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Updated Drainage Summary Report
Property of Barak Klarfeld – 1035 Nine Acres Lane, Mamaroneck, NY

The owners propose constructing a pool on their property on Nine Acres Lane. The site presently consists of a residence, deck, walkway and driveway. The proposed improvements to the 17,932 square foot site will increase the impervious area on the site by approximately 810 SF. This report will show that the runoff from the proposed pool will be detained within the pool and will not have an adverse impact on downslope properties or drainage facilities.

Presently runoff from the site flows generally from south to north across the property and towards the storm drains in Nine Acres Lane. Runoff from the existing impervious areas flows unabated off the site. The proposed construction will not alter the existing drainage paths onto and off this site.

Our office has analyzed the increase in runoff rate generated by the 1-, 2-, 5-, 10-, 25-, 50- and 100-Year, 24-Hour Storms if the pool were modeled as a completely impervious surface like a road or roof. In reality, there will be approximately 7" of freeboard from the top of the pool coping to the water level within the pool, which means all rainfall that directly falls onto the pool will be captured and unable to be released. The entire parcel has been identified as "Site" in the enclosed analysis. The proposed pool has been identified as "Pool" in the proposed conditions analysis. Using the Soil Conservation Service TR-20 Method, the decrease in runoff rate was calculated for the pre- and post-development conditions for the site including the new proposals. Table I below summarizes the existing and proposed runoff rates for the design storms.

Table I – Summary of Runoff Rates from Site

Storm Event	Flow/Volume	Existing	Proposed	Δ	$\Delta(\%)$
1-Year	q (cfs)	0.60	0.63	0.03	5.00%
	v (CF)	2,211.00	2,318.00	107.00	4.84%
2-Year	q (cfs)	0.77	0.80	0.03	3.90%
	v (CF)	2,836.00	2,954.00	118.00	4.16%
5-Year	q (cfs)	1.09	1.12	0.03	2.75%
	v (CF)	4,009.00	4,144.00	135.00	3.37%
10-Year	q (cfs)	1.37	1.40	0.03	2.19%
	v (CF)	5,087.00	5,233.00	146.00	2.87%
25-Year	q (cfs)	1.83	1.87	0.04	2.19%
	v (CF)	6,881.00	7,042.00	161.00	2.34%
50-Year	q (cfs)	2.26	2.29	0.03	1.33%
	v (CF)	8,567.00	8,739.00	172.00	2.01%
100-Year	q (cfs)	2.79	2.82	0.03	1.08%
	v (CF)	10,701.00	10,881.00	180.00	1.68%

Under Section 294-8C of the Village of Mamaroneck Village Code (“the Code”) – “Exceptions”, it states:

“Exceptions. Construction and development activities as annotated above may be excepted from the on-site stormwater quantity requirements only, if they meet any of the following criteria:

(2) Peak flow rates increase by less than 5% (i.e. do not alter hydrology) of the predeveloped condition for the design storm (e.g. ten-year, twenty-five-year or one-hundred-year) and no downstream structures or buildings are impacted.”

As shown above, the runoff rates for the storms depicted in Table I represent less than a 5% increase in peak flow rates for all design storms, if the pool were modeled as a surface that generates runoff. In reality there is enough internal storage in the pool to prevent the release of rainfall onto and adversely impacting the neighbors. Thus this project should be exempt from stormwater quantity controls under Section 294-8(C)(2) of the Code. Furthermore, as the rainfall depth associated with the water quality event is one (1) inch, the associated Water Quality Volume (“WQV”) would be completely captured within the confines of the pool.

Because the limits of disturbance associated with the construction of the pool is greater than 1,000 SF, we have prepared a Stormwater Pollution Prevention Plan (SWPPP) per Section 294-8B of the Code. Below is a description of how the SWPPP is consistent with Subsections 1-3 of Section 294-8B of the Code:

(1) All SWPPPs shall provide the following background information and erosion and sediment controls:

(a) “Background information about the scope of the project, including location, type and size of project”

Stated above.

(b) “Site map/construction drawing(s) at a scale not smaller than one inch equals 50 feet, or as otherwise approved by the SMO, for the project, including a general location map. At a minimum, the site map should show the total site area; all improvements; areas of disturbance; areas that will not be disturbed; existing vegetation; on-site and adjacent off-site surface water(s); wetlands and drainage patterns that could be affected by the construction activity; existing and final slopes; locations of off-site material, waste, borrow or equipment storage areas; and location(s) of the stormwater discharges(s);”

See site plan.

(c) “Description of the soil(s) present at the site;”

See soil data on Sheet 2 of the site plan.

(d) “Construction phasing plan describing the intended sequence of construction activities, including clearing and grubbing, excavation and grading, utility and infrastructure installation and any other activity at the site that results in soil disturbance. Consistent with the New York Standards and Specifications for

Erosion and Sediment Control (Erosion Control Manual), not more than five acres shall be disturbed at any one time unless pursuant to an approved SWPPP;”

See Sheet 2 of the site plan.

(e) “Description of the pollution prevention measures that will be used to control litter, construction chemicals and construction debris from becoming a pollutant source in stormwater runoff;”

Silt fence, gravel anti-tracking pads and stockpile areas as shown on the plan will achieve this goal.

(f) “Description of construction and waste materials expected to be stored on-site with updates as appropriate, and a description of controls to reduce pollutants from these materials, including storage practices to minimize exposure of the materials to stormwater, and spill prevention and response;”

Soil stockpiles ringed with silt fence, and the silt fence itself, will minimize exposing construction and waste materials from entering stormwater.

(g) “Temporary and permanent structural and vegetative measures to be used for soil stabilization, runoff control and sediment control for each stage of the project from initial land clearing and grubbing to project closeout;”

See construction sequence on Sheet 2 of the site plan.

(h) “A site map/construction drawing(s) specifying the location(s), size(s) and length(s) of each erosion and sediment control practice;”

See Sheet 1 of the site plan.

(i) “Dimensions, material specifications and installation details for all erosion and sediment control practices, including the siting and sizing of any temporary sediment basins;”

See Sheet 2 of the site plan.

(j) “Temporary practices that will be converted to permanent control measures;”

All temporary erosion controls will be removed, and exposed areas will be vegetated as lawn as a permanent control measure.

(k) "Implementation schedule for staging temporary erosion and sediment control practices, including the timing of initial placement and duration that each practice should remain in place;"

See Sheet 2 of the site plan.

(l) "Maintenance schedule to ensure continuous and effective operation of the erosion and sediment control practice;"

See Sheet 2 of the site plan.

(m) "Name(s) of the receiving water(s);"

Runoff from this site ultimately enters Long Island Sound approximately 700 feet away.

(n) Delineation of SWPPP implementation responsibilities for each part of the site;

See Sheet 2 of the site plan.

(o) Description of structural practices designed to divert flows from exposed soils, store flows, or otherwise limit runoff and the discharge of pollutants from exposed areas of the site to the degree attainable; and

The proposed silt fence will achieve this goal

(p) Any existing data that describes the stormwater runoff at the site.

See the narrative on Page 1 above.

(2) Postconstruction runoff controls for new development and redevelopment projects.

(a) "All construction activities for new development resulting in a land disturbance greater than 200 square feet and less than 2,000 square feet shall include stormwater quantity controls, as described in the New York State Stormwater Management Design Manual, to attenuate the postdevelopment twenty-five-year design storm, twenty-four-hour peak discharge rate (Qf) to predevelopment rates."

Not applicable as described above.

(b) "All construction activities resulting in a land disturbance greater than 2,000 square feet and less than one acre shall include stormwater quality and quantity controls (postconstruction stormwater runoff controls), as set forth in § **294-9** and described in the Design Manual, to provide treatment of the water

quality volume (WQv) through runoff reduction, and to attenuate the postdevelopment twenty-five-year design storm, twenty-four-hour peak discharge rate (Qf) to predevelopment rates.”

See explanation on Page 2 for this report.

(c) “All construction activities for new development resulting in a land disturbance greater than one acre shall include stormwater quality and quantity controls (postconstruction stormwater runoff controls), as set forth in § **294-9** and described in the Design Manual, to provide treatment of the water quality volume (WQv) through runoff reduction, and to attenuate the postdevelopment one-, ten- and one-hundred-year design storms, twenty-four-hour peak discharge rate (Qf) to predevelopment rates.”

Not applicable as site disturbance is less than one acre.

(d) “Additionally, stormwater runoff from land development and redevelopment activities discharging a pollutant of concern to either an impaired water identified on the Department's 303(d) list of impaired waters or a total maximum daily load (TMDL) designated watershed for which pollutants in stormwater have been identified as a source of the impairment shall comply with the requirements for postconstruction stormwater control as outlined in Subsection **B(2)(c)** above.”

Not applicable to this project.

(e) “All construction activities that meet the “redevelopment project” criteria shall comply with items in Subsection **B(2)(a)** through **(d)** above, including “Chapter **9**: Redevelopment Projects” of the Design Manual. The sizing criteria described in Chapter **9** cannot be used to address runoff from new development. If a construction project includes both new development and redevelopment, the stormwater management practices for the new development portion of the project must be designed in accordance with the sizing criteria in Chapter 4 of the Design Manual, and the redevelopment portion of the project is subject to the sizing criteria in Section 9.3.2 of the Design Manual.”

Not applicable to this project as it is exempt under Section 294-8B of the Code.

(3) SWPPP requirements:

(a) “All information in § **294-7** of this chapter;”

This drainage summary report and our site plan set contain this information.

(b) “Description of each postconstruction stormwater management practice (practices shall be as approved in Chapter 4 of the New York State DEC Stormwater Design Manual);”

See Sheet 2 of the site plan.

(c) “Site map/construction drawing(s) showing the specific location(s) and size(s) of each postconstruction stormwater management practice;”

See Sheet 1 of the site plan.

(d) “Hydrologic and hydraulic analysis for all structural components of the stormwater management system for the applicable design storms;”

See enclosed HydroCAD analysis for both existing and proposed conditions that accompanies this report.

(e) “Comparison of postdevelopment stormwater runoff conditions with predevelopment conditions;”

See Page 1 of this report.

(f) “Dimensions, material specifications and installation details for each postconstruction stormwater management practice;”

See Sheet 2 of the site plan.

(g) Maintenance schedule to ensure continuous and effective operation of each postconstruction stormwater management practice;

See Sheet 2 of the site plan.

(h) “Maintenance easements, if applicable, to ensure access to all stormwater management practices at the site for the purpose of inspection and repair. Easements shall be recorded on the plan and shall remain in effect with transfer of title to the property;”

Not applicable to this project.

(i) “Inspection and maintenance agreement binding on all subsequent landowners served by the on-site stormwater management practices in accordance with § 294-9 of this chapter;”

Not applicable to this project.

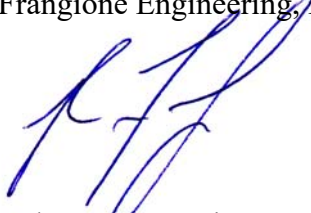
(j) The SWPPP shall be prepared by a New York State licensed professional engineer, certified professional in erosion and sediment control (CPESC), or licensed landscape architect and must be signed by the professional preparing the plan, who shall certify that the design of all stormwater management practices meets the requirements in this chapter.

Drainage plan and drainage summary report were prepared by a Licensed Professional Engineer in the State of New York.

With the proposed structures in place, it is our professional opinion that there will be no adverse hydrological or hydraulic impacts caused to surrounding or downstream properties or drainage facilities by this development. Under the New York State Department of Environmental Conservation (NYSDEC) regulations, a Notice of Intent (NOI) is not required for this project because the amount of on-site disturbance is less than one acre. To the best of my knowledge, this drainage proposal complies with the NYSDEC and Village of Mamaroneck Stormwater Regulations.

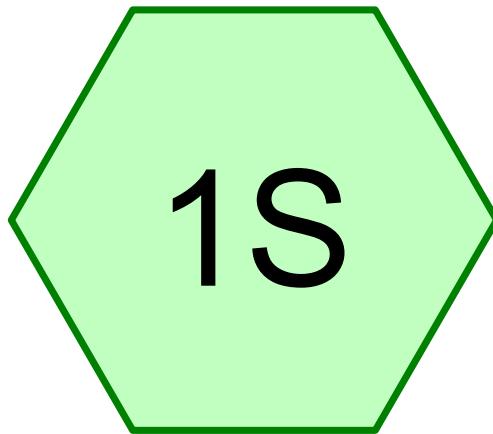


Respectfully submitted,
Frangione Engineering, LLC

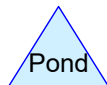
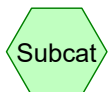


Robert M. Frangione, P.E.
Owner & Chief Engineer
February 5, 2021

Enclosures



Site



Routing Diagram for Klarfeld Existing Drainage

Prepared by Microsoft, Printed 8/10/2020

HydroCAD® 10.10-4a s/n 11202 © 2020 HydroCAD Software Solutions LLC

Klarfeld Existing Drainage

Prepared by Microsoft

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Type III 24-hr 100-Year Rainfall=9.10"

Printed 8/10/2020

Events for Subcatchment 1S: Site

Event	Rainfall (inches)	Runoff (cfs)	Volume (cubic-feet)
1-Year	2.90	0.60	2,211
2-Year	3.40	0.77	2,836
5-Year	4.30	1.09	4,009
10-Year	5.10	1.37	5,087
25-Year	6.40	1.83	6,881
50-Year	7.60	2.26	8,567
100-Year	9.10	2.79	10,701

Klarfeld Existing Drainage

Prepared by Microsoft

HydroCAD® 10.10-4a s/n 11202 © 2020 HydroCAD Software Solutions LLC

Type III 24-hr 25-Year Rainfall=6.40"

Printed 8/10/2020

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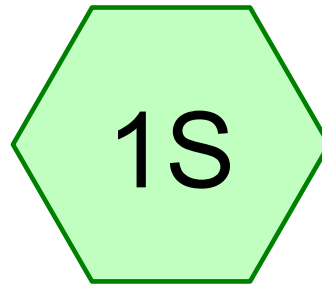
Summary for Subcatchment 1S: Site

Runoff = 1.83 cfs @ 12.15 hrs, Volume= 6,881 cf, Depth> 4.67"

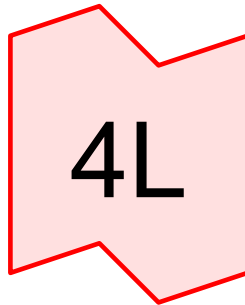
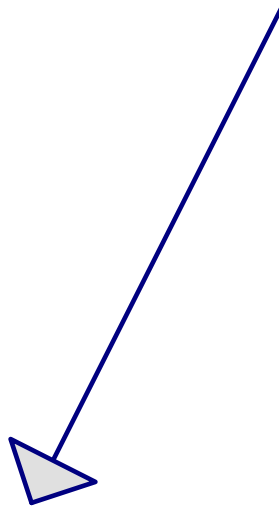
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Type III 24-hr 25-Year Rainfall=6.40"

	Area (sf)	CN	Description
*	3,209	98	Ex. House
*	909	98	Ex. Drive
*	180	98	Ex. Walk
*	418	98	Ex. Deck
*	30	98	Ex. Pads
	12,925	80	>75% Grass cover, Good, HSG D
	17,671	85	Weighted Average
	12,925		73.14% Pervious Area
	4,746		26.86% Impervious Area

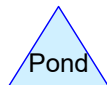
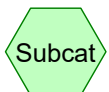
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.2	82	0.0220	0.12		Sheet Flow, Sheet Grass: Dense n= 0.240 P2= 3.50"



Site



(new Link)



Routing Diagram for Klarfeld Proposed Drainage r1

Prepared by Microsoft, Printed 1/28/2021

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Klarfeld Proposed Drainage r1

Prepared by Microsoft

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Type III 24-hr 100-Year Rainfall=9.10"

Printed 2/5/2021

Events for Link 4L: (new Link)

Event	Inflow (cfs)	Primary (cfs)	Volume (cubic-feet)
1-Year	0.63	0.63	2,318
2-Year	0.80	0.80	2,954
5-Year	1.12	1.12	4,144
10-Year	1.40	1.40	5,233
25-Year	1.87	1.87	7,042
50-Year	2.29	2.29	8,739
100-Year	2.82	2.82	10,881

Klarfeld Proposed Drainage r1

Type III 24-hr 100-Year Rainfall=9.10"

Prepared by Microsoft

Printed 1/28/2021

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Page 2

Summary for Subcatchment 1S: Site

Runoff = 2.82 cfs @ 12.15 hrs, Volume= 10,881 cf, Depth> 7.39"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Type III 24-hr 100-Year Rainfall=9.10"

	Area (sf)	CN	Description
*	3,209	98	Ex. House
*	909	98	Ex. Drive
*	180	98	Ex. Walk
*	418	98	Ex. Deck
*	48	98	Ex. & Pr. Pads
	12,115	80	>75% Grass cover, Good, HSG D
*	792	98	Pr. Pool
	17,671	86	Weighted Average
	12,115		68.56% Pervious Area
	5,556		31.44% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.2	82	0.0220	0.12		Sheet Flow, Sheet Grass: Dense n= 0.240 P2= 3.50"


Summary for Link 4L: (new Link)

Inflow Area = 17,671 sf, 31.44% Impervious, Inflow Depth > 7.39" for 100-Year event

Inflow = 2.82 cfs @ 12.15 hrs, Volume= 10,881 cf

Primary = 2.82 cfs @ 12.15 hrs, Volume= 10,881 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs

Project Identification:		Klarfeld			Hole 1		
Test Location:		12 Scout Trail			Depth = 34"		
Liquid Used:		Water	pH:	7.0			
Tested By:		RMF					
Depth to water table:		>12"					
Trial #	Start / End	Date MM/DD/YY	Time HR:MIN	Elapsed Time Chg/(Total) Min	Gauge Depth, in.	Inner Infiltration Rate in/Hr.	Remarks
							Weather conditions Etc...
1	Start Test	7/27/2020	12:19	0:15	0.06		
	End Test	"	12:34	0:15	2.50	11.21	95 degrees & sunny
2	Start Test	"	12:35	0:15	0.13		
	End Test	"	12:50	0:30	1.25	4.50	
3	Start Test	"	12:51	0:15	0.13		
	End Test	"	13:06	0:45	1.25	4.50	
					Average	6.74	
					Design rate (50% Clog)	3.37	