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July 18, 2025

RE: Valles-Moelis Property
1011 Greacen Point Road
Village of Mamaroneck, NY 10543

Dr. Tatka,

Please find attached Tectonic Engineering's, civil engineering review and comments for the private residence to be constructed at 1011 Greacen Point Road in the Village of Mamaroneck, New York. Based upon the documents provided, Tectonic Engineering reviewed Architectural Plans by Cardello Architects, lats updated 6/23/2025, ALP Engineering's plans issued 6/23/2025 and the associated Stormwater Pollution Prevention Plan (SWPPP) revised 6/24/2025. The original plans and calculations were based on the Village of Mamaroneck Zoning Code, as well as the 2015 New York State Stormwater Management Design Manual (NYSSMDM), and therefore those regulations were utilized as the basis for this review. The comments herein are divided into Stormwater related items (pgs 1 thru 6) and Zoning related items (pgs 7 thru 11).

STORMWATER RELATED ITEMS:

Stormwater System Design and Configuration:

1. Stormwater Management Practice #1 (SMP #1), located along and parallel to the southerly lot line, is approximately 30 ft north of the adjacent residence. This system consists of a detention facility comprised of 3 rows of 36" pipe as well as a downstream catchment consisting of 2 rows of 4 underground interlocking stormwater infiltration chambers. SMP #1 receives runoff from the detention facility thru a 4" pipe. Runoff in excess of the design capacity of SMP #1 is discharged thru the grate of Outlet Control Structure 1A at an elevation of 14.15 ft. This means all runoff captured in SMP #1 below elevation 14.15 is forced to infiltrate into the surrounding natural soils which have an infiltration rate of 21.5 to 24.0 in/hr (see Percolation Test Data Sheet by ALP Engineering – 5/16/24 for test hole #P-1). The soil profile from this same test hole data indicates the existence of a 12" thick layer of *highly compacted sands and boulders* from 3.5 to 4.5 ft below grade. The runoff stored in SMP #1 during and after a storm event would create a hydraulic pressure head on any subsurface water held in the adjacent soils from

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both current and previous storm events. This pressure head would typically force water in the adjacent soils to move downward to the groundwater table; however, in this case the layer of heavily compacted sand and boulders would force subsurface water to move in a more outward and horizontal direction following the path of least resistance until it could find an area of hydraulic relief. The basement of the adjacent residence located roughly 30 ft from SMP #1 with a basement floor elevation of +/-7.2 ft, would be subject to a 7.0 ft subsurface pressure differential (14.15 ft – 7.20 ft) caused by the stored runoff in SMP #1. This pressure differential on the soils adjacent to the basement wall may in turn cause more extreme and frequent flooding in the basement and for a longer duration as SMP #1 discharges the stored stormwater into the soil.

Applicant should provide an analysis of the expected subsurface movement of water that shows no impact to the adjacent residence or relocate SMP #1 away from and/or below the adjacent basement to ensure there is no subsurface impact that could exacerbate flooding in the basement.

2. Surface grading of the side slopes adjacent to the south property line indicates a 1:1 embankment, which is essentially a 45-degree hill. A slope this steep needs to be permanently stabilized to prevent future soil erosion. Typically, a 1:1 embankment requires a permanent, hardened stabilization method to prevent rill erosion of the underlying soils. Vegetative stabilization techniques for slopes this steep typically fail to provide protection from soil erosion. Alternatively, the pavement in this area could be reduced or moved such that the resulting slope at the southerly property line is no steeper than 3:1.

   In addition to providing stabilization of the slope, the applicant should provide some mechanism for capturing the runoff being generated along the slope, so as to prevent that runoff from flowing out onto the adjacent property owner's driveway.

3. A portion of the roof (+/-714.7 sf) and that portion of the driveway adjacent to the garage, are designed to sheet flow south towards the adjacent property, where a slotted trench drain is proposed to intercept the runoff and convey it to a pretreatment facility (PTF #2). This trench drain is backed by a 4" high curb to prevent runoff from overflowing to the south during minor storm events. Behind the curb is a 18"-24" wide flat plateau area before the downward slope towards the south property line. The specified slotted trench drain is susceptible to grate blockage from leaves, ice and debris, as the open slots are typically only 0.4 inches wide x 3.8 inches long. This type of drain also requires cleaning the channel of silt and sand deposits that buildup over time.

The concern with this approach is that regular grate blockage can be expected due to it's proximity to trees and shrubs, which in turn would require a vigorous maintenance routine to ensure proper operation of the slotted trench drain. The time interval for cleaning the channel is based on actual deposit rates that are difficult to ascertain. As such it would require regular inspections by the applicant to ensure deposit buildups do not prevent the trench drain from functioning as intended.

An additional concern is that the 4" curb is inadequate to contain runoff from larger storm events having a moderate to high rainfall intensity factor, which could generate runoff rates that overwhelm the grate capacity of the trench drain. Subsequently the runoff would pond higher than the top of curb, then flow over the flat plateau area and down the embankment onto the adjacent property. To minimize the frequency and magnitude of this overtopping scenario, applicant should provide additional containment height within the flat plateau area or utilize a less impervious cover for the driveway and subsequently reduce runoff from the larger storm events.

4. The civil site plans indicate substantial earthwork, silt fence and landscaping directly adjacent to the south property line. The proposed contours in this area are tying into the existing contours at hard angles, which is not realistic. As such it is unclear how this work can be accomplished without encroaching onto the adjacent property. The proposed design as described in the comments above should be revised to ensure construction and installation of these improvements can be accomplished without encroaching onto the adjacent property.

Water Quality:

1. In page 5 of the SWPPP, the applicant proposes installing two hydrodynamic separators for pretreatment purposes prior to runoff entering the stormwater detention system. Hydrodynamic separators are not on the standard Stormwater Management Practices (SMPs) list and as such would be considered an alternative SMP. In reference to alternative practices, Section 3.3.2 of the NYSSMDM states, "*In order to be in compliance with the technical standards, projects must meet both required performance and sizing criteria*." The department's performance criteria for SMPs meeting water quality standards they must be capable of 80% TSS (total suspended solids) removal and 40% TP (total phosphorus) removal. The documentation from the State of New Jersey, Bureau of Nonpoint Pollution Control for the Cascade Separator stormwater treatment system included in the SWPPP, indicates this system is only capable of 50% TSS removal, and therefore does not meet the department's performance criteria.

2. Page 5 of the SWPPP, references Section 9.4 of the NYSSMDM regarding the use of the hydrodynamic separators. However; Chapter 9: *Redevelopment Activity* only applies to redevelopment projects and the allowance referenced in Section 9.4.1 for alternative practices is only relevant to redevelopment projects, which this is not. The proposed hydrodynamic separators are not listed in the NYSSMDM as a standard pre-treatment method for underground infiltration systems. As is suggested further down on page 5 of the SWPPP, it is possible these separators could be utilized; as a pre-treatment settling chamber if they capture the pre-treatment volume and also meet sizing requirement as calculated by the method listed in Section 6.4.3. There were no calculations provided that indicated the separators meet the sizing criteria.

3. Percolation test data (SWPPP, page 17) conducted at the location of SMP #1 found the infiltration rate (f_c) to be between 21.50 and 24.00 in/hr. Section 6.3.3 of the NYSSMDM states that "*If the fc for the underlying soils is greater than 5.00 inches per hour, 100% of the WQv shall be pretreated prior to entry into an infiltration facility*." Page 5 of the SWPPP erroneously indicates that a pretreatment volume of 25% of the WQv (Water Quality volume) is required. The soils in the location of SMP #1 exceed the f_c threshold of 5 in/hr, hence 100% pretreatment of the water quality volume is required.

4. Percolation test data (SWPPP, page 17) conducted at the location of SMP #2 found the infiltration rate (f_c) to be between 12.50 and 13.00 in/hr. Section 6.3.3 states that "*If the fc for the underlying soils is greater than 5.00 inches per hour, 100% of the WQv shall be pretreated prior to entry into an infiltration facility*." It appears that SMP #2 may be utilizing a separator row of the Cul-Tec chambers (Row #1) to provide pretreatment; however this is not indicated on the plans or within the SWPPP, nor have any calculations been provided to quantify the pretreatment volume vs the capacity of separator row #1 . Since the soils in the location of SMP #2 also exceeds the f_c threshold of 5 in/hr, 100% pretreatment of the water quality volume is required at this practice as well.

5. Section 6.3.2 requires, "All infiltration systems shall be designed to fully de-water the entire WQv within 48 hours after the storm event." De-watering within 48 hours has not been demonstrated. Calculations should be provided for both SMPs showing the water quality volume is recovered within 48 hours using Darcy's law for flow thru a porous material in a falling head analysis.

6. It appears in the calculations and tabulations that only 486 sf of rooftop is contributing to basin FDA-1 and 436 sf contributing to FDA-2. These values need to be revised as they appear to be

much less than the rooftop areas depicted in the plans (3,433 sf : FDA-1 and 2,665 sf: FDA-2). These values would impact the impervious coverage used to calculate required water quality volumes and runoff peak rates. The tables provided in the SWPPP on pages 3 & 4 of Appendix A (Stormwater Management Report Hydrographs and Routings), indicate that there is a total rooftop area of 486 sf (0.011 Ac); unless portions of the rooftop area have been incorporated into the values listed for the undefined impervious areas. If so, please quantify the impervious areas and locations for clarity.

In addition to the rooftop areas, it is noted that the Future Condition Drainage Area Map in the SWPPP depicts connections to a down spout adjacent to the main entrance. A review of the Architectural plans shows that there is no gutter or downspouts along this section of the building frontage.

7. SMP #2 appears to be using a "separator row" for pre-treatment. Please clarify and provide calculations showing that the chamber is adequately sized for pretreatment of 100% of the water quality volume, and as a settling chamber based on the method listed in Section 6.4.3.

8. There is approximately 954 sf of impervious surface at the SW corner of the building that is not being captured and has been included in Basin FDA-3 as untreated runoff. If site conditions preclude capture of that specific area, it should be added as additional water quality treatment volume to one of the SMPs, such that runoff from 100% of the impervious areas is being treated. Table A-1 should be revised to include this area in the water quality calculations.

9. There is no mention or mechanism as to how this overall stormwater design meets the minimum RRV as required by Section 4.3. This needs to be addressed in the SWPPP.

Water Quantity:

1. This project discharges directly to Delancy Cove (a tidal water body) so it is unclear why the pre vs post hydrologic modeling was performed (SWPPP, Appendix A Stormwater Management Report Hydrographs and Routings, pages 4-12) in regards to the 1 yr, 10 yr and 100 yr storm events. The NYSSMDM specifically excludes:

- CP Channel Protection Volume requirements (1 yr/24 hr) are waived under Section 4.4 for "site discharges directly to tidal waters"

- QP Overbank Flood Control Volume requirements (10 yr/24 hr) are waived under Section 4.5 for “site discharges directly to tidal waters”

- Qr Extreme Flood Control Volume requirements (100 Yr/24 hr) are waived under Section 4.6 for “site discharges directly to tidal waters”

2. The model uses a time of concentration (Tc) of 6 min for both Pre and Post conditions, there should be a difference, based on a length reduction, gradient change as well as a change in vegetative surface cover.

   The Tc calculation under pre-developed conditions indicates only 35 lf of sheet flow; however, the basin map shows a uniform slope and surface cover well in excess of 100 lf. There is no topographic evidence of shallow concentrated flow occurring in the hydraulic path. As such, the model should be using the 100 lf max. of sheet flow, which will substantially increase the Tc and subsequently reduce the pre-developed peak flow rates.

3. The change in the values for roof cover discussed above may substantially change the weighted curve numbers and subsequently the results of the post-developed routing. The input data should be revised to reflect the rooftop coverage and contributing downspouts depicted in the architectural plans.

4. The routing model indicates that SMP #2 utilizes the CultTec 280HD chamber; however, details and callouts throughout the plans indicate that SMP #2 utilizes the 180HD chamber. This results in a change of the catchment’s stage/storage profile. The model and/or plans should be revised to accurately account for the stage/storage values based on the actual chamber to be used.

5. Plans should be updated to reflect changes to the SWPPP and/or drainage design.

ZONING RELATED ITEMS

Floor Area Ratios:

1. The total lot area for Lot 12 is 40,689.017 sf according to the survey. The definition of the terms Building, Gross Floor Area and Floor Area Ratio as outlined in Article II of Chapter 342 of the Village of Mamaroneck Code is utilized herein. For transparency and clarity the definitions are copied directly from code and included as part of the comments:

   BUILDING *— Any structure having a roof supported by columns or by walls and intended for shelter, housing, protection or enclosure of persons, animals or property. Depending upon its applicability, the use herein of "building" shall include the term "structure."*
   FLOOR AREA, GROSS *— The sum of gross horizontal areas of the several floors of the building or buildings on a lot, measured from the exterior faces of exterior walls or from the center line of party walls separating two buildings. Any interior space with a floor-to-ceiling height in excess of 12 feet shall be counted 1.5 times, except in the M-1 Zone. The following are excluded:*
   (1) Any attic space with a floor-to-ceiling height of less than seven feet.
   (2) Cellar and basement areas where the average height of all exposed exterior wall or walls is less than three feet measured from both the existing grade prior to construction and from the proposed finish grade after construction as indicated on the approved plans.
   (3) In connection with uses other than single-family and two-family homes, any areas or structures devoted only to off-street parking or loading.
   (4) Any horizontal areas that are within the special flood hazard area below two feet above base flood elevation that are useable solely for parking of vehicles, building access or storage in an area other than a basement as defined in § 186-2B.
   FLOOR AREA RATIO *— The numerical value obtained by dividing the gross floor area, as defined in this Code, within a building or buildings on a lot by the area of the lot, excluding underwater lands.*
   PORCH *— A roofed-over structure projecting from the wall or walls of a main structure, whether or not open to the weather. It shall be deemed to be a part of the building.*

2. The Architect's plans on sheet FAR-1.0 depicts four (4) distinct areas covered by a roof, supported by columns and/or walls and serve as protection of persons, animals or property from the elements. These four areas have a combined floor area of 1,284 sf that is not included in the 3,374 sf listed in the tabulation for the total cellar floor area provided on the same sheet. If this had been included, the cellar floor area in the tabulation should actually be **4,658 sf** instead of the 3,374 sf used in the calculations.

3. The Architect's plans on sheet FAR-1.1 depicts six (6) distinct porch areas covered by a roof, supported by columns and/or walls and serve as protection of persons, animals or property from the elements. These six porch areas have a combined floor area of 1,156 sf that is not included in the 4,306 sf listed in the tabulation for the total first floor area provided on the same sheet. In addition, there are two (2) internal stairways, the garage and a foyer internal to the building structure that have ceiling heights in excess of 12 ft and as such add another 579 sf (50% OF 1158 sf) to the total floor area (4,254 sf) for the first floor. If these areas had been included, the first floor area in the tabulation should actually be 5,989 sf instead of the 4,306 sf used in the calculations.

4. The Architect's plans on sheet FAR-1.2 depicts thirteen (13) distinct areas that have a ceiling height of less than 7 ft. These areas had a combined area of 186 sf, however; these areas are not Attic spaces as they are on the 2nd floor primarily in bedrooms and other living spaces and as such should be included for the overall floor area for the 2nd floor. The areas that should be excluded from the overall floor area of 4,027 sf are the floor openings for the two stairways and foyer totaling 206 sf. Consequently, the overall gross floor area for the second floor was ascertained to be 3,821 sf which is slightly more than the 3,666 sf used in the calculations.

5. The floor area calculations for the Attic floor (620 sf) matched up with the tabulations; however when added to the actual floor areas found for the other floors, the total floor area for the residence was calculated to be 15,088 sf and is substantially larger than the 11,966 sf presented in the tabulations on the architect's plans. As such the actual proposed floor area for the building should have been calculated as 0.3708, which is substantially more than the 0.2941 FAR referenced in the previously granted variance. Applicant should revise the building design to be in compliance with the granted Floor Area Ratio Variance.

Building and Impervious Coverage:

1. The coverage for the main structure and the attached impervious areas (ie terraces, pool deck, stairs, etc.) at finished grade was calculated to be 7,415.0 sf. This is within the allowable 35%. The other proposed impervious surfaces (ie asphalt, conc., etc) were calculated to be 3,780.2 sf for a total building and impervious surface coverage of 11,195.2 sf (27.51%), which is within the 45% allowed in the zoning code and matches very closely with the 11,402 sf listed in Table A-1 of the SWPPP. The building coverage as defined by the village code which only pertains to those portions of the structure defined as building and was calculated to be 5,478 sf (13.46%).

Cellar Designation:
The lowest level of the building is designated on the architect's plans as a cellar in lieu of a basement. Pertinent definitions from the village's zoning code are provided below:

CELLAR *— That space of a building that is partly below grade which has more than half of its height, measured from floor to ceiling, below the average established curb level or finished grade of the ground adjoining the building.*
BASEMENT *— That space of a building that is partly below grade but which has more than half of its height, measured from floor to ceiling, above the average established curb level or finished grade of the ground adjoining the building.*
CURB LEVEL *— The elevation of the curb opposite the center of the front of the building. If a building faces on more than one street, the "curb level" shall be the average of the elevations of the curbs at the center of each side or front of the building. Where no "curb level" or its equivalent has been established by the municipal authority, the average elevation of the finished grade immediately adjacent to the front of the building shall be considered as the "curb level." If a building faces on more than one street where no "curb level" has been established, the average of the elevations of the finished grade on each street side of the building shall be considered as the "curb level."*
GRADE, FINISHED *— At any point along the wall of a building, the elevation of the completed surfaces of lawns, walks and roads adjoining the wall at that point.*

1. The Attachment 1 "Average Grade Calculation" prepared by ALP Engineering (01/21/2025) indicates a calculated average finished grade of 19.37'. However upon inspection of the data presented in the exhibit, four of the finished grade data points do not match the revised grading plan or the definition of finished grade. Recalculating the average finished grade using the finished grades from the revised grading plan provides a new average finished grade elevation of **19.13,** which is to be used in process of ascertaining the designation of the initial floor as basement or cellar.

2. A review of the Architectural Plans shows the finished floor elevation of the initial floor to be at elevation 15.00 and the finished ceiling at elevation 23.67 and 23.00, depending on the room. Those rooms with a finished ceiling elevation of 23.67 have 50% of their 8'-8" height (4'-4") at elevation 19.33 (15.00+4.33), which is higher than the average finished grade of 19.13. Those with a finished ceiling of 23.00 have 50% of their 8'-0" height (4'-0") at elevation 19.00, which is lower than the average finished grade.

3. Since the rooms with a finished ceiling height of 8'-8", have more than half their height above the average finished grade, by definition they would be designated as Basement and not Cellar, and as such would constitute an additional story for the structure. Plans should be revised to ensure that all rooms on the cellar floor meet the criteria for a cellar.

4. It should be noted that the Game Area room depicted on sheet A-3.2 is appears to have a ceiling height of 11'-0" instead of the 8'-8" noted on the sheet.

Building Height:

1. In order to establish the building height elevation the average existing grade adjacent to the exterior building walls had to be determined, as did the vertical distance between the roof peak and highest eaves. Neither the architectural or engineering plans indicate the average existing grade adjacent to the exterior building walls. In review, the existing grade taken at the same locations as the finished grade elevations depicted in the Attachment 1 "Average Grade Calculation" were tabulated and an average existing grade of 16.493 was calculated. The architectural plans do not provide the elevation or height of the highest eaves or roof peak, and as such this distance was scaled from the Rear Elevation on sheet A-2.1 and found to be 8'-6".

   The building height dimensions upto the 3rd floor add up to 30.51 ft. The scaled height from the 3rd floor to the roof peak was found to be 11.33 ft, giving an overall vertical distance to the roof peak of 41.84 ft. Subtracting out ½ of the distance between the roof peak and the highest eave of 4.25 ft (8.5/2), provides the vertical distance of 37.59 ft, above the cellar floor which is at elevation 15.00. This in turn means the maximum building height is at elevation **52.59** (37.59 + 15.00). Since the average existing grade is at elevation **16.49**, then the maximum building height is actually 36.10 ft (52.59 - 16.49), which is 1.1 ft in excess of the 35.0 ft height allowed in the code.

   HEIGHT, BUILDING *— For one- and two-family dwellings, the vertical distance to the highest level of the highest point of the roof if the roof is flat or mansard or to the mean level between the eaves and the highest point of the roof if the roof is of any other type, measured from the average level of the existing grade prior to construction adjacent to the exterior walls of the building. For all other buildings, the vertical distance to the highest level of the highest point of the roof if the roof is flat or mansard or to the mean level between the eaves and the highest point of the roof if the roof is of any other type, measured from the average level of the existing grade at the lot line abutting the lot at the front yard. When a building is within the special flood hazard area, height is measured from two feet above base flood elevation.*

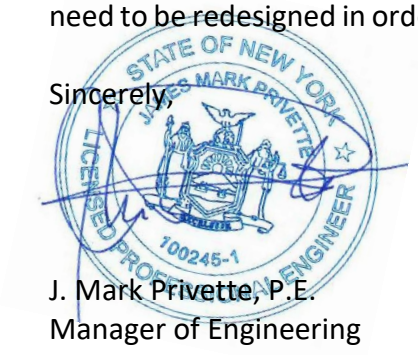
Building Projections:

1. A review of the site plan indicates there are several possible above grade projections into the side and front yards. The first one is the south entry stairs; the plans have these stairs encroaching into the side yard by 2.95 ft which is below the 3 ft threshold in the code, and is therefore allowed.
2. The second encroachment depicted is the standalone stairs leading from the driveway out to the rear of the building and are entirely located within the side yard. On either side of the stairs is a wall extension that serves as a pavement edge treatment and is also an encroachment, in that it extends 6" to 9" above grade. Due to the proximity of these stairs to the south building entrance, a significant amount of fill (+/-5' at the stairs) is having to be utilized in order to elevate this portion of the driveway to be accessible to the south entry. These stairs and the associated wall are considered as a structure, by the definition provided in the village code, and as such should not be located within the side yard. These projections including the problematic fill along the south property line are symptomatic of excessive fill and could easily be minimized or even eliminated by lowering the finished floor elevation of the building or utilizing a smaller footprint.
3. There is a proposed electrical transformer located at the NE corner of the building. Unless specifically exempted elsewhere in the code, this transformer should be relocated outside the side yard as it would also be considered a structure.
4. There are several path lights located within the front and south side yard that fall under the definition of a structure and should be relocated outside the designated yards.

STRUCTURE *— Anything constructed, erected or installed the use of which requires location on or under the ground level, in whole or in part, or attachment to something having location on or under the ground. Depending upon its applicability, the use herein of "structure" shall include the term "building."*

In summary, there are multiple design aspects of the engineering and architectural documents that need to be redesigned in order for this project to be in compliance with local codes and regulations.

Sincerely,



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