

# CASEY & KELLER, INC.

LAND SURVEYORS + CIVIL ENGINEERS + PLANNERS

N.J. STATE BOARD OF PROFESSIONAL ENGINEERS & LAND SURVEYORS  
CERTIFICATE OF AUTHORIZATION NO. 24GA27985400

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## Memorandum: Technical Review

To: Township of Long Hill Zoning Board of Adjustment  
Board Chair Gerecht and Members of the Board

From: Casey & Keller, Inc.  
Richard Keller, PE, PP, CME  
Board Engineering Consultant

Re: Application No. 2020-09Z  
Patrick & Erin Dwyer  
58 Delaware Avenue  
Block 13204, Lot 20  
C&K Project #: 1190102-28 (2020-09Z)

Date: February 26, 2021

## Documents Reviewed:

As part of our technical engineering review, we have received and reviewed the following documents:

1. Engineering Plans entitled "Plot Plan & Grading Plan, Proposed Addition and Pool at Block 13204, Lot 20, Long Hill Township, New Jersey," prepared by Finelli Consulting Engineers, dated June 16, 2020 and revised through September 8, 2020, consisting of 2 sheets;
2. Architectural Plans entitled "New Addition for Mr. & Mrs. Dwyer, Stirling, NJ," prepared O'Brien Architects, Inc., dated February 1, 2018 and revised through September 20, 2020, consisting of 9 sheets;
3. Property Survey entitled "Map of Property situated in Township of Long Hill, Morris County New Jersey" prepared by Benjamin & Wizorek, Inc., dated October 3, 2014;
4. Morris County Soil Conservation District Soil Erosion & Sediment Control Plan review letter dated November 23, 2020 deeming the application **incomplete**.
5. Completed Township Application for Development for 58 Delaware Avenue including addendum and attachments dated 11/01/2020 and received on November 2, 2020.

## Brief Project Description:

The applicant seeks to add a 1-story addition to an existing 2-story single family dwelling located on an undersized 25,408 sf lot in the R-2 Residential Zone where the minimum lot size is 45,000 sf. The proposed 540 sf addition includes a 380 sf family room and a 160 sf covered porch/deck. The bulk of the building addition replaces an existing elevated wood deck. The applicant also seeks to add a pool in the rear yard in an area of slopes in excess of 15% (A Critical Area as defined in the Land Use Ordinance (Section 110)).

The review of this application is based on the submitted plans and supporting documents and visits to the project site.

## 1. Observations & Comments:

- 1.1. The application package includes a Land Title Survey prepared by Benjamin & Wizorek, Inc., dated October 3, 2014. The engineering plan references a survey prepared by Finelli Consulting Engineers, dated January 14, 2020. This is the topographic survey that serves as the base map for the proposed plot plan. The Applicant should provide a copy of this base survey, without the proposed improvements for the Township's reference. This drawing should show the full extent of all Critical Areas on the property (Slopes in excess of 15%) and not just the critical areas to be disturbed as is shown on the Plot Plan.
- 1.2. There seem to be discrepancies between the Architect's & Engineer's plans regarding existing and proposed coverage. The Applicant team should provide a breakdown of impervious areas by category (i.e. House, Shed, Driveway, Open Decks, Walks/stairs, Pool/Spa, Pool Equipment Pad, etc.) for both the existing and proposed conditions so that the extent of the requested Lot Coverage Variance can be confirmed.
- 1.3. The Land Use Ordinance under Section 142.1d. requires that *"All single family lots shall provide a principal building setback of at least 50 feet from any critical area located in the front or rear yard of the lot, and 25 feet from any critical area located in the side yard of the lot."*

The portion of the existing dwelling where the rear yard addition is proposed is located approximately 27 feet from the nearest critical area (slope in excess of 15%). The proposed addition will be located approximately 8' from the steep slope area thus exacerbating an existing non-conforming condition and will require variance relief.

- 1.4. Based upon a review of the NJDEP Geo-Web GIS and current FEMA mapping, the subject property does not appear to contain or be near any flood hazard areas.
- 1.5. Based upon a review of the NJDEP Geo-Web GIS, the subject property may contain an area of freshwater wetlands on the northwest corner of the site. It should be noted that the indication of freshwater wetland on the NJ-GIS is not dispositive of the actual presence of wetlands. While the existing topography suggests that the presence of freshwater wetlands on the property is unlikely, there may be wetland buffers or transition areas that could affect the proposed development. The Applicant should provide documentation that the proposed work does not lie within any freshwater wetlands or associated transition areas or buffers.
- 1.6. Since the proposed plan creates a net increase of more than 400 sq. ft. of impervious area, the application is subject to the requirements of the Stormwater Management section of the Land Use Ordinance (Sec. 146.) Under Section 146.3b. the review of the required stormwater plan resides with the Zoning Board of Adjustment Engineer.

## 2. Technical Review

- 2.1. The grading around the pool needs to be refined to verify the top and bottom of wall elevations and the resulting heights of the proposed terraced retaining walls. As currently proposed, the slope between the concrete walk around the pool and the top of the closest retaining wall is greater than 60%. New slopes should maintain a maximum slope of 1:3. (33%). If the height of the proposed retaining walls exceeds 3.5', the retaining wall detail of Sheet 2 of the Engineer's plot plan should be revised accordingly.
- 2.2. The Applicant proposes to place a 4' high pool enclosure fence along the top of the retaining wall closest to the pool. Land Use Ordinance Section 154.1d.3 requires that *"A private residential swimming pool shall be surrounded by a fence at least 54 inches in height but no more than six feet in height, with a self-latching gate."* The plan should be modified to comply with the required 54" height or request variance relief.

Land Use Ordinance Section 154.1e.3 states that *"In the event a guard rail or other restraining device is provided at the top of the wall, the wall height shall be measured to the top of said restraining device."* With a 54" (4.5') fence on top of the 2.5' to 3.5' wall, the aggregate height will be between 7 and 8 feet where 6' is permitted. The Applicant should either relocate the fence or request variance relief.

- 2.3. The Engineer's Plot Plan indicates that a drywell is to be installed to manage stormwater runoff. However, no design calculations have been provided. The Grading Plan should be revised to comply with the Stormwater Management Design Standards contained in Ordinance Section 146.2b. through 146.2d. (inclusive) including all design calculations. It would appear that the drywell as proposed has insufficient capacity to accommodate the proposed 1,396 sf of additional impervious coverage.
- 2.4. The Applicant will also be required to perform percolation/permeability testing in the vicinity of the proposed drywell/infiltration/recharge system proposed. The Applicant shall also locate the seasonal high ground water table to ensure a minimum separation of two (2) feet between the bottom of the infiltration system and the ground water table. Casey & Keller, Inc. and/or the Township Engineer shall be notified a minimum seventy-two (72) hours in advance of this testing so that a representative of either entity may be present. The engineer-of-record, shall be present during percolation/ permeability testing and shall submit a signed and sealed certification regarding the results of said testing. These tests may be performed after issuance of the requested Grading & Building Permits, but prior to the installation of the infiltration system(s). However, we strongly recommend that the testing is performed as soon as possible to confirm that the proposed design is feasible. Additionally, the engineer-of-record shall provide calculations, utilizing the observed permeability rate with a factor of safety of two (2), to demonstrate that the proposed recharge systems will completely empty within 72 hours. Should on-site testing yield undesirable percolation/permeability rates, the Applicant may be required to provide an alternate design which does not rely on percolation consistent with Ordinance Section 146.2b.2.
- 2.5. The plans show 2 new stairs from the basement level to the rear yard. The Architect shows area drains at the bottom of each set of stairs with the specification that the drain be directed to daylight. These drainpipes and should be shown on the Engineer's Plot Plan from the stairs to

their terminus.

The Applicant should also discuss the need for 2 sets of stairs given the request for a coverage variance.

- 2.6. There are several mature trees scheduled to remain that will likely be adversely impacted by the construction of the proposed pool and associated walls and grading:
- a. The 15" tree on the west side of the pool that lies within the designated limit of disturbance.
  - b. The 16" tree, immediately contiguous to the drywell installation.
  - c. The 10" tree located just north of the previously cited 16" tree

The Applicant should consult an arborist as to the viability of these three trees given the proximity of the trees and their root systems to the proposed construction. With regard to the tree closest to the drywell, the applicant should either relocate the drywell to avoid damage to existing tree roots systems or remove the tree.

- 2.7. Compliance with the requirements of the review letter from the Morris County Soil Conservation District (SCD) will be required.
- 2.8. If the Board were to act favorably upon the variance relief sought by the applicant, we would take no exception to the applicant providing some or all the information outlined as determined by the Board, as a condition of any approval.

**Any revised plans or other documents should be accompanied by a cover letter responding individually to each of the comments presented in this review letter.** The cover letter should also outline those changes to the plans that were requested as well as those not requested or readily apparent.