

April 1, 2021

Village of Nyack
Planning Board
North Broadway
Nyack, N.Y. 10960

The area of concern incorporates a fraction of the total Lot area. 0.8 acres of the 38 total acres in Nyack, the delineation to the property limits were provided as to analyze the site as a complete Drainage Area, although the majority of the land will remain undisturbed.

Attn: Don Yacopino- Construction Code Official

Re: Site Plan Review
Oak Hill Cemetery – Community Mausoleum
140 North Highland Avenue
NYK 0176

Drainage Review Comment 1) Contour interval used was 10 ft. Although this office may provide the image of 2 ft contour interval as background, it is of this writer opinion that the delineated areas will not significantly change the model ; therefore have no significant impact on the drainage design.

Dear Members of the Board,

I am in receipt of a submission with regard to the above captioned project consisting of the following:

1. Engineering Plans entitled "Community Mausoleum, Site Plan, Oak Hill Cemetery, prepared by Atlantic Consulting and Engineering, last revised 2-15-21, sheets – T- 1.0, EX-S, DA-X, DA-PRO, C-1, C-1.1, C-2, C-2.1, C-2.1, C-3, C-3.1, C-3.2, C-4, C-5: last revised 12-11-19 sheets - S-001, S-100, S-101, S-102, S-103, last revised 10-14-21 sheets AP-L, AP-L2.
2. Stormwater Pollution Prevention Plan prepared by Atlantic Consulting and Engineering, last dated 2-15-21.
3. Geophysical Investigation Survey prepared by Geod Corp, dated 6-12-13, sheet 1 of 1.

The applicant is proposing a new 4,200 SF, 1 story Community Mausoleum in Oak Hill Cemetery.

I offer the following review comments of the re-submission.

Drainage review comments:

1. The drainage watersheds should not be delineated on mapping with a contour interval greater than 50 feet. Rockland County Planning has mapping available with a contour interval of two feet.
2. The watershed delineations should be based on topography and not necessarily property lines/municipal boundaries. *Acknowledged, although disturbed area of this re-development activity is within the confines of the property lines, having no impact on abutting neighbors.*
3. The drainage area for Subarea 2S in the hydrologic model is the same for existing and proposed conditions of 16.5 acres. Portions of this subarea are being diverted to the channel on North Highland Avenue, which is a known flooding area. Impacts of this diversion should be clearly demonstrated. *Noted: Shall be addressed although 0 increase in proposed from Pre to Post devel.*
4. The proposed conditions subarea delineation appears to have two additional subareas added for proposed conditions. There is an additional subarea 5S included in the proposed conditions hydrologic model. This should be coordinated. *Acknowledged : This will be addressed.*
5. Rims and inverts should be added for catch basins, stormwater planters, diversion swale and infiltration trench. *Acknowledged, please see sheet C-1.1 Partial Site Plan Drainage and Grading for Rims and inverts provided. Additional Elevations and Proposed Finished Grade spot elevation will be provided .*

LAND DEVELOPMENT • MUNICIPAL • STRUCTURAL • WATER RESOURCES • LAND SURVEYING

Brian Brooker, P.E.	Eve Mancuso, P.E., C.M.E.	Ken DeGennaro, P.E., C.F.M.	Stuart Strow, P.E., C.F.M.
Anthony Riggi, P.E.	Dennis Rocks, P.E., C.F.M.	John Bezuyen, P.L.S.	Hillary Chadwick, P.E.
Vincent Kane, P.E.	Nestor Celiz, P.E.	Benjamin Levitz, P.E.	Joseph J. Moran, P.E.
			Joseph Nyitray, P.E.

Acknowledged, please see Appendix C pg. 111 of SWPPP, Water Quality Volume Calculation, Although only 75% of the total WQv is required to be treated, the provided storage treats 100% of the WQv. Please note additional storage capacity of new proposed storm sewer and catch basins. BE# NYK0176

6. There appears to be only a nominal amount of storage available for stormwater runoff. Based on a building footprint of 108' x 36' feet and six stormwater planters, only 0.3 inches of rainfall runoff can be stored in the proposed mitigation.
7. The hydrologic model should also include the 100-year, 24-hour rainfall event. **Please see Comparison Table Attached.**
8. The infiltration trench for stormwater is less than ten feet from the septic system leaching fields, which does not meet code requirements. **Noted: This will be addressed to conform to setback regulations**
9. The location of the proposed diversion swale shall be clearly shown and a detail provided. It appears to traverse existing gravesites. **Noted: This will be clarified.**
10. Provide a narrative and executive summary for the hydrologic model explaining methodology and selection of subareas. **Please see narrative on page 9 of SWPPP Section 4.0 Stormwater**
11. We will review the revised SWPPP when the drainage comments noted above are addressed and the SWPP is updated accordingly.
12. A Stormwater Maintenance Agreement shall be executed with the Village. **Acknowledged.**

Noted: See Sheet C-1.1 for 2 foot contour intervals at disturbed areas, as well as spot elevations from field survey. This writer determined that the exercise of providing 2 ft. contour interval for the entire site was unnecessary since the disturbance is only a fraction (0.8 acres) of the total lot (38 acres)

Site Plan review comments:

13. Though it is helpful to include a plan with aerial photography, the basis of the design of a site plan shall be a topographic survey with 2-foot contours. This topographic information is readily available through the Rockland County Planning. The source and datum of the topographic information shall be provided. Sheet C-3.2 is noted as the Mausoleum Grading Plan but existing topographic information and proposed grading is not clearly shown. A Grading Plan shall be developed clearly presenting existing topography, contour lines and proposed grades.
14. The ADA access shall be fully designed per ADA regulations and spot elevations noted. Details of the ramp shall be provided. **Noted: Ramp is designed per ADA regulations, additional spot elevations and details provided.**
15. There are substantial retaining walls proposed. Signed, stamped structural calculations will be required to be submitted to the building department. Certification from an engineer will be required to be submitted to the building department noting the retaining walls were built in accordance with the approved structural plans and calculations. **Noted: Structural Engineer may provide and certify as required for the building dept.**
16. The septic review and approval are within the jurisdiction of the Rockland County Department of Health. **Acknowledged**
17. Sheet C-3.1 indicates the extent of the proposed gas, water and electric utility extensions. The Erosion Control Plan shall incorporate all disturbed areas into the plan. **Noted: Silt fence will be provided in this area on sheet C-3.1**
18. Sheet C-3.2 notes "possible additional off-road parking". The response letter indicates additional parking is not needed and not proposed. Kindly clarify. **Noted and will be clarified.**
19. The location of the concrete wash out area shall be shown on the plan; the note provided on sheet C-4 is not clear. A detail shall be provided. **Noted: See Sheet C-3 provided as Attachment to this response.**
20. Proposed signage shall be shown. **Acknowledged, although no signage has been proposed for this re-devel. , Please clarify TBD**
21. All construction details shall be provided.

Noted: Pertinent details provided and use of 2016 Blue Book details where applicable were used, additional details to include Catch Basin, ADA Ramp Details, Stormwater infiltration detail (more detailed) shall be provided during the construction stage.

Sincerely,



Eve Mancuso, PE, CME
Partner
BROOKER ENGINEERING, PLLC

APPENDIX C (SECTION OF) WATER QUALITY VOLUME CALCULATION.

Atlantic Consulting and Engineering

525 John Street • Second Floor

Bridgeport, CT 06604

(203) 333-9465 (203) 336-1769 FAX

Note: Calculation considers Total Contributing surface area in Orangetown. Sheet No. 1 of 1

Project: Oak Hill Cemetery - Proposed Mausoleum
140 North Highland Ave.
Nyack, NY

Date: 9/23/20

Revised: 11/23/20

Revised: 2/12/21

Subject: Water Quality Volume Calc
New York Stormwater Management Design Manual Methodology

Completed By: SDU

Drainage Area: Contributing Disturbed Area

Checked By:

Step 1: Calculate Water Quality Volume. (WQv)

Step 1: Calculate Water Quality Volume. (WQv) using the 90% Rule: (Table 4.1 New York Stormwater Sizing Criteria)

$$WQv(\text{acre-feet}) = (P \times R_v \times A) / 12$$

Where:

R_v = Runoff Coefficient for Impervious Cover = $0.05 + 0.009(I)$

%I = Percent of Site in Impervious Cover (14.6 Percent)

P = (Inch) = 90 Percent Rainfall event number (See Figure 4.1)2

A = Site Area or Tributary Drainage Area (Acres) Total Contributing surface Area used

Design Parameters				Water Quality Volume (Acre. Ft.)
P (in)	A (acre)	R_v	%I	
1.5	0.7635	0.1814	14.600	0.01731

WQv = 0.01731 acre-ft or 754.02 Cu.Ft.

Considering the site a redevelopment per Chapter 9 - Sect. 9.2.1.B(III) of NYSWMDM 2015

The plan proposes the use of alternative SMPs to treat 75% of the WQv from the disturbed, impervious area as well as additional runoff from tributary areas not within the disturbed, impervious area

Volume Required to Store On-Site for Cleaning: $(0.75 \times 754.02 = 565.52 \text{ Cu.ft.})$

565.52 cu.ft.
0.0130 acre-ft.

*NOTE: Volume provided by each Stormwater planter = $(4' \times 4' \times 4')0.40 = 25.6 \text{ cu.ft.}$ x # of planters (4) = 102.4 cu.ft.

Volume provided by 140 lf of underground infiltration pipe detention = 444.1 cu.ft.

Volume provided by (2) - 40 lf underground pipe detention = 259.0 cu.ft. (for a total of 220 lf. of trench)

$102.4 + 444.1 + 259.0 \text{ Cu. ft.} = 805.5 \text{ cu.ft.} > 754 \text{ cu.ft.}$ (100% WQv) therefore WQv standard is met.

4 UNITS 4' x 4' x 4' STORMWATER PLANTER CONNECTED BY 12" SLOTTED ADS N-12 STORM SEWER PIPE ENCASED IN 28" wide X 30" deep GRAVEL BED 220 L.F. LONG WILL PROVIDE STORAGE FOR THE WATER QUALITY VOLUME (FIRST FLUSH) ONLY. PEAK FLOW ATTENUATION IS NOT YET INCLUDED IN THIS CALCULATION / COUNT.

RRv (acre-feet)=Reduction of the total WQv by application of green

infrastructure techniques and SMPs to replicate pre-development hydrology.

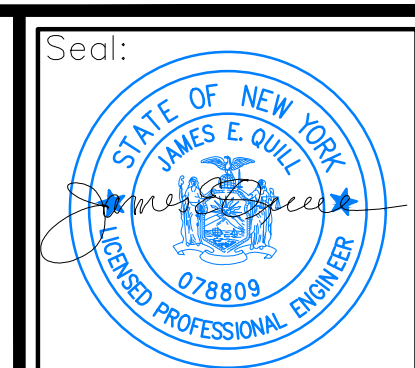
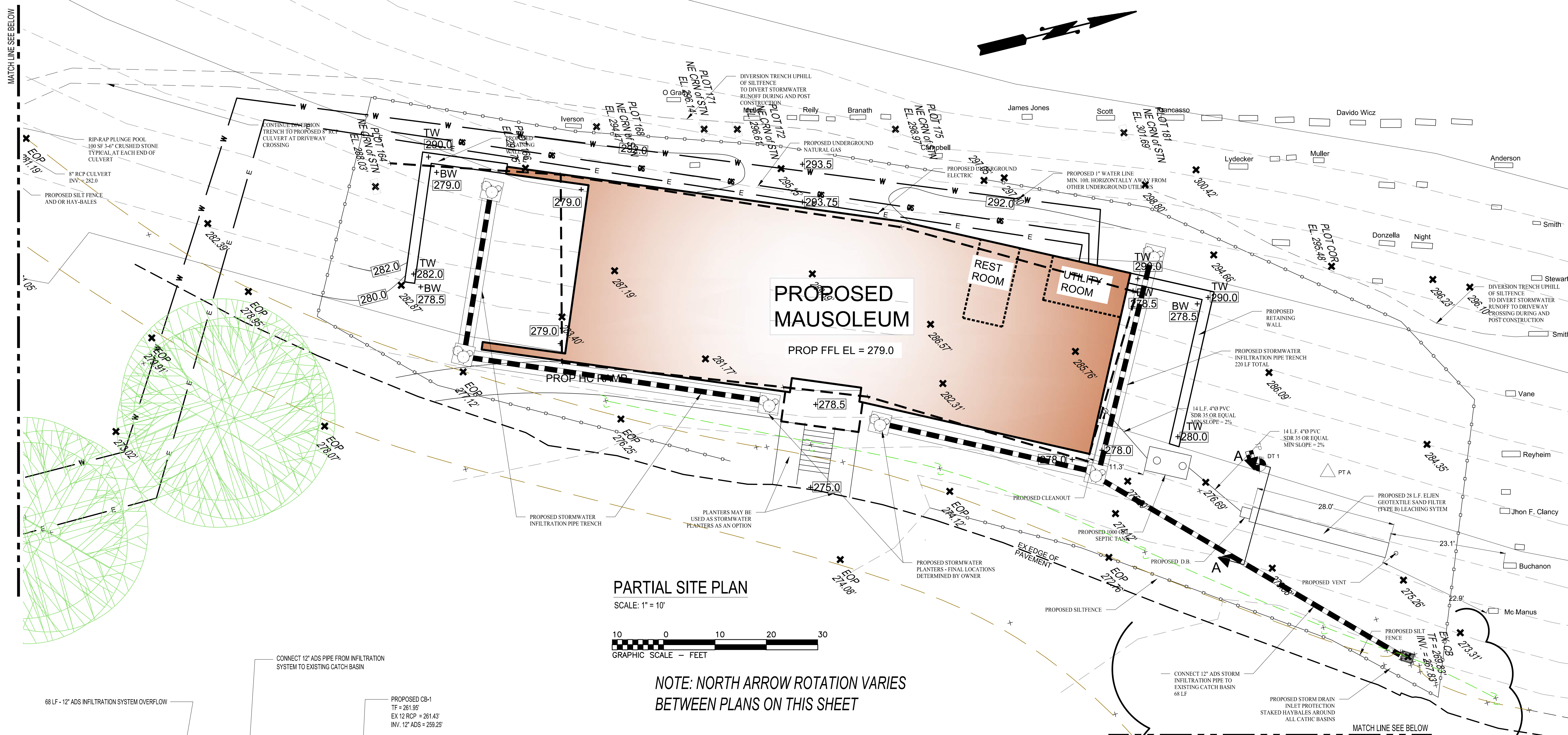
100% of the total Water Quality Volume has been provided by use of the Underground Infiltration

ADS (Advanced Drainage System) Pipe Storage and Detention System as a Standard SMP (Stormwater Management Practice) and Green Infrastructure technique by use of Stormwater Planters.


Comparison Table of Peak Flow Rates and Volume Between PRE & POST Development

STORM EVENT	LINK/POC	FLOW/VOLUME	EXISTING	PROPOSED	Δ	Δ (%)
1 Year Storm	LINK 1 (A)	q (ft ³ /s)	8.65	7.43	-1.22	-14.1
		v (ft ³)	52712	47575	-5137	-9.7
2 Year Storm	LINK 1 (A)	q (ft ³ /s)	13.28	11.58	-1.7	-12.8
		v (ft ³)	79199	72756	-6443	-8.1
5 Year Storm	LINK 1 (A)	q (ft ³ /s)	21.69	19.05	-2.64	-12.2
		v (ft ³)	127610	119320	-8290	-6.5
10 Year Storm	LINK 1 (A)	q (ft ³ /s)	29.09	26.34	-2.75	-9.5
		v (ft ³)	170754	161178	-9576	-5.6
25 Year Storm	LINK 1 (A)	q (ft ³ /s)	39.71	36.29	-3.42	-8.6
		v (ft ³)	233622	222550	-11072	-4.7
50 Year Storm	LINK 1 (A)	q (ft ³ /s)	47.83	43.94	-3.89	-8.1
		v (ft ³)	282405	270387	-12018	-4.3
100 Year Storm	LINK 1 (A)	q (ft ³ /s)	56.62	52.24	-4.38	-7.7
		v (ft ³)	335584	322688	-12896	-3.8

As shown in the above comparison table, there is a decrease in peak run-off (cfs) and volume (C.F.) for the Type III – 24-Hour storm events used in the analysis. (1-year through 100-year storm frequencies)



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OAK HILL CEMETERY MAUSOLEUM
140 NORTH HIGHLAND AVENUE
NYACK, NEW YORK

Job Number:
18-3568

Job Start Date:
10/24/18

Issued For:	Date:
SWPPP REVIEW REVISION	11/25/2020
SWPPP REVIEW REVISION 2	2/15/2021

Drawn By: SDU Checked By: JEQ

Sheet Title:

DRAINAGE AND
GRADING PLAN

Scale:
AS NOTED

Sheet Number:
C-1.1

FILED. 21 FEB 2021, 5:00PM PT. JAMES L. GARDING & ASSOCIATES (LLC)
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