Stormwater Management Report

For
Zero Place
A Proposed
Commercial Project

Situate

93 N. Chestnut Street (NYS Route 32)
Village of New Paltz
Ulster County, NY

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SECTION 1: General Project Information

1.1 Project Summary:

Zero Place is a proposed four story mixed use building situated at the southwest corner of NYS Route 32 and Mullberry Street, Village of New Paltz, Ulster County, NY. The site currently consists of two tax parcels numbers: 86.26-1-14.11 (0.76 acres) southern lot and 86.26-1-14.21 (0.69 acres) northern lot. The two parcels will be combined to a single 1.45 acre parcel. The proposed building will have a footprint of 15663 sf, ground floor for retail use and upper three floors for 48 apartment units.

The northern lot contains an existing 62 space parking lot with entrance from NYS Route 32 and an existing bus shelter with bus pick-up lane. This parking lot was constructed by the village in 2008 and operated as a park and ride service and has since been discontinued. The south lot at the corner of Mulberry Street contains concrete slabs and pavement remains from a former auto repair service building which was destroyed by fire.

The developers intend to use the existing parking lot with some modifications that include 5 new spaces and reconstruct the curb line along the portion of NYS Route 32 for seven on street parking spaces. Two accessible parking spaces will be provided along frontage of Mulberry Street. The site is proposed to have a total of 76 parking spaces.

The intent of this report is to prepare the calculations and sizing of the sites drainage system as part of a Storm Water management plan in accordance with Village of New Paltz requirements. The site disturbance is under one acre and is not required to seek permit coverage under NYS SPDES.

Stormwater management for the project will include temporary erosion controls during construction as well as permanent post construction controls, such as water quality basins and subsurface detention chambers. Subsurface detention chambers will mitigate the impacts of the proposed development for runoff quantity and quality improvements to remove pollutants from the stormwater before it is discharged. The overall site impervious cover will be reduced from 89% to 85%.

When all proposed practices are constructed they will reduce all post-development peak flows from the site to less than pre development rates. Therefore there will be no negative impacts on downstream waters or adjacent lands caused by increased peak flow rates. The reductions will be as indicated in the following tables:

Discharge to Wallkill Valley Rail Trail Drainage			
Storm	**Pre-development (cfs)**	**Post-development (cfs)**	**% Change**
1 Year	5.58	3.95	-29%
2 Year	8.31	6.30	- 24%
10 Year	10.07	7.69	- 24%
25 Year	14.86	12.35	- 17%
50 Year	16.49	13.14	- 20%
100 Year	20.38	16.47	- 19%

1.2 Existing Drainage Patterns:

The total current site has 1.29 acres or 89% of impervious cover and slopes to west to open drainage swales along the Wallkill Rail Trail.

The existing Park and Ride lot has two Water Quality Basins (WQB) that were constructed with the parking lot and provides treatment of the runoff before discharging into the rail trail drainage. The design plans for the park and ride intended for all the parking lot to flow into the WQB. However, the as built shows (+/-0.20 acres) of the pavement along the north property line flow onto the adjacent property.

The southern portion of the site with the remains of the former buildings, sheets flows without any treatment into the rail trail drainage.

1.3 Receiving Waters:

All runoff from the proposed development site directly or ultimately discharges into a swale along the Wallkill Valley Rail Trail and onto the Wallkill River

1.4 Post-Development Drainage Improvements and Mitigation:

The project, when completed will utilize the existing parking lot drainage WQBs. Re-paving of a portion will direct all the parking lot runoff into the WQBs as the original design intended.

The building roof system, including the perimeter awning roof will be collected and discharged into a subsurface detention system to control runoff before discharging into the rail trail drainage. A trench drain will be installed along the front of the building in the sidewalk to collect sidewalk runoff and discharges into the subsurface storage. The post development site will have 1.2 acres or 85% of impervious cover and will provide a 4% reduction of pre-development impervious cover. Post-development drainage calculations are included in Appendix A.

Treatment of runoff from the site will be performed by subsurface detention chambers located between the proposed building and the property line boarding the rail trail. The chambers have been designed to store the runoff from the 1 year storm event to the 100 year storm event. The chambers will consist of a (52) SC-740 StormTech chambers placed on a six inch bed of gravel. The chambers will also recharge some of the stormwater into ground below the chambers, however the HydroCAD calculations in Appendix A does not account for any exfiltration into the soil.

As a form of water treatment the inlet pipe into each subsurface system will discharge into a row of StormTech chambers called an isolator row. This is a row of StormTech chambers which contains filter fabric on the bottom of the chamber as well as around the outside of the chamber. The purpose of the fabric is to protect the stone bedding from erosion during large storm events and act as a sediment trap for any sediment that might make it to the chambers. Periodic maintenance requirements for the isolator rows have been included in the appendix for review. There were several soil test holes evaluated on the site. Please see the Test Hole Data on sheet CS-02 of the plans. The test holes identified a sand and gravel material to about elevation 193.00’ with solid clay beneath. The water table was determined to also be at elevation 193.00’. The bottom of the detention chambers will be set at 195.50’, allowing 30” of separation between the chambers and water table.

1.5 Runoff Calculation Methodology:

Drainage analyses performed for the 1,2,10,25,50 and 100 year design storms used the Runoff Curve Method as developed by the Soil Conservation Service (SCS), with peak discharge rates and routing analyses generated using HydroCAD based upon the SCS TR-20 method. Curve numbers and times of concentration were determined using methodology in the SCS Technical Release 55. These calculations are detailed in Appendix A. Curve numbers were selected from soil type and ground cover which were determined from infield inspections.

1.6 Soil Erosion Sediment Control:

The following measures and best management practices will be implemented to abate and control potential pollutants in stormwater discharges during construction:

1. Site disturbance during construction shall be limited to only the necessary grading of parking areas and building pad as shown on the plan.
2. Gravel stabilized construction entrance/exit pad to minimize soil disturbance and movement.
3. Silt fences to be located around the perimeter of the site as indicated on the plan.
4. Provide inlet protection on all trench drains until final pavement.

1.7 Conclusion:

The subsurface detention chambers during the 100 year storm have been designed so that it will safely pass the event without increasing flooding to any adjacent roads, structures, or lands. Based upon our calculations the proposed drainage system will safely convey the stormwater runoff from this facility during the 1 to 100 year storm events to less than predevelopment condition. Water Quality treatment will also be provided and there will be no negative impact on adjacent lands due to construction of the proposed development. The additional paving along the north end of the parking lot will direct all the parking lot runoff into the water quality basin and reduce the discharge to the adjacent property. A soil erosion and sediment control plan is provided to prevent any impact during construction.