DRAFT GENERIC ENVIRONMENTAL IMPACT STATEMENT

THE UNIVERSITY OF ROCHESTER
INSTITUTIONAL PLANNED DEVELOPMENT
REZONING SOUTH CAMPUS

Town of Brighton
Monroe County, New York

November 8, 2005

Environmental Review Liaison Review Officer:
Town of Brighton
2300 Elmwood Avenue
Rochester, New York 14618
Contact: Ramsey Boehner

Prepared By:
FRA Engineering, PC
530 Summit Point Drive
Henrietta, New York 14467
(585) 359-0280

Supplemental Information By:
University of Rochester
Nixon Peabody LLP
Urban Forestry LLC
Panamerican Consultants, Inc
Environmental Resources, LLC
EDR PC

DATE OF ACCEPTANCE OF THE DRAFT ENVIRONMENTAL IMPACT STATEMENT: _____________

DEADLINE FOR SUBMISSION OF COMMENTS: _____________
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I. Introduction

A. Description of Proposed Action

The University of Rochester (the “University”) owns hundreds of acres in the Town of Brighton and City of Rochester and is a leading employer in Monroe County. Among the property owned is what is called “South Campus”, which totals 188+/- acres. This property is fully in the Town of Brighton and is bounded on the north by Interstate Route 390, on the west by the former Lehigh Valley Railroad right of way, on the east by West Henrietta Road, and on the south by Southland Drive and Crittenden Road. The property also includes the Lilac Park Subdivision located to the south of Crittenden Road and east of the Lehigh Valley Railroad ROW. Total University of Rochester land holdings in the Town of Brighton are now 230 +/- acres. Of this 230 +/- acres, approximately 42 acres lies south of Crittenden Road as either former railroad right of way or as part of the former Lilac Park Subdivision. Additionally, the University (since the start of this rezoning proceeding) has sold approximately 25 acres to the Town of Brighton, which is currently used as the Lehigh Valley Recreational Trail. Prior to the sale of this property University holdings totaled 255 +/- acres.

The University has little room to expand on its River Campus and Medical Campus without the displacement of existing buildings, and/or parking. As such, the University has begun a long-range program to assess the feasibility and prepare a conceptual plan for developing the South Campus property.

The proposal by the University consists of the rezoning (with incentive zoning treatment) of approximately 188± acres (3 parcels) the South Campus property (the land to be rezoned is the “Rezone Property”) from residential to Institutional Planned Development ("IPD") in the Town of Brighton, New York (the “Town”).

The Rezone Property is presently low density residential (RLB), permitting one unit per 13,500 SF. However, the Town of Brighton, through the Comprehensive Plan 2000 effort recognized that this was not an appropriate designation for the Rezone Property and recommended rezoning a significant portion of the Rezone Property to IPD. Below is the recommendation from the Comprehensive Plan 2000 effort.

“The area north of the southern end of Whipple Park is recommended for institutional use compatible with the existing U of R facilities. Any institutional development of this area should be based upon a master plan for the entire area that has been approved by the town. The master plan should include: a buffer that is substantially wider than the 50 feet
currently required by town regulations between the institutional district and any surrounding residential development; a buffer along the abandoned Lehigh Valley Rail ROW; access only from East River Rd. (no access from Crittenden Rd.); building uses and orientations; a transition of intensity of building and impervious coverage from south to north; and a drainage plan.

Recommendation for the area south of Whipple Park:
The area to the south of Whipple Park is recommended for low density residential development with minimum ½ acre lots. This would allow for development compatible with surrounding residential areas and sensitive to the area's environmental constraints."

At the request of the Town, a conceptual plan was developed indicating potential building layouts, densities, and uses. Two alternative plans, the "Building Concept Plan" (Figure 1) and the "Alternative Building Concept Plan" (Figure 2), both showing a total potential build out of approximately 1,935,000 square feet were developed.

These two plans also delineate 10 "development pod" areas; which were created to identify where potential buildings and associated site improvements, such as parking, could be accommodated. It is important to point out that the University does not have any plans for development on the Rezone Property at this time. However, the University does have a desire to rezone the property in an effort to expedite the approval procedures for future development on the Rezone Property. The current approval process would require the University to obtain a Special Permit prior to obtaining site plan and building permit approvals. Rezoning the property to IPD would eliminate the need for obtaining a Special Permit for each application on the Rezone Property.

In addition to seeking rezoning of the Rezone Property, the University would also seek to resubdivide the property holdings within the Town. Currently the Rezone Property consists of 11 tax parcels. Nine of these contiguous parcels make up the main portion of the Rezone Property and are bound on the north by East River Road, on the east by West Henrietta Road, on the south by residential properties on Southland Drive and Crittenden Road, and on the west by the Lehigh Valley Trail. The University is seeking to combine these nine parcels, as indicated in Figure 5, into a single tax account parcel. The two additional tax parcels, north of East River Road, will remain separate tax account parcels.

The Lilac Park Subdivision portion of the University's holdings, which consists of approximately 150, 8,000 SF residential parcels, would be
resubdivided and combined into a single tax account and building parcel. This single parcel is proposed to be deeded to the Town as Open Space.

B. Classification under SEQR

The rezoning of lands of the Rezone Property from residential to IPD has been identified as a Type I action. The Town of Brighton Town Board is the lead agency under the State Environmental Quality Review Act ("SEQRA") and has issued a positive declaration, requiring the preparation of this Draft Generic Environmental Impact Statement ("DGEIS"). The Town Board, after a hearing, developed a Final Scope of study, dated April 13, 2005.

C. Synopsis of the DGEIS

This DGEIS discusses and analyzes the existing environmental setting, the purpose, need and benefit of the proposed action, potential significant adverse impacts and associated mitigation measures, and reasonable alternatives.

D. Contact for additional information

Additional information on this DGEIS can be obtained from Ramsey Boehner, Environment Review Liaison Review Officer, Town of Brighton, 2300 Elmwood Avenue, Rochester, New York 14618.

II. Description of the Action

A. Overview of Action

The proposal by the University consists of the rezoning and incentive zoning of the Rezone Property from residential to IPD.

The proposed IPD development area has been established based on the University’s goals and objectives and the potential needs of the University in the South Campus area throughout the next 25 years.

The University’s planning and facilities staff has been working diligently with its project team over the last several years to identify areas of potential development on the South Campus, with ascribed densities and height criteria which would satisfy the potential expansion needs of the University, while being sensitive to the University’s neighbors. In preparation for the IPD application submission, the University’s project team has had many meetings with Town officials, as well as County and
State DOT personnel. Throughout the process, the University has met numerous times with neighborhood leaders, as well as with many residents of the area.

The University seeks to establish an IPD District for its South Campus through Incentive Zoning under Chapter 209 of the Code of the Town of Brighton New York Comprehensive Development Regulations ("Brighton Code"). The district encompasses the Rezone Property of approximately 188 acres as depicted in Figure 3.

The proposed IPD District includes a mix of uses such as research, office, housing, storage and university-related supporting uses.

The Building Concept Plan (and its alternatives) has been prepared for the Town's review (Figure 1) in accordance with Section 209-5B(1) of the Code and shows the proposed on site Amenities and Incentives. Because the University has no current plans to erect any particular building or structure on the South Campus, the University IPD Plan depicts only comparative densities of development in identified areas of the South Campus. The University IPD plan also shows existing development. For comparison purposes, a second plan, entitled "Current Zoning Potential Build Plan" (Figure 4), was prepared in accordance with Section 209-5B(2) of the Code to demonstrate how the South Campus could be developed in accordance with current zoning, as modified by the Town's Comprehensive Plan. It, too, shows existing buildings.

At the request of the Town, the University and its consultant identified 10 development areas "Pods"; to illustrate how the requested floor area ratio could affectively be achieved on the Rezone Property. As such, most of the figures referenced in this document depict these pods. The Pods are simply being used as a planning tool and are not intended to geographically locate buildings, parking, or other site related improvements when development occurs in the future. It is not the intent of the University to restrict development outside of the identified areas, but rather to demonstrate to the town how future development could be accommodated. The Pods are a culmination of the effort between the Town and the University to determine an appropriate level of density for the Rezone Property. More specifically, the Pods were used to identify how the University could adequately accommodate approximately two million square feet of institutionally-related development along with associated site amenities, such as parking, landscaping, and stormwater management areas.

The proposed action is solely to rezone the Rezone Property - not to develop it. If and when development projects are proposed in the future, each project would have to address and resolve any issues and impacts associated with that project. Further, each of these future developments
would have to follow existing and future Town site plan and building review and approval procedures, prior to the issuance of a building permit, allowing construction. The overriding importance of the rezoning to IPD is as a planning tool for orderly future development that minimizes impacts to surrounding areas.

Accordingly, the University is requesting to rezone the Rezone Property to IPD through Incentive Zoning under Chapter 209 of the Brighton Code. In addition, the University requests that the South Campus Rezone Property be re-subdivided in accordance with the Resubdivision Plan set out in Figure 5. The re-subdivision is simply a request to maintain parcels 1 and 2, the two separate parcels north of East River Road, and combine the contiguous University owned properties of the Rezone Property between East River Road and Crittenden Road, for which there are nine unique tax parcels, into a single tax parcel. The nine properties that will make up the proposed parcel 3 total 168.26 acres.

Because the South Campus property is located within 500 feet of NYS Route 390, a State Highway, the project was referred to the Monroe County Planning Department pursuant to New York General Municipal Law § 239-m.

The Incentive Zoning Provisions of the Comprehensive Development Regulations of the Code of the Town are contained in Chapter 209, §§ 209-1 et seq. § 209-3 contains a list of permissible amenities. §209-5, Criteria and Procedure for Approval, sets out the information required of the applicant regarding the amenities and incentives. Accordingly, the University has offered the following:

<table>
<thead>
<tr>
<th>Proposed Amenities</th>
<th>Dollar Value</th>
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<tr>
<td>1. Donation of Parcel 4 south of Crittenden Road</td>
<td>$265,000</td>
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<tr>
<td>2. Additional Landscape buffer</td>
<td>$100,000</td>
</tr>
<tr>
<td>3. Additional 50 ft. (no build) buffer</td>
<td>$55,500</td>
</tr>
<tr>
<td>4. Elimination of access to Crittenden Road</td>
<td>$1,000</td>
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The benefits provided by the proposed amenities described above go hand-in-hand with the implementation of the Town's Comprehensive Plan, as implemented in part by existing laws and ordinances of the Town. Parcel 4 (depicted on Figure 3) will provide the citizens of the Town with a large parcel of land that the Town may choose to utilize for active and/or passive recreational opportunities or simply for undeveloped open space. These are all goals annunciated by the Town. The additional 50 ft. buffer area, additional landscape buffer plantings and the restriction on access to
Crittenden Road are in the nature of reducing possible impacts of the University's South Campus future development on the surrounding neighbors beyond which might be required by the existing laws and ordinances of the Town. Reductions in impact would include visual, noise, traffic, drainage and also the retention of more natural areas, which have real but non-quantifiable benefits.

Because the current application (with incentive zoning treatment) is for rezoning, i.e., a reclassification of land, the discussion of a preliminary indication of adequacy of utilities, transportation and fire protection facilities is not as relevant as it might be for projects which request incentive zoning treatment for the immediate construction of a given facility. However, this document does include several analyses including a drainage analysis, utilities analysis, and traffic impact analysis. No buildings are proposed as the University has indicated in its discussions over the last four years with the Town and citizens of the Town; rather, the University seeks the rezoning for long range planning, i.e., over the next 20-25 years. The rezoning to IPD now will permit the University to establish and enhance landscape and other buffering for the benefit of neighbors and will also permit the University to plan for future development. Any proposal for building construction will necessarily entail the further and more detailed investigation and assurance regarding utility systems, transportation and fire protection facilities.

B. Requested Incentives

As part of its application for rezoning of the South Campus to an IPD district, the University has requested the following incentives:

- The rezoning itself, though the University fully believes that its request for rezoning to an IPD district could stand on its own merits under conventional rezoning principles.

- In the areas of higher density, depicted on Figure 6, a maximum height of 90 ft. and maximum development of 14,000 square feet per acre.

- In the areas of medium density, depicted on Figure 6, a maximum height of 57 ft. and maximum development of 10,250 square feet per acre.

- The ability to develop up to 75% of the woodlot EPODs on the Property.
C. Location and Surrounding areas

The South Campus property is comprised of numerous parcels, including the previously recorded Lilac Park subdivision (south of Crittenden Road) consisting in total of approximately 230 +/- acres. The Rezone Property (188 +/- acres), i.e., the portion of the South Campus property which is intended to be rezoned IPD, is bounded on the north by Interstate Route 390, on the west by the former Lehigh Railroad right of way, on the east by West Henrietta Road, and on the south by Southland Drive and Crittenden Road. The balance of the South Campus property consists of the following two parcels: The Lilac Park Subdivision located to the south of Crittenden Road and east of the Lehigh Railroad ROW and totals approximately 42 acres, the remaining 25 acres is land that was formerly part of the Lehigh Valley Railroad right-of-way, and has since been sold to the Town of Brighton.

The surrounding land uses to the south of the South Campus is largely single family residential. To the north is Interstate 390, to the east is both single family and multi-family residential, and to the west is the former Lehigh Railroad ROW, and then single family residential.

D. Overview of purpose, need and benefit

The University has been performing long range planning efforts to project its facility needs over the next 20-25 years. The rezoning to IPD now will establish the Institutional Planned Development district and will provide the exact limits of said district. Doing so will allow the University to begin implementing several mitigating improvements now, well in advance of future development. Establishing the IPD district is important to the University in that it will allow the University to better plan for future development as funding needs and program planning must be established well in advance of actual development. Additionally, establishing the IPD will allow the University to better understand the direct impacts of the land use limitations placed upon it and seek site plan and building permit approvals without having to go through a rezoning procedure for each future project.

The benefits provided by rezoning include the donation of the proposed amenities described above and go hand-in-hand with the recommendations within the Town's Comprehensive Plan. Donation of the Lilac Park Subdivision will provide the citizens of the Town with a large parcel of land that the Town may choose to utilize for active and/or passive recreational opportunities or simply for undeveloped open space. These are all goals articulated by the Town. The additional 50 ft. of buffer area, which will be supplemented with additional landscaping, goes beyond the buffering recommended by the Town. Access to Crittenden Road, though it
would be useful to the University, will be restricted to emergency vehicles in order to address the Town’s concerns with increasing traffic on Crittenden Road. Emergency access to the site would be provided via the former railroad crossing, which is now part of the Lehigh Valley Recreational Trail. Additional benefits include addressing stormwater runoff and conveyance issues just north of Crittenden Road, which are existing problems that are not attributable to the University.

E. Overview of impacts

The rezoning action itself will not have an immediate noticeable impact, as no new buildings or other development are proposed with this action.

The Property contains federal wetlands and wooded areas, some mapped as Woodlot EPODs. Additionally, there are 140 trees, of varying size, species, and health that meet the Town’s criteria as being “significant trees” (defined as greater than 30-inches in diameter at breast height; dbh). The surrounding roadway network has large traffic volumes with existing congestion problems and would require significant improvements as future development occurs.

The maximum build out of the Property would require extensions and/or additional capacity to the existing infrastructure including water, sewer, roadway networks, and private utilities. Additional capacity/resources will also likely be needed to increase existing public safety capacity. Mitigation of the potential impacts of future development at South Campus will be coordinated with area infrastructure improvements that are currently planned or scheduled.

III. Required Permits/Approvals Subject to SEQR

A. Approvals Needed, Permits and Issuing Agencies

The requested approvals by the University is for a rezoning of the Rezone Property by the Town Board to IPD, which is a legislative action. The University has also requested that the Town Board treat this rezoning request under the incentive zoning provisions of the Comprehensive Development Regulations of the Code of the Town. Referral to the Planning Board has been made under both relevant provisions of the Code. Some of the amenities proposed by the University, such as buffering and landscaping, may entail a site plan approval from the Planning Board. Finally, a resubdivision approval from the Planning Board will be required.

Because the South Campus property is located within 500 feet of NYS Route 390, a State Highway, the project was referred to the Monroe
County Planning Department pursuant to New York General Municipal Law § 239-m.

IV. Purpose, Need and Benefit

A. Purpose of Action

The purpose of the rezoning request is to permit the University to engage in long term planning for its South Campus. Although no buildings are contemplated now, the rezoning will facilitate the orderly development of the South Campus.

B. Need the Action is Responding to

The University is a successful, nationally prominent institution of higher learning. In fact, according to published statistics it recently became the largest employer in Greater Rochester, with an undeniable economic impact on the region. It conducts world class research in world class facilities. The recent expansion of the Laboratory for Laser Energetics in the Town bears witness to this. The eventual, long term development of the South Campus will help the University to maintain its status as a distinguished institution. As the portion of the University located within the City completes its development, the South Campus will gradually become an area for the expansion and upgrading of University facilities.

C. Social Benefits

A first-rate university contributes considerable non-quantifiable benefits to its community, which enjoys a reputation as a place where talented individuals come to live and work. Those individuals become involved, contributing members of their neighborhoods and region.

In addition, the long term planning enabled by the rezoning provides the means to add buffering and landscaping to the area, which will minimize any intrusion and, with the addition of the eventual transportation and utility infrastructure improvements, will help continue to make the surrounding area an attractive place to live.

D. Economic Benefits

The above-referenced social benefits will help translate into widespread economic benefits. The world-class researchers will attract (and have attracted) sizeable governmental and private research dollars to the local
community. The presence of faculty, staff, and students translates to stability in the area’s residential tax base, and sales tax revenue. The development of the South Campus will boost the building, material and trades industries which, in turn, produce a similar ripple effect in terms of sales tax and real property taxes. Spin off companies (which have become routine developments as research projects have led to commercial applications) will create the same dynamics described above. Such companies have already created hundreds of jobs in the local economy and an unknown number of new products produced, sold, and purchased throughout the county, country, and world.

E. Other Benefits

Greater Rochester’s economic, social, and cultural life is being increasingly shaped—positively—by the rich array of colleges and universities in the area. The presence of the University of Rochester in the Town of Brighton (as well as the City of Rochester) makes the Town “home” to an institution of increasing importance in the years to come. These benefits are in direct contrast to the “brain drain” being experienced throughout Western New York, as college educated young adults are fleeing Upstate New York for more attractive climates.

V. Environmental Setting

A. Topography, Geology & Soils

The general topography of the South Campus is relatively flat. A series of shrub and forested areas are located throughout the region. Some minor topographic features include small, slightly elevated knobs and ridges that direct storm water runoff short distances into adjacent watercourses and wetland areas. The area to the south of Crittenden Road, Lilac Park Subdivision, generally slopes from south to north. Refer to Figure 7.
The natural soils occurring within the boundaries of the South Campus consist of eleven different soil types, according to Monroe County Soil Survey. There is a twelfth, made soil type (placed by man and naturally occurring in the location) occurring in a thin strip on the northern boundary, at Interstate 390, along the Erie Canal waterfront. Refer to Figure 8 for a map of the soil types and Table 1 for a list of the soil types.
Table 1 - Soil Types

<table>
<thead>
<tr>
<th>Soil Type</th>
<th>Soil Name</th>
<th>Slope</th>
<th>Estimated Percent Coverage of Site</th>
<th>Approx. Location on Site (Property #’s)</th>
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<tbody>
<tr>
<td>Cu</td>
<td>Cosad loamy fine sand</td>
<td>—</td>
<td>34%</td>
<td>1-9, 12</td>
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<tr>
<td>CoB</td>
<td>Colonie loamy fine sand</td>
<td>0% - 6%</td>
<td>24%</td>
<td>1-6, 9, 10, 12</td>
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<tr>
<td>ClA</td>
<td>Claverack loamy fine sand</td>
<td>0% - 2%</td>
<td>15%</td>
<td>3, 4, 9, 10, 12</td>
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<tr>
<td>ElA</td>
<td>Elnora loamy fine sand</td>
<td>0% - 2%</td>
<td>5%</td>
<td>9, 11, 12</td>
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<tr>
<td>HIA</td>
<td>Hilton loam</td>
<td>0% - 3%</td>
<td>4%</td>
<td>12</td>
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<tr>
<td>CoB</td>
<td>Cayuga silt loam</td>
<td>2% - 6%</td>
<td>3%</td>
<td>12</td>
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<tr>
<td>Le</td>
<td>Lakemont silt loam</td>
<td>—</td>
<td>3%</td>
<td>4, 9-12</td>
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<tr>
<td>Oda</td>
<td>Osessa silt loam</td>
<td>0% - 2%</td>
<td>3%</td>
<td>4</td>
</tr>
<tr>
<td>Mb</td>
<td>Made land along canal</td>
<td>—</td>
<td>3%</td>
<td>1, 2</td>
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<tr>
<td>SeA</td>
<td>Schoharie silt loam</td>
<td>0% - 2%</td>
<td>2%</td>
<td>1</td>
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<tr>
<td>CoC</td>
<td>Colonie loamy fine sand</td>
<td>6% - 12%</td>
<td>2%</td>
<td>12</td>
</tr>
<tr>
<td>CIA</td>
<td>Collamer silt loam</td>
<td>0% - 2%</td>
<td>1%</td>
<td>9, 11</td>
</tr>
<tr>
<td>SeB</td>
<td>Schoharie silt loam</td>
<td>2% - 6%</td>
<td>1%</td>
<td>12</td>
</tr>
</tbody>
</table>

The predominant soil types (approximately 73% coverage of the Rezone Property) and limitations are described according to the following.

The Cosad Series
The Cosad series consists of deep, somewhat poorly drained, coarse-textured, level soils. A seasonal high water table is within 6 to 12 inches of the surface and is perched above the slowly permeable substratum. Permeability of the surface layer and subsoil is rapid. The depth to bedrock is typically greater than six feet. Development limitations of the Cosad soils are due to a seasonal high water table and wet soil conditions.

The Colonie Series
The Colonie series consists of deep, well drained to excessively drained, coarse-textured soils. A seasonal high water table rarely rises to within 4 feet of the surface and is normally much deeper. Permeability is rapid to a depth of 6 feet or more. The depth to bedrock is typically greater than six feet. Development limitations of the Colonie soils are due to the sand content. The sand is subject to sloughing during excavation, differential settlement, and variable compressibility that could lead to extensive settling due to heavy or vibratory loads.

The Claverack Series
The Claverack series are deep, moderately well drained, coarse-textured, soils that border or occur in old glacial lakebeds. A seasonal high water table is approximately 18 to 24 inches below the surface and is perched...
above the slowly permeable substratum. The high water table does not persist for long periods. Permeability of the sandy surface layer and subsoil are moderately rapid to rapid. The depth to bedrock is typically greater than six feet. Development limitations of the Claverack soils are due to a seasonal high water table and potential for the sand to slough during excavation.

Monroe County Soil Survey
A review of the Monroe County Soil Survey (USDA, March 1973) indicates one seasonal drainage in the northern portion of the site. Associated with gently sloping lands, the soil types are described below and shown in Figure 4, of the wetlands report.

CeB—Cayuga silt loam, 2 to 6 percent slopes—this series is a deep, well-drained and moderately well drained soil with a medium-textured surface layer and a fine textured to moderately fine textured subsoil. A seasonal high water table rises to within 18 to 24 inches of the surface and is perched above the moderately slowly to slowly permeable subsoil. This soil has relatively high clay content. This soil is well suited to all close-growing crops and moderately suited to intertilled crops. Water erosion, compaction, and clodding are concerns. Some areas may need drainage.

CkA—Claverack loamy fine sand, 0 to 2 percent slopes—this is a deep, moderately well drained coarse-textured soil that borders or occurs in old glacial lakebeds. A seasonal high water table exists like the previous soil. The soil is suited to most crops. Seasonal wetness and dryness are the main limitations. Soil blowing after dry periods may be severe.

CIA—Collamer silt loam, 0 to 2 percent slopes—this soil is a deep, moderately well drained, medium-textured soil. A seasonal high water table rises to within 18 to 24 inches of the surface and is perched on the moderately slowly or slowly permeable subsoil. Available water capacity is high. It is suited to commonly cultivated crops. Seasonal wetness and erosion are concerns.

CoB—Colonie loamy fine sand, 0 to 6 percent slopes—this is a deep, well-drained to excessively drained, coarse-textured soil. The Colonie soils formed in water-laid or wind blown deposits of fine sand in association with old lake beds. A seasonal high water table rarely rises to within 4 feet of the surface. The available water capacity is low. Left exposed, soil blowing is a serious hazard. It is suited to most crops; however, soil blowing and lack of adequate moisture are significant limitations.

CoC—Colonie loamy fine sand, 6 to 12 percent slopes—this soil carries the limitations of the previous CoB even further. It is poorly suited to most crops except specific fruit crops. Droughtiness, susceptibility to soil blowing, and slope limit this soil for crops.
Cu—Cosad loamy fine sand—this is made up of deep, somewhat poorly drained, coarse-textures soils. A seasonal high water table is within 6 to 12 inches of the surface and is perched above the slowly permeable substratum. Permeability of the surface layer and subsoil is rapid. Available water capacity is very low to moderate in the sandy upper part of the profile. This soil is moderately suited to most commonly cultivated crops and also to pasture and woodland. Drainage is a major management problem.

EIA—Elnora loamy fine sand, 0 to 2 percent slopes—this is a nearly level, moderately well drained soil formed in glacial lake and beach sediments dominated by sand. An apparent seasonal high water table rises into the lower part of the subsoil in early spring and wet periods. Permeability is rapid and rooting depth is limited. The soil has a fair potential for farming: pasture, cultivated crops and fruit. Seasonal high water table, sandy surface layer, and low available water capacity are the main limitations.

HIA—Hilton loam, 0 to 3 percent slopes—this is a deep, moderately well drained, medium textured and moderately coarse-textured soil that formed in glacial till. A seasonal high water table rises to within 18 to 24 inches of the surface and is perched above the moderately slowly to slowly permeable underlying till. This soil is suitable to most field crops, cash crops, fruit, hay, pasture, and woodland. Improved drainage is generally needed.

Le—Lakemont silt loam—this is a deep, poorly drained to very poorly drained soil with a medium-textured surface layer and a fine-textured subsoil. It is a level to nearly level soil formed in high-lime lacustrine clay and silt. A seasonal high water table is at or nearly at the surface and persists for a significant length of time. Runoff is very slow and many areas are ponded. Pasture grasses and wetness tolerant trees are suitable. Prolonged wetness is a major management concern.

OdA—Odessa silt loam, 0 to 2 percent slopes—this is a deep, level to gently sloping, somewhat poorly drained soil with a medium-textured surface layer and a fine-textured subsoil. A seasonal high water table is within 6 to 12 inches of the surface and is perched above slowly permeable subsoils. Available water capacity is moderate to low. This soil is suited to crops, pasture, and woodland. Adequate drainage facilitates agricultural activities.

SeA—Schoharie silt loam, 0 to 2 percent slopes—this is a deep, moderately well drained to well drained soil with a medium-textured or moderately-fine textured surface layer and fine to moderately-fine textured subsoil. A seasonal high water table rises to within 18 to 24 inches of the surface during wet seasons. Available water capacity of the root zone (20-30
inches) is moderate to high. This soil can be used for crops, pasture, or woodland. Seasonal wetness and timing of agricultural practices to maintain tilth are management concerns.

SeB—Schoharie silt loam, 2 to 6 percent slopes—this soil is characterized the same as the previous SeA except having slightly more slope. Compaction, again, is the major management concern.

The USDA Natural Resource Conservation Service (USDA SCS, 1989) has determined the Lakemont soil series to be hydric soil. The Cosad and Odessa series may have hydric soil inclusions. Cayuga, Claverack, Collamer, Colonie, Elnora, Hilton and Schoharie series are determined to be non-hydric. Artificial drainage (ditches, stream excavations, tile, etc.) may affect the relative suitability of soils for various crops, forest species, and certainly other developments.

B. Water Resources, Stormwater Runoff

The Rezone Property study area was divided into 5 separate drainage areas (subareas), as shown on Figure 9 to determine the existing drainage patterns. Subarea 1 consists of 62.3-acres located in the northwest portion of the Rezone Property, Subarea 2 consists of 52.3-acres located in the northeast portion of the Rezone Property, Subarea 3 consists of 37.9-acres located in the middle portion of the Rezone Property including the Whipple Park Apartments, Subarea 4 consists of 36.4-acres located in the southern portion of the Rezone Property, north of Crittenden Road, and Subarea 5 consists of 41.5-acres located south of Crittenden Road (Lilac Park Subdivision). Within the boundaries of the Rezone Property there are three primary watercourses / drainage ways. The watercourses serve as discharge channels for stormwater runoff from the adjacent topography and direct the discharge to Red Creek. The total acreage of the drainage subareas is greater than that of the Rezone Property as the topography of the area is such that off-site areas drain toward the Rezone Property directing surface and sub-surface flows in the general direction of the Rezone Property.

The first watercourse collects drainage from Subarea 1 and is located within University property numbers 3, 5, 6, and 7. The upstream end of the watercourse is located immediately north of the Whipple Park apartments and flows from east to west. The discharge from this watercourse is directed to Red Creek. It is located primarily within a forested wetland area in University properties 5 and 6. Stormwater runoff is received predominantly from regions to the north and east of the watercourse. The topography to the north slopes in the southwest direction. The slope on the east side directs runoff approximately due west into the watercourse. A second, minor drainage-way, which flows southwardly with stormwater
runoff collected from the immediate surrounding topography in property number 3, confluences into the main watercourse from wooded wetlands to the north. The watercourse directs the storm water west to the western boundary of the Rezone Property to an existing 24-in x 18-in stone culvert. The culvert was built for the construction of the Lehigh Valley Railroad and is in good condition. The areas upstream and downstream of the culvert are overgrown. Beyond the culvert and western boundary of the Rezone Property, the watercourse continues to direct stormwater west through a small section of residential subdivision, and discharges to Red Creek. The stormwater runoff rates from Subarea 1 are presented in Table 2.

The second watercourse within the Rezone Property collects drainage from Subarea 3 and is located in University property number 8 and flows east to west. This watercourse directs the storm water to the existing wetland located adjacent to the Lehigh Valley Trail and ultimately discharges to Red Creek via an 18-in culvert, following the natural border of vegetation. The 18-in culvert could not be located due to standing water and brush overgrowth. This watercourse confluences with another, smaller watercourse that flows from the northeast. This secondary channel lines part of the eastern side of the wetland and crosses a section of the wetland before entering the primary part of the stream. The adjacent topography to the south of the watercourse slopes to the north directing stormwater runoff to the watercourse. The adjacent topography to the east directs runoff westerly into both forks of the stream. The stormwater runoff rates from Subarea 3 are presented in Table 2.

The third watercourse collects drainage from Subarea 4. This watercourse is also known as Furlong Creek. It is located primarily in University property number 9. The creek crosses the Lehigh Valley Recreational Trail via a 30-in x 36-in stone culvert before discharging to Red Creek. The culvert was built for the construction of the Lehigh Valley Railroad and is in good condition. The areas upstream and downstream of the culvert are overgrown. The topography on the southeast edge of this section of the stream slopes to the west, while slopes on the northwest side of this section incline in a southeastern direction toward Furlong Creek. There is a second watercourse from the northwest that confluences with Furlong Creek. Runoff entering the watercourse at the forked section predominantly originates from regions to the north with slopes directed southeasterly. The stormwater runoff rates from Subarea 4 are presented in Table 2.

The drainage from Subarea 2 is directed to an existing detention pond located east of the Laser Lab/C01. The outlet of the detention pond directs the stormwater north thru a 48-in closed drainage system to the existing stormwater facilities at Interstate 390. The stormwater facilities at Interstate 390 are maintained by the New York Department of Transportation. The drainage from Subarea 5 flows to the north, across
Crittenden Road, and discharges to Furlong Creek, which directs the stormwater west and ultimately discharges to Red Creek. The stormwater runoff rates from Subarea 2 and 5 are presented in Table 2.

Table 2 – Stormwater Runoff Rates

<table>
<thead>
<tr>
<th>Drainage Area</th>
<th>Pre-Development</th>
<th>Design Storm</th>
<th>Area (acres)</th>
<th>Weighted CV*</th>
<th>Tc (hrs)</th>
<th>Runoff (cfs)</th>
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<tr>
<td><strong>Subarea 1</strong></td>
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<td>1yr</td>
<td>10-yr</td>
<td>100-yr</td>
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<td></td>
<td>62.3</td>
<td>74</td>
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<td>Frog Pond drainage area</td>
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<tr>
<td>Furlong Creek drainage area</td>
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<td>Lilac Park Subdivision</td>
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*The Curve Number (CN) shown is a weighted calculation based on percentages of undeveloped ground cover and impervious surfaces per subarea. Refer to the Drainage Report in Appendix X for the drainage computations.

The watercourses located on the Rezone Property are heavily vegetated and overgrown. The overgrowth on the stream decreases the conveyance capabilities of the streams. Additionally the streams flow through relatively flat topography. Potential flooding problems may arise around the locations of the streams due to the lowered conveyance capabilities and the low velocities of the streams because of the flat terrain. These problems are evident at the drainage way located behind the homes along the northern side of Crittenden Road, south of the Rezone Property. The property owners in this area have experienced some occasional flooding during wet periods.

The complete drainage report examined the existing drainage problems both on-site and off-site. Off-site problems, in general occur south and west of the Rezone Property and occur for a few primary reasons: 1) drainage from areas south of Crittenden Road is being directed toward Red Creek via an enclosed roadside drainage system which surfaces in the form of a small drainage swale in the back yards of the affected Crittenden properties; 2) the area between the Rezone Property and the houses on Crittenden Road is a low-lying area and has created a "bowl" effect, whereby water from the south and east and to a lesser extent the north is directed. Water settles in the "bowl" and has difficulty escaping because of
the lack of topographic relief; 3) the drainage system between the Rezone Property and Red Creek lacks topographic relief, there is less than 12-inches of fall between the Rezone Property and Red Creek. The lack of relief slows conveyance, as have obstacles such as overgrown drainage channels and debris. The drainage ways beneath the Lehigh Valley Recreational Trail were cleared out as part of the Lehigh Valley Recreational Trail improvements.

The University of Rochester will participate in a future drainage study of the overall watershed to identify the problem areas to improve storm water flow through these areas. Floodplain mapping will also be part of the study. The study will be undertaken by the University, the Town of Brighton, and Monroe County.

The Rezone Property is not located in the 100-yr floodplain as shown on the Federal Emergency Management Agency (FEMA) floodplain maps (Community – Panel No: 360410 005, Effective Date: June 18 1980). The floodplains along the existing watercourses on the Rezone Property have not been mapped by FEMA, but will be determined at the time of final design. Any and all impacts to flood storage volume will be compensated for on site. A full drainage report is included as Appendix A.

C. Terrestrial and Aquatic Ecology

An Ecological Assessment performed for the study area revealed that the site is primarily dominated by successional northern hardwoods, successional old fields and shrubland, and various wetlands. The site lacks unique plant communities and/or natural features that may support rare plant species, or habitat for threatened or endangered wildlife.

Woodlot Tree Survey

The entire project site (including all non-forested land) was completely surveyed by walking the site looking for unique or significant trees. A unique or significant tree is any living tree that measures 30 inches or greater in diameter at breast height. This definition is consistent with Town of Brighton Code, Chapter 175-2, and “Significant Town Tree”. The location of each unique tree was marked with a GPS coordinate, measured with a diameter tape, identified as to genus and species and was rated for condition.

To assess condition, Urban Forestry, LLC utilized the principles outlined in the 9th Edition of the Council of Tree and Landscape Appraisers Methodology in assessing the condition of a tree. A visual inspection of the trees roots, root crown, trunk, scaffold branches and branches is
completed. Each part is assessed for health and structure. The health evaluation includes evaluating the presence of disease and quantifying growth. The structure evaluation includes evaluating branching attachments and the presence of defects that may represent a failure risk. Trees are assigned a condition as follows.

**Good Condition**
Tree Health
- Disease – None or Insignificant
- Growth – Increasing
Structure
- No or insignificant defects

**Fair Condition**
Tree Health
- Disease – Minor
- Growth – Maintaining/Stagnant
Structure
- Minor Structural Defects

**Poor Condition**
Tree Health
- Disease – Significant Presence
- Growth – Decreasing
Structure
- Significant Structural Defects
- Structural Failures Imminent

**Very Poor Condition**
Tree Health
- Disease – Severe Presence
- Growth – Severe Decline, Large Branch Death
Structure
- Severe Structural Defects
- Tree is in Structural Failure

The tree survey was conducted by Development Pod and the results of the survey are as follows (see Appendix B for full Woodlots report).

**Pod 1 – 5.96 Acres**
Total Trees: 416
95% Confidence Interval: +/-392 trees

Vegetation Characteristics
Pod 1 contained a small section of woods (0.77 acres) that was dominated by pioneer tree species such as green ash, cottonwood, buckthorn, and elm. The woods are characteristic of sites in urban areas that have been
previously disturbed. Over 90 percent of the trees are less than 12 inches in diameter and most trees were in fair or poor condition. Nearly 20 percent of the trees were found to be dead. There were no trees greater than 30 inches in diameter in Pod 1.

Pod 2 - 8.48 Acres
Total Trees: 2035
95% Confidence Interval: +/-1081 trees

Vegetation Characteristics
This Pod was sampled as completely forested. It contained trees characteristic of urban disturbed land such as cottonwood, green ash, American elm, and buckthorn. The site is dominated by swamp and low areas and also contains trees associated with these sites such as red and silver maple, and green ash. There are mixed northern hardwoods such as oak, cherry and tulip tree on the higher grounds. Most trees in this Pod are in smaller size classes and are less than 12 inches in diameter and are in fair or poor condition. There were 6 trees that were 30 inches or greater in diameter.

Pod 3 - 14.23 Acres
Total Trees: 1264
95% Confidence Interval: +/-590 trees

Vegetation Characteristics
Pod 3 was partially forested and contained 3.95 acres of woods. The vegetation was dominated by pioneer species such as green ash, cottonwood, American elm, and boxelder. Bottomland trees such as silver maple, black willow, and cottonwood and are present in the low areas. The majority of trees are less than 12 inches in diameter (83%) and three significant trees were found that are greater than 30 inches in diameter. Most trees (83%) are in fair or poor condition.

Pod 4 - 8.39 Acres
Total Tree: 797
95% Confidence Interval: +/-369

Vegetation Characteristics
Pod 4 was sampled as partially forested with 5.09 acres of tree cover. The center area of the Pod had been cleared. The site contained mixed hardwoods such as red oak, white ash, black cherry, and red maple as well as pioneer species such as aspen and hawthorn. Most trees were less than 12 inches in diameter (72%) although some areas contained larger hardwoods ranging from 19 to 42 inches in diameter. Condition class rating showed that most trees were not in good condition, as 83% were rated as fair, poor or dead. Eleven trees greater than 30 inches in diameter were found in Pod 4.
Pod 5 - 21.78 Acres
Total Trees: 1692
95% Confidence Interval: +/-392 trees

Vegetation Characteristics
Pod 5 was sampled as partially forested with 9.4 acres of woods. The Pod was dominated by mature to over mature mixed hardwoods including red oak, sugar maple, black cherry, red maple, pignut hickory and white ash. There are low areas in the Pod with silver maple, red maples and green ash. Seventy-one percent of the trees are less than 12 inches in diameter, although nearly 20% are greater than 19 inches. Eighty percent of the trees were rated in good or fair condition although many of the larger hardwoods are in poor condition. There were 39 trees greater than 30 inches in the wooded areas of Pod 5.

Pod 6 - 5.06 Acres
Total Trees: 1316
95% Confidence Interval: +/- 443 trees

Vegetation Characteristics
This Pod was sampled as completely forested. It contains intermixed stands of northern hardwoods such as red oak, tulip tree, hickory and black cherry, and bottomland trees in low areas such as red maple, green ash, American elm and willow. There are pioneer species on the stand edges such as cottonwood and buckthorn. Most trees are in the smaller diameter ranges although there are larger mature hardwoods on the site and 44 trees that were 30 inches or greater in diameter were identified. Most trees are in fair or poor condition.

Pod 7 - 6.32 Acres
Total Trees: 1648
95% Confidence Interval: +/- 421 trees

Vegetation Characteristics
This Pod was sampled as completely forested. Most of the trees are pioneer species on disturbed lands, such as green ash, cottonwood and aspen, black cherry, and American elm. There were scattered northern hardwoods such as red and pin oaks. Most trees (86%) were less than 12 inches in diameter and were in fair to poor condition. No unique trees greater than 30 inches in diameter are present in Pod 7.

Pod 8 - 6.72 Acres
Total Trees: 1302
95% Confidence Interval: +/- 603 trees
Vegetation Characteristics
Pod was sampled as completely forested. Nearly all of the trees are pioneer species on disturbed lands, such as green ash, willow, cottonwood and aspen, black cherry, and American elm. Most trees (85%) were less than 12 inches in diameter and were in poor to very poor condition. A single unique tree greater than 30 inches in diameter was found in Pod 8.

Pod 9 – 7.41 Acres
Total Trees: 2387
95% Confidence Interval: +/- 559

Vegetation Characteristics
This Pod was sampled as completely forested. Stand characteristics were dominated by pioneer species such as green and white ash, aspen, black cherry, crabapple, and buckthorn. There were mixed bottomland hardwoods in some locations such as bur oak, silver maple, pin oak and red maple. The vast majority of trees are 12 inches in diameter or less and are in good or fair condition. Eight trees over 30 inches in diameter are present in this Pod.

Pod 10 – 23.0 Acres
Total Trees: No forested areas;
Standard Error (SE): na

Vegetation Characteristics
This Pod currently is completely developed and contained less than an acre of forested land. Twenty-eight trees greater than 30 inches were found in the ground survey of the entire Pod.

A total of 140 significant trees were identified on the Rezone Property. Of these 14 were identified as being in Good Condition, 92 were identified as being in Fair Condition, 26 were identified as being in Poor Condition, and 8 were identified as being in Very Poor Condition.

Wetlands Delineation and Assessment

A formal wetland delineation has been completed for the entire 230+/- acres of University property. This delineation followed the guidelines as established in the US Army Corps of Engineers 1987 Wetland Delineation Manual. The results of this delineation are summarized in the Wetland Delineation Report in Appendix G.

This study area generally lies south of Interstate Highway I-390 and east of the former Lehigh Valley Railroad and Rochester Gas and Electric Power Line Rights Of Way (ROW). To the south, the property extends 1900+/- feet south of Crittenden Road and 1100+/- feet east of the ROW. From
Crittenden Road northward, the east and south boundaries are coincident with existing residential development. The study area encompasses a wide variety of developed and undeveloped lands.

Developments include substantial administrative and research facilities, a former school complex with accompanying parking lots, and grounds along East River and Kendrick Roads and Murlin Drive. The last major development is a housing complex east of the southern third of Murlin Drive.

The remainder of the study area (about two-thirds) is undeveloped with only incidental trails. A wide variety of habitats exist from old-field, shrub/scrub, successional forest, hardwood forest and wetlands (emergent to wet woods). The occurrence of this amount of relatively wild lands, not in a park system, in as urban a community as Brighton, is indeed unusual. The myriad habitats and variety of wildlife species residing here are considerable assets.

Resource Information
To determine the possibility of wetlands occurring within the study area, the following background information was collected and reviewed.

United States Geologic Survey (USGS) Topographic Map
The project site is located within the West Henrietta, New York Quadrangle Map. This map shows a total relief of 25+/- feet across the entire site. The area has gentle slopes in all directions, however, has a prevalent fall to the west and north. While obvious drainage patterns are expected, no streams, ponds, or defined waterways are shown.

US Fish and Wildlife Service National Wetlands Inventory (NWI) Map
The NWI map in Figure 2, of the wetlands report, indicates three suspected wetlands on the project site described as follows:

- PFO/SS1E (palustrine forested/scrub-shrub, broad-leaved deciduous, seasonally saturated. (Note: This area coincides with delineated Wetlands J and K located north of Westfall Road.)
- PFO1A (palustrine, forested, broad-leaved deciduous, temporary). (Note: Mapped as two separate areas these wetlands coincide with delineated Wetlands G and Fin the central and southern portions of the site.)
NYS Freshwater Wetland Map
As shown in Figure 3, of the wetlands report, no NYSDEC wetlands are shown to be present on the site, although, BR-16 is located just south and east of the parcel south of Crittenden Road.

Wetland Delineation Methodology

A wetland delineation including detailed data collection and boundary identification was performed on June 24, July 13, 14, 18, and 21, 2005, by wetlands ecologist Gene Pellett and wildlife biologist John Hauber. During the field investigation, the boundaries of all wetlands within the study area were flagged using surveyor’s ribbon or specifically noted on appropriate mapping. Data was collected from a thorough assessment of the property; particular attention was given to suspected hydric and potentially hydric soils.

Wetlands on site were delineated according to the methodology described in the 1987 Corps of Engineers Wetland Delineation Manual (hereafter referred to as the 1987 Manual) (Environmental Laboratory, 1987). Observations of vegetation, soils, and hydrologic conditions were used to determine the boundaries of federally and state regulated wetlands. Data sheets were completed for the sample plots, including verifying upland points, and are presented in Appendix B. Representative photographs were taken of the wetland, as well as adjacent uplands, and are presented in Appendix C (the locations of the photographs are indicated in Appendix A, Figure 5).

Vegetation data collection focused on dominant plant species in four categories: trees (>3” DBH), sapling/shrubs (<3.2’ tall), woody vines, and herbs (<3.2’ tall). Dominance was measured by visually estimating those species having the largest relative basal area (trees), greatest density (saplings/shrubs), greatest number of stems (woody vines), and greatest percentage of aerial coverage (herbs) by species. The species were rank-ordered for each category by decreasing value of percent cover.

The dominate species for each category are defined as those plants with the highest ranking which, when cumulatively totaled, exceed 50 percent of the total dominance measure for that category, plus any additional plant species comprising 20 percent or more of the total dominance measure for the category. The indicator status for each species was determined by reference to the National List of Plant Species that Occur in Wetlands: Northeast (Region 1) (Reed, 1988), or by reference to species habitat descriptions from various botanical sources for those species not on the national list. Scientific nomenclature for plant species follows that in A Checklist of New York State Plants (Mitchell, 1986). A sampling plot was determined to have wetland vegetation if 50 percent or more of all
dominate plant species are of facultative (FAC), facultative wetland (FACW), or obligate (OBL) indicator status, as described in the 1987 Manual.

Soils information was collected using a Dutch soil auger. Information concerning soil series, subgroup, drainage classification, texture, and matrix and mottle color was obtained at each sample location. Soil color was determined using Munsell Soil Color Charts (Kollmorgen Corp., 1992).

Hydrologic characteristics (inundation and soil saturation) were visually assessed to a depth of sixteen inches. The 1987 Corps Manual lists the following indicators as evidence of wetland hydrology: (1) visual observation of inundation, (2) visual observation of soil saturation, (3) watermarks, (4) drift lines, (5) sediment deposits, (6) absence of leaf litter, (7) encrusted detritus, and (8) drainage patterns. Based on professional judgment, the following additional indicators were also used as evidence of wetland hydrology: (1) water-stained leaves, and (2) oxidized rhizospheres.

Instrument Survey

An instrument survey of the delineated wetland boundaries was completed by Douglas Magde, LS during August 2005 and is shown in Figure 5 of the wetlands report.

D. Land Use and Zoning

The existing zoning of the study area is residential with permitted lot sizes ranging from 7,000 square foot lots in the southern portion of the property to 13,500 square foot minimum lot sizes in the northern portion. Under existing zoning the maximum buildout of the study property is approximately 137 units, assuming 80 percent of the non-developed land was developed. An 80 percent development assumes 20 percent of the land is set aside for roadway infrastructure, stormwater management areas, and lands unsuitable for development.

The current land use of the study area includes:

- Vacant land north of East River Road to property boundary (at Route 390)
- Two (2) existing office building complexes with associated drives and parking areas just south of East River Road
- Whipple Park graduate housing in the south east corner of the property with 33 buildings and associated drives and parking
- All other areas are open space
The University currently leases a total of 388,514 square feet of space in the Town as shown in Table 3, below. The size of the office spaces and terms of the leases vary for each of the 29 separate leases that the University maintains. It is not anticipated that these current spaces could accommodate the 20-year growth that the University is planning for. The rezoning of the South Campus is in anticipation of needing additional medical and administrative office space in the future. While some of the leases currently held could be affected when and if the South Campus were developed, it is difficult to estimate at this time. The decision to not renew the leases will be made on a case-by-case basis taking into consideration economics, space needs, and building availability.

Table 3 – University Leases in Town of Brighton

<table>
<thead>
<tr>
<th>Rentable Square Feet</th>
<th>Address</th>
<th>Lease Expiration Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>3,000</td>
<td>1815 Clinton Ave. South (330)</td>
<td>1/31/2008</td>
</tr>
<tr>
<td>1,500</td>
<td>1815 Clinton Ave. South (440)</td>
<td>7/31/2006</td>
</tr>
<tr>
<td>2,863</td>
<td>1815 Clinton Ave. South (450)</td>
<td>6/30/2007</td>
</tr>
<tr>
<td>178</td>
<td>1820 Clinton Ave. South</td>
<td>3/31/2005</td>
</tr>
<tr>
<td>23,660</td>
<td>2180 Clinton Ave. South</td>
<td>9/30/2006</td>
</tr>
<tr>
<td>12,000</td>
<td>2337 Clinton Ave. South</td>
<td>5/31/2011</td>
</tr>
<tr>
<td>20,055</td>
<td>2365 Clinton Ave. South</td>
<td>1/1/2014</td>
</tr>
<tr>
<td>27,125</td>
<td>2425 Clinton Ave. South (Bldg. G)</td>
<td>1/31/2016</td>
</tr>
<tr>
<td>55,572</td>
<td>2425 Clinton Ave. South (Bldg. H)</td>
<td>8/31/2014</td>
</tr>
<tr>
<td>4,875</td>
<td>2425 Clinton Crossings (Bldg. F)</td>
<td>3/31/2012</td>
</tr>
<tr>
<td>14,100</td>
<td>155 Corporate Woods (130)</td>
<td>8/31/2008</td>
</tr>
<tr>
<td>39,340</td>
<td>30 Corporate Woods (100)</td>
<td>2/28/2009</td>
</tr>
<tr>
<td>2,899</td>
<td>30 Corporate Woods (120)</td>
<td>2/28/2009</td>
</tr>
<tr>
<td>2,678</td>
<td>30 Corporate Woods (200)</td>
<td>1/31/2007</td>
</tr>
<tr>
<td>1,256</td>
<td>30 Corporate Woods (280)</td>
<td>1/31/2004</td>
</tr>
<tr>
<td>2,462</td>
<td>1655 Elmwood Ave. (125)</td>
<td>10/31/2008</td>
</tr>
<tr>
<td>375</td>
<td>1 Johnsrarbor Drive West</td>
<td>12/31/2001</td>
</tr>
<tr>
<td>102,224</td>
<td>4901 Lac De Ville Blvd</td>
<td>1/31/2017</td>
</tr>
<tr>
<td>6,560</td>
<td>100 Meridian Centre (125)</td>
<td>9/30/2010</td>
</tr>
<tr>
<td>6,479</td>
<td>2030 Monroe Ave. (Upper)</td>
<td>7/31/2010</td>
</tr>
<tr>
<td>800</td>
<td>2030 Monroe Ave. (Lower)</td>
<td>4/1/2008</td>
</tr>
<tr>
<td>7,142</td>
<td>995 Senator Keating Blvd (Bldg E, 200)</td>
<td>12/31/2008</td>
</tr>
<tr>
<td>3,215</td>
<td>995 Senator Keating Blvd (Bldg E, 205)</td>
<td>12/14/2009</td>
</tr>
<tr>
<td>28,590</td>
<td>2611 West Henrietta Road</td>
<td>4/30/2020</td>
</tr>
<tr>
<td>1,420</td>
<td>919 Westfall Road (Bldg B)</td>
<td>4/3/2002</td>
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<tr>
<td>6,112</td>
<td>919 Westfall Road (Bldg C)</td>
<td>1/31/2005</td>
</tr>
<tr>
<td>934</td>
<td>200 White Spruce Blvd.</td>
<td>6/30/2007</td>
</tr>
<tr>
<td>1,800</td>
<td>377 White Spruce Blvd.</td>
<td>6/30/2008</td>
</tr>
<tr>
<td>9,400</td>
<td>400 White Spruce Blvd.</td>
<td>11/30/2011</td>
</tr>
</tbody>
</table>

388,614 Total

* The Corporate Woods leases are for administrative space, the balance of the leases are for medical office space.
As demonstrated in the table above, the University's lease agreements contain a variety of leased areas and have lease expiration dates that range from January 31, 2004 through April 30, 2020.

E. Historical and Archeological Resources

The Phase IA investigation included archival and documentary research, field inspection of the project area, and photographic documentation of site conditions. Files at the New York State Office of Parks, Recreation, and Historic Preservation were reviewed to identify known prehistoric or historic sites and structures listed in New York State and National Registers of Historic Places that may lie within the area of potential effect.

The results of background research and field investigation indicate that undisturbed portions of the project area are sensitive for prehistoric and historic cultural resources. In addition, three historic structures are located adjacent to the proposed project area. Historic map analysis identified one map documented structure within the northwest portion of the project area. No evidence of the structure was identified during the field inspection. Site file research also revealed two recorded sites (one historic, one prehistoric) within the APE (areas of potential effect). Immediately east of the project area along West Henrietta Road is the Warrant Homestead site (NYSM 2552). The early nineteenth century homestead was moved from its original location near East Henrietta Road (OPRHP A05501.000014). Its present surroundings include modern structures and highways. Two additional adjacent structures are present-day 1211 and 1233 Crittenden Road, both of which date to the early part of the twentieth century. The structure located at 1233 Crittenden Road is depicted on a 1902 Town of Brighton map.

The results of the Phase IA investigation reveal that approximately 84 acres within the study area have been impacted by modern development. These locations are no longer archaeologically sensitive. In addition, approximately seven acres in the west central portion of the project area is heavily inundated. Refer to Figure 16 for areas of the Rezone Property that have been disturbed and are no longer considered archeologically sensitive.

A Phase 1B investigation is not considered appropriate at this time in part because of the size of the Rezone Property and that there are no specific development proposals considered. It is recommended that a Phase 1B investigation be conducted when a specific project site and proposal is identified within the Rezone Property. It is anticipated that these efforts would be conducted as part of the SEQAR review through the Town's established site plan approval procedures.

The full Phase IA investigation report is included as Appendix C.
F. Traffic / Transportation Network

The Rezone Property is primarily accessed from East River Road, at Murlin Drive, opposite Kendrick Road. There are several major roadways that serve the South Campus property including the following: Interstate Route 390, West Henrietta Road, East Henrietta Road, and Crittenden Road. The following is a description of major roadways within the study area, which were examined as part of this analysis.

**NY Route I-390:**
I-390 traverses north-south in the vicinity of the site and is considered a principal arterial Expressway. As documented by the New York State Department of Transportation, I-390 carried approximately 100,894 vehicles per day south of exit 15 (junction with I-590) in 2003.

**NY Route I-590:**
I-590 traverses north-south in the vicinity of the site and is considered a principal arterial interstate. As documented by the New York State Department of Transportation, I-590 carried approximately 69,432 vehicles per day east of exit 15 (junction with I-390) in 2001.

**NY Route 15 (West Henrietta Road):**
NY Route 15 traverses north-south and is considered a principle arterial. As documented by the New York State Department of Transportation, NY Route 15 carried approximately 32,150 vehicles per day south of Brighton-Henrietta Road in 2003 and 31,537 vehicles per day north of Brighton-Henrietta Road in 2002. North of NY Route I-390, in 2002, NY Route 15 carried approximately 21,005 vehicles per day; and north of NY Route 15A, in 2001, NY Route 15 carried approximately 23,701 vehicles per day.

**NY Route 15A (East Henrietta Road):**
NY Route 15A traverses north-south and considered a principle arterial. As documented by the New York State Department of Transportation, NY Route 15A carried approximately 26,125 vehicles per day north of Brighton-Henrietta Road in 2001. South of Westfall Road, in 2003, NY Route 15A carried approximately 31,748 vehicles per day; and south of NY Route 15, in 2001, NY Route 15A carried approximately 11,633 vehicles per day.

A full Traffic Impact Study (TIS) was completed as part of this document presented in Appendix 'D'. The TIS study area includes 23 intersections; the traffic analysis examines the traffic volumes and potential impacts of the full build scenario.

Traffic volumes and turning movement counts were obtained from the July 2001 Southern Corridor Study, presented in Appendix ‘F’ of the TIS located
in Appendix 'D' of the DGEIS. These counts were recorded between April 21st and May 9th, 1997 by The Sear-Brown Group during the weekday hours of 7:00AM-9:00AM and 4:00PM-6:00PM. The peak hours occurred from 7:30 AM - 8:30 AM and 4:30 PM - 5:30 PM.

The 2003 existing traffic volumes were obtained by applying a 1.5 percent growth rate per year to the 1997 traffic volumes to account for normal growth throughout the development area. This growth factor was developed from the growth rates used in the Southern Corridor Mobility Study and was based on future land use projections. The existing traffic volumes for the weekday morning and weekday evening peak hours are shown in Figures 2 and 3, in Appendix 'C' of the TIS located in Appendix 'D' of the DGEIS.

The Southern Corridor Mobility Study evaluated the current and future operational needs of I-390/NY 15/NY 15A interchanges. Proposed improvements that will have an effect on the future traffic patterns within the study area include construction of a new I-390 Southbound exit ramp at Brighton-Henrietta Townline Road (BHTLR), currently under construction. Also proposed is the rehabilitation/ reconstruction of I-390 from the Genesee River to I-590, rehabilitation/reconstruction of numerous bridges, new frontage roads, and access ramps for NY 15 and NY 15A, tentatively scheduled for the year 2013. The Southern Corridor Mobility Study looked at several improvement plans and determined Alternative Plan #5 should be pursued, as it provided the most benefit for the cost. This alternative plan and traffic volumes from the Southern Corridor Mobility Study are provided in Appendix 'F' of the TIS located in Appendix 'D' of the DGEIS.

An intersection capacity analysis was performed for the signalized and unsignalized intersections in the study area to show existing operating conditions in terms of Levels of Service (LOS). The computer software package SYNCHRO 5.0 was used to analyze each of the studied intersections and to provide an illustrative model of how the intersections work together. The following intersections are currently experiencing poor operating conditions of LOS 'E' or worse:

- Intersection #3 - NY 15 (W. Henrietta Rd) @ I-390 NB on Ramp (PM LOS F),
- Intersection #4 - NY 15 (W. Henrietta Rd) @ East River Rd (AM & PM LOS F),
- Intersection #5 - NY 15A (E. Henrietta Rd) @ I-390 NB on Ramp (AM LOS F),
- Intersection #6 - NY 15A (E. Henrietta Rd) @ I-390 SB on Ramp (PM LOS F),
- Intersection #7 - NY 15A (E. Henrietta Rd) @ Crittenden Rd (AM LOS E).
Accident rate history was obtained from the MCDOT for the most recent three years (1999 – 2001). The following intersection and roadway segments currently exceed the County average accident rates:

- Mt.Hope Ave/East Henrietta Rd/Crittenden Blvd/Ft. Hill intersection
- Mt. Hope Ave/Elmwood Ave intersection
- Mt. Hope Ave (Westfall/Westmoreland Rd to Elmwood Ave)
- East Henrietta Rd (Westfall Rd to Mt. Hope/Crittenden/Ft. Hill)

No updated information is available from the NYSDOT since the information provided in the Southern Corridor Mobility Study.

G. Utilities / Energy

Potable Water
The Monroe County Water Authority (MCWA) maintains the public water supply distribution system in and around the Rezone Property. The public water supply maintained by MCWA connects to the City of Rochester water supply distribution system at a valve located immediately west of the Lehigh Valley Trail along East River Road. The water distribution system consists primarily of 8-in ductile iron water main.

The water supply distribution line along Crittenden Road flows east to west. Westerly flow also occurs along Richardson Road, the southern road in Whipple Park and on a small section of Murlin Drive located in property 5. The water supply distribution line along East River Road flows west to east.

There is a water tower, referred to as the West Brighton Water Tank, located near the southwest corner of University property number 12. The tank is 110 feet tall with a fill time of approximately 5.5 hours and a 12-inch valve at 72 psi. It has a holding capacity of 0.3 million gallons (MG), with a usable capacity 0.2 MG. The base of the tank is located at an elevation of 560 feet. The normal refill level is at 650 feet, with a normal high water level of 658.5 feet and an overflow elevation of 670 feet.

Hydrant Flow Data

East River Road / Kendrick Road Intersection
Date of Test: 11/3/04
- Static Pressure = 54 psi
- Residual Pressure = 36 psi
- Observed Flow = 909 gpm
- Flow at 20 psi = 1,281 gpm

Lantern Lane (near intersection with West Henrietta Road)
Date of Test: 5/10/01
- Static Pressure = 48 psi
• Residual Pressure = 36 psi
• Observed Flow = 955 gpm
• Flow at 20 psi = 1,509 gpm

Richardson Road (near intersection with Murlin Drive)
Date of Test: 9/9/05
• Static Pressure = 48 psi
• Residual Pressure = 42 psi
• Observed Flow = 969 gpm
• Flow at 20 psi = 2,270 gpm

Crittenden Road (in front of house #1350 on the north and house #1291 on the south)
Date of Test: 9/9/05
• Static Pressure = 56 psi
• Residual Pressure = 43 psi
• Observed Flow = 1,054 gpm
• Flow at 20 psi = 1,827 gpm

Hydraulic Demands
Based on the hydrant flow data provided by MCWA, the normal average pressure of the water distribution system in the vicinity of the Rezone Property is approximately 50 psi and the available flow at 20 psi is approximately 1,200 – 2,200 gpm. The demand on the existing water distribution system in the vicinity of the Rezone Property generally consists primarily of residential users (average 320 gpd/home – 0.2 gpm/home) with few commercial users, and few institutional / educational users, such as the existing facilities located on the Rezone Property (see below for the existing demands). The hydrant flow tests that were performed on the system represent the status of the water distribution system, including all existing demands on the system.

Table 4 - Existing Water Usage at the Rezone Property

<table>
<thead>
<tr>
<th>Building</th>
<th>Size</th>
<th>Estimated Occupancy (Persons)*</th>
<th>Estimated Flow Rate</th>
<th>Total Estimated Flow Rate (GPD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nuclear Research Facility</td>
<td>43,888 SF Footprint</td>
<td>VACANT</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>River Road Buildings</td>
<td>47,700 SF Footprint</td>
<td>345 persons</td>
<td>10 gal/day per person</td>
<td>3,450</td>
</tr>
<tr>
<td>Laser Lab/COI</td>
<td>176,100 SF Footprint</td>
<td>380 persons</td>
<td>10 gal/day per person</td>
<td>3,800</td>
</tr>
<tr>
<td>Whipple Park Apartments</td>
<td>Various</td>
<td>250 units</td>
<td>240 gal/day per unit</td>
<td>60,000</td>
</tr>
</tbody>
</table>

* Provided by the University of Rochester
Maintenance/Easements

MCWA maintains the existing water distribution system throughout the Town of Brighton. MCWA maintains 10, 15, and 20-ft easements for the water distribution system located outside roadway right of ways and within U of R owned property. These easements are for the water mains only, all domestic connection lines are considered on private property and are not under easement.

Sanitary Sewer

The Town of Brighton Department of Public Works maintains the existing gravity sanitary sewer system throughout the Town of Brighton. In the vicinity of the Rezone Property, the sanitary sewer directs wastewater to two sanitary pump stations maintained by Monroe County Pure Waters (MCPW).

Wastewater Distribution System

The wastewater from the Rezone Property and the adjacent residential district, located east of the Rezone Property, including Southland Drive, Doncaster Road, Furlong Road, Sylvia Road, half of the residences located on Sunnyside Drive, and the apartment complex located north of Sunnyside Drive, is directed to the MCPW Pump Station (Brighton #5 Pump Station) located at 289 East River Road through an 18-in trunkline and a 10-in trunkline. This system will be the focus of the analysis. The wastewater generated from the properties to the south is directed to the MCPW Pump Station (West Henrietta Pump Station) located at 2613 West Henrietta Road. The residences located on Crittenden Road west of Crittenden Way do not discharge to the existing sanitary sewer system. These residences are on privately maintained septic systems.

The 18-in reinforced concrete pipe (RCP) trunkline originates at a manhole at the northeasterly most boundary corner of the Whipple Park Apartments. A 12-in sanitary forcemain from the West Henrietta Pump Station discharges to the manhole. The 18-in sewer conveys the wastewater from the 12-in forcemain westerly across the northern portion of the Whipple Park Apartments, then turns north directing the wastewater towards East River Road passing through the Rezone Property west of the River Road Buildings. At East River Road the 18-in trunkline turns east to Kendrick Road where the sanitary sewer again turns north directing the wastewater to the Monroe County Pump Station located at 289 East River Road. The sanitary sewer at the Whipple Park Apartments consists of 8 and 10-in sewer pipes that collect the sanitary wastewater from the apartments and directs it to the 18-in trunkline. The River Road Buildings
discharge wastewater to the 18-in trunkline via a lateral connection. There are no other connections to the 18-in trunkline.

The 10-in sanitary trunkline directs the wastewater collected in the residential districts located east of the Rezone Property. The 10-in sanitary line runs northerly passing through the Rezone Property east of the Laser Lab/COI to East River Road. At East River Road, the 10-in trunkline turns west to Kendrick Road where the sanitary sewer increases to 12-in and again turns north directing the wastewater to the Monroe County Pump Station located at 289 East River Road. The Laser Lab/COI and Nuclear Research Facility discharge to the trunkline via lateral connections. The sanitary sewer system tributary to the 10-in trunkline consists of 8-in sewers, which discharge to the 10-in trunkline at the intersection of Southland Drive and Sylvia Street.

Refer to Figure 2, of the sanitary sewer report, for a schematic of the existing sanitary sewers in the vicinity of the Rezone Property.

Sanitary Pump Stations

**Brighton #5 Pump Station**
Monroe County Pure Waters (MCPW) maintains the Brighton #5 Pump Station located at 289 East River Road. The wastewater from the University of Rochester Rezone Property and the adjacent residential district, located east of the Rezone Property, including Southland Drive, Doncaster Road, Furlong Road, Sylvia Road, half of the residences located on Sunnyside Drive, and the apartment complex located north of Sunnyside Drive, is directed to Brighton #5 Pump Station. The pump station consists of 3 variable-speed, continuous run pumps each with a rating of 1,920-gpm at 50-ft head. The pump station has the capacity to pump at 2,100-gpm. Based on recent record data provided by MCPW the pump station pumps at an average rate of 700-gpm and a peak rate of 1,300-gpm. The pump station discharges thru a 12-in forcemain that directs the wastewater north.

**West Henrietta Pump Station**
Monroe County Pure Waters (MCPW) maintains the West Henrietta Pump Station located at 2613 West Henrietta Road. Wastewater from the Town of Brighton and the Town of Henrietta is directed to the West Henrietta Pump Station. The pump station consists of 3 variable-speed, continuous run pumps. Two pumps have a rating of 800-gpm at 60-ft head and one pump has a rating of 800-gpm at 57-ft head. Based on recent record data provided by MCPW the pump station pumps at an average rate of 600-gpm and a peak rate of 1,100-gpm. The pump station discharges thru a 12-in forcemain that directs the wastewater north to the 18-in trunkline located at the northeasterly most boundary corner of the Whipple Park
Apartments. The 18-in trunkline directs the wastewater to the Brighton #5 Pump Station.

Maintenance/Easements

The Town Department of Public Works maintains the existing gravity sanitary sewer system throughout the Town of Brighton. The Town maintains 20-ft easements for gravity sanitary sewer lines located outside roadway right of ways and within University owned property. MCPW maintains the Brighton #5 Pump Station and the West Henrietta Pump Station. MCPW owns the properties that the pump stations are located at and maintains 20-ft easements for the 12-in force mains.

 Capacities

The capacities of the various sewers were determined utilizing Manning's Equation and a roughness coefficient of 0.013. The capacities of the analyzed sewers are as follows:

- 8" @ 0.40% - 345 gpm
- 10" @ 0.28% - 520 gpm
- 12" @ 0.22% - 765 gpm
- 18" @ 0.12% - 1,670 gpm

The capacities of the pump stations were taken from record data provided by MCPW. The capacities are as follows:

- West Henrietta Pump Station - 1,100 gpm +/-
- Brighton #5 Pump Station - 2,100 gpm

Sanitary Loading

The sanitary sewer tributary to the Brighton #5 Pump Station is the area of focus for this analysis because it includes the Rezone Property. The existing sanitary loading was determined from record mapping, record data from MCPW, data provided by the University, and projected loading rates from Table 3 of the New York State Department of Environmental Conservation (NYSDEC) Design Standards for Wastewater Treatment Works. Peak sanitary loading rates were determined utilizing record data from MCPW and the calculated average daily flow with a peaking factor of 2.5. The tables below summarize the calculated sanitary loading on the sanitary sewer tributary to the Brighton #5 Pump Station.
<table>
<thead>
<tr>
<th>Building (Sewer)</th>
<th>Size</th>
<th>Estimated Occupancy</th>
<th>Estimated Flow Rate</th>
<th>Total Estimated Flow Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nuclear Research Facility (10&quot; Trunkline)</td>
<td>43,888 SF Footprint</td>
<td>VACANT*</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>River Road Buildings (18&quot; Trunkline)</td>
<td>47,700 SF Footprint</td>
<td>345 persons*</td>
<td>10 gal/day per person</td>
<td>3,450 gpd (3 gpm)</td>
</tr>
<tr>
<td>Laser Lab/COI (10&quot; Trunkline)</td>
<td>176,100 SF Footprint</td>
<td>380 persons*</td>
<td>10 gal/day per person</td>
<td>3,800 gpd (3 gpm)</td>
</tr>
<tr>
<td>Whipple Park Apartments (18&quot; Trunkline)</td>
<td>Various</td>
<td>250 units*</td>
<td>240 gal/day per unit</td>
<td>60,000 gpd (42 gpm)</td>
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<tr>
<td>Residences East of Rezone Site (10&quot; Trunkline)</td>
<td>3 bdrm/home</td>
<td>275 homes</td>
<td>320 gal/day per home</td>
<td>88,000 gpd (62 gpm)</td>
</tr>
<tr>
<td>West Henrietta Pump Station (18&quot; Trunkline)</td>
<td>-</td>
<td>-</td>
<td>600 gpm**</td>
<td>(600 gpm)</td>
</tr>
</tbody>
</table>

*Provided by the University of Rochester

**MCPW Record Data

- Total Average Daily Flow to 10" Trunkline = 65 gpm
- Total Average Daily Flow to 18" Trunkline = 645 gpm
- Total Average Daily Flow into Brighton #5 Pump Station = 710 gpm
Table 6 – Peak Sanitary Sewer Flows

<table>
<thead>
<tr>
<th>Building (Sewer)</th>
<th>Average Daily Flow</th>
<th>Peeking Factor</th>
<th>Total Estimated Peak Flow Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nuclear Research Facility (10&quot; Trunkline)</td>
<td>0</td>
<td>2.5</td>
<td>0</td>
</tr>
<tr>
<td>River Road Buildings (18&quot; Trunkline)</td>
<td>3 gpm</td>
<td>2.5</td>
<td>7.5 gpm</td>
</tr>
<tr>
<td>Laser Lab/COI (10&quot; Trunkline)</td>
<td>3 gpm</td>
<td>2.5</td>
<td>7.5 gpm</td>
</tr>
<tr>
<td>Whipple Park Apartments (18&quot; Trunkline)</td>
<td>42 gpm</td>
<td>2.5</td>
<td>105 gpm</td>
</tr>
<tr>
<td>Residences East of Rezone Site (10&quot; Trunkline)</td>
<td>62 gpm</td>
<td>2.5</td>
<td>155 gpm</td>
</tr>
<tr>
<td>West Henrietta Pump Station (18&quot; Trunkline)</td>
<td>-</td>
<td>-</td>
<td>1,100 gpm*</td>
</tr>
</tbody>
</table>

*MCPW Record Data

- Total Peak Flow to 10" Trunkline = 165 gpm (< 520 gpm capacity)
- Total Peak Flow to 18" Trunkline = 1,215 gpm (< 1,670 gpm capacity)
- Total Peak Flow into Brighton #5 Pump Station = 1,375 gpm; say 1,380 gpm

Based on a meeting with MCPW on September 2nd, 2005 and the available data there are no existing capacity problems with the sanitary sewer or pump stations on or tributary to the University of Rochester Rezone Property.

Infiltration

Based on a meeting with MCPW and the available record data provided by MCPW, there are no current investigations into infiltration or concerns with infiltration of the sanitary sewers on or tributary to the University of Rochester Rezone Property. For additional detail on the wastewater distribution system refer to the Sanitary Sewer Report included in Appendix F.
Monitoring

The existing sanitary sewer will be monitored by the University of Rochester to verify and document the existing sanitary flow rates and reserve capacity of the 10-in and 18-in trunklines. The monitoring process will involve placing a number of flow meters in-line along the sewers at locations in conjunction with the Town Department of Public Works to record the flow rates from February thru April. The recorded data will be used to determine the feasibility for future connections to the sewer based on available capacity.

Easements/ ownership requirements for future connections

The Town of Brighton maintains 20-ft easements for sanitary sewer lines located outside roadway right of ways and within University owned property. Public sanitary sewer does not service the area south of Crittenden Road (Lilac Park Subdivision). The University owns the necessary land and will be able to provide the necessary easements for all future connections for required facilities. Non-routine easements, for actions other than service connections are not anticipated as a result of future development.

Discharges requiring protection under Chapter 149 of Town Code

The University does have a hazardous waste program whereby all waste going down the drain is regulated. The University actually collects and reprocesses much of the chemical waste it produces. Currently, the University does not discharge any of the listed items within Chapter 149 of the Town Code and clearly complies with the Town code.

Future proposals for building on the Rezone Property will conform to the requirements of Chapter 149 of the Town code and to the University's established hazardous waste management program. The University's Hazardous Chemical Waste Management Program Learner's Guide is provided as Appendix H.

Electricity

Rochester Gas and Electric Corporation (RG&E) maintains the electric service lines located in the vicinity of the Rezone Property. RG&E provides electric service to the Whipple Park Apartments and the existing River Road institutional buildings located within the Rezone Property. RG&E also provides electric service along Crittenden Road. There is a 20-ft easement for electric lines maintained by RG&E located along the western boundary of the Rezone Property, adjacent to the Lehigh Valley Rail Trail.
The remaining undeveloped portions of the Rezone Property do not contain electric service lines.

The University also supplies electric service to existing facilities located within the Rezone Property. The University maintains a 34.5 kV substation, which is powered from a 34.5 kV RG&E line, located on Kendrick Road behind the Nuclear Research Facility. The substation provides electric service to the Nuclear Research Facility and the Laser Lab/COI. The estimated electric use within the Rezone Property is presented in Table 4. Refer to Figure 11 for a schematic of the gas and electric lines at the South Campus.

<table>
<thead>
<tr>
<th>Service</th>
<th>kWh</th>
<th>Peak kW</th>
<th>Transformer size (kVa)</th>
</tr>
</thead>
<tbody>
<tr>
<td>South Campus Electric</td>
<td>23,000,000</td>
<td>2,487</td>
<td>5,000</td>
</tr>
<tr>
<td>River Road Bldgs Electric</td>
<td>1,070,000</td>
<td>320</td>
<td>RG&amp;E</td>
</tr>
<tr>
<td>Whipple Park Apts Elec (House services only, not individual apts)</td>
<td>465,030</td>
<td>196.4</td>
<td>RG&amp;E</td>
</tr>
</tbody>
</table>

*Information provided by the University of Rochester

Natural Gas

RG&E maintains the natural gas service pipelines located within the Rezone Property. Gas lines and laterals provide service to the Whipple Park Apartments, Nuclear Research Facility, Laser Lab/COI, and the River Road institutional buildings. Gas service is located along the western side of U of R property # 1, East River Road, West Henrietta Road, and Crittenden Road. The estimated gas use within the Rezone Property is presented in Table 5. Refer to Figure 11 for a schematic of the gas and electric lines at the University of Rochester South Campus.
TABLE 8 – Existing Estimated Gas Usage*

<table>
<thead>
<tr>
<th>Service</th>
<th>Annual Dekatherms</th>
<th>Peak DT/HR</th>
</tr>
</thead>
<tbody>
<tr>
<td>NSRL Gas</td>
<td>730</td>
<td>0.7</td>
</tr>
<tr>
<td>COI/LLE Gas</td>
<td>26,586</td>
<td>6.75</td>
</tr>
<tr>
<td>Whipple Park Apts Gas</td>
<td>21,500</td>
<td>7.5</td>
</tr>
<tr>
<td>River Road Buildings Gas</td>
<td>7,235</td>
<td>3.0</td>
</tr>
</tbody>
</table>

*Data provided by the University

FIGURE 11 – Existing Gas and Electric Infrastructure
Telecommunications

Frontier Telephone Company of Rochester ("FTR") maintains the telephone service lines located within the Rezone Property. Underground telephone lines service the Whipple Park Apartments. Above ground telephone lines run east/west along the southern border of University Property #4 until West Henrietta Road, where the lines run north/south to East River Road, then run east/west along the northern border of University Property #4. University Property #2 is serviced by above ground telephone lines from East River Road. University Property #11 is serviced by above ground telephone lines from Crittenden Road. The remaining undeveloped portions of the Rezone Property do not contain telephone service lines. FTR maintains the utility poles along the above ground lines.

H. Community & Neighborhood Character

The surrounding land use to the south of the Rezone Property is largely single family residential. To the north is Interstate 390, to the east is also single family residential, and to the west is the former Lehigh Valley Railroad right-of-way, and then single family residential.

The Town Comprehensive Plan, completed in 2000, has a land use plan for the future. The study area is known in this document as area 13, which is described as follows:

"Area 13 is owned by the University of Rochester (with the exception of 0.4 acres owned by Monroe County Pure Waters). It includes research facilities north and south of East River Rd., the Whipple Park university housing development and open space areas between East River Rd. and Crittenden Rd. The area has access from E. River Rd. and potential access from Crittenden Rd., and contains woodlots and a small federal wetland area."

The recommendation for this area in the Comprehensive Plan states the following:

Recommendation for the area north of the southern end of Whipple Park:

The area north of the southern end of Whipple Park is recommended for institutional use compatible with the existing U of R facilities. Any institutional development of this area should be based upon a Comprehensive Plan for the entire area that has been approved by the town. The master plan
should include: a buffer that is substantially wider than the 50 feet currently required by town regulations between the institutional district and any surrounding residential development; a buffer along the abandoned Lehigh Valley Rail ROW; access only from East River Rd. (no access from Crittenden Rd.); building uses and orientations; a transition of intensity of building and impervious coverage from south to north; and a drainage plan.

Recommendation for the area south of Whipple Park:
The area to the south of Whipple Park is recommended for low-density residential development with minimum ½ acre lots. This would allow for development compatible with surrounding residential areas and sensitive to the area’s environmental constraints.

The area north of Whipple Park is recommended for future land use as a continuation of the IPD, identical to the recommendations of the Comprehensive Plan. The land south of Whipple Park, however, is also proposed as IPD, which differs from the Comprehensive Plan recommendation for low density (one lot per ½ acre) residential.

The land south of Crittenden that the University owns, known as Lilac Park Subdivision, which is approximately 42 acres, is proposed to be donated to the Town as part of the incentive zoning package. This land is cited in the Comprehensive Plan as a priority area to acquire for Town parkland or open space. This area is also adjacent to the Lehigh Valley Recreational Trail.

I. Police/Fire/Ambulance Service

Police
The Brighton Police Department (BPD) is staffed by 40 sworn officers and 12 full and part-time civilians. The number of officers has remained constant for the last 15 years. BPD has a well-earned reputation as a professional police force that is responsive to the needs of Brighton residents and businesses and has instituted numerous programs to interact with, educate and inform the Brighton community. Based on data from University Security Reports, the South Campus averaged 155 incidents a year over the past five years (2000 – 2004). Not all of these incidents involved a response by BPD, but were listed as actions that might warrant a response from BPD. These incidents include responding to intrusion alarms and criminal-type complaints.

The table below summarizes all of the calls made to one of the emergency response agencies between 2000 and 2005 for the South Campus
(including the LLE/COI building, the River Road Buildings, and the Whipple Park apartments). These buildings total 689,900 SF; resulting in a yearly rate of 1 call per every 4,451 square feet. A vast majority of these calls were responded to by University forces and did not require responses from Town forces.

Table 9 – Emergency Responses for South Campus Property

<table>
<thead>
<tr>
<th>SECURITY REPORTS</th>
<th>2000</th>
<th>2001</th>
<th>2002</th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
<th>6/30</th>
<th>YTD</th>
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<tr>
<td>Actual</td>
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<td>Estimated</td>
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<td></td>
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<td></td>
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<tr>
<td>Fire Investigations</td>
<td>2</td>
<td>4</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>Fire Alarms **</td>
<td>8</td>
<td>16</td>
<td>11</td>
<td>17</td>
<td>12</td>
<td>5</td>
<td>8</td>
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<tr>
<td>Medical Assistance</td>
<td>1</td>
<td>2</td>
<td>5</td>
<td>6</td>
<td>5</td>
<td>1</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Agency Assist</td>
<td>8</td>
<td>16</td>
<td>13</td>
<td>9</td>
<td>9</td>
<td>6</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Criminal *</td>
<td>2</td>
<td>4</td>
<td>31</td>
<td>26</td>
<td>22</td>
<td>26</td>
<td>23</td>
<td></td>
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<tr>
<td>Intrusion Alarms</td>
<td>48</td>
<td>96</td>
<td>85</td>
<td>123</td>
<td>128</td>
<td>86</td>
<td>214</td>
<td></td>
</tr>
<tr>
<td>LLE Vault ***</td>
<td>[1]</td>
<td>[2]</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>EH&amp;S Issues</td>
<td>2</td>
<td>4</td>
<td>3</td>
<td>4</td>
<td>2</td>
<td>0</td>
<td>3</td>
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<table>
<thead>
<tr>
<th></th>
<th>2000</th>
<th>2001</th>
<th>2002</th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
<th>6/30</th>
<th>YTD</th>
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</tr>
<tr>
<td></td>
<td>71</td>
<td>142</td>
<td>150</td>
<td>183</td>
<td>182</td>
<td>129</td>
<td>264</td>
<td></td>
</tr>
</tbody>
</table>

* number of criminal incidents - not all involved a police response
* previous report listed inaccurate counts 'or fire alarms
* vault is likely the only area that would require a Brighton PD response

Fire

The study area is located in the West Brighton Fire Protection District. The West Brighton Fire Protection District is one of two Fire Districts within the Town. The West Brighton Fire Protection District contracts with the West Brighton Fire Department, Inc. annually to provide fire protection and first responder emergency medical response. In addition, the Town contracts annually with the City of Rochester Fire Department for immediate response to reported structure fires and automatic fire alarms in specified commercial buildings such as hotels and high-rise office buildings.

The West Brighton Fire Department, Inc. is a fully volunteer fire department staffed by 30 volunteer men and women from within the district and adjoining Towns. Presently, there are 7 part-time paid firefighter/emergency medical technicians (fire protection district employees) that are on duty during the day from 8 AM to 5 PM Monday through Friday. The headquarters for the WFD is located at 2695 West Henrietta Road. A second station is located on Riverside Drive. Based on data provided from University Security Reports and the Town Fire Marshall the South Campus averaged 11 fire alarms and 4 fire investigations between 2000 and 2004.
The table below summarizes the calls reported to the Fire Marshall's office between 2000 and 2005.

Table 10 – Fire Related Calls for the South Campus

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
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</thead>
<tbody>
<tr>
<td>Actual</td>
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<td></td>
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<td>6/30</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>YTD (Annualized)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fire Investigations</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>Fire Alarms</td>
<td>8</td>
<td>16</td>
<td>7</td>
<td>16</td>
<td>11</td>
<td>5</td>
</tr>
<tr>
<td>Violations/Contractor</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

Ambulance Service

Brighton Volunteer Ambulance (BVA) is staffed by 60 volunteers and 3 full-time-equivalent paid staff. Approximately 51% of BVA's 1998-1999 budget was provided through special assessments on Brighton properties. In addition to providing emergency medical response service, BVA also provides: first aid to walk-in patients at their base at Westfall Rd. and Winton Rd.; the free loan of crutches, wheelchairs and walkers; free blood pressure checks and classes in first aid and CPR.

The Town also contracts annually with Rural-Metro Medical Services to provide EMS responses within the district between the hours of 6PM and 6AM. Based on data provided from University Security Reports the South Campus averaged 13 medically related responses between 2000 -2004. See Table 8 above, for additional information related to the number of medically related responses to the South Campus properties.

VI. Potential Significant Adverse Impacts/Mitigation Measures

A. Topography, Geology & Soils

The Rezone Property contains areas that may preclude development due primarily to soil conditions. These areas consist primarily of the wetland areas. The wetlands are located in low-lying areas of the Rezone Property, where they receive runoff from adjacent upland topography. The wetlands also form in soil conditions with a high water table and slow permeability.

The primary watercourse or drainage ways should be avoided during development so that the existing drainage patterns are not significantly altered. The topography and soil conditions for the remainder of the Rezone Property would not preclude development. Depending on the jurisdictional determinations made by the New York State Department of Environmental Conservation and the United States Army Corps of
Engineers, development within 100-feet of the jurisdictional wetland areas would likely be off limits; though minor amounts of disturbance are permissible under the USACOE guidelines and procedures. The identified wetland areas are identified in Figure 15; for purposes of analyzing the potential for development on the Rezone Property, it was assumed that only the identified wetland areas would preclude development, all other areas of the Rezone Property are physically capable of facilitating single and multi-story structures.

Site Limitations

Slope – The topography of the action site is generally flat. There are some small, local variations in slope. The flat to varying topography of the site presents little limitations for potential development. There will be areas of the site that will require cut and fill practices and re-grading of the existing topography for any potential future development.

Soil Erodibility – There is potential for erosion both during and after any future construction. Most of the soil types on site have a moderate potential for runoff due to slow infiltration rates. A few small areas consist of soils with high runoff potential. These factors will not limit future development, provided erosion control measures, both temporary and permanent, are employed to ensure that erosion does not occur more frequently than under existing conditions.

Depth to Bedrock – According to the Monroe County Soils Survey, the depth to bedrock is greater than 4 – 6 feet. The bedrock is not anticipated to limit any future site development. Refer to the soil survey reference data in Appendix B.

Water Table – According to the Monroe County Soils Survey, the depth to the seasonal high water table throughout the majority of the site is greater than 18 to 24 inches. There are also several regions where it can rise to within 6 to 12 inches of the surface. The seasonal water table is not anticipated to limit any future development, however, future construction activities may require dewatering procedures, such as pumping, during excavations. In areas of poor drainage, the water table can actually rise to or above the surface level. These areas are typically located in wetland areas and will severely limit or preclude development. Refer to the soil survey reference data in Appendix B of the Drainage Report.

Infiltration Capacity – The infiltration capacity of the soils on the majority of the site have a slow infiltration rate when thoroughly wetted. They consist chiefly of soils with a layer that impedes downward movement of water or soils with a moderately fine texture. There are a few areas that consist of soils with somewhat better infiltration, as well as few areas with much worse infiltration capacity. The areas with the worst infiltration
typically consist of clay soils with a high swelling potential or soils with a permanent high water table. The infiltration capacity and permeability of the soils are also much less around the wetlands. For the majority of the action site, however, infiltration capacity will not limit future development. Information according to the Monroe County Soils Survey. Refer to the soil survey reference data in Appendix B of the Drainage Report.

It is the University’s intent to minimize the areas of disturbance, as much as can be practically limited. Pollution prevention and erosion and sediment control practices will be employed during construction activities. The primary objectives of the pollution prevention efforts are to control sediment and pollutants that originate on the site and prevent them from flowing to surface waters and to ensure that erosion is minimized. The objectives can be achieved during any future construction by utilizing temporary erosion and sediment control measures. The measures will include Best Management Practices (BMPs) conforming to the New York State Standards and Specifications for Erosion and Sediment Control. The techniques for controlling erosion and sediment during construction are likely to include the following:

- Providing sediment control practices located downstream of construction activities. The sediment control practices typically include silt fence, earthen diversion dikes, temporary swales, and sediment basins/traps. The downstream side of each practice should be undisturbed ground.
- All disturbed areas should be stabilized within 21 days when construction activities have temporarily or permanently ceased.
- Storm sewer inlet structures, if required, should be protected from sediment deposition.
- Swales and/or channels should include stone check dams to reduce the velocity of stormwater to non- erosive velocities.

Refer to the Drainage Report included in Appendix A for additional detail on Sediment and Erosion Control.

B. Water Resources, Stormwater Runoff

The possible development of the Rezone Property (188 +/- acres) was sectioned into 10 pods, each consisting of an estimate of potential development per pod, as presented in Figure 2. The area south of Crittenden Road, Lilac Park Subdivision, will be deeded to the Town. Estimated development per pod is shown in Table 10 below. This possible development of buildings and parking lots cover about 45 acres of the Rezone Property and include re-aligning a section of Murlin Drive where it intersects with East River Road.
Table 11 - Pod Potential Development Coverage Areas

<table>
<thead>
<tr>
<th>Pod Number</th>
<th>Building Area</th>
<th>Parking Area</th>
<th>Greenspace</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1.9 ac</td>
<td>1.1 ac</td>
<td>2.9 ac</td>
</tr>
<tr>
<td>2</td>
<td>3.1 ac</td>
<td>2.0 ac</td>
<td>3.4 ac</td>
</tr>
<tr>
<td>3</td>
<td>6.3 ac</td>
<td>3.7 ac</td>
<td>4.3 ac</td>
</tr>
<tr>
<td>4</td>
<td>2.6 ac</td>
<td>1.6 ac</td>
<td>4.2 ac</td>
</tr>
<tr>
<td>5</td>
<td>9.6 ac</td>
<td>5.9 ac</td>
<td>6.3 ac</td>
</tr>
<tr>
<td>6</td>
<td>2.3 ac</td>
<td>1.4 ac</td>
<td>1.3 ac</td>
</tr>
<tr>
<td>7</td>
<td>2.7 ac</td>
<td>1.6 ac</td>
<td>2.1 ac</td>
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<tr>
<td>8</td>
<td>2.2 ac</td>
<td>1.3 ac</td>
<td>3.1 ac</td>
</tr>
<tr>
<td>9</td>
<td>2.6 ac</td>
<td>1.6 ac</td>
<td>5.0 ac</td>
</tr>
<tr>
<td>10</td>
<td>No new development</td>
<td>11.3 ac</td>
<td>6.7 ac</td>
</tr>
</tbody>
</table>

Existing impervious surfaces cover about 8% of the Rezone Property north of Crittenden Road. The potential development, as shown, will increase this coverage by 16%. The stormwater run off from the potential developed areas will be collected in regional stormwater ponds. The run off from the remainder of the site will follow existing drainage patterns into the primary watercourses that flow off-site to Red Creek. The future development was divided into the same subareas as existing conditions. The estimated runoff rates, without the stormwater management facilities, are presented in Table 13.

The pre- and post-development run-off was calculated by using NRCS TR-55 methodology on Pond Pack, version 10.0, by Haestad Methods.

Pond Pack was used to determine pre- and post-development run-off volumes at peak discharge rates. The 1-yr, 10-yr, and 100-yr recurrences were the design storms utilized in the analysis, as stated in the New York State Storm Water Management Design Manual. The 25-yr design storm was utilized in the analysis, as well, per Town of Brighton requirements. The rainfall depths for the various storm events were taken from the “Rainfall List by County” in Appendix C of the Drainage Report (Appendix A). A type II synthetic rainfall distribution curve was used in the computations, as well.

The volume of required detention was determined by attenuating the 100-yr post-development run off to the 25-yr existing run off, as well as controlling all lesser events in the same manner, per the Town of Brighton requirements for the design of drainage systems.

See Figure B in Appendix A for drainage subarea locations.
### Table 12 - Site Run-off (pre-development)

<table>
<thead>
<tr>
<th>Drainage Area</th>
<th>Design Storm</th>
<th>Area (acres)</th>
<th>Weighted CN*</th>
<th>Tc (hrs)</th>
<th>Run off (cfs)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Subarea 1</strong></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Northern Red Creek Tributary drainage area</td>
<td>1-yr</td>
<td>62.3</td>
<td>74</td>
<td>0.5</td>
<td>19.4</td>
</tr>
<tr>
<td></td>
<td>10-yr</td>
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<td></td>
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<td>67.8</td>
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<td></td>
<td>25-yr</td>
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<td>87.9</td>
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<td></td>
<td>100-yr</td>
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<td>122.1</td>
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<td><strong>Subarea 2</strong></td>
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<td>Frog Pond drainage area</td>
<td>1-yr</td>
<td>52.3</td>
<td>83</td>
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<td></td>
<td>10-yr</td>
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<td>97.4</td>
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<td>100-yr</td>
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<td>126.6</td>
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<td><strong>Subarea 3</strong></td>
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<tr>
<td>Southern Red Creek Tributary drainage area</td>
<td>1-yr</td>
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<td>79</td>
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<td>Tc (hrs)</td>
<td>Run off (cfs)</td>
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<td>Lilac Park Subdivision; drains to Furlong Creek</td>
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</table>

* The Curve Number (CN) shown is a weighted calculation based on percentages of undeveloped ground cover and impervious surfaces per subarea. Refer to Appendix D for the drainage computations.

Based on allowable use and zoning, probable stormwater mitigation measures and pollution prevention devices that would be required for future development within the Rezone Property were developed for compliance with the Phase II requirements of the New York State Pollutant Discharge Elimination System (SPDES) General Permit GP-02-01 for stormwater discharges associated with construction activity and the Town of Brighton drainage requirements. The development of a Stormwater Pollution Prevention Plan (SWPPP) would be required for the final design of the stormwater management and pollution prevention of the development. The final design of the stormwater mitigation measures and development of the SWPPP for compliance with SPDES General Permit GP-02-01 would also incorporate the design standards and requirements of the Town of Brighton and the most recent report for the Irondequoit Creek Watershed Collaborative.
To meet the SPDES Phase II requirements, the 1-yr post-developed run-off volume should be detained for 24-hrs, the 10-yr and 100-yr post-developed run-off should be attenuated to existing, and stormwater quality treatment should be provided so that 80% Total Suspended Solids and 40% Total Phosphorous removal is achieved. To meet the Town of Brighton standards, the 100-yr post-development run off should be attenuated to the 25-yr existing run off rate. Therefore, utilizing the most stringent of the design requirements, the stormwater ponds will be designed to detain and outlet the 1-yr post-development over 24-hours per the SPDES Phase II requirements and attenuate the 100-yr post-development run off to the 25-yr existing run off, as well as controlling all lesser events in the same manner, per the Town of Brighton requirements for the design of drainage systems. Reduction of the peak post-development flows at the stormwater ponds will be achieved through the use of outlet structures that will allow varying discharge rates.

The highest concentration of pollutants present in stormwater occurs during the lower intensity rainfall events, more specifically in approximately the first 1/2-inch of run-off. To provide for greater water quality treatment, a water quality treatment volume will be determined and the storm water ponds “undercut” with deep pools to retain 100% of the water quality volume. The SPDES Phase II water quality criteria will be achieved by providing these “deep pool” areas at the inlet and outlet to the stormwater ponds. These measures should provide for adequate TSS and Phosphorus removal. The Irondequoit Creek Watershed Collaborative design standard for stormwater quality design specifies utilizing a rainfall depth of 1.0-in in determining the water quality treatment volume.

Based on the site conditions, the most applicable stormwater management design to achieve this criterion for any future development would be wet extended detention storm water ponds. Refer to Figure 12 for an example of an existing wet extended detention pond located within the Rezone Property at the Laser Lab/COI. The future design of the stormwater ponds would be similar to the existing pond.
Based on the potential development within the IPD area and the existing topography, stormwater management facilities have been located and sized. A summary of the stormwater ponds and associated volume of detention required is provided in Table 14, below.

<table>
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<th>Storm Water Pond</th>
<th>Volume of Detention Required (acre-ft)</th>
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<tbody>
<tr>
<td>1</td>
<td>4.6</td>
</tr>
<tr>
<td>2</td>
<td>4.8</td>
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<tr>
<td>3</td>
<td>2.1</td>
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<td>4</td>
<td>2.1</td>
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The outlet structures for Stormwater Pond 1 will direct the discharged stormwater overland to the northern most drainage way located on the site. The outlet structure at Storm Water Pond 2 will direct the discharged storm water to the existing NYSDOT storm sewer via a connection to the 48-in closed drainage system. The expanded portion of the existing detention pond will outlet the same as existing conditions. The outlet structure at Stormwater Pond 3 will direct the discharged stormwater overland to the southern most drainage way, and the outlet structure at Stormwater Pond 4 will direct the stormwater overland to Furlong Creek. In the event an outlet structure becomes plugged or a severe rainfall event
(intensity >100-yr), the stormwater ponds will be equipped with emergency spillways capable of handling flow rates in excess of the 100-yr design run-off rate. All outlet flows from the stormwater ponds would eventually discharge to Red Creek. The final design of the stormwater ponds would be required to comply with the required design elements presented in the New York State Stormwater Management Design Manual and the Irondequoit Creek Watershed Collaborative design standards.

Stormwater Pond 1
Based on the potential development within the Rezone Property and the existing topography, Stormwater Pond 1 would be located in University Property # 3, within Pod # 5. Stormwater Pond 1 would receive run off from subarea 1. The required stormwater detention volume for the contributing drainage area was determined to be 4.6 ac-ft. All outlet flows from the pond will be directed overland to a defined drainage channel prior to discharging to the northern most drainage way. Stormwater Pond 1 should be constructed as future development within subarea 1 commences. Refer to Figure 13 for the anticipated location of Stormwater Pond 1.

Stormwater Pond 2
Based on the potential development within the Rezone Property and the existing topography, Stormwater Pond 2 would be located in University Property # 2, within Pod # 1. Stormwater Pond 2 would receive run off from the portion of subarea 2 located north of East River Road. Additionally the existing detention pond located east of the Laser Lab/COI would require enlargement to increase capacity for the increase in stormwater runoff from the remainder of subarea 2. The required stormwater detention volume for the overall contributing drainage area was determined to be 4.8 ac-ft, 0.5 ac-ft for Stormwater Pond 2 and 4.3 ac-ft increased capacity to the existing detention pond. All outlet flows from the ponds would be directed off-sites to the New York State Department of Transportation stormwater facilities associated with Interstate 390. The stormwater management practices should be constructed as future development within subarea 2 commences. Refer to Figure 13 for the anticipated location of Stormwater Pond 2.

Stormwater Pond 3
Based on the potential development within the Rezone Property and the existing topography, Stormwater Pond 3 would be located in University Property # 8. Stormwater Pond 3 would receive run off from subarea 3. The required storm water detention volume for the contributing drainage area was determined to be 2.1 ac-ft. All outlet flows from the pond would be directed overland to the southern watercourse. This stormwater management practice should be constructed as future development within subarea 3 commences. Refer to Figure 13 for the anticipated location of Stormwater Pond 3.
Stormwater Pond 4

Based on the potential development within the Rezone Property and the existing, topography, Stormwater Pond 4 would be located in University Property #9, within Pod 7. Stormwater Pond 4 would receive run off from subarea 4. The required stormwater detention volume for the contributing drainage area was determined to be 2.1 ac-ft. All outlet flows from the pond would be directed overland to Furlong Creek. This stormwater management practice should be constructed as future development within subarea 4 commences. Refer to Figure 13 for the anticipated location of Stormwater Pond 4.

Due to the impervious areas of future development, the amount of groundwater recharge at the Rezone Property would decrease slightly. Through the employment of stormwater management, pollution prevention measures, and erosion control measures there will not be an increase risk to the groundwater quality. Additionally, the downstream receiving waters would not be adversely impacted due to the future development through the use of stormwater management and pollution prevention mitigation measures. The rate and quantity of stormwater flowing to the downstream receiving waters may decrease and the stormwater quality may increase due to the implementation of these measures for future development.

The University of Rochester will participate in a future drainage study of the overall watershed with the Town of Brighton, and Monroe County. The study will further identify the existing problem areas and recommended improvements to storm water flow through these areas. Floodplain mapping will also be part of the study.

The existing drainage problem areas within the Rezone Property can be addressed during future development of the Rezone Property. The heavily vegetated and overgrown channels will be cleared to increase conveyance capabilities. Storm water runoff will be directed to the storm water management facilities of the future development to reduce the rate of storm water flowing to the watercourses. Future development within the Rezone Property will not add to any existing problem areas.

Other areas of reported flooding, specifically at the area along Furlong Creek south of the Rezone Property and north of the residences located on the northern side of Crittenden Road and the area between the Lehigh Valley Trail and Red Creek (downstream of the culverts crossing the Lehigh Valley Trail) will be addressed as part of the overall drainage study to be undertaken by the University of Rochester, the Town of Brighton, and Monroe County. The report will outline potential mitigation steps to alleviate flood prone areas that could be implemented both within and outside the Rezone Property. Possible mitigation steps should not be
undertaken until the combined drainage study has been performed and these possible mitigation measures have been analyzed within the watershed as a whole.

The area of known flooding along Furlong Creek south of the Rezone Property and north of the residences along Crittenden Road has been reported to flood during heavy rainstorms. Storm water is directed to this area from the residences along Furlong Road (OS-2), Subarea 4 on the Rezone property, and from areas south of Crittenden Road (Subarea 5 and OS-3). The storm water from OS-2 is collected in a closed conduit drainage system that outlets to Furlong Creek. The storm water from Subarea 4 flows overland to Furlong Creek and the storm water from south of Crittenden Road collects in a channel that directs the storm water to a 24-in culvert, which directs the storm water to Furlong Creek. Furlong Creek directs the storm water to the 30-in x 36-in culvert at the Lehigh Valley Trail prior to the ultimate disposal at Red Creek. The combination of all this storm water discharging to a single point at the 30-in x 36-in culvert along with the flat slope of Furlong Creek create the flooding problems during major storm events. Potential mitigation measures that will be analyzed further as part of the future study are as follows:

- The majority of the drainage from Subarea 4 could be directed to a storm water management facility that will be constructed as future development commences within Subarea 4. The storm water management facility will be designed to attenuate the 100-yr post-development run off to the 25-yr existing run off, thereby decreasing the rate of storm water discharge to Furlong Creek. This scenario will be considered within the overall drainage study to confirm the timing of the outlet from the storm water management facility in comparison to the rest of the Furlong Creek watershed. This mitigation measure will only be undertaken should development occur within Subarea 4.

- A storm water detention pond could be constructed along the 100-ft buffer area upstream of Furlong Creek to intercept the storm water from OS-2 and the storm water from the Whipple Park Apartments within Subarea 4. This will decrease the rate of storm water discharge to Furlong Creek. This scenario shall be explored as part of the overall drainage study to confirm the timing of the outlet from the detention pond in comparison to the rest of the Furlong Creek watershed. This mitigation measure is independent of future development within the Rezone Property.

- The storm water from OS-2 and the areas south of Crittenden Road could be diverted away from Furlong Creek. Additional analysis is required with the overall drainage study. This mitigation measure is independent of future development within the Rezone Property.

- The storm water from the areas south of Crittenden Road could be intercepted in a regional detention pond. This will decrease the rate of storm water to Furlong Creek. This scenario shall be
explored as part of the overall drainage study to confirm the timing of the outlet from the detention pond in comparison to the rest of the Furlong Creek watershed. This mitigation measure is independent of future development within the Rezone Property.

The problem areas west of the Rezone Property, between the Lehigh Valley Trail and Red Creek will be analyzed as part of the overall drainage study. Future development within the Rezone Property will not exacerbate these problems.

The problem areas cannot be fully alleviated by mitigation measures from the Rezone Property. The Rezone Property and the adjacent areas are only a portion of the overall watershed that contribute storm water to the problem areas. The problems must be addressed within the overall watershed to ensure that additional problems are not created by potential mitigation measures when considered within the overall watershed.

Implementation of a Stormwater Pollution Prevention Plan (SWPPP) as detailed above will minimize and mitigate adverse impacts associated with water resources.

C. Terrestrial and Aquatic Ecology

Vegetation

The vegetative communities within the Rezone Property are primarily a combination of successional northern hardwood forest, mature northern hardwood forest, mixed forest, successional old-field, successional shrubland, and a variety of wetland areas. Other areas are areas that have been developed or are currently mowed or otherwise maintained.

Human land use practices have affected the total amount of forest cover as well as the species composition and age structure of the forested communities. Both mature and successional northern hardwoods comprise of approximately 76 acres of the project site. Shrub species dominating these areas generally include honeysuckle (Lonicera tatarica), hawthorne (Crataegus spp.), brambles (Rubus spp., pasture rose (Rosa spp.), and apple (Malus sylvestris). Saplings and young trees (approximate age 20 years) are scattered throughout this Rezone Property with typical species including shagbark hickory (Carya ovata), American beech (Fagus grandifolia), black cherry (Prunus serotina), silver maple (Acer saccharinum), red oak (Quercus rubra). In locations mapped as northern hardwood forest, the trees have matured to the point that they are shading out the shrub under story and assuming the character of a second growth forest. Conversely, in some areas, evidence of disturbance is evident due to the presence of species such as cottonwood (Populus
deltoids). Additionally, approximately 11.5 acres within the Rezone Property are mixed forest. This area occurs north of Crittenden Road and west of the existing residential area. The mixed forested area is differentiated from the other forested communities on site, due to its mix of deciduous and evergreen tree species such as Scotch pine (**Pinus sylvestris**) white pine (**Pinus strobes**).

Herbaceous and shrubby old-field vegetation occur in places within the successional old field and successional shrubland communities. These areas comprise approximately 52 acres of the project site. These old-field areas are dominated by goldenrods (**Solidago canadensis** and **S. gigantia**), wild strawberry (**Fragaria virginiana**), mullein (**Verbascum thapsus**), Queen Ann’s Lace (**Daucus carota**), Canada thistle (**Cirsium arvense**), clovers (**Trifolium spp.**), and grasses including timothy (**Phleum pretense**), fescues (**Festuca spp.**), and orchard grass (**Dactylis glomerata**). Successional shrub areas are dominated by similar species to those indicated in the old-field condition, but were also populated with shrubs and saplings of box elder (**Acer negundo**), green ash (**Fraxinus pennsylvanica**), dogwoods (**Cornus spp.**), pasture rose, and brambles. One area totaling approximately 7.75 acres is mapped as a “mosaic wetland/upland shrub” community. This area is dominated primarily by silky dogwood and a mix of old field and wet meadow species. Further wetland delineations are needed to determine the extent of uplands and wetlands in this area.

Finally, approximately 86.5 acres of the project site are currently developed with buildings or other impervious surfaces (parking lots, roads, driveways), or otherwise mowed or maintained. Mowed and maintained areas are primarily adjacent to residential or commercial structures and covered with typical lawn grasses and landscape shrub and flowering herbaceous plantings.

**Wildlife**

The project site provides a variety of habitats for wildlife, both aquatic and terrestrial. Based on habitat conditions and species observed during field evaluation, the site appears to support a wildlife community typical of the plant community types observed and typical of the region. In the forested an successional field and shrub areas, a total of over 20 different bird species were observed, including northern cardinal (**Cardinalis cardinalis**), indigo bunting (**Passerina cyanea**), American robin (**Turdus migratorius**), black-capped chickadee (**Parus atricapillus**), and white-breasted nuthatch (**Sitta carolinensis**). In the forested wetlands located in the southwest portion of the project site, water-loving birds such as the great blue heron (**Ardea herodias**), belted kingfisher (**Ceryle alcyon**), and green heron (**Buterides striatus** were noted. See the attached listing of all species observed during the site visits.
A total of 10 different mammal species were observed, including white
tailed deer (*Odocoileus virginianus*), eastern cottontail (*Sylvilagus
floridanus*), red fox (*Vulpes fulva*), and coyote (*Canis latrans*). All of these
species are common year-round or seasonal residents in New York State
that prefer shrub thickets and forest edges as habitat.

**Threatened and Endangered Species**
Field review of flora, fauna, and habitats on the site, along with
correspondence from the New York Natural Heritage Program and the U.S.
Fish & Wildlife Service, suggests that the occurrence of any threatened or
endangered species on the project site is unlikely. See the attached
agency correspondence within the Appendix.

The project site has been exposed to various forms of disturbances over
the years, primarily the construction of a research facility, adjacent
residential areas, and road construction. The plant communities are
dominated by common native and introduced species, and no listed rare
plant species were observed on site. In addition, typical indicators of
possible rare plant species occurrence, such as prairie remnants and
limestone outcrops, are lacking on the site.

The wildlife species observed on site are common resident and migratory
species typical of northern hardwoods, old successional fields and
shrublands, and wetland communities. The site contains open fields and
meadows that could provide habitat of threatened grassland species such
as northern harrier (*Cirrus cyaneus*), up and sandpiper (*Bartramia
longicauda*) or Henslow’s sparrow (*Ammnodramus henslowii*), and listed
special concern species such as vesper sparrow (*Pooecetes gramineus*)
and grasshopper sparrow (*Ammnodramus savannarum*). The amount of
mature forest habitat on site suggests that species listed as special
concern such as red-shouldered hawk (*Buteo lineatus*), sharp-shinned
hawk (*Accipiter striatus*), Cooper’s hawk (*Accipiter cooperii*) and blue-
spotted (*Ambystoma laterale*)/Jefferson’s salamander (*Ambystoma
platineum*) may be found there. The lack of large water bodies on the
project site precludes the occurrence of threatened species such as bald
eagle (*Haliaeetus leucocephalus*), least bittern (*Ictiohynchus exilis*), or pied-
billed grebe (*Podilymbus podiceps*). Also, the occurrence of a peregrine
falcon (*Falco peregrinus*) in the City of Rochester is largely irrelevant, as
the cliffs or high-rise structures this species requires for habitat, are
lacking on the project site.

Also worth noting is the documented presence of the common chorus frog.
This amphibian was not documented during previous site visits conducted
by the ecological consultant. However, the mating sounds of the chorus
frogs were recognized, and the disturbance of these amphibians was a key
issue during the expansion project of the LLE building. During that project,
completed in 2004, The University worked with the Sierra Club and others to relocate the chorus frog habitat outside of the project limits for the LLE expansion. This habitat has also been accepted by the USACOE as a wetland mitigation area and will not be allowed to be disturbed in the future. Through this exercise the University has demonstrated its commitment to the environment and will continue to work with the community on future projects. Prior to any disturbance of lands within the South Campus, the University will re-investigate and locate the presence of amphibians at the individual project sites. As demonstrated by the recent cooperation during the LLE project, appropriate mitigation will be identified and implemented.

There is a significant amount of greenspace that will remain available even upon full buildout of the Rezone Property, as such there is room for wildlife to find suitable habitat within the Rezone Property. Additionally, the Rezone Property is immediately adjacent to large wooded and undeveloped land (the Genesee Valley park land and property south of Norman Road and Helen Road). Through this rezone process, the University will also be giving the former Lilac Park subdivision property to the Town of Brighton. This property is substantially wooded with thick underbrush growth that is suitable for a variety of habitats.

Critical Environmental Areas

Per the NYS Department of Environmental Conservation, and verification by Monroe County Planning, there are no critical environmental areas in the Town and therefore none on the study site.

Woodlots EPoD

Since the site has heavily wooded areas that are included in the Town’s EPoD, a full Woodlot Quality Assessment was conducted and is included in Appendix B. A woodlot survey, done for each Development Pod as described in Section V, outlines the number, species, condition and size of trees for each of the 10 areas.

The Woodlot Quality Assessment identified 55 forested acres within the 10 pods, or approximately 29 percent of the entire Rezone Property.

The areas that have been noted as having particularly unique trees in type or size would be avoided as much as possible when and if a development for this parcel were proposed. The action of rezoning the parcel will not jeopardize any of the woodlots. Future development, will be sensitive to wooded areas within the pods. The University proposed to limit future
development to ensure retention of a minimum of 25 percent of the woodlot EPODs on the property.

Though the University is seeking approvals to disturb up to 75 percent of the Woodlot EPODs on the site, there would likely be far less than this disturbed. However, because of the unknown nature and locations of the future buildings on the Rezone Property it is difficulty to identify at this time the extent (size and location) to which the Woodlot would be disturbed.

Additionally, of the 140 significant trees identified, only 14 were listed to be in Good condition, while a majority of the trees (92) were listed to be in Fair condition. There were also 26 trees listed to be in Poor condition and another 8 trees listed to be in Very Poor condition. Each of these significant trees is shown on Figure 17. The significant trees are fairly evenly spread throughout the Rezone Property. No one particular Pod is better suited for development through avoiding the significant trees present. The condition and location of these trees will need to be taken into consideration when a specific development project is proposed. Further, many of the significant trees are located within the proposed 100-foot perimeter buffer area and wetland buffer areas, where no development will take place, so those trees will not be disturbed at all.

When future development in the Rezone Property is proposed, the University has committed to meet with the Conservation Board on-site to examine the significant trees and the findings presented in the DGEIS.

Wetlands

A formal wetland delineation has been completed for the entire 230+/- acres of University property. This delineation followed the guidelines as established in the US Army Corps of Engineers 1987 Wetland Delineation Manual. The results of this delineation are summarized in the Wetland Delineation Report in Appendix G.

Twelve significant areas exhibiting wetland criteria (totaling 15.3 acres), as described in the 1987 Manual, were delineated on the project site (See Figure 15 and Figure 5 in Appendix A). (Note: There is no area delineated Wetland B, F, H, and I on the project site.)

Wetland A is a small (0.05 acres), surface water depressional wetland having formed along the east shoulder of Mortimer Road south of Crittenden Road, where Mortimer Road construction has interrupted natural drainage creating wetland conditions. A culvert under the road conveys high water westward to the railroad ROW. Hydrologic indicators include watermarks on trees and water-stained leaves. Characteristic
vegetation includes red maple (Acer rubrum-FAC) and green ash (Fraxinus pennsylvanica-FACW) trees, fowl mannagrass (Glyceria striata-OBL), and silky dogwood (Cornus amomum-FACW) shrubs. Underlying soils have a matrix color of 10YR3/2 (very dark grayish brown) in the A horizon and 10YR3/2 with common faint mottles in the AB horizon. It appears that the interruption of natural drainage here by the developed Mortimer Road has created wetland conditions.

Adjacent Uplands
Surrounding uplands are slightly higher than the adjacent wetland and consist of shrub/scrub and successional forest. Prevalent vegetation includes jumpseed (Polygonum virginianum-FAC), white avens (Geum canadense-FACU), and strawberry (Fragaria virginiana-FACU) on the ground plain; gray dogwood (Cornus racemosa-FAC), silky dogwood (Cornus amomum-FAC) shrubs; green ash trees and saplings, and summer grape (Vitis aestivalis-FACU) vines. Underlying soils have a matrix color of 10YR3/2 in the A and AB horizons and a brighter B horizon of 7.5YR4/3 (brown).

Wetland C is a 2.70-acre forested wetland in the southeast corner of the parcel south of Crittenden Road. This is a surface water depression, which may receive ground water discharge as well as runoff from surrounding higher ground. Other hydrologic indicators include watermarks, water-stained leaves and some plant adaptations. Characteristic vegetation includes red maple, silver maple (Acer saccharinum-FAC) and green ash trees, and sensitive fern (Onclea sensibilis-FACW), fringed sedge (Carex crinita-OBL), and late goldenrod (Solidago gigantea-FACW) in the herbaceous stratum. Underlying soils have hydric character to a depth of 12-inches with a matrix color of 10YR3/2 (very dark grayish brown) in the A and AB horizons with high chroma mottles. The B horizon is light yellowish brown (2.5Y6/4) to yellowish brown (10YR5/6) with faint high chroma mottles.

Adjacent Uplands
Surrounding uplands are second growth deciduous forest, which gently slope to the wetland and lack all indicators of wetland hydrology. Characteristic vegetation includes black cherry (Prunus serotina-FACU), white oak (Quercus alba-FACU), green ash, and red maple trees, tartarian honeysuckle (Lonicera tatarica-FACU) shrubs, and rough goldenrod (Solidago rugosa-FAC), white avens, bracker fern (Pteridium aquilinum-FACU), jumpseed, and poison ivy (Toxicodendron radicans-FAC) in the herbaceous layer. The underlying soils have a brighter profile with a matrix color ranging from dark brown (7.5YR3/2) to brown (10YR4/3) in the A horizon and very dark grayish brown (10YR3/2) to yellowish brown (10YR5/4) with few faint mottles in the B horizon.
Wetland D is a small (0.16-acre) isolated, depressional wetland occurs in successional forest 200+/- feet west of Wetland C. Driven by the collection of surface water runoff, hydrologic indicators include watermarks and water-stained leaves. Characteristic vegetation includes fringed sedge, silver maple, sensitive fern, rattlesnake mannagrass (Glyceria canadensis-OBL), and green ash. Underlying hydric soils have a matrix color of 10YR3/2 in the A horizon with few, high chroma mottles, 10YR4/1 (dark gray) with common high chroma mottles in the AB horizon, and 10YR5/2 (grayish brown) with many high chroma mottles in the B horizon.

Adjacent Uplands
Surrounding uplands are successional forest dominated by black cherry, gray dogwood, pin oak (Quercus palustris-FACW), common buckthorn (Rhamnus cathartica-FAC) in the tree and shrub strata, and jumpseed. Underlying soils are non-hydric having a matrix color of 10YR4/3 (brown) in the A horizon and 10YR5/4 (yellowish brown) in the B horizon.

Wetland E is an 0.93-acre expanded, wooded wetland drainage in the northeast corner of the parcel south of Crittenden Road. This area collects surface water runoff from surrounding uplands, with seasonal hydrologic flow northward under the road to private lands. Indicators of wetland hydrology include watermarks, drift lines, oxidized root channels and water-stained leaves. Characteristic vegetation includes silver maple, green ash, American elm (Ulmus americana-FACW), tartarian honeysuckle, and common buckthorn in the tree and shrub strata, and pale touch-me-not (Impatiens pallida-FACW) and fowl mannagrass (Glyceria striata-OBL) on the ground plain. Underlying hydric soils have a matrix color ranging from very dark gray (10YR3/1) to very dark grayish brown (10YR3/2) in the A horizon, dark gray (10YR4/1) to very dark grayish brown with common to many high chroma mottles in the AB horizon, and grayish brown (2.5Y5/2) to dark gray with common to many high chroma mottles in the B horizon.

Adjacent Uplands
The adjacent uplands include shrub/scrub, successional and more mature forest. Characteristic vegetation includes jumpseed, moneywort loosestrife (Lysimachia nummularia-FACW), poison ivy, yellow avens (Geum allepicum-FAC), green ash, tartarian honeysuckle, Virginia creeper (Parthenocissus quinquefolia-FACU), silver maple, common buckthorn, and summer grape (Vitis aestivalis-FACU). Underlying soils have a matrix color of 10YR3/2 (very dark grayish brown) in the A horizon and brown (10YR4/3) with faint mottles to yellowish brown (10YR5/4) in the B horizon.

Wetlands make up only a small part of this parcel south of Crittenden Road. The land peaks near the southwest corner and is nearly 25 feet above the northeast and northwest corners. A gentle ridge falls northward
through the middle of the parcel with relief also gently falling northeast and northwest. Former agricultural ground is suggested with some fencing found but more specifically due to the very old-field, shrub/scrub, and successional forest habitats that dominate. While some larger specimen hardwood trees are found, more mature trees are more common near the southern border and in or near wetlands C and E.

An upland data sample plot taken near the middle of the parcel presents representative vegetative species: heal-all (*Prunella vulgaris*-FACU), jointseed, rough and late goldenrod, and white avens herbs, and gray dogwood (*Cornus racemosa*-FAC) and common buckthorn shrubs, summer grape vines, and green ash trees and saplings. Underlying soils generally have a matrix color of very dark grayish brown (10YR3/2) in the A horizon and brown (10YR4/3) in the B horizon, neither with mottles. This sample was typical of much of the site south of Crittenden Road.

Wetland G is a large (8.37-acre) wetland complex west and northwest of the U of R housing complex along Murlin Drive. This wetland essentially involves two expansive wetlands which border and drain across the RG&E ROW and former railroad and are separated by a mature upland forest. However, on the east side, where drainage feeds the wetland under and along Murlin Drive, a 500+-foot wetland swale joins the two wetlands. The character of the two parts is distinct and thus will be discussed separately below: Wetland G-North and Wetland G-South.

Wetland G-North is a varied complex with emergent, wet meadow, shrub/scrub, and wooded wetland components. It is found northwest of the housing complex and the convex curve of Murlin Drive. The principal source of drainage to the wetland is some specific collection along Murlin Drive, from the former school complex to the northeast, surface water runoff, and possible subsurface discharge. Reoccurring hydrologic indicators throughout this portion of the wetland are watermarks on trees, saturated soils, drainage patterns, oxidized root channels and water-stained leaves. As noted above, many habitat types occur here. Key and reoccurring characteristic vegetation includes sensitive fern, fowl mannagrass, fringed sedge, rattlesnake manna grass, broad-leaf water plantain (*Alisma plantago-aquatica*-OBL), and poison ivy in the herbaceous layer, common buckthorn and tartarian honeysuckle shrubs, and silver maple, green ash, and American elm trees. Underlying hydric soils have a matrix color of very dark gray (10YR3/1) in the A horizon (seven of eight sample points) and colors ranging from gray (2.5Y6/1) to light brownish gray (2.5Y6/2) to grayish brown (2.5Y5/2) generally with common high chroma mottles in the B horizon.

Adjacent Uplands
Surrounding uplands are generally small to medium timber hardwood forests that exhibit no indicators of wetland hydrology. Slopes gently fall to
the wetland while the wetland/upland interface is distinct especially along the south side where a three to six foot abrupt change is present. Characteristic vegetation includes sugar maple (Acer saccharum-FACU), red oak, black cherry, red maple, green ash, American elm, eastern cottonwood (Populus deltoides-FAC) trees, common buckthorn, blueberry (Vaccinium spp.-FACU), and tartarian honeysuckle in the shrub stratum, and white avens, fowl manna grass, sensitive fern, jumpseed, smooth rose (Rosa blanda-FACU), and others in lesser numbers.

Underlying soils are non-hydic and have a matrix color ranging from very dark grayish brown (10YR3/2) to grayish brown (10YR5/2) in the A horizon and grayish brown (2.5Y5/2) to brownish yellow (10YR6/6) in the B horizon with no mottles.

Two of eight sample points had hydic soil characteristics (10YR3/1 and 2.5Y5/2); however, wetland hydrology and hydrophytic vegetation were not present.

Wetland G-North and Wetland G-South are joined by a wetland swale 8 to 12 feet wide and about 500 feet long that exhibits distinctive drainage patterns. This swale accepts overland runof' from the east and specific point drainage from two culverts under Murlin Drive. It also expands in several wetland pockets as it proceeds south. Hydrologic indicators typically include watermarks and water-stained leaves. Characteristic vegetation includes green ash, black willow, red maple, and silver maple trees, sensitive fern, fringed sedge and Cyanophyta algae. Underlying soils have a matrix color of black (10YR2/1) to very dark grayish brown (10YR3/2) in the A horizon and grayish brown (2.5Y5/2) to brown (10YR5/3) with high chroma mottles in the B horizon.

Adjacent Uplands
Adjacent uplands are medium to large timber hardwood forests that lack hydrologic indicators, as they are distinctly elevated (three to six feet) from the swale. Characteristic vegetation includes red maple, black walnut (Juglans nigra-FACU), green ash, and red oak trees poison ivy, violets (Viola spp.-FACU), yellow avens, May apple (Pdophyllum peltatum-FACU), blueberry, clasping-leafed dogbane (Apocynum sibiricum-FAC+), and brackenfern. Underlying soils have a matrix color ranging from dark grayish brown (10YR4/2) to dark yellowish brown (10YR4/4) in the A horizon with no mottles and brown (10YR5/3) to yellowish brown (10YR5/4) with no mottles in the B horizon.

Wetland G-South is an emergent marsh directly west of the housing complex. Its north and east jointure with the upland is abrupt while the southern side is very gradual. This wetland again backs up to and across the RG&E ROW and to the edge of the former railroad bed, holding several (3 to 5+ feet) of water. Much of the eastern portion of the wetland is a
heavy, monotypic stand of common reed (*Phragmites australis*-FACW) with standing dead wood. The western portion has more diverse vegetation typically including narrow-leaf cattail, sedges, lesser duckweed (*Lemna minor*-OBL), iris (*Iris spp.*-OBL), and burreed (*Sparganium spp.*-OBL). Typical indicators of wetland hydrology include surface inundation, saturated soils, watermarks, oxidized root channels and water-stained leaves. Characteristic vegetation found at two or more of the eight data points around Wetland G-South include common reed, green ash, reed canary grass (*Phalaris arundinacea*-FACW+), silver maple, sensitive fern, rice cutgrass (*Leerzia oryzoides*-FACW), and spice bush (*Lindera benzoin*-FACW-). Other noted species found only at one location include narrow-leaf cattail, broad-leaf water plantain, fringed sedge, lesser duckweed, big duckweed (*Spirodella polyrhiza*-OBL), and bladder sedge (*Carex intumescens*-FACW+).

Underlying soils are hydric and have a matrix color ranging from very dark gray (2.5Y3/1) to black (10YR2/1) to dark gray (10YR4/1) in the A horizon and very dark gray (10YR3/1) to grayish brown (10YR5/2) with high chroma mottles in the B horizon.

Adjacent Uplands
Surrounding uplands are shrub/scrub, successional forest and mature hardwood forest. Characteristic vegetation found at 3 or more of the 8 data points include sugar maple, red oak, brackenfern, May apple, black cherry, tartarian honeysuckle, and common buckthorn. Some noted species found at each of 2 sites include American witch hazel (*Hamamelis virginiana*-FACU) and blueberry shrubs, sassafras (*Sassafras albidum*-FACU-), American basswood (*Tilia americana*-FACU), and green ash trees, and clasping-leaved dogbane. Underlying soils are generally brighter having a matrix color ranging from 10YR3/1 (very dark gray) to 10YR5/3 (brown) in the A horizon and 10YR5/4 (yellowish brown) to 10YR6/4 (light yellowish brown) in the B horizon, neither with mottles. There were no indicators of wetland hydrology in the upland areas adjacent to Wetland G-South.

Wetland J (a 1.80-acre) isolated depressional wetland is found in the most northern portion of the study area. It is bounded east and south by Kendrick and East River Roads, respectively, on the north by developed lands and the west by the RG&E ROW and old railroad line. This wetland lies largely in the southwest portion of this parcel, however, includes a narrow swale along the toe of East River Road and north about 450 feet at the toe of Kendrick Road. Indicators of wetland hydrology include soil saturation, watermarks, water-stained leaves, buttressed trees, and encrusted detritus. Dominant vegetation includes common cattail (*Typha latifolia*-OBL), lesser duckweed, rice cutgrass, and green ash trees and saplings. Underlying hydric soils have a matrix color of 10YR3/1 (very dark gray) in the A horizon and 5Y5/1 (gray) with few, high chroma mottles
in the B horizon. Two other data points were dominated by obligate vegetation thus soil conditions are not warranted.

Adjacent Uplands
Surrounding uplands east and south are road shoulders. Otherwise, the uplands are successional hardwoods that exhibit no indicators of wetland hydrology. Characteristic vegetation includes hawthorn (Crataegus spp.-FACU) and tartarian honeysuckle shrubs, yellow poplar (Liriodendron tulipifera-FACU), American beech (Fagus grandifolia-FACU), and black cherry in the tree stratum, and sensitive fern, white avens, and poison ivy on the ground plain. Underlying soils are brighter than those in wetland J and have a matrix color ranging from 10YR4/3 (brown) to 10YR5/4 (yellowish brown) with no mottles in the A horizon and 10YR6/2 (pale brown) to 10YR5/6 (yellowish brown) with no mottles in the B horizon.

Wetland K is a 0.10-acre isolated depressional pocket which outlets (overflows) into the isolated Wetland J. It is wooded and is surrounded on three sides by Wetland J; to the north are woods and developed lands. Hydrologic indicators include watermarks or trees (to 18 inches) and water-stained leaves. Prevalent vegetation includes green ash trees. Underlying soils are hydric having a matrix color of 2.5Y2.5/1 (black) in the A horizon and 5Y5/1 (gray) in the B horizon, neither with mottles.

Adjacent Uplands
Adjacent uplands are successional forest. Vegetation includes yellow poplar, green ash, pin oak, hawthorn, red maple, and tartarian honeysuckle. Underlying non-hydric soils have a matrix color of 10YR4/3 (brown) in the A horizon and 10YR6/3 (pale brown) in the B horizon, no mottles.

The remaining 5 wetlands (Wetlands L, M, N, O, and P) are located southeast of the Laser Research Facility at the corner of East River Road and Murlin Drive. This area has been subject to water management facility developments and a wetland habitat mitigation project as the result of existing developments.

Wetland L is a 0.43-acre marsh specifically developed to provide and enhance chorus frogs (Pseudacris spp.), which have documented occurrences in the area. This was required to mitigate for habitat disturbance resulting from previous developments associated with the nearby Laser Research Facility. Wetland L has been constructed within a successional forest community and is contained by a low berm which outlets into adjacent Wetland M. Hydrologic indicators include 6-inches inundation, and saturated soil conditions. Characteristic vegetation includes broad-leaf water plantain, narrow-leaf cattail, and common bladderwort (Utricularia vulgaris-0BL). Underlying soils are assumed to have hydric character due to dominant obligate vegetation.
Adjacent Uplands
Surrounding uplands are mixed successional forest. Prevalent vegetation includes common buckthorn, tartarian honeysuckle, black cherry, Austrian pine (*Pinus nigra*-FACU), white avens, and summer grape. Underlying soils have a bright matrix color of 10YR5/3 (brown) in the A horizon and 10YR6/4 (light yellowish brown) in the B horizon, no mottles.

Wetland M is a 0.51-acre constructed storm water management basin and includes an entrenched constructed drainage swale that conveys runoff from residential developments to the south. The swale is approximately 7-feet below the surrounding landscape, and has a 3-foot wide bed that is vegetated primarily with cattail.

The storm water basin is approximately 15 feet below the general landscape and outflows into a box culvert at the basin's northwest corner. Hydrologic indicators include surface inundation (12+ inches), soil saturation, and drainage patterns in the wetland. Characteristic vegetation consists entirely of herbaceous species, including narrow-leaf cattail, broad-leaf water plantain, other submerged aquatics, rice cutgrass, and soft stem bulrush (*Scirpus validus*-OBL). A dominance of obligate vegetation and permanent hydrologic features does not warrant hydric soils.

Adjacent Uplands
Constructed adjacent to the Laser Research Facility, the uplands surrounding the storm water basin consist of mowed lawn and the upland slopes of the basin.

Wetland N (0.06-acre) wetland is an isolated, surface water depression on the level landscape, occurring about 100 feet south of Wetland L. Seasonal soil saturation is likely. Other hydrologic indicators include oxidized root channels, water-stained leaves and morphological plant adaptations. Dominant vegetation includes rattlesnake mannangrass, silky dogwood shrubs, and green ash trees. Underlying soils have a gray matrix color of 10YR4/1 (dark gray) in the A horizon with common, high chroma mottles and 2.5Y5/2 (grayish brown) with many, high chroma mottles in the B horizon.

Adjacent Uplands
Surrounding uplands are mixed successional forest, and exhibit no indicators of wetland hydrology. Vegetation characteristic of the area includes common buckthorn, tartarian honeysuckle, black cherry, Austrian pine, white avens, and summer grape. Underlying soils have a matrix color of 10YR5/3 (brown) in the A horizon and 10YR6/4 (light yellowish brown) in the B horizon, no mottles.
Wetland O (0.10-acres) is a surface water depressional wetland, which overflows via a scour channel into Wetland M. Characterized as a forested wetland, dominant vegetation includes white willow (Salix alba-FACW), green ash, and eastern cottonwood trees. Occurring 2 to 3-feet below the adjacent upland landscape indicators of wetland hydrology include watermarks and water-stained leaves. Underlying soils have a matrix color of 10YR3/1 (very dark gray) in both the A and B horizons with common high chroma mottles in A.

Adjacent Uplands
Adjacent uplands consist of hardwood forest and shrub/scrub habitat that occurs between residential development to the south, and maintained old-field associated with U of R research facilities to the north.

Dominant vegetation includes tartarian honeysuckle, green ash, common buckthorn, and occasional apple (Malus spp.-UPL) trees, white avens, and summer grape vines. The bright underlying soils have a matrix color of 10YR4/3 (brown) in the A horizon and 2.5Y5/3 (light olive brown) with few high chroma mottles in the B horizon. This mixed successional forest area exhibits no indicators of wetland hydrology.

Wetland P (0.09-acres) is a small, created depression just above and east of the stormwater basin (Wetland M). Occurring in a scrub-shrub edge habitat, this wetland is the apparent result of poor grading during construction around Wetland M. Wetland P is dominated entirely by obligate herbaceous narrow-leaf cattail and broad-leaf water plantain, which predicts the soils to be hydric. Indicators of wetland hydrology include surface inundation (8+ inches) and soil saturation.

Adjacent Uplands
Surrounding upland is shrub/scrub habitat, which has no indicators of wetland hydrology. Characteristic vegetation includes tartarian honeysuckle, apple, green ash, summer grape, and white avens. Underlying soils have a matrix color of 10YR4/2 (dark grayish brown) in the A horizon and 10YR6/6 (brownish yellow) in the B horizon, no mottles.

Other Site Uplands
Several other data points were taken to represent sections of the study area not sampled in conjunction with the wetland areas. (See Appendix A, Figure 5 for locations or these sample points). North of East River Road and east of Kendrick Road is a parcel that is partially developed. The eastern portion of the site is thickly covered by scrub/shrub habitat. The vegetation is dominated by common buckthorn, tartarian honeysuckle, American elm, green ash, and summer grape. Underlying non-hydric soils have a matrix color of 10YR5/3 (brown) in the A horizon and 10YR6/4 (light yellowish brown) in the B horizon, with no mottles. Hydrologic indicators are absent.
The last portion of the study area to be discussed is an extensive mixed successional shrub/old-field and hardwood forest southwest and south of the housing complex (south of the end of Murlin Drive). No hydrologic indicators were found here. Characteristic vegetation includes timothy (Phleum pratense-FACU), fox sedge (Carex vulpinoidea-OBL), path rush (Juncus tenuis-FAC), Canada goldenrod, heal-all, and sensitive fern in the herbaceous layer, northern arrowwood (Viburnum dentatum-FAC), silky and gray dogwood shrubs, apple, green ash, and common chokecherry (Prunus virginiana-FACU) trees and saplings, and summer grape vines. Underlying soils are non-hydric, generally having a matrix color of 10YR3/2 (very dark grayish brown) in the A horizon and 10YR4/4 (dark yellowish brown) in the B horizon, no mottles.

Wetland Functions and Benefits
Activities affecting wetlands have been regulated because these areas can provide various functions and benefits, including 1) natural products for human use, 2) habitat for fish and wildlife, 3) habitat for rare plant and animal species, 4) opportunities for recreation, education, and aesthetic appreciation, 5) flood protection, 6) water quality improvement, 7) shoreline erosion control, and 8) groundwater recharge and discharge.

Based on the overall size and diversity of habitats, delineated Wetland G clearly provides the greatest functions and benefits on the 230± acre project site. These include storm water management, water quality improvements, natural products, ground water recharge/discharge, and varied wildlife habitats. Recreational and educational values are present, however, such use is likely limited due to the nature of the ownership and availability of visitors. Some trails were noted around Wetland G and south of the end of Murlin Drive.

Delineated interstate Wetlands E, L, M, O, and P function for storm water collection and conveyance, water quality improvements, and some wildlife habitat. Wetland L also functions as mitigated habitat for the common chorus frogs, documented to inhabit wetlands behind the existing laser laboratory facility.

Because of their small size and isolated position on the landscape, delineated Wetlands A, C, D, J, K, and N function primarily for storm water collection and limited wildlife habitat primarily for breeding amphibians that may occupy the site.

Deer trails are common throughout the forest and field habitats of the property; these are also used by other indigenous species: fox, raccoon, grey squirrel, rabbit, weasel and others. Lesser forms (frogs, toads, moles, shrews, and a myriad insects) are obvious residents that find optimum
habitat here. Many varied bird species also find the property to their liking.

Wetland Investigation Findings

This study area is an interesting combination of habitats in proximity to substantial commercial, scientific, educational, and residential development. The habitats vary throughout the study area and generally include:

- Forested/Emergent Wetlands
- Shrub/Emergent Wetlands
- Emergent Wetlands
- Scrub-Shrub Wetlands
- Forested Wetlands
- Successional Shrub Uplands
- Successional Forest Uplands
- Second Growth Deciduous Forest Uplands

Key to this study is the various wetlands on the property, their regulatory jurisdiction, and the nature of their connectivity to Waters of the United States.

ERS delineated a total of twelve areas on the 230± acre project site that have wetland criteria as described in the 1987 Corps of Engineers Wetland Delineation Manual. These site wetlands total 15.3 acres.

It is our professional opinion that six of these (A, C, D, J, K, and N) are non-jurisdictional isolated systems that exhibit no surface connections, evidence of overland flow, or ecological continuum to Waters of the U.S., and therefore are not part of the interstate waterways regulated by Section 404 of the Clean Water Act. Wetlands E, G, L, M, O, and P are considered to be so regulated due to their proximity, connectivity to, or existence as Waters of the United States. However, the USACE makes the final jurisdictional determination based on their site visit and review of historical maps and aerial photographs.

No NYS protected wetlands are so far mapped and identified as being a part of the study area. However, Wetland G may well be of sufficient size (8.37 acres, plus additional acreage beyond the site's west boundary line) and character to be so protected. Review by DEC Region 8, Bureau of Habitat will determine regulatory (State or Federal) jurisdiction of Wetland G.

The study area holds a wide variety of habitats that combine to create an interesting ecological system including adjoining properties.
Regulatory Guidance
The discharge of fill material into jurisdictional federal wetland areas, as determined by USACE, resulting in the loss of <0.10 acres will likely qualify for Nationwide Permit 39 (NWP 39) requiring notification to USACE 30 days after construction, with no compensatory mitigation requirement. Wetland fills between 0.10 and 0.50 acres should also qualify for NWP 39, and will require pre-construction notification, including a compensatory mitigation plan to USACE. The discharge of fill material into jurisdictional waters exceeding 0.50 acres will require an individual permit.

Should Wetland G be confirmed under State jurisdiction (DEC), Article 24 regulations would apply, which include protection of the wetland and its 100-foot upland adjacent area.

As the University has demonstrated in the past, it is sensitive to the environment and will make every effort to avoid disturbances in and near the identified wetland areas as future building plans progress. The University will follow the guiding principles of Avoid, Minimize, and Mitigate (avoiding the wetlands to the extent possible, then minimizing the disturbances to the wetlands if avoiding them is not practical, and finally mitigating for any disturbances that may have been unavoidable).

D. Land Use and Zoning

From a land use and zoning perspective, one potential adverse effect of the requested rezoning might be the diminution of vacant land that could be devoted to the development of additional single family housing stock in the Town, which is a desirable community to live in. While this is a theoretical possibility, the reality is that the University is the owner of this land and is not in the business of creating residential developments and would therefore not develop this property for residential uses. Further, as reflected in the Town’s Comprehensive Plan, this area of the Town is not envisioned to be further developed for residential purposes.

The trend of building permits issued in the Town shows a limited amount of new residential development in the last several years (16 new residential units permitted in 2001, 19 units in 2002 and 13 units in 2003). Accordingly, it is concluded that there will be no significant land use and zoning adverse effect.

Rezoning the Rezone Property to IPD would expand the existing nonresidential use of the South Campus. The University contemplates such uses as research, office, pedagogical, storage, dormitory/housing, parking, recreational, and such other uses which would customarily be ancillary and supportive of a university development. Uses not contemplated would be manufacturing, large scale retail (there could be small scale retail normally
associated with a university) and such other uses not customarily part of a university environment.

The University’s Current Uses are:

- All Laboratories/Research Uses, including
  - Laser and/or fusion labs
  - Biomedical labs
  - Science/Engineering labs
  - Medical labs
  - Chemical labs
  - Biology labs
  - Optic labs
  - Electronic Imaging labs
  - Clinical/Psychology/Social Science labs
  - Computer Science labs
  - Earth/Environment labs
  - Electrical/Computer Engineering labs
  - Mechanical Engineering/Electrical Engineering labs
  - Physics labs
  - Animal Research

- Laboratories/Research Facilities – characteristics
  - Wet
  - Dry
  - With/Without Emissions
  - With/Without Chemical Wastes/Substances/Byproducts
  - With/Without Hazardous Wastes/Substances/Byproducts
  - With/Without Radioactive Substances/Wastes/Byproducts
  - With/Without Explosive Substances/Wastes/Byproducts
  - With/Without Electromagnetic Radiation
  - With/Without High Energy Demands
  - With/Without Animal Research
  - With/Without Discharge to Sewer

- Utility Facilities, including
  - Power Generation Facilities
  - Generators
  - Transmission Systems
  - Delivery
  - Water Purification

- Sewage System Facilities

- Storage of Water, Gasoline, Coal, Oil, Natural Gas, Propane, Kerosene, other Fuels
- Chilled Water/Hot Water
- Steam Generation
- Animal Care/Housing/Keeping Facilities
- Vivarium Facility
- Day Care Facilities
- Bars/Service of Alcohol
- Food Service/Food Preparation Facilities, including
  - Restaurants
  - Cafeterias
  - Pubs/Bars
  - Kitchens
  - Food Sales
  - Food Storage
  - Outdoor Food Areas

- Residential/Dormitory, including
  - Single Family
  - Multi-Family
  - Dormitory
  - Campus Guest Accommodations

- Auditoriums/Gymnasiums/Other Places of Assembly
  - 50 People or Greater
  - 100 People or Greater
  - 1000 people or Greater
  - Religious Facilities
  - Cultural Facilities
  - Emergency Services/Public Safety Facilities
  - Entertainment Facilities
  - Retail Sales Facilities
• Consumer Services Facilities, including
  • Banks
  • ATMs
  • Personal Care
  • Laundry
  • Book Store
  • Computer Store

• Space Leased/Rented to Others, including
  • To Retail
  • Consumer Service
  • Business Service
  • Food Service
  • To Other Institution
  • To Business

• Health/Recreation Facilities/Areas (e.g. fields), including
  • Interior
  • Exterior
  • Fields
  • Stadiums
  • Courts
  • Gymnasiums
  • Fitness
  • Student Health Service

• Hospital/Medical Facilities, including
  • Hospitals
  • Medical Offices
  • Clinics
  • Surgical
  • Emergency
  • Nursing
  • Acute Care

• Waste Station/Landfill/Waster Transfer Station
• Recycling Facilities

• Storage Areas/Warehouses, including
  • Outside Storage
  • Inside Storage
  • Below Ground
  • Vehicles
  • Hazardous Materials
  • Flammable Materials
  • Fuels
  • Radioactive Materials
  • Compressed Gases
  • Bulk Storage of Compressed Gases (1,000 gal. or greater)

• Maintenance Facilities, including
  • Vehicle Repair/Maintenance
  • Fuel Dispensing
  • Grounds Maintenance
  • Buildings Maintenance/Cleaning
  • Manufacturing/Fabrication Facilities
  • Model/Prototype/Mockup Assembly
  • Administrative/Office Facilities
  • Classroom/Academic Facilities

• Parking Facilities/Parking Structures
• Libraries
• Data Centers

The expansion of such nonresidential uses in an area surrounded in part by single family development could have adverse impacts on such single family areas in terms of visual, noise, traffic, drainage and overall character of the neighborhood. However, the maintenance (and expansion) of significant natural screening, the limit on heights of potential buildings nearest to single family development, the increased buffer areas, the linkage of building to improvements to the traffic network, the limitation on ingress and egress to Murlin Drive/East River Road, the retention/detention of stormwater, the need for any development to go before the Planning Board for site plan approval, as well as other measures, all will mitigate, reduce and, in some cases, eliminate the enumerated potential adverse effects.
The use of the Lilac Park Subdivision for Town-controlled public recreation is seen as a public benefit with no real adverse effect.

The key component of determining the physical impacts associated with future development of the Rezone Property, which seems to be the single most focused upon factor in this rezoning process, is the knowledge of the type, size, and location of future buildings and their associated site improvements. With no specific building program in place it is extremely difficult to assess what the impacts of future development “might be”. The University recognizes this deficiency will make it difficult for the Town to “visualize” the future buildout of the Rezone Property and further to assess its impacts. To assist with the visualization of the intensity of possible future development, a detailed look at the intensity of each Pod has been calculated in order to demonstrate potential building, parking, and greenspace areas by Pod. Table 15 below provides a summary by Pod of the potential development intensity if the close to two million square feet of development is realized.
Table 15 – Development Intensity by Pod

<table>
<thead>
<tr>
<th>Pod</th>
<th>Size of Pod (SQ. FT.)</th>
<th>Size of Pod (Acres)</th>
<th>Bldg Area Allowed</th>
<th>Building Footprint Shown</th>
<th># of Floors</th>
<th>Total Floor Area</th>
<th>Parking Provided (SQ. FT.)</th>
<th># of Cars</th>
<th>Parking Req'd</th>
<th>Total Impervious</th>
<th>% Green Space</th>
<th>Building Area (% of Pod)</th>
<th>Parking Area (% of Pod)</th>
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<tbody>
<tr>
<td>1</td>
<td>259,743</td>
<td>5.96</td>
<td>61,120</td>
<td>62,500</td>
<td>5</td>
<td>312,500</td>
<td>81,153</td>
<td>246</td>
<td>1,563</td>
<td>143,653</td>
<td>45</td>
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<tr>
<td>2</td>
<td>369,603</td>
<td>8.48</td>
<td>86,970</td>
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<td>5</td>
<td>312,500</td>
<td>57,512</td>
<td>174</td>
<td>1,563</td>
<td>120,012</td>
<td>68</td>
<td>17</td>
<td>16</td>
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<tr>
<td>3</td>
<td>619,870</td>
<td>14.23</td>
<td>145,860</td>
<td>136,500</td>
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<td>409,500</td>
<td>190,125</td>
<td>576</td>
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<td>386,625</td>
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<td>3</td>
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<td>60,000</td>
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<td>4</td>
<td>365,412</td>
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<td>600</td>
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<tr>
<td>5</td>
<td>948,671</td>
<td>21.78</td>
<td>223,230</td>
<td>79,000</td>
<td>3</td>
<td>237,000</td>
<td>109,182</td>
<td>331</td>
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<td>51</td>
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<td>103,750</td>
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<td>55,341</td>
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<td>6</td>
<td>220,586</td>
<td>5.06</td>
<td>51,906</td>
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<td>50,000</td>
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<td>7</td>
<td>275,322</td>
<td>6.32</td>
<td>64,785</td>
<td>54,339</td>
<td>1</td>
<td>54,500</td>
<td>52,958</td>
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<td>273</td>
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<td>8</td>
<td>292,861</td>
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<td>322,666</td>
<td>7.41</td>
<td>51,852</td>
<td>50,000</td>
<td>1</td>
<td>50,000</td>
<td>52,958</td>
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<td>250</td>
<td>102,958</td>
<td>68</td>
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<tr>
<td>10</td>
<td>1,001,819</td>
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<td>235,736</td>
<td>225,000</td>
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<td>432,470</td>
<td>57</td>
<td>22</td>
<td>21</td>
</tr>
<tr>
<td>ALL</td>
<td>4,676,543</td>
<td>107</td>
<td>1,054,503</td>
<td>1,037,591</td>
<td>1,972,000</td>
<td>1,060,093</td>
<td>3,212</td>
<td>7,923</td>
<td>1,907,696</td>
<td>37</td>
<td>49</td>
<td>18</td>
<td>33</td>
</tr>
</tbody>
</table>

Floor Area Target = 1,861,100

- Note: Greenspace calculation is just for the development pods.
- Greenspace number will likely increase when all land (north of Crittenden) is taken into consideration.
- Parking requirement is based on 5 spaces per 1,000 square feet of building.
- Numbers in red represent existing features
- Numbers in blue represent total calculations for all University property (Parcels 1, 2, and 3).
While the University understands the concerns associated with these types of land uses, there are none proposed on the Rezone Property; and because there are none proposed it is impossible to identify a specific decibel reading (in the case of noise) or foot candle reading (in the case of lighting) that would be produced from a future University proposed building on the Rezone Property. As the Town and the University develop the IPD Ordinance, there will be consideration of the thresholds often referenced for site development related adverse impacts. For instance a specific decibel level which shall not be exceeded is specified, as is the need to allow zero light spill on adjacent residential properties.

The University is cognizant of the potential for adverse impacts to adjacent residential developments if development is not performed in a thoughtful and planned manner. To that end, the University has committed to increasing the buffers along the perimeter of the Rezone Property, adjacent to residential properties from the 50-feet minimum established in the IPD District regulations, to 100-feet. This increased buffer area will help reduce impacts associated with the visual, noise, and light related concerns. In addition to the increased buffer width, the University has agreed to providing supplemental plantings within the 100-feet buffer area in order to create a more dense screening between the residential properties and the Rezone Property. The University has also committed to providing these supplemental plantings over the course of several years, starting upon receipt of an approval from the Town, which will allow the buffer area trees time to mature, prior to the construction of any proposed buildings.

In addition, as the Town and the University develop the IPD Ordinance, there will be zoning constraints on certain uses within the IPD. For example, certain proposed uses in proximility to residentially developed areas may very well have a conditional use approval process imposed upon them to enable the Town Planning Board to evaluate and mitigate any potential adverse impacts on such areas as a result of such proposal. This would be consistent with Town treatment of potential impacts from certain research, office and light industrial uses near residential areas in other sections of the Code of Development Regulations. The Code includes performance standards and procedures to assure conformance with standards and regulations limiting dangerous and objectionable elements, such as dust, smoke, odor, fumes, noise or vibration.

To further emphasize the importance of providing an appropriate screening between the Rezone Property and the adjacent residential properties the University conducted a visual assessment of the trees at the perimeter of the Rezone Property. Several locations were chosen along the three “critical property lines” 1) the property line adjacent to the Southland Drive
residences, 2) the property line adjacent to the Crittenden Road residences, and 3) the property line adjacent to the Lehigh Valley Recreational Trail. Photo simulations were conducted at each of the locations chosen. The photo simulations demonstrate the “existing setting” (for both leaf-on and leaf-off conditions) as well as a “future setting”; which indicates what a building or parking area might look like if constructed on the Rezone Property. The simulations depict these buildings at an assumed finished floor elevation. These simulations are included in Appendix J. Readers should be cautioned that the building locations and colors are fictitious in order to help facilitate a study of the “worst-case” scenario. Also in Appendix J is a series of plans depicting cross-sectional views at three locations adjacent to residential properties. The purpose of these cross-sections is to demonstrate how far set back the residences are from the property line, how a 100-feet buffer area would look as development occurred, and how the appropriate size and location of a building, along with the proposed supplemental plantings can reduce and in most cases eliminate the impacts associated with construction.

The University will utilize the information presented in the Photosimulations to determine where there are voids in the existing vegetative buffer so that a detailed landscaping/buffering plan can be developed. The University is committed to providing supplemental plantings, upon approval of the rezoning, allowing the plantings to mature prior to any proposed future development. Based on the field work conducted, the University is confident it can strategically locate evergreen and deciduous trees within the 100-feet buffer area that will effectively eliminate the visual impacts to the adjacent neighbors.

The graphics in Appendix J depict how strategically located trees can block the views from the ground and second floor elevations of the residences on Southland Drive. It would also be appropriate, when a future building with a specific site location, is proposed that a re-assessment of the vegetative buffer be conducted in order to determine if additional trees would be needed. This buffering is in part dependent on the size, shape, and location of future buildings. Buildings that are taller or closer to the perimeter of the Rezone Property would likely require trees that grow taller
or are planted closer to residential properties to effectively screen the proposed buildings.

E. Historical and Archeological Resources

When, and if, a development is proposed for the site, the 161 acres that were not identified as previously impacted by modern development would need to be further assessed for archaeological sensitivity, including the architectural assessment of the Mortimer Street residence to determine its eligibility for inclusion in the National/State Register of Historic Places.

Because the action is a rezoning, it is difficult to ascertain the visual impacts on the Warrant Homestead and residences located at 1211 and 1233 Crittenden Road. Though from the photo simulation studies that were conducted from the perimeter of the Rezone Property it appears that even with two and three story buildings located south of the Whipple Park apartments, any future development would not be visible from the referenced locations.

Further assessment of the impacts is recommended at the time of any actually proposed development. It should be noted that the preservation of existing substantial natural screening (and its expansion), together with increased setback buffers, will mitigate visual impacts. If need be, investigations should be conducted to determine eligibility for inclusion of any of the three properties in the National/State Register of Historic Places.

F. Traffic / Transportation Network

A comprehensive analysis of the surrounding street network was performed to determine what impacts the proposed rezoning and potential future development would have on the street network. As there is no specific development associated with the rezoning action there will be no immediately noticeable impacts. However, the intensity of uses associated with an Institutional zoning designation are much greater than that of a residential zoning designation. The number of trips generated if the property were used for residential development would total 161 trips and 215 trips during the weekday morning and weekday evening peak hours, respectively. Accordingly there would be an increase in impacts to the adjacent street network, over those likely to be experienced if the property were used for residential development purposes.

The site will be served by one (1) main drive and three (3) additional existing driveways on East River Road. There will also be one (1) point of access for each of pod 1 and pod 2; which provide direct access to
Kendrick Road. Additionally, provisions will be made for emergency access off of Crittenden Road via one of two access points (the 60 ft ROW owned by the University or the Lehigh Valley Trail). The main site drive is the existing Murlin Drive, proposed to be realigned approximately 175 ft to the west directly across from Kendrick Road forming a four-way intersection with East River Road. Murlin Drive is a spine, approximately half a mile long south of East River Road, currently providing access to Whipple Park Apartments and is anticipated to provide access to future development. A second point of access is proposed on East River Road at the existing driveway to the University's Center for Optoelectronics and Imaging building and the Laboratory for Laser Energetics. This existing driveway is proposed to access any development that would take place in pod 3 and perhaps pod 4.

Several build out scenarios, from 250,000 sf to 2,000,000 sf, have been analyzed up to the year 2023 to show effects of the proposed developments at different stages. Additionally, two conditions were analyzed for each of the scenarios. The first condition examined existing roadway geometry, while the second condition examined the roadway geometry with the currently planned NYSDOT improvements. There are several improvement projects programmed for the transportation network in the vicinity of the South Campus that will have a dramatic impact on the current roadway network. Many of these improvements have been identified and tentatively scheduled, as a result of the NYSDOT sponsored Southern Corridor Mobility Study, presented in Appendix ‘F’ of the TIS located in Appendix ‘D’ of the DGEIS. The NYS DOT is currently revisiting the schedule and scope of the various projects outlined in the Southern Corridor Mobility Study, so the scheduling of the build-out scenarios of the Rezone Property will continue to be coordinated over time, as each project takes place.

The proposed rezoning will not generate additional traffic volumes to the South Campus. However, when the proposed Rezoned Property developments located on the south campus takes place, new trips are anticipated to be generated. New traffic was estimated based on information published in the Institute of Transportation Engineers' (ITE) Trip Generation, 6th Edition, Volume Two. The land uses proposed for the South Campus are Research, Education, Administration, and Storage/Services. Of the 2,633 total trips to be generated by the full-build (2,000,000 million SF in 2023) during the weekday morning peak hour, 2,184 trips are anticipated to enter the site and 450 trips are anticipated to exit the site. During the weekday evening peak hour 2,300 total trips are to be generated, 565 trips are anticipated to enter the site and 1,735 trips are anticipated to exit the site. Each build out scenario presented is a percentage of the 2023 potential Full-Build scenario. These build scenarios were developed to show the likely pattern of phased improvements over the course of the next 20 years. The trip generation
calculations are presented in Appendix ‘B’ of the TIS located in Appendix ‘D’ of the DGEIS.

The anticipated traffic to be generated for the proposed University of Rochester South Campus developments was distributed on the adjacent highway system through the use of the Genesee Transportation Council’s (GTC) Tmodel2 computer software program. The Tmodel2 software data is taken from the GTC’s year 2000 and 2025 travel demand models for the morning and evening peak hours. The surrounding population centers, existing traffic patterns, and logical routing were also taken into consideration an anticipated approximately 85 percent of the traffic generated to and from the proposed development would use the I-390 and I-590 expressway systems. Therefore, the vast majority of the anticipated traffic volumes related to future South Campus development will have negligible impact to the neighborhood streets. The trip distribution and traffic volume figures are presented in Appendix ‘C’ of the TIS located in Appendix ‘D’ of the DGEIS.

When the south campus development takes place, the intensity of uses associated with an Institutional zoning designation are much greater than that of a residential zoning designation. The number of trips generated if the property were used for residential development would total 161 trips and 215 trips during the weekday morning and weekday evening peak hours, respectively, for full-build conditions. Accordingly there would be an increase in impacts to the adjacent highway network, over those likely to be experienced if the property were used for residential development purposes. However, the NYS DOT and the University propose mitigation measures within the corridor to minimize the impacts of the additional traffic on the area roadway network. Several of the NYS DOT projects are underway, at various stages of construction, planning or design. Since 85 percent of the traffic generated would use the I-390 and I-590 expressway systems, the locations of major improvements are limited to the expressway system intersections and ramps, and the University’s main access drive (E. River Road at Kendrick Road).

Table 14 below, summarizes the impacts to the adjacent street network as a result of the different development envelopes that could take place over the next 20 years. Also identified are the mitigation measures that would be required to bring the operational capacity of the street network (and specific intersections) to an acceptable level of service during the weekday morning and weekday evening peak hours. The complete analysis with detailed review of each intersection studied is provided in Appendix ‘E’ of the TIS located in Appendix ‘D’ of the DGEIS. Existing and proposed lane configurations are also provided in Appendix ‘C’ of the TIS located in Appendix ‘D’ of the DGEIS.
### TABLE 16 - Traffic Analysis Summary

<table>
<thead>
<tr>
<th>YEAR</th>
<th>SIZE (SF)</th>
<th># OF TRIPS</th>
<th>KEY ISSUES</th>
<th>IMPROVEMENTS NEEDED AT STUDIED INTERSECTIONS *</th>
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<tr>
<td></td>
<td></td>
<td>AM Peak</td>
<td>PM Peak</td>
<td>Existing Geometry</td>
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<tr>
<td>2008</td>
<td>250 K</td>
<td>353</td>
<td>308</td>
<td>- Realignment of Murlin Drive</td>
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<td></td>
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<td>- E. Henrietta Rd and I-390 interchange fails during pk hrs</td>
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<td>2008</td>
<td>1 M</td>
<td>1,406</td>
<td>1,227</td>
<td>- Adjust timings to the I-390 interchanges</td>
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<td>- Signalize Site Drive #2</td>
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<td>2013</td>
<td>1 M</td>
<td>1,406</td>
<td>1,227</td>
<td>- Failing LOS at the W. Henrietta Rd and I-390 interchange w/o NYSDOT improvements</td>
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<td></td>
</tr>
<tr>
<td>2013</td>
<td>2 M</td>
<td>2,633</td>
<td>2,300</td>
<td>- E. River Rd site drive requires NB and WB auxiliary lanes</td>
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</tr>
<tr>
<td>2013</td>
<td>2 M</td>
<td>2,633</td>
<td>2,300</td>
<td>- Additional access on/off I-390 at E. River Rd may be required.</td>
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</tbody>
</table>

Key: Major Improvements Moderate Improvements Minor Improvements

- 3 or 4 auxiliary lanes required at intersection and poor LOS may still be experienced.
- 2 auxiliary lanes required at intersection.
- 1 auxiliary lane required at intersection and/or Signal timing adjustments.

*Studied Intersection numbers:
1. E. River Rd @ Kendrick Rd/Murlin Drive
2. E. River Rd @ I-390 SB Ramp
3. W. Henrietta Rd @ I-390 NB Ramp
4. W. Henrietta Rd @ E. River Rd
5. E. Henrietta Rd @ I-390 NB Ramp
6. E. Henrietta Rd @ I-390 SB Ramp
7. E. Henrietta Rd @ Crittenden Rd/MCC
8. E. Henrietta Rd @ Westfall Rd
9. E. Henrietta Rd @ South Ave
10. Mt. Hope @ E. Henrietta Rd/Crittenden BLVD
11. Mt. Hope Ave @ Elmwood Ave
12. Mt. Hope @ Lattimore Rd
13. W. Henrietta Rd @ Westfall Rd
14. W. Henrietta Rd @ Southland Dr
15. W. Henrietta Rd @ Doncaster Rd
16. W. Henrietta Rd @ Crittenden Rd
17. W. Henrietta Rd @ BH TLC
18. Kendrick Rd @ Crittenden BLVD
19. Kendrick Rd @ Elmwood Ave
20. E. River Rd @ Site Drive #2

The identified Mitigation Measures have been provided to serve as an indicator of the magnitude of the improvements and investment required to meet the desired operational levels of the street/highway network. Additional lanes along E. River Road will need to be added to accommodate additional traffic. The University has acknowledged that they may need to donate some land along E. River Road for future right-of-
way dedication to accommodate roadway widening. The additional lanes on E. River Road will provide additional capacity to control the queue lengths.

An analysis was conducted to determine the amount of square footage that could be built before major roadway mitigation measures are required directly attributable to the South Campus development. The results showed the study area has the capacity to handle traffic generated by approximately 250,000 square feet of the development at this time, and 500,000 square feet of development in 3-4 years, after several NYS DOT improvements are in place. However, the four studied I-390 interchange intersections currently operate and are anticipated to continue to operate with failing LOS during either the morning and/or evening peak hour. Approximately 85 percent of the traffic generated to and from the proposed development is anticipated to use the I-390 and I-590 expressway systems. As a result the local roadways will have insignificant delays associated with the 250,000 square feet and the 500,000 square feet of development.

Due to the different types of land use anticipated as part of the future south campus development, 250,000 square feet of primarily research buildings will generate less traffic than 250,000 square feet of primarily office buildings. Therefore, it is feasible that up to 500,000 square feet of primarily Research Building development could be built with minor mitigation measures. As each proposed project in the south campus becomes a reality over the next 20-25 years, the associated traffic volumes, Levels of Service and potential impacts will be re-analyzed against the transportation system at that time. Associated mitigation measures, as necessary, will be identified.

G. Utilities / Energy

Potable Water
The future plan for development of the Rezone Property includes the development of institutional buildings with associated parking. The institutional buildings are likely to be a mix use of laboratories and research facilities, similar to the existing University of Rochester River Road Building. The future development was divided into 9 areas of development, referred to as PODS. Refer to Figure 3 of the Water Supply Report, for a schematic plan for future development. The future development will connect to the existing water distribution system. The future development of the Rezone Property is the only known future development located within the water distribution system supplying the Rezone Property.
Based on available mapping from MCWA, it does not appear that any water main extensions will be required to supply the future development. The future development can be served from individual services connected to the existing water supply system. At the time of final design, detailed hydraulic calculations should be done to determine the available pressures and flows at critical locations in the development.

Proposed Areas of Connection

Refer to Figure 3 of the Water Supply Report Appendix for a schematic of the future development.

Pod # 1:
A lateral could be extended from the future building in Pod 1 to the existing 6-inch, cement lined water supply main located along Kendrick Road.

Pod # 2:
A lateral could be extended from the future building in Pod 2 to the existing 6-inch, cement lined water supply main located along Kendrick Road.

Pod # 3:
A lateral could be extended from the future buildings in Pod 3 to the existing 8-inch, cast iron pipe water supply main located along West Henrietta Road.

Pod # 4:
A lateral could be extended from the future building in Pod 4 to the existing 8-inch, ductile iron water supply main located along Murlin Drive.

Pod # 5:
Laterals could be extended from each of the future buildings in Pod 5 to the existing 8-inch, ductile iron water supply main located along Murlin Drive.

Pod # 6:
A lateral could be extended from the future building in Pod 6 to the existing 8-inch, ductile iron water supply main that runs south of and parallel to Conant Road, the northern most road in the Whipple Park Apartments.

Pods # 7 & # 8:
A lateral could be extended from the future building in Pods 7 & 8 to the existing 8-inch, ductile iron water supply main located along Murlin Drive.
Pod # 9:
A lateral could be extended from the future building in Pod 9 to the existing 8-inch, ductile iron water supply main that flows north through properties 11 and 9.

Projected Demands
The future development of the Rezone Property is likely to include a mix of laboratories and research facilities, similar to the existing University of Rochester River Road Building. An average hydraulic loading rate was calculated based on the University of Rochester River Road Building existing loading (3,450 gpd) and the building gross square footage (133,300 gsf) to determine the projected water usage for the future development. The existing demand on the water distribution system will remain the same.

Table 17 - Projected Future Water Usage

<table>
<thead>
<tr>
<th>Building (GSF)</th>
<th>Future Use</th>
<th>Expected Flow Rate*</th>
<th>Average Daily Flow Rate</th>
<th>Peak Flow Rate (2.5 PF)</th>
</tr>
</thead>
<tbody>
<tr>
<td>POD-1 – 312,500 gsf</td>
<td>Institutional / Educational</td>
<td>0.03 gpd/GSF</td>
<td>9,375 gpd (6.5 gpm)</td>
<td>16 gpm</td>
</tr>
<tr>
<td>POD-2 – 312,500 gsf</td>
<td>Institutional / Educational</td>
<td>0.03 gpd/GSF</td>
<td>9,375 gpd (6.5 gpm)</td>
<td>16 gpm</td>
</tr>
<tr>
<td>POD-3 – 589,500 gsf</td>
<td>Institutional / Educational</td>
<td>0.03 gpd/GSF</td>
<td>17,685 gpd (12.3 gpm)</td>
<td>31 gpm</td>
</tr>
<tr>
<td>POD-4 – 120,000 gsf</td>
<td>Institutional / Educational</td>
<td>0.03 gpd/GSF</td>
<td>3,600 gpd (2.5 gpm)</td>
<td>6 gpm</td>
</tr>
<tr>
<td>POD-5 – 469,250 gsf</td>
<td>Institutional / Educational</td>
<td>0.03 gpd/GSF</td>
<td>14,077 gpd (9.8 gpm)</td>
<td>25 gpm</td>
</tr>
<tr>
<td>POD-6 – 50,000 gsf</td>
<td>Institutional / Educational</td>
<td>0.03 gpd/GSF</td>
<td>1,500 gpd (1 gpm)</td>
<td>3 gpm</td>
</tr>
<tr>
<td>POD-7/8 – 93,000 gsf</td>
<td>Institutional / Educational</td>
<td>0.03 gpd/GSF</td>
<td>2,790 gpd (2 gpm)</td>
<td>5 gpm</td>
</tr>
<tr>
<td>POD-9 – 50,000 gsf</td>
<td>Institutional / Educational</td>
<td>0.03 gpd/GSF</td>
<td>1,500 gpd (1 gpm)</td>
<td>3 gpm</td>
</tr>
</tbody>
</table>

*The numbers used for this analysis are based on building uses at the River Road Buildings (133,300 gsf).

The total projected peak domestic demand from the future development of the Rezone Property is 105 gpm. The residual pressure at the existing water distribution system due to this demand is 49 psi.

Projected Fire Demand
Based on the projected building use of the future development, the buildings are likely to require an internal fire suppression system. The demand of the systems, calculated to the most remote sprinkler head is 250 gpm (sprinkler demand plus hose demand) plus an additional 30% allowance (assuming dry systems) for a total sprinkler demand of 325 gpm per building. The residual pressure at the existing water distribution system due to this demand is 46 psi. At the time of final design, it is
recommended that booster pumps be utilized on the fire service at any building with a pressure less than 40 psi downstream of the meter.

Impact of Rezoning on Water Distribution System

The rezoning of the action site will reduce the impact to the existing water distribution system. The projected building use for the future development will have less demand on the system than the possible developments under the existing zoning and projected zoning for the Town of Brighton Comprehensive Plan 2000.

- **Demand on Water Distribution System per Current Zoning**
  - Domestic Demand = 1,435 gpm
  - Fire Demand = 2,361 gpm

- **Demand on Water Distribution System per Town of Brighton Comprehensive Plan 2000**
  - Domestic Demand = 415 gpm
  - Fire Demand = 2,026 gpm

- **Demand on Water Distribution System per IPD Rezoning**
  - Domestic Demand = 105 gpm
  - Fire Demand = 367 gpm

Design Requirements
Per the Monroe County Department of Public Health (MCDOH) and MCWA, the future water services will require backflow prevention devices to protect the public water supply from possible cross contamination and designed according to MCWA / MCDOH and Town of Brighton design standards. The minimum design pressure on site would be 35 psi for domestic services and 20 psi for fire service.

Conclusions
The existing water distribution system is capable of handling the future demands on the system from the Rezone Property. There will be no improvements or changes to the existing configuration required. The future development can be served from service connections to the existing water distribution system. There will be no new easements required for water supply. At the time of final design for future developments within the Rezone Property, it is likely that booster pumps will be required on the fire services for the future buildings. This is recommended for fire services with a residual pressure less than 40 psi downstream of the meter under fire demand.

Refer to Figure 14 for a schematic of the future development with the existing water distribution system.
Sanitary Sewer

The Town Department of Public Works (DPW) maintains the existing wastewater management system within the Rezone Property. The wastewater management system from the Town discharges into the Monroe County Pure Waters (MCPW) system.

The Town of Brighton Department of Public Works maintains the existing gravity sanitary sewer system throughout the Town of Brighton. In the vicinity of the Rezone Property, the sanitary sewer directs wastewater to two sanitary pump stations maintained by Monroe County Pure Waters (MCPW). The Town of Brighton Department of Public Works (DPW) also maintains the existing sanitary sewer system within the Rezone Property.

The future plan for development of the Rezone Property includes the development of institutional buildings with associated parking. The institutional buildings are likely to be a mix use of laboratories and research facilities, similar to the existing University of Rochester River Road Building. The future development was divided into 9 areas of development, referred to as PODS. Refer to Figure 3 of the Sanitary Sewer Report, for a schematic plan for future development. The future development will discharge wastewater to the existing sanitary sewer system. The future development of the Rezone Property is the only known future development located within the sanitary sewer system tributary to Brighton #5 Pump Station.

Proposed Areas of Connection
To serve the development within Pods 7, 8, and 9, as presented in Figure 3, the existing sanitary sewer located at the end of Murlin Drive in the Whipple Park Apartments may require extension (approximately 350-ft) from an existing manhole. The possible extension would be required to be designed to the Town of Brighton design standards. The extended sewer would be 8-in diameter, minimum, at a minimum slope of 0.40%. The extended sewer would require a 20-ft easement to the Town DPW. The buildings in Pods 7, 8, 9 would connect to the extended sewer via lateral connections. The sewer can be extended to a point that it would be possible for the homes located along Crittenden Road west of Crittenden Way and east of the Lehigh Valley Trail to connect to the extended sewer via a force main from a pumped system. As with existing conditions, due to the elevation difference and the existing depth of the sanitary sewer, the existing sanitary sewer cannot be extended to serve these homes via a gravity connection. The existing sanitary sewer system has additional capacity available for the possible connection, but upon design of such a system, the capacity should be checked after determination of the required pumping rate. An easement would be required for any private or public facility crossing University of Rochester property.
The remainder of the future development should not require any extensions of the wastewater distribution system. The future development within Pod 6 can connect to the existing 10-in sewer along Murlin Drive via a lateral connection. The future development within Pod 5 can connect to the existing 18-in sanitary trunkline where it passes through the Rezone Property west of the River Road institutional buildings via a lateral connection. The future development within Pods 3 & 4 can connect to the existing 10-in sanitary trunk line where it passes through the Rezone Property east of the Laser Lab/COI via a lateral connection. The future development within Pod 2 can connect to the existing 18-in sanitary trunkline on Kendrick Road via a lateral connection. The future development within Pod 1 can connect to the existing 10-in sanitary trunkline on East River Road via a lateral connection. The lateral connections should be 6-in, minimum.

Projected Demands
The future development of the Rezone Property is likely to include a mix use of laboratories and research facilities, similar to the existing University of Rochester River Road Buildings. An average hydraulic loading rate was calculated based on the University of Rochester River Road Buildings existing sanitary loading (3,450 gpd) and the building gross square footage (133,300 gsf) to determine the projected sanitary loading from the future development.
### Table 18 - Projected Future Average Daily Sanitary Sewer Flows

<table>
<thead>
<tr>
<th>Building (Sewer)</th>
<th>Future Use</th>
<th>Expected Flow Rate</th>
<th>Total Projected Flow Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>POD-1 - 312,500 gsf (10&quot; Trunkline)</td>
<td>Institutional / Educational</td>
<td>0.03 gal/day per GSF</td>
<td>9,375 gpd (7 gpm)</td>
</tr>
<tr>
<td>POD-2 - 312,500 gsf (18&quot; Trunkline)</td>
<td>Institutional / Educational</td>
<td>0.03 gal/day per GSF</td>
<td>9,375 gpd (7 gpm)</td>
</tr>
<tr>
<td>POD-3 - 589,500 gsf (10&quot; Trunkline)</td>
<td>Institutional / Educational</td>
<td>0.03 gal/day per GSF</td>
<td>17,685 gpd (13 gpm)</td>
</tr>
<tr>
<td>POD-4 - 120,000 gsf (10&quot; Trunkline)</td>
<td>Institutional / Educational</td>
<td>0.03 gal/day per GSF</td>
<td>3,600 gpd (3 gpm)</td>
</tr>
<tr>
<td>POD-5 - 469,250 gsf (18&quot; Trunkline)</td>
<td>Institutional / Educational</td>
<td>0.03 gal/day per GSF</td>
<td>14,077 gpd (10 gpm)</td>
</tr>
<tr>
<td>POD-6 - 50,000 gsf (18&quot; Trunkline)</td>
<td>Institutional / Educational</td>
<td>0.03 gal/day per GSF</td>
<td>1,500 gpd (1 gpm)</td>
</tr>
<tr>
<td>POD-7/8 - 93,000 gsf (18&quot; Trunkline)</td>
<td>Institutional / Educational</td>
<td>0.03 gal/day per GSF</td>
<td>2,790 gpd (2 gpm)</td>
</tr>
<tr>
<td>POD-9 - 50,000 gsf (18&quot; Trunkline)</td>
<td>Institutional / Educational</td>
<td>0.03 gal/day per GSF</td>
<td>1,500 gpd (1 gpm)</td>
</tr>
<tr>
<td>Nuclear Research Facility (10&quot; Trunkline)</td>
<td>Replaced by POD-1</td>
<td>0 gal/day per person</td>
<td>0 gpd</td>
</tr>
<tr>
<td>River Road Buildings (18&quot; Trunkline)</td>
<td>Same as Existing</td>
<td>10 gal/day per person</td>
<td>3,450 gpd (3 gpm)</td>
</tr>
<tr>
<td>Laser Lab/COI (10&quot; Trunkline)</td>
<td>Same as Existing</td>
<td>10 gal/day per person</td>
<td>3,800 gpd (3 gpm)</td>
</tr>
<tr>
<td>Whipple Park Apartments (18&quot; Trunkline)</td>
<td>Same as Existing</td>
<td>240 gal/day per unit</td>
<td>60,000 gpd (42 gpm)</td>
</tr>
<tr>
<td>Residences East of Rezone Site (10&quot; Trunkline)</td>
<td>Same as Existing</td>
<td>320 gal/day per home</td>
<td>88,000 gpd (62 gpm)</td>
</tr>
<tr>
<td>West Henrietta Pump Station (18&quot; Trunkline)</td>
<td>-</td>
<td>600 gpm**</td>
<td>(600 gpm)</td>
</tr>
</tbody>
</table>

*Based on River Road Building (3,450 gpd / 133,300 gsf)

**MCPW Record Data

- Total Projected Average Daily Flow from Future Development = 60,000 gpd +/- (42 gpm +/-)
- Total Projected Average Daily Flow to 10" Trunkline = 87 gpm +/-
- Total Projected Average Daily Flow to 18" Trunkline = 665 gpm +/-
- Total Projected Average Daily Flow into Brighton #5 Pump Station = 752 gpm +/-
### Table 19 - Projected Future Peak Sanitary Sewer Flows

<table>
<thead>
<tr>
<th>Building (Sewer)</th>
<th>Average Daily Flow</th>
<th>Peaking Factor</th>
<th>Total Estimated Peak Flow Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>POD-1 - 312,500 gsf (10&quot; Trunkline)</td>
<td>7 gpm</td>
<td>2.5</td>
<td>17.5 gpm</td>
</tr>
<tr>
<td>POD-2 - 312,500 gsf (18&quot; Trunkline)</td>
<td>7 gpm</td>
<td>2.5</td>
<td>17.5 gpm</td>
</tr>
<tr>
<td>POD-3 - 589,500 gsf (10&quot; Trunkline)</td>
<td>13 gpm</td>
<td>2.5</td>
<td>32.5 gpm</td>
</tr>
<tr>
<td>POD-4 - 120,000 gsf (10&quot; Trunkline)</td>
<td>3 gpm</td>
<td>2.5</td>
<td>7.5 gpm</td>
</tr>
<tr>
<td>POD-5 - 469,250 gsf (18&quot; Trunkline)</td>
<td>10 gpm</td>
<td>2.5</td>
<td>25 gpm</td>
</tr>
<tr>
<td>POD-6 - 50,000 gsf (18&quot; Trunkline)</td>
<td>1 gpm</td>
<td>2.5</td>
<td>2.5 gpm</td>
</tr>
<tr>
<td>POD-7/8 - 93,000 gsf (18&quot; Trunkline)</td>
<td>2 gpm</td>
<td>2.5</td>
<td>5 gpm</td>
</tr>
<tr>
<td>POD-9 - 50,000 gsf (18&quot; Trunkline)</td>
<td>1 gpm</td>
<td>2.5</td>
<td>2.5 gpm</td>
</tr>
<tr>
<td>Nuclear Research Facility (10&quot; Trunkline)</td>
<td>0</td>
<td>2.5</td>
<td>0</td>
</tr>
<tr>
<td>River Road Buildings (18&quot; Trunkline)</td>
<td>3 gpm</td>
<td>2.5</td>
<td>7.5 gpm</td>
</tr>
<tr>
<td>Laser Lab/COIL (10&quot; Trunkline)</td>
<td>3 gpm</td>
<td>2.5</td>
<td>7.5 gpm</td>
</tr>
<tr>
<td>Whipple Park Apartments (18&quot; Trunkline)</td>
<td>42 gpm</td>
<td>2.5</td>
<td>105 gpm</td>
</tr>
<tr>
<td>Residences East of Rezone Site (10&quot; Trunkline)</td>
<td>62 gpm</td>
<td>2.5</td>
<td>155 gpm</td>
</tr>
<tr>
<td>West Henrietta Pump Station (18&quot; Trunkline)</td>
<td>-</td>
<td>-</td>
<td>1,100 gpm*</td>
</tr>
</tbody>
</table>

*MCPW Record Data

- Total Projected Peak Flow from Future Development = 110 gpm
- Total Projected Peak Flow to 10" Trunkline = 220 gpm (< 520 gpm capacity)
- Total Projected Peak Flow to 18" Trunkline = 1,265 gpm (< 1,670 gpm capacity)
- Total Peak Flow into Brighton #5 Pump Station = 1,485 gpm

The Brighton #5 Pump Station has a pumping capacity of 2,100-gpm. The projected peak demand into the pump station from the entire contributing
area is 1,485-gpm, leaving a 615-gpm reserve pumping capacity. Per a meeting with MCPW on September 2, 2005 and the available data there are no foreseeable capacity problems at the Brighton #5 Pump Station based on the projected demands from the future development.

In addition to the projected peak flows for the University, the possibility of connecting homeowners on Crittenden Road, currently on individual septic systems, was examined. An 8-inch sanitary truss runs parallel to Murlin Drive and ends approximately 500-feet north of the University’s southern property line. It is not possible to gravity feed from the residential lots to the 8-inch line because of topographic constraints. There is however, enough capacity within the existing sewer system to accommodate the single family homes. It would be possible to connect the homes on Crittenden Road to the sewer system if each home installed a grinder pump and new lines to tie into the 8-inch truss line. The installations of the pumps and new lines would be at the expense of the individual property owners.

Design Requirements
Sanitary sewer extensions and lateral connections would be required to be designed to the Town of Brighton sanitary sewer design requirements. Based on the mixed usage of laboratories and research facilities for future buildings, it is likely that the developments would require special permitting under Chapter 149 of the Town of Brighton Code due to the potential of discharges other than standard household of commercial discharge. The University does maintain a hazard waste program in which all hazardous wastes are monitored and disposed of properly. At the time of future development, the University would identify if any of the wastes generated from a proposed building would trigger the need for a special permit under Chapter 149 of the Town code. Refer to Figure 14 for a schematic of the future development with the wastewater distribution system.

Conclusions
Based on the available data, calculations, and discussions with Monroe County Pure Waters, there is capacity available in the existing sanitary sewer system for the future development of the Rezone Property to discharge wastewater into the system. The existing sanitary sewer is deep enough to allow for the possible extension of the sanitary sewer. Pump stations will not be required to convey wastewater from any portion of the Rezone Property. There are no current investigations into infiltration or concerns with infiltration of the sanitary sewers on or tributary to the University of Rochester Rezone Property. There will be no improvements required to the existing sanitary sewer system or pump stations. To confirm the existing sanitary flow rates and reserve capacity, flow meters will be placed in-line at the 10-in and 18-in trunklines from February thru April.
Easements/ ownership requirements for future connections

The extended sewer (main lines) would require a 20-ft easement to the Town DPW, though easements will not be required for lateral connections.

There are no adverse impacts associated with the University granting necessary easements. The easements are put in place to allow for appropriate maintenance and repairs in the event of a failure to the system.

Discharges requiring protection under Chapter 149 of Town Code

The guidelines regarding discharging into the public sewer for the Town are outlined in Section V of this document. Any future development of the properties that are part of this proposed action will comply with the Code and seek the necessary permits if needed.

As previously mentioned, the University has a hazardous waste program where any waste going down the drain is regulated. Much of the chemical waste produced by the University facilities is collected and reprocessed.

Based on the existing use of the University buildings within the Rezone Property and the future development, it is likely that the buildings within the development would contain a mix use of laboratories and research facilities. Based on that type of usage, it is likely that the laboratory discharges would require special permitting under Chapter 149 of the Town of Brighton Code due to the potential of discharges other than standard household or commercial discharge. Refer to the Sanitary Sewer Report included in Appendix F.

Electricity

RG&E maintains the electric service lines located in the vicinity of the Rezone Property. The University also supplies electric service to existing facilities located within the Rezone Property. The university maintains a 34.5 kV substation, which is powered from a 34.5 kV RG&E line, located on Kendrick Road behind the Nuclear Research Facility. The substation provides electric service to the Nuclear Research Facility and the Laser Lab/CoI. It is anticipated that RG&E will provide electric service for the future development of the Rezone Property. Future development of the Rezone Property would require the extension of the existing RG&E electric facilities to service the development. Based on the future use of the Rezone Property, the individual buildings would likely require electric usage similar to the River Road Buildings. The estimated electric use for the future development of the Rezone Property is presented in Table 18.
TABLE 20 – Estimated Electric Usage

<table>
<thead>
<tr>
<th>Service</th>
<th>KWh/GSF*</th>
<th>kWh</th>
<th>Peak kW/GSF*</th>
<th>Peak kW</th>
</tr>
</thead>
<tbody>
<tr>
<td>POD-1 – 312,500 gsf</td>
<td>8</td>
<td>2,500,000</td>
<td>0.002</td>
<td>625</td>
</tr>
<tr>
<td>POD-2 – 312,500 gsf</td>
<td>8</td>
<td>2,500,000</td>
<td>0.002</td>
<td>625</td>
</tr>
<tr>
<td>POD-3 – 589,500 gsf</td>
<td>8</td>
<td>4,716,000</td>
<td>0.002</td>
<td>1,180</td>
</tr>
<tr>
<td>POD-4 – 120,000 gsf</td>
<td>8</td>
<td>960,000</td>
<td>0.002</td>
<td>240</td>
</tr>
<tr>
<td>POD-5 – 469,250 gsf</td>
<td>8</td>
<td>3,754,000</td>
<td>0.002</td>
<td>940</td>
</tr>
<tr>
<td>POD-6 – 50,000 gsf</td>
<td>8</td>
<td>400,000</td>
<td>0.002</td>
<td>100</td>
</tr>
<tr>
<td>POD-7/8 – 93,000 gsf</td>
<td>8</td>
<td>744,000</td>
<td>0.002</td>
<td>185</td>
</tr>
<tr>
<td>POD-9 – 50,000 gsf</td>
<td>8</td>
<td>400,000</td>
<td>0.002</td>
<td>100</td>
</tr>
</tbody>
</table>

*Based on building use similar to River Road Buildings (133,300 gsf)

Natural Gas

RG&E maintains the natural gas service pipelines located within the Rezone Property. Gas lines and laterals provide service to the Whipple Park Apartments, Nuclear Research Facility, Laser Lab/COI, and the River Road institutional buildings. The estimated gas use within the existing Rezone Property is presented in Table 19.

TABLE 21 – Estimated Gas Usage

<table>
<thead>
<tr>
<th>Service</th>
<th>Annual DT/GSF*</th>
<th>Annual DT</th>
<th>Peak DT/Hr/GSF*</th>
<th>Peak DT/Hr</th>
</tr>
</thead>
<tbody>
<tr>
<td>POD-1 – 312,500 gsf</td>
<td>0.05</td>
<td>15,625</td>
<td>0.000002</td>
<td>6.3</td>
</tr>
<tr>
<td>POD-2 – 312,500 gsf</td>
<td>0.05</td>
<td>15,625</td>
<td>0.000002</td>
<td>6.3</td>
</tr>
<tr>
<td>POD-3 – 589,500 gsf</td>
<td>0.05</td>
<td>29,475</td>
<td>0.000002</td>
<td>11.8</td>
</tr>
<tr>
<td>POD-4 – 120,000 gsf</td>
<td>0.05</td>
<td>6,000</td>
<td>0.000002</td>
<td>2.4</td>
</tr>
<tr>
<td>POD-5 – 469,250 gsf</td>
<td>0.05</td>
<td>23,462</td>
<td>0.000002</td>
<td>9.4</td>
</tr>
<tr>
<td>POD-6 – 50,000 gsf</td>
<td>0.05</td>
<td>2,500</td>
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</tr>
<tr>
<td>POD-7/8 – 93,000 gsf</td>
<td>0.05</td>
<td>4,650</td>
<td>0.000002</td>
<td>1.9</td>
</tr>
<tr>
<td>POD-9 – 50,000 gsf</td>
<td>0.05</td>
<td>2,500</td>
<td>0.000002</td>
<td>1.0</td>
</tr>
</tbody>
</table>

*Based on building use similar to River Road Buildings (133,300 gsf)

Future development of the Rezone Property would require the extension of the existing RG&E gas facilities to service the development. Based on the future use of the Rezone Property, the individual buildings would likely require gas usage similar to the River Road Buildings. The estimated gas
use for the future development of the Rezone Property is also presented in Table 19.

Telecommunications

FTR maintains the telephone service lines located within the Rezone Property. Future development at the Rezone Property would receive telecommunication service via connections to the existing FTR network. The future telecommunication lines are likely to be underground. FTR will provide maintenance for future lines.

H. Community & Neighborhood Character

The proposed action is not anticipated to have a significant adverse impact on the surrounding community or neighborhood character. When, and if, actual buildings are proposed in the future, further analysis into the community character impact would be conducted based on the size, location and use of the buildings.

As per the Comprehensive Plan, the proposed action is sensitive to the recommendations in the plan and has adhered to the intent of the Plan. The Plan states:

The area north of the southern end of Whipple Park is recommended for institutional use compatible with the existing U of R facilities. Any institutional development of this area should be based upon a master plan for the entire area that has been approved by the town. The master plan should include: a buffer that is substantially wider than the 50 feet currently required by town regulations between the institutional district and any surrounding residential development; a buffer along the abandoned Lehigh Valley Rail ROW; access only from East River Rd. (no access from Crittenden Rd.); building uses and orientations; a transition of intensity of building and impervious coverage from south to north; and a drainage plan.

All elements recommended for this area in the Comprehensive Plan are incorporated in the proposed action and will be carried through when and if the site is developed.

Similarly, several measures are proposed as part of this action to reduce the potential visual impacts of the Rezone Property’s future development on the surrounding neighbors. First, the theoretical layout of uses and buildings is sensitive to the adjacent land uses; putting more intense uses toward the highway and less intense uses near the neighborhood areas. Secondly, an additional 50 ft. buffer area is proposed to provide an additional landscape buffer of plantings. Lastly, the elimination of access from Crittenden Road is anticipated to reduce the visual impact and associated traffic related impacts to the residential properties south of the Rezone Property.
The proposed densities, as demonstrated in Figure 1 and Figure 2, depict how the desired square footage can be achieved while remaining sensitive to the adjacent residential neighbors. For parcels #1 and #2, the furthest points from residential land uses, an overall height of 90-feet would be permissible, providing buildings of this height for each of these two parcels would provide a density of approximately 14,000 square feet per acre, versus the allowed 10,000 square feet per acre. The arguments can be made that allowing a building of this height is appropriate because of its proximity to major thoroughfares such as I-390 and West Henrietta Road. Additionally, these two parcels are visually obstructed from their closest residential neighbor.

Densities on the northern portion of the Rezone Property, everything north of the southern limits of the Whipple Park apartments, of Parcel 3 would allow 10,250 square feet per acre. This level of density would facilitate several two and three story buildings, their associated site improvements (such as parking facilities and stormwater management ponds) while remaining sensitive to the adjacent residential properties. Buildings in this portion of the property would be no closer than 100-feet to the property line and would be stepped in such a fashion to limit the potential for visual impacts to the adjacent neighbors. For further analysis of this issue, review the materials referenced in Appendix J.

I. Police/Fire/Ambulance Service

The number of service calls placed by the South Campus property is relatively modest. It is assumed the number of calls placed to emergency services will rise as the Rezone Property is developed. There are significant variations in the number of calls reported, as a result of the types of uses on a given property, i.e. the number of calls on the River Campus is much higher than the South Campus because of the number of students living on-campus. It is not known if student housing will be provided on the Rezone Property, therefore it is premature to suggest there will be a specific percentage increase in service calls.

For purposes of this assessment it was assumed the existing mix of buildings and uses on the South Campus would be similar in the future. As documented in the previous section, the South Campus generated an average of one call per year for each 4,451 square feet on the South Campus. Using this logic, the full build out of the Rezone Property would generate approximately 450 calls for response each year. This number represents the total of all calls, including those responded to by University forces, which represents a majority of the calls.
The University is committed to meeting its obligations with regard to providing a safe community for its employees, workers, and students. As such, the University will work with the Town and its service providers to determine what resources will be needed to adequately provide these services without detriment to the rest of the Brighton community. One option for meeting these obligations is to establish a P.I.L.O.T. program whereby the University would contribute a proportionate amount of resources to meet the minimum emergency response services needed for an institutional development.

J. Recreational Opportunities

The Town's Comprehensive Plan outlines goals for recreation and open space. The five main goals for open space and recreation are:

I. Provide for the active and passive recreational needs of current and future town residents.

II. Preserve, in their natural state, open space areas that have significant natural value.

III. Ensure that acquisition and development of open space areas are responsive to the fiscal implications of such actions.

IV. Protect sensitive environmental areas, including wetlands, floodplains, watercourses, woodlots, steep slopes, and wildlife habitats and migration corridors.

V. Provide pedestrian and bicycle linkages among parks, recreation areas, and neighborhoods and between neighborhoods and commercial areas.

The University has demonstrated its commitment to the Town's recreational goals via the donation/purchase of the Lehigh Valley Trail right-of-way along the western limits of the Rezone Property. The proposed action further supports the goals of the Town through the donation of the property south of Crittenden Road. This area is noted in the Comprehensive Plan as a priority area to acquire for Town Parkland and has significant natural value, is adjacent to a planned trail, and has sensitive environmental areas.

Impacts to the Lehigh Valley Trail will be minimal. It is anticipated that any proposed development would be setback far enough from the Trail that there would be only minimal visual impacts (to the Trail's users) as a result of new development. The University is committed to mitigating these impacts through increased buffer plantings and landscaping. The
University played an active role in the committee to develop the Lehigh Valley Railroad Trail and remains committed to maintaining existing access to the Trail.

K. Growth Inducement Aspects

The proposed rezoning action is not anticipated to result in spin-off development (such as increasing the commercial activity along West Henrietta Road in order to be closer to the University’s South Campus) or encourage additional residential development. Likely spin-off development would come from new companies developing as a result of research projects in which a new product would be developed or brought to market. These types of developments could occur anywhere and would not necessarily need to locate near the South Campus or within the Town. Any extension of utilities is intended to serve the University property and existing residential parcels, and not to serve new areas that are undeveloped.

The infrastructure improvements that appear likely to be needed in the future are not of a nature that would allow for much public benefit, that is they are no bypassing of residential or commercial developments with poor or no services. All of the utility expansions would be located fairly close to the Rezone Property, requiring little, if any, main line extensions, which are usually the extensions that provide the greatest opportunity for connecting adjacent residential properties.

VII. Reasonable Alternatives to be Considered

A. No Action

As documented, the University has limited land holdings and has little room to expand on its River Campus and Medical Campus without the displacement of existing buildings, and or parking. As such, the University has begun a long-range program to assess the feasibility and prepare a conceptual plan for developing its South Campus property. The current residential zoning is not desirable as the University does not have the means to develop residential properties, nor does it desire to do so. Taking no action with the Property is thus not considered a viable alternative.

Potential Significant Adverse Impacts
A “no-action” would result in no new development immediately and would require the University to go before the Town to receive a Special Permit in addition to site plan approval in the event a new building was proposed on the South Campus. As there would be no new development there would be
no significant adverse impacts to a “no-action” proceeding. However, with
no action there would be no improvements made to existing buffer areas
or the existing drainage problems. A “no-action” would result in a lost
opportunity to address problems that have plagued the area for many
years.

Mitigation
As a “no-action” approach would result in no new development and no
adverse impacts, no mitigation is required.

B. Residential Development (pursuant to existing zoning)

The existing zoning designation for the University’s South Campus is RLB
(Residential – Low Density) and carries a minimum required lot size of
13,500 square feet. A conceptual plan for this area was not developed;
however the potential lot yield for this area would be approximately 150
units, assuming 80 percent of the non-developed land between East River
Road and Crittenden Road was developed.

The portion of the University’s property south of Crittenden Road (the
former Lilac Park Subdivision) is currently zoned RLB (Residential – Low
Density; 13,500 square feet minimum lot size requirement) in the northern
section of the property, RLC (Residential – Low Density; 11,250 square
feet minimum lot size requirement) in the central section of the property,
and RM (Residential – Medium Density; 7,000 square feet minimum lot
size) in the southern portion of the property. A conceptual plan for this
area was not developed; however the potential lot yield for this area would
be approximately 137 units, assuming 80 percent of the non-developed
land was developed.

Potential Significant Adverse Impacts
If the Rezone Property were developed pursuant to existing zoning
approximately 287 single-family residential units would result. Though the
development of these units would likely result in less impervious area than
if developed as Institutional there would still be adverse impacts related to
the amount of land disturbed and the number of peak hour trips generated
by such a development.

The potential for visual impacts to adjacent neighbors is greater than if the
property were developed as IPD because the setback restrictions between
residential properties is far less than the 100-feet setback proposed by the
University and there is no specific buffer requirement.

There would be no additional impacts related to the drainage issues
identified for the Rezone Property as any new development would be
required to meet the requirements identified in the Phase II stormwater regulations.

The introduction of 287 single-family units could have an impact on the tax base as residential units typically use more in Town funded services than they generate in taxes, according to the Common Good Planning Council in Rochester.

It is also likely that there will be a number of children associated with an additional 287 single family homes. An influx of children could have an impact on the affected school system.

Mitigation Measures
To address the impacts associated with developing the property as residential the Town would have to consider placing additional buffering requirements on the property; which is not consistent with the zoning code for residential properties.

The introduction of additional students to the school district would be mitigated in the form of school taxes for each new household falling within district boundaries.

Traffic related impacts would be mitigated by assessing where failing levels of service were directly attributable to the proposed residential development; then mitigating accordingly via roadway or signal infrastructure improvements.

C. Development Pursuant to the Comprehensive Plan 2000

As part of the Town’s 2000 comprehensive planning effort, the University’s South Campus property was identified for changes to the existing zoning designation (medium density residential). Proposed as part of the Comprehensive Plan 2000 was changing a significant portion of the University’s property to an “Institutional” zoning designation. This area included all of the University’s land holdings south of I-390 to a line roughly parallel with the southern limits of the existing Whipple Park graduate student housing, on the South Campus property. The remainder of the property, that portion between Whipple Park and Crittenden Road, was proposed as “Low Density Residential (1/2 acre lots)”. The portion of the University’s property south of Crittenden Road was proposed as “Park” with a secondary use of “Large Lot Residential (1 acre lots).

As part of the University’s application to the Town the above described scenario was translated into a conceptual plan. Figure 4 identifies how the
University could develop its land holdings per the Comprehensive Plan 2000 recommendations.

The portion of land north of Whipple Park would be developed with a variety of Institutionally-related uses (yielding 851,522 square feet of new development and a total development potential of 1,540,828 square feet), while the southern portion of the property would be developed as ½ acre lots. This portion of the property would be accessed from Crittenden Road, via an existing 60-feet wide portion of property, which has frontage on Crittenden Road and connects to the properties south of Whipple Park. This portion of the University’s property is 36.68 acres and would yield approximately 35 (1/2 acre lots) single-family units.

The portion of the University’s property, which lies south of Crittenden Road contains approximately 41.77 acres and would yield approximately 32 (1 acre lots) single-family units.

Potential Adverse Impacts
The adverse impacts for this alternative are very similar in character to the proposed alternative, which includes developing the entire Rezone Property with Institutional uses. The key difference is the presence of residential units (½-acre lot size) south of Whipple Park and additional residential units (1 acre lot size) south of Crittenden Road. Both of these residential developments would have direct access onto Crittenden Road, which would likely place a burden on the intersection of Crittenden Road and West Henrietta Road.

In addition to the transportation related impacts there would likely be visual impacts to the adjacent neighbors residing on Crittenden Road, as the proposed ½-acre lots would be accessed via a 60-feet right-of-way on Crittenden Road and would be located in relatively close proximity to the rear yards of the residences on Crittenden Road. This development would yield approximately 35 lots, with less buffering to the Crittenden Road residences, as there is only a 40-feet minimum rear yard requirement.

Both Institutional and Residential developments would be required to meet the Phase II stormwater regulations, therefore drainage would not be anticipated to have an adverse impact on the adjacent residential uses.

Mitigation
There would be few mitigation measures available to address the traffic related impacts along Crittenden Road, as these access points would be the only access points available to the residential developments. To address the capacity operations issues, mitigation measures in the form of roadway and signal infrastructure improvements, would be provided at intersections that experienced a degradation in level of service to an unacceptable level as a result of the proposed residential development.
Visual mitigation measures would be provided in the form of increased buffers to the identified sensitive areas, though the requirements would be less stringent for the residential properties than the Institutional properties as there are considered to be few impacts visually when single-family residences abut single-family residences.

D. Alternative Density Pursuant to the IPD Plan

As part of its application to the Town, the University submitted two separate development plans; the proposed plan and the “Alternative Density” plan. The proposed plan Figure 1 demonstrates how the University’s property could be developed with approximately 1,861,200 square feet of new floor area.

As an alternative to this plan, the University submitted an alternate plan, Figure 2, which contains the same overall floor area, but the buildings were reconfigured to locate more of the floor space to the north of the Rezone Property, away from the residential properties to the south, east, and west. Buildings are shown as five stories tall north of East River Road, and three to four stories tall between Whipple Park and East River Road. Buildings are reduced in height and mass as they are located further south on the Property.

Potential Adverse Impacts
The adverse impacts associated with the alternative density plan are virtually the same as under the proposed plan, as the building footprints and overall impervious areas are the same. The key difference is that there would be less massing in the central portion of the Rezone Property as more of the square footage would be moved to the north of the Rezone Property. This plan will in effect reduce the concerns with visual, noise, vibration, and traffic as each of these components would be further away from the residential properties, considered to be the sensitive receptors.

Drainage and buffering would be handled in the same manner as prescribed in the primary application materials.

Mitigation Measures
The mitigation measures associated with the alternative density plan would be the same as prescribed under the proposed building plan. In fact, the alternative density plan provides mitigation within the plan itself by moving more of the buildout areas to the north, away from the residential properties. Transportation-related impacts would be the same under both plans, therefore the mitigation measures proposed would be the same. Stormwater management areas would also be the same under both scenarios. In either case any proposed buildings would be required to meet the minimum standards of the Phase II stormwater regulations.
DRAFT GENERIC ENVIRONMENTAL IMPACT STATEMENT

FIGURES

THE UNIVERSITY OF ROCHESTER
IPD REZONING

Town of Brighton
Monroe County, New York
PLAN DEMONSTRATES MORE DENSITY IN NORTHERN PORTION OF REZONE PROPERTY
This plan demonstrates the proposed zoning designations per the towns 2000 comprehensive plan.
PARCELS 1, 2, AND 3 ARE IDENTIFIED AS "REZONED PROPERTY".

**U OF A RESUBDIVIDED LOT SIZE**

<table>
<thead>
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<th>Parcel</th>
<th>Projected Acres</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parcel 1</td>
<td>0.02 acres</td>
</tr>
<tr>
<td>Parcel 2</td>
<td>0.02 acres</td>
</tr>
<tr>
<td>Parcel 3</td>
<td>0.02 acres</td>
</tr>
</tbody>
</table>

**TOTAL:** 0.06 acres

**U OF A OWNED PROPERTIES**

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</thead>
<tbody>
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</tr>
<tr>
<td>Parcel 2</td>
<td>0.10 acres</td>
</tr>
<tr>
<td>Parcel 3</td>
<td>0.10 acres</td>
</tr>
</tbody>
</table>

**TOWN OF BRIGHTON LINES (27.25 ACRES)**

**U OF A OWNED LINES (27.25 ACRES)**

**RECORDED LILAC PARK SUBDIVISION**

4173 ACRES / LIBER 33, PAGE 60

TO BE RESUBDIVIDED INTO A SINGLE TAX PARCEL.
This plan demonstrates how the university can achieve higher densities than prescribed in town code, while addressing concerns from adjacent property owners.

Legend:
- Land to be dedicated to town of Brighton

U of R Resurveyed Lot Size

<table>
<thead>
<tr>
<th>Parcel</th>
<th>Acres</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parcel 1</td>
<td>10.00 acres</td>
</tr>
<tr>
<td>Parcel 2</td>
<td>6.00 acres</td>
</tr>
<tr>
<td>Parcel 3</td>
<td>10.00 acres</td>
</tr>
<tr>
<td>Total area</td>
<td>26.00 acres</td>
</tr>
</tbody>
</table>

U of R Amenities/Incentives

1. Density: improvement of parcel 4 to the town
2. Rezoning: creation of rezoning for additional parcel
3. Height restrictions: up to 100 feet
4. Master plan: development of master plan with open space

IPD Calculations

1. Parcel 1: 6.00 acres
2. Parcel 2: 6.00 acres
3. Parcel 3: 10.00 acres
4. Parcel 4: 10.00 acres
5. Total: 32.00 acres

Proposed square footage:
- Gross square footage allowed by regulations: 32,000 square feet
- Proposed square footage: 100,000 square feet
- Impact fee: 32,000 square feet
- Existing square footage: 100,000 square feet
- New square footage: the result of IPD rezoning: 120,000 square feet

Figure 6 - Proposed Density Plan

University of Rochester

PP-1

Sheet 4 of 4
DRAFT GENERIC ENVIRONMENTAL IMPACT STATEMENT

APPENDIX A – Drainage Report

THE UNIVERSITY OF ROCHESTER
IPD REZONING

Town of Brighton
Monroe County, New York
Drainage Report

University of Rochester
IPD Rezoning

CRITTENDEN ROAD TO EAST RIVER ROAD
TOWN OF BRIGHTON
MONROE COUNTY
NEW YORK

Prepared for:

The University of Rochester
612 Wilson Boulevard
Rochester, New York 14620

Prepared by:

FRA ENGINEERING, P.C.
530 SUMMIT POINT DRIVE
HENRIETTA, NEW YORK 14467
(585) 359-0280
FAX (585) 359-1059

October 2005
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Appendix C - Design Storm Information  
Appendix D - Calculations and Analysis Results  
Appendix E - Detention Pond Examples
1. Introduction

The following drainage report addresses the existing site storm water runoff conditions, as well as probable storm water mitigation measures and pollution prevention devices that would be required for future development within the proposed rezoning and Institutional Planned Development (IPD) of the University of Rochester's South Campus based on probable use and allowable zoning for compliance with the Town of Brighton Code, the Irondequoit Creek Watershed Collaborative, and the Phase II requirements of the New York State Pollutant Discharge Elimination System (SPDES) General Permit GP-02-01 for storm water discharges associated with construction activity. The proposed area for rezoning is located between Crittenden Road and East River Road from the Lehigh Valley Rail Trail to West Henrietta Road in the Town of Brighton, Monroe County, New York. Herein referred to as the IPD Rezoning Action.

This report is intended to describe the existing land use, topography, watercourses, drainage patterns, existing drainage problems, and all areas draining through the proposed rezoning area. Additionally, this document is intended to assess future post-development drainage conditions, storm water runoff requirements, and to provide recommendations for alleviating any existing drainage problems. The report describes potential development, possible site limitations, potential impacts to natural resources, runoff quantities, and effects on receiving waters. Potential storm water management facilities are identified, along with an overall approach for design.

2. Background Information

2a. Owner and Developer Information

The University of Rochester
612 Wilson Boulevard
Rochester, NY 14620

2b. Mapping

Figures A, B, C of Appendix A provide information to locate the action site, important physical features, and other information relevant to the action. Figure A is a site location map. Figure B is a map of the entire action site, which includes the overall topography, major watercourses, and the boundaries of each designated drainage subarea. Figure C shows the numbered pod system for identifying possible areas of development.

2c. Project Description

The University of Rochester (the "University") owns hundreds of acres in the Town of Brighton and City of Rochester and is a leading employer in Monroe County. Among the property owned is what is called "South Campus", which totals 188 +/- acres. This property is fully in the Town of Brighton and is bounded on the north by Interstate Route 390, on the west by the former Lehigh Railroad right of way, on the east by West Henrietta Road, and on the south by Southland Drive and Crittenden Road. The property also includes the Lilac Park Subdivision located to the south of Crittenden Road and east of the Lehigh Railroad ROW. Total University of Rochester land holdings in the Town of Brighton are 255 +/- acres. Of this 255 +/- acres, approximately 42 acres lies south of Crittenden Road as either former railroad right of way or as part of the former Lilac Park Subdivision. Additionally, the University (since the start of this rezoning proceeding) has sold approximately 25 acres to the Town of Brighton, which is currently used as the Lehigh Valley Recreational Trail.

The proposal by the University consists of the rezoning (with incentive zoning treatment) of approximately 188 +/- acres (3 parcels) the South Campus property (the land to be rezoned is the
"Rezone Property") from residential to Institutional Planned Development ("IPD") in the Town of Brighton, New York (the "Town").

At the request of the Town, a conceptual plan was developed indicating potential building layouts, densities, and uses. The plan also delineates 10 "development pod" areas; which were created to identify where potential buildings and associated site improvements, such as parking, could be accommodated.

2d. Site Limitations

Slope – The topography of the action site is generally flat. There are some small, local variations in slope. The flat to varying topography of the site presents little limitations for potential development. There will be areas of the site that will require cut and fill practices and re-grading of the existing topography for any potential future development.

Soil Erodibility – There is potential for erosion both during and after any future construction. Most of the soil types on site have a moderate potential for runoff due to slow infiltration rates. A few small areas consist of soils with high runoff potential. These factors will not limit future development, provided erosion control measures, both temporary and permanent, are employed to ensure that erosion does not occur more frequently than under existing conditions.

Depth to Bedrock – According to the Monroe County Soils Survey, the depth to bedrock is greater than 4 - 6 feet. The bedrock is not anticipated to limit any future site development. Refer to the soil survey reference data in Appendix B.

Water Table – According to the Monroe County Soils Survey, the depth to the seasonal high water table throughout the majority of the site is greater than 18 to 24 inches. There are also several regions where it can rise to within 6 to 12 inches of the surface. The seasonal water table is not anticipated to limit any future development, however, future construction activities may require dewatering procedures, such as pumping, during excavations. In areas of poor drainage, the water table can actually rise to or above the surface level. These areas are typically located in wetland areas and will severely limit or preclude development. Refer to the soil survey reference data in Appendix B.

Infiltration Capacity – The infiltration capacity of the soils on the majority of the site have a slow infiltration rate when thoroughly wetted. They consist chiefly of soils with a layer that impedes downward movement of water or soils with a moderately fine texture. There are a few areas that consist of soils with somewhat better infiltration, as well as few areas with much worse infiltration capacity. The areas with the worst infiltration typically consist of clay soils with a high swelling potential or soils with a permanent high water table. The infiltration capacity and permeability of the soils are also much less around the wetlands. For the majority of the action site, however, infiltration capacity will not limit future development. Information according to the Monroe County Soils Survey. Refer to the soil survey reference data in Appendix B.

2e. Potential Impacts to Natural Resources

Erosion, flooding and water quality concerns are the three main ways that storm water from future development within the action area could potentially impact natural resources. Storm water management facilities and erosion control measures will be required to mitigate these concerns for future development. Potential impacts to specific natural resources are discussed below.

Receiving Waters

Red Creek – The potential development, as shown, should have little to no effect to Red Creek. The volume of run off reaching Red Creek should not change because the volume of run off leaving any potential future development will be required to be approximately equal to existing run
off volumes. The quality of the storm water entering Red Creek should not decrease due to any future development because storm water management facilities will be required to meet the design standards of the NYS Storm water Management Design Manual. Temporary erosion control devices put in place during construction and the constructed storm water management facilities should minimize any pollutants from potentially reaching the creek.

*Tributaries to Red Creek* The potential development should have little to no effect to the Red Creek Tributaries. The volume of run off reaching those watercourses that discharge to Red Creek should not change because the volume of run off leaving any potential future development will be required to be approximately equal to existing runoff volumes. The quality of the storm water entering them should not decrease due to any future development because storm water management facilities will be required to meet the design standards of the NYS Storm water Management Design Manual. Temporary erosion control devices put in place during construction and the constructed storm water management facilities should minimize any pollutants from potentially reaching these streams.

*Furlong Creek* The potential development, as shown, should have little to no effect to Furlong Creek. The volume of run off reaching Furlong Creek should not change because the volume of run off leaving any potential future development will be required to be approximately equal to existing runoff volumes. The quality of the storm water entering Furlong Creek should not decrease due to any future development because storm water management facilities will be required to meet the design standards of the NYS Storm water Management Design Manual. Temporary erosion control devices put in place during construction and the constructed storm water management facilities should minimize any pollutants from potentially reaching the creek.

*Re-Established Frog Pond in Property 4* The potential development should have little to no effect to the existing detention pond located in U of R Property 4. The volume of run off reaching the Frog Pond should not change because the added volume of runoff due to the potential actions should be detained by storm water detention ponds detailed in this drainage study and the quantity of runoff leaving the site should be approximately equal to existing conditions.

*Wetlands* The potential development should have little to no effect on the various wetland areas located throughout the site. The volume of run off reaching those wetlands should not change because the volume of run off leaving any potential future development will be required to be approximately equal to existing runoff volumes. The possible storm water management practices outlined in this report should detain the added volume of runoff due to the potential actions. Temporary erosion control devices put in place during construction and the constructed storm water management facilities should minimize any pollutants from potentially reaching these wetlands. The potential development should have none or only minor impacts on the ponded area located on U of R Property 8. The volume of run off reaching that area should not increase because storm water detention ponds detailed in this drainage study would detain it.

**Aquifer**

The infiltration of rainfall through the soil layer is essential for replenishing groundwater. Future development could decrease groundwater recharge due to the increased area of impermeable surfaces such as parking lots and building rooftops where runoff could have previously been infiltrated. During periods of dry weather, groundwater sustains the flow of streams and maintains the hydrology of wetlands on the action site. The potential storm water management facilities, pollution prevention measures, and erosion control practices implemented for the potential on-site activities should alleviate the risk to groundwater level or quality.

**Green Space**

The existing site is predominantly undeveloped, with a relatively small amount of existing development consisting of university buildings. The undeveloped area to the south of Crittenden
Road to be deeded to the Town of Brighton (Lilac Park Subdivision) covers about 42 acres. This leaves approximately 188 acres left to the University of Rochester to be Institutional Planned Development. Refer to Figure B of Appendix A. Of the 188 acres, the potential development will include about 45 acres. Currently about 92% of the part of the action site to remain U of R property is green space. The proposed development will reduce the amount of green space and open space by approximately 16%, leaving a remaining 76% undeveloped.

3. Existing Site Conditions

The general topography of the University of Rochester IPD Rezoning Action site is relatively flat. A series of shrub and forested wetland areas are located throughout the region and many small depressional points occur as well. There are several areas of poor drainage and standing water. Some minor topographic features include small, slightly elevated knobs and ridges that direct storm water runoff short distances into adjacent watercourses and depressional areas. The area to the south of Crittenden Road that is to be deeded to the Town of Brighton has a general slope to the north. The rest of the site, while also sloping generally to the north, has slopes directed in more various directions, though few are very steep.

3a. Existing Land Use

The University of Rochester IPD Rezoning Action area is predominantly vacant and undeveloped. However, there are areas of development such as the university apartment complex located in U of R Property 10, and various institutional and industrial buildings. There are two institutional buildings on the action site; one is located on property 3 and one on property 4. There are two industrial buildings on the site. One is a nuclear research facility located on property 2 and the other is a Monroe County Pure Waters sanitary pump station located on property 1. The area south of Crittenden Road, the Lilac Subdivision, is also vacant and undeveloped.

3b. Existing Drainage

Rezone Property

The Rezone Property study area was divided into 5 separate drainage areas (subareas), as shown on Figure B to determine the existing drainage patterns. Subarea 1 consists of 62.3-acres located in the northwest portion of the Rezone Property, Subarea 2 consists of 52.3-acres located in the northeast portion of the Rezone Property, Subarea 3 consists of 37.9-acres located in the middle portion of the Rezone Property including the Whipple Park Apartments, Subarea 4 consists of 36.4-acres located in the southern portion of the Rezone Property, north of Crittenden Road, and Subarea 5 consists of 41.5-acres located south of Crittenden Road (Lilac Park Subdivision). Within the boundaries of the Rezone Property there are three primary watercourses / drainage ways. The watercourses serve as discharge channels for storm water runoff from the adjacent topography and direct the discharge to Red Creek.

The first watercourse collects drainage from Subarea 1 and is located within University property numbers 3, 5, 6, and 7. The upstream end of the watercourse is located immediately north of the Whipple Park Apartments and flows from east to west. The discharge from this watercourse is directed to Red Creek. It is located primarily within a forested wetland area in University properties 5 and 6. Storm water runoff is received predominantly from regions to the north and east of the watercourse. The topography to the north slopes in the southwest direction. The slope on the east side directs runoff approximately due west into the watercourse. A second, minor drainage-way, which flows southwardly with storm water runoff collected from the immediate surrounding topography in property number 3, confluentes into the main watercourse from wooded wetlands to the north. The watercourse directs the storm water west to the western boundary of the Rezone Property to an existing 24-in x 18-in stone culvert. The culvert was built for the construction of the Lehigh Valley Railroad and is in good condition. The areas upstream and downstream of the culvert are overgrown. Beyond the culvert and western boundary of the
Rezone Property, the watercourse continues to direct storm water west through a small section of residential subdivision, and discharges to Red Creek.

The second watercourse within the Rezone Property collects drainage from Subarea 3 and is located in University property number 8 and flows east to west. This watercourse directs the storm water to the existing wetland located adjacent to the Lehigh Valley Trail and ultimately discharges to Red Creek via an 18-in culvert, following the natural border of vegetation. The 18-in culvert could not be located due to standing water and brush overgrowth. This watercourse confluences with another, smaller watercourse that flows from the northeast. This secondary channel lines part of the eastern side of the wetland and crosses a section of the wetland before entering the primary part of the stream. The adjacent topography to the south of the watercourse slopes to the north directing storm water runoff to the watercourse. The adjacent topography to the east directs runoff westerly into both forks of the stream.

The third watercourse collects drainage from Subarea 4. This watercourse is also known as Furlong Creek. It is located primarily in university property number 9. The creek crosses the Lehigh Valley Trail via a 30-in x 36-in stone culvert before discharging to Red Creek. The culvert was built for the construction of the Lehigh Valley Railroad and is in good condition. The areas upstream and downstream of the culvert are overgrown. The topography on the southeast edge of this section of the stream slopes to the west, while slopes on the northwest side of this section incline in a southeastern direction towards Furlong Creek. There is a second watercourse from the northwest that confluences with Furlong Creek. Runoff entering the watercourse at the forked section predominantly originates from regions to the north with slopes directed southeasterly.

The drainage from Subarea 2 is directed to an existing detention pond located east of the Laser Lab/COI. The outlet of the detention pond directs the storm water north thru a 48-in closed drainage system to the existing storm water facilities at Interstate 390. The storm water facilities at Interstate 390 are maintained by the New York State Department of Transportation. The drainage from Subarea 5 flows to the north, across Crittenden Road, and discharges to Furlong, which directs the storm water west and ultimately discharges to Red Creek.

Off-Site
There are off-site areas that drain through the Rezone Property. The off-site areas were divided into three drainage areas. Refer to Figure B of Appendix A.

The first off-site drainage area, OS-1, consists of approximately 44-acres and includes the residential area to the east of the Whipple Park Apartments and south of the Laser Lab/COI, containing the residences located along Southland Drive, Sylvia Road, and Doncaster Road. The storm water runoff from OS-1 is collected in a closed conduit drainage system that conveys the storm water to a channel via a 36-in culvert. The channel directs the storm water to the existing detention pond located east of the Laser Lab/COI.

The second off-site drainage area, OS-2, consists of approximately 30-acres and includes the residential area east of the Whipple Park Apartments and the Rezone Property and south of OS-1, containing the residences located along Furlong Road and Sylvia Road. The storm water runoff from OS-2 is collected in a closed conduit drainage system that conveys the storm water to a channel located at the western end of Furlong Road via a 24-in culvert. The channel directs the storm water to Furlong Creek.

The last off-site drainage area, OS-3, consists of approximately 65-acres and includes the residences located along Crittenden Road and the property located south of Crittenden Road and east of the Lilac Park Subdivision. The storm water runoff from the portion of OS-3 located north of Crittenden Road flows overland to Furlong Creek. The storm water runoff from the portion of OS-3 located south of Crittenden Road becomes channelized prior to a culvert crossing at Crittenden Road. The culvert is 24-in CMP in poor condition. The culvert has begun to
deteriorate. Downstream of the culvert the storm water is direct north to Furlong Creek in a channel.

3c. Existing Drainage Concerns

The watercourses located on the Rezone Property are heavily vegetated and overgrown. The overgrowth on the streams decreases the conveyance capabilities of the streams. Additionally, the streams flow through relatively flat topography. Potential flooding problems may arise around the locations of the streams due to the lowered conveyance capabilities and the low velocities of the streams due to the flat terrain. These problems are evident along the portion of Furlong Creek located behind the homes along the northern side of Crittenden Road, south of the Rezone Property. The property owners in this area have experienced some occasional flooding during wet periods.

There are four drainage areas that contribute storm water runoff to the problem area. Storm water runoff from Subarea 5 and OS-3 flows to Furlong Creek from the south. Storm water runoff from Subarea 4 and OS-2 flows to Furlong Creek from the northeast.

The University of Rochester will participate in a future drainage study of the overall watershed to identify the problem areas to improve storm water flow through these areas. Floodplain mapping will also be part of the study. The study will be undertaken by the University, the Town of Brighton, and Monroe County.

3d. Floodplain

The Rezone Property is not located in the 100-yr floodplain as shown on the Federal Emergency Management Agency (FEMA) floodplain maps (Community – Panel No: 360410 005, Effective Date: June 18 1980). The Red Creek Floodplain extends to the western edge of the Lehigh Valley Trail approximately 500-ft north of Crittenden Road (approximately where Furlong Creek passes through a culvert beneath the Lehigh Valley Trail). There will be no future development within these floodplain boundaries.

The floodplains along the existing watercourses on the Rezone Property have not been mapped by FEMA, but will be determined at the time of final design. Any and all impacts to flood storage volume will be compensated for on site.

3e. Soils

The natural soils occurring within the boundaries of the University of Rochester IPD Rezoning Action site consist of eleven different natural soil types, according to Monroe County Soil Survey information. Refer to the soil survey reference data in Appendix B. These soil types include soils from the Cosad, Colonie, Claverack, Elora, Hilton, Cayuga, Lakemont, Odessa, Schoharie, and Collamer series. There is a twelfth, made soil type occurring in a thin strip on the northern boundary, under Interstate 390, along the Erie Canal waterfront.
<table>
<thead>
<tr>
<th>Soil Type</th>
<th>Soil Name</th>
<th>Slope</th>
<th>Estimated Percent Coverage of Site</th>
<th>Approx. Location on Site (Property #’s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cu</td>
<td>Cosad loamy fine sand</td>
<td>-----</td>
<td>34%</td>
<td>1-9, 12</td>
</tr>
<tr>
<td>CoB</td>
<td>Colonie loamy fine sand</td>
<td>0% - 6%</td>
<td>24%</td>
<td>1-6, 9, 10, 12</td>
</tr>
<tr>
<td>CkA</td>
<td>Claverack loamy fine sand</td>
<td>0% - 2%</td>
<td>15%</td>
<td>3, 4, 9, 10, 12</td>
</tr>
<tr>
<td>ElA</td>
<td>Elnora loamy fine sand</td>
<td>0% - 2%</td>
<td>5%</td>
<td>9, 11, 12</td>
</tr>
<tr>
<td>HIA</td>
<td>Hilton loam</td>
<td>0% - 3%</td>
<td>4%</td>
<td>12</td>
</tr>
<tr>
<td>CeB</td>
<td>Cayuga silt loam</td>
<td>2% - 6%</td>
<td>3%</td>
<td>12</td>
</tr>
<tr>
<td>Le</td>
<td>Lakemont silt loam</td>
<td>-----</td>
<td>3%</td>
<td>4, 9-12</td>
</tr>
<tr>
<td>Oda</td>
<td>Odessa silt loam</td>
<td>0% - 2%</td>
<td>3%</td>
<td>4</td>
</tr>
<tr>
<td>Mb</td>
<td>Made land along canal</td>
<td>-----</td>
<td>3%</td>
<td>1, 2</td>
</tr>
<tr>
<td>SeA</td>
<td>Schoharie silt loam</td>
<td>0% - 2%</td>
<td>2%</td>
<td>1</td>
</tr>
<tr>
<td>CoC</td>
<td>Colonie loamy fine sand</td>
<td>6% - 12%</td>
<td>2%</td>
<td>12</td>
</tr>
<tr>
<td>CIA</td>
<td>Collamer silt loam</td>
<td>0% - 2%</td>
<td>1%</td>
<td>9, 11</td>
</tr>
<tr>
<td>SeB</td>
<td>Schoharie silt loam</td>
<td>2% - 6%</td>
<td>1%</td>
<td>12</td>
</tr>
</tbody>
</table>

**Groundwater**

According to the Monroe County Soils Survey, the depth to the seasonal high water table throughout the majority of the site is greater than 18 to 24 inches. There are also several regions where it can rise to within 6 to 12 inches of the surface. In areas of poor drainage, the water table can actually rise to or above the surface level. These areas are typically located in wetland regions. Refer to the soil survey reference data in Appendix B.

**Bedrock**

According to the Monroe County Soils Survey, the depth to bedrock is generally greater than 4 – 6 feet. Bedrock is not anticipated to limit any potential development. Refer to the soil survey reference data in Appendix B.

**4. Proposed Developed Conditions**

The proposed action by the University of Rochester consists of the rezoning and incentive zoning of approximately 188 acres of land from residential to Institutional Planned Development (IPD). The area is bounded on the north by the intersection of the former Lehigh Railroad with Interstate Route 390, on the west by the former Lehigh Railroad (Lehigh Valley Trail) and, on the east by West Henrietta Road, and on the south by Southland Drive and Crittenden Road. The action area also includes the Lilac Park Subdivision located to the south of Crittenden Road and east of the Lehigh Railroad, which will be deeded to the Town of Brighton for open space as part of the proposed action.
The possible development of the Rezone Property (188 +/- acres) was sectioned into 10 pods, each consisting of an estimate of potential development per pod, as presented in Figure 3. Estimated development per pod is shown in the table below. This possible development of buildings and parking lots as shown in Figure 2 cover about 45 acres of the Rezone Property and include re-aligning a section of Murlin Drive where it intersects with East River Road:

**POD Potential Development Coverage Areas**

<table>
<thead>
<tr>
<th>Pod Number</th>
<th>Building Area</th>
<th>Parking Area</th>
<th>Greenspace</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1.9 ac</td>
<td>1.1 ac</td>
<td>2.9 ac</td>
</tr>
<tr>
<td>2</td>
<td>3.1 ac</td>
<td>2.0 ac</td>
<td>3.4 ac</td>
</tr>
<tr>
<td>3</td>
<td>6.3 ac</td>
<td>3.7 ac</td>
<td>4.3 ac</td>
</tr>
<tr>
<td>4</td>
<td>2.6 ac</td>
<td>1.6 ac</td>
<td>4.2 ac</td>
</tr>
<tr>
<td>5</td>
<td>9.6 ac</td>
<td>5.9 ac</td>
<td>6.3 ac</td>
</tr>
<tr>
<td>6</td>
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</tr>
<tr>
<td>7</td>
<td>2.7 ac</td>
<td>1.6 ac</td>
<td>2.1 ac</td>
</tr>
<tr>
<td>8</td>
<td>2.2 ac</td>
<td>1.3 ac</td>
<td>3.1 ac</td>
</tr>
<tr>
<td>9</td>
<td>2.6 ac</td>
<td>1.6 ac</td>
<td>5.0 ac</td>
</tr>
<tr>
<td>10</td>
<td>No new development</td>
<td>11.3 ac</td>
<td>5.1 ac</td>
</tr>
</tbody>
</table>

Existing impervious surfaces cover about 8% of the Rezone Property north of Crittenden Road. The potential development, as shown, will increase this coverage by 16%. The storm water runoff from the potential developed areas will be collected in regional storm water ponds. The runoff from the remainder of the site will follow existing drainage patterns into the primary watercourses that flow off-site to Red Creek. The future development was divided into the same subareas as existing conditions.

5. **Comparison of Pre- and Post-Development Run-off**

The pre- and post-development run-off was calculated by using NRCS TR-55 methodology on Pond Pack, version 10.0, by Haestad Methods.

Pond Pack was used to determine pre- and post-development run-off volumes at peak discharge rates. The 1-yr, 10-yr, and 100-yr recurrences were the design storms utilized in the analysis, as stated in the New York State Storm Water Management Design Manual. The 25-yr design storm was utilized in the analysis, as well, per Town of Brighton requirements. The rainfall depths for the various storm events were taken from the “Rainfall List by County” in Appendix C. A type II synthetic rainfall distribution curve was used in the computations as well.

The volume of required detention was determined by attenuating the 100-yr post-development run off to the 25-yr existing run off, as well as controlling all lesser events in the same manner, per the Town of Brighton requirements for the design of drainage systems.

Refer to Appendix D for the results of the calculations and analysis, refer to the tables below for a summary of the results. See Figure B in Appendix A for subarea locations.
## Site Run-off

<table>
<thead>
<tr>
<th>Drainage Area</th>
<th>Design Storm</th>
<th>Area (acres)</th>
<th>Weighted CN*</th>
<th>Tc (hrs)</th>
<th>Run off (cfs)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Subarea 1</strong></td>
<td>1-yr</td>
<td>62.3</td>
<td>74</td>
<td>0.5</td>
<td>19.4</td>
</tr>
<tr>
<td></td>
<td>10-yr</td>
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<td></td>
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<td>67.8</td>
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<tr>
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<td>25-yr</td>
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<td>87.9</td>
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<td>100-yr</td>
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<td></td>
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<td>122.1</td>
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<td><strong>Subarea 2</strong></td>
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<td>32.6</td>
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<td></td>
<td>10-yr</td>
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<td></td>
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<td>79.4</td>
</tr>
<tr>
<td></td>
<td>25-yr</td>
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<td></td>
<td></td>
<td>97.4</td>
</tr>
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<td></td>
<td>100-yr</td>
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<td></td>
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<td><strong>Subarea 3</strong></td>
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<td></td>
<td>100-yr</td>
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<td><strong>Subarea 4</strong></td>
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<td></td>
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<tr>
<td></td>
<td>100-yr</td>
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<tr>
<td><strong>Subarea 5</strong></td>
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<td><strong>Total Off Site</strong></td>
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<td></td>
<td>100-yr</td>
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<td></td>
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<td>463.9</td>
</tr>
</tbody>
</table>

* The Curve Number (CN) shown is a weighted calculation based on percentages of undeveloped ground cover and impervious surfaces per subarea. Refer to Appendix D for the drainage computations.
<table>
<thead>
<tr>
<th>Drainage Area</th>
<th>Design Storm</th>
<th>Area (acres)</th>
<th>Weighted CN*</th>
<th>Tc (hrs)</th>
<th>Run off (cfs)</th>
</tr>
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<tbody>
<tr>
<td><strong>Subarea 1</strong></td>
<td></td>
<td></td>
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<td>Northern Red Creek</td>
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<td>100-yr</td>
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<td></td>
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<td>156.3</td>
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<td><strong>Subarea 2</strong></td>
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<td>Frog Pond drainage area</td>
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<td>Southern Red Creek</td>
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<td>Lilac Park Subdivision;</td>
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<td>drains to Furlong Creek</td>
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* The Curve Number (CN) shown is a weighted calculation based on percentages of undeveloped ground cover and impervious surfaces per subarea. Refer to Appendix D for the drainage computations.

**Storm Water Management Facilities**

**Pond 1**
*Total Detention Required for Subarea 1*

100-yr post-development run off = 156-cfs (pond inflow)
25-yr existing run off = 88-cfs (pond outflow)
Required Detention = 4.6 ac-ft

**Pond 2**
*Total Detention Required for Subarea 2*

100-yr post-development run off = 152-cfs (pond inflow)
25-yr existing run off = 97-cfs (pond outflow)
Required Detention = 4.8 ac-ft

**Pond 3**
*Total Detention Required for Subarea 3*

100-yr post-development run off = 109-cfs (pond inflow)
25-yr existing run off = 79-cfs (pond outflow)
Required Detention = 2.1 ac-ft
Pond 4
Total Detention Required for Subarea 4

100-yr post-development run off = 57-cfs (pond inflow)
25-yr existing run off = 26-cfs (pond outflow)
Detention Required = 2.1 ac-ft

6. Storm Water Management Facilities

To meet the SPDES Phase II requirements, the 1-yr post-developed run-off volume should be detained for 24-hrs, the 10-yr and 100-yr post-developed run-off should be attenuated to existing, and storm water quality treatment should be provided so that 80% Total Suspended Solids and 40% Total Phosphorous removal is achieved. To meet the Town of Brighton standards, the 100-yr post-development run off should be attenuated to the 25-yr existing run off rate. Therefore, utilizing the most stringent of the design requirements, the storm water ponds will be designed to detain and outlet the 1-yr post-development over 24-hours per the SPDES Phase II requirements and attenuate the 100-yr post-development run off to the 25-yr existing run off, as well as controlling all lesser events in the same manner, per the Town of Brighton requirements for the design of drainage systems. Reduction of the peak post-development flows at the storm water ponds will be achieved through the use of outlet structures that will allow varying discharge rates. Based on the site conditions, wet extended detention storm water ponds are the most applicable of the storm water management designs to achieve this criterion for any future development.

The highest concentration of pollutants present in storm water occurs during the lower intensity rainfall events, more specifically in approximately the first 0.5-inch of run-off. To provide for greater water quality treatment, a water quality treatment volume will be determined and the storm water ponds "undercut" with deep pools to retain 100% of the water quality volume. The SPDES Phase II water quality criteria will be achieved by providing these "deep pool" areas at the inlet and outlet to the storm water ponds. These measures should provide for adequate TSS and Phosphorus removal. The Irondequoit Creek Watershed Collaborative design standard for storm water quality design specifies utilizing a rainfall depth of 1.0-in in determining the water quality treatment volume.

Based on the potential development within the IPD area, as shown on Figure C of Appendix A, and the existing topography, storm water management facilities have been located and sized. The outlet structure at Storm Water Pond 1 will direct the discharged storm water overland to the northern most tributary of Red Creek located on the site. The outlet structure at Storm Water Pond 2 will direct the discharged storm water to the existing NYS DOT storm sewer via a connection to the 48-in closed drainage system. The expanded portion of the existing detention pond will outlet the same as existing conditions. The outlet structure at Storm Water Pond 3 will direct the discharged storm water overland to the southern Red Creek Tributary, and the outlet structure at Storm Water Pond 4 will direct the storm water overland to Furlong Creek. In the event an outlet structure becomes plugged or a severe rainfall event (intensity >100-yr), the storm water ponds will also be equipped with an emergency spillway capable of handling flow rates in excess of the 100-yr design run off rate.

6a. Design Criteria for Wet Extended Detention Pond
Per NYS Storm Water Management Design Manual –
(Design note: Town of Brighton and Irondequoit Creek Watershed Collaborative Design Standards shall be utilized when their requirements are more stringent than the following)

Feasibility Requirements

- The minimum contributing drainage area for each pond must be 25 acres. (The minimum drainage area for this action is approximately 36.4 acres.)
Storm water ponds shall not be located within jurisdictional waters, including wetlands.

Two-foot minimum separation should exist between the pond bottom and groundwater in sole source aquifer recharge areas.

Storm water ponds shall not be located within the stream channel, to prevent habitat degradation caused by these structures.

Conveyance Requirements

- A forebay should be provided at each inflow point, unless an inflow point provides less than 10% of the total design storm flow to the pond.
- Inlet areas shall be stabilized to ensure that non-erosive conditions exist for at least the 2-year frequency storm event.
- The ideal inlet configuration is a partially submerged pipe.
- The channel immediately below a pond outfall should be modified to prevent erosion and conform to the natural dimensions in the shortest possible distance, typically by use of appropriately sized riprap placed over filter cloth. Typical examples include submerged earthen berms, concrete weirs, and gabion baskets.
- A stilling basin or outlet protection should be used to reduce flow velocities from the principal spillway to non-erosive velocities (3.5 to 5.0 fps).
- Outfalls should be constructed such that they do not increase erosion or have undue influence on the downstream geomorphology of the stream.
- Flared pipe sections that discharge at or near the stream invert should be used at the spillway outlet.
- If a pond daylights to a channel with dry weather flow, care should be taken to minimize tree clearing along the downstream channel, and to reestablish a forested riparian zone in the shortest possible distance. Excessive use of riprap should be avoided to reduce stream warming.

Pretreatment Requirements

- A sediment forebay is important for maintenance and longevity of a storm water treatment pond. Each pond should have a sediment forebay or equivalent upstream pretreatment. The forebay shall consist of a separate cell, formed by an acceptable barrier. Typical examples include earthen berms, concrete weirs, and gabion baskets.
- The forebay should be sized to contain 10% of the water quality volume (WQv), and shall be four to six feet deep. The forebay storage volume counts toward the total WQv requirement.
- The forebay should be designed with non-erosive outlet conditions, given design exit velocities.
- Direct access for appropriate maintenance equipment should be provided to the forebay.
- A fixed vertical sediment depth marker should be installed in the forebay to measure sediment deposition over time.
The bottom of the forebay may be hardened to ease sediment removal

Treatment Requirements

- Water quality treatment storage to capture the WQv from the contributing drainage area must be provided. This can be achieved through a combination of permanent pool, extended detention and marsh. The water quality volume distribution for the wet extended detention pond must consist of 50% minimum for the permanent pool and 50% maximum for the extended detention.

- Although both channel protection volume (Cpv) and extended water quality volume (WQv-ED) storage can be provided in the same practice, WQv cannot be met by simply providing Cpv storage for the one-year storm.

- It is generally desirable to provide water quality treatment off-line when topography, hydraulic head and space permit.

- The minimum length to width ratio for the pond should be 1.5:1.

- The minimum Surface Area: Drainage Area should be 1:100.

- To the greatest extent possible, a long flow path should be maintained through the system, along with design ponds with irregular shapes.

Landscaping Requirements

- The perimeter of all deep pool areas should be surrounded by two benches:
  - Except when pond side slopes are 4:1 or flatter, a safety bench should be provided that generally extends 15 feet outward from the normal water edge to the toe of the pond side slope. The maximum slope of the safety bench shall be 6%.
  - An aquatic bench should be incorporated that generally extends up to 15 feet inward from the normal shoreline, has an irregular configuration, and a maximum depth of 18 inches below the normal pool water surface elevation.

- A landscaping plan for a storm water pond and its buffer should be prepared to indicate how aquatic and terrestrial areas will be vegetatively stabilized and established.

- Wetland plants should be encouraged in the pond design, either along the aquatic bench (fringe wetlands), the safety bench and side slopes (ED wetlands) or within shallow areas of the pool itself.

- The best elevations for establishing wetland plants, either through transplantation or volunteer colonization, are within 6 ± inches of the normal pool.

- The soils of a pond buffer are often severely compacted during the construction process to ensure stability. The density of these compacted soils is so great that it effectively prevents root penetration, and therefore, may lead to premature mortality or loss of vigor. Consequently, it is advisable to excavate large and deep holes around the proposed planting sites, and backfill these with uncompacted topsoil.
A pond buffer should be provided that extends 25 feet cutward from the maximum water surface elevation of the pond. The pond buffer should be contiguous with other buffer areas that are required by existing regulations (i.e. stream buffers). An additional setback may be provided to permanent structures.

- Woody vegetation may not be planted or allowed to grow within 15 feet of the toe of the embankment and 25 feet from the principal spillway structure.

- Existing trees should be preserved in the buffer area during construction. The buffer can be planted with trees, shrubs and native ground covers.

- Annual mowing of the pond buffer is only required along maintenance rights-of-way and the embankment. The remaining buffer can be managed as a meadow (mowing every other year) or forest.

6b. Description of Storm Water Management Facilities

Drainage Area – The overall analysis area for the design of the storm water management facilities is 188 acres, which was divided into 4 subareas. Subarea one consists of 62.3 acres, Subarea two consists of 52.3 acres, Subarea three consists of 37.9 acres, and Subarea four consists of 36.4 acres. Refer to Figure B in Appendix A for subarea locations.

6c. Storm Water Ponds

Storm Water Pond 1
Based on the potential development within the Rezone Property and the existing topography, Storm water Pond 1 would be located in University Property # 3, within Pod # 5. Storm Water Pond 1 would receive run off from subarea 1. Refer to Figure B of Appendix A for subarea locations. The most applicable storm water management design of this pond would be wet extended detention. This pond will be designed to detain and outlet the 1-yr post-development over 24-hours per the SPDES Phase II requirements and attenuate the 100-yr post-development run off to the 25-yr existing run off, as well as controlling all lesser events in the same manner, per the Town of Brighton requirements for the design of drainage systems. The required storm water detention volume for the contributing drainage area was determined to be 4.6 ac-ft. Flows in excess of this volume would discharge via an emergency spillway. All stable outlet flows from the pond would be directed to the northern most tributary to Red Creek that runs through U of R Properties 5 and 6, which then flows off-site to Red Creek. The outlet flows will flow overland directed to a defined drainage channel prior to discharging to the Red Creek tributary. The pond would be undercut with a forebay and deep pool. The undercut volume would be equal to or greater than the water quality volume (WQv) for the contributing drainage area. Wetland-type vegetation should be established at the storm water pond to aid in the water quality treatment function of the storm water pond. This storm water management practice should be constructed as future development within subarea one commences. Refer to Appendix E for a schematic of a typical wet extended detention pond and pictures of an existing detention pond on the site, which is located in U of R Property # 4, northwest of Pod 3.

Storm Water Pond 2
Based on the potential development within the Rezone Property and the existing topography, Storm water Pond 2 would be located in University Property # 2, within Pod # 1. Storm water Pond 2 would receive run off from the portion of subarea 2 located north of East River Road. Additionally the existing detention pond located east of the Laser Lab/COI would require enlargement to increase capacity for the increase in storm water runoff from the remainder of subarea 2. Refer to Figure B of Appendix A for subarea locations. The most applicable storm water management design of the new pond would be wet extended detention. This pond will be designed to detain and outlet the 1-yr post-development over 24-hours per the SPDES Phase II requirements and attenuate the 100-yr post-development run off to the 25-yr existing run off, as
well as controlling all lesser events in the same manner, per the Town of Brighton requirements for the design of drainage systems. The required storm water detention volume for the overall contributing drainage area was determined to be 4.8 ac-ft, 0.53 ac-ft for Storm water Pond 2 and 4.3 ac-ft increased capacity to the existing detention pond. Flows in excess of this volume would discharge via an emergency spillway. All stable outlet flows from the pond would be directed off-site to the New York State Department of Transportation's storm water sewer facilities associated with Interstate 390. The pond would be undercut with a forebay and deep pool. The undercut volume would be equal to or greater than the water quality volume \( (WQ_v) \) for the contributing drainage area. Wetland-type vegetation should be established at the storm water pond to aid in the water quality treatment function of the storm water pond. This storm water management practice should be constructed as development within subarea two, north of East River Road, commences and the existing detention pond enlarged as future development within subarea two, south of East River Road, commences. Refer to Appendix E for a schematic of a typical wet extended detention pond and pictures of an existing detention pond on the site, which is located in U of R Property # 4, northwest of Pod 3.

**Storm Water Pond 3**

Based on the potential development within the Rezone Property and the existing topography, Storm water Pond 3 would be located in University Property # 8. Storm Water Pond 3 would receive run off from subarea 3. Refer to Figure B of Appendix A for subarea locations. The most applicable storm water management design of this pond would be wet extended detention. This pond will be designed to detain and outlet the 1-yr post-development over 24-hours per the SPDES Phase II requirements and attenuate the 100-yr post-development run off to the 25-yr existing run off, as well as controlling all lesser events in the same manner, per the Town of Brighton requirements for the design of drainage systems. The required storm water detention volume for the contributing drainage area was determined to be 2.1 ac-ft. Flows in excess of this volume would discharge via an emergency spillway. All stable outlet flows from the pond will flow overland to the southern Red Creek Tributary that runs through U of R Property 8, which then flows off-site to Red Creek. The pond would be undercut with a forebay and deep pool. The undercut volume would be equal to or greater than the water quality volume \( (WQ_v) \) for the contributing drainage area. Wetland-type vegetation should be established at the storm water pond to aid in the water quality treatment function of the storm water pond. This storm water management practice should be constructed as future development within subarea three commences. Refer to Appendix E for a schematic of a typical wet extended detention pond and pictures of an existing detention pond on the site, which is located in U of R Property # 4, northwest of Pod 3.

**Storm Water Pond 4**

Based on the potential development within the Rezone Property and the existing, topography, Storm water Pond 4 would be located in University Property # 9, within Pod 7. Storm Water Pond 4 would receive run off from subarea 4. Refer to Figure B of Appendix A for subarea locations. The most applicable storm water management design of this pond would be wet extended detention. This pond will be designed to detain and outlet the 1-yr post-development over 24-hours per the SPDES Phase II requirements and attenuate the 100-yr post-development run off to the 25-yr existing run off, as well as controlling all lesser events in the same manner, per the Town of Brighton requirements for the design of drainage systems. The required storm water detention volume for the contributing drainage area was determined to be 2.1 ac-ft. Flows in excess of this volume will discharge via an emergency spillway. All stable outlet flows from the pond will flow overland to the southern most watercourse located on the site, Furlong Creek, which discharges off-site to Red Creek. The pond would be undercut with a forebay and deep pool. The undercut volume would be equal to or greater than the water quality volume \( (WQ_v) \) for the contributing drainage area. Wetland-type vegetation should be established at the storm water pond to aid in the water quality treatment function of the storm water pond. This storm water management practice should be constructed as future development within subarea four commences. Refer to Appendix E for a schematic of a typical wet extended detention pond and
pictures of an existing detention pond on the site, which is located in U of R Property # 4, northwest of Pod 3.

6d. Proposed Improvements to Existing Drainage Concerns

The University of Rochester will participate in a future drainage study of the overall watershed with the Town of Brighton, and Monroe County. The study will further identify the existing problem areas and recommended improvements to storm water flow through these areas. Floodplain mapping will also be part of the study.

The existing drainage problem areas within the Rezone Property can be addressed during future development of the Rezone Property. The heavily vegetated and overgrown channels will be cleared to increase conveyance capabilities. Storm water runoff will be directed to the storm water management facilities of the future development to reduce the rate of storm water flowing to the watercourses. Future development within the Rezone Property will not add to any existing problem areas.

Other areas of reported flooding, specifically at the area along Furlong Creek south of the Rezone Property and north of the residences located on the northern side of Crittenden Road and the area between the Lehigh Valley Trail and Red Creek (downstream of the culverts crossing the Lehigh Valley Trail) will be addressed as part of the overall drainage study to be undertaken by the University of Rochester, the Town of Brighton, and Monroe County. The report will outline potential mitigation steps to alleviate flood prone areas that could be implemented both within and outside the Rezone Property. Possible mitigation steps should not be undertaken until the combined drainage study has been performed and these possible mitigation measures have been analyzed within the watershed as a whole.

The area of known flooding along Furlong Creek south of the Rezone Property and north of the residences along Crittenden Road has been reported to flood during heavy rainstorms. Storm water is directed to this area from the residences along Furlong Road (OS-2), Subarea 4 on the Rezone property, and from areas south of Crittenden Road (Subarea 5 and OS-3). The storm water from OS-2 is collected in a closed conduit drainage system that outlets to Furlong Creek. The storm water from Subarea 4 flows overland to Furlong Creek and the storm water from south of Crittenden Road collects in a channel that directs the storm water to a 24-in culvert, which directs the storm water to Furlong Creek. Furlong Creek directs the storm water to the 30-in x 36-in culvert at the Lehigh Valley Trail prior to the ultimate disposition at Red Creek. The combination of all this storm water discharging to a single point at the 30-in x 36-in culvert along with the flat slope of Furlong Creek create the flooding problems during major storm events. Potential mitigation measures that will be analyzed further as part of the future study are as follows:

- The majority of the drainage from Subarea 4 could be directed to a storm water management facility that will be constructed as future development commences within Subarea 4. The storm water management facility will be designed to attenuate the 100-yr post-development run off to the 25-yr existing run off, thereby decreasing the rate of storm water discharge to Furlong Creek. This scenario will be considered within the overall drainage study to confirm the timing of the outlet from the storm water management facility in comparison to the rest of the Furlong Creek watershed. This mitigation measure will only be undertaken should development occur within Subarea 4.

- A storm water detention pond could be constructed along the 100-ft buffer area upstream of Furlong Creek to intercept the storm water from OS-2 and the storm water from the Whipple Park Apartments within Subarea 4. This will decrease the rate of storm water discharge to Furlong Creek. This scenario shall be explored as part of the overall drainage study to confirm the timing of the outlet from the detention pond in comparison to the rest of the Furlong Creek watershed. This mitigation measure is independent of future development within the Rezone Property.
• The storm water from OS-2 and the areas south of Crittenden Road could be diverted away from Furlong Creek. Additional analysis is required with the overall drainage study. This mitigation measure is independent of future development within the Rezone Property.
• The storm water from the areas south of Crittenden Road could be intercepted in a regional detention pond. This will decrease the rate of storm water to Furlong Creek. This scenario shall be explored as part of the overall drainage study to confirm the timing of the outlet from the detention pond in comparison to the rest of the Furlong Creek watershed. This mitigation measure is independent of future development within the Rezone Property.

The problem areas west of the Rezone Property, between the Lehigh Valley Trail and Red Creek will be analyzed as part of the overall drainage study. Future development within the Rezone Property will not exacerbate these problems.

The problem areas cannot be fully alleviated by mitigation measures from the Rezone Property. The Rezone Property and the adjacent areas are only a portion of the overall watershed that contribute storm water to the problem areas. The problems must be addressed within the overall watershed to ensure that additional problems are not created by potential mitigation measures when considered within the overall watershed.

7. Pollution Prevention Measures

The primary goal of pollution prevention efforts during project construction is to control soil and pollutants that originate on the site and prevent them from flowing to surface waters. The purpose of this section is to provide guidelines for achieving that goal during future development. A successful pollution prevention program also relies upon careful inspection and adjustments during the construction process in order to enhance its effectiveness.

Prior to the commencement of construction, a Notice(s) of Intent shall be filed with the NYSDEC to obtain coverage under SPDES General Permit GP-02-01 for storm water discharges from construction activity. The NOI(s) shall be signed by the owner/operator and submitted to the NYSDEC. The proposed storm water mitigation measures and erosion and sediment control devices must meet the design guidelines of the New York State Storm Water Management Design Manual and the New York State Standards and Specifications for Erosion and Sediment Control. The NYSDEC review of the NOI will be five (5) business days from their receipt of the NOI if all requirements are met and sixty (60) business days if they are not. Unless otherwise informed by the NYSDEC, construction may commence after the expiration of the review period.

7a. Erosion and Sedimentation Controls

The areas of disturbance should be minimized as much as practical and limited to the areas depicted on the project drawings for future development. A summary of the typical construction sequencing for erosion control features is as follows:

1. Evaluate, mark, and protect, with appropriate erosion control measures, important trees, associated rooting zones, and other existing site features designated to remain.
2. Construct stabilized construction entrance(s) to capture mud and debris from construction vehicles before they enter the public highway.
   • Stabilize bare areas (entrances, construction routes, equipment areas) immediately as work takes place. Top these areas with gravel or maintain vegetative cover.
   • Sediment tracked onto public streets should be removed or cleaned on a daily basis.
3. Construct temporary erosion and sediment control measures (basins, swales, silt fencing, etc.).
   • Silt fence material and installation must comply with the standard drawing and specifications.
- Install silt fences based on appropriate spacing intervals. Decrease this interval as the slope increases. The area below the silt fence should be undisturbed ground.

4. Remove and stockpile topsoil and vegetation from areas to be impacted by the construction activities. No trees shall be buried on site. The topsoil stockpile shall be stabilized by seed, mulch, or other appropriate measures as soon as possible.

5. Rough grade.


7. Construction. Construction shall be phased to limit the area of disturbance to not more than 5-acres at one time. The SPDES General Permit GP-02-01 requires written approval for the NYSDEC to disturb more than 5-acres at one time. Should construction require disturbance greater than 5-acres, a letter should be drafted to the NYSDEC requesting this approval. Written approval from the NYSDEC shall be obtained prior to the commencement of construction.

8. All disturbed areas shall be stabilized as soon as practical in portions of the site where construction activities have temporarily or permanently ceased, but in no case more than 14 days after the construction activity in that portion of the site has temporarily or permanently ceased. This requirement does not apply in the following instances:
   a. When the initiation of the stabilization measures by the 14th day after construction activity temporarily or permanently ceased is precluded by snow cover or frozen ground conditions. The stabilization measures shall be initiated as soon as practicable.
   b. When construction activity on a portion of the site is temporarily ceased, and earth-disturbing activities will be resumed within 21 days, initiation of temporary stabilization measures is not required on that portion of the site.

9. All erosion and sediment control features shall be maintained until establishment of a substantial stand of grass on all green areas, in accordance with the maintenance procedure. On acceptance of restoration by the owner, remove all temporary features.

7b. Other Pollution Prevention Controls

Control of sediments has been previously described. Other aspects typical of pollution prevention are listed below:

1. Dust Control - Construction traffic must enter and exit the site at the stabilized construction exit. The purpose is to trap dust and mud that would otherwise be carried off-site by construction traffic. Water trucks or other dust control agents may be used as needed during construction to reduce dust generated on the site. After construction, the site will be stabilized (as described elsewhere), which will reduce the potential for dust generation.

2. Solid Waste Disposal - No solid materials, including building materials, are allowed to be discharged from the site with storm water. All solid waste, including disposable materials incidental to the major construction activities, must be collected and placed in containers. The containers will be emptied as necessary by a contract trash disposal service and hauled away from the site. The General Contractor shall denote the location of solid waste receptacles on the Erosion and Sedimentation Control Plan ("Site Map"). Substances that have the potential for polluting surface and/or groundwater must be controlled by whatever means necessary in order to ensure that they do not discharge from the site.

3. Sanitary Facilities - All personnel involved with construction activities must comply with state and local sanitary or septic system regulations. Temporary sanitary facilities will be provided at the site throughout the construction phase. They must be utilized by all construction personnel and will be serviced by a commercial operator. The General Contractor shall denote the location of sanitary facilities on the Erosion and Sedimentation Control Plan ("Site Map").

4. Water Source - Non-storm water components of site discharge must be clean water. Water used for construction which discharges from the site must originate from a public water supply or private well approved by the State Health Department. Water used for
construction that does not originate from an approved public supply must not discharge from the site. It can be retained in the ponds until it infiltrates and evaporates.

5. Concrete Waste from Concrete Ready-Mix Trucks – Discharge of excess or waste concrete and/or wash water from concrete trucks will be allowed on the construction site, but only in specifically designated diked areas prepared to prevent contact between the concrete and/or wash water and storm water that will be discharged from the site. Alternatively, waste concrete can be placed into forms to make riprap or other useful concrete products. The cured residue from the concrete washout diked areas shall be disposed in accordance with applicable state and federal regulations. The General Contractor shall denote the location of concrete washout areas on the Erosion and Sedimentation Plan ("Site Plan").

6. Fuel Tanks – Temporary on-site fuel tanks for construction vehicles shall meet all state and federal regulations. Tanks shall have approved spill containment with the capacity required by the applicable regulations. The tank shall be in sound condition free of rust or other damage, which might compromise containment. Hoses, valves, fittings, caps, filler nozzles, and associated hardware shall be maintained in proper working condition at all times. The General Contractor shall denote the location of fuel tanks on the Erosion and Sedimentation Plan ("Site Plan").

7. Hazardous Waste Management and Spill Reporting – Any hazardous or potentially hazardous waste that is brought onto the construction site will be handled properly in order to reduce the potential for storm water pollution. All materials used on this construction site will be properly stored, handled and dispensed following any applicable label directions. Material Safety Data Sheets (MSDS) information will be kept on site for any and all applicable materials.

Should an accidental spill occur, immediate action will be taken by the General Contractor to contain and remove the spilled material. All hazardous materials will be disposed of by the Contractor in the manner specified by local, state, and federal regulations and by the manufacturer of such products. As soon as possible, the spill will be reported to the appropriate state and local agencies. As required under the provisions of the Clean Water Act, any spill or discharge entering the waters of the United States will be properly reported.

Any spills of hazardous materials in quantities in excess of Reportable Quantities as defined by EPA or the State Agency regulations, shall be immediately reported to the EPA National Response Center (1-800-424-8802) and the NYSDEC Division of Environmental Remediation (NYS Spill Hotline – 1-800-457-7362). The reportable quantity for petroleum products is 5-gal. Refer to Exhibit 1.1-1 of the NYSDEC Division of Environmental Remediation Technical Field Guidance Spill Reporting and Initial Notification Requirements for hazardous materials spill reportable quantities and procedures.

In order to minimize the potential for a spill of hazardous materials to come in contact with storm water, the following steps will be implemented:

a) All materials with hazardous properties (such as pesticides, petroleum products, fertilizers, detergents, construction chemicals, acids, paints, paint solvents, cleaning solvents, additives for soil stabilization, concrete, curing compounds and additives, etc.) will be stored in a secure location, under cover, when not in use.

b) The minimum practical quantity of all such materials will be kept on the job site and scheduled for delivery as close to time of use as practical.

c) A spill control and containment kit (containing for example, absorbent such as kitty litter or sawdust, acid neutralizing agent, brooms, dust pans, mops, rags, gloves, goggles, plastic and metal trash containers, etc.) will be provided at the storage site.
d) All of the product in a container will be used before the container is disposed of. All such containers will be triple rinsed, with water prior to disposal. The rinse water used in these containers will be disposed of in a manner in compliance with state and federal regulations and will not be allowed to mix with storm water discharges.

e) All products will be stored in and used from the original container with the original product label.

f) All products will be used in strict compliance with instructions on the product label.

g) The disposal of excess or used products will be in strict compliance with instructions on the product label.

8. Maintenance

Maintenance and inspection of the storm water management and pollution prevention devices shall occur on a regular basis throughout construction to determine their effectiveness. The operator is responsible for designating an individual(s) familiar with the site and proposed construction activities and is knowledgeable in storm water pollution prevention devices to perform the inspections. The individual(s) responsible for inspecting the devices shall be a licensed professional engineer or a certified professional in storm water quality or a subordinate of either acting under their supervision. The designated individual(s) shall also be capable of implementing the maintenance requirements or be in a position to have the maintenance requirements performed. The pollution prevention measures should be modified as necessary to keep pollutants from leaving the site. Typical maintenance and inspection procedures during construction are as follows:

- The operator shall have a qualified professional conduct an assessment of the site prior to commencement of construction and certify in an inspection report that the appropriate erosion and sediment controls have been adequately installed or implemented to ensure overall preparedness of the site for the commencement of construction.

- After the commencement of construction, all erosion control measures and storm water management devices will be inspected every 7 calendar days and within 24 hours following any storm event of 0.5-inches or greater.

- A maintenance and inspection log will be kept and after each inspection a report of the inspection will be logged. The maintenance and inspection log shall indicate who is performing the inspections, including the inspector's or their supervisor's designation as a "qualified professional". A summary of the inspections shall be compiled once every quarter (3 months). During each inspection, the qualified professional shall record the following information:
  a. On a site map, indicate the extent of all disturbed site areas and drainage pathways. Indicate site areas that are expected to undergo initial disturbance or significant site work within the next 14-day period.
  b. On a site map, indicate all areas of the site that have undergone temporary or permanent stabilization.
  c. Indicate all disturbed site areas that have not undergone active site work during the previous 14-day period.
  d. Inspect all sediment control practices and record the approximate degree of sediment accumulation as a percentage of the sediment storage volume.
  e. Inspect all erosion and sediment control practices and record all maintenance requirements such as verifying the integrity of barrier or diversion systems (earthen berms or silt fencing) and containment systems (sediment basins and sediment traps). Identify any evidence of rill or gully erosion occurring on slopes and any loss of stabilizing vegetation or seeding/mulching. Document any
excessive deposition of sediment or ponding water along barrier or diversion systems.

f. All deficiencies that are identified with the implementation of the SWPPP.

- All measures will be maintained in good working order; f any repair is necessary, it will be initiated within 24 hours of report.
- Built-up sediment will be removed from silt fence when it has reached one-third the height of the fence.
- Silt fence will be inspected for depth of sediment, tears, to see if fabric is securely fastened to the posts, and to see that the fence posts are firmly in the ground.
- Sediment shall be removed from any temporary sediment traps or sediment ponds whenever their capacity has been reduced by ten (10) percent from the design capacity or at the end of the job.
- Temporary and permanent seeding and planting will be inspected for bare spots, washouts, and healthy growth.
- Stabilization measures shall be initiated as soon as practical in portions of the site where construction activities have temporarily or permanently ceased, but in no case more than 14 days after construction activity in that portion of the site has temporarily or permanently ceased, except where construction activities on that portion of the site will be resumed within twenty-one (21) days or stabilization is precluded by snow cover or frozen ground conditions.
- Prior to filing the Notice of Termination or the end of permit term, the qualified professional shall perform a final site inspection. The qualified professional shall certify that the site has undergone final stabilization using either vegetative or structural stabilization methods and that all temporary erosion and sediment controls (such as silt fencing) not need for long-term erosion control have been removed.

Upon completion of construction, the storm water facilities shall be regularly inspected and maintained. Typical maintenance and inspection procedures are as follows:

- Grass swales and grass-lined basins should be visually inspected at least once per year for build-up of debris, erosion, and other deficiencies, generally in the spring.
- Any bare or eroded areas shall be replanted at discovery.
- Grass swales and grass-lined basins shall be mowed as necessary during the growing season.
- The outlet works for the storm water management ponds shall be inspected annually and following significant snow-melt or rainfall events to:
  - Identify structural deficiencies;
  - Ensure debris does not prevent the outlets from working properly.
- Undesirable vegetation shall be removed and replaced with vegetation that will fit the storm water management ponds properly.
- Floating or floatable debris and visible pollution shall be removed upon discovery.
- Inspect the shorelines and embankments of the storm water management ponds for signs of erosion, cracking, tree growth, seepage, and the presence of borrowing animals.
- Should insects, weeds, odors, or algae become a problem or a nuisance at the storm water management ponds, biological controls, such as the introduction of minnows or other fish species to the ponds, may be implemented. Any introduction of fish species to a wet pond should be done with the concurrence and approval of the New York State Department of Environmental Conservation (NYSDEC).
- Sediment shall be removed when the depth of sediment reaches 10% of the design capacity of the storm water management ponds. Sediment removal should occur without the use of mechanical means, as much as practical, and instead should be performed by hand raking shoveling, etc. to avoid damage to the storm water management devices and to avoid leaving bare spots for prolonged periods at these locations. The removed sediment should be properly disposed of in accordance with applicable state, federal, and local regulations.
In accordance with SPEDES General Permit GP-02-01, a Storm Water Pollution Prevention Plan(s) (SWPPP(s)) must be developed outlining the previously discussed requirements and design guidelines as development occurs within the action area. The SWPPPs shall incorporate design standards from the Town of Brighton Code and the Irondequoit Creek Watershed Collaborative.
Appendix A – Mapping

Figure A – Site Location Map
Figure B – Site Layout Map
Figure C – Possible Development Pod System
Appendix B

University of Rochester
IPD Rezoning

SOIL SURVEY
REFERENCE DATA

FRA
ENGINEERING, P.C.

530 SUMMIT POINT DRIVE
HENRIETTA, NEW YORK 14467
(585) 359-0280
FAX (585) 359-1059
Appendix B – Soil Survey Reference Data

Figure 1 – Soil Type Location Map
Table 2 – Engineering Properties of Soil Series
### Table - Estimated engineering properties of the soils

Soils in such mapping units may have different properties and limitations, and for this reason it is necessary to follow carefully and fully each soil unit by referring to the symbol and the name of the mapping unit in the "Guide to Mapping Units".

<table>
<thead>
<tr>
<th>Soil series and map symbols</th>
<th>Depth to</th>
<th>Depth from surface (typical profile)</th>
<th>Classification</th>
<th>Dominant USDA texture</th>
<th>Coarse fraction larger than 3 inches</th>
<th>Percentage passing sieve—</th>
<th>Permeability</th>
<th>Available water capacity</th>
<th>Reaction *</th>
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<td></td>
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<td>No. 4 (4.7 mm.)</td>
<td>No. 10 (2.0 mm.)</td>
<td>No. 40 (0.42 mm.)</td>
<td>No. 200 (0.074 mm.)</td>
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<th>Depth from surface (typical profile, inches)</th>
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<th>Dominant USDA texture</th>
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<td>Conod: CI</td>
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<tr>
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<td>0-36</td>
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<td>Dunkirk: Du B, Du C1, Du D1</td>
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<td>Sand and gravel, poorly sorted or stratified.</td>
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<td>0-15</td>
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<td>Gravelly fine sandy loam or sand and gravel, stratified.</td>
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<td>Ho A, Ho B.</td>
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<td>Hudson: Hu B...</td>
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<td>12-34</td>
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<tr>
<td>Ira: IG B...</td>
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<td>12-34</td>
<td>Clay and thin lenses of silt or sand...</td>
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<td>Lk.</td>
<td>4+</td>
<td>0-55</td>
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<td>Clay and silty clay</td>
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<tr>
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<td>0-55</td>
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<td>Clay and silty clay</td>
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<td>0-55</td>
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<td>Clay and silty clay</td>
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### Table: Estimated Engineering Properties of the Soils—Continued

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<td>AASHO</td>
<td>Percent</td>
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<td>No. 10 (2.0 mm.)</td>
<td>No. 40 (0.42 mm.)</td>
<td>No. 200 (0.074 mm.)</td>
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<td>0-10</td>
<td>Silty loam and silty clay loam</td>
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<td>10-25</td>
<td>Varved silt and thin lenses of clay and very fine sand</td>
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<td>25-50</td>
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*Ontario: OIB, OIC, OxB, OxC, OxC3, OxO3, OvF, OvC, OvG, OvF.
For Palmyra and Arkport parts of OyC, OyD, and OyF, see the respective series.

*Ovid: Ov, OvD.
To depths of lineaments substratum, estimates for Ovid part of Ov are the same as for OvD.
For depths of lineaments substratum, the same as for ApA. For properties of Ovid part and for Appleton part of Ov, see the respective series.

Palmyra: PaA, PaB, PaC, PaD, PaF, PgB.

Phelps: PaA, PaB.

Pits and Quarries: Pq.
Estimates are not given, because the material is variable.

Rhinbeck: Rb.

See footnote at end of table.
### Soil Survey

#### Table 2 — Estimated engineering properties of the soils — Continued

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<th>Depth from surface (typical profile)</th>
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#### Classification — Continued

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<th>Available water capacity</th>
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1. Estimates generally given are to a depth of 30 inches, or to the depth of rooting if less than 30 inches.

2. A single pH value of 7.6+ indicates that free carbonates are present and that the layer is calcareous; pH 7.6+ in a range of values indicates that as the depth from surface increases, the lower part of the layer may be calcareous.

3. Subject to flooding.

4. The stratified material has variable permeability; permeability is rapid in the loamy fine sand, and moderate in the thin bands of very fine sandy loam.

5. In some areas of Le, Ma, and Wg, a bedrock substratum is at a depth of 20 to 40 inches. In some areas of Ma, a loamy or clay substratum is at a depth of 16 to 40 inches.

6. Units Hm, A, and A&B contain 0.15 to 1.5 cubic yards of stone per acre-foot.

7. Unit Mt contains 1.5 to 20 cubic yards of stone larger than 10 inches in diameter per acre-foot.
Appendix C

University of Rochester
IPD Rezoning

DESIGN STORM INFORMATION

FRA
ENGINEERING, P.C.

530 SUMMIT POINT DRIVE
HENRIETTA, NEW YORK 14467
(585) 359-0280
FAX (585) 359-1059
Appendix C – Design Storm Information

Table 1 – Rainfall List By County
### Table 1

**Rainfall List by County**

The frequency values listed below are average values for the County. Please check these against the maps on Figure 2-1 thru 2-3 for your county. In certain areas of the county jobs may require higher or lower rainfall values.

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<th>2YR</th>
<th>5YR</th>
<th>10YR</th>
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Appendix D

University of Rochester
IPD Rezoning

CALCULATIONS & ANALYSIS RESULTS

FRA ENGINEERING, P.C.

530 SUMMIT POINT DRIVE
HENRIETTA, NEW YORK 14467
(585) 359-0280
FAX (585) 359-1059
Appendix D – Calculations & Analysis Results

Table 1 – Master Summary
   (Existing Runoff Conditions)
Table 2 – Time of Concentration Calculations
   (Existing Runoff Conditions)
Table 3 – Runoff Curve Number
   (Existing Runoff Conditions)
Table 4 – Master Summary
   (Runoff Conditions After Possible Development)
Table 5 – Time of Concentration Calculations
   (Runoff Conditions After Possible Development)
Table 6 – Runoff Curve Number
   (Runoff Conditions After Possible Development)
Table 7 – Target Outflow Volume Estimates
   (Required Pond Sizes)
### MASTER DESIGN STORM SUMMARY

**Network Storm Collection:** Monroe County

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### MASTER NETWORK SUMMARY

**SCS Unit Hydrograph Method**

(*Node=Outlet; +Node=Diversion;)

(Trun= HYG Truncation: Blank= None; L=Left; R=Rt; LR=Left&Rt)

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**SCS Unit Hydrograph Method**

(*Node=Outfall; +Node=Diversion;*)

(Trun= HYG Truncation: Blank=None; L=Left; R=Rt; LR=Left&Rt)

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<tr>
<td>2yr, 24hr P</td>
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<td></td>
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<td></td>
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Total Tc: .4769 hrs
Tc Equations used...

--- SCS TR-55 Sheet Flow -----------------------------------------------

\[ Tc = (0.007 \times ((n \times Lf)^{0.8})) / ((P^{0.5}) \times (Sf^{0.4})) \]

Where:  
\( Tc \) = Time of concentration, hrs  
\( n \) = Mannings n  
\( Lf \) = Flow length, ft  
\( P \) = 2yr, 24hr Rain depth, inches  
\( Sf \) = Slope, %

--- SCS TR-55 Shallow Concentrated Flow ---------------------------------

Unpaved surface:  
\[ V = 16.1345 \times (Sf^{0.5}) \]

Paved surface:  
\[ V = 20.3282 \times (Sf^{0.5}) \]

\[ Tc = (Lf / V) / (3600 \text{sec/hr}) \]

Where:  
\( V \) = Velocity, ft/sec  
\( Sf \) = Slope, ft/ft  
\( Tc \) = Time of concentration, hrs  
\( Lf \) = Flow length, ft
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<tr>
<td>Hydraulic Length</td>
<td></td>
</tr>
<tr>
<td>150.00 ft</td>
<td></td>
</tr>
<tr>
<td>2yr. 24hr P</td>
<td></td>
</tr>
<tr>
<td>2.5000 in</td>
<td></td>
</tr>
<tr>
<td>Slope</td>
<td></td>
</tr>
<tr>
<td>.013000 ft/ft</td>
<td></td>
</tr>
<tr>
<td>Avg.Velocity</td>
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</tr>
<tr>
<td>.12 ft/sec</td>
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<td>Segment #1 Time:</td>
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<td>Slope</td>
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<td>.015000 ft/ft</td>
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<td>Avg.Velocity</td>
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<tr>
<td>.5649 hrs</td>
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### Table 2

**Tc Equations used...**

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<tr>
<th>Equation</th>
<th>Description</th>
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<tr>
<td>$T_c = \frac{(0.007 \times ((n \times Lf)^{0.8}))}{((P^{<em>}0.5) \times (Sf^{</em>}0.4))}$</td>
<td>SCS TR-55 Sheet Flow</td>
</tr>
</tbody>
</table>

Where:
- $T_c$ = Time of concentration, hrs
- $n$ = Mannings n
- $L_f$ = Flow length, ft
- $P$ = 2yr, 24hr Rain depth, inches
- $S_f$ = Slope, %

<table>
<thead>
<tr>
<th>Equation</th>
<th>Description</th>
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<tbody>
<tr>
<td>$V = 16.1345 \times (Sf^{*}0.5)$</td>
<td>Unpaved surface:</td>
</tr>
<tr>
<td>$V = 20.3282 \times (Sf^{*}0.5)$</td>
<td>Paved surface:</td>
</tr>
<tr>
<td>$T_c = \frac{(L_f / V)}{(3600 \text{sec/hr})}$</td>
<td></td>
</tr>
</tbody>
</table>

Where:
- $V$ = Velocity, ft/sec
- $S_f$ = Slope, ft/ft
- $T_c$ = Time of concentration, hrs
- $L_f$ = Flow length, ft
<table>
<thead>
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<th>Segment #1: Tc: TR-55 Sheet</th>
<th>Segment #2: Tc: TR-55 Shallow</th>
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<tr>
<td><strong>Mannings n</strong></td>
<td><strong>Hydraulic Length</strong></td>
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<tr>
<td>.2400</td>
<td>150.00 ft</td>
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<tr>
<td><strong>Hydraulic Length</strong></td>
<td><strong>Slope</strong></td>
</tr>
<tr>
<td>900.00 ft</td>
<td>.022000 ft/ft</td>
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**Total Tc:** .3349 hrs
**TABLE 2**

---

**Tc Equations used...**

---

### SCS TR-55 Sheet Flow

\[ Tc = \frac{0.007 \times (n \times Lf)^{0.8}}{(P^{**.5}) \times (Sf^{**.4})} \]

Where:  
- \( Tc \) = Time of concentration, hrs  
- \( n \) = Mannings n  
- \( Lf \) = Flow length, ft  
- \( P \) = 2yr, 24hr Rain depth, inches  
- \( Sf \) = Slope, %

### SCS TR-55 Shallow Concentrated Flow

#### Unpaved surface:

\[ V = 16.1345 \times (Sf^{**0.5}) \]

#### Paved surface:

\[ V = 20.3282 \times (Sf^{**0.5}) \]

\[ Tc = \frac{(Lf / V)}{(3600 \text{ sec/hr})} \]

Where:  
- \( V \) = Velocity, ft/sec  
- \( Sf \) = Slope, ft/ft  
- \( Tc \) = Time of concentration, hrs  
- \( Lf \) = Flow length, ft
### Table 2

**TIME OF CONCENTRATION CALCULATOR**

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<td>Hydraulic Length</td>
<td>150.00 ft</td>
</tr>
<tr>
<td>2yr, 24hr P</td>
<td>2.5000 in</td>
</tr>
<tr>
<td>Slope</td>
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<td>Avg.Velocity</td>
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<td>.013000 ft/ft</td>
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<td>Unpaved</td>
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<td>Avg.Velocity</td>
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*Total Tc: 0.4872 hrs*
### Table 2

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<td></td>
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**Tc Equations used...**

---

**SCS TR-55 Sheet Flow**

\[
Tc = \left(0.007 \times ((n \times Lf)^{0.8})\right) / \left((P^{0.5}) \times (Sf^{0.4})\right)
\]

Where:
- \( Tc \): Time of concentration, hrs
- \( n \): Manning's n
- \( Lf \): Flow length, ft
- \( P \): 2yr, 24hr Rain depth, inches
- \( Sf \): Slope, %

**SCS TR-55 Shallow Concentrated Flow**

Unpaved surface:
\[
V = 16.1345 \times (Sf^{0.5})
\]

Paved surface:
\[
V = 20.3282 \times (Sf^{0.5})
\]

\[
Tc = \left(\frac{Lf}{V}\right) / (3600 \text{sec/hr})
\]

Where:
- \( V \): Velocity, ft/sec
- \( Sf \): Slope, ft/ft
- \( Tc \): Time of concentration, hrs
- \( Lf \): Flow length, ft
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<td>2yr, 24hr P</td>
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<tr>
<td>Slope</td>
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<td>Avg.Velocity</td>
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Segment #1 Time: .3901 hrs

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<tbody>
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<td>Slope</td>
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<tr>
<td>Unpaved</td>
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<tr>
<td>Avg.Velocity</td>
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Segment #2 Time: .2014 hrs

Total Tc: .5916 hrs
### Table 2

**Tc Equations used...**

---

#### SCS TR-55 Sheet Flow

\[
Tc = \frac{0.007 \times ((n \times Lf)^{0.8})}{((P^{0.5}) \times (Sf^{0.4}))}
\]

Where:  
- \( Tc \) = Time of concentration, hrs  
- \( n \) = Mannings n  
- \( Lf \) = Flow length, ft  
- \( P \) = 2yr, 24hr Rain depth, inches  
- \( Sf \) = Slope, %

#### SCS TR-55 Shallow Concentrated Flow

Unpaved surface:

\[
V = 16.1345 \times (Sf^{0.5})
\]

Paved surface:

\[
V = 20.3282 \times (Sf^{0.5})
\]

\[
Tc = \frac{(Lf / V)}{(3600\text{sec/hr})}
\]

Where:  
- \( V \) = Velocity, ft/sec  
- \( Sf \) = Slope, ft/ft  
- \( Tc \) = Time of concentration, hrs  
- \( Lf \) = Flow length, ft
### RUNOFF CURVE NUMBER DATA

<table>
<thead>
<tr>
<th>Soil/Surface Description</th>
<th>CN</th>
<th>Area (acres)</th>
<th>Impervious Adjustment</th>
<th>Adjusted CN</th>
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<tbody>
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<td>Woods - grass combination - good</td>
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**COMPOSITE AREA & WEIGHTED CN --->** 62.300 74.04 (74)
### Table 3

**Table: Runoff Curve Number Data**

<table>
<thead>
<tr>
<th>Soil/Surface Description</th>
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<th>%C</th>
<th>%UC</th>
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**Composite Area & Weighted CN**

52.300

83.07 (83)
### TABLE 3

**RUNOFF CURVE NUMBER DATA**

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<tr>
<th>Soil/Surface Description</th>
<th>CN</th>
<th>Area (acres)</th>
<th>Impervious Adjustment (%)</th>
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<tbody>
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**COMPOSITE AREA & WEIGHTED CN --->** 37.900 78.50 (78)

---

S/N: 10XYWCGYN84

PondPack (10.00.016.00) 4:05 PM

Bentley Systems, Inc. 6/14/2005
### Table 3

**RUNOFF CURVE NUMBER DATA**

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<th>Soil/Surface Description</th>
<th>CN</th>
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<th>Impervious Adjustment</th>
<th>Adjusted CN</th>
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**COMPOSITE AREA & WEIGHTED CN --->**

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62.82 (63)
**TABLE 3**

Type: Runoff CN-Area  
Name: SA5_LILAC PARK

File: J: \FILES\SITE\2398\Engineering\runoff calcs\Existing runoff.ppw

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<th>Area acres</th>
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COMPOSITE AREA & WEIGHTED CN --->

41.500  
73.00 (73)
### Table 4

**Type:** Master Network Summary  
**Name:** Watershed

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**Network Storm Collection:** Monroe County

---

**MASTER NETWORK SUMMARY**  
**SCS Unit Hydrograph Method**

(*Node=Outlet; +Node=Diversion;*)  
(Trun= HYG Truncation: Blank= None; L=Left; R=Rt; LR=Left&Rt)

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<thead>
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<th>Trun</th>
<th>Qpeak hrs</th>
<th>Qpeak cfs</th>
<th>Max WSEL ft</th>
<th>Pond Storage ac-ft</th>
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# MASTER NETWORK SUMMARY

SCS Unit Hydrograph Method

(*Node=Outfall; +Node=Diversion;)

(Trun= HYG Truncation: Blank=None; L=Left; R=Rt; LR=Left&Rt)

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<th>HYG Vol ac-ft</th>
<th>Qpeak hrs</th>
<th>Qpeak cfs</th>
<th>Max WSEL ft</th>
<th>Max Pond Storage ac-ft</th>
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### Master Network Summary

SCS Unit Hydrograph Method

(*Node=Outfall; +Node=Diversion;)

(Trun= HYG Truncation: Blank=None; L=Left; R=Rt; LR=Left&Rt)

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<td></td>
</tr>
<tr>
<td>*STH RED CRK TRIB JCT</td>
<td>100</td>
<td>8.583</td>
<td>12.1000</td>
<td></td>
<td>109.36</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## Table 5

<table>
<thead>
<tr>
<th>Segment #1: Tc: TR-55 Sheet</th>
<th>Segment #1 Time: 0.2514 hrs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mannings n</td>
<td>0.1800</td>
</tr>
<tr>
<td>Hydraulic Length</td>
<td>150.00 ft</td>
</tr>
<tr>
<td>2yr, 24hr P</td>
<td>2.5000 in</td>
</tr>
<tr>
<td>Slope</td>
<td>0.03000 ft/ft</td>
</tr>
<tr>
<td>Avg.Velocity</td>
<td>0.17 ft/sec</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Segment #2: Tc: TR-55 Shallow</th>
<th>Segment #2 Time: 0.1790 hrs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydraulic Length</td>
<td>1550.00 ft</td>
</tr>
<tr>
<td>Slope</td>
<td>0.014000 ft/ft</td>
</tr>
<tr>
<td>Paved</td>
<td></td>
</tr>
<tr>
<td>Avg.Velocity</td>
<td>2.41 ft/sec</td>
</tr>
</tbody>
</table>

Total Tc: 0.4304 hrs
**TABLE 5**

**Tc Equations used...**

**SCS TR-55 Sheet Flow**

\[ Tc = \frac{0.007 \times ((n \times Lf)^{0.8})}{((P^{0.5}) \times (Sf^{0.4}))} \]

Where:  
- Tc = Time of concentration, hrs  
- n = Mannings n  
- Lf = Flow length, ft  
- P = 2yr, 24hr Rain depth, inches  
- Sf = Slope, %

**SCS TR-55 Shallow Concentrated Flow**

Unpaved surface:

\[ V = 16.1345 \times (Sf^{0.5}) \]

Paved surface:

\[ V = 20.3282 \times (Sf^{0.5}) \]

\[ Tc = \frac{(Lf \times V)}{(3600 \text{sec/hr})} \]

Where:  
- V = Velocity, ft/sec  
- Sf = Slope, ft/ft  
- Tc = Time of concentration, hrs  
- Lf = Flow length, ft
TABLE 5

Type.... Tc Calcs
Name.... SA2_FROGFORD

File.... J:\UFILES\SITE\2390\Engineering\runoff calcs\Developed runoff.ppw

-----------------------------------------------
TIME OF CONCENTRATION CALCULATOR
-----------------------------------------------

Segment #1: Tc: TR-55 Sheet

Mannings n  1.1800
Hydraulic Length 150.00 ft
2yr, 24hr P 2.5000 in
Slope 0.013000 ft/ft
Avg.Velocity 0.12 ft/sec

Segment #1 Time: .3513 hrs

Segment #2: Tc: TR-55 Shallow

Hydraulic Length 1520.00 ft
Slope 0.015000 ft/ft
Paved
Avg.Velocity 2.49 ft/sec

Segment #2 Time: .1696 hrs

Total Tc: .5209 hrs
--- SCS TR-55 Sheet Flow -----------------------------------

\[ Tc = (0.007 \times ((n \times Lf)^{0.8})) / ((P^{0.5}) \times (Sf^{0.4})) \]

Where:  
\( Tc \) = Time of concentration, hrs  
\( n \) = Mannings n  
\( Lf \) = Flow length, ft  
\( P \) = 2yr, 24hr Rain depth, inches  
\( Sf \) = Slope, %

--- SCS TR-55 Shallow Concentrated Flow --------------------------

Unpaved surface:
\[ V = 16.1345 \times (Sf^{0.5}) \]

Paved surface:
\[ V = 20.3282 \times (Sf^{0.5}) \]

\[ Tc = (Lf / V) / (3600\text{sec/hr}) \]

Where:
\( V \) = Velocity, ft/sec  
\( Sf \) = Slope, ft/ft  
\( Tc \) = Time of concentration, hrs  
\( Lf \) = Flow length, ft
Table 5

<table>
<thead>
<tr>
<th>Segment #1: Tc: TR-55 Sheet</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mannings n</td>
</tr>
<tr>
<td>Hydraulic Length</td>
</tr>
<tr>
<td>2yr, 24hr P</td>
</tr>
<tr>
<td>Slope</td>
</tr>
<tr>
<td>Avg.Velocity</td>
</tr>
<tr>
<td>Segment #1 Time:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Segment #2: Tc: TR-55 Shallow</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydraulic Length</td>
</tr>
<tr>
<td>Slope</td>
</tr>
<tr>
<td>Paved</td>
</tr>
<tr>
<td>Avg.Velocity</td>
</tr>
<tr>
<td>Segment #2 Time:</td>
</tr>
</tbody>
</table>

Total Tc: 0.3349 hrs
**TABLE 5**

**Tc Equations used...**

---

**SCS TR-55 Sheet Flow**

\[
T_c = (0.007 \times ((n \times L_f)^{0.8})) / ((P^{*0.5}) \times (S_f^{*0.4}))
\]

Where:  
- \(T_c\) = Time of concentration, hrs  
- \(n\) = Mannings n  
- \(L_f\) = Flow length, ft  
- \(P\) = 2yr, 24hr Rain depth, inches  
- \(S_f\) = Slope, \%  

---

**SCS TR-55 Shallow Concentrated Flow**

- **Unpaved surface:**  
  \[
  V = 16.1345 \times (S_f^{*0.5})
  \]

- **Paved surface:**  
  \[
  V = 20.3282 \times (S_f^{*0.5})
  \]

\[
T_c = (L_f / V) / (3600 \text{sec/hr})
\]

Where:  
- \(V\) = Velocity, ft/sec  
- \(S_f\) = Slope, ft/ft  
- \(T_c\) = Time of concentration, hrs  
- \(L_f\) = Flow length, ft
<table>
<thead>
<tr>
<th>Segment</th>
<th>Tc: TR-55 Sheet</th>
<th>Tc: TR-55 Shallow</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mannings n</td>
<td>0.1800</td>
<td></td>
</tr>
<tr>
<td>Hydraulic Length</td>
<td>150.00 ft</td>
<td>900.00 ft</td>
</tr>
<tr>
<td>2yr, 24hr P</td>
<td>2.5000 in</td>
<td></td>
</tr>
<tr>
<td>Slope</td>
<td>0.013000 ft/ft</td>
<td>0.013000 ft/ft</td>
</tr>
<tr>
<td>Avg.Velocity</td>
<td>0.12 ft/sec</td>
<td>1.84 ft/sec</td>
</tr>
<tr>
<td>Time</td>
<td>0.3513 hrs</td>
<td>0.1359 hrs</td>
</tr>
<tr>
<td>Total Tc</td>
<td>0.4872 hrs</td>
<td></td>
</tr>
</tbody>
</table>
### TABLE 5

**Type:** Tc Calcs  
**Name:** SA4_FURLONGCREEK  
**File:** J:\FILES\SITE\2398\Engineering\runoff calcs\Developed runoff.ppw

<table>
<thead>
<tr>
<th>Tc Equations used...</th>
</tr>
</thead>
</table>

**SCS TR-55 Sheet Flow**

\[
T_c = \left( 0.007 \times \left( n \times Lf \right)^{0.8} \right) / \left( \left( P^{*}0.5 \right) \times \left( Sf^{*}4 \right) \right)
\]

Where:  
- \( T_c \) = Time of concentration, hrs  
- \( n \) = Manning's n  
- \( Lf \) = Flow length, ft  
- \( P \) = 2yr, 24hr Rain depth, inches  
- \( Sf \) = Slope, \%  

**SCS TR-55 Shallow Concentrated Flow**

Unpaved surface:  
\[
V = 16.1345 \times \left( Sf^{*}0.5 \right)
\]

Paved surface:  
\[
V = 20.3282 \times \left( Sf^{*}0.5 \right)
\]

\[
T_c = \left( Lf / V \right) / \left( 3600 \text{sec/hr} \right)
\]

Where:  
- \( V \) = Velocity, ft/sec  
- \( Sf \) = Slope, ft/ft  
- \( T_c \) = Time of concentration, hrs  
- \( Lf \) = Flow length, ft
<table>
<thead>
<tr>
<th>Segment #1: Tc: TR-55 Sheet</th>
<th>Segment #1 Time: 0.3901 hrs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manning's n</td>
<td>0.1800</td>
</tr>
<tr>
<td>Hydraulic Length</td>
<td>150.00 ft</td>
</tr>
<tr>
<td>2yr, 24hr P</td>
<td>2.5000 in</td>
</tr>
<tr>
<td>Slope</td>
<td>0.01000 ft/ft</td>
</tr>
<tr>
<td>Avg. Velocity</td>
<td>0.11 ft/sec</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Segment #2: Tc: TR-55 Shallow</th>
<th>Segment #2 Time: 0.2014 hrs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydraulic Length</td>
<td>1170.00 ft</td>
</tr>
<tr>
<td>Slope</td>
<td>0.01000 ft/ft</td>
</tr>
<tr>
<td>Unpaved</td>
<td></td>
</tr>
<tr>
<td>Avg. Velocity</td>
<td>1.61 ft/sec</td>
</tr>
</tbody>
</table>

Total Tc: 0.5916 hrs
Table 5

Tc Equations used...

SCS TR-55 Sheet Flow

\[ Tc = \frac{0.007 \times ((n \times Lf)^{0.8})}{((P^{*0.5}) + (Sf^{*0.4}))} \]

Where:  
- Tc = Time of concentration, hrs  
- n = Manning's n  
- Lf = Flow length, ft  
- P = 2yr, 24hr Rain depth, inches  
- Sf = Slope, %

SCS TR-55 Shallow Concentrated Flow

Unpaved surface:

\[ V = 16.1345 \times (Sf^{*0.5}) \]

Paved surface:

\[ V = 20.3282 \times (Sf^{*0.5}) \]

\[ Tc = \frac{Lf}{V} \times \frac{1}{3600\text{sec/hr}} \]

Where:  
- V = Velocity, ft/sec  
- Sf = Slope, ft/ft  
- Tc = Time of concentration, hrs  
- Lf = Flow length, ft
## TABLE 6

**Type:** Runoff CN-Area  
**Name:** SA1_REDCRKTrib#1

**File:** J:\UFILES\SITE\2398\Engineering\runoff calcs\Developed runoff.ppw

### RUNOFF CURVE NUMBER DATA

<table>
<thead>
<tr>
<th>Soil/Surface Description</th>
<th>CN</th>
<th>Area</th>
<th>Impervious Adjustment</th>
<th>Adjusted CN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Woods - grass combination - good</td>
<td>72</td>
<td>46.230</td>
<td></td>
<td>72.00</td>
</tr>
<tr>
<td>Impervious Areas - Paved parking lot</td>
<td>98</td>
<td>16.070</td>
<td></td>
<td>98.00</td>
</tr>
</tbody>
</table>

**COMPOSITE AREA & WEIGHTED CN -->** 62.300  
78.71 (79)

---
### RUNOFF CURVE NUMBER DATA

<table>
<thead>
<tr>
<th>Soil/Surface Description</th>
<th>CN</th>
<th>Area</th>
<th>Impervious Adjustment %C</th>
<th>%UC</th>
<th>Adjusted CN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Woods - grass combination - good</td>
<td>79</td>
<td>26.820</td>
<td></td>
<td></td>
<td>79.00</td>
</tr>
<tr>
<td>Impervious Areas - Paved parking</td>
<td>98</td>
<td>25.480</td>
<td></td>
<td></td>
<td>98.00</td>
</tr>
<tr>
<td>COMPOSITE AREA &amp; WEIGHTED CN</td>
<td></td>
<td>52.300</td>
<td></td>
<td></td>
<td>88.26 (88)</td>
</tr>
</tbody>
</table>

S/N: 10YXYWGTYN84

Bentley Systems, Inc.

PondPack (10.00.016.00) 4:14 PM

6/14/2005
## TABLE 6

**Type:** Runoff CN-Area  
**Name:** SA3_REDCRTRIB#2

File: J:\FILES\SITE\2398\Engineering\runoff calcs\Developed runoff.ppw

<table>
<thead>
<tr>
<th>Soil/Surface Description</th>
<th>CN</th>
<th>Area acres</th>
<th>Impervious Adjustment</th>
<th>Adjusted</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Woods - grass combination - fair</td>
<td>76</td>
<td>32.420</td>
<td></td>
<td>76.00</td>
<td></td>
</tr>
<tr>
<td>Impervious Areas - Paved parking</td>
<td>98</td>
<td>5.480</td>
<td></td>
<td>98.00</td>
<td></td>
</tr>
</tbody>
</table>

COMPOSITE AREA & WEIGHTED CN -->  
37.900  
79.18 (79)
<table>
<thead>
<tr>
<th>Soil/Surface Description</th>
<th>CN</th>
<th>Area</th>
<th>Impervious Adjustment</th>
<th>Adjusted CN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Woods - fair</td>
<td>60</td>
<td>27.690</td>
<td>60.00</td>
<td></td>
</tr>
<tr>
<td>Impervious Areas - Paved parking lot</td>
<td>98</td>
<td>8.710</td>
<td>98.00</td>
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</tr>
</tbody>
</table>

COMPOSITE AREA & WEIGHTED CN --> 36.400 69.09 (69)
### TABLE 6

**Type:** Runoff CN-Area  
**Name:** SA5_LILAC PARK  
**File:** J:\UFILES\SITE\2398\Engineering\runoff calcs\Developed runoff.ppw

**RUNOFF CURVE NUMBER DATA**

<table>
<thead>
<tr>
<th>Soil/Surface Description</th>
<th>CN</th>
<th>Area (acres)</th>
<th>Impervious Adjustment</th>
<th>Adjusted CN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Woods - fair</td>
<td>73</td>
<td>41.500</td>
<td></td>
<td>73.00</td>
</tr>
</tbody>
</table>

**COMPOSITE AREA & WEIGHTED CN --->**

- 41.500
- 73.00 (73)
### DETENTION STORAGE ESTIMATES — Target Peak Outflow Rate

<table>
<thead>
<tr>
<th>Return Events</th>
<th>Peak In (cfs)</th>
<th>Target (cfs)</th>
<th>Lower (ac-ft)</th>
<th>Linear (ac-ft)</th>
<th>Curvilinear (ac-ft)</th>
<th>Upper (ac-ft)</th>
<th>Total (ac-ft)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>33.833</td>
<td>19.346</td>
<td>.311</td>
<td>.575</td>
<td>.986</td>
<td>1.190</td>
<td>3.340</td>
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<tr>
<td>10</td>
<td>93.661</td>
<td>28.000</td>
<td>2.075</td>
<td>2.688</td>
<td>3.832</td>
<td>4.396</td>
<td>8.536</td>
</tr>
<tr>
<td>25</td>
<td>117.253</td>
<td>68.000</td>
<td>1.046</td>
<td>1.874</td>
<td>3.439</td>
<td>4.706</td>
<td>10.618</td>
</tr>
<tr>
<td>100</td>
<td>156.285</td>
<td>88.000</td>
<td>1.496</td>
<td>2.593</td>
<td>4.630</td>
<td>6.596</td>
<td>14.101</td>
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</tbody>
</table>

### CALCULATION TIME RANGES

<table>
<thead>
<tr>
<th>Return Events</th>
<th>Lower From (hrs)</th>
<th>To (hrs)</th>
<th>Linear From (hrs)</th>
<th>To (hrs)</th>
<th>Curvilinear From (hrs)</th>
<th>To (hrs)</th>
<th>Upper From (hrs)</th>
<th>To (hrs)</th>
<th>Total From (hrs)</th>
<th>To (hrs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
<td>11.96</td>
<td>12.38</td>
<td>11.70</td>
<td>12.38</td>
<td>8.45</td>
<td>12.38</td>
<td>8.45</td>
<td>12.38</td>
<td>8.45</td>
<td>25.35</td>
</tr>
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</table>
### DETENTION STORAGE ESTIMATES -- Target Peak Outflow Rate

<table>
<thead>
<tr>
<th>Return Events</th>
<th>Peak In (cfs)</th>
<th>Target (cfs)</th>
<th>Lower (ac-ft)</th>
<th>Linear (ac-ft)</th>
<th>Curvilinear (ac-ft)</th>
<th>Upper (ac-ft)</th>
<th>Total (ac-ft)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>48.326</td>
<td>32.565</td>
<td>.337</td>
<td>.722</td>
<td>1.447</td>
<td>2.104</td>
<td>4.919</td>
</tr>
<tr>
<td>10</td>
<td>101.167</td>
<td>42.000</td>
<td>1.880</td>
<td>2.657</td>
<td>4.259</td>
<td>5.668</td>
<td>10.286</td>
</tr>
<tr>
<td>25</td>
<td>120.494</td>
<td>79.000</td>
<td>1.854</td>
<td>3.703</td>
<td>6.061</td>
<td>12.298</td>
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<tr>
<td>100</td>
<td>151.521</td>
<td>97.000</td>
<td>1.255</td>
<td>2.424</td>
<td>4.798</td>
<td>7.955</td>
<td>15.576</td>
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</table>

### CALCULATION TIME RANGES

<table>
<thead>
<tr>
<th>Return Events</th>
<th>Lower From (hrs)</th>
<th>To (hrs)</th>
<th>Linear From (hrs)</th>
<th>To (hrs)</th>
<th>Curvilinear From (hrs)</th>
<th>To (hrs)</th>
<th>Upper From (hrs)</th>
<th>To (hrs)</th>
<th>Total From (hrs)</th>
<th>To (hrs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>12.02</td>
<td>12.43</td>
<td>11.75</td>
<td>12.43</td>
<td>8.30</td>
<td>12.43</td>
<td>8.30</td>
<td>12.43</td>
<td>8.30</td>
<td>25.55</td>
</tr>
<tr>
<td>10</td>
<td>11.91</td>
<td>12.59</td>
<td>11.65</td>
<td>12.59</td>
<td>5.85</td>
<td>12.59</td>
<td>5.85</td>
<td>12.59</td>
<td>5.85</td>
<td>25.60</td>
</tr>
<tr>
<td>25</td>
<td>11.99</td>
<td>12.43</td>
<td>11.75</td>
<td>12.43</td>
<td>5.30</td>
<td>12.43</td>
<td>5.30</td>
<td>12.43</td>
<td>5.30</td>
<td>25.60</td>
</tr>
<tr>
<td>100</td>
<td>11.98</td>
<td>12.43</td>
<td>11.70</td>
<td>12.43</td>
<td>4.65</td>
<td>12.43</td>
<td>4.65</td>
<td>12.43</td>
<td>4.65</td>
<td>25.60</td>
</tr>
</tbody>
</table>
## Table 7

**Detention Storage Estimates -- Target Peak Outflow Rate**

<table>
<thead>
<tr>
<th>Return Events</th>
<th>Peak In (cfs)</th>
<th>Target (cfs)</th>
<th>Lower (ac-ft)</th>
<th>Linear (ac-ft)</th>
<th>Curvilinear (ac-ft)</th>
<th>Upper (ac-ft)</th>
<th>Total (ac-ft)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>24.107</td>
<td>22.096</td>
<td>.012</td>
<td>.092</td>
<td>.221</td>
<td>.504</td>
<td>2.033</td>
</tr>
<tr>
<td>10</td>
<td>65.853</td>
<td>30.000</td>
<td>.750</td>
<td>1.134</td>
<td>1.829</td>
<td>2.355</td>
<td>5.196</td>
</tr>
<tr>
<td>25</td>
<td>82.258</td>
<td>63.000</td>
<td>.230</td>
<td>.627</td>
<td>1.427</td>
<td>2.525</td>
<td>6.463</td>
</tr>
<tr>
<td>100</td>
<td>109.356</td>
<td>79.000</td>
<td>.409</td>
<td>.969</td>
<td>2.128</td>
<td>3.638</td>
<td>8.583</td>
</tr>
</tbody>
</table>

**Calculation Time Ranges**

<table>
<thead>
<tr>
<th>Return Events</th>
<th>Lower From (hrs)</th>
<th>To (hrs)</th>
<th>Linear From (hrs)</th>
<th>To (hrs)</th>
<th>Curvilinear From (hrs)</th>
<th>To (hrs)</th>
<th>Upper From (hrs)</th>
<th>To (hrs)</th>
<th>Total From (hrs)</th>
<th>To (hrs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>12.05</td>
<td>12.17</td>
<td>11.85</td>
<td>12.17</td>
<td>11.15</td>
<td>12.17</td>
<td>11.15</td>
<td>12.17</td>
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<td>7.55</td>
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### DETENTION STORAGE ESTIMATES -- Target Peak Outflow Rate

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<th>Linear (ac-ft)</th>
<th>Curvilinear (ac-ft)</th>
<th>Upper (ac-ft)</th>
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### CALCULATION TIME RANGES

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<th>Curvilinear From (hrs) to To (hrs)</th>
<th>Upper From (hrs) to To (hrs)</th>
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</tr>
</thead>
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<td>11.20 to 25.45</td>
</tr>
<tr>
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<td>11.95 to 12.55</td>
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<td>10.10 to 12.55</td>
<td>10.10 to 25.50</td>
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</table>
Appendix E

University of Rochester
IPD Rezoning

DETENTION POND EXAMPLES

FRA ENGINEERING, P.C.

530 SUMMIT POINT DRIVE
HENRIETTA, NEW YORK 14467
(585) 359-0280
FAX (585) 359-1059
Appendix E – Detention Pond Examples

Figure 1 – Typical Wet Extended Detention Pond Schematic
Figure 2 – Pictures of Existing Detention Pond On Site
Figure 1. Wet Extended Detention Pond (P-3)

PLAN VIEW

PROFILE
Outlet Pipe Structure for the Frog Pond

Forebay for Frog Pond, showing riprap lining around pond
Fig. 2  Existing Detention Pond on the University of Rochester's South Campus

Front View of the Frog Pond on U of R Property Four

Back View of the Frog Pond, showing riprap drainage channels
DRAFT GENERIC ENVIRONMENTAL IMPACT STATEMENT

APPENDIX B – Woodlot Quality Assessment Report

THE UNIVERSITY OF ROCHESTER
IPD REZONING

Town of Brighton
Monroe County, New York
Woodlot Quality Assessment

University of Rochester Property IPD Rezoning
Town of Brighton, New York

Prepared for:
Dennis Kennelly, P.E.
FRA Engineering
245 Summit Point, Suite 4
Henrietta, NY 14467

Prepared by:
Christopher J. Luley, Phd. &
Andrew Pleninger

Urban Forestry, LLC
119 Yellow Mills Road
Palmyra, NY 14522

www.urbanforestryllc.com
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Executive Summary

Introduction

Urban Forestry, LLC was retained by FRA Engineering to complete a statistical sampling of trees located on property owned by the University of Rochester in the Town of Brighton, NY. The objective is to provide a statistically valid measure of the numbers of trees, size, tree species and quality present on areas specified by FRA for use in a rezoning request before the Town of Brighton.

Methodology

Development Pod Locations

FRA engineering provided Urban Forestry LLC with location of the ten development Pod parcels. The borders of the Pod’s were identified on geo-referenced digital aerial photographs. The Pod’s ranged in size from 5.06 to 23 acres.

Development Pod Sample Survey

Vegetation Survey

Each of the 10 Pod’s were sampled for existing trees, as defined by Chapter 66.2 of the Town Code as “Woodlot.... woody plants whose diameter is greater than 3 inches in diameter at a height of three feet above the ground and reaches a minimum height of six feet.” The survey was done using USDA Forest Services Urban Forest Effects (UFORE) sampling protocols (Nowak and Crane, 2000). Field survey work was conducted during the period between July 26, 2005 and August 2, 2005.

Samples plots were randomly located on aerial photographs in each Pod at a rate of approximately one 1/20th acre plot per forested acre. Sample plots were randomly located in the entire Pod’s that were primarily forested; in Pod’s that had prior development or contained open fields, only the forested areas were sampled.

All trees in the plot meeting the definition of woody plants described above were measured and evaluated for:

1. Tree Genus and Species
2. Diameter at Breast Height (4 1/2 feet above grade) measured with a Biltmore Stick and
3. Condition
   a. Good
   b. Fair
   c. Poor
   d. Very Poor
   e. Dead

U of R Woodlot Assessment 3  8/9/2005
Unique or Significant Trees

All of the Pod’s (including all non-forested land) were completely surveyed by walking the entire Pod for unique or significant trees. A unique or significant tree is any living tree that was 30 inches diameter at breast height or greater. This definition is consistent with Town of Brighton Code, Chapter 175-2, and “Significant Town Tree”. The location of each unique tree was marked with a GPS coordinate, measured with a diameter tape, identified to genus and species and was rated for condition.

Data Analysis

Sample plot data was used to make estimates of the population totals for number of trees in each Pod, size class distribution, tree species composition, and overall tree condition. These data are presented with standard errors estimated from plot sample variation. Standard errors reported in this project were found similar in ranges to those reported by Nowak et al. 2002. Confidence intervals were constructed for total tree estimates only. Standard errors are reported for species, size class and condition estimates because of the frequency of one or a few data points that limited the usefulness of a confidence estimate.

Literature Cited


Sample Results

Pod 1

Total Trees: 416
95% Confidence Interval: +/-392 trees

Vegetation Characteristics

Pod 1 contained a small section of woods (0.77 acres) that was dominated by pioneer tree species such as green ash, cottonwood, buckthorn, and elm. The woods are characteristic of sites in urban areas that have been previously disturbed. Over 90 percent of the trees are less than 12 inches in diameter and most trees were in fair or poor condition. Nearly 20 percent of the trees were found to be dead. There were no trees greater than 30 inches in diameter in Pod 1.

Pod 2

Total Trees: 2035
U of R Woodlot Assessment

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8/9/2005
95% Confidence Interval: +/-1081 trees

Vegetation Characteristics

This Pod was sampled as completely forested. It contained trees characteristic of urban disturbed land such as cottonwood, green ash, American elm, and buckthorn. The site is dominated by swamp and low areas and also contains trees associated with these sites such as red and silver maple, and green ash. There are mixed northern hardwoods such as oak, cherry and tulip tree on the higher grounds. Most trees in this Pod are in smaller size classes and are less than 12 inches in diameter and are in fair or poor condition. There were 6 trees that were 30 inches or greater in diameter.

Pod 3

Total Trees: 1264
95% Confidence Interval: +/-590 trees

Vegetation Characteristics

Pod 3 was partially forested and contained 3.95 acres of woods. The vegetation was dominated by pioneer species such as green ash, cottonwood, American elm, and boxelder. Bottomland trees such as silver maple, black willow, and cottonwood and are present in the low areas. The majority of trees are less than 12 inches in diameter (83%) and three significant trees were found that are greater than 30 inches in diameter. Most trees (83%) are in fair or poor condition.

Pod 4

Total Tree: 797
95% Confidence Interval: +/-369

Vegetation Characteristics

Pod 4 was sampled as partially forested with 5.09 acres of tree cover. The center area of the Pod had been cleared. The site contained mixed hardwoods such as red oak, white ash, black cherry, and red maple as well as pioneer species such as aspen and hawthorn. Most trees were less than 12 inches in diameter (72%) although some areas contained larger hardwoods ranging from 19 to 42 inches in diameter. Condition class rating showed that most trees were not in good condition, as 83% were rated as fair, poor or dead. Eleven trees greater than 30 inches in diameter were found in Pod 4.

Pod 5

Total Trees: 1692
95% Confidence Interval: +/-392 trees

Vegetation Characteristics

Pod 5 was sampled as partially forested with 9.4 acres of woods. The Pod was dominated by mature to over mature mixed hardwoods including red oak, sugar maple, black cherry, red

U of R Woodlot Assessment 5 8/9/2005
maple, pignut hickory and white ash. There are low areas in the Pod with silver maple, red maples and green ash. Seventy-one percent of the trees are less than 12 inches in diameter, although nearly 20% are greater than 19 inches. Eighty percent of the trees were rated in good or fair condition although many of the larger hardwoods are in poor condition. There were 39 trees greater than 30 inches in the wooded areas of Pod 5.

Pod 6

Total Trees: 1316
95% Confidence Interval: +/- 443 trees

Vegetation Characteristics

This Pod was sampled as completely forested. It contains intermixed stands of northern hardwoods such as red oak, tulip tree, hickory and black cherry, and bottomland trees in low areas such as red maple, green ash, American elm and willow. There are pioneer species on the stand edges such as cottonwood and buckthorn. Most trees are in the smaller diameter ranges although there are larger mature hardwoods on the site and 44 trees that were 30 inches or greater in diameter were identified. Most trees are in fair or poor condition.

Pod 7

Total Trees: 1648
95% Confidence Interval: = +/- 421 trees

Vegetation Characteristics

This Pod was sampled as completely forested. Most of the trees are pioneer species on disturbed lands, such as green ash, cottonwood and aspen, black cherry, and American elm. There were scattered northern hardwoods such as red and pin oaks. Most trees (86%) were less than 12 inches in diameter and were in fair to poor condition. No unique trees greater than 30 inches in diameter are present in Pod 7.

Pod 8

Total Trees: 1302
95% Confidence Interval: +/- 603 trees

Vegetation Characteristics

Pod was sampled as completely forested. Nearly all of the trees are pioneer species on disturbed lands, such as green ash, willow, cottonwood and aspen, black cherry, and American elm. Most trees (85%) were less than 12 inches in diameter and were in poor to very poor condition. A single unique tree greater than 30 inches in diameter was found in Pod 8.

Pod 9

Total Trees: 2387
95% Confidence Interval: +/- 559

Vegetation Characteristics

This Pod was sampled as completely forested. Stand characteristics were dominated by pioneer species such as green and white ash, aspen, black cherry, crabapple, and buckthorn. There were mixed bottomland hardwoods in some locations such as bur oak, silver maple, pin oak and red maple. The vast majority of trees are 12 inches in diameter or less and are in good or fair condition. Eight trees over 30 inches in diameter are present in this Pod.

Pod 10

Total Trees: No forested areas;
Standard Error (SE): na

Vegetation Characteristics

This Pod had was completely developed and contained less than an acre of forested land. Twenty-eight trees greater than 30 inches were found in the ground survey of the entire Pod.
**Introduction**

Urban Forestry, LLC was retained by FRA Engineering to complete a statistical sampling of trees located on property owned by the University of Rochester in the Town of Brighton, NY. The objective is to provide a statistically valid measure of the numbers of trees, size, tree species and quality present on areas specified by FRA for use in a rezoning request before the Town of Brighton.

**Methodology**

*Development Pod Locations*

FRA engineering provided Urban Forestry LLC with location of the ten development Pod parcels. The borders of the Pod’s were identified on geo-referenced digital aerial photographs. The Pod’s ranged in size from 5.06 to 23 acres (Table 1).

<table>
<thead>
<tr>
<th>Pod Number</th>
<th>Size (acres)</th>
<th>Forested Acres</th>
<th>Number of Sample Plots</th>
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<td>5.96</td>
<td>0.77</td>
<td>2</td>
</tr>
<tr>
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<td>8.48</td>
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<td>3</td>
<td>14.23</td>
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<td>5</td>
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<td>4</td>
<td>8.39</td>
<td>5.09</td>
<td>6</td>
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<td>5</td>
<td>21.78</td>
<td>9.40</td>
<td>8</td>
</tr>
<tr>
<td>6</td>
<td>5.06</td>
<td>5.06</td>
<td>5</td>
</tr>
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<td>7</td>
<td>6.34</td>
<td>6.34</td>
<td>6</td>
</tr>
<tr>
<td>8</td>
<td>6.70</td>
<td>6.70</td>
<td>7</td>
</tr>
<tr>
<td>9</td>
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<td>10</td>
<td>23.00</td>
<td>0.0</td>
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**Development Pod Sample Survey**

*Vegetation Survey*

Each of the 10 Pod’s were sampled for existing trees, as defined by Chapter 66.2 of the Town Code as “Woodlot.... woody plants whose diameter is greater than 3 inches in diameter at a height of three feet above the ground and reaches a minimum height of six feet.” The survey was done using USDA Forest Services Urban Forest Effects (UFORE) sampling protocols (Nowak and Crane, 2000). Field survey work was conducted during the period between July 26, 2005 and August 2, 2005.

Samples plots were randomly located on aerial photographs in each Pod at a rate of approximately one 1/20th acre plot per forested acre. Sample plots were randomly located in the

U of R Woodlot Assessment

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8/9/2005
entire Pod’s that were primarily forested; in Pod’s that had prior development or contained open fields, only the forested areas were sampled.

Each plot was location in the field and the plot center was identified with Trimble Pathfinder Pro geographic positioning system (GPS) unit that is capable of sub-meter accuracy. Sample plot borders were physically identified with a tape measure and flagging.

All trees in the plot meeting the definition of woody plants described above were measured and evaluated for:
1. Tree Genus and Species
2. Diameter at Breast Height (4 ½ feet above grade) measured with a Biltmore Stick and
3. Condition
   a. Good
   b. Fair
   c. Poor
   d. Very Poor
   e. Dead

Unique or Significant Trees

All of the Pod’s (including all non-forested land) were completely surveyed by walking the entire Pod for unique or significant trees. A unique or significant tree is any living tree that was 30 inches diameter at breast height or greater. This definition is consistent with Town of Brighton Code, Chapter 175-2, “Significant Town Tree”. The location of each unique tree was marked with a GPS coordinate, measured with a diameter tape, identified to genus and species (Appendix B) and was rated for condition.

Data Analysis

Sample plot data was used to make estimates of the population totals for number of trees in each Pod, size class distribution, tree species composition, and overall tree condition. These data are presented with standard errors estimated from plot sample variation. Standard errors reported in this project were found similar in ranges to those reported by Nowak et al. 2002. Confidence intervals were constructed for total tree estimates only. Standard errors are reported for species, size class and condition estimates because of the frequency of one or a few data points that limited the usefulness of a confidence estimate.

GPS coordinates of the plot center locations for each Pod are presented in Appendix A. The GPS location of each unique tree is presented for each Pod and includes characteristics of each tree. Tree species scientific names are presented in Appendix B.

Literature Cited

Sample Results

Pod 1
Total Trees: 416
95% Confidence Interval: +/-392 trees

Vegetation Characteristics
Pod 1 contained a small section of woods (0.77 acres) that was dominated by pioneer tree species such as green ash, cottonwood, buckthorn, and elm. The woods are characteristic of sites in urban areas that have been previously disturbed. Over 90 percent of the trees are less than 12 inches in diameter (Table 1.1) and most trees were in fair or poor condition (Table 1.3). Nearly 20 percent of the trees were found to be dead. There were no trees greater than 30 inches in diameter in Pod 1.

Table 1.1. Size class distribution of trees in Pod 1

<table>
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<th>Size Class Inches</th>
<th>Percent</th>
<th>Total</th>
<th>SE</th>
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<td>52</td>
<td>216</td>
<td>120</td>
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<tr>
<td>7 to 12</td>
<td>41</td>
<td>169</td>
<td>100</td>
</tr>
<tr>
<td>13 to 18</td>
<td>6</td>
<td>23</td>
<td>10</td>
</tr>
<tr>
<td>19 to 24</td>
<td>2</td>
<td>8</td>
<td>10</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>416</td>
<td></td>
</tr>
</tbody>
</table>

Table 1.2. Species composition of trees sampled in Pod 1

<table>
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<th>Species</th>
<th>Percent</th>
<th>Total</th>
<th>SEM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Green Ash</td>
<td>31</td>
<td>131</td>
<td>90</td>
</tr>
<tr>
<td>Cottonwood</td>
<td>22</td>
<td>92</td>
<td>120</td>
</tr>
<tr>
<td>Buckthorn</td>
<td>19</td>
<td>77</td>
<td>60</td>
</tr>
<tr>
<td>American Elm</td>
<td>15</td>
<td>62</td>
<td>80</td>
</tr>
<tr>
<td>Boxelder</td>
<td>6</td>
<td>23</td>
<td>30</td>
</tr>
<tr>
<td>Hawthorn</td>
<td>4</td>
<td>15</td>
<td>20</td>
</tr>
<tr>
<td>Silver Maple</td>
<td>2</td>
<td>8</td>
<td>10</td>
</tr>
<tr>
<td>Black Willow</td>
<td>2</td>
<td>8</td>
<td>10</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>416</td>
<td></td>
</tr>
</tbody>
</table>

Table 1.3. Condition classes of trees sampled in Pod 1

<table>
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<th>Condition Class</th>
<th>Percent</th>
<th>Total</th>
<th>SE</th>
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</thead>
<tbody>
<tr>
<td>DEAD</td>
<td>19</td>
<td>77</td>
<td>0</td>
</tr>
<tr>
<td>VERY POOR</td>
<td>4</td>
<td>15</td>
<td>0</td>
</tr>
<tr>
<td>POOR</td>
<td>20</td>
<td>85</td>
<td>10</td>
</tr>
<tr>
<td>FAIR</td>
<td>56</td>
<td>231</td>
<td>200</td>
</tr>
<tr>
<td>GOOD</td>
<td>2</td>
<td>8</td>
<td>10</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>416</td>
<td></td>
</tr>
</tbody>
</table>
Unique or Significant Trees
There were no trees greater than 30 inches in diameter found in Pod 1.
**Pod 2**

Total Trees: 2035  
95% Confidence Interval: +/-1081 trees

**Vegetation Characteristics**

This Pod was sampled as completely forested. It contained trees characteristic of urban disturbed land such as cottonwood, green ash, American elm, and buckthorn (Table 2.2). The site is dominated by swamp and low areas and also contains trees associated with these sites such as red and silver maple, and green ash. There are mixed northern hardwoods such as oak, cherry and tulip tree on the higher grounds. Most trees in this Pod are in smaller size classes and are less than 12 inches in diameter (Table 2.1) and are in fair or poor condition (Table 2.3). There were 6 trees that were 30 inches or greater in diameter (Table 2.4).

<table>
<thead>
<tr>
<th>Size Class Inches</th>
<th>Percent</th>
<th>Total</th>
<th>SE</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 to 6</td>
<td>48</td>
<td>975</td>
<td>349</td>
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<td>7 to 12</td>
<td>43</td>
<td>869</td>
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<td>13 to 18</td>
<td>7</td>
<td>148</td>
<td>68</td>
</tr>
<tr>
<td>19 to 24</td>
<td>2</td>
<td>42</td>
<td>28</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>2035</td>
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</table>

Table 2.1 Size class distribution of trees in Pod 2.

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<th>Species</th>
<th>Percent</th>
<th>Total</th>
<th>SE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Green Ash</td>
<td>46</td>
<td>933</td>
<td>348</td>
</tr>
<tr>
<td>Cottonwood</td>
<td>13</td>
<td>254</td>
<td>144</td>
</tr>
<tr>
<td>American Elm</td>
<td>9</td>
<td>191</td>
<td>113</td>
</tr>
<tr>
<td>Silver Maple</td>
<td>8</td>
<td>170</td>
<td>147</td>
</tr>
<tr>
<td>Tulip Poplar</td>
<td>7</td>
<td>148</td>
<td>99</td>
</tr>
<tr>
<td>Hawthorn</td>
<td>6</td>
<td>127</td>
<td>53</td>
</tr>
<tr>
<td>Black Cherry</td>
<td>3</td>
<td>64</td>
<td>64</td>
</tr>
<tr>
<td>Buckthorn</td>
<td>3</td>
<td>64</td>
<td>31</td>
</tr>
<tr>
<td>Boxelder</td>
<td>1</td>
<td>21</td>
<td>21</td>
</tr>
<tr>
<td>Scots Pine</td>
<td>1</td>
<td>21</td>
<td>21</td>
</tr>
<tr>
<td>Oak</td>
<td>1</td>
<td>21</td>
<td>21</td>
</tr>
<tr>
<td>Black Willow</td>
<td>1</td>
<td>21</td>
<td>21</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>2035</td>
<td></td>
</tr>
</tbody>
</table>

Table 2.2 Species composition of trees sampled in Pod 2.

<table>
<thead>
<tr>
<th>Condition Class</th>
<th>Percent</th>
<th>Total</th>
<th>SE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dead</td>
<td>16.7</td>
<td>339</td>
<td>125</td>
</tr>
<tr>
<td>Very Poor</td>
<td>2.1</td>
<td>42</td>
<td>28</td>
</tr>
<tr>
<td>Poor</td>
<td>34.4</td>
<td>700</td>
<td>226</td>
</tr>
<tr>
<td>Fair</td>
<td>40.6</td>
<td>827</td>
<td>204</td>
</tr>
<tr>
<td>Good</td>
<td>6.3</td>
<td>127</td>
<td>62</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>2035</td>
<td></td>
</tr>
</tbody>
</table>

Table 2.3 Condition classes of trees sampled in Pod 2

U of R Woodlot Assessment 13 8/9/2005
Unique or Significant Trees

Table 2.4 Unique or significant trees found in Pod 2. GPS readings were taken with the coordinate system of US Plane 1983, New York West 3102, NAD 1983 (Conus), in US Survey Feet with height reported above means sea level.

<table>
<thead>
<tr>
<th>Common Name</th>
<th>Diameter Inches</th>
<th>Condition</th>
<th>GPS Height</th>
<th>Northing</th>
<th>Easting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Green Ash</td>
<td>30</td>
<td>POOR</td>
<td>528.857</td>
<td>1136809.719</td>
<td>1401463.239</td>
</tr>
<tr>
<td>Black Willow</td>
<td>33</td>
<td>POOR</td>
<td>519.298</td>
<td>1136893.432</td>
<td>1401509.901</td>
</tr>
<tr>
<td>Black Willow</td>
<td>36</td>
<td>FAIR</td>
<td>546.869</td>
<td>1136549.058</td>
<td>1401351.307</td>
</tr>
<tr>
<td>Green Ash</td>
<td>30</td>
<td>FAIR</td>
<td>537.676</td>
<td>1136326.896</td>
<td>1401441.855</td>
</tr>
<tr>
<td>Silver Maple</td>
<td>34</td>
<td>FAIR</td>
<td>555.870</td>
<td>1136332.327</td>
<td>1401500.620</td>
</tr>
<tr>
<td>Silver Maple</td>
<td>32</td>
<td>FAIR</td>
<td>535.591</td>
<td>1136248.728</td>
<td>1401255.995</td>
</tr>
</tbody>
</table>
Pod 3
Total Trees: 1264
95% Confidence Interval: +/-590 trees

Vegetation Characteristics
Pod 3 was partially forested and contained 3.95 acres of woods. The vegetation was dominated by pioneer species such as green ash, cottonwood, American elm, and boxelder (Table 3.2). Bottomland trees such as silver maple, black willow, and cottonwood and are present in the low areas. The majority of trees are less than 12 inches in diameter (83%) (Table 3.1) and three trees were found that were greater than 30 inches in diameter (Table 3.4). Most trees (83%) are in fair or poor condition (Table 3.3).

<table>
<thead>
<tr>
<th>Size Class</th>
<th>Percent</th>
<th>Total</th>
<th>SE</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 to 6</td>
<td>45</td>
<td>569</td>
<td>322</td>
</tr>
<tr>
<td>7 to 12</td>
<td>38</td>
<td>474</td>
<td>122</td>
</tr>
<tr>
<td>13 to 18</td>
<td>16</td>
<td>205</td>
<td>64</td>
</tr>
<tr>
<td>19 to 24</td>
<td>1</td>
<td>16</td>
<td>16</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>1264</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Species</th>
<th>Percent</th>
<th>Total</th>
<th>SE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Green Ash</td>
<td>41</td>
<td>521</td>
<td>309</td>
</tr>
<tr>
<td>Cottonwood</td>
<td>23</td>
<td>284</td>
<td>159</td>
</tr>
<tr>
<td>American Elm</td>
<td>10</td>
<td>126</td>
<td>81</td>
</tr>
<tr>
<td>Black Willow</td>
<td>9</td>
<td>111</td>
<td>47</td>
</tr>
<tr>
<td>Boxelder</td>
<td>8</td>
<td>95</td>
<td>46</td>
</tr>
<tr>
<td>Silver Maple</td>
<td>4</td>
<td>47</td>
<td>32</td>
</tr>
<tr>
<td>Autumn Olive</td>
<td>1</td>
<td>16</td>
<td>16</td>
</tr>
<tr>
<td>White Ash</td>
<td>1</td>
<td>16</td>
<td>16</td>
</tr>
<tr>
<td>Black Walnut</td>
<td>1</td>
<td>16</td>
<td>16</td>
</tr>
<tr>
<td>Scots Pine</td>
<td>1</td>
<td>16</td>
<td>16</td>
</tr>
<tr>
<td>Buckthorn</td>
<td>1</td>
<td>16</td>
<td>16</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>1264</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Condition Class</th>
<th>Percent</th>
<th>Total</th>
<th>SE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dead</td>
<td>8</td>
<td>95</td>
<td>46</td>
</tr>
<tr>
<td>Poor</td>
<td>21</td>
<td>269</td>
<td>174</td>
</tr>
<tr>
<td>Fair</td>
<td>63</td>
<td>790</td>
<td>125</td>
</tr>
<tr>
<td>Good</td>
<td>9</td>
<td>111</td>
<td>19</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>1264</td>
<td></td>
</tr>
</tbody>
</table>
Unique or Significant Trees

Table 3.4 Unique or significant trees found in Pod 3. GPS readings were taken with the coordinate system of US Plane 1983, New York West 3102, NAD 1983 (Conus), in US Survey Feet with height reported above means sea level.

<table>
<thead>
<tr>
<th>Common Name</th>
<th>DBH</th>
<th>Condition</th>
<th>GPS Height</th>
<th>Northing</th>
<th>Easting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Black Willow</td>
<td>35</td>
<td>FAIR</td>
<td>536.045</td>
<td>1135201.016</td>
<td>1403063.146</td>
</tr>
<tr>
<td>Silver Maple</td>
<td>36</td>
<td>FAIR</td>
<td>571.822</td>
<td>1134960.590</td>
<td>1403528.472</td>
</tr>
<tr>
<td>Silver Maple</td>
<td>31</td>
<td>FAIR</td>
<td>523.148</td>
<td>1135013.727</td>
<td>1403592.619</td>
</tr>
</tbody>
</table>
**Pod 4**

Total Tree: 797

95% Confidence Interval: +/-369

**Vegetation Characteristics**

Pod 4 was sampled as partially forested with 5.09 acres of tree cover. The center area of the Pod had been cleared. The site contained mixed hardwoods such as red oak, white ash, black cherry, and red maple as well as pioneer species such as aspen and hawthorn (Table 4.2). Most trees were less than 12 inches in diameter (72%) although some areas contained larger hardwoods ranging from 19 to 42 inches in diameter (Table 4.1). Condition class rating showed that most trees were not in good condition as 83% were rated as fair, poor or dead (Table 4.3). Eleven trees greater than 30 inches in diameter were found in Pod 4 (Table 4.4).

<table>
<thead>
<tr>
<th>Size Class</th>
<th>Percent</th>
<th>Total</th>
<th>SE</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 to 6</td>
<td>34</td>
<td>271</td>
<td>97</td>
</tr>
<tr>
<td>7 to 12</td>
<td>38</td>
<td>305</td>
<td>95</td>
</tr>
<tr>
<td>13 to 18</td>
<td>17</td>
<td>136</td>
<td>63</td>
</tr>
<tr>
<td>19 to 24</td>
<td>4</td>
<td>34</td>
<td>34</td>
</tr>
<tr>
<td>25 to 30</td>
<td>4</td>
<td>34</td>
<td>21</td>
</tr>
<tr>
<td>36 to 42</td>
<td>2</td>
<td>17</td>
<td>17</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>797</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Species</th>
<th>Percent</th>
<th>Total</th>
<th>SE</th>
</tr>
</thead>
<tbody>
<tr>
<td>White Ash</td>
<td>28</td>
<td>221</td>
<td>61</td>
</tr>
<tr>
<td>Black Cherry</td>
<td>28</td>
<td>221</td>
<td>49</td>
</tr>
<tr>
<td>Hawthorn</td>
<td>13</td>
<td>102</td>
<td>83</td>
</tr>
<tr>
<td>Red Maple</td>
<td>11</td>
<td>85</td>
<td>67</td>
</tr>
<tr>
<td>Aspen</td>
<td>11</td>
<td>85</td>
<td>55</td>
</tr>
<tr>
<td>Oak</td>
<td>4</td>
<td>34</td>
<td>34</td>
</tr>
<tr>
<td>Shadbush</td>
<td>2</td>
<td>17</td>
<td>17</td>
</tr>
<tr>
<td>Crabapple</td>
<td>2</td>
<td>17</td>
<td>17</td>
</tr>
<tr>
<td>Pin Oak</td>
<td>2</td>
<td>17</td>
<td>17</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>797</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Condition Class</th>
<th>Percent</th>
<th>Total</th>
<th>SE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dead</td>
<td>13</td>
<td>102</td>
<td>37</td>
</tr>
<tr>
<td>Poor</td>
<td>15</td>
<td>119</td>
<td>33</td>
</tr>
<tr>
<td>Fair</td>
<td>55</td>
<td>441</td>
<td>95</td>
</tr>
<tr>
<td>Good</td>
<td>17</td>
<td>136</td>
<td>41</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>797</td>
<td></td>
</tr>
</tbody>
</table>
Unique or Significant Trees

Table 4.4. Unique or significant trees found in Pod 4. GPS readings were taken with the coordinate system of US Plane 1983, New York West 3102, NAD 1983 (Conus), in US Survey Feet with height reported above means sea level.

<table>
<thead>
<tr>
<th>Common Name</th>
<th>DBH</th>
<th>Condition</th>
<th>GPS Height</th>
<th>Northing</th>
<th>Easting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boxelder</td>
<td>35</td>
<td>POOR</td>
<td>561.480</td>
<td>1135402.922</td>
<td>1401962.230</td>
</tr>
<tr>
<td>Red Maple</td>
<td>35</td>
<td>FAIR</td>
<td>550.579</td>
<td>1135227.601</td>
<td>1402003.960</td>
</tr>
<tr>
<td>Red Maple</td>
<td>35</td>
<td>FAIR</td>
<td>554.177</td>
<td>1135144.460</td>
<td>1402066.668</td>
</tr>
<tr>
<td>Red Maple</td>
<td>31</td>
<td>FAIR</td>
<td>568.747</td>
<td>1135136.564</td>
<td>1402005.869</td>
</tr>
<tr>
<td>Red Maple</td>
<td>37</td>
<td>FAIR</td>
<td>561.362</td>
<td>1135239.030</td>
<td>1402003.831</td>
</tr>
<tr>
<td>Red Maple</td>
<td>40</td>
<td>FAIR</td>
<td>557.008</td>
<td>1134984.850</td>
<td>1402349.988</td>
</tr>
<tr>
<td>Red Maple</td>
<td>32</td>
<td>FAIR</td>
<td>545.036</td>
<td>1135163.244</td>
<td>1401986.064</td>
</tr>
<tr>
<td>Silver Maple</td>
<td>40</td>
<td>VERY POOR</td>
<td>530.027</td>
<td>1135258.932</td>
<td>1401971.972</td>
</tr>
<tr>
<td>White Ash</td>
<td>32</td>
<td>GOOD</td>
<td>557.617</td>
<td>1135242.450</td>
<td>1402003.014</td>
</tr>
<tr>
<td>White Ash</td>
<td>31</td>
<td>POOR</td>
<td>559.095</td>
<td>1135424.958</td>
<td>1402065.752</td>
</tr>
<tr>
<td>Red Oak</td>
<td>30</td>
<td>GOOD</td>
<td>550.787</td>
<td>1134908.084</td>
<td>1401915.353</td>
</tr>
</tbody>
</table>
Pod 5
Total Trees: 1692
95% Confidence Interval: +/-392 trees

Vegetation Characteristics
Pod 5 was sampled as partially forested with 9.4 acres of woods. The Pod was dominated by mature to over-mature mixed hardwoods including red oak, sugar maple, black cherry, red maple, pignut hickory and white ash (Table 5.2). There are low areas in the Pod with silver maple, red maples and green ash. Seventy-one percent of the trees are less than 12 inches in diameter, although nearly 20% are greater than 19 inches (Table 5.1). Eighty percent of the trees were rated in good or fair condition although many of the larger hardwoods are in poor condition (Table 5.3). There were 39 trees greater than 30 inches in the wooded areas of Pod 5 (Table 5.4).

<table>
<thead>
<tr>
<th>Size Class</th>
<th>Percent</th>
<th>Total</th>
<th>SE</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 to 6</td>
<td>39</td>
<td>658</td>
<td>76</td>
</tr>
<tr>
<td>7 to 12</td>
<td>32</td>
<td>541</td>
<td>148</td>
</tr>
<tr>
<td>13 to 18</td>
<td>10</td>
<td>165</td>
<td>54</td>
</tr>
<tr>
<td>19 to 24</td>
<td>11</td>
<td>188</td>
<td>109</td>
</tr>
<tr>
<td>25 to 30</td>
<td>3</td>
<td>47</td>
<td>27</td>
</tr>
<tr>
<td>31 to 36</td>
<td>3</td>
<td>47</td>
<td>35</td>
</tr>
<tr>
<td>37 to 42</td>
<td>1</td>
<td>24</td>
<td>27</td>
</tr>
<tr>
<td>42+</td>
<td>1</td>
<td>24</td>
<td>27</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>1692</td>
<td></td>
</tr>
</tbody>
</table>

Table 5.2. Species composition of trees sampled in Pod 5.

<table>
<thead>
<tr>
<th>Species</th>
<th>Percent</th>
<th>Total</th>
<th>SE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Red Maple</td>
<td>43</td>
<td>729</td>
<td>167</td>
</tr>
<tr>
<td>Sugar Maple</td>
<td>15</td>
<td>259</td>
<td>245</td>
</tr>
<tr>
<td>Pignut Hickory</td>
<td>10</td>
<td>165</td>
<td>89</td>
</tr>
<tr>
<td>White Ash</td>
<td>10</td>
<td>165</td>
<td>70</td>
</tr>
<tr>
<td>Black Cherry</td>
<td>7</td>
<td>118</td>
<td>65</td>
</tr>
<tr>
<td>Red Oak</td>
<td>7</td>
<td>118</td>
<td>84</td>
</tr>
<tr>
<td>Silver Maple</td>
<td>4</td>
<td>71</td>
<td>53</td>
</tr>
<tr>
<td>Green Ash</td>
<td>3</td>
<td>47</td>
<td>50</td>
</tr>
<tr>
<td>American Elm</td>
<td>1</td>
<td>24</td>
<td>25</td>
</tr>
<tr>
<td></td>
<td>100</td>
<td>1692</td>
<td></td>
</tr>
</tbody>
</table>

Table 5.3. Condition classes of trees sampled in Pod 5.

<table>
<thead>
<tr>
<th>Condition Class</th>
<th>Percent</th>
<th>Total</th>
<th>SE</th>
</tr>
</thead>
<tbody>
<tr>
<td>DEAD</td>
<td>3</td>
<td>47</td>
<td>50</td>
</tr>
<tr>
<td>VERY POOR</td>
<td>4</td>
<td>71</td>
<td>38</td>
</tr>
<tr>
<td>POOR</td>
<td>14</td>
<td>235</td>
<td>76</td>
</tr>
<tr>
<td>FAIR</td>
<td>67</td>
<td>1128</td>
<td>147</td>
</tr>
<tr>
<td>GOOD</td>
<td>13</td>
<td>212</td>
<td>79</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>1692</td>
<td></td>
</tr>
</tbody>
</table>
## Unique or Significant Trees

Table 5.4. Unique or significant trees found in Pod 5. GPS readings were taken with the coordinate system of US Plane 1983, New York West 3102, NAD 1983 (Conus), in US Survey Feet with height reported above means sea level.

<table>
<thead>
<tr>
<th>Common Name</th>
<th>DBH</th>
<th>Condition</th>
<th>GPS Height</th>
<th>Northing</th>
<th>Easting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Red Oak</td>
<td>35</td>
<td>FAIR</td>
<td>564.163</td>
<td>1135324.213</td>
<td>1401771.951</td>
</tr>
<tr>
<td>Silver Maple</td>
<td>62</td>
<td>VERY POOR</td>
<td>552.450</td>
<td>1135215.593</td>
<td>1401764.239</td>
</tr>
<tr>
<td>Red Oak</td>
<td>42</td>
<td>FAIR</td>
<td>548.981</td>
<td>1135320.564</td>
<td>1401611.906</td>
</tr>
<tr>
<td>Red Oak</td>
<td>48</td>
<td>POOR</td>
<td>562.759</td>
<td>1135310.922</td>
<td>1401626.706</td>
</tr>
<tr>
<td>Red Oak</td>
<td>38</td>
<td>FAIR</td>
<td>568.599</td>
<td>1135297.269</td>
<td>1401547.564</td>
</tr>
<tr>
<td>Red Maple</td>
<td>38</td>
<td>FAIR</td>
<td>594.934</td>
<td>1135265.181</td>
<td>1401558.763</td>
</tr>
<tr>
<td>Red Oak</td>
<td>43</td>
<td>POOR</td>
<td>588.351</td>
<td>1135261.360</td>
<td>1401579.622</td>
</tr>
<tr>
<td>Red Maple</td>
<td>33</td>
<td>VERY POOR</td>
<td>486.167</td>
<td>1135188.801</td>
<td>1401521.560</td>
</tr>
<tr>
<td>Red Maple</td>
<td>30</td>
<td>FAIR</td>
<td>576.543</td>
<td>1135166.890</td>
<td>1401483.153</td>
</tr>
<tr>
<td>Red Maple</td>
<td>21</td>
<td>POOR</td>
<td>578.426</td>
<td>1135168.523</td>
<td>1401473.849</td>
</tr>
<tr>
<td>Cottonwood</td>
<td>32</td>
<td>POOR</td>
<td>559.570</td>
<td>1135257.820</td>
<td>1401409.867</td>
</tr>
<tr>
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<tr>
<td>Pignut Hickory</td>
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<td>1135054.368</td>
<td>1401326.188</td>
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</table>
Pod 6
Total Trees: 1316
95% Confidence Interval: +/- 443 trees

Vegetation Characteristics
This Pod was sampled as completely forested. It contains intermixed stands of northern hardwoods such as red oak, tulip tree, hickory and black cherry, and bottomland trees in low areas such as red maple, green ash, American elm and willow. There are pioneer species on the stand edges such as cottonwood and buckthorn (Table 6.2). Most trees are in the smaller diameter ranges although there are larger mature hardwoods on the site (Table 6.1) and 44 trees that were 30 inches or greater in diameter (Table 6.4) were identified. Most trees are in fair or poor condition (Table 6.2)

Table 6.1. Size class distribution of trees in Pod 6.

<table>
<thead>
<tr>
<th>Size Class</th>
<th>Percent</th>
<th>Total</th>
<th>SE</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 to 6</td>
<td>43</td>
<td>567</td>
<td>142</td>
</tr>
<tr>
<td>7 to 12</td>
<td>28</td>
<td>364</td>
<td>69</td>
</tr>
<tr>
<td>13 to 18</td>
<td>12</td>
<td>162</td>
<td>82</td>
</tr>
<tr>
<td>19 to 24</td>
<td>14</td>
<td>182</td>
<td>67</td>
</tr>
<tr>
<td>25 to 30</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>31 to 36</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>37 to 42</td>
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<td>20</td>
<td>20</td>
</tr>
<tr>
<td>43+</td>
<td>2</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>1316</td>
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</table>

Table 6.2. Species composition of trees sampled in Pod 6.

<table>
<thead>
<tr>
<th>Species</th>
<th>Percent</th>
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<th>SE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tulip Tree</td>
<td>18</td>
<td>243</td>
<td>171</td>
</tr>
<tr>
<td>Cottonwood</td>
<td>14</td>
<td>182</td>
<td>158</td>
</tr>
<tr>
<td>Red Maple</td>
<td>12</td>
<td>162</td>
<td>61</td>
</tr>
<tr>
<td>Green Ash</td>
<td>12</td>
<td>162</td>
<td>94</td>
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<tr>
<td>Red Oak</td>
<td>8</td>
<td>101</td>
<td>55</td>
</tr>
<tr>
<td>American Elm</td>
<td>8</td>
<td>101</td>
<td>78</td>
</tr>
<tr>
<td>White Ash</td>
<td>6</td>
<td>81</td>
<td>50</td>
</tr>
<tr>
<td>Sassafras</td>
<td>5</td>
<td>61</td>
<td>40</td>
</tr>
<tr>
<td>Black Walnut</td>
<td>3</td>
<td>40</td>
<td>40</td>
</tr>
<tr>
<td>Buckthorn</td>
<td>3</td>
<td>40</td>
<td>40</td>
</tr>
<tr>
<td>Black Willow</td>
<td>3</td>
<td>40</td>
<td>25</td>
</tr>
<tr>
<td>Hawthorn</td>
<td>3</td>
<td>40</td>
<td>40</td>
</tr>
<tr>
<td>Shagbark Hickory</td>
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<td>20</td>
</tr>
<tr>
<td>Crabapple</td>
<td>2</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>Black Cherry</td>
<td>2</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>1316</td>
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</table>
Table 6.3. Condition classes of trees sampled in Pod 6.

<table>
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<th>Condition Class</th>
<th>Percent</th>
<th>Total</th>
<th>SE</th>
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<tbody>
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<td>Dead</td>
<td>8</td>
<td>101</td>
<td>32</td>
</tr>
<tr>
<td>Very Poor</td>
<td>5</td>
<td>61</td>
<td>61</td>
</tr>
<tr>
<td>Poor</td>
<td>23</td>
<td>304</td>
<td>160</td>
</tr>
<tr>
<td>Fair</td>
<td>58</td>
<td>769</td>
<td>204</td>
</tr>
<tr>
<td>Good</td>
<td>6</td>
<td>81</td>
<td>59</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
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<td></td>
</tr>
</tbody>
</table>

Unique or Significant Trees

Table 6.4. Unique or significant trees found in Pod 6. GPS readings were taken with the coordinate system of US Plane 1983, New York West 3102, NAD 1983 (Conus), in US Survey Feet with height reported above means sea level.

<table>
<thead>
<tr>
<th>Common Name</th>
<th>DBH</th>
<th>Condition</th>
<th>GPS Height</th>
<th>Northing</th>
<th>Easting</th>
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</thead>
<tbody>
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<td>49</td>
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U of R Woodlot Assessment 22 8/9/2005
<table>
<thead>
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<th>DBH</th>
<th>Condition</th>
<th>GPS Height</th>
<th>Northing</th>
<th>Easting</th>
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</thead>
<tbody>
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<td>541.818</td>
<td>1134271.779</td>
<td>1400427.622</td>
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<tr>
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<td>539.381</td>
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<td>516.180</td>
<td>1134275.841</td>
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<tr>
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<td>1134190.201</td>
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<td>529.595</td>
<td>1134491.453</td>
<td>1400504.119</td>
</tr>
</tbody>
</table>
Pod 7
Total Trees: 1648
95% Confidence Interval: +/-421 trees

Vegetation Characteristics
This Pod was sampled as completely forested. Most of the trees are pioneer species on disturbed lands, such as green ash, cottonwood and aspen, black cherry, and American elm. There were scattered northern hardwoods such as red and pin oaks (Table 7.2). Most trees (86%) were less than 12 inches in diameter (Table 7.1) and were in fair to poor condition (Table 7.3). No unique trees greater than 30 inches in diameter are present in Pod 7.

Table 7.1. Size class distribution of trees in Pod 7.

<table>
<thead>
<tr>
<th>Size Class Inches</th>
<th>Percent</th>
<th>Total</th>
<th>SE</th>
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</thead>
<tbody>
<tr>
<td>3 to 6</td>
<td>49</td>
<td>803</td>
<td>201</td>
</tr>
<tr>
<td>7 to 12</td>
<td>37</td>
<td>613</td>
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</tr>
<tr>
<td>13 to 18</td>
<td>8</td>
<td>127</td>
<td>104</td>
</tr>
<tr>
<td>19 to 24</td>
<td>4</td>
<td>63</td>
<td>43</td>
</tr>
<tr>
<td>25 to 30</td>
<td>3</td>
<td>42</td>
<td>27</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>1648</td>
<td></td>
</tr>
</tbody>
</table>

Table 7.2. Species composition of trees sampled in Pod 7.

<table>
<thead>
<tr>
<th>Species</th>
<th>Percent</th>
<th>Total</th>
<th>SEM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Green Ash</td>
<td>32</td>
<td>528</td>
<td>257</td>
</tr>
<tr>
<td>Cottonwood</td>
<td>15</td>
<td>254</td>
<td>164</td>
</tr>
<tr>
<td>Aspen</td>
<td>10</td>
<td>169</td>
<td>102</td>
</tr>
<tr>
<td>Pin Oak</td>
<td>9</td>
<td>148</td>
<td>148</td>
</tr>
<tr>
<td>Black Willow</td>
<td>9</td>
<td>148</td>
<td>148</td>
</tr>
<tr>
<td>White Ash</td>
<td>6</td>
<td>106</td>
<td>39</td>
</tr>
<tr>
<td>Boxelder</td>
<td>4</td>
<td>63</td>
<td>43</td>
</tr>
<tr>
<td>Buckthorn</td>
<td>4</td>
<td>63</td>
<td>43</td>
</tr>
<tr>
<td>Silver Maple</td>
<td>3</td>
<td>42</td>
<td>27</td>
</tr>
<tr>
<td>Black Cherry</td>
<td>3</td>
<td>42</td>
<td>27</td>
</tr>
<tr>
<td>Crabapple</td>
<td>1</td>
<td>21</td>
<td>21</td>
</tr>
<tr>
<td>Oak</td>
<td>1</td>
<td>21</td>
<td>21</td>
</tr>
<tr>
<td>Red Oak</td>
<td>1</td>
<td>21</td>
<td>21</td>
</tr>
<tr>
<td>American Elm</td>
<td>1</td>
<td>21</td>
<td>21</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>1648</td>
<td></td>
</tr>
</tbody>
</table>

Table 7.3. Condition classes of trees sampled in Pod 7.

<table>
<thead>
<tr>
<th>Condition Class</th>
<th>Percent</th>
<th>Total</th>
<th>SEM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dead</td>
<td>1</td>
<td>21</td>
<td>21</td>
</tr>
<tr>
<td>Very Poor</td>
<td>5</td>
<td>85</td>
<td>42</td>
</tr>
<tr>
<td>Poor</td>
<td>13</td>
<td>211</td>
<td>96</td>
</tr>
<tr>
<td>Fair</td>
<td>64</td>
<td>1057</td>
<td>221</td>
</tr>
<tr>
<td>Good</td>
<td>17</td>
<td>275</td>
<td>83</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>1648</td>
<td></td>
</tr>
</tbody>
</table>
Unique or Significant Trees
There were no trees greater than 30 inches in diameter found in Pod 7.
Pod 8
Total Trees: 1302
95% Confidence Interval: +/- 603 trees

Vegetation Characteristics
Pod was sampled as completely forested. Nearly all of the trees are pioneer species on disturbed lands, such as green ash, willow, cottonwood and aspen, black cherry, and American elm. (Table 8.2). Most trees (85%) were less than 12 inches in diameter (Table 8.1) and were in poor to very poor condition (Table 8.3). A single unique tree greater than 30 inches in diameter was found in Pod 8 (Table 8.4).

Table 8.1. Size class distribution of trees in Pod 8.

<table>
<thead>
<tr>
<th>Size Class Inches</th>
<th>Percent</th>
<th>Total</th>
<th>SE</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 to 3</td>
<td>63</td>
<td>823</td>
<td>273</td>
</tr>
<tr>
<td>4 to 6</td>
<td>22</td>
<td>287</td>
<td>94</td>
</tr>
<tr>
<td>7 to 12</td>
<td>9</td>
<td>115</td>
<td>62</td>
</tr>
<tr>
<td>13 to 18</td>
<td>4</td>
<td>57</td>
<td>27</td>
</tr>
<tr>
<td>19 to 24</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>24 to 30</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>31 to 35</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>36 to 42</td>
<td>1</td>
<td>19</td>
<td>19</td>
</tr>
<tr>
<td></td>
<td>100</td>
<td>1302</td>
<td></td>
</tr>
</tbody>
</table>

Table 8.2. Species composition of trees sampled in Pod 8.

<table>
<thead>
<tr>
<th>Species</th>
<th>Percent</th>
<th>Total</th>
<th>SEM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Willow</td>
<td>38</td>
<td>498</td>
<td>259</td>
</tr>
<tr>
<td>Cottonwood</td>
<td>32</td>
<td>421</td>
<td>302</td>
</tr>
<tr>
<td>Green Ash</td>
<td>12</td>
<td>153</td>
<td>111</td>
</tr>
<tr>
<td>Crabapple</td>
<td>4</td>
<td>57</td>
<td>40</td>
</tr>
<tr>
<td>Black Willow</td>
<td>4</td>
<td>57</td>
<td>27</td>
</tr>
<tr>
<td>Aspen</td>
<td>3</td>
<td>38</td>
<td>38</td>
</tr>
<tr>
<td>Buckthorn</td>
<td>3</td>
<td>38</td>
<td>25</td>
</tr>
<tr>
<td>Black Cherry</td>
<td>1</td>
<td>19</td>
<td>19</td>
</tr>
<tr>
<td>American Elm</td>
<td>1</td>
<td>19</td>
<td>19</td>
</tr>
<tr>
<td></td>
<td>100</td>
<td>1302</td>
<td></td>
</tr>
</tbody>
</table>

Table 8.3. Condition classes of trees sampled in Pod 8.

<table>
<thead>
<tr>
<th>Condition Class</th>
<th>Percent</th>
<th>Total</th>
<th>SEM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dead</td>
<td>1</td>
<td>19</td>
<td>19</td>
</tr>
<tr>
<td>Very Poor</td>
<td>46</td>
<td>593</td>
<td>220</td>
</tr>
<tr>
<td>Poor</td>
<td>38</td>
<td>498</td>
<td>170</td>
</tr>
<tr>
<td>Fair</td>
<td>9</td>
<td>115</td>
<td>74</td>
</tr>
<tr>
<td>Good</td>
<td>6</td>
<td>77</td>
<td>40</td>
</tr>
<tr>
<td>Totals</td>
<td>100</td>
<td>1302</td>
<td></td>
</tr>
</tbody>
</table>
**Unique or Significant Trees**

Table 8.4. Unique or significant trees found in Pod 8. GPS readings were taken with the coordinate system of US Plane 1983, New York West 3102, NAD 1983 (Conus), in US Survey Feet with height reported above means sea level.

<table>
<thead>
<tr>
<th>Common Name</th>
<th>DBH</th>
<th>Condition</th>
<th>GPS Height</th>
<th>Northing</th>
<th>Easting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Black Willow</td>
<td>40</td>
<td>VERY POOR</td>
<td>504.323</td>
<td>1133123.084</td>
<td>1400215.755</td>
</tr>
</tbody>
</table>
Pod 9
Total Trees: 2387
95% Confidence Interval: +/- 559

Vegetation Characteristics
This Pod was sampled as completely forested. Stand characteristics were dominated by pioneer species such as green and white ash, aspen, black cherry, crabapple, and buckthorn. There were mixed bottomland hardwoods in some locations such as bur oak, silver maple, pin oak and red maple (Table 9.1). The vast majority of trees are 12 inches in diameter or less (Table 9.1), and are in good or fair condition (Table 9.3). Eight trees over 30 inches in diameter are present in this Pod (Table 9.4).

Table 9.1. Size class distribution of trees in Pod 9.

<table>
<thead>
<tr>
<th>Size Class Inches</th>
<th>Percent</th>
<th>Total</th>
<th>SE</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 to 6</td>
<td>53</td>
<td>1265</td>
<td>334</td>
</tr>
<tr>
<td>7 to 12</td>
<td>34</td>
<td>816</td>
<td>181</td>
</tr>
<tr>
<td>13 to 18</td>
<td>9</td>
<td>204</td>
<td>48</td>
</tr>
<tr>
<td>19 to 24</td>
<td>3</td>
<td>61</td>
<td>31</td>
</tr>
<tr>
<td>25 to 30</td>
<td>1</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>31 to 36</td>
<td>1</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>2387</td>
<td></td>
</tr>
</tbody>
</table>

Table 9.2. Species composition of trees sampled in Pod 9.

<table>
<thead>
<tr>
<th>Species</th>
<th>Percent</th>
<th>Total</th>
<th>SEM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Green Ash</td>
<td>15</td>
<td>367</td>
<td>176</td>
</tr>
<tr>
<td>White Ash</td>
<td>14</td>
<td>326</td>
<td>261</td>
</tr>
<tr>
<td>Silver Maple</td>
<td>13</td>
<td>306</td>
<td>173</td>
</tr>
<tr>
<td>Crabapple</td>
<td>13</td>
<td>306</td>
<td>165</td>
</tr>
<tr>
<td>Aspen</td>
<td>11</td>
<td>265</td>
<td>134</td>
</tr>
<tr>
<td>Black Cherry</td>
<td>8</td>
<td>184</td>
<td>119</td>
</tr>
<tr>
<td>Scots Pine</td>
<td>7</td>
<td>163</td>
<td>120</td>
</tr>
<tr>
<td>Buckthorn</td>
<td>7</td>
<td>163</td>
<td>142</td>
</tr>
<tr>
<td>American Elm</td>
<td>4</td>
<td>102</td>
<td>44</td>
</tr>
<tr>
<td>Hawthorn</td>
<td>2</td>
<td>41</td>
<td>41</td>
</tr>
<tr>
<td>Sassafras</td>
<td>2</td>
<td>41</td>
<td>27</td>
</tr>
<tr>
<td>Black Willow</td>
<td>2</td>
<td>41</td>
<td>41</td>
</tr>
<tr>
<td>Red Maple</td>
<td>1</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>Cottonwood</td>
<td>1</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>Bur Oak</td>
<td>1</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>Pin Oak</td>
<td>1</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>2387</td>
<td></td>
</tr>
</tbody>
</table>
Table 9.3. Condition classes of trees sampled in Pod 9.

<table>
<thead>
<tr>
<th>Condition Class</th>
<th>Percent</th>
<th>Total</th>
<th>SEM</th>
</tr>
</thead>
<tbody>
<tr>
<td>DEAD</td>
<td>8</td>
<td>184</td>
<td>101</td>
</tr>
<tr>
<td>FAIR</td>
<td>38</td>
<td>898</td>
<td>222</td>
</tr>
<tr>
<td>GOOD</td>
<td>42</td>
<td>1000</td>
<td>269</td>
</tr>
<tr>
<td>POOR</td>
<td>12</td>
<td>286</td>
<td>134</td>
</tr>
<tr>
<td>VERY POOR</td>
<td>1</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>2387</td>
<td></td>
</tr>
</tbody>
</table>

Unique or Significant Trees

Table 9.4. Unique or significant trees found in Pod 9. GPS readings were taken with the coordinate system of US Plane 1983, New York West 3102, NAD 1983 (Conus), in US Survey Feet with height reported above means sea level.

<table>
<thead>
<tr>
<th>Common Name</th>
<th>DBH</th>
<th>Condition</th>
<th>GPS Height</th>
<th>Northing</th>
<th>Easting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cottonwood</td>
<td>36</td>
<td>POOR</td>
<td>557.981</td>
<td>1132764.761</td>
<td>1401155.374</td>
</tr>
<tr>
<td>Black Willow</td>
<td>44</td>
<td>POOR</td>
<td>542.775</td>
<td>1133419.351</td>
<td>1401697.557</td>
</tr>
<tr>
<td>Shagbark Hickory</td>
<td>31</td>
<td>GOOD</td>
<td>562.933</td>
<td>1133058.092</td>
<td>1401555.841</td>
</tr>
<tr>
<td>Silver Maple</td>
<td>33</td>
<td>FAIR</td>
<td>558.510</td>
<td>1132753.077</td>
<td>1401160.469</td>
</tr>
<tr>
<td>Silver Maple</td>
<td>37</td>
<td>FAIR</td>
<td>550.204</td>
<td>1132792.705</td>
<td>1401182.570</td>
</tr>
<tr>
<td>Silver Maple</td>
<td>36</td>
<td>FAIR</td>
<td>528.398</td>
<td>1132866.733</td>
<td>1401119.543</td>
</tr>
<tr>
<td>Silver Maple</td>
<td>40</td>
<td>FAIR</td>
<td>557.830</td>
<td>1132823.904</td>
<td>1401290.156</td>
</tr>
<tr>
<td>Black Cherry</td>
<td>31</td>
<td>FAIR</td>
<td>546.773</td>
<td>1132935.373</td>
<td>1401438.822</td>
</tr>
</tbody>
</table>
Pod 10
Total Trees: No forested areas;
Standard Error (SE): na

Vegetation Characteristics
This Pod had was completely developed and contained less than an acre of forested land.
Twenty-eight trees greater than 30 inches were found in the ground survey of the entire Pod.

Unique or Significant Trees

Table 10.4. Unique or significant trees found in Pod 10. GPS readings were taken with the coordinate system of US Plane 1983, New York West 3102, NAD 1983 (Conus), in US Survey Feet with height reported above means sea level.

<table>
<thead>
<tr>
<th>Common Name</th>
<th>DBH</th>
<th>Condition</th>
<th>GPS Height</th>
<th>Northing</th>
<th>Easting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silver Maple</td>
<td>38</td>
<td>POOR</td>
<td>511.795</td>
<td>1133862.965</td>
<td>1401090.087</td>
</tr>
<tr>
<td>Pin Oak</td>
<td>46</td>
<td>FAIR</td>
<td>527.830</td>
<td>1133807.831</td>
<td>1400995.329</td>
</tr>
<tr>
<td>Pin Oak</td>
<td>32</td>
<td>FAIR</td>
<td>528.203</td>
<td>1133740.338</td>
<td>1400951.151</td>
</tr>
<tr>
<td>Cottonwood</td>
<td>50</td>
<td>FAIR</td>
<td>544.956</td>
<td>1134027.008</td>
<td>1401724.315</td>
</tr>
<tr>
<td>Silver Maple</td>
<td>33</td>
<td>FAIR</td>
<td>538.274</td>
<td>1134122.918</td>
<td>1401654.235</td>
</tr>
<tr>
<td>Cottonwood</td>
<td>41</td>
<td>FAIR</td>
<td>517.771</td>
<td>1134205.105</td>
<td>1401553.132</td>
</tr>
<tr>
<td>Cottonwood</td>
<td>31</td>
<td>FAIR</td>
<td>521.475</td>
<td>1134147.987</td>
<td>1401358.571</td>
</tr>
<tr>
<td>Cottonwood</td>
<td>30</td>
<td>POOR</td>
<td>520.499</td>
<td>1134313.812</td>
<td>1401457.281</td>
</tr>
<tr>
<td>Cottonwood</td>
<td>48</td>
<td>FAIR</td>
<td>520.002</td>
<td>1134405.936</td>
<td>1401413.511</td>
</tr>
<tr>
<td>Cottonwood</td>
<td>43</td>
<td>FAIR</td>
<td>507.374</td>
<td>1134460.601</td>
<td>1401438.712</td>
</tr>
<tr>
<td>Cottonwood</td>
<td>31</td>
<td>GOOD</td>
<td>507.970</td>
<td>1134474.791</td>
<td>1401434.150</td>
</tr>
<tr>
<td>Cottonwood</td>
<td>50</td>
<td>GOOD</td>
<td>521.500</td>
<td>1134556.884</td>
<td>1401419.934</td>
</tr>
<tr>
<td>Cottonwood</td>
<td>38</td>
<td>FAIR</td>
<td>511.827</td>
<td>1134621.903</td>
<td>1401412.656</td>
</tr>
<tr>
<td>Black Willow</td>
<td>32</td>
<td>POOR</td>
<td>512.672</td>
<td>1134655.610</td>
<td>1401437.109</td>
</tr>
<tr>
<td>Red Oak</td>
<td>32</td>
<td>FAIR</td>
<td>482.397</td>
<td>1134835.864</td>
<td>1401404.538</td>
</tr>
<tr>
<td>Red Oak</td>
<td>37</td>
<td>FAIR</td>
<td>514.058</td>
<td>1134850.281</td>
<td>1401358.211</td>
</tr>
<tr>
<td>Black Willow</td>
<td>36</td>
<td>POOR</td>
<td>514.228</td>
<td>1134684.076</td>
<td>1401217.621</td>
</tr>
<tr>
<td>Cottonwood</td>
<td>32</td>
<td>POOR</td>
<td>513.329</td>
<td>1134690.456</td>
<td>1401209.841</td>
</tr>
<tr>
<td>Cottonwood</td>
<td>45</td>
<td>FAIR</td>
<td>517.271</td>
<td>1134578.735</td>
<td>1401241.163</td>
</tr>
<tr>
<td>Cottonwood</td>
<td>32</td>
<td>GOOD</td>
<td>509.188</td>
<td>1134559.723</td>
<td>1401192.227</td>
</tr>
<tr>
<td>Cottonwood</td>
<td>31</td>
<td>FAIR</td>
<td>516.187</td>
<td>1134582.272</td>
<td>1401309.340</td>
</tr>
<tr>
<td>Cottonwood</td>
<td>33</td>
<td>FAIR</td>
<td>531.420</td>
<td>1134528.589</td>
<td>1401331.326</td>
</tr>
<tr>
<td>Cottonwood</td>
<td>33</td>
<td>FAIR</td>
<td>524.075</td>
<td>1134452.401</td>
<td>1401180.508</td>
</tr>
<tr>
<td>Cottonwood</td>
<td>38</td>
<td>FAIR</td>
<td>524.666</td>
<td>1134583.071</td>
<td>1401006.033</td>
</tr>
<tr>
<td>Cottonwood</td>
<td>40</td>
<td>FAIR</td>
<td>521.061</td>
<td>1134603.795</td>
<td>1401011.873</td>
</tr>
<tr>
<td>Cottonwood</td>
<td>38</td>
<td>GOOD</td>
<td>515.016</td>
<td>1134636.286</td>
<td>1401056.721</td>
</tr>
<tr>
<td>Cottonwood</td>
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<td>GOOD</td>
<td>514.037</td>
<td>1134650.650</td>
<td>1401012.850</td>
</tr>
<tr>
<td>Silver Maple</td>
<td>34</td>
<td>FAIR</td>
<td>520.734</td>
<td>1134572.154</td>
<td>1400916.746</td>
</tr>
</tbody>
</table>
Appendix A.

Appendix A. Plot center locations for each Pod sampled. GPS readings were taken with the coordinate system of US Plane 1983, New York West 3102, NAD 1983 (Conus), in US Survey Feet with height reported above means sea level.

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Appendix B.

Appendix B. Common and scientific names of trees used in this report.

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<td>Acer</td>
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DRAFT GENERIC ENVIRONMENTAL IMPACT STATEMENT

APPENDIX C – Phase 1A Historical and Archeological Assessment

THE UNIVERSITY OF ROCHESTER
IPD REZONING

Town of Brighton
Monroe County, New York
Mr. Dan Aken  
FRA Engineering, P.C.  
245 Summit Point Drive, Suite 4  
Henrietta, New York 14467

Subject: Phase I Cultural Resources Investigation for the Proposed University of Rochester Planned Institutional Development District, Town of Brighton, Monroe County, New York

Dear Mr. Aken:

Panamerican Consultants, Inc. is pleased to submit three copies of the report for the above referenced project. If you have any questions or require additional information, please do not hesitate to contact me or Mr. Robert Hanley at your convenience.

Sincerely,

[Signature]
Frank J. Schieppati, Ph.D.  
Senior Archaeologist
PHASE I A CULTURAL RESOURCES INVESTIGATION
FOR THE PROPOSED UNIVERSITY OF ROCHESTER
PLANNED INSTITUTIONAL DEVELOPMENT DISTRICT,
TOWN OF BRIGHTON, MONROE COUNTY, NEW YORK

Prepared for:

FRA ENGINEERING, P.C.
245 Summit Point Drive, Suite 4
Henrietta, New York 14467

Prepared by:

PANAMERICAN CONSULTANTS, INC.
Buffalo Branch Office
2390 Clinton Street
Buffalo, NY 14227-1735
716-821-1650

April 2002
PHASE IA CULTURAL RESOURCES INVESTIGATION
FOR THE PROPOSED UNIVERSITY OF ROCHESTER
PLANNED INSTITUTIONAL DEVELOPMENT DISTRICT,
TOWN OF BRIGHTON, MONROE COUNTY, NEW YORK

Prepared for:
FRA ENGINEERING, P.C.
245 Summit Point Drive, Suite 4
Henrietta, New York 14467

Prepared by:
Frank J. Schieppati, Ph.D., Principal Investigator
Karen S. Niemel, M.A., Archaeologist
Robert J. Hanley, M.A., Archaeologist
Mark A. Steinback, M.A., Senior Historian

PANAMERICAN CONSULTANTS, INC.
Buffalo Branch Office
2390 Clinton Street
Buffalo, New York 14227-1735
(716) 821-1650

April 2002
Management Summary

Panamerican Consultants, Inc. (PCI) was contracted by FRA Engineering, P.C. Henrietta, New York, to conduct a Phase IA cultural resources investigation for the proposed University of Rochester Planned Institutional Development (PID) District in the Town of Brighton, Monroe County, New York. The project area covers approximately 209 acres of land east of the former Lehigh Valley Railroad bed between Interstate 390, Crittenden Road, and West Henrietta Road. An additional 43 acres is located south of Crittenden Road, east of the former railroad corridor. Areas of potential effect include all undeveloped parcels and one residential structure and associated property situated at the south end of Mortimer Street in the 43-acre portion of the project area. The residence, which dates from the early- to mid-twentieth century, will eventually be acquired and possibly demolished. Proposed developments are scheduled over a 20-year period and will include the construction of apartment housing. In part, development specifics are contingent upon the results of this cultural resource investigation.

The Phase IA investigation included archival and documentary research, field inspection of the project area, and photographic documentation of site conditions. Files at the New York State Office of Parks, Recreation, and Historic Preservation were reviewed to identify known prehistoric or historic sites and structures listed in New York State and National Registers of Historic Places that may lie within the area of potential effect.

The results of background research and field investigation indicate that undisturbed portions of the project area are sensitive for prehistoric and historic cultural resources. In addition, three historic structures are located adjacent to the proposed project area. Historic map analysis identified one map documented structure within the northwest portion of the project area. No evidence of the structure was identified during the field inspection. Site file research also revealed two recorded sites (one historic, one prehistoric) within areas of potential effect. Immediately east of the project area along West Henrietta Road is the Warrant Homestead site (NYSM 2552). The early nineteenth century homestead was moved from its original location near East Henrietta Road (OPRHP A05501.000014). Its present surroundings include modern structures and highways. Two additional adjacent structures are present-day 1211 and 1233 Crittenden Road, both of which date to the early part of the twentieth century. The structure located at 1233 Crittenden Road is depicted on a 1902 Town of Brighton map.

The results of the Phase IA investigation reveal that approximately 84 acres within the project area have been impacted by modern development. These locations are no longer archaeologically sensitive. In addition, approximately seven acres in the west central portion of the project area is heavily inundated. A Phase IB archaeological field investigation is recommended for approximately 161 acres of dry project area that remain archaeologically sensitive. Further architectural assessment of the Mortimer Street residence is also recommended as part of the investigations to determine its eligibility for inclusion in the National/State Register of Historic Places. Due to the nature of the
proposed development plan, it is difficult to ascertain the visual impacts on the Warrant Homestead and residences located at 1211 and 1233 Crittenden Road. Further assessment of the impacts is recommended and, if need be, investigations should be conducted to determine eligibility for inclusion of any of the three properties in the National/State Register of Historic Places.
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<tr>
<th>Photograph</th>
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<tr>
<td>1. The northeastern portion of the project area showing surface vegetation, facing southwest</td>
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<td>2. The University of Rochester Center for Optoelectronics and Imaging located at 240 East River Road, facing west</td>
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<td>4. Sewage treatment plant located in northernmost portion of the project area, facing southeast</td>
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<td>5. Sewage treatment plant located in northernmost portion of the project area, facing northwest</td>
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<td>6. Western limits of project area showing former Lehigh Valley Railroad right of way and utility corridor, facing northeast</td>
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<td>8. Former Saint Agnes High School located at 300 East River Road, facing south</td>
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<td>9. Area of intermittent standing water south of former Saint Agnes High School, facing south</td>
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<td>10. Wooded section of the project area south of former Saint Agnes High School, facing east</td>
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<td>11. Area of intermittent standing water northwest of Whipple Park Apartment Complex, facing southeast</td>
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<td>12. Wooded area west of Whipple Park Apartment Complex, facing south-southwest</td>
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<td>13. Inundated area located west of Whipple Park Apartment Complex, facing south-southwest</td>
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<td>14. New York State Barge Canal and Interstate 390 located at northern limits of project area, facing southeast</td>
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28. Project area south of water tower, facing southwest .................................................. A-15
29. Project area south of water tower, facing southeast .................................................. A-16
30. Mortimer Street, facing northeast .................................................. A-16
31. Structure located at 1211 Crittenden Road, facing southwest .................................................. A-17
32. Structure located at 1233 Crittenden Road, facing southeast .................................................. A-17
1.0 Introduction

1.1 PROJECT DESCRIPTION

Panamerican Consultants, Inc. (PCI) was contracted by FRA Engineering, P.C., Henrietta, New York, to conduct a Phase IA cultural resources investigation for the proposed University of Rochester Planned Institutional Development (PID) District in the Town of Brighton, Monroe County, New York (Figure 1). The project covers approximately 209 acres of land east of the former Lehigh Valley Railroad bed between Interstate 390, Crittenden Road, and West Henrietta Road. An additional 43 acres (17 hectares) is located south of Crittenden Road, east of the former railroad corridor. Areas of potential effect (APE) include all undeveloped parcels and one residential structure and associated property situated at the south end of Mortimer Street (see Figures 1 and 2; Appendix A: Photograph 26). The structure will eventually be acquired and possibly demolished. Proposed developments are scheduled over a 20-year period and will include the construction of apartment housing. In part, development specifics are contingent upon the results of this cultural resource investigation.

The cultural resource investigation was conducted in compliance with the New York State Environmental Quality Review Act (SEQRA), the State Historic Preservation Act (SHPA), the New York Archaeological Council's (NYAC) Standards for Archaeological Investigations, and relevant federal legislation. The investigation included a site file and literature check, archival and documentary research, and field reconnaissance. Dr. Frank Schieppati served as Principal Investigator, while Ms. Karen S. Niemel, M.A., and Mr. Mark A. Steinback, M.A., conducted the background research. Ms. Kerry Nelson, M.A., conducted the site file search at the Office of Parks, Recreation, and Historic Preservation (OPRHP) and the New York State Museum (NYSM). Mr. Robert J. Hanley, M.A., and Mr. Daniel M. Cadzow, B.A., conducted the field reconnaissance on March 14, 2002.

1.2 METHODOLOGY

Cultural resources investigations are designed to provide a complete examination of a project area in order to identify and assess any known or unknown cultural resources prior to potential impacts. These resources include archaeological sites (prehistoric and historic), and standing structures or other aboveground features. A Phase IA survey consists of a background/literature search, a site file check, and a field inspection of the project area. Archaeological and historic site files at the New York State OPRHP are reviewed as an initial step to determine the presence of known archaeological sites within a one-mile radius of the area of potential effect. These files include data recorded at both the OPRHP and the NYSM. Results of the site file check are summarized in Section 2.4.2. The prehistory and history of the region is reviewed for the preparation of an historic context within the area of potential effect (see Sections 2.2 and 2.3).
Figure 1. Location of the project area within the Town of Brighton, Monroe County, New York (USGS 7.5' Quadrangle, West Henrietta, NY, 1997 [1971], Pittsford, NY, 1980 [1971], Rochester East, NY, 1980 [1971], Rochester West, NY 1997 [1971]).
Figure 2. Aerial photograph of project area showing existing structures (New York State Orthoimagery Program).
Information collected during the Phase IA survey is used to assess the sensitivity of the project area for the presence of cultural resources. The sensitivity of the project area is assessed through background research and field examination. Areas that are untestable or severely disturbed are identified according to the following criteria:

- graded and cut areas through surrounding terrain (e.g., hills or gorges), such as those resulting from road construction
- areas that appear to have over 5 feet (1.5 meters) of fill
- areas previously impacted by construction of utilities, drainage ditches, streets or other obvious areas of significant earth movement
- areas including poorly drained soils and wetlands
- areas having slopes greater than 15 percent

Areas of archaeological potential and high sensitivity are identified based on the following criteria:

- undisturbed areas that are environmentally sensitive with relatively level well-drained soils or in the vicinity of potable water such as springs, streams or creeks (these characteristics typify known site locations in the region)
- known prehistoric or historic site locations within or adjacent to the project area
- historic structures identified within or immediately adjacent to the project area
2.0 Context and Archival Review

2.1 ENVIRONMENTAL SETTING

**Topography.** Monroe County lies within the physiographic province known as the Great Lakes Lowland (Ritchie 1980; Cresssey 1977:26). The project area is located in a subdivision of this province which is characterized by end moraines, till plains and drumlins near the termination of the beach ridge of the Lake Plain proper and the Finger Lakes Hills (Cresssey 1977:26). Elevations within the APE range from approximately 525 feet (160 meters) to 560 feet (170 m) above mean sea level. The topography is gently sloping to undulating (see Figure 1).

**Drainage.** The project area is situated approximately 1,050 ft (320 m) west of Red Creek, which drains northward into the New York State Barge Canal (also known as the Erie Barge Canal), along which is aligned Interstate 390, the northern boundary of the project area (see Figure 1; Appendix A: Photograph 14). The canal joins the Genesee River approximately 3,170 ft (966 m) northwest of the project area (see Figure 1). The river flows northward to Lake Ontario. Approximately seven acres in the west central section of the project area is heavily inundated (see Appendix A: Photograph 13). During the field inspection, intermittent standing water was present in areas to the north and northeast (see Appendix A: Photographs 9 and 11). A channeled drainage, approximately 8 to 9 feet (2.5 to 2.7 m) in depth and oriented east to west, is located 500 feet (152 meters) southwest of Whipple Park Apartment Complex (see Figure 2; Appendix A: Photograph 19). Construction, filling and other activities related to the erection of buildings, houses, parking lots and roads have altered the surface and subsurface water flow within Brighton (Heffner and Goodman 1973).

**Geology.** Bedrock underlying Monroe County formed in bands oriented east-west during the time between the later stages of the Ordovician Period and the earliest stages of the Devonian Period (490 to 360 million years ago) (Heffner and Goodman 1973:169-170; Cresssey 1977). The rocks are oldest in the northern part of the county, becoming progressively younger toward the southern part. The bedrock beneath the project area consists of thin formations of shales and shaly sandstones as well as beds of limestone (Heffner and Goodman 1973:169-170; Cresssey 1977:24; Van Diver 1985:188).

**Soils.** Soils in the study area are classified within the Schoharie-Odessa-Cayuga soil association. Located primarily in level to gently sloping areas of old glacial lakebeds, soils of this association were formed in lake-laid deposits of clay and silt and consist of deep, medium textured to fine textured, moderately well drained to well drained soils. Slopes are typically nearly level to gently sloping, but can be steep to very steep in areas with major drainage channels (Heffner and Goodman 1973:8). Predominant soils within the project area include: Cayuga silt loam, 2 to 6 percent slopes (CeB); Claverack loamy fine sand, 0 to 2 percent slopes (CaA); Collamer silt loam, 0 to 2 percent slopes (CaA); Colonie loamy fine sand, 0 to 6 percent slopes (CoB); Cosad loamy fine sand (Cu);
Elnora loamy fine sand, 0 to 2 percent slopes (EIA); Hilton loam, 0 to 3 percent slopes (HIA); Lakemont silt loam (Le); made land (Mb); Odessa silt loam, 0 to 2 percent slopes (OdA); and Schoharie silt loam, 2 to 6 percent (SeA) (Figure 3).

Cayuga silt loam, 2 to 6 percent slopes (CeB), is nearly level, deep, and well drained to moderately well drained. This soil occurs on gentle slopes adjacent to old glacial lakebeds. The surface layer is typically dark grayish brown silt loam 7 inches thick. The subsoil is 30 inches deep, consisting of a typically reddish brown clay followed by a dark yellowish brown silty clay loam. The soil has a perched seasonal high water table. Although this soil is susceptible to water erosion, compaction and clodding, it is well-suited to close-growing crops and moderately well suited to intertillled crops (Heffner and Goodman 1973:112-113).

Claverack loamy fine sand, 0 to 2 percent slopes (CKA), is deep, nearly level, and moderately well drained. It is found in nearly level areas at the base of gently sloping soils, receiving runoff from the surrounding soils. The surface layer is about 10 inches thick and consists of dark grayish brown loamy fine sand. The subsoil is brown loamy fine sand, 21 inches in thickness. The soil is suited to most crops (Heffner and Goodman 1973:115-116).

Collamer silt loam, 0 to 2 percent slopes (CIA), is deep, nearly level, and moderately well drained. The soil generally has a surface layer of dark brown silt loam approximately 9 inches thick, followed by a friable brown to dark brown very fine sandy loam 5 inches in thickness with dark yellowish brown mottles. The subsoil extends to a depth of 16 inches and consists of neutral, mottled, dark brown very fine silt loam. This soil is suitable for cultivated crops, pasture and woodland (Heffner and Goodman 1973: 116-117).

Colonie loamy fine sand, 0 to 6 percent slopes (CoB), is the dominant soil found within the project area. It is level to gently sloping, deep, and well drained to excessively drained. The surface layer is about 7 inches thick, consisting of dark grayish brown fine sand. The subsoil is approximately 44 inches thick. The first 20 inches is very friable, strongly acid, yellowish brown loamy fine sand, with thin dark brown bands in the lower two-thirds. The remaining 24 inches of the subsoil is very friable, medium acid, brown fine sand. The lack of moisture is a major limitation to uses for this soil, which is otherwise suited to crops, pasture and woodland (Heffner and Goodman 1973: 119-120).

Cosad loamy fine sand (Cu) is level, deep, and somewhat poorly drained. The surface layer is generally very dark gray loamy fine sand 8 inches thick underlain by a layer of very friable, slightly acid, light yellowish brown loamy fine sand mottled with olive yellow and brownish yellow and extending to a depth of 13 inches. The subsoil is slightly acid, pale brown loamy fine sand mottled with yellowish brown, pale yellow, grayish brown and light gray. The subsoil is about 17 inches thick. Rapid permeability characterizes the surface layer and subsoil while a seasonal high water table is found within 6 to 12 inches of the surface. Somewhat poor drainage is a major limitation to the use of this soil for farming (Heffner and Goodman 1973:120-121).
Figure 3. Soils within and surrounding the project area (Heffner et al. 1973: Sheet 56).
Elnora loamy fine sand, 0 to 2 percent slopes (ElA), is deep, level to nearly level and moderately well drained. The surface layer is 8 inches thick, consisting of brown loamy fine sand. Underlying this layer is a 9-inch, very friable, strongly acid, yellowish brown loamy fine sand. Between the depths 17 and 31 inches, the soil consists of friable, strongly acid to medium acid brown loamy fine sand with yellowish brown and brown mottles. Permeability is rapid through this soil, which can become droughty in dry periods. The soil is suitable for all crops, pasture or woodland. Generally drainage coupled with irrigation is required (Heffner and Goodman 1973:124).

Hilton loam, 0 to 3 percent slopes (HiA), is deep, nearly level, and moderately well drained. It occupies areas along the base or on the top of more sloping areas in till plains and on drumlins. The surface layer is 10 inches thick, consisting of brown to dark brown loam underlain by a 7-inch dark grayish brown fine sandy loam. The subsoil consists of firm, mottled, reddish brown loam with some gravel in the upper part and reddish brown gravelly loam below a depth of 20 inches. Permeability is moderate to moderately slow in the surface and subsurface layers, while a perched seasonal water rises to within 18 to 24 inches of the surface. This soil is suitable for most crops, hay, pasture and woodland, however improved drainage is generally needed (Heffner and Goodman 1973:128-129).

Lakemont silt loam (Le) is deep, level to nearly level (slopes of 0 to 2 percent), and poorly drained to very poorly drained. It is located in depressions of old glacial lakebeds, which receive most of the runoff from nearby uplands and have somewhat restricted drainage outlets. The surface layer is approximately 8 inches thick and consists of black silt loam. A subsurface layer of firm, mottled reddish brown, dark reddish gray or weak red clay extends to a depth of 36 inches. A seasonal high water table is found at or near the surface, and persists for a significant length of time. Limited pasture grasses and trees that are tolerant of wetness are suitable for this soil (Heffner and Goodman 1973:134-135).

The northern limits of the project area correspond to a section of made land (Mb) along the Barge Canal and Interstate 390 routes. Made land consists of areas filled with waste including stone, old masonry material, brick, and tree stump. Dominant slopes are 0 to 3 percent. Some locations may have been covered with a thin mantle of this material. Areas adjacent to the canal, in particular, consist of material cleaned periodically from the channel such as tree stumps, trash, sediment, masonry material, structural components and blasted rock (Heffner and Goodman 1973:140).

Odessa silt loam, 0 to 2 percent slopes (OdA), is deep, level to gently sloping, and somewhat poorly drained. The soil occupies intermediate areas between high knobs and low depression in old glacial lakebeds. The surface layer consists of dark reddish brown silt loam, 7 inches thick. The subsoil is mottled, reddish brown clay that is 16 inches thick. A seasonal high water table, perched on the subsoil and substratum, is within 6 to 12 inches of the surface. A slight wetness is the major limitation of this soil, which is suited for crops, pasture or woodlands (Heffner and Goodman 1973:146).
Schoharie silt loam, 2 to 6 percent slopes (SeB), is deep, gently sloping, and moderately well drained to well drained. It is found in high areas, knobs, and the low ridges of old glacial lakebeds. The surface layer is 8 inches thick, consisting of brown to dark brown silt loam underlain by a 3-inch, leached, reddish gray silt loam. The subsoil 27 inches thick, reddish brown silty clay in the upper part and light reddish brown clay below 19 inches. The water table can rise to within 18 to 24 inches of the surface and is perched on the slowly permeable subsoil. The soil can be used for crops, pasture or woodland (Heffner and Goodman 1973:154-155).

**Forest Zone and Vegetation.** Most of Monroe County, including the project area, lies within the Elm-Red Maple-Northern Hardwood Forest Zone (de Laubenfels 1977:92). This zone reflects more recent conditions where poorly drained areas are widespread, the natural forest has been removed, and better drained areas have been utilized for agriculture. The prevalence of elm and red maple is due to the human impacts on the environment (de Laubenfels 1977:95). Within the project area approximately 60 acres are wooded, with moderate to thick understory and scattered areas of poor drainage (see Appendix A: Photographs 9–12 and 22). Approximately 50 acres are covered with thick brush and open grassy areas (see Appendix A: Photographs 6, 7, 15, 20, 21, 24, and 27–30). Cut lawns are associated with the occupied standing structures (see Manmade Features and Alterations, below; see Appendix A: Photographs 1, 2, 3, 5, 8, 16, 17 and 26).

**Manmade Features and Alterations.** A section of Interstate 390 defines the northern limits of the project area (see Figures 1 and 2; Appendix A: Photographs 3 and 14), while the former Lehigh Valley Railroad bed marks the project’s western boundary (see Figure 1; Appendix A: Photographs 6 and 7). A utilities corridor occupies the former railroad right-of-way (see Appendix A: Photographs 6 and 7). Manmade structures within the project area include the Whipple Park Apartment Complex in the central portion of the project area (see Figure 2; Appendix A: Photographs 15 and 17); the University of Rochester Center for Optoelectronics and Imaging located at 240 East River Road (see Figures 1 and 2; Appendix A: Photograph 2); the former Saint Agnes High School at 300 East River Road, owned by the University of Rochester (see Figures 1 and 2; Appendix A: Photograph 8); and a sewage treatment plant north of Westfall Road (see Figures 1 and 2; Appendix A: Photographs 4 and 5). A large water tank is also located in the southern portion of the project area (see Figures 1 and 2; Appendix A: Photograph 27). Disturbances resulting from the construction of these features cover approximately 84 acres (34 hectares). Evidence of minor disturbances were observed during field reconnaissance in sections of the project area west-southwest of the Whipple Park Apartment Complex. These include several earthen push piles approximately 10 feet (3 m) in height (see Appendix A: Photograph 15), concrete and gravel fill piles (see Appendix A: Photograph 18), and an east-west channeled drainage, approximately 2.5 to 2.7 meters (8 to 9 feet) in depth (see Appendix A: Photograph 19). Only one structure, a residence dating from the early- to mid-twentieth century at the southern end of Mortimer Street, is located within the APE (see Figure 2; Appendix A: Photograph 26).
2.2 PREHISTORIC PERIOD

The three major cultural traditions manifested in New York State during the prehistoric era are the Paleo-Indian, Eastern Archaic, and Woodland traditions. The evolution of prehistoric culture can be summarized as a gradual increase in social complexity, marked by several important cultural or technological innovations. The earliest people were nomadic big-game hunters (10,000 to 8000 BC). Ameliorating environmental conditions resulted in economic changes including the efficient exploitation of temperate forest resources by Archaic hunter-gatherers. In many areas of eastern North America, the Archaic (8000 to 1500 BC) is followed by the Transitional Period (1500 to 1000 BC) which bridges the Archaic and the subsequent Woodland Periods. The Transitional Period had similar social and economic patterns to the Archaic, with important differences in artifact assemblages and burial practices (Ritchie 1955).

**Paleo-Indian Period (ca. 11,000-8000 BC).** Hunter-gatherer bands of the Paleo-Indian culture were the first humans in New York State after the last glacial retreat approximately 13,000 years ago. At this time, Lake Ontario and the St. Lawrence River were locked in ice, and the project area would have been underneath an ice sheet (Fitting 1975:27). It is possible, however, that the environmental fluctuations that occurred during this early period were conducive to periodic forays by the Paleo-Indian groups into the region when conditions were suitable. Micro-environments such as glacial lakes, boggy areas, and swamps probably attracted game animals and concomitantly humans. As the climate gradually became more temperate, these forays may have become more extended (Raber 1986:II:9).

The Paleo-Indian subsistence strategy has traditionally been viewed as one which emphasized hunting big game. These species, many of which are extinct, included mastodon, mammoth, great beaver, caribou and moose-elk, along with a variety of smaller game. Few tool associations have been made with aquatic resources, although this food source was probably utilized as the climate moderated (Funk 1972:11; Ritchie 1980; Salwen 1975). The remains of mastodons and Pleistocene elk have been found in eastern Monroe County, in the general area of the towns of Pittsford and Perinton. Three mastodon sites, one also including Pleistocene peccary, have been identified in the western portion of the City of Rochester (Ritchie 1980).

Adapted to the harsh tundra or park tundra environment, Paleo-Indians utilized a nomadic settlement system in which their movements were directed by the migration of large game animals (including mastodon, mammoth, now extinct). During the seasonal peaks of resources, larger populations occupied strategically located large camps; and during periods of low resource potential, the population dispersed, occupying small camp sites and rockshelters on a temporary basis. Located near the margin of extinct glacial lakes, many Paleo-Indian sites in the Northeast are located on elevated areas "where good drainage, meaning a dry living floor, was an important consideration" (Funk 1978:18). These hills or rises also served as loci for monitoring the migratory patterns of game species.
Technologically, the Paleo-Indian period has been associated with the fluted Clovis point industry. These points are generally large (2.5 to 10 centimeters [1 to 4 inches] in length), with a flute on each face that facilitated hafting (Funk and Schambach 1964; Snow 1980). Paleo-Indian sites have not been excavated in the vicinity of the current project area (Ritchie 1980). Three fluted points have been recovered in Monroe County. Fluted points gradually decreased in size as larger game animals moved north or became extinct (Kraft 1986:47) and were eventually replaced in the late Paleo-Indian period (8000-6000 BC) with unfluted triangular or lanceolate-shaped points (Kraft 1986; Ritchie 1980).

**Archaic Period (ca. 8000-1500 BC).** The Archaic period is differentiated from the Paleo-Indian period by a stylistic shift in lithic assemblage, an apparent increase in population, changes in the subsistence strategy, and a less nomadic settlement system (Funk 1978). These changes reflect an adaptation to an improved climate and a more diversified biome (Funk 1972:10). Three subdivisions are generally recognized for the Archaic: Early, Middle, and Late.

People of the Early Archaic used end scrapers, side scrapers, spokeshaves, drills, gravers, choppers, hammers, and anvil stones. Although archaeological sites from these periods are rare and poorly understood for western New York, important sites from the Early and Middle Archaic have been found in eastern New York, in Ulster County and near Sylvan Lake, as well as western Connecticut, the upper Delaware valley and the Susquehanna valley (Dent 1991; Funk 1991, 1993; Nicholas 1988). Sites from these periods cluster along major rivers and marshy, swampy land as well as lowlands.

In addition to an improved climate and more diversified biome, a few technological changes, such as the production of ground and polished stone tools, serve to identify the Middle Archaic period (6000-4000 BC) (Funk 1991; Kraft 1986). People began to develop woodworking tools during this period, using coarse-grained stones and river cobbles as their raw materials. These stones were commonly available in large sizes and allowed tool makers to reserve high quality lithic materials for finely flaked tools.

During the Late Archaic period (4000-1500 BC) hunting, fishing, and gathering remained the principal daily activities, although greater emphasis was placed on deer and small game like birds and turtles, shellfish, nuts and possibly wild cereal grains. Charred acorn shells were found in hearths at the Lamoka Lake site in Schuyler County, New York, about ten miles west of Seneca Lake (Ritchie 1980).

Most sites of the Late Archaic period were seasonal, special purpose habitation sites. These include winter hunting camps, spring fishing stations, fall nut-gathering and processing stations, and shellfish processing. Principal settlements such as Frontenac Island, Lamoka Lake, and Geneva were located near major rivers or lakes and were multi-activity spring and summer villages (Ritchie and Funk 1973). Southern Monroe County as well as the counties to the southwest have been extensively studied by William A. Ritchie (1980). Numerous Lamoka phase beveled adzes have been found along the
Genesee River, and creeks and rivers which flow into the Genessee, including the Honeoye. Artifacts characteristic of the Late Archaic Lamoka Phase include hammerstones, anvils, beveled adzes, and Lamoka points which are small, narrow-bladed, thick-stemmed or side-notched points.

The Transitional period (ca. 1500-1000 BC) features a continuation of Late Archaic cultural and economic patterns, with only a few innovative traits. Among these are a developing burial/ceremonial complex and, toward the end of the period, the introduction of ceramics. The shift to pottery appears to have been preceded by the adoption of steatite or soapstone pots which made cooking and food preparation easier (Funk 1993:198). The earliest pottery in New York State (Vinette 1 type) has been radiocarbon dated to about 1250 BC at the Frost Island component of the O’Neil site on the Seneca River (Ritchie and Funk 1973:87).

**Woodland Period (1000 BC-AD 1500).** While the previous hunting and gathering economy continued as a means of subsistence during Woodland times, native groups became increasingly dependent on domesticated plants for food. With agriculture came settled village life, a general increase in population, technological changes, warfare, and a litany of social and political changes. Further, examination of Early and Middle Woodland sites identifies exotic and numerous trade goods within burials which suggest the existence of widespread exchange or trade networks (Raber 1986:II:14, 15).

In New York State, the Early Woodland period (1000-100 BC) is marked by four cultural phases: Orient, Meadowood, Middlesex, and Bushkill phases. Some phases (e.g., Meadowood) are better understood than others. Located near West Rush, the Wray site was the first Meadowood phase site excavated. Consisting of a small cemetery, it was found in 1930 by Charles F. Wray, on an estate named Meadowood, that belonged to Delos Wray (Ritchie 1980:180).

In the Middle Woodland period (100 BC-AD 1000), there is continuing evidence of long-distance exchange. In the Finger Lakes and surrounding locales in central and western New York, a sequence of occupation sites shows evidence of a long, Middle Woodland cultural tradition, based primarily on pottery traits, known as Point Peninsula (Ritchie 1980).

In central New York, the transition between the Middle and Late Woodland periods is marked by the Hunter’s Home Phase, an aspect of the terminal Point Peninsula Tradition and sometimes designated Late Woodland (AD 1000-1600). According to Ritchie and Funk (1973), most Hunter’s Home sites are moderately large with heavy refuse concentrations, storage pits, house patterns, and a wide range of artifacts. Hunter’s Home Phase economy can generally be characterized as a hunting, fishing, and collecting system. Increases in both social complexity and population are evident, leading to the hypothesis that “maize horticulture was already being practiced as an important aspect of the Hunter’s Home economy” (Ritchie and Funk 1973:356). Most of the evidence for maize horticulture up to this time period is indirect, however. Cultivated
plant remains are rarely found archaeologically in New York State because of generally poor conditions for preservation of organic materials.

In New York State, the two primary Late Woodland Traditions are Owasco (beginning ca. AD 1000) and the prehistoric Iroquois (ca. AD 1300) (Snow 1994, 1995). Like most cultures in the northeast at this time, Owasco subsistence was based on hunting, gathering, fishing and horticulture. The Owasco were the first in this area to rely on a significant cultivation of corn. By the fifteenth century, a variety of Northern Flint corn proliferated after the introduction of beans and squash, indicative of a growth in population and village size. As time passed, Owasco peoples became more dependent on these cultigens, until they finally became the primary source of subsistence (Winter 1971). Corn appears in these northeastern areas no later than the decades preceding AD 1000 (Cassedy et al. 1993).

The horticultural complex of corn, beans and squash, called the Three Sisters by the Iroquois, are found together in some of the earliest Late Woodland sites in this region (Ritchie and Funk 1973; Funk 1976), indicating the importance of these plants for at least some early garden systems and subsistence strategies (Fritz 1990; Smith 1992). The common interpretation is that a heavy reliance on corn horticulture was supplemented by growing beans and squash, with declining roles for hunting, fishing and gathering. Many local cultures with a lower reliance on agriculture may have included wild foods in the subsistence mix to a greater extent, particularly where animal protein could be substituted for the amino acid complement provided elsewhere by beans. Primary animal prey most likely included one or more of deer, fish, and shellfish, based on faunal evidence, site locations, and the prevalence of netsinkers and other fishing technology at some sites (Funk 1976; Ritchie 1980; Ritchie and Funk 1973).

Cultural changes within the Late Woodland Period lay the groundwork for the development of the Five Nations of the Iroquois during the historic period. In central New York, this occurred in three areas: the Western Finger Lakes (Canandaigua, Keuka, Seneca, Cayuga), the Little Finger Lakes (Honeoye, Hemlock, Conesus, Canadice), and the Bristol Hills and Genesee valley (Cayuga and Seneca tribal emergence). This interpretation is based partly on settlement patterns. In both prehistoric and historic times, the Iroquois moved their villages at intervals that may have been related to the exhaustion of local resources such as soil and wood. Iroquois villages tend to be located on hilly sites, often defensible elevations near springs or small creeks.

### 2.3 HISTORIC PERIOD

The French were the first Europeans to penetrate the interior of what is now Monroe County. As early as the 1610s, Jesuit missionaries and French traders were establishing contacts with native groups. However, these visits to the region were infrequent until the 1660s. In 1669, as part of general reconnoitering and trade expeditions by the French along Lake Ontario, Rene-Robert Cavelier de La Salle entered Iroquoit Bay and was escorted to the Seneca village of Gannagar. For almost all of the seventeenth and
eighteenth centuries European activities in the area that would become western New York involved limited religious, commercial, and military endeavors (McIntosh 1877; Trigger 1978:349-352; Abler and Tooker 1978:505-506; Turner 1976 [1851]; Halsey 1999). During this period when the French and British were at peace with each other and the Iroquois, the Seneca expanded their areas of settlement. Villages were located near Iroquois Bay and along the Genesee River (Tooker 1978:432-434; Turner 1976 [1851]; DeVoY 1895:13). The immediate project area remained sparsely settled, utilized for hunting and resource procurement.

As the fur trade became an imperial concern for the European powers during the eighteenth century, competition among these kingdoms resulted in the erection of fortified trading posts along the frontier. The Seneca allowed the British to build a fort near the future village of Geneva ca. 1700. In 1716, the French constructed Fort des Sables on the west side of Iroquois Bay near the present-day site of Sea Breeze; the British erected Fort Oswego in 1727, which became their main frontier outpost during this time. As a result, the provisioning and protection of Oswego became a primary imperial concern (Abler and Tooker 1978:505-507; Turner 1974 [1850]:116-119; Trigger 1978:354-356; Aldenderfer 1982:11l-29). The rivalry between the British and the French intensified during the course of the eighteenth century, reaching a crescendo during the 1750s, when the two countries went to war. Despite gaining total control over Lake Ontario during the early stages of the conflict, the French ultimately lost the French and Indian War and all of their North American colonies with the signing of the Treaty of Paris in 1763 (Turner 1974 [1850]:228-233; Aldenderfer 1982:11l-30).

During the American Revolution, Major General John Sullivan led a punitive assault into the heart of Iroquois country in an effort to halt Iroquois incursions against the settlers in the Mohawk and Cherry valleys. In 1779 Sullivan's large invading army moved up the east side of Seneca Lake, adopted "scorched earth" tactics, and destroyed everything in their path. The swath of destruction stretched from Newtown (present-day Elmira) all the way to Canandaigua and Honeoye to the Genesee River. Retreating to the Niagara River region, the Iroquois suffered through a difficult winter of hardship and hunger. While Iroquois raids would continue for the remainder of the war, the Seneca were no longer a major military threat (Abler and Tooker 1978:507-508; Ellis et al. 1967:115-117).

The Iroquois, abandoned by their British allies after the Treaty of Paris (1783) ended the Revolutionary War, were forced to deal with the Americans, who aspired to usurp Iroquois lands. As a result, in the Second Fort Stanwix Treaty (1784) the Iroquois lost all their land west of the Genesee River, except for small reservations. This treaty was disputed by several groups of Iroquois until 1794, when a treaty was signed at Canandaigua between the United States government and the Six Nations which defined the boundaries of Seneca lands and the reservations to the other Iroquois groups (Abler and Tooker 1978:508). Native American title to the land in western New York was largely extinguished with the Treaty of Big Tree in 1797, although several areas were reserved for the Native Americans to use and live on (Abler and Tooker 509, 512).
European-American settlement of western New York dates from the end of the American Revolution in 1783, although border disputes between New York and Massachusetts, both of which claimed the new territory, frustrated the actual, legal sale of these lands. Under an agreement signed in Hartford, Connecticut, in 1786, the land once occupied by the Iroquois came under the jurisdiction of New York State. Nonetheless, the Commonwealth of Massachusetts maintained the right to sell the land west of Seneca Lake. During the next decade large grants of land in western New York would be sold to private investors who would attempt to open the land to settlement (Ellis et al. 1967:152-156; Schein 1993:5-8; Abler and Tooker '1978:507-509; Turner 1976 [1851], 1974 [1850]).

The Commonwealth of Massachusetts sold the rights to the entirety of western New York (more than 6 million acres) to a syndicate of land speculators headed by Oliver Phelps and Nathaniel Gorham. This land, called the Phelps and Gorham purchase, became Ontario County in January 1789. Financial troubles soon undermined the syndicate's efforts to sell parcels within their purchase to settlers. These difficulties ultimately led to the group's forfeiture of the western two-thirds of the tract in 1790 in exchange for retention of title to the eastern third. Massachusetts sold the remaining unsurveyed portion of the area to Robert Morris in 1791. Reserving a portion of the land for his own purposes (the so-called "Morris Reserve"), Morris sold the remainder to a consortium of Dutch investors called the Holland Land Company in 1792-1793. All of what is now Monroe County, except for the three western townships—Hamlin, Clarkson, and Sweden, was included within the Phelps and Gorham Purchase. The three western towns were part of Morris's purchase. Named for the fifth President of the United States, James Monroe, Monroe County was created from Genesee and Ontario counties in February 1821 (Turner 1974 [1850]:396-403; Ellis et al. 1967:154-156; Halsey 1999).

Settlement of what is now Monroe County began in 1788, when Ebenezer Allen, a Tory, erected a log cabin on 470 acres along the Genesee River, near the present site of Rochester. Despite erecting a mill along the river in the future city, he eventually relocated to Canada. Other early settlers of the county included Simon and Israel Stone near Pittsford, Glover Perrin at Perinton, Peter Shaeffer near Scottsville, Oran Stone in Brighton, and William Hincher at the mouth of the Genesee along the lake. During the years before the War of 1812, settlements sprung up in various parts of the county, although general growth was inhibited by poor transportation and the dense forests (McIntosh 1877; Halsey 1999).

The project area was initially part of the Town of Boyle (later renamed Smallwood), Ontario County, which included the present-day towns of Brighton, Pittsford, Perinton, Irondequoit, Penfield and Webster when it was formed in 1806. The towns of Brighton and Pittsford were created in March 1814, when what was left of the old Town of Smallwood was divided. Comprising Township 13, Range 7 of the Phelps and Gorham Purchase, the Town of Brighton is located in north-central Monroe County, southeast of the City of Rochester. Parts of the present City of Rochester were removed from the town in 1834 and 1905, and what is now Irondequoit was removed in 1839. John Lusk
purchased 1,500 acres around Irondequoit Bay and Creek and was the first resident of the town in 1787. He built a log cabin and sowed 15 acres of wheat. He later erected a tannery at Irondequoit Landing. The original landowners of the town included Lusk, General Hyde, Prosper Polley, Colonel Job Gilbert, Joseph Chaplin, and Enos Stone (Peck 1908:397; McIntosh 1877:241; Halsey 1999). Moving to the town in 1790, Oran Stone constructed a homestead and operated "a house of entertainment near the council rock and elm" (Peck 1908:397). In 1790, Enos Stone, a stock drover, became the only purchaser to permanently settle in the town. Other pioneers before 1800 included Chauncey and Calvin Hyde, Joel Scudder, Erastus and Stephen Lusk, Timothy and C.H. Allyn, Oliver Culver, Enos Blossum, and Judge John Tryon, who built a log warehouse near Irondequoit Bay. Asa Dayton operated a public house in Tryon Town in 1801. Tryon Town included a tannery and a distillery in addition to the public house and warehouse. The Allys erected a log cabin on 500 acres along the creek that now bears their name (Peck 1908:397; McIntosh 1877:241; Halsey 1999).

During the early nineteenth century, the Town of Brighton slowly diversified its economy through the development of rural enterprises. Trapping and timbering were initial pursuits as the pioneers carved out homes from the dense forests. Asa Dayton, Miles Morris and Benjamin Weeks operated taverns ca. 1800; Stephen Lusk operated a tannery at Irondequoit Landing; Augustus Griswold built an ashery and a distillery in connection with a store he ran as early as 1800; Mr. Turner taught the first school in 1802; Ira West kept a store in 1802; Silas Losca was the town's first blacksmith. Abel Easton (ca. 1802) operated a tavern at what was the hamlet of Allen's Creek. Oliver Culver and Solomon Hatch built the first sawmill on Allen's Creek in 1806. Other mills along the creek included the Goff-Washburn sawmill and the Chubb gristmill (Peck 1908:397; Halsey 1999; McIntosh 1877:241-242).

While some residents profited from the shipping trade during the War of 1812, many settlers left the area until the cessation of hostilities. Leonard Stoneburner operated a schooner out of the bay and conducted a lucrative shipping business. Other settlers after the war included the Corys and Dryers, Francis Charter, Milo Barnes, Barnabas Curtis, and Hanford Boughton. The village of Brighton Center (now part of the City of Rochester) was settled by Thomas Blossom after the war. He was soon joined by William Perrin (who ran the first store in 1818), Israel Blossom (who kept a tavern in 1820), and Mr. Case (who erected a hotel). A school was founded in 1816. Other settlers included storekeeper Justis Yale, tavern-operator Linus Wilcox, blacksmith Mr. Caley, storekeeper Ira West (McIntosh 1877:242; Halsey 1999; Peck 1908:398).

The project area is located in the western part of the Town of Brighton near the Genesee River. A tremendous economic boost occurred after the Erie Canal was constructed through the village of Rochesterville (present-day City of Rochester), approximately 3.2 miles (4.9 km) north of the project area. Begun in 1817, the canal between Rochester and Albany opened in 1823. Two years later, the canal linked Buffalo and Lake Erie with New York City when it opened October 26, 1825 (Shaw 1990:5-6, 181-187; Monroe County 1999). Although small and not particularly swift, the
streams and creeks in the vicinity of the project area powered early industrial endeavors that included sawmills, grist mills, and asheries/potasheries while the forests provided materials for log and frame houses, taverns, and hotels (Monroe County 1999; McIntosh 1877:27-31). The completion of the canal attracted additional settlers to the area. Between 1820 and 1830 the population of the county jumped from 26,855 to 49,862, and by 1840 was over 60,000. The City of Rochester was incorporated in April 1834 (Monroe County 1999; Halsey 1999).

In addition to the Erie Canal and the Genesee River, another waterway was developed to connect the fertile farmlands south of Rochester and along the Genesee River to the Erie Canal. With construction starting in 1837, the Genesee Valley Canal was dug along the west bank of the Genesee River between Rochester and Olean, although construction wasn’t completed for nearly twenty years (1856). Generally unsuccessful, the canal was abandoned and sold in 1880 to the Genesee Valley Canal Railroad company (later the Western New York & Pennsylvania).

By 1852, the Genesee Valley Railroad ran for approximately 18 miles along the east side of the Genesee River and connected outlying townships to Rochester. The Erie and Lehigh Valley railroads operated this line in 1902. The line, operated in turn by Conrail and more recently by CSX, defines the western limits of the current project area (see Figure 1). The New York Central Railroad ran east-west through the town (Halsey 1999; Beers 1872; McIntosh 1877:45; Lathrop and Pidgeon 1902).

Agriculture formed the predominant economic activity of the area until well into the twentieth century. During the nineteenth century, wheat was the principal staple, but after the Civil War and the opening of the great Midwest wheat fields, barley, corn, and oats became staple crops. Brighton farms specialized in vegetables for the burgeoning Rochester market, with several extensive nurseries located in the town. Many farms also grew fruit, especially apples, pears, and peaches. From the late-nineteenth century into the twentieth century, dairying and stock raising were predominant farm specialties (McIntosh 1877; Halsey 1999).

While the project area maintained its agricultural orientation throughout the nineteenth century, the City of Rochester continued to grow. Improvements and developments in transportation networks during the 1890s and into the twentieth century, as well as the prosperity of the city, facilitated the trend toward creating residential communities. The village of Brighton was annexed by the city in 1905 and a trolley line was planned for Monroe Avenue. In 1917, improvements to the New York State Canal System included re-routing the Erie Canal to loop south of the city (McFee 1998:85-88). The original portion of the canal was filled in and the present-day Barge Canal located south of French Road and the Route 590 expressway, approximately 490 ft (150 m) north of the current project area. By 1930 the population of the city was 328,123 while the county contained 423,881 people. Since then, the rural parts of the town have become increasingly residential and commercial with the creation of numerous suburban developments and industrial parks. By 1964, Rochester had a population of 319,279 that
"was concentrated in the suburban and rural areas outside the city" (Heffner and Goodman 1973:166; McKelvey 1961).

Since 1960, the trends toward suburbanization in the vicinity of the project area have accelerated, despite the recent dislocations at Kodak and other large employers. These trends have been facilitated by the extension and improvement of transportation routes which link the area to the city of Rochester and other major highways, such as Routes 390, 490, 590 and 65 as well as the New York State Thruway (Route 90). Developing commercial outlets as well as the location of corporate offices in the nearby city have attracted residents and other suburban shoppers as well as employees, dramatically increasing traffic flow in the area. In 2000, the population of Monroe County was 735,343 (U.S. Census Bureau 2000).

2.4 DOCUMENTARY RESEARCH

2.4.1 Historic Map Analysis. Two historic period maps of the Town of Brighton (Beers 1872 and Lathrop and Pidgeon 1902; Figures 4 and 5) were reviewed to assess the potential for historic sites or existing structures within and adjacent to the proposed project area.

The Beers map of 1872 shows the project area located within portions of Lots 69, 73, 74 and 75 (Figure 4). The railroad bed marking the western limits of the project area is labeled the "Genesee Valley R.R." One structure is illustrated within the limits of the northern project area. Labeled "J. Schloyer" (or possibly "Sibleyer"), the structure is in the northern part of Lot 74, on the south side of Westfall Road. No evidence of the structure was identified during field inspection of the project area. Currently, the former Saint Agnes High School and associated property occupy the area where the structure is documented (see Appendix A: Photograph 8). Two structures are shown immediately adjacent to the project area (see Figure 4). The first, pertaining to B. Warrant, is on the east side of West Henrietta Road in Lot 63. Twentieth century residences, such as that located at 2021 West Henrietta Road (see Appendix A: Photograph 25), have since been constructed along this section of the road. The other adjacent structure is located in Lot 75, south of Crittenden Road and assigned to "J. Van Blskirk" (see Figure 4). The structure was replaced by the early twentieth-century residence of present-day 1233 Crittenden Road (see Appendix A: Photograph 32).

The 1902 map shows the project area located within portions of Lots 69, 73, 74 and 75 (Figure 5). It partially covers land assigned to Geo. W. Basold, the John Lynch Estate, Fritz Schlottman, Lillie C. Davis, Mrs. Samuel Pike, Mrs. J.M. Holcomb, the Boughton Estate, and the Warrant Stock Farm, owned by Cornelius F. Warrant. The railroad bed is labeled the Erie R.R. and Lehigh Valley R.R. One structure is illustrated south of West Fall Road on the Warrant Stock farm property within the limits of the proposed project area. This is presumed to be the same as the Schloyer structure depicted at this location on the 1872 map (see Figures 4 and 5). There are two structures adjacent to the project area which are also presumed to be in the same locations as
Figure 4. Location of the project area within the Town of Brighton in 1872 (Beers 1872).
Figure 5. Location of the project area within the Town of Brighton in 1902 (Lathrop 1902).
same locations as those on the 1872 map. The structure east of West Henrietta Road is attributed to Cornelius F. Warrant and his stock farm, while the structure south of Crittenden Road is associated with Geo. W. Basold. As already noted, the West Henrietta Road structure is no longer extant, while the Crittenden Road structure corresponds to the residence at present-day 1233 Crittenden Road (see Appendix A: Photograph 32). The residence at present-day 1211 Crittenden Road to the west also dates to the early part of the twentieth century (see Appendix A: Photograph 31). It is not depicted on the 1902 map.

2.4.2 Site File and Archival Review. A review of archaeological site files at the Office of Parks, Recreation, and Historic Preservation (OPRHP) and the New York State Museum (NYSM) was conducted by Ms. Kerry L. Nelson. An additional review was conducted by Ms. Karen S. Niemel at the State University of New York at Buffalo (UB) Archaeological Survey. Nineteen archaeological sites were identified within one mile of the project area (Table 1).

One historic site, ROC 38-3 (NYSM 2543) is located within the limits of the project area. The site findings were described only as “historic white” (see Table 1). No further information is available. The project area is also partially located within the limits of NYSM 7680, an unnumbered prehistoric site described by Arthur C. Parker (1922) as “traces of occupation” and covering approximately 380 acres. The size of sites reported by Parker were generally recorded as larger than their actual size, either from ambiguous descriptions or efforts to protect sites from looting. NYSM 7680 may refer in part to the Genesee Valley Park #3 site (OPRHP # A05540.001555), a possible Late Woodland site reported by Harrison C. Follett (1956). The site is located within the boundaries of NYSM 7680, but outside the project area, west of the former Lehigh Valley railroad line.

Parker (1922) reported five additional sites within one mile of the project area. These include a prehistoric camp site on the Wadsworth farm west of Genesee Valley Park (NYSM 3868; Parker 1922:612); a village site which covered nearly all Oak Hill within the park (NYSM 3922; Parker 1922:616); a prehistoric trail (NYSM 3901) approximately 2,000 ft south of the project area; and two sites (NYSM 7119 and 7679) northeast of the project area (see Table 1). The site on Oak Hill is also recorded by Beauchamp (1900:95). Beauchamp (1900:95, 100) and Parker (1922:613-614) noted the presence of camps east of the project area near Allen’s Creek and south along Red Creek in Henrietta. No archaeological sites are identified in the project area by later surveys (Ritchie 1980; Ritchie and Funk 1973). Ritchie (1980:40), however, does identify two Woodland period sites known as the Sea Breeze site and the Plum Orchard site in the vicinity of Irondequoit Bay, northeast of the project area.

The Warrant Homestead (NYSM 2552) is located adjacent to the northeastern portion of the project area along West Henrietta Road (see Appendix A: Photograph 23). The structure (circa 1830s-1840s) was moved from its original location (OPRHP # A05501.000014) near East Henrietta Road. Modern structures and Interstate 390 comprise part of its visual setting.
<table>
<thead>
<tr>
<th>NYSM Site #</th>
<th>OPRHP Site #</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A05540.001544</td>
<td>Follett 102, Sibley Tower. Historic Iroquois. Reported by Harrison C. Follett.</td>
<td></td>
</tr>
<tr>
<td>8764 A05540.001549</td>
<td>UB 2927, Follett 251, Rochester Airport Site. Unidentified prehistoric. Reported by Harrison C. Follett.</td>
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</tr>
<tr>
<td>A05540.001553</td>
<td>UB 2925, Follett 348A, Genesee Valley Park #1. Unidentified prehistoric village. Artifacts include domestic and wax like implements, mortars, projectile points, chert flakes, skimming stones and heating stones. Reported by Harrison C. Follett.</td>
<td></td>
</tr>
<tr>
<td>A05540.001555</td>
<td>UB 2923. Genesee Valley Park #3. Prehistoric camp, possibly Late Woodland. Artifacts include projectile points, tomahawk, and debitage chert. Reported by Harrison C. Follett.</td>
<td></td>
</tr>
<tr>
<td>A05540.001561</td>
<td>UB 2921, Follett 237, Beaham Road Site. Archaic period camp. Reported by Harrison C. Follett.</td>
<td></td>
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<tr>
<td>8761</td>
<td>UB 2922, Mortimer Site. Archaic period camp.</td>
<td></td>
</tr>
<tr>
<td>2543</td>
<td>UB 2924, Barge Canal ROC 38-3/57). HE-1800s(E). Site findings described as &quot;historic white&quot;.</td>
<td></td>
</tr>
<tr>
<td>7680</td>
<td>ACP MNRO (no number). Traces of occupation. Reported by Arthur C. Parker.</td>
<td></td>
</tr>
<tr>
<td>7679</td>
<td>ACP MNRO (no number). Camp. Reported by Arthur C. Parker.</td>
<td></td>
</tr>
</tbody>
</table>
Previous Surveys. No surveys have been conducted for the current project area, as recorded in the files of the New York State OPRHP. Two studies have been completed for areas in the vicinity of the project area:

Clune, Francis J., Jr. And Niel H. Johnson
1976 Archaeological Survey of the Proposed Collection Sewer System, West Brighton Service Area, South Central Pine Waters District C-36-958.

Hartner, James

Pierce, Carolyn

Pierce, Carolyn and Joseph Schudlenrein

The archaeological survey conducted by Hartner (1998) was located along Crittenden Road between West Henrietta Road and the former Lehigh Valley Railroad line. No cultural resources were identified as a result of the investigation.
3.0 Results of the Phase IA Investigation

3.1 SENSITIVITY ASSESSMENT

3.1.1 Documentary Research. The results of the background research reveal evidence for both prehistoric and historic period activities within the project area. There are two known archaeological sites (NYSM 2543 and NYSM 7680) and one map documented structure within the APE. Three historic structures (e.g., the Warrant Homestead [OPRHP # A05501.000014] and residences at 1211 and 1233 Crittenden Road) are also located adjacent to the project area. One structure, located at the south end of Mortimer Street, is situated within the APE. The structure dates from the early- to mid-twentieth century.

3.1.2 Field Reconnaissance. Field reconnaissance was conducted on March 14, 2002. Weather was clear and unseasonably warm. Observations and photograph locations were recorded on a map of the project area (Figure 6). Modern features located within the project area include Interstate 390 (see Appendix A: Photographs 3 and 14), a utilities corridor located along the former Lehigh Valley Railroad right-of-way (see Appendix A: Photographs 6 and 7), the Whipple Park Apartment Complex (see Appendix A: Photographs 16 and 17), the University of Rochester Center for Optoelectronics and Imaging (see Appendix A: Photograph 2); the former Saint Agnes High School (see Appendix A: Photograph 8); a sewage treatment plant north of Westfall Road (see Appendix A: Photographs 4 and 5); and a large water tank in the southern portion of the project area (see Appendix A: Photograph 27). Disturbances resulting from construction of the features have impacted approximately 84 acres (34 hectares) of the project area (see Figure 6). Evidence of minor disturbances were observed in the vicinity of the Whipple Park Apartment Complex. These included several earthen push piles approximately 10 feet (3 meters) in height (see Appendix A: Photograph 15), concrete and gravel fill piles (see Appendix A: Photograph 18), and an east-west channeled drainage, approximately 8 to 9 feet (2.5 to 2.7 m) in depth (see Appendix A: Photograph 19). Only one structure, a residence dating from the early- to mid-twentieth century at the southern end of Mortimer Street, is located within the APE (see Appendix A: Photograph 26). Approximately seven acres west of the Whipple Park Apartment Complex was heavily inundated (see Appendix A: Photograph 13).

3.2 CONCLUSIONS AND RECOMMENDATIONS

The results of the background research and field investigation indicate that undisturbed portions of the proposed University of Rochester PID District are sensitive for prehistoric and historic cultural resources. Three historic structures are located adjacent to the proposed project area. One map documented structure was identified within the northwest portion of the project area (see Figures 4 and 5). No evidence of the structure was identified during the field inspection. Two sites—one historic (NYSM 2543) and one prehistoric (NYSM 7680)—were recorded within the areas of potential effect.
Figure 6. Project area map showing sections recommended for phase IB investigation, disturbed areas, inundated areas, and photo angles (USGS 7.5' Quadrangle, West Henrietta, NY, 1997 [1971], Pittsford, NY, 1980 [1971]).
The Warrant Homestead site (NYSM 2552), an early nineteenth century homestead, is immediately east of the project area along West Henrietta Road. It had been moved from its original location near East Henrietta Road (OPRHP # A05501.0000014). Its present surroundings include modern structures and highways. Two additional adjacent structures are present-day 1211 and 1233 Crittenden Road, both of which date to the early part of the twentieth century.

The results of the Phase IA investigation indicate that approximately 84 acres within the project area have been impacted by modern development (e.g., Whipple Park Apartment Complex, former Saint Agnes High School, University of Rochester Center for Optoelectronics and Imaging, a water tank, and a sewage treatment plant) (see Figure 6). These locations are no longer archaeologically sensitive. In addition, approximately seven acres west of the Whipple Park Apartment Complex is heavily inundated. Phase IB archaeological field investigation is therefore recommended for approximately 161 acres of dry project area that remain archaeologically sensitive. An architectural assessment of the Mortimer Street residence is also recommended as part of the investigations to determine its eligibility for inclusion in the National/State Register of Historic Places. Due to the nature of the proposed development plan, it is difficult to ascertain the visual impacts on the Warrant Homestead and residences located at 1211 and 1233 Crittenden Road. Further assessment of the impacts is recommended, and if need be, investigations conducted to determine eligibility for inclusion of any of the three properties in the National/State Register of Historic Places.
4.0 References

Abler, Thomas S., and Elisabeth Tooker

Aldenderfer, Mark S.

Beauchamp, William M.

Beers, Frederick W.

Brown, James H.

Cassedy, Daniel, Paul Webb, Tracy Millis, and Heather Millis

Cressey, George B.

de Laubenfels, David J.

DeVoy, John

Dent, Richard J.

Ellis, David M., James A. Frost, Harold C. Syrett, and Harry J. Carmen
Fitting, James E.  

Follett, Harrison C.  

Fritz, Gayle  

Funk, Robert E.  


Funk, Robert E., and Frank F. Schambach  

Halsey, Richard T.  

Heffner, Robert L., and Seymour D. Goodman  

Kraft, Herbert  

Lathrop, J.M., and Roger H. Pidgeon  

McFee, Michele A.  
McIntosh, W.H.

McKelvey, Blake

Monroe County
1999 Overview of Monroe County. Prepared by Monroe County Department of Communications and Special Events. Located on the Internet at http://www.co.monroe.ny.us.

Nicholas, George P. (editor)

Parker, Arthur C.

Peck, William F.

Raber, Paul A.

Ritchie, William A.


Ritchie, William A., and Robert E. Funk

Salwen, Bert

Schein, Richard H.

Shaw, Ronald E.
Smith, Bruce D.

Snow, Dean R.


Tooker, Elisabeth

Trigger, Bruce G.

Turner, Orsamus


United States Census Bureau

USGS (United States Geological Survey)

Van Diver, Bradford B.

Winter, Joseph
Photograph 1. The northeastern portion of the project area showing surface vegetation, facing southwest (PCI 2002).

Photograph 2. The University of Rochester Center for Optoelectronics and Imaging located at 240 East River Road, facing west (PCI 2002).
Photograph 3. Northern boundary of the project area showing Interstate 390, facing north (PCI 2002).

Photograph 4. Sewage treatment plant located in northernmost portion of the project area, facing southeast (PCI 2002).
Photograph 5. Sewage treatment plant located in northernmost portion of the project area, facing northwest (PCI 2002).

Photograph 6. Western limits of project area showing former Lehigh Valley Railroad right of way and utility corridor, facing northeast (PCI 2002).
Photograph 7. Western limits of project area showing former Lehigh Valley Railroad right of way and utility corridor, facing southwest (PCI 2002).

Photograph 8. Former Saint Agnes High School located at 300 East River Road, facing south (PCI 2002).
Photograph 9. Area of intermittent standing water south of former Saint Agnes High School, facing south (PCI 2002).

Photograph 10. Wooded section of the project area south of former Saint Agnes High School, facing east (PCI 2002).
Photograph 11. Area of intermittent standing water northwest of Whipple Park Apartment Complex, facing southeast (PCI 2002).

Photograph 12. Wooded area west of Whipple Park Apartment Complex, facing south-southwest (PCI 2002).
Photograph 13. Inundated area located west of Whipple Park Apartment Complex, facing south-southwest (PCI 2002).

Photograph 14. New York State Barge Canal and Interstate 390 located at northern limits of project area, facing southeast (PCI 2002).
Photograph 15. Push piles located between inundated area and Whipple Park Apartment Complex, facing southwest (PCI 2002).

Photograph 17. Southern portion of Whipple Park Apartment Complex, facing east (PCI 2002).

Photograph 18. Concrete and gravel fill piles located southwest of Whipple Park Apartment Complex, facing northwest (PCI 2002).

Photograph 20. Western limits of project showing utility corridor south of inundated area, facing north-northeast (PCI 2002).
Photograph 21. Project area southwest of Whipple Park Apartment Complex showing surface vegetation, facing northeast (PCI 2002).

Photograph 22. Wooded section of project area between Whipple Park Apartment Complex and Crittenden Road, facing southeast (PCI 2002).
Photograph 23. Warrant Homestead, facing east (PCI 2002).

Photograph 24. Northeast section of project area, facing west. Note Center for Optoelectronics and Imaging in background (PCI 2002).
Photograph 25. Structure located at 2021 West Henrietta Road, facing east (PCI 2002).

Photograph 26. Residence located at south end of Mortimer Street, facing northwest (PCI 2002).
Photograph 27. Water tower located in southern section of the project area, facing south (PCI 2002).

Photograph 28. Project area south of water tower, facing southwest (PCI 2002).
Photograph 29. Project area south of water tower, facing southeast (PCI 2002).

Photograph 30. Mortimer Street, facing northeast (PCI 2002).
Photograph 31. Structure located at 1211 Crittenden Road, facing southwest (PCI 2002).

Photograph 32. Structure located at 1233 Crittenden Road, facing southeast (PCI 2002).

Panamerican Consultants, Inc. A-17 University of Rochester PID District Phase I A
Frank J. Schieppati, Ph.D.
Senior Archaeologist

Education


Phi Beta Kappa, Omicron Chapter, SUNY/Buffalo, 1976; Graduate Magna Cum Laude, SUNY/Buffalo, 1976; New York State Regents War Service Scholarship, 1973-1977; Four-year graduate research/teaching assistantship with stipend at SUNY/Buffalo.

Experience

Dr. Schieppati is currently a Senior Archaeologist with the Buffalo (New York) Branch Office of Panamerican Consultants, Inc. (PCI) (September 1996-present). He is experienced in all phases of the cultural resources management process and has managed both small and large-scale projects including wastewater collection and treatment systems, water transmission and distribution systems, highways, flood control projects, utility pipelines, housing and commercial developments, and hazardous waste remediation projects. For example, he completed two Phase IA and a Phase IB surveys for two hazardous waste remediation projects (one is a Federal Superfund) in Niagara County for Conestoga-Rovers and Associates. He has authored over seventy (70) cultural resources management reports for various clients including the U.S. Army Corps of Engineers (USACE), the USEPA, the New York State Museum, the New York Department of Transportation, the New York Department of Environmental Conservation (NYSDEC), municipalities and utilities throughout New York State, as well as engineering firms and other private organizations.

During his career, Dr. Schieppati has served as Director of Environmental Services for the City of Niagara Falls, New York (1992-96). As the city’s principal environmental officer, he directed a small staff of environmental professionals charged with the oversight of all environmental issues where the city had interest or regulatory authority. He directed the operation, planning, and application of the city’s Geographic Information System (GIS), and served as the City’s preservation planner. Dr. Schieppati has also worked for the NYSDEC, most recently as Senior Environmental Analyst in Buffalo, New York (1991-92), where he served as project manager for interdisciplinary reviews of environmental permit applications and reviewed a variety of environmental documents (EISs, EIDs and EAs), among other responsibilities. He also worked as an Environmental Specialist (Cultural Resources) at the Central Office in Albany (1983-91).

Representative Panamerican Consultants, Inc. Experience

Currently, Dr. Schieppati is serving as Preservation Planner and Principal Investigator on eight projects for the U.S. Army Medical Research and Materiel Command (Fort Detrick, MD), including: Integrated Cultural Resources Management Plans for Ft. Hamilton, NY and Ft. Campbell, Kentucky; four Cold War Inventory and Assessment projects at four military installations (Ft. Monmouth, NJ; Pine Bluff, AK; Umatilla, OR; and Natick, MA); one HABS/HAER study at Rock
Island, IL; and one Category III survey and Cold War Inventory and Assessment at Phillips Air Field, Aberdeen, MD.

Dr. Schieppati has also served as Preservation Planner for four Cultural Resources Management Plans (CRMPs) for the New York District, USACE: Watervliet and Picatinny Arsenals, Rotterdam Housing, and Fort Hamilton. He has served as Principal Investigator on three Phase I surveys, two Phase II investigations and a Phase III data recovery project at the U.S. Military Academy, West Point, Orange County, New York, as well as Phase IB investigations at Picatinny Arsenal, Morris County, New Jersey. Dr. Schieppati has been the Principal Investigator for Phase II investigations for the Joseph G. Minish Passaic River Waterfront Park project of the Morris Canal right-of-way, Newark, New Jersey, and for a Phase VII cultural resources investigation at the Robert E. Lee House, Fort Hamilton, Brooklyn, New York.

In 1999, he served as Principal Investigator for a Phase IB cultural resource investigation of the proposed 15-foot wide, roughly 35-mile long, fiber optic cable route right-of-way between the Town of Hudson, Columbia County, and the Town of Pleasant Valley, Dutchess County, New York. Prepared for Telergy, Inc., East Syracuse, NY, the investigation was conducted in compliance with the SEQRA, the State Historic Preservation Act (SHPA), and appropriate Federal legislation. Fieldwork was conducted according to the New York Archaeological Council’s (NYAC) Standards for Archaeological Investigations. In 2000, Dr. Schieppati served as Co-principal Investigator for Phase IA/B cultural resources investigations for a proposed 26-mile fiber optic conduit between the City of Rensselaer through the remainder of Rensselaer County to the Massachusetts-New York state line, and for a Phase IA/B cultural resources investigations for a proposed 130-mile fiber optic conduit along Routes 22 and 684 from Stephentown, Rensselaer County, NY, to White Plains, NY, the eastern portion of New York State, parallel to the state’s borders with Massachusetts and Connecticut.

He has served as Project Director or Principal Investigator for at least thirty (30) local (Buffalo area) cultural resources or environmental projects, including Phase I A surveys for the proposed Cayuga Road Sports Complex, Town of Cheektowaga, New York; for the proposed Ellicott Creek Trailway Extension, Town of Amherst, New York; and for the Woodlawn Beach State Park Improvements, Town of Hamburg, New York; and Phase IA/B surveys for the National Fuel Gas Line K Realignment, Town of Orchard Park, New York; for the proposed French Road Development in West Seneca, New York; for proposed waterline construction in the District #5, Town of Newstead, New York; and for the proposed Quaker Road Retail Development. East Aurora, New York. His most recent assignment is as assistant project manager on PCI’s service contract with Niagara Mohawk Power Corporation.

**CAREER HISTORY**

**Director of Environmental Services**, City of Niagara Falls, New York (1992-96). As the city’s principal environmental officer Dr. Schieppati directed a small staff of environmental professionals charged with the oversight of all environmental issues where the city had interest or regulatory authority. He directed the operation, planning, and application of the city’s Geographic Information System (GIS), supervised the review of all City actions and approvals for potential environmental impacts, served as the City’s preservation planner, and acted as recycling coordinator. Dr. Schieppati produced the City’s first solid waste management plan, devised a plan for composting municipal yard, and coordinated the City’s household hazardous waste day. He served as
community ratings system coordinator (flood plain management), acted as the city’s demographer and conducted research on population and census data, served as emergency response coordinator and supervised enforcement and issued citations relative to the city’s Clean Neighborhoods and other ordinances. He represented the city on the PRP Steering Committee for the Niagara County Refuse Disposal Superfund Site and sat on the board of the Love Canal Area Revitalization Agency (Treasurer, 1995). While with the city, Dr. Schieppati authored the Phase IA survey for the Niagara County Refuse Disposal (Superfund) Site.

After leaving the city and just prior to joining PCI, Dr. Schieppati conducted a Phase IB survey for the Niagara County Refuse Site to examine an archaeologically sensitive, remnant glacial drumlin. He conducted a Phase IA survey for the Gratwick-Riverside Park, another hazardous waste site (City of North Tonawanda), that focused primarily on assessing the aesthetic impacts of the remediation project on the Niagara River. He also conducted a Phase II survey on suspected historic period sites in the City of Niagara Falls. The sites will be impacted by construction associated with an affordable housing project.

**Senior Environmental Analyst**, New York State Department of Environmental Conservation, Region 9, Buffalo, New York (1991-92). In this position, Dr. Schieppati served as project manager for interdisciplinary reviews of environmental permit applications relating to air emissions, stream disturbances, excavation and fill activities, water supply and transmission projects, flood plain development, the State Pollutant Discharge Elimination System (SPDES), freshwater wetland impacts, activities within coastal erosion hazard areas, and water quality certifications. He served as advisor to other project managers on issues relating to the State and National Historic Preservation Acts (SHPA/NHHPA), administered the State Environmental Review Process associated with the State Revolving Loan Fund for Water Pollution Control Projects, and served as Terminal Manager and Computer Coordinator. He reviewed Environmental Impact Statements, Environmental Information Documents, Environmental Assessment Forms, and Requests for Lead Agency Status within the framework of, and in compliance with, the State Environmental Quality Review Act (SEQRA), as well as a variety of other SEQRA reviews.

**Environmental Specialist (Cultural Resources)**, New York State Department of Environmental Conservation, Central Office, Albany, New York (1983-91). In this position, Dr. Schieppati’s primary responsibilities included the review and oversight of the cultural resources management aspects, within the framework of the National Environmental Policy Act (NEPA), of the U.S. Environmental Protection Agency’s construction grants program (Clean Water Act) in New York State (e.g. the New York grant in 1985 was about one-half billion dollars). He conducted reviews of Agency direct actions (unit management plans, timber sales, land acquisitions, etc.), Local Waterfront Revitalization and Development Plans, and Environmental Impact Statements through the internal SEQRA committee.

While with the NYSDEC in Albany, Dr. Schieppati conducted approximately 30 cultural resources surveys. These surveys included all phases of cultural resources work from Phase IA to preparing National Register Nominations, MOAs, and effect documentation.

Dr. Schieppati also served on a number of special task forces while with the NYSDEC including: The Hudson River PCB Dredging and Encapsulation Project (Sponsor Group), Low Level Radioactive Waste Site (Site Selection Task Force), The Half-Moon Cogeneration Project (EIS Review), Fort Drum Study Group, and Utility Line Undergrounding Task Force.
APPENDIX D – Traffic Impact Study

THE UNIVERSITY OF ROCHESTER
IPD REZONING

Town of Brighton
Monroe County, New York
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EXECUTIVE SUMMARY

The University of Rochester is pursuing an Institutional Planned Development (IPD) zoning designation for its South Campus property. As part of the application process to the Town of Brighton, a traffic impact study has been prepared in order to address the likely increase in traffic volumes as a result of potential future development within the IPD district.

This traffic impact study has examined the impacts of the potential future development on the adjacent transportation network. The University of Rochester (UR) has no immediate or near term plans for development on the South Campus; therefore, a development window of 20 years was assumed to more accurately demonstrate the likely timeframe for full build out of the South Campus property.

It was further assumed that UR would develop the South Campus in a similar manner to its other property holdings within the Monroe County community, with a mix of Educational, Research, Office, and Storage/Warehousing space. Building envelopes were established based on UR’s likely needs over the next 20 years. These “envelopes” were then translated to vehicular trips generated by each building type, resulting in an overall number of trips to be generated upon full build out of the South Campus.

The Town of Brighton, City of Rochester, Monroe County Department of Transportation (MCDOT), New York State Department of Transportation (NYSDOT) and the Genesee Transportation Council (GTC) were contacted to identify planned infrastructure improvements and known developments in order to more accurately model the relevant are of the transportation network between the years 2003 and 2023. As a result, the trips generated by several identified projects within the City of Rochester were added to the transportation network as was an assumed growth rate of 1.5 percent per year (between 2003 and 2013) and 0.5 percent per year (between 2013 and 2023) to formulate a Background Growth scenario.

The NYSDOT has a major multi-phase improvement project along I-390, I-590 and involves improvements in the vicinity of the UR that will drastically change the transportation network in the area. These improvements are scheduled for construction between 2007 and 2013 and are described in the NYSDOT sponsored Southern Corridor Mobility Study. The transportation model used reflected NYSDOT planned infrastructure improvements in order to account for likely changes in travel patterns and increases or decreases in the number of vehicles as a result of the new patterns.
Because there are no known projects planned at the South Campus, or specific development timeframes identified, several traffic models were investigated to assess the impacts of potential development on the South Campus over a series of years, with and without planned highway infrastructure improvements in place. A total of 7 traffic modeling scenarios were developed, which examine existing traffic operations, traffic operations in 2008 (with and without NYSDOT improvements), traffic operations in 2013 (with and without NYSDOT improvements), and traffic operations in 2023 (with and without NYSDOT improvements).

The results of these efforts have identified specific infrastructure improvements to selected intersections, which is correlated to the year and the amount of development that may occur. This study will help guide the amount of development that could occur on the UR South Campus, as the NYSDOT improvements are phased into place, thus avoiding the need for UR to provide highway mitigation measures. Further, when a threshold has been crossed (i.e.; decreasing the Level of Service of an intersection from ‘D’ to ‘E’ or worse), specific improvements have been identified that would mitigate the impacts and restore Levels of Service to acceptable levels.

This study should be viewed as a baseline for consideration in the rezoning application before the Town of Brighton, recognizing that, at some point, future development on the South Campus property will trigger the need for a specific traffic impact study prior to issuance of municipal approvals.

Due to the complexity of this study, and the many assumptions which may or may not come to fruition as scheduled, this study should be viewed as it was intended, i.e., to provide a planning level look at the impacts associated with the South Campus development, versus a typical traffic impact study that would be used for consultation in determining site plan or roadway permit approvals.
I. INTRODUCTION

The purpose of this report is to document existing traffic conditions and evaluate potential transportation impacts resulting from the expansion of the University of Rochester’s South Campus in the Town of Brighton, Monroe County, New York. The potential improvements to the studied area will extend into portions of the Town of Brighton, the Town of Henrietta, and the City of Rochester. The general location of the project site is shown in Figure 1.

This study evaluates the potential impacts that the University of Rochester’s South Campus expansion may have on the level of service of surrounding intersections and adjacent public streets. This study includes an analysis of the proposed site ingress and egress as related to vehicular traffic and safety and includes provisions for known transportation improvements.

The traffic impact study is intended for review by the Town of Brighton, the New York State Department of Transportation (NYSDOT), and the Monroe County Department of Transportation (MCDOT). The procedures in this study conform to the guidelines and recommendations of NYSDOT, MCDOT, and the Institute of Transportation Engineers.

II. POTENTIAL DEVELOPMENT LOCATION AND ACCESS

The University of Rochester South Campus is located south of East River Road and is bound to the east by West Henrietta Road (NY Rt. 15) and to the west be the former Lehigh Valley Railroad. No specific development plans exist for the South Campus; however, in conjunction with the University’s plan for an Institutional Planned Development District (IPD) for the South Campus to be submitted to the Town of Brighton; a theoretical development plan has been established to demonstrate the impacts of developing this property over the next 20 years.

*Site Access and Circulation*

The site will be served by one (1) main drive and three (3) additional existing driveways on East River Road. There will also be one (1) point of access for each of pod 1 and pod 2; which provide direct access to Kendrick Road. Additionally, provisions will be made for emergency access off of Crittenden Road via one of two access points (the 60 ft ROW owned by the University or the Lehigh Valley Trail). A conceptual site plan is provided in Appendix ‘A’.

The main site drive is the existing Murlin Drive, proposed to be realigned approximately 175 ft to the west directly across from Kendrick Road forming a four-way intersection with East River Road. Murlin Drive is a spine, approximately half a mile long south of East River Road, currently providing access to Whipple Park Apartments and is anticipated to provide access to future development. A second point of access is proposed on East River Road at the existing driveway to the University’s Center for Optoelectronics and Imaging building and the Laboratory for Laser Energetics. This
existing driveway is proposed to access any development that would take place in the northeastern portion of the South Campus.

Emergency access is proposed on Crittenden Road at the former railroad crossing. Emergency vehicles would be able to gain access to the site by traveling north, adjacent to the Lehigh Valley Recreational Trail.

*Build Out Scenarios*
Based on projected programming needs, the potential developments over the next twenty years, could consist of approximately 956,200 square feet (SF) of Research facilities, 337,700 SF of Education facilities, 281,600 SF of Administration facilities, and 295,450 SF of Storage/Services facilities. These numbers were developed by determining the allowable build out under the Town’s zoning regulations for an IPD.

Several build out scenarios have been analyzed up to the year 2023 to show effects of the proposed developments at different stages. Additionally there are several improvement projects programmed for the transportation network in the vicinity of the South Campus that will have a dramatic impact on the current roadway network. Many of these improvements have been identified and tentatively scheduled, as a result of the NYSDOT sponsored Southern Corridor Mobility Study.

For purposes of this study, several development scenarios were investigated for each analysis year, as there are no known plans for development. The following scenarios have been analyzed in this study in order to isolate impacts attributable to the South Campus developments, versus those attributable to background growth or NYSDOT proposed improvements:

**2003 Existing Conditions**
Analysis based on existing traffic conditions and known traffic volumes; 2003 (the project start year) was established as the base year for analysis and all known volumes were projected to 2003 levels.

**2008 Analysis - NYSDOT Improvements Only**
(Assumes no South Campus development, only the background growth in traffic from 2003 – 2008 was included in this analysis.)
- Improvements include the I-390 southbound exit to Brighton-Henrietta Town Line road to service Monroe Community College (MCC).

**2008 Analysis - Development Only**
(Assumes background growth in traffic from 2003 – 2008 and future build out at each of the two levels below, with no NYSDOT Improvements in place.)
- 250,000 SF Build Out
- 1,000,000 SF Build Out
2008 Analysis - NYSDOT Improvements & Development
(Assumes background growth in traffic from 2003 – 2008 and future build out at each of the two levels below. Assumes I-390 southbound exit to Brighton-Henrietta Town Line Road, primarily servicing MCC, is in place.)
- 250,000 SF Build Out
- 1,000,000 SF Build Out

2008 Analysis - NYSDOT Improvements & Development With Mitigation Measures
(Assumes background growth in traffic from 2003 – 2008 and future build out at each of the two levels below. Assumes I-390 southbound exit to Brighton-Henrietta Town Line Road, primarily servicing MCC, is in place. Analysis also assumes Mitigation Measures are applied to affected intersections.)
- 250,000 SF Build Out
- 1,000,000 SF Build Out

2013 Analysis - NYSDOT Improvements Only
(Assumes no South Campus development; only the background growth in traffic from 2003 – 2013 was included in this analysis. This analysis also assumes improvements to the I-390 / I-590 / NY 15A Interchanges were in place. Refer to Alternative 5 from the NYSDOT Southern Corridor Mobility Study, shown in Appendix ‘F’.)

2013 Analysis - Development Only
(Assumes only the background growth in traffic from 2003 – 2013 and the developments of the South Campus as outlined below.)
- 1,000,000 SF Build Out
- 2,000,000 SF Build Out

2013 Analysis - NYSDOT Improvements & Development
(Assumes the background growth in traffic from 2003 – 2013 and the developments of the South Campus as outlined below. This analysis also assumes improvements to the I-390 / I-590 / NY 15A Interchanges were in place. Refer to Alternative 5 in the NYSDOT Southern Corridor Mobility Study, shown in Appendix ‘F’.)
- 1,000,000 SF Build Out
- 2,000,000 SF Build Out

2013 Analysis - NYSDOT Improvements & Development with Mitigation Measures
(Assumes the background growth in traffic from 2003 – 2013 and the developments of the South Campus as outlined below. This analysis also assumes improvements to the I-390 / I-590 / NY 15A Interchanges were in place. Refer to Alternative 5 in the NYSDOT Southern Corridor Mobility Study, shown in Appendix ‘F’. Additionally, Mitigation Measures were provided at affected intersections.)
- 1,000,000 SF Build Out
- 2,000,000 SF Build Out
2023 Analysis - NYSDOT Improvements Only
(Assumes no South Campus development, only the background growth in traffic from 2003 – 2023 was included in this analysis. This analysis also assumed improvements to the I-390 / I-590 / NY 15A Interchanges were in place. Refer to Alternative 5 in the NYSDOT Southern Corridor Mobility Study, shown in Appendix ‘F’. No additional improvements are proposed between 2013 and 2023.)

2023 Analysis - Development Only
(Assumes only the full build analysis for South Campus and background growth in traffic from 2003 – 2023. Assumes no NYSDOT Improvements are in place.)
- 2,000,000 SF Build Out

2023 Analysis - NYSDOT Improvements & Development
(Assumes the background growth in traffic from 2003 – 2023 and the full build out of the South Campus. This analysis also assumes improvements to the I-390 / I-590 / NY 15A Interchanges were in place. Refer to Alternative 5 in the NYSDOT Southern Corridor Mobility Study, shown in Appendix ‘F’. No additional improvements are proposed between 2013 and 2023.)
- 2,000,000 SF Build Out

2023 Analysis - NYSDOT Improvements & Development with Mitigation Measures
(Assumes the background growth in traffic from 2003 – 2023 and the full build out of the South Campus. This analysis also assumed improvements to the I-390 / I-590 / NY 15A Interchanges were in place, Refer to Alternative 5 in the NYSDOT Southern Corridor Mobility Study, shown in Appendix ‘F’. No additional improvements are proposed between 2013 and 2023. Additionally, mitigation measures were provided at affected intersections)
- 2,000,000 SF Build Out

The NYSDOT improvements include those improvements tentatively scheduled, as part of the Southern Corridor Mobility Study. Improvements are scheduled for 2004, 2007, and 2009. These improvements are discussed in greater detail in section five (V).

III. EXISTING TRANSPORTATION SYSTEM

The following is a description of major roadways and intersections within the study area, which were examined as part of this analysis. Existing intersection lane configurations are shown in Appendix ‘C’, in Figures 16-21.

ROADWAYS

NY Route I-390:
I-390 traverses north-south in the vicinity of the site and is considered a principal arterial Expressway. As documented by the New York State Department of Transportation, I-390 carried approximately 100,894 vehicles per day south of exit 15 (junction with I-590) in
2003. West of exit 16b (NY Route 15 Interchange), I-390 carried approximately 78,009 vehicles per day in 1999.

**NY Route I-590:**
I-590 traverses north-south in the vicinity of the site and is considered a principal arterial interstate. As documented by the New York State Department of Transportation, I-590 carried approximately 69,432 vehicles per day east of exit 15 (junction with I-390) in 2001.

**NY Route 15 (West Henrietta Road):**
NY Route 15 traverses north-south and is considered a principle arterial. As documented by the New York State Department of Transportation, NY Route 15 carried approximately 32,150 vehicles per day south of Brighton-Henrietta Road in 2003 and 31,537 vehicles per day north of Brighton-Henrietta Road in 2002. North of NY Route I-390, in 2002, NY Route 15 carried approximately 21,005 vehicles per day; and north of NY Route 15A, in 2001, NY Route 15 carried approximately 23,701 vehicles per day.

**NY Route 15A (East Henrietta Road):**
NY Route 15A traverses north-south and is considered a minor arterial. As documented by the New York State Department of Transportation, NY Route 15A carried approximately 26,125 vehicles per day north of Brighton-Henrietta Road in 2001. South of Westfall Road, in 2003, NY Route 15A carried approximately 31,748 vehicles per day; and south of NY Route 15, in 2001, NY Route 15A carried approximately 11,633 vehicles per day.

**INTERSECTIONS**

**NY Route 15 (West Henrietta Road) @ Brighton-Henrietta Road:**
The intersection is controlled by an actuated coordinated signal and consists of two travel lanes and exclusive left turn lanes at each approach. The posted speed limit is 40 mph on NY Route 15 and 35 mph on Brighton-Henrietta Road.

**NY Route 15 (West Henrietta Road) @ Crittenden Road:**
The intersection is controlled by an actuated coordinated signal and consists of two travel lanes in each direction. Exclusive left turn lanes exist on the northbound and southbound approaches. The posted speed limit is 40 mph on NY Route 15 and 35 mph on Crittenden Road.

**NY Route 15 (West Henrietta Road) @ Doncaster Road/Sunnyside Road:**
The intersection is controlled by an actuated coordinated signal and consists of two travel lanes in the northbound and southbound directions. There is one travel lane in the eastbound and westbound directions. The posted speed limit is 40 mph on NY Route 15, 30 mph on Doncaster Road, and 25 mph on Sunnyside Road.

**NY Route 15 (West Henrietta Road) @ Southland Drive:**
The intersection is controlled by an actuated coordinated signal and consists of two travel lanes in the northbound and southbound directions with exclusive left turn lanes. One
travel lane exists in the eastbound and westbound directions with an exclusive right turn arrow for the westbound approach. The posted speed limit is 40 mph on NY Route 15, 30 mph on Southland Drive.

**NY Route 15 (West Henrietta Road) @ East River Road:**
As documented by NYSDOT, East River Road carried approximately 18,439 vehicles per day west of NY Route 15 in 2000. The intersection is controlled by an actuated coordinated signal and consists of two travel lanes in each direction, exclusive left turn lanes at each approach, and an exclusive right turn lane on the eastbound approach. The posted speed limit is 40 mph on NY Route 15 and 35 mph on East River Road.

**NY Route 15 (West Henrietta Road) @ I-390 NB On-Ramp:**
The NY Route 15 on-ramp to I-390 NB (West Henrietta Road) is controlled by an actuated coordinated signal. Two travel lanes exist in the northbound and southbound directions. An exclusive left turn lane exists on the northbound approach and a shared through/right lane exists on the southbound approach.

**NY Route 15 (Mt. Hope Avenue) @ Westmoreland Road/Westfall Road:**
The intersection is controlled by an actuated coordinated signal and consists of two travel lanes northbound and southbound, exclusive left turn lanes at the westbound, northbound, and southbound approaches, and an exclusive right turn lane on the eastbound approach. The posted speed limit is 30 mph on NY Route 15, Westmoreland Road, and Westfall Road.

**NY Route 15 (Mt. Hope Avenue) @ Lattimore Road:**
As documented by NYSDOT, Lattimore Road carried approximately 2,875 vehicles per day west of NY Route 15 in 1999. The T-intersection is controlled by an actuated coordinated signal and consists of two travel lanes in the northbound and southbound directions. The posted speed limit is 30 mph on NY Route 15 and Lattimore Road.

**NY Route 15 (Mt. Hope Ave.) @ Crittenden Boulevard/NY Route 15A/Fort Hill Terrace:**
The five legged intersection consists of two travel lanes in each direction on NY Route 15, NY Route 15A, and Crittenden Boulevard. Fort Hill Terrace is a one-way street in the eastbound direction. There are exclusive left turn lanes at the NY Route 15 and Crittenden Boulevard approaches. The intersection is controlled by an actuated coordinated signal with a posted speed limit of 30 mph.

**NY Route 15 (Mt. Hope Avenue) @ Elmwood Avenue:**
As documented by NYSDOT, Elmwood Avenue carried approximately 22,076 vehicles per day west of NY Route 15 in 1999. The intersection is controlled by an actuated coordinated signal and consists of two travel lanes in each direction with exclusive left turn lanes at each approach. The posted speed limit is 30 mph.

**NY Route 15A (East Henrietta Road) @ Crittenden Road/MCC:**
The intersection is controlled by an actuated coordinated signal and consists of two travel lanes in each direction. Exclusive left turn lanes exist at the eastbound, northbound, and
southbound approaches. The posted speed limit is 40mph on NY Route 15A and 35mph on Crittenden Road.

**NY Route 15A (East Henrietta Road) @ I-390:**
At the I-390 exit 16 onto NY Route 15A (East Henrietta Road), there exist a northbound on/off ramp and a southbound on/off ramp. These two ramps are each controlled by an actuated coordinated signal that operates under one controller.

**NY Route 15A (East Henrietta Road) @ Westfall Road:**
The intersection is controlled by an actuated coordinated signal and consists of two travel lanes in each direction with exclusive left turn lanes at each approach. The posted speed limit is 30mph.

**NY Route 15A (East Henrietta Road) @ South Avenue:**
As documented by NYSDOT, South Avenue carried approximately 13,879 vehicles per day north of NY Route 15A in 2002. The T-intersection is controlled by an actuated coordinated signal and consists of two travel lanes in each direction with an exclusive right turn lane at the northbound approach. The posted speed limit is 30mph.

**East River Road @ Crittenden Road:**
As documented by NYSDOT, Crittenden Road carried approximately 1,465 vehicles per day east of East River Road in 2002. The unsignalized T-intersection consists of one travel lane in each direction with a posted speed limit of 40mph.

**East River Road @ Kendrick Road/Murlin Drive:**
As documented by NYSDOT, East River Road carried approximately 5,645 vehicles per day west of Kendrick Road in 2000. Kendrick Road carried approximately 8,172 vehicles per day north of East River Road in 2000. The intersection of East River Road/Kendrick Road is controlled by a semi-actuated uncoordinated signal. The roadway consists of two travel lanes in the eastbound and westbound directions with an exclusive left turn lane at the southbound approach. Murlin Drive currently is off set to the east using control by a stop sign on the northbound approach to the intersection. The posted speed limit is 30 mph.

**East River Road @ I-390 SB Off-Ramp:**
The I-390 exit 16A is an off-ramp onto East River Road. The T-intersection is controlled by a semi-actuated uncoordinated signal with southbound exclusive right and left turn lanes. Two travel lanes in each direction exist on East River Road.

**Kendrick Road @ Lattimore Road:**
The unsignalized intersection is off set with Lot 1 to the south of Lattimore Road. The intersection consists of one travel lane in each direction with exclusive left turn lanes at the westbound, northbound and southbound approaches. The posted speed limit is 30 mph.
**Kendrick Road @ Crittenden Boulevard:**
As documented by NYSDOT, Crittenden Boulevard carried approximately 8,914 vehicles per day east of Lattimore Road in 1999. The intersection is controlled by an actuated coordinated signal and consists of two travel lanes at the eastbound and westbound approaches. There are exclusive left turn lanes on the northbound and southbound approaches to the intersection. The posted speed limit is 30 mph.

**Elmwood Avenue @ Kendrick Road:**
As documented by NYSDOT, Elmwood Avenue carried approximately 27,971 vehicles per day west of Lattimore Road in 1999. Kendrick Road carried approximately 8,172 vehicles per day south of Elmwood Avenue in 2000. The T-intersection is controlled by an actuated coordinated signal and consists of two travel lanes in each direction with an exclusive left turn lane at the westbound approach. The posted speed limit is 30 mph.

### IV. EXISTING TRAFFIC VOLUMES

Traffic volumes and turning movement counts were obtained from the July 2001 Southern Corridor Study. These counts were recorded between April 21st and May 9th, 1997 by The Sear-Brown Group during the weekday hours of 7:00AM-9:00AM and 4:00PM-6:00PM. The peak hours occurred from 7:30 AM - 8:30 AM and 4:30 PM - 5:30 PM.

The 2003 existing traffic volumes were obtained by applying a 1.5 percent growth rate per year to the 1997 traffic volumes to account for normal growth throughout the development area. This growth factor was developed from the growth rates used in the Southern Corridor Mobility Study and was based on future land use projections. The existing traffic volumes for the weekday morning and weekday evening peak hours are provided in Figures 2 and 3, respectively in Appendix ‘C’. The year 2003 was used as the base year for this analysis.

### V. BACKGROUND TRAFFIC VOLUMES

**Growth Rate**
To account for normal background growth within the development area a conservative 1.5 percent growth rate per year was applied to the existing traffic volumes for each year between 2003 and 2013. Between 2013 and 2023, volumes were projected using a 0.5 percent growth rate per year, as this rate is more realistic for that time period given the amount of developable land available in the study area.

**Future Developments**
An estimate of background traffic growth on the highway system for known developments was applied to the 2008 analysis year. Background traffic growth was assumed to include the anticipated traffic from the following approved or known developments, as identified by the City of Rochester and Monroe County officials:
• The University of Rochester Medical Center (URMC) has plans for two building expansions and a parking garage expansion. The building expansions include an Emergency Department addition of a 20,000 SF Pediatric Intensive Care Unit (PICU), 20,000 SF Adult Intensive Care Unit (AICU), and a 5,000 SF Ronald McDonald House. The Cancer Center will be adding a 12,100 SF ophthalmology department. The Parking Garage Expansion is proposed to consist of a net increase of 608 parking spaces.

• Expansion of Helenwood Hall, located off of Castleman Road. The expansion of 20,000 SF building area is proposed for 50/50 split of general office space and educational space.

• Expansion of the Iola Campus, located off of East Henrietta Road across from Monroe Community Hospital. The expansion is proposed to be approximately 292,115 SF of building area. Proposed land uses include RCC/Power Plant, Child Distension Center Iola Building #1 (CDC), Specialty Retail, High Tech/Research and Development, and Medical Office space.

• Expansion of The Rochester Science Park, located off of South Avenue. This 12,000 SF expansion is proposed for cancer patients, treatment, and research purposed.

The anticipated traffic to be generated by each of the above developments was projected using information published in the Institute of Transportation Engineers’ (ITE) Trip Generation, 6th Edition, Volume Two and information obtained for each expansion. Below, Table 1 shows the projected trip generation of each development for the weekday morning, and weekday evening peak hours.

| Table 1 |
| Trip Generation of Approved Developments |
| Peak Hour |

<table>
<thead>
<tr>
<th>Expansions</th>
<th>Weekday Morning Peak Hour</th>
<th>Weekday Evening Peak Hour</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Enter</td>
<td>Exit</td>
</tr>
<tr>
<td>URMC and Parking Garage</td>
<td>236</td>
<td>189</td>
</tr>
<tr>
<td>Helenwood Hall</td>
<td>58</td>
<td>12</td>
</tr>
<tr>
<td>Iola Campus</td>
<td>437</td>
<td>215</td>
</tr>
<tr>
<td>Science Park</td>
<td>17</td>
<td>4</td>
</tr>
<tr>
<td>Total</td>
<td>748</td>
<td>420</td>
</tr>
</tbody>
</table>

The trips generated by the proposed developments above were added to the existing 2003 traffic volumes to assess 2008 traffic conditions.
Future NYSDOT Improvements

NYSDOT has plans to improve portions of I-390, I-590, and the NY Route 15, and NY Route 15A interchanges, tentatively starting in 2004 and ending by 2013. The improvements are based on the recommended alternative #5 from the Southern Corridor Mobility Study Expanded Project Proposal, dated July 2001 and information provided by NYSDOT. Refer to Appendix ‘F’ for the Southern Corridor Study Expanded Project Proposal. The proposed improvements are listed below in chronological order.

2004 - 2005

- I-390 southbound off-ramp to Brighton-Henrietta Townline Road.
- Winton Road and I-590 interchange. *This improvement will have no impact in our area of study.*

2007

- Phase one construction of East Henrietta and West Henrietta interchanges, bridges, and I-590/I-390 split.

2009

- Phase two construction of East Henrietta and West Henrietta interchanges, bridges, and I-590/I-390 split. These improvements are planned for completion by 2013.

The above improvements are incorporated in the 2008, 2013, and 2023 Analysis With NYSDOT Improvements. The traffic volumes for each analysis year were redistributed on the resulting roadway network to account for likely changes in travel patterns as a result of the proposed improvements.

These analyses are compared to the build out scenarios without NYSDOT improvements, in order to obtain a better understanding of the traffic impacts attributable to the south campus developments and to assess the benefits the proposed NYSDOT improvements on the transportation network.

VI. SITE GENERATED TRIPS

The traffic generated by the proposed University of Rochester South Campus developments was estimated based upon information published in the Institute of Transportation Engineers’ (ITE) *Trip Generation, 6th Edition, Volume Two*. The land uses proposed for the South Campus are Research, Education, Administration, and Storage/Services. To best represent trips generated from Research development, Land Use Code 760 (L.U.C.), Research and Development Center was used. L.U.C. 550, University/College was used to represent the traffic generated from Educational development. Trips generated from Administration development was best represented by L.U.C. 715, Single Tenant Office Building, and L.U.C. 150 Warehousing was used to represent trips generated from Storage/Services.
Total site generated trips were estimated for the 20 year period for several build out scenarios of the South Campus property. These are shown in Table 2 below. Table 2 summarizes the total generated trips during the weekday morning peak hour and weekday evening peak hour for the 2023 Full-Build scenario. Table 3 shows the total generated trips for each specific build out scenario in the years 2008 and 2013.

Each build out scenario is a percentage of the 2023 Full-Build scenario. These build scenarios were developed to show the likely pattern of phased improvements over the course of the next 20 years. The split between land/building uses was developed by estimation the University’s projected needs for space. Refer to Appendix ‘B’ for the trip generation calculations.

### Table 2
Trip Generation 2023 Full Build Scenario
Peak Hour

<table>
<thead>
<tr>
<th>Land Uses</th>
<th>AM Peak Hour Enter</th>
<th>AM Peak Hour Exit</th>
<th>AM Peak Hour Total</th>
<th>PM Peak Hour Enter</th>
<th>PM Peak Hour Exit</th>
<th>PM Peak Hour Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Research: (956,200 SF)</td>
<td>814</td>
<td>167</td>
<td>981</td>
<td>131</td>
<td>740</td>
<td>871</td>
</tr>
<tr>
<td>Education: (337,700 SF)</td>
<td>794</td>
<td>199</td>
<td>993</td>
<td>325</td>
<td>758</td>
<td>1083</td>
</tr>
<tr>
<td>Administration: (281,600 SF)</td>
<td>431</td>
<td>53</td>
<td>484</td>
<td>69</td>
<td>110</td>
<td>179</td>
</tr>
<tr>
<td>Storage/Services: (295,450 SF)</td>
<td>144</td>
<td>32</td>
<td>176</td>
<td>40</td>
<td>127</td>
<td>167</td>
</tr>
<tr>
<td><strong>Total Trips: (1,870,950 SF)</strong></td>
<td><strong>2,184</strong></td>
<td><strong>450</strong></td>
<td><strong>2,633</strong></td>
<td><strong>565</strong></td>
<td><strong>1,735</strong></td>
<td><strong>2,300</strong></td>
</tr>
</tbody>
</table>

Of the 2,633 total trips to be generated by the University of Rochester’s South Campus developments during the weekday morning peak hour, 2,184 trips are anticipated to enter the site and 450 trips are anticipated to exit the site. During the weekday evening peak hour 2,300 total trips are to be generated, 565 trips are anticipated to enter the site and 1,735 trips are anticipated to exit the site.
Table 3
Trip Generation Build Out Scenarios
Peak Hour

<table>
<thead>
<tr>
<th>Scenarios</th>
<th>AM Peak Hour</th>
<th>PM Peak Hour</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Enter</td>
<td>Exit</td>
</tr>
<tr>
<td>2008</td>
<td></td>
<td></td>
</tr>
<tr>
<td>250,000 SF (13.4%)</td>
<td>293</td>
<td>60</td>
</tr>
<tr>
<td>500,000 SF (26.7%)</td>
<td>583</td>
<td>120</td>
</tr>
<tr>
<td>750,000 SF (40%)</td>
<td>874</td>
<td>180</td>
</tr>
<tr>
<td>1,000,000 SF (53.4%)</td>
<td>1,166</td>
<td>240</td>
</tr>
<tr>
<td>2013</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1,000,000 SF (53.4%)</td>
<td>1,166</td>
<td>240</td>
</tr>
<tr>
<td>1,250,000 SF (66.8%)</td>
<td>1,459</td>
<td>301</td>
</tr>
<tr>
<td>1,500,000 SF (80%)</td>
<td>1,747</td>
<td>360</td>
</tr>
<tr>
<td>1,750,000 SF (93.5%)</td>
<td>2,042</td>
<td>421</td>
</tr>
</tbody>
</table>

As there is no specific development associated with the rezoning action there will be no immediately noticeable impacts. However, the intensity of uses associated with an Institutional zoning designation are much greater than that of a residential zoning designation. The number of trips generated if the property were used for residential development would total 161 trips and 215 trips during the weekday morning and weekday evening peak hours, respectively. Accordingly there would be an increase in impacts to the adjacent street network, over those likely to be experienced if the property were used for residential development purposes.

VII. TRIP ASSIGNMENT AND DISTRIBUTION

The anticipated traffic to be generated for the proposed University of Rochester South Campus developments was distributed on the adjacent highway system through the use of the Genesee Transportation Council’s (GTC) Tmodel2 computer software program. The Tmodel2 software data is taken from the GTC’s year 2000 and 2025 travel demand models for the morning and evening peak hours (approximately 7:30 AM - 8:30 AM and 4:30 PM - 5:30 PM). The surrounding population centers, existing traffic patterns, and logical routing were also taken into consideration.

The trip distribution for the 2008, 2013, and 2023 build out scenarios without NYSDOT improvements originated from the 2025 Tmodel2 Full Build model. This distribution is shown during the weekday morning and weekday evening peak hours in Figure 24A and 25A, respectively. A 2008 and 2013 Tmodel2 traffic model, with NYSDOT improvements, was used to obtain the trip distribution for the scenarios with NYSDOT improvements in place; refer to Figures 14B and 15B. Figures 14A through 15B are
provided in Appendix ‘C’. Each scenario anticipated approximately 85 percent of the traffic generated to and from the proposed development would use the I-390 and I-590 expressway systems.

The site generated traffic volumes were then added to the background traffic volumes (growth rate plus known developments) to determine future traffic volumes **without NYSDOT improvements**. The future traffic volumes for each build out scenario analyzed in the years 2008, 2013, and 2023 are provided in Figure 4A through Figure 13A (refer to Appendix ‘C’).

The site generated traffic volumes were also added to the background traffic volumes (growth rate plus known developments and NYSDOT improvements) to determine future traffic volumes **with NYSDOT improvements** in place. The future traffic volumes for each build out scenario analyzed with NYSDOT improvements in the years 2008, 2013, and 2023 are provided in Figure 4B through Figure 13B (refer to Appendix ‘C’).

**VIII. LEVEL OF SERVICE EVALUATION**

The Level of Service (LOS) analysis methodology for analyzing signalized and unsignalized intersections is documented in the *Highway Capacity Manual* (Transportation Research Board, Washington, D.C., 2000). The computer software package SYNCHRO 5.0 was used to analyze each of the studied intersections and to provide an illustrative model of how the intersections work together.

Levels of Service range from A to F, with A describing traffic operations with little or no delay and F describing traffic operations with long delays. Levels of Service for signalized intersections are expressed in terms of stop delay per vehicle. Levels of Service for unsignalized intersections are expressed in terms of average total delay experienced per vehicle. Full definitions of Levels of Service for signalized and unsignalized intersections are included in Appendix ‘D’. The signalized and unsignalized Synchro (Level of Service) printouts are provided in Appendix ‘E’.

Table 4 (signalized intersections) and Table 5 (un-signalized intersections) present a summary of the weekday morning and evening peak hours signalized and unsignalized intersection capacity analysis results. Intersection capacity was analyzed for the following traffic condition scenarios:

- Existing Conditions,
- Future Conditions with NYSDOT Improvements only (no development),
- Future Conditions with Subject Development only (no NYSDOT improvements),
- Future Conditions with NYSDOT Improvements and subject development, and
- Future Conditions with NYSDOT Improvements and subject development with Mitigation Measures.
*All scenarios, except for the existing conditions, include Background Traffic volumes.*

For the **Existing Conditions**, as shown in Table 4 and Table 5, 21 of the 27 intersections analyzed are operating at an acceptable LOS (LOS ‘D’ or better). The remaining 6 intersections are operating with LOS ‘E’ or worse. These intersections are:

- West Henrietta Road @ I-390 Northbound Ramp
- West Henrietta Road @ East River Road
- East Henrietta Road @ I-390 Northbound Ramp
- East Henrietta Road @ I-390 Southbound Ramp
- East Henrietta Road @ Crittenden Road
- Kendrick Road @ Lattimore Road

For the **2008 Analysis Scenarios** the following is a list of the intersections operating with LOS ‘E’ or worse:

**2008 with NYSDOT Improvements Only**
- West Henrietta Road @ I-390 Northbound Ramp
- West Henrietta Road @ East River Road
- East Henrietta Road @ I-390 Northbound Ramp
- East Henrietta Road @ I-390 Southbound Ramp
- Mt. Hope Avenue @ Elmwood Avenue
- Kendrick Road @ Parking Lot #1
- Kendrick Road @ Lattimore Road

**2008 with Development Only (no NYSDOT improvements) 1,000,000 SF**
- East River Road @ Kendrick Road
- West Henrietta Road @ I-390 Northbound Ramp
- West Henrietta Road @ East River Road
- East Henrietta Road @ I-390 Northbound Ramp
- East Henrietta Road @ I-390 Southbound Ramp
- East Henrietta Road @ Crittenden Road
- Mt. Hope Avenue @ East Henrietta Road/Crittenden Boulevard
- Mt. Hope Avenue @ Elmwood Avenue
- East River Road @ Site Drive #2
- Kendrick Road @ Parking Lot #1
- Kendrick Road @ Lattimore Road

**2008 NYSDOT Improvements and Development 1,000,000 SF**
- East River Road @ Kendrick Road
- West Henrietta Road @ I-390 Northbound Ramp
- West Henrietta Road @ East River Road
- East Henrietta Road @ I-390 Northbound Ramp
• East Henrietta Road @ I-390 Southbound Ramp
• Mt. Hope Avenue @ East Henrietta Road/Crittenden Boulevard
• Mt. Hope Avenue @ Elmwood Avenue
• East River Road @ Site Drive #2
• Kendrick Road @ Parking Lot #1
• Kendrick Road @ Lattimore Road

2008 NYSDOT Improvements & Development w/ Mitigation Measures 1,000,000 SF
• West Henrietta Road @ I-390 Northbound Ramp
• West Henrietta Road @ East River Road
• East Henrietta Road @ I-390 Northbound Ramp
• East Henrietta Road @ I-390 Southbound Ramp
• Kendrick Road @ Parking Lot #1
• Kendrick Road @ Lattimore Road

For the 2013 Analysis Scenarios the following is a list of the intersections operating with LOS ‘E’ or worse:

2013 with NYSDOT Improvements Only
• Mt. Hope Avenue @ East Henrietta Road/Crittenden Boulevard
• Mt. Hope Avenue @ Elmwood Avenue
• West Henrietta Road @ Crittenden Boulevard
• Kendrick Road @ Parking Lot #1
• Kendrick Road @ Lattimore Road

2013 with Development Only, no NYSDOT improvements 2,000,000 SF
• East River Road @ Kendrick Road
• East River Road @ I-390 Southbound Ramp
• West Henrietta Road @ I-390 Northbound Ramp
• West Henrietta Road @ East River Road
• East Henrietta Road @ I-390 Northbound Ramp
• East Henrietta Road @ I-390 Southbound Ramp
• East Henrietta Road @ Crittenden Road
• East Henrietta Road @ Westfall Road
• Mt. Hope Avenue @ East Henrietta Road/Crittenden Boulevard
• Mt. Hope Avenue @ Elmwood Avenue
• West Henrietta Road @ Crittenden Road
• West Henrietta Road @ BHTL Road
• East River Road @ Site Drive #2
• Kendrick Road @ Parking Lot #1
• Kendrick Road @ Lattimore Road

2013 with NYSDOT Improvements and Development 2,000,000 SF
• East River Road @ Kendrick Road
• East River Road @ I-390 Southbound Ramp
• West Henrietta Road @ East River Road
• East Henrietta Road @ Westfall Road
• Mt. Hope Avenue @ East Henrietta Road/Crittenden Boulevard
• Mt. Hope Avenue @ Elmwood Avenue
• West Henrietta Road @ Crittenden Road
• West Henrietta Road @ BHTL Road
• East River Road @ Site Drive #2
• Kendrick Road @ Parking Lot #1
• Kendrick Road @ Lattimore Road

2013 NYSDOT Improvements and Development w/Mitigation Measures 2,000,000 SF
• Kendrick Road @ Parking Lot #1
• Kendrick Road @ Lattimore Road

For the 2023 Analysis Scenarios the following is a list of the intersections operating with LOS ‘E’ or worse:

2023 with NYSDOT Improvements Only
• East Henrietta Road @ Westfall Road
• East Henrietta Road @ South Avenue
• Mt. Hope Avenue @ East Henrietta Road/Crittenden Boulevard
• Mt. Hope Avenue @ Elmwood Avenue
• Mt. Hope Avenue @ Westfall Road/Westmoreland Drive
• West Henrietta Road @ Crittenden Road
• West Henrietta Road @ BHTL Road
• East River Road @ Murlin Drive
• Kendrick Road @ Parking Lot #1
• Kendrick Road @ Lattimore Road

2023 with Development Only, no NYSDOT improvements 2,000,000 SF
• East River Road @ Kendrick Road
• East River Road @ I-390 Southbound Ramp
• West Henrietta Road @ I-390 Northbound Ramp
• West Henrietta Road @ East River Road
• East Henrietta Road @ I-390 Northbound Ramp
• East Henrietta Road @ I-390 Southbound Ramp
• East Henrietta Road @ Crittenden Road
• East Henrietta Road @ Westfall Road
• Mt. Hope Avenue @ East Henrietta Road/Crittenden Boulevard
• Mt. Hope Avenue @ Elmwood Avenue
• Mt. Hope Avenue @ Westfall Road/Westmoreland Drive
• West Henrietta Road @ Crittenden Road
• West Henrietta Road @ BHTL Road
- Kendrick Road @ Elmwood Avenue
- East River Road @ Site Drive #2
- East River Road @ Crittenden Road
- Kendrick Road @ Parking Lot #1
- Kendrick Road @ Lattimore Road

2023 with NYSDOT Improvements and Development 2,000,000 SF
- East River Road @ Kendrick Road
- East River Road @ I-390 Southbound ramp
- West Henrietta Road @ East River Road
- Mt. Hope Avenue @ East Henrietta Road/Crittenden Boulevard
- Mt. Hope Avenue @ Elmwood Avenue
- Mt. Hope Avenue @ Westfall Road/Westmoreland Drive
- West Henrietta Road @ Crittenden Road
- West Henrietta Road @ BHTL Road
- East River Road @ Site Drive #2
- Kendrick Road @ Parking Lot #1
- Kendrick Road @ Lattimore Road

2023 NYSDOT Improvements and Development w/ Mitigation Measures 2,000,000 SF
- Kendrick Road @ Parking Lot #1
- Kendrick Road @ Lattimore Road

For a more detailed look at the LOS analysis see Table 4 and Table 5. For a more detailed look at the 2023 LOS analysis by intersection movement see Table 6. For an overall summary of impacts for each scenario see Table 7 and Table 8, which indicates intersections operating at an acceptable LOS. The LOS Tables 4 through 8 are provided in Appendix ‘E’.

IX. FUTURE TRAFFIC VOLUME COMPARISON TO “Southern Corridor Study”

The future (2020) traffic volumes in the July 2001 “Southern Corridor Study” were project through the use of the Genesee Transportation Council’s (GTC) 2015 Tmodel2 computer software. Their future volumes did not include the 250,000 SF to 2,000,000 SF build out of the University of Rochester’s South Campus. Furthermore, the study did not include specific trip generation and distribution of the various known background developments (University of Rochester Medical Center, Helenwood Hall, Iola Campus, and the Rochester Science Park). As a result, the majority of the University of Rochester South Campus IPD Rezoning TIS future (2023) full-build traffic volumes are higher.

The LOS projections from the “Southern Corridor Study” 2020 no-build conditions concluded unacceptable LOS at the same intersections concluded for the subject development study for the year 2023. However, the University of Rochester full-build 2023 conditions with out NYSDOT improvements resulted with additional intersection
projecting to operate at unacceptable LOS, as discussed in section IX above. The following is a list of intersections anticipated to operate at unacceptable LOS during future conditions as concluded in the “Southern Corridor Study”:

- 3 - West Henrietta Rd (NY 15) at I-390 NB ramp
- 4 - West Henrietta Rd (NY 15) at East River Rd/I-390 SB ramp
- 5 - East Henrietta Rd (NY 15A) at I-390 NB ramp
- 6 - East Henrietta Rd (NY 15A) at I-390 SB ramp
- 7 - East Henrietta Rd (NY 15A) at Crittenden Rd
- 14 - West Henrietta Rd (NY 15) at Southland Dr

The additional mitigation measures proposed as a result of the various background developments and the subject build out scenarios with the NYSDOT improvements in place are described in detail in section IV.

X. VEHICLE QUEUE ANALYSIS

Vehicle queue lengths during the future 2023 full build scenario (2,000,000 SF) were investigated to ensure available storage at the intersections with the interstate highway ramps. The maximum 95th percentile queue lengths are shown below in Table 4 as reported from the computer software package SYNCHRO 5.0 intersection capacity analysis.

<table>
<thead>
<tr>
<th>Intersection</th>
<th>Maximum Peak Hour Length (ft)</th>
<th>Available Storage Length (ft)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 - East River Rd @ Kendrick Road/Murlin Dr</td>
<td>WBL 470</td>
<td>763</td>
</tr>
<tr>
<td>2 - East River Rd @ I-390 SB Ramp</td>
<td>SBL 775</td>
<td>400</td>
</tr>
<tr>
<td>4 - West Henrietta Rd @ East River Rd</td>
<td>WBT 611</td>
<td>1,721</td>
</tr>
<tr>
<td></td>
<td>SBT 487</td>
<td>370</td>
</tr>
<tr>
<td>5 - East Henrietta Rd @ I-390 NB Ramp</td>
<td>NBT 547</td>
<td>534</td>
</tr>
<tr>
<td>6 - East Henrietta Rd @ I-390 SB Ramp</td>
<td>SBT 755</td>
<td>534</td>
</tr>
<tr>
<td>7 - East Henrietta Rd @ Crittenden Rd/MCC</td>
<td>SBT 499</td>
<td>579</td>
</tr>
<tr>
<td>13 - Mt. Hope Ave @ Westfall Rd/Westmoreland Dr</td>
<td>NBT 632</td>
<td>894</td>
</tr>
<tr>
<td>14 - West Henrietta Rd @ Southland Dr</td>
<td>SBT 374</td>
<td>528</td>
</tr>
</tbody>
</table>

Note: Queue lengths in **bold** exceeds available capacity during future 2023 full build conditions.

Four of the eight studied intersections at or near the I-390 ramps are projected to have vehicle queues that exceed the available storage length or in some cases potentially queue into the interstate highway. Queue lengths may be able to be reduced by signal timing
adjustments and signal coordination. More detailed mitigation measures should be addressed in future traffic studies, as background and proposed NYSDOT improvements maybe in operation and there will be a better understanding of the actual traffic operations at that time.

XI. ACCIDENT ANALYSIS

Accident rate history was obtained from MCDOT for the most recent three years (1999 – 2001). According to the NYSDOT, the most recent accident rate history is included in the Southern Corridor Study from 1993 to 1995. The following intersection and roadway segments currently exceed the County average and NYSDOT average accident rates:

MCDOT
- Mt.Hope Ave/East Henrietta Rd/Crittenden Blvd/Ft. Hill intersection
- Mt. Hope Ave/Elmwood Ave intersection
- Mt. Hope Ave (Westfall/Westmoreland Rd to Elmwood Ave)
- East Henrietta Rd (Westfall Rd to Mt. Hope/Crittenden/Ft. Hill)

NYSDOT
- West Henrietta Rd (NY 15) (East River Rd to the Rochester City Line, 0.2 mile)
- East Henrietta Rd (NY 15A) (I-390 SB ramp to the I-390 NB ramps, 0.2 mile)
- I-390 (NY 15A on/off ramps to NY 15 overpass, 0.6 miles)

The following Table 5, shows the available accident data within the study area.

<table>
<thead>
<tr>
<th>Table 5</th>
<th>Accident Rate History</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Calculated Rate (ACC/MEV)</td>
</tr>
<tr>
<td>MCDOT Intersections</td>
<td></td>
</tr>
<tr>
<td>8 - East Henrietta Rd @ Westfall Rd</td>
<td>0.79</td>
</tr>
<tr>
<td>9 - East Henrietta Rd @ South Ave</td>
<td>0.56</td>
</tr>
<tr>
<td>10 - Mt. Hope Ave @ Crittenden Blvd/East Henrietta Rd</td>
<td>4.68</td>
</tr>
<tr>
<td>11 - Mt. Hope Ave @ Elmwood Ave</td>
<td>1.68</td>
</tr>
<tr>
<td>12 - Mt. Hope Ave @ Lattimore Rd</td>
<td>0.63</td>
</tr>
<tr>
<td>13 - Mt. Hope Ave @ Westfall Rd/Westmoreland Dr</td>
<td>0.85</td>
</tr>
<tr>
<td>MCDOT Midblocks</td>
<td></td>
</tr>
<tr>
<td>West Henrietta (I-390 to Westfall/Westmoreland Dr)</td>
<td>2.0</td>
</tr>
<tr>
<td>West Henrietta (Brighton Pk to Lattimore Rd)</td>
<td>3.70</td>
</tr>
<tr>
<td>West Henrietta/East Henrietta to Crittenden Blvd</td>
<td>80.0</td>
</tr>
<tr>
<td>West Henrietta (Crittenden Blvd to Elmwood Ave)</td>
<td>14.8</td>
</tr>
<tr>
<td>East Henrietta (Westfall Rd to South Ave)</td>
<td>5.6</td>
</tr>
<tr>
<td>East Henrietta (Rosemount to Mt. Hope Ave)</td>
<td>7.0</td>
</tr>
</tbody>
</table>
XII. CONCLUSIONS AND RECOMMENDATIONS

Upon review of the LOS analysis for each build out scenario, Mitigation Measures were examined for those intersections operating at a LOS ‘E’ or worse. Mitigation Measures varied from minor improvements such as optimization of traffic signals to major roadway improvements in order to accomplish an acceptable LOS at each intersection during the weekday morning and weekday evening peak hours.

The Mitigation Measures identified are those minimum efforts that would be required to ensure each intersection operates at a LOS ‘D’ or better. At a handful of intersections the capacity analyses results indicate quite significant improvements would be required in order to meet the desired LOS. However, it should be noted that this analysis and resulting mitigation measures are based on a series of assumptions (sizes and number of projects and developments, NYSDOT and MCDOT improvements, and the GTC regional traffic demand model) all of which may not accurately reflect traffic operations in the outer years (2013 and 2023) of this study. The identified Mitigation Measures have been provided to serve as an indicator of the magnitude of the improvements and investment required to meet the desired operational levels of the street/highway network. It is recommended that additional traffic impact studies be conducted in the future as the area evolves to verify the accuracy of the assumptions and traffic conditions used in this study are still accurate.

Table 6 below, summarizes the impacts to the adjacent street network as a result of the different development envelopes that could take place over the next 20 years.
### Table 6
### Traffic Analysis Summary

<table>
<thead>
<tr>
<th>YEAR</th>
<th>SIZE (SF)</th>
<th># OF TRIPS</th>
<th>ISSUES</th>
<th>IMPROVEMENTS NEEDED AT STUDIED INTERSECTIONS *</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>AM Peak</td>
<td>PM Peak</td>
<td>Geometry</td>
</tr>
<tr>
<td>2008</td>
<td>250 K</td>
<td>353</td>
<td>308</td>
<td>- Realignment of Murlin Drive</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>- E. Henrietta Rd and I-390 interchange fails during pk hrs</td>
</tr>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2008</td>
<td>1 M</td>
<td>1,406</td>
<td>1,227</td>
<td>- Adjust timings to the I-390 interchanges</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>- Signalize Site Drive #2</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2013</td>
<td>1 M</td>
<td>1,406</td>
<td>1,227</td>
<td>- Failing LOS at the W. Henrietta Rd and I-390 interchange w/o NYSDOT improvements</td>
</tr>
<tr>
<td></td>
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<td></td>
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</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2013</td>
<td>2 M</td>
<td>2,633</td>
<td>2,300</td>
<td>- E. River Rd site drive requires NB and WB auxiliary lanes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>- I-390 On/off ramp at Kendrick Rd</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2023</td>
<td>2 M</td>
<td>2,633</td>
<td>2,300</td>
<td>- Additional access on/off I-390 at Kendrick Rd may be required</td>
</tr>
</tbody>
</table>

*Note: Analysis includes mitigation measures proposed from the previous year for each scenario. Key: Major Improvements - 3 or 4 auxiliary lanes required at intersection and poor LOS may still be experienced.

Moderate Improvements - 2 auxiliary lanes required at intersection.

Minor Improvements - 1 auxiliary lane required at intersection and/or signal timing adjustments.

*Studied Intersection numbers:
1. E. River Rd @ Kendrick Rd/Murlin Drive
2. E. River Rd @ I-390 SB Ramp
3. W. Henrietta Rd @ I-390 NB Ramp
4. W. Henrietta Rd @ E. River Rd
5. E. Henrietta Rd @ I-390 NB Ramp
6. E. Henrietta Rd @ I-390 SB Ramp
7. E. Henrietta Rd @ Crittenden Rd/MCC
8. E. Henrietta Rd @ Westfall Rd
9. E. Henrietta Rd @ South Ave
10. Mt. Hope @ E. Henrietta Rd/Crittenden BLVD
11. Mt. Hope Ave @ Elmwood Ave
12. Mt. Hope @ Lattimore Rd
13. W. Henrietta Rd @ Westfall Rd
14. W. Henrietta Rd @ Southland Dr
15. W. Henrietta Rd @ Doncaster Rd
16. W. Henrietta Rd @ Crittenden Rd
17. W. Henrietta Rd @ BHTLR
18. Kendrick Rd @ Crittenden BLVD
19. Kendrick Rd @ Elmwood Ave
20. E. River Rd @ Site Drive #2
As shown in Table 4 above, the following Mitigation Measures have been identified specifically for each build out scenario and intersection studied.

**2008 Analysis - Identified Mitigation Measures**

**250,000 SF:**
1 - East River Road @ Kendrick Road/Murlin Drive:
   - Re-align Murlin Drive to create a four-way intersection,
   - Increase the traffic signal cycle length to 100 seconds (from 90); and retain as uncoordinated,
   - Addition of an eastbound left-turn lane and a westbound left-turn lane.
7 - East Henrietta Road @ Crittenden Road/MCC:
   - Northbound permitted/protected left-turn phase.
10 - Mt. Hope Avenue @ East Henrietta Road/Crittenden Boulevard:
   - Dual northwest bound right-turn lanes (toward Mt. Hope) on East Henrietta Road.
11 - Mt. Hope Avenue @ Elmwood Avenue:
   - Addition of eastbound and southbound exclusive right-turn lanes.
13 - West Henrietta Road @ Westfall Road / Westmoreland Road:
   - Northbound and Southbound permitted left-turns (protected phase exists)(PM EBR & WBL LOS ‘E’)
16 - West Henrietta Road @ Crittenden Road:
   - Restripe westbound approach to include an exclusive left-turn and a shared through/right lane.

Optimization of the traffic signal timings was the only mitigation measure identified that would be required at the following intersections:
- 3 - West Henrietta Road @ I-390 Northbound Ramp
- 4 - West Henrietta Road @ East River Road
- 5 - East Henrietta Road @ I-390 Northbound Ramp
- 6 - East Henrietta Road @ I-390 Southbound Ramp
- 8 - East Henrietta Road @ Westfall Road (PM WBL & NBL LOS ‘E’), SBL LOS ‘F’
- 12 - Mt. Hope @ Latimore Road
- 19 - Kendrick Road @ Elmwood Avenue

**Note:** All the mitigation measures listed above for the 250,000 sf scenario are a result of existing operating conditions, with the exception of intersection #1 - East River Road @ Kendrick Road/Murlin Drive. The subject development additional traffic requires mitigation measures at the site drive.

**1,000,000 SF:**
Identified mitigation measures for the 1,000,000 SF build out scenario assumes all of the mitigation measures identified in the 250,000 SF build out scenario will have already
been implemented. The following are the additional Mitigation Measures identified to address the incremental increase in development.

1 - East River Road @ Kendrick Road/Murlin Drive:
   • Additional northbound right-turn lane (shared LT/Thru, dual rights)

20 - East River Road @ Site Drive #2:
   • Installation of a traffic signal
   • Addition of a westbound exclusive left-turn lane, protected and permitted left-turn phases

Optimization of the traffic signal timings was the only mitigation measure identified that would be required at the following intersections; based on increased volumes from 1,000,000 SF of development:
   • 2 - East River Road @ I-390 SB Ramp
   • 3 - West Henrietta Road @ I-390 Northbound Ramp
   • 4 - West Henrietta Road @ East River Road
   • 5 - East Henrietta Road @ I-390 Northbound Ramp
   • 6 - East Henrietta Road @ I-390 Southbound Ramp
   • 7 - East Henrietta Road @ Crittenden Road/MCC
   • 10 - Mt. Hope Avenue @ East Henrietta Road/Crittenden Boulevard
   • 11 - Mt. Hope Avenue @ Elmwood Avenue
   • 14 - West Henrietta Road @ Southland Dr.
   • 17 - West Henrietta Road @ Brighton Henrietta Town Line Road
   • 20 - Kendrick Road @ Elmwood Avenue

**2013 Analysis Identified Mitigation Measures**

Identified mitigation measures for the 2013 1,000,000 SF build out scenario assumes all of the mitigation measures identified in the 2008 1,000,000 SF build out scenario will have already been implemented. The following are the additional Mitigation Measures identified.

**1,000,000 SF:**

1 - East River Road @ Kendrick Road/Murlin Drive:
   • Addition of a southbound left-turn lane. The southbound lane configuration will consist of dual left-turn lanes and a shared through/right lane.
   • Addition of an exclusive westbound right-turn lane.

2 - East River Road @ I-390 SB Ramps:
   • Addition of a eastbound dual left-turn lanes with a two lane I-390 SB on ramp.

8 - East Henrietta Road @ Westfall Road:
   • Addition of an exclusive southbound right-turn lane on East Henrietta Road.

11 - Mt. Hope Avenue @ Elmwood Avenue:
   • Addition of a Northbound exclusive right-turn lane.
Note: The MCDOT has indicated they will be studying the section of East Henrietta Road between Crittenden Boulevard and I-390; therefore these mitigation measures may or may not be applicable after the completion of that roadway improvement work.

13 - Mt. Hope Avenue @ Westfall Road/Westmoreland Drive:
   • Modify existing signal during the weekday evening peak hour to a 110 second cycle length (existing cycle length is 100 seconds).
16 - West Henrietta Road @ Crittenden Road:
   • Addition of right-turn lanes at the northbound, southbound, and westbound approaches
   • The westbound left-turns allowed protected and permitted phases
17 - West Henrietta Road @ Brighton Henrietta Town Line Road
   • Addition of a southbound exclusive right-turn lane

Optimization of the traffic signal timings was the only mitigation measure identified that would be required at the following intersections; based on increased volumes from 1,000,000 SF of development:
   • 4 - East River Road @ West Henrietta Road
   • 9 - East Henrietta Road @ South Avenue
   • 10 - Mt. Hope Avenue @ East Henrietta Road/Crittenden Boulevard
   • 19 - Kendrick Road @ Elmwood Avenue

2,000,000 SF:
Identified mitigation measures for the 2,000,000 SF build out scenario assumes all of the mitigation measures identified in the 1,000,000 SF build out scenario will be implemented with the exception of the I-390 southbound on ramp from East River Road. The mitigation measures in this scenario include the construction of an I-390 on/off ramp to Kendrick Road as shown in the lane configuration Figure 20. The following are the additional mitigation measures identified to address the incremental increase in development.

1 - East River Road @ Kendrick Road/Murlin Drive:
   • Dual westbound left-turn lanes
   • Westbound slip right-turn lane
   • Dual northbound right-turn lanes
   • Additional southbound through lane
2 - East River Road @ I-390 SB Ramp:
   • Three westbound travel lanes
4 - East River Road @ West Henrietta Road:
   • Additioanal westbound through lane and right-turn lane (one left, triple through lanes, one right lane)
10 - Mt. Hope @ East Henrietta Road/Crittenden Boulevard:
   • Installation of southbound dual left-turn lanes
20 - East River Road @ Site Drive #2:
• Addition of an westbound travel lane (three WB lanes) as a result of mitigation at intersection #2, East River Road at I-390 SB Ramp
• Dual westbound left-turn lanes

Optimization of the traffic signal timings was the only mitigation measure identified that would be required at the following intersections; based on increased volumes from 2,000,000 SF of development:
• 8 - East Henrietta Road @ Westfall Road
• 11 - Mt. Hope Avenue @ Elmwood Avenue
• 16 - West Henrietta Road @ Crittenden Road

2023 Analysis Identified Mitigation Measures
Identified mitigation measures for the 2023 2,000,000 SF build out scenario assumes all of the mitigation measures identified in the 2013 2,000,000 SF build out scenario will have already been implemented including the construction of an I-390 on/off ramp to Kendrick Road as shown in the lane configuration Figure 21. The following are the additional Mitigation Measures identified.

2,000,000 SF:
2 - East River Road @ I-390 SB Ramp:
• Southbound additional right-turn lane (dual left and dual right lanes)
4 - East River Road @ West Henrietta Road:
• Dual northbound left-turn lanes
8 - East Henrietta Road @ Westfall Road:
• Addition of a northbound right-turn lane
11 - Mt. Hope Avenue @ Elmwood Avenue:
• Addition of an eastbound through lane (one left, triple through lanes, one right lane)
13 - Mt. Hope Avenue @ Westfall Road/Westmoreland Drive:
• Installation of westbound dual left-turn lanes
17 - West Henrietta Road @ Brighton Henrietta Town Line Road:
• Addition of a northbound exclusive right-turn lane

Optimization of the traffic signal timings was the only mitigation measure identified that would be required at the following intersections; based on increased volumes from 2,000,000 SF of development:
• 4 - East River Road @ West Henrietta Road
• 10 - Mt. Hope @ East Henrietta Road/Crittenden Boulevard
• 16 - West Henrietta Road @ Crittenden Road
• 19 - Kendrick Road @ Elmwood Avenue

It should be noted that for each scenario, the intersections with mitigation have optimized signal timings.
An analysis was conducted to determine the maximum square foot build out allowed before major mitigation measures are required directly attributable to the South Campus development. The results showed the study area has the capacity to handle traffic generated by approximately 250,000 sf of the development at this time and 500,000 sf of development in 3-4 years, after the 1st of several NYSDOT improvements are in place. However, the four studied I-390 interchange intersections currently and are anticipated to operate with failing LOS during either the morning and/or evening peak hour. Approximately 85 percent of the traffic generated will and from the proposed development is anticipated to use the I-390 and I-590 expressway systems. As a result the local roadways will have insignificant delays associated with the 250,000 sf and the 500,000 sf of development.

In some instances the additional traffic generated may increase vehicle delays at the four studied I-390 interchange intersections without the proposed NYSDOT improvements in place. Below, is a summary of the I-390 interchange intersections that may experience minor increases in vehicle delay as a result of the 250,000 sf and 500,000 sf of development:

**250,000 sf Buildout**

4 - West Henrietta Road @ East River Road:
- Existing PM failing LOS and development will increase intersection delay by 8 seconds.

**500,000 sf Buildout**

4 - West Henrietta Road @ East River Road:
- Existing PM failing LOS and development will increase delay by 12 seconds.

5 - East Henrietta Road @ I-390 Northbound Ramp:
- Existing AM failing LOS and development will increase delay by 13 seconds.

6 - East Henrietta Road @ I-390 Southbound Ramp:
- Existing PM failing LOS and development will increase delay by 45 seconds.

Below, is a summary of the proposed minor improvements necessary as a result of 500,000 sf of development:

1 - East River Road @ Kendrick Road/Murlin Drive:
- Re-align Murlin Drive to create a four-way intersection,
- Increase the traffic signal cycle length to 100 seconds (from 90); and retain as uncoordinated,
- Restripe the eastbound approach to include an exclusive left-turn lane and a shared through/right lane,
- Addition of an exclusive westbound left-turn lane and restripe the two through lanes as one through lane and an exclusive right turn lane,
- The northbound approach exiting Murlin Drive should include a shared left/through lane and an exclusive right-turn lane,
• Addition of a southbound lane to include dual left-turn lanes and a shared through/right lane.

The proposed lane configuration as describe above is such to accommodate the existing high traffic volumes (associated with the University of Rochester Medical Campus) turning right onto Kendrick Road and turning left off of Kendrick Road during the peak hours.

10 - Mt. Hope @ East Henrietta Road/Crittenden Boulevard:

• Existing AM LOS ‘D’ is anticipated to increase in delay to LOS ‘E’,
• Optimization of signal timings may slightly improve LOS.

Due to the different types of land use anticipated as part of the future south campus development, 250,000 sf of primarily research buildings will generate less traffic than 250,000 sf of primarily office buildings, which was the trip generation code used in the analysis. Therefore, it is feasible that up to 500,000 sf of primarily Research Building development could be built with minor mitigation measures, as described above, to intersections currently operating at acceptable LOS. Refer to Appendix ‘E’ for the LOS analysis. As each proposed project in the south campus becomes a reality over the next 20-25 years, the associated traffic volumes, Levels of Service and potential impacts will be re-analyzed against the transportation system at that time. Associated mitigation measures, as necessary, will be identified.
REFERENCES


Appendix B
Trip Generation Calculations
TRIP GENERATION CALCULATIONS

2,000,000 SF FULL-BUILD SCENARIO:

Land Uses:  Research  =  956,200  SF  
             Education  =  337,700  SF  
             Administration  =  281,600  SF  
             Storage/Services  =  295,450  SF  
             Total  =  1,870,950  SF

RESEARCH (L.U.C. 760 Research and Development Center)

<table>
<thead>
<tr>
<th>AM PEAK HOUR</th>
<th>PM PEAK HOUR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ln(T) = 0.875 Ln(x) + 0.883</td>
<td>Ln(T) = 0.832 Ln(x) + 1.060</td>
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<tr>
<td>x = 956.2</td>
<td>x = 956.2</td>
</tr>
<tr>
<td>Trips = 981</td>
<td>Trips = 871</td>
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<tr>
<td>83% Entering (814), 17% Exiting (167)</td>
<td>15% Entering (131), 85% Exiting (740)</td>
</tr>
</tbody>
</table>

EDUCATION (L.U.C. 550 University/College)

<table>
<thead>
<tr>
<th>AM PEAK HOUR</th>
<th>PM PEAK HOUR</th>
</tr>
</thead>
<tbody>
<tr>
<td>T = 0.214 (x) - 69.144</td>
<td>T = 0.193 (x) + 125.350</td>
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<tr>
<td>x = 4,963</td>
<td>x = 4,963</td>
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<tr>
<td>Trips = 993</td>
<td>Trips = 1,083</td>
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<tr>
<td>80% Entering (794), 20% Exiting (199)</td>
<td>30% Entering (325), 70% Exiting (758)</td>
</tr>
</tbody>
</table>

ADMINISTRATION (L.U.C. 715 Single Tenant Office Building)

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<tr>
<th>AM PEAK HOUR</th>
<th>PM PEAK HOUR</th>
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</thead>
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<tr>
<td>T = 1.630 (x) + 24.623</td>
<td>T = 1.497 (x) + 36.174</td>
</tr>
<tr>
<td>x = 281.600</td>
<td>x = 281.600</td>
</tr>
<tr>
<td>Trips = 484</td>
<td>Trips = 458</td>
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<tr>
<td>89% Entering (431), 11% Exiting (53)</td>
<td>15% Entering (69), 85% Exiting (110)</td>
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</table>

STORAGE/SERVICES (L.U.C. 150 Warehousing)

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<th>AM PEAK HOUR</th>
<th>PM PEAK HOUR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ln(T) = 0.707 Ln(x) + 1.148</td>
<td>Ln(T) = 0.754 Ln(x) + 0.826</td>
</tr>
<tr>
<td>x = 295.450</td>
<td>x = 295.450</td>
</tr>
<tr>
<td>Trips = 176</td>
<td>Trips = 167</td>
</tr>
<tr>
<td>82% Entering (144), 18% Exiting (32)</td>
<td>24% Entering (40), 76% Exiting (127)</td>
</tr>
</tbody>
</table>

SUMMARY:

<table>
<thead>
<tr>
<th>Land Uses</th>
<th>SF</th>
<th>AM PEAK HOUR</th>
<th>PM PEAK HOUR</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Enter  Exit  Total</td>
<td>Enter  Exit  Total</td>
</tr>
<tr>
<td>Research</td>
<td>128,131</td>
<td>814  167  981</td>
<td>131  740  871</td>
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<tr>
<td>Education</td>
<td>45,252</td>
<td>794  199  993</td>
<td>325  758 1083</td>
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<tr>
<td>Administration</td>
<td>37,734</td>
<td>431  53  484</td>
<td>69  110  179</td>
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<tr>
<td>Storage/Services</td>
<td>39,590</td>
<td>144  32  176</td>
<td>40  127  167</td>
</tr>
<tr>
<td>Total</td>
<td>250,707</td>
<td>2,183  450  2,633</td>
<td>565  1,735  2,300</td>
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</table>
## TRIP GENERATION CALCULATIONS

### 2013 BUILDOUT SCENARIOS

#### 1,000,000 SF SCENARIO (53.4%):

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<th>Land Uses</th>
<th>SF</th>
<th>AM Peak Hour Trips</th>
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<th>PM Peak Hour Trips</th>
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<tbody>
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<td></td>
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<td>Enter</td>
<td>Exit</td>
<td>Total</td>
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<tr>
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<tr>
<td>Education</td>
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<td>Administration</td>
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<td>Storage/Services</td>
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<td>1,166</td>
<td>240</td>
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#### 1,250,000 SF SCENARIO (66.8%):

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<th>PM Peak Hour Trips</th>
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<td>Total</td>
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<tr>
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<td>638,742</td>
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<td>Education</td>
<td>225,584</td>
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<td>Storage/Services</td>
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#### 1,500,000 SF SCENARIO (80%):

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<td>Total</td>
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</tr>
<tr>
<td>Research</td>
<td>764,960</td>
<td>651</td>
<td>133</td>
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<td>159</td>
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<td>225,280</td>
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<td>43</td>
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<td>55</td>
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<tr>
<td>Storage/Services</td>
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<td>115</td>
<td>25</td>
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<tr>
<td><strong>Total</strong></td>
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<td>360</td>
<td>2,107</td>
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#### 1,750,000 SF SCENARIO (93.5%):

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<th>PM Peak Hour Trips</th>
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</thead>
<tbody>
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<td></td>
<td>Enter</td>
<td>Exit</td>
<td>Total</td>
<td>Enter</td>
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<tr>
<td>Research</td>
<td>894,047</td>
<td>761</td>
<td>156</td>
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<td>122</td>
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<tr>
<td>Education</td>
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<td>743</td>
<td>186</td>
<td>928</td>
<td>304</td>
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<tr>
<td>Administration</td>
<td>263,296</td>
<td>403</td>
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<td>453</td>
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<td><strong>Total</strong></td>
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<td>2,042</td>
<td>421</td>
<td>2,463</td>
<td>527</td>
</tr>
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</table>
2003 Existing Traffic Volumes
No NYSDOT Improvements
With NYSDOT Improvements
Trip Distribution Figures
Lane Configurations
DEFINITIONS OF LEVEL OF SERVICE FOR SIGNALIZED INTERSECTIONS

Level of Service describes the quality of operation in terms of delay to the driving public. Levels range from A to F describing traffic operation with very little delay. Definitions for levels of Service follow. The Level of Service analysis provides a basis for assessing the potential impact of traffic; both in terms of how traffic conditions would change and whether the existing transportation system would be adequate for the additional traffic.

Level of Service for signalized intersections is defined in terms of control delay. Control delay is a component of delay that results when a control signal causes a lane group to reduce speed or stop. It is measured by comparison with the uncontrolled condition. Delay is a measure of driver discomfort, frustration, fuel consumption, and lost travel time.

Specifically, level-of-service criteria are stated in terms of control delay per vehicle for a 15-minute analysis period. The criteria are given in the following table:

<table>
<thead>
<tr>
<th>Level of Service</th>
<th>Stopped Delay Per Vehicle (seconds)</th>
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</thead>
<tbody>
<tr>
<td>A</td>
<td>0 - 10.0</td>
</tr>
<tr>
<td>B</td>
<td>&gt;10.0 - 20.0</td>
</tr>
<tr>
<td>C</td>
<td>&gt;20.0 - 35.0</td>
</tr>
<tr>
<td>D</td>
<td>&gt;35.0 - 55.0</td>
</tr>
<tr>
<td>E</td>
<td>&gt;55.0 - 80.0</td>
</tr>
<tr>
<td>F</td>
<td>&gt;80.0</td>
</tr>
</tbody>
</table>

Control delay is a complex measure and is dependent on a number of variables including: the quality of traffic progression, the cycle length, and the relative amount of green time for the lane group or approach in question.

Level-of-Service A describes operations with very low control delay, i.e., less than 10.0 seconds per vehicle. This occurs when progression is extremely favorable and most vehicles arrive during the green phase. Most vehicles do not stop at all. Short cycle lengths may also contribute to low delay.

Level-of-Service B describes operations with control delay in the range of 10.1 to 20.0 seconds per vehicle. This generally occurs with good progression and/or short cycle lengths. More vehicles stop than for Level A, causing higher levels of average delay.
DEFINITIONS OF LEVEL OF SERVICE FOR TWSC UNSIGNALIZED INTERSECTIONS

<table>
<thead>
<tr>
<th>Level of Service</th>
<th>Average Control Delay (S/Veh)</th>
</tr>
</thead>
<tbody>
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<td>A</td>
<td>0 -10.0</td>
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Level of Service for two-way stopped-control unsignalized intersections describes the quality of traffic operation in terms of average control delay. LOS is defined for each minor movement, not for the intersection as a whole. Levels range from A to F, with A describing traffic operations with little or no delays. Level of Service analysis for TWSC unsignalized intersections considers the left-turn out of the minor road, the right-turn out of the minor road, and the left-turn entering the minor road. The average control delay is defined as the total elapsed time from when a vehicle stops at the end of a queue until the vehicle departs from the stop line. This includes the time required for the vehicle to travel from the “last-in-queue” position to the "first-in-queue" position, including deceleration of vehicles from free-flow speed to the speed of vehicles in queue.

Average control delay for any particular minor movement is a function of the capacity of the approach and the degree of saturation. Because different transportation facilities cause different driver perceptions, the LOS criteria for TWSC intersections are different from the criteria for signalized intersections.
Appendix E
Intersection Capacity Analysis Printouts
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**Note:** Each of the 13 scenarios looked at above were analyzed independent of each other.

It was assumed that no improvements from the previous year analyzed were in place.

1. (x) parentheses indicate FRA mitigation measures.
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Note: Each of the 13 scenarios looked at above were analyzed independent of each other. It was assumed that no improvements from the previous year analyzed were in place.

1. (-) Represents intersection signalization.
## Table 6: Intersection LOS by Movement 2023 Analysis

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Unsignalized:

1. * Alternative designs are being developed with NYS DOT to improve LOS to acceptable LOS.

2. * LOS 'C' or worse is due to low traffic volumes of 36 left-turning vehicles or less, not over capacity, no mitigation is proposed.

3. All remaining movements with LOS 'E' or worse should be reevaluated after NYS DOT improvements are in place. More realistic mitigation measures can be proposed based on future growth and traffic patterns.
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**Note:** X indicates Level Of Service 'E' or worse
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Note: X indicates Level Of Service 'E' or worse
FINAL
EXPANDED PROJECT PROPOSAL

I-390/I-590/NY 15/NY 15A

FROM THE GENESEE RIVER TO I-590
(INCLUDING AN EXIT RAMP FROM I-390 SB TO
BRIGHTON-HENRIETTA TOWN LINE ROAD)

TOWN OF HENRIETTA
AND
TOWN OF BRIGHTON

MONROE COUNTY

PIN 4390.17
(CHARGABLE PIN 4802.53.122, "SOUTHERN CORRIDOR STUDY / EPP's")

JULY 2001

UNITED STATES
DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
NEW YORK STATE DEPARTMENT OF TRANSPORTATION
GEORGE E. PATAKI, Governor

JOSEPH H. BOARDMAN,
Commissioner
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</table>

The following expressway areas are projected to experience unacceptable levels of service in 2020:

- I-390 SB / East River Rd Off-Ramp Junction (AM/PM)
- I-390 NB / I-590 / NY 15A Off-Ramp Weave (AM)
- I-390 NB / NY 15A Off-Ramp Junction (AM)
- I-390 SB / NY 15A On-Ramp Junction (PM)
- I-590 SB Transition to I-390 NB (AM)
D. Objectives

The following objectives have been established for this project:

Project Objective 1: Safety

- Improve overall safety to include identified “high priority locations”
- Improve weaving movements along I-390
- Provide adequate facilities for pedestrians and bicyclists

Project Objective 2: Improve existing and future traffic flow through the project area

- Provide at least an acceptable Level of Service of D for all movements for the design year (2020)

Project Objective 3: Improve transit, pedestrian and bicycle mobility, accessibility, and safety

- Provide adequate facilities for pedestrians and bicyclists
- Improve access to adjacent bike trails
- Provide better pedestrian access to mass transit facilities
- Improve transit facilities

Project Objective 4: Address environmental issues

- Reduce vehicle pollutants by decreasing the amount of congestion along the corridor

Project Objective 5: Eliminate pavement and bridge deficiencies

- Improve the existing pavement and bridge conditions to provide an acceptable design service life
p. Lighting

It is recommended to maintain the lighting along the expressway and at the interchanges. This will include modification to the existing lighting system as well as placement of new poles (if required). The consideration of energy costs should be considered.

D. Project Costs and Schedule

1. Costs

- Alternative 5
  (assume full reconstruction)
  
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<tr>
<td>Mobility (4%)</td>
<td>$1.468 M</td>
</tr>
<tr>
<td>MP of T (3%)</td>
<td>$1.101 M</td>
</tr>
<tr>
<td>Survey (2%)</td>
<td>$0.734 M</td>
</tr>
<tr>
<td>Contingencies (15%)</td>
<td>$5.505 M</td>
</tr>
</tbody>
</table>
  
  Potential overall construction cost: **Total:** $45.508 M

- Alternative 6
  (assume full reconstruction)
  
<table>
<thead>
<tr>
<th>Item</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Highway</td>
<td>$16.200 M</td>
</tr>
<tr>
<td>Bridge</td>
<td>$19.000 M</td>
</tr>
<tr>
<td>Mobility (4%)</td>
<td>$1.408 M</td>
</tr>
<tr>
<td>MP of T (3%)</td>
<td>$1.056 M</td>
</tr>
<tr>
<td>Survey (2%)</td>
<td>$0.704 M</td>
</tr>
<tr>
<td>Contingencies (15%)</td>
<td>$5.280 M</td>
</tr>
</tbody>
</table>
  
  Potential overall construction cost: **Total:** $43.648 M

- Alternative 7
  (assume full reconstruction)
  
<table>
<thead>
<tr>
<th>Item</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Highway</td>
<td>$16.100 M</td>
</tr>
<tr>
<td>Bridge</td>
<td>$19.000 M</td>
</tr>
<tr>
<td>Mobility (4%)</td>
<td>$1.404 M</td>
</tr>
<tr>
<td>MP of T (3%)</td>
<td>$1.053 M</td>
</tr>
<tr>
<td>Survey (2%)</td>
<td>$0.702 M</td>
</tr>
<tr>
<td>Contingencies (15%)</td>
<td>$5.265 M</td>
</tr>
</tbody>
</table>
  
  Potential overall construction cost: **Total:** $43.524 M

2. Schedule

- Design Approval Fall 2005
- Letting Fall 2006
V. EVALUATION AND COMPARISON OF ALTERNATIVES

Matrices have been developed to assist in, and summarize the evaluation and comparison of, the project Alternatives. The overall goal of the proposed project is to provide roadway improvements that are both geometrically and structurally adequate to allow the efficient flow of traffic through the project corridor, plus include provisions for pedestrians and bicyclists.

Tables 25 & 26, below, include an outline of the project objectives and an assessment of the ability of each alternative to satisfy each of the project objectives. It should be noted that all three alternatives meet all the project objectives to some degree.

**TABLE 25**

**COMPARISON OF ALTERNATIVES**

<table>
<thead>
<tr>
<th>Considerations</th>
<th>Rating 1-3; 1 = Best, 3 = Worst</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Alternative 5</td>
</tr>
<tr>
<td><strong>Objectives</strong></td>
<td></td>
</tr>
<tr>
<td>Improved Capacity</td>
<td>1</td>
</tr>
<tr>
<td>Reduced VHD (hours)</td>
<td>1</td>
</tr>
<tr>
<td>Improved Motorists Safety</td>
<td>1</td>
</tr>
<tr>
<td>Improved Pedestrian &amp; Bicyclists Safety</td>
<td></td>
</tr>
<tr>
<td>- on-street</td>
<td>3*</td>
</tr>
<tr>
<td>- off-street</td>
<td>1</td>
</tr>
<tr>
<td>Minimal social/environmental impacts</td>
<td>2</td>
</tr>
<tr>
<td>Eliminated Pavement Deficiencies</td>
<td>1</td>
</tr>
<tr>
<td><strong>Other Considerations</strong></td>
<td></td>
</tr>
<tr>
<td>Approximate Number of properties affected</td>
<td>22</td>
</tr>
<tr>
<td>Displaced Owners</td>
<td>1</td>
</tr>
<tr>
<td>Motorists User Cost</td>
<td>1</td>
</tr>
<tr>
<td>Estimated Construction Cost</td>
<td>$45.5 M</td>
</tr>
</tbody>
</table>

* The inclusion of free-flow access movements via new loop ramps restricts the opportunity for protected traffic signal phasing for pedestrians / bicyclists.
DRAFT GENERIC ENVIRONMENTAL IMPACT STATEMENT

APPENDIX E – Water Supply Report

THE UNIVERSITY OF ROCHESTER
IPD REZONING

Town of Brighton
Monroe County, New York
Water Supply Report

University of Rochester
IPD Rezoning

CRITTENDEN ROAD TO EAST RIVER ROAD
TOWN OF BRIGHTON
MONROE COUNTY
NEW YORK

Prepared for:

The University of Rochester
612 Wilson Boulevard
Rochester, New York 14620

Prepared by:

FRA
ENGINEERING, P.C.
530 SUMMIT POINT DRIVE
HENRIETTA, NEW YORK 14467
(585) 359-0280
FAX (585) 359-1059

October 2005
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Appendix

Figure 1 - Location Map
Figure 2 - Existing Sanitary Sewer System
Figure 3 - Future Development
Calculations
Hydrant Flow Data
1. Introduction

The following water supply report summarizes the analysis of the existing water distribution system and the feasibility of the possible development of the University of Rochester Institutional Planned Development (IPD) action site to connect to the existing system. The action site is located between Crittenden Road and East River Road from the Lehigh Valley Rail Trail to West Henrietta Road in the Town of Brighton, Monroe County, New York.

This report will evaluate and describe the existing water distribution system, including distribution layout, current demands on the system, and any existing deficiencies or concerns. Additionally, this report will assess water supply conditions after future development of the action site, including design requirements, and projected demand. Necessary easements and probable points of connection are also described.

2. Project Description

2a. Overview

The University of Rochester (the "University") owns hundreds of acres in the Town of Brighton and City of Rochester and is a leading employer in Monroe County. Among the property owned is what is called "South Campus", which totals 188 +/- acres. This property is fully in the Town of Brighton and is bounded on the north by Interstate Route 390, on the west by the former Lehigh Railroad right of way, on the east by West Henrietta Road, and on the south by Southland Drive and Crittenden Road. The property also includes the Lilac Park Subdivision located to the south of Crittenden Road and east of the Lehigh Railroad ROW. Total University of Rochester landholdings in the Town of Brighton are 255 +/- acres. Of this 255 +/- acres, approximately 42 acres lies south of Crittenden Road as either former railroad right of way or as part of the former Lilac Park Subdivision. Additionally, the University (since the start of this rezoning proceeding) has sold approximately 25 acres to the Town of Brighton, which is currently used as the Lehigh Valley Recreational Trail.

The proposal by the University consists of the rezoning (with incentive zoning treatment) of approximately 188 +/- acres (3 parcels) the South Campus property (the land to be rezoned is the "Rezone Property") from residential to Institutional Planned Development ("IPD") in the Town of Brighton, New York (the "Town").

At the request of the Town, a conceptual plan was developed indicating potential building layouts, densities, and uses. The plan also delineates 10 "development pod" areas; which were created to identify where potential buildings and associated site improvements, such as parking, could be accommodated.

2b. Mapping

Figures 1-3 are included in the Appendix. Figure 1 is a site location map. Figure 2 is a schematic of the existing water distribution system and includes the Rezone Property. Figure 3 is a schematic of the future development with the water distribution system.
2c. Contact Information

Donald Doe
Monroe County Water Authority
475 Norris Drive
P.O. Box 10999
Rochester, NY 14610-0999
Phone: (585) 442-2000
Fax: (585) 442-0220

3. Existing Facilities

The Monroe County Water Authority (MCWA) maintains the public water supply distribution system in and around the Rezone Property. The public water supply maintained by MCWA connects to the City of Rochester water supply distribution system at a valve located immediately west of the Lehigh Valley Trail along East River Road. The water distribution system consists primarily of 8-in ductile iron water main.

The water supply distribution line along Crittenden Road flows east to west. Westerly flow also occurs along Richardson Road, the southern road in Whipple Park and on a small section of Murlin Drive located in property 5. The water supply distribution line along East River Road flows west to east. A schematic of the existing water distribution system is depicted on Figure 2.

There is a water tower, referred to as the West Brighton Water Tank, located near the southwest corner of University property number 12. The tank is 110 feet tall with a fill time of approximately 5.5 hours and a 12-inch valve at 72 psi. It has a holding capacity of 0.3 million gallons (MG), with a usable capacity 0.2 MG. The base of the tank is located at an elevation of 560 feet. The normal refill level is at 650 feet, with a normal high water level of 658.5 feet and an overflow elevation of 670 feet.

3a. Hydrant Flow Data

**East River Road / Kendrick Road Intersection**
Date of Test: 11/3/04
Static Pressure = 54 psi
Residual Pressure = 36 psi
Observed Flow = 909 gpm
Flow at 20 psi = 1,281 gpm

**Lantern Lane (near intersection with West Henrietta Road)**
Date of Test: 5/10/01
Static Pressure = 48 psi
Residual Pressure = 36 psi
Observed Flow = 955 gpm
Flow at 20 psi = 1,509 gpm

**Richardson Road (near intersection with Murlin Drive)**
Date of Test: 9/9/05
Static Pressure = 48 psi
Residual Pressure = 42 psi
Observed Flow = 969 gpm
Flow at 20 psi = 2,270 gpm
Crittenden Road (in front of house #1350 on the north and house #1291 on the south)

Date of Test: 9/9/05  
Static Pressure = 56 psi  
Residual Pressure = 43 psi  
Observed Flow = 1,054 gpm  
Flow at 20 psi = 1,827 gpm

3b. Hydraulic Demands

Based on the hydrant flow data provided by MCWA, the normal average pressure of the water distribution system in the vicinity of the Rezone Property is approximately 50 psi and the available flow at 20 psi is approximately 1,200 – 2,200 gpm. The demand on the existing water distribution system in the vicinity of the Rezone Property generally consists primarily of residential users (average 320 gpd/home – 0.2 gpm/home) with few commercial users, and few institutional / educational users, such as the existing facilities located on the Rezone Property (see below for the existing demands). The hydrant flow tests that were performed on the system represent the status of the water distribution system, including all existing demands on the system.

### Existing Water Usage at the Rezone Property

<table>
<thead>
<tr>
<th>Building</th>
<th>Size</th>
<th>Estimated Occupancy (Persons)*</th>
<th>Estimated Flow Rate</th>
<th>Total Estimated Flow Rate (GPD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nuclear Research Facility</td>
<td>43,888 SF Footprint</td>
<td>VACANT</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>River Road Buildings</td>
<td>47,700 SF Footprint</td>
<td>345 persons</td>
<td>10 gal/day per person</td>
<td>3,450</td>
</tr>
<tr>
<td>Laser Lab/COI</td>
<td>176,100 SF Footprint</td>
<td>380 persons</td>
<td>10 gal/day per person</td>
<td>3,800</td>
</tr>
<tr>
<td>Whipple Park Apartments</td>
<td>Various</td>
<td>250 units</td>
<td>240 gal/day per unit</td>
<td>60,000</td>
</tr>
</tbody>
</table>

* Provided by the University of Rochester

3c. Maintenance/Easements

MCWA maintains the existing water distribution system throughout the Town of Brighton. MCWA maintains 10, 15, and 20-ft easements for the water distribution system located outside roadway right of ways and within U of R owned property.

4. Developed Conditions

The proposed action by the University of Rochester consists of the rezoning and incentive zoning of approximately 188 acres of land from residential to Institutional Planned Development (IPD). The area is bounded on the north by the intersection of the former Lehigh Railroad with Interstate Route 390, on the west by the former Lehigh Railroad (Lehigh Valley Trail) and, on the east by West Henrietta Road, and on the south by Southland Drive and Crittenden Road. The action area also includes the Lilac Park Subdivision located to the south of Crittenden Road and east of the Lehigh Railroad, which will be deeded to the Town of Brighton for open space as part of the proposed action.
The future plan for development of the Rezone Property includes the development of institutional buildings with associated parking. The institutional buildings are likely to be a mix use of laboratories and research facilities, similar to the existing University of Rochester River Road Building. The future development was divided into 9 areas of development, referred to as PODS. Refer to Figure 3, for a schematic plan for future development. The future development will connect to the existing water distribution system. The future development of the Rezone Property is the only known future development located within the water distribution system supplying the Rezone Property. Future development in the area, as identified by the City of Rochester and Monroe County officials, is as follows:

- **The University of Rochester Medical Center** (URMC) has plans for two building expansions and a parking garage expansion. The building expansions include an Emergency Department addition of a 20,000 SF Pediatric Intensive Care Unit (PICU), 20,000 SF Adult Intensive Care Unit (AICU), and a 5,000 SF Ronald McDonald House. The Cancer Center will be adding a 12,100 SF ophthalmology department. The Parking Garage Expansion is proposed to consist of a net increase of 588 parking spaces.
- Expansion of **Helenwood Hall**, located off of Castleman Road. The expansion of 20,000 SF building area is proposed for 50/50 split of general office space and educational space.
- Expansion of the **Iola Campus**, located off of East Henrietta Road across from Monroe Community Hospital. The expansion is proposed to be approximately 292,115 SF of building area. Proposed land uses include RCC/Power Plant, Child Distension Center Iola Building #1 (CDC), Specialty Retail, High Tech/Research and Development, and Medical Office space.
- Expansion of **The Rochester Science Park**, located off of South Avenue. This 12,000 SF expansion is proposed for cancer patients, treatment, and research purposes.

Based on available mapping from MCWA, it does not appear that any water main extensions will be required to supply the future development. The future development can be served from individual services connected to the existing water supply system. At the time of final design, detailed hydraulic calculations should be done to determine the available pressures and flows at critical locations in the development.

**4a. Proposed Areas of Connection**

Refer to Figure 3 of the Appendix for a schematic of the future development.

**Pod #1:**
A lateral could be extended from the future building in POD 1 to the existing 6-inch, cement lined water supply main located along Kendrick Road.

**Pod #2:**
A lateral could be extended from the future building in POD 2 to the existing 6-inch, cement lined water supply main located along Kendrick Road.

**Pod #3:**
A lateral could be extended from the future buildings in POD 3 to the existing 8-inch, cast iron pipe water supply main located along West Henrietta Road.

**Pod #4:**
A lateral could be extended from the future building in POD 4 to the existing 8-inch, ductile iron water supply main located along Murlin Drive.
Pod # 5:
Lateral could be extended from each of the future buildings in POD 5 to the existing 8-inch, ductile iron water supply main located along Murlin Drive.

Pod # 6:
A lateral could be extended from the future building in POD 6 to the existing 8-inch, ductile iron water supply main that runs south of and parallel to Conant Road, the northern most road in the Whipple Park Apartments.

Pods # 7 & # 8:
A lateral could be extended from the future building in PODS 7 & 8 to the existing 8-inch, ductile iron water supply main located along Murlin Drive.

Pod # 9:
A lateral could be extended from the future building in POD 9 to the existing 8-inch, ductile iron water supply main that flows north through properties 11 and 9.

4b. Projected Demands

The future development of the Rezone Property is likely to include a mix use of laboratories and research facilities, similar to the existing University of Rochester River Road Building. An average hydraulic loading rate was calculated based on the University of Rochester River Road Building existing loading (3,450 gpd) and the building gross square footage (133,300 gsf) to determine the projected water usage for the future development. The existing demand on the water distribution system will remain the same.

Projected Domestic Demand

<table>
<thead>
<tr>
<th>Building (GSF)</th>
<th>Future Use</th>
<th>Expected Flow Rate*</th>
<th>Average Daily Flow Rate</th>
<th>Peak Flow Rate (2.5 PF)</th>
</tr>
</thead>
<tbody>
<tr>
<td>POD-1 – 312,500 gsf</td>
<td>Institutional / Educational</td>
<td>0.03 gal/day per GSF</td>
<td>9,375 gpd (6.5 gpm)</td>
<td>16 gpm</td>
</tr>
<tr>
<td>POD-2 – 312,500 gsf</td>
<td>Institutional / Educational</td>
<td>0.03 gal/day per GSF</td>
<td>9,375 gpd (6.5 gpm)</td>
<td>16 gpm</td>
</tr>
<tr>
<td>POD-3 – 589,500 gsf</td>
<td>Institutional / Educational</td>
<td>0.03 gal/day per GSF</td>
<td>17,685 gpd (12.3 gpm)</td>
<td>31 gpm</td>
</tr>
<tr>
<td>POD-4 – 120,000 gsf</td>
<td>Institutional / Educational</td>
<td>0.03 gal/day per GSF</td>
<td>3,600 gpd (2.5 gpm)</td>
<td>6 gpm</td>
</tr>
<tr>
<td>POD-5 – 469,250 gsf</td>
<td>Institutional / Educational</td>
<td>0.03 gal/day per GSF</td>
<td>14,077 gpd (9.8 gpm)</td>
<td>25 gpm</td>
</tr>
<tr>
<td>POD-6 – 50,000 gsf</td>
<td>Institutional / Educational</td>
<td>0.03 gal/day per GSF</td>
<td>1,500 gpd (1 gpm)</td>
<td>3 gpm</td>
</tr>
<tr>
<td>POD-7/8 – 93,000 gsf</td>
<td>Institutional / Educational</td>
<td>0.03 gal/day per GSF</td>
<td>2,790 gpd (2 gpm)</td>
<td>5 gpm</td>
</tr>
<tr>
<td>POD-9 – 50,000 gsf</td>
<td>Institutional / Educational</td>
<td>0.03 gal/day per GSF</td>
<td>1,500 gpd (1 gpm)</td>
<td>3 gpm</td>
</tr>
</tbody>
</table>

*Based on building use similar to River Road Buildings (133,300 gsf)
The total projected peak domestic demand from the future development of the Rezone Property is 105 gpm. The residual pressure at the existing water distribution system due to this demand is 49 psi.

**Projected Fire Demand**

Based on the projected building use of the future development, the buildings are likely to require an internal fire suppression system. The demand of the systems, calculated to the most remote sprinkler head is 250 gpm (sprinkler demand plus hose demand) plus an additional 30% allowance (assuming dry systems) for a total sprinkler demand of 325 gpm per building. The residual pressure at the existing water distribution system due to this demand is 46 psi. At the time of final design, it is recommended that booster pumps be utilized on the fire service at any building with a pressure less than 40 psi downstream of the meter.

**4c. Impact of Rezoning on Water Distribution System**

The rezoning of the action site will reduce the impact to the existing water distribution system. The projected building use for the future development will have less demand on the system than the possible developments under the existing zoning and projected zoning for the Town of Brighton Comprehensive Plan 2000.

- **Demand on Water Distribution System per Current Zoning**
  - Domestic Demand = 1,435 gpm
  - Fire Demand = 2,361 gpm

- **Demand on Water Distribution System per Town of Brighton Comprehensive Plan 2000**
  - Domestic Demand = 415 gpm
  - Fire Demand = 2,026 gpm

- **Demand on Water Distribution System per IPD Rezoning**
  - Domestic Demand = 105 gpm
  - Fire Demand = 367 gpm

**4d. Design Requirements**

Per the Monroe County Department of Public Health (MCD OH) and MCWA, the future water services will require backflow prevention devices to protect the public water supply from possible cross contamination and designed according to MCWA / MCD OH design standards. The minimum design pressure on site would be 35 psi for domestic services and 20 psi for fire service.

**5. Conclusions**

The existing water distribution system is capable of handling the future demands on the system from the Rezone Property. There will be no improvements or changes to the existing configuration required. The future development can be served from service connections to the existing water distribution system. There will be no new easements required for water supply. At the time of final design for future developments within the Rezone Property, it is likely that booster pumps will be required on the fire services for the future buildings. This is recommended for fire services with a residual pressure less than 40 psi downstream of the meter under fire demand.
APPENDIX
Hydrant Flow Data at E River Rd / Kendrick Rd

Static = 54 psi (Tank EL = 462')
Residual = 86 psi
Flow = 909 gpm

- Determine Static at Low Tank (EL = 650') = 12' x 0.133 psf/ft = 5 psi \( \rightarrow \) Static = 49 psi (Refill Elev)

- Determine Sprinkler Demand
  
  150 gpm + 100 gpm \( \times \) 50\% = 250 gpm + 30\% = 325 gpm

- Check Residual w/ 325 gpm Demand
  
  \[
  \left( \frac{49 - 31}{49 - x} \right) = \left( \frac{909}{325} \right) = 1.85
  \]
  
  \( x = 46 \) psi \( \rightarrow \) Residual in main due to 325 gpm Demand

  \( \rightarrow \) PROVIDE BOOSTER PUMP ON BUILDINGS W/ PRESSURE < 40 psi
  AT METER

- Determine Domestic Demand (Based on River Rd Building 3,450 gsd 133,300 gsc = 0.03 gsd/gsf)

  | Pod 1 | 342,500 gsf \( \times \) 0.03 g/sf = 9,275 gpd (6.5 gpm) |
  | Pod 2 | 312,500 gsf \( \rightarrow \) 9,275 gpd (6.5 gpm) |
  | Pod 3 | 589,500 gsf \( \rightarrow \) 17,168 gsd (12.3 gpm) |
  | Pod 4 | 120,000 gsf \( \rightarrow \) 3,600 gsd (7.5 gpm) |
  | Pod 5 | 460,200 gsf \( \rightarrow \) 14,077 gsd (9.8 gpm) |
  | Pod 6 | 50,000 gsf \( \rightarrow \) 1,500 gsd (1 gpm) |
  | Pod 7/8 | 30,000 gsf \( \rightarrow \) 2,790 gsd (2 gpm) |
  | Pod 8 | 50,000 gsf \( \rightarrow \) 1,500 gsd (1 gpm) |

  \[
  \frac{41.6 \text{ gpm}}{4.25 \text{ gpm}} \rightarrow \text{Say 42 gpm Avg x 2.5 Peaking Factor} \rightarrow 105 \text{ gpm Peak}
  \]

  \[
  \frac{49 - 31}{49 - x} = \left( \frac{909}{105} \right) = 1.85
  \]
  
  \( x = 49 \) psi \( \rightarrow \) Negligible Drop
DETERMINE IMPACT OF REZONING ON WATER DISTRIBUTION

- DEMAND ON SYSTEM WITH CURRENT ZONING

  USE & PROPERTY NORTH OF CRITTENDEN RD = 150 RESIDENTIAL UNITS
  LILAC PARK SUBDIVISION (SOUTH OF CRITTENDEN RD) = 127 RESIDENTIAL UNITS

  PER MOWA DESIGN STANDARDS, USE DEMAND = 5 gpm at EACH UNIT (DOMESTIC)

  DOMESTIC DEMAND NORTH OF CRITTENDEN RD = 150 UNITS x 5 gpm/UNIT = 750 gpm
  DOMESTIC DEMAND SOUTH OF CRITTENDEN RD = 127 UNITS x 5 gpm/UNIT = 635 gpm

  TOTAL DOMESTIC DEMAND = 750 gpm + 635 gpm = 1,385 gpm

  FIRE DEMAND → ASSUME 750 gpm IMPORT DEMAND + 3 gpm/UNIT CONTINUOUS DEMAND
  FIRE DEMAND NORTH OF CRITTENDEN RD = 750 gpm + (150 x 3 gpm) = 1,200 gpm
  FIRE DEMAND SOUTH OF CRITTENDEN RD = 750 gpm + (127 x 3 gpm) = 1,161 gpm

  TOTAL FIRE DEMAND = 1,200 gpm + 1,161 gpm = 2,361 gpm

- DEMAND ON SYSTEM PER TOWN COMPREHENSIVE PLAN 2000

  USE & SOUTH CAMPUSS INSTITUTIONAL ZONING = 1,540,828 gsf
  RESIDENTIAL NORTH OF CRITTENDEN RD = 35 RES. UNITS
  RESIDENTIAL SOUTH OF CRITTENDEN RD = 32 RES. UNITS

  DOMESTIC DEMAND OF INSTITUTIONAL USE = 1,540,828 gsf x 0.02 2nd/fsc = 41,225 gpm = 329 gpm
  DOMESTIC DEMAND OF RES. NORTH OF CRITTENDEN RD = 35 UNITS x 5 gpm/UNIT = 175 gpm
  DOMESTIC DEMAND OF RES. SOUTH OF CRITTENDEN RD = 32 UNITS x 5 gpm/UNIT = 160 gpm

  TOTAL DOMESTIC DEMAND = (329 gpm x 2.5) + 175 gpm + 160 gpm = 415 gpm

  FIRE DEMAND, INSTITUTIONAL = 325 gpm IRREGULAR DEMAND / 90 MIN
  FIRE DEMAND NORTH OF CRITTENDEN = 750 gpm + (35 x 3 gpm) = 855 gpm
  FIRE DEMAND SOUTH OF CRITTENDEN = 750 gpm + (32 x 3 gpm) = 846 gpm

  TOTAL FIRE DEMAND = 325 gpm + 855 gpm + 846 gpm = 2,026 gpm
DEMAND ON SYSTEM PER REZONING

DOMESTIC DEMAND = 105 gpm (ASSUMING INSTITUTIONAL USE)

FIRE DEMAND = 325 gpm + 42 gpm and DEMAND = 367 gpm

* AREA SOUTH OF CRITTENDEN ROAD (LILAC PARK SUBDIVISION) TO BE DEEDED TO THE TOWN FOR OPEN SPACE. THERE IS ZERO DEMAND ON THE SYSTEM.
Flow Data Calculation Sheet

Town: Brighton
Location: Richardson Rd
Date and Time: 9/9/05 @ 10:25
Main Size: 8"
Zone: 670
Conducted By: Ed and Jim

Flow Nozzle: 2.5

Flow Hydrant
Static: 49 psi
Pitot: 33 psi
Style: A 1.00

Residual Hydrant
Static: 48 psi
Residual: 42 psi
Corrected
49 psi
43 psi

Calculations
Q Observed: 969 gpm
Q at 20psi: 2270 gpm

System Status
Pumps:
Tanks:
Other:

PLEASE NOTE THE FOLLOWING INFORMATION

The pressure and flow data provided herein represents the actual values at this location in the distribution system on this date and time. These values can vary greatly depending on demands, operational parameters, system configurations, subsequent modifications, and other related criteria. If specific values or ranges of hydraulic data such as flows and/or pressures will be required, we strongly urge you to contact the MCWA's engineering department to evaluate whether this location in our system can satisfy your specific needs. Please contact Tom Stein at 442-2001, extension 244, with any questions or concerns.
Flow Data Calculation Sheet

Town: Brighton
Location: Crittenden Rd
Date and Time: 9/9/05 @ 10:05
Main Size: 12"
Zone: 670
Conducted By: Ed and Jim

Flow Nozzle: 2.5

Flow Hydrant
Static: 56 psi
Pitot: 39 psi
Style: A 1.00

Residual Hydrant
Static: 56 psi
Residual: 43 psi
Corrected
56 psi
43 psi

Calculations
Q Observed: 1054 gpm
Q at 20 psi: 1827 gpm

System Status
Pumps:
Tanks:
Other:

PLEASE NOTE THE FOLLOWING INFORMATION

The pressure and flow data provided herein represents the actual values at this location in the distribution system on this date and time. These values can vary greatly depending on demands, operational parameters, system configurations, subsequent modifications, and other related criteria. If specific values or ranges of hydraulic data such as flows and/or pressures will be required, we strongly urge you to contact the MCWA's engineering department to evaluate whether this location in our system can satisfy your specific needs. Please contact Tom Stein at 442-2001, extention 244, with any questions or concerns.
LOCATION: Brighton, E. River Rd.

REQUESTED BY: Chris King

FLOW HYDRANT
Static: 54
Pitot: 29
Style: A

RESIDUAL HYDRANT
Static: 58
Residual: 36
Style: -

ELEVATION DIFFERENCE:

DATE and TIME: 11/3/04, 09:00

SYSTEM STATUS
Pump(s): W. Br. -662'
Tank(s): 700/670 Valve Closed
OTHER: -

MISCELLANEOUS:

CALCULATIONS

\[ Q_{\text{Observed}} = 27 \times (\text{I.D})^3 \sqrt{\frac{\text{Pitot}}{29}} \]

\[ = 27 \times (2.5)^3 \sqrt{\frac{29}{29}} \]

\[ = 90.9 \text{ gpm} \]

\[ Q_{\text{at 20 psi}} = (Q_{\text{Observed}}) \left( \frac{\text{Static} - 20}{\text{Static} - \text{Residual}} \right)^0.54 \]

\[ = \left( \frac{90.9}{58 - 29} \right)^{0.54} \]

\[ = (90.9) \left( \frac{29}{58} \right)^{0.54} \]

\[ = 12.81 \text{ gpm} \]

SKETCH (Distribution Plate No.)

Test 154
#29

**DATA and OPERATING PARAMETERS**

**LOCATION:**
- T/O Brighton
- Lantern Ln

**REQUESTED BY:**
- Chris King

**FLOW HYDRANT**
- Static: 48
- Pitot: 32
- Style: 

**RESIDUAL HYDRANT**
- Static: 48
- Residual: 36
- Style: 

**ELEVATION DIFFERENCE:**

**DATE and TIME:** 5/10/01

**SYSTEM STATUS**
- Pumps(s): Conduits Closed
- Tank(s): W. Brighton & 20'
- OTHER: River Crossing Closed

**MISCELLANEOUS:**

**Conducted by:** Paul M.

**CALCULATIONS**

\[
Q_{\text{observed}} = 27 \left( \frac{\text{I.D.}}{\text{Pitot}} \right)^{2/3} \\
= 27 \left( \frac{2.5}{2} \right)^{2/3} \\
= 955 \text{ gpm} \\

Q_{\text{at 20 psi}} = \left( \frac{Q_{\text{observed}} \times (\text{Static} - 20)}{\text{Static} - \text{Residual}} \right)^{0.54} \\
= \left( \frac{955 \times (48 - 20)}{48 - 36} \right)^{0.54} \\
= \left( \frac{955 \times 28}{12} \right)^{0.54} \\
= 1529 \text{ gpm} \\

SKETCH (Distribution Plate No. 246)

- [Sketch diagram with labels and measurements]
Date | 10/18/05
---|---
Contact | Paul Springer
Company | Monroe County Water Authority
Filed By | Drew E. Rodgers
Regarding | Water Distribution System
Project | U of R DEIS
Copied To | file

- Telephone conversation:
  - Participants | Paul Springer
  - Telephone Number | 442-2001 ext.281

- Email correspondence:
  - Participants
  - Email Address

- Meeting
  - Attendees

- Memo
  - Recipient

- Gave Paul overview of project.
  - Rezoning U of R property to institutional.
  - "Proposed" development based on intended use. Not an actual project – there is no development proposed at this time.
  - Told him that we calculated expected demands based on the existing use of the U of R River Road Building and gave him summary of the calculated demands.
  - Asked if he could review the schematic figures of the project and review the write up.
- I will fax him the figures and Water Supply Report.
- He thought based on the demands that I told him and the intended use that it wouldn’t have much impact to the system, but that he would review it and may also review it with Tom Stein at MCPW.
- Paul thought that Chris King at MCWA-Shoremont could input demand into model of the water distribution system to check impact, if necessary.

Signature

Revision 04.07.22
The Authority reviewed the Water Supply Report for the draft environmental impact statement on the above project. It appears the report addresses the hydraulic issues so far as they can be determined at this time.
APPENDIX F – Sanitary Sewer Report

THE UNIVERSITY OF ROCHESTER
IPD REZONING

Town of Brighton
Monroe County, New York
Sanitary Sewer Report

University of Rochester
IPD Rezoning

CRITTENDEN ROAD TO EAST RIVER ROAD
TOWN OF BRIGHTON
MONROE COUNTY
NEW YORK

Prepared for:
The University of Rochester
612 Wilson Boulevard
Rochester, New York 14620

Prepared by:
FRA
ENGINEERING, P.C.
530 SUMMIT POINT DRIVE
HENRIETTA, NEW YORK 14467
(585) 359-0280
FAX (585) 359-1059

October 2005
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Appendix

Figure 1 - Location Map
Figure 2 - Existing Sanitary Sewer System
Figure 3 - Future Development Calculations
1. Introduction

The following sanitary sewer report summarizes the analysis of the existing sanitary sewer system and the feasibility of the possible development of the University of Rochester Institutional Planned Development (IPD) action site to discharge to the existing system. The action site is located between Crittenden Road and East River Road from the Lehigh Valley Rail Trail to West Henrietta Road in the Town of Brighton, Monroe County, New York.

This report will evaluate and describe the existing sanitary sewer system, including distribution layout, current demands on the system, and any existing deficiencies or concerns. Additionally, this report will assess sanitary sewer conditions after future development of the action site, including design requirements, and projected demand. Necessary easements and probable points of connection are also described.

2. Project Description

2a. Overview

The University of Rochester (the "University") owns hundreds of acres in the Town of Brighton and City of Rochester and is a leading employer in Monroe County. Among the property owned is what is called "South Campus", which totals 188+/− acres. This property is fully in the Town of Brighton and is bounded on the north by Interstate Route 390, on the west by the former Lehigh Railroad right of way, on the east by West Henrietta Road, and on the south by Southland Drive and Crittenden Road. The property also includes the Lilac Park Subdivision located to the south of Crittenden Road and east of the Lehigh Railroad ROW. Total University of Rochester land holdings in the Town of Brighton are 255 +/- acres. Of this 255 +/- acres, approximately 42 acres lies south of Crittenden Road as either former railroad right of way or as part of the former Lilac Park Subdivision. Additionally, the University (since the start of this rezoning proceeding) has sold approximately 25 acres to the Town of Brighton, which is currently used as the Lehigh Valley Recreational Trail.

The proposal by the University consists of the rezoning (with incentive zoning treatment) of approximately 188± acres (3 parcels) the South Campus property (the land to be rezoned is the "Rezone Property") from residential to Institutional Planned Development ("IPD") in the Town of Brighton, New York (the "Town").

At the request of the Town, a conceptual plan was developed indicating potential building layouts, densities, and uses. The plan also delineates 10 "development pod" areas; which were created to identify where potential buildings and associated site improvements, such as parking, could be accommodated.

2b. Mapping

Figures 1-3 are included in the Appendix. Figure 1 is a site location map. Figure 2 is a schematic of the existing sanitary sewer system and includes the Rezone Property. Figure 3 is a schematic of the future development with the sanitary sewer system.

2c. Contact Information

Timothy E. Keef, P.E., Town Engineer
Town of Brighton
2300 Elmwood Avenue
Rochester, NY 14618
Phone: (585) 784-5223
3. Existing Facilities

The Town of Brighton Department of Public Works maintains the existing gravity sanitary sewer system throughout the Town of Brighton. In the vicinity of the Rezone Property, the sanitary sewer directs wastewater to two sanitary pump stations maintained by Monroe County Pure Waters (MCPW).

3a. Wastewater Distribution System

The wastewater from the University of Rochester Rezone Property and the adjacent residential district, located east of the Rezone Property, including Southland Drive, Doncaster Road, Furlong Road, Sylvia Road, half of the residences located on Sunnyside Drive, and the apartment complex located north of Sunnyside Drive, is directed to the MCPW Pump Station (Brighton #5 Pump Station) located at 289 East River Road through an 18-in trunkline and a 10-in trunkline. This system will be the focus of the analysis. The wastewater generated from the properties to the south is directed to the MCPW Pump Station (West Henrietta Pump Station) located at 2613 West Henrietta Road. The residences located on Crittenden Road west of Crittenden Way do not discharge to the existing sanitary sewer system. These residences are on privately maintained septic systems.

The 18-in Reinforced Concrete Pipe (RCP) trunkline originates at a manhole at the northeasterly most boundary corner of the Whipple Park Apartments. A 12-in sanitary forcemain from the West Henrietta Pump Station discharges to the manhole. The 18-in sewer conveys the wastewater from the 12-in forcemain westerly across the northern portion of the Whipple Park Apartments, then turns north directing the wastewater towards East River Road passing through the Rezone Property west of the River Road Buildings. At East River Road the 18-in trunkline turns east to Kendrick Road where the sanitary sewer again turns north directing the wastewater to the Monroe County Pump Station located at 289 East River Road. The sanitary sewer at the Whipple Park Apartments consists of 8 and 10-in sewer pipes that collect the sanitary wastewater from the apartments and directs it to the 18-in trunkline. The River Road Buildings discharge wastewater to the 18-in trunkline via a lateral connection. There are no other connections to the 18-in trunkline.

The 10-in sanitary trunkline directs the wastewater collected in the residential districts located east of the Rezone Property. The 10-in sanitary line runs northerly passing through the Rezone Property east of the Laser Lab/COI to East River Road. At East River Road, the 10-in trunkline turns west to Kendrick Road where the sanitary sewer increases to 12-in and again turns north directing the wastewater to the Monroe County Pump Station located at 289 East River Road. The Laser Lab/COI and Nuclear Research Facility discharge to the trunkline via lateral connections. The sanitary sewer system tributary to the 10-in trunkline consists of 8-in sewers, which discharge to the 10-in trunkline at the intersection of Southland Drive and Sylvia Street.

Refer to Figure 2 for a schematic of the existing sanitary sewers in the vicinity of the Rezone Property.
3b. Sanitary Pump Stations

Brighton #5 Pump Station
Monroe County Pure Waters (MCPW) maintains the Brighton #5 Pump Station located at 289 East River Road. The wastewater from the University of Rochester Rezone Property and the adjacent residential district, located east of the Rezone Property, including Southland Drive, Doncaster Road, Furlong Road, Sylvia Road, half of the residences located on Sunnyside Drive, and the apartment complex located north of Sunnyside Drive, is directed to Brighton #5 Pump Station. The pump station consists of 3 variable-speed, continuous run pumps each with a rating of 1,920-gpm at 50-ft head. The pump station has the capacity to pump at 2,100-gpm. Based on recent record data provided by MCPW the pump station pumps at an average rate of 700-gpm and a peak rate of 1,300-gpm. The pump station discharges thru a 12-in forcemain that directs the wastewater north.

West Henrietta Pump Station
Monroe County Pure Waters (MCPW) maintains the West Henrietta Pump Station located at 2613 West Henrietta Road. Wastewater from the Town of Brighton and the Town of Henrietta is directed to the West Henrietta Pump Station. The pump station consists of 3 variable-speed, continuous run pumps. Two pumps have a rating of 800-gpm at 60-ft head and one pump has a rating of 800-gpm at 57-ft head. Based on recent record data provided by MCPW the pump station pumps at an average rate of 600-gpm and a peak rate of 1,100-gpm. The pump station discharges thru a 12-in forcemain that directs the wastewater north to the 18-in trunkline located at the northeasterly most boundary corner of the Whipple Park Apartments. The 18-in trunkline directs the wastewater to the Brighton #5 Pump Station.

3c. Maintenance/Easements

The Town of Brighton Department of Public Works maintains the existing gravity sanitary sewer system throughout the Town of Brighton. The Town maintains 20-ft easements for gravity sanitary sewer lines located outside roadway right of ways and within U of R owned property. MCPW maintains the Brighton #5 Pump Station and the West Henrietta Pump Station. MCPW owns the properties that the pump stations are located at and maintains 20-ft easements for the 12-in force mains.

3d. Capacities

The capacities of the various sewers were determined utilizing Manning’s Equation and a roughness coefficient of 0.013. The capacities of the analyzed sewers are as follows:

- 8" @ 0.40% - 345 gpm
- 10" @ 0.28% - 520 gpm
- 12" @ 0.22% - 765 gpm
- 18" @ 0.12% - 1,670 gpm

The capacities of the pump stations were taken from record data provided by MCPW. The capacities are as follows:

- West Henrietta Pump Station - 1,100 gpm +/-
- Brighton #5 Pump Station - 2,100 gpm

3e. Sanitary Loading

The sanitary sewer tributary to the Brighton #5 Pump Station is the area of focus for this analysis because it includes the Rezone Property. The existing sanitary loading was determined from record mapping, record data from MCPW, data provided by the University of Rochester, and
projected loading rates from Table 3 of the New York State Department of Environmental Conservation (NYSDEC) Design Standards for Wastewater Treatment Works. Peak sanitary loading rates were determined utilizing record data from MCPW and the calculated average daily flow with a peaking factor of 2.5. The tables below summarize the calculated sanitary loading on the sanitary sewer tributary to the Brighton #5 Pump Station.

### Average Daily Flows

<table>
<thead>
<tr>
<th>Building (Sewer)</th>
<th>Size</th>
<th>Estimated Occupancy</th>
<th>Estimated Flow Rate</th>
<th>Total Estimated Flow Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nuclear Research Facility (10&quot; Trunkline)</td>
<td>43,888 SF Footprint</td>
<td>VACANT*</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>River Road Buildings (18&quot; Trunkline)</td>
<td>47,700 SF Footprint</td>
<td>345 persons*</td>
<td>10 gal/day per person</td>
<td>3,450 gpd (3 gpm)</td>
</tr>
<tr>
<td>Laser Lab/COI (10&quot; Trunkline)</td>
<td>176,100 SF Footprint</td>
<td>380 persons*</td>
<td>10 gal/day per person</td>
<td>3,800 gpd (3 gpm)</td>
</tr>
<tr>
<td>Whipple Park Apartments (18&quot; Trunkline)</td>
<td>Various</td>
<td>250 units*</td>
<td>240 gal/day per unit</td>
<td>60,000 gpd (42 gpm)</td>
</tr>
<tr>
<td>Residences East of Rezone Site (10&quot; Trunkline)</td>
<td>3 bdrm/home</td>
<td>275 homes</td>
<td>320 gal/day per home</td>
<td>88,000 gpd (62 gpm)</td>
</tr>
<tr>
<td>West Henrietta Pump Station (18&quot; Trunkline)</td>
<td>-</td>
<td>-</td>
<td>600 gpm**</td>
<td>(600 gpm)</td>
</tr>
</tbody>
</table>

- Provided by the University of Rochester
- "MCPW Record Data

Total Average Daily Flow to 10" Trunkline = 65 gpm
Total Average Daily Flow to 18" Trunkline = 645 gpm
Total Average Daily Flow into Brighton #5 Pump Station = 710 gpm
### Peak Flows

<table>
<thead>
<tr>
<th>Building (Sewer)</th>
<th>Average Daily Flow</th>
<th>Peaking Factor</th>
<th>Total Estimated Peak Flow Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nuclear Research Facility</td>
<td>0</td>
<td>2.5</td>
<td>0</td>
</tr>
<tr>
<td>(10&quot; Trunkline)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>River Road Buildings</td>
<td>3 gpm</td>
<td>2.5</td>
<td>7.5 gpm</td>
</tr>
<tr>
<td>(18&quot; Trunkline)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Laser Lab/COI</td>
<td>3 gpm</td>
<td>2.5</td>
<td>7.5 gpm</td>
</tr>
<tr>
<td>(10&quot; Trunkline)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Whipple Park Apartments</td>
<td>42 gpm</td>
<td>2.5</td>
<td>105 gpm</td>
</tr>
<tr>
<td>(18&quot; Trunkline)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Residences East of Rezone Site</td>
<td>62 gpm</td>
<td>2.5</td>
<td>155 gpm</td>
</tr>
<tr>
<td>(10&quot; Trunkline)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>West Henrietta Pump Station</td>
<td>-</td>
<td>-</td>
<td>1,100 gpm*</td>
</tr>
<tr>
<td>(18&quot; Trunkline)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*MCPW Record Data

Total Peak Flow to 10" Trunkline = 165 gpm (< 520 gpm capacity)
Total Peak Flow to 18" Trunkline = 1,215 gpm (< 1,670 gpm capacity)
Total Peak Flow into Brighton #5 Pump Station = 1,375 gpm; say 1,380 gpm

Based on a meeting with MCPW on 9/2/05 and the available data there are no existing capacity problems with the sanitary sewer or pump stations on or tributary to the University of Rochester Rezone Property.

3f. Infiltration

Based on a meeting with MCPW and the available record data provided by MCPW, there are no current investigations into infiltration or concerns with infiltration of the sanitary sewers or pump stations on or tributary to the University of Rochester Rezone Property.

3g. Monitoring

The existing sanitary sewer will be monitored be the University of Rochester to verify and document the existing sanitary flow rates and reserve capacity of the 10-in and 18-in trunklines. The monitoring process will involve placing a flow meter in-line along the sewers to record the flow rates from February thru April. The recorded data will be used to determine the feasibility for future connections to the sewer based on available capacity.

4. Developed Conditions

The proposed action by the University of Rochester consists of the rezoning and incentive zoning of approximately 188 acres of land from residential to Institutional Planned Development (IPD). The area is bounded on the north by the intersection of the former Lehigh Railroad with Interstate Route 390, on the west by the former Lehigh Railroad (Lehigh Valley Trail) and, on the east by
West Henrietta Road, and on the south by Southland Drive and Crittenden Road. The action area also includes the Lilac Park Subdivision located to the south of Crittenden Road and east of the Lehigh Railroad, which will be deeded to the Town of Brighton for open space as part of the proposed action.

The future plan for development of the Rezone Property includes the development of institutional buildings with associated parking. The institutional buildings are likely to be a mix use of laboratories and research facilities, similar to the existing University of Rochester River Road Building. The future development was divided into 9 areas of development, referred to as PODS. Refer to Figure 3, for a schematic plan for future development. The future development will discharge wastewater to the existing sanitary sewer system. The future development of the Rezone Property is the only known future development located within the sanitary sewer system tributary to Brighton #5 Pump Station. Future development in the area, as identified by the City of Rochester and Monroe County officials, is as follows:

- The **University of Rochester Medical Center** (URMC) has plans for two building expansions and a parking garage expansion. The building expansions include an Emergency Department addition of a 20,000 SF Pediatric Intensive Care Unit (PICU), 20,000 SF Adult Intensive Care Unit (AICU), and a 5,000 SF Ronald McDonald House. The Cancer Center will be adding a 12,100 SF ophthalmology department. The Parking Garage Expansion is proposed to consist of a net increase of 608 parking spaces.
- Expansion of **Helenwood Hall**, located off of Castileman Road. The expansion of 20,000 SF building area is proposed for 50/50 split of general office space and educational space.
- Expansion of the **Iola Campus**, located off of East Henrietta Road across from Monroe Community Hospital. The expansion is proposed to be approximately 292,115 SF of building area. Proposed land uses include RCC/Power Plant, Child Distension Center Iola Building #1 (CDC), Specialty, Retail, High Tech/Research and Development, and Medical Office space.
- Expansion of **The Rochester Science Park**, located off of South Avenue. This 12,000 SF expansion is proposed for cancer patients, treatment, and research purposes.

The Town of Brighton Department of Public Works maintains the existing gravity sanitary sewer system throughout the Town of Brighton. In the vicinity of the Rezone Property, the sanitary sewer directs wastewater to two sanitary pump stations maintained by Monroe County Pure Waters (MCPW). The Town of Brighton Department of Public Works (DPW) also maintains the existing sanitary sewer system within the Rezone Property.

### 4a. Proposed Areas of Connection

To serve the development within Pods 7, 8, and 9, as presented in Figure 3, the existing sanitary sewer located at the end of Murlin Drive in the Whipple Park Apartments may require extension (approximately 350-ft) from an existing manhole. The possible extension would be required to be designed to the Town of Brighton design standards. The extended sewer would be 8-in diameter, minimum, at a minimum slope of 0.40%. The extended sewer would require a 20-ft easement to the Town DPW. The buildings in Pods 7, 8, 9 would connect to the extended sewer via lateral connections. The sewer can be extended to a point that it would be possible for the homes located along Crittenden Road west of Crittenden Way and east of the Lehigh Valley Trail to connect to the extended sewer via a force main from a pumped system. As with existing conditions, due to the elevation difference and the existing depth of the sanitary sewer, the existing sanitary sewer cannot be extended to serve these homes via a gravity connection. The existing sanitary sewer system has additional capacity available for the possible connection, but upon design of such a system, the capacity should be checked after determination of the required
pumping rate. An easement would be required for any private or public facility crossing University of Rochester property.

The remainder of the future development should not require any extensions of the wastewater distribution system. The future development within Pod 6 can connect to the existing 10-in sewer along Murlin Drive via a lateral connection. The future development within Pod 5 can connect to the existing 18-in sanitary trunkline where it passes through the Rezone Property west of the River Road institutional buildings via a lateral connection. The future development within Pods 3 & 4 can connect to the existing 10-in sanitary trunkline where it passes through the Rezone Property east of the Laser Lab/COI via a lateral connection. The future development within Pod 2 can connect to the existing 18-in sanitary trunkline on Kendrick Road via a lateral connection. The future development within Pod 1 can connect to the existing 10-in sanitary trunkline on East River Road via a lateral connection. The lateral connections should be 6-in, minimum.

4b. Projected Demands

The future development of the Rezone Property is likely to include a mix use of laboratories and research facilities, similar to the existing University of Rochester River Road Building. An average hydraulic loading rate was calculated based on the University of Rochester River Road Building existing sanitary loading (3,450 gpd) and the building gross square footage (133,300 gsf) to determine the projected sanitary loading from the future development.

**Projected Future Average Daily Flows**

<table>
<thead>
<tr>
<th>Building (Sewer)</th>
<th>Future Use</th>
<th>Expected Flow Rate</th>
<th>Total Projected Flow Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>POD-1 – 312,500 gsf</td>
<td>Institutional / Educational</td>
<td>0.03 gal/day per GSF</td>
<td>9,375 gpd (7 gpm)</td>
</tr>
<tr>
<td>(10&quot; Trunkline)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>POD-2 – 312,500 gsf</td>
<td>Institutional / Educational</td>
<td>0.03 gal/day per GSF</td>
<td>9,375 gpd (7 gpm)</td>
</tr>
<tr>
<td>(18&quot; Trunkline)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>POD-3 – 589,500 gsf</td>
<td>Institutional / Educational</td>
<td>0.03 gal/day per GSF</td>
<td>17,685 gpd (13 gpm)</td>
</tr>
<tr>
<td>(10&quot; Trunkline)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>POD-4 – 120,000 gsf</td>
<td>Institutional / Educational</td>
<td>0.03 gal/day per GSF</td>
<td>3,600 gpd (3 gpm)</td>
</tr>
<tr>
<td>(10&quot; Trunkline)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>POD-5 – 469,250 gsf</td>
<td>Institutional / Educational</td>
<td>0.03 gal/day per GSF</td>
<td>14,077 gpd (10 gpm)</td>
</tr>
<tr>
<td>(18&quot; Trunkline)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>POD-6 – 50,000 gsf</td>
<td>Institutional / Educational</td>
<td>0.03 gal/day per GSF</td>
<td>1,500 gpd (1 gpm)</td>
</tr>
<tr>
<td>(18&quot; Trunkline)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>POD-7/8 – 93,000 gsf</td>
<td>Institutional / Educational</td>
<td>0.03 gal/day per GSF</td>
<td>2,790 gpd (2 gpm)</td>
</tr>
<tr>
<td>(18&quot; Trunkline)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>POD-9 – 50,000 gsf</td>
<td>Institutional / Educational</td>
<td>0.03 gal/day per GSF</td>
<td>1,500 gpd (1 gpm)</td>
</tr>
<tr>
<td>(18&quot; Trunkline)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nuclear Research Facility</td>
<td>Replaced by POD-1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>(10&quot; Trunkline)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>River Road Buildings</td>
<td>Same as Existing</td>
<td>10 gal/day per person</td>
<td>3,450 gpd (3 gpm)</td>
</tr>
<tr>
<td>(18&quot; Trunkline)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Laser Lab/COI</td>
<td>Same as Existing</td>
<td>10 gal/day per person</td>
<td>3,800 gpd (3 gpm)</td>
</tr>
<tr>
<td>(10&quot; Trunkline)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Whipple Park Apartments</td>
<td>Same as Existing</td>
<td>240 gal/day per unit</td>
<td>60,000 gpd (42 gpm)</td>
</tr>
<tr>
<td>(18&quot; Trunkline)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Residences East of Rezone Site</td>
<td>Same as Existing</td>
<td>320 gal/day per home</td>
<td>88,000 gpd (62 gpm)</td>
</tr>
<tr>
<td>(10&quot; Trunkline)</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>West Henrietta Pump Station</td>
<td></td>
<td>600 gpm**</td>
<td>(600 gpm)</td>
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<tr>
<td>(18&quot; Trunkline)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- *Based on River Road Building (3,450 gpd / 133,300 gsf)
- **MCPW Record Data
Total Projected Average Daily Flow from Future Development = 60,000 gpd +/- (42 gpm +/-)
Total Projected Average Daily Flow to 10" Trunkline = 87 gpm +/-
Total Projected Average Daily Flow to 18" Trunkline = 685 gpm +/-
Total Projected Average Daily Flow into Brighton #5 Pump Station = 752 gpm +/-

### Projected Peak Flows

<table>
<thead>
<tr>
<th>Building (Sewer)</th>
<th>Average Daily Flow</th>
<th>Peaking Factor</th>
<th>Total Estimated Peak Flow Rate</th>
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</thead>
<tbody>
<tr>
<td>POD-1 – 312,500 gsf (10&quot; Trunkline)</td>
<td>7 gpm</td>
<td>2.5</td>
<td>17.5 gpm</td>
</tr>
<tr>
<td>POD-2 – 312,500 gsf (18&quot; Trunkline)</td>
<td>7 gpm</td>
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<tr>
<td>POD-3 – 589,500 gsf (10&quot; Trunkline)</td>
<td>13 gpm</td>
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<td>POD-4 – 120,000 gsf (10&quot; Trunkline)</td>
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<td>POD-5 – 469,250 gsf (18&quot; Trunkline)</td>
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<td>POD-6 – 50,000 gsf (18&quot; Trunkline)</td>
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<td>POD-7/8 – 93,000 gsf (18&quot; Trunkline)</td>
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<td>5 gpm</td>
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<td>POD-9 – 50,000 gsf (18&quot; Trunkline)</td>
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<td>Nuclear Research Facility (10&quot; Trunkline)</td>
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<td>Laser Lab/COI (10&quot; Trunkline)</td>
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<td>Residencias East of Rezone Site (10&quot; Trunkline)</td>
<td>62 gpm</td>
<td>2.5</td>
<td>155 gpm</td>
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<td>West Henrietta Pump Station (18&quot; Trunkline)</td>
<td>-</td>
<td>-</td>
<td>1,100 gpm*</td>
</tr>
</tbody>
</table>

*MCW Record Data

Total Projected Peak Flow from Future Development = 110 gpm
Total Projected Peak Flow to 10" Trunkline = 220 gpm (< 520 gpm capacity)
Total Projected Peak Flow to 18" Trunkline = 1,265 gpm (< 1,670 gpm capacity)
Total Peak Flow into Brighton #5 Pump Station = 1,485 gpm
The Brighton #5 Pump Station has a pumping capacity of 2,100-gpm. The projected peak demand into the pump station from the entire contributing area is 1,485-gpm, leaving a 615-gpm reserve pumping capacity. Per a meeting with MCPW on 9/2/05 and the available data there are no foreseeable capacity problems at the Brighton #5 Pump Station based on the projected demands from the future development.

4c. Design Requirements

Sanitary sewer extensions and lateral connections would be required to be designed to the Town of Brighton sanitary sewer design requirements. Based on the mixed usage of laboratories and research facilities of the possible buildings, it is likely that the developments would require special permitting under Chapter 149 of the Town of Brighton Code due to the potential of discharges other than standard household of commercial discharge.

5. Discharges Requiring Protection under Chapter 149 of Town Code

Chapter 149 of the Town of Brighton Town Code covers sewers use and regulations. Chapter 149 states as follows regarding prohibited discharges into the public sewer:

Except as hereinafter provided, no person shall discharge or cause to be discharged any of the following described waters or wastes to any public sewer:

A. Any liquid or vapor having a temperature lower than thirty-two degrees Fahrenheit (32°F.) or higher than one hundred fifty degrees Fahrenheit (150°F.).

B. Any water or waste, which may contain more than one hundred (100) milligrams per liter, by weight, of fats, oils or grease.

C. Any gasoline, benzene, naphtha, fuel oil or other flammable or explosive liquid, solid or gas, kerosene, toluene, xylene, ethers, alcohols, carbides, hydrides and sulfides. At no time shall both of two (2) successive readings on an explosion meter at the point of discharge into the system be more than twenty-five percent (25%) nor any single reading be more than forty percent (40%) of the lower explosive limit of the meter. [Amended 1-24-1996 by L.L. No. 1-1996]

D. Any garbage that has not been properly shredded.

E. Any ashes, cinders, sand, mud, grit, straw, anima wastes, shavings, metal, glass, rags, feathers, tar, plastics, wood, manure, fats, oils, greases and waxes or any other solid or viscous substance capable of causing obstruction to the flow in sewers or other interference with the proper operation of the sewage works, in the opinion of the Sewer Commission. [Amended 1-24-1996 by L.L. No. 1-1996]

F. Any water or wastes having a pH lower than six point zero (6.0) or higher than nine point zero (9.0) or having any other corrosive property capable of causing damage or hazard to structures, equipment and personnel of the sewage works, in the opinion of the Sewer Commission.

G. Any water or wastes containing a toxic or poisonus substance in sufficient quantity to injure or interfere with any sewage treatment process, constitute a hazard to humans or animals or create any hazard in the receiving waters of the sewage treatment plant, in the opinion of the Sewer Commission. A toxic substance shall include but not be limited to any pollutant identified pursuant to Section 307(a) of the

H. Any water or wastes containing suspended solids of such character and quantity that unusual attention or expense is required to handle such materials at the sewage treatment plant.

I. Any noxious or malodorous gas or substance.

J. Any waste or discharge otherwise prohibited or regulated by the current rules and regulations of the Monroe County Pure Waters Districts. [Added 1-24-1996 by L.L. No. 1-1996]

Further, as also stated in Chapter 149, there are wastes that are subject to review by Superintendent; pretreatment; sampling analyses. These guidelines are as follows:

A. The admission into the public sewers or any waters or wastes having the following characteristics shall be subject to the review and approval of the Superintendent: [Amended 1-24-1996 by L.L. No. 1-1996]

(1) A five-day biochemical oxygen demand greater than three hundred (300) milligrams per liter by weight.
(2) Containing more than three hundred fifty (350) milligrams per liter by weight of suspended solids.
(3) Containing any quantity of substances having the characteristics described in § 149-11.
(4) Having an average daily flow greater than eight-tenths percent (0.8%) of the average daily sewage flow of the sewer district.

B. Where necessary, in the opinion of the Sewer Commission, the owner shall provide at his or her expense such preliminary treatment as may be necessary to:

(1) Reduce the biochemical oxygen demand to three hundred (300) milligrams per liter and the suspended solids to three hundred fifty (350) milligrams per liter by weight;
(2) Reduce objectionable characteristics or constituents to within the maximum limits provided for in this Article;
(3) Control the quantities and rates of discharge of such waters or wastes; or
(4) Meet the requirements of federal, state and county agencies having jurisdiction. [Added 1-24-1996 by L.L. No. 1-1996]

C. Plans, specifications, monitoring programs and any other pertinent information relating to proposed preliminary treatment facilities shall be submitted for the approval of the Superintendent. Regular sampling analyses and reporting may be required by the Superintendent, shall meet the Superintendent's requirements and shall be at the expense of the owner. [Amended 9-26-1968; 1-24-1996 by L.L. No. 1-1996]

The University has a hazardous waste program where all waste going down the drain is regulated. The University collects and reprocesses much of the chemical waste it produces. Currently, the University does not discharge any of the listed items and clearly complies with the code. Future proposals for building on the Rezone Property will conform to the requirements of Chapter 149 of the Town code.
6. Conclusions

Based on the available data, calculations, and discussions with Monroe County Pure Waters, there is capacity available in the existing sanitary sewer system for the future development of the Rezone Property to discharge wastewater into the system. The existing sanitary sewer is deep enough to allow for the possible extension of the sanitary sewer. Pump stations will not be required to convey wastewater from any portion of the Rezone Property. There are no current investigations into infiltration or concerns with infiltration of the sanitary sewers on or tributary to the University of Rochester Rezone Property. There will be no improvements required to the existing sanitary sewer system or pump stations. To confirm the existing sanitary flow rates and reserve capacity, flow meters will be placed in-line at the 10-in and 18-in trunklines from February thru April.
Figure 1 – Project Location Map
Sanitary Sewer Analysis

* The future U of R development will connect to the existing sanitary sewer along an 18" trunkline & a 10" trunkline
* Both trunklines are tributary to the existing McPul Pump Station located at 289 East River Road (pump station pumps are variable speed, continuous pump)
* Analyze flows for both systems

18" Trunkline

* Min Capacity -> 18" @ 0.12% = 1,670 gpm

Existing Flows

* Whenetta Pump Station = 600 gpm — McPul Records
  1,100 gpm peak
* Whipple Park Apartments = 250 units x 240 gpd/unit = 60,000 gpd (42 gpm)
* U of R River Road Building = 345 persons x 10 gpd/person = 3,450 gpd (3 gpm)

Total avd. daily flow = 600 gpm + 42 gpm + 3 gpm = 645 gpm
Total peak flow = 1100 gpm + (45 gpm x 2.5 peakin factor) = 1212.5 gpm say 1215 gpm

Future Flows

* Usage of the future development of U of R will be similar to the U of River Road Building
* Develop an average usage rate based on the existing usage and gross square footage of River Road Building

  3450 sq ft / 335,300 sq ft = 0.03 gpd/sq ft

  * Pod 2 = 312,500 sq ft x 0.03 gpd/sq ft = 9,375 gpd
  * Pod 3 = 409,250 sq ft = 14,077 gpd
  * Pod 5 = 50,000 sq ft = 1,500 gpd
  * Pod 7/b = 93,000 sq ft = 2,790 gpd
  * Pod 9 = 50,000 sq ft = 1,500 gpd

  29,242 gpd (20 gpm)

Total projected ADF = 645 gpm + 20 gpm = 665 gpm
Total projected peak = 1100 gpm + ((45x20 gpm) x 2.5 PF) = 1,262.5 gpm say 1265 gpm
  (1,670 gpm capacity)
10' TRUNKLINE

MIN CAPACITY -> 10' @ 0.28% = 520 gpm

EXISTING FLOWS

- 205 HOMES (ASSUME 3 BDRM) x 320 gpd/h = 66,400 gpd
- ~45 APARTMENTS (ASSUME 3 BDRM) x 320 gpd//apt = 14,400 gpd
  = 80,800 gpd

  + 10% -> 88,000 gpd

  U OF R LASER LAB = 380 PERSONS x 10 gpd/person = 3,800 gpd

TOTAL AVERAGE DAILY FLOW = 88,000 gpd + 3,800 gpd = 91,800 gpd (63.8 gpm) SAY 65 gpm
TOTAL PEAK FLOW = 65 gpm x 2.5 PF = 162.5 gpm SAY 165 gpm

FUTURE FLOWS

(USE 0.03 gpd/sf AS DETERMINED FOR 18' TRUNKLINE CALCS)

- Poo 1 = 312,500 gsf x 0.03 gpd/sf = 9,375 gpd
- Poo 3 = 589,500 gsf = 17,685 gpd
- Poo 4 = 120,000 gsf = 3,600 gpd
  = 30,660 gpd (22 gpm)

TOTAL PROJECTED ADF = 65 gpm + 22 gpm = 87 gpm
TOTAL PROJECTED PEAK = 87 gpm x 2.5 PF = 217.5 gpm SAY 220 gpm OKAY

520 gpm CAPACITY

CHECK FLOW CALCULATIONS INTO E. RIVER ROAD PUMP STATION

FROM MCLPW RECORD DATA AT PUMP STATION AT 289 E. RIVER ROAD:

- AVG PUMP RATE = 700 gpm
- PEAK PUMP RATE = 1300 gpm

PER MCLPW RECORD DATA (MEETING 1/20/02)
(STATION HAS CAPACITY TO PUMP 2100 GPM)

CALCULATED (EXISTING)

- AVG FLOW INTO PUMP STATION = 645 gpm + 65 gpm = 710 gpm OKAY & PEAK FLOW
- PEAK FLOW INTO PUMP STATION = 1215 gpm + 165 gpm = 1380 gpm (APPROXIMATIONS CHECK)
* Total projected AOF from future development = 29,242 gpd + 30,660 gpd = 59,902 gpd
  (San 60,000 gpd)

* Total projected peak from future development = 42 gpm x 2.5 pp = 105 gpm

* Per meeting with MCPW on 9/2/05 there is no foreseeable capacity problems at the pump station located at 289 East River Road based on projected demand of 60,000 gpd.

* Per meeting with MCPW on 9/2/05, MCPW is not aware of infiltration issues at the sewers tributary to either pump station.
Discussion of the sanitary sewer system in and around U of R Rezone Property:
- MCPW operates and maintains the sanitary pump stations and force mains in the Town of Brighton.
  - MCPW has easements on the force mains.
- The Town of Brighton owns and maintains the gravity sewer throughout the Town.
- There are two pump stations in the vicinity of the Rezone Property.
  1. Brighton #5 Pump Station located at 289 East River Road.
     - Maximum pump capacity of 2,100-gpm
     - 700-gpm average pumping rate (based on recent records)
     - 1,300-gpm peak pumping rate (based on recent records)
     - The pump station has three (3) continuous variable speed pumps
  2. West Henrietta Pump Station located at 2613 West Henrietta Road.
     - 1.45 MGD Average
     - 600-gpm average pumping rate (based on recent records)
     - 1,100-gpm peak pumping rate (based on recent records)
     - The pump station has three (3) continuous variable speed pumps
MCPW is not aware of or investigating infiltration problems within sewer tributary to Brighton Pump Station.
- Told Kevin that the expected average flow rate into Brighton #5 Pump Station was 60,000-gpd based on an institutional use and asked if there was capacity available based on this expected demand.
- Based on a demand of 60,000-gpd, MCPW does not foresee capacity problems at Brighton #5 Pump Station.

__________________________
Signature
SC1  BRIGHTON #5  W. BRIGHTON  SELECTOR

STATION INFORMATION

289 E. RIVER RD.

Number of Pumps: 3

District: 8545

Mile SQ: 124

Telephone Water Service

Electrical/Control Arrangement

Type of Telemetry

PLC
Level
Flow
Recorder

CAD DRAWINGS

Revised: 4/2/2000
SC1  BRIGHTON #5  W. BRIGHTON  SELECTOR

STATION  WETWELL  FORCE MAIN  GRINDER  PUMPS  RADIO  POWER  OPER PROC.  DOWN TIME

WETWELL

ENTRANCE MANHOLE
50' SOUTHEAST CORNER OUTSIDE FENCE

CONFINED SPACE PERMIT REQUIRED

<table>
<thead>
<tr>
<th>DRY WELL</th>
<th>WET WELL</th>
<th>SCREEN ROOM</th>
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<tbody>
<tr>
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ALARM FLOAT LOCATION

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FLOWMETER Y/N

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REVISED: 4/2/2000
## Pumps

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Revised: 4/12/2000
SC1 BRIGHTON #5  W. BRIGHTON  SELECTOR

STATION DOWN TIME / TRAVEL TIME

<table>
<thead>
<tr>
<th>Dry Down Time</th>
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<td>1.15 Hours</td>
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2618 W. Hen. Rd.

Brighton

Picture of Station  Wet sumbersible  Map of Station

Number of Pumps 3

DISTRICT SC

MILE SQ

TELEPHONE WATER SERVICE

Electrical/Control Arangement

Type of Telemetry

PLC Yes

Level bubbler

Flow

Recorder

CAB DRAWINGS

REVISED 12/03
SC2 WEST HENRIETTA  W. BRIGHTON

STATION  WETWELL  FORCE MAIN  GRINDER  PUMPS  RADIO  POWER  OPER PROC  DOWN TIME

WETWELL

ENTRANCE MANHOLE
In driveway lift 514.25

CONFINED SPACE PERMIT REQUIRED

<table>
<thead>
<tr>
<th>DRY WELL</th>
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ALARM FLOAT LOCATION

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FLOWMETER Y/N

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FLOW METER INFO

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REvised: 4/10/2000
### PUMP Specifications

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**BYPASS HOOKUP**

**REVISED:** 12/10/03
**STATION DOWN TIME / TRAVEL TIME**

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DRAFT GENERIC ENVIRONMENTAL IMPACT STATEMENT

APPENDIX G – Wetland Delineation Report

THE UNIVERSITY OF ROCHESTER
IPD REZONING

Town of Brighton
Monroe County, New York
Mr. Scott Jones  
NYSDEC - Region 8  
Bureau of Habitat  
6274 East Avon-Lima Road  
Avon, New York 14414-9519

RE: Wetlands Boundary Verification  
University of Rochester

Dear Mr. Jones:

On behalf of the University of Rochester, Environmental Resources, LLC (ERS) submits the enclosed wetland delineation report in support of a jurisdictional determination with regard to delineated site Wetland “G”. As shown in Figure 5 of the report, Wetland “G” is located on a 230± acre study area, between Murlin Drive and adjacent to an abandoned railroad grade in the Town of Brighton, Monroe County. The entire 230± acre site is currently under Town review for re-zoning from Single Family Residential to Institutional Planned Development.

Our delineation and subsequent instrument survey of the wetland has determined its on-site area to be 8.37± acres, with a portion of the wetland extending off-site along the railroad embankment.

In the event that a site visit is necessary, please contact me in advance so that I can arrange to meet you on site.

Sincerely,

Environmental Resources, LLC

[Signature]

Gene Pellett  
Wetlands Ecologist/Member

Cc: University of Rochester  
Ramsey Boehner, Town of Brighton  
Dan Aken, FRA Engineering
September 13, 2005

Department of the Army
Buffalo District, Corps of Engineers
Regulatory Affairs
1776 Niagara Street
Buffalo, New York 14207-3199

RE: Jurisdictional Wetlands Determination
    University of Rochester

Dear Sir/Madam:

Environmental Resources, LLC (ERS) submits the enclosed wetland delineation report on behalf of the University of Rochester in support of a jurisdictional determination of site wetlands delineated on the above referenced 230± acre study area, located in the Town of Brighton, Monroe County, New York.

The Town of Brighton has requested written jurisdictional confirmation, as the site is currently under review for re-zoning from Single Family Residential to Institutional Planned Development.

In the event that a site visit is necessary, please notify me of the date in which the USACE plans a field review so that I can arrange to meet you on site. Should the site visit be scheduled with less than one days notice, I can be reached by mobile phone at (585) 233-5150, and in most cases will be able to rearrange my schedule to meet you that day.

If you have any questions on the enclosed or require additional information, please feel free to contact me.

Sincerely,

Environmental Resources, LLC

[Signature]

Gene Pellett
Wetlands Ecologist/Member

Enclosure

Cc: University of Rochester
    Ramsey Boehner, Town of Brighton
    Dan Aken, FRA Engineering
WETLAND DELINEATION REPORT

University of Rochester
(230± Acre South Campus)

Town of Brighton
Monroe County, New York

Prepared For:

University of Rochester
C/o FRA Engineering
530 Summit Point Drive
Henrietta, New York 14467

Prepared By:

Environmental Resources, LLC
33 Kress Hill Drive
Spencerport, New York 14559

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INTRODUCTION

At the request of FRA Engineering, for The University of Rochester (U of R), Environmental Resources, L.L.C., (ERS), undertook a study to delineate and describe the Waters of the United States that occur on a 230+/- acre parcel of land located in the Town of Brighton, Monroe County, New York (see Appendix A—Figure 1). Waters of the United States, as defined by the United States Army Corps of Engineers (USACE), include all lakes, ponds, rivers, streams (intermittent and perennial), and non-isolated wetlands. Wetlands as referenced in this report are defined in Section 404 of the Clean Water Act as, “those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and under normal circumstances do support a prevalence of vegetation typically adapted for life in saturated soil conditions”. This report describes the Waters of the United States delineated within the study area and the methodology used in making the boundary determinations. It provides the information necessary to identify all on-site Waters of the United States and can be used to support any subsequent permit applications that may be submitted to the USACE (Buffalo District) and New York State Department of Environmental Conservation (NYSDEC) (Region 8).

SITE DESCRIPTION

This study area generally occurs south of Interstate Highway I-390 and east of the former Lehigh Valley Railroad and Rochester Gas and Electric Power Line Rights Of Way (ROW). To the south, the property extends 1900+/- feet south of Crittenden Road and 1100+/- feet east of the ROW. From Crittenden Road northward, the east and south boundaries are coincident with existing residential development. The study area encompasses a wide variety of developed and undeveloped lands.

Developments include substantial administrative and research facilities, a former school complex with accompanying parking lots, and grounds along East River and Kendrick Roads and Murlin Drive, (see Figure 5). The last major development is a housing complex east of the southern third of Murlin Drive.

The remainder of the study area (about two-thirds) is undeveloped with only incidental trails. A wide variety of habitats exist from old-field, shrub/scrub, successional forest, hardwood forest and wetlands (emergent to wet woods).

RESOURCE INFORMATION

To determine the possibility of wetlands occurring within the study area, the following background information was collected and reviewed.

United States Geologic Survey (USGS) Topographic Map
The project site is located within the West Henrietta, New York Quadrangle Map. This map shows a total relief of 25+/- feet across the entire site. The area has gentle slopes in all directions, however, has a prevalent fall to the west and north. While obvious drainage patterns are expected, no streams, ponds, or defined waterways are shown.
United States Fish and Wildlife Service National Wetlands Inventory (NWI) Map
The NWI map in Figure 2 indicates three suspected wetlands on the project site described as follows:
- PFO/SS1E (palustrine forested/scrub-shrub, broad-leaved deciduous, seasonally saturated. (Note: This area coincides with delineated Wetlands J and K located north of Westfall Road.)
- PFO1A (palustrine, forested, broad-leaved deciduous, temporary). (Note: Mapped as two separate areas these wetlands coincide with delineated Wetlands G and E in the central and southern portions of the site.)

NYS Freshwater Wetland Map
As shown in Figure 3, no NYSDEC wetlands are shown to be present on the site, although, BR-16 is located just south and east of the parcel south of Crittenden Road.

Monroe County Soil Survey
A review of the Monroe County Soil Survey (USDA, March 1973) indicates one seasonal drainage in the northern portion of the site. Associated with gently sloping lands, the soil types are described below and shown in Figure 4.
- CeB—Cayuga silt loam, 2 to 6 percent slopes—this series is a deep, well-drained and moderately well drained soil with a medium-textured surface layer and a fine textured to moderately fine textured subsoil. A seasonal high water table rises to within 18 to 24 inches of the surface and is perched above the moderately slowly to slowly permeable subsoil. This soil has relatively high clay content. This soil is well suited to all close-growing crops and moderately suited to intertilled crops. Water erosion, compaction, and clodding are concerns. Some areas may need drainage.
- CkA—Claverack loamy fine sand, 0 to 2 percent slopes—this is a deep, moderately well drained coarse-textured soil that borders or occurs in old glacial lakebeds. A seasonal high water table exists like the previous soil. The soil is suited to most crops. Seasonal wetness and dryness are the main limitations. Soil blowing after dry periods may be severe.
- CIA—Collamer silt loam, 0 to 2 percent slopes—this soil is a deep, moderately well drained, medium-textured soil. A seasonal high water table rises to within 18 to 24 inches of the surface and is perched on the moderately slowly or slowly permeable subsoil. Available water capacity is high. It is suited to commonly cultivated crops. Seasonal wetness and erosion are concerns.
- CoB—Colonie loamy fine sand, 0 to 6 percent slopes—this is a deep, well-drained to excessively drained, coarse-textured soil. The Colonie soils formed in water-laid or wind blown deposits of fine sand in association with old lake beds. A seasonal high water table rarely rises to within 4 feet of the surface. The available water capacity is low. Left exposed, soil blowing is a serious hazard. It is suited to most crops; however, soil blowing and lack of adequate moisture are significant limitations.
- CoC—Colonie loamy fine sand, 6 to 12 percent slopes—this soil carries the limitations of the previous CoB even further. It is poorly suited to most crops except specific fruit crops. Droughtiness, susceptibility to soil blowing, and slope limit this soil for crops.
• Cu—Cosad loamy fine sand—this is made up of deep, somewhat poorly drained, coarse-textures soils. A seasonal high water table is within 6 to 12 inches of the surface and is perched above the slowly permeable substratum. Permeability of the surface layer and subsoil is rapid. Available water capacity is very low to moderate in the sandy upper part of the profile. This soil is moderately suited to most commonly cultivated crops and also to pasture and woodland. Drainage is a major management problem.

• EIA—Einora loamy fine sand, 0 to 2 percent slopes—this is a nearly level, moderately well drained soil formed in glacial lake and beach sediments dominated by sand. An apparent seasonal high water table rises into the lower part of the subsoil in early spring and wet periods. Permeability is rapid and rooting depth is limited. The soil has a fair potential for farming: pasture, cultivated crops and fruit. Seasonal high water table, sandy surface layer, and low available water capacity are the main limitations.

• HIA—Hilton loam, 0 to 3 percent slopes—this is a deep, moderately well drained, medium textured and moderately coarse-textured soil that formed in glacial till. A seasonal high water table rises to within 18 to 24 inches of the surface and is perched above the moderately slowly to slowly permeable underlying till. This soil is suitable to most field crops, cash crops, fruit, hay, pasture, and woodland. Improved drainage is generally needed.

• Le—Lakemont silt loam—this is a deep, poorly drained to very poorly drained soil with a medium-textured surface layer and a fine-textured subsoil. It is a level to nearly level soil formed in high-lime lacustrine clay and silt. A seasonal high water table is at or nearly at the surface and persists for a significant length of time. Runoff is very slow and many areas are ponded. Pasture grasses and wetness tolerant trees are suitable. Prolonged wetness is a major management concern.

• OdA—Odessa silt loam, 0 to 2 percent slopes—this is a deep, level to gently sloping, somewhat poorly drained soil with a medium-textured surface layer and a fine-textured subsoil. A seasonal high water table is within 6 to 12 inches of the surface and is perched above slowly permeable subsoils. Available water capacity is moderate to low. This soil is suited to crops, pasture, and woodland. Adequate drainage facilitates agricultural activities.

• SeA—Schoharie silt loam, 0 to 2 percent slopes—this is a deep, moderately well drained to well drained soil with a medium-textured or moderately-fine textured surface layer and fine to moderately-fine textured subsoil. A seasonal high water table rises to within 18 to 24 inches of the surface during wet seasons. Available water capacity of the root zone (20-30 inches) is moderate to high. This soil can be used for crops, pasture, or woodland. Seasonal wetness and timing of agricultural practices to maintain tillth are management concerns.

• SeB—Schoharie silt loam, 2 to 6 percent slopes—this soil is characterized the same as the previous SeA except having slightly more slope. Compaction, again, is the major management concern.

The USDA Natural Resource Conservation Service (USDA SCS, 1989) has determined the Lakemont soil series to be hydric soil. The Cosad and Odessa series may have hydric soil inclusions. Cayuga, Claverack, Collamer, Colonie, Einora, Hilton and Schoharie series are determined to be non-hydric. Artificial drainage (ditches, stream excavations, tile, etc.) may affect the relative suitability of soils for various crops, forest species, and certainly other developments.
WETLAND DELINEATION METHODOLOGY

A wetland delineation including detailed data collection and boundary identification was performed on June 24, July 13, 14, 18, and 21, 2005, by wetlands ecologist Gene Pellett and wildlife biologist John Hauber. During the field investigation, the boundaries of all wetlands within the study area were flagged using surveyor’s ribbon or specifically noted on appropriate mapping. Data was collected from a thorough assessment of the property; particular attention was given to suspected hydric and potentially hydric soils.

Wetlands on site were delineated according to the methodology described in the 1987 Corps of Engineers Wetland Delineation Manual (hereafter referred to as the 1987 Manual) (Environmental Laboratory, 1987). Observations of vegetation, soils, and hydrologic conditions were used to determine the boundaries of federally and state regulated wetlands. Data sheets were completed for the sample plots, including verifying upland points, and are presented in Appendix B. Representative photographs were taken of the wetland, as well as adjacent uplands, and are presented in Appendix C (the locations of the photographs are indicated in Appendix A, Figures 5).

Vegetation data collection focused on dominant plant species in four categories: trees (>3” DBH), sapling/shrubs (<3.2’ tall), woody vines, and herbs (<3.2’ tall). Dominance was measured by visually estimating those species having the largest relative basal area (trees), greatest density (saplings/shrubs), greatest number of stems (woody vines), and greatest percentage of aerial coverage (herbs) by species. The species were rank-ordered for each category by decreasing value of percent cover. The dominate species for each category are defined as those plants with the highest ranking which, when cumulatively totaled, exceed 50 percent of the total dominance measure for that category, plus any additional plant species comprising 20 percent or more of the total dominance measure for the category. The indicator status for each species was determined by reference to the National List of Plant Species that Occur in Wetlands: Northeast (Region 1) (Reed, 1988), or by reference to species habitat descriptions from various botanical sources for those species not on the national list. Scientific nomenclature for plant species follows that in A Checklist of New York State Plants (Mitchell, 1986). A sampling plot was determined to have wetland vegetation if 50 percent or more of all dominate plant species are of facultative (FAC), facultative wetland (FACW), or obligate (OBL) indicator status, as described in the 1987 Manual.

Soils information was collected using a Dutch soil auger. Information concerning soil series, subgroup, drainage classification, texture, and matrix and mottle color was obtained at each sample location. Soil color was determined using Munsell Soil Color Charts (Kollmorgen Corp., 1992).

Hydrologic characteristics (inundation and soil saturation) were visually assessed to a depth of sixteen inches. The 1987 Corps Manual lists the following indicators as evidence of wetland hydrology: (1) visual observation of inundation, (2) visual observation of soil saturation, (3) watermarks, (4) drift lines, (5) sediment deposits, (6) absence of leaf litter, (7) encrusted detritus, and (8) drainage patterns. Based on professional judgment, the following additional indicators were also used as evidence of wetland hydrology: (1) water-stained leaves, and (2) oxidized rhizospheres.
INSTRUMENT SURVEY

An instrument survey of the delineated wetland boundaries was completed by Douglas Magde, LS during August 2005 and is shown in Appendix A, Figure 5.

RESULTS AND DISCUSSION

Twelve significant areas exhibiting wetland criteria, as described in the 1987 Manual, were delineated on the project site (Figure 5). A discussion of each wetland area and their adjacent uplands follows. (Note: There are no delineated Wetlands B, F, H, or I on the project site or referenced in this report.)

Wetland A

Wetland A is a small (0.05 acres), surface water depressional wetland having formed along the east shoulder of Mortimer Road south of Crittenden Road, where Mortimer Road construction has interrupted natural drainage creating wetland conditions. (Photo 1). A culvert under the road conveys high water westward to the railroad ROW. Hydrologic indicators include watermarks on trees and water-stained leaves. Characteristic vegetation includes red maple (Acer rubrum-FAC) and green ash (Fraxinus pennsylvanica-FACW) trees, fowl mannagrass (Glyceria striata-OBL), and silky dogwood (Cornus amomum-FACW) shrubs. Underlying soils have a matrix color of 10YR3/2 (very dark grayish brown) in the A horizon and 10YR3/2 with common faint mottles in the AB horizon. It appears that the interruption of natural drainage here by the developed Mortimer Road has created wetland conditions.

Adjacent Uplands

Surrounding uplands are slightly higher than the adjacent wetland and consist of shrub/scrub and successional forest. Prevalent vegetation includes jimpseed (Polygonum virginianum-FAC), white avens (Geum canadense-FACU), and strawberry (Fragaria virginiana-FACU) on the ground plain; gray dogwood (Cornus racemosa-FAC), silky dogwood (Cornus amomum-FACW) shrubs; green ash trees and saplings, and summer grape (Vitis aestivalis-FACU) vines. Underlying soils have a matrix color of 10YR3/2 in the A and AB horizons and a brighter B horizon of 7.5YR4/3 (brown).

Wetland C

Wetland C is a 2.7± acre forested wetland in the southeast corner of the parcel south of Crittenden Road. (Photo 2). This is a surface water depression, which may receive ground water discharge as well as runoff from surrounding higher ground. Other hydrologic indicators include watermarks, water-stained leaves and some plant adaptations. Characteristic vegetation includes red maple, silver maple (Acer saccharinum-FAC) and green ash trees, and sensitive fern (Cnoulea sensibilis-FACW), fringed sedge (Carex crinita-OBL), and late goldenrod (Solidago gigantea-FACW) in the herbaceous stratum. Underlying soils have hydric character to a depth of 12-inches with a matrix color of 10YR3/2 (very dark grayish brown) in the A and AB horizons with high chroma mottles. The B horizon is light yellowish brown (2.5Y6/4) to yellowish brown (10YR5/6) with faint high chroma mottles.
Adjacent Uplands

Surrounding uplands are second growth deciduous forest, which gently slope to the wetland and lack all indicators of wetland hydrology. (Photo 3). Characteristic vegetation includes black cherry (Prunus serotina-FACU), white oak (Quercus alba-FACU), green ash, and red maple trees, tartarian honeysuckle (Lonicera tatarica-FACU) shrubs, and rough goldenrod (Solidago rugosa-FACU), white avens, bracken fern (Pteridium aquilinum-FACU), jumpseed, and poison ivy (Toxicodendron radicans-FACU) in the herbaceous layer. The underlying soils have a brighter profile with a matrix color ranging from dark brown (7.5YR3/2) to brown (10YR4/3) in the A horizon and very dark grayish brown (10YR3/2) to yellowish brown (10YR5/4) with few faint mottles in the B horizon.

Wetland D

This small (0.16-acre) isolated, depressional wetland occurs in successional forest 200+/-feet west of Wetland C. Driven by the collection of surface water runoff, hydrologic indicators include watermarks and water-stained leaves. Characteristic vegetation includes fringed sedge, silver maple, sensitive fern, rattlesnake manna grass (Glyceria canadensis-OBL), and green ash. Underlying hydric soils have a matrix color of 10YR3/2 in the A horizon with few, high chroma mottles, 10YR4/1 (dark gray) with common high chroma mottles in the AB horizon, and 10YR5/2 (grayish brown) with many high chroma mottles in the B horizon.

Adjacent Uplands

Surrounding uplands are successional forest dominated by black cherry, gray dogwood, pin oak (Quercus palustris-FACW), common buckthorn (Rhamnus cathartica-FAC) in the tree and shrub strata, and jumpseed. (Photo 3). Underlying soils are non-hydric having a matrix color of 10YR4/3 (brown) in the A horizon and 10YR5/4 (yellowish brown) in the B horizon.

Wetland E

Wetland E is a 0.93-acre expanded, wooded wetland drainage in the northeast corner of the parcel south of Crittenden Road. (Photo 4). This area collects surface water runoff from surrounding uplands, with seasonal hydrologic flow northward under the road to private lands. Indicators of wetland hydrology include watermarks, drift lines, oxidized root channels and water-stained leaves. Characteristic vegetation includes silver maple, green ash, American elm (Ulmus americana-FACW), tartarian honeysuckle, and common buckthorn in the tree and shrub strata, and pale touch-me-not (Impatiens pallida-FACW) and fowl manna grass (Glyceria striata-OBL) on the ground plain. Underlying hydric soils have a matrix color ranging from very dark gray (10YR3/1) to very dark grayish brown (10YR3/2) in the A horizon, dark gray (10YR4/1) to very dark grayish brown with common to many high chroma mottles in the AB horizon, and grayish brown (2.5Y5/2) to dark gray with common to many high chroma mottles in the B horizon.
Adjacent Uplands

The adjacent uplands include shrub/scrub, successional and more mature forest. (Photo 5). Characteristic vegetation includes jumpseed, moneywort loosestrife (Lysimachia nummularia-FACW), poison ivy, yellow avens (Geum alleplicum-FAC), green ash, tartarian honeysuckle, Virginia creeper (Parthenocissus quinquefolia-FACU), silver maple, common buckthorn, and summer grape (Vitis aestivalis-FACU). Underlying soils have a matrix color of 10YR3/2 (very dark grayish brown) in the A horizon and brown (10YR4/3) with faint mottles to yellowish brown (10YR5/4) in the B horizon.

Wetlands make up only a small part of this parcel south of Crittenden Road. The land peaks near the southwest corner and is nearly 25 feet above the northeast and northwest corners. A gentle ridge falls northward through the middle of the parcel with relief also gently falling northeast and northwest. Former agricultural ground is suggested with some fencing found but more specifically due to the very old-field, shrub/scrub, and successional forest habitats that dominate. While some larger specimen hardwood trees are found, more mature trees are more common near the southern border and in or near Wetlands C and E.

An upland data sample plot (Appendix B, Data Point 35U) taken near the middle of the parcel presents representative vegetative species: heal-all (Prunella vulgaris-FACU), jump seed, rough and lae goldenrod, and white avens herbs, and gray dogwood (Cornus racemosa-FAC) and common buckthorn shrubs, summer grape vines, and green ash trees and saplings. Underlying soils generally have a matrix color of very dark grayish brown (10YR3/2) in the A horizon and brown (10YR4/3) in the B horizon, neither with mottles. This sample was typical of much of the site south of Crittenden Road.

Wetland G

Wetland G is a large 8.37± acre wetland complex west and northwest of the U of R housing complex along Murlin Drive. This wetland essentially involves two expansive wetlands which border and drain across the RG&E ROW and former railroad and are separated by a mature upland forest. However, on the east side, where drainage feeds the wetland under and along Murlin Drive, a 500+/-foot wetland swale joins the two wetlands. The character of the two parts is distinct and thus will be discussed separately below: Wetland G-North and Wetland G-South.

Wetland G-North is a varied complex with emergent, wet meadow, shrub/scrub, and wooded wetland components. (Photo 6, 7, and 8). It is found northwest of the housing complex and the convex curve of Murlin Drive. The principal source of drainage to the wetland is some specific collection along Murlin Drive, from the former school complex to the northeast, surface water runoff, and possible subsurface discharge. Reoccurring hydrologic indicators throughout this portion of the wetland are watermarks on trees, saturated soils, drainage patterns, oxidized root channels and water-stained leaves.
As noted above, many habitat types occur here. Key and reoccurring characteristic vegetation includes sensitive fern, fowl mannagrass, fringed sedge, rattlesnake mannagrass, broad-leaf water plantain (*Alisma plantago-aquatica*-OBL), and poison ivy in the herbaceous layer, common buckthorn and tartarian honeysuckle shrubs, and silver maple, green ash, and American elm trees. Underlying hydric soils have a matrix color of very dark gray (10YR3/1) in the A horizon (seven of eight sample points) and colors ranging from gray (2.5Y6/1) to light brownish gray (2.5Y6/2) to grayish brown (2.5Y5/2) generally with common high chroma mottles in the B horizon.

**Adjacent Uplands**

Surrounding uplands are generally small to medium timber hardwood forests that exhibit no indicators of wetland hydrology. Slopes gently fall to the wetland while the wetland/upland interface is distinct especially along the south side where a three to six foot abrupt change is present. (Photo 9). Characteristic vegetation includes sugar maple (*Acer saccharum*-FACU), red oak, black cherry, red maple, green ash, American elm, eastern cottonwood (*Populus deltoides*-FACU) trees, common buckthorn, blueberry (*Vaccinium spp.*-FACU), and tartarian honeysuckle in the shrub stratum, and white avens, fowl mannagrass, sensitive fern, jumpseed, smooth rose (*Rosa blanda*-FACU), and others in lesser numbers.

Underlying soils are non-hydric and have a matrix color ranging from very dark grayish brown (10YR3/2) to grayish brown (10YR5/2) in the A horizon and grayish brown (2.5Y5/2) to brownish yellow (10YR6/6) in the B horizon with no mottles.

Two of eight sample points had hydric soil characteristics (10YR3/1 and 2.5Y5/2); however, wetland hydrology and hydrophytic vegetation were not present.

Wetland G-North and Wetland G-South are joined by a wetland swale 8 to 12 feet wide and about 500 feet long that exhibits distinctive drainage patterns. (Photo 10). This swale accepts overland runoff from the east and specific point drainage from two culverts under Murlin Drive. It also expands in several wetland pockets as it proceeds south. Hydrologic indicators typically include watermarks and water-stained leaves. Characteristic vegetation includes green ash, black willow, red maple, and silver maple trees, sensitive fern, fringed sedge and *Cyanophyta* algae. Underlying soils have a matrix color of black (10YR2/1) to very dark grayish brown (10YR3/2) in the A horizon and grayish brown (2.5Y5/2) to brown (10YR5/3) with high chroma mottles in the B horizon.

**Adjacent Uplands**

Adjacent uplands are medium to large timber hardwood forests that lack hydrologic indicators, as they are distinctly elevated (three to six feet) from the swale. (Photo 10).
Characteristic vegetation includes red maple, black walnut (*Juglans nigra*-FACU), green ash, and red oak trees poison ivy, violets (*Viola* spp.-FACU), yellow avens, May apple (*Podophyllum peltatum*-FACU), blueberry, clasping-leaved dogbane (*Apocynum sibiricum*-FAC+), and brackenfern. Underlying soils have a matrix color ranging from dark grayish brown (10YR4/2) to dark yellowish brown (10YR4/4) in the A horizon with no mottles and brown (10YR5/3) to yellowish brown (10YR5/4) with no mottles in the B horizon.

Wetland G-South is an emergent marsh directly west of the housing complex. Its north and east jointure with the upland is abrupt while the southern side is very gradual. This wetland again backs up to and across the RG&E ROW and to the edge of the former railroad bed, holding several (3 to 5+ feet) of water. Much of the eastern portion of the wetland is a heavy, monotypic stand of common reed (*Phragmites australis*-FACW) with standing dead wood. (Photo 12). The western portion has more diverse vegetation typically including narrow-leaf cattail, sedges, lesser duckweed (*Lemma minor*-OBL), iris (*Iris* spp.-OBL), and burreed (*Spartanium* spp.-OBL). Typical indicators of wetland hydrology include surface inundation, saturated soils, watermarks, oxidized root channels and water-stained leaves. Characteristic vegetation found at two or more of the eight data points around Wetland G-South include common reed, green ash, reed canary grass (*Phalaris arundinacea*-FACW+), silver maple, sensitive fern, rice cutgrass (*Leersia oryzoides*-FACW), and spice bush (*Lindera benzoin*-FACW-). Other noted species found only at one location include narrow-leaf cattail, broad-leaf water plantain, fringed sedge, lesser duckweed, big duckweed (*Spirodella polyrhiza*-OBL), and bladder sedge (*Carex intumescens*-FACW+).

Underlying soils are hydric and have a matrix color ranging from very dark gray (2.5Y3/1) to black (10YR2/1) to dark gray (10YR4/1) in the A horizon and very dark gray (10YR3/1) to grayish brown (10YR5/2) with high chroma mottles in the B horizon.

Adjacent Uplands

Surrounding uplands are shrub/scrub, successional forest and mature hardwood forest. Characteristic vegetation found at 3 or more of the 8 data points include sugar maple, red oak, brackenfern, May apple, black cherry, tartarian honeysuckle, and common buckthorn. (Photo 13). Some noted species found at each of 2 sites include American witch hazel (*Hamamelis virginiana*-FACU) and blueberry shrubs, sassafras (*Sassafras albidum*-FACU-), American basswood (*Tilia americana*-FACU), and green ash trees, and clasping-leaved dogbane. Underlying soils are generally brighter having a matrix color ranging from 10YR3/1 (very dark gray) to 10YR5/3 (brown) in the A horizon and 10YR5/4 (yellowish brown) to 10YR6/4 (light yellowish brown) in the B horizon, neither with mottles. There were no indicators of wetland hydrology in the upland areas adjacent to Wetland G-South.
Wetland J

This 1.80-acre isolated depressional wetland is found in the most northern portion of the study area. (Photo 14). It is bounded east and south by Kendrick and East River Roads, respectively, on the north by developed lands and the west by the RG&E ROW and old railroad line. This wetland lies largely in the southwest portion of this parcel, however, includes a narrow swale along the toe of East River Road and north about 450 feet at the toe of Kendrick Road. Indicators of wetland hydrology include soil saturation, watermarks, water-stained leaves, buttressed trees, and encrusted detritus. Dominant vegetation includes common cattail (Typha latifolia-OBL), lesser duckweed, rice cutgrass, and green ash trees and saplings. Underlying hydric soils have a matrix color of 10YR3/1 (very dark gray) in the A horizon and 5Y5/1 (gray) with few, high chroma mottles in the B horizon. Two other data points were dominated by obligate vegetation thus soil conditions are not warranted.

Adjacent Uplands

Surrounding uplands east and south are road shoulders. Otherwise, the uplands are successional hardwoods that exhibit no indicators of wetland hydrology. Characteristic vegetation includes hawthorn (Crataegus spp.-FACU) and tartarian honeysuckle shrubs, yellow poplar (Liriodendron tulipifera-FACU), American beech (Fagus grandifolia-FACU), and black cherry in the tree stratum, and sensitive fern, white avens, and poison ivy on the ground plain. Underlying soils are brighter than those in wetland J and have a matrix color ranging from 10YR4/3 (brown) to 10YR5/4 (yellowish brown) with no mottles in the A horizon and 10YR6/2 (pale brown) to 10YR5/6 (yellowish brown) with no mottles in the B horizon.

Wetland K

Wetland K is an isolated depressional pocket which outlets (overflows) into the isolated Wetland J. (Photo 15). It is wooded and is surrounded on three sides by Wetland J; to the north are woods and developed lands. Hydrologic indicators include watermarks on trees (to 18 inches) and water-stained leaves. Prevalent vegetation includes green ash trees. Underlying soils are hydric having a matrix color of 2.5Y2.5/1 (black) in the A horizon and 5Y5/1 (gray) in the B horizon, neither with mottles.

Adjacent Uplands

Adjacent uplands are successional forest. Vegetation includes yellow poplar, green ash, pin oak, hawthorn, red maple, and tartarian honeysuckle. Underlying non-hydric soils have a matrix color of 10YR4/3 (brown) in the A horizon and 10YR6/3 (pale brown) in the B horizon, no mottles.

The remaining 5 wetlands (Wetlands L, M, N, O, and P) are located southeast of the Laser Research Facility at the corner of East River Road and Murlin Drive. This area has been subject to water management facility developments and a wetland habitat mitigation project as the result of existing developments.
Wetland L

Wetland L is a 0.43-acre marsh specifically developed to provide and enhance chorus frogs (*Pseudacris spp.*), which have documented occurrences in the area. Construction of this wetland was required to mitigate for habitat disturbance resulting from previous developments associated with the nearby Laser Research Facility. (Photo 16). Wetland L has been constructed within a successional forest community and is contained by a low berm which outlets into adjacent Wetland M. Hydrologic indicators include 6-inches inundation, and saturated soil conditions. Characteristic vegetation includes broad-leaf water plantain, narrow-leaf cattail, and common bladderwort (*Utricularia vulgaris*-OBL). Underlying soils are assumed to have hydric character due to dominant obligate vegetation.

Adjacent Uplands

Surrounding uplands are mixed successional forest. (Photo 17). Prevalent vegetation includes common buckthorn, tartarian honeysuckle, black cherry, Austrian pine (*Pinus nigra*-FACU), white avens, and summer grape. Underlying soils have a bright matrix color of 10YR5/3 (brown) in the A horizon and 10YR6/4 (light yellowish brown) in the B horizon, no mottles.

Wetland M

Wetland M is a 0.51± acre constructed storm water management basin (Photo 18) and includes an entrenched constructed drainage swale that conveys runoff from residential developments to the south. The swale is approximately 7 feet below the surrounding landscape, and has a 3-foot wide bed that is vegetated primarily with cattail. The storm water basin is approximately 15 feet below the surrounding landscape and outflows into a box culvert at the basin's northwest corner. Hydrologic indicators include surface inundation (12+ inches), soil saturation, and drainage patterns in the wetland. Characteristic vegetation consists entirely of herbaceous species, including narrow-leaf cattail, broad-leaf water plantain, other submerged aquatics, rice cutgrass, and soft stem bulrush (*Scirpus validus*-OBL). A dominance of obligate vegetation and permanent hydrologic features does not warrant hydric soils.

Adjacent Uplands

Constructed adjacent to the Laser Research Facility, the uplands surrounding the storm water basin consist of mowed lawn and the upland slopes of the basin.

Wetland N

This 0.06-acre wetland is an isolated, surface water depression on the level landscape, occurring about 100 feet south of Wetland L. Seasonal soil saturation is likely. Other hydrologic indicators include oxidized root channels, water-stained leaves and morphological plant adaptations. Dominant vegetation includes rattlesnake mannagrass, silky dogwood shrubs, and green ash trees. Underlying soils have a gray matrix color of 10YR4/1 (dark gray) in the A horizon with common, high chroma mottles and 2.5Y5/2 (grayish brown) with many, high chroma mottles in the B horizon.
Adjacent Uplands

Surrounding uplands are mixed successional forest, and exhibit no indicators of wetland hydrology. (Photo 17). Vegetation characteristic of the area includes common buckthorn, tartarian honeysuckle, black cherry, Austine pine, white avens, and summer grape. Underlying soils have a matrix color of 10YR5/3 (brown) in the A horizon and 10YR6/4 (light yellowish brown) in the B horizon, no mottles.

Wetland O

Wetland O (0.10-acres) is a surface water depressional wetland, which overflows via a scour channel into Wetland M. Characterized as a forested wetland, dominant vegetation includes white willow (Salix alba-FACW), green ash, and eastern cottonwood trees. (Photo 19). Occurring 2 to 3-feet below the adjacent upland landscape indicators of wetland hydrology include watermarks and water-stained leaves. Underlying soils have a matrix color of 10YR3/1 (very dark gray) in both the A and B horizons with common high chroma mottles in A.

Adjacent Uplands

Adjacent uplands consist of hardwood forest and shrub/scrub habitat that occurs between residential development to the south, and maintained old-field associated with U of R research facilities to the north. (Photo 20). Dominant vegetation includes tartarian honeysuckle, green ash, common buckthorn, and occassional apple (Malus spp.-UPL) trees, white avens, and summer grape vines. The bright underlying soils have a matrix color of 10YR4/3 (brown) in the A horizon and 2.5Y5/3 (light olive brown) with few high chroma mottles in the B horizon. This mixed successional forest area exhibits no indicators of wetland hydrology.

Wetland P

This 0.09-acre wetland is a small, created depression just above and east of the stormwater basin (Wetland M). Occurring in a scrub-shrub edge habitat, this wetland is the apparent result of poor grading during construction around Wetland M. Wetland P is dominated entirely by obligate herbaceous narrow-leaf cattail and broad-leaf water plantain, which predicts the soils to be hydric. Indicators of wetland hydrology include surface inundation (8+ inches) and soil saturation.

Adjacent Uplands

Surrounding upland is shrub/scrub habitat, which has no indicators of wetland hydrology. Characteristic vegetation includes tartarian honeysuckle, apple, green ash, summer grape, and white avens. Underlying soils have a matrix color of 10YR4/2 (dark grayish brown) in the A horizon and 10YR6/6 (brownish yellow) in the B horizon, no mottles.
Other Site Uplands

Several other data points were taken to represent sections of the study area not sampled in conjunction with the wetland areas. (See Appendix A, Figure 5a and 5b for locations or these sample points). North of East River Road and east of Kendrick Road is a parcel that is partially developed. The eastern portion of the site is thickly covered by scrub/shrub habitat. The vegetation is dominated by common buckthorn, tartarian honeysuckle, American elm, green ash, and summer grape. Underlying non-hydic soils have a matrix color of 10YR5/3 (brown) in the A horizon and 10YR6/4 (light yellowish brown) in the B horizon, with no mottles. Hydrologic indicators are absent.

The last portion of the study area to be discussed is an extensive mixed successional shrub/old-field and hardwood forest southwest and south of the housing complex (south of the end of Murlin Drive). No hydrologic indicators were found here. Characteristic vegetation includes timothy (Phleum pratense-FACU), fox sedge (Carex vulpinoides-OBL), path rush (Juncus tenuis-FAC), Canada goldenrod, heal-all, and sensitive fern in the herbaceous layer, northern arrowwood (Viburnum dentatum-FAC), silky and gray dogwood shrubs, apple, green ash, and common chokecherry (Prunus virginiana-FACU) trees and saplings, and summer grape vines. Underlying soils are non-hydic, generally having a matrix color of 10YR3/2 (very dark grayish brown) in the A horizon and 10YR4/4 (dark yellowish brown) in the B horizon, no mottles.

WETLAND FUNCTIONS AND BENEFITS

Activities affecting wetlands have been regulated because these areas can provide various functions and benefits, including 1) natural products for human use, 2) habitat for fish and wildlife, 3) habitat for rare plant and animal species, 4) opportunities for recreation, education, and aesthetic appreciation, 5) flood protection, 6) water quality improvement, 7) shoreline erosion control, and 8) groundwater recharge and discharge.

Based on the overall size and diversity of habitats, delineated Wetland G clearly provides the greatest functions and benefits on the 230± acre project site. These include storm water management, water quality improvements, natural products, ground water recharge/discharge, and varied wildlife habitats. Recreational and educational values are present, however, such use is likely limited due to the nature of the ownership and availability of visitors. Some trails were noted around Wetland G and south of the end of Murlin Drive.

Delineated interstate Wetlands E, L, M, O, and P function for storm water collection and conveyance, water quality improvements, and some wildlife habitat. Wetland L also functions as mitigated habitat for the rare chorus frogs, documented to inhabit wetlands behind the existing laser laboratory facility.

Because of their small size and isolated position on the landscape, delineated Wetlands A, C, D, J, K, and N function primarily for storm water collection and limited wildlife habitat primarily for breeding amphibians that may occupy the site.
CONCLUSIONS

This study area is an interesting combination of habitats in proximity to substantial commercial, scientific, educational, and residential development. The habitats vary throughout the study area and generally include:

- Forested/Emergent Wetlands
- Shrub/Emergent Wetlands
- Emergent Wetlands
- Scrub-Shrub Wetlands
- Forested Wetlands
- Successional Shrub Uplands
- Successional Forest Uplands
- Second Growth Deciduous Forest Uplands

Key to this study is the various wetlands on the property, their regulatory jurisdiction, and the nature of their connectivity to Waters of the United States.

ERS delineated a total of twelve areas on the 230± acre project site that have wetland criteria as described in the 1987 Corps of Engineers Wetland Delineation Manual. These site wetlands total 15.30± acres.

It is our professional opinion that six of these (A, C, D, J, K, and N) are non-jurisdictional isolated systems that exhibit no surface connections, evidence of overland flow, or ecological continuum to Waters of the U.S., and therefore are not part of the interstate waterways regulated by Section 404 of the Clean Water Act. Wetlands E, G, L, M, O, and P are considered to be so regulated due to their proximity, connectivity to, or existence as Waters of the United States. However, the USACE makes the final jurisdictional determination based on their site visit and review of historical maps and aerial photographs.

No NYS protected wetlands are so far mapped and identified as being a part of the study area. However, wetland areas hydrologically connected to Wetland G (8.37-acres on-site) west of the project site may contribute to the off-site acreage and character of Wetland G, to be so protected. Review by DEC Region 8, Bureau of Habitat will determine regulatory (State or Federal) jurisdiction of Wetland G.

The study area holds a wide variety of habitats that combine to create an interesting ecological system including adjoining properties.
REGULATORY GUIDANCE

The discharge of fill material into jurisdictional federal wetland areas, as determined by USACE, resulting in the loss of <0.10 acres will likely qualify for Nationwide Permit 39 (NWP 39) requiring notification to USACE 30 days after construction, with no compensatory mitigation requirement. Wetland fills between 0.10 and 0.50 acres should also qualify for NWP 39, and will require pre-construction notification, including a compensatory mitigation plan to USACE. The discharge of fill material into jurisdictional waters exceeding 0.50 acres will require an individual permit.

Should Wetland G be confirmed under State jurisdiction (DEC), Article 24 regulations would apply, which include protection of the wetland and its 100-foot upland adjacent area.
LITERATURE CITED


Legend: Site Boundary
Base Map: USGS Quadrangle Map - West Henrietta, NY
Prepared By: Environmental Resources, LLC

FIGURE 1. SITE LOCATION
Legend: Site Boundary
Base Map: National Wetlands Inventory Map
              West Henrietta, NY
Prepared By: Environmental Resources, LLC

FIGURE 2. FEDERAL WETLANDS
Legend: Site Boundary
Base Map: New York State Freshwater Wetlands Map
West Henrietta, NY
Prepared By: Environmental Resources, LLC

FIGURE 3. STATE WETLANDS
Legend:  — Site Boundary
Base Map: Monroe County Soil Survey (USDA 1973)
Prepared By: Environmental Resources, LLC

FIGURE 4. SOILS
"C" WETLANDS
AREA: 364,690 S.F.
8.37 ACRES
APPENDIX B

Data Sheets
DATA FORM
ROUTINE WETLAND DETERMINATION
1987 USACE Wetlands Delineation Manual

Date: 13-Jul-05
Town: Brighton
County: Monroe
State: New York

Do normal circumstances exist on site? Yes No
Is the site significantly disturbed? Yes No
Is the area a potential Problem Area? Yes No

Emergent Wetland
Transsect/Flag ID: J1 - J11
Plot ID: J1

SOILS
Series and Phase: COHRO LEMNY FINE SAND
Subgroup: AQUE" DEPARTMENTS
Drainage Class: WD MWD SPO PD VPD
Confirmed Mapped Type: Yes No

<table>
<thead>
<tr>
<th>Depth</th>
<th>Horizon</th>
<th>Matrix Color (Munsell Moist)</th>
<th>Redoximorphic Features/Abundance/Contrast (Munsell Moist)</th>
<th>Texture, Structure, Other</th>
</tr>
</thead>
<tbody>
<tr>
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<td></td>
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<td></td>
</tr>
</tbody>
</table>

Hydric Soil Indicators:
- Histosols
- Histric Epipedon
- Sulfidic Odor
- Reducing Conditions
- Landscape Position:
  - Concave
  - Convex
  - Flat
  - Undulating
- Sloping
- Approximate Slope: ___


HYDROLOGY
Recorded Data (Describe in Remarks)
- Local Soil Survey
- NWI Map
- NYS FWX Map
- Stream, Lake or Tide Gauge
- No Recorded Data Available

Field Observations
- Ground Surface Imundated ___ inches
- Soil Saturated - Depth to Saturated Soils ___ inches
- Depth to Free Water ___ inches

Wetland Hydrology Indicators
Primary Indicators
- Imundated
- Water Marks
- Drift Lines
- Sediment Deposits
- Drainage Patterns in Wetland
Secondary Indicators (2 or more required)
- Oxidized Root Channels in upper 12 inches
- Water - Stained leaves
- Local Soil Survey
- FAC - Neutral Test
- Other (Explain in Remarks) encrusted ditribus.

VEGETATION
Dominant Plant Species:
1. Typha latifolia 5/5 T V
2. Eleocharis ovata 4/5 T V
3. Lemna minor 4/5 T V
4. 5/5 T V
5. 5/5 T V
6. 5/5 T V
7. 5/5 T V
8. 5/5 T V
9. 5/5 T V
10. 5/5 T V
11. 5/5 T V
12. 5/5 T V

Stratum:
OBL FACW FAC

Indicator: OBL

50/20 Rule Applied: Yes No
Percent of Dominant Species
OBL, FACW, FAC

WETLAND DETERMINATION
Hydrophytic Vegetation Present? Yes or No
Wetland Hydrology Present? Yes or No
Hydric Soils Present: Yes or No
Is this Sampling Point Within a Wetland? Yes or No

Remarks: Also some plankton, scattered green algae and fish feeding.
DATA FORM
ROUTINE WETLAND DETERMINATION
1987 USACE Wetlands Delineation Manual

Date: 13-Jul-05
Town:  
County: Monroe
State: New York

%cont: University of Rochester
Investigator: G. Pellett  J. Hauber

Do normal circumstances exist on site?  Yes  No
Is the site significantly disturbed?  Yes  No
Is the area a potential Problem Area?  Yes  No

Community: Forest
Transact/Flag ID: @ Jll
Plot ID: [ ]

SOILS
Series and Phase: COLONIAL FINE SAND
Subgroup: ALCIC UDIPSAMEMUS

<table>
<thead>
<tr>
<th>Depth</th>
<th>Horizon</th>
<th>Matrix Color (Munsell Moist)</th>
<th>Redoximorphic Features/Abundance/Contrast (Munsell Moist)</th>
<th>Texture, Structure, Other</th>
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</thead>
<tbody>
<tr>
<td>0-10</td>
<td>A</td>
<td>10YR 4/3</td>
<td></td>
<td>Silt loam cr.</td>
</tr>
<tr>
<td>10-20</td>
<td>B</td>
<td>10YR 4/3</td>
<td></td>
<td>Silt loam, weak sub.</td>
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</table>

Hydric Soil Indicators:
- Histisols
- Histic Epipedon
- Sulfic Odor
- Reducing Conditions

Landscape Position: Concave  Convex  Flat  Undulating

Drainage Class: WD  MWD  SPD  PD  VPD
ConfirmedMapped Type: Yes  No

Remarks: Non-hydric

HYDROLOGY

Recorded Data (Describe in Remarks)
- Local Soil Survey
- NWI Map
- NYS FWW Map
- Stream, Lake or Tide Gauge

Field Observations
- Ground Surface Inundated
- Soil Saturated - Depth to Saturated Soils
- Depth to Free Water

Wetland Hydrology Indicators
Primary Indicators
- Inundated
- Saturated in upper 12 inches
- Water Marks
- Drift Lines
- Sediment Deposits
- Drainage Patterns in Wetland

Secondary Indicators (2 or more required)
- Oxidized Root Channels in upper 12 inches
- Water - Stained leaves
- Local Soil Survey
- FAC - Neutral Test
- Other (Explain in Remarks)

Remarks: None

VEGETATION

Dominant Plant Species:
1. Crataegus sp.
2. Vaccinium arctostaphylos
3. Prunus serotina
4. Ostrya virginiana
5. Taxodium ascendens

Stratum:

Indicator: FACW

WETLAND DETERMINATION

Hydrophytic Vegetation Present? Yes or No
Wetland Hydrology Present? Yes or No
Hydric Soils Present? Yes or No
Is this Sampling Point Within a Wetland? Yes or No

Remarks:
- Upland woods ~ 24" above wetl
- Also red maple, white birch, tulip tree.

Remarks:
Environmental Resources, LLC  
33 Kress Hill Drive  
Spencerport, NY 14559  
(585) 594-4450

DATA FORM  
ROUTINE WETLAND DETERMINATION  
1987 USACE Wetlands Delineation Manual

Date: 13-Jul-05  
Town: Brighton  
County: Monroe  
State: New York

Significant: University of Rochester  
Investigator: G. Pellett J. Hauber

Do normal circumstances exist on site? Yes No  
Is the site significantly disturbed? Yes No  
Is the area a potential Problem Area? Yes No

Community: Forested Wetl.  
Transsect/Flag ID: P 5 19  
Plot ID: 2W

SOILS
Series and Phase: COSA-D Loamy Fine Sand  
Subgroup: Hyuse Upland  
Drainage Class: WD MWD SPD PD VPD  
Confirmed Mapped Type: Yes No

<table>
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<th>Depth (ft)</th>
<th>Horizon</th>
<th>Matrix Color (Munsell Moist)</th>
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<th>Texture, Structure, Other</th>
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<tbody>
<tr>
<td>0-8</td>
<td>A</td>
<td>10YR 3/1</td>
<td>Si 1m. cr.</td>
<td></td>
</tr>
<tr>
<td>8-12</td>
<td>AB</td>
<td>5Y 5/1</td>
<td>Few HC prominent</td>
<td>Sn &lt; 1m. Sab.</td>
</tr>
</tbody>
</table>

Hydric Soil Indicators:
- Histisols
- Histic Epepedon
- Sulfidic Epipedon
- Reducing Conditions
- Landscape Position: Concave Convex Flat Undulating

Remarks: Hydric

HYDROLOGY
Recorded Data (Describe in Remarks)
- Local Soil Survey
- NWI Map
- NYS FWW Map
- Stream, Lake or Tide Gauge
- No Recorded Data Available

Field Observations
- Ground Surface Inundated inches
- Soil Saturated - Depth to Saturated Soils inches
- Depth to Free Water inches

Wetland Hydrology Indicators
Primary Indicators
- Inundated
- Saturated in upper 12 inches
- Water Marks
- Drift Lines
- Sediment Deposits
- Drainage Patterns in Wetland

Secondary Indicators (2 or more required)
- Oxidized Root Channels in upper 12 inches
- Water-Stained leaves
- Local Soil Survey
- FAC - Neutral Test
- Other (Explain in Remarks)

VEGETATION
Dominant Plant Species: Fraxinus Penncylvanica  
Stratum: H 6/5/0 T V  
Indicator: FACW

<table>
<thead>
<tr>
<th>Stratum</th>
<th>Indicator</th>
</tr>
</thead>
<tbody>
<tr>
<td>H 6/5/0</td>
<td>FACW</td>
</tr>
</tbody>
</table>

50/20 Rule Applied: Yes No  
Percent of Dominant Species OBL FACW OBL FACW 100 100

Remarks: Also sedges + Glyceria on periphery

WETLAND DETERMINATION
Hydrophytic Vegetation Present? Yes No  
Wetland Hydrology Present? Yes No  
Hydric Soils Present? Yes No  
Is this Sampling Point Within a Wetland? Yes No

Remarks: All criteria met. Isolated wetland.  
Nearby ditch to N. brings water into wetland.
**DATA FORM**

**ROUTINE WETLAND DETERMINATION**

1987 USACE Wetlands Delineation Manual

<table>
<thead>
<tr>
<th>Licent:</th>
<th>University of Rochester</th>
</tr>
</thead>
<tbody>
<tr>
<td>Investigator:</td>
<td>G. Pellett J. Hauber</td>
</tr>
<tr>
<td>Do normal circumstances exist on site?</td>
<td>Yes</td>
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<tr>
<td>Is the site significantly disturbed?</td>
<td>Yes</td>
</tr>
<tr>
<td>Is the area a potential Problem Area?</td>
<td>Yes</td>
</tr>
<tr>
<td>Community:</td>
<td>Successional Forest</td>
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<tr>
<td>Transect/Flag ID:</td>
<td>@ J1/9</td>
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<td>Plot ID:</td>
<td>20</td>
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</table>

**SOILS**

Series and Phase: **SCHORARIE Silt Loam**
Subgroup: **GLOESSDORIC HAPLUOACFS**

<table>
<thead>
<tr>
<th>Depth</th>
<th>Matrix Color (Munsell Moist)</th>
<th>Redoximorphic Features/Abundance/Contrast (Munsell Moist)</th>
<th>Texture, Structure, Other</th>
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</thead>
<tbody>
<tr>
<td>0-8</td>
<td>10yR 7/4</td>
<td>silt loam</td>
<td></td>
</tr>
<tr>
<td>8-18</td>
<td>10yR 5/4</td>
<td>silt loam</td>
<td></td>
</tr>
</tbody>
</table>

**Hydric Soil Indicators:**
- Histisols
- Histic Epipedon
- Sodic Conditions
- Sulfic Conditions
- Reducing Conditions
- Organic Streaking in Sandy Soils
- Gleyed or Low Chroma color
- High Org. Content in Surface Layer
- Listed on Local Hydric Soils List
- Listed as Potential for Hydric Inclusions Only
- Other (Explain in Remarks)
- Aquic Moisture Regime

**Remarks:**
Non-hydric

---

**HYDROLOGY**

Recorded Data (Describe in Remarks)
- Local Soil Survey
- NWI Map
- NYS FWQ Map
- Stream, Lake or Tide Gauge
- No Recorded Data Available

Field Observations
- Ground Surface Inundated _______ inches
- Soil Saturated - Depth to Saturated Soils _______ inches
- Depth to Free Water _______ inches

Wetland Hydrology Indicators
- Inundated
- Saturated in upper 12 inches
- Water Marks
- Drift Lines
- Sediment Deposits
- Drainage Patterns in Wetland

Secondary Indicators (2 or more required)
- Oxidized Root Channels in upper 12 inches
- Water - Stained leaves
- Local Soil Survey
- FAC - Neutral Test
- Other (Explain in Remarks)

**VEGETATION**

<table>
<thead>
<tr>
<th>Dominant Plant Species</th>
<th>Stratum:</th>
<th>Indicator:</th>
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<tbody>
<tr>
<td><strong>1</strong></td>
<td>Crataegus spp</td>
<td>H S/S</td>
</tr>
<tr>
<td><strong>2</strong></td>
<td>Lycium fendleri</td>
<td>H S/S</td>
</tr>
<tr>
<td><strong>3</strong></td>
<td>Lythrum salicaria</td>
<td>H S/S</td>
</tr>
<tr>
<td><strong>4</strong></td>
<td>Geum canadense</td>
<td>H S/S</td>
</tr>
<tr>
<td><strong>5</strong></td>
<td></td>
<td>H S/S</td>
</tr>
<tr>
<td><strong>6</strong></td>
<td></td>
<td>H S/S</td>
</tr>
<tr>
<td><strong>7</strong></td>
<td></td>
<td>H S/S</td>
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<tr>
<td><strong>8</strong></td>
<td></td>
<td>H S/S</td>
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<td><strong>9</strong></td>
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<td>H S/S</td>
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<td><strong>10</strong></td>
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<td>H S/S</td>
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<tr>
<td><strong>11</strong></td>
<td></td>
<td>H S/S</td>
</tr>
<tr>
<td><strong>12</strong></td>
<td></td>
<td>H S/S</td>
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</tbody>
</table>

50/20 Rule Applied: Yes No

Percent of Dominant Species
- OBL, FACW, FAC
- OBL, FACW

**WETLAND DETERMINATION**

Hydrophytic Vegetation Present? Yes or No

Wetland Hydrology Present? Yes or No

Hydric Soils Present? Yes or No

Is this Sampling Point Within a Wetland? Yes or No

Remarks:
Upland edge between wood and developed lands.
DATA FORM
ROUTINE WETLAND DETERMINATION
1987 USACE Wetlands Delineation Manual

Date: 13-Jul-05
Town: Brighton
County: Monroe
State: New York
Community: Emergent Wet.
Transact/Flag ID: @ J 27
Plot ID: 3 W

SOILS
Series and Phase: CERES LAKE PINE SAV.
Subgroup: MAUC UDORTEHUTS
Drainage Class: WD MWD PW PD VPD
Confirmed Mapped Type: Yes No

<table>
<thead>
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<th>Depth</th>
<th>Horizon</th>
<th>Matrix Color (Munsell Moist)</th>
<th>Redoximorphic Features/Abundance/Contrast (Munsell Moist)</th>
<th>Texture, Structure, Other</th>
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<tbody>
<tr>
<td>*</td>
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</tr>
</tbody>
</table>

Hydric Soil Indicators:
- Histosol
- Histic Epipedon
- Sulfic Odor
- Reducing Conditions
- Landscape Position: Concave Convex Flat Undulating

Remarks:
* OBL dominant veg. No soils data required. Hydroic assumed (surface appears similar to 2W and 4W).

HYDROLOGY
Recorded Data (Describe in Remarks)
- Local Soil Survey
- NWI Map
- NYS FWW Map
- Stream, Lake or Tide Gauge
- No Recorded Data Available

Field Observations
- Ground Surface Inundated
- Soil Saturated - Depth to Saturated Soils 3 inches
- Depth to Free Water 4 inches

Wetland Hydrology Indicators
Primary Indicators
- Inundated
- Water Marks
- Drift Lines
- Sediment Deposits
- Drainage Patterns in Wetland

Secondary Indicators (2 or more required)
- Oxidized Root Channels in upper 12 inches
- Water - Stained leaves
- Local Soil Survey
- FAC - Neutral Test
- Other (Explain in Remarks)

Remarks:

VEGETATION

Dominant Plant Species:
1. *Iphusa latifolia*
2. *Eleocharis minor*

Stratum: 5/5 T V
Indicator: OBL FACW, FAC

WETLAND DETERMINATION
Hydrophytic Vegetation Present? Yes or No
Wetland Hydrology Present? Yes or No
Hydric Soils Present? Yes or No
Is this Sampling Point Within a Wetland? Yes or No

Remarks:
Isolated depression bound by roads to E and S, railroad ROW to W and developed lands
Environmental Resources, LLC  
33 Kress Hill Drive  
Spencerport, NY 14559  
(585) 594-4450

DATA FORM  
ROUTINE WETLAND DETERMINATION  
1987 USACE Wetlands Delineation Manual

Date: 13-Jul-05  
Town: Brighton  
County: Monroe  
State: New York

Do normal circumstances exist on site?  
Yes  No  
Is the site significantly disturbed?  
Yes  No  
Is the area a potential Problem Area?  
Yes  No

Community: Forested Wetland  
Transact/Flag ID: KL- 4W

Series and Phase: SCHUMARE Silt Loam  
Subgroup: GLEISSOBOREIC HAPLUDELFS  
Drainage Class: WD

<table>
<thead>
<tr>
<th>Depth</th>
<th>Horizon</th>
<th>Matrix Color (Munsell Moist)</th>
<th>Redoximorphic Features/Abundance/Contrast (Munsell Moist)</th>
<th>Texture, Structure, Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-9</td>
<td>A</td>
<td>2.5 Y 2.5/1</td>
<td>Si. M. Cr.</td>
<td></td>
</tr>
<tr>
<td>9-12</td>
<td>AB</td>
<td>5 Y 5/1</td>
<td>Sa. M. Wk Sal.</td>
<td></td>
</tr>
</tbody>
</table>

Hydric Soil Indicators:  
- Histisols
- Histic Epipedon
- Sulphic Odor  
- Reducing Conditions
- Listed on Local Hydric Soils List
- Listed as Potential for Hydric Inclusions Only
- Organic Streaking in Sandy Soils
- Gleyed or Low Chroma color
- Aquic Moisture Regime

Landscape Position: Concave  
Sloping  Approximate Slope:  
Hydric. Surrounding Landscape + 24° 36'

HYDROLOGY

Recorded Data (Describe in Remarks)  
Local Soil Survey
NWI Map
NYS FWW Map
Stream, Lake or Tide Gauge
No Recorded Data Available

Field Observations  
Ground Surface inundated inches
Soil Saturated - Depth to Saturated Soils inches
Depth to Free Water inches

Wetland Hydrology Indicators  
Primary Indicators
- Inundated
- Saturated in upper 12 inches  
- Water Marks 18" +
- Drift Lines
- Sediment Deposits
- Drainage Patterns in Wetland

Secondary Indicators (2 or more required)
- Oxidized Root Channels in upper 12 inches
- Water - Stained leaves
- Local Soil Survey
- FAC - Neutral Test
- Other (Explain in Remarks)

Remarks: Depressional pocket.

VEGETATION

Dominant Plant Species: TRACING PERSICUS
Stratum:  
Indicator:

Hydrophytic Vegetation Present? Yes or No
Wetland Hydrology Present? Yes or No
Hydric Soils Present? Yes or No
Is this Sampling Point within a Wetland? Yes or No

Remarks: Isolated wetl. outlets into wetl. J

WETLAND DETERMINATION
DATA FORM
ROUTINE WETLAND DETERMINATION
1987 USACE Wetlands Delineation Manual

Date: 13-Jul-05
Town: Brighton
County: Monroe
State: New York

Do normal circumstances exist on site? Yes No
Is the site significantly disturbed? Yes No
Is the area a potential Problem Area? Yes No

Community: DECIDUOUS TERR
Plot ID: 05 24 K3
Confirmed Mapped Type: Yes No

SOILS
Series and Phase: SCHENECTADY Silt Loam
Subgroup: GLOSSEORIC HAPLUDALFS

<table>
<thead>
<tr>
<th>Depth</th>
<th>Matrix Color (Munsell Moist)</th>
<th>Redoximorphic Features/Abundance/Contrast (Munsell Moist)</th>
<th>Texture, Structure, Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-10</td>
<td>10 yr 1/2</td>
<td></td>
<td>Si, Im, Cr.</td>
</tr>
<tr>
<td>10-18+</td>
<td>10 yr 1/2</td>
<td></td>
<td>Sa Im Cr.</td>
</tr>
</tbody>
</table>

Hydric Soil Indicators:
- Histosols
- Histic Epipedon
- Sufdic Odor
- Reducing Conditions

Landscape Position: Concave Convex Flat Undulating

Hydrology
Recorded Data (Describe in Remarks)
- Local Soil Survey
- NWI Map
- NYS FWW Map
- Stream, Lake or Tide Gauge

Field Observations
- Ground Surface Inundated
- Soil Saturated - Depth to Saturated Soils
- Depth to Free Water

Wetland Hydrology Indicators
Primary Indicators
- Inundated
- Saturated in upper 12 inches
- Water Marks
- Drift Lines
- Sediment Deposits
- Drainage Patterns in Wetland

Secondary Indicators (2 or more required)
- Oxidized Root Channels in upper 12 inches
- Water - Stained leaves
- Local Soil Survey
- FAC - Neutral Test
- Other (Explain in Remarks)

Vegetation

<table>
<thead>
<tr>
<th>Dominant Plant Species</th>
<th>Stratum</th>
<th>Indicator</th>
</tr>
</thead>
<tbody>
<tr>
<td>Liriodendron tulipifera</td>
<td>H S/T</td>
<td>FACW</td>
</tr>
<tr>
<td>Taxodium distichum</td>
<td>H S/T</td>
<td>FACW</td>
</tr>
<tr>
<td>Quercus rubra</td>
<td>H S/T</td>
<td>FACU</td>
</tr>
<tr>
<td>Acer rubrum</td>
<td>H S/T</td>
<td>FAC</td>
</tr>
<tr>
<td>Acer saccharum</td>
<td>H S/T</td>
<td>FAC</td>
</tr>
<tr>
<td>Acer platanoides</td>
<td>H S/T</td>
<td>FAC</td>
</tr>
</tbody>
</table>

50/20 Rule Applied: Yes No
Percent of Dominant Species
OBL, FACW, FAC
OBL, FACW

Wetland Determination
Hydrophytic Vegetation Present? Yes or No
Wetland Hydrology Present? Yes or No
Hydric Soils Present? Yes or No
Is this Sampling Point Within a Wetland? Yes or No

Remarks:
None.
DATA FORM
Routine Wetland Determination
1987 USACE Wetlands Delineation Manual

Licent: University of Rochester
Investigator: G. Pellett, J. Hauber

Do normal circumstances exist on site? Yes No
Is the site significantly disturbed? Yes No
Is the area a potential problem area? Yes No
Community: Successional Shrub/Forest

SOILS
Series and Phase: CLEAVENACK LOAMY FINE SAND
Subgroup: Aquic Udorthents
Thermal Class: WD (MWD SPD PD VPD)
Confirmed Mapped Type: Yes No

<table>
<thead>
<tr>
<th>Depth</th>
<th>Horizon</th>
<th>Matrix Color (Munsell Moist)</th>
<th>Redoximorphic Features/Abundance/Contrast (Munsell Moist)</th>
<th>Texture, Structure, Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-12</td>
<td>A</td>
<td>10Yr5/3</td>
<td>Si. M. cr</td>
<td></td>
</tr>
<tr>
<td>12-20</td>
<td>B</td>
<td>10Yr5/4</td>
<td>Si. M. cr. -&gt; wk. sk. b</td>
<td></td>
</tr>
</tbody>
</table>

Hydric Soil Indicators:
- Histosols
- Historic Epipedon
- Sulfic Odor
- Reducing Conditions
  - Landscape Position: Concave Convex Flat Undulating

Remarks:
Non-Hydric

HYDROLOGY
- Recorded Data (Describe in Remarks)
  - Local Soil Survey
  - NWI Map
  - NYS FWW Map
  - Stream, Lake or Tide Gauge
  - No Recorded Data Available

Field Observations
- Ground Surface Inundated __________ inches
- Soil Saturated - Depth to Saturated Soils __________ inches
- Depth to Free Water __________ inches

Wetland Hydrology Indicators
- Primary Indicators
  - Inundated
  - Saturated in upper 12 inches
  - Water Marks
  - Drift Lines
  - Sediment Deposits
  - Drainage Patterns in Wetland

- Secondary Indicators (2 or more required)
  - Oxidized Root Channels in upper 12 inches
  - Water - Stained leaves
  - Local Soil Survey
  - FAC - Neutral Test
  - Other (Explain in Remarks)

Remarks:
None.

VEGETATION
- Dominant Plant Species
  1. Rhizoma cataphita
  2. Littorella uniflora
  3. Utricularia americana
  4. Fraxinus pennsylvanica
  5. Vitis vinifera

- Stratum:
  1. H/S (T) V
  2. H/S T V
  3. H/S T (V)

- Indicator:
  1. FAC
  2. FACW
  3. FACZ

- Percent of Dominant Species
  OBL, FACW, FAC OBL, FACW

- 50/20 Rule Applied: Yes No

WETLAND DETERMINATION
- Hydrophytic Vegetation Present? Yes or No
- Wetland Hydrology Present? Yes or No
- Hydric Soils Present? Yes or No
- Is this Sampling Point Within a Wetland? Yes or No

Remarks:
Upland
DATA FORM
ROUTINE WETLAND DETERMINATION
1987 USACE Wetlands Delineation Manual

Date:  13-Jul-05
Town:  Brighton
County: Monroe
State: New York

Do normal circumstances exist on site? Yes No
Is the site significantly disturbed? Yes No
Is the area a potential Problem Area? Yes No

SOILS
Series and Phase: LAKE MEIST Silt Loam
Subgroup: UDOLECF OCHRHAGURLS
Drainage Class: WD MWD SPD 5D VPD
Confirmed Mapped Type: Yes No

<table>
<thead>
<tr>
<th>Depth</th>
<th>Horizon</th>
<th>Matrix Color</th>
<th>Redoximorphic Features/Abundance/Contrast</th>
<th>Texture, Structure, Other</th>
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<tbody>
<tr>
<td></td>
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<td>(Munsell Moist)</td>
<td>(Munsell Moist)</td>
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</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Hydric Soil Indicators:
- Histisols
- Histic Epipedon
- Sulfidic Odor
- Reducing Conditions
- Organic Steaking in Sandy Soils
- High Org. Content in Surface Layer
- Gleyed or Low Chroma color

Landscape Position: Concave Convex Flat Undulating Sloping
Approximate Slope: __________

Remarks:
* OBL dominant veg. No soils data required. Mitigation Area.

HYDROLOGY

Recorded Data (Describe in Remarks)
- Local Soil Survey
- NWI Map
- NYS FWW Map
- Stream, Lake or Tide Gauge
- No Recorded Data Available

Field Observations
- Surface inundated 6 inches
- Soil Saturated - Depth to Saturated Soils 0 inches
- Depth to Free Water 0 inches

Wetland Hydrology Indicators
Primary Indicators
- Inundated
- Saturated in upper 12 inches
- Water Marks
- Drift Lines
- Sediment Deposits
- Drainage Patterns in Wetland

Secondary Indicators (2 or more required)
- Oxidized Root Channels in upper 12 inches
- Water - Stained leaves

WETLAND DETERMINATION
Hydrophytic Vegetation Present? Yes or No
Wetland Hydrology Present? Yes or No
Hydric Soils Present? Yes or No
Is this Sampling Point Within a Wetland? Yes or No

Remarks: This is a created wetland designed to provide clean fish habitat mitigation. High water outlet is into a drain wetland M.
**DATA FORM**

**ROUTINE WETLAND DETERMINATION**

1987 USACE Wetlands Delineation Manual

- **Date:** 13-Jul-05
- **Town:** Brighton
- **County:** Monroe
- **State:** New York

<table>
<thead>
<tr>
<th>Investigator:</th>
<th>University of Rochester</th>
</tr>
</thead>
<tbody>
<tr>
<td>G. Pellett</td>
<td>J. Hauber</td>
</tr>
</tbody>
</table>

**SOILS**

<table>
<thead>
<tr>
<th>Series and Phase:</th>
<th>COSAM LAIMY LIME SAND</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subgroup:</td>
<td>HYDROS UPHORUMS</td>
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</table>

<table>
<thead>
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<th>Depth</th>
<th>Matrix Color (Munsell Moist)</th>
<th>Redoximorphic Features/Abundance/Contrast (Munsell Moist)</th>
<th>Texture, Structure, Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-10</td>
<td>10yR 6/3</td>
<td></td>
<td>Si. Lu. cr.</td>
</tr>
<tr>
<td>10-20</td>
<td>10yR 6/4</td>
<td></td>
<td>Si. Lu. wk Sal</td>
</tr>
</tbody>
</table>

**Hydric Soil Indicators:**
- Histosol
- Histic Epipedon
- Sulfic Oder
- Reducing Conditions
- Landscape Position: Concave
- Convex
- Flat
- Undulating

**Drainage Class:** WD, MW, SP

- **ConfirmedMapped Type:** Yes
- **Listed on Local Hydric Soils List:**
- **Listed as Potential for Hydric Inclusions Only:**
- **Other (Explain in Remarks):**
- **Aquic Moisture Regime:**

**Remarks:** Non-hydric

---

**HYDROLOGY**

- **Recorded Data (Describe in Remarks):**
  - Local Soil Survey
  - NWI Map
  - NYS FWW Map
  - Stream, Lake or Tide Gauge
  - **No Recorded Data Available**

**Field Observations:**
- Ground Surface Inundated inches
- Soil Saturated - Depth to Saturated Soils inches
- Depth to Free Water inches

**Wetland Hydrology Indicators**

- **Primary Indicators:**
  - Inundated
  - Saturated in upper 12 inches
  - Water Marks
  - Drift Lines
  - Sediment Deposits
  - Drainage Patterns in Wetland

- **Secondary Indicators (2 or more required):**
  - Oxidized Root Channels in upper 12 inches
  - Water - Stained leaves
  - Local Soil Survey
  - FAC - Neutral Test
  - Other (Explain in Remarks)

**Remarks:**

---

**VEGETATION**

<table>
<thead>
<tr>
<th>Dominant Plant Species:</th>
<th>Stratum:</th>
<th>Indicator:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rhynchos cathartica</td>
<td>H 5/5 T V</td>
<td>Fac 2</td>
</tr>
<tr>
<td>Cornus rubra</td>
<td>H 5/5 T V</td>
<td>FACW</td>
</tr>
<tr>
<td>Prunus serotina</td>
<td>H 5/5 T V</td>
<td>FACW</td>
</tr>
<tr>
<td>Pyrus avium</td>
<td>H 5/5 T V</td>
<td>FACW</td>
</tr>
<tr>
<td>Gramineae</td>
<td>H 5/5 T V</td>
<td>FACW</td>
</tr>
<tr>
<td>Juncus effusus</td>
<td>H 5/5 T V</td>
<td>FACW</td>
</tr>
<tr>
<td>Carex nigra</td>
<td>H 5/5 T V</td>
<td>FACW</td>
</tr>
</tbody>
</table>

50/20 Rule Applied: Yes

**WETLAND DETERMINATION**

- **Hydrophytic Vegetation Present?** Yes or No
- **Wetland Hydrology Present?** Yes or No
- **Hydric Soils Present?** Yes or No
- **Is this Sampling Point Within a Wetland?** Yes or No

**Remarks:**

- Upland
DATA FORM
ROUTINE WETLAND DETERMINATION
1987 USACE Wetlands Delineation Manual

Date: 13-Jul-05
Town: Brighton
County: Monroe
State: New York

Licent: University of Rochester
Investigator: G. Pellett J. Hauber

Do normal circumstances exist on site? Yes No
Is the site significantly disturbed? Yes No
Is the area a potential Problem Area? Yes No
Community: Wet Meadow
Transsect/Flag ID: @ NW
Plot ID: 7W

SOILS
Series and Phase: Cosad loamy fine sand
Subgroup: Aquic Udorthents

<table>
<thead>
<tr>
<th>Depth</th>
<th>Matrix Color (Munsell Moist)</th>
<th>Redoximorphic Features/Abundance/Contrast (Munsell Moist)</th>
<th>Texture, Structure, Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-6</td>
<td>104YR/1/1</td>
<td>Common HC distinct</td>
<td>Si, Im, Cr, ≥ Sal, Ox Rhs,</td>
</tr>
<tr>
<td>9-20</td>
<td>2.5Y 1/2</td>
<td>Many HC distinct</td>
<td>Si, Im, wq Sal.</td>
</tr>
</tbody>
</table>

Hydic Soil Indicators:
- Histoseis
- Histic Epipedon
- Sulfide Odor
- Reducing Conditions
  - Landscape Position: Concave, Convex

Remarks: Hydic

HYDROLOGY

Recorded Data (Describe in Remarks):
- Local Soil Survey
- NWI Map
- NYS FWW Map
- Stream, Lake or Tide Gauge

Field Observations:
- Ground Surface inundated inches
- Soil Saturated - Depth to Saturated Soils inches
- Depth to Free Water inches

Wetland Hydrology Indicators:
- Primary Indicators
  - Inundated
  - Saturated in upper 12 inches
  - Water Marks
  - Drift Lines
  - Sediment Deposits
  - Drainage Patterns in Wetland
- Secondary Indicators (2 or more required)
  - Oxidized Root Channels in upper 12 inches
  - Water - Stained leaves
  - Local Soil Survey
  - FAC - Neutral Test
  - Other (Explain in Remarks) plant adaptations

Remarks: Seasonal soil saturation likely

VEGETATION

Dominant Plant Species: Glyceria canadensis
Stratum: OBL
Indicator: FACW, FAC

WETLAND DETERMINATION

Hydrophytic Vegetation Present? Yes or No
Wetland Hydrology Present? Yes or No
Hydric Soils Present? Yes or No
Is this Sampling Point Within a Wetland? Yes or No

Remarks: Isolated pocket.
DATA FORM
ROUTINE WETLAND DETERMINATION
1987 USACE Wetlands Delineation Manual

Date: 13-Jul-05
Town: Brighton
County: Monroe
State: New York
Community: Stormwater Basin

SOILS
Series and Phase: ODessa Silt Loam
Subgroup: Acric Ochraqualfs

<table>
<thead>
<tr>
<th>Depth</th>
<th>Horizon</th>
<th>Matrix Color (Munsell Moist)</th>
<th>Redoximorphic Features/Abundance/Contrast (Munsell Moist)</th>
<th>Texture, Structure, Other</th>
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</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Hydric Soil Indicators:
- Histosols
  - Concretions Listed on Local Hydric Soils List
  - High Org. Content in Surface Layer Listed as Potential for Hydric Inclusions Only
  - Sulfidic Odor Other (Explain in Remarks)
  - Organic Streaking in Sandy Soils Aquic Moisture Regime
- Reducing Conditions Gleyed or Low Chroma color

Landscape Position: Concave Convex Flat

Remarks: Basin excavated 15’ below landscape. OBL dominant veg.

HYDROLOGY
Recorded Data (Describe in Remarks)
- Local Soil Survey
- NWI Map
- NYS FWQ Map
- Stream, Lake or Tide Gauge

Field Observations
- Ground Surface Inundated 12 inches
- Soil Saturated - Depth to Saturated Soils 0 inches
- Depth to Free Water 0 inches

Wetland Hydrology Indicators
- Inundated
- Saturated in upper 12 inches
- Water Marks
- Drift Lines
- Sediment Deposits
- Drainage Patterns in Wetland

Secondary Indicators (2 or more required)
- Oxidized Root Channels in upper 12 inches
- Water - Stained leaves
- Local Soil Survey
- FAC - Neutral Test
- Other (Explain in Remarks)

50/20 Rule Applied: Yes No

VEGETATION
Dominant Plant Species: 1 Typha angustifolia S/S T V
2 Littorellospalma-aquatica S/S T V
3 H S/S T V
4 H S/S T V
5 H S/S T V
6 H S/S T V
7 H S/S T V
8 H S/S T V
9 H S/S T V
10 H S/S T V
11 H S/S T V
12 H S/S T V

Indicator:
- OBL
- FACW, FAC

Remarks:
- Also submered aquatics, rice cutgrass, softstem bulrush @ perimeter.

WETLAND DETERMINATION
Hydrophytic Vegetation Present: Yes or No
Wetland Hydrology Present: Yes or No
Hydric Soils Present: Yes or No
Is this Sampling Point Within a Wetland: Yes or No

Remarks:
- Basin outfalls into box culvert @ NW corner.
DATA FORM
ROUTINE WETLAND DETERMINATION
1987 USACE Wetlands Delineation Manual

Date: 13-Jul-05
Town: Brighton
County: Monroe
State: New York

Do normal circumstances exist on site? Yes No
Is the site significantly disturbed? Yes No
Is the area a potential Problem Area? Yes No

Community: Forested Wetland
Transact/Flag ID: 091
Plot ID: 091

SOILS
Series and Phase: ODESSA SILT LOAM
Subgroup: ACIC RHEAQUALS
Drainage Class: WD MWD 5PD PD VPD
Confirmed Mapped Type: 66 No

<table>
<thead>
<tr>
<th>Depth</th>
<th>Horizon</th>
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<th>Redoximorphic Features/Abundance/Contrast (Munsell Moist)</th>
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</tr>
</thead>
<tbody>
<tr>
<td>0-9</td>
<td>A</td>
<td>10yrz1</td>
<td>Common HE, distinct</td>
<td>Cr. Si. 1m.</td>
</tr>
<tr>
<td>0-184</td>
<td>B</td>
<td>10yrz1</td>
<td></td>
<td>Si. 1m. Scl.</td>
</tr>
</tbody>
</table>

Hydric Soil Indicators:
- Histisols
- Histie Epipedon
- Sulfidic Odor
- Reducing Conditions

Listed on Local Hydric Soils List
Listed as Potential for Hydric Inclusions Only
Other (Explain in Remarks)
Aquic Moisture Regime

Landscape Position: Concave ✓ Convex
Sloping Undulating

REMARKS:
- Hydric

HYDROLOGY

Recorded Data (Describe in Remarks)
- Local Soil Survey
- NWI Map
- NYS FWZ Map
- Stream, Lake or Tide Gauge
No Recorded Data Available

Field Observations
- Ground Surface Inundated
- Soil Saturated - Depth to Saturated Soils
- Depth to Free Water

Wetland Hydrology Indicators
Primary Indicators
- Inundated ✓ Saturated in upper 12 inches
- Water Marks
- Drain Lines
- Sediment Deposits
- Drainage Patterns in Wetland

Secondary Indicators (2 or more required)
- Oxidized Root Channels in upper 12 inches ✓ Water - Stained leaves
- Local Soil Survey
- FAC - Neutral Test
- Other (Explain in Remarks)

VEGETATION

Dominant Plant Species:
1. Salix alba
2. Fagus grandifolia
3. Populus deltoids
4. Eucalyptus
5. Fraxinus pennsylvanica
6. H 5/S T V
7. H 5/S T V
8. H 5/S T V
9. H 5/S T V
10. H 5/S T V
11. H 5/S T V
12. H 5/S T V

50/20 Rule Applied: No

REMARKS:

WETLAND DETERMINATION

Hydrophytic Vegetation Present? Yes No
Wetland Hydrology Present? Yes No
Hydric Soils Present? Yes No
Is this Sampling Point within a Wetland? Yes No

REMARKS:
- Intersact Wetland. Outflows into nearby int. stream.
DATA FORM
ROUTINE WETLAND DETERMINATION
1987 USACE Wetlands Delineation Manual

Date: 13-Jul-05
Town: Brighton
County: Monroe
State: New York

Do normal circumstances exist on site? Yes No
Is the site significantly disturbed? Yes No
Is the area a potential Problem Area? Yes No

SOILS
Series and Phase: CLAYEY CLAY LOAMY FINE SAND
Subgroup: ACQUIC UDOURHETS

<table>
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<th>Texture, Structure, Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-10</td>
<td>10r4/3</td>
<td>Few HC Paint</td>
<td>Si, M, Cr, Fe</td>
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<tr>
<td>1-20</td>
<td>2.5r5/3</td>
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<td>Sa, M, wt, S</td>
</tr>
</tbody>
</table>

Hydric Soil Indicators:
- Histosols
- Histic Epipedon
- Sulfidic Odor
- Reducing Conditions
- High Org. Content in Surface Layer
- Organic Streaking in Sandy Soils
- Gleyed or Low Chroma color
- Listed on Local Hydric Soils List
- Listed as Potential for Hydric Inclusions Only
- Other (Explain in Remarks)
- Aquic Moisture Regime

Landscape Position: Concave Convex Flat Undulating

Remarks: Non-Hydrlic

HYDROLOGY
Recorded Data (Describe in Remarks)
- Local Soil Survey
- NWI Map
- NYS FWW Map
- Stream, Lake or Tide Gauge
- No Recorded Data Available

Field Observations
- Ground Surface Inundated inches
- Soil Saturated - Depth to Saturated Soil inches
- Depth to Free Water inches

Wetland Hydrology Indicators
- Inundated
- Saturated in upper 12 inches
- Water Marks
- Drift Lines
- Sediment Deposits
- Drainage Patterns in Wetland
- Oxidized Root Channels in upper 12 inches
- Water - Stained leaves
- Local Soil Survey
- FAC - Neutral Test
- Other (Explain in Remarks)

Remarks: None

VEGETATION
Dominant Plant Species: Lonicera tatarica
Stratum: H 2/3 T V
Indicator: FACV

50/20 Rule Applied: Yes No
Percent of Dominant Species OBL, FACW, FAC
OBL, FACW 33

Remarks:

WETLAND DETERMINATION
Hydrophytic Vegetation Present? Yes or No
Wetland Hydrology Present? Yes or No
Hydric Soils Present? Yes or No
Is this Sampling Point Within a Wetland? Yes or No

Remarks: None
**DATA FORM**

**ROUTINE WETLAND DETERMINATION**

1987 USACE Wetlands Delineation Manual

<table>
<thead>
<tr>
<th>Investigant:</th>
<th>University of Rochester</th>
</tr>
</thead>
<tbody>
<tr>
<td>Investigator:</td>
<td>G. Pellett J. Hauber</td>
</tr>
<tr>
<td>Date:</td>
<td>13-Jul-05</td>
</tr>
<tr>
<td>Town:</td>
<td>Brighton</td>
</tr>
<tr>
<td>County:</td>
<td>Monroe</td>
</tr>
<tr>
<td>State:</td>
<td>New York</td>
</tr>
</tbody>
</table>

Do normal circumstances exist on site? **Yes** **No**
Is the site significantly disturbed? **Yes** **No**
Is the area a potential Problem Area? **Yes** **No**
Community: **Emergent Wetland**
Transsect/Flag ID: **P**
Plot ID: **10W**

**SOILS**

Series and Phase: **DESSA Silt Loam**
Subgroup: **HORIC OCHRAGUALS**

<table>
<thead>
<tr>
<th>Depth</th>
<th>Horizon</th>
<th>Matrix Color (Munsell Moist)</th>
<th>Redoximorphic Features/Abundance/Contrast (Munsell Moist)</th>
<th>Texture, Structure, Other</th>
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</thead>
<tbody>
<tr>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

Hydric Soil Indicators:

- Histisoil
- Histic Epipedon
- Sulfic Odor
- Reducing Conditions

Landscape Position: **Concave** **Convex** **Flat** **Undulating**

**HYDROLOGY**

Recorded Data (Describe in Remarks)

Local Soil Survey
NWI Map
NYS FWQ Map
Stream, Lake or Tide Gauge
No Recorded Data Available

Field Observations

- Ground Surface inundated
- Soil-Saturated - Depth to Saturated Soils
- Depth to Free Water

Wetland Hydrology Indicators

Primary Indicators

- Inundated
- Saturated in upper 12 inches
- Water Marks
- Drift Lines
- Sediment Deposits
- Drainage Patterns in Wetland

Secondary Indicators (2 or more required)

- Oxidized Root Channels in upper 12 inches
- Water - Stained leaves
- Local Soil Survey
- FAC - Neutral Test
- Other (Explain in Remarks)

**VEGETATION**

Dominant Plant Species |

<table>
<thead>
<tr>
<th>Stratum:</th>
</tr>
</thead>
<tbody>
<tr>
<td>S/S T V</td>
</tr>
</tbody>
</table>

Indicator: **OBL**

Remarks:

- 50/20 Rule Applied: **Yes** **No**
- Percent of Dominant Species: **100**

**WETLAND DETERMINATION**

Hydrophytic Vegetation Present? **Yes** or **No**
Wetland Hydrology Present? **Yes** or **No**
Hydric Soils Present: **Yes** or **No**
Is this Sampling Point Within a Wetland? **Yes** or **No**

Remarks:

- Created wetland above stormwater basin (well,no) Interstock
DATA FORM
ROUTINE WETLAND DETERMINATION
1987 USACE Wetlands Delineation Manual

Date: 13-Jul-05
Town: Brighton
County: Monroe
State: New York

Do normal circumstances exist on site? Yes No
Is the site significantly disturbed? Yes No
Is the area a potential Problem Area? Yes No
Community: Successional shrub/forest

SOILS
Series and Phase: CLAYECK CLAY-EYED FINE SAND
Subgroup: AQUIC UDIORTHENTS
Drainage Class: WD MD SPD PD VPD
Confirmed Mapped Type: Yes No

<table>
<thead>
<tr>
<th>Depth</th>
<th>Horizon</th>
<th>Matrix Color (Munsell Moist)</th>
<th>Redoximorphic Features/Abundance/Contrast (Munsell Moist)</th>
<th>Texture, Structure, Other</th>
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</thead>
<tbody>
<tr>
<td>0-9</td>
<td>A</td>
<td>10YR 4/2</td>
<td>Si, Ina Cr.</td>
<td>Si, Ina Cr.</td>
</tr>
<tr>
<td>0-18</td>
<td>B</td>
<td>10YR 4/6</td>
<td>Si, Ina Cr., Sa Ina Cr, wk 56.</td>
<td>Si, Ina Cr.</td>
</tr>
</tbody>
</table>

Hydric Soil Indicators:
- Histisols
- Histic Epipedon
- Sulfic Odor
- Reducing Conditions
- Landscape Position: Concave Convex
- Concreations
- High Org. Content in Surface Layer
- Organic Streaking in Sandy Soils
- Gleyed or Low Chroma color
- Listed on Local Hydric Soils List
- Listed as Potential for Hydric Inclusions Only
- Other (Explain in Remarks)
- Aquic Moisture Regime
- Sloping
- Approximate Slope:

Remarks:
Non-Hydric

HYDROLOGY
Recorded Data (Describe in Remarks)
- Local Soil Survey
- NWI Map
- NYS FWW Map
- Stream, Lake or Tide Gauge
- No Recorded Data Available

Field Observations
- Ground Surface Inundated: inches
- Soil Saturated - Depth to Saturated Soils: inches
- Depth to Free Water: inches

Wetland Hydrology Indicators
Primary Indicators
- Inundated
- Saturated in upper 12 inches
- Water Marks
- Drift Lines
- Sediment Deposits
- Drainage Patterns in Wetland

Secondary Indicators (2 or more required)
- Oxidized Root Channels in upper 12 inches
- Water - Stained leaves
- Local Soil Survey
- FAC - Neutral Test
- Other (Explain in Remarks)

50/20 Rule Applied: Yes No Percent of Dominant Species

Vegetation

WETLAND DETERMINATION
Hydrophytic Vegetation Present? Yes or No
Wetland Hydrology Present? Yes or No
Hydric Soils Present? Yes or No
Is this Sampling Point within a Wetland? Yes or No
Remarks:
Upland
DATA FORM
ROUTINE WETLAND DETERMINATION
1987 USACE Wetlands Delineation Manual

Date: 13-Jul-05
Town: Brighton
County: Monroe
State: New York

Community: Successional Shrub
Plot ID: 110

SOILS
Series and Phase: 
Subgroup: AQUIC UDOMORPHETS

<table>
<thead>
<tr>
<th>Depth</th>
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<th>Redoximorphic Features/Abundance/Contrast (Munsell Moist)</th>
<th>Texture, Structure, Other</th>
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</thead>
<tbody>
<tr>
<td>0-9</td>
<td>A</td>
<td>10yr 3.2</td>
<td>Few Hint</td>
<td>S: /m or -&gt; Sa,b</td>
</tr>
<tr>
<td>0-18</td>
<td>B</td>
<td>10-y-4.4</td>
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<td>Sa,m // wks. Sa,b</td>
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</table>

Hydric Soil Indicators:
- Histosols
- Histic Epipedon
- Sulfic Odor
- Reducing Conditions
- Gleyed or Low Chroma color
- Listed on Local Hydric Soils List
- Listed as Potential for Hydric Inclusions Only
- Organic Staking in Sandy Soils
- Other (Explain in Remarks)
- Aquic Moisture Regime
- Sloping
- Approximate Slope: __________

Remarks: Non-Hydric

HYDROLOGY

Recorded Data (Describe in Remarks)
- Local Soil Survey
- NWI Map
- NYS FWW Map
- Stream, Lake or Tide Gauge

Field Observations
- Ground Surface Inundated: __________ inches
- Soil Saturated - Depth to Saturated Soils: __________ inches
- Depth to Free Water: __________ inches

Wetland Hydrology Indicators
- Inundated
- Satuated in upper 12 inches
- Water Marks
- Drift Lines
- Sediment Deposits
- Drainage Patterns in Wetland

Secondary Indicators (2 or more required)
- Oxidized Root Channels in upper 12 inches
- Water - Stained leaves

Remarks: None

VEGETATION

Dominant Plant Species: ____________________________
Stratum: ____________________________
Indicator: ____________________________

1. Phragmites australis
2. Carex vulpinoides
3. Juncus effusus
4. Solidago canadensis
5. Carex pensylvanica
6. Equisetum arvense
7. Viola arvensis
8. Prunus pensylvanica
9. Eupatorium cannabinum
10. Echinacea grandiflora
11. Carex-ovata
12. Viburnum recognitum
13. Pronella vulgaris
14. Pronus virginianum

50/20 Rule Applied: Yes / No

WETLAND DETERMINATION

Hydrophytic Vegetation Present? Yes or No
Wetland Hydrology Present? Yes or No
Hydric Soils Present? Yes or No
Is this Sampling Point Within a Wetland? Yes or No

Remarks: Successional Shrub Upland

As of date, at end of Murlin Dr.
DATA FORM
ROUTINE WETLAND DETERMINATION
1987 USACE Wetlands Delineation Manual

Date: 14 July, 2005
Town: Brighton
County: Monroe
State: New York

Investigator: G. Pellett J. Hauber

Do normal circumstances exist on site? [ ] Yes [ ] No
Is the site significantly disturbed? [ ] Yes [ ] No
Is the area a potential Problem Area? [ ] Yes [ ] No
Community: PALUSTRIANE WOODS / P wondering

SOILS
Series and Phase: COSAD LOAMY FINED SAND
Subgroup: ACQUACUDORTHENTS

Depth Horizon Matrix Color (Munsell Moist) Redoximorphic Features/Abundance/Contrast (Munsell Moist) Texture, Structure, Other
0 - 6 A 10YR 3/2
6 - 18 B 2.5Y 6/2

Hydrastic Soil Indicators:
- Histosols
- Historic Epipedon
- Sulfic Odor
- Reducing Conditions
- Listed on Local Hydrastic Soil List

Hydric Soil Position:
- Concave
- Convex
- Flat
- Undulating

REMARKS: SIDE POWERLINE WET WOOD ELETTRE SIDE

HYDROLOGY
Recorded Data (Describe in Remarks)
- Local Soil Survey
- NYS Map
- NYS FW Map
- Stream, Lake or Tide Gauge
- No Recorded Data Available

Field Observations
- Ground Surface Inundated inches
- Soil Saturated - Depth to Saturated Soils inches
- Depth to Free Water inches

Wetland Hydrology Indicators
- Saturated in upper 12 inches
- Water Marks
- Drift Lines
- Sediment Deposits
- Drainage Patterns in Wetland

Secondary Indicators (2 or more required)
- Oxidized Root Channels in upper 12 inches
- Water - Stained leaves
  - Local Soil Survey
  - FAC - Neutral Test
  - Other (Explain in Remarks)

REMARKS:

VEGETATION
Dominant Plant Species: LEERIA OXYDONDS
Stratum: H/S/T V
Indicator: FAC (W)

Hydrophytic Vegetation Present? [ ] Yes [ ] No
Wetland Hydrology Present? [ ] Yes [ ] No
Hydrastic Soils Present? [ ] Yes [ ] No

Is this Sampling Point Within a Wetland? [ ] Yes [ ] No

REMARKS:

WETLAND DETERMINATION
**DATA FORM**

**ROUTINE WETLAND DETERMINATION**

1987 USACE Wetlands Delineation Manual

---

**Environmental Resources, LLC**
33 Kress Hill Drive
Spencerport, NY 14559
(585) 594-4450

---

**Investigator:** G. Pellett & J. Hauber

**Date:** 14 July, 2005

**Town:** Brighton
**County:** Monroe
**State:** New York

---

Do normal circumstances exist on site? [ ] Yes [ ] No
Is the site significantly disturbed? [ ] Yes [ ] No
Is the area a potential Problem Area? [ ] Yes [ ] No

---

**SOILS**

**Series and Phase:** COSAD LOAMY FINE SANDY
**Subgroup:** AQUIC UDORHENTS

<table>
<thead>
<tr>
<th>Depth</th>
<th>Horizon</th>
<th>Matrix Color (Munsell Moist)</th>
<th>Redoximorphic Features/Abundance/Contrast (Munsell Moist)</th>
<th>Texture, Structure, Other</th>
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</thead>
<tbody>
<tr>
<td>0-12</td>
<td>A</td>
<td>10YR 3/2</td>
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<td>SELT LOAM CRUMBLY</td>
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<tr>
<td>12-14</td>
<td>AB</td>
<td>10YR 3/1</td>
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<td>SI. CLY. LOAM SAB</td>
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<tr>
<td>10-20</td>
<td>B</td>
<td>10YR 5/2</td>
<td>CM, HC, DST</td>
<td>SELT LOAM CRUMBLY</td>
</tr>
</tbody>
</table>

**Hydric Soil Indicators:**
- **Histosol**
- **Histic Epeirogn**
- **Sulfic Odor**
- **Reducing Conditions**
- **Gleyed or Low Chroma color**
- **Concretions**
- **High Org. Content in Surface Layer**
- **Organic Streaking in Sandy Soils**
- **Gleyed or Low Chroma color**
- **Listed on Local Hydric Soils List**
- **Listed as Potential for Hydric Inclusions Only**
- **Other (Explain in Remarks)**
- **Aquic Moisture Regime**

**Landscape Position:**
- **Concave**
- **Convex**
- **Flat**
- **Undulating**

**SLOPE:**

---

**HYDROLOGY**

**Recorded Data (Describe in Remarks):**

**Local Soil Survey**
**NWS Map**
**NYS FWM Map**
**Stream, Lake or Tide Gauge**
**No Recorded Data Available**

**Field Observations:**
- **Ground Surface Inundated**
- **Soil Saturated - Depth to Saturated Soils**
- **Depth to Free Water**

**Wetland Hydrology Indicators:**
- **Primary Indicators**
  - **Inundated**
  - **Saturated in upper 12 inches**
  - **Water Marks**
  - **Drift Lines**
  - **Sediment Deposits**
  - **Drainage Patterns in Wetland**
- **Secondary Indicators (2 or more required)**
  - **Oxidized Root Channels in upper 12 inches**
  - **Water - Stained leaves**
  - **Local Soil Survey**
  - **FAC - Neutral Test**
  - **Other (Explain in Remarks)**

**Remarks:**

---

**VEGETATION**

**Dominant Plant Species:**

<table>
<thead>
<tr>
<th>No.</th>
<th>Species Name</th>
<th>Stratum</th>
<th>Indicator</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>AGER CATALLA</td>
<td>H S/S T V</td>
<td>FACW</td>
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<tr>
<td>2</td>
<td>FRAX. PNEUMATICA</td>
<td>H S/S T V</td>
<td>FACW</td>
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<td>3</td>
<td>AGER CATALLA</td>
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<td>FACW</td>
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<td>4</td>
<td>LONIC. TARTARICA</td>
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<td>FACU</td>
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<td>5</td>
<td>TOXCO. RADICANS</td>
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<td>FACU</td>
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<td>H S/S T V</td>
<td>FACU</td>
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<tr>
<td>7</td>
<td>GEUM FR.</td>
<td>H S/S T V</td>
<td>FACW</td>
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<td>8</td>
<td>IMP. PALUZA</td>
<td>H S/S T V</td>
<td>FACW</td>
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<tr>
<td>9</td>
<td>GLUE. SISHER</td>
<td>H S/S T V</td>
<td>OBL</td>
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<td>10</td>
<td>NASS. SEDER</td>
<td>H S/S T V</td>
<td>OBL</td>
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<td>11</td>
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<td>OBL</td>
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<td>12</td>
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<td>OBL</td>
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</tbody>
</table>

**50/20 Rule Applied:** Yes [ ] No [ ]

**Percent of Dominant Species:**

**WETLAND DETERMINATION**

**Hydrophytic Vegetation Present:** Yes [ ] No [ ]
**Wetland Hydrology Present:** Yes [ ] No [ ]
**Hydric Soils Present:** Yes [ ] No [ ]
**Is this Sampling Point within a Wetland?** Yes [ ] No [ ]

**Remarks:**

---
**DATA FORM**

**ROUTINE WETLAND DETERMINATION**

1987 USACE Wetlands Delineation Manual

**Date:** 14 July, 2005

**Town:** Brighton

**County:** Monroe

**State:** New York

---

**Soils**

**Series and Phase:** CUBAN LOAMY FINE SAND

**Subgroup:** AQUIC UDIORTHEUTS

**Drainage Class:** WD MWD SPC PD VPD

**Confirmed Mapped Type:** Yes No

<table>
<thead>
<tr>
<th>Depth</th>
<th>Horizon</th>
<th>Matrix Color (Munsell Moist)</th>
<th>Redoximorphic Features/Abundance/Contrast (Munsell Moist)</th>
<th>Texture, Structure, Other</th>
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</thead>
<tbody>
<tr>
<td>0-14</td>
<td>A</td>
<td>10 YR 3/1</td>
<td></td>
<td>Sandy Silt Loam</td>
</tr>
<tr>
<td>14-20</td>
<td>B</td>
<td>2.5 Y 6/2</td>
<td></td>
<td>Sandy Loam</td>
</tr>
</tbody>
</table>

**Hydric Soil Indicators:**

- Histosols
- Histic Epipedon
- Sufic Odor
- Reducing Conditions

**Landscape Position:**

- Concave
- Convex
- Flat
- Undulating

---

**HYDROLOGY**

**Recorded Data (Describe in Remarks):**

- Local Soil Survey
- NWI Map
- NYS FWW Map
- Stream, Lake or Tide Gauge
- No Recorded Data Available

**Field Observations:**

- Moistness of Soil
- Surface Inundated
- Soil Saturated - Depth to Saturated Soils
- Depth to Free Water

**Wetland Hydrology Indicators:**

**Primary Indicators:**

- Inundated
- Water Marks
- Drift Lines
- Sediment Deposits
- Drainage Patterns in Wetland

**Secondary Indicators (2 or more required):**

- Oxidized Root Channels in upper 12 inches
- Water - Stained leaves
- Local Soil Survey
- FAC - Neutral Test
- Other (Explain in Remarks)

---

**VEGETATION**

**Dominant Plant Species:**

<table>
<thead>
<tr>
<th>Stratum</th>
<th>Indicator</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>GLYCEMIA CANADES 01 S/S T V OBL</td>
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<td>2</td>
<td>TYPHA AUGUSTIFOLIA 01 S/S T V OBL</td>
</tr>
<tr>
<td>3</td>
<td>FAXINUS PENNIVULS 01 H S/S V FACW</td>
</tr>
<tr>
<td>4</td>
<td>Ephedra PERFINITION 01 S/S T V FACW</td>
</tr>
<tr>
<td>5</td>
<td>LACCEA TADARCI 01 H S/S T V OBL</td>
</tr>
<tr>
<td>6</td>
<td>PRHKOS NATCHEZ 01 S/S T V FACW</td>
</tr>
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<td>7</td>
<td>ACER SACEARIAB 01 H S/S T FACW</td>
</tr>
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<td>8</td>
<td>ACER SACEARIAB 01 H S/S T FACW</td>
</tr>
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</table>

**50/20 Rule Applied:** Yes No

**Percent of Dominant Species:**

<table>
<thead>
<tr>
<th>Indicator</th>
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</thead>
<tbody>
<tr>
<td>OBL, FACW</td>
</tr>
</tbody>
</table>

**Remarks:**

**WETLAND DETERMINATION**

**Hydrophytic Vegetation Present?**

- Weed or No

**Wetland Hydrology Present?**

- Weed or No

**Hydric Soils Present?**

- Weed or No

**Is this Sampling Point Within a Wetland?**

- Yes or No

**Remarks:**
# DATA FORM
## ROUTINE WETLAND DETERMINATION
1987 USACE Wetlands Delineation Manual

<table>
<thead>
<tr>
<th>Date:</th>
<th>14 July, 2005</th>
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<tbody>
<tr>
<td>Town:</td>
<td>Brighton</td>
</tr>
<tr>
<td>County:</td>
<td>Monroe</td>
</tr>
<tr>
<td>State:</td>
<td>New York</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>Do normal circumstances exist on site?</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Is the site significantly disturbed?</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Is the area a potential Problem Area?</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

## SOILS
### Series and Phase: COSAD Loamy Fine Sand
### Subgroup: AQUIC UDOMETHENTS

<table>
<thead>
<tr>
<th>Depth</th>
<th>Horizon</th>
<th>Matrix Color (Munsell Moist)</th>
<th>Redoximorphic Features/Abundance/Contrast (Munsell Moist)</th>
<th>Texture, Structure, Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-12</td>
<td>A</td>
<td>10YR 6/2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12.20</td>
<td>B</td>
<td>2.5YR 6/4</td>
<td></td>
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</tbody>
</table>

### Hydric Soil Indicators:
- Histosol
- Histic Epipedon
- Sulfic Odor
- Reducing Conditions
- Landscape Position: Concave
- Converse

### Drainage Class:
- WD
- MWD
- SPD
- PD
- VPD

### Hydric Moisture Regime
- Sloping

### Approximate Slope: 3:5

## HYDROLOGY
- Recorded Data (Describe in Remarks):
  - Local Soil Survey
  - NWI Map
  - NYS FWI Map
  - Stream, Lake or Tide Gauge
  - No Recorded Data Available

### Field Observations:
- Ground Surface Inundated: None
- Soil Saturated - Depth to Saturated Soils: None
- Depth to Free Water: None

## VEGETATION
### Dominant Plant Species:
1. Acer Rubrum
2. Tilia Americana
4. Lonicera Tatarica
5. Geum Canadense
6. Glycyrrhiza Glabra
7. Oenocota Sensibilis
8. Tumara Vrigatana
10. Populus Borealis
11. Rhamnus Cathartica

### Stratum:
- H (S/S D V)
- FAC

### Indicator:
- FAC

## WETLAND DETERMINATION
### Hydrophytic Vegetation Present: Yes
### Wetland Hydromorphy Present: Yes
### Hydric Soils Present: Yes
### Is this Sampling Point Within a Wetland? Yes

### Remarks:
- Much fine plant debris, mixed with partial growth.

### 50/20 Rule Applied: Yes
### Percent of Dominant Species: OBL, FAC, FAC

### Remarks:
DATA FORM
ROUTINE WETLAND DETERMINATION
1987 USACE Wetlands Delineation Manual

Date: 14 July, 2005
Town: Brighton
County: Monroe
State: New York

Do normal circumstances exist on site? Yes No
Is the site significantly disturbed? Yes No
Is the area a potential Problem Area? Yes No

Community: PAI. WOODS
Transsect/Flag ID: G 16
Plot ID: 14 W

Series and Phase: COSAD LOAMY FINE SAND
Subgroup: AQUIC UDORITHS

<table>
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<tr>
<th>Depth</th>
<th>Horizon</th>
<th>Matrix Color (Munsell Moist)</th>
<th>Redoximorphic Features/Abundance/Contrast (Munsell Moist)</th>
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<td>B</td>
<td>2.5Y 5/2</td>
<td>SANDY Silt Loam</td>
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</table>

Hydric Soil Indicators:
- Histosols
- Histic Epipedon
- Sulfic Odor
- Reducing Conditions
- Landscape Position: Concave Convex Flat Undulating

Listed on Local Hydric Soils List
Listed as Potential for Hydric Inclusions Only
Other (Explain in Remarks)
Aquic Moisture Regime
Sloping Approximate Slope:

**HYDROLOGY**

Recorded Data (Describe in Remarks)
- Local Soil Survey
- NWW Map
- NYS FWW Map
- Stream, Lake or Tide Gauge
- No Recorded Data Available

Field Observations
- Ground Surface inundated ______ inches
- Soil Saturated - Depth to Saturated Soils ______ inches
- Depth to Free Water ______ inches

Wetland Hydrology Indicators
- Primary Indicators
  - Inundated
  - Saturated in upper 12 inches
  - Water Marks
  - Drift Lines
  - Sediment Deposits
  - Drainage Patterns in Wetland
- Secondary Indicators (2 or more required)
  - Oxidized Root Channels in upper 12 inches
  - Water - Stained leaves
  - Water - Saturated
  - Local Soil Survey
  - FAC - Neutral Test
- Other (Explain in Remarks)

**VEGETATION**

Dominant Plant Species: ____________________________
Stratum: NA
Indicator: NA

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<th>Numbers</th>
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<th>Stratum</th>
<th>Indicator</th>
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<td>12</td>
<td>.....</td>
<td>S/S T V</td>
<td>FACW</td>
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</table>

50/20 Rule Applied: Yes No
Percent of Dominant Species: OBL, FACW, FAC

Remarks: ____________________________

**WETLAND DETERMINATION**

Hydric Phytocenosis Present? Yes or No
Wetland Hydrology Present? Yes or No
Hydric Soils Present? Yes or No
Is this Sampling Point Within a Wetland? Yes or No

Remarks: ____________________________
### Data Form

**Routine Wetland Determination**

1987 USACE Wetlands Delineation Manual

- **Date:** 14 July, 2005
- **Town:** Brighton
- **County:** Monroe
- **State:** New York

**Investigator:** G. Pellett, J. Hauber

**Community:** Woods

**Transsect/Flag ID:** G 17

**Plot ID:** 19U

### Soils

**Series and Phase:** Cohen Loamy Fine Sand

**Subgroup:** Alfic Udipsamments

<table>
<thead>
<tr>
<th>Depth</th>
<th>Horizon</th>
<th>Matrix Color (Munsell Moist)</th>
<th>Redoxorphic Features/Abundance/Contrast (Munsell Moist)</th>
<th>Texture, Structure, Other</th>
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<tr>
<td>0-10</td>
<td>A</td>
<td>10YR 3/2</td>
<td>Eriu HC Dist.</td>
<td>Silt 10aw Clay</td>
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<td>10-12</td>
<td>B</td>
<td>10YR 4/6</td>
<td></td>
<td>Sandy Silt 10aw Clay</td>
</tr>
</tbody>
</table>

**Hydric Soil Indicators:**

- Concretions
- High Org. Content in Surface Layer
- Organic Streaking in Sandy Soils
- Glyed or Low Chroma color

**Drainage Class:** No MWD SPD PD VPD

**Confirmed Mapped Type:** No

**Landscape Position:** Concave

**Sloping:** No

**Approximate Slope:** 23° E

**Remarks:** Between Pavers Line 45 Wetland

### Hydrology

- **Recorded Data (Describe in Remarks):**
  - Local Soil Survey
  - NMI Map
  - NYS FW Map
  - Stream, Lake or Tide Gauge
  - No Recorded Data Available

- **Field Observations:**
  - Ground Surface Inundated inches
  - Soil Saturated - Depth to Saturated Soils inches
  - Depth to Free Water inches

**Wetland Hydrology Indicators:**

- **Primary Indicators:**
  - Inundated
  - Saturated in upper 12 inches
  - Water Marks
  - Drift Lines
  - Sediment Deposits
  - Drainage Patterns in Wetland

- **Secondary Indicators (2 or more required):**
  - Oxidized Root Channels in upper 12 inches
  - Water - Stained leaves
  - Local Soil Survey
  - FAC - Neutral Test
  - Other (Explain in Remarks)

### Vegetation

**Dominant Plant Species:**

1. *Lonicera latifolia*
2. *Picea spp.*
3. *Quercus serrata*
4. *Rhamnus cathartica*
5. *HCLE BIFLORUM*
6. *PRAEGERNIAE WET ELYCIM*
7. *Rosa Canina (?)*
8. 
9. 
10. 
11. 
12. 

**Stratum:**

- H SB TV
- H SB TV
- H SB TV
- H SB TV
- H SB TV
- H SB TV
- H SB TV
- H SB TV
- H SB TV
- H SB TV
- H SB TV
- H SB TV

**Indicator:**

- FACU
- FACU
- FACU
- FACU
- FACU
- FACU
- FACU
- FACU
- FACU
- FACU
- FACU
- FACU

**50/20 Rule Applied:** Yes No

**Percent of Dominant Species:**

- OBL, FACU, FAC
- OBL, FACU

**Remarks:**

- Spruce Forest

### Wetland Determination

- Hydrophytic Vegetation Present? Yes No
- Wetland Hydrology Present? Yes No
- Hydric Soils Present? Yes No
- Is this Sampling Point Within a Wetland? Yes No

**Remarks:**
DATA FORM
ROUTINE WETLAND DETERMINATION
1987 USACE Wetlands Delineation Manual

Date:  14 July, 2005
Town:  Brighton
County: Monroe
State: New York

Do normal circumstances exist on site?  Yes  No
Is the site significantly disturbed?  Yes  No
Is the area a potential Problem Area?  Yes  No

Community:  PA1 WOODS
Transsect/Flag ID:  C-28
Plot ID:  15 UY

SOILS
Series and Phase:  COSAD LOAMY FLOR SAND
Subgroup:  AQUIC UDOMORENS

<table>
<thead>
<tr>
<th>Depth</th>
<th>Horizon</th>
<th>Matrix Color (Munsell Moist)</th>
<th>Redoximorphic Features/Abundance/Contrast (Munsell Moist)</th>
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<tr>
<td>0-10</td>
<td>A</td>
<td>10 YR 3/1</td>
<td>m, HC DIST.</td>
<td>SANDY LOAM</td>
</tr>
<tr>
<td>10-20</td>
<td>B</td>
<td>2.5 Y 6/1</td>
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<td></td>
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</tbody>
</table>

Hydric Soil Indicators:
- Histosols
- Histic Epipod
- Sulfuric Odor
- Reducing Conditions

Landscape Position:  Concave  Convex

Parks:  FLOODED AREA OFF MAIN UTILITY BETWEEN MAIN WETLANDS AND POWERING ROW

HYDROLOGY
Recorded Data (Describe in Remarks)
- Local Soil Survey
- NW Map
- NYS FW Map
- Stream, Lake or Tide Gauge
- No Recorded Data Available

Field Observations
- Ground Surfaces Inundated
- Soil Saturated - Depth to Saturated Soils
- Depth to Free Water

Wetland Hydrology Indicators
Primary Indicators
- Immersed
- Water Marks
- Drift Lines
- Sediment Deposits
- Drainage Patterns in Wetland

Secondary Indicators (2 or more required)
- Oxidized Root Channels in upper 12 inches
- Water - Stained leaves
- Local Soil Survey
- FAC - Neutral Test
- Other (Explain in Remarks)

Vegetation
Dominant Plant Species:
1. ACER SACCARUM
2. GOYRA (TAC)
3. PLATANUS OCCIDENTALIS
4. QUECUS LUBRA
5. ULMUS TATARICA
6. CRACK SPOAARIA
7. ULMUS AMERICANA
8.  
9.  
10.  
11.  
12.  

Stratum:
- H S/S D V
- H S/V T V
- H S/V T V

Indicator:
- FACW
- FACW
- FACW
- FACW
- FACW
- FACW
- FACW
- FACW
- FACW
- FACW
- FACW
- FACW

50/20 Rule Applied: Yes  No

Percent of Dominant Species
OBL, FACW, FAC

Remarks:

WETLAND DETERMINATION
Hydrophytic Vegetation Present?  Yes  No
Wetland Hydrology Present?  Yes  No
Hydric Soils Present?  Yes  No
Is this Sampling Point Within a Wetland?  Yes  No

Remarks:
DATA FORM
ROUTINE WETLAND DETERMINATION
1987 USACE Wetlands Delineation Manual

Date: 14 July, 2005
Town: Brighton
County: Monroe
State: New York

Do normal circumstances exist on site? Yes ☑ No
Is the site significantly disturbed? Yes ☑ No
Is the area a potential Problem Area? Yes ☑ No

Community: WOODS
Transact/Flag ID: 630
Plot ID: 15U

SOILS
Series and Phase: COSAD LAMIV FOR Sands
Subgroup: AQUIC UDOMENTS

<table>
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<th>Depth</th>
<th>Horizon</th>
<th>Matrix Color (Munsell Moist)</th>
<th>Redoximorphic Features/Abundance/Contrast (Munsell Moist)</th>
<th>Texture, Structure, Other</th>
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<td>8-18</td>
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<td>SILT LOAM</td>
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</tbody>
</table>

Hydric Soil Indicators:
- Listed on Local Hydric Soils List
- Listed as Potential for Hydric Inclusions Only
- Other (Explain in Remarks)
- Aquic Moisture Regime

Sloping: Approximate Slope: __________

Remarks:

---

HYDROLOGY

Recorded Data (Describe in Remarks)
- Local Soil Survey
- NWI Map
- NYS FW Map
- Stream, Lake or Tide Gauge
- No Recorded Data Available

Field Observations
- Ground Surface Inundated _______ inches
- Soil Saturated - Depth to Saturated Soils _______ inches
- Depth to Free Water _______ inches

Wetland Hydrology Indicators
- Primary Indicators
  - Inundated
  - Saturated in upper 12 inches
  - Water Marks
  - Ditch Lines
  - Sediment Deposits
  - Drainage Patterns in Wetland
- Secondary Indicators (2 or more required)
  - Oxidized Root Channels in upper 12 inches
  - Water - Stained leaves
  - Local Soil Survey
  - FAC - Neutral Test
  - Other (Explain in Remarks)

Vegetation

<table>
<thead>
<tr>
<th>Dominant Plant Species</th>
<th>Stratum:</th>
<th>Indicator:</th>
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<tbody>
<tr>
<td>1. Lonicera tatarica</td>
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<td>2. Rhamnus cathartica</td>
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<td>FACU</td>
</tr>
<tr>
<td>3. Persicaria maculosa</td>
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<td>FACU</td>
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<td>4. Acer platanoides</td>
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<tr>
<td>5. Quercus rubra</td>
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</tr>
<tr>
<td>6. Quercus bicolor</td>
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<td>7. Carex grisea</td>
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<td>8. Rosa glida</td>
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<td>9. Vacciniula virginiana</td>
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<td>FACU</td>
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<td>10. Paenilia vulgare</td>
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<td>FACU</td>
</tr>
<tr>
<td>11. Fraxinus pennsylvanica</td>
<td>H S T V</td>
<td>FACU</td>
</tr>
<tr>
<td>12. Geum spp</td>
<td>H S T V</td>
<td>FACU</td>
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</table>

50/20 Rule Applied: Yes ☑ No
Percent of Dominant Species: __________

Remarks: BRIEVED WETLANDS.
DATA FORM

ROUTINE WETLAND DETERMINATION

1987 USACE Wetlands Delineation Manual

Date: 14 July, 2005
Town: Brighton
County: Monroe
State: New York

Investigator: G. Pellet, J. Hauber

Do normal circumstances exist on site? Yes No
Is the site significantly disturbed? Yes No
Is the area a potential Problem Area? Yes No

Community: Emergent Marsh
Transsect/Flag ID: E-148
Plot ID: 14 VV

SOILS

Series and Phase: Cosco Lemaire #3 Sand
Subgroup: Aquic Udorthents

Depth | Horizon | Matrix Color (Munsell Mois) | Redoximorphic Features/Abundance/Contrast (Munsell Mois) | Texture, Structure, Other

Hydric Soil Indicators:
- Histosols
- Histic Epihelic
- Sulfuric Odor
- Reducing Conditions
- Concretions
- High Org. Content in Surface Layer
- Organic Streaking in Sandy Soils
- Gleyed or Low Chrome color
- Listed on Local Hydric Soils List
- Listed as Potential for Hydric Inclusions Only
- Other (Explain in Remarks)
- Aquic Moisture Regime

Landscape Position: Concave
Hydric by Volume
OF VENANT OF FLOOD WHEN PLANTED

SOILS

Recorded Data (Describe in Remarks)
- Local Soil Survey
- NWI Map
- NYS FWW Map
- Stream, Lake or Tide Gauge
- No Recorded Data Available

Field Observations
- Ground Surface Inundated
- Soil Saturated - Depth to Saturated Soils
- Depth to Free Water

Wetland Hydrology Indicators
Primary Indicators
- Inundated
- Water Marks
- Drift Lines
- Sediment Deposits
- Drainage Patterns in Wetland

Secondary Indicators (2 or more required)
- Oxidized Root Channels in upper 12 inches
- Water - Stained leaves
- Local Soil Survey
- FAC - Neutral Test
- Other (Explain in Remarks)

VEGETATION

Dominant Plant Species:
- Stratum:
- Indicator:

WETLAND DETERMINATION

Hydrophytic Vegetation Present? Yes or No
Wetland Hydrology Present? Yes or No
Hydric Soils Present? Yes or No
Is this Sampling Point Within a Wetland? Yes or No

Remarks:
**DATA FORM**

**ROUTINE WETLAND DETERMINATION**

1987 USACE Wetlands Delineation Manual

| Date: | 14 July, 2006 |
| Town: | Brighton |
| County: | Monroe |
| State: | New York |

**INVESTIGATOR:**

- University of Rochester
- G. Pellett & J. Hauber

**SOILS**

- Series and Phase: **CLAYBOOK LOAMY FINE SAND**
- Subgroup: **AQUIC UDIORTHENTS**

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<th>Depth</th>
<th>Horizon</th>
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<th>Redoximorphic Features/Abundance/Contrast (Munsell Moist)</th>
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<td>Silt Loam, Clayey</td>
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</tbody>
</table>

**SOIL HYDROLOGIC INDICATORS:**

- Concretions
- High Org. Content in Surface Layer
- Organic Streaking in Sandy Soils
- Gleyed or Low Chroma color
- Landscape Position: Concave

**HYDROLOGY**

- Recorded Data (Describe in Remarks)
- Local Soil Survey
- NWI Map
- NYS FWW Map
- Stream, Lake or Tide Gauge
- No Recorded Data Available

**VEGETATION**

<table>
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<td>11</td>
<td>FACU</td>
</tr>
<tr>
<td>12</td>
<td>FACU</td>
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</tbody>
</table>

**WETLAND DETERMINATION**

- Hydrophytic Vegetation Present? Yes
- Wetland Hydrology Present? Yes
- Hydric Soils Present? Yes
- Is this Sampling Point Within a Wetland? Yes

**Remarks:**

**NEW HYDROC**
DATA FORM

ROUTINE WETLAND DETERMINATION

1987 USACE Wetlands Delineation Manual

Date: 14 July, 2005
Town: Brighton
County: Monroe
State: New York

int: University of Rochester
Investigator: G. Pellett J. Hauber

Do normal circumstances exist on site? No
Is the site significantly disturbed? Yes
Is the area a potential Problem Area? Yes

Community: PAA I WOOS-S
Transsect/Flag ID: 6449
Plot ID: 1W

SOILS

Series and Phase: COSAS AD LOAMY ECTON SAND
Subgroup: AQUIC UDIORTMENTS

<table>
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<th>Depth</th>
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<th>Redoximorphic Features/Abundance/Contrast (Munsell Mois)</th>
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<td>B</td>
<td>2.5Y 5/2</td>
<td>Core HC Dirt</td>
<td>Sandy Loam</td>
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</tbody>
</table>

Hydric Soil Indicators:
- Histisols
- Histic Epiopedon
- Sulphuric Odor
- Reducing Conditions
- Landscape Position: Concave
- Conformation:
- Flat
- Undulating
- Sloping
- Approximate Slope:

P'arks:

HYDROLOGY

Recorded Data (Describe in Remarks)
- Local Soil Survey
- NW Map
- NYS FW Map
- Stream, Lake or Tide Gauge

No Recorded Data Available

Field Observations
- Ground Surface Inundated
- Soil Saturated - Depth to Saturated Soils
- Depth to Free Water

Wetland Hydrology Indicators
- Inundated
- satinet in upper 12 inches
- Water Marks
- Drift Lines
- Sediment Deposits
- Drainage Patterns in Wetland

Secondary Indicators (2 or more required)
- Oxidized Root Channels in upper 12 inches
- Water - Stained leaves
- Local Soil Survey
- FAC - Neutral Test
- Other (Explain in Remarks)

VEGETATION

Dominant Plant Species:
1. Carya ovata
2. Fraxinus pennsylvanica
3. Carya ovata
4. Ulmus americana
5. Populus deltoides
6. Acer saccharum
7. Quercus rubra
8. Sequoia sempervirens
9. Prunus serotina
10. Carex sp
11. Carex sp
12. Carex sp

Stratum:
- H S T V

Indicator:
- OBL, FACW, FAC
- OBL, FACW
- OBL, FACW
- OBL, FACW
- OBL, FACW
- OBL, FACW
- OBL, FACW

50/20 Rule Applied: Yes No
Percent of Dominant Species

WETLAND DETERMINATION

Hydrophytic Vegetation Present? Yes No
Wetland Hydrology Present? Yes No
Hydric Soils Present: Yes No
Is this Sampling Point Within a Wetland? Yes No

Remarks:

WETLAND DETERMINATION

Remarks:
DATA FORM
ROUTINE WETLAND DETERMINATION
1987 USACE Wetlands Delineation Manual

Date: 14 July, 2005
Town: Brighton
County: Monroe
State: New York

Do normal circumstances exist on site? Yes No
Is the site significantly disturbed? Yes No
Is the area a potential Problem Area? Yes No

Community: WOODS
Transsect/Flag ID: G-49
Plot ID: 17 U

SOILS
Series and Phase: COZAD LOAMY FINE SAND
Subgroup: AQUIC UDIORTHEMS
Drainage Class: WD MWD PD VPD
Confirmed Mapped Type: Yes No

<table>
<thead>
<tr>
<th>Depth</th>
<th>Horizon</th>
<th>Matrix Color (Munsell Moist)</th>
<th>Redoximorphic Features/Abundance/Contrast (Munsell Moist)</th>
<th>Texture, Structure, Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-11</td>
<td>A</td>
<td>10 YR 5/2</td>
<td></td>
<td>Silt loam</td>
</tr>
<tr>
<td>11-18</td>
<td>B</td>
<td>10 YR 5/4</td>
<td></td>
<td>Sandy loam</td>
</tr>
</tbody>
</table>

Hydric Soil Indicators:
- Histosols
- Sodic Epipedon
- Sodic Odor
- Reducing Conditions
- Landscape Position: Concave Convex Flat Undulating

Notes:
- "Westland in 25 feet before the connection ditch"

HYDROLOGY
Recorded Data (Describe in Remarks)
- Local Soil Survey
- NW Map
- NYS FWW Map
- Stream, Lake or Tide Gauge
- No Recorded Data Available

Field Observations
- Ground Surface Inundated: inches
- Soil Saturated - Depth to Saturated Soils: inches
- Depth to Free Water: inches

Wetland Hydrology Indicators
Primary Indicators
- Inundated
- Saturated in upper 12 inches
- Water Marks
- Drainlines
- Sediment Deposits
- Drainage Patterns in Wetland

Secondary Indicators (2 or more required)
- Oxidized Root Channels in upper 12 inches
- Water - Stained leaves
- Local Soil Survey
- FAC - Neutral Test
- Other (Explain in Remarks)

VEGETATION
Dominant Plant Species:
1. Typha angustifolia, OBL FACW
2. Lilium michauxii, H S/S T V
3. Equisetum hyemale, H S/S T V
4. Kamloops cathartica, H T V
5. Carex eatonii, H T V
6. Carex comosa, H T V
7. Populus balsamifera, H S/S T V
8. Chamaecyparis thyoides, H S/S T V
9. H S/S T V
10. H S/S T V
11. H S/S T V
12. H S/S T V

50/20 Rule Applied: Yes No
Percent of Dominant Species

Remarks:

WETLAND DETERMINATION
Hydrophytic Vegetation Present? Yes No
Wetland Hydrology Present? Yes No
Hydric Soils Present: Yes or No
Is this Sampling Point Within a Wetland? Yes or No

Remarks:
DATA FORM
ROUTINE WETLAND DETERMINATION
1987 USACE Wetlands Delineation Manual

Date: 14 July, 2005
Town: Brighton
County: Monroe
State: New York

Do normal circumstances exist on site? Yes ☐ No ☑
Is the site significantly disturbed? Yes ☐ No ☑
Is the area a potential Problem Area? Yes ☐ No ☑

Community: FAL [W 0075]
Transsect/Flag ID: G-56
Plot ID: 18W

SOILS
Series and Phase: COSAD LUMA WAC SAAD AQUIC UBERHENTS
Subgroup: AQUIC UBERHENTS
Depth Horizon Matrix Color (Munsell Moist) Redoximorphic Features/Abundance/Contrast (Munsell Moist) Texture, Structure, Other
0-10 A 10 YR 3/1 COM 10YR 5/6 DISTA
10-18 B 2.5 YR 5/2

Hydric Soil Indicators:
Histosols ☑
Histic Epipedon ☑
Succid Odor ☐
Reducing Conditions ☑
Concretions ☐
High Org. Content in Surface Layer ☐
Organic Streaking in Sandy Soils ☐
Gleyed or Low Chroma color ☐

Listed on Local Hydric Soils List ☑
Listed as Potential for Hydric Inclusions Only ☐
Other (Explain in Remarks) ☐

Aquic Moisture Regime ☑

Sloping ☑ Approximate Slope: 1/8 W

Remarks:

HYDROLOGY
Recorded Data (Describe in Remarks)
Local Soil Survey ☐
NWI Map ☐
NYS FW Map ☐
Stream, Lake or Tide Gauge ☐
No Recorded Data Available ☑

Field Observations
Ground Surface inundated inches ☑
Soil Saturated - Depth to Saturated Soils inches ☑
Depth to Free Water inches ☑

Wetland Hydrology Indicators
Primary Indicators
Inundated ☑
Water Marks ☐
Drift Lines ☐
Sediment Deposits ☐
Drainage Patterns in Wetland ☐

Secondary Indicators (2 or more required)
Oxidized Root Channels in upper 12 inches ☑
Water - Stained leaves ☐
Local Soil Survey ☐
FAC - Neutral Test ☐
Other (Explain in Remarks) ☐

Remarks:

VEGETATION
Dominant Plant Species:
1 Fraxinus pennsylvanica [H S/S O V]
2 Quercus alba [H S/S O V]
3 Ulmus americana [H S/S O V]
4 Toxicodendron radicans [H S/S O V]
5 Cephalanthus occidentalis [H S/S O V]
6 Equisetum sp. [H S/S O V]
7 Lonicera tatarica [H S/S O V]
8 Glycyrrhiza striata [H S/S O V]
9 Celtis occidentalis [H S/S O V]
10 [H S/S O V]
11 [H S/S O V]
12 [H S/S O V]

50/20 Rule Applied: Yes ☑ No ☐
Percent of Dominant Species ☑
OBL, FAC, W

Remarks:

WETLAND DETERMINATION
Hydrophytic vegetation Present? Yes ☑ No ☐
Wetland Hydrology Present? Yes ☐ No ☑
Hydric Soils Present: Yes or No ☑
Is this Sampling Point Within a Wetland? Yes or No ☑

Remarks:
DATA FORM
ROUTINE WETLAND DETERMINATION
1987 USACE Wetlands Delineation Manual

Date: 14 July, 2005
Town: Brighton
County: Monroe
State: New York

Do normal circumstances exist on site? ☐ No ☑ Yes
Is the site significantly disturbed? ☐ Yes ☑ No
Is the area a potential Problem Area? ☐ Yes ☑ No

Community: Woods
Transact/Flag ID: C56
Plot ID: 18U

SOILS
Series and Phase: CO SAD LOAMY FINE SAND
Subgroup: AQUIC UDIORTH E3975

<table>
<thead>
<tr>
<th>Depth</th>
<th>Horizon</th>
<th>Matrix Color (Munsell Moist)</th>
<th>Redoximorphic Features/Abundance/Contrast (Munsell Moist)</th>
<th>Texture, Structure, Other</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Hydric Soil Indicators:
- Hist soils
- Histic Epepion
- Sulfacic Odor
- Reducing Conditions
- Landscape Position: Concave
- Convex
- Flat
- Undulating

Listed on Local Hydric Soils List: ☑
Listed as Potential for Hydric Inclusions Only: ☑
Other (Explain in Remarks):
- Aquic Moisture Regime
- Sloping: L
- Approximate Slope: 2%

HYDROLOGY
Recorded Data (Describe in Remarks):
- Labeled Soil Survey
- NWI Map
- NYS FIDW Map
- Stream, Lake or Tide Gauge

Field Observations:
- Ground Surface Inundated: N
- Soil Saturated - Depth to Saturated Soils: __ inches
- Depth to Free Water: __ inches

Wetland Hydrology Indicators:
Primary Indicators:
- Inundated
- Saturated in upper 12 inches
- Water Marks
- Drift Lines
- Sediment Deposits
- Drainage Patterns in Wetland

Secondary Indicators (2 or more required):
- Oxidized Root Channels in upper 12 inches
- Water - Stained leaves
- Local Soil Survey
- FAC - Neutral Test
- Other (Explain in Remarks)

Remarks:

VEGETATION

<table>
<thead>
<tr>
<th>Dominant Plant Species</th>
<th>Stratum</th>
<th>Indicator</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 LEPISPERMUM DACTYLLUM</td>
<td>H S/T V</td>
<td>FACU</td>
</tr>
<tr>
<td>2 TRISTEMATON MORELLIANUM</td>
<td>S/S T B</td>
<td>FAC</td>
</tr>
<tr>
<td>3 PSEUDOTSUGA DENTATA</td>
<td>S/S T B</td>
<td>FAC</td>
</tr>
<tr>
<td>4 EUPHORBIA RHomboidea</td>
<td>S/S T B</td>
<td>FACW</td>
</tr>
<tr>
<td>5 RHAMNUS CORIACEUS</td>
<td>S/S T V</td>
<td>FAC</td>
</tr>
<tr>
<td>6 S/S T V</td>
<td>FAC</td>
<td></td>
</tr>
<tr>
<td>7 S/S T V</td>
<td>FAC</td>
<td></td>
</tr>
<tr>
<td>8 S/S T V</td>
<td>FAC</td>
<td></td>
</tr>
<tr>
<td>9 S/S T V</td>
<td>FAC</td>
<td></td>
</tr>
<tr>
<td>10 S/S T V</td>
<td>FAC</td>
<td></td>
</tr>
<tr>
<td>11 S/S T V</td>
<td>FAC</td>
<td></td>
</tr>
<tr>
<td>12 S/S T V</td>
<td>FAC</td>
<td></td>
</tr>
</tbody>
</table>

50/20 Rule Applied: Yes ☑ No ☐

Percent of Dominant Species:
- OBL, FACW, FAC

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present? ☑ Yes ☐ No
Wetland Hydrology Present? ☑ Yes ☐ No
Hydric Soils Present? ☑ Yes ☐ No
Is this Sampling Point Within a Wetland? ☑ Yes ☐ No

Remarks:
DATA FORM
ROUTINE WETLAND DETERMINATION
1987 USACE Wetlands Delineation Manual

Date: 14 July, 2005
Town: Brighton
County: Monroe
State: New York

Do normal circumstances exist on site? No
Is the site significantly disturbed? Yes
Is the area a potential Problem Area? Yes
Community: BAU WOODS
Transsect/Fug ID: G-60
Plot ID: 19W

SOILS
Series and Phase: COBALT LOAMY FINE SAND
Subgroup: ACIC UDIORTHENTS
Drainage Class: WD MWD SP PD VPD
Confirmed Mapped Type: Yes

<table>
<thead>
<tr>
<th>Depth</th>
<th>Horizon</th>
<th>Matrix Color (Munsell Mois)</th>
<th>Redoximorphic Features/Abundance/Contrast (Munsell Mois)</th>
<th>Texture, Structure, Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-11</td>
<td>A</td>
<td>10YR 3/1</td>
<td>Common HC distinct</td>
<td>Si, Im cr, 7, Sb.</td>
</tr>
<tr>
<td>11-20</td>
<td>B</td>
<td>7.5Y/2</td>
<td></td>
<td>Sa, Im, Wt, Sb.</td>
</tr>
</tbody>
</table>

Hydric Soil Indicators:
- Concretions
- High Org. Content in Surface Layer
- Organic Streaking in Sandy Soils
- Gleyed or Low Chroma color

Landscape Position:
- Concave
- Convex
- Flat
- Undulating

Remarks:
JUST SOUTH OF SMALLEY SCHOOL (G-1)

HYDROLOGY

Recorded Data (Describe in Remarks)
- Local Soil Survey
- NWI Map
- NYS FW Maps
- Stream, Lake or Tide Gauge
- No Recorded Data Available

Field Observations
- Ground Surface Inundated __________ inches
- Soil Saturated - Depth to Saturated Soils __________ inches
- Depth to Free Water __________ inches

Wetland Hydrology Indicators
Primary Indicators
- Inundated
  - Water Marks
  - Drift Lines
  - Sediment Deps
  - Drainage Patterns in Wetland

Secondary Indicators (2 or more required)
- Oxidized Root Channels in upper 12 inches
  - Water - Stained leaves
  - Local Soil Survey
  - FAC - Neutral Test
  - Other (Explain in Remarks)

VEGETATION

Dominant Plant Species:
1. PLATANUS OCCIDENTALIS (OBL V) FACW
2. GYMNOCALYCIUM MEXICANUM (OBL T) FACW
3. CRASSULACETOSA LAMBDIAS (OBL T) FACW
4. ACER SATIVA (OBL V) FACW
5. VENUS AMERICANICA (OBL V) FACW
6. PHAMANUS (OBL V) FACW
7. WILD RICE (OBL T) FACW
8. EULOBUS (OBL T) FACW

50/20 Rule Applied: Yes No Percent of Dominant Species
- OBL, FACW, FAC

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present? Yes No
Wetland Hydrology Present? Yes No
Hydric Soils Present? Yes No
Is this Sampling Point Within a Wetland? Yes No

Remarks:
DATA FORM
ROUTINE WETLAND DETERMINATION
1987 USACE Wetlands Delineation Manual

Date: 14 July, 2005
Town: Brighton
County: Monroe
State: New York

Do normal circumstances exist on site? Yes No
Is the site significantly disturbed? Yes No
Is the area a potential Problem Area? Yes No
Community: WOODS
Transact/Flag ID: G-60
Plot ID: 174

SOILS
Series and Phase: CO SAD LOAMY FINE SAND
Subgroup: AQUEC UDBORTHET

<table>
<thead>
<tr>
<th>Depth</th>
<th>Horizon</th>
<th>Matrix Color (Munsell Moisit)</th>
<th>Redoximorphic Features/Abundance/Contrast (Munsell Moisit)</th>
<th>Texture, Structure, Other</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>SRE 17 W</td>
<td>Silt Loam</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Silty Silt Loam</td>
</tr>
</tbody>
</table>

Hydric Soil Indicators:
- Histosols
- Histic Epipedon
- Sulfidic Odor
- Reducing Conditions
- Listed on Local Hydric Soils List
- Listed as Potential for Hydric Inclusions Only
- Other (Explain in Remarks)
- Aquatic Moisture Regime
- Sloping
- Approximate Slope:

Landscape Position: Concave Convex

rks: NO HYDROEOY

JUST 3 OF SMALL POWER LINE (G-1)

HYDROLOGY
Recorded Data (Describe in Remarks)
- Local Soil Survey
- NWI Map
- NYS FWW Map
- Stream, Lake or Tide Gauge
- No Recorded Data Available

Field Observations
- Ground Surface Inundated inches
- Soil Saturated - Depth to Saturated Soils inches
- Depth to Free Water inches

Wetland Hydrology Indicators
- Inundated
- Saturated in upper 12 inches
- Water Marks
- Drift Lines
- Sediment Deposits
- Drainage Patterns in Wetland

VEGETATION
Dominant Plant Species: Stratum: Indicator:
1. ACER RUBRUM H S/S O V FAC
2. FRAXinus PANURIGA H S/S O V FACW
3. TRAUMA URTICA H S S T V FACU
4. CRASUM CUVARVM H S S T V FACW
5. CLNCREA TATARRICA H S S T V FACU
6. RHAMNUS CATSARIA H S S T V FAC
7. GRSL LKE LEOILATA S S T V UPL
8. OXALIS EUROPaea S S T V OBL FACW
9. 10. 11. 12. 

50/20 Rule Applied: Yes No
Percent of Dominant Species
OBL, FACW, FAC
OBL, FACW

WETLAND DETERMINATION
Hydrophytic Vegetation Present? Yes No
Wetland Hydrology Present? Yes No
Hydric Soils Present: Yes No
Is this Sampling Point Within a Wetland? Yes No

Remarks:
Environmental Resources, LLC  
33 Kress Hill Drive  
Spencerport, NY 14559  
(585) 594-4450

DATA FORM  
ROUTINE WETLAND DETERMINATION

1987 USACE Wetlands Delineation Manual

Date: 14 July, 2005  
Town: Brighton  
County: Monroe  
State: New York

Investigator:  
G. Pellett  
J. Hauber

Do normal circumstances exist on site?  
Yes  
No

Is the site significantly disturbed?  
Yes  
No

Is the area a potential Problem Area?  
Yes

Community:

 Transect/Flag ID:  
Plot ID:

SOILS

Series and Phase:  
COSAD LOAMY FINE SAND  
AQUIC UDOMENTS

Subgroup:

Depth  
Horizon  
Matrix Color (Munsell Moist)  
Redoximorphic Features/Abundance/Contrast  
Texture, Structure, Other

<table>
<thead>
<tr>
<th>Depth</th>
<th>Horizon</th>
<th>Matrix Color</th>
<th>Redoximorphic Features/Abundance/Contrast</th>
<th>Texture, Structure, Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-2</td>
<td>A</td>
<td>10 YR 3/1</td>
<td>MANY HC DIAT</td>
<td>SANDY Silt Loam</td>
</tr>
<tr>
<td>2-18</td>
<td>B</td>
<td>25 Y 5/2</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Hydric Soil Indicators:
- Histisois
- Histic Epipedon
- Sulfic Odor
- Reducing Conditions

Concretions:
- High Org. Content in Surface Layer
- Organic Streaking in Sandy Soils
- Grayed or Low Chroma color

Landscape Position:  
Concave  
Convex

Flat  
Undulating

York:

Hydrology

Recorded Data (Describe in Remarks):
- Local Soil Survey
- NMS Map
- NYS FWQ Map
- Stream, Lake or Tide Gauge
- No Recorded Data Available

Field Observations:
- Ground Surface Inundated: [Blank]
- Soil Saturated - Depth to Saturated Soils: [Blank]
- Depth to Free Water: [Blank]

Wetland Hydrology Indicators:

Primary Indicators:
- Inundated
- Saturated in upper 12 inches
- Water Marks
- Drift Lines
- Sediment Deposits
- Drainage Patterns in Wetland

Secondary Indicators (2 or more required):
- Oxidized Root Channels in upper 12 inches
- Water - Stained Leaves
- Local Soil Survey
- FAC - Neutral Test
- Other (Explain in Remarks)

Vegetation

Dominant Plant Species:
1. CYANOPHYTHA ALCAR
2. TRAJEGER PENNISIPA
3. SALIS Y NIGRA
4. AES CERAMUM
5. H S/T V
6. H S/T V
7. H S/T V
8. H S/T V
9. H S/T V
10. H S/T V
11. H S/T V
12. H S/T V

50/20 Rule Applied:  
Yes  
No

Percent of Dominant Species:  
OBL, FACW, FAC

Wetland Determination

Hydrophytic Vegetation Present?  
Yes  
No

Wetland Hydrology Present?  
Yes  
No

Hydric Soils Present?  
Yes  
No

Is the Sampling Point Within a Wetland?  
Yes  
No

Remarks:

All collection data.
DATA FORM

ROUTINE WETLAND DETERMINATION

1987 USACE Wetlands Delineation Manual

Date: 14 July, 2005
Town: Brighton
State: New York
Community: Woods
Plot ID: 20 U
Transact/Flag ID: G 137

SOILS

Series and Phase: CLAVERLAKE AMYCYCLIC SAND
Subgroup: AQUIC UDEARTH"TS

<table>
<thead>
<tr>
<th>Depth</th>
<th>Horizon</th>
<th>Matrix Color (Munsell Mois)</th>
<th>Redoximorphic Features/Abundance/Contrast</th>
<th>Texture, Structure, Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-2</td>
<td>A</td>
<td>10 YR 4/4</td>
<td></td>
<td>SALLY LOAMY</td>
</tr>
<tr>
<td>2-18</td>
<td>B</td>
<td>10 YR 5/3</td>
<td></td>
<td>SALLY LOAM</td>
</tr>
</tbody>
</table>

Hydrical Soil Indicators:
- Histosols
- Sulfidic Epizon
- Organic Streaking in Sandy Soils
- Gleyed or Low Chroma color

Landscape Position: Flat

SOILS

Recorded Data (Describe in Remarks)
- Local Soil Survey
- NWI Map
- NYS FW Map
- Stream, Lake or Tide Gauge
- No Recorded Data Available

Field Observations
- Ground Surface Inundated: No
- Soil Saturated - Depth to Saturated Soils: 0 inches
- Depth to Free Water: 0 inches

Wetland Hydrology Indicators
- Inundated
- Saturated in upper 12 inches
- Water Marks
- Drift Lines
- Sediment Deposits
- Drainage Patterns in Wetland

Secondary Indicators (2 or more required)
- Oxidized Root Channels in upper 12 inches
- Water - Stained leaves
- Local Soil Survey
- FAC - Neutral Test
- Other (Explain in Remarks)

HYDROLOGY

VEGETATION

Dominant Plant Species:
1. FACYNSUS PENNYVULNH A C 45 |
2. CECOSPERMUM RADICANS B 0 S 5 T 10 |
3. GREVILLIA ALPSTICK M 0 S 5 T 10 |
4. VIOLA SPP. H 10 S 5 T 10 |
5. ACER RADINUS H 10 S 5 T 10 |
6. ACER SACCHARUM A C 45 |
7. JUGLANS NIGRA H 10 S 5 T 10 |
8. SALIX NIGRA H 10 S 5 T 10 |
9. H 10 S 5 T 10 |
10. H 10 S 5 T 10 |
11. H 10 S 5 T 10 |
12. H 10 S 5 T 10 |

50/20 Rule Applied: Yes
Percent of Dominant Species: 25%

OBL, FACW, FAC

WETLAND DETERMINATION

Hydrophytic Vegetation Present? Yes
Wetland Hydrology Present? Yes
Hydrical Soils Present: Yes
Is this Sampling Point Within a Wetland? Yes

Remarks:

Remarks:

FAC-dominated Wetland
DATA FORM
ROUTINE WETLAND DETERMINATION
1987 USACE Wetlands Delineation Manual

Date: 14 July, 2005
Town: Brighton
County: Monroe
State: New York

Investigator: G. Pellett J. Hauber

Do normal circumstances exist on site? Yes No
Is the site significantly disturbed? Yes No
Is the area a potential Problem Area? Yes No

Community:

Transsect/Flag ID:

Plot ID:

SOILS
Series and Phase: COBALT LOAMY FINE SAND
Subgroup: AQUIC UDHORTS

Depth | Horizon | Matrix Color (Munsell Moist) | Redoximorphic Features/Abundance/Contrast (Munsell Moist) | Texture, Structure, Other
-------|---------|-----------------------------|----------------------------------------------------------|-------------------------------
0-2    | A       | 10YR 2/1                    | Paint HC motile                                         | color
2-18   | B       | 10YR 5/3                    |                                                          | color

Hydric Soil Indicators:
Histisoils
Histic Epipedon
Sulfidic Ochre
Reducing Conditions

Concretions
High Org. Content in Surface Layer
Organic Streaking in Sandy Soils
Gleyed or Low Chroma color

Listed on Local Hydric Soils List: Yes
Listed as Potential for Hydric Inclusions Only: No
Other (Explain in Remarks): Aquatic Moisture Regime

Landscape Position:
Concave
Convex
Flat
Undulating

Sloping
Approximate Slope:

Is connecting ditch between two parts of... 

HYDROLOGY

Recorded Data (Describe in Remarks)
Local Soil Survey
NWI Map
NYS FWW Map
Stream, Lake or Tide Gauge
No Recorded Data Available

Field Observations
Ground Surface Inundated
Soil Saturated - Depth to Saturated Soils
Depth to Free Water

Wetland Hydrology Indicators
Primary Indicators
Inundated
Saturated in upper 12 inches
Water Marks
Drift Lines
Sediment Deposits
Drainage Patterns in Wetland

Secondary Indicators (2 or more required)
Oxidized Root Channels in upper 12 inches
Water - Stained leaves
Local Soil Survey
FAC - Neutral Test
Other (Explain in Remarks)

VEGETATION

Dominant Plant Species:

Stratum:

Indicator:
1. QUOCHLA MINUS
2. FABRISIUS PENNYLUM
3. SECOARDO FAS
4. CAREY CATCH
5. QUERCUS RUBRA
6. PULIC 5PP.
7. CARYA OVAR.
8. 55A BASSANEA
9. 55A BASSANEA
10. 55A BASSANEA
11. 55A BASSANEA
12. 55A BASSANEA

50/20 Rule Applied: Yes No
Percent of Dominant Species

REMARKS:

WETLAND DETERMINATION

Hydromorphic Vegetation Present? Yes or No
Wetland Hydrology Present? Yes or No
Hydric Soils Present: Yes or No
Is this Sampling Point Within a Wetland? Yes or No

REMARKS:
**DATA FORM**

**ROUTINE WETLAND DETERMINATION**

1987 USACE Wetlands Delineation Manual

---

**University of Rochester**

---

**INVESTIGATOR:**

G. Pellet J. Hauber

---

**DATE:** 14 July, 2005

---

**TOWN:** Brighton

**COUNTY:** Monroe

**STATE:** New York

---

**DO NORMAL CIRCUMSTANCES EXIST ON SITE?**

Yes [ ] No [ ]

---

**IS THE SITE SIGNIFICANTLY DISTURBED?**

Yes [ ] No [ ]

---

**IS THE AREA A POTENTIAL PROBLEM AREA?**

Yes [ ] No [ ]

---

**COMMUNITY:** Woods [ ]

---

**TRANSECT/FLAG ID:** G-128 [ ]

---

**SITOOLS**

**SERIES AND PHASE:**

- Cosby Loamy Fine Sandy

---

**SUBLGROUP:** AQUIC UDOMORBOTS

---

**DEPTH** | **HORIZON** | **MATRIX COLOR** (Munsell Moist) | **REDOMORPHIC FEATURES/ABUNDANCE/CONTRAST** (Munsell Moist) | **TEXTURE, STRUCTURE, OTHER**
---|---|---|---|---
G-11 | B | 10YR 2/2 | - | Sandy Loamy Clay
G-18 | B | 10YR 5/4 | - | Sandy Loamy Clurny

---

**HYDROLOGY**

**RECORDED DATA (DESCRIPTIVE IN REMARKS):**

- Local Soil Survey
- NWI Map
- NYS FWI Map
- Stream, Lake or Tide Gauge

**NO RECORD OF DATA AVAILABLE**

---

**FIELD OBSERVATIONS:**

- Ground Surface Inundated ________ inches
- Soil Saturated - Depth to Saturated Soils ________ inches
- Depth to Free Water ________ inches

---

**WETLAND HYDROLOGY INDICATORS:**

**PRIMARY INDICATORS:**

- Inundated
- Saturated in upper 12 inches
- Water Marks
- Drift Lines
- Sediment Deposits
- Drainage Patterns in Wetland

---

**SECONDARY INDICATORS (2 or more required):**

- Oxidized Root Channels in upper 12 inches
- Water - Stained leaves
- Local Soil Survey
- FAC - Neutral Test
- Other (Explain in Remarks)

---

**HYDROLOGY**

---

**VEGETATION**

**DOMINANT PLANT SPECIES:**

- Podophyllum Peltatum
- Vaccinium Ipp
- Acer Rubrum
- Pinus Strobus
- Osmunda Cernua
- Quercus Illinoensis
- Carex dichotoma
- Carex Radiata

---

**STRATUM:**

- H/S/S T V
- H/S/S T V
- H/S/S T V
- H/S/S T V
- H/S/S T V
- H/S/S T V
- H/S/S T V

---

**INDICATOR:**

- FAC
- FAC
- FAC
- FAC
- FAC
- FAC
- FAC
- FAC
- FAC
- FAC
- FAC
- FAC

---

**REMARKS:**

FAC dominant

---

**WETLAND DETERMINATION**

**HYDROPHTIC VEGETATION PRESENT?**

Yes [ ] No [ ]

---

**WETLAND HYDROLOGY PRESENT?**

Yes [ ] No [ ]

---

**HYDROTIC SOILS PRESENT?**

Yes [ ] No [ ]

---

**IS THIS SAMPLING SITE WITHIN A WETLAND?**

Yes [ ] No [ ]

---

**REMARKS:**

- FAC dominant

---

**REMARKS:**

- FAC dominant

---
# DATA FORM
## ROUTINE WETLAND DETERMINATION
1987 USACE Wetlands Delineation Manual

<table>
<thead>
<tr>
<th>Date:</th>
<th>14 July, 2006</th>
</tr>
</thead>
<tbody>
<tr>
<td>Town:</td>
<td>Brighton</td>
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<tr>
<td>County:</td>
<td>Monroe</td>
</tr>
<tr>
<td>State:</td>
<td>New York</td>
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</table>

**SOILS**

<table>
<thead>
<tr>
<th>Series and Phase:</th>
<th>LOSEAD LOAMY FINE SAND</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subgroup:</td>
<td>ACQUIC UDOORTHENTS</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Depth</th>
<th>Horizon</th>
<th>Matrix Color (Munsell Moist)</th>
<th>Redoximorphic Features/Abundance/Contrast (Munsell Moist)</th>
<th>Texture, Structure, Other</th>
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</thead>
<tbody>
<tr>
<td>0-12</td>
<td>A</td>
<td>10VR 2/1</td>
<td></td>
<td>SILOV CLAY Silt</td>
</tr>
<tr>
<td>12-18</td>
<td>B</td>
<td>10VR 3/1</td>
<td></td>
<td>SILOV CLAY LOAM</td>
</tr>
</tbody>
</table>

**Hydric Soil Indicators:**
- Histic Epipedon
- Organic Streaking in Sandy Soils
- Gleyed or Low Chroma color
- Listed on Local Hydric Soils List
- Listed as Potential for Hydric Inclusions Only
- Aquic Moisture Regime

**Landscape Position:**
- Concave
- Convex
- Flat
- Undulating

**Remarks:**
- NE PORTION OF MAIN WETLAND

## HYDROLOGY

- Recorded Data (Describe in Remarks)
  - Local Soil Survey
  - NWI Map
  - NYS FWW Map
  - Stream, Lake or Tide Gauge
  - No Recorded Data Available

**Field Observations**
- Ground Surface Inundated inches
- Soil Saturated - Depth to Saturated Soils inches
- Depth to Free Water inches

**Wetland Hydrology Indicators**
- Inundated
- Saturated in upper 12 inches
- Water Marks
- Drift Lines
- Sediment Deposits
- Drainage Patterns in Wetland

**Secondary Indicators (2 or more required)**
- Oxidized Root Channels in upper 12 inches
- Water - Stained leaves
- Local Soil Survey
- FAC - Neutral Test
- Other (Explain in Remarks)

**HYDROLOGY**

**VEGETATION**

<table>
<thead>
<tr>
<th>Dominant Plant Species</th>
<th>Stratum</th>
<th>Indicator</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHRAGMITES AUSTRALIS</td>
<td>0 S/S T V</td>
<td>FAC W</td>
</tr>
<tr>
<td>QUERUS CAPITATA</td>
<td>H S/S G V</td>
<td>FAC W</td>
</tr>
<tr>
<td>Acer Saccharum</td>
<td>H S/S G V</td>
<td>FAC W</td>
</tr>
<tr>
<td>Hamamelis Viscodulita</td>
<td>H S/S T V</td>
<td>FAC</td>
</tr>
<tr>
<td>Hamamelis Viscodulita</td>
<td>H S/S T V</td>
<td>FAC</td>
</tr>
<tr>
<td>Hamamelis Viscodulita</td>
<td>H S/S T V</td>
<td>FAC</td>
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<td>H S/S T V</td>
<td>FAC</td>
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<td>FAC</td>
</tr>
<tr>
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<td>H S/S T V</td>
<td>FAC</td>
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<tr>
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<td>H S/S T V</td>
<td>FAC</td>
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<tr>
<td>Hamamelis Viscodulita</td>
<td>H S/S T V</td>
<td>FAC</td>
</tr>
<tr>
<td>Hamamelis Viscodulita</td>
<td>H S/S T V</td>
<td>FAC</td>
</tr>
</tbody>
</table>

50/20 Rule Applied: Yes No

**WETLAND DETERMINATION**

Hydrophytic Vegetation Present: Yes or No
Wetland Hydrology Present: Yes or No
Hydric Soils Present: Yes or No
Is this Sampling Point within a Wetland: Yes or No

Remarks:

- HOLE
**Environmental Resources, LLC**
33 Kress Hill Drive
Spencerport, NY 14559
(585) 594-4450

**DATA FORM**
**ROUTINE WETLAND DETERMINATION**
1967 USACE Wetlands Delineation Manual

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<td>County:</td>
<td>Monroe</td>
</tr>
<tr>
<td>State:</td>
<td>New York</td>
</tr>
</tbody>
</table>

**Investigator:**
G. Pellett  J. Hauber

**Do normal circumstances exist on site?**
<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

**Community:**
Woods

**Plot ID:**
224

---

**SOILS**

<table>
<thead>
<tr>
<th>Series and Phase</th>
<th>Drainage Class</th>
</tr>
</thead>
<tbody>
<tr>
<td>COSAD GRAY FYSSAND</td>
<td>WD MWD SPD PD VPD</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Subgroup:</th>
<th>Confirmed Mapped Type:</th>
</tr>
</thead>
<tbody>
<tr>
<td>AQUIC USORTHENTS</td>
<td>Yes No</td>
</tr>
</tbody>
</table>

**Depth** | **Horizon** | **Matrix Color (Munsell Moist)** | **Redoximorphic Features/Abundance/Contrast (Munsell Moist)** | **Texture, Structure, Other** |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>0-6</td>
<td>A</td>
<td>10YR 4/2 1</td>
<td>Sa, I, m, cr.</td>
<td></td>
</tr>
<tr>
<td>6-20</td>
<td>B</td>
<td>10YR 5/5 1</td>
<td>Sa, I, m, wk sgr.</td>
<td></td>
</tr>
</tbody>
</table>

**Hydric Soil Indicators:**

- Histosols
- Somatic Epipedon
- Sulphatic Odor
- Reducing Conditions
- Landscape Position:
  - Concave
  - Convex
  - Flat
  - Undulating
- Listed on Local Hydric Soils List
- Listed as Potential for Hydric Inclusions Only
- Other (Explain in Remarks)
- Aquic Moisture Regime
- Sloping
- Approximate Slope:

**HYDROLOGY**

- Recorded Data (Describe in Remarks)
- Local Soil Survey
- NWI Map
- NYS FWW Map
- Stream, Lake or Tide Gauge
- No Recorded Data Available

**Field Observations**

- Ground Surface Inundated
- Soil Saturated - Depth to Saturated Soils
- Depth to Free Water

**Wetland Hydrology Indicators**

- Inundated
- Saturated in upper 12 inches
- Water Marks
- Drift Lines
- Sediment Deposits
- Drainage Patterns in Wetland

**Secondary Indicators**

- Oxidized Root Channels in upper 12 inches
- Water - Stained leaves
- Local Soil Survey
- FAC - Neutral Test
- Other (Explain in Remarks)

**VEGETATION**

<table>
<thead>
<tr>
<th>Dominant Plant Species</th>
<th>Stratum</th>
<th>Indicator</th>
</tr>
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<tbody>
<tr>
<td>A/C E SACC FUC H</td>
<td>H S/S T V</td>
<td>FACU</td>
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<tr>
<td>G/ Q RUB A</td>
<td>H S/S T V</td>
<td>FACU</td>
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<td>LAM EN FUG FUC</td>
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<td>FAC</td>
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<tr>
<td>A/P E AQU FUC</td>
<td>H S/S T V</td>
<td>FAC</td>
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<td>P/O MPT FUC</td>
<td>H S/S T V</td>
<td>FACU</td>
</tr>
<tr>
<td>A/P SYR FUC</td>
<td>H S/S T V</td>
<td>FACU</td>
</tr>
<tr>
<td>A/C S FUC</td>
<td>H S/S T V</td>
<td>FACU</td>
</tr>
</tbody>
</table>

**WETLAND DETERMINATION**

- Hydrophytic Vegetation Present? Yes or No
- Wetland Hydrology Present? Yes or No
- Hydric Soils Present? Yes or No
- Is this Sampling Point Within a Wetland? Yes or No

**Remarks:**

**Wetland Deterioration**

<table>
<thead>
<tr>
<th>Hydrophytic Vegetation Present?</th>
<th>Yes or No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wetland Hydrology Present?</td>
<td>Yes or No</td>
</tr>
<tr>
<td>Hydric Soils Present?</td>
<td>Yes or No</td>
</tr>
<tr>
<td>Is this Sampling Point Within a Wetland?</td>
<td>Yes or No</td>
</tr>
</tbody>
</table>

**Remarks:**

- Note on Wetland condition
**DATA FORM**
**ROUTINE WETLAND DETERMINATION**
1987 USACE Wetlands Delineation Manual

---

**Applicant:** University of Rochester

**Investigator:** G. Pellett, J. Hauber

**Date:** 14 July, 2005

**Town:** Brighton

**County:** Monroe

**State:** New York

---

**Do normal circumstances exist on site?** Yes

**Is the site significantly disturbed?** Yes

**Is the area a potential Problem Area?** Yes

**Series and Phase:** COS AQUIC UPHORIENTIS

**Subgroup:** AQUIC UPHORIENTIS

**Depth** | **Horizon** | **Matrix Color (Munsell Moisit)** | **Redoximorphic Features/Abundance/Contrast (Munsell Moisit)** | **Texture, Structure, Other**
--- | --- | --- | --- | ---
| | | | See Below |

**Hydic Soil Indicators:**
- Concretions
- High Org. Content in Surface Layer
- Organic Streaking in Sandy Soils
- Gleyed or Low Chroma color

**Landscape Position:** Flat

**Drainage Class:** WD WMD

**Confirmed Mapped Type:** Yes

---

**HYDROLOGY**

**Recorded Data (Describe in Remarks):**
- Local Soil Survey
- NWI Map
- NYS FW Map
- Stream, Lake or Tide Gauge
- No Recorded Data Available

**Field Observations:**
- Ground Surface Inundated:
- Soil Saturated - Depth to Saturated Soils:
- Depth to Free Water:

**Wetland Hydrology Indicators:**
- Inundated
- Saturated in upper 12 inches
- Water Marks
- Drift Lines
- Sediment Deposits
- Drainage Patterns in Wetland

---

**VEGETATION**

<table>
<thead>
<tr>
<th>Dominant Plant Species</th>
<th>Stratum</th>
<th>Indicator</th>
</tr>
</thead>
<tbody>
<tr>
<td>Typha angustifolia</td>
<td>S/S T V</td>
<td>OBL</td>
</tr>
<tr>
<td>Phragmites australis</td>
<td>S/S T V</td>
<td>FACW</td>
</tr>
<tr>
<td>Alismataceae</td>
<td>S/S T V</td>
<td>FAC</td>
</tr>
<tr>
<td>Iris grandiflora</td>
<td>H/S D V</td>
<td>FAC</td>
</tr>
<tr>
<td>Rumex crispus</td>
<td>H/S D V</td>
<td>FAC</td>
</tr>
<tr>
<td>Acer saccharum</td>
<td>H/S D V</td>
<td>FAC</td>
</tr>
<tr>
<td>Carex crinita</td>
<td>H/S D V</td>
<td>OBL</td>
</tr>
<tr>
<td>Phragmites australis</td>
<td>H/S D V</td>
<td>FACW</td>
</tr>
</tbody>
</table>

**50/20 Rule Applied:** Yes

**Percent of Dominant Species:** 55%

---

**WETLAND DETERMINATION**

- Hydrophytic Vegetation Present? Yes
- Wetland Hydrology Present? Yes
- Hydic Soils Present? Yes
- Is this Sampling Point Within a Wetland? Yes

**Remarks:**
- Dead Trees in Water - wetland dominant OBL
**DATA FORM**

**ROUTINE WETLAND DETERMINATION**

1987 USACE Wetlands Delineation Manual

---

**University of Rochester**

**G. Pellett**

**J. Hauber**

**Community:** Woods

**Transverse/Flag ID:** G78

**Plot ID:** 23 U

---

### SOILS

**Series and Phase:** CUSAD Loamy Fine Sand

**Subgroup:** Aquic Udorthents

<table>
<thead>
<tr>
<th>Depth</th>
<th>Horizon</th>
<th>Matrix Color (Munsell Moist)</th>
<th>Redoximorphic Features/Abundance/Contrast</th>
<th>Texture, Structure, Other</th>
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</thead>
<tbody>
<tr>
<td>0-6</td>
<td>A</td>
<td>10 YR 3/1</td>
<td></td>
<td>Sandy Silt Loam</td>
</tr>
<tr>
<td>0-6</td>
<td>B</td>
<td>10 YR 5/4</td>
<td></td>
<td>Sandy Loam</td>
</tr>
</tbody>
</table>

**Hydric Soil Indicators:**

- Histosols
- Histic Epipedon
- Sulfic Color
- Reducing Conditions
- Gleyed or Low Chroma color

**Landscape Position:**

- Concave
- Undulating

**Drainage Class:**

- WD
- MWD
- PD
- VPD

**Confirmed Mapped Type:**

- Listed on Local Hydric Soils List
- Listed as Potential for Hydric Inclusions Only
- Other (Explain in Remarks)
- Aquic Moisture Regime

**Sloping:**

- Approximate Slope:

---

### HYDROLOGY

**Recorded Data (Describe in Remarks):**

- Local Soil Survey
- NWI Map
- NYS FWW Map
- Stream, Lake or Tide Gauge
- No Recorded Data Available

**Field Observations:**

- Ground Surface Inundated __________ inches
- Soil Saturated - Depth to Saturated Soils __________ inches
- Depth to Free Water __________ inches

**Wetland Hydrology Indicators:**

- Inundated
- Saturated in upper 12 inches
- Water Marks
- Drift Lines
- Sediment Deposits
- Drainage Patterns in Wetland

---

### VEGETATION

**Dominant Plant Species:**

1. FAGUS GRANDIFOLIA
2. POTTPOPHIUM PELTATUM
3. PRUNUS SERRATULA
4. ACER SACCHARINUM
5. A. SACCHARUM
6. PASTEURIA ALBINA
7. YACCINUM SP.
8. QUERCUS RUBRA
9. QUERCUS RUBRA
10. QUERCUS RUBRA
11. QUERCUS RUBRA
12. QUERCUS RUBRA

**Stratum:**

- H S/S T V

**Indicator:**

- FACU

---

**WETLAND DETERMINATION**

**Hydrophytic Vegetation Present?** Yes or No

**Wetland Hydrology Present?** Yes or No

**Hydric Soils Present?** Yes or No

**Is this Sampling Point Within a Wetland?** Yes or No

**Remarks:**

---

**Hole dc**
DATA FORM
ROUTINE WETLAND DETERMINATION
1987 USACE Wetlands Delineation Manual

Do normal circumstances exist on site? Yes No
Is the site significantly disturbed? Yes No
Is the area a potential Problem Area? Yes No
Community: SHAUB WETLAND
 Transect/Flag ID: 083
 Plot ID: 24W

SOILS
Series and Phase: COSAD LOAMY FINE SAND
 Subgroup: AQUIC UDIORTENTS

<table>
<thead>
<tr>
<th>Depth</th>
<th>Horizon</th>
<th>Matrix Color</th>
<th>Redoximorphic Features/Abundance/Contrast</th>
<th>Texture, Structure, Other</th>
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</thead>
<tbody>
<tr>
<td>0-14</td>
<td>A</td>
<td>2.5 Y 3/1</td>
<td>WOODEN HC DISC</td>
<td>SILTYSANDY LOAM</td>
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<tr>
<td>14-18</td>
<td>B</td>
<td>2.5 Y 1/2</td>
<td>CON- HC 1</td>
<td>SANDY LOAM</td>
</tr>
</tbody>
</table>

Hyric Soil Indicators:
- Histosols
- Histic Epipedon
- Sulfic Odor
- Reducing Conditions
- Landscape Position: Concave
- Sloping
- Listed on Local Hyric Soils List
- Listed as Potential for Hyric Inclusions Only
- Other (Explain in Remarks)
- Aquic Moisture Regime
- Approximate Slope:

HYDROLOGY
Recorded Date (Describe in Remarks)
- Local Soil Survey
- NYS FWW Map
- Stream, Lake or Tide Gauge
- No Recorded Data Available

Field Observations
- Ground Surface Inundated: inches
- Soil Saturated - Depth to Saturated Soils: inches
- Depth to Free Water: inches

Wetland Hydrology Indicators
Primary Indicators:
- Inundated
- Saturated in upper 12 inches
- Water Marks
- Sediment Deposits
- Drainage Patterns in Wetland

Secondary Indicators (2 or more required)
- Oxidized Root Channels in upper 12 inches
- Water - Stained leaves
- Local Soil Survey
- FAC - Neutral Test
- Other (Explain in Remarks)

INDICATOR:

VEGETATION
Dominant Plant Species:
1. OROCLERA SENSIBILIS
2. LEERSIA OYSTERDENS
3. Rhamnus cathartica
4. LUCERNA TATULA
5. LYCIUM BERNHARDI
6. POLYGONUM VULGARE
7. ARTEMISIA TRAVESSA
8. VITIS RIPARIANA
9. TELIA AMERICANUS
10. MALUS SPP.

Stratum:
1. H/S/6 T V
2. FACW
3. FACW
4. FACW
5. FACW
6. FACW
7. FACW
8. FACW
9. FACW
10. FACW
11. FACW
12. FACW

Percent of Dominant Species:
OBL, FACW, FAC 60%
OBL, FACW 50%

WETLAND DETERMINATION
Hydrophytic Vegetation Present? Yes or No
Wetland Hydrology Present? Yes or No
Hydic Soils Present? Yes or No
Is the Sampling Point Within a Wetland? Yes or No

Remarks: All criteria met
Environmental Resources, LLC
33 Kress Hill Drive
Spencerport, NY 14559
(585) 594-4450

DATA FORM
ROUTINE WETLAND DETERMINATION
1987 USACE Wetlands Delineation Manual

Date: 14 July, 2005
Town: Brighton
County: Monroe
State: New York

Do normal circumstances exist on site? Yes No
Is the site significantly disturbed? Yes No
Is the area a potential Problem Area? Yes No

Hydric Soil Indicators:
- Histosols
- Histic Epipedon
- Sulfidic Horizon
- Reducing Conditions
- Landscape Position: Concave
- Convex
- Flat
- Undulating

SOILS
Series and Phase: COLOMIE EINDY FINE SAND
Subgroup: ALFIC UDEPSAMMENS

Depth | Horizon | Matrix Color (Munsell Moist) | Redoximorphic Features/Abundance/Contrast (Munsell Moist) | Texture, Structure, Other
--- | --- | --- | --- | ---
0-8 | A | 10 YR 5/3 | - | silt loam, clay loam
8-12 | B | 10 YR 6/4 | - | sandy loam, clay loam

Hydrology
- Recorded Data (Describe in Remarks)
- Local Soil Survey
- NWI Map
- NYS FWW Map
- Stream, Lake or Tide Gauge
- No Recorded Data Available

Field Observations
- Ground Surface Imundated
- Soil Saturated - Depth to Saturated Soils
- Depth to Free Water

Wetland Hydrology Indicators
- Primary Indicators
  - Inundated
  - Saturated in upper 12 inches
  - Water Marks
  - Drift Lines
  - Sediment Deposits
  - Drainage Patterns in Wetland
- Secondary Indicators (2 or more required)
  - Oxidized Root Channels in upper 12 inches
  - Water - Stained leaves
  - Local Soil Survey
  - FAC - Neutral Test
  - Other (Explain in Remarks)

Vegetation
- Dominant Plant Species
  1. POPLAR P. DELTATA
  2. EQUUSIO TETRACOCCUS
  3. LITTORIA TETRACOCCUS
  4. PHILLIPPUS CATHARTICUS
  5. LITTLERITAE CEPHALUS
  6. NARTIGE NOVA
  7. PERSICUS PERSICUS
  8. QUELUS QUELUS
  9. PTERISIO PTERISIO
  10. TUTTIQUA TUTTIQUA

- Stratum: S/S T V
- Indicator: FACW

Wetland Determination
- Hydrophytic Vegetation Present? Yes or No
- Wetland Hydrology Present? Yes or No
- Hydric Soils Present? Yes or No
- Is this Sampling Point Within a Wetland? Yes or No

Remarks:

BANK 6 A NE WETLAND
DATA FORM
ROUTINE WETLAND DETERMINATION
1967 USACE Wetlands Delineation Manual

Date: 14 July, 2005
Town: Brighton
County: Monroe
State: New York

Do normal circumstances exist on site? Yes No
Is the site significantly disturbed? Yes No
Is the area a potential Problem Area? Yes No
Community: Enhanced
Transsect/Flag ID: G-44
Plot ID: J5W

SOILS
Series and Phase: COSAD LOAMY FINE Silt
Subgroup: AQUIC UDOCHRENS

<table>
<thead>
<tr>
<th>Depth</th>
<th>Matrix Color (Munsell Moist)</th>
<th>Redoxmorphic Features/Abundance/Contrast (Munsell Moist)</th>
<th>Texture, Structure, Other</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

Hydric Soil Indicators:
- Histosols
- Histic Epipedon
- Sulfidic Odor
- Reducing Conditions
  Landscape Position: Concave Convex
  Flat Undulating
  Risk: HYDROLOGIC DRAINAGE ORIGINATION

Drainage Class: WD MWD PD VPD
Confirmed Mapped Type: Yes No

HYDROLOGY
Recorded Data (Describe in Remarks):
- Local Soil Survey
- NW Map
- NYS FW Map
- Stream, Lake or Tide Gauge
- No Recorded Data Available

Field Observations:
- Ground Surface Inundated
- Soil Saturated - Depth to Saturated Soils inches
- Depth to Free Water inches

Wetland Hydrology Indicators
- Primary Indicators
  - Inundated
  - Saturated in upper 12 inches
  - Water Marks
  - Drift Lines
  - Sediment Deposits
  - Drainage Patterns in Wetland
- Secondary Indicators (2 or more required)
  - Oxidized Root Channels in upper 12 inches
  - Water - Stained leaves
  - Local Soil Survey
  - FAC - Neutral Test
  - Other (Explain in Remarks)

VEGETATION
Dominant Plant Species: Stratum: Indicator:
1. Phragmites australis 8 S/S T V FACW+
2. Typha latifolia 8 S/S T V FACW
3. Scirpus validus 8 S/S T V FACW
4. Lemna minor 8 S/S T V OBL
5. Spirodela polyrhiza 8 S/S T V OBL
6. Acer saccharum 8 S/S 0 V FACW
7. Quercus palustris 8 S/S 0 V FACW
8.
9.
10.
11.
12.

50/20 Rule Applied: Yes No Percent of Dominant Species

WETLAND DETERMINATION
Hydrophytic Vegetation Present? Yes or No
Wetland Hydrology Present? Yes or No
Hydric Soils Present? Yes or No
Is this Sampling Point Within a Wetland? Yes or No

Remarks:
Dead Trees

Remainder:
DATA FORM
ROUTINE WETLAND DETERMINATION
1987 USACE Wetlands Delineation Manual

Investigator: G. Pellett J. Hauber

Date: 14 July, 2005
Town: Brighton
County: Monroe
State: New York
Community: Woods
Transsect/Flag ID: G-94
Plot ID: 25U

SOILS
Series and Phase: CONOWEEOLOAM FINE SAND
Subgroup: HAFSC UDIPOSAMENTS

<table>
<thead>
<tr>
<th>Depth</th>
<th>Horizon</th>
<th>Matrix Color (Munsell Moist)</th>
<th>Redoximorphic Features/Abundance/Contrast (Munsell Moist)</th>
<th>Texture, Structure, Other</th>
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<tbody>
<tr>
<td>0-3</td>
<td>WR</td>
<td>10 YR 3/1</td>
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<td></td>
</tr>
<tr>
<td>5-18</td>
<td>A:B:G</td>
<td>10 YR 5/6</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Hydric Soil Indicators:
- Histosols
- Histic Epepeedon
- Sufistic Odor
- Reducing Conditions
- Landscape Position: Concave, Convex, Flat, Undulating
- Sloping

Drainage Class: WD
Confirmed Mapped Type: Yes

SOILS

HYDROLOGY
Recorded Data (Describe in Remarks):
- Local Soil Survey
- NW Map
- NYS FW Map
- Stream, Lake or Tide Gauge
- No Recorded Data Available

Field Observations:
- Ground Surface Inundated __________ inches
- Soil Saturated - Depth to Saturated Soils __________ inches
- Depth to Free Water __________ inches

Wetland Hydrology Indicators
Primary Indicators:
- Inundated
- Saturated in upper 12 inches
- Water Marks
- Drift Lines
- Sediment Deposits
- Drainage Patterns in Wetland

Secondary Indicators (2 or more required):
- Oxidized Root Channels in upper 12 inches
- Water - Stained leaves
- Local Soil Survey
- FAC - Neutral Test
- Other (Explain in Remarks)

VEGETATION
Dominant Plant Species: Prunus serotina
Stratum: S/S T V
Indicator: FACU

Field Observations:

50/20 Rule Applied: Yes No
Percent of Dominant Species
OBL, FACW, FAC

WETLAND DETERMINATION
Hydrophytic Vegetation Present? Yes or No
Wetland Hydrology Present? Yes or No
Hydric Soils Present: Yes or No
Is this Sampling Point Within a Wetland? Yes or No

Remarks:
DATA FORM
ROUTINE WETLAND DETERMINATION
1987 USACE Wetlands Delineation Manual

Date: 14 July, 2005
Town: Brighton
County: Monroe
State: New York

Do normal circumstances exist on site? Yes No
Community: Flooded Woods
Is the site significantly disturbed? Yes No
Plot ID: 20
Is the area a potential Problem Area? Yes No

SOILS
Series and Phase: COSAD Loamy Fine Sand
Subgroup: AQUIC UDHORTHELTS

<table>
<thead>
<tr>
<th>Depth</th>
<th>Horizon</th>
<th>Matrix Color (Munsell Moist)</th>
<th>Redoximorphic Features/Abundance/Contrast (Munsell Moist)</th>
<th>Texture, Structure, Other</th>
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</thead>
<tbody>
<tr>
<td>0-0.1</td>
<td>A</td>
<td>10 YR 4/1</td>
<td>Silt clay loam, calc.</td>
<td>Sandy loam</td>
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<tr>
<td>1-1.8</td>
<td>B</td>
<td>10 YR 5/2</td>
<td>Conifer HC, dist.</td>
<td></td>
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</table>

Hydric Soil Indicators:
- Histosols
- Histic Epipedon
- Spodic Odor
- Reducing Conditions

Landscape Position: Concave

Drainage Class: WD MWD PD VP
Confirmed Mapped Type: No

HYDROLOGY

Recorded Data (Describe in Remarks)
- Local Soil Survey
- NWI Map
- NYS FWM Map
- Stream, Lake or Tide Gauge

Field Observations
- Ground Surface Inundated
- Soil Saturated - Depth to Saturated Soils
- Depth to Free Water

Wetland Hydrology Indicators
Primary Indicators
- Inundated
- Saturated in upper 12 inches
- Water Marks +12

Secondary Indicators (2 or more required)
- Oxidized Root Channels in upper 12 inches
- Water - Stained leaves

VEGETATION

<table>
<thead>
<tr>
<th>Dominant Plant Species</th>
<th>Stratum:</th>
<th>Indicator:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quercus Rubra</td>
<td>H S/S T V</td>
<td>FACW</td>
</tr>
<tr>
<td>Francis PUSSY WOOL</td>
<td>H S/S T V</td>
<td>FACW</td>
</tr>
<tr>
<td>Acer Saccharinum</td>
<td>H S/S T V</td>
<td>FACW</td>
</tr>
<tr>
<td>Quercus Palustris</td>
<td>H S/S T V</td>
<td>FACW</td>
</tr>
<tr>
<td>Myrica Persicifolia</td>
<td>H S/S T V</td>
<td>FACW</td>
</tr>
</tbody>
</table>

50/20 Rule Applied: No Percent of Dominant Species

WETLAND DETERMINATION

Hydrophytic Vegetation Present? Yes or No
Wetland Hydrology Present? Yes or No
Hydric Soils Present? Yes or No
Is this Sampling Point Within a Wetland? Yes or No

Remarks: Wetland.
DATA FORM
ROUTINE WETLAND DETERMINATION
1967 USACE Wetlands Delineation Manual

Date: 14 July, 2005
Town: Brighton
County: Monroe
State: New York

A. Client: University of Rochester
Investigator: G. Pellett J. Hauber

Do normal circumstances exist on site? Yes No
Is the site significantly disturbed? Yes No
Is the area a potential Problem Area? Yes No
Community: Woods

Series and Phase: COLONIZE LOAMY FINE SAND
Subgroup: ALFIC UNDERSTORY

Depth | Horizon | Matrix Color (Munsell Moist) | Redoximorphic Features/Abundance/Contrast (Munsell Moist) | Texture, Structure, Other
---|---|---|---|---
0-3 | Deph | 70 YR 3/1 | | |
3-20 | A-B | 10 YR 5/6 | | |

Hydric Soil Indicators:
- Histosols
- Histic Epipedon
- Sulfidic Odor
- Reducing Conditions
- Landscape Position: Concave Convex Flat Undulating

Listed on Local Hydric Soils List
Listed as Potential for Hydric Inclusions Only
Other (Explain in Remarks)
Aqueous Moisture Regime
Sloping
Approximate Slope: 3

Hydrology
- Recorded Data (Describe in Remarks)
  - Local Soil Survey
  - NWI Map
  - NYS FWW Map
  - Stream, Lake or Tide Gauge
- No Recorded Data Available

Field Observations
- Ground Surface Inundated inches
- Soil Saturated - Depth to Saturated Soils inches
- Depth to Free Water inches

Wetland Hydrology Indicators
- Inundated
- Saturated in upper 12 inches
- Water Marks
- Drift Lines
- Sediment Deposits
- Drainage Patterns in Wetland

Secondary indicators (2 or more required)
- Oxidized Root Channels in upper 12 inches
- Water - Stained leaves
- Local Soil Survey
- FAC - Neutral Test
- Other (Explain in Remarks)

Vegetation

<table>
<thead>
<tr>
<th>Dominant Plant Species</th>
<th>Stratum</th>
<th>Indicator</th>
</tr>
</thead>
<tbody>
<tr>
<td>RHAMNUS CATARACTA</td>
<td>H</td>
<td>FAC</td>
</tr>
<tr>
<td>Ancylostoma suspensa</td>
<td>B/H</td>
<td>FAC</td>
</tr>
<tr>
<td>PRUNUS SEROTINA</td>
<td>B</td>
<td>FAC</td>
</tr>
<tr>
<td>Acer rubrum</td>
<td>B</td>
<td>FAC</td>
</tr>
<tr>
<td>Aucuba japonica</td>
<td>B</td>
<td>FAC</td>
</tr>
<tr>
<td>A. saccharinum</td>
<td>B</td>
<td>FAC</td>
</tr>
</tbody>
</table>

Percent of Dominant Species: 43%

Wetland Determination
- Hydrophytic Vegetation Present? Yes No
- Wetland Hydrology Present? Yes No
- Hydric Soils Present? Yes No

Is this Sampling Point Within a Wetland? Yes No

Remarks: Uploads
DATA FORM
ROUTINE WETLAND DETERMINATION
1987 USACE Wetlands Delineation Manual

Date: 14 July, 2005
Town: Brighton
County: Monroe
State: New York

Do normal circumstances exist on site? Yes No
Is the site significantly disturbed? Yes No
Is the area a potential Problem Area? Yes No

Community: TAL WOODS
Plot ID: 37 W

SOILS
Series and Phase: COSA D LOAMY FINE SAND
Subgroup:

<table>
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<tr>
<th>Depth</th>
<th>Horizon</th>
<th>Matrix Color (Munsell Moisit)</th>
<th>Redoximorphic Features/Abundance/Contrast (Munsell Moisit)</th>
<th>Texture, Structure, Other</th>
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</thead>
<tbody>
<tr>
<td>0-11</td>
<td>A</td>
<td>10 YR 3/1</td>
<td></td>
<td>SELT_SAND</td>
</tr>
<tr>
<td>11-18</td>
<td>B</td>
<td>2.5 Y 4/1</td>
<td></td>
<td>SELT_SAND</td>
</tr>
</tbody>
</table>

Hydric Soil Indicators:
- Histosols
- Histic Epipedon
- Sulfic Odor
- Reducing Conditions

Listed on Local Hydric Soils List
Listed as Potential for Hydric Inclusions Only
Other (Explain in Remarks)
Aquic Moisture Regime
Approximate Slope:

-- HYDROLOGY --

Recorded Data (Describe in Remarks)
- Local Soil Survey
- NWI Map
- NYS FWQ Map
- Stream, Lake or Tide Gauge

Field Observations
- Ground Surface Inundated
- Soil Saturated - Depth to Saturated Soils
- Depth to Free Water

Wetland Hydrology Indicators
Primary Indicators
- Inundated
- Saturated in upper 12 inches
- Water Marks
- Drift Lines
- Sediment Deposits
- Drainage Patterns in Wetland

Secondary Indicators (2 or more required)
- Oxidized Root Channels in upper 12 inches
- Water - Stained leaves
- Local Soil Survey
- FAC - Neutral Test
- Other (Explain in Remarks)

50/20 Rule Applied: Yes No
Percent of Dominant Species: OBL, FAC, W

-- VEGETATION --

Dominant Plant Species:
1. LEREBRIA OBZIOTE
2. INDEA BENZIN
3. GLYCIRA STUHNA
4. LIMNCTA TANZER
5. FRAXINS PAGNUS
6. EQUETUM SPIN
7. ULMUS AMERICANA
8. H/S S T
9. H/S S T
10. H/S S T
11. H/S S T
12. H/S S T

50/20 Rule Applied: Yes No
Percent of Dominant Species: OBL, FACW, FAC

-- WETLAND DETERMINATION --

Hydroid Vegetation Present? Yes or No
Wetland Hydrology Present? Yes or No
Hydric Soils Present: Yes or No
Is this Sampling Point Within a Wetland? Yes or No

Remarks:
Data Form
Routine Wetland Determination
1987 USACE Wetlands Delineation Manual

Date: 14 July, 2005
Town: Brighton
County: Monroe
State: New York

Comm: 34-10
PLOT ID: 2-7-4

Do normal circumstances exist on site? [No]
Is the site significantly disturbed? [Yes]
Is the area a potential Problem Area? [Yes]

Soil Series and Phase: COCONIT LOAMY FINE SAND
Subgroup: AGPIC UDEPSAMMENTS

<table>
<thead>
<tr>
<th>Depth</th>
<th>Horizon</th>
<th>Matrix Color (Munsell Oct.)</th>
<th>Redoximorphic Features/Abundance/Contrast (Munsell Oct.)</th>
<th>Texture, Structure, Other</th>
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<tbody>
<tr>
<td>0-10</td>
<td>A</td>
<td>10Vr 4/2</td>
<td></td>
<td>Silt Loam, Clayey</td>
</tr>
<tr>
<td>10-18</td>
<td>B</td>
<td>18Vr 7/3</td>
<td></td>
<td>Silt Loam, SAB</td>
</tr>
</tbody>
</table>

Hydric Soil Indicators:
- Histosols
- Histic Epipedon
- Sulfidic Odor
- Reducing Conditions
- Landscape Position: Concave, Flat, Convex

Sloping ≈ Approximate Slope: W 30°

Non-Hydric

Hydrology

- Recorded Data (Describe in Remarks)
  - Local Soil Survey
  - NWI Map
  - NYS FWW Map
  - Stream, Lake or Tide Gauge
  - No Recorded Data Available

Field Observations
- Ground Surface Inundated
- Soil Saturated - Depth to Saturated Soils
- Depth to Free Water

Wetland Hydrology Indicators
- Primary Indicators
- Inundated
- Saturated in upper 12 inches
- Water Marks
- Drift Lines
- Sediment Deposits
- Drainage Patterns in Wetland

Secondary Indicators (2 or more required)
- Oxidized Root Channels in upper 12 inches
- Water - Stained leaves

Vegetation

<table>
<thead>
<tr>
<th>Dominant Plant Species</th>
<th>Stratum</th>
<th>Indicator</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Abies balsamea</td>
<td>H</td>
<td>FACU</td>
</tr>
<tr>
<td>2 Hymenoxys nutalliana</td>
<td>H</td>
<td>FAC-</td>
</tr>
<tr>
<td>3 Quercus rubra</td>
<td>H</td>
<td>FACU</td>
</tr>
<tr>
<td>4 Prunus serotina</td>
<td>H</td>
<td>FACU</td>
</tr>
<tr>
<td>5 Lonicer caprifolium</td>
<td>H</td>
<td>FACU</td>
</tr>
<tr>
<td>6 H</td>
<td>H</td>
<td>FACU</td>
</tr>
<tr>
<td>7 H</td>
<td>H</td>
<td>FACU</td>
</tr>
<tr>
<td>8 Carya occidentalis</td>
<td>H</td>
<td>FACU</td>
</tr>
<tr>
<td>9 Olearia sitchensis</td>
<td>H</td>
<td>FACU</td>
</tr>
</tbody>
</table>

50/20 Rule Applied: [No]
Percent of Dominant Species: 0.25

Wetland Determination

- Hydrophytic Vegetation Present? [Yes]
- Wetland Hydrology Present? [Yes]
- Hydric Soils Present? [No]
- Is this Sampling Point Within a Wetland? [Yes]

Remarks:

Upland.
DATA FORM
ROUTINE WETLAND DETERMINATION
1987 USACE Wetlands Delineation Manual

Date: 14 July, 2005
Town: Brighton
County: Monroe
State: New York

Investigator: G. Pellet J. Hauber

Do normal circumstances exist on site? Yes No
Is the site significantly disturbed? Yes No
Is the area a potential Problem Area? Yes No

Community: EMER MUS C17
Transact/Flag: G 14
Plot ID: 2 14

SOILS
Series and Phase: COSAD LOAMY FINE SAND
Subgroup: AQUITIC UdOERENTS

<table>
<thead>
<tr>
<th>Depth</th>
<th>Horizon</th>
<th>Matrix Color (Munsell Moist)</th>
<th>Redoximorphic Features/Abundance/Contrast (Munsell Moist)</th>
<th>Texture, Structure, Other</th>
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<tr>
<td>0-16</td>
<td>A</td>
<td>10YR 3/1</td>
<td>Silt loam</td>
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<tr>
<td>16+</td>
<td>B</td>
<td>10YR 2/1</td>
<td>RC matters</td>
<td></td>
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</tbody>
</table>

Hydric Soil Indicators:
- Histosols
- Histic Epipedon
- Sulfidic Odor
- Reducing Conditions

Concretions
- High Org. Content in Surface Layer
- Organic Streaking in Sandy Soils
- Gleyed or Low Chroma color

Landscape Position:
- Convex
- Flat
- Undulating

Drainage Class: WD MWD SP PD PD
Confirmed Mapped Type: Yes No

HYDROLOGY
Recorded Data (Describe in Remarks)
- Local Soil Survey
- NWI Map
- NYS FWW Map
- Stream, Lake or Tide Gauge

Field Observations
- Ground Surface Inundated __________ inches
- Soil Saturated - Depth to Saturated Soils __________ inches
- Depth to Free Water __________ inches

Wetland Hydrology Indicators
Primary Indicators
- Inundated
- Saturated in upper 12 inches
- Water Marks
- Drift Lines
- Sediment Deposits
- Drainage Patterns in Wetland

Secondary Indicators (2 or more required)
- Oxidized Root Channels in upper 12 inches
- Water - Stained leaves
- Local Soil Survey
- FAC - Neutral Test
- Other (Explain in Remarks)

Vegetation
Dominant Plant Species:
1. PHAZANTHES AUSTRALIS 8S/ST T V FAC W
2. CAREX CAROLINIANA 8S/ST T V FAC U
3. FARRA CORDIFOLIA 8S/ST T V FAC U
4. PERVAS SERRATA 8S/ST T V FAC W
5. FEN ABERCROMBIE 8S/ST T V FAC U
6. FRAYNA PENNSYLVANICA 8S/ST T V FAC U
7. ODONIUM DELTATINUM 8S/ST T V FAC U
8. 9 10 11 12

Hydrophytic Vegetation Present? Yes or No
Wetland Hydrology Present? Yes or No
Hydric Soils Present? Yes or No
Is this Sampling Point Within a Wetland? Yes or No

WETLAND DETERMINATION
Hydrophytic Vegetation Present? Yes or No
Wetland Hydrology Present? Yes or No
Hydric Soils Present? Yes or No
Is this Sampling Point Within a Wetland? Yes or No

Remarks:

WETLAND DETERMINATION
Hydrophytic Vegetation Present? Yes or No
Wetland Hydrology Present? Yes or No
Hydric Soils Present? Yes or No
Is this Sampling Point Within a Wetland? Yes or No

Remarks:

WETLAND DETERMINATION
Hydrophytic Vegetation Present? Yes or No
Wetland Hydrology Present? Yes or No
Hydric Soils Present? Yes or No
Is this Sampling Point Within a Wetland? Yes or No

Remarks:

WETLAND DETERMINATION
Hydrophytic Vegetation Present? Yes or No
Wetland Hydrology Present? Yes or No
Hydric Soils Present? Yes or No
Is this Sampling Point Within a Wetland? Yes or No

Remarks:
DATA FORM
ROUTINE WETLAND DETERMINATION
1987 USACE Wetlands Delineation Manual

Date: 14 July, 2005
Town: Brighton
County: Monroe
State: New York

Do normal circumstances exist on site? Yes No
Is the site significantly disturbed? Yes No
Is the area a potential Problem Area? Yes No

Community: Woods

Transact/Flag ID: G116
Plot ID: 281

SOILS

Series and Phase: CACONTE LOAMY FINE SAND
Subgroup: ALFIC U D E P S A M N E T S

<table>
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<tr>
<th>Depth</th>
<th>Horizon</th>
<th>Matrix Color (Munsell Moisit)</th>
<th>Redoxomorphic Features/Abundance/Contrast (Munsell Moisit)</th>
<th>Texture, Structure, Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-17</td>
<td>A</td>
<td>10 YR 3/6</td>
<td>SELT CALM CUMM</td>
<td>SELT SANDY COMB SSL M</td>
</tr>
<tr>
<td>12-18</td>
<td>B</td>
<td>10 YR 5/6</td>
<td>SELT CALM CUMM</td>
<td>SELT SANDY COMB SSL M</td>
</tr>
</tbody>
</table>

Hydric Soil Indicators:
- Histosols
- Historic Epipedon
- Sulfic Odor
- Reducing Conditions

Landscape Position: Concave, Convex, Flat, Undulating

 Drainage Class: WS MWD SPD PD VP
Confirmed Mapped Type: Yes No

HYDROLOGY

Recorded Data (Describe in Remarks)
- Local Soil Survey
- NWI Map
- NYS FWM Map
- Stream, Lake or Tide Gauge
- No Recorded Data Available

Field Observations
- Ground Surface Inundated ______ inches
- Soil Saturated - Depth to Saturated Soils ______ inches
- Depth to Free Water ______ inches

Wetland Hydrology Indicators
- Inundated
- Saturated in upper 12 inches
- Water Marks
- Drift Lines
- Sediment Deposits
- Drainage Patterns in Wetland

Vegetation

Dominant Plant Species:
1. TETRA ANNUA
2. QUERUS ALBIA
3. PLUVUS SE/AETRUM
4. REHENOSUS QUERONIA
5. LUTEA TATIANA
6. FAGUS SE/AETRUM
7. CARPINUS CAROLINIANA
8. H. S/T V
9. H. S/T V
10. H. S/T V
11. H. S/T V
12. H. S/T V

Stratum: Indicator:
H S/S V FAC

50/20 Rule Applied: Yes Nc
Percent of Dominant Species
OBL. FACW, FAC

WETLAND DETERMINATION

Hydrophytic Vegetation Present? Yes or No
Wetland Hydrology Present? Yes or No
Hydric Soils Present? Yes or No
Is this Sampling Point Within a Wetland? Yes or No

Remarks:

1101
DATA FORM
ROUTINE WETLAND DETERMINATION
1987 USACE Wetlands Delineation Manual

Date: 14 July, 2005
Town: Brighton
County: Monroe
State: New York

Acct.: University of Rochester
Investigator: G. Pellett J. Hauber
Community: Saugus Wetland

Do normal circumstances exist on site? No
Is the site significantly disturbed? Yes
Is the area a potential Problem Area? Yes

SOILS
Series and Phase: Cogus Loamy Fine Sand
Subgroup: Aquic Udorthents

<table>
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<tr>
<th>Depth</th>
<th>Horizon</th>
<th>Matrix Color (Munsell Mois)</th>
<th>Redoximorphic Features/Abundance/Contrast (Munsell Mois)</th>
<th>Texture, Structure, Other</th>
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<tbody>
<tr>
<td>0-10</td>
<td>A</td>
<td>10VR 4/1</td>
<td>CM HC DET</td>
<td>SAVNH 107 TAM</td>
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<tr>
<td>10-18</td>
<td>B</td>
<td>10VR 3/1</td>
<td>HC ENT</td>
<td></td>
</tr>
</tbody>
</table>

Hydic Soil Indicators:
- Histosols
- Histic Epipedon High Org. Content in Surface Layer
- Sulfidic Odor Organic Streaking in Sandy Soils
- Reducing Conditions Gleyed or Low Chroma color

Landscape Position: Concave

Drainage Class: WD
Confirmed Mapped Type: No

HYDROLOGY

Recorded Data (Describe in Remarks)
- Local Soil Survey
- NWI Map
- NYS FWQ Map
- Stream, Lake or Tide Gauge
- No Recorded Data Available

Field Observations
- Ground Surface Inundated __ inches
- Soil Saturated - Depth to Saturated Soils __ inches
- Depth to Free Water __ inches

Wetland Hydrology Indicators
- Inundated
- Saturated in upper 12 inches
- Water Marks
- Drift Lines
- Sediment Deposits
- Drainage Patterns in Wetland

Secondary Indicators (2 or more required)
- Oxidized Root Channels in upper 12 inches
- Water - Stained leaves
- Local Soil Survey
- FAC - Neutral Test
- Other (Explain in Remarks)

VEGETATION

Dominant Plant Species: FACW
Stratum: FAC
Indicator: FAC

<table>
<thead>
<tr>
<th>Descriptor</th>
<th>Stratum</th>
<th>Indicator</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Carex junea</td>
<td>FACW</td>
<td>FAC</td>
</tr>
<tr>
<td>2. Carex trisperma</td>
<td>FACW</td>
<td>FAC</td>
</tr>
<tr>
<td>3. Phragmites australis</td>
<td>FACW</td>
<td>FAC</td>
</tr>
<tr>
<td>4. Sporobolus heterolepis</td>
<td>FACW</td>
<td>FAC</td>
</tr>
<tr>
<td>5. Juncus bifidus</td>
<td>FACW</td>
<td>FAC</td>
</tr>
<tr>
<td>6. Typha latifolia</td>
<td>FACW</td>
<td>FAC</td>
</tr>
<tr>
<td>7. Typha angustifolia</td>
<td>FACW</td>
<td>FAC</td>
</tr>
<tr>
<td>8. Typha ulmifolia</td>
<td>FACW</td>
<td>FAC</td>
</tr>
<tr>
<td>9.</td>
<td>FACW</td>
<td>FAC</td>
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<tr>
<td>10.</td>
<td>FACW</td>
<td>FAC</td>
</tr>
<tr>
<td>11.</td>
<td>FACW</td>
<td>FAC</td>
</tr>
<tr>
<td>12.</td>
<td>FACW</td>
<td>FAC</td>
</tr>
</tbody>
</table>

50/20 Rule Applied: Yes
Percent of Dominant Species

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present? Yes or No
Wetland Hydrology Present? Yes or No
Hydic Soils Present? Yes or No
Is this Sampling Point Within a Wetland? Yes or No

Remarks: wetland
DATA FORM
ROUTINE WETLAND DETERMINATION
1987 USACE Wetlands Delineation Manual

Date: 14 July, 2005
Town: Brighton
County: Monroe
State: New York

Do normal circumstances exist on site? Yes No
Is the site significantly disturbed? Yes
Is the area a potential Problem Area? Yes

Community: WOOD
Transact/Flag ID: C18
Plot ID: 29-U

SOILS
Series and Phase: COLONET COMARY FINITE suspend
Subgroup: ALFIC UDEPSAMMANTS

<table>
<thead>
<tr>
<th>Depth</th>
<th>Horizon</th>
<th>Matrix Color (Munsell Moist)</th>
<th>Redoximorphic Features/Abundance/Contrast (Munsell Moist)</th>
<th>Texture, Structure, Other</th>
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</thead>
<tbody>
<tr>
<td>0-12</td>
<td>A</td>
<td>10yrs1/2</td>
<td></td>
<td>S, 1m, c.</td>
</tr>
<tr>
<td>12-18</td>
<td>B</td>
<td>10yrs5/6</td>
<td></td>
<td>S, 1m w/s, s, s, s</td>
</tr>
</tbody>
</table>

Hydric Soil Indicators:
- Histosol
- Histic Epipedon
- Sullicic Oder
- Reducing Conditions
Landscape Position: Concave

Sloping
Approximate Slope: 5'

Non-hydric

HYDROLOGY
Recorded Data (Describe in Remarks)
- Local Soil Survey
- NWI Map
- NYS FAW Map
- Stream, Lake or Tide Gauge
- No Recorded Data Available

Field Observations
- Ground Surface inundated
- Soil Saturated - Depth to Saturated Soils
- Depth to Free Water

Wetland Hydrology Indicators
- Inundated
- Saturated in upper 12 inches
- Water Marks
- Drift Lines
- Sediment Deposits
- Drainage Patterns in Wetland

Secondary Indicators (2 or more required)
- Oxidized Root Channels in upper 12 inches
- Water - Stained leaves
- Local Soil Survey
- FAC - Neutral Test
- Other (Explain in Remarks)

VEGETATION
Dominant Plant Species:
1. Phrumpylum Delttum 6/5 S T V
2. Carya Groegepon 6/5 S T V
3. Crasimnus Pombal 6/5 S T V
4. Colcicus Ramma 6/5 S T V
5. Landseaga Tatlina 6/5 S T V
6. Rhamnus Caceto 6/5 S T V
7. Rhamnus Caceto 6/5 S T V
8. H S T T
9. H S T V
10. H S T V
11. H S T V
12. H S T V

50/20 Rule Applied: Yes No Percent of Dominant Species

OBL, FACW, FAC

WETLAND DETERMINATION
Hydric Vegetation Present? Yes or No
Wetland Hydrology Present? Yes or No
Hydric Soils Present? Yes or No
Is this Sampling Point Within a Wetland? Yes or No

Remarks: UPL SLOPE FROM WETLAND

5' Higher

Remarks:
**DATA FORM**

**ROUTINE WETLAND DETERMINATION**

1987 USACE Wetlands Delineation Manual

<table>
<thead>
<tr>
<th>Applicant:</th>
<th>University of Rochester</th>
</tr>
</thead>
<tbody>
<tr>
<td>Investigator:</td>
<td>G. Pellett, J. Hauber</td>
</tr>
</tbody>
</table>

| Community: | Forested Wet. |
| Transect/Flag ID: | C |
| Plot ID: | 30W |

| SOILS |
| Series and Phase: | Cosad Loamy Fine Sand |
| Subgroup: | Aquic Udorthents |

<table>
<thead>
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<th>Depth</th>
<th>Horizon</th>
<th>Matrix Color (Munsell Moist)</th>
<th>Redoximorphic Features/Abundance/Contrast (Munsell Moist)</th>
<th>Texture, Structure, Other</th>
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<tbody>
<tr>
<td>0-8&quot;</td>
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<tr>
<td>8-12&quot;</td>
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<td>S. 1m. sa.</td>
</tr>
<tr>
<td>12-16&quot;</td>
<td>B</td>
<td>10YR 5/6</td>
<td></td>
<td>S. 0.5 x 0.6</td>
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</table>

Hydric Soil Indicators:

- Histic Epipedon
- Organic Steaking in Sandy Soils
- Gleyed or Low Chroma color

Listed on Local Hydric Soils List
Listed as Potential for Hydric Inclusions Only
Other (Explain in Remarks)
Aquic Moisture Regime

Landscape Position: Concave
Convex
Flattened
Undulating

**HYDROLOGY**

Recorded Data (Describe in Remarks)
- Local Soil Survey
- NWI Map
- NYS FWQ Map
- Stream, Lake or Tide Gauge

Field Observations
- Ground Surface Indundated: ______ inches
- Soil Saturated - Depth to Saturated Soils: ______ inches
- Depth to Free Water: ______ inches

**VEGETATION**

Dominant Plant Species:
1. Acer rubrum
2. Carya cordiformis
3. Glyceria grandis
4. Cornus sanguinea
5. Solidago gigantea

Stratum:
- H (5/3) V
- 50/20 Rule Applied: Yes or No
- Percent of Dominant Species: 100%

**WETLAND DETERMINATION**

Hydrophytic Vegetation Present: Yes or No
Wetland Hydrology Present: Yes or No
Hydric Soils Present: Yes or No

Is this Sampling Point Within a Wetland? Yes or No

Remarks:
DATA FORM
ROUTINE WETLAND DETERMINATION
1987 USACE Wetlands Delineation Manual

Date: 18-Jul-05
Town: Brighton
County: Monroe
State: New York

Do normal circumstances exist on site? Yes No
Is the site significantly disturbed? Yes No
Is the area a potential Problem Area? Yes No

Community: Deciduous Forest (2nd Growth)
Transsect/Flag ID: @ C3
Plot ID: 300U

SOILS
Series and Phase: COSAD Leamy Finesand
Subgroup: Aquic Udorthents

<table>
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<th>Depth</th>
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<th>Redoximorphic Features/Abundance/Contrast (Munsell Moist)</th>
<th>Texture, Structure, Other</th>
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<tbody>
<tr>
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<td>10Yr 4/3</td>
<td></td>
<td>s: H 7.4</td>
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<td>0-18+</td>
<td>B</td>
<td>10Yr 4/4</td>
<td></td>
<td>sa: H 7.4, shk-skb</td>
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</tbody>
</table>

Hydric Soil Indicators:
- Histisols
- Histic Epeledon
- Sulfidic Odor
- Reducing Conditions

Landscape Position: Concave / Convex

Hydrology
Recorded Data (Describe in Remarks)
- Local Soil Survey
- NWI Map
- NYS FWW Map
- Stream, Lake or Tide Gauge

Field Observations
- Ground Surface inundated
- Soil Saturated - Depth to Saturated Soils
- Depth to Free Water

Wetland Hydrology Indicators
Primary Indicators
- Inundated
- Saturated in upper 12 inches
- Water Marks
- Drift Lines
- Sediment Deposits
- Drainage Patterns in Wetland

Secondary Indicators (2 or more required)
- Oxidized Root Channels in upper 12 inches
- Water - Stained leaves
- Local Soil Survey
- FAC - Neutral Test
- Other (Explain in Remarks)

Hydrophytic Vegetation Present? Yes or No
Wetland Hydrology Present? Yes or No
Hydric Soils Present? Yes or No
Is this Sampling Point Within a Wetland? Yes or No

Vegetation

<table>
<thead>
<tr>
<th>Dominant Plant Species</th>
<th>Stratum:</th>
<th>Indicator:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prunus serotina</td>
<td>H S/S T V</td>
<td>FACU</td>
</tr>
<tr>
<td>Acer rubrum</td>
<td>H S/S T V</td>
<td>FAC</td>
</tr>
<tr>
<td>Lobelia ferrai</td>
<td>H S/S T V</td>
<td>FACU²</td>
</tr>
<tr>
<td>Polygonum virginianum</td>
<td>H S/S T V</td>
<td>FAC</td>
</tr>
<tr>
<td>Trifolium repens</td>
<td>H S/S T V</td>
<td>FAC</td>
</tr>
<tr>
<td>Eleocharis palustris</td>
<td>H S/S T V</td>
<td>FAC</td>
</tr>
<tr>
<td>Juncus effusus</td>
<td>H S/S T V</td>
<td>FAC</td>
</tr>
<tr>
<td>Sporobolus heterolepis</td>
<td>H S/S T V</td>
<td>FAC</td>
</tr>
<tr>
<td>Phragmites australis</td>
<td>H S/S T V</td>
<td>FAC</td>
</tr>
</tbody>
</table>

50/20 Rule Applied: Yes No
Percent of Dominant Species
OBL, FACW, FAC

Wetland Determination

Remarks:

Upland.
Environmental Resources, LLC
33 Kress Hill Drive
Spencerport, NY 14559
(585) 594-4450

DATA FORM
ROUTINE WETLAND DETERMINATION
1987 USACE Wetlands Delineation Manual

Date: 18-Jul-05
Town: Brighton
County: Monroe
State: New York

Do normal circumstances exist on site? Yes No
Is the site significantly disturbed? Yes No
Is the area a potential Problem Area? Yes No

Community: Forced Wetland
Transsect/Flag ID: EC7
Plot ID: 2(W)

SOILS
Series and Phase: Cosad Leamy Fen Sph Sand
Subgroup: Aquic Udorthents

Drainage Class: WD MWD SPD PD VPD
Confirmed Mapped Type: No

<table>
<thead>
<tr>
<th>Depth</th>
<th>Horizon</th>
<th>Matrix Color (Munsell Moist)</th>
<th>Redoximorphic Features/Abundance/Contrast (Munsell Moist)</th>
<th>Texture, Structure, Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-9</td>
<td>A</td>
<td>10Yr 7/6</td>
<td>Few HC distinct</td>
<td>s. 1m. c.</td>
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<tr>
<td>0-12</td>
<td>AB</td>
<td>10Yr 4/6</td>
<td>Common HC distinct</td>
<td>s. 1m. wk-sc-b</td>
</tr>
<tr>
<td>12-20</td>
<td>B</td>
<td>2.5Y 8/4</td>
<td>Many HC Paint</td>
<td>s. 1m. wk-sc-b</td>
</tr>
</tbody>
</table>

Hydric Soil Indicators:
- Histisols
- Histic Epipedon
- Sufidic Odor
- Reducing Conditions
- Landscape Position: Concave
- Convergent
- Flat
- Undulating

Remarks: Hydric

HYDROLOGY
Recorded Data (Describe in Remarks)
- Local Soil Survey
- NWI Map
- NYS FWM Map
- Stream, Lake or Tide Gauge

Field Observations
- Ground Surface Inundated: inches
- Soil Saturated - Depth to Saturated Soils: inches
- Depth to Free Water: inches

Wetland Hydrology Indicators
Primary Indicators
- Inundated
- Saturated in upper 12 inches
- Water Marks
- Drift Lines
- Sediment Deposits
- Drainage Patterns in Wetland

Secondary Indicators (2 or more required)
- Oxidized Root Channels in upper 12 inches
- Water - Stained leaves
- Local Soil Survey
- FAC - Neutral Test
- Other (Explain in Remarks)

VEGETATION
Dominant Plant Species:
1. Characeae Sessilis
2. Sphagnum Gigante
3. Pluchea aquatica
4. Acer rubrum
5. H 5/5 T V
6. H 5/5 T V
7. H 5/5 T V
8. H 5/5 T V
9. H 5/5 T V
10. H 5/5 T V
11. H 5/5 T V
12. H 5/5 T V

50/20 Rule Applied: No Percent of Dominant Species: OBL, FACW, FAC

WETLAND DETERMINATION
Hydrophytic Vegetation Present? Yes or No
Wetland Hydrology Present? Yes or No
Hydric Soils Present? Yes or No
Is this Sampling Point Within a Wetland? Yes or No

Remarks:
- Slightly depressed.
- All criteria met.
DATA FORM
ROUTINE WETLAND DETERMINATION
1987 USACE Wetlands Delineation Manual

Licent: University of Rochester
Investigator: G. Pellett, J. Hauber

Date: 18-Jul-05
Town: Brighton
County: Monroe
State: New York

Do normal circumstances exist on site? Yes No
Is the site significantly disturbed? Yes No
Is the area a potential Problem Area? Yes No
Community: Deciduous Forest
Transect/Flag ID: 0
Plot ID: 311

SOILS
Series and Phase: Cosad Loamy Fine-Sand
Subgroup: Aquic Udorthents

<table>
<thead>
<tr>
<th>Depth</th>
<th>Horizon</th>
<th>Matrix Color</th>
<th>Redoximorphic Features/Abundance/Contrast</th>
<th>Texture, Structure, Other</th>
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<tbody>
<tr>
<td>0-10</td>
<td>A</td>
<td>10yr3/4</td>
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<td>10-15</td>
<td>B</td>
<td>10yr3/4</td>
<td></td>
<td>Si. Ima. Sab.</td>
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</tbody>
</table>

Hydric Soil Indicators:
- Histisols
- Histic Epipedon
- Sufidic Odor
- Reducing Conditions
- Landscape Position: Concave Convex Flat Undulating

Drainage Class: WD MWD LSP PD VPD
Confirmed Mapped Type: Yes No

NOTES:

Hydrology
- Recorded Data (Describe in Remarks)
  - Local Soil Survey
  - NWI Map
  - NYS FW Map
  - No Recorded Data Available

Field Observations
- Ground Surface Inundated: __________ inches
- Soil Saturated - Depth to Saturated Soils: __________ inches
- Depth to Free Water: __________ inches

Wetland Hydrology Indicators
Primary Indicators
- Inundated
- Saturated in upper 12 inches
- Water Marks
- Drift Lines
- Sediment Deposits
- Drainage Patterns in Wetland

Secondary Indicators (2 or more required)
- Oxidized Root Channels in upper 12 inches
- Water - Stained leaves
- Local Soil Survey
- FAC - Neutral Test
- Other (Explain in Remarks)

Vegetation
Dominant Plant Species:
1. Acer rubrum
2. Acer saccharum
3. Redus spp.
4. Solidago rigida
5. Solidago gigantea
6. Geum canadense
7. Lonicera talus
8. Trifolium repens
9. Trifolium repens
10. Prunella vulgaris
11. Rheum rhaponticum
12. Hylotelephium sp.

Indicator:
- H S/S T V
- F A C W
- OBL, FACW
- OBL, FACW

50/20 Rule Applied: Yes No
Percent of Dominant Species: 100%

Wetland Hydrology Present: Yes or No
Wetland Hydrology Present: Yes or No
Hydric Soils Present: Yes or No
Is this Sampling Point Within a Wetland? Yes or No

Remarks:
- Also Prunella vulgaris, and Glyceria

Mixed Transformed Wetland Determination

Hydrophytic Vegetation Present? Yes or No

Wetland Hydrology Present? Yes or No
Hydric Soils Present: Yes or No

Is this Sampling Point Within a Wetland? Yes or No

Remarks:
- Upland
DATA FORM
ROUTINE WETLAND DETERMINATION
1987 USACE Wetlands Delineation Manual

Applicant: University of Rochester
Investigator: G. Pellett J. Hauber

Date: 18-Jul-05
Town: Brighton
County: Monroe
State: New York

Do normal circumstances exist on site? Yes No Is the site significantly disturbed? Yes No Is the area a potential Problem Area? Yes No
Community: Flooded Wetland
Plot ID: 3276

SOILS
Series and Phase: COSAD Loamy Fine Sand
Subgroup: Aquatic Vegetation

<table>
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<th>Depth</th>
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<th>Matrix Color (Munsell Moist)</th>
<th>Redoximorphic Features/Abundance/Contrast (Munsell Moist)</th>
<th>Texture, Structure, Other</th>
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</thead>
<tbody>
<tr>
<td>0-9</td>
<td>A</td>
<td>10YR 3/2</td>
<td>Few Hc Present</td>
<td>Silt loam</td>
</tr>
<tr>
<td>9-12</td>
<td>AB</td>
<td>10YR 3/2</td>
<td>Common Hc Present</td>
<td>Silt loam</td>
</tr>
<tr>
<td>12-20</td>
<td>B</td>
<td>2.5 Y 6/4</td>
<td>Hc Point</td>
<td>Silt, wet-sandy</td>
</tr>
</tbody>
</table>

Hydric Soil Indicators:
- Histosol
- Histic Epipedon
- Sulfuric Odor
- Reducing Conditions
- Landscape Position: Concave
- Convex
- Undulating

Drainage Class: WD MWD SPD PD VPD
Confirmed Mapped Type: Yes No

SOILS
Series and Phase: COSAD Loamy Fine Sand
Subgroup: Aquatic Vegetation

<table>
<thead>
<tr>
<th>Depth</th>
<th>Horizon</th>
<th>Matrix Color (Munsell Moist)</th>
<th>Redoximorphic Features/Abundance/Contrast (Munsell Moist)</th>
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</thead>
<tbody>
<tr>
<td>0-9</td>
<td>A</td>
<td>10YR 3/2</td>
<td>Few Hc Present</td>
<td>Silt loam</td>
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<td>12-20</td>
<td>B</td>
<td>2.5 Y 6/4</td>
<td>Hc Point</td>
<td>Silt, wet-sandy</td>
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</tbody>
</table>

Hydric Soil Indicators:
- Histosol
- Histic Epipedon
- Sulfuric Odor
- Reducing Conditions
- Landscape Position: Concave
- Convex
- Undulating

Drainage Class: WD MWD SPD PD VPD
Confirmed Mapped Type: Yes No

Remarks: Chroma & 1 to & 12

HYDROLOGY
Recorded Data (Describe in Remarks)
- Local Soil Survey
- NWI Map
- NYS FW Map
- Stream, Lake or Tide Gauge

Field Observations
- Ground Surface Inundated inches
- Soil Saturated - Depth to Saturated Soils inches
- Depth to Free Water inches

Wetland Hydrology Indicators
Primary Indicators
- Inundated
- Saturated in upper 12 inches
- Water Marks
- Drift Lines
- Sediment Deposits
- Drainage Patterns in Wetland

Secondary Indicators (2 or more required)
- Oxidized Root Channels in upper 12 inches
- Water - Stained leaves
- Local Soil Survey
- FAC - Neutral Test
- Other (Explain in Remarks)

Remarks:

VEGETATION
Dominant Plant Species:
1. Acer rubrum
2. A. saccharum
3. Cornus sericea
4. Reaumus pumilus

Stratum:

<table>
<thead>
<tr>
<th>Stratum</th>
<th>Indicator</th>
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<tbody>
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<td>TV</td>
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<tr>
<td>5/5</td>
<td>TV</td>
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</table>

50/20 Rule Applied: Yes No Percent of Dominant Species

OBL, FACW FAC

Remarks:

WETLAND DETERMINATION
Hydrophytic Vegetation Present? Yes No
Wetland Hydrology Present? Yes No
Hydric Soils Present? Yes No
Is this Sampling Point: Within a Wetland? Yes No

Remarks:
All criteria met. Wetland extends beyond...
DATA FORM
ROUTINE WETLAND DETERMINATION
1987 USACE Wetlands Delineation Manual

Applicant: University of Rochester
Investigator: G. Pellett, J. Hauber

Do normal circumstances exist on site? Yes No
Is the site significantly disturbed? Yes No
Is the area a potential Problem Area? Yes No
Community: Deciduous Forest
Transact/Flag ID: A.C.B
Plot ID: 32V

SOILS
Series and Phase: CEDAD LOAMY FINE SAND
Subgroup: AQUIC UдоRITHOLS

<table>
<thead>
<tr>
<th>Depth</th>
<th>Horizon</th>
<th>Matrix Color (Munsell Moist)</th>
<th>Redoximorphic Features/Abundance/Contrast (Munsell Moist)</th>
<th>Texture, Structure, Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-12</td>
<td>A</td>
<td>7.5YR 3/2</td>
<td>Si, Im, cr</td>
<td>Sa, Im, wk-sal</td>
</tr>
<tr>
<td>12-20</td>
<td>B</td>
<td>10YR 4/3</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Hydric Soil Indicators:
- Histosols
- Histie Epipedon
- Sulfide Odor
- Reducing Conditions
  - Landscape Position: Concave
  - Convex
  - Flat
  - Undulating

Remarks: Non-hydic

HYDROLOGY
Recorded Data (Describe in Remarks)
- Local Soil Survey
- NWI Map
- NYS FWW Map
- Stream, Lake or Tide Gauge

Field Observations
- Ground Surface Inundated
- Soil Saturated - Depth to Saturated Soils
- Depth to Free Water

Wetland Hydrology Indicators
- Inundated
- Saturated in upper 12 inches
- Water Marks
- Drift Lines
- Sediment Deposits
- Drainage Patterns in Wetland

VEGETATION
Dominant Plant Species:
1. Pwnus seringa
2. Lacinu-tetacea
3. ...
4. ...
5. ...
6. ...
7. ...
8. ...
9. ...
10. ...
11. ...
12. ...

Stratum:
- Indicators:
  - FACV
  - OBL, FACW

50/20 Rule Applied: Yes No
Percent of Dominant Species
- OBL, FACW, FAC

Remarks:

WETLAND DETERMINATION
Hydrophytic Vegetation Present? Yes No
Wetland Hydrology Present? Yes No
Hydric Soils Present? Yes No
Is this Sampling Point Within a Wetland? Yes No

Remarks:
- Upland forest is 10" higher than wetland
DATA FORM
ROUTINE WETLAND DETERMINATION
1987 USACE Wetlands Delineation Manual

Date: 18-Jul-05
Town: Brighton
County: Monroe
State: New York

Do normal circumstances exist on site? Yes No
Is the site significantly disturbed? Yes No
Is the area a potential Problem Area? Yes No
Community: Forested Wood

SOILS
Series and Phase: Cosoys Loamy Fine Sand
Subgroup: Aquic Udorthents
Drainage Class: WD MWD SPO PD VPD
Confirmed Mapped Type: Yes No

<table>
<thead>
<tr>
<th>Depth</th>
<th>Horizon</th>
<th>Matrix Color (Munsell Moist)</th>
<th>Redoximorphic Features/Abundance/Contrast (Munsell Moist)</th>
<th>Texture, Structure, Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-9</td>
<td>A</td>
<td>10YR 3/2</td>
<td>Few Hc</td>
<td>Si. Im. Cr.</td>
</tr>
<tr>
<td>9-12</td>
<td>B</td>
<td>10YR 3/2</td>
<td>Common Hc Distant</td>
<td>Si. Im. Sb</td>
</tr>
</tbody>
</table>

Hydric Soil Indicators:
- Concretions
- High Org. Content in Surface Layer
- Organic Streaking in Sandy Soils
- Gleyed or Low Chroma color

Listed on Local Hydric Soils List: Yes No
Listed as Potential for Hydric Inclusions Only: Yes No
Other (Explain in Remarks): Aquic Moisture Regime

Hydrology:
Recorded Data (Describe in Remarks):
- Local Soil Survey
- NWI Map
- NYS FWM Map
- Stream, Lake or Tide Gauge

Field Observations:
- Ground Surface inundated: inches
- Soil Saturated - Depth to Saturated Soils: inches
- Depth to Free Water: inches

Vegetation:
Dominant Plant Species: Acer Rubrum
Stratum: H S/S N V
Indicator: FAC

Wetland Determation:
Hydrophytic Vegetation Present: Yes No
Wetland Hydrology Present: Yes No
Hydric Soils Present: Yes No
Is this Sampling Point Within a Wetland? Yes No

Remarks:
DATA FORM
ROUTINE WETLAND DETERMINATION
1987 USACE Wetlands Delineation Manual

Date: 18-Jul-05
Town: Brighton
County: Monroe
State: New York
Community: Deciduous Forest
Transact/Flag ID: @ C17
Plot ID: 33U
Drainage Class: WD MWD SP0 PD VPD
Confirmed Mapped Type: No

SOILS
Series and Phase: Cosod Loamy Fine Sands
Subgroup: Aquic Udorthents

<table>
<thead>
<tr>
<th>Depth</th>
<th>Horizon</th>
<th>Matrix Color (Munsell Moisit)</th>
<th>Redoximorphic Features/Abundance/Contrast (Munsell Moisit)</th>
<th>Texture, Structure, Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-6</td>
<td>A</td>
<td>7.5 y 31/2</td>
<td>Si, Cu, Fe</td>
<td>Sa, Cr</td>
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<tr>
<td>6-15</td>
<td>B</td>
<td>10 y 5/4</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Hydric Soil Indicators:
- Histisols
- Histic Epipozam
- Sulphic Odor
- Reducing Conditions
- Landscape Position: Concave, Convex, Flat, Undulating

Remarks:
Non-hydr.
DATA FORM
ROUTINE WETLAND DETERMINATION
1987 USACE Wetlands Delineation Manual

Date: 18-Jul-05
Town: Brighton
County: Monroe
State: New York

A-applicant: University of Rochester
Investigator: G. Pellett, J. Hauber

Do normal circumstances exist on site? Yes No
Is the site significantly disturbed? Yes No
Is the area a potential Problem Area? Yes No
Community: Fresh wdt.
Transact/Flag ID: 2 24 W
Plot ID: 

SOILS
Series and Phase: COSEAD LOAMY FINE SAND
Subgroup: Aquic Udorthent's

<table>
<thead>
<tr>
<th>Depth</th>
<th>Horizon</th>
<th>Matrix Color (Munsell Moist)</th>
<th>Redoximorphic Features/Abundance/Contrast (Munsell Moist)</th>
<th>Texture, Structure, Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-9</td>
<td>A</td>
<td>10Yr 3/2</td>
<td>Few Hc distinct</td>
<td>Si, Im, Cr.</td>
</tr>
<tr>
<td>9-13</td>
<td>AB</td>
<td>10Yr 4/1</td>
<td>Common Hc distinct</td>
<td>Si, Im, Sab</td>
</tr>
<tr>
<td>13-20+</td>
<td>B</td>
<td>10Yr 5/2</td>
<td>Many Hc distinct</td>
<td>Sa, Ux-Sab</td>
</tr>
</tbody>
</table>

Hydic Soil Indicators:

- Histisols
- Histic Epipedon
- Sufidic Odor
- Reducing Conditions

Landscape Position: Concave ✔ Convex

Remarks: Hydric / Isolated

HYDROLOGY

Recorded Data (Describe in Remarks)
- Local Soil Survey
- NWI Map
- NYS FW Water Map
- Stream, Lake or Tide Gauge
No Recorded Data Available

Field Observations
- Ground Surface Inundated inches
- Soil Saturated - Depth to Saturated Soils inches
- Depth to Free Water inches

Wetland Hydrology Indicators

Primary Indicators
- Inundated
- Saturated in upper 12 inches
- Water Marks
- Drift Lines
- Sediment Deposits
- Drainage Patterns in Wetland

Secondary Indicators (2 or more required)
- Oxidized Root Channels in upper 12 inches
- Water - Stained leaves
- Local Soil Survey
- FAC - Neutral Test
- Other (Explain in Remarks)

VEGETATION

Dominant Plant Species:
1. Carex Crinita
2. Acer Saccharum
3. Acer negundo
4. Betula nigra
5. Ficus carica
6. H/S/T V
7. H/S/T V
8. H/S/T V
9. H/S/T V
10. H/S/T V
11. H/S/T V
12. H/S/T V

50/20 Rule Applied: Yes No
Percent of Dominant Species
OBL, FACW, FAC

WETLAND DETERMINATION

Hydrophytic Vegetation Present? Yes No
Wetland Hydrology Present? Yes No
Hydic Soils Present? Yes No
Is this Sampling Point Within a Wetland? Yes No

Remarks:

Small Depressional Pocket
**DATA FORM**

**ROUTINE WETLAND DETERMINATION**

1987 USACE Wetlands Delineation Manual

Date: 18-Jul-05

Town: Brighton

County: Monroe

State: New York

**Do normal circumstances exist on site?**

- Yes [ ]
- No [ ]

**Is the site significantly disturbed?**

- Yes [ ]
- No [ ]

**Is the area a potential Problem Area?**

- Yes [ ]
- No [ ]

**SOILS**

Series and Phase: *COSAD Loamy Fine Sand*

Subgroup: *AQUIC UDIORTENTS*

<table>
<thead>
<tr>
<th>Depth</th>
<th>Horizon</th>
<th>Matrix Color (Munsell Moist)</th>
<th>Redoximorphic Features/Abundance/Contrast (Munsell Moist)</th>
<th>Texture, Structure, Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-9</td>
<td>A</td>
<td>10YR 4/3</td>
<td></td>
<td>s. In. cr.</td>
</tr>
<tr>
<td>9-18+</td>
<td>B</td>
<td>10YR 5/4</td>
<td></td>
<td>Se. wk-2ab.</td>
</tr>
</tbody>
</table>

**Hydric Soil Indicators:**

- Histosols
- Histic Epipedon
- Spathic Epipedon
- Organic Streaking in Sandy Soils
- Gleyed or Low Chroma color

**Field Observations:**

- Ground Surface Inundated [ ]
- Soil Saturated - Depth to Saturated Soils [ ]
- Depth to Free Water [ ]

**Secondary Indicators (2 or more required):**

- Oxidized Root Channels in upper 12 inches
- Water - Stained leaves
- Local Soil Survey
- FAC - Neutral Test
- Other (Explain in Remarks)

**Vegetation:**

<table>
<thead>
<tr>
<th>Stratum</th>
<th>Indicator</th>
</tr>
</thead>
<tbody>
<tr>
<td>H/S/T V</td>
<td>FACW</td>
</tr>
<tr>
<td>H/S/T V</td>
<td>FACW</td>
</tr>
<tr>
<td>H/S/T V</td>
<td>FACW</td>
</tr>
<tr>
<td>H/S/T V</td>
<td>FACW</td>
</tr>
</tbody>
</table>

**WETLAND DETERMINATION**

Hydrophytic Vegetation Present? Yes or No

- Yes [ ]
- No [ ]

Hydric Soils Present? Yes or No

- Yes [ ]
- No [ ]

Is this Sampling Point Within a Wetland? Yes or No

- Yes [ ]
- No [ ]

Remarks:

*Upland Knob.*
DATA FORM
ROUTINE WETLAND DETERMINATION
1987 USACE Wetlands Delineation Manual

Date: 18-Jul-05
Town: Brighton
County: Monroe
State: New York

placant: University of Rochester
Investigator: G. Pellett J. Hauber

Do normal circumstances exist on site? Yes
Is the site significantly disturbed? Yes
Is the area a potential Problem Area? No
Community: Mixed Successional Forest
Transsect/Flag ID: 35U (no wetl. pt.)
Plot ID:

SOILS
Series and Phase: Elyodra Lemmy Fine Sand
Subgroup: AQUIC UDIPSAMMETS
Drainage Class: WD MWP SPD PD VPD
Confirmed Mapped Type: Yes

<table>
<thead>
<tr>
<th>Depth</th>
<th>Horizon</th>
<th>Matrix Color (Munsell Moist)</th>
<th>Redoximorphic Features/Abundance/Contrast (Munsell Moist)</th>
<th>Texture, Structure, Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-1</td>
<td>A</td>
<td>10YR 3/2</td>
<td>s. il. cr.</td>
<td></td>
</tr>
<tr>
<td>0-1</td>
<td>B</td>
<td>10YR 4/3</td>
<td>s. cl. s. ab</td>
<td></td>
</tr>
</tbody>
</table>

Hydric Soil Indicators:
- Histosol
- High Org. Content in Surface Layer
- Organic Streaking in Sandy Soils
- Gleyed or Low Chroma color

Landscape Position: Concave
Sloping

Remarks: Non-hydric

HYDROLOGY

Recorded Data (Describe in Remarks)
- Local Soil Survey
- NWI Map
- NYS FW Map
- Stream, Lake, or Tide Gauge
- No Recorded Data Available

Field Observations
- Ground Surface Inundated __ inches
- Soil Saturated - Depth to Saturated Soils __ inches
- Depth to Free Water __ inches

Wetland Hydrology Indicators
Primary Indicators
- Inundated
- Saturated in upper 12 inches
- Water Marks
- Drift Lines
- Sediment Deposits
- Drainage Patterns in Wetland

Secondary Indicators (2 or more required)
-oxidized Root Channels in upper 12 inches
- Water - Stained leaves
- Local Soil Survey
- FAC - Neutral Test
- Other (Explain in Remarks)

VEGETATION

<table>
<thead>
<tr>
<th>Dominant Plant Species</th>
<th>Stratum</th>
<th>Indicator</th>
</tr>
</thead>
<tbody>
<tr>
<td>Polygala americana</td>
<td>H</td>
<td>FAC</td>
</tr>
<tr>
<td>Solidago rugosa</td>
<td>H</td>
<td>FAC</td>
</tr>
<tr>
<td>S. gigantea</td>
<td>H</td>
<td>FACw</td>
</tr>
<tr>
<td>Gymnema divaricatum</td>
<td>H</td>
<td>FAC</td>
</tr>
<tr>
<td>Cornus racemosus</td>
<td>H</td>
<td>FAC</td>
</tr>
<tr>
<td>Rhamnus catharticus</td>
<td>B</td>
<td>FAC2</td>
</tr>
<tr>
<td>Fraxinus pennsylvanica</td>
<td>H</td>
<td>FACw</td>
</tr>
<tr>
<td>Vitis aestivalis</td>
<td>H</td>
<td>FACw</td>
</tr>
</tbody>
</table>
| 50/20 Rule Applied: No Percent of Dominant Species

Remarks:
- Transitional veg. FAC neutral
  Supports Upland

WETLAND DETERMINATION

Hydrophytic Vegetation Present? Yes or No
Wetland Hydrology Present? Yes or No
Hydric Soils Present: Yes or No
Is this Sampling Point Within a Wetland? Yes or No

Remarks:
- Upland typical of majority of site.
DATA FORM
ROUTINE WETLAND DETERMINATION
1987 USACE Wetlands Delineation Manual

ilciant: University of Rochester
Investigator: G. Pellett J. Hauber

Do normal circumstances exist on site? Yes No
Is the site significantly disturbed? Yes No
Is the area a potential Problem Area? Yes No

Community: Forested Wet.
Transsect/Flag ID: A1- A2
Plot ID: 3W

SOILS
Series and Phase: COSAD LOAMY FINE SAND
Subgroup: AQUIC UDIORTHEMS

Drainage Class: WD NWD M P D VPD
Confirmed Mapped Type: Yes No

<table>
<thead>
<tr>
<th>Depth</th>
<th>Horizon</th>
<th>Matrix Color (Munsell Moist)</th>
<th>Redoximorphic Features/Abundance/Contrast (Munsell Moist)</th>
<th>Texture, Structure, Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-8</td>
<td>A</td>
<td>10yr3/2</td>
<td>common faint</td>
<td>siltic cr.</td>
</tr>
<tr>
<td>8-12</td>
<td>Ab</td>
<td>10yr3/2</td>
<td></td>
<td>siltic lo. sab.</td>
</tr>
</tbody>
</table>

Hydric Soil Indicators:
- Histisols
- Histic Epipedon
- Sufidic Odor
- Reducing Conditions
- Gleyed or Low Chroma color

Landscape Position: Concave
Sloping: Approximate Slope: __________

Remarks: Beginning hydric character.

HYDROLOGY
- Recorded Data (Describe in Remarks)
- Local Soil Survey
- NWI Map
- NYS FFW Map
- Stream, Lake or Tide Gauge
- No Recorded Data Available

Field Observations
- Ground Surface inundated __________ inches
- Soil Saturated - Depth to Saturated Soils __________ inches
- Depth to Free Water __________ inches

Wetland Hydrology Indicators
- Inundated
- Saturated in upper 12 inches
- Water Marks
- Drift Lines
- Sediment Deposits
- Drainage Patterns in Wetland

VEGETATION

<table>
<thead>
<tr>
<th>Stratum:</th>
<th>Indicator:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>FAC2</td>
</tr>
<tr>
<td>2</td>
<td>OBL</td>
</tr>
<tr>
<td>3</td>
<td>FACW</td>
</tr>
<tr>
<td>4</td>
<td>FA</td>
</tr>
<tr>
<td>5</td>
<td>OBL, FACW</td>
</tr>
<tr>
<td>6</td>
<td>FACW</td>
</tr>
<tr>
<td>7</td>
<td>OBL, FACW</td>
</tr>
<tr>
<td>8</td>
<td>FACW</td>
</tr>
<tr>
<td>9</td>
<td>OBL, FACW</td>
</tr>
<tr>
<td>10</td>
<td>FACW</td>
</tr>
<tr>
<td>11</td>
<td>OBL, FACW</td>
</tr>
<tr>
<td>12</td>
<td>FACW</td>
</tr>
</tbody>
</table>

50/20 Rule Applied: Yes No
Percent of Dominant Species 100

Remarks: Also Onoclea sensibilis + Vitis aestivalis

WETLAND DETERMINATION
Hydrophytic Vegetation Present: Yes or No
Wetland Hydrology Present: Yes or No
Hydric Soils Present: Yes or No
Is this Sampling Point: Within a Wetland? Yes or No

Remarks:
- surface water depressional wetland having developed along shoulder of Mt. Morris Rd.
- Culvert under road conveys high water to W along RR ROW
DATA FORM
ROUTINE WETLAND DETERMINATION
1987 USACE Wetlands Delineation Manual

Date: 18-Jul-05
Town: Brighton
County: Monroe
State: New York
Community: Mixed Succession Forest
Transact/Flag ID: E A B
Plot ID: B C V

SOILS
Series and Phase: COSA OLoamy Fine Sandy AQUIC UDOYORETS
Subgroup: CONC ULOMAPREE

<table>
<thead>
<tr>
<th>Depth</th>
<th>Horizon</th>
<th>Matrix Color</th>
<th>Redoximorphic Features/Abundance/Contrast</th>
<th>Texture, Structure, Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-7</td>
<td>A</td>
<td>10yr 3z</td>
<td>Low front</td>
<td>Si. Ln. cr.</td>
</tr>
<tr>
<td>7-11</td>
<td>A B</td>
<td>10yr 3z</td>
<td>Low front</td>
<td>Si. Ln. Sb</td>
</tr>
<tr>
<td>11-19</td>
<td>B</td>
<td>7.5yr 3z</td>
<td>Common H front</td>
<td>Cl. ab</td>
</tr>
</tbody>
</table>

Hydric Soil Indicators:
- Histisols
- Histic Epipedon
- Sulfic Odor
- Reducing Conditions
- Landscape Position: Concave

Remarks: Non-hydric

HYDROLOGY
Recorded Data (Describe in Remarks)
- Local Soil Survey
- NWI Map
- NYS FWW Map
- Stream, Lake or Tide Gauge

Field Observations
- Ground Surface Inundated ___ inches
- Soil Saturated - Depth to Saturated Soils ___ inches
- Depth to Free Water ___ inches

Wetland Hydrology Indicators
Primary Indicators
- Inundated
- Saturated in upper 12 inches
- Water Marks
- Drift Lines
- Sediment Deposits
- Drainage Patterns in Wetland

Secondary Indicators (2 or more required)
- Oxidized Root Channels in upper 12 inches
- Water - Stained leaves
- Local Soil Survey
- FAC - Neutral Test
- Other (Explain in Remarks)

Remarks: Now.

VEGETATION
Dominant Plant Species: Stratum: Indicator:
1. Typha latifolia 5/5 T V FAC
2. Oenothera biennis 6/5 T V FAC U FAC
3. Panicum virgatum 6/5 T V FAC U FAC
4. Carex rostrata 6/5 T V FAC
5. Carex vulcanoides 6/5 T V FAC W FAC
6. Phragmites australis 6/5 T V FAC U FAC W FAC
7. Potamogeton pectinatus 6/5 T V FAC
8. Juncus effusus 6/5 T V FAC
9. Juncus arcticus 6/5 T V FAC W FAC
10. Juncus effusus 6/5 T V FAC
11. Juncus effusus 6/5 T V FAC
12. Juncus effusus 6/5 T V FAC

50/20 Rule Applied: Yes or No
Percent of Dominant Species: 80

WETLAND DETERMINATION
Hydrophytic Vegetation Present? Yes or No
Wetland Hydrology Present? Yes or No
Hydric Soils Present? Yes or No
Is this Sampling Point Within a Wetland? Yes or No

Remarks: Transition wet. FAC neutral supports upland.
DATA FORM
ROUTINE WETLAND DETERMINATION
1987 USACE Wetlands Delineation Manual

Date: 18-Jul-05
Town: Brighton
County: Monroe
State: New York

lcant: University of Rochester
Investigator: G. Pellett J. Hauber

Do normal circumstances exist on site? Yes No
Is the site significantly disturbed? Yes No
Is the area a potential Problem Area? Yes No

Community: Mixed Successional Forest

SOILS
Series and Phase: CLAVERACK LOAMY FINE SAND
Subgroup: AQUIC UDOMHYTTEUS

<table>
<thead>
<tr>
<th>Depth</th>
<th>Horizon</th>
<th>Matrix Color (Munsell Moist)</th>
<th>Redoxomorphic Features/Abundance/Contrast (Munsell Moist)</th>
<th>Texture, Structure, Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-9</td>
<td>A</td>
<td>10R 3/2</td>
<td>S. / Mu. Cr -&gt; Sel.</td>
<td>cl. ab.</td>
</tr>
<tr>
<td>9-20+</td>
<td>B</td>
<td>7.5YR 5/4</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Hydric Soil Indicators:
- Histsol
- Histic Epipedon
- Sulfic Odor
- Reducing Conditions
- Landscape Position: Concave
- Convex
- Flat
- Undulating

Remarks: Non-hydric throughout profile

HYDROLOGY

Recorded Data (Describe in Remarks)
- Local Soil Survey
- NWI Map
- NYS FWW Map
- Stream, Lake or Tide Gauge
- No Recorded Data Available

Field Observations
- Ground Surface Inundated ______ inches
- Soil Saturated - Depth to Saturated Soils ______ inches
- Depth to Free Water ______ inches

Wetland Hydrology Indicators
Primary Indicators
- Inundated
- Saturated in upper 12 inches
- Water Marks
- Drift Lines
- Sediment Depositions
- Drainage Patterns in Wetland

Secondary Indicators (2 or more required)
- Oxidized Root Channels in upper 12 inches
- Water - Stained leaves
- Local Soil Survey
- FAC - Neutral Test
- Other (Explain in Remarks)

Remarks: None

VEGETATION
Dominant Plant Species:
1. Solidago rugosa 1D 8/5 T V FAC
2. Glycyrrhiza lepidota 1D 8/5 T V OBL
3. Campanula rotundifolia 1D 8/5 T V FAC 2
4. Rhynchospora eatonii 1A 8/5 T V FAC 2
5. Equisetum pennsylvanicum 1D 8/5 T V FAC
6. Polygonum amphibium 1D 8/5 T V FAC
7. A. Herminum 1D 8/5 T V FAC
8. Carex caryophyllea 1D 8/5 T V FAC
9. Populus tremuloides 1H S/S T V FAC
10. 1H S/S T V FAC
11. 1H S/S T V FAC
12. 1H S/S T V FAC

50/20 Rule Applied: Yes No
Percent of Dominant Species
OBL, FACW, FAC
OBL, FACW

Remarks: Also Rosa, Scirpus

WETLAND DETERMINATION
Hydrophytic Vegetation Present? Yes or No
Wetland Hydrology Present? Yes or No
Hydric Soils Present? Yes or No
Is this Sampling Point Within a Wetland? Yes or No

Remarks: Upland transitional area adjacent to site
DATA FORM
ROUTINE WETLAND DETERMINATION
1987 USACE Wetlands Delineation Manual

Date: 18-Jul-05
Town: Brighton
County: Monroe
State: New York

Do normal circumstances exist on site? Yes No
Is the site significantly disturbed? Yes No
Is the area a potential Problem Area? Yes No

Community: Pal. woods
Transact/Flag ID: E-2
Plot ID: 38 W

SOILS
Series and Phase: Cosad Loamy Fine Sand
Subgroup: Aquic Udorthents

<table>
<thead>
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<th>Depth</th>
<th>Horizon</th>
<th>Matrix Color (Munsell Moist)</th>
<th>Redoximorphic Features/Abundance/Contrast (Munsell Moist)</th>
<th>Texture, Structure, Other</th>
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<tr>
<td>0-8</td>
<td>A</td>
<td>10 YR 3/2</td>
<td>Sandy Loam</td>
<td></td>
</tr>
<tr>
<td>8-14</td>
<td>B</td>
<td>10 YR 2/1</td>
<td>Silty Sand Loam</td>
<td></td>
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<tr>
<td>14-18</td>
<td>B</td>
<td>2.5 Y 5/2</td>
<td>Sandy Loam</td>
<td></td>
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</tbody>
</table>

Hydric Soil Indicators:
- Histisoil
- Histic Epipedon
- Sulfidic Odor
- Reducing Conditions
- Organic Streaking in Sandy Soils
- Gleyed or Low Chroma color
- Landscape Position: Concave
- Convex
- Flat
- Undulating

Listed on Local Hydric Soils List
- Listed as Potential for Hydric Inclusions Only
- Other (Explain in Remarks)
- Aquic Moisture Regime

SOILS
Hydrology:
- Recorded Data (Describe in Remarks)
  - Local Soil Survey
  - NWI Map
  - NYS FWM Map
  - Stream, Lake, or Tide Gauge
  - No Recorded Data Available

Field Observations
- Ground Surface Inundated __________ inches
- Soil Saturated - Depth to Saturated Soils __________ inches
- Depth to Free Water __________ inches

Wetland Hydrology Indicators
Primary Indicators
- Inundated
- Saturated in upper 12 inches
- Water Marks
- Drift Lines
- Sediment Deposits
- Drainage Patterns in Wetland

Secondary Indicators (2 or more required)
- Oxidized Root Channels in upper 12 inches
- Water-Stained leaves
- Local Soil Survey
- FAC - Neutral Test
- Other (Explain in Remarks)

Remarks: VARYING POGGOTS OR ISLANDS DRAINS NORTH.

VEGETATION

Stratum: 50/20 Rule Applied: Yes No

<table>
<thead>
<tr>
<th>Indicator</th>
</tr>
</thead>
<tbody>
<tr>
<td>OBL, FACW, FAC</td>
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</tbody>
</table>

WETLAND DETERMINATION
Hydric Vegetation Present? Yes or No
Wetland Hydrology Present? Yes or No
Hydric Soils Present: Yes or No
Is this Sampling Point Within a Wetland? Yes or No

Remarks:
DATA FORM
ROUTINE WETLAND DETERMINATION
1987 USACE Wetlands Delineation Manual

Jillicant: University of Rochester
Investigator: G. Pellet J. Hauber

Do normal circumstances exist on site? Yes No
Is the site significantly disturbed? Yes No
Is the area a potential Problem Area? Yes No
Community: 33050
Transct/Flag ID: 66
Plot ID: 88

SOILS
Series and Phase: COSAD LOAMY FINE SAND
Subgroup: AQUIC UDIORTENTS

<table>
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<th>Depth</th>
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<th>Redoximorphic Features/Abundance/Contrast (Munsell Moist)</th>
<th>Texture, Structure, Other</th>
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<tr>
<td>0-12</td>
<td>A</td>
<td>1d81c 3/2</td>
<td></td>
<td>tilth</td>
</tr>
</tbody>
</table>
| 12-18 | B       | 1d81c 4/3                   |                                                          | sand, calc.

Hydric Soil Indicators:
- Histosol
- Histic Epipedon
- Sulfidic Odor
- Reducing Conditions

Listed on Local Hydric Soils List: Yes
Listed as Potential for Hydric Inclusions Only: Yes
Other (Explain in Remarks): Aquic Moisture Regime
Sloping: Yes
Approximate Slope: 2% 1

Remarks: Concave

HYDROLOGY
Recorded Data (Describe in Remarks):
- Local Soil Survey
- NWI Map
- NYS FWI Map
- Stream, Lake or Tide Gauge

Field Observations:
- Ground Surface Inundated: Yes
- Soil Saturated - Depth to Saturated Soil: inches
- Depth to Free Water: inches

Wetland Hydrology Indicators
- Inundated
- Saturated in upper 12 inches
- Water Marks
- Drift Lines
- Sediment Deposits
- Drainage Patterns in Wetland

VEGETATION
Dominant Plant Species:
1. Pseudovirginia virginiana 8 S/S T V FAC
2. Ulmus americana 8 S/S T V FAC
3. Prunus serotina 8 S/S T V FAC
4. Fraxinus pennsylvanica 8 S/S T V FAC
5. Carya ovata 8 S/S T V FAC
6. Acer saccharum 8 S/S T V FAC
7. Ulmus americana 8 S/S T V FAC
8. Ptelea trifoliata 8 S/S T V FAC
9. Quercus prinus 8 S/S T V FAC
10. Acer saccharum 8 S/S T V FAC
11. Quercus prinus 8 S/S T V FAC
12. Ilex opaca 8 S/S T V FAC

50/20 Rule Applied: Yes No
Percent of Dominant Species: OBL, FACW, FAC

WETLAND DETERMINATION
Hydrophytic Vegetation Present? Yes No
Wetland Hydrology Present? Yes No
Hydric Soils Present? Yes No
Is this Sampling Point Within a Wetland? Yes No

Remarks: SLOPES GENTLY TO WETLAND
DATA FORM
ROUTINE WETLAND DETERMINATION
1987 USACE Wetlands Delineation Manual

Significant: University of Rochester
Investigator: G. Pellett J. Hauber
Community: PALESTRINE WOODS

Do normal circumstances exist on site? Yes No
Is the site significantly disturbed? Yes No
Is the area a potential Problem Area? No

SOILS
Series and Phase: COGAL LOAMY FINE SAND
Subgroup: AQUIC UDIORTHENT

<table>
<thead>
<tr>
<th>Depth</th>
<th>Matrix Color (Munsell Soil)</th>
<th>Redoximorphic Features/Abundance/Contrast (Munsell Soil)</th>
<th>Texture, Structure, Other</th>
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<tbody>
<tr>
<td>0-5</td>
<td>10V 8.3/1</td>
<td>Hwy HC Desti, Sm</td>
<td>Soil, Sand, Loam</td>
</tr>
<tr>
<td>5-14</td>
<td>10V 8/3/2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>14-18</td>
<td>10YR 4/1</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Hydric Soil Indicators:
- Histosols
- Histic Epipedon
- Sulfide Odor
- Reducing Conditions
- Landscape Position: Concave
- Convex
- Flat
- Undulating

Remarks:

HYDROLOGY
- Recoded Data (Describe in Remarks)
- Local Soil Survey
- NWI Map
- NYS FW Map
- Stream, Lake or Tide Gauge
- No Recorded Data Available

Field Observations
- Ground Surface Inundated: __________ inches
- Soil Saturated - Depth to Saturated Soils: __________ inches
- Depth to Free Water: __________ inches

Wetland Hydrology Indicators
- Inundated
- Saturated in upper 12 inches
- Water Marks
- Drift Lines
- Sediment Deposits
- Drainage Patterns in Wetland

VEGETATION
Dominant Plant Species: Stratum: Indicator:
1. [Species] [B S/S T V] [FACW]
2. [Species] [B S/S T V] [FAC]
3. [Species] [H S/S T V] [OBL]
4. [Species] [H S/S T V] [FACW]
5. [Species] [H S/S T V] [FAC]
6. [Species] [H S/S T V] [FAC]
7. [Species] [H S/S T V] [FAC]
8. [Species] [H S/S T V]
9. [Species] [H S/S T V]
10. [Species] [H S/S T V]
11. [Species] [H S/S T V]
12. [Species] [H S/S T V]

50/20 Rule Applied: Yes No Percent of Dominant Species: [OBL, FACW, FAC]
Remarks:

WETLAND DETERMINATION
Hydrophytic Vegetation Present? Yes or No
Wetland Hydrology Present? Yes or No
Hydric Soils Present: Yes or No
Is this Sampling Point Within a Wetland? Yes or No
Remarks: INTERMITTENT DRAINAGE TO C NIT, RD.
# Data Form

## Routine Wetland Determination

**1987 USACE Wetlands Delineation Manual**

<table>
<thead>
<tr>
<th>Date:</th>
<th>18-Jul-05</th>
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<tr>
<td>Town:</td>
<td>Brighton</td>
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<tr>
<td>County:</td>
<td>Monroe</td>
</tr>
<tr>
<td>State:</td>
<td>New York</td>
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### Soils

**Series and Phase:** COSAD Loamy Fine Sand

**Subgroup:** ACQIC UDOMETHENS

<table>
<thead>
<tr>
<th>Depth</th>
<th>Horizon (Munsell Color)</th>
<th>Redoximorphic Features/Abundance/Contrast (Munsell Moist)</th>
<th>Texture, Structure, Other</th>
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</thead>
<tbody>
<tr>
<td>0-10</td>
<td>10YR 3/8</td>
<td>Muddy Loam</td>
<td>Sandy Loam</td>
</tr>
<tr>
<td>10-12</td>
<td>10YR 5/4</td>
<td>Muddy Loam</td>
<td>Sandy Loam</td>
</tr>
</tbody>
</table>

### Hydric Soil Indicators:

- Histosol
- Sulvic Epipedon
- Reducing Conditions

### Drainage Class:

- WD MWD SPD PD VPD

### Chart:

- Listed on Local Hydric Soils List
- Listed as Potential for Hydric Inclusions Only
- Other (Explain in Remarks)

### Hydrology

- Recorded Data (Describe in Remarks)
- NWI Map
- NYS FWW Map
- Stream, Lake or Tide Gauge
- No Recorded Data Available

### Field Observations

- Ground Surface Inundated: __________ inches
- Soil Saturated - Depth to Saturated Soils: __________ inches
- Depth to Free Water: __________ inches

### Wetland Hydrology Indicators

- Inundated
- Saturated in upper 12 inches
- Water Marks
- Drift Lines
- Sediment Deposits
- Drainage Patterns in Wetland

### Secondary Indicators (2 or more required)

- Oxidized Root Channels in upper 12 inches
- Water - Stained leaves
- Local Soil Survey
- FAC - Neutral Test
- Other (Explain in Remarks)

### VEGETATION

<table>
<thead>
<tr>
<th>Dominant Plant Species</th>
<th>Stratum</th>
<th>Indicator</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>5/5</td>
<td>FACW</td>
</tr>
<tr>
<td>2</td>
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<tr>
<td>3</td>
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<tr>
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<td>5/5</td>
<td>FACW</td>
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<td>FACW</td>
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<tr>
<td>6</td>
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<td>7</td>
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<td>FACW</td>
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<tr>
<td>11</td>
<td>5/5</td>
<td>FACW</td>
</tr>
<tr>
<td>12</td>
<td>5/5</td>
<td>FACW</td>
</tr>
</tbody>
</table>

50/50 Rule Applied: Yes No

Percent of Dominant Species

Remarks: WOODS SLOPING TO WETLAND E.

### Wetland Determination

<table>
<thead>
<tr>
<th>Hydrophytic Vegetation Present?</th>
<th>Yes or No</th>
</tr>
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<tbody>
<tr>
<td>Wetland Hydrology Present?</td>
<td>Yes or No</td>
</tr>
<tr>
<td>Hydric Soils Present?</td>
<td>Yes or No</td>
</tr>
</tbody>
</table>

Is this Sampling Point: Within a Wetland? Yes or No

Remarks:
DATA FORM
ROUTINE WETLAND DETERMINATION
1987 USACE Wetlands Delineation Manual

 licant: __________ Monroe County Dnr, Crittenden Rd, North Drainage __________

 Investigator: G. Pellet J. Hauber

 Do normal circumstances exist on site? Yes No

 is the site significantly disturbed? Yes No

 is the area a potential Problem Area? Yes No

 Community: Successional Feed.

 Date: 7/15/2005

 Drainage Class: WD MWD SPD PD VPD

 Confirmed Mapped Type: Yes No

 SOILS

 Series and Phase: EUNORA LOAMY FREESALT

 Subgroup: AQUIC UDIPEAMMITE

 Depth Horizon Matrix Color (Munsell Moist) Redoximorphic Features/Abundance/Contrast (Munsell Moist) Texture, Structure, Other
 0-9 A 10YR 3/2 Si, Im, Cr
 9-15 AB 10YR 3/2 Si, Im, SAb.
 15-24 B 7.5YR 4/3 Si, Im, SAb.

 Hydric Soil Indicators:

 Histic Solids
 Histic Epipedon
 Sufidic Odor
 Reducing Conditions
 Landscape Position: Concave Convex Flat Undulating

 Remarks: Non-hydric

 HYDROLOGY

 Recorded Data (Describe in Remarks)
 Local Soil Survey
 NWI Map
 NYS FWQ Map
 Stream, Lake or Tide Gauge

 Field Observations

 Ground Surface Inundated inches
 Soil Saturated - Depth to Saturated Soils inches
 Depth to Free Water inches

 Wetland Hydrology Indicators

 Primary Indicators

 Inundated
 Saturated in upper 12 inches
 Water Marks
 Drift Lines
 Sediment Deposits
 Drainage Patterns in Wetland

 Secondary Indicators (2 or more required)

 Oxidized Root Channels in upper 12 inches
 Water - Stained leaves
 Local Soil Survey
 FAC - Neutral Test
 Other (Explain in Remarks)

 VEGETATION

 Dominant Plant Species: Carex cristata
 Stratum: H 5/5 T V
 Indicator: OBL

 WETLAND DETERMINATION

 Hydrophytic Vegetation Present? Yes or No
 Wetland Hydrology Present? Yes or No
 Hydric Soils Present? Yes or No
 Is this Sampling Point within a Wetland? Yes or No

 Remarks: Wet pocket indicated by hydrophytic veg

 Hydrophytic Vegetation: Carex cristata

 OBL, FACW, FAC

 Remarks:

 OBL, FACW
APPENDIX C

Photographs
PHOTO 1. Surface water depressional Wetland A occurring along the edge of Mortimer Road.

PHOTO 2. Isolated surface water depressional Wetland C at Data Point 30W.
PHOTO 3. Representative view of successional forest uplands dominating the study area south of Crittenden Road.

PHOTO 4. View of Wetland E at Data Point 38W.
PHOTO 5. Forested uplands adjacent to Wetland E; Data Point 38U.

PHOTO 6. Representative view of the north end of Wetland G (Data Point 13W).
PHOTO 7. Northern most end Wetland G at Data Point 14W.

PHOTO 8. Wetland G at Data Point 16W.
PHOTO 9. Representative view of mature deciduous forest surrounding northern portion of Wetland G. Photo at Data Point 16U.

PHOTO 10. View of Wetland G swale (center of photo) at Data Point 29W. Note forest uplands in foreground and right background.
PHOTO 11. View from forested upland at Data Point 23U looking into Wetland G (mid-background). Mixed successional shrub/forest uplands adjacent to Wetlands L and N.

PHOTO 12. Representative view of mature forested uplands adjacent to Wetland G.
PHOTO 13. Emergent Wetland J.

PHOTO 14. Isolated depressional Wetland K.
PHOTO 15. Wetland L constructed to mitigate for chorus frog habitat.

PHOTO 16. Representative view of successional forest uplands around Wetlands L and N.
PHOTO 17. Constructed storm water management basin, Wetland M.

PHOTO 18. Delineated site Wetland O.
PHOTO 19. Uplands adjacent to Wetland O.

PHOTO 20. View of Wetland G (background) from adjacent forested uplands at Data Point 25U.
APPENDIX H - University of Rochester Hazardous Chemical Waste Management Program

THE UNIVERSITY OF ROCHESTER
IPD REZONING

Town of Brighton
Monroe County, New York
# Learners Guide for Responsible Hazardous Chemical Waste Management

**University of Rochester**

Prepared by Marvin R. Stillman  
Copyright October 23, 1991

<table>
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<th>Original Document</th>
<th>December 15, 1988</th>
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<td>Revised</td>
<td>February 6, 1991</td>
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CHEMICAL WASTE MANAGEMENT

Rationale:
The government, through the Environmental Protection Agency (EPA) as well as the New York State Department of Environmental Conservation (NYSDEC) and local agencies, has enacted regulations to protect life, property and the environment from the effects of improper hazardous waste management and disposal. Each person who works with hazardous materials has specific legal responsibilities for the safe identification and management of toxic wastes produced as a result of his or her experiments.

Failure to properly manage toxic wastes can result in personal injury or death, property damage or contamination, loss of good public image, and even civil or criminal penalties encompassing fines and/or imprisonment.

Chemical waste at the University of Rochester is managed by the Hazardous Waste Management Unit (HWMU) of Facilities and Services. To contact HWMU dial x52056.

Drain disposal of chemicals into the sanitary sewer system is permitted only for small amounts of substances that can be successfully treated by the Monroe County Sewer District's facilities and must be in compliance with the guidelines set forth in the Sewer Use Law of Monroe County.

Purpose:
The purpose of this guide is to discuss chemical waste management in the laboratory. Topics that will be discussed include the following:

Section I: Waste determination (What is a Hazardous Waste?) 3
Section II: Disposal
   A. Containers 5
   B. Labeling 6
   C. Collection 7
   D. Gas Cylinders 9
   E. Battery Disposal 10
   F. Computer and Cathode Ray Tube Disposal 11
   G. Lamps 12
   H. Silver Recovery from Spent Photographic Fixer 13
Section III: Hazardous Waste Tags 15
Section IV: Scheduling a waste pickup 16
Section V: Waste minimization 17
Section VI: Free Chemicals 18
Section VII: Review of Waste Disposal Requirements 19

After reading this manual one should be able to carry out the basic requirements of laboratory waste management at the University of Rochester. This includes container selection and labeling of chemical wastes generated in the lab, completing a waste tag, scheduling a waste pickup and knowing whom to call for additional information. Questions regarding hazardous waste and its proper disposal should be addressed to the Hazardous Waste Management Unit.
I. Waste Determination:

WHENEVER THERE IS A DOUBT ABOUT A WASTE’S BEING HAZARDOUS OR NONHAZARDOUS, CONTACT THE HAZARDOUS WASTE MANAGEMENT UNIT (HWMU) FOR TECHNICAL ASSISTANCE at x52056.

If the waste is determined to be a Hazardous Waste, it must be managed accordingly. HWMU WILL MAY NOT ACCEPT UNKNOWN WASTES.

What is a Hazardous Waste?

A Hazardous Waste is a particular class of waste (which can be either solid, liquid or gas) that can, if improperly managed, pose a substantial threat or potential hazard to human health or the environment. These are either listed by specific chemical name or can be determined to be Hazardous Waste based on physical characteristics such as ignitability, corrosivity, reactivity, or toxicity.

A current listing of all Hazardous Wastes can be found in 40 CFR 261. These include acutely toxic waste (P), toxic wastes (U), waste from non-specific sources (F), and waste from specific sources (K).

Also, a waste that is not specifically listed in the regulations is considered hazardous if it exhibits the characteristic of ignitability, corrosivity, reactivity, or toxicity. Such wastes are referred to as characteristic (D).

261.21 Characteristic of ignitability

A. A waste exhibits the characteristic of ignitability if a representative sample of the waste has any of the following properties:

1. It is a liquid, other than an aqueous solution containing less than 24 percent alcohol by volume and has flash point less than 60°C (140°F), as determined by a Pensky-Martens Closed Cup Tester or a Setaflash Closed Cup Tester, or as determined by an equivalent test method approved by the Administrator.

2. It is not a liquid and is capable, under standard temperature and pressure, of causing fire through friction, absorption or moisture or spontaneous chemical changes and, when ignited, burns so vigorously and persistently that it creates a hazard.

3. It is an ignitable compressed gas as defined in 49 CFR 173.300.

4. It is an oxidizer as defined in 49 CFR 173.151.

B. A waste that exhibits the characteristic of ignitability, but is not listed as a Hazardous Waste in Subpart D, has the EPA Hazardous Waste Number of D001.
261.22 Characteristic of corrosivity

A. A waste exhibits the characteristic of corrosivity if a representative sample of the waste has either of the following properties:

1. It is aqueous and has a pH less than or equal to 2 or greater than or equal to 12.5, as determined by a pH meter using either an EPA test method or an equivalent test method approved by the Administrator.

2. It is a liquid and corrodes steel (SAE 1020) at a rate greater than 6.35 mm (0.250 inch) per year at a test temperature of 55°C (130°F), or an equivalent test method approved by the Administrator.

B. A waste that exhibits the characteristic of corrosivity, but is not listed as a hazardous waste in Subpart D, has the EPA Hazardous Waste Number D002.

261.23 Characteristic of reactivity

A. A waste exhibits the characteristic of reactivity if a representative sample of the waste has any of the following properties:

1. It is normally unstable and readily undergoes violent change without detonating.
2. It reacts violently with water.
3. It forms potentially explosive mixture with water.
4. When mixed with water, it generates toxic gases, vapors, or fumes in a quantity sufficient to present a danger to human health or the environment.
5. It is a cyanide or sulfide bearing waste which, when exposed to pH conditions between 2 and 12.5, can generate toxic gases, vapors, or fumes in a quantity sufficient to present a danger to human health or the environment.
6. It is capable of detonation or explosive reaction if it is subjected to a strong initiating source or if heated under confinement.
7. It is readily capable of detonation or explosive decomposition or reaction at standard temperature and pressure.
8. It is a forbidden explosive as defined in 49 CFR 173.51, or a Class A explosive as defined by 49 CFR 173.53, or a Class B explosive as defined in 49 CFR 173.88.

B. A waste that exhibits the characteristic of reactivity, but is not listed as a hazardous waste in Subpart D, has the EPA hazardous waste number of D003.
II. Disposal

A. Containers
Containers holding Hazardous Waste must be in good condition, non-leaking, and compatible with the waste being stored. The container must always be closed during storage, except when it is necessary to add or remove waste. Hazardous Waste must not be placed in unwashed containers that previously held an incompatible waste or material.

Wastes that are determined to be hazardous must be managed accordingly. Laboratory personnel must work to ensure that wastes are properly labeled in order to prevent materials from becoming “unknown wastes.” Disposal of unknown materials is expensive and requires special approval from the HWMU. Labs generating unknown wastes should contact the Hazardous Waste Chemist (x57647). The Chemist will work with the lab to identify and properly dispose of the waste.

A storage container holding a Hazardous Waste that is incompatible with any waste or other materials stored nearby in other containers must be separated from the other materials or protected from them by means of a partition, wall, or other device.

Laboratories are legally defined as "satellite collection areas."

BY LAW ALL WASTE CONTAINERS MUST BE

1. Labeled "Hazardous Waste" with an accumulation start date and a description of the waste.
2. Kept in a designated accumulation area (This area must be labeled "Hazardous Waste Accumulation Area.")
3. Compatible with contents.
   (i.e. Acid should not be stored in metal cans.)
4. Closed at all times except when waste is being added to container.
5. Properly identified with completed waste tags.
6. Safe for transport, non-leaking with screw-on caps.
7. Filled to a safe level. Over-filled bottles are:
   a. Hard to pour safely
   b. Inclined to burst
   c. Apt to leak
   d. Capable of endangering the technician through splashing or shooting up into one's face upon opening.
   e. Going to be REJECTED—Contact HWMU for technical assistance.

NOTE: RED BAGS (Biohazard) are not to be used for chemical Hazardous Waste collection. These bags are for infectious agents and are to be used for that purpose only.
B. Container Labeling

While Hazardous Waste is being accumulated, the container holding the waste must be marked with the words "HAZARDOUS WASTE" and other words that identify the contents of the container. For the purpose of waste determination, a complete inventory of wastes being accumulated in the container must be kept with the container. This can be accomplished by using hazardous waste tags available through HWMU. Hazardous Waste labels are suggested to facilitate proper recordkeeping during waste accumulation.

Label must adequately describe waste.

Abbreviations, codes, or symbols should not be used. This is for quick access to information for emergency responders.

Specific chemical names such as toluene, ethanol or hydrochloric acid must be used. Vague statements such as "hydrocarbons," "organic waste," "various salts of..." are consistently questioned by waste brokers and make it difficult to comply with new EPA treatment standards.

C. Collection

Whenever possible, keep different Hazardous Wastes separate so that disposal options remain clearer and more cost effective. However, if source separation is not practical, collect waste in compatible containers and try to keep it segregated into the following categories:

- **Miscellaneous Solids** (i.e. pipette, gloves, other lab equipment) should be collected separately from liquid wastes.
- **Halogenated solvents** (i.e. methylene chloride, chloroform, carbon tetrachloride)
- **Non-halogenated solvents** (i.e. xylene, toluene, alcohols)
- **Used oil** is collected and recycled. In order to continue this, used oil must be kept as uncontaminated as possible. We require that you keep oils separate from other chemicals, particularly solvents, pesticides, and PCB's. If the oil is contaminated, please indicate so; and it will be managed and disposed of in an approved manner. These containers must be labeled "Used Oil."
- **Acids**
- **Bases**
- **Heavy Metals**
- **Special wastes** (i.e. cyanide, sulfide, pesticides, oxidizers, organic acids, explosives and peroxides) should each be collected individually whenever possible.
FORMAT TO BE USED FOR COLLECTION CONTAINERS

- **HAZARDOUS WASTE** accumulation Start Date
- Waste Type:
- List of Contents
- Total Volume

- **FILL LINE:** Allow for expansion of contents

- Must be clearly identified as a hazardous waste.

- Date is required by law.

- i.e. halogenated waste
- non-halogenated aqueous waste
- others

- Log in contents as they are added to the bottle.
HAZARDOUS WASTE

Accumulation Start Date: __/__/__

Waste Type: ________________________________

List of Contents and amounts as they are added to container:

(Does not replace waste tag)

_____________________________________________________________________

_____________________________________________________________________

_____________________________________________________________________

_____________________________________________________________________

_____________________________________________________________________

_____________________________________________________________________

_____________________________________________________________________

_____________________________________________________________________

_____________________________________________________________________

TOTAL VOLUME: ____________________________
D. Gas Cylinders

The disposal of old gas cylinders can be extremely difficult and expensive. Many gas distributors take back used cylinders. However, the protective caps must be in place. It is illegal to transport cylinders without them. Demurrage is often being paid for cylinders until they are returned. Prompt return of cylinders lowers such expenses.

If a gas cylinder becomes old, it may become dangerous due to valve deterioration (especially if it contains a corrosive gas). Such cylinders may become unsuitable for transport and need to be disposed of by a specialist. Unknown gas cylinders also require specialized handling. Resolutions of problems created by aged and unknown cylinders are risky and extremely expensive. A good rule of thumb is to return cylinders as soon as possible after they are depleted and to keep a cylinder no longer than one year. Many companies will not refund deposits or may not even accept a cylinder for return if it has been on-site over one year. Lecture bottles are usually sold outright. However, some companies will accept empties.

Cylinders must not be thrown in the regular trash or incinerator. Lecture bottles that cannot be returned may need to be disposed of as hazardous waste. Therefore, avoid doing business with companies that will not accept used cylinders. Control your inventory to avoid unknown and deteriorated cylinders.
E. Battery Disposal

The proper disposal of batteries varies and depends upon the type of battery one is disposing. The Hazardous Waste management Unit will accept all types of batteries as long as they are segregated by type (i.e. nickel cadmium, lead acid, alkaline) and a separate waste tag is completed for each type of battery.

1. Regulated Batteries:
Lead acid batteries, nickel cadmium (rechargeable), mercury/silver (button batteries), and lithium batteries all contain hazardous materials and the disposal is regulated. These must be turned in as hazardous waste.

2. Non-regulated Batteries:
Newer alkaline batteries contain no added mercury. They can be thrown into the normal trash.

The Hazardous Waste Management Unit (HWMU) will accept used batteries from all parts of the University. Since resources within HWMU are extremely limited, please deposit used batteries in one of the centralized collection locations near you.

Convenient drop-off points have been set up in the Medical Center at Photo Illustration, Engineering Stores, and at the main Information Desk at Strong Hospital lobby. The Page Office, Telecommunications Office, Medical Engineering and Computer Repair Center also collect used batteries in the Medical Center; however, access to these areas is limited to those within the department. Nursing staff should leave old batteries on a soiled utility cart. These are consolidated for disposal and collected by the Hazardous Waste Management from the Materials Management.

On River Campus, a collection area has been set up at the Todd Union Post Office. A battery collection container has also been placed near the service window of the Engineering Stores for use by Facilities & Services personnel. These River Campus locations are for the collection of regulated batteries as described above. The batteries will be consolidated for proper disposal. No waste tag is required for batteries disposed of at these locations. Gross amounts of batteries should be disposed of directly through the Hazardous Waste Management Unit. Call x52056 for additional information.
F. Computer and Cathode Ray Tube Disposal

**Purpose:** To ensure computers and cathode ray tubes designated for disposal are collected for disposal in accordance with environmental regulations.

**Applicability:** All University owned facilities and operations

**Background:** The United States Environmental Protection Agency and the NYS Department of Environmental Conservation have determined that most computers (CPUs and monitors) will fail the Toxicity Characteristic Leachate Test (TCLP) for lead. This is especially true for the monitors (cathode ray tubes) which can contain 5 to 8 pounds of lead. Therefore, computer components or equipment containing cathode ray tubes must not be placed in the regular trash for disposal. In addition, relief from the strict requirements of the regulations can be obtained if computers are recycled. For non-functional equipment, the components are de-manufactured. Plastics, electronic components and the cathode ray tube are separated and recycled.

Functional computers of the Pentium class may have resale value if they are not damaged or broken during handling. Such value can offset the cost of disposal for non-working components. It is important to not damage equipment during handling.

**Disposal Process:** Building service workers who transport trash within a building must separate computer components from the normal trash. Building managers and supervisors are responsible for ensuring that building service workers are not disposing of electronic wastes in the regular trash. Care must be taken not to damage the components, so that any possible salvage value can be obtained. This includes the cosmetics of the equipment.

In the Medical Center, a small number of computers and other scrap electronic equipment are picked up by Housekeeping. The equipment is moved to a storage area near the Medical Center autoclave loading dock. Should there be a significant number of computers and/or should they have potential for reuse, contact MC Facilities and Services so the equipment can be handled as surplus property, rather than waste.

Areas outside of the Medical Center wishing to dispose of scrap electronic equipment should contact River Campus Support Operation’s customer service at x34567 to schedule a pickup by the Furniture and Properties group. Be prepared to supply an account number to cover the cost of the pickup. (Actual disposal is still free to the end user.)

Any area wishing to dispose of a computer (or other data storage equipment) must ensure that the data has been destroyed in compliance with applicable standards and regulations prior to offering the equipment for disposal.

Do not forget to complete a University of Rochester Property Disposition Form and send the completed form to Plant Accounting, 280 Towne House whenever computer components are being discarded.

For more information, contact the Hazardous Waste Management Unit at 275-2056.
G. Fluorescent Lamp Management Protocol

Most fluorescent lamps contain the element mercury, a material regulated by state and federal environmental laws. For this reason, fluorescent lamps must be handled as regulated waste to ensure proper disposal. Personnel replacing fluorescent lamps at the University of Rochester must take the following steps to ensure that the bulbs are disposed of properly.

1. Handle fluorescent lamps in a manner which will minimize occurrences of lamp breakage. Unbroken bulbs are much easier and safer to manage than broken bulbs. If a bulb does break, sweep up the pieces and put them in a bucket, box or other suitable container. This container must be capped with a lid that ensures no material will be spilled from the container during storage or transport. Label the container “Hazardous Waste broken fluorescent lamp,” fill out a Hazardous Waste tag and place this container in the used bulb collection area for your unit. Currently, there are used bulb collection areas at 612 Wilson Blvd. for River Campus and the autoclave loading dock in the Medical Center. Other areas should set up a designated collection area and contact HWMU for periodic pickups.

2. Used fluorescent bulbs for disposal should be placed into an empty fluorescent lamp box. When replacing lamps, the box from which the new lamps are taken should be used to store the old lamps. The full boxes must then be taken to the designated bulb collection area. Boxes containing spent bulbs must be labeled with the words “USED LAMPS”. When the box is full, the date must be written on the box. The box must then be taken to the used bulb collection area where it will be picked up by the Hazardous Waste Management Unit.

3. Some companies are now making fluorescent lamps using a process which limits the amounts of mercury in each bulb. These bulbs consistently pass the TCLP test for mercury and as such are not considered Hazardous Waste. These lamps have a green colored cap on each end. The National Electrical Manufacturers Association has designated that green markings are not to be used on lamps for any other purpose than this. Therefore, it is safe to throw green tipped fluorescent lamps into the regular trash. Green capped bulbs should not be turned in to the Hazardous Waste Management Unit.
H. Silver Recovery from Spent Photographic Fixer

Spent photographic fixer from the development of black and white and color photographs routinely contains enough dissolved silver metal to require that the material be recycled or managed as a Hazardous Waste. Under no circumstances should used photographic fixer be drain disposed.

Departments that generate a significant quantity of used photographic fixer on a regular basis should contact a vendor to set up an on-site silver recovery unit in their area. Arrangements can be made by contacting the Hazardous Waste Management Unit (x52056) or Purchasing Services (x52002).

Generators of small quantities of used fixer waste should collect the material in a glass or plastic container labeled with the words “Hazardous Waste – Used Photographic Fixer”. When the container is full, a Hazardous Waste tag should be attached to the container and the Hazardous Waste Management Unit should be called for a pick up.
TIPS FOR FILLING OUT HAZARDOUS WASTE TAGS

A Hazardous Waste Tag must be filled out by the waste generator and attached to each container. Each Hazardous Waste Tag and container receives a unique number, and the information on the tag is entered into a computer data base for waste tracking purposes. These tags are legal documents subject to review by the EPA and/or DEC. It is YOUR responsibility as the generator to properly identify the contents of each container. Please fill them out legibly, accurately, and completely. A Hazardous Waste Tag must be filled out for each container, even the container already has a label. The following information is required:

1. Your Room Number
2. Your Telephone number
3. Your University Post Office Box Number
4. Your Name
5. Your Department Name
6. Procedures that this material is used for.
7. Any Special Precautions (ex. Reacts violently with water; corrosive, flammable, highly toxic)
8. Chemical Name: Full chemical name, no abbreviations (DAB, ETBR, ETOH), no formulas (H2O), no "UNKNOWN"s. Product names or trade names are acceptable if the manufacture’s name and address, or a material safety data sheet can be supplied with the material.
9. Total Amount: For liquids you must list the total volume of waste in the container, and for solids you must list the total weight of material in the container.
10. Amount or Percentage of each chemical – For containers that contain a mixture of chemicals or substances. You must list each chemical by its volume, weight or percentage. The percentages of all items must add up to 100%. If there are more than four items to be listed, you can use more than one waste tag.

Examples: See next page
Helpful hints:

1. For items such as paper or plastic that is contaminated with a chemical residue, you can use a one line description of the material, and its total weight. Ex. Plastic pipet tips contaminated with phenol and chloroform (2 lbs.). Ex. Etidium bromide contaminated agarose gel (40 lbs.).

2. If you have a bottle that contains only one item, putting down 100% for the amount is NOT acceptable. You must put down what the actual volume or weight of the item is.

3. Make sure that all three pages of the waste tag are legible. Do not use felt tip markers because they don't work well with carbon copies.

4. Make sure that the outside of the waste bottles are clean. Wash/wipe all residues off.

5. Do not allow tags to become contaminated. Other people will be required to handle the tags in the future. Re-write them if necessary.

6. Only tape the left end of the tag to the container.

Revised 4/5/04
IV. SCHEDULING A WASTE PICKUP

When the waste container is ready for pickup and the waste tag has been completed, **call HWMU at x52056**. This will initiate the waste pickup process. Waste is routinely picked up throughout the University Monday through Friday. Areas generating small infrequent amounts of waste will be included on the next pickup day in that area.

*(NOTE: DO NOT FILL WASTE CONTAINERS BEYOND THE BOTTOM OF THE NECK OF THE CONTAINER).*
. WASTE MINIMIZATION

Definition: Waste Minimization is the reduction of waste at the source, not the treatment of waste after it has been generated.

This can be accomplished by recycling and by changing one's habits to become less wasteful.

The best way to limit or eliminate the need for and cost of hazardous waste disposals is to limit or eliminate processes that generate such waste. Here are some suggestions:

What can we do?

Becoming aware of the problem and alerting others is a good first step. For starters, ask yourself these questions:

1. Am I buying wisely? (Remember that disposal costs are sometimes more than the original purchase price for many chemicals. Bulk purchases of chemicals offer no deal if the excess stock is given up for disposal unused.)
2. Am I rotating my stock to avoid outdated chemicals?
3. Am I properly storing my chemicals to prevent aging or, worse yet, spills and fires?
4. Do people in my lab know what to do in the event of a spill to minimize personal danger and the volume of waste material generated as a result of such spills?
5. Am I planning the experiments with waste minimization in mind?
6. Can I substitute non or less hazardous materials during any step of an experiment?
7. Do people in my lab even know what is and what isn't a “hazardous chemical”?
8. Does the protocol in my lab include proper waste segregation and containerization so that disposal options can remain clearer and more cost effective?
9. Are the facts on my waste tags true and complete?
10. Do I prevent "unknowns" by keeping containers labeled?
11. Do I ever look internally for a needed chemical before buying a fresh bottle?
12. Have I explored possible new procedures and/or equipment modifications aimed at reducing waste generation?
13. Do I have other ideas? Have I shared them?

Think waste minimization--it pays big dividends!
VI: FREE CHEMICALS

The Hazardous Waste Management Unit keeps an inventory of chemicals that are suitable for reissue to laboratories at no charge. Many of these are from lab cleanouts and are unopened.

In an effort to expand the availability and use of the Free Chemicals, the Hazardous Waste Management Unit has placed an updated copy of available chemicals “on line.” The list is available through the HWMU home page located at:

http://www.facilities.rochester.edu/so/hazmat2.shtml

To receive chemicals from this list, please submit a blue 312 requisition to HWMU. Please show the six digit number of the chemical, the chemical name and the location code (i.e. RIE). Send the requisition to HWMU at 520 Intercampus Drive, Box RC 270475. The chemicals will be delivered to your lab by a HWMU technician. There is no charge for this service or the chemical(s).
VII. REVIEW OF WASTE DISPOSAL REQUIREMENTS

HWMU will pick up any chemical that is properly packaged and labeled with a waste tag. Disposal is accomplished according to the latest EPA rules and regulations. Chemicals that are good but no longer needed are also accepted. These are added to an inventory of chemicals that are offered free to other University departments.

Call x52056 for a pickup to be scheduled or if you have questions about the service.

The rules for collecting chemicals for disposal are as follows:

Chemical waste must be packed securely to prevent spillage. We recommend glass jugs, metal containers, or thick plastic containers. Containers must have screw type caps—no corks or parafilm. Thin plastic containers such as water jugs are not suitable.

Solid wastes should be kept separate from liquid waste and each other due to differing disposal technologies and regulatory requirements. A good rule of thumb for all waste collection is to maintain as much segregation as possible in order to maintain clearer disposal options. Segregate liquid wastes into different categories:

a. AQUEOUS WASTE (may contain other miscible substances, but major constituent is water)

b. NONHALOGENATED SOLVENTS i.e. xylene, toluene, alcohol

c. HALOGENATED SOLVENTS i.e. methylene chloride, chloroform carbon tetrachloride

d. OIL i.e. vacuum pump oil, motor oil --List any major contaminants, if any.

e. ACIDS

f. BASES

g. SPECIAL WASTES i.e. cyanides, sulfides, oxidizers--Collect separately)

Record amounts of each waste added to solvent collections. The percentage or amount of each solvent must be itemized on the waste tag.

Any compatible mixture of wastes can be accepted, but the contents must be identified on the waste tag.

Follow rules for completing the HAZARDOUS WASTE TAG: All chemicals must be listed by complete name. No initials or abbreviations are accepted. The total volume must be recorded as well as the amount or percentage of each chemical. Use one waste tag per container of waste. Fill only to the bottom of the neck of the container.

Disposal of chemicals into the sanitary sewer system is permitted only for small amounts of substances that can be successfully treated by the Monroe County Sewer District's facilities and must be in compliance with the guidelines set forth in the Sewer Use Law of Monroe County. See Attachment III.

A training video is available by contacting HWMU.

EMERGENCY RESPONSE: Contact Security (x13) or URMES (x53241) for any chemical emergency.
ATTACHMENT I

HAZARDOUS WASTE

LAWS AND REGULATIONS

STATUTES

Resource Conservation and Recovery Act as amended

Comprehensive Environmental Response Compensation and Liability Act as amended

Hazardous Materials Transportation Act as amended

REGULATIONS

40 CFR Parts 260-271

49 CFR Parts 171 through 177

6NYCRR Parts 371, 372, 373

Monroe County Sewer Use Law
DRAFT GENERIC ENVIRONMENTAL IMPACT STATEMENT

APPENDIX I - Ecological Assessment Report

THE UNIVERSITY OF ROCHESTER
IPD REZONING

Town of Brighton
Monroe County, New York
October 16, 2002

Mr. Daniel J. Aken
FRA Engineering, P.C.
245 Summit Point Drive
Henrietta, New York 14467

RE: University of Rochester – Ecological Assessment
EDR Project No. 1239

Dear Mr. Aken:

On April 24, 2002 and May 30, 2002 Environmental Design & Research, P.C. (EDR) staff ecologists Diane Sullivan and Bill Tremboth completed an Ecological Assessment of five adjacent parcels totaling 263 acres owned by the University of Rochester in the Town of Brighton, Monroe County, New York. Figure 1 illustrates the boundaries of the study area. The study area is bordered by East River Road and Interstate 390 to the north, and by the abandoned Lehigh Valley rail to the west. The east side of the study area is bounded by a residential complex located off of West Henrietta Road, and the southern most boundary of the study area is bounded by Brighton Henrietta Town Line Road. Additionally, a water tower is situated in the southern area of the project site, north of the Mortimer Substation.

The following are the results of EDR’s ecological field assessment:

Plant Communities

The vegetative communities within the study area are primarily a combination of successional northern hardwood forest, mature northern hardwood forest, mixed forest, successional old-field, successional shrubland, and a variety of wetland areas. Other areas are areas that have been developed or are currently mowed or otherwise maintained. Figure 2 indicates the location and extent of plant communities observed during the field assessment.

Human land use practices have affected the total amount of forest cover as well as the species composition and age structure of the forested communities. Both mature and successional northern hardwoods comprise of approximately 76 acres of the project site (See Photo 1). Shrub species dominating these areas generally include honeysuckle (Lonicera tatarica), hawthorne (Crataegus spp.), brambles (Rubus spp.), pasture rose (Rosa spp.) and apple (Malus sylvestris). Saplings and young trees (approximate age 20 years) are scattered throughout this project site with typical species including shagbark hickory (Carya ovata), American beech (Fagus grandifolia), black cherry (Prunus serotina), silver maple (Acer saccharinum), red oak (Quercus rubra). In locations mapped as northern hardwood forest, the trees have matured to the point that they are shading out the shrub under story and assuming the character of a second growth forest. Conversely, in some areas, evidence of disturbance is evident due to the presence of species such as cottonwood (Populus deltoids). Additionally, approximately 11.5 acres within the project site are mixed forest. This area occurs north of Crittenden Road and west of the existing residential area. The mixed forested area
is differentiated from the other forested communities on site, due to its mix of deciduous and evergreen tree species such as Scotch pine (Pinus sylvestris) white pine (Pinus strobus).

Herbaceous and shrubby old-field vegetation occur in places within the successional old field and successional shrubland communities (See Photo 2). These areas comprise approximately 52 acres of the project site. These old-field areas are dominated by goldenrods (Solidago canadensis and S. gigantea), wild strawberry (Fragaria virginiana), mullein (Verbascum thapsus), Queen Ann's Lace (Daucus carota), Canada thistle (Cirsium arvense), clovers (Trifolium spp.), and grasses including timothy (Phleum pratense), fescues (Festuca spp.), and orchard grass (Dactylis glomerata). Successional shrub areas are dominated by similar species to those indicated in the old-field condition, but were also populated with shrubs and saplings of box elder (Acer negundo), green ash (Fraxinus pennsylvanica), dogwoods (Cornus spp.), pasture rose, and brambles. One area totaling approximately 7.75 acres is mapped as a "mosaic wetland/upland shrub" community. This area is dominated primarily by silky dogwood and a mix of old field and wet meadow species. Further wetland delineations are needed to determine the extent of uplands and wetlands in this area.

Finally, approximately 86.5 acres of the project site are currently developed with buildings or other impervious surfaces (parking lots, roads, driveways), or otherwise mowed or maintained (See example in Photo 3). Mowed and maintained areas are primarily adjacent to residential or commercial structures and covered with typical lawn grasses and landscape shrub and flowering herbaceous plantings.

**State and Federal Wetlands**

In addition to the aforementioned upland communities, approximately 37 acres of wetland communities exist on the project site. The site contains many types of wetlands including emergent, scrub-shrub, forested, shrub/emergent, and forested/emergent communities, in addition to a few minor streams, swales and ditches. See Photos 4 and 5. A wetland assessment was performed by EDR staff ecologists in the early spring 2002, the results of which are presented in a separate report. Wetlands onsite were identified and mapped based upon visual characteristics of the area including a presence of hydrophilic vegetation and evidence of wetland hydrology. A recommendation of the wetland assessment report includes detailed collection of data and a delineation of wetlands and other Waters of the U.S. in accordance with the methodologies described in the 1987 Corps of Engineers Wetland Delineation Manual, prior to further planning or constructing on the project site. It is anticipated that wetlands assessed on site may be jurisdictional by the U.S. Army Corps of Engineers. No New York State Department of Environmental Conservation (NYSDEC) classified wetlands are mapped on-site, however a significant area of emergent/forested wetland occurs on the western edge of the project site adjacent to the Lehigh Valley Rail which may be of interest to the NYSDEC (due to habitat and size).

**Wildlife**

The project site provides a variety of habitats for wildlife, both aquatic and terrestrial. Based on habitat conditions and species observed during field evaluation, the site appears to support a wildlife community typical of the plant community types observed and typical of the region. In the forested and successional field and shrub areas, a total of over 20 different bird species were observed,
including northern cardinal (*Cardinalis cardinalis*), indigo bunting (*Passerina cyanea*), American robin (*Turdus migratorius*), black-capped chickadee (*Parus atricapillus*), and white-breasted nuthatch (*Sitta carolinensis*). In the forested wetlands located in the Southwest portion of the project site, water-loving birds such as the great blue heron (*Ardea herodias*), belted kingfisher (*Ceryle alcyon*), and green heron (*Butorides striatus*) were noted. See the attached listing of all species observed during the site visits.

A total of 10 different mammal species were observed, including white tailed deer (*Odocoileus virginianus*), eastern cottontail (*Sylvilagus floridanus*), red fox (*Vulpes fulva*), and coyote (*Canis latrans*). All of these species are common year-round or seasonal residents in New York State that prefer shrub thickets and forest edges as habitat.

**Threatened and Endangered Species**

Field review of flora, fauna, and habitats on the site, along with correspondence from the New York Natural Heritage Program and the U.S. Fish & Wildlife Service, suggests that the occurrence of any threatened or endangered species on the project site is unlikely. See the attached agency correspondence.

The project site has been exposed to various forms of disturbances over the years, primarily the construction of a research facility, adjacent residential areas, and road construction. The plant communities are dominated by common native and introduced species, and no listed rare plant species were observed on site. In addition, typical indicators of possible rare plant species occurrence, such as prairie remnants and limestone outcrops, are lacking on the site.

The wildlife species observed on site are common resident and migratory species typical of northern hardwoods, old successional fields and shrublands, and wetland communities. The site contains open fields and meadows that could provide habitat for threatened grassland species such as northern harrier (*Circus cyaneus*), upland sandpiper (*Bartramia longicauda*) or Henslows sparrow (*Ammodramus henslowii*), and listed special concern species such as vesper sparrow (*Pooecetes gramineus*) and grasshopper sparrow (*Ammodramus savannarum*). The amount of mature forest habitat on site suggests that species listed as special concern such as red-shouldered hawk (*Buteo lineatus*), sharp-shinned hawk (*Accipiter striatus*), Cooper’s hawk (*Accipiter cooperii*) and blue-spotted (*Ambystoma laterale*). Jefferson’s salamander (*Ambystoma platineum*) may be found there. The lack of large water bodies on the project site precludes the occurrence of threatened species such as bald eagle (*Haliaeetus leucocephalus*), least bittern (*Ixobrychus exilis*), or pied-billed grebe (*Podilymbus podiceps*). Also, the occurrence of a peregrine falcon (*Falco peregrinus*) in the City of Rochester is largely irrelevant, as the cliffs or high-rise structures this species requires for habitat, are lacking on the project site.

**Unique Topographic Features**

The project site occurs within the Lower Genesee Watershed in the Genesee Valley. Based upon the general soils map for Monroe County, soils in the study area were formed in clayey lake-laid deposits, and as with most soils in the region, the parent materials are glacial till. The site is moderately sloping to flat (in wetland areas) with a high elevation in the northeastern area of the
October 16, 2002
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project site and a low elevation of 520 along the southwest corner. Minor knolls and ridges occur throughout the project site, most notably the knoll in the southern area of the project site containing a water supply tank, and a ridge which meanders in a north-south direction through much of the project site south of Crittenden Road. Although some exposed boulders were observed in the forested uplands in the northern portion of the study area, no bedrock outcrops or other unique topographic features are evident on this site.

Conclusions

Results of the Ecological Assessment performed by EDR confirm that the project site is primarily dominated by successional northern hardwoods, successional old fields and shrubland, and various wetlands. The site lacks unique plant communities and/or natural features that may support rare plant species, or habitat for threatened or endangered wildlife. The project site does include a number of areas that appear to qualify as federal jurisdictional wetlands.

Should you have any questions or require further information please contact myself at the above number, or Bill Trembath in our Rochester office at 585-271-0040.

Sincerely,

Diane Sullivan
Project Manager

Attachments
FIGURE 1: SITE LOCATION

UNIVERSITY OF ROCHESTER

Scale: 1' = 2,000'

Base Maps: NYS Planimetric Rochester West, Rochester East, Pittsford and West Henrietta Quads

August 6, 2002
PHOTOGRAPHS
Photo 1. Northern Hardwood Forest
Photo 2. Mixed Successional Old Field/Successional Shrub Land Communities
Photo 3. Developed Area
Photo 4. Forested Wetland Community
Photo 6. Right-of-Way Corridor
Photo 5. Shrub/Scrub Wetlands
DRAFT GENERIC ENVIRONMENTAL IMPACT STATEMENT

APPENDIX J – Photo Simulations and Cross-Sections

THE UNIVERSITY OF ROCHESTER
IPD REZONING

Town of Brighton
Monroe County, New York
Crittenden Road residence looking north

Location 1

Roof elev. 554'
Floor elev. 530'

Note:
The proposed building is located approx. 1800' from this point. No buildings will be visible from this vantage point.
Lehigh Valley trail looking east

Location 2

Roof elev. 554'

Floor elev. 530'

Note:
From this viewpoint (during times of full foliage) the proposed building will not be visible. The floor and roof elevations are indicated to show location of the building beyond the existing trees.
Lehigh Valley trail looking east

Location 2

Roof elev. 554'

Floor elev. 530'

Note:
From this viewpoint approx. 10% of the building will be visible. The building is located approx. 125' from the Lehigh Valley Trail.
Crittenden Road residence looking north

Roof elev. 563.8'

Floor elev. 520'

Note:
This view demonstrates how heavily wooded the area is. No buildings will be visible from this vantage point.
Crittenden Road residence looking north

Location 3

Roof elev. 563.8'

Floor elev. 520'

Note:
Even with no foliage, the proposed buildings will not be visible from this vantage point.
West Henrietta Road (NYS RT 15) residence looking west
West Henrietta Road (NYS RT 15) residence looking west

Floor elev. 547'

Note:
With no foliage the visibility of the proposed building is more pronounced, though a majority of the facade remains blocked.
Lehigh Valley trail looking east

Note:
This image shows how visible the former St. Agnes school building is from the Lehigh Valley trail (approx. 650' away).
Lehigh Valley trail looking east

Note:
The St. Agnes school building is more visible with no foliage on the trees. A significant portion of the building and parking lot remain screened from view.
Location 6

Roof elev. 574'
Floor elev. 550'

Note:
Even with no foliage, the proposed buildings will not be visible from this location.

Southland Drive looking north
Southland Drive looking north
Looking south from building setback limits

Note:
This image taken from the proposed building location shows the benefits of the existing berm to screen a majority of the views between the adjacent homes.
Looking south from face of future building

Note: This image demonstrates that even with few trees and foliage, there is a distinct feature.
Looking south from rear property line
Looking southeast from future building site
Location 12

Crittenden Road looking north

Roof elev. 559'
Floor elev. 535'

Note:
With no foliage, a small portion of the building may be visible.
EXISTING PROFILE CROSS SECTION "B"

PROPOSED PROFILE CROSS SECTION "B"