plants.

Sampling Point: D5

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Pinus resinosa	30	Y	FACU
2.			
3.			
4.			
5.			
6.			
7.			
	30 = Total Cover		

Sapling/Shrub Stratum (Plot size: 15')			
1. Lonicera tatarica	25	Y	FACU
2. Fraxinus americana	20	Y	FACU
3. Cornus racemosa	18	Y	FAC
4. Rhamnus cathartica	12	N	FAC
5. Frangula alnus	5	N	FAC
6.			
7.			
	80 = Total Cover		

Herb Stratum (Plot size: 5')			
1. Carex gracillima	2	N	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	2 = Total Cover		

Woody Vine Stratum (Plot size: 30')			
1. Vitis aestivalis	15	Y	FACU
2.			
3.			
4.			
	15 = 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: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 20% (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:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is < 3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]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.

Community Type: Successional shrubland

Hydrophytic Vegetation Present? Yes ___ No X

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

Photo # P7 Direction of Photo East

Project Code: W5D93[illegible] C

SOIL

Sampling Point: D5

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-9	10YR4/2	100					S.L	
9-16	10YR5/4	80	10YR5/6	10	C	M		
			10YR5/2	10	D	M		

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR R, MLRA 149B)**
- ___ Polyvalue Below Surface (S8) **(LRR R, MLRA 149B)**
- ___ Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
- ___ Loamy Mucky Mineral (F1) **(LRR K, L)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(LRR K, L, MLRA 149B)**
- ___ Coast Prairie Redox (A16) **(LRR K, L, R)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR K, L, R)**
- ___ Dark Surface (S7) **(LRR K, L, M)**
- ___ Polyvalue Below Surface (S8) **(LRR K, L)**
- ___ Thin Dark Surface (S9) **(LRR K, L)**
- ___ Iron-Manganese Masses (F12) **(LRR K, L, R)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149B)**
- ___ Mesic Spodic (TA6) **(MLRA 144A, 145, 149B)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: NONE

Depth (inches): N/A

Hydric Soil Present? Yes _____ No X

Remarks:

Project Code: W5D938 C

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Big Tree Road & Wilson Drive Town/County: Hamburg/Erie County Sampling Date: March 30, 2020

Applicant/Owner: Glenn Wetzl State: New York Sampling Point: D6

Investigator(s): Scott Livingstone & Tom Somerville Section, Township, Range: 160.19-2-1.1 & 171.07-1-1

Landform (hillslope, terrace, etc.): LAKE Plain Local relief (concave, convex, none): CONVEX Slope (%): 3

Subregion (LRR or MLRA) LRRL Lat: Long: Datum: NAD83

Soil Map Unit Name: NIAGARA SILT LOAM, Till Substratum NWI classification: N/A

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	No X	Is the Sampled Area within a Wetland? Yes No X
Hydric Soil Present?	Yes	No X	
Wetland Hydrology Present?	Yes	No X	If yes, optional Wetland Site ID: N/A

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

• UPLAND WOODS

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- __ Surface Water (A1)
- __ High Water Table (A2)
- __ Saturation (A3)
- __ Water Marks (B1)
- __ Sediment Deposits (B2)
- __ Drift Deposits (B3)
- __ Algal Mat or Crust (B4)
- __ Iron Deposits (B5)
- __ Inundation Visible on Aerial Imagery (B7)
- __ Sparsely Vegetated Concave Surface (B8)
- __ Water-Stained Leaves (B9)
- __ Aquatic Fauna (B13)
- __ Mart Deposits (B15)
- __ Hydrogen Sulfide Odor (C1)
- __ Oxidized Rhizospheres on Living Roots (C3)
- __ Presence of Reduced Iron (C4)
- __ Recent Iron Reduction in Tilled Soils (C6)
- __ Thin Muck Surface (C7)
- __ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- __ Surface Soil Cracks (B6)
- __ Drainage Patterns (B10)
- __ Moss Trim Lines (B16)
- __ Dry-Season Water Table (C2)
- __ Crayfish Burrows (C8)
- __ Saturation Visible on Aerial Imagery (C9)
- __ Stunted or Stressed Plants (D1)
- __ Geomorphic Position (D2)
- __ Shallow Aquitard (D3)
- __ Microtopographic Relief (D4)
- __ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes	No X	Depth (inches): N/A
Water Table Present?	Yes	No X	Depth (inches): N/A
Saturation Present? (includes capillary fringe)	Yes	No X	Depth (inches): N/A

Wetland Hydrology Present? Yes No X

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

Remarks:

Project Code: W5D93B C

VEGETATION : Use scientific names of plants. Sampling Point: D6

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Pinus resinosa	35	Y	FACU
2. Fraxinus americana	20	Y	FACU
3. Acer saccharum	10	N	FACU
4.			
5.			
6.			
7.			
	65	= Total Cover	

Sapling/Shrub Stratum (Plot size: 15')			
1. Crataegus crus-galli	15	Y	FAC
2. Lonicera tatarica	12	Y	FACU
3. Rhamnus cathartica	10	N	FAC
4. Acer saccharum	9	N	FACU
5. Cornus racemosa	6	N	FAC
6.			
7.			
	52	= Total Cover	

Herb Stratum (Plot size: 5')			
1. N/A			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	= Total Cover		

Woody Vine Stratum (Plot size: 30')			
1. Vitis aestivalis	15	Y	FACU
2.			
3.			
4.			
	15	= 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: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 20% (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:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is < 3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]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.

Community Type: Pine - Hardwoods

Hydrophytic Vegetation Present? Yes ___ No X

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

Photo # P8 Direction of Photo East

Project Code: W5D031 C

SOIL

Sampling Point: D6

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-7	10YR 4/2	100					S.L	
7-16	2.5Y 5/4	70	2.5Y 5/6	15	C	M		
			2.5Y 5/1	15	D	M		

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR R, MLRA 149B)**
- ___ Polyvalue Below Surface (S8) **(LRR R, MLRA 149B)**
- ___ Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
- ___ Loamy Mucky Mineral (F1) **(LRR K, L)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(LRR K, L, MLRA 149B)**
- ___ Coast Prairie Redox (A16) **(LRR K, L, R)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR K, L, R)**
- ___ Dark Surface (S7) **(LRR K, L, M)**
- ___ Polyvalue Below Surface (S8) **(LRR K, L)**
- ___ Thin Dark Surface (S9) **(LRR K, L)**
- ___ Iron-Manganese Masses (F12) **(LRR K, L, R)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149B)**
- ___ Mesic Spodic (TA6) **(MLRA 144A, 145, 149B)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: NONE

Depth (inches): N/A

Hydric Soil Present? Yes ___ No X

Remarks:

Project Code: W5D938 C

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Big Tree Road & Wilson Drive Town/County: Hamburg/Erie County Sampling Date: March 30, 2020

Applicant/Owner: Glenn Wetzl State: New York Sampling Point: D7

Investigator(s): Scott Livingstone & Tom Somerville Section, Township, Range: 160.19-2-1.1 & 171.07-1-1

Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): NONE Slope (%): 1

Subregion (LRR or MLRA) LRRL Lat: Long: Datum: NAD83

Soil Map Unit Name: NIAGARA SILT LOAM, Till Substratum NWI classification: PSS

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 X No	Is the Sampled Area within a Wetland?	Yes X No
Hydric Soil Present?	Yes X No	If yes, optional Wetland Site ID:	W3
Wetland Hydrology Present?	Yes X No		

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

. ISOLATED PSS WETLAND

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ___ No X	Depth (inches):	N/A
Water Table Present?	Yes X No ___	Depth (inches):	Surface
Saturation Present? (includes capillary fringe)	Yes X No ___	Depth (inches):	Surface

Wetland Hydrology Present? Yes X No

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

Remarks:

Project Code: W5D93W C

VEGETATION : Use scientific names of plants. Sampling Point: D7

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Fraxinus pennsylvanica	15	Y	FACW
2.			
3.			
4.			
5.			
6.			
7.			
	15	= Total Cover	

Sapling/Shrub Stratum (Plot size: 15')			
1. Cornus amomum	35	Y	FACW
2. Fraxinus pennsylvanica	10	N	FACW
3. Cornus racemosa	10	N	FAC
4. Acer rubrum	8	N	FAC
5.			
6.			
7.			
	63	= Total Cover	

Herb Stratum (Plot size: 5')			
1. Dryopteris sensibilis	20	Y	FACW
2. Scirpus cyperinus	12	Y	OBL
3. Juncus effusus	10	N	OBL
4. Agrostis stolonifera	10	N	FACW
5. Geum aleppicum	4	N	FAC
6. Symphyotrichum lateriflorum	3	N	FAC
7. Solidago gigantea	2	N	FACW
8.			
9.			
10.			
11.			
12.			
	61	= Total Cover	

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
		= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (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:

X 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is < 3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]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.

Community Type: CCNb Shrub PSS 2B

Hydrophytic Vegetation Present? Yes X No ___

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

Photo # P9 Direction of Photo West

Wetland W3

Project Code: W5D93[illegible] c

SOIL

Sampling Point: D7

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 4/1	97	10YR 5/8	3	C	M	Si	
5-16	2.5Y 5/1	93	2.5Y 5/8	7	C	M	Si	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (LRR R, MLRA 149B)
- ___ Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- ___ Thin Dark Surface (S9) (LRR R, MLRA 149B)
- ___ Loamy Mucky Mineral (F1) (LRR K, L)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- ___ Coast Prairie Redox (A16) (LRR K, L, R)
- ___ 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- ___ Dark Surface (S7) (LRR K, L, M)
- ___ Polyvalue Below Surface (S8) (LRR K, L)
- ___ Thin Dark Surface (S9) (LRR K, L)
- ___ Iron-Manganese Masses (F12) (LRR K, L, R)
- ___ Piedmont Floodplain Soils (F19) (MLRA 149B)
- ___ Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: NONE

Depth (inches): N/A

Hydric Soil Present? Yes X No ___

Remarks:

Project Code: W5D938 C

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Big Tree Road & Wilson Drive Town/County: Hamburg/Erie County Sampling Date: March 30, 2020

Applicant/Owner: Glenn Wetzl State: New York Sampling Point: D8

Investigator(s): Scott Livingstone & Tom Somerville Section, Township, Range: 160.19-2-1.1 & 171.07-1-1

Landform (hillslope, terrace, etc.): DepSession Local relief (concave, convex, none): CONCAVE Slope (%): 1

Subregion (LRR or MLRA) LRR L Lat: Long: Datum: NAD83

Soil Map Unit Name: NIAGARA SILT LOAM, Till Substrate NW I classification: PFO

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 X No	Is the Sampled Area within a Wetland?	Yes X No
Hydric Soil Present?	Yes X No		
Wetland Hydrology Present?	Yes X No	If yes, optional Wetland Site ID:	W4

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

• COMPLEX FORESTED WETLAND

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- X Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ___ No X	Depth (inches):	NA
Water Table Present?	Yes X No ___	Depth (inches):	Surface
Saturation Present? (includes capillary fringe)	Yes X No ___	Depth (inches):	Surface

Wetland Hydrology Present? Yes X No

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

Remarks:

Project Code: W5D93W C

VEGETATION : Use scientific names of plants.

Sampling Point: D8

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Carya ovata	25	Y	FACW
2. Acer saccharinum	18	Y	FACW
3. Fraxinus pennsylvanica	12	N	FACW
4. Acer rubrum	10	N	FAC
5. Quercus palustris	10	N	FACW
6.			
7.			
	75	= Total Cover	

Sapling/Shrub Stratum (Plot size: 15')			
1. Quercus palustris	15	Y	FACW
2. Cornus racemosa	12	Y	FAC
3. Carpinus caroliniana	10	N	FAC
4. Fraxinus pennsylvanica	8	N	FACW
5. Cornus amomum	8	N	FACW
6.			
7.			
	53	= Total Cover	

Herb Stratum (Plot size: 5')			
1. Phalaris arundinacea	11	Y	FACW
2. Carex stricta	10	Y	OBL
3. Glyceria striata	9	Y	OBL
4. Onoclea sensibilis	3	N	FACW
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	33	= Total Cover	

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
		= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 86% (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:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is < 3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]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.

Community Type: Hardwood Swamp PFO2B

Hydrophytic Vegetation Present? Yes X No ___

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

Photo # P10 Direction of Photo North

Wetland W4

Project Code: W6D93# C

SOIL

Sampling Point: D8

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	2.5Y 4/1	95	2.5Y 5/8	5	C	M	Si L	
5-16	2.5Y 5/1	70	2.5Y 5/8	30	C	M	Si CL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR R, MLRA 149B)**
- ___ Polyvalue Below Surface (S8) **(LRR R, MLRA 149B)**
- ___ Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
- ___ Loamy Mucky Mineral (F1) **(LRR K, L)**
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(LRR K, L, MLRA 149B)**
- ___ Coast Prairie Redox (A16) **(LRR K, L, R)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR K, L, R)**
- ___ Dark Surface (S7) **(LRR K, L, M)**
- ___ Polyvalue Below Surface (S8) **(LRR K, L)**
- ___ Thin Dark Surface (S9) **(LRR K, L)**
- ___ Iron-Manganese Masses (F12) **(LRR K, L, R)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149B)**
- ___ Mesic Spodic (TA6) **(MLRA 144A, 145, 149B)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: NONE

Depth (inches): N/A

Hydric Soil Present? Yes X No ___

Remarks:

Project Code: W6D938 C

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Big Tree Road & Wilson Drive Town/County: Hamburg/Erie County Sampling Date: March 30, 2020

Applicant/Owner: Glenn Wetzl State: New York Sampling Point: D9

Investigator(s): Scott Livingstone & Tom Somerville Section, Township, Range: 160.19-2-1.1 & 171.07-1-1

Landform (hillslope, terrace, etc.): Lake Plain Local relief (concave, convex, none): CONVEX Slope (%): 3-5

Subregion (LRR or MLRA) LRR L Lat: Long: Datum: NAD83

Soil Map Unit Name: NIAGARA SILT LOAM, TILL SUBSTRATUM NWI classification: N/A

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 ____	No X	Is the Sampled Area within a Wetland? Yes ____ No X
Hydric Soil Present?	Yes ____	No X	
Wetland Hydrology Present?	Yes ____	No X	If yes, optional Wetland Site ID: N/A

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

UPLAND WOODS

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ____	No X	Depth (inches): N/A
Water Table Present?	Yes ____	No X	Depth (inches): N/A
Saturation Present? (includes capillary fringe)	Yes ____	No X	Depth (inches): N/A

Wetland Hydrology Present? Yes ____ No X

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

Remarks:

Project Code: W5D93[illegible] C

Sampling Point: D9

VEGETATION : Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30')			
1. Carya ovata	50	Y	FACU
2. Ostrya virginiana	12	N	FACU
3. Quercus rubra	10	N	FACU
4.			
5.			
6.			
7.			
	72	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1. Ostrya virginiana	30	Y	FACU
2. Quercus rubra	10	N	FACU
3. Carya ovata	9	N	FACU
4. Acer Saccharum	3	N	FACU
5.			
6.			
7.			
	52	= Total Cover	
Herb Stratum (Plot size: 5')			
1. Alliaria petiolata	5	Y	FACU
2. Rosa multiflora	3	N	FACU
3. Rubus allegheniensis	3	N	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	11	= Total Cover	
Woody Vine Stratum (Plot size: 30')			
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: 3 (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:

__ 1 - Rapid Test for Hydrophytic Vegetation

__ 2 - Dominance Test is >50%

__ 3 - Prevalence Index is < 3.0[1]

__ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

__ Problematic Hydrophytic Vegetation[1] (Explain)

[1]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.

Community Type: S. Northern Hardwood

Hydrophytic Vegetation Present? Yes ____ No X

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

Photo # P11 **Direction of Photo** East

Project Code: W6D93U

SOIL

Sampling Point: D9

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 4/2	100					S.L	
5-16	10YR 5/4	100					S.L	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR R, MLRA 149B)**
- ___ Polyvalue Below Surface (S8) **(LRR R, MLRA 149B)**
- ___ Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
- ___ Loamy Mucky Mineral (F1) **(LRR K, L)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(LRR K, L, MLRA 149B)**
- ___ Coast Prairie Redox (A16) **(LRR K, L, R)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR K, L, R)**
- ___ Dark Surface (S7) **(LRR K, L, M)**
- ___ Polyvalue Below Surface (S8) **(LRR K, L)**
- ___ Thin Dark Surface (S9) **(LRR K, L)**
- ___ Iron-Manganese Masses (F12) **(LRR K, L, R)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149B)**
- ___ Mesic Spodic (TA6) **(MLRA 144A, 145, 149B)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: NONE

Depth (inches): N/A

Hydric Soil Present? Yes ____ No X

Remarks:

Project Code: W6D93 C

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Big Tree Road & Wilson Drive Town/County: Hamburg/Erie County Sampling Date: March 30, 2020

Applicant/Owner: Glenn Wetzl State: New York Sampling Point: D10

Investigator(s): Scott Livingstone & Tom Somerville Section, Township, Range: 160.19-2-1.1 & 171.07-1-1

Landform (hillslope, terrace, etc.): Lake Plain Local relief (concave, convex, none): CONVEX Slope (%): 2

Subregion (LRR or MLRA) LRRL Lat: Long: Datum: NAD83

Soil Map Unit Name: NIAGARA SILT LOAM, Till Substrate NWI classification: N/A

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	No X	Is the Sampled Area within a Wetland? Yes No X
Hydric Soil Present?	Yes	No X	
Wetland Hydrology Present?	Yes	No X	If yes, optional Wetland Site ID: N/A

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

UPLAND WOODS

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)
- Water-Stained Leaves (B9)
- Aquatic Fauna (B13)
- Marl Deposits (B15)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres on Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Thin Muck Surface (C7)
- Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- Surface Soil Cracks (B6)
- Drainage Patterns (B10)
- Moss Trim Lines (B16)
- Dry-Season Water Table (C2)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Stunted or Stressed Plants (D1)
- Geomorphic Position (D2)
- Shallow Aquitard (D3)
- Microtopographic Relief (D4)
- FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes	No X	Depth (inches): N/A
Water Table Present?	Yes	No X	Depth (inches): N/A
Saturation Present? (includes capillary fringe)	Yes	No X	Depth (inches): N/A

Wetland Hydrology Present? Yes No X

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

Remarks:

Project Code: W5D93# C

VEGETATION : Use scientific names of plants.

Sampling Point: D10

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30')			
1. Carya ovata	60	Y	FACU
2. Quercus rubra	9	N	FACU
3.			
4.			
5.			
6.			
7.			
	69 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15')			
1. Carya ovata	15	Y	FACU
2. Ostrya virginiana	11	Y	FACU
3. Acer saccharum	10	Y	FACU
4. Fraxinus americana	2	N	FACU
5.			
6.			
7.			
	38 = Total Cover		
Herb Stratum (Plot size: 5')			
1. Carex blanda	6	Y	FAC
2. Symphyotrichum ericoides	5	Y	FACU
3. Allium tricoccum	3	N	FACU
4. Potentilla simplex	2	N	FACU
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	16 = Total Cover		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
	= 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: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 17% (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:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is < 3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]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.

Community Type: S. Northern Hardwood

Hydrophytic Vegetation Present? Yes ___ No X

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

Photo # P12 Direction of Photo East

Project Code: W5D93M C

Sampling Point: D10

SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	2.5Y 4/2	100					S.L	
8-16	2.5Y 5/4	80	2.5Y 5/6	10	C	M	SiC	
			2.5Y 5/1	10	D	M		

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR R, MLRA 149B)**
- ___ Polyvalue Below Surface (S8) **(LRR R, MLRA 149B)**
- ___ Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
- ___ Loamy Mucky Mineral (F1) **(LRR K, L)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(LRR K, L, MLRA 149B)**
- ___ Coast Prairie Redox (A16) **(LRR K, L, R)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR K, L, R)**
- ___ Dark Surface (S7) **(LRR K, L, M)**
- ___ Polyvalue Below Surface (S8) **(LRR K, L)**
- ___ Thin Dark Surface (S9) **(LRR K, L)**
- ___ Iron-Manganese Masses (F12) **(LRR K, L, R)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149B)**
- ___ Mesic Spodic (TA6) **(MLRA 144A, 145, 149B)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: NONE

Depth (inches): N/A

Hydric Soil Present? Yes ___ No X

Remarks:

0 Big Tree Road & 0 Wilson Drive

Appendix C - Site Photographs

Photo 1: Facing west. Depicts the northern hardwood community of data point D1.

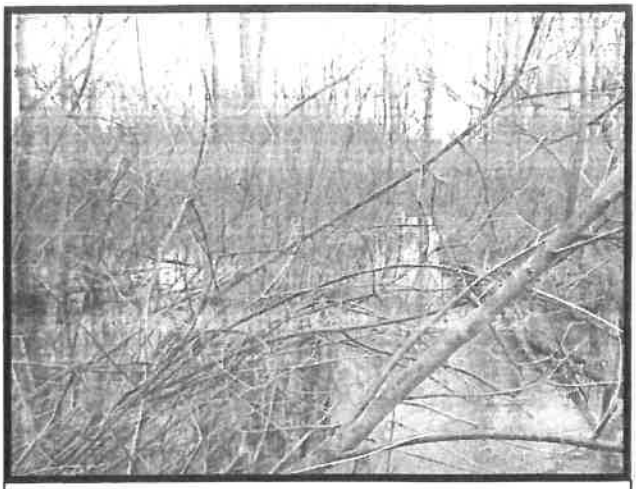


Photo 2: Facing south. Depicts the scrub-shrub swamp community of wetland W2 at data point D2.

Photo 3: Facing north. Depicts the hardwood swamp community of wetland W1 at data point D3.

Photo 4: Facing north. Depicts the successional northern hardwood community at data point D4

Photo 5: Facing east. Depicts Stream 1 at the western edge of the investigation area.

Photo 6: Facing south. Depicts the ditch south of Big Tree Road.

Photo 7: Facing east. Depicts the successional shrubland community at data point D5.

Photo 8: Facing east. Depicts the pine-hardwoods community at data point D6.

Photo 9: Facing west. Depicts the scrub-shrub swamp community of wetland W3 at data point D7.

Photo 10: Facing north. Depicts the hardwood swamp community of wetland W4 at data point D8.

Photo 11: Facing east. Depicts the successional northern hardwood community at data point D9.

Photo 12: Facing east. Depicts the successional northern hardwood community at data point D10.

0 Big Tree Road & 0 Wilson Drive

Appendix D - References

INFORMATIONAL REFERENCES USED BY EARTH DIMENSIONS INC.

Andrus, R.E. 1980. Sphagnaceae (Peat Moss Family) of New York State. Contributions to a Flora of New York State III, R.S. Mitchell (Ed.), Bulletin No. 442, New York State Museum, Albany, New York. 89 pp.

Benyus, J.M. 1989. The Field Guide to Wildlife Habitats of the Eastern United States. Fireside, Simon & Shuster, Inc., New York. 335 pp.

Britton, N.L., and H.A. Brown. 1970. An Illustrated Flora of the Northern United States and Canada, Volumes 1, 2, and 3. Dover Publications, Inc., New York. 2052 pp.

Brockman, C.F., R. Merrilees, and H.S. Zim. 1968. Trees of North America: A Field Guide to the Major Native and Introduced Species North of Mexico. Western Publishing, Inc. New York, New York. 280 pp.

Brown, L. 1979. Grasses: An Identification Guide. Peterson Nature Library. Houghton Mifflin Co., Boston. 240 pp.

Cobb, B. 1963. A Field Guide to the Ferns and Related Families. Houghton Mifflin Co., Boston. 281 pp.

Cowardin, L.M., V. Carter, F.C. Golet, and E.T. Laroe. 1979. Classification of Wetlands and Deep Water Habitats of the United States. U.S. Fish and Wildlife Service, Washington, D.C. FWS/OBS-79-31. 103 pp.

Eggers, S.D., and D.M. Reed. 1997. Wetland Plants and Plant Communities of Minnesota and Wisconsin. Second Edition. U.S. Army Corps of Engineers, St. Paul District, Minnesota. 263 pp.

Environmental Laboratory. 1987. Corps of Engineers Wetlands Delineation Manual. Technical Report Y-87-1, U.S. Army Corps of Engineers Waterways Experiment Station, Vicksburg, Mass. 100 pp. plus appendices.

Hotchkiss, N. 1970. Common Marsh Plants of the United States and Canada. U.S. Department of the Interior, Bureau of Sport Fisheries and Wildlife, Washington, D.C., Resource Publication 93.

Hurley, L.M. 1990. Field Guide to the Submerged Aquatic Vegetation of Chesapeake Bay. U.S. Fish and Wildlife Service, Chesapeake Bay Estuary Program, Annapolis, Maryland. 51 pp.

Knobel, E. 1977. Field Guide to the Grasses, Sedges, and Rushes of the United States. Dover publications, Inc., New York. 83 pp.

Little, E.L. 1980. The Audubon Society Field Guide to North American Trees (Eastern Region). Alfred A. Knopf, New York. 714 pp.

Magee, D.W. 1981. Freshwater Wetlands. University of Massachusetts Press, Hamburg. 245 pp.

Mitchell, R.S., and G.C. Tucker. 1997. Revised Checklist of New York State Plants. Contributions to a Flora of New York State IV, R.S. Mitchell (Ed.). Bulletin No. 490, New York State Museum, Albany, New York. 400 pp.

Munsell Color Chart. (Munsell Color 1975).

National Wetland Inventory Maps. U.S. Department of the Interior, Fish and Wildlife Service, National Wetland Inventory, St. Petersburg, Florida. http://wetlandsfws.er.usgs.gov date visited: 2/4/2010

Niering, W.C., and N.C. Olmstead. 1979. The Audubon Society Field Guide to North American Wildflowers (Eastern Region). Alfred A. Knopf, New York. 887 pp.

New York State Code of Rules and Regulations (NYCRR). 1989. Protected Native Plants. NYCRR Part 193.3, June, 1989. New York State Department of Environmental Conservation.

New York Natural Heritage Program. 2002. New York Rare Plant Status List, February, 1989. S.M. Young, (Ed.), New York State Department of Environmental Conservation and The Nature Conservancy publication. 26 pp.

New York State Department of Environmental Conservation Freshwater Wetlands Maps, NYSDEC Environmental Resource Mapper, http://www.dec.ny.gov/imsmaps/ERM/viewer.htm

Newcomb, L. 1977. Newcomb's Wildflower Guide. Little, Brown and Co., Boston. 490 pp.

Ogden, E.C. 1981. Field Guide to Northeastern Ferns. Contributions to a Flora of New York State III, R.S. Mitchell (Ed.), Bulletin No. 444, New York State Museum, Albany, New York. 122 pp.

Peattie, D.C. 1991. A Natural History of Trees of Eastern and North America. Houghton Mifflin Co., Boston. 606 pp.

Peterson, RT., and M. McKenny. 1968. A Field Guide to Wildflowers of Northeastern and Northcentral North America. Houghton Mifflin Co., Boston. 420 pp.

Petrides, G.A. 1972. A Field Guide to Trees and Shrubs. Houghton Mifflin Co., Boston. 428 pp.

Prescott, G.W. 1969. How to Know the Aquatic Plants. Second Edition. William C. Brown Co., Dubuque, Iowa. 171 pp.

Raynal, D.J., and D. J. Leopold. 1999. Landowner's Guide to State-Protected Plants of Forests in New York State. New York Center for Forestry Research and Development, SUNY-ESF, Syracuse, New York. 92pp.

Reed, Porter B. Jr. 1988. National List of Plant Species that Occur in Wetlands: Northeast (Region 1). U.S. Fish and Wildlife Service, Washington, D.C. Biol. Rept. 88 (26.1). 112 pp.

Reschke, C. 2002. Ecological Communities of New York State. New York Natural Heritage Program. NYSDEC, Latham, N.Y. (2nd Ed.) 136 pp.

Soil Conservation Service. 1975. Soil Taxonomy: A Basic System of Soil Classification for Making and Interpreting Soil Surveys. U.S.D.A., Soil Conservation Service, U.S. Handbook 436.

Soil Conservation Service. 1988. New York Hydric Soils and Soils with Hydric Inclusions, revised July, 1988, Soil Conservation Service, Syracuse, New York, Technical Guide, Section II. 23 pp.

Simonds,R.L., and H.H. Tweedie. 1978. Wildflowers of the Great Lakes Region. Chicago Review Press, Chicago. 96 pp.

Symonds, G.W.D. 1958. The Tree Identification Book. Quill, New York. 272 pp.

Symonds, G.W.D. 1963. The Shrub Identification Book. William Morrow & Co., New York. 379 pp.

Tiner, R. W. Jr. 1988. A Field Guide to Nontidal Wetland Identification. Maryland Department of Natural Resources and U.S. Fish and Wildlife Service Cooperative Publication. Maryland Department of Natural Resources, Annapolis, Maryland. 283 pp. + 198 color plates.

United States Department and Agriculture & the Natural Resources Conservation Service (USDA, NRCS).Soil Conservation Service Soil Survey of Erie County, New York. U.S.D.A., Soil Conservation Service. 1986 http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx

USDA, NRCS. 2009. The PLANTS Database (http://plants.usda.gov, 12/14/09). National Plant Data Center, Baton Rouge, LA 70874-4490 USA.

United States Geological Survey maps, Denver, Colorado. Buffalo SE Quadrangle/2002DeLorme.

U.S. Army Corps of Engineers. 2009. Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region, ed. J. S. Wakeley, R. W. Lichvar, and C. V. Noble. ERDC/EL TR-09-19. Vicksburg, MS: U.S. Army Engineer Research and Development Center.

U.S. Fish and Wildlife Service, A Wetlands and Deepwater Habitats Classification. May 3, 2002, http: //www.nwi.fws.gov/. June 16, 2002.

Zander, R.H., and G.J. Pierce. 1979. Flora of the Niagara Frontier Region. Bulletin of the Buffalo Society of Natural Sciences, Vol. 16 (Suppl. 2), Buffalo, New York. 110 pp

0 Big Tree Road & 0 Wilson Drive

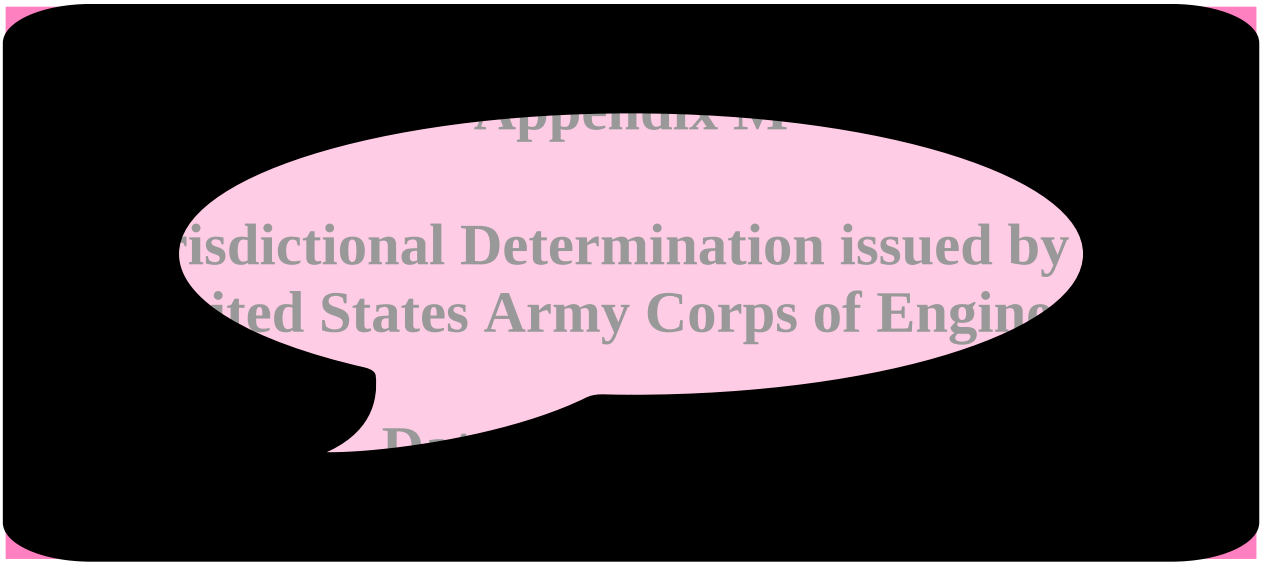
Appendix E - Wetland Investigation Personnel

Soils and Hydrology Sampling
Scott Livingstone, Senior Soil Scientist
Earth Dimensions, Inc.
1091 Jamison Road
Elma, New York 14059
(716) 655-1717

Vegetation Sampling
Tom Somerville, Ecologist
Earth Dimensions, Inc.
1091 Jamison Road
Elma, New York 14059
(716) 655-1717

Report Preparation
Tom Somerville, Ecologist
Earth Dimensions, Inc.
1091 Jamison Road
Elma, New York 14059
(716) 655-1717

Survey of Wetland Flags
Carmina Woods Morris
487 Main Street, Suite 500
Buffalo, NY 14203
(716) 842-3165


Appendix M
isdictional Determination issued by
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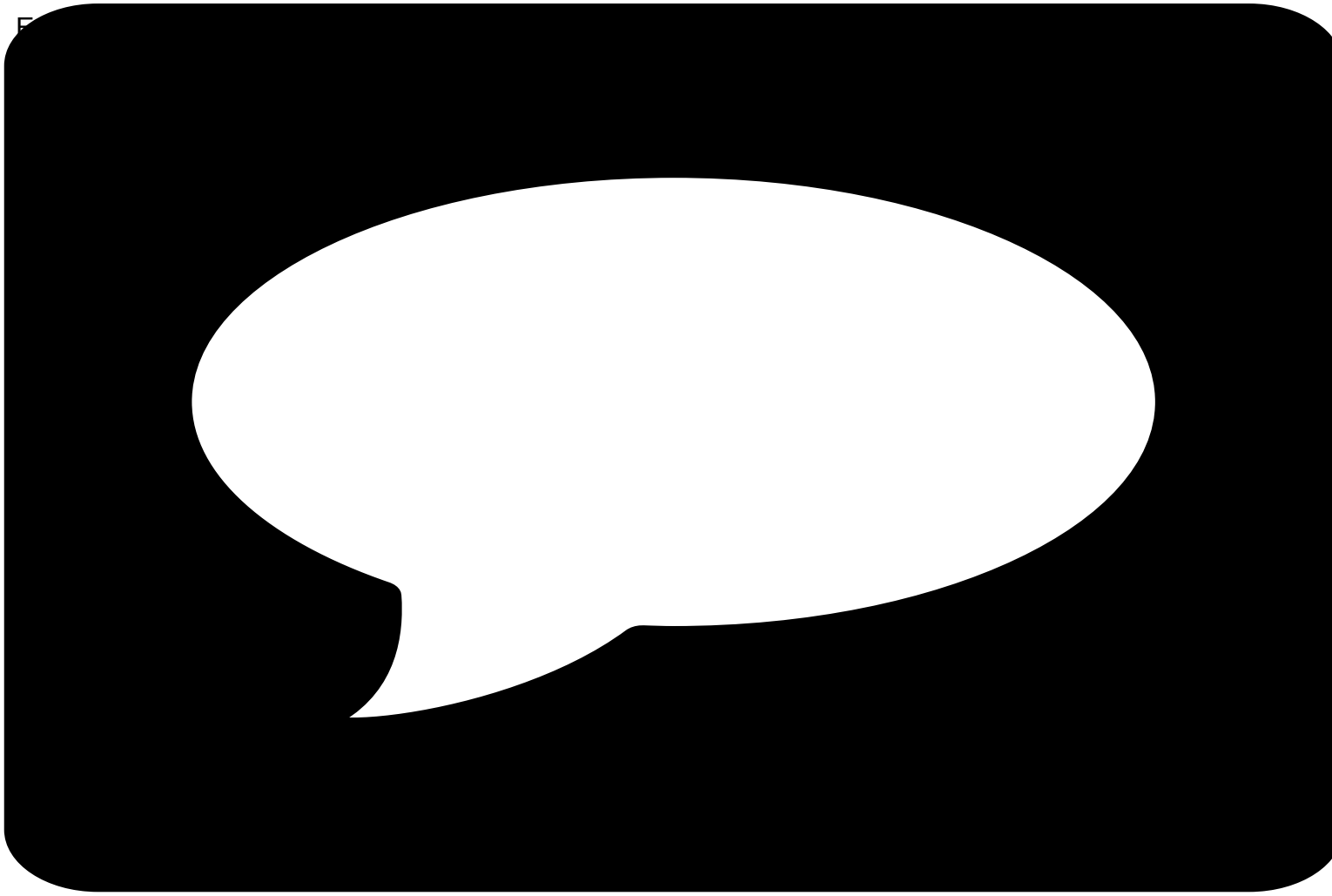

HSM

April 10, 2021

Sarah desJardins
Town of Hamburg Planning Department
6100 South Park Avenue
Hamburg, New York 14075

Re: Proposed Residential Project - 0 Big Tree Road & 0 Wilson Drive
Applicant/Project Sponsor: Wetzl Development, LLC
Town of Hamburg Planning Board
File No. 10011.10

Dear Sarah:

Attached as Exhibit "1" is a copy of the Jurisdictional Determination issued by the United States Army Corps of Engineers ("USACE") dated April 9th that was received by Scott Livingstone of Earth Dimensions Inc. ("EDI").

Consistent with the Wetland Delineation Report prepared by EDI dated June 11, 2020, the USACE has determined that Wetland 1 consisting of 7.51 acres along with 1,153 linear feet of a tributary to Rush Creek are subject to federal jurisdiction and that Wetland 2 (0.11 acres), Wetland 3 (0.15 acres) and Wetland 4 (3.26 acres) are isolated, non-navigable, intrastate waters not subject to federal jurisdiction.

The proposed project has been deliberately designed to avoid impacts to the jurisdictional wetlands to the maximum extent practicable. The impact to the large jurisdictional wetland on the Project Site consisting of 7.51 acres is limited to only 0.04 acres to be impacted for a portion of the on-site stormwater management area as depicted on the Concept Site Plan [Drawing C-100 – Date: 02/04/21] that has been presented to the Planning Board during its recent meetings.

For purposes of the coordinated environmental review of the proposed multifamily project pursuant to the State Environmental Quality Review Act ("SEQRA") being conducted by the Planning Board, the Jurisdictional Determination issued by the USACE supports the Project Sponsor's position that the proposed multifamily project that includes approximately 20.1 acres of Permanent Open Space to remain permanently undeveloped will not result in any potentially significant wetland impacts.

If you have any questions regarding this letter, the attached Jurisdictional Determination or the status of the proposed project, please feel free to contact me at 510-4338 or via e-mail at shopkins@hsr-legal.com.

HOPKINS SORGI & MCCARTHY PLLC
Attorneys at Law
5500 Main Street, Suite 343 • Williamsville, New York 14221
Direct: 716-510-4338 • E-mail: shopkins@hsr-legal.com • www.hsr-legal.com

Sincerely,

HOPKINS SORGI & MCCARTHY PLLC

Sean W. Hopkins, Esq.

cc: William Clark, Planning Board Chairman
Doug Schawel, Planning Board
Kaitlin McCormick, Planning Board
Al Monaco, Planning Board
Bob Mahoney, Planning Board
Dennis Chapman, Planning Board
Meghan Comerford, Planning Board
Glenn Wetzl [Via e-mail and mail]
Scott J. Livingstone, Earth Dimensions, Inc. [Via e-mail]
Christopher Wood, P.E., Carmina Wood Morris DPC [Via e-mail]

Exhibit 1 - Jurisdictional Determination Issued by the United States Army Corps of Engineers dated April 9, 2021

DEPARTMENT OF THE ARMY
BUFFALO DISTRICT, CORPS OF ENGINEERS
1776 NIAGARA STREET
BUFFALO, NEW YORK 14207-3199

April 9, 2021

Regulatory Branch

SUBJECT: Approved Jurisdictional Determination for Department of the Army Processing No. LRB-2020-00749

Mr. Glen Wetzl
7071 Liebler Road
Colden, New York 14033

Dear Mr. Wetzl:

I have reviewed your request for an approved jurisdictional determination (JD) for the 42.5-acre subject parcel located at 0 Big Tree Road and 0 Wilson Road, in the Town of Hamburg, Erie County, New York.

Enclosed is an approved JD which verifies the limits of waters of the U.S. within the subject parcel as depicted on Sheets 1-2 of 2. This approved JD will remain valid for a period of five (5) years from the date of this correspondence unless new information warrants revision of the approved JD before the expiration date. At the end of this period, a new aquatic resource delineation and JD will be required.

I have determined that the following aquatic resources are waters of the U.S. as noted on the attached Interim Approved Jurisdictional Determination Form and as depicted on the attached map: Rush Creek and Wetland 1. Therefore, these aquatic resources are regulated under Section 404 of the Clean Water Act. Department of the Army authorization is required if you propose a discharge of dredged or fill material in these waters of the U.S.

I have determined that the following aquatic resources are not waters of the U.S. as noted on the attached Interim Approved Jurisdictional Determination Form: Wetlands 2, 3, and 4. Therefore, these aquatic resources are not regulated under Section 404 of the Clean Water Act or Section 10 of the Rivers and Harbors Act of 1899. Department of the Army authorization is not required if you propose work or propose a discharge of dredged or fill material in these aquatic resources.

Further, this delineation/determination has been conducted to identify the limits of the Corps Clean Water Act jurisdiction for the particular site identified in your request. This delineation/determination may not be valid for the wetland conservation provisions of the Food Security Act of 1985, as amended. If you or your tenant are United States Department of Agriculture (USDA) program participants, or anticipate participation in USDA programs, you should request a certified wetland determination from the local office of the Natural Resource Conservation Service prior to starting work.

Regulatory Branch

SUBJECT: Approved Jurisdictional Determination for Department of the Army Processing No. LRB-2020-00749

If you object to this determination, you may request an administrative appeal under Corps regulations at 33 CFR Part 331. Enclosed you will find a Notification of Appeal Process (NAP) fact sheet and Request for Appeal (RFA) form. If you request to appeal the above JD, you must submit a completed RFA form within 60 days of the date on this letter to the Great Lakes/Ohio River Division Office at the following address:

Suzanne Chubb
Regulatory Appeals Review Officer
US Army Corps of Engineers
Great Lakes and Ohio River Division
550 Main Street, Room 10-714
Cincinnati, Ohio 45202-3222
Phone: 513-684-7261 Fax: 513-684-2460

In order for an RFA to be accepted by the Corps, the Corps must determine that it is complete; that it meets the criteria for appeal under 33 C.F.R. part 331.5, and that it has been received by the Division Office within 60 days of the date of the NAP. Should you decide to submit an RFA form, it must be received at the above address by June 8, 2021.

It is not necessary to submit an RFA to the Division office if you do not object to the determination in this letter.

Questions pertaining to this matter should be directed to me at 716-879-4308, by writing to the following address: U.S. Army Corps of Engineers, 7413 County House Road, Auburn, New York 13021, or by e-mail at: Heather.L.Adams@usace.army.mil

Sincerely,

Heather Adams
Biologist

Enclosures

NOTIFICATION OF ADMINISTRATIVE APPEAL OPTIONS AND PROCESS AND REQUEST FOR APPEAL

Applicant: Glen Wetzl	File Number: LRB-2020-00749	Date: 4/9/2021
Attached is:		See Section below
	INITIAL PROFFERED PERMIT (Standard Permit or Letter of permission)	A
	PROFFERED PERMIT (Standard Permit or Letter of permission)	B
	PERMIT DENIAL	C
X	APPROVED JURISDICTIONAL DETERMINATION	D
	PRELIMINARY JURISDICTIONAL DETERMINATION	E

SECTION I - The following identifies your rights and options regarding an administrative appeal of the above decision. Additional information may be found at http://www.usace.army.mil/CECW/Pages/reg_materials.aspx or Corps regulations at 33 CFR Part 331.

A: INITIAL PROFFERED PERMIT: You may accept or object to the permit.

- **ACCEPT:** If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.

- **OBJECT:** If you object to the permit (Standard or LOP) because of certain terms and conditions therein, you may request that the permit be modified accordingly. You must complete Section II of this form and return the form to the district engineer. Your objections must be received by the district engineer within 60 days of the date of this notice, or you will forfeit your right to appeal the permit in the future. Upon receipt of your letter, the district engineer will evaluate your objections and may: (a) modify the permit to address all of your concerns, (b) modify the permit to address some of your objections, or (c) not modify the permit having determined that the permit should be issued as previously written. After evaluating your objections, the district engineer will send you a proffered permit for your reconsideration, as indicated in Section B below.

B: PROFFERED PERMIT: You may accept or appeal the permit

- **ACCEPT:** If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.

- **APPEAL:** If you choose to decline the proffered permit (Standard or LOP) because of certain terms and conditions therein, you may appeal the declined permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

C: PERMIT DENIAL: You may appeal the denial of a permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

D: APPROVED JURISDICTIONAL DETERMINATION: You may accept or appeal the approved JD or provide new information.

- **ACCEPT:** You do not need to notify the Corps to accept an approved JD. Failure to notify the Corps within 60 days of the date of this notice, means that you accept the approved JD in its entirety, and waive all rights to appeal the approved JD.

- **APPEAL:** If you disagree with the approved JD, you may appeal the approved JD under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

E: PRELIMINARY JURISDICTIONAL DETERMINATION: You do not need to respond to the Corps regarding the preliminary JD. The Preliminary JD is not appealable. If you wish, you may request an approved JD (which may be appealed), by contacting the Corps district for further instruction. Also you may provide new information for further consideration by the Corps to reevaluate the JD.

SECTION II - REQUEST FOR APPEAL or OBJECTIONS TO AN INITIAL PROFFERED PERMIT

REASONS FOR APPEAL OR OBJECTIONS: (Describe your reasons for appealing the decision or your objections to an initial proffered permit in clear concise statements. You may attach additional information to this form to clarify where your reasons or objections are addressed in the administrative record.)

ADDITIONAL INFORMATION: The appeal is limited to a review of the administrative record, the Corps memorandum for the record of the appeal conference or meeting, and any supplemental information that the review officer has determined is needed to clarify the administrative record. Neither the appellant nor the Corps may add new information or analyses to the record. However, you may provide additional information to clarify the location of information that is already in the administrative record.

POINT OF CONTACT FOR QUESTIONS OR INFORMATION:

If you have questions regarding this decision and/or the appeal process you may contact:

Heather Adams
U.S. Army Corps of Engineers
1776 Niagara Street
Buffalo, New York 14207
716-879-4308
Heather.L.Adams@usace.army.mil

If you only have questions regarding the appeal process you may also contact:

Suzanne Chubb
Regulatory Appeals Review Officer
US Army Corps of Engineers
Great Lakes and Ohio River Division
550 Main Street, Room 10-714
Cincinnati, Ohio 45202-3222
Phone: 513-684-7261 Fax: 513-684-2460

RIGHT OF ENTRY: Your signature below grants the right of entry to Corps of Engineers personnel, and any government consultants, to conduct investigations of the project site during the course of the appeal process. You will be provided a 15 day notice of any site investigation, and will have the opportunity to participate in all site investigations.

	Date:	Telephone number:
_____ Signature of appellant or agent.		

U.S. ARMY CORPS OF ENGINEERS
REGULATORY PROGRAM
APPROVED JURISDICTIONAL DETERMINATION FORM (INTERIM)
NAVIGABLE WATERS PROTECTION RULE

I. ADMINISTRATIVE INFORMATION

Completion Date of Approved Jurisdictional Determination (AJD): 4/9/2021
ORM Number: LRB-2020-00749
Associated JDs: N/A
Review Area Location[1]: State/Territory: NY City: Hamburg County/Parish/Borough: Erie
Center Coordinates of Review Area: Latitude 42.76688 Longitude -78.80592

II. FINDINGS

A. Summary: Check all that apply. At least one box from the following list MUST be selected. Complete the corresponding sections/tables and summarize data sources.

- ☐ The review area is comprised entirely of dry land (i.e., there are no waters or water features, including wetlands, of any kind in the entire review area). Rationale: N/A or describe rationale.
- ☐ There are "navigable waters of the United States" within Rivers and Harbors Act jurisdiction within the review area (complete table in Section II.B).
- ☒ There are "waters of the United States" within Clean Water Act jurisdiction within the review area (complete appropriate tables in Section II.C).
- ☒ There are waters or water features excluded from Clean Water Act jurisdiction within the review area (complete table in Section II.D).

B. Rivers and Harbors Act of 1899 Section 10 (§ 10)[2]

§ 10 Name	§ 10 Size		§ 10 Criteria	Rationale for § 10 Determination
N/A.	N/A.	N/A	N/A.	N/A.

C. Clean Water Act Section 404

Territorial Seas and Traditional Navigable Waters ((a)(1) waters):[3]				
(a)(1) Name	(a)(1) Size		(a)(1) Criteria	Rationale for (a)(1) Determination
N/A.	N/A.	N/A.	N/A.	N/A.

Tributaries ((a)(2) waters):				
(a)(2) Name	(a)(2) Size		(a)(2) Criteria	Rationale for (a)(2) Determination
Rush Creek	1153	linear feet	(a)(2) Perennial tributary contributes surface water flow directly or indirectly to an (a)(1) water in a typical year.	Rush Creek is a perennial tributary that flows into Lake Erie, a traditionally navigable water.

[1] Map(s)/figure(s) are attached to the AJD provided to the requestor.
[2] If the navigable water is not subject to the ebb and flow of the tide or included on the District's list of Rivers and Harbors Act Section 10 navigable waters list, do NOT use this document to make the determination. The District must continue to follow the procedure outlined in 33 CFR part 329.14 to make a Rivers and Harbors Act Section 10 navigability determination.
[3] A stand-alone TNW determination is completed independently of a request for an AJD. A stand-alone TNW determination is conducted for a specific segment of river or stream or other type of waterbody, such as a lake, where upstream or downstream limits or lake borders are established. A stand-alone TNW determination should be completed following applicable guidance and should NOT be documented on the AJD Form.

Lakes and ponds, and impoundments of jurisdictional waters ((a)(3) waters):				
(a)(3) Name	(a)(3) Size		(a)(3) Criteria	Rationale for (a)(3) Determination
N/A.	N/A.	N/A.	N/A.	N/A.

Adjacent wetlands ((a)(4) waters):				
(a)(4) Name	(a)(4) Size		(a)(4) Criteria	Rationale for (a)(4) Determination
Wetland 1	7.51	acre(s)	(a)(4) Wetland separated from an (a)(1)-(a)(3) water only by a natural feature.	Wetland 1 is separated from Rush Creek by a berm approximately 25 feet wide.

D. Excluded Waters or Features

Excluded waters ((b)(1) – (b)(12)):[4]				
Exclusion Name	Exclusion Size		Exclusion[5]	Rationale for Exclusion Determination
Wetland 2	0.11	acre(s)	(b)(1) Non-adjacent wetland.	The wetland is a shallow surface concave depression that collects water and holds it long enough to provide wetland characteristics but does not drain to any (a)(1)-(a)(3) waters. Photos included within the delineation report and a review of aerial imagery show no natural or artificial barrier between the wetland and Rush Creek which is about 100 feet to the north. The NRCS/USDA Web Soil Survey "Flood Frequency Class" rating is "none" which means flooding is not probable. The chance of flooding is nearly 0 percent in any year. All resources reviewed support the determination that the wetland doesn't directly abut an a(1)-a(3) waters, are not separated from an a(1)-a(3) waters by a natural or man-made feature and are not adjacent to an a(1)-a(3) waters.
Wetland 3	0.15	acre(s)	(b)(1) Non-adjacent wetland.	The delineation indicated no drainages or tributaries are within the vicinity of the wetland. The wetland is a shallow surface concave depression that collects water and holds it long enough to provide wetland characteristics but does not drain to any (a)(1)-(a)(3) waters. Photos included within the delineation report and a review of aerial imagery show no natural or artificial barrier between the wetland Rush Creek, which is about 530 feet to the north. The

[4] Some excluded waters, such as (b)(2) and (b)(4), may not be specifically identified on the AJD form unless a requestor specifically asks a Corps district to do so. Corps districts may, in case-by-case instances, choose to identify some or all of these waters within the review area.
[5] Because of the broad nature of the (b)(1) exclusion and in an effort to collect data on specific types of waters that would be covered by the (b)(1) exclusion, four sub-categories of (b)(1) exclusions were administratively created for the purposes of the AJD Form. These four sub-categories are not new exclusions, but are simply administrative distinctions and remain (b)(1) exclusions as defined by the NWPR.

Excluded waters ((b)(1) – (b)(12)):[4]				
Exclusion Name	Exclusion Size		Exclusion[5]	Rationale for Exclusion Determination
				NRCS/USDA Web Soil Survey "Flood Frequency Class" rating is "none" which means flooding is not probable. The chance of flooding is nearly 0 percent in any year. All resources reviewed support the determination that the wetland doesn't directly abut an a(1)-a(3) waters, are not separated from an a(1)-a(3) waters by a natural or man-made feature and are not adjacent to an a(1)-a(3) waters.
Wetland 4	3.26	acre(s)	(b)(1) Non-adjacent wetland.	The delineation indicated no drainages or tributaries are within the vicinity of the wetland. The wetland is a shallow surface concave depression that collects water and holds it long enough to provide wetland characteristics but does not drain to any (a)(1)-(a)(3) waters. Photos included within the delineation report and a review of aerial imagery show no natural or artificial barrier between the wetland Rush Creek, which is about 550 feet to the north. The NRCS/USDA Web Soil Survey "Flood Frequency Class" rating is "none" which means flooding is not probable. The chance of flooding is nearly 0 percent in any year. All resources reviewed support the determination that the wetland doesn't directly abut an a(1)-a(3) waters, are not separated from an a(1)-a(3) waters by a natural or man-made feature and are not adjacent to an a(1)-a(3) waters.

III. SUPPORTING INFORMATION

A. Select/enter all resources that were used to aid in this determination and attach data/maps to this document and/or references/citations in the administrative record, as appropriate.

☒ Information submitted by, or on behalf of, the applicant/consultant: Wetland Delineation Report submitted 6/11/2020

This information is sufficient for purposes of this AJD.
Rationale: Wetland delineation was submitted with accurate, completed data sheets, photographs, NWI map, web soil survey with hydric soil ratings and other supporting information.

☐ Data sheets prepared by the Corps: Title(s) and/or date(s).

☒ Photographs: Aerial: Google earth images from 1985 through 2018

☒ Corps site visit(s) conducted on: 10/6/2020

☐ Previous Jurisdictional Determinations (AJDs or PJDs): ORM Number(s) and date(s).

☐ Antecedent Precipitation Tool: *provide detailed discussion in Section III.B.*

☒ USDA NRCS Soil Survey: Erie County, reviewed on 4/9/2021

☒ USFWS NWI maps: Reviewed on 4/9/2021

☒ USGS topographic maps: Buffalo SE

Other data sources used to aid in this determination:

Data Source (select)	Name and/or date and other relevant information
Other USGS data (specify)	N/A
USDA Sources	N/A.
NOAA Sources	N/A.
USACE Sources	N/A.
State/Local wetland inventory maps	N/A
Other Sources	N/A.

B. Typical year assessment(s): N/A

C. Additional comments to support AJD: N/A

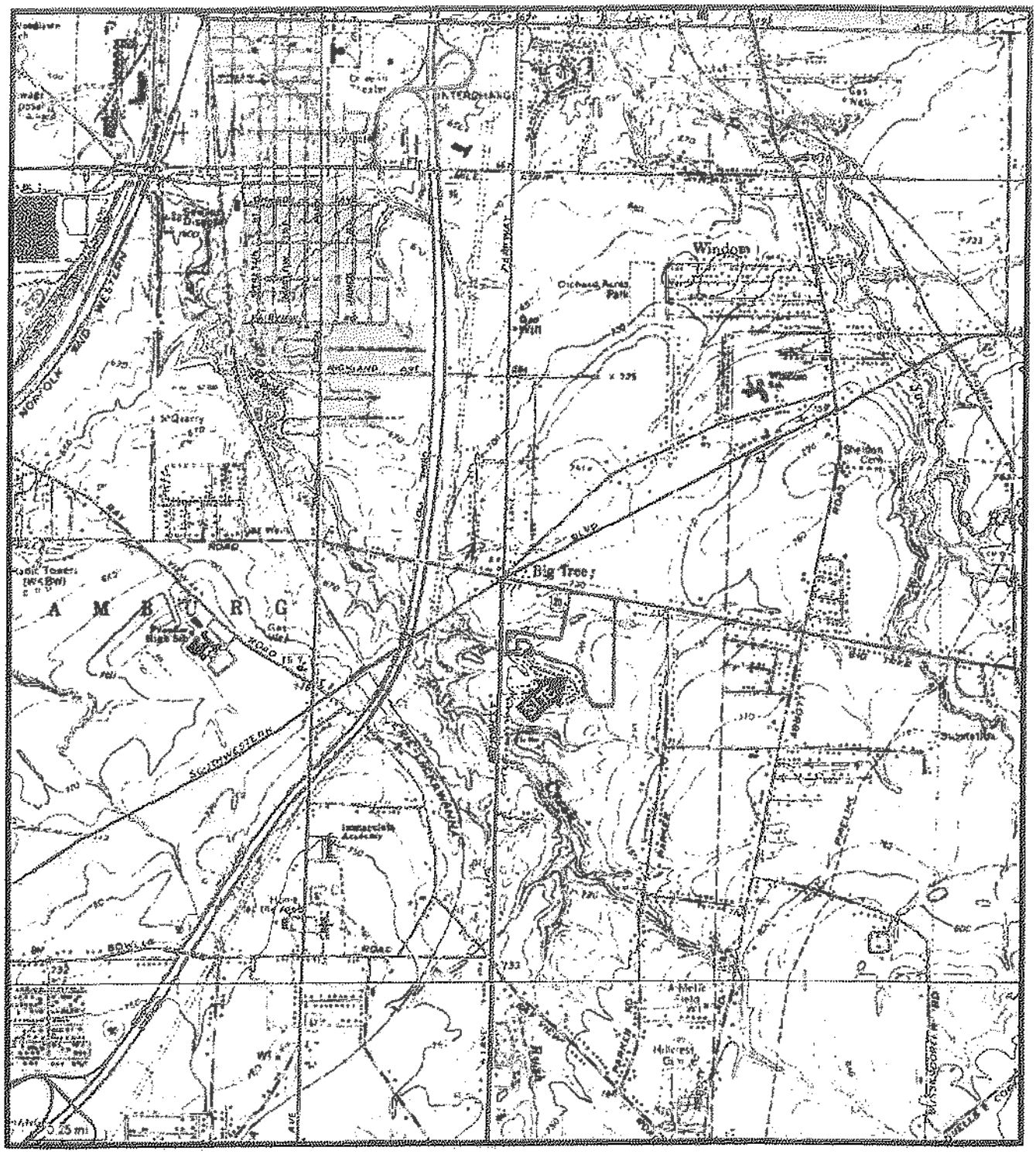

FIGURE 1: USGS 7.5 MINUTE TOPOGRAPHICAL MAP

Buffalo SE Quadrangle / 2002 DeLorme

0 Big Tree Road & 0 Wilson Drive

Town of Hamburg, Erie County, New York

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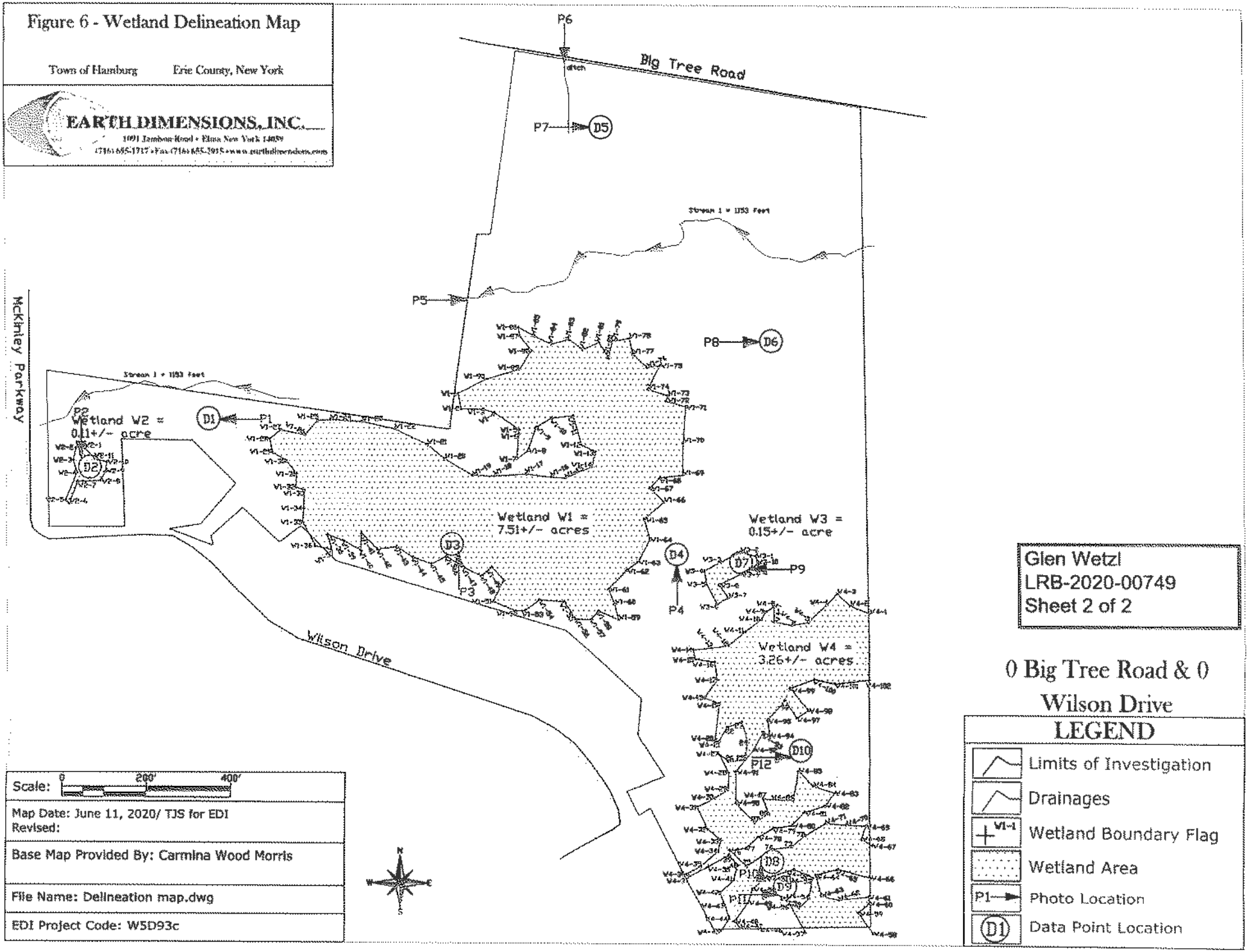
Sheet 1 of 2

Figure 6 - Wetland Delineation Map

Town of Hamburg Erie County, New York

EARTH DIMENSIONS, INC.
1091 Jamison Road • Elma New York 14059
(716) 655-1717 • Fax (716) 655-2015 • www.earthdimensions.com



Glen Wetzl
LRB-2020-00749
Sheet 2 of 2

0 Big Tree Road & 0 Wilson Drive

LEGEND

- Limits of Investigation
- Drainages
- V1-1 Wetland Boundary Flag
- Wetland Area
- P1 Photo Location
- D1 Data Point Location

Scale:	0 200' 400'
Map Date: June 11, 2020/ TJS for EDI Revised:	
Base Map Provided By: Carmina Wood Morris	
File Name: Delineation map.dwg	
EDI Project Code: W5D93c	

Appendix N

Cultural Resource Report
Prepared by UB Anthropology Dep

Dat

Phase 1 Archaeological Reconnaissance Survey

of a

Multi-Residential Subdivision
on
Big Tree Road

Town of Hamburg
Erie County
New York

By

Kathryn Whalen PhD, RPA
Heather Lackos, B.A.

Douglas J. Perrelli, PhD, RPA
Principal Investigator

Reports of the Archaeological Survey, Volume 53, Number 7
Department of Anthropology
University at Buffalo

April 2021

Prepared for:

Glenn Wetzl
7071 Liebler Road
Colden, New York

Cultural Resource Survey Form - No Historic Properties

This form is intended for use when procedures for reconnaissance surveys outlined in the *SED Workscope Specifications for New York State Department of Transportation Projects* (SED 2004) have been followed, no archaeological sites have been identified and no National Register eligible or listed buildings / structures have been identified within the project limits.

1) NYSDOT PIN / BIN / CULVERT #: N/A	
2) OPRHP PR#: 15PR02909	**3) MCD #:** 02953
4) PREPARED FOR / SPONSORED BY: Mr. Glenn Wetzl, 7071 Liebler Road, Colden, NY 14033	**4A) STATE OR FEDERALLY FUNDED PROJECT:** N/A
PROJECT LOCATION AND DESCRIPTION	
5) PROJECT TYPE / TITLE: Phase 1 Archaeological Reconnaissance Survey of a Multi-Residential Subdivision on Big Tree Road	
6) TOWN/COUNTY: Town of Hamburg, Erie County, NY	**7) USGS 7.5' QUADRANGLE:** Buffalo SE, NY (see Attachment A)
8) PROJECT DESCRIPTION: Construction of 156 one and two story single-family homes. Ground disturbing activities will include roads, foundations, driveways, sidewalks, utilities, and a floodwater retention area. See Attachment G for site plan.	
9) PROJECT LIMITS (impact area): The irregular shaped project area (23 acres/9.3 ha) does not impact the entire parcel (approx. 43 acres). The west to southern sections of the parcel (20 acres/8 ha) will be left as permanent open space. The project area has a maximum length of 382 m (1,253 ft) and a maximum width of 309 m (1,014 ft). See Attachment F for project area map.	
ENVIRONMENTAL CONTEXT	
10) REGION / WATERSHED: Glaciated Erie Lake Plain / Rush Creek watershed.	**11) TOPOGRAPHY / LANDFORM:** Level lake plain lacking topographic relief. Elevations vary little from 240 m (800 ft) amsl.
12) LAND USE / GROUND COVER: Much of the project is wooded and brushy. There are no structures within the project boundaries. An unnamed creek/drainage ditch runs through the project area.	**13) POTENTIAL FOR DEEPLY BURIED DEPOSITS TO BE LOCATED WITHIN THE PROJECT LIMITS?** Moderate due to presence of Fluvaquents (flood plain) and Udifluvent (wet) soils around the drainage in the project.

14) SOIL DESCRIPTION (INCLUDE SOIL TYPE, DEPTH OF SOILS, AND DRAINAGE): (see Attachment B)

Name	Description	Drainage / Landform / Slope
Canan-daigua Silt Loam (Cc)	Ap: 0-20 cm, very dark gray (10YR 3/1) silt loam	Very deep, poorly to very poorly drained / Silty glacio-lacustrine sediments on lowland lake plains / 0-3% slopes.
	Bg1: 20-30 cm, light brownish gray (10YR 6/2) silt loam	
	Bg2: 30-48 cm, gray (10YR 6/1) silt loam	
	BC: 48-76 cm, light brownish gray (10YR 6/2) silt loam	
	C: 76-183 cm, gray (10YR 6/1) & light brown (7.5YR 6/4) silt loam and very fine sandy loam	
Collamer Silt Loam (CtB)	Ap: 0-30 cm, dark grayish brown (10YR 4/2) silt loam	Very deep, moderately well drained soils / Formed in silty glacio-lacustrine sediments on lake and till plains. Slopes range from 3-8%
	E/B: 30-46 cm, brown (10YR 5/3) & dark yellowish brown (10YR 4/4) silt loam	
	Bt/E: 46-58 cm, dark yellowish brown (10YR 4/4) silt loam	
	Bt1: 58-84 cm, brown (10YR 4/3) silt loam	
	C1: 84-114 cm, light olive brown (2.5Y 5/4) silt loam	
Darien Silt Loam (DbA, DbB)	Ap: 0 to 23 cm, very dark grayish brown (10YR 3/2) silt loam	Very deep, somewhat poorly drained / On till plains, drumlins, moraines / Slopes: DbA=0-3 %, DbB=0-8%
	Eg: 23 to 28 cm, grayish brown (2.5Y 5/2) silt loam	
	Bt1: 28 to 48 cm, olive brown (2.5Y 4/4) clay loam	
	Btg2: 48 to 81 cm, dark grayish brown (2.5Y 4/2) silty clay loam	
	BC: 81 to 112 cm, olive gray (5Y 4/2) channery silty clay loam	
	C: 112 to 183 cm, olive brown (2.5Y 4/3) channery silty clay loam	
Fluvaquents and udifulvents, (Fu)		Frequently Flooded
Niagara silt loam (Nh)	A: 0 to 13 cm, very dark grayish brown (10YR 3/2) silt loam	Very deep, somewhat poorly drained / Silty glacio-lacustrine deposits on level to concave areas on lake plains and valleys / 0-3% slopes
	E: 13 to 36 cm, grayish brown (10YR 5/2) silt loam	
	Bt1: 36 to 43 cm, dark grayish brown (10YR 4/2) silt loam	
	Bt2: 43 to 79 cm, dark grayish brown (10YR 4/2) silt loam	
	C: 79 to 183 cm, dark grayish brown (10YR 4/2) silt loam	
Remsen silty clay loam (RfA)	A: 0 to 13 cm, very dark grayish brown (10YR 3/2) silt loam	Very deep, somewhat poorly drained / clayey till in moderately low areas on till plains / 0-8% slopes
	E: 13 to 23 cm, grayish brown (2.5Y 5/2) silty clay loam	
	Bt: 23 to 30 cm, olive brown (2.5Y 4/4) silty clay	
	Btg1: 30 to 51 cm, dark grayish brown (2.5Y 4/2) silty clay	
	Btg2: 51 to 76 cm, dark grayish brown (2.5Y 4/2) clay	
	C: 76 to 183 cm, dark grayish brown (2.5Y 4/2) clay	
Wayland Soils Complex (Wd)	Ap: 0-15 cm, very dark grayish brown (10YR 3/2) silt loam	Very deep, very poorly drained/ Nearly level recent alluvium/ Low area or slack water flood plains/ 0-3% slope
	Bg1: 15-30 cm, dark grayish brown (10YR 4/2) silt loam	
	Bg2: 30-46 cm, grayish brown (10YR 5/2) silt loam	
	C1: 46-117 cm, gray (5Y 5/1) silt loam	
	C2: 117-183 cm, gray (5Y 6/1) silty clay loam	

15) DESCRIPTION OF SURVEY LIMITATIONS AND UNTESTABLE AREAS (e.g., under pavement, slope, etc.): All parts of the project area were examined by the Phase 1 survey under good field conditions except for seven STP locations that were not excavated due to standing water. See Attachment C for satellite image, Attachment D for project area photographs, and Attachment F for Project Area Map.

PREHISTORIC / HISTORIC BACKGROUND INFORMATION

16) PREVIOUSLY REPORTED SITES WITHIN ONE MILE OF THE PROJECT AREA: A search of the CRIS site location files revealed three previously recorded pre-contact sites within 1.6 km (1 mi) of the project area (Attachment G). None lie in its limits, but the Parker Road Site (USN 0215.000516) is in the extreme southern section of the adjacent parcel. Two of the sites' National Register eligibility are undetermined (Parker Road Site and the Benzinger House Ellis Site) and the third (PCI/Parker Road 1) is not eligible. The Parker Road Site and the PCI/Parker Road 1 site are close to Rush Creek and represent small lithic scatters/possible camps. The Benzinger House Ellis Village Cemetery is a portion of a larger contact period Iroquoian Village northeast of the project area.

17) BRIEFLY DESCRIBE PREVIOUS SURVEYS BOTH WITHIN ONE MILE OF THE PROJECT AREA AND WITHIN THE PROJECT LIMITS: A search of the CRIS project files revealed that 13 cultural resource studies have been previously conducted within a one-mile radius of the project area (Attachment G). None examined areas in the project area, but some investigated settings similar to those found in the project area. The parcel directly adjacent to the project area to the east was investigated in 2020 (20SR00472) by UB Survey and located the Parker Road site in the southern section closest to Rush Creek. This survey had a different methodology as the field was plowed and a surface collection was conducted.

18) PREHISTORIC SENSITIVITY ASSESSMENT: All of the area of potential impact is associated with somewhat poorly drained clayey soils. The western arm of the parcel which was outside the project area is slightly better drained. The nearest water source is Rush Creek which lies about 800 m (2600 ft) to the east. Considering this information and the types and distribution of previously recorded sites located near the project area it is assessed as having a low to moderate sensitivity for ephemeral sites such as short-term camps, lithic scatters and artifact find spots. There is low sensitivity for habitation sites, recurrently occupied camps and other special use sites such as quarries and cemeteries.

19) HISTORIC MAPS / ATLASES / SOURCES DOCUMENTING THE PROJECT AREA: 1854 Geil Map of Erie County, 1866 Stone and Stewart Atlas of Erie County, 1880 Beers Atlas of Erie County, 1909 New Century Atlas of Erie County, 1926 & 1951 Erie County Highway Department Aerial Photos, 2016 Buffalo SE, NY 7.5' Quadrangle, 2021 Google Earth Satellite Image (Attachments A and C).

20) LIST OF MAP DOCUMENTED STRUCTURES (MDSs): There are no map documented structures associated with the project area.

21) HISTORIC SENSITIVITY ASSESSMENT: The project area has a low sensitivity for historic sites. Historically the project area appears to have been used only for agricultural purposes. Historic artifacts encountered in the project area are most likely from 19th and 20th century refuse disposal patterns.

SUMMARY OF FIELD INVESTIGATIONS

22) FIELD METHODS:	**23) SURVEY DATE:**	**24) AREA SURVEYED:**
359 Shovel test pits (STPs)	February to April 2021	9.3 ha (23 acres)

25) TESTING INTERVAL: No parts of the project area were suitable for a surface inspection. All areas where subsurface testing could be conducted were examined with a series of shovel test pits aligned in a 15 m (50 ft) interval grid. All soils were sifted through 6 mm (0.25 in) wire mesh screens. All work conformed to NYSM/SED (2004) and NYAC (1994) guidelines.

26) BRIEF SUMMARY OF SURVEY RESULTS: No prehistoric artifacts were recovered. The historic assemblage has minimal research potential and is not worthy of further study. Much of it is comprised of domestic refuse composed primarily of bottle glass, some of which can be characterized as modern roadside debris. One whiteware sherd and multiple pieces of unidentified metal were also recovered. All of the artifacts were recovered from the uppermost part of the soil profile representing a former plow zone (Ap-Horizon). No further archaeological investigations of the Phase 1 project area are recommended.

27) REPOSITORY FOR CULTURAL MATERIALS/FIELD NOTES: Archaeological Survey, Department of Anthropology, University at Buffalo, 380 Academic Center, Ellicott Complex, Buffalo, New York 14261-0026.

28) RESULTS OF INVESTIGATIONS AND RECOMMENDATIONS (CHECK ALL THAT APPLY):

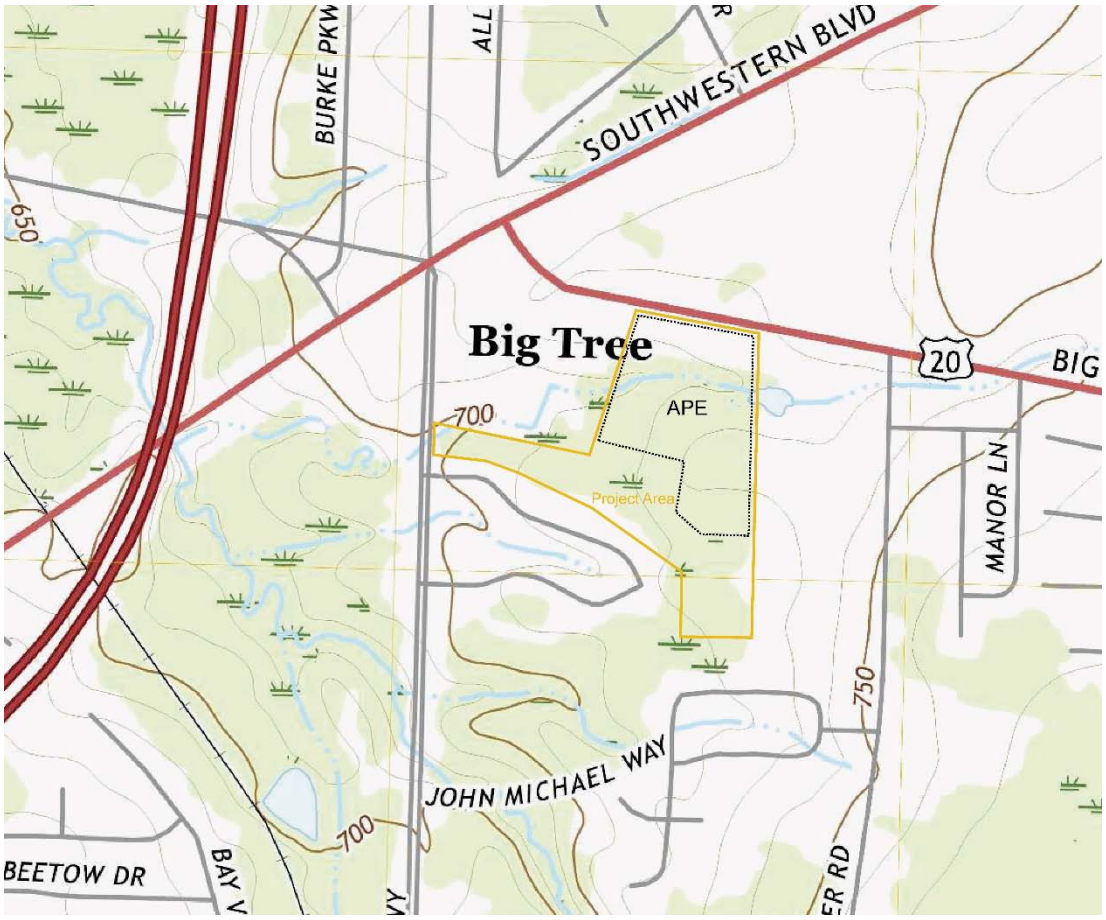
_XX__ NO PREHISTORIC SITES IDENTIFIED

_XX__ NO HISTORIC SITES IDENTIFIED

_XX__ NO FURTHER WORK RECOMMENDED

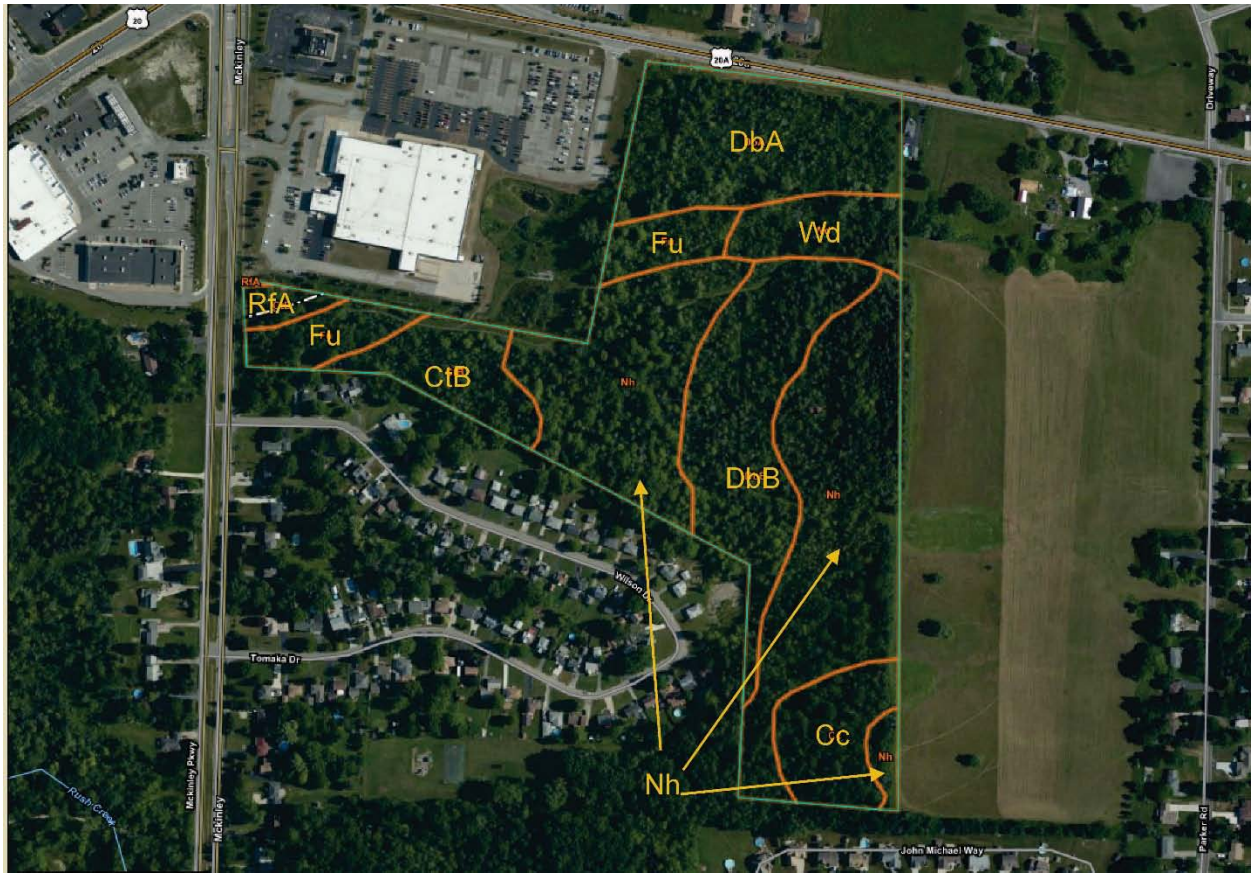
ARCHITECTURAL ASSESSMENT	
29) NUMBER OF INDIVIDUAL BUILDINGS / STRUCTURES WITHIN THE SURVEY LIMITS: No structures are standing in the project area. See Attachments A and C for historic maps and aerial photos.	
30) SUMMARY OF PROPERTIES WITHIN THE SURVEY LIMITS: (Include Building Numbers, Assessment of Whether Building Is Greater Than 50 Years Old, And Whether the Building Is National Register Eligible): N/A	
CULTURAL RESOURCE MANAGEMENT CONTRACTOR INFORMATION	
31) AUTHOR: Kathryn Whalen PhD, RPA Heather Lackos, BA	**32) INSTITUTION/CONSULTANT FIRM:** Archaeological Survey, Dept. Anthropology, University at Buffalo (SUNY)
33) ADDRESS: 380 Academic Center Ellicott Complex, North Campus Buffalo, NY 14261-0026	**34) PHONE/FAX/E-MAIL:** perrelli@buffalo.edu (716) 645-2297
35) PROJECT CONTRIBUTORS: Project was performed under the supervision of Dr. Kathryn Whalen, Project Director	
36) DATE OF REPORT: April 2021	
ATTAHMENT CHECKLIST (THE FOLLOWING ITEMS ARE REQUIRED)	
A - USGS 7.5' Topographic Quadrangle Map Showing Project Area Location and Recorded Sites **B -** USDA Soils Map Of The Project Area **C -** Copies Of Historic Maps and Aerial Photos Reviewed **D -** Representative Photographs of The Project Area (Add Photo Angles to the Project Map) **E -** Photographs of Buildings Greater Than 50 Years Old within Project Area (If Applicable) **F -** Project Map Depicting Survey Limits, Buildings, Photo Angles, and STP Locations **G -** Relevant Project Correspondence (e.g., Form "A", NYSDOT Survey Limits, Site File Search Results, etc.) **H -** Other Project Materials (Shovel Test Pit Summary, Artifact Catalog, etc.).	

ATTACHMENT A: USGS 7.5' Quadrangle



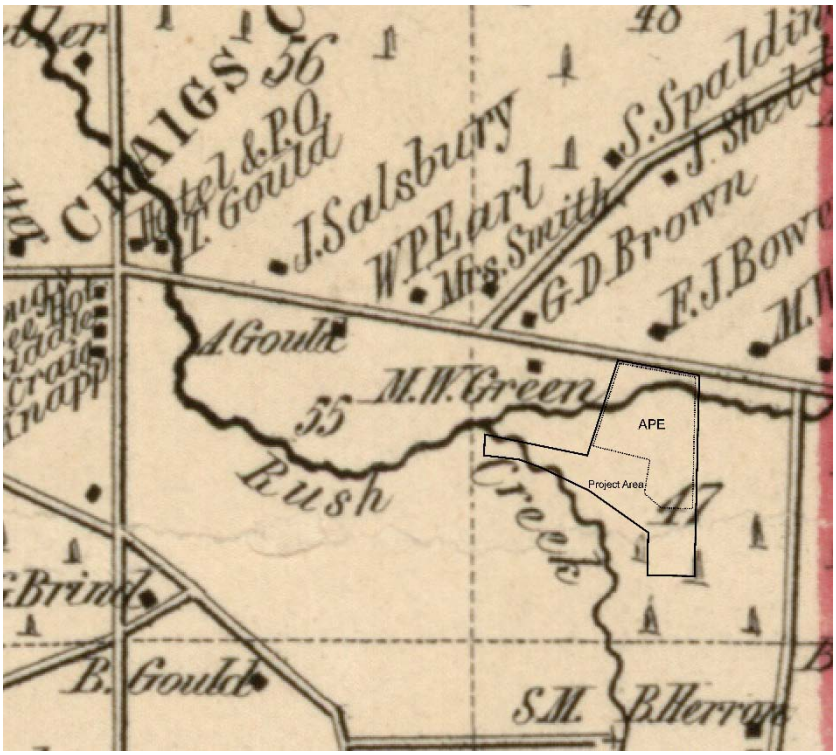
Location of project area on 2016 *Buffalo SE*, New York USGS 7.5 Minute Series Quadrangle.

ATTACHMENT B: Soils Map

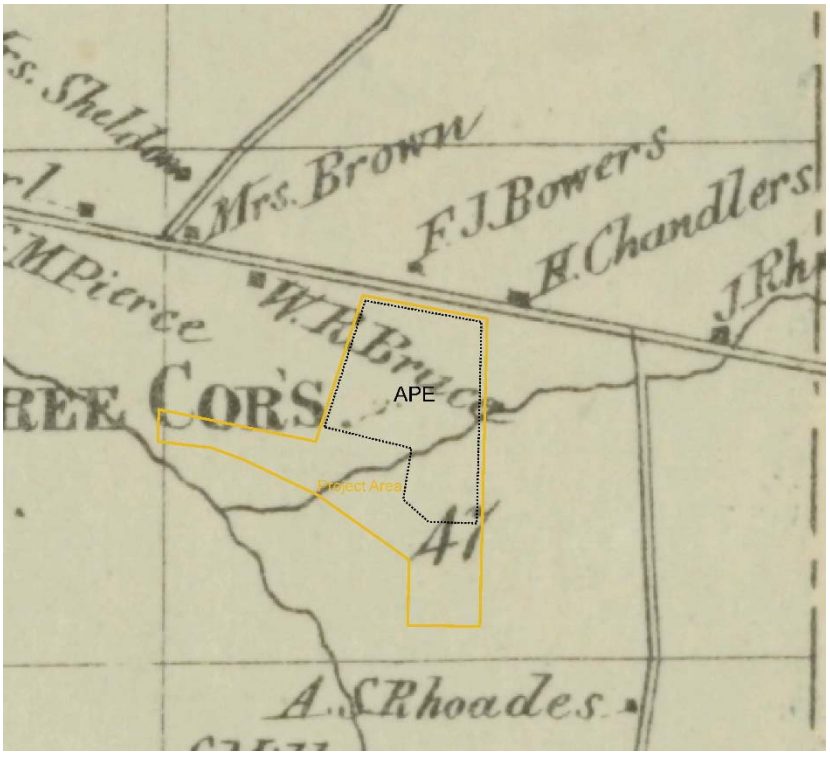


Source: http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx

ATTACHMENT C: Historic Maps



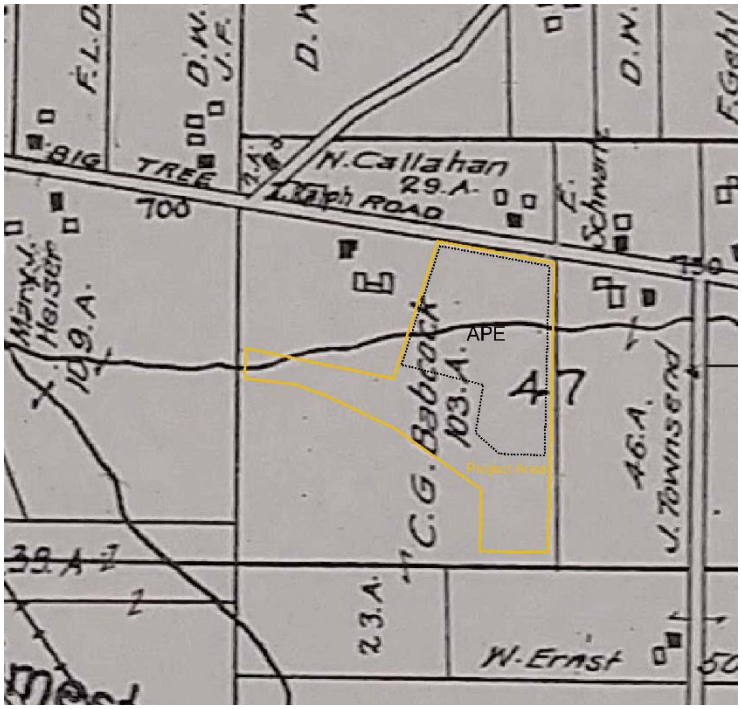
Location of project Area on 1854 Geil Map of Erie County.



Location of project Area on 1866 Stone and Stewart Atlas of Erie County.

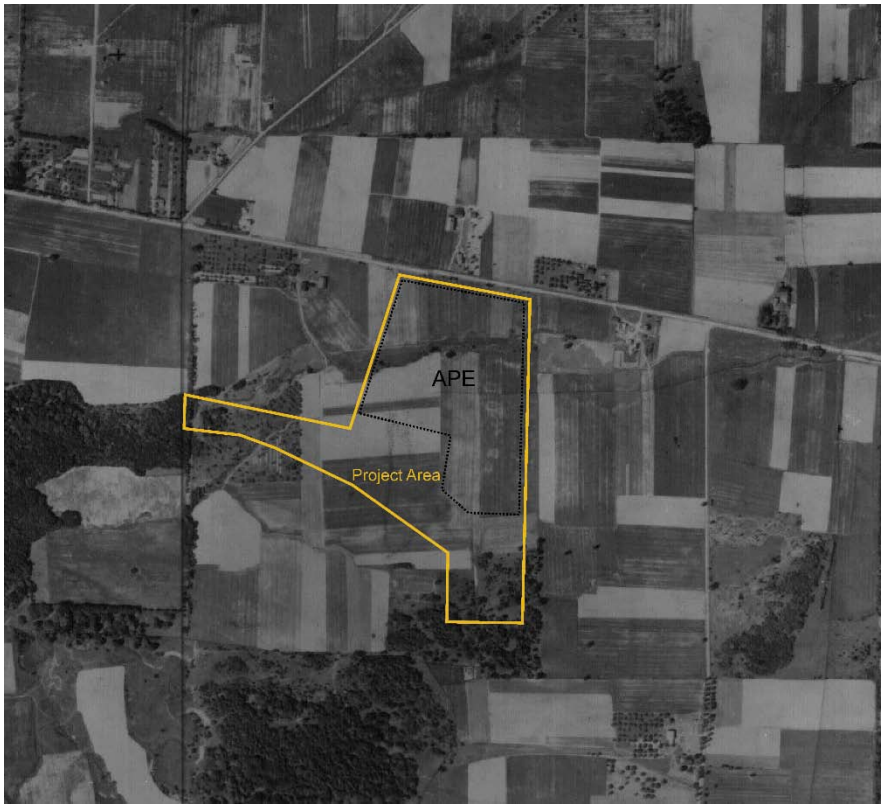
ATTACHMENT C: Historic Maps

Location of project Area on 1880 Beers Atlas of Erie County.

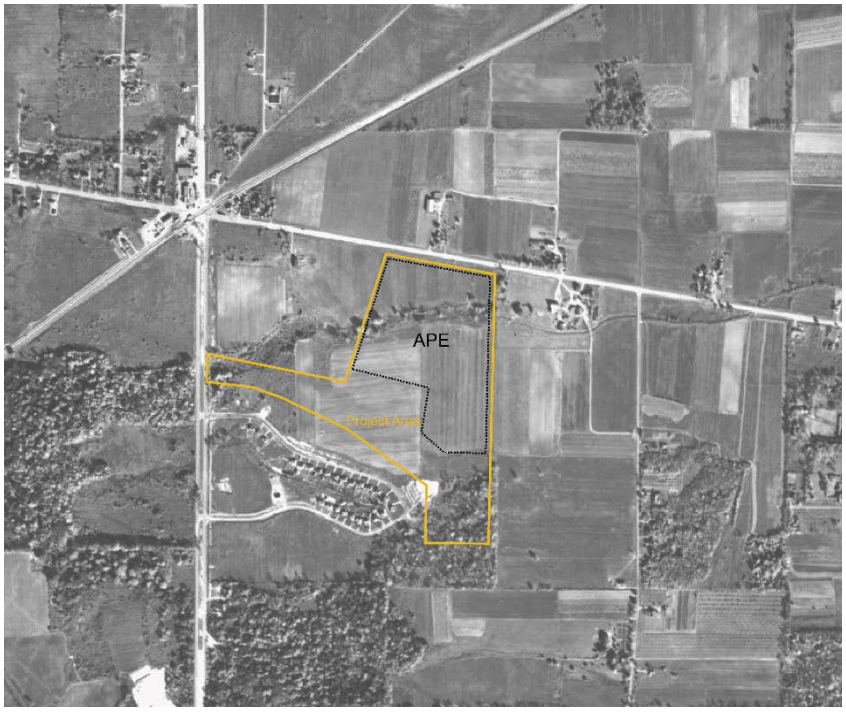


Location of the Project Area on the 1909 New Century Atlas of Erie County, New York.

ATTACHMENT C: Historic Maps



Location of the Project Area on a 1926 Erie County Highway Department Aerial Photo.



Location of the Project Area on a 1951 Erie County Highway Department Aerial Photo.

ATTACHMENT C: Historic Maps

Location of Project Area on a 2021 satellite image (Google Earth).

ATTACHMENT D: Photographs of the Project Area

Photo 1. Panoramic view of the Phase 1 project area from northwest corner looking east along Big Tree Rd (left) to the southern edge of the project area (right).

Photo 2. Looking west from STP 6.12 at unnamed stream that runs through the APE.

ATTACHMENT D: Photographs of the Project Area

Photo 3. Panoramic view of the Phase 1 project area from near STP 9.16 facing south to north.

Photo 4. Looking north from STP 10.12 along one of a series of informal recreational vehicle trails that run throughout the project area.

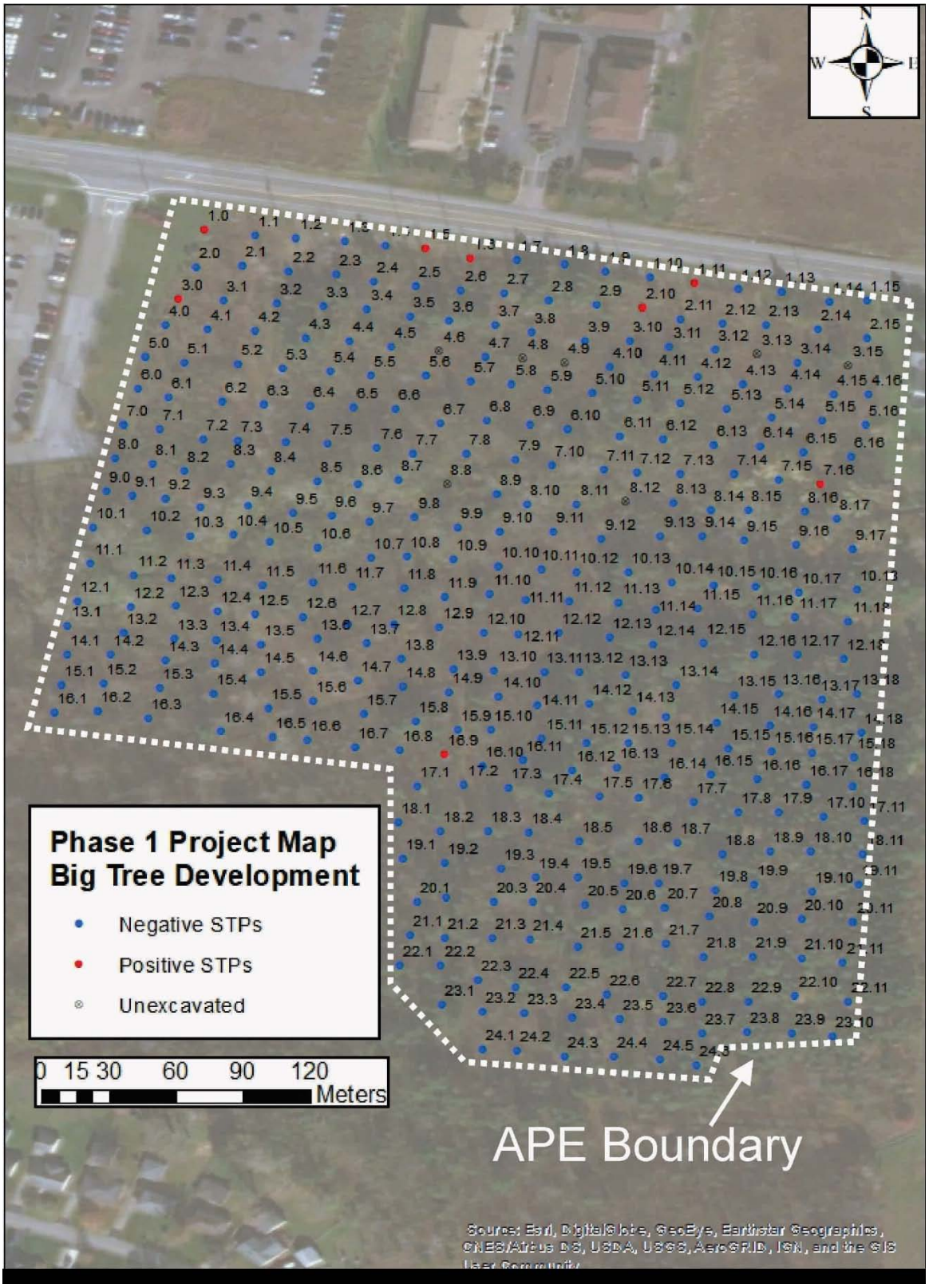
ATTACHMENT D: Photographs of the Project Area

Photo 5. Photo of extent utilities within the APE (near STP 14.5).

Photo 6. Panoramic view of the Phase 1 project area from near STP 23.10 facing south.

ATTACHMENT E: Buildings More Than 50 Years Old

No buildings in the project area over 50 years old.


N
W
E
S
Phase 1 Project Map
Big Tree Development
Negative STPs
Positive STPs
Unexcavated
0 15 30 60 90 120
Meters
APE Boundary
Sources: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Summary of Previously Recorded Sites within a One Mile (1.6 km) Radius of the Project Area

Site #	*Name*	*Type*	*Distance to APE*	*Status*	*Source*
2915.000516	Parker Road Site	Undifferentiated Precontact	1,700 ft	Undetermined	CRIS
2915.000447	PCI/Parker Road-1	Undifferentiated Precontact small lithic scatter/camp	2,575 ft	Not Eligible	CRIS
2921.000413	Benzinger House Ellis Village Cemetery	Historic Niagara Frontier Iroquois Cemetery	5,225 ft	Undetermined	CRIS

(Source: CRIS)

Summary of Previously Recorded Surveys within a One Mile (1.6 km) Radius of the Project Area

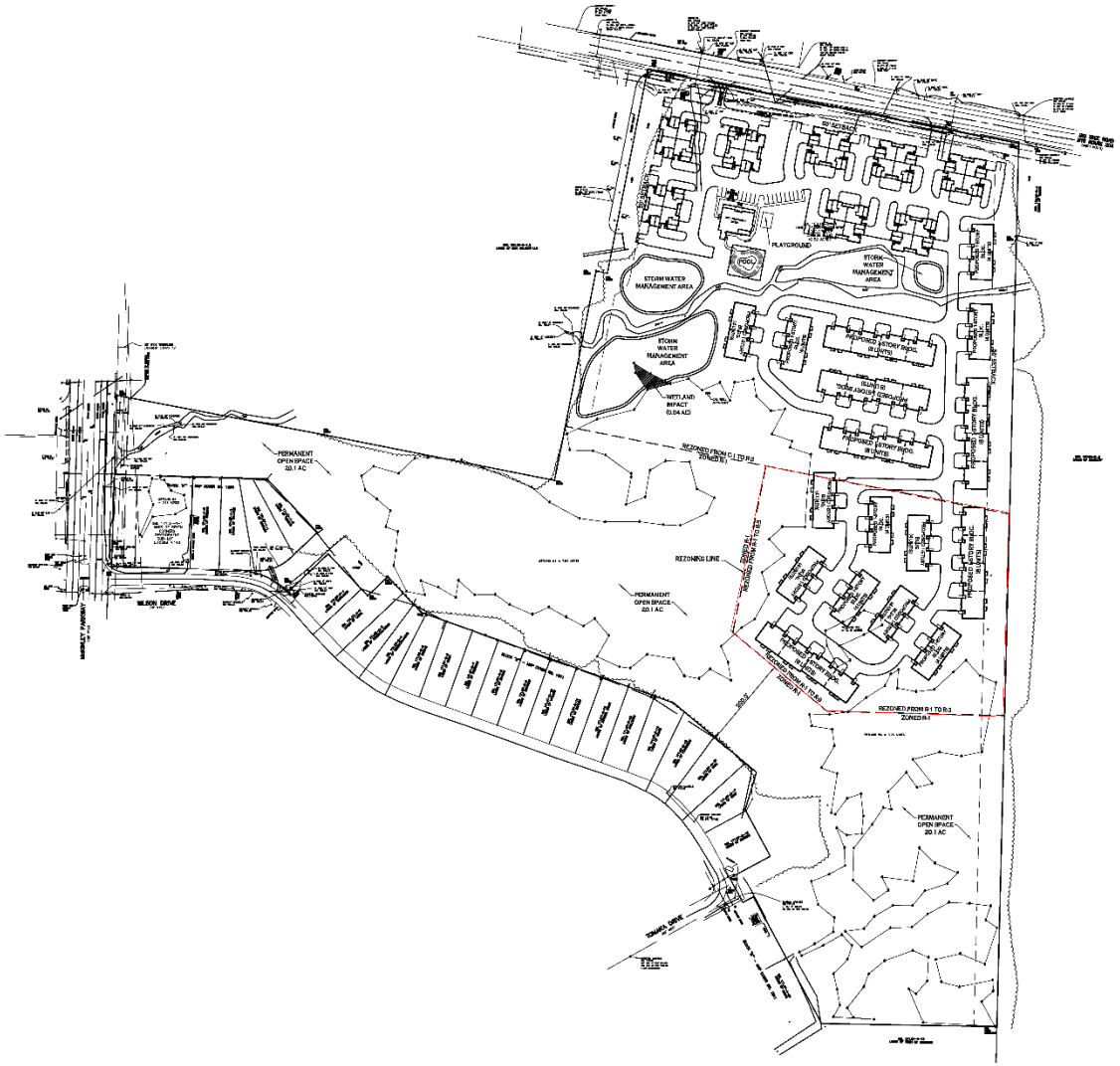
OPRHP Project #	*Name*	*Distance to APE*	*Results*
01SR51693	Phase I Cultural Resources Investigation For The Proposed Parker Road Development, Town Of Hamburg, Erie County, New York	1000 ft	No sites reported
01SR51990	Phase I Cultural Resources Investigation for the Proposed Northwinds Natural Gas Pipeline, the Cities of Buffalo and Lackawanna, and Towns of Hamburg and Eden, Erie Co., and the Town of Hinsdale, Cattaraugus Co.	4,200 ft	No sites reported
02SR52565	Reconnaissance Investigations for the Pedology and Geomorphology of Fourteen Stream Crossings by the Proposed Northwinds Natural Gas Pipeline, Allegany, Cattaraugus, and Erie Counties, New York	3,000 ft	No sites reported
02SR52923	Report Of The Stage 1 Cultural Resources Investigation For Proposed Heritage Square Subdivision	5,000 ft	No sites reported
03SR53491	Stage 1 Cultural Resource Investigation for the South Park Woods Subdivision, Town of Hamburg, Erie County, New York	4,500 ft	No sites reported
03SR54510	Archaeological and Architectural Reconnaissance Survey, PIN 5111.69.101: BIN 1015460, BIN 1015480, BIN 1015490, Rehabilitation and Widening of US Route 20 (Southwestern Boulevard) from US Route 62 (South Park Avenue) to California Road and Placement of Sidewalks from California Road to NY Route 240/277 (Orchard Park Road), Towns of Hamburg and Orchard Park, Erie County, New York	1,850 ft	No sites reported
05SR55343	Phase I/II Cultural Resource Investigation for the Proposed Parker Road Development, Town of Hamburg, Erie County, New York	2,500 ft	One Site: A02915.000447 (PCI/Parker Road-1)
06SR57937	Phase I Cultural Resources Investigation for the Proposed Parker Road Development, Town of Hamburg, Erie County, New York	3,400 ft	No sites reported
09SR59125	Cultural Resource Management Report: Phase I Cultural Resource Reconnaissance Survey for the Proposed Brush Mountain North Expansion, Town of Orchard Park, Erie County, New York	4,400 ft	No sites reported
10SR59832	Phase I Cultural Resources Investigation for the Proposed 4250 McKinley Parkway Retail Development, Town of Hamburg,	2,000 ft	No sites reported

	Erie County, New York		
16SR00008	Big Tree Rd	4,300 ft	No sites reported
20SR00472	Phase 1 Archaeological Reconnaissance Survey for Proposed Housing Subdivision at Parker Road and Route 20A	1,650 ft	One Site: Parker Road Site (USN: 02915.000516)
98SR50203	Report Of The Stage Ia/B Cultural Resource Investigation For The Fiber Optic Cable Project From I-90 Interchange At Canastota To Western New York/Pennsylvania Border (2 Vol)	3,200 ft	No sites reported

(Source: CRIS)

ATTACHMENT G: Project Correspondence

ATTACHMENT G: Project Correspondence



SITE DATA - R3 AREA

SITE AREA = 42.6 AC TOTAL SITE (22.4 AC REZONED TO R3)
ZONED: TO BE REZONED FROM C-1 TO R3 (MULTIFAMILY DISTRICT)
DESCRIPTION: (92) 1-STORY UNITS W/ ATTACHED GARAGE
(64) 2-STORY UNITS W/ ATTACHED GARAGES

	REQUIRED	PROVIDED
SETBACKS - BUILDING		
FRONT:	50 FT	> 50 FT
SIDE (3 OR MORE FAMILY DWELLING):	50 FT	> 50 FT
REAR (3 OR MORE FAMILY DWELLING):	50 FT	36 FT MIN.
SETBACKS - PARKING		
FRONT:	50 FT	> 50 FT
SIDE	5 FT	> 5 FT
REAR	5 FT	> 5 FT
PRINCIPAL BLDG. SEPARATION		
BETWEEN VERTICAL WALLS OF BLDGS. (GARAGE ADDED TO BLDG)	36 FT MIN.	36 FT MIN.
GREENSPACE		
TOTAL SITE (10%):	4.26 AC	> 10.0%
INTERIOR TO PARKING AREA (5%):	0.4 AC	> 5.0%
PARKING	AS	174 OPEN
# OF SPACES - SEE CALCULATION BELOW	DETERMINED	156 GARAGE
	BY P.B.	330 TOTAL
LOT FRONTAGE		
LOT WIDTH AT FRONT LOT LINE:	200.0 FT MIN.	317.56 FT

NOTE: BOUNDARY AND TOPOGRAPHIC INFORMATION PROVIDED BY OTHERS, CARMINA WOOD MORRIS, D.P.C. ASSUMES NO RESPONSIBILITY FOR ITS ACCURACY.

100 0 100 200FT.

Carmina Wood Morris
457 Main Street - Suite 600
Buffalo, New York 14203
P 716.842.3085
F 716.842.0039

REVISIONS:
No. Description Date

PROJECT NAME:
New Construction
Multi-Family Development
Big Tree Road
Town of Hamburg, New York

Date: 11/2/20
Drawn by: C. Wood
Scale: AS Noted

DRAWING NAME:
Concept Site Plan

DRAWING NO.
C-100
Project no.: 20.062

ATTACHMENT G: Project Correspondence

STP#	*Depth (cm)*	*Color/Texture/Inclusions*	*Artifact Summary*
1.0	0-40	Brn/YBrn ClLo/fill	---
	40-68	Gry ClLo	1-brown curved glass
	68-83	YBrn ClLo	---
1.1	0-45	Gry SiLo/YBrn ClLo	---
	45-60	Dk YBrn/Gry ClLo	---
1.2	0-54	Brn/YBrn ClLo	---
	54-70	YBrn ClLo	---
1.3	0-33	Brn ClLo	---
	33-47	YBrn ClLo	---
1.4	0-35	Brn ClLo	---
	35-50	YBrn ClLo	---
1.5	0-36	Brn ClLo	1-unidentified metal
	36-52	YBrn ClLo	---
1.6	0-36	Brn ClLo	1-unidentified metal, 1-plastic "Dramamine" package
	36-50	YBrn ClLo	---
1.7	0-36	Brn ClLo	---
	36-53	YBrn ClLo	---
1.8	0-37	Brn ClLo	---
	37-55	YBrn ClLo	---
1.9	0-30	Brn ClLo	---
	30-47	YBrn ClLo	---
1.10	0-28	GBrn ClLo	---
	28-44	Gry/YBrn ClLo	---
1.11	0-30	GBrn SiLo	1-unidentified metal
	30-46	YBrn/Gry SaCl	---
	46-60	Dk GBrn SiLo	---
1.12	0-37	GBrn ClLo	---
	37-57	YBrn ClLo	---
1.13	0-30	GBrn SiLo/grl	---
	30-50	Dk YBrn SiClLo	---
1.14	0-34	GBrn SiLo/grl	---
	34-49	Dk YBrn SiClLo	---
1.15	0-30	Brn SiLo	---
	30-46	YBrn SaLo/Lt Gry ClLo	---
2.0	0-30	Brn/YBrn ClLo/fill	---
	30-43	Gry ClLo/Lo	---
	43-60	YBrn ClLo	---
2.1	0-30	GBrn SiLo	---
	30-48	Dk YBrn SiClLo	---
2.2	0-36	GBrn SiLo/rock impasse	---
2.3	0-37	Dk Gry SiLo	---
	37-57	Gry/YBrn ClLo	---
2.4	0-30	GBrn SiClLo	---
	30-50	Dk YBrn ClLo	---
2.5	0-37	GBrn SiLo	---
	37-52	Dk YBrn ClLo	---
2.6	0-34	GBrn SiClLo	---
	34-50	YBrn ClLo	---
2.7	0-34	GBrn SiClLo	---
	34-52	Dk YBrn ClLo	---

2.8	0-25	GBrn SiLo	---
	25-45	Dk YBrn SaClLo	---
2.9	0-26	GBrn SiLo	---
	26-48	Dk YBrn SiClLo	---
2.10	0-40	GBrn SiClLo	1-whiteware
	40-57	Lt YBrn/Dk Gry ClLo	---
2.11	0-30	GBrn SiLo	---
	30-46	Dk YBrn ClLo	---
2.12	0-35	GBrn SiLo/water impasse	---
2.13	0-30	GBrn SiLo	---
	30-45	Dk YBrn SiClLo	---
2.14	0-35	GBrn SiLo/water impasse	---
2.15	0-25	Dk GBrn SiLo	---
	25-46	YBrn SaLo/Gry ClLo	---
3.0	0-40	YBrn/Gry ClLo/fill	1-colorless curved glass
	40-50	Gry ClLo/Lo	---
	50-66	YBrn ClLo	---
3.1	0-25	GBrn SiLo	---
	25-50	Dk YBrn SiClLo	---
3.2	0-25	GBrn SiLo	---
	25-45	Dk YBrn SiClLo	---
3.3	0-27	GBrn SiLo	---
	27-42	Dk YBrn SiClLo	---
3.4	0-28	GBrn SiLo	---
	28-44	Dk YBrn SiClLo	---
3.5	0-30	GBrn SiLo	---
	30-50	Dk YBrn SiClLo	---
3.6	0-28	GBrn SiClLo	---
	28-44	Dk YBrn ClLo	---
3.7	0-46	GBrn SiClLo/water impasse	---
3.8	0-36	Brn SiLo/water impasse	---
3.9	0-35	GBrn SiLo/water impasse	---
3.10	0-28	GBrn SiLo	---
	28-47	YBrn/Gry SaCl	---
3.11	0-26	GBrn SiLo	---
	26-44	YBrn SaCl	---
3.12	0-46	GBrn SiLo/water impasse	---
3.13	---	not excavated – water impasse	---
3.14	0-31	GBrn SiLo	---
	31-48	YBrn SaCl	---
3.15	---	not excavated – water impasse	---
4.0	0-30	YBrn/Brn ClLo/fill	---
	30-50	Gry Lo	---
	50-65	YBrn SaLo/Gry ClLo	---
4.1	0-31	GBrn SiLo	---
	31-49	YBrn/Lt Gry SaCl	---
4.2	0-21	GBrn SiLo	---
	21-38	YBrn/Lt Gry SaCl	---
4.3	0-25	GBrn SaLo	---
	25-42	YBrn SiCl	---
4.4	0-32	GBrn SaLo	---
	32-50	YBrn/Lt Gry SiLo	---
4.5	0-28	GBrn SaLo/water impasse	---

4.6	---	not excavated – water impasse	---
4.7	0-27	GBrn SaLo/water impasse	---
4.8	---	not excavated – water impasse	---
4.9	---	not excavated – water impasse	---
4.10	0-32	GBrn SaLo	---
	32-52	YBrn/Lt Gry SiCl	---
4.11	0-30	GBrn SaLo	---
	30-49	YBrn SiCl	---
4.12	0-33	GBrn SaLo	---
	33-50	YBrn/Lt Gry SiCl	---
4.13	0-34	GBrn SaLo	---
	34-50	YBrn/Lt Gry SiCl	---
4.14	0-30	GBrn SiLo	---
	30-56	YBrn SaCl	---
4.15	0-31	GBrn SiLo	---
	31-49	YBrn SaCl	---
4.16	0-30	Brn SiLo	---
	30-45	YBrn ClLo	---
5.0	0-30	YBrn/GBrn ClLo/fill	---
	30-50	Gry Lo	---
	50-65	YBrn SaLo/Lt Gry ClLo	---
5.1	0-30	Brn SiLo	---
	30-45	Dk YBrn SaLo/Lt Gry ClLo	---
5.2	0-20	Brn SiLo	---
	20-35	Lt Gry ClLo/Dk YBrn/Dk Gry SaLo	---
5.3	0-22	Brn SiLo	---
	22-38	YBrn/Dk Gry SaLo	---
5.4	0-35	Brn SiLo/water impasse	---
5.5	0-20	Brn SiLo/water impasse	---
5.6	0-30	Brn SiLo	---
	30-45	YBrn/Dk Gry SaLo	---
5.7	0-30	Brn SiLo/water impasse	---
5.8	0-25	Brn SiLo	---
	25-40	YBrn SaLo/Gry ClLo	---
5.9	0-30	Brn SiLo	---
5.10	0-26	GBrn SiLo	---
	26-43	YBrn/Lt Gry SaCl	---
5.11	0-23	GBrn SiLo	---
	23-43	YBrn/Lt Gry SaCl	---
5.12	0-22	GBrn SiLo	---
	22-44	YBrn/Lt Gry SaCl	---
5.13	0-24	GBrn SiLo	---
	24-44	YBrn/Lt Gry SaCl	---
5.14	0-25	GBrn SiLo	---
	25-44	YBrn/Lt Gry SaCl	---
5.15	0-35	GBrn SiLo	---
	35-51	YBrn/Lt Gry SaCl	---
5.16	0-25	GBrn SiLo	---
	25-43	YBrn/Lt Gry SaCl	---
6.0	0-30	Brn SiClLo	---
	30-50	YBrn ClLo/Gry Cl	---
6.1	0-23	Brn SiClLo	---
	23-39	YBrn ClLo	---

6.2	0-25	GBrn SiClLo	---
	25-45	GBrn/YBrn ClLo	---
6.3	0-29	GBrn SiClLo	---
	29-38	GBrn SiCl/YBrn Cl/rock impasse	---
6.4	0-27	GBrn SiClLo	---
	27-47	GBrn SiCl/Dk YBrn SaCl	---
6.5	0-29	GBrn SiClLo	---
	29-43	GBrn/YBrn ClLo	---
6.6	0-28	GBrn SiLo	---
	28-44	YBrn SaClLo	---
6.7	0-26	GBrn SiLo	---
	26-41	YBrn/Gry SaLo	---
6.8	0-21	GBrn SiLo	---
	21-41	YBrn/Gry SaCl	---
6.9	0-29	GBrn SiLo	---
	29-44	YBrn/Gry SaCl	---
6.10	0-26	GBrn SiLo	---
	26-46	YBrn/Gry SaCl	---
6.11	0-27	GBrn SiLo	---
	27-45	YBrn/Gry SaCl	---
6.12	0-20	GBrn SiLo	---
	20-37	YBrn/Lt Gry SaCl	---
6.13	0-25	GBrn SiLo	---
	25-47	YBrn/Lt Gry SaCl	---
6.14	0-25	GBrn SiLo	---
	25-47	YBrn/Lt Gry SaCl	---
6.15	0-30	GBrn SiLo	---
	30-49	YBrn/Lt Gry SaCl	---
6.16	0-60	Brn SiLo/root impasse	---
7.0	0-33	GBrn SiClLo	---
	33-49	GBrn/Dk YBrn SiCl	---
7.1	0-25	GBrn SiClLo	---
	25-42	GBrn SiCl/Dk YBrn SaLo	---
7.2	0-35	Brn SiClLo	---
	35-50	GBrn/YBrn SiCl	---
7.3	0-30	GBrn ClLo	---
	30-45	GBrn/YBrn ClLo	---
7.4	0-30	GBrn ClLo	---
	30-50	GBrn/YBrn ClLo	---
7.5	0-38	Brn ClLo	---
	38-53	GBrn/YBrn ClLo	---
7.6	0-50	GBrn ClLo	---
	50-70	Dk GBrn/Dk YBrn ClLo	---
7.7	0-70	GBrn ClLo/rock impasse	---
7.8	0-50	Brn ClLo	---
	50-67	Dk Gry ClLo	---
7.9	0-44	Brn ClLo	---
	44-63	Dk Gry ClLo	---
7.10	0-50	Brn ClLo	---
	50-70	Dk GBrn/Dk YBrn ClLo	---
7.11	0-29	GBrn ClLo	---
	29-48	GBrn/Dk GBrn ClLo	---
7.12	0-55	GBrn ClLo	---

	55-70	Dk GBrn ClLo	---
7.13	0-35	GBrn SiLo	---
	35-51	Gry ClLo/YBrn SaLo	---
7.14	0-75	GBrn ClLo/rock impasse	---
7.15	0-35	Brn SiLo	---
	35-50	Dk YBrn ClLo	---
7.16	0-100	GBrn SiLo	14-green curved glass
8.0	0-30	Dk GBrn SiLo	---
	30-58	YBrn/Lt Gry SiCl	---
8.1	0-30	Dk GBrn SiLo	---
	30-47	YBrn/Lt Gry SiCl	---
8.2	0-25	Dk GBrn SiLo	---
	25-48	YBrn/Lt Gry SiCl	---
8.3	0-26	Dk GBrn SiLo	---
	26-60	Gry/YBrn SiCl	---
8.4	0-30	Dk GBrn ClLo	---
	30-65	Dk GBrn SiCl	---
8.5	0-23	Dk GBrn ClLo	---
	23-49	Lt GBrn SiCl	---
8.6	0-26	Dk GBrn SaClLo	---
	26-46	Gry Sa/grl	---
8.7	0-21	Dk GBrn SaClLo/grl	---
	21-42	Dk GBrn Sa/grl	---
8.8	---	not excavated – creek	---
8.9	0-34	Dk GBrn ClLo	---
	34-55	Dk GBrn/Lt Gry SiLo	---
8.10	0-35	Dk GBrn SiClLo	---
	35-56	Dk GBrn/Lt Gry SaCl/grl	---
8.11	0-28	Dk GBrn ClLo	---
	28-48	Dk GBrn/Lt Gry SaLo	---
8.12	---	not excavated – creek	---
8.13	0-45	GBrn SiLo	---
	45-65	GBrn ClLo/YBrn SaLo	---
8.14	0-30	Brn SiLo/root impasse	---
8.15	0-46	Brn SiLo	---
	46-61	Gry SaCl	---
8.16	0-44	Brn SiLo/root impasse	---
9.0	0-41	GBrn SaClLo	---
	41-56	Dk YBrn/Dk Gry SaCl	---
9.1	0-26	GBrn SaClLo	---
	26-43	Lt YBrn SaCl	---
9.2	0-31	GBrn SaClLo	---
	31-47	YBrn SaLo	---
9.3	0-45	GBrn SaLo	---
	45-62	Gry/Dk YBrn SaCl	---
9.4	0-45	GBrn SaLo	---
	45-65	Dk YBrn/Gry SaClLo	---
9.5	0-39	GBrn SaClLo	---
	39-54	Gry SaCl	---
9.6	0-34	GBrn SaLo	---
	34-51	Dk YBrn/Dk Gry SaCl	---
9.7	0-43	GBrn SaLo/rock impasse	---
9.8	0-52	GBrn SaClLo	---

	52-67	YBrn/Gry SaCl	---
9.9	0-33	GBrn SaClLo	---
	33-51	Lt YBrn SaCl	---
9.10	0-20	Brn SiLo	---
	20-33	YBrn SiClLo	---
	33-50	GBrn ClLo	---
9.11	0-40	Brn SiLo	---
	40-50	YBrn SaClLo	---
9.12	0-30	Brn SiLo	---
	30-50	YBrn SaClLo	---
9.13	0-30	Brn SiLo	---
	30-50	GBrn SaClLo	---
9.14	0-22	Brn SiLo	---
	22-50	YBrn SaClLo	---
9.15	0-23	Brn SaLo	---
	23-55	YBrn SaClLo	---
9.16	0-23	Brn SiLo	---
	23-50	V Dk Brn SaLo	---
10.1	0-25	GBrn SiCl	---
	25-50	GBrn/Dk YBrn Lo	---
10.2	0-25	GBrn SiLo	---
	25-47	GBrn/Dk YBrn Lo	---
10.3	0-20	GBrn SiLo	---
	20-50	GBrn/Dk YBrn Lo	---
10.4	0-18	GBrn SiLo/rock impasse	---
10.5	0-28	GBrn SiCl	---
	28-43	GBrn Lo/Dk Gry/YBrn SaLo	---
10.6	0-30	GBrn SiLo	---
	30-50	GBrn Lo	---
10.7	0-15	Brn SiClLo	---
	15-31	YBrn ClLo	---
10.8	0-20	Brn SiClLo	---
	20-37	Brn/Lt Gry ClLo/YBrn SaLo	---
10.9	0-20	GBrn SiLo	---
	20-38	GBrn/YBrn ClLo	---
10.10	0-27	YBrn Lo	---
	27-48	Lt Gry/YBrn Cl	---
10.11	0-26	Dk Brn SiLo	---
	26-48	Dk YBrn/GBrn SaClLo	---
10.12	0-26	Dk Brn SiLo	---
	26-48	GBrn SiClLo	---
10.13	0-26	Dk Brn SiLo	---
	26-50	GBrn SaClLo	---
10.14	0-33	GBrn SiLo	---
	33-55	V Dk Gry/YBrn Lo	---
10.15	0-20	Dk YBrn SiLo	---
	20-43	YBrn/Gry SaClLo	---
10.16	0-27	Brn SiLo	---
	27-50	YBrn SaClLo	---
10.17	0-24	GBrn ClLo	---
	24-40	YBrn/Lt Gry Cl	---
10.18	0-23	Dk GBrn SiLo	---
	23-44	YBrn/Lt Gry SaCl	---

11.1	0-30	Dk GBrn ClLo	---
	30-51	GBrn Lo	---
11.2	0-45	Dk GBrn SaClLo/grl	---
	45-60	Dk GBrn SaLo/grl	---
11.3	0-100	GBrn Lo	---
11.4	0-25	Dk GBrn SaClLo	---
	25-40	YBrn/GBrn ClLo	---
11.5	0-26	Dk GBrn ClLo	---
	26-46	YBrn/Gry SaLo	---
11.6	0-20	Dk GBrn ClLo	---
	20-35	GBrn SaClLo	---
11.7	0-30	GBrn ClLo	---
	30-50	YBrn ClLo	---
11.8	0-34	GBrn ClLo	---
	34-56	YBrn/Lt Gry ClLo	---
11.9	0-30	GBrn ClLo	---
	30-47	YBrn/Gry ClLo	---
11.10	0-35	GBrn ClLo/water impasse	---
11.11	0-38	GBrn ClLo	---
	38-52	Dk Gry/YBrn ClLo	---
11.12	0-25	GBrn ClLo	---
	25-48	Lt Gry/YBrn ClLo	---
11.13	0-26	GBrn ClLo	---
	26-52	YBrn/Lt Gry ClLo	---
11.14	0-26	YBrn ClLo	---
	26-50	YBrn/Gry ClLo	---
11.15	0-26	Dk GBrn ClLo	---
	26-42	YBrn/Lt Gry/Gry Cl	---
11.16	0-17	Dk GBrn ClLo	---
	17-34	YBrn Cl/Lt Gry ClLo	---
11.17	0-29	GBrn ClLo	---
	29-44	Lt Gry/Lt YBrn/Dk YBrn ClLo	---
11.18	0-30	GBrn/Str Brn ClLo	---
12.1	0-31	Dk GBrn SiLo	---
	31-48	Gry SaClLo	---
12.2	0-35	Dk GBrn SiLo	---
	35-54	Gry SaClLo	---
12.3	0-27	GBrn SiLo	---
	27-45	YBrn/Gry SaCl	---
12.4	0-23	Gry ClLo	---
	23-47	Lt Gry/YBrn SaCl	---
12.5	0-29	GBrn SiLo	---
	29-46	YBrn/Lt Gry SaCl	---
12.6	0-33	Gry ClLo	---
	33-50	Lt Gry/YBrn SaCl	---
12.7	0-27	Lt GBrn SiLo	---
	27-43	YBrn SaCl	---
12.8	0-28	Dk GBrn ClLo	---
	28-49	YBrn/Lt Gry SaClLo	---
12.9	0-23	GBrn SiLo	---
	23-44	YBrn/Gry SaCl	---
12.10	0-32	GBrn ClLo	---
	32-47	YBrn/Lt Gry SaCl	---

12.11	0-28	Brn SiLo	---
	28-45	YBrn/Lt Gry SaCl	---
12.12	0-33	GBrn SiClLo	---
	33-50	YBrn/Lt Gry SaCl	---
12.13	0-21	GBrn SiLo	---
	21-40	YBrn/Gry SaCl	---
12.14	0-27	GBrn SiClLo	---
	27-44	Lt Gry/YBrn SaCl	---
12.15	0-30	GBrn SiLo	---
	30-47	YBrn/Gry SaCl	---
12.16	0-29	GBrn ClLo	---
	29-48	YBrn/Lt Gry SaCl	---
12.17	0-26	GBrn SiLo	---
	26-43	YBrn/Gry SaCl	---
12.18	0-31	GBrn SiClLo	---
	31-46	YBrn/Lt Gry SaCl	---
13.1	0-20	Gry SiLo	---
	20-40	YBrn/GBrn ClLo	---
13.2	0-24	GBrn SiLo	---
	24-45	YBrn ClLo	---
13.3	0-25	Gry SiLo	---
	25-40	YBrn/GBrn ClLo	---
13.4	0-30	GBrn ClLo	---
	30-46	YBrn SaLo/GBrn ClLo	---
13.5	0-40	GBrn SiLo	---
	40-55	GBrn ClLo/YBrn SaLo	---
13.6	0-32	Gry SiLo	---
	32-46	YBrn SaLo/GBrn ClLo	---
13.7	0-30	Gry SiLo	---
	30-45	YBrn SaLo/GBrn ClLo	---
13.8	0-26	GBrn ClLo	---
	26-45	YBrn SaLo/Brn ClLo	---
13.9	0-20	GBrn SiLo	---
	20-45	YBrn SaLo/GBrn ClLo	---
13.10	0-31	Gry SiLo	---
	31-46	YBrn ClLo	---
13.11	0-30	GBrn SiLo	---
	30-50	GBrn ClLo/YBrn SaLo	---
13.12	0-30	GBrn SiLo	---
	30-45	YBrn ClLo	---
13.13	0-25	GBrn SiLo	---
	25-45	GBrn ClLo/YBrn SaLo	---
13.14	0-27	GBrn SaLo	---
	27-50	YBrn/GBrn ClLo	---
13.15	0-35	GBrn SiLo	---
	35-50	YBrn SaLo/GBrn ClLo	---
13.16	0-22	Gry SaLo	---
	22-44	YBrn SaLo/GBrn ClLo	---
13.17	0-30	Brn SiLo	---
	30-45	YBrn SaLo/GBrn ClLo	---
13.18	0-33	GBrn ClLo	---
	33-50	YBrn/GBrn SaCl	---
14.1	0-30	GBrn SaClLo	---

	30-48	YBrn/Lt Gry Cl	---
14.2	0-30	GBrn SaClLo	---
	30-46	YBrn/Lt Gry SaCl	---
14.3	0-30	GBrn SaClLo	---
	30-46	YBrn/Lt Gry SaCl/grl	---
14.4	0-34	GBrn SaCl	---
	34-50	Lt Gry/YBrn SaCl	---
14.5	0-30	GBrn SaClLo/grl	---
	30-48	Lt Gry SaCl/grl	---
14.6	0-20	GBrn Lo	---
	20-38	Lt Gry/YBrn SaCl	---
14.7	0-30	GBrn SaClLo	---
	30-50	YBrn/Lt Gry SaCl	---
14.8	0-33	GBrn SaLo	---
	33-50	YBrn/Lt Gry SaCl	---
14.9	0-26	GBrn SaClLo	---
	26-46	YBrn/Lt Gry SaCl	---
14.10	0-30	GBrn SaClLo	---
	30-48	YBrn/Lt Gry SaCl	---
14.11	0-28	GBrn SaClLo	---
	28-43	YBrn/Lt Gry SaCl	---
14.12	0-21	GBrn SaClLo	---
	21-39	YBrn/Lt Gry SaCl	---
14.13	0-26	GBrn SaClLo	---
	26-44	YBrn/Dk YBrn/Lt Gry SaCl	---
14.14	0-16	GBrn SiLo	---
	16-32	YBrn/Gry SaCl	---
14.15	0-28	GBrn SaClLo	---
	28-43	YBrn/Lt Gry SaCl	---
14.16	0-27	GBrn SiClLo	---
	27-44	YBrn/Lt Gry SaCl	---
14.17	0-25	GBrn SiLo	---
	25-47	YBrn/Gry SaCl	---
14.18	0-30	GBrn ClLo	---
	30-48	YBrn/Gry ClLo	---
15.1	0-32	GBrn SiLo	---
	32-51	YBrn/Gry SaClLo	---
15.2	0-20	Dk Brn SiLo	---
	20-43	YBrn/GBrn SaClLo	---
15.3	0-30	Dk Brn SiLo	---
	30-48	YBrn/GBrn SaClLo	---
15.4	0-18	Dk Brn SiLo	---
	18-37	YBrn/GBrn SaClLo	---
15.5	0-24	Dk Brn SiLo	---
	24-40	YBrn/GBrn SaClLo	---
15.6	0-20	Brn SiLo	---
	20-40	YBrn SaClLo	---
15.7	0-26	Dk Brn SiLo	---
	26-42	YBrn SaClLo	---
15.8	0-20	Brn SiLo	---
	20-38	YBrn SaClLo	---
15.9	0-20	Dk Brn SiLo	---
	20-38	GBrn/YBrn SaClLo	---

15.10	0-23	Brn SiLo	---
	23-40	YBrn SaClLo	---
15.11	0-27	GBrn SiLo	---
	27-42	YBrn SaClLo	---
15.12	0-23	Brn SiLo	---
	23-43	YBrn SaClLo	---
15.13	0-16	Brn SiLo	---
	16-35	YBrn SaClLo	---
15.14	0-32	GBrn ClLo	---
	32-48	YBrn/Gry SaCl	---
15.15	0-23	GBrn ClLo	---
	23-39	YBrn/Lt Gry SaCl	---
15.16	0-23	Brn SiLo	---
	23-40	YBrn SaClLo	---
15.17	0-24	Brn SiLo	---
	24-44	YBrn SaClLo	---
15.18	0-25	GBrn SiLo	---
	25-40	GBrn ClLo/YBrn SaLo	---
16.1	0-34	GBrn ClLo	---
	34-50	YBrn/Gry ClLo	---
16.2	0-24	GBrn ClLo	---
	24-42	YBrn/Lt GBrn ClLo	---
16.3	0-24	GBrn ClLo	---
	24-41	YBrn/Lt Gry ClLo	---
16.4	0-32	GBrn ClLo	---
	32-49	YBrn/Lt Gry ClLo	---
16.5	0-35	GBrn ClLo	---
	35-50	YBrn/Lt Gry ClLo	---
16.6	0-40	GBrn ClLo	---
	40-57	Lt YBrn ClLo	---
16.7	0-29	GBrn ClLo	---
	29-50	YBrn/Lt GBrn ClLo	---
16.8	0-24	GBrn ClLo	---
	24-40	YBrn/Lt GBrn ClLo	---
16.9	0-34	GBrn ClLo	1-metal washer, 1-magnetic disk, 1-plastic “Casio” nameplate
	34-52	YBrn/Lt GBrn ClLo	---
16.10	0-26	GBrn SiLo	---
	26-41	Dk YBrn/YBrn SaClLo	---
16.11	0-30	GBrn SaClLo	---
	30-47	YBrn/Lt Gry SaCl	---
16.12	0-25	Brn SiLo	---
	25-43	YBrn SaClLo	---
16.13	0-23	GBrn SaClLo	---
	23-41	YBrn/Lt Gry SaCl	---
16.14	0-29	GBrn SaClLo	---
	29-47	YBrn/Lt Gry SaCl	---
16.15	0-25	GBrn SiLo	---
	25-44	YBrn/Dk GBrn SaClLo	---
16.16	0-25	Brn SiLo	---
	25-48	YBrn SaClLo	---
16.17	0-28	Brn SiLo	---
	28-41	Dk YBrn/GBrn SaClLo	---
16.18	0-23	Brn SiLo	---

	23-45	YBrn SaClLo	---

Lt- Light, Dk-Dark, GBrn-Gray Brown, YBrn-Yellow Brown Cl- Clay, Lo-Loam, Si-Silt, Sa-Sand

Beers, F.W.
1880 *Illustrated Historical Atlas of Erie County, New York*, F.W. Beers and Co., Philadelphia.

Century Map Company
1909 *New Century Atlas of Erie County, New York.* Philadelphia, Century Atlas Company.

Erie County Highway Department
1927 Aerial photo.
1951 Aerial photo.

Geil, Samuel
1854 *Map of Erie County, New York.* Gillette, Matthews and Co., Philadelphia.

NRCS
2020 http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx.

New York Archaeological Council
1994 Standards for Cultural Resources Investigation and the Curation of Archaeological Collections. New York Archaeological Council, Albany.

New York State Museum (NYSM)
2004 Work *Scope Specifications for Cultural Resource Investigations.* State Education Department, New York State Museum, Albany.

Stone and Stewart
1866 *New Topographical Atlas of Erie County, New York.* Stone and Stewart, Philadelphia.

United Stated Geological Survey
2016 *Buffalo SE, New York* 7.5 Minute Series Quadrangle.

Appendix C

Habitat Assessment Report
Prepared by Earth Dimensions, In

Habitat Assessment Report

for

BIG TREE ROAD & WILSON DRIVE

Town of Hamburg

Erie County, New York

for

WETZL DEVELOPMENT

EARTH DIMENSIONS, INC.

Soils Investigations • Wetland Delineations

November 15, 2021
EDI Project Code: **W5D93e**

REPORT SUMMARIZING
THE RESULTS OF
A HABITAT ASSESSMENT SURVEY OF

BIG TREE ROAD & WILSON DRIVE

Prepared By:

EARTH DIMENSIONS, INC.
1091 JAMISON ROAD
ELMA, NEW YORK 14059

Prepared For:

GLENN WETZL
WETZL DEVELOPMENT
7071 LIEBER ROAD
COLDEN, NEW YORK 14033

REPORT DATE: November 15, 2021
EDI PROJECT CODE: W5D93e

PROJECT INFORMATION

Project Name	Big Tree Road & Wilson Drive
Street Address	0 Big Tree Road & 0 Wilson Drive
SBL Numbers	160.19-2-1.1 & 171.07-1-1
Town	Hamburg
County	Erie
State	New York
Latitude/Longitude (NAD83)	42.76688°N, 78.80592°W
Investigation Area	42.52± Acres
USGS 7.5 Minute Topographical Map	Buffalo SE Quadrangle
Waterway	Rush Creek
Hydrologic Unit Code	04120103
Date of Investigation	October 18, 2021
Consultant	Earth Dimensions, Inc. 1091 Jamison Road Elma, New York 14095
Point of Contact	Thomas Somerville (716)655-1717 tsomerville@earthdimensions.com
Engineer	Carmina Wood Morris
Property Owner	Seven Corners Development
Authority	Section 7 ESA, 6NYCRR 182

TABLE OF CONTENTS

EXECUTIVE SUMMARY

Wetzl Development has proposed a residential development on a 22.45± acre portion of the 42.52± acre Big Tree Road & Wilson Drive project site on the south side of Big Tree Road in the Town of Hamburg, County of Erie, and State of New York. Wetzl Development has retained Earth Dimensions, Inc. (EDI) to perform a Wildlife Survey and Habitat Assessment study to identify existing ecological communities, presence of wildlife and the existence or potential for listed State and/or Federal species and/or their habitats. The proposed survey is in response to the Town of Hamburg issuing a Positive Declaration on September 15, 2021. Coordination with the New York State Department of Environmental Conservation (NYSDEC) and United States Fish & Wildlife Service (USFWS) was conducted to determine their jurisdictional authority over the investigation area, pursuant to Title 6 of the New York Codes, Rules and Regulations (6NYCRR), Part 360.8 and Section 7 of the Endangered Species Act.

A preliminary review of available information pertaining to ecological communities, listed species, vegetation, soils, and hydrology in the project area was implemented prior to conducting a field investigation at the site. Sources of information include Figure 1: United States Geological Survey (USGS), Figure 2: National Wetland Inventory (NWI), Figure 3: Natural Resources Conservation Service (NRCS), and Figure 4 NYSDEC Freshwater Wetland maps. EDI applied methodology specified by the New York Natural Heritage Program in performing the habitat assessment. Within the investigation area, EDI identified five (5) ecological communities.

During initial review, USFWS identified the potential for Federally Threatened Northern Long-eared Bat (*Myotis septentrionalis*) within the site. NYSDEC Natural Heritage identified no listed species or habitats within or near the project site.

A detailed field investigation was conducted on October 18, 2021 to document existing site conditions and survey for wildlife usage. No listed species, significant habitats or unique wildlife were identified during the field investigation.

SECTION I: INTRODUCTION

Wetzl Development has proposed a residential development on a 22.45± acre portion of the 42.52± acre Big Tree Road & Wilson Drive project site on the south side of Big Tree Road in the Town of Hamburg, County of Erie, and State of New York. In response to the potentially moderate to large impacts being identified in the Positive Declaration issued by the Town of Hamburg, a wildlife survey and habitat assessment was conducted. The investigation area is dominated by early successional shrub and forested communities with mixed upland and wetland areas. The site is located on the USGS 7.5 minute quadrangle map indexed as Buffalo SE/USGS (Figure 1). The wildlife survey and habitat assessment field work was completed on October 18, 2021 by an Ecologist from Earth Dimensions, Inc.

Wetzl Development has retained Earth Dimensions, Inc. (EDI) to complete a wildlife survey and habitat assessment study at this site. The vegetative communities identified during the field assessment were characterized based on the technical document updated in 2014 titled, "Ecological Communities of New York State" (Edinger et al.). The investigation was designed to determine potential impacts to wildlife and ecological resources within the project site.

The New York State Natural Heritage Program and the U.S. Fish and Wildlife Service (USFWS) on-line mapping resources were consulted in order to determine whether known occurrences of protected species have been located in the project vicinity. The Natural Heritage Program did not identify any listed species or significant habitats within or adjacent to the investigation area. The Information for Planning and Consultation (IPaC) was utilized to identify any USFWS listed species or habitats within the site. Federally Threatened Northern Long-eared Bat was identified. USFWS also identified seven (7) migratory birds that are identified as a Bird of Conservation Concern. The birds identified are American golden-plover, bald eagle, blue-winged warbler, golden eagle, lesser yellowlegs, red-headed woodpecker and wood thrush.

EDI has performed a wildlife survey and habitat assessment at the site under guidelines specified by the NYSDEC New York Natural Heritage Program and USFWS. The purpose of this report is to present EDI's findings with respect to the Big Tree Road & Wilson Drive project site.

SECTION II: SITE DESCRIPTION

The Big Tree Road & Wilson Drive parcel is a 42.52± acre site on the south side of Big Tree Road. The development footprint consists of the 22.45± acre northern portion of the parcel. The proposed development footprint will result in the development of approximately 53% of the site. The area to be developed is dominated by low-quality successional shrubland and early successional northern hardwood communities that are encumbered by invasive plant species. A young, forested community with scattered evergreen trees is present along the eastern edge of the project site. A perennial stream (Tributary to Rush Creek) flows westward through the central portion of the development area. The investigation area is outlined on Figure 1 in Appendix A.

The natural topography of the investigation area is flat to gently sloping. The uplands within the investigation area consisted of successional shrubland, successional northern hardwood and pine-northern hardwood communities. The wetland areas were found to consist of scrub-shrub swamp and hardwood swamp communities. The vegetative communities of the investigation area are described according to *Ecological Communities of New York State* (Edinger et al. 2014).

The development plan utilizes the lack of wetlands within the northern portion of the site. Scrub-shrub and forested wetlands dominate the southern portion of the site and will be avoided during development. The plan identifies the impacts to 0.04± acre of wetland for placement of the stormwater management area. A total of 20.07± acres of green space will be preserved within the site. Additionally, a perennial stream channel (Rush Creek) is present in the northern portion of the site. The channel will have a 25-foot wide buffer that will be planted with native trees and shrubs.

During the field investigation, no significant communities or habitats were identified. The dominant communities within the development footprint are commonly found throughout Western New York and provide no unusual ecological functions. The area proposed for development is the lowest quality habitat within the site, based on the density of invasive shrubs and lack of wetland communities.

SECTION III: PURPOSE

The purpose of this study is to complete a wildlife survey and general ecological assessment of the site in response to the Positive Declaration issued by the Town of Hamburg. The investigation was designed to document wildlife usage and the potential for negative ecological impacts based on the proposed development footprint. Specifically, item 7g: "The proposed action may substantially interfere with nesting/breeding, foraging, or over-wintering habitat for the predominant species that occupy or use the project site" and item 7h: "The proposed action requires the conversion of more than 10 acres of forest, grassland or any other regionally or locally important habitat" were noted as potentially moderate to large impacts in the Positive Declaration.

SECTION IV: SPECIES DESCRIPTIONS

USFWS identified the Federally Threatened Northern Long-eared Bat as potentially within the project area. NYSDEC Natural Heritage Program did not identify any threatened or endangered species within or adjacent to the project site. USFWS also identified seven (7) bird species that are protected under the Migratory Bird Treaty Act or Bald and Golden Eagle Protection Act, and that are identified as Birds of Conservation Concern. There are no Section 7 ESA regulations for migratory birds not specifically listed as threatened or endangered.

Northern long-eared bat populations in the northeastern United States have fallen dramatically since the discovery of white-nose syndrome. Northern long-eared bats winter in caves and mines, often hibernating in small cracks and crevices. The northern long-eared bat's range includes much of the eastern and north central United States. In New York, they occur in a patchy distribution and may be found throughout most of the state including Long Island. Winter surveys prior to the start of WNS had recorded this species in all regions of the state where mines and caves have been surveyed. During the summer, northern long-eared bats roost underneath bark, in cavities or in crevices of both live trees and snags (dead trees) typically over 3 inches in diameter at breast height (dbh). Log piles and downed trees with cracks or crevices are also used, although not as commonly as standing trees. Northern long-eared bats seem to be flexible in selecting roosts, choosing roost trees based on suitability to retain bark or provide cavities or crevices. Breeding typically occurs in late summer to early fall, near the hibernacula. Females retain the males sperm over winter and the eggs are fertilized during ovulation in the spring. Females concentrate in areas where maternity roost are readily available, where they give birth to and raise a single pup. During June and July, these pups are flightless and any disturbance to the roost tree or immediate area can be detrimental.

American golden-plover is listed as a Bird of Conservation Concern based on their declining population likely due to habitat loss on the breeding and wintering grounds. American golden-plovers utilize lagoons and estuaries for feeding during migration. Breeding occurs in the arctic and subarctic tundra, both in lowlands and mountains. During migration, flocks gather in native prairie, pastures, sod farms, farmland, mudflats and shorelines habitats. Based on locations identified by Cornell's E-bird mapping tools, American golden-plovers are uncommon in Erie County, with nearly all records being along the Lake Erie shoreline. Development of the proposed project will have no effect on American golden-plover as they do not breed in New York and there is no suitable feeding habitat within or adjacent to the site.

Bald eagle is not a species listed as a Bird of Conservation Concern, but rather warrants attention because of the Eagle Act of 1940. It is unlikely that bald eagles utilize the site due to lack of feeding areas (large open water areas) and lack of nesting areas (large trees near open water). Based on locations identified by Cornell's E-bird mapping tools, Bald eagles are present along the lake Erie shoreline and other areas with open accessible water for hunting. Dense shrubby and forested communities of Erie County do not provide suitable breeding or feeding habitat for bald eagles. Bald eagles may fly over the site; however, the site provides minimal important habitat.

Blue-winged warbler is a common species in New York but is listed as a Bird of Conservation Concern based on their declining population likely due to habitat loss and hybridizing with golden-winged warblers. Populations are secure and scattered suitable habitat is present in Western New York. Blue-winged warblers breed in shrublands, thickets and forest edge communities. Based on locations identified by Cornell's E-bird mapping tools, blue-winged warblers are generally uncommon in Erie County, with scattered breeding locations noted in the eastern and southern portion of the county. Preservation of nearly half of the parcel will preserve any suitable shrubland habitat that may be utilized for breeding; however, breeding is unlikely based on the proximity to existing development and small size of the forested area.

Golden eagle is not a species listed as a Bird of Conservation Concern, but rather warrants attention because of the Eagle Act of 1940. Golden eagles utilize cliff nesting sites overlooking water and hunt open country for small mammals. Golden eagles are very uncommon in New York, identified most common during migration north in the spring or south in the fall. It is unlikely that golden eagles utilize the site based on the distance from known breeding areas and lack of nesting areas (cliffs near open water). Based on locations identified by Cornell's E-bird mapping tools, golden eagles have been reported in Erie County, but only along the Lake Erie shoreline. All records have been during migration in late March-early April and late October-early November. No nesting has been confirmed for several decades. Golden eagles may fly over the site; however, the site provides minimal important habitat.

Lesser yellowlegs is a Bird of Conservation Concern based on the decrease of populations likely from loss of wintering habitat in South America. Lesser yellowlegs utilize the shore of Lake Erie for migrating to and from the breeding grounds in northern Canada. Based on locations identified by Cornell's E-bird mapping tools, lesser yellowlegs have been reported in Erie County, with concentrations of observations along the Lake Erie shoreline. Scattered observations have been noted throughout the county during migration. Habitats utilized include open fresh and brackish wetlands, mudflats, marshes, land and pond edges, wet meadows, sewage ponds and flooded agriculture fields. The habitat within the project site is not suitable for the presence of lesser yellowlegs based on the

density and coverage of shrub and tree species. Development of the northern portion of the parcel will have no effect on lesser yellowlegs.

Red-headed woodpecker is a Bird of Conservation Concern based on population declines from loss of habitat and forest conversion for development. Few breeding locations are known in Erie County and are located in the northern portion of the county. Red-headed woodpeckers breed in deciduous woodlands with oak or beech, groves of dead or dying trees, river bottoms, burned areas and grasslands with scattered trees. They have no affinity for nesting locations; they may be common one year and absent the next. Within the project parcel, a small area of mature woods is present in the southwest corner of the site. This area is proposed to be preserved and would be the only potentially suitable habitat for red-headed woodpeckers. Therefore, development of the project will have no impact to red-headed woodpeckers based on the lack of suitable habitat within the development footprint and the preservation of wooded areas.

Wood thrush is a common local breeder that prefers deciduous forests with a high canopy and dense understory for nesting. Wood thrushes are common and abundant in Erie County per the E-bird mapping tools. No suitable breeding habitat is present within the site, based on the dense understory present and lack of large open wooded areas. No individuals were identified during the field investigation. Development of the project will have minimal impact to wood thrush populations.

SECTION V: FIELD INVESTIGATION PROCEDURES

In order to accurately identify the limits of various vegetative communities, aerial photography (Figure 6) and ground truthing were utilized. As depicted on Figure 5 in Appendix A and included in Appendix B, ten (10) data points were used to characterize the site. Figure 5 depicts the locations of the photos included in Appendix C.

The plant community inhabiting each observation point was characterized. Dominant plant species were identified within four vegetative strata (i.e. herb, sapling/shrub, tree and liana (woody vines) at each sampling point. The quadrant sizes used for the vegetative strata were (i) a 3.28-foot radius for herbs; (ii) a ten-foot radius for saplings/shrubs and woody vines; and (iii) a 30-foot radius for trees. Dominant plant species were estimated using aerial coverage methods.

The plant community data was summarized on the data forms provided in the Northcentral and Northeast Regional Supplement included in this report as Appendix B. Details about each community type are included in the community descriptions in Section V.

In addition to plant community descriptions, a full wildlife assessment was conducted during the site visit. All birds, mammals and reptiles/amphibians were identified. During the site visit, three (3) mammals, one (1) amphibian and eighteen (18) bird species were identified.

SECTION VI: STUDY AREA HABITATS & FINDINGS

The field investigation documented all individuals observed and signs of wildlife use within the site. Tracks of white-tailed deer and raccoon were noted within the site. Several cotton-tail rabbits were seen in the dense shrub communities. Within the wetlands, spring peepers were heard (actively singing despite the cold conditions). Birds seen and/or heard during the visit included American crow, ruby-crowned kinglet, golden-crowned kinglet, blue jay, American goldfinch, northern cardinal, American robin, black-capped chickadee, red-tail hawk, downy woodpecker, yellow-rumped warbler, pine warbler, dark-eyed junco, mourning dove, house finch, European starling, white-breasted nuthatch and tufted titmouse. The bird species identified are common throughout Erie County and have a wide range of habitats they utilize. None of the species identified are of significant conservation concern.

Within the investigation area, EDI identified five (5) major ecological communities, none of which are listed as vulnerable in New York State. They are as follows:

Ecological Community	**Global Rank**	**State Rank**
1. Successional Shrubland	1. G4	1. S4
2. Successional Northern Hardwoods	2. G5	2. S5
3. Pine-Northern Hardwoods	3. G4	3. S4
4. Scrub-shrub swamp	4. G5	4. S5
5. Hardwood Swamp	5. G5	5. S4

Figure 5 in Appendix A depicts the vegetative communities as they existed at the time of the investigation. The vegetative communities of the investigation area are described according to Ecological Communities of New York State (Edinger et al. 2014). The following is a description of each major community type encountered.

The **successional shrubland** community contained the following species: red pine (*Pinus resinosa*), tatarian honeysuckle (*Lonicera tatarica*), white ash (*Fraxinus americana*), gray dogwood (*Cornus racemosa*), European buckthorn (*Rhamnus cathartica*), graceful sedge (*Carex gracillima*) and summer grape (*Vitis aestivalis*).

The **successional northern hardwood** community contained the following species: black cherry (*Prunus serotina*), shagbark hickory (*Carya ovata*), hophornbeam (*Ostrya virginiana*), northern red oak (*Quercus rubra*), common serviceberry (*Amelanchier arborea*), red maple (*Acer rubrum*), quaking aspen

(*Populus tremuloides*), red pine (*Pinus resinosa*), white ash (*Fraxinus americana*), Tatarian honeysuckle (*Lonicera tatarica*), multiflora rose (*Rosa multiflora*), cockspur hawthorn (*Crataegus crus-galli*), sugar maple (*Acer saccharum*), gray dogwood (*Cornus racemosa*), glossy buckthorn (*Frangula alnus*) garlic mustard (*Alliaria petiolata*), Virginia strawberry (*Fragaria virginiana*), graceful sedge (*Carex gracillima*), eastern woodland sedge (*Carex blanda*), common cinquefoil (*Potentilla simplex*) and summer grape (*Vitis aestivalis*).

The **pine-northern hardwood** community contained the following species: red pine (*Pinus resinosa*), white ash (*Fraxinus americana*), sugar maple (*Acer saccharum*), Tatarian honeysuckle (*Lonicera tatarica*), gray dogwood (*Cornus racemosa*), cockspur hawthorn (*Crataegus crus-galli*) and summer grape (*Vitis aestivalis*).

The **scrub-shrub swamp** community contained the following species: eastern cottonwood (*Populus deltoides*), red maple (*Acer rubrum*), green ash (*Fraxinus pennsylvanica*), silky dogwood (*Cornus amomum*), pussy willow (*Salix discolor*), gray dogwood (*Cornus racemosa*), Tatarian honeysuckle (*Lonicera tatarica*), American elm (*Ulmus americana*), European buckthorn (*Rhamnus cathartica*), purple loosestrife (*Lythrum salicaria*), common rush (*Juncus effusus*), tall goldenrod (*Solidago gigantea*), woolgrass (*Scirpus cyperinus*), creeping bentgrass (*Agrostis stolonifera*) and sensitive fern (*Onoclea sensibilis*).

The **hardwood swamp** community contained the following species: red maple (*Acer rubrum*), silver maple (*Acer saccharinum*), green ash (*Fraxinus pennsylvanica*), pin oak (*Quercus palustris*), shagbark hickory (*Carya ovata*), silky dogwood (*Cornus amomum*), glossy buckthorn (*Frangula alnus*), gray dogwood (*Cornus racemosa*), American hornbeam (*Carpinus caroliniana*), creeping bentgrass (*Agrostis stolonifera*), tall goldenrod (*Solidago gigantea*), calico aster (*Symphyotrichum lateriflorum*), fowl mannagrass (*Glyceria striata*), yellow avens (*Geum aleppicum*), common rush (*Juncus effusus*), reed canarygrass (*Phalaris arundinacea*), upright sedge (*Carex stricta*), sensitive fern (*Onoclea sensibilis*) and summer grape (*Vitis aestivalis*).

SECTION VII: CONCLUSION

Earth Dimensions, Inc. (EDI) has completed a habitat assessment study at the Big Tree Road & Wilson Drive site located in the Town of Hamburg, County of Erie, and State of New York. A field investigation was conducted by an Ecologist from EDI. The study identified five (5) vegetative community types present within the site.

A map which depicts the site boundaries, the dominant community types and the location of all observation points and photo locations established during the field survey is included as Figure 5 in Appendix A of this report. Data forms are included as Appendix B. Appendix C includes representative photographs of the community types. Appendix D notes the references used during the preparation of this report and during the field investigation. Appendix E provides the names, addresses and phone numbers of the survey personnel involved in the wetland delineation study. Appendix F provides the correspondence from the USFWS and NYSDEC.

In summary, EDI determined that no significant ecological communities or high-quality wildlife habitat is present within the project area. The Habitat Assessment found potentially suitable habitat is present for northern long-eared bat, blue-winged warbler and red-headed woodpecker, although the habitat identified is minimal in area and will be mostly preserved during development. No listed species were identified during the site investigation. Additionally, EDI's professional opinion is that the habitat to be removed for development of the proposed project is of low quality and is a common ecological setting throughout western New York. Wildlife habitat that is proposed for removal is present within the preserved portion of the development parcel and also extends off-site southward. The proposed project will have minimal negative effect on regional wildlife usage based on loss of habitat and construction activities.

Regarding the federally listed northern long-eared bat, potentially suitable habitat was identified in the southern portion of the site. The habitat identified includes forested wetland and upland wooded communities. The potentially suitable habitat is of low quality for bats based on the dense understory and low density of trees with suitable roosting locations (peeling bark, cavities, etc.). Although the proposed development is unlikely to affect northern long-eared bats, EDI recommends tree clearing be completed between August 1 and May 31 based on USFWS recommendations for sites that are beyond 5 miles from a known winter hibernacula or beyond 1/2 mile from a known summer roost location.

BIG TREE ROAD & WILSON DRIVE

APPENDIX A - FIGURES

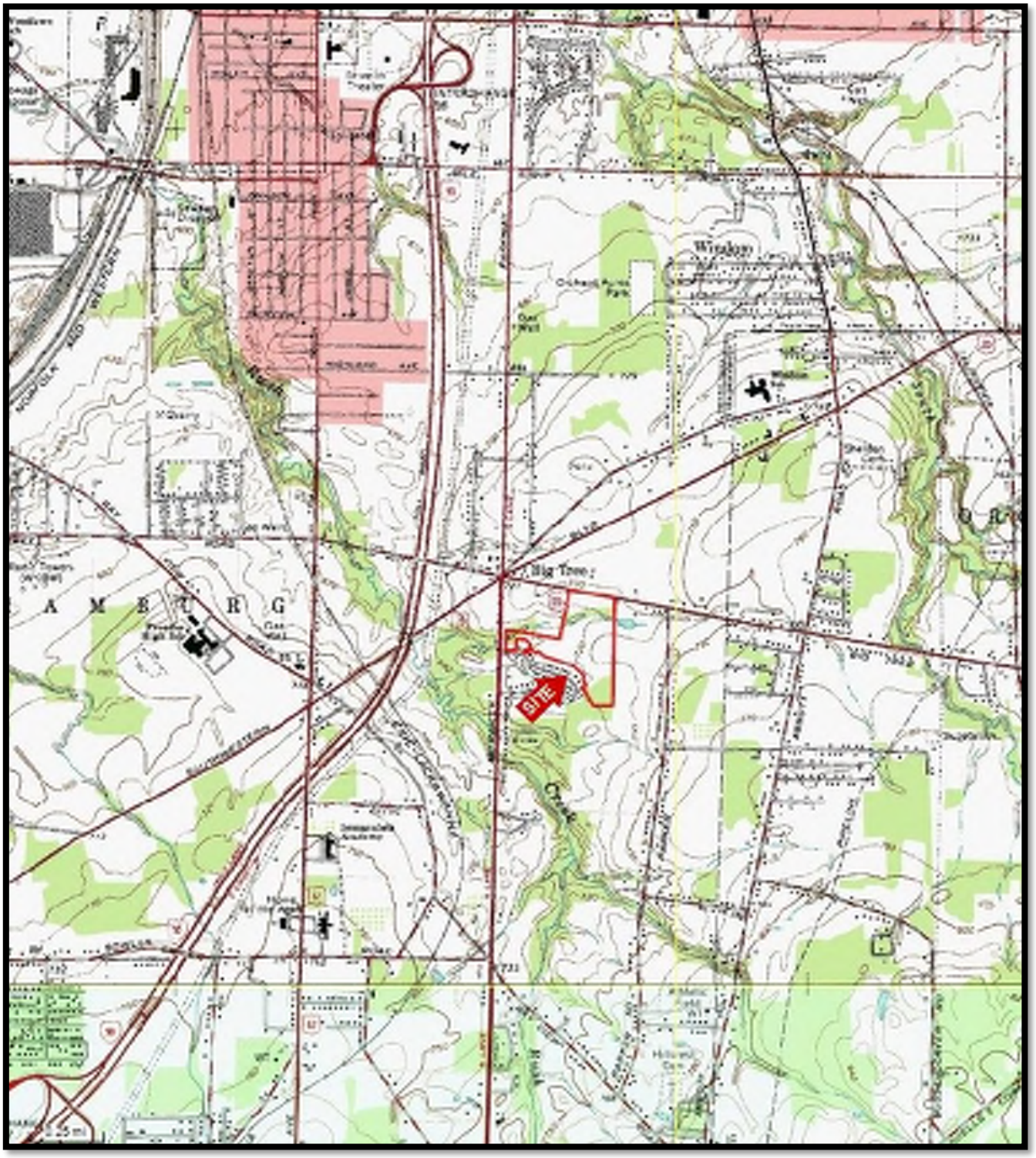


FIGURE 1: USGS 7.5 MINUTE TOPOGRAPHICAL MAP

Buffalo SE Quadrangle / U.S. Geological Survey

Big Tree & Wilson Drive

Town of Hamburg, Erie County, New York

FIGURE 2: NATIONAL WETLANDS INVENTORY MAP

http://www.fws.gov/wetlands/data/mapper.HTML (11/8/21)

Big Tree & Wilson Drive

Town of Hamburg, Erie County, New York

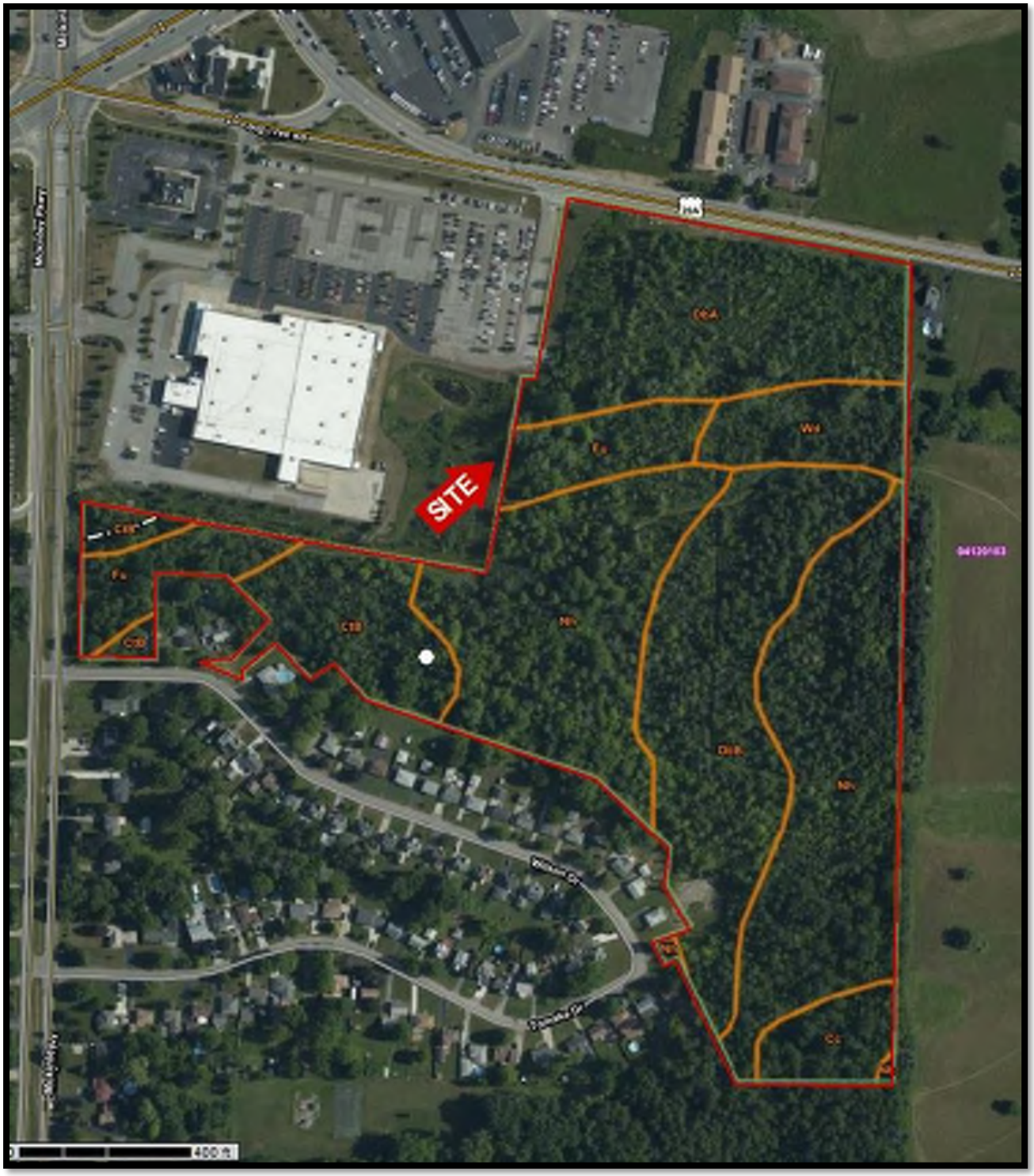


FIGURE 3: NRCS ERIE COUNTY SOIL SURVEY MAP

http://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx (11/8/21)

Big Tree & Wilson Drive

Town of Hamburg, Erie County, New York

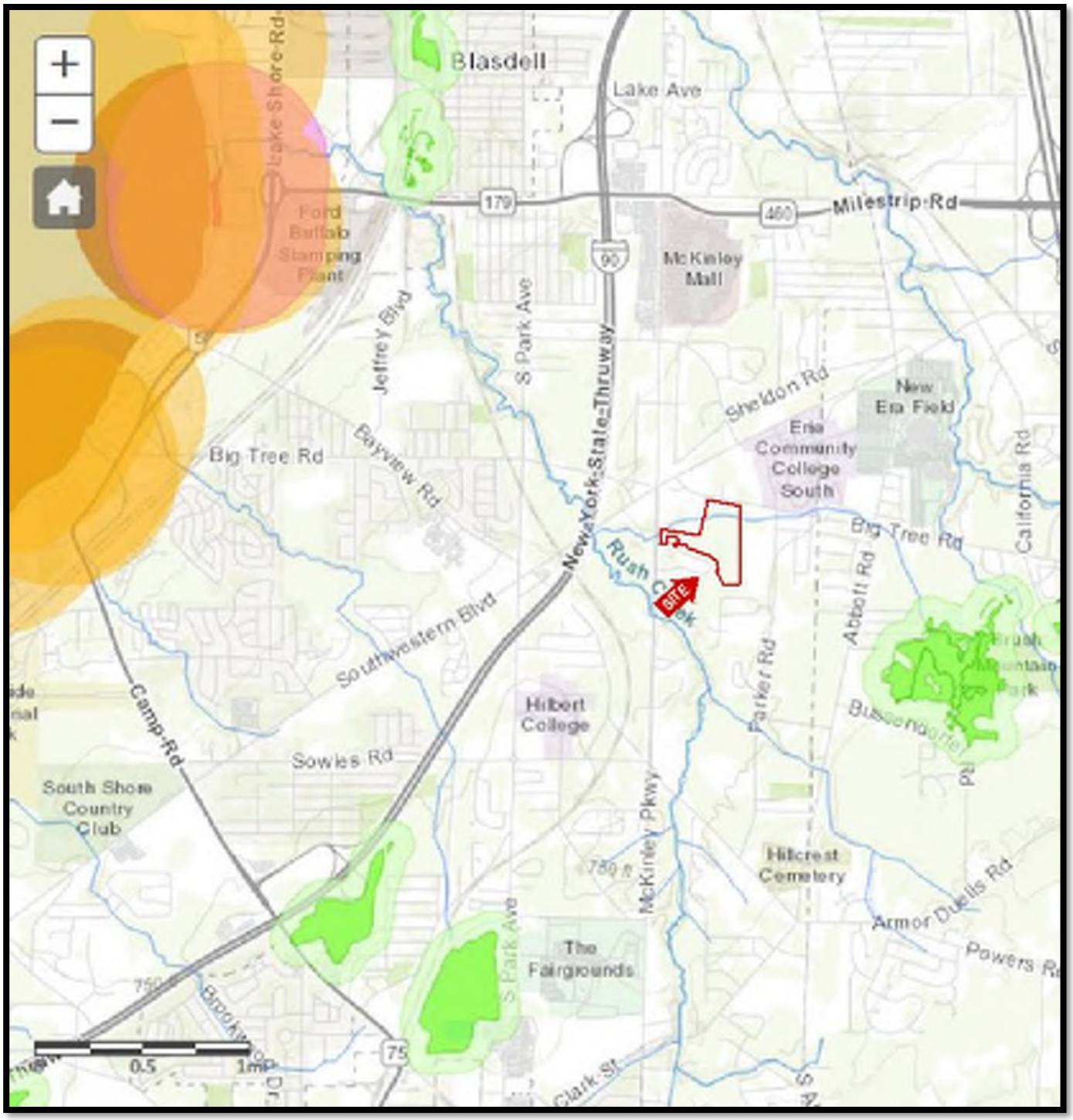


FIGURE 4: NYSDEC ENVIRONMENTAL RESOURCE MAPPER

http://www.dec.ny.gov/imsmaps/ERM/viewer.htm (11/8/21)

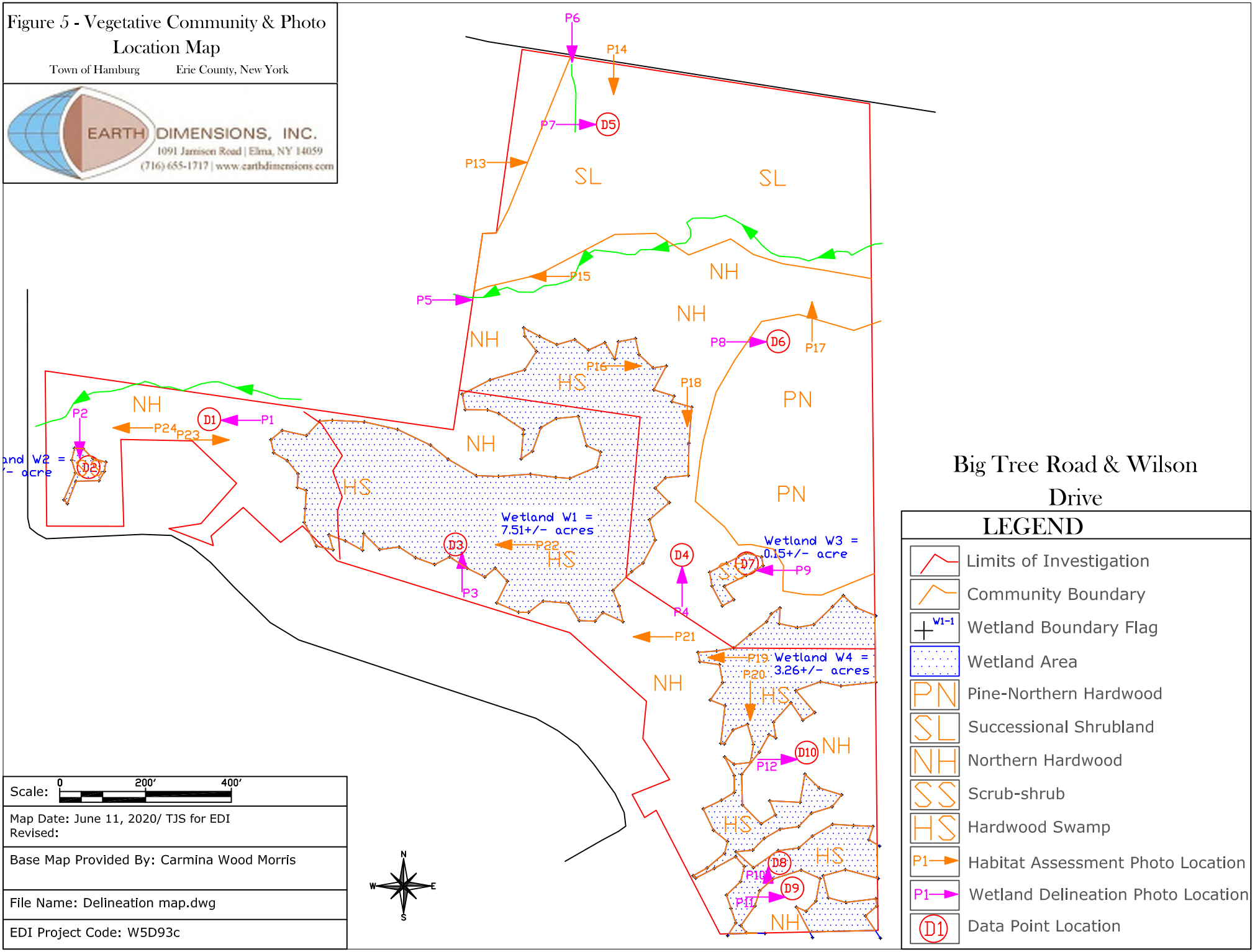
Big Tree & Wilson Drive

Town of Hamburg, Erie County, New York

Figure 5 - Vegetative Community & Photo Location Map

Town of Hamburg Erie County, New York

EARTH DIMENSIONS, INC.
1091 Jamison Road | Elma, NY 14059
(716) 655-1717 | www.earthdimensions.com



Big Tree Road & Wilson Drive

LEGEND

- Limits of Investigation
- Community Boundary
- W1-1 Wetland Boundary Flag
- Wetland Area
- PN Pine-Northern Hardwood
- SL Successional Shrubland
- NH Northern Hardwood
- SS Scrub-shrub
- HS Hardwood Swamp
- P1 Habitat Assessment Photo Location
- P1 Wetland Delineation Photo Location
- D1 Data Point Location

Scale: 0 200' 400'

Map Date: June 11, 2020/ TJS for EDI
Revised:

Base Map Provided By: Carmina Wood Morris

File Name: Delineation map.dwg

EDI Project Code: W5D93c

FIGURE 6: SITE AERIAL PHOTOGRAPH

https://gis.erie.gov/Html5Viewer133/index.html?viewer=ErieCountyNY (11/8/21)

Big Tree & Wilson Drive

Town of Hamburg, Erie County, New York

BIG TREE ROAD & WILSON DRIVE

APPENDIX B - DATA FORMS

Project Code: W5D938 C

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Big Tree Road & Wilson Drive Town/County: Hamburg/Erie County Sampling Date: March 30, 2020

Applicant/Owner: Glenn Wetzl State: New York Sampling Point: D1

Investigator(s): Scott Livingstone & Tom Somerville Section, Township, Range: 160.19-2-1.1 & 171.07-1-1

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): CONVEX Slope (%): 10

Subregion (LRR or MLRA) LRR1 Lat: _____ Long: _____ Datum: NAD83

Soil Map Unit Name: COLLAMER SILT LOAM, TILL Substratum NWI classification: N/A

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 _____	No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	If yes, optional Wetland Site ID: N/A

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

UPLAND WOODS

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches): N/A
Water Table Present?	Yes _____	No X	Depth (inches): N/A
Saturation Present? (includes capillary fringe)	Yes _____	No X	Depth (inches): N/A

Wetland Hydrology Present? Yes _____ No X

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

Remarks:

Project Code: W5D93B

VEGETATION : Use scientific names of plants. Sampling Point: D1

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Prunus Serotina	20	Y	FACU
2. Amelanchier arborea	15	Y	FACU
3. Acer rubrum	12	Y	FAC
4. Populus tremuloides	10	N	FACU
5.			
6.			
7.			
	57	= Total Cover	

Sapling/Shrub Stratum (Plot size: 15')			
1. Amelanchier arborea	20	Y	FACU
2. Lonicera tatarica	18	Y	FACU
3. Rosa multiflora	8	N	FACU
4. Pyrus spp.	5	N	NI
5. Crataegus crus-galli	4	N	FAC
6.			
7.			
	55	= Total Cover	

Herb Stratum (Plot size: 5')			
1. Alliaria petiolata	7	Y	FACU
2. Fragaria virginiana	6	Y	FACU
3. Carex grayllima	3	N	FACU
4. Potentilla simplex	2	N	FACU
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	18	= Total Cover	

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
		= 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:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is < 3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]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.

Community Type: S. Northern Hardwoods

Hydrophytic Vegetation Present? Yes ___ No X

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

Photo # P1 **Direction of Photo** West

Project Code: W5D93b C

SOIL

Sampling Point: D1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR4/2	100					SiL	
8-16	10YR5/4	100					SiL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR R, MLRA 149B)**
- ___ Polyvalue Below Surface (S8) **(LRR R, MLRA 149B)**
- ___ Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
- ___ Loamy Mucky Mineral (F1) **(LRR K, L)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(LRR K, L, MLRA 149B)**
- ___ Coast Prairie Redox (A16) **(LRR K, L, R)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR K, L, R)**
- ___ Dark Surface (S7) **(LRR K, L, M)**
- ___ Polyvalue Below Surface (S8) **(LRR K, L)**
- ___ Thin Dark Surface (S9) **(LRR K, L)**
- ___ Iron-Manganese Masses (F12) **(LRR K, L, R)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149B)**
- ___ Mesic Spodic (TA6) **(MLRA 144A, 145, 149B)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: NONE

Depth (inches): N/A

Hydric Soil Present? Yes ____ No X

Remarks:

Project Code: W5D93B C

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Big Tree Road & Wilson Drive Town/County: Hamburg/Erie County Sampling Date: March 30, 2020

Applicant/Owner: Glenn Wetzl State: New York Sampling Point: D2

Investigator(s): Scott Livingstone & Tom Somerville Section, Township, Range: 160.19-2-1.1 & 171.07-1-1

Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): CONCAVE Slope (%): 0

Subregion (LRR or MLRA) LRRL Lat: Long: Datum: NAD83

Soil Map Unit Name: FLUVAQUENTS & UDIFLUVENTS, FLOODED NWI classification: PSS

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 X No ____	**Is the Sampled Area within a Wetland?**	Yes X No ____
Hydric Soil Present?	Yes X No ____		
Wetland Hydrology Present?	Yes X No ____	If yes, optional Wetland Site ID:	IW 2

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

DEPRESSIONAL SCRUB/SHRUB WETLAND

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- X Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- X Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes X No ____	Depth (inches):	4"
Water Table Present?	Yes X No ____	Depth (inches):	INUNDATED
Saturation Present? (includes capillary fringe)	Yes X No ____	Depth (inches):	INUNDATED

Wetland Hydrology Present? Yes X No ____

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

Remarks:

Project Code: W5D938 C

VEGETATION : Use scientific names of plants. Sampling Point: D2

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Populus deltoides	20	Y	FAC
2. Acer rubrum	10	Y	FAC
3.			
4.			
5.			
6.			
7.			
	30 = Total Cover		

Sapling/Shrub Stratum (Plot size: 15')			
1. Cornus amomum	30	Y	FACW
2. Acer rubrum	15	Y	FAC
3. Salix discolor	12	N	FACW
4. Cornus racemosa	10	N	FAC
5. Lonicera tatarica	7	N	FACU
6. Ulmus americana	6	N	FACW
7. Rhamnus cathartica	5	N	FAC
	85 = Total Cover		

Herb Stratum (Plot size: 5')			
1. Lythrum Salicaria	15	Y	FACW
2. Juncus effusus	7	Y	OBL
3. Solidago gigantea	5	N	FACW
4. Onoclea sensibilis	3	N	FACW
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	30 = Total Cover		

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
	= Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (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:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is < 3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]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.

Community Type: Scrb. shrb PSS1B

Hydrophytic Vegetation Present? Yes X No ___

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

Photo # P2 Direction of Photo South

Wetland W2

Project Code: W5D93[illegible] C

SOIL

Sampling Point: D2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 4/2	90	10YR 5/8	10	C	M	SiL	
8-16	10YR 5/1	90	10YR 5/8	10	C	M	SiCL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR R, MLRA 149B)**
- ___ Polyvalue Below Surface (S8) **(LRR R, MLRA 149B)**
- ___ Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
- ___ Loamy Mucky Mineral (F1) **(LRR K, L)**
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(LRR K, L, MLRA 149B)**
- ___ Coast Prairie Redox (A16) **(LRR K, L, R)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR K, L, R)**
- ___ Dark Surface (S7) **(LRR K, L, M)**
- ___ Polyvalue Below Surface (S8) **(LRR K, L)**
- ___ Thin Dark Surface (S9) **(LRR K, L)**
- ___ Iron-Manganese Masses (F12) **(LRR K, L, R)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149B)**
- ___ Mesic Spodic (TA6) **(MLRA 144A, 145, 149B)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: NONE

Depth (inches): N/A

Hydric Soil Present? Yes X No ___

Remarks:

Project Code: W5D93B C

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Big Tree Road & Wilson Drive Town/County: Hamburg/Erie County Sampling Date: March 30, 2020

Applicant/Owner: Glenn Wetzl State: New York Sampling Point: D3

Investigator(s): Scott Livingstone & Tom Somerville Section, Township, Range: 160.19-2-1.1 & 171.07-1-1

Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): CONCAVE Slope (%): 1

Subregion (LRR or MLRA) LRRL Lat: Long: Datum: NAD83

Soil Map Unit Name: COLLAMER SILT LOAM, Till Substratum NW I classification: PFO1/SS

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 X No	**Is the Sampled Area within a Wetland?**	Yes X No
Hydric Soil Present?	Yes X No		
Wetland Hydrology Present?	Yes X No	If yes, optional Wetland Site ID:	W1

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

- LARGE FORESTED & SCRUB/SHRUB WETLAND

HYDROLOGY

Wetland Hydrology Indicators:

Primary indicators (minimum of one is required; check all that apply)

- X Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)
- X Water-Stained Leaves (B9)
- Aquatic Fauna (B13)
- Marl Deposits (B15)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres on Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Thin Muck Surface (C7)
- Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- Surface Soil Cracks (B6)
- Drainage Patterns (B10)
- Moss Trim Lines (B16)
- Dry-Season Water Table (C2)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Stunted or Stressed Plants (D1)
- Geomorphic Position (D2)
- Shallow Aquitard (D3)
- Microtopographic Relief (D4)
- FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes X No X Depth (inches): 0-1" (20²)

Water Table Present? Yes X No Depth (inches): 2"

Saturation Present? (includes capillary fringe) Yes X No Depth (inches): Surface

Wetland Hydrology Present? Yes X No

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

Remarks:

Project Code: W5D938

VEGETATION : Use scientific names of plants. Sampling Point: D3

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer rubrum	40	Y	FAC
2. Acer saccharinum	15	Y	FACW
3. Fraxinus pennsylvanica	12	N	FACW
4.			
5.			
6.			
7.			
	67	= Total Cover	

Sapling/Shrub Stratum (Plot size: 15')			
1. Cornus amomum	15	Y	FACW
2. Fraxinus pennsylvanica	12	Y	FACW
3. Acer rubrum	8	N	FAC
4. Frangula alnus	6	N	FAC
5. Cornus racemosa	3	N	FAC
6.			
7.			
	44	= Total Cover	

Herb Stratum (Plot size: 5')			
1. Agrostis stolonifera	30	Y	FACW
2. Solidago gigantea	8	N	FACW
3. Symphyotrichum lateriflorum	7	N	FAC
4. Glyceria striata	5	N	OBL
5. Geum rivale	3	N	FAC
6. Juncus effusus	2	N	OBL
7.			
8.			
9.			
10.			
11.			
12.			
	55	= Total Cover	

Woody Vine Stratum (Plot size: 30')			
1. Vitis aestivalis	10	Y	FACU
2.			
3.			
4.			
	10	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 83% (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:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is < 3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]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.

Community Type: Hardwood swamp PFO1B

Hydrophytic Vegetation Present? Yes X No ___

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

Photo # 83 Direction of Photo North

Wetland W1

Project Code: W5D93b c

SOIL

Sampling Point: D3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-7	10YR 4/1	90	10YR 5/8	10	C	M	Sil	
7-16	10YR 5/1	80	10YR 5/6-5/8	20	C	M	Sil	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR R, MLRA 149B)**
- ___ Polyvalue Below Surface (S8) **(LRR R, MLRA 149B)**
- ___ Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
- ___ Loamy Mucky Mineral (F1) **(LRR K, L)**
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(LRR K, L, MLRA 149B)**
- ___ Coast Prairie Redox (A16) **(LRR K, L, R)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR K, L, R)**
- ___ Dark Surface (S7) **(LRR K, L, M)**
- ___ Polyvalue Below Surface (S8) **(LRR K, L)**
- ___ Thin Dark Surface (S9) **(LRR K, L)**
- ___ Iron-Manganese Masses (F12) **(LRR K, L, R)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149B)**
- ___ Mesic Spodic (TA6) **(MLRA 144A, 145, 149B)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: NONE

Depth (inches): N/A

Hydric Soil Present? Yes X No ___

Remarks:

Project Code: W5D93# C-

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Big Tree Road & Wilson Drive Town/County: Hamburg/Erie County Sampling Date: March 30, 2020

Applicant/Owner: Glenn Wetzl State: New York Sampling Point: D4

Investigator(s): Scott Livingstone & Tom Somerville Section, Township, Range: 160.19-2-1.1 & 171.07-1-1

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): CONVEX Slope (%): 5

Subregion (LRR or MLRA) LRRL Lat: Long: Datum: NAD83

Soil Map Unit Name: COLLAMER SILT LOAM, Till Substratum NWI classification: N/A

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	No X	**Is the Sampled Area within a Wetland?** Yes No X
Hydric Soil Present?	Yes	No X	
Wetland Hydrology Present?	Yes	No X	If yes, optional Wetland Site ID: N/A

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

UPLAND SCRUB/SHRUB Community

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)
- Water-Stained Leaves (B9)
- Aquatic Fauna (B13)
- Marl Deposits (B15)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres on Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Thin Muck Surface (C7)
- Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- Surface Soil Cracks (B6)
- Drainage Patterns (B10)
- Moss Trim Lines (B16)
- Dry-Season Water Table (C2)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Stunted or Stressed Plants (D1)
- Geomorphic Position (D2)
- Shallow Aquitard (D3)
- Microtopographic Relief (D4)
- FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes	No X	Depth (inches): N/A
Water Table Present?	Yes	No X	Depth (inches): N/A
Saturation Present? (includes capillary fringe)	Yes	No X	Depth (inches): N/A

Wetland Hydrology Present? Yes No X

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

Remarks:

Project Code: W5D938

VEGETATION : Use scientific names of plants. Sampling Point: D4

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Pinus resinosa	25	Y	FACU
2. Fraxinus americana	22	Y	FACU
3. Acer rubrum	10	N	FAC
4.			
5.			
6.			
7.			
	57	= Total Cover	

Sapling/Shrub Stratum (Plot size: 15')			
1. Lonicera tatarica	35	Y	FACU
2. Fraxinus americana	15	Y	FACU
3. Acer saccharum	12	N	FACU
4. Cornus racemosa	8	N	FAC
5. Frangula alnus	6	N	FAC
6.			
7.			
	76	= Total Cover	

Herb Stratum (Plot size: 5')			
1. Carex blanda	6	Y	FAC
2. Carex gracillima	2	N	FACU
3. Fragaria virginiana	2	N	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	10	= Total Cover	

Woody Vine Stratum (Plot size: 30')			
1. Vitis aestivalis	10	Y	FACU
2.			
3.			
4.			
	10	= 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: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 17% (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:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is < 3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]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.

Community Type: S. Northern Hardwood

Hydrophytic Vegetation Present? Yes ___ No X

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

Photo # 94 **Direction of Photo** North

Project Code: W5D93b C

SOIL

Sampling Point: D4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	2.5Y 5/2	100					S:L	
6-16	2.5Y 5/3	75	2.5Y 5/1	15	D	M	S:CL	
			2.5Y 5/6	10	C	M		

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR R, MLRA 149B)**
- ___ Polyvalue Below Surface (S8) **(LRR R, MLRA 149B)**
- ___ Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
- ___ Loamy Mucky Mineral (F1) **(LRR K, L)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(LRR K, L, MLRA 149B)**
- ___ Coast Prairie Redox (A16) **(LRR K, L, R)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR K, L, R)**
- ___ Dark Surface (S7) **(LRR K, L, M)**
- ___ Polyvalue Below Surface (S8) **(LRR K, L)**
- ___ Thin Dark Surface (S9) **(LRR K, L)**
- ___ Iron-Manganese Masses (F12) **(LRR K, L, R)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149B)**
- ___ Mesic Spodic (TA6) **(MLRA 144A, 145, 149B)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: NONE

Depth (inches): N/A

Hydric Soil Present? Yes ___ No X

Remarks:

Project Code: W5D93B C

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Big Tree Road & Wilson Drive Town/County: Hamburg/Erie County Sampling Date: March 30, 2020

Applicant/Owner: Glenn Wetzl State: New York Sampling Point: DS

Investigator(s): Scott Livingstone & Tom Somerville Section, Township, Range: 160.19-2-1.1 & 171.07-1-1

Landform (hillslope, terrace, etc.): Ridge Local relief (concave, convex, none): CONVEX Slope (%): 5

Subregion (LRR or MLRA) LRRL Lat: Long: Datum: NAD83

Soil Map Unit Name: DARIEN SILT LOAM, 0-3% Slopes NWI classification: N/A

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 ____	No X	**Is the Sampled Area within a Wetland?** Yes ____ No X
Hydric Soil Present?	Yes ____	No X	
Wetland Hydrology Present?	Yes ____	No X	If yes, optional Wetland Site ID: N/A

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

a UPLAND SCRUB/SHRUB COMMUNITY WITH PINES

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ____	No X	Depth (inches): N/A
Water Table Present?	Yes ____	No X	Depth (inches): N/A
Saturation Present? (includes capillary fringe)	Yes ____	No X	Depth (inches): N/A

Wetland Hydrology Present? Yes ____ No X

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

Remarks:

Project Code: W5D93[illegible]

VEGETATION : Use scientific names of plants.

Sampling Point: D5

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Pinus resinosa	30	Y	FACU
2.			
3.			
4.			
5.			
6.			
7.			
	30 = Total Cover		

Sapling/Shrub Stratum (Plot size: 15')			
1. Lonicera tatarica	25	Y	FACU
2. Fraxinus americana	20	Y	FACU
3. Cornus racemosa	18	Y	FAC
4. Rhamnus cathartica	12	N	FAC
5. Frangula alnus	5	N	FAC
6.			
7.			
	80 = Total Cover		

Herb Stratum (Plot size: 5')			
1. Carex gracillima	2	N	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	2 = Total Cover		

Woody Vine Stratum (Plot size: 30')			
1. Vitis aestivalis	15	Y	FACU
2.			
3.			
4.			
	15 = 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: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 20% (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:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is < 3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]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.

Community Type: Successional shrubland

Hydrophytic Vegetation Present? Yes ___ No X

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

Photo # 97 **Direction of Photo** East

Project Code: W5D93½ C

SOIL

Sampling Point: D5

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-9	10YR4/2	100					S.L	
9-16	10YR5/4	80	10YR5/6	10	C	M		
			10YR5/2	10	D	M		

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR R, MLRA 149B)**
- ___ Polyvalue Below Surface (S8) **(LRR R, MLRA 149B)**
- ___ Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
- ___ Loamy Mucky Mineral (F1) **(LRR K, L)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(LRR K, L, MLRA 149B)**
- ___ Coast Prairie Redox (A16) **(LRR K, L, R)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR K, L, R)**
- ___ Dark Surface (S7) **(LRR K, L, M)**
- ___ Polyvalue Below Surface (S8) **(LRR K, L)**
- ___ Thin Dark Surface (S9) **(LRR K, L)**
- ___ Iron-Manganese Masses (F12) **(LRR K, L, R)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149B)**
- ___ Mesic Spodic (TA6) **(MLRA 144A, 145, 149B)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: NONE

Depth (inches): N/A

Hydric Soil Present? Yes ___ No X

Remarks:

Project Code: W5D93B C

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Big Tree Road & Wilson Drive Town/County: Hamburg/Erie County Sampling Date: March 30, 2020

Applicant/Owner: Glenn Wetzl State: New York Sampling Point: D6

Investigator(s): Scott Livingstone & Tom Somerville Section, Township, Range: 160.19-2-1.1 & 171.07-1-1

Landform (hillslope, terrace, etc.): LAKE Plain Local relief (concave, convex, none): CONVEX Slope (%): 3

Subregion (LRR or MLRA) LRRL Lat: Long: Datum: NAD83

Soil Map Unit Name: NIAGARA SILT LOAM, Till Substratum NWI classification: N/A

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 ____	No X	**Is the Sampled Area within a Wetland?** Yes ____ No X
Hydric Soil Present?	Yes ____	No X	If yes, optional Wetland Site ID: N/A
Wetland Hydrology Present?	Yes ____	No X	

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

° UPLAND WOODS

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ____	No X	Depth (inches): N/A
Water Table Present?	Yes ____	No X	Depth (inches): N/A
Saturation Present? (includes capillary fringe)	Yes ____	No X	Depth (inches): N/A

Wetland Hydrology Present? Yes ____ No X

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

Remarks:

Project Code: W5D93B C

VEGETATION : Use scientific names of plants. Sampling Point: D6

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Pinus resinosa	35	Y	FACU
2. Fraxinus americana	20	Y	FACU
3. Acer saccharum	10	N	FACU
4.			
5.			
6.			
7.			
	65	= Total Cover	

Sapling/Shrub Stratum (Plot size: 15')			
1. Crataegus crus-galli	15	Y	FAC
2. Lonicera tatarica	12	Y	FACU
3. Rhamnus cathartica	10	N	FAC
4. Acer saccharum	9	N	FACU
5. Cornus racemosa	6	N	FAC
6.			
7.			
	52	= Total Cover	

Herb Stratum (Plot size: 5')			
1. N/A			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	= Total Cover		

Woody Vine Stratum (Plot size: 30')			
1. Vitis aestivalis	15	Y	FACU
2.			
3.			
4.			
	15	= 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: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 20% (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:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is < 3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]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.

Community Type: Pine - Hardwoods

Hydrophytic Vegetation Present? Yes ___ No X

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

Photo # P8 **Direction of Photo** East

Project Code: W5D93[illegible]

SOIL

Sampling Point: D6

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-7	10YR 4/2	100					S.L	
7-16	2.5Y 5/4	70	2.5Y 5/6	15	C	M		
			2.5Y 5/1	15	D	M		

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR R, MLRA 149B)**
- ___ Polyvalue Below Surface (S8) **(LRR R, MLRA 149B)**
- ___ Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
- ___ Loamy Mucky Mineral (F1) **(LRR K, L)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(LRR K, L, MLRA 149B)**
- ___ Coast Prairie Redox (A16) **(LRR K, L, R)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR K, L, R)**
- ___ Dark Surface (S7) **(LRR K, L, M)**
- ___ Polyvalue Below Surface (S8) **(LRR K, L)**
- ___ Thin Dark Surface (S9) **(LRR K, L)**
- ___ Iron-Manganese Masses (F12) **(LRR K, L, R)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149B)**
- ___ Mesic Spodic (TA6) **(MLRA 144A, 145, 149B)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: NONE

Depth (inches): N/A

Hydric Soil Present? Yes ___ No X

Remarks:

Project Code: W5D93B C

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Big Tree Road & Wilson Drive Town/County: Hamburg/Erie County Sampling Date: March 30, 2020

Applicant/Owner: Glenn Wetzl State: New York Sampling Point: D7

Investigator(s): Scott Livingstone & Tom Somerville Section, Township, Range: 160.19-2-1.1 & 171.07-1-1

Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): NONE Slope (%): 1

Subregion (LRR or MLRA) LRRL Lat: Long: Datum: NAD83

Soil Map Unit Name: NIAGARA SILT LOAM, Till Substratum NWI classification: PSS

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 X No ____	**Is the Sampled Area within a Wetland?**	Yes X No ____
Hydric Soil Present?	Yes X No ____		
Wetland Hydrology Present?	Yes X No ____	If yes, optional Wetland Site ID:	W3

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

- ISOLATED PSS WETLAND

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ____	No X	Depth (inches): N/A
Water Table Present?	Yes X	No ____	Depth (inches): Surface
Saturation Present? (includes capillary fringe)	Yes X	No ____	Depth (inches): Surface

Wetland Hydrology Present? Yes X No ____

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

Remarks:

Project Code: W5D93B' C

VEGETATION : Use scientific names of plants. Sampling Point: D7

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Fraxinus pennsylvanica	15	Y	FACW
2.			
3.			
4.			
5.			
6.			
7.			
	15 = Total Cover		

Sapling/Shrub Stratum (Plot size: 15')			
1. Cornus amomum	35	Y	FACW
2. Fraxinus pennsylvanica	10	N	FACW
3. Cornus racemosa	10	N	FAC
4. Acer rubrum	8	N	FAC
5.			
6.			
7.			
	63 = Total Cover		

Herb Stratum (Plot size: 5')			
1. Onoclea sensibilis	20	Y	FACW
2. Scirpus cyperinus	12	Y	OBL
3. Juncus effusus	10	N	OBL
4. Agrostis stolonifera	10	N	FACW
5. Geum aleppicum	4	N	FAC
6. Symphyotrichum lateriflorum	3	N	FAC
7. Solidago gigantea	2	N	FACW
8.			
9.			
10.			
11.			
12.			
	61 = Total Cover		

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
	= Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (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:

X 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is < 3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]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.

Community Type: SCNB- Shrub PSS 7B

Hydrophytic Vegetation Present? Yes X No ___

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

Photo # P9 **Direction of Photo** West

Wetland W3

Project Code: W5D93b c

SOIL

Sampling Point: D7

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 4/1	97	10YR 5/8	3	C	M	SiL	
5-16	2.5Y 5/1	93	2.5Y 5/6	7	C	M	SiL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR R, MLRA 149B)**
- ___ Polyvalue Below Surface (S8) **(LRR R, MLRA 149B)**
- ___ Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
- ___ Loamy Mucky Mineral (F1) **(LRR K, L)**
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(LRR K, L, MLRA 149B)**
- ___ Coast Prairie Redox (A16) **(LRR K, L, R)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR K, L, R)**
- ___ Dark Surface (S7) **(LRR K, L, M)**
- ___ Polyvalue Below Surface (S8) **(LRR K, L)**
- ___ Thin Dark Surface (S9) **(LRR K, L)**
- ___ Iron-Manganese Masses (F12) **(LRR K, L, R)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149B)**
- ___ Mesic Spodic (TA6) **(MLRA 144A, 145, 149B)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: NONE

Depth (inches): N/A

Hydric Soil Present? Yes X No ___

Remarks:

Project Code: W5D93

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Big Tree Road & Wilson Drive Town/County: Hamburg/Erie County Sampling Date: March 30, 2020

Applicant/Owner: Glenn Wetzl State: New York Sampling Point: DP8

Investigator(s): Scott Livingstone & Tom Somerville Section, Township, Range: 160.19-2-1.1 & 171.07-1-1

Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): CONCAVE Slope (%): 1

Subregion (LRR or MLRA) LRR L Lat: Long: Datum: NAD83

Soil Map Unit Name: NIAGARA SILT LOAM, Till Substrate NWI classification: PFO

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 X No	**Is the Sampled Area within a Wetland?**	Yes X No
Hydric Soil Present?	Yes X No	If yes, optional Wetland Site ID:	W4
Wetland Hydrology Present?	Yes X No		

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

COMPLEX FORESTED WETLAND

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)
- X Water-Stained Leaves (B9)
- Aquatic Fauna (B13)
- Marl Deposits (B15)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres on Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Thin Muck Surface (C7)
- Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- Surface Soil Cracks (B6)
- Drainage Patterns (B10)
- Moss Trim Lines (B16)
- Dry-Season Water Table (C2)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Stunted or Stressed Plants (D1)
- Geomorphic Position (D2)
- Shallow Aquitard (D3)
- Microtopographic Relief (D4)
- FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes	No X	Depth (inches): NA
Water Table Present?	Yes X	No	Depth (inches): Surface
Saturation Present? (includes capillary fringe)	Yes X	No	Depth (inches): Surface

Wetland Hydrology Present? Yes X No

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

Remarks:

Project Code: W5D93W C

VEGETATION : Use scientific names of plants. Sampling Point: D8

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Carya ovata	25	Y	FACW
2. Acer saccharinum	18	Y	FACW
3. Fraxinus pennsylvanica	12	N	FACW
4. Acer rubrum	10	N	FAC
5. Quercus palustris	10	N	FACW
6.			
7.			
	75	= Total Cover	

Sapling/Shrub Stratum (Plot size: 15')			
1. Quercus palustris	15	Y	FACW
2. Cornus racemosa	12	Y	FAC
3. Carpinus caroliniana	10	N	FAC
4. Fraxinus pennsylvanica	8	N	FACW
5. Cornus amomum	8	N	FACW
6.			
7.			
	53	= Total Cover	

Herb Stratum (Plot size: 5')			
1. Phalaris arundinacea	11	Y	FACW
2. Carex stricta	10	Y	OBL
3. Glyceria striata	9	Y	OBL
4. Onoclea sensibilis	3	N	FACW
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	33	= Total Cover	

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
		= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 86% (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:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is < 3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]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.

Community Type: Hardwood Swamp PFO2B

Hydrophytic Vegetation Present? Yes X No ___

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

Photo # P10 **Direction of Photo** North

Wetland W4

Project Code: W5D93b

SOIL

Sampling Point: D8

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	2.5Y 4/1	95	2.5Y 5/8	5	C	M	SiL	
5-16	2.5Y 5/1	70	2.5Y 5/8	30	C	M	SiCL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR R, MLRA 149B)**
- ___ Polyvalue Below Surface (S8) **(LRR R, MLRA 149B)**
- ___ Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
- ___ Loamy Mucky Mineral (F1) **(LRR K, L)**
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(LRR K, L, MLRA 149B)**
- ___ Coast Prairie Redox (A16) **(LRR K, L, R)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR K, L, R)**
- ___ Dark Surface (S7) **(LRR K, L, M)**
- ___ Polyvalue Below Surface (S8) **(LRR K, L)**
- ___ Thin Dark Surface (S9) **(LRR K, L)**
- ___ Iron-Manganese Masses (F12) **(LRR K, L, R)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149B)**
- ___ Mesic Spodic (TA6) **(MLRA 144A, 145, 149B)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: NONE

Depth (inches): N/A

Hydric Soil Present? Yes X No ___

Remarks:

Project Code: W5D93 C

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Big Tree Road & Wilson Drive Town/County: Hamburg/Erie County Sampling Date: March 30, 2020

Applicant/Owner: Glenn Wetzl State: New York Sampling Point: D9

Investigator(s): Scott Livingstone & Tom Somerville Section, Township, Range: 160.19-2-1.1 & 171.07-1-1

Landform (hillslope, terrace, etc.): Lake Plain Local relief (concave, convex, none): CONVEX Slope (%): 3-5

Subregion (LRR or MLRA) LRR L Lat: _____ Long: _____ Datum: NAD83

Soil Map Unit Name: NIAGARA SILT LOAM, TILL SUBSTRATUM NW I classification: N/A

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 _____	No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	If yes, optional Wetland Site ID: N/A

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

OUPLAND WOODS

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches): N/A
Water Table Present?	Yes _____	No X	Depth (inches): N/A
Saturation Present? (includes capillary fringe)	Yes _____	No X	Depth (inches): N/A

Wetland Hydrology Present? Yes _____ No X

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

Remarks:

Project Code: W5D938 C

VEGETATION : Use scientific names of plants.

Sampling Point: D9

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Carya ovata	50	Y	FACU
2. Ostrya virginiana	12	N	FACU
3. Quercus rubra	10	N	FACU
4.			
5.			
6.			
7.			
	72	= Total Cover	

Sapling/Shrub Stratum (Plot size: 15')			
1. Ostrya virginiana	30	Y	FACU
2. Quercus rubra	10	N	FACU
3. Carya ovata	9	N	FACU
4. Acer saccharum	3	N	FACU
5.			
6.			
7.			
	52	= Total Cover	

Herb Stratum (Plot size: 5')			
1. Alliaria petiolata	5	Y	FACU
2. Rosa multiflora	3	N	FACU
3. Rubus allegheniensis	3	N	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	11	= Total Cover	

Woody Vine Stratum (Plot size: 30')			
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: 3 (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:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is < 3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]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.

Community Type: 5. Northern Hardwood

Hydrophytic Vegetation Present? Yes ___ No X

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

Photo # 111 **Direction of Photo** East

Project Code: W5D934 C

SOIL

Sampling Point: D9

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 4/2	100					SL	
5-16	10YR 5/4	100					SL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR R, MLRA 149B)**
- ___ Polyvalue Below Surface (S8) **(LRR R, MLRA 149B)**
- ___ Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
- ___ Loamy Mucky Mineral (F1) **(LRR K, L)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(LRR K, L, MLRA 149B)**
- ___ Coast Prairie Redox (A16) **(LRR K, L, R)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR K, L, R)**
- ___ Dark Surface (S7) **(LRR K, L, M)**
- ___ Polyvalue Below Surface (S8) **(LRR K, L)**
- ___ Thin Dark Surface (S9) **(LRR K, L)**
- ___ Iron-Manganese Masses (F12) **(LRR K, L, R)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149B)**
- ___ Mesic Spodic (TA6) **(MLRA 144A, 145, 149B)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: NONE

Depth (inches): N/A

Hydric Soil Present? Yes ___ No X

Remarks:

Project Code: W5D930 C

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Big Tree Road & Wilson Drive Town/County: Hamburg/Erie County Sampling Date: March 30, 2020

Applicant/Owner: Glenn Wetzl State: New York Sampling Point: D10

Investigator(s): Scott Livingstone & Tom Somerville Section, Township, Range: 160.19-2-1.1 & 171.07-1-1

Landform (hillslope, terrace, etc.): Lake Plain Local relief (concave, convex, none): CONVEX Slope (%): 2

Subregion (LRR or MLRA) LRRL Lat: Long: Datum: NAD83

Soil Map Unit Name: NIAGARA SILT LOAM, Till Substrate NWI classification: N/A

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	No X	**Is the Sampled Area within a Wetland?** Yes	No X
Hydric Soil Present?	Yes	No X	
Wetland Hydrology Present?	Yes	No X	If yes, optional Wetland Site ID: N/A

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

UPLAND WOODS

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season W ater Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes	No X	Depth (inches): N/A
Water Table Present?	Yes	No X	Depth (inches): N/A
Saturation Present? (includes capillary fringe)	Yes	No X	Depth (inches): N/A

Wetland Hydrology Present? Yes ____ No X

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

Remarks:

Project Code: W5D939

VEGETATION : Use scientific names of plants.

Sampling Point: D10

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Carya ovata	60	Y	FACU
2. Quercus rubra	9	N	FACU
3.			
4.			
5.			
6.			
7.			
	69	= Total Cover	

Sapling/Shrub Stratum (Plot size: 15')			
1. Carya ovata	15	Y	FACU
2. Ostrya virginiana	11	Y	FACU
3. Acer saccharum	10	Y	FACU
4. Fraxinus americana	2	N	FACU
5.			
6.			
7.			
	38	= Total Cover	

Herb Stratum (Plot size: 5')			
1. Carex blanda	6	Y	FAC
2. Symphyotrichum ericoides	5	Y	FACU
3. Allium tricoccum	3	N	FACU
4. Potentilla simplex	2	N	FACU
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	16	= Total Cover	

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
		= 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: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 17% (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:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is < 3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]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.

Community Type: S. Northern Hardwood

Hydrophytic Vegetation Present? Yes ___ No X

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

Photo # P12 **Direction of Photo** East

Project Code: W5D93[illegible] C

SOIL

Sampling Point: D10

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	2.5Y 4/2	100					SiL	
8-16	2.5Y 5/4	80	2.5Y 5/6	10	C	M	SiC	
			2.5Y 5/1	10	D	M		

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR R, MLRA 149B)**
- ___ Polyvalue Below Surface (S8) **(LRR R, MLRA 149B)**
- ___ Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
- ___ Loamy Mucky Mineral (F1) **(LRR K, L)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(LRR K, L, MLRA 149B)**
- ___ Coast Prairie Redox (A16) **(LRR K, L, R)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR K, L, R)**
- ___ Dark Surface (S7) **(LRR K, L, M)**
- ___ Polyvalue Below Surface (S8) **(LRR K, L)**
- ___ Thin Dark Surface (S9) **(LRR K, L)**
- ___ Iron-Manganese Masses (F12) **(LRR K, L, R)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149B)**
- ___ Mesic Spodic (TA6) **(MLRA 144A, 145, 149B)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: NONE

Depth (inches): N/A

Hydric Soil Present? Yes ___ No X

Remarks:

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APPENDIX C - SITE PHOTOGRAPHS

Photo 1: Facing west. Depicts the northern hardwood community of data point D1.

Photo 2: Facing south. Depicts the scrub-shrub swamp community of wetland W2 at data point D2.

Photo 3: Facing north. Depicts the hardwood swamp community of wetland W1 at data point D3.

Photo 4: Facing north. Depicts the successional northern hardwood community at data point D4

Photo 5: Facing east. Depicts Stream 1 at the western edge of the investigation area.

Photo 6: Facing south. Depicts the ditch south of Big Tree Road.

Photo 7: Facing east. Depicts the successional shrubland community at data point D5.

Photo 8: Facing east. Depicts the pine-hardwoods community at data point D6.

Photo 9: Facing west. Depicts the scrub-shrub swamp community of wetland W3 at data point D7.

Photo 10: Facing north. Depicts the hardwood swamp community of wetland W4 at data point D8.

Photo 11: Facing east. Depicts the successional northern hardwood community at data point D9.

Photo 12: Facing east. Depicts the successional northern hardwood community at data point D10.

Photo 13: Facing east. Depicts the northwest portion of the site.

Photo 14: Facing south. Depicts site from the south edge of Big Tree Road.

Photo 15: Facing west. Depicts the Stream within the project area to be planted with native trees & shrubs.

Photo 16: Facing east. Depicts the central portion of the project footprint.

Photo 17: Facing north. Depicts the dense successional shrubland community within the project footprint.

Photo 18: Facing south. Depicts the central portion of the project footprint.

Photo 19: Facing west. Depicts a hardwood swamp community in the preserved area.

Photo 20: Facing south. Depicts a hardwood swamp community in the preserved area.

Photo 21: Facing west. Depicts a young northern hardwood community in the preserved area.

Photo 22: Facing west. Depicts a hardwood swamp community in the preserved area.

Photo 23: Facing east. Depicts a hardwood forest community in the preserved area.

Photo 24: Facing west. Depicts a mature hardwood community in the preserved area.

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APPENDIX D - REFERENCES

INFORMATIONAL REFERENCES
USED BY EARTH DIMENSIONS INC.

Andrus, R.E. 1980. Sphagnaceae (Peat Moss Family) of New York State. Contributions to a Flora of New York State III, R.S. Mitchell (Ed.), Bulletin No. 442, New York State Museum, Albany, New York. 89 pp.

Benyus, J.M. 1989. The Field Guide to Wildlife Habitats of the Eastern United States. Fireside, Simon & Shuster, Inc., New York. 335 pp.

Britton, N.L., and H.A. Brown. 1970. An Illustrated Flora of the Northern United States and Canada, Volumes 1, 2, and 3. Dover Publications, Inc., New York. 2052 pp.

Brockman, C.F., R. Merrilees, and H.S. Zim. 1968. Trees of North America: A Field Guide to the Major Native and Introduced Species North of Mexico. Western Publishing, Inc. New York, New York. 280 pp.

Brown, L. 1979. Grasses: An Identification Guide. Peterson Nature Library. Houghton Mifflin Co., Boston. 240 pp.

Cobb, B. 1963. A Field Guide to the Ferns and Related Families. Houghton Mifflin Co., Boston. 281 pp.

Cowardin, L.M., V. Carter, F.C. Golet, and E.T. Laroe. 1979. Classification of Wetlands and Deep Water Habitats of the United States. U.S. Fish and Wildlife Service, Washington, D.C. FWS/OBS-79-31. 103 pp.

Eggers, S.D., and D.M. Reed. 1997. Wetland Plants and Plant Communities of Minnesota and Wisconsin. Second Edition. U.S. Army Corps of Engineers, St. Paul District, Minnesota. 263 pp.

Environmental Laboratory. 1987. Corps of Engineers Wetlands Delineation Manual. Technical Report Y-87-1, U.S. Army Corps of Engineers Waterways Experiment Station, Vicksburg, Mass. 100 pp. plus appendices.

Hotchkiss, N. 1970. Common Marsh Plants of the United States and Canada. U.S. Department of the Interior, Bureau of Sport Fisheries and Wildlife, Washington, D.C., Resource Publication 93.

Hurley, L.M. 1990. Field Guide to the Submerged Aquatic Vegetation of Chesapeake Bay. U.S. Fish and Wildlife Service, Chesapeake Bay Estuary Program, Annapolis, Maryland. 51 pp.

Knobel, E. 1977. Field Guide to the Grasses, Sedges, and Rushes of the United States. Dover publications, Inc., New York. 83 pp.

Little, E.L. 1980. The Audubon Society Field Guide to North American Trees (Eastern Region). Alfred A. Knopf, New York. 714 pp.

Magee, D.W. 1981. Freshwater Wetlands. University of Massachusetts Press, Hamburg. 245 pp.

Mitchell, R.S., and G.C. Tucker. 1997. Revised Checklist of New York State Plants. Contributions to a Flora of New York State IV, R.S. Mitchell (Ed.). Bulletin No. 490, New York State Museum, Albany, New York. 400 pp.

Munsell Color Wetzl Development. (Munsell Color 1975).

National Wetland Inventory Maps. U.S. Department of the Interior, Fish and Wildlife Service, National Wetland Inventory, St. Petersburg, Florida. http://wetlandsfws.er.usgs.gov date visited: 2/4/2010

Niering, W.C., and N.C. Olmstead. 1979. The Audubon Society Field Guide to North American Wildflowers (Eastern Region). Alfred A. Knopf, New York. 887 pp.

New York State Code of Rules and Regulations (NYCRR). 1989. Protected Native Plants. NYCRR Part 193.3, June, 1989. New York State Department of Environmental Conservation.

New York Natural Heritage Program. 2002. New York Rare Plant Status List, February, 1989. S.M. Young, (Ed.), New York State Department of Environmental Conservation and The Nature Conservancy publication. 26 pp.

New York State Department of Environmental Conservation Freshwater Wetlands Maps, NYSDEC Environmental Resource Mapper, http://www.dec.ny.gov/imsmaps/ERM/viewer.htm

Newcomb, L. 1977. Newcomb's Wildflower Guide. Little, Brown and Co., Boston. 490 pp.

Ogden, E.C. 1981. Field Guide to Northeastern Ferns. Contributions to a Flora of New York State III, R.S. Mitchell (Ed.), Bulletin No. 444, New York State Museum, Albany, New York. 122 pp.

Peattie, D.C. 1991. A Natural History of Trees of Eastern and North America. Houghton Mifflin Co., Boston. 606 pp.

Peterson, RT., and M. McKenny. 1968. A Field Guide to Wildflowers of Northeastern and Northcentral North America. Houghton Mifflin Co., Boston. 420 pp.

Petrides, G.A. 1972. A Field Guide to Trees and Shrubs. Houghton Mifflin Co., Boston. 428 pp.

Prescott, G.W. 1969. How to Know the Aquatic Plants. Second Edition. William C. Brown Co., Dubuque, Iowa. 171 pp.

Raynal, D.J., and D. J. Leopold. 1999. Landowner's Guide to State-Protected Plants of Forests in New York State. New York Center for Forestry Research and Development, SUNY-ESF, Syracuse, New York. 92pp.

Reed, Porter B. Jr. 1988. National List of Plant Species that Occur in Wetlands: Northeast (Region 1). U.S. Fish and Wildlife Service, Washington, D.C. Biol. Rept. 88 (26.1). 112 pp.

Reschke, C. 2002. Ecological Communities of New York State. New York Natural Heritage Program. NYSDEC, Latham, N.Y. (2nd Ed.) 136 pp.

Soil Conservation Service. 1975. Soil Taxonomy: A Basic System of Soil Classification for Making and Interpreting Soil Surveys. U.S.D.A., Soil Conservation Service, U.S. Handbook 436.

Soil Conservation Service. 1988. New York Hydric Soils and Soils with Hydric Inclusions, revised July, 1988, Soil Conservation Service, Syracuse, New York, Technical Guide, Section II. 23 pp.

Simonds,R.L., and H.H. Tweedie. 1978. Wildflowers of the Great Lakes Region. Chicago Review Press, Chicago. 96 pp.

Symonds, G.W.D. 1958. The Tree Identification Book. Quill, New York. 272 pp.

Symonds, G.W.D. 1963. The Shrub Identification Book. William Morrow & Co., New York. 379 pp.

Tiner, R. W. Jr. 1988. A Field Guide to Nontidal Wetland Identification. Maryland Department of Natural Resources and U.S. Fish and Wildlife Service Cooperative Publication. Maryland Department of Natural Resources, Annapolis, Maryland. 283 pp. + 198 color plates.

United States Department and Agriculture & the Natural Resources Conservation Service (USDA, NRCS).Soil Conservation Service Soil Survey of Erie County, New York. U.S.D.A., Soil Conservation Service. 1986 http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx

USDA, NRCS. 2009. The PLANTS Database (http://plants.usda.gov). National Plant Data Center, Baton Rouge, LA 70874-4490 USA.

United States Geological Survey maps, Denver, Colorado. Buffalo NW Quadrangle/2002DeLorme.

U.S. Army Corps of Engineers. 2009. Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region, ed. J. S. Wakeley, R. W. Lichvar, and C. V. Noble. ERDC/EL TR-09-19. Vicksburg, MS: U.S. Army Engineer Research and Development Center.

U.S. Fish and Wildlife Service, A Wetlands and Deepwater Habitats Classification. May 3, 2002, http: //www.nwi.fws.gov/. June 16, 2002.

Zander, R.H., and G.J. Pierce. 1979. Flora of the Niagara Frontier Region. Bulletin of the Buffalo Society of Natural Sciences, Vol. 16 (Suppl. 2), Buffalo, New York. 110 pp

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APPENDIX E - FIELD INVESTIGATION PERSONNEL

Soils and Hydrology Sampling
Scott Livingstone, Senior Soil Scientist
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Elma, New York 14059
(716) 655-1717

Vegetation Sampling & Habitat Assessment
Thomas Somerville, Ecologist
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Report Preparation
Thomas Somerville, Ecologist
Earth Dimensions, Inc.
1091 Jamison Road
Elma, New York 14059
(716) 655-1717

BIG TREE ROAD & WILSON DRIVE

APPENDIX F – AGENCY CORRESPONDENCE

United States Department of the Interior

FISH AND WILDLIFE SERVICE
New York Ecological Services Field Office
3817 Luker Road
Cortland, NY 13045-9385
Phone: (607) 753-9334 Fax: (607) 753-9699
http://www.fws.gov/northeast/nyfo/es/section7.htm

In Reply Refer To: October 18, 2021
Consultation Code: 05E1NY00-2022-SLI-0165
Event Code: 05E1NY00-2022-E-00658
Project Name: Big Tree & Wilson

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531 *et seq.*). This list can also be used to determine whether listed species may be present for projects without federal agency involvement. New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list.

Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the ESA, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC site at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list. If listed, proposed, or candidate species were identified as potentially occurring in the project area, coordination with our office is encouraged. Information on the steps involved with assessing potential impacts from projects can be found at: http://www.fws.gov/northeast/nyfo/es/section7.htm

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the Services wind

energy guidelines (http://www.fws.gov/windenergy/) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm; http://www.towerkill.com; and http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the ESA. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

New York Ecological Services Field Office
3817 Luker Road
Cortland, NY 13045-9385
(607) 753-9334

Project Summary

Consultation Code: 05E1NY00-2022-SLI-0165
Event Code: Some(05E1NY00-2022-E-00658)
Project Name: Big Tree & Wilson
Project Type: DEVELOPMENT
Project Description: The site will be partially developed as residential. More than half of the site will be undisturbed due to federally jurisdictional wetlands.

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@42.7665021,-78.80702857079423,14z

Counties: Erie County, New York

Endangered Species Act Species

There is a total of 2 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

---

1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

NAME	STATUS
Northern Long-eared Bat *Myotis septentrionalis* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9045	Threatened

Insects

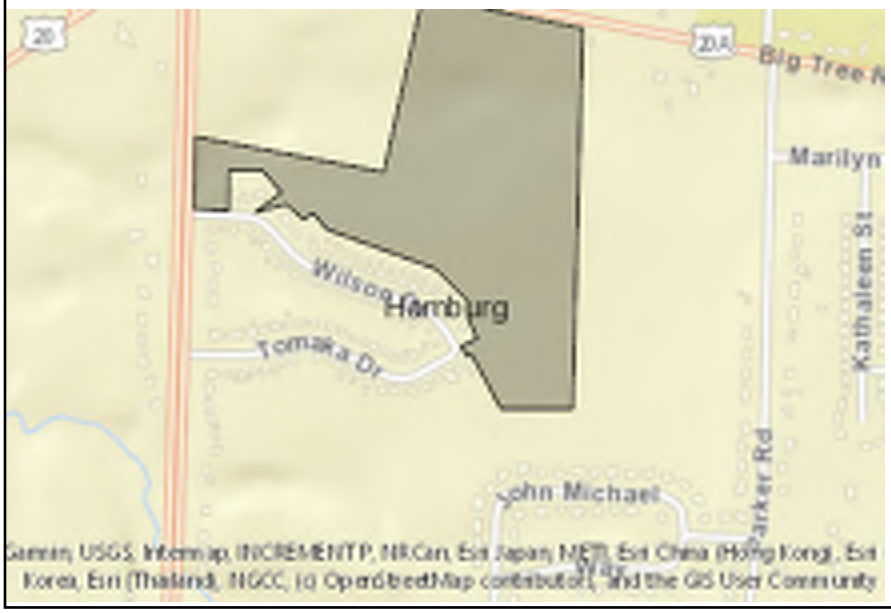
NAME	STATUS
Monarch Butterfly *Danaus plexippus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9743	Candidate

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

EAF Mapper Summary Report

Wednesday, November 3, 2021 10:35 AM



Disclaimer: The EAF Mapper is a screening tool intended to assist project sponsors and reviewing agencies in preparing an environmental assessment form (EAF). Not all questions asked in the EAF are answered by the EAF Mapper. Additional information on any EAF question can be obtained by consulting the EAF Workbooks. Although the EAF Mapper provides the most up-to-date digital data available to DEC, you may also need to contact local or other data sources in order to obtain data not provided by the Mapper. Digital data is not a substitute for agency determinations.

Part 1 / Question 7 [Critical Environmental Area]	No
Part 1 / Question 12a [National or State Register of Historic Places or State Eligible Sites]	No
Part 1 / Question 12b [Archeological Sites]	Yes
Part 1 / Question 13a [Wetlands or Other Regulated Waterbodies]	Yes - Digital mapping information on local and federal wetlands and waterbodies is known to be incomplete. Refer to EAF Workbook.
Part 1 / Question 15 [Threatened or Endangered Animal]	No
Part 1 / Question 16 [100 Year Flood Plain]	No
Part 1 / Question 20 [Remediation Site]	No


mpact Determination Letter of
Josalyn Ferguson, Ph.D.
e NYS Parks, Recreation and Hist
Preservation (SHPO)

NEW YORK STATE OF OPPORTUNITY | Parks, Recreation, and Historic Preservation

ANDREW M. CUOMO
Governor

ERIK KULLESEID
Commissioner

October 9, 2020

Mr. Charles Vandrei, Agency Historic Preservation Officer
NYS Environmental Conservation, Division of Lands and Forests
625 Broadway
Albany, NY 12233-4255

Re: DEC
Residential Subdivision Construction Project (12.1 ha (30 ac) of 14.7 ha (36.3 ac) Parcel)
Parker Road, Hamburg, Erie County, NY
20PR05658

Dear Mr. Vandrei:

Thank you for requesting the comments of the Division for Historic Preservation of the Office of Parks, Recreation and Historic Preservation (OPRHP). The Archaeology Unit has reviewed the Phase I Archaeological Reconnaissance Survey report prepared by UB's Archaeological Survey (Whalen & Lackos, September 2020; 20SR00472) in accordance with the New York State Historic Preservation Act of 1980 (section 14.09 of the New York Parks, Recreation and Historic Preservation Law). These comments are those of the Division for Historic Preservation and relate only to archaeological Historic/Cultural resources.

Based upon this review, it is OPRHP's understanding that the Native American Parker Road Site (USN 02915.000516) was identified during the above noted investigation. OPRHP has determined that this site is not eligible to the State or National Registers of Historic Places. The Archaeology Unit therefore has no further concerns for impacts to archaeological sites and no further archaeological investigations are warranted. Should the project design be changed OPRHP recommends further consultation with this office.

An outstanding request for additional information from Ms. Jennifer Walkowski of OPRHP's Survey and Evaluation Unit remains incomplete. Please continue to consult with Ms. Walkowski regarding this project.

If you have any questions, I can be reached via e-mail at Josalyn.Ferguson@parks.ny.gov.

Sincerely,

Josalyn Ferguson, Ph.D.
Scientist Archaeology

via email only

c.c. Christopher Wood, Carmina Wood Morris
c.c. Kathryn Whalen, UB Archaeological Survey
c.c. David Manko, Parker Road Developers

Attachment 3 of Part 1 of Full EAF – No Impact Determination Letter of Josalyn Ferguson of the NYS Office of Parks, Recreation and Historic Preservation dated October 9, 2020

Appendix Q

urisdictional Federal Wetland Perm
Application
d by Earth Dimensi
D

A

espondence

earing Map

nt Application For Permit

EARTH DIMENSIONS, INC.
* Soil & Hydrogeologic Investigations * Wetland Delineations
1091 Jamison Road, Elma NY 14059
(716) 655-1717 * Fax (716) 655-2915 www.earthdimensions.com

December 23, 2021 W5D93c

New York Section Chief
Buffalo District U.S. Army Corps of Engineers
1776 Niagara Street
Buffalo, New York 14207

RE: Multi-Family Residential Development – Big Tree Road
Town of Hamburg, Erie County, New York
DOA File No. LRB-2020-00749

Dear Sir/Madem:

On behalf of our client, Glenn Wetzl, Earth Dimensions, Inc. (EDI) is submitting the attached Joint Application for Permit and appendices for a proposed multi-family residential development in the Town of Hamburg, Erie County, New York. The Applicant is requesting a Section 404 Permit from USACE for the impact of 0.04 acre of federally regulated wetland and a 40-linear foot culverted road crossing over Rush Creek. The applicant is requesting a Nationwide 29 permit from USACE.

Appendix 1 of the application includes the site location map. Appendix 2 includes project site plans/impact map. Appendix 3 includes an official species list generated through the USFWS iPaC web site. Appendix 4 includes a No Effect letter from the New York State Office of Parks, Recreation and Historic Preservation. Appendix 5 includes a map depicting the limits of proposed tree clearing; note that we are requesting that the application be reviewed under the 4d Rule. Appendix 6 includes the Joint Application for Permit form. Please note that there are no river segments listed within the National Park Service Nationwide Rivers Inventory (NRI) within the project area.

If you have any questions or require further information, please contact our office at (716) 655-1717 or email slivingstone@earthdimensions.com.

Very truly yours,
Earth Dimensions, Inc.

Scott J. Livingstone
Wetlands Operations Manager

Encl.

Cc: Glenn Wetzl via email
Sean Hopkins, Esq. via email

APPENDIX 1 – SITE LOCATION MAP

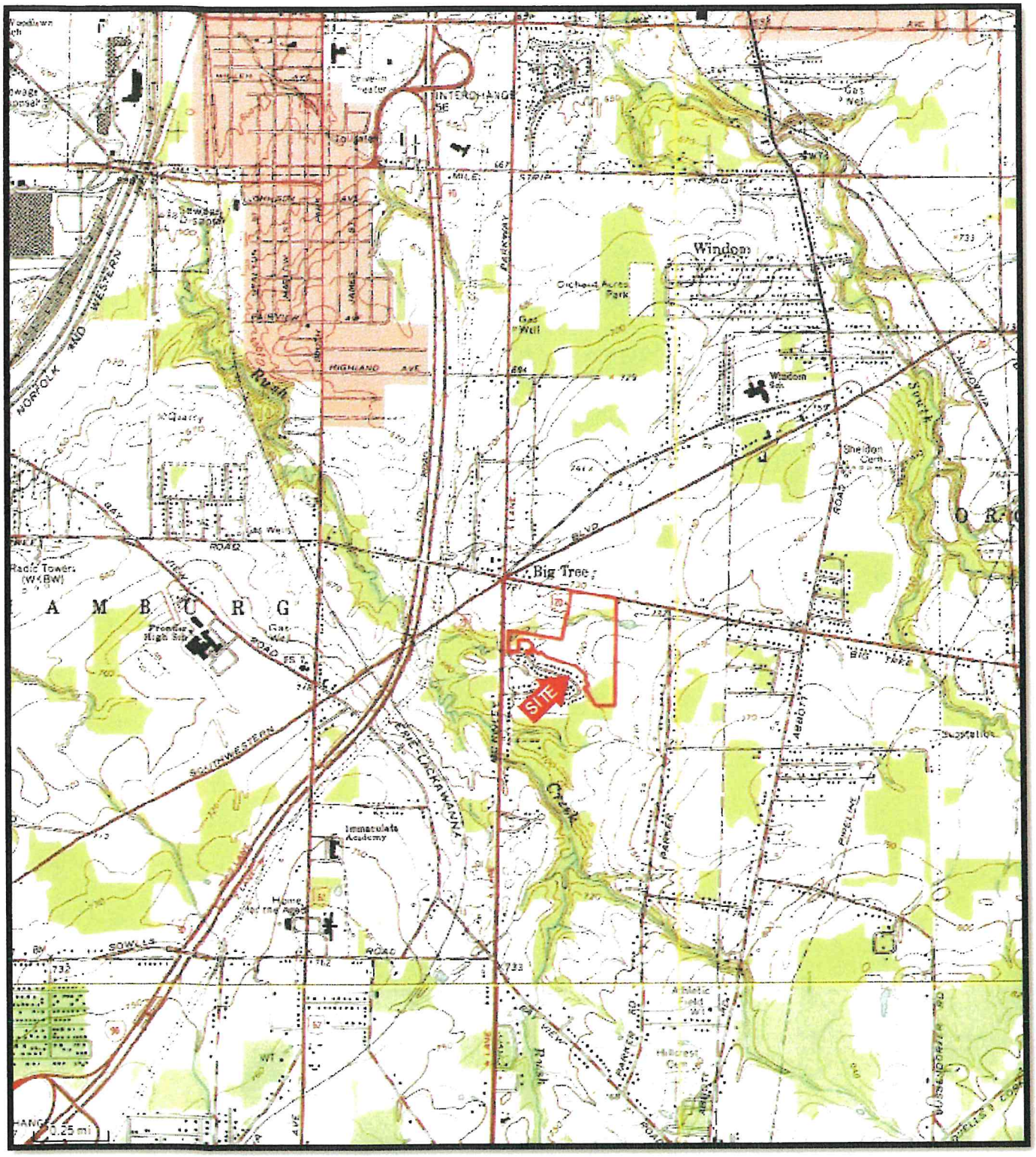


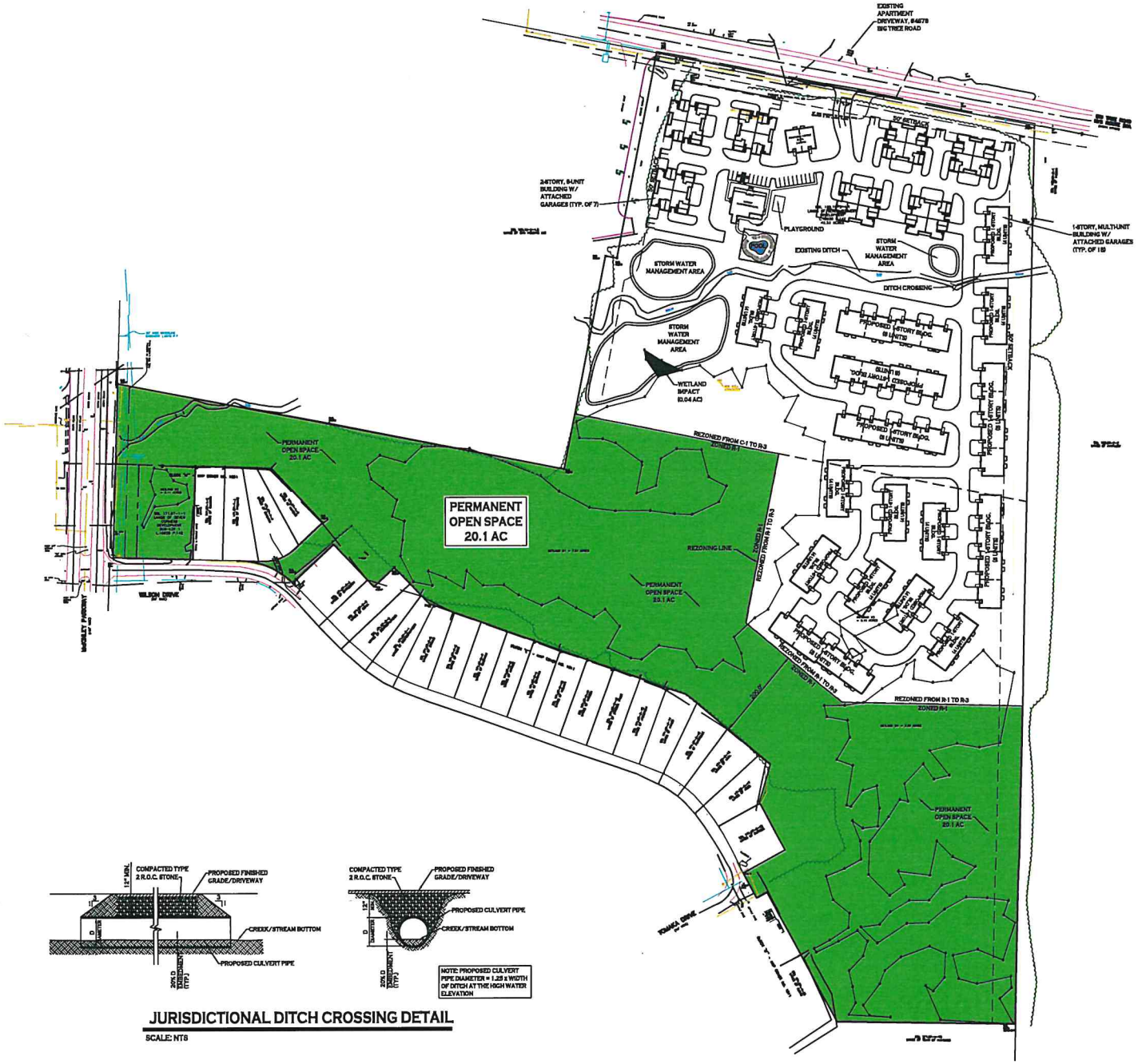
FIGURE 1: USGS 7.5 MINUTE TOPOGRAPHICAL MAP

Buffalo SE Quadrangle / 2002 DeLorme

0 Big Tree Road & 0 Wilson Drive

Town of Hamburg, Erie County, New York

Appendix 2 – Site Plans/Impact Map



JURISDICTIONAL DITCH CROSSING DETAIL

SCALE: NTS

SITE DATA - R3 AREA

SITE AREA = 42.5 AC TOTAL SITE (22.4 AC REZONED TO R-3)
ZONED: TO BE REZONED FROM C-1 TO R-3 (MULTIFAMILY DISTRICT)
DESCRIPTION: (54) 1-STORY UNITS W/ ATTACHED GARAGE
(56) 2-STORY UNITS W/ ATTACHED GARAGES

	REQUIRED	PROVIDED
SETBACKS - BUILDING		
FRONT:	50 FT	> 50 FT
SIDE (3 OR MORE FAMILY DWELLING):	50 FT	> 50 FT
REAR (3 OR MORE FAMILY DWELLING):	50 FT	56 FT MIN.
SETBACKS - PARKING		
FRONT:	50 FT	> 50 FT
SIDE:	5 FT	> 5 FT
REAR	5 FT	> 5 FT
PRINCIPAL BLDG. SEPARATION		
BETWEEN VERTICAL WALLS OF BLDGS. (AVERAGE HEIGHT OF BLDG)	35 FT MIN.	35 FT MIN.
GREENSPACE		
TOTAL SITE (10%):	4.25 AC	> 10.0%
INTERIOR TO PARKING AREA (5%):	0.4 AC	> 5.0%
PARKING		
# OF SPACES - SEE CALCULATION BELOW	AS DETERMINED BY P.B.	174 OPEN 156 GARAGE 330 TOTAL
LOT FRONTAGE		
LOT WIDTH AT FRONT LOT LINE:	200.0 FT MIN.	317.58 FT

NOTE: BOUNDARY AND TOPOGRAPHIC INFORMATION PROVIDED BY OTHERS, CARMINA WOOD MORRIS, D.P.C. ASSUMES NO RESPONSIBILITY FOR ITS ACCURACY.

100' 0 100 200FT.

Carmina Wood Morris DPC
437 Main Street Suite 500
Buffalo, New York 14203
P 716.842.3186
F 716.842.2283

REVISIONS:
No. Description Date

PROJECT NAME:
New Construction
Proposed Development
Big Tree Road
Town of Hamburg, New York

Date: 12/22/
Drawn by: C. Wo
Scale: AS Not

DRAWING NAME:
Concept Site Plan

DRAWING NO.
C-100

Project no.: 20.062

APPENDIX 3 – IPAC SPECIES LIST

United States Department of the Interior

FISH AND WILDLIFE SERVICE
New York Ecological Services Field Office
3817 Luker Road
Cortland, NY 13045-9385
Phone: (607) 753-9334 Fax: (607) 753-9699
http://www.fws.gov/northeast/nyfo/es/section7.htm

In Reply Refer To:
Consultation Code: 05E1NY00-2021-SLI-2272
Event Code: 05E1NY00-2021-E-07159
Project Name: Multi-Family Residential Development

April 15, 2021

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531 *et seq.*). This list can also be used to determine whether listed species may be present for projects without federal agency involvement. New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list.

Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the ESA, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC site at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list. If listed, proposed, or candidate species were identified as potentially occurring in the project area, coordination with our office is encouraged. Information on the steps involved with assessing potential impacts from projects can be found at: http://www.fws.gov/northeast/nyfo/es/section7.htm

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the Services wind

energy guidelines (http://www.fws.gov/windenergy/) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm; http://www.towerkill.com; and http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the ESA. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

Endangered Species Act Species

There is a total of 1 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

---

1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

NAME	STATUS
Northern Long-eared Bat *Myotis septentrionalis* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9045	Threatened

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

APPENDIX 4 – NYS SHPO CORRESPONDENCE

NEW YORK STATE OF OPPORTUNITY. | Parks, Recreation, and Historic Preservation

ANDREW M. CUOMO
Governor

ERIK KULLESEID
Commissioner

June 2, 2021

Glenn Wetzl
7071 Liebler Road
Colden, NY 14033

Re: DEC
4701 Big Tree Road Subdivision
4701 Big Tree Road, Hamburg, Erie County, NY
15PR02909

Dear Glenn Wetzl:

Thank you for requesting the comments of the Division for Historic Preservation of the Office of Parks, Recreation and Historic Preservation (OPRHP). We have reviewed the Phase I Archaeological Reconnaissance report prepared by the University at Buffalo's Archaeological Survey (Whalen & Lackos, April 2021; 21SR00274) in accordance with the New York State Historic Preservation Act of 1980 (section 14.09 of the New York Parks, Recreation, and Historic Preservation Law). These comments are those of the Division for Historic Preservation and relate only to Historic/Cultural resources.

This project review is specific to the Area of Potential Effects (APE) examined during the above-noted survey, and as outlined in the attached figure from the report. Based on this review, OPRHP understands no archaeological cultural resources were identified during the above-noted investigation, and thus no further archaeological investigations are warranted. It is, therefore, OPRHP's opinion that no properties, including archaeological and/or historic resources, listed in or eligible for the New York State and National Registers of Historic Places will be impacted by this project. Should the project design be changed and ground-disturbing impacts outside of the survey area be proposed (see attached), OPRHP recommends further consultation with this office.

If you have any questions, I can be reached via e-mail at Josalyn.Ferguson@parks.ny.gov.

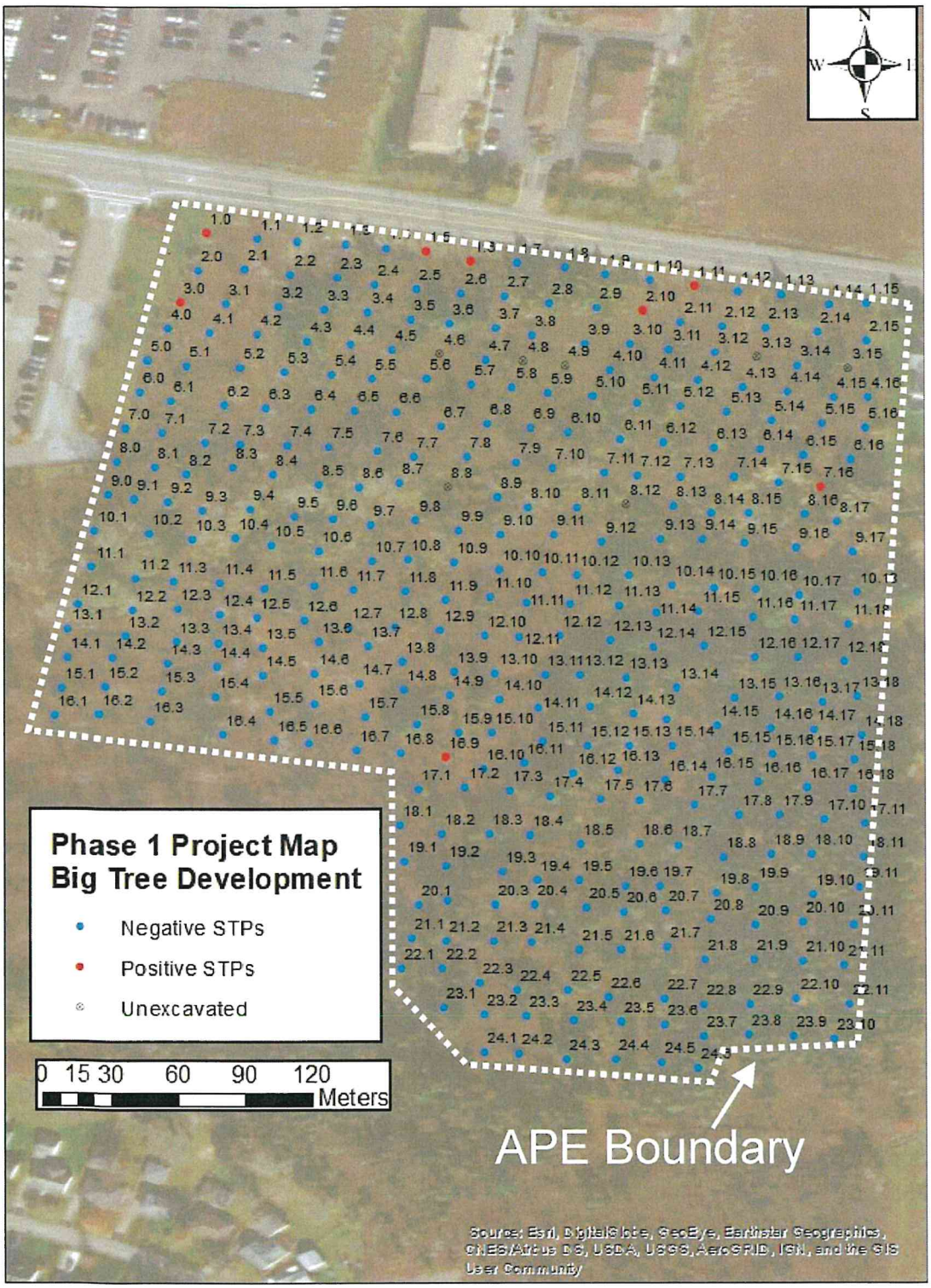
Sincerely,

Josalyn Ferguson, Ph.D.
Scientist Archaeology

via email only

c.c. Doug Perrelli, UB

Attch.


N
W
E
S
Phase 1 Project Map
Big Tree Development
Negative STPs
Positive STPs
Unexcavated
0 15 30 60 90 120
Meters
APE Boundary
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Appendix 5 – Tree Clearing Map

Erie County On-Line Mapping Application

Legend

- Parcels
- Streets and Highways
  - Interstate
  - Primary State Road
  - Secondary State Road
  - County Road
  - Local Road

0 0.14 0.3 Miles

WGS_1984_Web_Mercator_Auxiliary_Sphere
THIS MAP IS NOT TO BE USED FOR NAVIGATION

ERIE COUNTY
DEPARTMENT OF ENVIRONMENT & PLANNING
OFFICE OF GIS

1: 9,028

Appendix 6 – Joint Application for Permit

NEW YORK STATE | Department of Environmental Conservation | Office of General Services | Department of State

US Army Corps of Engineers

JOINT APPLICATION FORM

For Permits for activities activities affecting streams, waterways, waterbodies, wetlands, coastal areas, sources of water, and endangered and threatened species.

You must separately apply for and obtain Permits from each involved agency before starting work. Please read all instructions.

1. **Applications To:**

>NYS Department of Environmental Conservation ☐ Check here to confirm you sent this form to NYSDEC.

Check all permits that apply:

- ☐ Stream Disturbance
- ☐ Excavation and Fill in Navigable Waters
- ☐ Docks, Moorings or Platforms
- ☐ Dams and Impoundment Structures
- ☑ 401 Water Quality Certification
- ☐ Freshwater Wetlands
- ☐ Tidal Wetlands
- ☐ Wild, Scenic and Recreational Rivers
- ☐ Coastal Erosion Management
- ☐ Water Withdrawal
- ☐ Long Island Well
- ☐ Incidental Take of Endangered / Threatened Species

>US Army Corps of Engineers ☑ Check here to confirm you sent this form to USACE.

Check all permits that apply: ☑ Section 404 Clean Water Act ☐ Section 10 Rivers and Harbors Act

Is the project Federally funded? ☐ Yes ☑ No

If yes, name of Federal Agency:

General Permit Type(s), if known: Nationwide 29

Preconstruction Notification: ☑ Yes ☐ No

>NYS Office of General Services ☐ Check here to confirm you sent this form to NYSOGS.

Check all permits that apply:

- ☐ State Owned Lands Under Water
- ☐ Utility Easement (pipelines, conduits, cables, etc.)
- ☐ Docks, Moorings or Platforms

>NYS Department of State ☐ Check here to confirm you sent this form to NYSDOS.

Check if this applies: ☐ Coastal Consistency Concurrence

2. **Name of Applicant**

Glenn Wetzl

Taxpayer ID (if applicant is NOT an individual)

Mailing Address: 7071 Liebler Road

Post Office / City: Colden

State: NY

Zip: 14033

Telephone: 716-941-3348

Email: glennwetzl@roadrunner.com

Applicant Must be (check all that apply): ☑ Owner ☑ Operator ☐ Lessee

3. **Name of Property Owner (if different than Applicant)**

Mailing Address

Post Office / City

State

Zip

Telephone

Email

For Agency Use Only	Agency Application Number:

4. **Name of Contact / Agent**

Scott Livingstone

Mailing Address	Post Office / City	State	Zip
Earth Dimensions, Inc. 1091 Jamison Road	Elma	NY	14059

Telephone 716-655-1717 Email slivingstone@earthdimensions.com

5. **Project / Facility Name**

Multi-Family Residential Development

Property Tax Map Section / Block / Lot Number: 160.19-2-1.1

Project Street Address, if applicable	Post Office / City	State	Zip
0 Big Tree Road	Hamburg	NY	14075

Provide directions and distances to roads, intersections, bridges and bodies of water

The site is located on the south side of Big Tree Road to the west of McKinley Parkway.

☑ Town ☐ Village ☐ City

Hamburg	County: Erie	Stream/Waterbody Name: Rush Creek

Project Location Coordinates: Enter Latitude and Longitude in degrees, minutes, seconds:

Latitude: 42 ° 46 ' 0.768N " Longitude: 78 ° 48 ' 21.312W "

6. **Project Description:** Provide the following information about your project. Continue each response and provide any additional information on other pages. **Attach plans on separate pages.**

a. Purpose of the proposed project:

The proposed project involves the construction of a Multi-family Residential Development consisting of 92 1-story Units and 64 2-story Units, all with attached garages. The project also includes associated infrastructure including roads, storm water facilities and utilities.

b. Description of current site conditions:

The site is currently vacant and dominated by successional shrubland, northern hardwood and pine-northern hardwood communities.

c. Proposed site changes:

The project will involve the construction a multi-family residential development (see 6a). The project will require the impact of 0.04 acre of federally jurisdictional wetland and a 40 linear foot road crossing of Rush Creek.

d. Type of structures and fill materials to be installed, and quantity of materials to be used (e.g., square feet of coverage, cubic yards of fill material, structures below ordinary/mean high water, etc.):

The culverted road crossing will involve the placement of approximately 6 cubic yards of fill material below the ordinary high water mark of Rush Creek.

e. Area of excavation or dredging, volume of material to be removed, location of dredged material placement:

The project does not involve dredging. The site will be graded, with all graded material remaining on site.

f. Is tree cutting or clearing proposed? ☑ Yes If Yes, explain below. ☐ No

Timing of the proposed cutting or clearing (month/year): UK - Please process under 4(d) rule

Number of trees to be cut: Acreage of trees to be cleared: 22

g. Work methods and type of equipment to be used:

Standard construction practices and equipment, including excavators and bull dozers will be utilized during the construction of the project.

h. Describe the planned sequence of activities:

Pollution control (silt fence, silt sock, etc.) will be installed prior to site disturbance. The site will then be cleared and stripped and the stormwater facilities will be installed. Upon completion of initial grading, roads and utilities will be installed followed by construction of the residential structures. Upon completion, the site will be finished graded and stabilized.

i. Pollution control methods and other actions proposed to mitigate environmental impacts:

Standard Blue Book SWPPP measures will be used to prevent sediment from entering waterways or wetlands during construction.

j. Erosion and silt control methods that will be used to prevent water quality impacts:

Silt fence or silt sock will be placed along the approved limits of disturbance. Immediately after final grading, seeding and mulching will take place.

k. Alternatives considered to avoid regulated areas. If no feasible alternatives exist, explain how the project will minimize impacts:

The project has been designed to minimize impacts. The project will avoid 7.48 acres of the 7.52 acres of jurisdictional wetland on site and only a single road crossing of Rush Creek is being proposed.

l. Proposed use: ☑ Private ☐ Public ☐ Commercial

m. Proposed Start Date: Fall 2021 Estimated Completion Date: Fall 2022

n. Has work begun on project? ☐ Yes If Yes, explain below. ☑ No

o. Will project occupy Federal, State, or Municipal Land? ☐ Yes If Yes, explain below. ☑ No

p. List any previous DEC, USACE, OGS or DOS Permit / Application numbers for activities at this location:

LRB-2020-00749

q. Will this project require additional Federal, State, or Local authorizations, including zoning changes?

☑ Yes If Yes, list below. ☐ No

Erie County Health Department, Town of Hamburg Planning Board approval

7. **Signatures.**

Applicant and Owner (If different) must sign the application.
Append additional pages of this Signature section if there are multiple Applicants, Owners or Contact/Agents.

I hereby affirm that information provided on this form and all attachments submitted herewith is true to the best of my knowledge and belief.

Permission to Inspect - I hereby consent to Agency inspection of the project site and adjacent property areas. Agency staff may enter the property without notice between 7:00 am and 7:00 pm, Monday - Friday. Inspection may occur without the owner, applicant or agent present. If the property is posted with "keep out" signs or fenced with an unlocked gate, Agency staff may still enter the property. Agency staff may take measurements, analyze site physical characteristics, take soil and vegetation samples, sketch and photograph the site. I understand that failure to give this consent may result in denial of the permit(s) sought by this application.

False statements made herein are punishable as a Class A misdemeanor pursuant to Section 210.45 of the NYS Penal Law. Further, the applicant accepts full responsibility for all damage, direct or indirect, of whatever nature, and by whomever suffered, arising out of the project described herein and agrees to indemnify and save harmless the State from suits, actions, damages and costs of every name and description resulting from said project. In addition, Federal Law, 18 U.S.C., Section 1001 provides for a fine of not more than $10,000 or imprisonment for not more than 5 years, or both where an applicant knowingly and willingly falsifies, conceals, or covers up a material fact; or knowingly makes or uses a false, fictitious or fraudulent statement.

Signature of Applicant Date: 12/22/2021

Applicant Must be (check all that apply): ☑ Owner ☐ Operator ☐ Lessee

Printed Name: Glenn Wetzl

Title: Owner

Signature of Owner (if different than Applicant) Date:

Printed Name:

Title:

Signature of Contact / Agent Date: 12/23/21

Printed Name: Scott Livingstone

Title: Wetlands Operations Manager

For Agency Use Only **DETERMINATION OF NO PERMIT REQUIRED**

Agency Application Number:

(Agency Name) has determined that No Permit is required from this Agency for the project described in this application.

Agency Representative:

Printed Name: Title:

Signature: Date:

Appendix K

Nationwide Permit
d by the United States Army Cor
Engineers

DEPARTMENT OF THE ARMY
US ARMY CORPS OF ENGINEERS, BUFFALO DISTRICT
1776 NIAGARA STREET
BUFFALO, NEW YORK 14207-3199

May 11, 2023

Regulatory Branch

SUBJECT: Application No.: 2020-00749, Nationwide Permit No.: 29 as Published in the Federal Register, Volume 86, No. 8 on Jan. 13, 2021 and No. 245 on Dec. 27, 2021

Glenn Wetzl
7071 Liebler Road
Colden, NY 14033

Mr. Wetzl:

This pertains to your proposal to permanently fill 0.04 acres of federally jurisdictional wetland and impact 40 linear feet of Rush Creek with culvert installation for the construction of a residential development, located at 0 Big Tree Road, in the Town of Hamburg, County of Erie and State of New York. Center coordinates: 42° 46' 0.768"N and -78° 48' 21.312"W.

I have evaluated the impacts associated with your proposal, and have concluded that they are authorized by the enclosed Nationwide Permit (NWP) provided that the attached conditions are satisfied.

Verification of the applicability of this NWP is valid until March 14, 2026 unless the NWP is modified, suspended, revoked, or the activity complies with any subsequent permit modification. Please note in accordance with 33 CFR part 330.6(b), that if you commence or are under contract to commence an activity in reliance of the permit prior to the date this NWP expires, is suspended or revoked, or is modified such that the activity no longer complies with the terms and conditions, you have twelve months from the date of permit modification, expiration, or revocation to complete the activity under the present terms and conditions of the permit, unless the permit has been subject to the provisions of discretionary authority.

It is your responsibility to remain informed of changes to the NWP program. A public notice announcing any changes will be issued when they occur and will be available for viewing at our website: http://www.lrb.usace.army.mil/Missions/Regulatory.aspx. Finally, note that if your activity is not undertaken within the defined period or the project specifications have changed, you must immediately notify this office to determine the need for further approval or reverification.

Your initiation of work as authorized by the enclosed NWP acknowledges your acceptance of the general and special conditions contained therein. This affirmation is limited to the attached NWP and associated WQC, and does not obviate the need to obtain any other project specific Federal, state, or local authorization. Specifically, you may need to obtain Article 15 (Protection of Water), Article 24 (Freshwater Wetland), and/or Article 34 (Coastal Erosion Management) authorization from the New York State DEC.

Regulatory Branch

SUBJECT: Application No.: 2020-00749, Nationwide Permit No.: 29 as Published in the Federal Register, Volume 86, No. 8 on Jan. 13, 2021 and No. 245 on Dec. 27, 2021

In addition to the general conditions attached to the NWP, your attention is directed to the following Special Conditions which are also appended at the end of the NWP.

1. To reduce any potential adverse effects on the federally-endangered Northern long-eared bat (Myotis septentrionalis), trees (woody stems > 3 inches Diameter at Breast Height) must not be cut between April 1 and September 30 of any year.

Questions pertaining to this matter should be directed to me at 716-879-4346, by writing to the following address: U.S. Army Corps of Engineers Regulatory Branch, 1776 Niagara Street, Buffalo, New York, 14207 or by e-mail at: martin.h.crosson@usace.army.mil.

Sincerely,

Martin Crosson 5/11/2023

Martin Crosson
Biologist

COMPLETION FORM / COMPLIANCE CERTIFICATION

Each permittee who receives a Nationwide Permit (NWP) verification letter from the Corps must provide a signed certification documenting completion of the authorized activity and any compensatory mitigation.

APPLICANT:
Glenn Wetzl
7071 Liebler Road
Colden, NY 14033

POINT OF CONTACT:
Scott Livingstone
Earth Dimensions, Inc.
1091 Jamison Road
Elma, NY 14059

File No.: 2020-00749
File Closed: May 11, 2023
NWP No.: 29

Upon completion of the activity authorized by this permit and any required compensatory mitigation sign this certification and return it to the address listed below within 30 days of project completion.

Please note that your permitted activity is subject to a compliance inspection by a U.S. Army Corps of Engineers representative. If you fail to comply with this permit you are subject to permit suspension, modification, revocation, and/or assessment of administrative penalties.

The permittee shall certify the completion of the authorized work and mitigation:

a. The authorized work was done in accordance with the NWP authorization, including any general, regional, or activity specific conditions.

b. The implementation of any required compensatory mitigation was completed in accordance with the permit conditions. If credits from a mitigation bank or in-lieu fee program are used to satisfy the compensatory mitigation requirements, this certification must include the documentation required by 33 CFR 332.3(1)(3) to confirm that the permittee secured the appropriate number and resource type of credits.

_____ _____

Glenn Wetzl Date

Permittee Telephone Number: _____

Project Location/Description/Authorized Impacts: fill 0.04 acres of federally jurisdictional wetland; impact 40 linear feet of Rush Creek with culvert installation; construction of a residential development, located at 0 Big Tree Road, in the Town of Hamburg, County of Erie and State of New York. Center coordinates: 42° 46' 0.768"N and -78° 48' 21.312"W.

Return completed form to: LRB.Regulatory.PermitCompliance@usace.army.mil (Preferred)
Or Mail to: Mr. David Leput
Regulatory Branch
U.S. Army Corps of Engineers
1776 Niagara Street
Buffalo, NY 14207

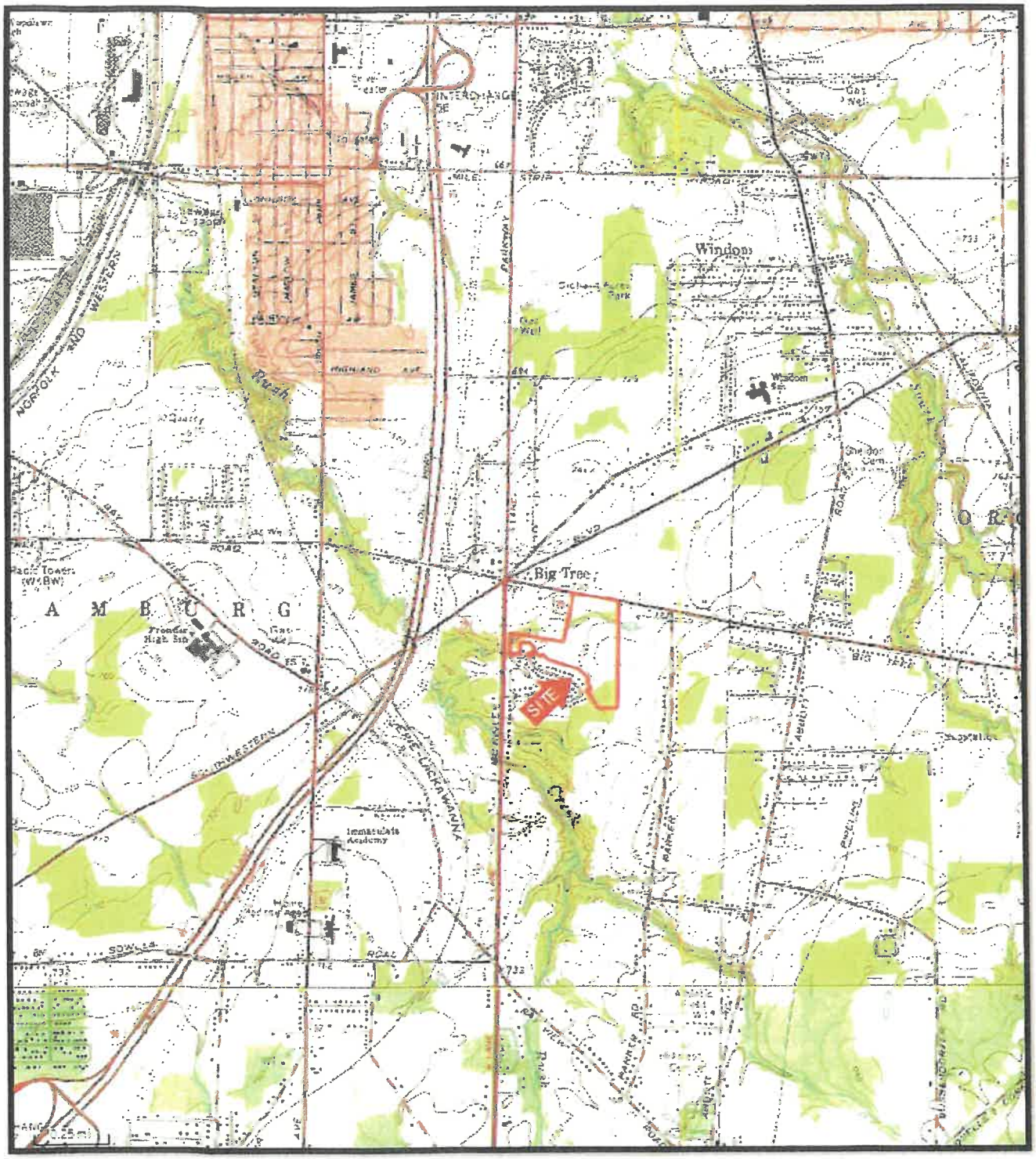


FIGURE 1: USGS 7.5 MINUTE TOPOGRAPHICAL MAP

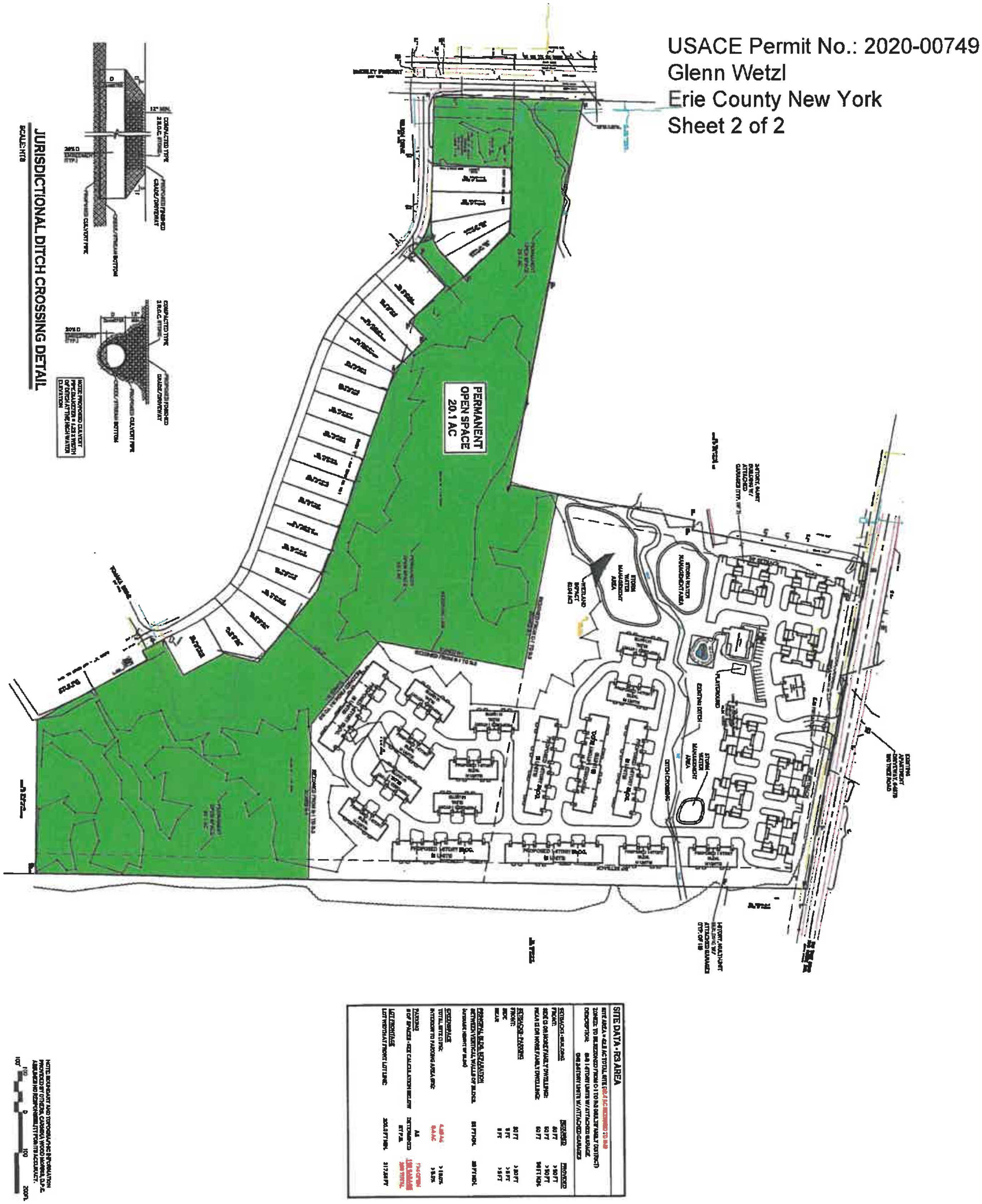
Buffalo SE Quadrangle / 2002 DeLorme

0 Big Tree Road & 0 Wilson Drive

Town of Hamburg, Erie County, New York

USACE Permit No.: 2020-00749
Glenn Wetzl
Erie County New York
Sheet 1 of 2

USACE Permit No.: 2020-00749
Glenn Wetzl
Erie County New York
Sheet 2 of 2



REVISIONS:

No.	Description	Date

PROJECT NAME:
New Construction
Proposed Development
Big Tree Road
Town of Hamburg, New York

DRAWING NAME:
Concept Site Plan

DRAWING NO.
C-100

Project no.: 20.062

Carmina Wood Morris

Buffalo & New York Districts Final Regional Conditions, Water Quality Certification and Coastal Zone Concurrence for the 2021 Nationwide Permits for New York State Expiration March 14, 2026

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B. Nationwide Permits

29. Residential Developments. Discharges of dredged or fill material into non-tidal waters of the United States for the construction or expansion of a single residence, a multiple unit residential development, or a residential subdivision. This NWP authorizes the construction of building foundations and building pads and attendant features that are necessary for the use of the residence or residential development. Attendant features may include but are not limited to roads, parking lots, garages, yards, utility lines, storm water management facilities, septic fields, and recreation facilities such as playgrounds, playing fields, and golf courses (provided the golf course is an integral part of the residential development).

The discharge must not cause the loss of greater than 1/2-acre of non-tidal waters of the United States. This NWP does not authorize discharges of dredged or fill material into non-tidal wetlands adjacent to tidal waters.

Subdivisions: For residential subdivisions, the aggregate total loss of waters of United States authorized by this NWP cannot exceed 1/2-acre. This includes any loss of waters of the United States associated with development of individual subdivision lots.

Notification: The permittee must submit a pre-construction notification to the district engineer prior to commencing the activity. (See general condition 32.) (Authorities: Sections 10 and 404)

Permit-specific Regional Conditions (Buffalo and New York Districts):

a. The proposed impacts to waters of the United States shall include those direct impacts associated with construction of the proposed project, as well as any indirect impacts which may occur as a result of the project (e.g., filling waters of the United States to increase size of usable yard space, impacts to existing hydrologic regimes, etc.).

b. This NWP may not be used in New York State for the discharge of dredged or fill material into open water areas of lakes or rivers which converts the area to dry land.

c. Whenever a multiple-lot subdivision is submitted to the Corps of Engineers for review, it must be designed, to the maximum extent practicable, such that wetlands are not located on the resulting individual lots. If the applicant cannot design the subdivision in accordance with this requirement, the Pre-Construction Notification (PCN) must include a discussion as to why this requirement cannot be accomplished, along with a detailed description as to how the wetland areas on each individual lot will be adequately protected.

i. All areas within the multiple-lot subdivision that are components of compensatory mitigation, including

waters of the United States and associated upland buffers, must be covered by a conservation easement or other legal protective covenant.

ii. For all other waters of the United States, following completion of work authorized by this nationwide permit, a copy of this permit and regional conditions, along with permit drawings showing the locations of waters of the United States, must be provided with the deed to all individual lots that will contain waters of the United States.

New York District Only Permit-specific Regional Conditions:

d. This NWP is not applicable for activities located in the following areas:

1. The Great Swamp in Putnam and Dutchess Counties
2. Mianus River and adjacent wetlands
3. Harbor Herons System in Staten Island, New York. For additional information on the Harbor Herons System, please see the New York State Department of Environmental Conservation website at: https://www.dec.ny.gov/docs/wildlife_pdf/bcahherons.pdf or contact the Trust for Public Land at the following address:

The Trust for Public Land
Mid-Atlantic Regional Office
666 Broadway
New York, N.Y. 10012

e. Within Essential Fish Habitat (EFH) or within areas supporting anadromous fish migration and spawning, as discussed in Section G-E.8. below, sediment removal and pile and sheet pile/cofferdam installation and removal shall be avoided from March 1 to June 30 of any year. Work within cofferdams can proceed any time during the year provided that the cofferdams are installed or removed outside of the seasonal work restriction. Justification must be submitted as part of the required PCN if a variance of this seasonal work window is requested.

Section 401 Water Quality Certification (WQC):

The WQC has been denied for this NWP by the following certifying authorities:

i. New York State Department of Public Services (NYSDPS) for activities that relate to the construction and operation of major natural gas or electric transmission facilities undertaken pursuant to New York State Public Service Law (PSL) Article VII.

ii. New York State Office of Renewable Energy Siting (NYSORES) for activities that relate to the construction and operation of major renewable electric generating facilities undertaken pursuant to New York State Executive Law Article 6, Section 94-C.

iii. New York State Board on Electric Generation Siting and the Environment (Siting Board) for activities that relate to new and repowered or modified major electric generating facilities of 25 megawatts or more undertaken pursuant to PSL Article 10.

iv. U.S. Environmental Protection Agency (USEPA), as the certifying agency for the seven federally recognized Indian Nations in New York (Cayuga Nation, Onondaga Nation, Oneida Nation of Indians, Seneca Nation of Indians, Shinnecock Indian Nation, Tonawanda Seneca Nation, and Tuscarora Nation) for all activities occurring on these tribal lands.

v. Saint Regis Mohawk Tribe for all activities occurring on Saint Regis Mohawk Tribal land.

The New York State Department of Environmental Conservation (NYSDEC) has granted blanket WQC, for those activities not outlined above, provided that the project complies with all the Special Conditions listed below and General Conditions listed below in Section H. Where the Special Conditions differ from the General Conditions, the Special Conditions shall prevail.

NYSDEC WQC NWP #29 Special Condition:

a) This certification does not authorize the construction of new residential development projects in wetlands located within a FEMA designated 100-year floodplain.

Any party proposing to conduct the activities authorized by this NWP where the WQC has been denied or that cannot comply with all of the NYSDEC WQC conditions must apply for and obtain an individual WQC or waiver thereof from the appropriate certifying authority. Refer to Section K below for agency contact information.

New York State Department of State Coastal Zone Management Consistency Determination:

Pursuant to 15 CFR Parts 930.41 and 930.43, the New York State Department of State (NYSDOS) objected to the USACE' consistency determination for this NWP anywhere in the New York coastal area. Activities authorized pursuant to this Nationwide Permit shall be submitted to NYSDOS for review by the applicant. NYSDOS will review the proposed activities pursuant to 15 CFR Part 930 Subpart D. NYSDOS concurrence with an applicant's consistency certification shall not be presumed unless NYSDOS fails to concur with or object to an applicant's consistency certification within six (6) months of commencement of NYSDOS' review of an applicant's consistency certification and all necessary data and information in accordance with 15 CFR § 930.62 or § 930.63. See Section I below for further information.

C. Nationwide Permit General Conditions

Note: To qualify for NWP authorization, the prospective permittee must comply with the following general conditions, as applicable, in addition to any regional or case-specific conditions imposed by the division engineer or district engineer. Prospective permittees should contact the appropriate Corps district office to determine if regional conditions have been imposed on an NWP. Prospective permittees should also contact the appropriate Corps district office to determine the status of Clean Water Act Section 401 water quality certification and/or Coastal Zone Management Act consistency for an NWP. Every person who may wish to obtain permit authorization under one or more NWPs, or who is currently relying on an existing or prior permit authorization under one or more NWPs, has been and is on notice that all of the provisions of 33 CFR 330.1 through 330.6 apply to every NWP authorization. Note especially 33 CFR 330.5 relating to the modification, suspension, or revocation of any NWP authorization.

1. Navigation. (a) No activity may cause more than a minimal adverse effect on navigation.

(b) Any safety lights and signals prescribed by the U.S. Coast Guard, through regulations or otherwise, must be installed and maintained at the permittee's expense on authorized facilities in navigable waters of the United States.

(c) The permittee understands and agrees that, if future operations by the United States require the removal, relocation, or other alteration, of the structure or work herein authorized, or if, in the opinion of the Secretary of the Army or his or her authorized representative, said structure or work shall cause unreasonable obstruction to the free navigation of the navigable waters, the permittee will be required, upon due notice from the Corps of Engineers, to remove, relocate, or alter the structural work or obstructions caused thereby, without expense to the United States. No claim shall be made against the United States on account of any such removal or alteration.

2. Aquatic Life Movements. No activity may substantially disrupt the necessary life cycle movements of those species of aquatic life indigenous to the waterbody, including those species that normally migrate through the area,

unless the activity's primary purpose is to impound water. All permanent and temporary crossings of waterbodies shall be suitably culverted, bridged, or otherwise designed and constructed to maintain low flows to sustain the movement of those aquatic species. If a bottomless culvert cannot be used, then the crossing should be designed and constructed to minimize adverse effects to aquatic life movements.

3. Spawning Areas. Activities in spawning areas during spawning seasons must be avoided to the maximum extent practicable. Activities that result in the physical destruction (e.g., through excavation, fill, or downstream smothering by substantial turbidity) of an important spawning area are not authorized.

4. Migratory Bird Breeding Areas. Activities in waters of the United States that serve as breeding areas for migratory birds must be avoided to the maximum extent practicable.

5. Shellfish Beds. No activity may occur in areas of concentrated shellfish populations, unless the activity is directly related to a shellfish harvesting activity authorized by NWPs 4 and 48, or is a shellfish seeding or habitat restoration activity authorized by NWP 27.

6. Suitable Material. No activity may use unsuitable material (e.g., trash, debris, car bodies, asphalt, etc.). Material used for construction or discharged must be free from toxic pollutants in toxic amounts (see section 307 of the Clean Water Act).

7. Water Supply Intakes. No activity may occur in the proximity of a public water supply intake, except where the activity is for the repair or improvement of public water supply intake structures or adjacent bank stabilization.

8. Adverse Effects From Impoundments. If the activity creates an impoundment of water, adverse effects to the aquatic system due to accelerating the passage of water, and/or restricting its flow must be minimized to the maximum extent practicable.

9. Management of Water Flows. To the maximum extent practicable, the pre-construction course, condition, capacity, and location of open waters must be maintained for each activity, including stream channelization, storm water management activities, and temporary and permanent road crossings, except as provided below. The activity must be constructed to withstand expected high flows. The activity must not restrict or impede the passage of normal or high flows, unless the primary purpose of the activity is to impound water or manage high flows. The activity may alter the pre-construction course, condition, capacity, and location of open waters if it benefits the aquatic environment (e.g., stream restoration or relocation activities).

10. Fills Within 100-Year Floodplains. The activity must comply with applicable FEMA-approved state or local floodplain management requirements.

11. Equipment. Heavy equipment working in wetlands or mudflats must be placed on mats, or other measures must be taken to minimize soil disturbance.

12. Soil Erosion and Sediment Controls. Appropriate soil erosion and sediment controls must be used and maintained in effective operating condition during construction, and all exposed soil and other fills, as well as any work below the ordinary high water mark or high tide line, must be permanently stabilized at the earliest practicable date. Permittees are encouraged to perform work within waters of the United States during periods of low-flow or no-flow, or during low tides.

13. Removal of Temporary Structures and Fills. Temporary structures must be removed, to the maximum extent practicable, after their use has been discontinued. Temporary fills must be removed in their entirety and the affected areas returned to pre-construction elevations. The affected areas must be revegetated, as appropriate.

14. Proper Maintenance. Any authorized structure or fill shall be properly maintained, including maintenance to ensure public safety and compliance with applicable NWP general conditions, as well as any activity-specific conditions added by the district engineer to an NWP authorization.

15. Single and Complete Project. The activity must be a single and complete project. The same NWP cannot be used more than once for the same single and complete project.

16. Wild and Scenic Rivers. (a) No NWP activity may occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a "study river" for possible inclusion in the system while the river is in an official study status, unless the appropriate Federal agency with direct management responsibility for such river, has determined in writing that the proposed activity will not adversely affect the Wild and Scenic River designation or study status.

(b) If a proposed NWP activity will occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a "study river" for possible inclusion in the system while the river is in an official study status, the permittee must submit a pre-construction notification (see general condition 32). The district engineer will coordinate the PCN with the Federal agency with direct management responsibility for that river. Permittees shall not begin the NWP activity until notified by the district engineer that the Federal agency with direct management responsibility for that river has determined in writing that the proposed NWP activity will not adversely affect the Wild and Scenic River designation or study status.

(c) Information on Wild and Scenic Rivers may be obtained from the appropriate Federal land management agency responsible for the designated Wild and Scenic River or study river (e.g., National Park Service, U.S. Forest Service, Bureau of Land Management, U.S. Fish and Wildlife Service). Information on these rivers is also available at: http://www.rivers.gov/.

17. Tribal Rights. No activity or its operation may impair reserved tribal rights, including, but not limited to, reserved water rights and treaty fishing and hunting rights.

18. Endangered Species. (a) No activity is authorized under any NWP which is likely to directly or indirectly jeopardize the continued existence of a threatened or endangered species or a species proposed for such designation, as identified under the Federal Endangered Species Act (ESA), or which will directly or indirectly destroy or adversely modify designated critical habitat or critical habitat proposed for such designation. No activity is authorized under any NWP which "may affect" a listed species or critical habitat, unless ESA section 7 consultation addressing the consequences of the proposed activity on listed species or critical habitat has been completed. See 50 CFR 402.02 for the definition of "effects of the action" for the purposes of ESA section 7 consultation, as well as 50 CFR 402.17, which provides further explanation under ESA section 7 regarding "activities that are reasonably certain to occur" and "consequences caused by the proposed action."

(b) Federal agencies should follow their own procedures for complying with the requirements of the ESA (see 33 CFR 330.4(f)(1)). If pre-construction notification is required for the proposed activity, the Federal permittee must provide the district engineer with the appropriate documentation to demonstrate compliance with those requirements. The district engineer will verify that the appropriate documentation has been submitted. If the appropriate documentation has not been submitted, additional ESA section 7 consultation may be necessary for the activity and the respective federal agency would be responsible for fulfilling its obligation under section 7 of the ESA.

(c) Non-federal permittees must submit a pre-construction notification to the district engineer if any listed species (or species proposed for listing) or designated critical habitat (or critical habitat proposed such designation) might be affected or is in the vicinity of the activity, or if the activity is located in designated critical habitat or critical habitat proposed for such designation, and shall not begin work on the activity until notified by the district engineer that the requirements of the ESA have been satisfied and that the activity is authorized. For activities that might affect Federally-listed endangered or threatened species (or species proposed for listing) or designated critical habitat (or critical habitat proposed for such designation), the pre-construction notification must include the name(s) of the endangered or threatened species (or species proposed for listing) that might be affected by the proposed activity or that utilize the designated

critical habitat (or critical habitat proposed for such designation) that might be affected by the proposed activity. The district engineer will determine whether the proposed activity "may affect" or will have "no effect" to listed species and designated critical habitat and will notify the non-Federal applicant of the Corps' determination within 45 days of receipt of a complete pre-construction notification. For activities where the non-Federal applicant has identified listed species (or species proposed for listing) or designated critical habitat (or critical habitat proposed for such designation) that might be affected or is in the vicinity of the activity, and has so notified the Corps, the applicant shall not begin work until the Corps has provided notification that the proposed activity will have "no effect" on listed species (or species proposed for listing or designated critical habitat (or critical habitat proposed for such designation), or until ESA section 7 consultation or conference has been completed. If the non-Federal applicant has not heard back from the Corps within 45 days, the applicant must still wait for notification from the Corps.

(d) As a result of formal or informal consultation or conference with the FWS or NMFS the district engineer may add species-specific permit conditions to the NWPs.

(e) Authorization of an activity by an NWP does not authorize the "take" of a threatened or endangered species as defined under the ESA. In the absence of separate authorization (e.g., an ESA Section 10 Permit, a Biological Opinion with "incidental take" provisions, etc.) from the FWS or the NMFS, the Endangered Species Act prohibits any person subject to the jurisdiction of the United States to take a listed species, where "take" means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct. The word "harm" in the definition of "take" means an act which actually kills or injures wildlife. Such an act may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering.

(f) If the non-federal permittee has a valid ESA section 10(a)(1)(B) incidental take permit with an approved Habitat Conservation Plan for a project or a group of projects that includes the proposed NWP activity, the non-federal applicant should provide a copy of that ESA section 10(a)(1)(B) permit with the PCN required by paragraph (c) of this general condition. The district engineer will coordinate with the agency that issued the ESA section 10(a)(1)(B) permit to determine whether the proposed NWP activity and the associated incidental take were considered in the internal ESA section 7 consultation conducted for the ESA section 10(a)(1)(B) permit. If that coordination results in concurrence from the agency that the proposed NWP activity and the associated incidental take were considered in the internal ESA section 7 consultation for the ESA section 10(a)(1)(B) permit, the district engineer does not need to conduct a separate ESA section 7 consultation for the proposed NWP activity. The district engineer will notify the non-federal applicant within 45 days of receipt of a complete pre-construction notification whether the ESA section 10(a)(1)(B) permit covers the proposed NWP activity or whether additional ESA section 7 consultation is required.

(g) Information on the location of threatened and endangered species and their critical habitat can be obtained directly from the offices of the FWS and NMFS or their world wide web pages at http://www.fws.gov/ or http://www.fws.gov/ipac and http://www.nmfs.noaa.gov/pr/species/esa/ respectively.

19. Migratory Birds and Bald and Golden Eagles. The permittee is responsible for ensuring that an action authorized by an NWP complies with the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act. The permittee is responsible for contacting the appropriate local office of the U.S. Fish and Wildlife Service to determine what measures, if any, are necessary or appropriate to reduce adverse effects to migratory birds or eagles, including whether "incidental take" permits are necessary and available under the Migratory Bird Treaty Act or Bald and Golden Eagle Protection Act for a particular activity.

20. Historic Properties. (a) No activity is authorized under any NWP which may have the potential to cause effects to properties listed, or eligible for listing, in the National Register of Historic Places until the requirements of Section 106 of the National Historic Preservation Act (NHPA) have been satisfied.

(b) Federal permittees should follow their own procedures for complying with the requirements of section 106 of the National Historic Preservation Act (see 33 CFR 330.4(g)(1)). If pre-construction notification is required for the proposed NWP activity, the Federal permittee must provide the district engineer with the appropriate documentation to demonstrate compliance with those requirements. The district engineer will verify that the appropriate documentation has been submitted. If the appropriate documentation is not submitted, then additional consultation under section 106 may be necessary. The respective federal agency is responsible for fulfilling its obligation to comply with section 106.

(c) Non-federal permittees must submit a pre-construction notification to the district engineer if the NWP activity might have the potential to cause effects to any historic properties listed on, determined to be eligible for listing on, or potentially eligible for listing on the National Register of Historic Places, including previously unidentified properties. For such activities, the pre-construction notification must state which historic properties might have the potential to be affected by the proposed NWP activity or include a vicinity map indicating the location of the historic properties or the potential for the presence of historic properties. Assistance regarding information on the location of, or potential for, the presence of historic properties can be sought from the State Historic Preservation Officer, Tribal Historic Preservation Officer, or designated tribal representative, as appropriate, and the National Register of Historic Places (see 33 CFR 330.4(g)). When reviewing pre-construction notifications, district engineers will comply with the current procedures for addressing the requirements of section 106 of the National Historic Preservation Act. The district engineer shall make a reasonable and good faith effort to carry out appropriate identification efforts commensurate with potential impacts, which may include background research, consultation, oral history interviews, sample field investigation, and/or field survey. Based on the information submitted in the PCN and these identification efforts, the district engineer shall determine whether the proposed NWP activity has the potential to cause effects on the historic properties. Section 106 consultation is not required when the district engineer determines that the activity does not have the potential to cause effects on historic properties (see 36 CFR 800.3(a)). Section 106 consultation is required when the district engineer determines that the activity has the potential to cause effects on historic properties. The district engineer will conduct consultation with consulting parties identified under 36 CFR 800.2(c) when he or she makes any of the following effect determinations for the purposes of section 106 of the NHPA: no historic properties affected, no adverse effect, or adverse effect.

(d) Where the non-Federal applicant has identified historic properties on which the proposed NWP activity might have the potential to cause effects and has so notified the Corps, the non-Federal applicant shall not begin the activity until notified by the district engineer either that the activity has no potential to cause effects to historic properties or that NHPA section 106 consultation has been completed. For non-federal permittees, the district engineer will notify the prospective permittee within 45 days of receipt of a complete pre-construction notification whether NHPA section 106 consultation is required. If NHPA section 106 consultation is required, the district engineer will notify the non-Federal applicant that he or she cannot begin the activity until section 106 consultation is completed. If the non-Federal applicant has not heard back from the Corps within 45 days, the applicant must still wait for notification from the Corps.

(e) Prospective permittees should be aware that section 110k of the NHPA (54 U.S.C. 306113) prevents the Corps from granting a permit or other assistance to an applicant who, with intent to avoid the requirements of section 106 of the NHPA, has intentionally significantly adversely affected a historic property to which the permit would relate, or having legal power to prevent it, allowed such significant adverse effect to occur, unless the Corps, after consultation with the Advisory Council on Historic Preservation (ACHP), determines that circumstances justify granting such assistance despite the adverse effect created or permitted by the applicant. If circumstances justify granting the assistance, the Corps is required to notify the ACHP and provide documentation specifying the circumstances, the degree of damage to the integrity of any historic properties affected, and proposed mitigation. This documentation must include any views obtained from the applicant, SHPO/THPO, appropriate Indian tribes if the undertaking occurs on or affects historic properties on tribal lands or affects properties of interest to those tribes, and other parties known to have a legitimate interest in the impacts to the permitted activity on historic properties.

21. Discovery of Previously Unknown Remains and Artifacts. Permittees that discover any previously unknown historic, cultural or archeological remains and artifacts while accomplishing the activity authorized by an NWP, they must immediately notify the district engineer of what they have found, and to the maximum extent practicable, avoid construction activities that may affect the remains and artifacts until the required coordination has been completed. The district engineer will initiate the Federal, Tribal, and state coordination required to determine if the items or remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.

22. Designated Critical Resource Waters. Critical resource waters include, NOAA-managed marine sanctuaries and marine monuments, and National Estuarine Research Reserves. The district engineer may designate, after notice and opportunity for public comment, additional waters officially designated by a state as having particular environmental or ecological significance, such as outstanding national resource waters or state natural heritage sites. The district engineer may also designate additional critical resource waters after notice and opportunity for public comment.

(a) Discharges of dredged or fill material into waters of the United States are not authorized by NWPs 7, 12, 14, 16, 17, 21, 29, 31, 35, 39, 40, 42, 43, 44, 49, 50, 51, 52, 57 and 58 for any activity within, or directly affecting, critical resource waters, including wetlands adjacent to such waters.

(b) For NWPs 3, 8, 10, 13, 15, 18, 19, 22, 23, 25, 27, 28, 30, 33, 34, 36, 37, 38, and 54, notification is required in accordance with general condition 32, for any activity proposed by permittees in the designated critical resource waters including wetlands adjacent to those waters. The district engineer may authorize activities under these NWPs only after she or he determines that the impacts to the critical resource waters will be no more than minimal.

23. Mitigation. The district engineer will consider the following factors when determining appropriate and practicable mitigation necessary to ensure that the individual and cumulative adverse environmental effects are no more than minimal:

(a) The activity must be designed and constructed to avoid and minimize adverse effects, both temporary and permanent, to waters of the United States to the maximum extent practicable at the project site (i.e., on site).

(b) Mitigation in all its forms (avoiding, minimizing, rectifying, reducing, or compensating for resource losses) will be required to the extent necessary to ensure that the individual and cumulative adverse environmental effects are no more than minimal.

(c) Compensatory mitigation at a minimum one-for-one ratio will be required for all wetland losses that exceed 1/10-acre and require pre-construction notification, unless the district engineer determines in writing that either some other form of mitigation would be more environmentally appropriate or the adverse environmental effects of the proposed activity are no more than minimal, and provides an activity-specific waiver of this requirement. For wetland losses of 1/10-acre or less that require pre-construction notification, the district engineer may determine on a case-by-case basis that compensatory mitigation is required to ensure that the activity results in only minimal adverse environmental effects.

(d) Compensatory mitigation at a minimum one-for-one ratio will be required for all losses of stream bed that exceed 3/100-acre and require pre-construction notification, unless the district engineer determines in writing that either some other form of mitigation would be more environmentally appropriate or the adverse environmental effects of the proposed activity are no more than minimal, and provides an activity-specific waiver of this requirement. This compensatory mitigation requirement may be satisfied through the restoration or enhancement of riparian areas next to streams in accordance with paragraph (e) of this general condition. For losses of stream bed of 3/100-acre or less that require pre-construction notification, the district engineer may determine on a case-by-case basis that compensatory mitigation is required to ensure that the activity results in only minimal adverse environmental effects. Compensatory mitigation for

losses of streams should be provided, if practicable, through stream rehabilitation, enhancement, or preservation, since streams are difficult-to-replace resources (see 33 CFR 332.3(e)(3)).

(e) Compensatory mitigation plans for NWP activities in or near streams or other open waters will normally include a requirement for the restoration or enhancement, maintenance, and legal protection (e.g., conservation easements) of riparian areas next to open waters. In some cases, the restoration or maintenance/protection of riparian areas may be the only compensatory mitigation required. If restoring riparian areas involves planting vegetation, only native species should be planted. The width of the required riparian area will address documented water quality or aquatic habitat loss concerns. Normally, the riparian area will be 25 to 50 feet wide on each side of the stream, but the district engineer may require slightly wider riparian areas to address documented water quality or habitat loss concerns. If it is not possible to restore or maintain/protect a riparian area on both sides of a stream, or if the waterbody is a lake or coastal waters, then restoring or maintaining/protecting a riparian area along a single bank or shoreline may be sufficient. Where both wetlands and open waters exist on the project site, the district engineer will determine the appropriate compensatory mitigation (e.g., riparian areas and/or wetlands compensation) based on what is best for the aquatic environment on a watershed basis. In cases where riparian areas are determined to be the most appropriate form of minimization or compensatory mitigation, the district engineer may waive or reduce the requirement to provide wetland compensatory mitigation for wetland losses.

(f) Compensatory mitigation projects provided to offset losses of aquatic resources must comply with the applicable provisions of 33 CFR part 332.

(1) The prospective permittee is responsible for proposing an appropriate compensatory mitigation option if compensatory mitigation is necessary to ensure that the activity results in no more than minimal adverse environmental effects. For the NWPs, the preferred mechanism for providing compensatory mitigation is mitigation bank credits or in-lieu fee program credits (see 33 CFR 332.3(b)(2) and (3)). However, if an appropriate number and type of mitigation bank or in-lieu credits are not available at the time the PCN is submitted to the district engineer, the district engineer may approve the use of permittee-responsible mitigation.

(2) The amount of compensatory mitigation required by the district engineer must be sufficient to ensure that the authorized activity results in no more than minimal individual and cumulative adverse environmental effects (see 33 CFR 330.1(e)(3)). (See also 33 CFR 332.3(f).)

(3) Since the likelihood of success is greater and the impacts to potentially valuable uplands are reduced, aquatic resource restoration should be the first compensatory mitigation option considered for permittee-responsible mitigation.

(4) If permittee-responsible mitigation is the proposed option, the prospective permittee is responsible for submitting a mitigation plan. A conceptual or detailed mitigation plan may be used by the district engineer to make the decision on the NWP verification request, but a final mitigation plan that addresses the applicable requirements of 33 CFR 332.4(c)(2) through (14) must be approved by the district engineer before the permittee begins work in waters of the United States, unless the district engineer determines that prior approval of the final mitigation plan is not practicable or not necessary to ensure timely completion of the required compensatory mitigation (see 33 CFR 332.3(k)(3)). If permittee-responsible mitigation is the proposed option, and the proposed compensatory mitigation site is located on land in which another federal agency holds an easement, the district engineer will coordinate with that federal agency to determine if proposed compensatory mitigation project is compatible with the terms of the easement.

(5) If mitigation bank or in-lieu fee program credits are the proposed option, the mitigation plan needs to address only the baseline conditions at the impact site and the number of credits to be provided (see 33 CFR 332.4(c)(1)(ii)).

(6) Compensatory mitigation requirements (e.g., resource type and amount to be provided as compensatory mitigation, site protection, ecological performance standards, monitoring requirements) may be addressed through conditions added to the NWP authorization, instead of components of a compensatory mitigation plan (see 33 CFR 332.4(c)(1)(ii)).

(g) Compensatory mitigation will not be used to increase the acreage losses allowed by the acreage limits of the NWPs. For example, if an NWP has an acreage limit of 1/2-acre, it cannot be used to authorize any NWP activity resulting in the loss of greater than 1/2-acre of waters of the United States, even if compensatory mitigation is provided that replaces or restores some of the lost waters. However, compensatory mitigation can and should be used, as necessary, to ensure that an NWP activity already meeting the established acreage limits also satisfies the no more than minimal impact requirement for the NWPs.

(h) Permittees may propose the use of mitigation banks, in-lieu fee programs, or permittee-responsible mitigation. When developing a compensatory mitigation proposal, the permittee must consider appropriate and practicable options consistent with the framework at 33 CFR 332.3(b). For activities resulting in the loss of marine or estuarine resources, permittee-responsible mitigation may be environmentally preferable if there are no mitigation banks or in-lieu fee programs in the area that have marine or estuarine credits available for sale or transfer to the permittee. For permittee-responsible mitigation, the special conditions of the NWP verification must clearly indicate the party or parties responsible for the implementation and performance of the compensatory mitigation project, and, if required, its long-term management.

(i) Where certain functions and services of waters of the United States are permanently adversely affected by a regulated activity, such as discharges of dredged or fill material into waters of the United States that will convert a forested or scrub-shrub wetland to a herbaceous wetland in a permanently maintained utility line right-of-way, mitigation may be required to reduce the adverse environmental effects of the activity to the no more than minimal level.

24. Safety of Impoundment Structures. To ensure that all impoundment structures are safely designed, the district engineer may require non-Federal applicants to demonstrate that the structures comply with established state or federal, dam safety criteria or have been designed by qualified persons. The district engineer may also require documentation that the design has been independently reviewed by similarly qualified persons, and appropriate modifications made to ensure safety.

25. Water Quality. (a) Where the certifying authority (state, authorized tribe, or EPA, as appropriate) has not previously certified compliance of an NWP with CWA section 401, a CWA section 401 water quality certification for the proposed discharge must be obtained or waived (see 33 CFR 330.4(c)). If the permittee cannot comply with all of the conditions of a water quality certification previously issued by certifying authority for the issuance of the NWP, then the permittee must obtain a water quality certification or waiver for the proposed discharge in order for the activity to be authorized by an NWP.

(b) If the NWP activity requires pre-construction notification and the certifying authority has not previously certified compliance of an NWP with CWA section 401, the proposed discharge is not authorized by an NWP until water quality certification is obtained or waived. If the certifying authority issues a water quality certification for the proposed discharge, the permittee must submit a copy of the certification to the district engineer. The discharge is not authorized by an NWP until the district engineer has notified the permittee that the water quality certification requirement has been satisfied by the issuance of a water quality certification or a waiver.

(c) The district engineer or certifying authority may require additional water quality management measures to ensure that the authorized activity does not result in more than minimal degradation of water quality.

26. Coastal Zone Management. In coastal states where an NWP has not previously received a state coastal zone management consistency concurrence, an individual state coastal zone management consistency concurrence must be obtained, or a presumption of concurrence must occur (see 33 CFR 330.4(d)). If the permittee cannot comply with all of the conditions of a coastal zone management consistency concurrence previously issued by the state, then the permittee must obtain an individual coastal zone management consistency concurrence or presumption of concurrence in order for the activity to be authorized by an NWP. The district engineer or a state may require additional measures to ensure that the authorized activity is consistent with state coastal zone management requirements.

27. Regional and Case-By-Case Conditions. The activity must comply with any regional conditions that may have been added by the Division Engineer (see 33 CFR 330.4(e)) and with any case specific conditions added by the Corps or by the state, Indian Tribe, or U.S. EPA in its CWA section 401 Water Quality Certification, or by the state in its Coastal Zone Management Act consistency determination.

28. Use of Multiple Nationwide Permits. The use of more than one NWP for a single and complete project is authorized, subject to the following restrictions:

(a) If only one of the NWPs used to authorize the single and complete project has a specified acreage limit, the acreage loss of waters of the United States cannot exceed the acreage limit of the NWP with the highest specified acreage limit. For example, if a road crossing over tidal waters is constructed under NWP 14, with associated bank stabilization authorized by NWP 13, the maximum acreage loss of waters of the United States for the total project cannot exceed 1/3-acre.

(b) If one or more of the NWPs used to authorize the single and complete project has specified acreage limits, the acreage loss of waters of the United States authorized by those NWPs cannot exceed their respective specified acreage limits. For example, if a commercial development is constructed under NWP 39, and the single and complete project includes the filling of an upland ditch authorized by NWP 46, the maximum acreage loss of waters of the United States for the commercial development under NWP 39 cannot exceed 1/2-acre, and the total acreage loss of waters of United States due to the NWP 39 and 46 activities cannot exceed 1 acre.

29. Transfer of Nationwide Permit Verifications. If the permittee sells the property associated with a nationwide permit verification, the permittee may transfer the nationwide permit verification to the new owner by submitting a letter to the appropriate Corps district office to validate the transfer. A copy of the nationwide permit verification must be attached to the letter, and the letter must contain the following statement and signature:

"When the structures or work authorized by this nationwide permit are still in existence at the time the property is transferred, the terms and conditions of this nationwide permit, including any special conditions, will continue to be binding on the new owner(s) of the property. To validate the transfer of this nationwide permit and the associated liabilities associated with compliance with its terms and conditions, have the transferee sign and date below."

_____

(Transferee)

_____

(Date)

30. Compliance Certification. Each permittee who receives an NWP verification letter from the Corps must provide a signed certification documenting completion of the authorized activity and implementation of any required compensatory mitigation. The success of any required permittee-responsible mitigation, including the achievement

of ecological performance standards, will be addressed separately by the district engineer. The Corps will provide the permittee the certification document with the NWP verification letter. The certification document will include:

(a) A statement that the authorized activity was done in accordance with the NWP authorization, including any general, regional, or activity-specific conditions;

(b) A statement that the implementation of any required compensatory mitigation was completed in accordance with the permit conditions. If credits from a mitigation bank or in-lieu fee program are used to satisfy the compensatory mitigation requirements, the certification must include the documentation required by 33 CFR 332.3(l)(3) to confirm that the permittee secured the appropriate number and resource type of credits; and

(c) The signature of the permittee certifying the completion of the activity and mitigation.

The completed certification document must be submitted to the district engineer within 30 days of completion of the authorized activity or the implementation of any required compensatory mitigation, whichever occurs later.

31. Activities Affecting Structures or Works Built by the United States. If an NWP activity also requires review by, or permission from, the Corps pursuant to 33 U.S.C. 408 because it will alter or temporarily or permanently occupy or use a U.S. Army Corps of Engineers (USACE) federally authorized Civil Works project (a "USACE project"), the prospective permittee must submit a pre-construction notification. See paragraph (b)(10) of general condition 32. An activity that requires section 408 permission and/or review is not authorized by an NWP until the appropriate Corps office issues the section 408 permission or completes its review to alter, occupy, or use the USACE project, and the district engineer issues a written NWP verification.

32. Pre-Construction Notification.
(a) Timing. Where required by the terms of the NWP, the prospective permittee must notify the district engineer by submitting a pre-construction notification (PCN) as early as possible. The district engineer must determine if the PCN is complete within 30 calendar days of the date of receipt and, if the PCN is determined to be incomplete, notify the prospective permittee within that 30 day period to request the additional information necessary to make the PCN complete. The request must specify the information needed to make the PCN complete. As a general rule, district engineers will request additional information necessary to make the PCN complete only once. However, if the prospective permittee does not provide all of the requested information, then the district engineer will notify the prospective permittee that the PCN is still incomplete and the PCN review process will not commence until all of the requested information has been received by the district engineer. The prospective permittee shall not begin the activity until either:

(1) He or she is notified in writing by the district engineer that the activity may proceed under the NWP with any special conditions imposed by the district or division engineer; or

(2) 45 calendar days have passed from the district engineer's receipt of the complete PCN and the prospective permittee has not received written notice from the district or division engineer. However, if the permittee was required to notify the Corps pursuant to general condition 18 that listed species or critical habitat might be affected or are in the vicinity of the activity, or to notify the Corps pursuant to general condition 20 that the activity might have the potential to cause effects to historic properties, the permittee cannot begin the activity until receiving written notification from the Corps that there is "no effect" on listed species or "no potential to cause effects" on historic properties, or that any consultation required under Section 7 of the Endangered Species Act (see 33 CFR 330.4(f)) and/or section 106 of the National Historic Preservation Act (see 33 CFR 330.4(g)) has been completed. If the proposed activity requires a written waiver to exceed specified limits of an NWP, the permittee may not begin the activity until the district engineer issues the waiver. If the district or division engineer notifies the permittee in writing that an individual permit is required within 45 calendar days of receipt of a complete PCN, the permittee cannot begin the activity until an individual permit has been obtained. Subsequently, the permittee's right to

proceed under the NWP may be modified, suspended, or revoked only in accordance with the procedure set forth in 33 CFR 330.5(d)(2).

(b) Contents of Pre-Construction Notification: The PCN must be in writing and include the following information:

(1) Name, address and telephone numbers of the prospective permittee;

(2) Location of the proposed activity;

(3) Identify the specific NWP or NWP(s) the prospective permittee wants to use to authorize the proposed activity;

(4) (i) A description of the proposed activity; the activity's purpose; direct and indirect adverse environmental effects the activity would cause, including the anticipated amount of loss of wetlands, other special aquatic sites, and other waters expected to result from the NWP activity, in acres, linear feet, or other appropriate unit of measure; a description of any proposed mitigation measures intended to reduce the adverse environmental effects caused by the proposed activity; and any other NWP(s), regional general permit(s), or individual permit(s) used or intended to be used to authorize any part of the proposed project or any related activity, including other separate and distant crossings for linear projects that require Department of the Army authorization but do not require pre-construction notification. The description of the proposed activity and any proposed mitigation measures should be sufficiently detailed to allow the district engineer to determine that the adverse environmental effects of the activity will be no more than minimal and to determine the need for compensatory mitigation or other mitigation measures.

(ii) For linear projects where one or more single and complete crossings require pre-construction notification, the PCN must include the quantity of anticipated losses of wetlands, other special aquatic sites, and other waters for each single and complete crossing of those wetlands, other special aquatic sites, and other waters (including those single and complete crossings authorized by an NWP but do not require PCNs). This information will be used by the district engineer to evaluate the cumulative adverse environmental effects of the proposed linear project, and does not change those non-PCN NWP activities into NWP PCNs.

(iii) Sketches should be provided when necessary to show that the activity complies with the terms of the NWP. (Sketches usually clarify the activity and when provided results in a quicker decision. Sketches should contain sufficient detail to provide an illustrative description of the proposed activity (e.g., a conceptual plan), but do not need to be detailed engineering plans);

(5) The PCN must include a delineation of wetlands, other special aquatic sites, and other waters, such as lakes and ponds, and perennial and intermittent streams, on the project site. Wetland delineations must be prepared in accordance with the current method required by the Corps. The permittee may ask the Corps to delineate the special aquatic sites and other waters on the project site, but there may be a delay if the Corps does the delineation, especially if the project site is large or contains many wetlands, other special aquatic sites, and other waters. Furthermore, the 45-day period will not start until the delineation has been submitted to or completed by the Corps, as appropriate;

(6) If the proposed activity will result in the loss of greater than 1/10-acre of wetlands or 3/100-acre of stream bed and a PCN is required, the prospective permittee must submit a statement describing how the mitigation requirement will be satisfied, or explaining why the adverse environmental effects are no more than minimal and why compensatory mitigation should not be required. As an alternative, the prospective permittee may submit a conceptual or detailed mitigation plan.

(7) For non-federal permittees, if any listed species (or species proposed for listing) or designated critical habitat (or critical habitat proposed for such designation) might be affected or is in the vicinity of the activity, or if the activity is located in designated critical habitat (or critical habitat proposed for such

designation), the PCN must include the name(s) of those endangered or threatened species (or species proposed for listing) that might be affected by the proposed activity or utilize the designated critical habitat (or critical habitat proposed for such designation) that might be affected by the proposed activity. For NWP activities that require pre-construction notification, Federal permittees must provide documentation demonstrating compliance with the Endangered Species Act;

(8) For non-federal permittees, if the NWP activity might have the potential to cause effects to a historic property listed on, determined to be eligible for listing on, or potentially eligible for listing on, the National Register of Historic Places, the PCN must state which historic property might have the potential to be affected by the proposed activity or include a vicinity map indicating the location of the historic property. For NWP activities that require pre-construction notification, Federal permittees must provide documentation demonstrating compliance with section 106 of the National Historic Preservation Act;

(9) For an activity that will occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a "study river" for possible inclusion in the system while the river is in an official study status, the PCN must identify the Wild and Scenic River or the "study river" (see general condition 16); and

(10) For an NWP activity that requires permission from, or review by, the Corps pursuant to 33 U.S.C. 408 because it will alter or temporarily or permanently occupy or use a U.S. Army Corps of Engineers federally authorized civil works project, the pre-construction notification must include a statement confirming that the project proponent has submitted a written request for section 408 permission from, or review by, the Corps office having jurisdiction over that USACE project.

(c) Form of Pre-Construction Notification: The nationwide permit pre-construction notification form (Form ENG 6082) should be used for NWP PCNs. A letter containing the required information may also be used. Applicants may provide electronic files of PCNs and supporting materials if the district engineer has established tools and procedures for electronic submittals.

(d) Agency Coordination:

(1) The district engineer will consider any comments from Federal and state agencies concerning the proposed activity's compliance with the terms and conditions of the NWPs and the need for mitigation to reduce the activity's adverse environmental effects so that they are no more than minimal.

(2) Agency coordination is required for: (i) all NWP activities that require pre-construction notification and result in the loss of greater than 1/2-acre of waters of the United States; (ii) NWP 13 activities in excess of 500 linear feet, fills greater than one cubic yard per running foot, or involve discharges of dredged or fill material into special aquatic sites; and (iii) NWP 54 activities in excess of 500 linear feet, or that extend into the waterbody more than 30 feet from the mean low water line in tidal waters or the ordinary high water mark in the Great Lakes.

(3) When agency coordination is required, the district engineer will immediately provide (e.g., via e-mail, facsimile transmission, overnight mail, or other expeditious manner) a copy of the complete PCN to the appropriate Federal or state offices (FWS, state natural resource or water quality agency, EPA, and, if appropriate, the NMFS). With the exception of NWP 37, these agencies will have 10 calendar days from the date the material is transmitted to notify the district engineer via telephone, facsimile transmission, or e-mail that they intend to provide substantive, site-specific comments. The comments must explain why the agency believes the adverse environmental effects will be more than minimal. If so contacted by an agency, the district engineer will wait an additional 15 calendar days before making a decision on the pre-construction notification. The district engineer will fully consider agency comments received within the specified time frame concerning the proposed activity's compliance with the terms and conditions of the NWPs, including the need for mitigation to ensure that the net adverse environmental effects of the proposed activity are no more than minimal. The district engineer will provide no response to the resource agency, except as provided below. The district engineer will indicate in the administrative record associated

with each pre-construction notification that the resource agencies' concerns were considered. For NWP 37, the emergency watershed protection and rehabilitation activity may proceed immediately in cases where there is an unacceptable hazard to life or a significant loss of property or economic hardship will occur. The district engineer will consider any comments received to decide whether the NWP 37 authorization should be modified, suspended, or revoked in accordance with the procedures at 33 CFR 330.5.

(4) In cases of where the prospective permittee is not a Federal agency, the district engineer will provide a response to NMFS within 30 calendar days of receipt of any Essential Fish Habitat conservation recommendations, as required by section 305(b)(4)(B) of the Magnuson-Stevens Fishery Conservation and Management Act.

(5) Applicants are encouraged to provide the Corps with either electronic files or multiple copies of pre-construction notifications to expedite agency coordination.

D. District Engineer's Decision

1. In reviewing the PCN for the proposed activity, the district engineer will determine whether the activity authorized by the NWP will result in more than minimal individual or cumulative adverse environmental effects or may be contrary to the public interest. If a project proponent requests authorization by a specific NWP, the district engineer should issue the NWP verification for that activity if it meets the terms and conditions of that NWP, unless he or she determines, after considering mitigation, that the proposed activity will result in more than minimal individual and cumulative adverse effects on the aquatic environment and other aspects of the public interest and exercises discretionary authority to require an individual permit for the proposed activity. For a linear project, this determination will include an evaluation of the single and complete crossings of waters of the United States that require PCNs to determine whether they individually satisfy the terms and conditions of the NWP(s), as well as the cumulative effects caused by all of the crossings of waters of the United States authorized by an NWP. If an applicant requests a waiver of an applicable limit, as provided for in NWPs 13, 36, or 54, the district engineer will only grant the waiver upon a written determination that the NWP activity will result in only minimal individual and cumulative adverse environmental effects.

2. When making minimal adverse environmental effects determinations the district engineer will consider the direct and indirect effects caused by the NWP activity. He or she will also consider the cumulative adverse environmental effects caused by activities authorized by an NWP and whether those cumulative adverse environmental effects are no more than minimal. The district engineer will also consider site specific factors, such as the environmental setting in the vicinity of the NWP activity, the type of resource that will be affected by the NWP activity, the functions provided by the aquatic resources that will be affected by the NWP activity, the degree or magnitude to which the aquatic resources perform those functions, the extent that aquatic resource functions will be lost as a result of the NWP activity (e.g., partial or complete loss), the duration of the adverse effects (temporary or permanent), the importance of the aquatic resource functions to the region (e.g., watershed or ecoregion), and mitigation required by the district engineer. If an appropriate functional or condition assessment method is available and practicable to use, that assessment method may be used by the district engineer to assist in the minimal adverse environmental effects determination. The district engineer may add case-specific special conditions to the NWP authorization to address site-specific environmental concerns.

3. If the proposed activity requires a PCN and will result in a loss of greater than 1/10-acre of wetlands or 3/100-acre of stream bed, the prospective permittee should submit a mitigation proposal with the PCN. Applicants may also propose compensatory mitigation for NWP activities with smaller impacts, or for impacts to other types of waters. The district engineer will consider any proposed compensatory mitigation or other mitigation measures the applicant has included in the proposal in determining whether the net adverse environmental effects of the proposed activity are no more than minimal. The compensatory mitigation proposal may be either conceptual or detailed. If the district engineer determines that the activity complies with the terms and conditions of the NWP and that the adverse environmental effects are no more than minimal, after considering mitigation, the district engineer will notify the permittee and include any activity-specific conditions in the NWP verification the district engineer deems necessary. Conditions for compensatory mitigation requirements must comply with the appropriate provisions at 33 CFR

332.3(k). The district engineer must approve the final mitigation plan before the permittee commences work in waters of the United States, unless the district engineer determines that prior approval of the final mitigation plan is not practicable or not necessary to ensure timely completion of the required compensatory mitigation. If the prospective permittee elects to submit a compensatory mitigation plan with the PCN, the district engineer will expeditiously review the proposed compensatory mitigation plan. The district engineer must review the proposed compensatory mitigation plan within 45 calendar days of receiving a complete PCN and determine whether the proposed mitigation would ensure that the NWP activity results in no more than minimal adverse environmental effects. If the net adverse environmental effects of the NWP activity (after consideration of the mitigation proposal) are determined by the district engineer to be no more than minimal, the district engineer will provide a timely written response to the applicant. The response will state that the NWP activity can proceed under the terms and conditions of the NWP, including any activity-specific conditions added to the NWP authorization by the district engineer.

4. If the district engineer determines that the adverse environmental effects of the proposed activity are more than minimal, then the district engineer will notify the applicant either: (a) that the activity does not qualify for authorization under the NWP and instruct the applicant on the procedures to seek authorization under an individual permit; (b) that the activity is authorized under the NWP subject to the applicant's submission of a mitigation plan that would reduce the adverse environmental effects so that they are no more than minimal; or (c) that the activity is authorized under the NWP with specific modifications or conditions. Where the district engineer determines that mitigation is required to ensure no more than minimal adverse environmental effects, the activity will be authorized within the 45-day PCN period (unless additional time is required to comply with general conditions 18, 20, and/or 31), with activity-specific conditions that state the mitigation requirements. The authorization will include the necessary conceptual or detailed mitigation plan or a requirement that the applicant submit a mitigation plan that would reduce the adverse environmental effects so that they are no more than minimal. When compensatory mitigation is required, no work in waters of the United States may occur until the district engineer has approved a specific mitigation plan or has determined that prior approval of a final mitigation plan is not practicable or not necessary to ensure timely completion of the required compensatory mitigation.

E. Further Information

1. District engineers have authority to determine if an activity complies with the terms and conditions of an NWP.

2. NWPs do not obviate the need to obtain other federal, state, or local permits, approvals, or authorizations required by law.

3. NWPs do not grant any property rights or exclusive privileges.

4. NWPs do not authorize any injury to the property or rights of others.

5. NWPs do not authorize interference with any existing or proposed Federal project (see general condition 31).

F. Definitions

Best management practices (BMPs): Policies, practices, procedures, or structures implemented to mitigate the adverse environmental effects on surface water quality resulting from development. BMPs are categorized as structural or non-structural.

Compensatory mitigation: The restoration (re-establishment or rehabilitation), establishment (creation), enhancement, and/or in certain circumstances preservation of aquatic resources for the purposes of offsetting unavoidable adverse impacts which remain after all appropriate and practicable avoidance and minimization has been achieved.

Currently serviceable: Useable as is or with some maintenance, but not so degraded as to essentially require reconstruction.

Direct effects: Effects that are caused by the activity and occur at the same time and place.

Discharge: The term "discharge" means any discharge of dredged or fill material into waters of the United States.

Ecological reference: A model used to plan and design an aquatic habitat and riparian area restoration, enhancement, or establishment activity under NWP 27. An ecological reference may be based on the structure, functions, and dynamics of an aquatic habitat type or a riparian area type that currently exists in the region where the proposed NWP 27 activity is located. Alternatively, an ecological reference may be based on a conceptual model for the aquatic habitat type or riparian area type to be restored, enhanced, or established as a result of the proposed NWP 27 activity. An ecological reference takes into account the range of variation of the aquatic habitat type or riparian area type in the region.

Enhancement: The manipulation of the physical, chemical, or biological characteristics of an aquatic resource to heighten, intensify, or improve a specific aquatic resource function(s). Enhancement results in the gain of selected aquatic resource function(s), but may also lead to a decline in other aquatic resource function(s). Enhancement does not result in a gain in aquatic resource area.

Establishment (creation): The manipulation of the physical, chemical, or biological characteristics present to develop an aquatic resource that did not previously exist at an upland site. Establishment results in a gain in aquatic resource area.

High Tide Line: The line of intersection of the land with the water's surface at the maximum height reached by a rising tide. The high tide line may be determined, in the absence of actual data, by a line of oil or scum along shore objects, a more or less continuous deposit of fine shell or debris on the foreshore or berm, other physical markings or characteristics, vegetation lines, tidal gages, or other suitable means that delineate the general height reached by a rising tide. The line encompasses spring high tides and other high tides that occur with periodic frequency but does not include storm surges in which there is a departure from the normal or predicted reach of the tide due to the piling up of water against a coast by strong winds such as those accompanying a hurricane or other intense storm.

Historic Property: Any prehistoric or historic district, site (including archaeological site), building, structure, or other object included in, or eligible for inclusion in, the National Register of Historic Places maintained by the Secretary of the Interior. This term includes artifacts, records, and remains that are related to and located within such properties. The term includes properties of traditional religious and cultural importance to an Indian tribe or Native Hawaiian organization and that meet the National Register criteria (36 CFR part 60).

Independent utility: A test to determine what constitutes a single and complete non-linear project in the Corps Regulatory Program. A project is considered to have independent utility if it would be constructed absent the construction of other projects in the project area. Portions of a multi-phase project that depend upon other phases of the project do not have independent utility. Phases of a project that would be constructed even if the other phases were not built can be considered as separate single and complete projects with independent utility.

Indirect effects: Effects that are caused by the activity and are later in time or farther removed in distance, but are still reasonably foreseeable.

Loss of waters of the United States: Waters of the United States that are permanently adversely affected by filling, flooding, excavation, or drainage because of the regulated activity. The loss of stream bed includes the acres of stream bed that are permanently adversely affected by filling or excavation because of the

regulated activity. Permanent adverse effects include permanent discharges of dredged or fill material that change an aquatic area to dry land, increase the bottom elevation of a waterbody, or change the use of a waterbody. The acreage of loss of waters of the United States is a threshold measurement of the impact to jurisdictional waters or wetlands for determining whether a project may qualify for an NWP; it is not a net threshold that is calculated after considering compensatory mitigation that may be used to offset losses of aquatic functions and services. Waters of the United States temporarily filled, flooded, excavated, or drained, but restored to pre-construction contours and elevations after construction, are not included in the measurement of loss of waters of the United States. Impacts resulting from activities that do not require Department of the Army authorization, such as activities eligible for exemptions under section 404(f) of the Clean Water Act, are not considered when calculating the loss of waters of the United States.

Navigable waters: Waters subject to section 10 of the Rivers and Harbors Act of 1899. These waters are defined at 33 CFR part 329.

Non-tidal wetland: A non-tidal wetland is a wetland that is not subject to the ebb and flow of tidal waters. Non-tidal wetlands contiguous to tidal waters are located landward of the high tide line (i.e., spring high tide line).

Open water: For purposes of the NWPs, an open water is any area that in a year with normal patterns of precipitation has water flowing or standing above ground to the extent that an ordinary high water mark can be determined. Aquatic vegetation within the area of flowing or standing water is either non-emergent, sparse, or absent. Vegetated shallows are considered to be open waters. Examples of "open waters" include rivers, streams, lakes, and ponds.

Ordinary High Water Mark: The term ordinary high water mark means that line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas.

Perennial stream: A perennial stream has surface water flowing continuously year-round during a typical year.

Practicable: Available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes.

Pre-construction notification: A request submitted by the project proponent to the Corps for confirmation that a particular activity is authorized by nationwide permit. The request may be a permit application, letter, or similar document that includes information about the proposed work and its anticipated environmental effects. Pre-construction notification may be required by the terms and conditions of a nationwide permit, or by regional conditions. A pre-construction notification may be voluntarily submitted in cases where pre-construction notification is not required and the project proponent wants confirmation that the activity is authorized by nationwide permit.

Preservation: The removal of a threat to, or preventing the decline of, aquatic resources by an action in or near those aquatic resources. This term includes activities commonly associated with the protection and maintenance of aquatic resources through the implementation of appropriate legal and physical mechanisms. Preservation does not result in a gain of aquatic resource area or functions.

Re-establishment: The manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural/historic functions to a former aquatic resource. Re-establishment results in rebuilding a former aquatic resource and results in a gain in aquatic resource area and functions.

Rehabilitation: The manipulation of the physical, chemical, or biological characteristics of a site with the goal of repairing natural/historic functions to a degraded aquatic resource. Rehabilitation results in a gain in aquatic resource function, but does not result in a gain in aquatic resource area.

Restoration: The manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural/historic functions to a former or degraded aquatic resource. For the purpose of tracking net gains in aquatic resource area, restoration is divided into two categories: re-establishment and rehabilitation.

Riffle and pool complex: Riffle and pool complexes are special aquatic sites under the 404(b)(1) Guidelines. Riffle and pool complexes sometimes characterize steep gradient sections of streams. Such stream sections are recognizable by their hydraulic characteristics. The rapid movement of water over a course substrate in riffles results in a rough flow, a turbulent surface, and high dissolved oxygen levels in the water. Pools are deeper areas associated with riffles. A slower stream velocity, a streaming flow, a smooth surface, and a finer substrate characterize pools.

Riparian areas: Riparian areas are lands next to streams, lakes, and estuarine-marine shorelines. Riparian areas are transitional between terrestrial and aquatic ecosystems, through which surface and subsurface hydrology connects riverine, lacustrine, estuarine, and marine waters with their adjacent wetlands, non-wetland waters, or uplands. Riparian areas provide a variety of ecological functions and services and help improve or maintain local water quality. (See general condition 23.)

Shellfish seeding: The placement of shellfish seed and/or suitable substrate to increase shellfish production. Shellfish seed consists of immature individual shellfish or individual shellfish attached to shells or shell fragments (i.e., spat on shell). Suitable substrate may consist of shellfish shells, shell fragments, or other appropriate materials placed into waters for shellfish habitat.

Single and complete linear project: A linear project is a project constructed for the purpose of getting people, goods, or services from a point of origin to a terminal point, which often involves multiple crossings of one or more waterbodies at separate and distant locations. The term "single and complete project" is defined as that portion of the total linear project proposed or accomplished by one owner/developer or partnership or other association of owners/developers that includes all crossings of a single water of the United States (i.e., a single waterbody) at a specific location. For linear projects crossing a single or multiple waterbodies several times at separate and distant locations, each crossing is considered a single and complete project for purposes of NWP authorization. However, individual channels in a braided stream or river, or individual arms of a large, irregularly shaped wetland or lake, etc., are not separate waterbodies, and crossings of such features cannot be considered separately.

Single and complete non-linear project: For non-linear projects, the term "single and complete project" is defined at 33 CFR 330.2(i) as the total project proposed or accomplished by one owner/developer or partnership or other association of owners/developers. A single and complete non-linear project must have independent utility (see definition of "independent utility"). Single and complete non-linear projects may not be "piecemealed" to avoid the limits in an NWP authorization.

Stormwater management: Stormwater management is the mechanism for controlling stormwater runoff for the purposes of reducing downstream erosion, water quality degradation, and flooding and mitigating the adverse effects of changes in land use on the aquatic environment.

Stormwater management facilities: Stormwater management facilities are those facilities, including but not limited to, stormwater retention and detention ponds and best management practices, which retain water for a period of time to control runoff and/or improve the quality (i.e., by reducing the concentration of nutrients, sediments, hazardous substances and other pollutants) of stormwater runoff.

Stream bed: The substrate of the stream channel between the ordinary high water marks. The substrate may be bedrock or inorganic particles that range in size from clay to boulders. Wetlands contiguous to the stream bed, but outside of the ordinary high water marks, are not considered part of the stream bed.

Stream channelization: The manipulation of a stream's course, condition, capacity, or location that causes more than minimal interruption of normal stream processes. A channelized jurisdictional stream remains a water of the United States.

Structure: An object that is arranged in a definite pattern of organization. Examples of structures include, without limitation, any pier, boat dock, boat ramp, wharf, dolphin, weir, boom, breakwater, bulkhead, revetment, riprap, jetty, artificial island, artificial reef, permanent mooring structure, power transmission line, permanently moored floating vessel, piling, aid to navigation, or any other manmade obstacle or obstruction.

Tidal wetland: A tidal wetland is a jurisdictional wetland that is inundated by tidal waters. Tidal waters rise and fall in a predictable and measurable rhythm or cycle due to the gravitational pulls of the moon and sun. Tidal waters end where the rise and fall of the water surface can no longer be practically measured in a predictable rhythm due to masking by other waters, wind, or other effects. Tidal wetlands are located channelward of the high tide line.

Tribal lands: Any lands title to which is either: 1) held in trust by the United States for the benefit of any Indian tribe or individual; or 2) held by any Indian tribe or individual subject to restrictions by the United States against alienation.

Tribal rights: Those rights legally accruing to a tribe or tribes by virtue of inherent sovereign authority, unextinguished aboriginal title, treaty, statute, judicial decisions, executive order or agreement, and that give rise to legally enforceable remedies.

Vegetated shallows: Vegetated shallows are special aquatic sites under the 404(b)(1) Guidelines. They are areas that are permanently inundated and under normal circumstances have rooted aquatic vegetation, such as seagrasses in marine and estuarine systems and a variety of vascular rooted plants in freshwater systems.

Waterbody: For purposes of the NWPs, a waterbody is a "water of the United States." If a wetland is adjacent to a waterbody determined to be a water of the United States, that waterbody and any adjacent wetlands are considered together as a single aquatic unit (see 33 CFR 328.4(c)(2)).

G. Buffalo and New York District General Regional Conditions

These conditions apply to ALL Nationwide Permits.

G-A. Construction Best Management Practices (BMPs): Unless specifically approved otherwise through issuance of a variance by the District Engineer, the following BMPs must be implemented to the maximum degree practicable, to minimize erosion, migration of sediments, and adverse environmental impacts. Note that at a minimum, all erosion and sediment control and stormwater management practices must be designed, installed and maintained throughout the entire construction project in accordance with the latest version of the *New York Standards and Specifications for Erosion and Sediment Control* and the *New York State Stormwater Management Design Manual*. These documents are available at: http://www.dec.ny.gov/chemical/29066.html and http://www.dec.ny.gov/chemical/29072.html, respectively. Prior to the discharge of any dredged or fill material into waters of the United States, including wetlands, authorized by NWP, the permittee must install and maintain erosion and sedimentation controls in and/or adjacent to wetlands or other waters of the United States.

1. All synthetic erosion control features (e.g., silt fencing, netting, mats), which are intended for temporary use during construction, shall be completely removed and properly disposed of after their initial purpose has been served. Only natural fiber materials, which will degrade over time, may be abandoned in place.

2. Materials resulting from trench excavation for utility line installation or ditch reshaping activities which are temporarily sidecast or stockpiled into waters of the United States must be backfilled or removed to an upland area within 30 days of the date of deposition. Note: Upland options shall be utilized prior to temporary placement within waters of the U.S., unless it can be demonstrated that it would not be practicable or if the impacts of complying with this upland option requirement would result in more adverse impacts to the aquatic environment.

3. For trenching activities in wetlands the applicant shall install impermeable trench dams or trench breakers at the wetland boundaries and every 100 feet within wetland areas to prevent inadvertent drainage of wetlands or other waters of the United States.

4. Dry stream crossing methods (e.g., diversion, dam and pump, flume, bore) shall be utilized for culvert or other pipe, or utility installations to reduce downstream impacts from turbidity and sedimentation. This may require piping or pumping the stream flow around the work area and the use of cofferdams.

5. No in-stream work shall occur during periods of high flow, except for work that occurs in dewatered areas behind temporary diversions, cofferdams, or causeways.

6. Construction access and staging areas shall be by means that avoid or minimize impacts to aquatic sites (e.g. use of upland areas for access & staging, floating barges, mats, etc.). Discharges of fill material associated with the construction of temporary access roads, staging areas and work pads in wetlands shall be placed on filter fabric. All temporary fills shall be removed upon completion of the work and the disturbed area restored to pre-construction contours, elevations and wetland conditions, including cover type. All vegetation utilized in the restoration activity shall consist of native species.

7. All return flow from dredged material disposal areas shall not result in an increase in turbidity in the receiving water body that will cause a substantial visible contrast to natural conditions. (See NWP #16)

8. For activities involving the placement of concrete into waters of the U.S., the permittee must employ watertight forms. The forms shall be dewatered prior to the placement of the concrete. The use of tremie concrete is allowed, provided that it complies with New York State water quality standards.

9. New stormwater management facilities shall be located outside of waters of the U.S. A variance of this requirement may be requested with the submission of a PCN. The PCN must include justification which demonstrates that avoidance and minimization efforts have been met.

10. To the maximum extent practicable, the placement of fill in wetlands must be designed to maintain pre-construction surface water flows/conditions between remaining on or off-site waters and to prevent draining of the wetland or permanent hydrologic alteration. This may require the use of culverts and/or other measures. Furthermore, the activity must not restrict or impede the passage of normal or expected high flows (unless the primary purpose of the fill is to impound waters). The activity may alter the pre-construction flows/conditions if it can be shown that it benefits the aquatic environment (i.e. wetland restoration and/or enhancement).

11. Stone aprons and scour protection placed in streams shall not extend higher than the stream bed in order to create a uniform grade and shall be filled with native stream bed material and supplemented with similarly sized material, if needed, to fill interstitial spaces to maintain water flow on the surface of the stream bed.

G-B. CULVERTS

1. **ALL NEW OR REPLACEMENT CULVERTS IN STREAMS**, to the extent they are regulated, shall be constructed/installed in accordance with the following, in order to ensure compliance with NWP General Condition #2 – Aquatic Life Movement and #9 – Management of Water Flows:

a. Size: Bank-full flows shall be accommodated through maintenance of the existing bank-full channel cross sectional dimensions within a single culvert. Bank-full width is generally considered to be the top width at the stage where a stream begins to overtop its banks and spread into the floodplain. A bottomless culvert or bridge must be used to span the stream channel where practicable. If the stream cannot be spanned, the culvert width shall be minimum of 1.25 times width of the stream channel at the ordinary high water, which is generally equivalent to the width of the channel during the 2-year design storm.

b. Depth: To maintain low flow and aquatic life movement within culverts with a bottom, the culvert invert, including end sections, must be embedded. Specifically, the culvert must be installed with its bottom buried below the grade of the stream bed, as measured at the average low point, to a depth of a minimum of 20 percent of the culvert vertical rise (height) throughout the length of the culvert. (Note: When not practicable to do so due to small culvert size, it is acceptable to allow natural deposition to cover the interior of the culvert bed following placement of the culvert invert to the 20% depth.)

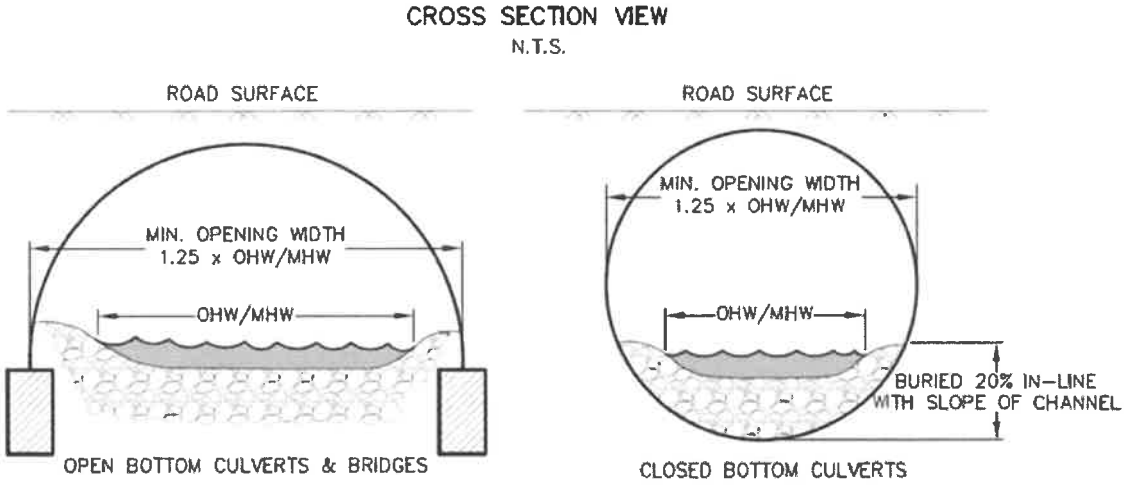
c. The dimension, pattern, and profile of the stream above and below the stream crossing shall not be permanently modified by changing the width or depth of the stream channel.

d. The culvert bed slope shall remain consistent with the slope of the adjacent stream channel.

Note 1: Use of the requirements alone will not satisfy the need for proper engineering and design. In particular, appropriate engineering is required to ensure structures are sized and designed to provide adequate capacity (to pass various flood flows) and stability (bed, bed forms, footings and abutments, both upstream and downstream). It is the permittee's responsibility to ensure the structure is appropriately designed.

Note 2: This condition does not apply to temporary culverts used for construction access that are in place for less than one construction season. However, compliance with General Conditions #2 and #9 still applies.

Note 3: For further guidance on identification of the Ordinary High Water mark, please see Regulatory Guidance Letter 05-05 available at: https://www.usace.army.mil/Missions/Civil-Works/Regulatory-Program-and-Permits/Guidance-Letters/.



Pre-Construction Notification (PCN) Requirements:
A PCN is required for projects that do not meet all of the above requirements. In addition to the PCN requirements of General Condition #32, the PCN must include the following information:

i. A statement indicating which of the above requirements will not be met by the proposed project;

ii. Information as to why the use of such structures or measures would not be practicable;

iii. A brief description of the stream discussing:
- Site specific information (i.e. stream bed slope, type and size of stream bed material, stream type, existing natural or manmade barriers, etc.) assessed to determine appropriate culvert design and to ensure management of water flows and aquatic life movement.
- Evaluation of the replacement for its impacts on: downstream flooding, upstream and downstream habitat (in-stream habitat, wetlands), potential for erosion and headcutting, and stream stability.
- Flow/storm event the proposed culvert is designed to pass (2-year, 50-year, etc.)

iv. Cross sections of the stream used to calculate the stream bed low point and ordinary high water width, consisting of:
- Stream channel cross sections shall be taken at proximal locations to the crossing location to determine the average of the lowest points in elevation of the stream bed and the average width at ordinary high water.
    - For new crossing locations, the average values from at least three measurements (project location and straight sections of the stream upstream and downstream) shall be used.
    - For replacement of an existing structure, the average values from at least two cross sections (straight sections of the stream upstream and downstream from the existing structure representative of the natural channel) shall be used. Note: sections should not be taken in the immediate vicinity of the structure as the channel width may be affected by the structure and not provide an accurate representation of the natural channel.
- This average low point shall be used to ensure low flow is maintained through the culvert and from which all embedment depths are measured.
- If the above cross section method was not practicable to use, an alternative method may be utilized. The PCN shall include justification for the method used including the data used and an explanation as to how it provides an equivalent measure.

v. An evaluation of the effects the crossing would have on aquatic life movement and/or water flows; and

vi. Mitigation measures that will be employed to minimize these effects. Mitigation measures may include, but are not limited to baffles, weirs, roughened channels, and grade control structures

A variance of the requirement(s) will be issued by the Corps if it can be demonstrated that the proposal would meet General Conditions #2 & #9 and would result in a less environmentally damaging practicable alternative (e.g. If compliance with any of the requirement(s) would result in detrimental impacts to the aquatic system then an alternate design should be proposed and a variance request submitted which outlines how compliance with the general conditions will be met.).

2. ALL CULVERT REHABILITATION PROJECTS IN STREAMS, to the extent they are regulated, not including culvert replacement projects (See 1 above), shall be constructed in accordance with the following, in order to ensure compliance with NWP General Condition #2 – Aquatic Life Movement and #9 – Management of Water Flows:

a. An evaluation of the existing culvert shall be conducted prior to the proposed culvert rehabilitation to determine if the existing culvert is in compliance with NWP GC #2 and #9. Specifically, the culvert shall be evaluated regarding its effect upon aquatic life movements and low/ high water flow. If the above requirements in General Regional Condition B.1 (a)-(e) are met, then the culvert is considered in compliance with NWP General Conditions #2 & # 9. (Potential evaluation methods to consider include: North Atlantic Aquatic Connectivity Collaborative (NAACC) (Note: Projects should not result in a reduction of the NAACC passability score by reducing passage or creating a barrier), US Forest Service Aquatic Organism Passage FishXing, etc.)

b. A PCN is not required for projects that utilize cured-in-place pipe lining or other repair activities that do not raise the existing invert elevation such that it causes an impediment to the passage of either aquatic life movement or water flow, unless there is an existing impediment which will not be corrected by the proposed repair.

c. A PCN is required for any culvert rehabilitation project that includes a culvert which is not in compliance with GC #2 and/or #9 (i.e. impedes aquatic life movement or water flow) and which will not be corrected by the proposed repair.

d. A PCN is required for culvert rehabilitation projects which will involve pipe slip lining or other activities, including concrete invert paving and concrete lining that raise the existing invert elevation such that it causes an impediment to the passage of low flow or aquatic life movement. Slip lining is defined as the insertion of a smaller diameter pipe into an existing pipe by pulling pushing, or spiral winding.

Preconstruction Notification (PCN) Requirements:
In addition to the PCN requirements of General Condition #32, the PCN must include the following information:

i. A summary of the evaluation required in Item a. above including average ordinary high water channel width and a discussion of the impediment(s) to aquatic life movement and/or water flow.

ii. Information as to how the proposal will mitigate for the impediment. Mitigation measures may include, but are not limited to baffles, weirs, roughened channels, and grade control structures.

G-C. No regulated activity authorized by a Nationwide Permit can cause the loss of areas classified as a bog or fen in the State of New York, as determined by the Buffalo or the New York District Corps of Engineers, due to the scarcity of this habitat in New York State and the difficulty with in-kind mitigation. The Districts will utilize the following document in the classification:

Reschke, C. March 2014. *Ecological Communities of New York State. Second Edition.* New York Natural Heritage Program. New York State Department of Environmental Conservation. Latham, N.Y. This document is available at the following location: https://www.dec.ny.gov/animals/29384.html.

G-D. National Wild and Scenic Rivers (NWSR): The Upper Delaware River has been designated as a National Wild and Scenic River from the confluence of the East and West Branches below Hancock, New York, to the existing railroad bridge immediately downstream of Cherry Island in the vicinity of Sparrow Bush, New York. Also, the portion of the Genesee River located within Letchworth Gorge State Park, beginning at the southern boundary of the park and extending downstream to the Mt. Morris Dam, was designated by Congress as a permanent Study River in the Genesee River Protection Act of 1989. In accordance with General Condition #16, no activity may occur within a NWSR, including Study Rivers, unless the National Park Service (NPS) has determined in writing that the proposed work will not adversely affect the NWSR designation or study status. Therefore, a PCN is

required for any NWP which would impact the designated portions of the Genesee River or the Upper Delaware River, unless NPS has previously indicated the project will not adversely affect the waterway. (Note: the applicant may not commence work under any NWP until the NPS determines in writing that the project will not adversely affect the NWSR even if 45-days have passed since receipt of the PCN package.) Information regarding NWSR may be found at: https://www.rivers.gov/new-york.php

G-E. For all proposals requiring a pre-construction notification (PCN), in addition to the requirements in General Condition 32, the applicant should also include: (Note: inclusion of the materials will help expedite PCN review timeline.)

1. New York State/USACE Joint Application Form: The application form shall be completed and signed and shall clearly indicate that the submission is a PCN.
Buffalo District: http://www.lrb.usace.army.mil/Missions/Regulatory/Application-Forms/
New York District: https://www.nan.usace.army.mil/Missions/Regulatory/Obtaining-a-Permit/

2. Drawings: The PCN must include legible, project drawings on 8.5" x 11" paper. Full size drawings may be submitted in addition to the 8.5" x 11" plans to aid in the application review. Three types of illustrations are needed to properly depict the work to be undertaken. These illustrations or drawings are a Vicinity Map (i.e. a location map such as a USGS topographical map), a Plan View, and a Cross-Section Map. Each illustration should identify the project, the applicant, and the type of illustration (vicinity map, plan view or cross section). The Vicinity Map shall provide the location of the entire project site. In addition, each illustration should be identified with a figure or attachment number. The location map shall include the Latitude and Longitude or UTM coordinates of the project. For linear projects, the PCN shall include a map of the entire project including a delineation of all waters of the U.S. within the corridor. Aquatic resource information shall be submitted using the Cowardin Classification System mapping conventions (e.g. PFO, PEM, etc.)

3. Color photographs: The photos should be sufficient to accurately portray the project site, keyed to a location map and not taken when snow cover is present.

4. Avoidance and Minimization: The PCN should include a written narrative explaining how avoidance and minimization of temporary impacts and permanent losses of waters of the U.S. were achieved on the project site (i.e. site redesign, reduction in scope, alternate methods, etc.). It should include a description of the proposed construction practices that would be implemented to perform the proposed work and a description of the reasonably foreseeable direct and indirect effects to waters of the U.S. from the proposed construction practices.

5. Mitigation (See General Conditions 23 & 32(b)(6)): The PCN should include at least a conceptual compensatory mitigation plan for all projects resulting in the loss of greater than $1/10^{th}$ of an acre of wetlands and/or $3/100^{th}$ of an acre of stream. Mitigation conceptual plans submitted with the PCN must include the following information at a minimum: proposed compensation type (bank or in-lieu fee credit, restoration, creation, preservation, etc.), location and brief discussion on factors considered for site selection (i.e. soils, water source, potential for invasive species, etc.), amount proposed per resource type and a discussion of how the proposal will compensate for aquatic resource functions and services lost as a result of the project.

Note 1: All mitigation projects must comply with the Federal Regulations on compensatory mitigation (33 CFR 332) entitled "Compensatory Mitigation for Losses of Aquatic Resources: Final Rule", dated April 10, 2008, which is available at: https://www.usace.army.mil/Missions/Civil-Works/Regulatory-Program-and-Permits/mitig_info/ and any applicable District Guidelines.

Note 2: Although a conceptual mitigation plan may be sufficient for the purposes of a PCN submission, a detailed mitigation plan must be approved by the Corps before any jurisdictional work may occur on the project site.

Note 3: If more than 0.10 acres of designated EFH habitat (as discussed in Section G-E.8. below) would be impacted such that habitat would be lost, compensatory mitigation at a minimum ratio of 1:1 is required. A ratio of more than 1:1 may be required depending upon the ecological value of the habitat to be lost or degraded and the form of compensatory mitigation proposed to be provided.

Note 4: For additional information regarding natural stream channel design, please refer to https://www.epa.gov/cwa-404/natural-stream-channel-design-techniques-and-review for the Natural Stream Channel Design Techniques and Review Checklist as developed by U.S. EPA and U.S. Fish and Wildlife Service.

6. Nationwide Rivers Inventory: The PCN should indicate if a river segment listed within the National Park Service Nationwide Rivers Inventory (NRI) is located within the proposed project area. NRI river segments are potential candidates for inclusion in the National Wild and Scenic River System (See General Condition #16). For project areas containing a listed NRI segment, the PCN shall also include a statement as to how adverse effects to the river have been avoided or mitigated. The list is available at: http://www.nps.gov/ncrc/programs/rtca/nri/states/ny.html.

7. Historic or Cultural Resources: In accordance with General Condition 20, a PCN is required for any non-federal activity which may have the potential to cause effects to any historic properties* listed, determined to be eligible for listing on, or potentially eligible for listing on the National Register of Historic Places (NR). Please refer to General Condition 20 for submission requirements. In addition, all PCNs should include:

a) A written statement indicating if any such properties may be affected by the proposed project.
b) A copy of any completed archaeology or building/structure survey reports. If a survey has not been performed, the statement shall include a list of resources checked in the determination.
c) Copies of any available correspondence from the New York State Office of Parks, Recreation, and Historic Preservation State Historic Preservation Officer (SHPO) regarding historic properties.
d) Copies of any available correspondence from federally recognized Indian Nations regarding historic properties that may be affected by the project.
e) Projects with ground disturbance may have the potential to cause effects to buried historic properties, regardless of occurring outside SHPO designated archaeological sensitive areas. Therefore, the PCN shall indicate if the ground disturbance will occur in any areas of previously undisturbed soil. For areas with prior disturbance, the PCN shall include a brief narrative describing the disturbance and its limit (i.e. type of disturbance, size of area with current undisturbed soil, size of area with existing disturbed soils, when the disturbance occurred, an estimate on how deep the soil disturbance extends, etc.) as well as photos of the existing ground disturbance.
f) Above ground buildings/structures that are over 50 years old and potentially affected by the project will need to be assessed to determine if they are eligible for the NR. The PCN shall: identify any structures present in the project area, which have not already been subject to SHPO review, include photos of the structures, and describe how the project would/would not affect them.

* - see NWP definition section for further clarification

Note 1: Information regarding historic properties may be found at: https://cris.parks.ny.gov. In addition, assistance regarding the determination of the presence of historic or cultural resources at or near the project site should be directed to SHPO.

Note 2: as stated in General Condition 20, if any listed, eligible or potentially eligible properties are present, the applicant shall not begin the activity until notified by the district engineer in writing either that

the activity has no potential to cause effects or that consultation under Section 106 of the NHPA has been completed.

8. Endangered Species and Essential Fish Habitat (EFH): In accordance with General Condition #18, non-federal applicants must submit a PCN if any listed species or designated critical habitat might be affected or is in the vicinity of the activity (See Note 2 below), or if the activity is located in designated critical habitat. Please refer to General Condition #18 for submission requirements. In addition, all PCNs should include:

a) a written statement and documentation concerning any Essential Fish Habitat (EFH) and any federally listed or proposed Threatened, Endangered, or Candidate (TE&C) species or designated and/or proposed critical habitat that might be affected or located in the vicinity of the project (See Note 2 below).

b) an official TE&C species list printed within 90 days of the PCN submission, and a copy of any correspondence from the U.S. Fish and Wildlife Service (USFWS) and/or National Oceanic and Atmospheric Administration Fisheries Service (NOAA-Fisheries), regarding the potential presence of TE&C species on the project site. An applicant should use the USFWS Information for Planning and Consultation (IPAC) website (https://ecos.fws.gov/ipac) as the primary resource to determine if there may be listed Threatened or Endangered species. Information on NOAA-Fisheries (NMFS) species (both TE&C and EFH) can be found at: https://www.greateratlantic.fisheries.noaa.gov/. Region-specific information on NMFS species (both TE&C and EFH) can we found at: https://www.fisheries.noaa.gov/new-england-mid-atlantic/habitat-conservation/essential-fish-habitat-consultations-greater-atlantic-region. Region-specific ESA information can be found at: https://www.fisheries.noaa.gov/topic/consultations#endangered-species-act-consultations.

c) For projects where TE&C species are listed, a discussion of potential TE&C species habitat within the project site (See USFWS T&E website for species habitat information). https://www.fws.gov/northeast/nyfo/es/section7.htm

d) If there is potential habitat for any TE&C species within the project site the following, as applicable, shall be submitted:

   i. The results of any habitat surveys and presence/absence surveys. Note: all surveys should be coordinated with the USFWS and/or NOAA-Fisheries (NMFS) prior to initiation.

   ii. A detailed description of the proposed project, including secondary impacts and approximate proposed project construction schedule of project activities (e.g. land clearing, utilities, stormwater management).

   iii. A description of the natural characteristics of the property and surrounding area (e.g. forested areas, freshwater wetlands, open waters, and soils) and a description of surrounding land use (residential, agricultural, or commercial).

   iv. A description of the area to be impacted by the proposed project (including the species, typical sizes (d.b.h.) and number or acres of trees to be removed, substrate of stream, etc.).

   v. The location of the above referenced property and extent of any project related activities or discharges clearly indicated on a copy of a USGS 7.5-minute topographic quadrangle (quad) with the name of the quad(s) and latitude/longitude clearly labeled.

   vi. A description of conservation measures to avoid, minimize and/or mitigate impacts to listed species.

Note 1: There are no known TE&C species or EFH species under the jurisdiction of the NOAA-Fisheries (NMFS) within the Buffalo District. Therefore, all Buffalo District requests for information regarding the presence of TE&C species should be directed to the USFWS. In addition, no EFH review is necessary within the following New York District counties: Clinton, Essex, Franklin, Fulton, Hamilton, Montgomery, Otsego, Schenectady, Schoharie and Warren.

Note 2: Please refer to the following websites for further guidance and information relating to regulatory permits & TE&C species in New York, including protocols for defining 'vicinity' for the Indiana and Northern long-eared bats:

Buffalo District: http://www.lrb.usace.army.mil/Missions/Regulatory/Endangered-Species/Endangered-Species-New-York/

New York District: https://www.nan.usace.army.mil/Missions/Regulatory/Nationwide-Permits/

Note 3: General Condition #18 is emphasized, … "For activities where the non-Federal applicant has identified listed species or critical habitat that might be affected or is in the vicinity of the activity, and has so notified the Corps, the applicant shall not begin work until the Corps has provided notification that the proposed activity will have "no effect" on listed species or critical habitat, or until ESA section 7 consultation has been completed. **If the non-Federal applicant has not heard back from the Corps within 45 days, the applicant must still wait for notification from the Corps."**

Note 4: Where a PCN is required for Essential Fish Habitat consultation, refer to the following links for the Essential Fish Habitat Assessment Worksheet and Mapper utilized to inform the preparation of the worksheet:

- EFH Assessment Worksheet: https://www.fisheries.noaa.gov/new-england-mid-atlantic/habitat-conservation/essential-fish-habitat-assessment-consultations
- EFH Mapper: https://www.habitat.noaa.gov/protection/efh/efhmapper/

Note 5: Where information is required for submerged aquatic vegetation (SAV) in the permit area or within 50 feet of the proposed work, please utilize the following map data:

- NYS Department of State SAV data: http://opdgig.dos.ny.gov/#/search/SAV
- NYS GIS Clearinghouse (for SAV data in the Hudson River): http://gis.ny.gov/gisdata/inventories/details.cfm?DSID=1209 and http://gis.ny.gov/gisdata/inventories/details.cfm?DSID=1350

9. PCNs should be submitted electronically, if possible, in accordance with the instructions provided on the Districts' websites. When submitted by hard copy, without an electronic submission, then multiple copies of the PCN must be provided as follows:

a) One (1) additional copy of the PCN package shall be provided to USACE for coordination with Department of Defense Siting Clearinghouse (See NWP # 39, 51, 52 & 57 Notes) for:
   i. overhead utility lines proposed under NWP #57 and
   ii. any activity that involves the construction of a wind energy generating structure, solar tower, or overhead transmission lines proposed under NWP #39, 51 or 52

b) Two (2) additional copies of the PCN package shall be provided to USACE when the project is located within the New York City Watershed, for coordination with the New York City Department of Environmental Protection.

c) Five (5) additional copies of the PCN package shall be submitted to USACE for agency coordination in accordance with General Condition # 32(d)(2) for:
   i. All NWP activities that result in the loss of greater than 1/2-acre of waters of the United States,
   ii. NWP 13 activities in excess of 500 linear feet, fills greater than one cubic yard per running foot, or involve discharges of dredged or fill material into special aquatic sites;
   iii. NWP 54 activities in excess of 500 linear feet or that extend into the waterbody more than 30 feet from the mean low water line in tidal waters or the ordinary high water mark in the Great Lakes.

G-F. CRITICAL RESOURCE WATERS

In accordance with NWP General Condition (GC) #22, certain activities in Critical Resource Waters cannot be authorized under the NWP program or would require a PCN (see GC #22 for a list of the NWP activities that are either excluded or require a PCN).

Critical Resource Waters in New York State include the following:

1. **East-of-Hudson portion of the New York City Water Supply:** This area includes portions of Dutchess, Putnam and Westchester Counties as delineated on Enclosure 2.

2. **Hudson River National Estuarine Research Reserves (NERR):** The Hudson River NERR consists of four components: Piermont Marsh, Iona Island, Tivoli Bay, and Stockport Flats.

H. NYSDEC General Water Quality Certification (WQC) Conditions applicable to all NWPs for which WQC has been provided are as follows:

1. **Non-contamination of Waters** - All necessary precautions shall be taken to preclude contamination of any waters of the United States by suspended solids, resins, sediments, fuels, solvents, lubricants, epoxy coatings, paints, concrete, leachate, inadvertent returns of drilling muds ("frac-outs") or any other environmentally deleterious materials associated with the project.

2. **Installation and Replacement of Culverts** - To be covered under this blanket Water Quality Certification, all the following criteria must be met for culvert installations and replacements:
a) Culverts shall be designed to pass a storm event with an annual chance of 2% or less (i.e., 50-year storm event or greater) such that the water surface remains below the top of the inlet opening.
b) All culverts with closed bottoms and culvert pipes must be appropriately embedded. Round culverts must be installed so that at least 20% of the culvert's vertical height is embedded below the existing stream bed at the outlet end of the culvert.
c) Width of the structure must be a minimum of 1.25 times (1.25X) width of the Mean High-Water Channel.
d) The slope of the stream bed within or under the culvert shall remain consistent with the slope of the adjacent stream channel. For slopes greater than 3%, an open bottom culvert must be used.
e) This culvert must not be located under a roadway that provide sole access to "Critical Facilities"[2].
f) This certification does not authorize culvert rehabilitation projects that involve slip lining, invert paving, or similar treatments.
g) This certification does authorize the rehabilitation of culverts utilizing Cure in Place Pipe Lining (CIPP) or concrete spray lining for culverts which currently meet Nationwide Permit General Condition # 2 - Aquatic Life Movements.

[2] Critical Facilities are defined as facilities designed for bulk storage of chemicals, petrochemicals, hazardous or toxic substances or floatable materials; hospitals, rest homes, correctional facilities, dormitories, patient care

facilities; major power generation, transmission or substation facilities, except for hydroelectric facilities; major communications centers, such as civil defense centers; or major emergency service facilities, such as central fire and police stations. (See 6 NYCRR Part 502.4(a)(17).)

3. **Discharges and Disturbances Limits** - The following discharge and disturbance limits apply to this certification:

- For NWPs 5, 7, 13, 14, 15, 18, 19, 23, 25, 29, 31, 32, 34, 36, 37, 39, 40, 42, 45, 46, 48, 51, 57, and non-maintenance activities under NWP 43 the following discharge limits apply:
    a) Temporary or permanent discharges of dredged or fill material into wetlands and other waters of the United States must not exceed ¼ acre;
    b) Temporary or permanent impacts (i.e., loss) to stream beds, lake shorelines, and ocean shorelines must not exceed 300 linear feet; and
    c) The discharge area limit under paragraph (a) plus the equivalent stream, lake, or ocean impact area limit under paragraph (b) must not exceed ¼ acre total.

- For NWPs 3, 4, 6, 20, 22, 27, 30, 33, 41 and maintenance activities under NWP 43, this certification authorizes discharges and disturbances up to the limit of the respective Nationwide Permit or regional conditions, whichever is most restrictive.

- If a project requiring coverage under two or more Nationwide Permits results in a temporary or permanent discharge or disturbance, the most restrictive threshold applies to the project.

4. **Bulkheads** - Activities involving bulkheads are restricted as follows:
    a) This certification does not authorize the construction of new bulkheads or vertical walls.
    b) This certification does not authorize the waterward extension of existing bulkheads, except where minimally necessary to reface the bulkhead when in-place replacement is not feasible.
    c) New toe-stone protection may not extend more than 36 inches waterward from the existing bulkhead face.

5. **Maintenance of Water Levels** - This certification does not authorize any activity that results in a permanent water level alteration in waterbodies, such as draining or impounding, except for activities authorized by NWP 27.

6. **Dewatering** - Dewatering activities must be conducted in the following manner:
    a) Authorized dewatering is limited to immediate work areas that are within coffer dams or otherwise isolated from the larger waterbody or waters of the United States.
    b) Dewatering must be localized and must not drain extensive areas of a waterbody or reduce the water level such that fish and other aquatic organisms are killed, or their eggs and nests are exposed to desiccation, freezing or depredation in areas outside of the immediate work site.
    c) Cofferdams or diversions shall not be constructed in a manner that causes or exacerbates erosion of the bed or banks of a waterbody.
    d) All dewatering structures must be permanently removed, and disturbed areas must be graded and stabilized immediately following completion of work. Return flows from the dewatering structure shall be as visibly clear as the receiving waterbody.

7. **Horizontal and Directional Drilling** - For projects that involve horizontal or directional drilling, the permittee must prepare and implement a plan that addresses prevention, containment and cleanup of inadvertent drilling fluid returns or "frac-outs".

8. **Endangered or Threatened Species** - This certification does not authorize discharges likely to result in the take or taking of any species listed as endangered or threatened in 6 NYCRR Part 182.5 (a) or (b) or discharges likely to destroy or adversely modify the habitat of such listed species. To be eligible for coverage under this certification, applicants must either verify that the activity is outside of the occupied habitat of such species or, if located within the habitat of such species, obtain a determination from the NYS Department of Conservation Regional Office that the proposed activity is not likely to result in the take or taking of any species listed as endangered or threatened species listed in 6 NYCRR Part 182. Information on New York State endangered or threatened species may be obtained from

the NYS Department of Environmental regional offices, the New York Natural Heritage Program in Albany, New York or on the DEC website at https://www.dec.ny.gov/animals/38801.html.

9. **Rare Mollusks** - This certification does not authorize disturbances or discharges to waters of the United States that support mollusks listed as S-1 or S-2 on the New York State Natural Heritage database, unless DEC staff have determined that the project location does not contain mussels listed as S-1 or S-2 on the Natural Heritage database.

10. **Prohibition Period for In-water Work** - In-water work is prohibited in cold water trout fisheries (waterbodies classified under Article 15 of New York State Environmental Conservation Law with a "t" or "ts" designation), beginning October 1 and ending May 31.

To determine if the prohibition period is in effect for a particular water, contact the Regional Natural Resources Supervisor in the appropriate New York State Department of Environmental Conservation regional office. Water classification values can be found on the DEC's Environmental Resource Mapper available on the Department's website at https://gisservices.dec.ny.gov/gis/erm/. Work windows may be altered by the Regional Natural Resources Supervisor or their designee.

11. **Significant Coastal Fish and Wildlife Habitats** - This certification does not authorize any discharge occurring in a designated Significant Coastal Fish and Wildlife Habitat area pursuant to 19 NYCRR Part 602 (NYCRR, Title 19, Chapter XIII, Waterfront Revitalization of Coastal Areas and Inland Waterways). https://www.dos.ny.gov/opd/programs/consistency/scfwhabitats.html

12. **Coastal Erosion Hazard Areas** - This certification does not authorize projects that disturb greater than ¼ acre or 300 linear feet of waters of the United States within mapped Coastal Erosion Hazard Areas, as identified in New York State Environmental Conservation Law Article 34, and its implementing regulations, 6 NYCRR Part 505. https://www.dec.ny.gov/lands/86541.html

13. **Wild, Scenic and Recreational Rivers** - This certification does not authorize activities in any Wild, Scenic or Recreational River pursuant to 6 NYCRR Part 666 or state designated Wild, Scenic or Recreational River corridors. https://www.dec.ny.gov/permits/6033.html

14. **Federal Energy Regulatory Commission** - This certification does not authorize activities regulated by the United States Federal Energy Regulatory Commission (FERC). An individual Section 401 Water Quality Certification from DEC is required for all projects regulated by FERC.

15. **Preventing the Spread of Aquatic Invasive Species** - To prevent the unintentional introduction or spread of invasive species, the permittee must ensure that all construction equipment be cleaned of mud, seeds, vegetation and other debris before entering any approved construction areas within waters of the United States. When using construction equipment, projects authorized under this Certification shall take reasonable precautions to prevent the spread of aquatic invasive species as required under the provisions in ECL § 9-1710.

16. **Utility Projects** - The following restrictions and conditions apply to activities involving utility projects:

a) This certification does not authorize maintenance or other activities associated with hydroelectric power generation projects.
b) This certification does not authorize the construction of substation facilities or permanent access roads in wetlands or within the Federal Emergency Management Agency mapped 100-year floodplain.
c) Excess materials resulting from trench excavation must be permanently removed from the waters of the United States and contained so that they do not re-enter any waters of the United States.

I. New York State Department of State (NYSDOS) Coastal Zone Management Consistency Determination Additional Information (applicable to all NWPs located within or affecting the NYS Coastal Zone):

Where NYSDOS has objected to the USACE consistency determination, as outlined in the specific NWP listing in Section B above, the applicant must submit a request for an individual consistency determination to NYSDOS.

Further Information:

- Unless NYSDOS issues consistency concurrence or USACE has determined that NYSDOS concurrence is presumed, NWPs are not valid within the Coastal Zone.
- All consistency concurrence determination requests must be submitted directly to NYSDOS with a copy provided to USACE with any required Preconstruction Notification submissions.
- Limits of the coastal zone and details regarding NYSDOS submission requirements, including application forms can be obtained at: https://www.dos.ny.gov/opd/programs/consistency/index.html
- For additional information regarding the NYSDOS Coastal Zone Management program, their application forms, and requirements, please contact NYSDOS. See Section K for NYSDOS contact information.

J. INFORMATION ON NATIONWIDE PERMIT VERIFICATION

Verification of the applicability of these Nationwide Permits is valid until March 14, 2026 unless the Nationwide Permit is modified, suspended revoked, or the activity complies with any subsequent permit modification.

It is the applicant's responsibility to remain informed of changes to the Nationwide Permit program. A public notice announcing any changes will be issued when they occur and will be available for viewing at our website: http://www.lrb.usace.army.mil/Missions/Regulatory.aspx.

Please note in accordance with 33 CFR part 330.6(b), that if you commence or are under contract to commence an activity in reliance of the permit prior to the date this Nationwide permit expires, is suspended or revoked, or is modified such that the activity no longer complies with the terms and conditions, you have twelve months from the date of permit modification, expiration, or revocation to complete the activity under the present terms and conditions of the permit, unless the permit has been subject to the provisions of discretionary authority.

Possession of this permit does not obviate you of the need to contact all appropriate state and/or local governmental officials to ensure that the project complies with their requirements.

K. AGENCY CONTACT INFORMATION

NYS Board on Electric Generation Siting and the Environment (Siting Board)
Three Empire State Plaza
Albany, NY 12223-1350
(518)949-0798
Email: Houtan.moaveni@dps.ny.gov
www.dps.ny.gov/SitingBoard

NYS Department of Environmental Conservation
www.dec.ny.gov

NYS DEC REGION 1
Regional Permit Administrator
SUNY @ Stony Brook
50 Circle Road
Stony Brook, NY 11790-3409
(631) 444-0365

NYS DEC REGION 2
Regional Permit Administrator
1 Hunter's Point Plaza
47-40 21st Street
Long Island City, NY 11101-5407
(718) 482-4997

NYS DEC REGION 3
Regional Permit Administrator
21 South Putt Corners Road
New Paltz, NY 12561-1620
(845) 256-3054

NYS DEC REGION 4
Regional Permit Administrator
1130 North Westcott Road
Schenectady, NY 12306-2014
(518) 357-2069

NYS DEC REGION 4 Sub-Office
Deputy Regional Permit Administrator
65561 State Hwy 10
Stamford, NY 12167-9503
(607) 652-7741

NYS DEC REGION 5
Regional Permit Administrator
PO Box 296
1115 Route 86
Ray Brook, NY 12977-0296
(518)897-1234

NYS DEC REGION 5 Sub-Office
Deputy Regional Permit Administrator
PO Box 220
232 Golf Course Rd
Warrensburg, NY 12885-0220
(518) 623-1281

NYS DEC REGION 6
Regional Permit Administrator
317 Washington Street
Watertown, NY 13601-3787
(315) 785-2245

NYS DEC REGION 6 Sub-Office
Deputy Regional Permit Administrator
207 Genesee Street, Room 1404
Utica, NY 13501-2885
(315) 793-2555

NYS DEC REGION 7
Regional Permit Administrator
615 Erie Blvd. West, Room 206
Syracuse, NY 13204-2400
(315)426-7438

NYS DEC REGION 8
Regional Permit Administrator
6274 E. Avon - Lima Road
Avon, NY 14414-9519
(585) 226-5400

NYS DEC REGION 9
Regional Permit Administrator
270 Michigan Avenue
Buffalo, NY 14203-2915
(716) 851-7165

NYS DEC REGION 9 Sub-Office
Deputy Regional Permit Administrator
182 East Union Street, Suite 3
Allegany, NY 14706-1328
(716) 372-0645

NYS Department of Public Service (NYS DPS)
Three Empire State Plaza
Albany, NY 12223-1350
(518)949-0798
Email: Houtan.moaveni@dps.ny.gov
www.dps.ny.gov

NYS Department of State (NYSDOS)
Office of Planning, Development
And Community Infrastructure
Consistency Review Unit
One Commerce Plaza
99 Washington Avenue, Suite 1010
Albany, NY 12231-00001
(518) 474-6000
Email: cr@dos.ny.gov
https://www.dos.ny.gov/opd/programs/consistency/index.html

NYS Office of Renewable Energy Siting (ORES)
Empire State Plaza
240 State Street
P-1 South, J Dock
Albany, NY 12242
www.ores.ny.gov
518-949-0798
Email: houtan.moaveni@ores.ny.gov

Saint Regis Mohawk Tribe
Water Resources Program
449 Frogtown Road
Akwesasne, NY 13655
www.srmt-nsn.gov

US Army Corps of Engineers

(For DEC Regions 1, 2 and 3)
US Army Corps of Engineers, NY District (NAN)
ATTN: Regulatory Branch, Room 16-406
26 Federal Plaza
New York, NY 10278-0090
For DEC Regions 1 & 2 - (917) 790-8511
For DEC Region 3 - (917) 790-8411
Email: CENAN-PublicNotice@usace.army.mil

(For DEC Regions 4, 5)
US Army Corps of Engineers, NY District (NAN)
Upstate Regulatory Field Office
ATTN: CENAN-OP-RU, Bldg. 10, 3rd Floor North
1 Buffington Street, Watervliet Arsenal
Watervliet, NY 12189-4000
(518) 266-6350 - Permits Processing Team
(518) 266-6360 - Compliance & Enforcement Team
Email: cenan.rfo@usace.army.mil

NAN Electronic Application Email:
CENAN-R-Permit-App@usace.army.mil
NAN website: http://www.nan.usace.army.mil

(For DEC Regions 6, 7, 8, 9)
US Army Corps of Engineers, Buffalo District (LRB)
ATTN: Regulatory Branch
1776 Niagara Street
Buffalo, NY 14207-3199
(716) 879-4330

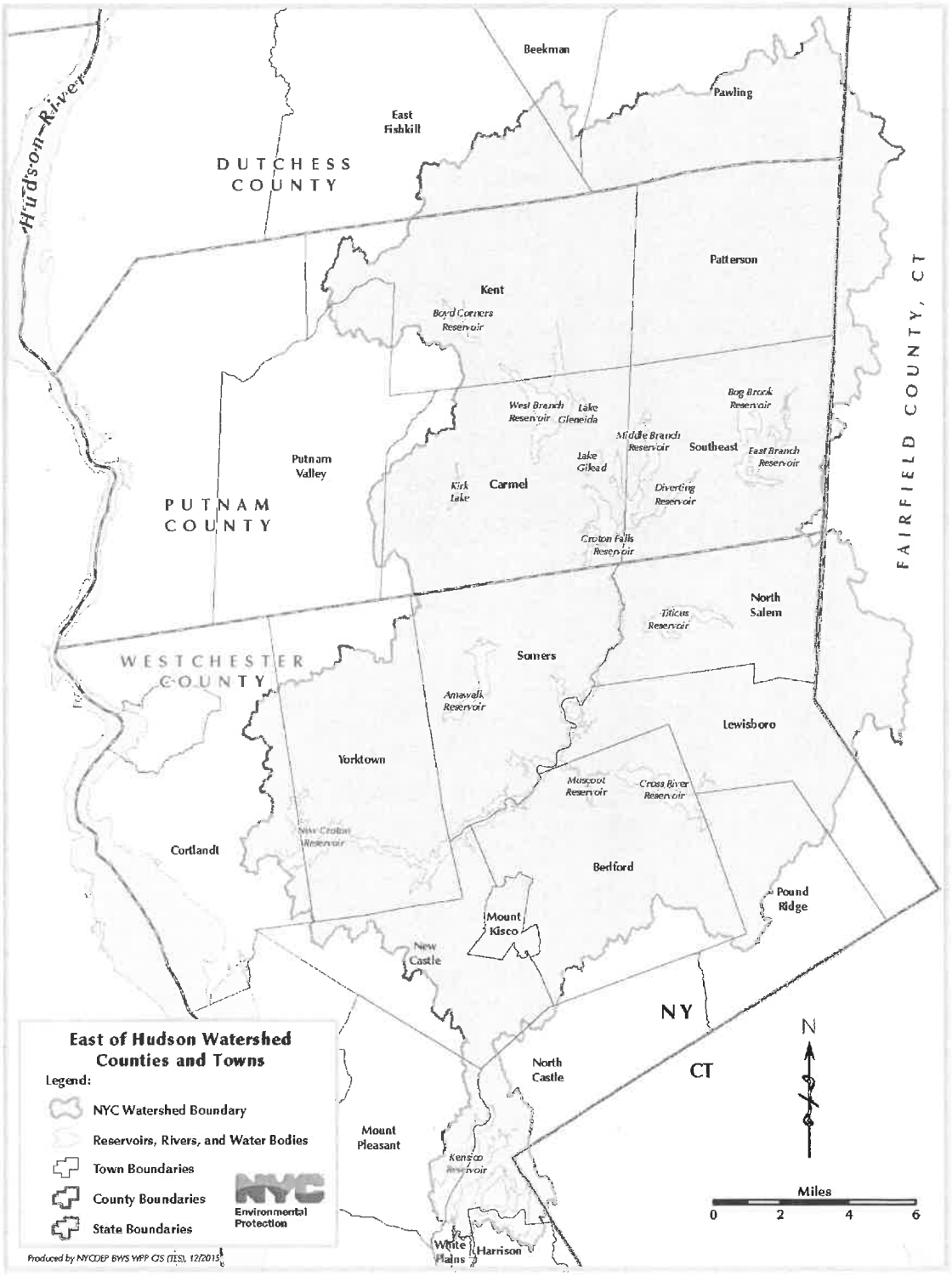
LRB Electronic Application Email:
LRB.NewYork.RegActions@usace.army.milLRB
website: www.lrb.usace.army.mil/Missions/Regulatory/

US Environmental Protection Agency Region 2
Wetlands Protection Section
290 Broadway, 24th Floor
New York, NY 10007
212-637-3838
Email: Region2_CWA404@epa.gov


U.S. Army Corps of Engineers
Regulatory Districts
in New York State
Buffalo District
Regulatory Branch, District Office
1776 Niagara Street
Buffalo, New York 14207
(716) 879-4330
Regulatory Branch, Auburn Field Office
7413 County House Road
Auburn, New York 13021
(315) 255-8060
New York District
Regulatory Branch, District Office
26 Federal Plaza
New York, New York 10278-0090
(917) 790-8411
Regulatory Branch, Upstate Field Office
1 Buffington Street
Watervliet, New York 12189-4000
(518) 266-8350
Lake Ontario
Lake Erie
Legend
Buffalo District
New York District
NYSDEC Region Boundaries
ENCLOSURE 1
U.S. Army
Corps of Engineers

Buffalo & New York Districts Final Regional Conditions, Water Quality Certification and Coastal Zone Concurrence for the 2021 Nationwide Permits for New York State Expiration March 14, 2026

ENCLOSURE 2



ENCLOSURE 3

DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, NEW YORK DISTRICT
JACOB K. JAVITS FEDERAL BUILDING
26 FEDERAL PLAZA
NEW YORK NEW YORK 10278-0090

REPLY TO
ATTENTION OF

REGULATORY BRANCH Attn:_____

Commercial Mooring Buoy Application Additional Information

Permit Application Number NAN-_____

Company Name: _____ Phone: _____
Attn: _____
Address: _____

Initial☐Renewal☐
If Renewal, USCG Permit No._____

Purpose: _____

LOCATION OF MOORING:

Anchorage: _____ Chart: _____ On Scene Depth (ft.):_____

Position*:_____ N _____ W

MOORING BUOY DATA:

No. of anchors: _____ Lbs. per anchor: _____ Type: _____

Chain size (in.):_____ Scope (yds.):_____

Pennant length (yds.):_____ Circ. /dia. (in.):_____ Type: _____

VESSEL/BARGE DATA:

Max size (LxBxD):_____x_____x_____ Max No. of barges: _____

Configuration (# abreast x # astern):____x____ Watch circle** (yds.):_____

Swing Radius (yards):_____

* Please provide a copy of the NOAA chart showing your proposed mooring buoy location and the swing radius; also identify the Anchorage Ground, if applicable

** Watch Circle = $\sqrt{(length\ of\ scope)^2 - (water\ depth)^2}$
Swing Radius = $(Watch\ circle) + (Barge(s)\ length\ astern) + (Pendant\ length(s)) + (10\%\ of\ swing\ radius)$. You must maintain an additional 10% of your Swing Radius from any adjacent mooring buoy Swing Radius for safety and maneuvering.

ENCLOSURE 4

Incident Report of Sea Turtle Take
U.S. Army Corps of Engineers, New York District

Date _____ Time (specimen found) _____

Species Taken: Loggerhead Kemp's ridley Leatherback
Green Unknown turtle Other
(*please circle and describe how specimen was identified in Comments*)

Animal: Alive / Dead (*please circle*)
Specimen Decomposition: FRESH SLIGHTLY MODERATELY SEVERELY
Approximate length _____ Approximate width _____
(*please designate cm/m or inches*)

Condition of specimen/description of animal
_____
_____
_____

Animal tagged: YES / NO (*please circle and record all tag numbers*)
Tag # _____

Photograph attached: YES / NO (*please circle*)
(*please label species, date, geographic site and name on photo back*)

Fate of animal _____

Geographic Site _____
Location: Lat/Long _____
Approx. depth of gear _____

Location where animal found (*leader, anchor line, buoy line, etc.*)
_____
_____

Thickness and type of line (*if applicable*) _____
Mesh size and type of net (*if applicable*) _____
Debris in gear? _____

Weather conditions _____
_____
Water temp: Surface _____ Below midwater (*if known*) _____
Tide state (Ebb or Flood) _____
Entanglement on downcurrent or upcurrent side of net? _____

Comments/other (*include justification on how species was identified*)
_____
_____
_____

Observer's Name _____ Permit # _____

Notwithstanding any other provision of the law, no person is required to respond to, nor shall any person by subject to a penalty for failure to comply with, a collection of information subject to the requirements of the Paperwork Reduction Act, unless that collection of information displays a currently valid Office of Management and Budget Control Number.

Appendix A

SPECIAL CONDITION

1. To reduce any potential adverse effects on the federally-endangered Northern long-eared bat (Myotis septentrionalis), trees (woody stems > 3 inches Diameter at Breast Height) must not be cut between April 1 and September 30 of any year.

Appendix B

Amended Rezoning Application
&
Supporting Exhibits

E

Big Tree Road and 0 Wilson Road from Erie Co

scription of Property to be Rezoned from R-1 to R-3, prepared by Ch

g, PLLC

Amended Rezoning Application
Date: January 11, 2020

REZONING APPLICATION

[redacted]

In The Matter of the Application for Amendment of Ordinance

-of-

[redacted]

[redacted]

[redacted]

Petitioner(s)

To the Honorable Town Board of the Town of Hamburg, New York

The Petition of: [redacted]

Address [redacted]

Town [redacted]

in the County of Erie and State of New York, respectfully shows:

The Petitioner(s) is/are the owner(s) of certain premises situation in the Town of Hamburg, County of Erie and State of New York, and more particularly described as follows:

SBL# [redacted]

Location [redacted]

Record Title Owner and Address: [redacted]

[redacted]

Zoning change requested from [redacted] to [redacted]

Petitioner's Interest in Land Title: [redacted]

The Petitioner(s) desire(s) that the said premises, or so much thereof as the Town Board shall approve, be rezoned for the following uses and for the following reasons:

[redacted]

The Petitioner(s) enclose(s) herewith the sum of $_____ to pay the cost of publishing a notice of a public hearing, which the petitioner(s) request(s) be called by your Honorable Body pursuant to the provisions of the said Zoning Ordinance.

The Petitioner(s) hereby attach the following to this application:

- Survey of the property to be rezoned [redacted]
- Legal description of the property to be rezoned [redacted]
- Short Environmental Assessment Form (EAF) [redacted]

The Petitioner establishes that no previous application has been made for the relief herein sought except: [redacted]

Dated this [redacted] day of [redacted], 20[redacted]

Sean Hopkins

[redacted]

_____

Signature of Owner(s)

[redacted]

Exhibit 1 – Description of Requested Rezoning and Proposed Project

EXHIBIT 1

DESCRIPTION OF REQUESTED REZONING OF A PORTION OF 0 BIG TREE ROAD FROM C-1 AND R-1 TO R-3 AND DESCRIPTION OF PROPOSED PROJECT

Wetzl Development, LLC (the "Applicant") has entered into a contract to purchase the parcels at 0 Big Tree Road (S.B.L. No. 160.19-2-1.1) comprised of approximately 41.883 acres of land and 0 Wilson Drive (S.B.L. No. 171.07-1-1) comprised of approximately 0.5614 acres of land (collectively the "Project Site"). The two parcels are depicted on the Parcels Reports from the Erie County GIS attached as Exhibit "4" and more particularly described on the survey prepared by Creekside Boundary Land Surveying attached as Exhibit "2".

The project layout is depicted on the updated Concept Plan [Drawing C-100 – Date: 11/02/20] prepared by Carmina Wood Morris DPC. A copy of the updated Concept Plan is provided at Exhibit "3". The Applicant is seeking to amend the zoning classification of 22.4 acres of the approximately 42 acre Project Site from C-1 and R-1 to R-3 acres. The portion of the Project Site to be rezoned to R-3 would consist of a total of 156 attached residential units for lease (2-story buildings consisting of 64 units with attached garages on the portion of the Project Site closest to Big Tree Road and single-story building consisting of 92 units with attached garages on the remaining acreage to be rezoned to R-3).

Pursuant to the updated Concept Plan attached as Exhibit "3", the previously proposed eighteen (18) lots residential subdivision with a public roadway connecting to Big Wilson Drive would be eliminated and replaced with additional Permanent Open Space that would ensure that no development will occur behind any of the existing homes on Wilson Drive. The Permanent Open Space to remain undeveloped would consist of 20.1 acres, or nearly 50% of the Project Site.

The Project Sponsor believes that the updated Concept Plan [Drawing C-100 – Date: 11/02/20] as presented during the Planning Board meeting on November 18, 2020 is preferable to the previous Concept Plan that included an eighteen (18) lot residential subdivision for several reasons including the following:

1. The updated Concept Plan eliminates the previously proposed eighteen (18) lot residential subdivision with a proposed public roadway connecting to Wilson Drive.

2. By eliminating the previously proposed eighteen (18) lot residential subdivision, the concern raised by the Planning Board during its meeting on October 7th regarding the potential for encroachments into the jurisdictional federal wetlands is no longer applicable.

3. The elimination of the previously proposed eighteen (18) lot residential subdivision results in the elimination of the public roadway connecting to Wilson Drive, which is beneficial to the Town from a fiscal perspective since the residential project would no longer include any on-site public infrastructure improvements.

4. The updated Concept Plan increases the amount of Permanent Open Space to 20.1 acres, or nearly 50% of the Project Site. In connection with the requested rezoning of 22.4 acres of the Project Site from C-1 and R-1 to R-3, it would be acceptable to the Project Sponsor if the Planning Board recommends that the Town Board impose a zoning condition requiring that a Declaration of Restrictions be recorded at the Erie County Clerk's Office prohibiting any future residential development within the 20.1 acres of Permanent Open Space. The Declaration of Restrictions would recorded at the Erie County Clerk's Office once the Project Sponsor acquires ownership of the Project Site.[1]

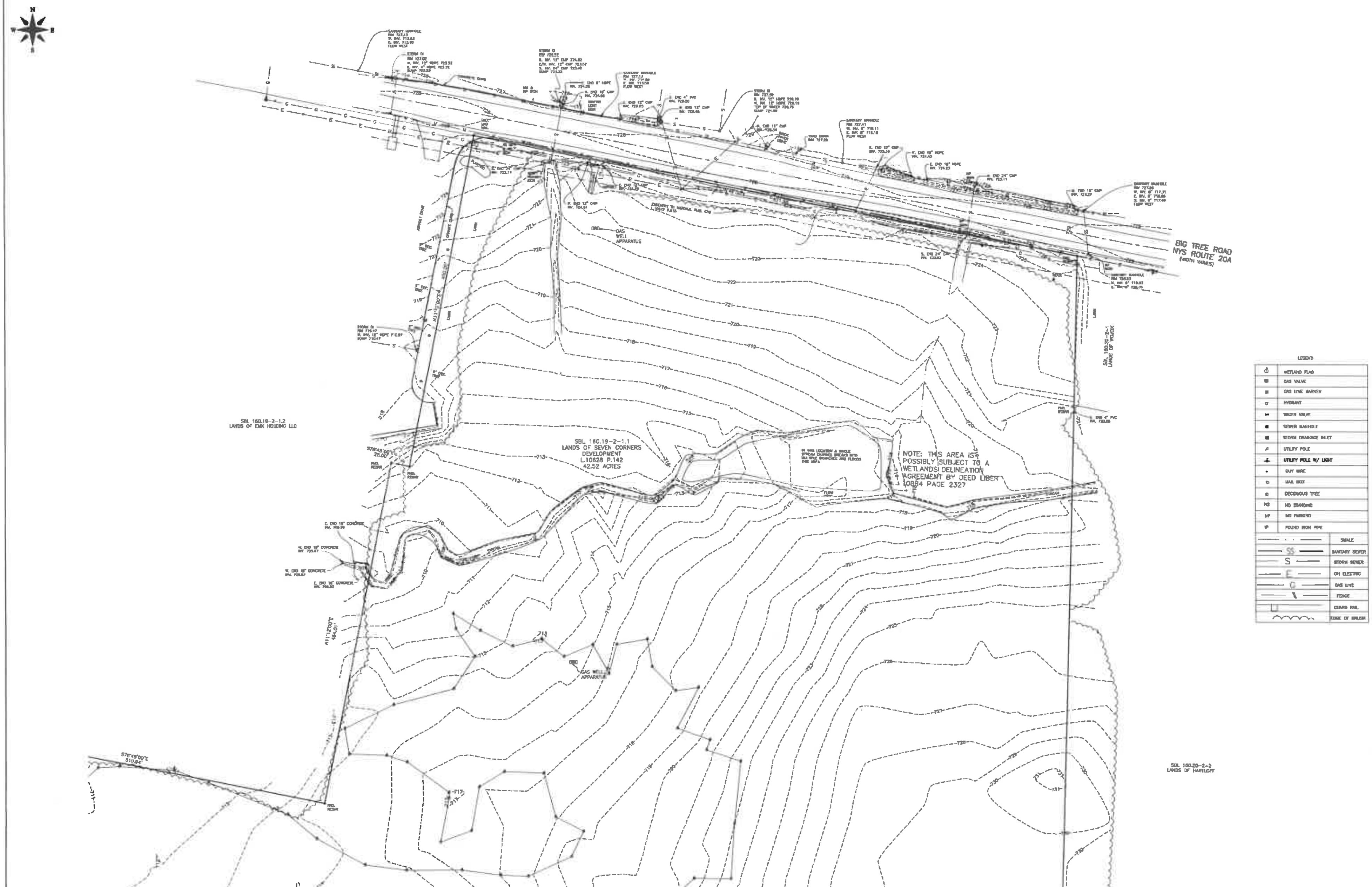
5. The updated Concept Plan reduces the impact to the jurisdictional wetlands from 0.30 acres to only 0.04 acres.

6. The updated Concept Plan would result in substantial Permanent Open Space behind all of the existing homes on the relevant portion of Wilson Drive. The rear boundary of the closest residential lot on Wilson Drive to the closest boundary of the portion of the Project to be rezoned to R-3 would be 200 ft.

7. The updated Concept Plan would accommodate the relocation of the snowmobile trail on the R-1 zoned portion of the Project Site.

[1] If the Town Board prefers that a Conservation Easement be conveyed to the Town containing language prohibiting any future development in the proposed 20.1 acres of Permanent Open Space, this would also be acceptable to the Project Sponsor.

Exhibit 2 – Surveys of Project Site [3 Drawings] as prepared by Creekside Boundary Land Surveying, PLLC



GENERAL NOTES:
1) THERE APPEARS TO BE A SNOWMOBILE TRAIL THROUGH THIS PROPERTY.
2) SEE NOTE REGARDING WETLANDS DELINEATION AGREEMENT.
3) THE PROPERTY IS LITTERED WITH DEBRIS AND GARBAGE.

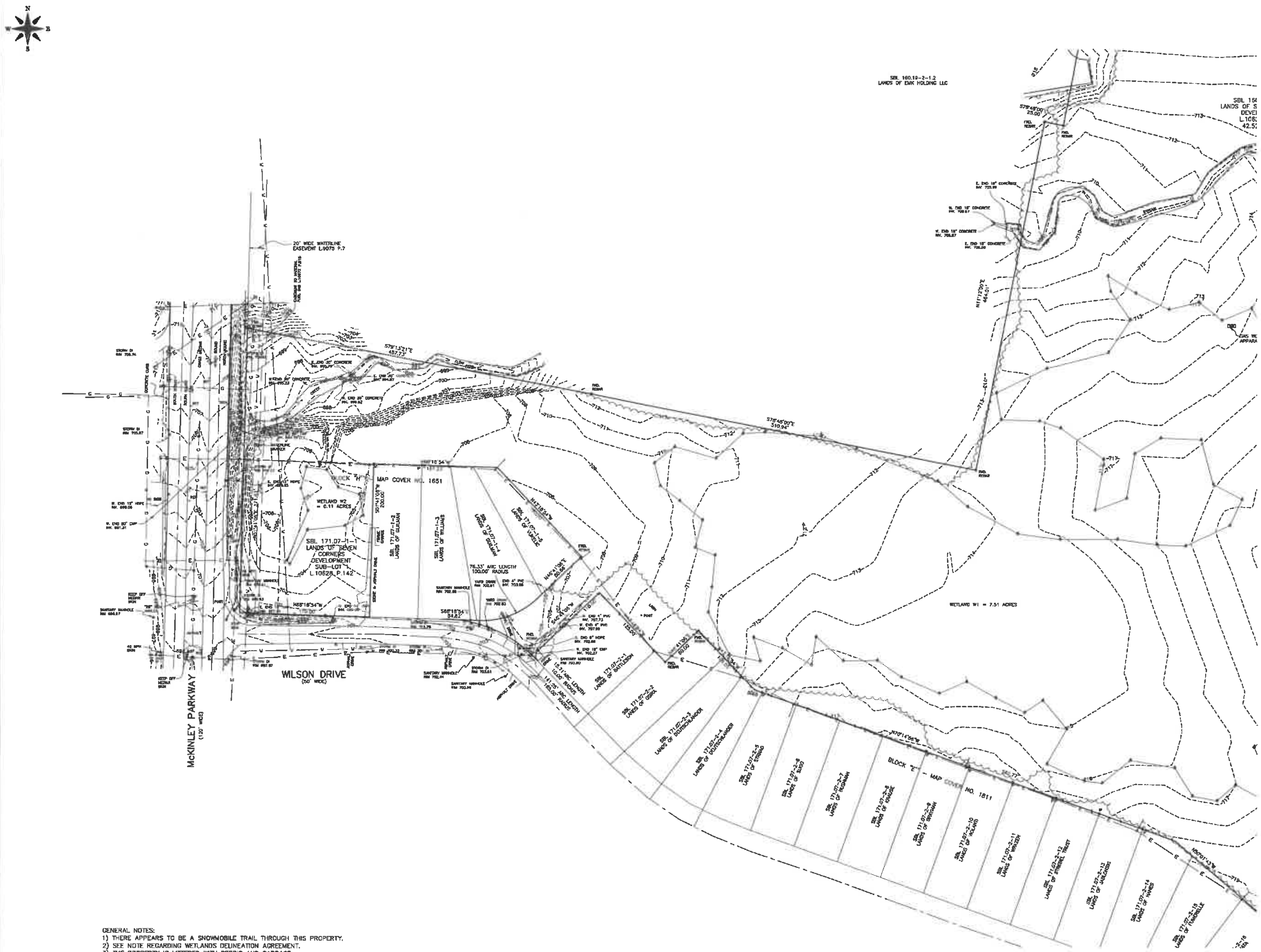
PROPERTY MAY BE AFFECTED BY THE FOLLOWING:
1) EASEMENT TO NEW YORK STATE ELECTRIC & GAS CORPORATION L.8099 P.401.
2) RELEASE TO STANLEY J. TOMAKA L.10672 P.815. THE DOCUMENT IS ILLEGIBLE.

REFERENCE DATA:
1) ABSTRACT OF TITLE PREPARED BY STEWART TITLE INSURANCE COMPANY, ABSTRACT NO. 8146207, LAST DATED APRIL 5, 2019
2) ABSTRACT OF TITLE PREPARED BY STEWART TITLE INSURANCE COMPANY, ABSTRACT NO. 8146210, LAST DATED APRIL 5, 2019

BOUNDARY & TOPOGRAPHIC SURVEY
LANDS OF SEVEN CORNERS DEVELOPMENT

CREEKSIDE BOUNDARY LAND SURVEYING, PLLC

SCALE: 1" = 40'	DATE:	PAGE 1 OF 2
DWN BY: MAC	CKD BY: MAC	JOB NO.:



	LEGEND
	WETLAND FLAG
	GAS VALVE
	GAS LINE MARKER
	HYDRANT
	WATER VALVE
	SEWER MANHOLE
	STORM DRAINAGE INLET
	UTILITY POLE
	UTILITY POLE W/ LIGHT
	GUY WIRE
	MAIL BOX
	DECIDUOUS TREE
NS	NO STANDING
NP	NO PARKING
IP	FOUND IRON PIPE
	SWALE
SS	SANITARY SEWER
S	STORM SEWER
E	OH ELECTRIC
G	GAS LINE
	FENCE
	GUARD RAIL
	EDGE OF BRUSH

GENERAL NOTES:
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2) SEE NOTE REGARDING WETLANDS DELINEATION AGREEMENT.
3) THE PROPERTY IS LITTERED WITH DEBRIS AND GARBAGE.

PROPERTY MAY BE AFFECTED BY THE FOLLOWING:
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2) RELEASE TO STANLEY J. TOMAKA L.10672 P.615. THE DOCUMENT IS ILLEGIBLE.

REFERENCE DATA:
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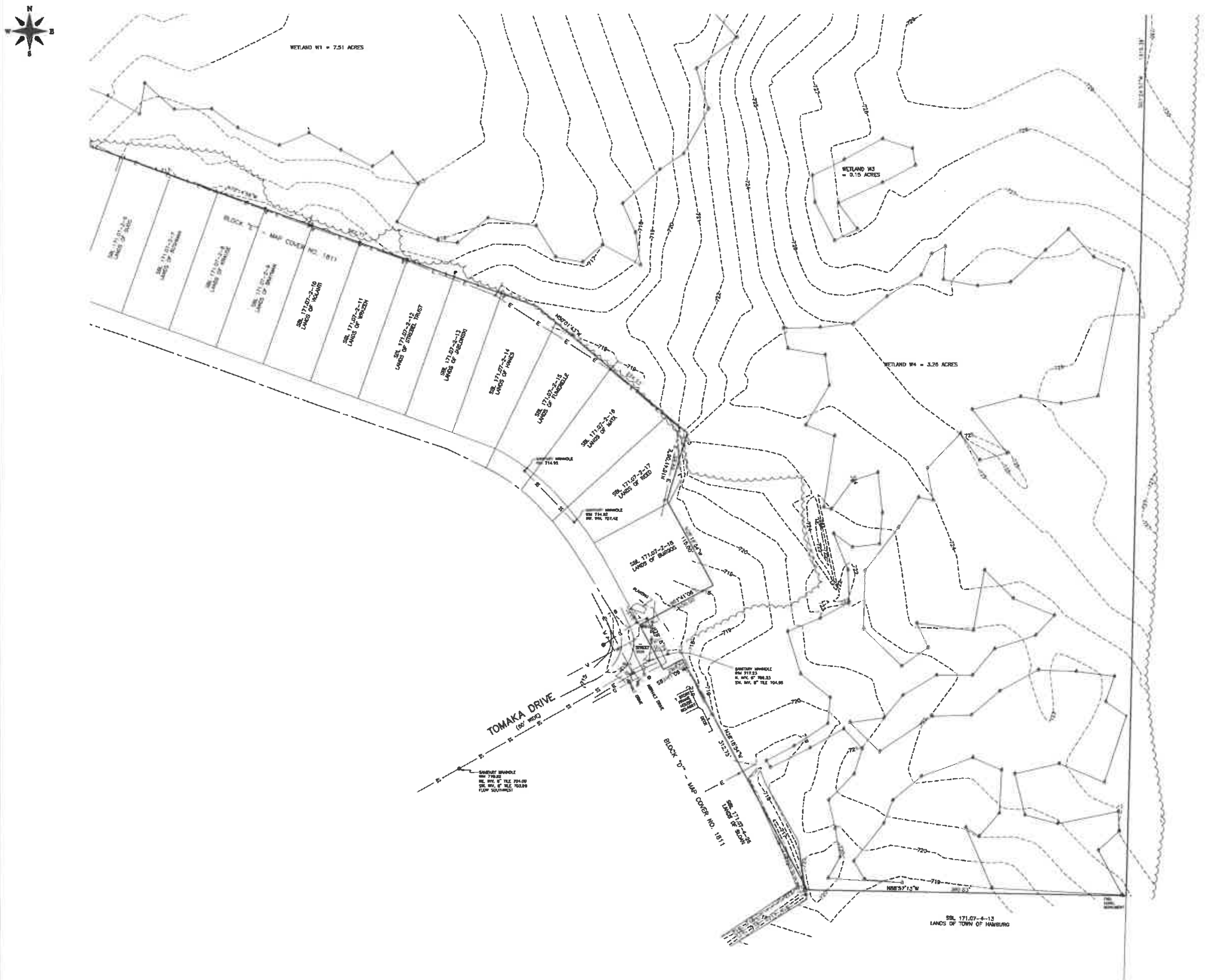
2) ABSTRACT OF TITLE PREPARED BY STEWART TITLE INSURANCE COMPANY, ABSTRACT NO. 8146210, LAST DATED APRIL 5, 2019

BOUNDARY & TOPOGRAPHIC SURVEY
LANDS OF SEVEN CORNERS DEVELOPMENT

CREEKSIDE BOUNDARY LAND SURVEYING, PLLC

SCALE: 1" = 40'	DATE: 6/4/2020	PAGE 2 OF 3
	CKD BY: MAC	JOB NO.:



LEGEND

	WETLAND FLAG
●	GAS VALVE
	GAS LINE MARKER
	HYDRANT
	WATER VALVE
	SEWER MANHOLE
	STORM DRAINAGE INLET
	UTILITY POLE
	UTILITY POLE W/ LIGHT
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NP	NO PARKING
	FOUND IRON PIPE
	SWALE
SS	SANITARY SEWER
S	STORM SEWER
E	OH ELECTRIC
G	GAS LINE
	FENCE
	GUARD RAIL
	EDGE OF BRUSH

GENERAL NOTES:
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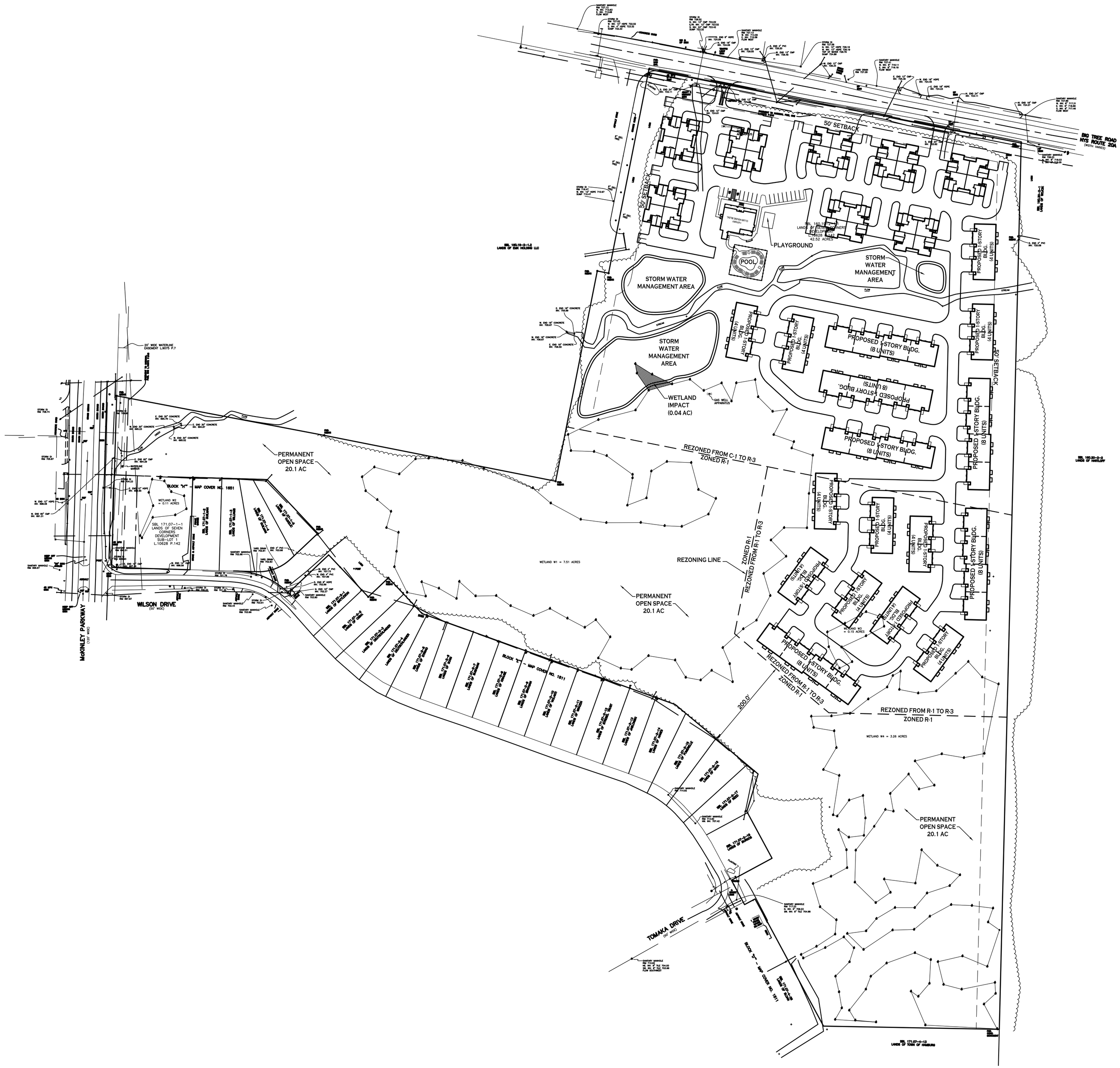
BOUNDARY & TOPOGRAPHIC SURVEY
LANDS OF SEVEN CORNERS DEVELOPMENT

CREEKSIDE BOUNDARY
LAND SURVEYING, PLLC

SCALE: 1" = 40' | DATE: 6/4/2020 | PAGE 3 OF 3
DWN BY: MAC | CKD BY: MAC | JOB NO.:

Exhibit 3 – Concept Site Plan [Drawing C-100 – Date: 11/02/20] as Prepared by Carmina Wood Morris DPC



SITE DATA - R3 AREA

SITE AREA = 42.5 AC TOTAL SITE (22.4 AC REZONED TO R-3)
ZONED: TO BE REZONED FROM C-1 TO R-3 (MULTIFAMILY DISTRICT)
DESCRIPTION: (92) 1-STORY UNITS W./ATTACHED GARAGE
(64) 2-STORY UNITS W./ATTACHED GARAGES

	REQUIRED	PROVIDED
SETBACKS - BUILDING		
FRONT:	50 FT	> 50 FT
SIDE (3 OR MORE FAMILY DWELLING):	50 FT	> 50 FT
REAR (3 OR MORE FAMILY DWELLING):	50 FT	56 FT MIN.
SETBACKS - PARKING		
FRONT:	50 FT	> 50 FT
SIDE	5 FT	> 5 FT
REAR	5 FT	> 5 FT
PRINCIPAL BLDG. SEPARATION		
BETWEEN VERTICAL WALLS OF BLDGS. (AVERAGE HEIGHT OF BLDG)	35 FT MIN.	35 FT MIN.
GREENSPACE		
TOTAL SITE (10%):	4.25 AC	> 10.0%
INTERIOR TO PARKING AREA (5%):	0.4 AC	> 5.0%
PARKING	AS	174 OPEN
# OF SPACES - SEE CALCULATION BELOW	DETERMINED BY P.B.	156 GARAGE 330 TOTAL
LOT FRONTAGE		
LOT WIDTH AT FRONT LOT LINE:	200.0 FT MIN.	317.56 FT

NOTE: BOUNDARY AND TOPOGRAPHIC INFORMATION PROVIDED BY OTHERS. CARMINA WOOD MORRIS, D.P.C. ASSUMES NO RESPONSIBILITY FOR ITS ACCURACY.

100' 100 0 100 200Ft.

Carmina Wood Morris DPC
487 Main Street Suite 600
Buffalo, New York 14203
P 716.842.3165
F 716.842.0263

REVISIONS:
No. Description Date

PROJECT NAME:
New Construction
Multi-Family Development
Big Tree Road
Town of Hamburg, New York

Date: 11/2/20
Drawn by: C. Wood
Scale: AS Noted

DRAWING NAME:
Concept Site Plan

DRAWING NO.
C-100

Project no.: 20.062

Exhibit 4 – Parcel Reports for 0 Big Tree Road and 0 Wilson Road from Erie County GIS

Erie County On-Line Mapping System
Parcel Detail Report

Report generated:
1/24/2020 4:42:31 AM

Parcel Overview Map

Parcel Detail Map

PIN: 144889160190000200 1100

SBL: 160.19-2-1.1

Address: BIG TREE RD

Owner 1: SEVEN CORNERS DEVELOPMENT

Owner 2: C/O HELGA TEITSSON

Mailing Address: 316 HILLSDALE AVE E

City/Zip: TORONTO, ONTARIO CANANDA M4S1T

Municipality: Hamburg

Property Class: 330

Class Description: B - Vacant comm

Front: 821.97998047

Depth: 0

Deed Roll: 1

Deed Book: 10884

Deed Page: 02348

Deed Date:

Acreage: 41.88303486

Total Assessment: $108,000

Land Assessment: $108,000

County Taxes: $108,000

Town Taxes: $0

School Taxes: $0

Village Taxes: $0

School District: FRONTIER CENTRAL SCHOOL DISTRICT #4

Year Built: 0

Sqft Living Area: 0

Condition: 0

Heating: 0

Basement: 0

Fireplace: 0

Beds: 0

Baths: 0

Erie County On-Line Mapping System
Parcel Detail Report

Report generated:
1/24/2020 4:40:37 AM

Parcel Overview Map

Parcel Detail Map

PIN: 144889171070000100 1000

SBL: 171.07-1-1

Address: WILSON DR

Owner 1: SEVEN CORNERS DEVELOPMENT

Owner 2: C/O HELGA TEITSSON

Mailing Address: 316 HILLSDALE AVE E

City/Zip: TORONTO, ONTARIO CANADA M4S1T

Municipality: Hamburg

Property Class: 311

Class Description: R - Res vac land

Front: 110

Depth: 200

Deed Roll: 1

Deed Book: 10628

Deed Page: 00146

Deed Date:

Acreage: 0.56143551

Total Assessment: $7,000

Land Assessment: $7,000

County Taxes: $7,000

Town Taxes: $0

School Taxes: $0

Village Taxes: $0

School District: FRONTIER CENTRAL SCHOOL DISTRICT #4

Year Built: 0

Sqft Living Area: 0

Condition: 0

Heating: 0

Basement: 0

Fireplace: 0

Beds: 0

Baths: 0

Exhibit 5 – Legal Description of Property to be Rezoned from R–1 to R-3 as prepared by Creekside Boundary Land Surveying, PLLC

EXHIBIT 5 OF AMENDED REZONING APPLICATION

LEGAL DESCRIPTION OF PROPERTY TO BE REZONED FROM FROM R-1 TO R-3

ALL THAT TRACT OR PARCEL OF LAND, SITUATE IN THE TOWN OF HAMBURG, COUNTY OF ERIE AND STATE OF NEW YORK, BEING PART OF LOT NO. 47, TOWNSHIP 9, RANGE 7 OF THE HOLLAND LAND COMPANY'S SURVEY, BOUNDED AND DESCRIBED AS FOLLOWS:

COMMENCING AT A POINT IN SOUTH LINE OF BIG TREE ROAD (ROUTE 20A) AT THE NORTHEAST CORNER OF LANDS OF SEVEN CORNERS DEVELOPMENT, BY DEED FILED IN THE ERIE COUNTY CLERK'S OFFICE IN LIBER 10628 OF DEEDS AT PAGE 145, THENCE S 01°24'57" W ALONG THE EAST LINE OF SAID LANDS OF SEVEN CORNERS DEVELOPMENT, A DISTANCE OF 805.73 FEET TO THE POINT OR PLACE OF BEGINNING:

THENCE S 01°24'57" W, CONTINUING ALONG THE SAID EAST LINE OF LANDS OF SEVEN CORNERS DEVELOPMENT, A DISTANCE OF 437.59 FEET TO A POINT;

THE FOLLOWING FOUR COURSES AND DISTANCES ARE THROUGH THE SAID LANDS OF SEVEN CORNERS DEVELOPMENT:

1) THENCE N 88°35'03" W, A DISTANCE OF 386.13 FEET TO A POINT;

2) THENCE N 50°01'43" W, A DISTANCE OF 266.41 FEET TO A POINT;

3) THENCE N 11°12'00" E, A DISTANCE OF 368.61 FEET TO A POINT;

4) THENCE S 78°48'00" E, A DISTANCE OF 539.68 FEET TO THE POINT OR PLACE OF BEGINNING 6.01 ACRES OF LAND.