ENVIRONMENTAL DESIGN
PARTNERSHIP, LLP.
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900 New York 146 Clifton Park, NY 12065
(P) 518.371.7621 (F) 518.371.9540 edpllp.com

STORMWATER MANAGEMENT NARRATIVE

PROPOSED
RV PARK FOR
PEACOCK PROPERTIES, LLC

TOWN OF BROADALBIN, NY

Prepared by:
Environmental Design Partnership
Clifton Park, NY 12065

July 2020
(Revised January 2022)

1.0 INTRODUCTION

Peacock Properties, LLC is proposing a RV park on an existing 88.68 acre parcel of land location along the southern side of Union Mills Road, approximately 1,800 ft east of the intersection with Hatzenbuhler Road, in the Town of Broadalbin, New York. The proposed development will consist of 25 RV Sites, 1 cabin site, an event barn, approximately 2,425 linear feet of gravel roads. The proposed development will result in soil disturbance on the order of 7.0 acres and the addition of approximately 2.09 acres of impervious surface

A stormwater management system will be designed to provide reduction in the stormwater runoff rates and volumes in accordance with the NYSDEC Stormwater Management Design Manual. The proposed stormwater management system will include one micropool extended detention basin with a total storage volume on the order of 0.50-acre feet.

This narrative presents a review of the design concepts and parameters of the stormwater management system for the proposed development. The purpose of the stormwater management narrative is to assure that changes in the surface runoff characteristics, as a result of the proposed construction, will not adversely impact adjacent or downstream properties. On-site stormwater management will be implemented in accordance with the NYSDEC Stormwater Management Design Manual.

2.0 EXISTING SITE CONDITIONS

The existing site consists of mostly open fields with some wooded areas. The topography of the site in the area of the proposed development ranges from 1.5% to 15% with the site draining to either the existing ponds located onsite or to the existing wetlands located along the southern portion of the property.

2.1 Soil and Groundwater Conditions

The USDA Natural Resources Conservation Service Soil Survey identifies the three primary soil groups within the area of the proposed development to be 94B, Paxton fine sandy loam, 170B, Windsor Loamy sand, and 3A, Endoaquolls and Hapludolls.

Paxton fine sandy loam series generally consists of shallow, well drained soils. The Soil Survey identifies this soil series as Hydrologic Soil Group (HSG) “C”.

Windsor Loamy sand series generally consists of deep, excessively drained soils. The Soil Survey identifies this soil series as Hydrologic Soil Group (HSG) “A”.

Endoquolla and Hapludolls series generally consist of deep poorly drained soils. The Soil Survey identifies this soil series as Hydrologic Soil Group (HSG) “D”.

Soil test pits were performed throughout the areas of proposed development by Environmental Design Partnership in September 2019. The soils encountered in these test pits consisted of a

layer of medium sands with little silt sand over the top of mottled clays and which are consistent with Hydraulic Soil Group "C" soils. Evidence of seasonal high groundwater was observed on the site at a depth of greater approximately 24".

3.0 PREDEVELOPMENT STORMWATER ANALYSIS

The existing conditions, in the area to be disturbed as a result of the proposed construction, were analyzed using Applied Microcomputer Systems' "Hydrocad" computer modeling program. The HydroCAD stormwater modeling program employs the United States Department of Agriculture's Soil Conservation Service (SCS) Technical Release 20 (TR-20) method for stormwater analysis. Using this modeling technique, the site is divided into "subcatchments" that represent specific areas contributing stormwater runoff to an existing, or proposed drainage feature. The subcatchments typically flow through "reaches" (i.e., swales, channels, or pipes) that convey the stormwater to storm basins or discharge areas.

A HydroCAD model was used to establish the predevelopment runoff characteristics of the site with the results included as Appendix B. The existing site was modeled as 3 subcatchments (Figure 2) and the total predevelopment stormwater discharge was evaluated for several design storms.

Table 1 presents a summary of the predevelopment stormwater peak discharge for the 1 year, 10 year, and 100 year design storm events. As will be discussed in subsequent sections, the post development stormwater discharge rate has been limited to the predevelopment discharge rate for the 1-year, 10-year, and 100-year storm events.

Table 1: Predevelopment Stormwater Peak Discharge Rate

Storm Event	Total (cfs)
1-Year (2.21")	6.65
10-Year (3.55")	26.74
100-Year (5.75")	70.13

The existing site consists of grassed fields and wooded areas with soils on site categorized as Hydrologic Soil Group (HSG) "C". The predevelopment Curve Number (CN) was established 71 for filed areas, 70 for the wooded areas and 74 for grassed lawn areas.

4.0 STORMWATER MANAGEMENT PLANNING AND PRACTICE SELECTION

The site layout and stormwater design for this project was completed while taking into consideration the potential impacts on the site hydrology. Various measures were taken to help ensure that the post-development hydrology of the site will closely resemble the predevelopment hydrology of the site. These measures included but were not limited to locating development in less sensitive areas and soil restoration.

The proposed development is located away from existing steep slopes, wetlands and or other sensitive areas.

Soil restoration has been called for throughout the site in accordance with Chapter 5 of the NYS Stormwater Management Design Manual. The soils on the site are classified as HSG C, therefore aeration and topsoil are needed in areas of topsoil stripping where grades are not altered. In areas of cut/fill and high traffic areas that are to remain pervious especially around the proposed houses and equipment storage areas, the soils shall be fully restored by tilling compost into the sub-soils prior to applying topsoil and vegetating. By applying these methods to the soils on the site the original properties and porosity of the soils will be recovered, which will allow for an improvement in the soil infiltration as well as lawn and landscaping sustainability.

Due to the existing soil conditions on the site the ability to implement infiltration devices is limited. The site does incorporate sheet flow to buffers and vegetated swales to promote filtration and infiltration of the stormwater runoff close to the runoff source.

5.0 POST REDEVELOPMENT STORMWATER ANALYSIS

Site improvements to the property will consist of installation of gravel roadway and gravel pads for the RV sites as well as the construction of the event barn and assessor buildings. Stormwater management practices have been designed to provide filtration and attenuation of stormwater runoff from the proposed impervious surfaces on the site. The proposed stormwater management system shall consist of three (3) microopool extended detention basins.

5.1 Stormwater Management Area #1 – Micropool Extended Detention Basin

Stormwater Management Area #1 has been designed to attenuate and treat runoff from a large portion of the proposed roadway as well as from the contributing upstream RV sites and buildings. Runoff will sheetflow off the roadway and enter a grassed swale that will convey flows to SMA#1. The total contributing area to SMA#1 will be on the order of 6.40 acres with approximately 1.13 acres of impervious area.

SMA#1 has been designed as a Micropool Extended Detention Basin (P-1). The NYSDEC stormwater Management Design Manual allows for micropool extended detention basins to be used for potions of commercial development with less than 10 acres of contributing area is adequate water balance and anti-clogging devices area installed. SMA#1 has been designed with a stand pipe that will contain a low flow orifice to control the water level in the basin between storm events. The stand pipe will be protected by an anticlogging device.

SMA#1 will contain a sediment forebay to treat the contributing WQv. SMA#2 will also contain an emergency overflow weir would convey any overflows during large storm events to the existing onsite wetlands and ponds. Stormwater modeling indicates that the basin will be able to attenuate and treat the runoff from storm events up to and including the 100-year design storm event without reaching the emergency overflow elevation.

5.2 NYSDEC Stormwater Regulations

The proposed site is required to meet the standards of the NYSDEC Stormwater Management Design Manual (Design Manual). The Design Manual states that the proposed stormwater design must meet the criteria in the following sections for water quality, runoff reduction and water quantity.

5.2.1 Water Quality Volume (WQv)

In general, small storm events and the initial runoff from larger storm events are an environmental concern as this stormwater runoff typically contains roadway pollutants and thermal energy stored by the asphalt. In accordance with the NYS Stormwater Management Design Manual, this initial runoff is designated as the Water Quality Volume (WQ_v) and special attention is given to this volume of runoff to meet water quality objectives.

The NYS Stormwater Management Design Manual identifies several standard practices, such as the micropool extended detention basins that is acceptable for water quality treatment. These acceptable Stormwater Management Practices (SMPs) can capture and treat the full water quality volume (WQ_v), are capable of 80% TSS removal and 40% TP removal, have acceptable longevity in the field, and have pretreatment mechanism.

The water quality storage volume, WQ_v, is calculated as follows:

$$WQ_v = \frac{P \cdot R_v \cdot A}{12}$$

where: WQ_v = water quality volume (acre-feet)
P = 90% rainfall event number
R_v = 0.05+0.009(I), where I is percent impervious cover
A = site area (acres), impervious area used with I = 100%

Table 2: Required Water Quality Volume

SMA I.D.	P	R_v	A (acres)	Upstream RRv (cf)	Required WQ_v (cf)	Provided WQv (cf)
1	1.15	0.21	6.396	695	5,591	4,895

The proposed stormwater system includes the use a sediment forebay. The forebay will allow for the collection of sediment from the contributing runoff prior to entering the main basin. In

accordance with the Design Manual the forebays shall be sized to contain 10% of the contributing WQv for wet ponds and the micropool shall be designed to for 20% of the contributing WQv. Below is a summary of the proposed forebay sizing.

Table 3: Sediment Forebay and Micropool Sizing

SMA I.D.	Contributing WQv (cf)	Forebay Volume (cf)	% WQv in Forebay	Micropool Volume	% WQv in Mircopool
1	4,895	2,185	45%	1,740	36%

5.2.2 Runoff Reduction Volume (RRv)

The NYS Stormwater Design Manual specifies that runoff shall be reduced by 100% of the site WQv using standard SMPs with RRv capacity and green infrastructure techniques. However if the existing site conditions including soil and groundwater conditions prohibit the ability to meet 100% RRv than a minimum RRv based on the soil type and total impervious area shall be meet. Since the existing soils on the site are type C soils and groundwater is only 2 feet below grade on the majority of the site many of the green infrastructure techniques and standard practices with RRv capacity are not feasible to use on this site. The minimum RRv for the site was calculated to be on the order of 2,490 cf. Green Infrastructure Practices were applied throughout the site design to meet the requirements.

5.2.2.1 Green Infrastructure Practices

In accordance with Section 5.3 of the Design Manual there are a number of approved green infrastructure techniques that can be applied for runoff reduction on the project site. This proposed project incorporated the use of vegetated swales, sheet flow to vegetated buffers/filter strips and disconnection of rooftop runoff.

The proposed project site incorporates the use of vegetated swales in order to allow for filtration and infiltration of the runoff from portion of the proposed travel surfaces and buildings. The vegetated swales proposed on site meet the required length, slope, width and velocity requirements to allow for a total runoff reduction on the order of 695 cf.

The proposed project also incorporated the use of the existing wooded area and grassed field areas as buffer/filter strips. Runoff will sheet flow through these buffers which will provide treatment and some infiltration. The total runoff reduction provided by these buffers/filter strips is on the order of 3,023 cf.

The runoff from the roofs of the proposed barn will sheet flow across 120 ft of lawn area with an average slope on the order of 5% prior to entering the vegetated swales which will allow for the runoff to be filtered and infiltrated prior to entering the drainage system. The total runoff reduction provided by rooftop disconnect is on the order of 714 cf.

Table 4: Runoff Reduction Summary

Runoff Reduction Technique	RRv (cf)
Vegetated Swale	656
Buffer/Filter Strips	3,023
Disconnection of Rooftop	714
Total Site Reduction	**4,431**
% Min RRv	**178%**

5.2.3 Channel Protection Volume (CPv)

In accordance with the NYS Stormwater Management Design Manual, stream channel protection, designed to protect stream channels from erosion, is accomplished by providing 24-hour extended detention of the one-year, 24-hour storm event. The Cp_v requirement is typically satisfied by providing additional storage above the water quality (WQ_v) volume.

The one-year storm event was analyzed using the HydroCAD stormwater modeling program (TR-20) under the post development drainage conditions shown on Figure 3. Using a one-year, 24-hour design storm of 2.21 inches the required Cp_v was calculated as presented in Table 5.

Table 5: Channel Protection Volume Summary

	1-Year Design Storm (in)	Total Cp_v (ft^3)	Extended Detention Volume	CPv Orfice Size (in)	Extended Detention (hours)
SMA#1	2.21	13,505	8,232	1.2	26.1

5.2.4 Overbank Flood Control (Qp)

Overbank Flood Control Criteria has been established to limit the frequency and magnitude of out-of-bank flooding generated through changes in runoff characteristics as a result of increased impervious surface area. In accordance with the NYS Stormwater Management Design Manual, providing sufficient storage volume to attenuate the post development 10-year, 24-hour peak discharge rate to the equivalent pre-development discharge rate controls overbank flooding.

The 10-year design storm event was analyzed using the HydroCAD stormwater modeling program (TR-20) under the post-development drainage conditions shown on Figure 3. Using a 10-year, 24-hour design storm of 3.55 inches, the micropool extended detention basins were designed with sufficient storage volume to limit the post-development 10-year, 24-hour peak discharge rate to the pre-development discharge rate. The following table presents the pre- and post-development

discharge rates for the offsite discharge. As indicated, the post-development discharge rate is less than the pre-development rate as required.

Table 7: Overbank Flow Runoff Summary

Design Point	Predevelopment Runoff Rate (cfs)	Post-Development Runoff Rate (cfs)
1	13.42	11.73
2	13.32	11.99

5.2.5 Extreme Flood Control (100-year)

In accordance with the NYS Stormwater Management Design Manual, the stormwater management system must attenuate the post development 100-year, 24-hour peak discharge rate to the predevelopment rate while providing safe passage of this storm event.

The 100-year storm event was analyzed using the HydroCAD stormwater modeling program (TR-20) under the post-development drainage conditions shown in Figure 3. Using a 100-year, 24-hour design storm of 5.75 inches, the micropool extended basins were designed with sufficient storage volume to limit the post-development 100-year, 24-hour peak discharge rate to the predevelopment discharge rate. The following table presents the pre and post-development discharge rates for the offsite discharge. As indicated, the post-development discharge rate is less than the predevelopment rate as required.

Table 8: Extreme Flow Runoff Summary

Design Point	Predevelopment Runoff Rate (cfs)	Post-Development Runoff Rate (cfs)
1	34.90	28.21
2	35.23	31.38

6.0 SUMMARY

Development of the proposed property will change the stormwater drainage characteristics of the site; impervious area will be added and the site will be re-graded to support the proposed improvements. Changes to the stormwater drainage characteristics of the site have been evaluated in accordance with the NYSDEC Stormwater Management Design Manual. The proposed stormwater management system will comply with the recommendations in these standards related to runoff volume and flow rate reduction.

Through the implementation of acceptable stormwater management practices, recommended by the NYS Stormwater Management Design Manual, the proposed project will not adversely affect adjacent or downstream properties.

Prepared by:

Brandon M. Ferguson, P.E.

7.0 REFERENCES

HydroCAD version 6.00, Applied Microcomputer Systems, Chocura, New Hampshire.

NYSDEC, 1990. "Technical and Operational Guidance Series (5.1.8) Stormwater Management Guidelines for New Development", New York State Department of Environmental Conservation, Division of Water.

NYSDEC, 1992. "Reducing the Impacts of Stormwater Runoff from New Development", New York State Department of Environmental Conservation, Division of Water.

NYSDEC, 2010. "New York State Stormwater Management Design Manual", Center for Watershed Protection, Ellicott City, MD.

Rawls, W.J., Brakensiek, D.L., and Saxton, K. E., 1982. "Estimation of Soil Properties", Transactions of the American Society of Agricultural Engineers, Vol. 25, No. J, pp. 1316-1320.

S.C.S., 1982. "TR-20 Project Formulation-Hydrology, Technical Release No. 20", U.S. Department of Agriculture, Soil Conservation Service, Hydrology Unit Division of Engineering.

S.C.S., 1988. "Soil Survey of Saratoga County, New York", U.S. Department of Agriculture, Soil Conservation Service.

SECTION 7

Completed Inspection Reports

____Negative Declaration - Type I

____Conditioned Negative Declaration

____Draft Negative Declaration

____Positive Declaration
____ with Public Scoping Session

____Draft EIS
____with Public Hearing

Generic
____Supplemental

____Final EIS

____Generic
____Supplemental

__X__ Exempt

____ Type II

Permit(s) Applied For: **Adirondack Park Agency Act Section 809**

DEC Region: **5** County: **Fulton** Lead Agency: **n/a**

__X__ Within the Adirondack Park

Applicant/Sponsor Name(s): **Peacock Properties, LLC**

Project or Application Number: **2020-0142**

Brief Project Description: **Proposed 25-unit RV campground with one cabin, an event barn with restrooms, and maintenance building, all located greater than 1,000 feet southeast of Union Mills Road. The event barn will be 10,000 square feet in footprint, will operate May through September, and will only be available for use during daylight hours. The event barn and campground will be served by on-site wastewater treatment systems and a well.**

APA Land Use Classification: **Moderate Intensity Use and Rural Use**

Project Location: **Union Mills Road, Town of Broadalbin, Tax Parcel 122.4-1-12.1**

Contact Person for Project: **Brandon Ferguson, P.E.**
Environmental Design Partnership, LLP
900 Route 146
Clifton Park, NY 12065

APA Contact Person: **Bart Haralson**
RPcomments@apa.ny.gov
NYS Adirondack Park Agency
P.O. Box 99, 1133 NYS Route 86
Ray Brook, NY 12977
518-891-4050

For Adirondack Park Agency: Comment Period ends: **March 10, 2022**

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Sent Certified Mail, Return Receipt Requested
Tracking No.: 7019 2970 0001 2973 4733

MAJOR PROJECT PUBLIC NOTICE
APPLICATION COMPLETED
APA PROJECT NO. 2020-0142

Date: February 16, 2022

The Agency determined on **February 16, 2022** that the application referenced below is complete and under formal review for Agency action. The purpose of this Notice is to inform you about the proposed project and to ask for any written comments that you may wish to make about the project. Comments previously submitted are already part of the project file and need not be repeated.

It is not necessary to respond to this notice unless you want to do so. If you wish to provide written comments, they must be received by **March 10, 2022.** Please address any written comments to **Bart Haralson** at **bart.haralson@apa.ny.gov** and reference the above project number. Comments are also accepted by mail or electronically via the Agency website's Public Input page.

PROJECT SPONSOR, LOCATION AND DESCRIPTION

The Agency received an application on **July 13, 2020**, and additional information on **February 15, 2022**, for a project proposed by **Peacock Properties, LLC** in the Town of **Broadalbin, Fulton** County, on or near **Union Mills Road** in an area designated as **Moderate Intensity Use and Rural Use** on the Adirondack Park Land Use and Development Plan Map. The tax map number of the project site is: Section **122.4**, Block **1**, Parcel **12.1**. The attached map shows the approximate location of the project site.

The project is briefly described as follows: **Proposed 25-unit RV campground with one cabin, an event barn with restrooms, and maintenance building, all located greater than 1,000 feet southeast of Union Mills Road. The event barn will be 10,000 square feet in footprint, will operate May through September, and will only be available for use during daylight hours. The event barn and campground will be served by on-site wastewater treatment systems and a well.**

Robert J Lore

_____
Date

Robert J. Lore
Deputy Director, Regulatory Programs

cc: Peacock Properties, LLC.
Brandon Ferguson, P.E., Environmental Design Partnership, LLP
Adjoining Landowners
Town, County & LGRB Officials