4/9/2020 COMMENTS

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February 24, 2020

Chairwoman Parilla and Members of
The Alpine Zoning Board of
Adjustment Municipal
Borough of Alpine
Municipal Building
100 Church Street
Alpine, New Jersey 07620

Attention: Ms. Marilyn Hayward,
Secretary to the Alpine Zoning Board

Re: Alpine Three, L.L.C.
Block 43, Lots 6.01, 6.02 and 6.03
982 Closter Dock Road
A & F File No. ALP-448

Dear Mrs. Hayward:

As listed previously in our letter of August 13, 2019, our office had received several documents regarding the application for site plan approval for the property identified above. Those documents are listed hereafter:

- A copy of the cover letter from Applicant's attorney, Guliet D. Hirsch, Esq. of Archer & Greiner, P.C., dated June 25, 2019;
- Attachment #1 - A copy of 'Planning Board, Borough of Alpine Development Application, undated;
- Attachment #2 - A copy of a document entitled 'Alpine Three LLC - Fee Calculation as per Section 179-7, with copies of three checks for the application fee, escrow and engineering escrow,
- Attachment #3 - A copy of an e-mail message from Marilyn Hayward, Borough of Alpine to Guliet Hirsch, dated June 13, 2019 indicating that property taxes for Lots 6.01,6.02 and 6.03 in Block 43 had been paid through the second quarter of 2019;
- Attachment #4 - A copy of 'Ownership Disclosure Statement', undated;

- Attachment #5 - A copy of 'Memorandum - To: Alpine Planning Board, From: Alpine Three LLC, dated February 25, 2019, Re: Alpine Three, LLC Property Litigation *I* Application History;
- Attachment #6 - A copy of 'Amendment to May 24, 2000 Settlement Agreement;
- Attachment #7(a) - A copy of 'Borough of Alpine Board of Health Resolution', adopted February 19, 2019;
- Attachment #7(b) - A copy of 'Flood Hazard Area Applicability Determination', issued by the New Jersey Department of Environmental Protection, dated April 18, 2017:
- Attachment # 7(c) - A copy of a letter from the State of New Jersey, Department of Environmental Protection, Historic Preservation Office, dated June 10, 2019
- Attachment #7(d) - A copy of a letter from Suez Water in response to a Will Serve request, dated June 5, 2019;
- Attachment #7(e) - A copy of a letter from the New Jersey Department of Environmental Protection Re: Letter of Interpretation - Line Verification - Reissuance, dated August 22, 2007;
- Attachment #7(f) - A copy of a letter from the New Jersey Department of Environmental Protection Re: Authorization for Freshwater Wetlands Statewide Permit, Water Quality Certification and Waiver of Transition Area for Access, dated Sept 05, 2008;
- Attachment #7(g) - A copy of 'Memorandum to Alpine Planning Board' From Guliet Hirsch, Esq., dated May 1, 2018, Re: Memo Regarding Extension of Wetlands Letter of Interpretation and General Permit 6 Pursuant to Permit extension Act of 2008;
- A copy of ' Drainage Report, Proposed 7 Townhouses, Lots 6.01,6.02 and 6.03, Block 43, Borough of Alpine, Bergen County, New Jersey', prepared for Alpine Three. LLC buy Michael J. Hubschman, P.C. and Najarian Associates, dated May 22, 2019;
- A copy of ' Stormwater Management Measures Maintenance Plan & Field Manuals ', prepared for Alpine Three Homeowners Association, dated June 20, 2019, by Michael J. Hubschman, P.C.
- A copy of 'Retaining Wall Calculations, Proposed 7 Townhouses, Lots 6.01,6.02 and 6.03, Block 43, Borough of Alpine, Bergen County, New Jersey, prepared for Alpine Three, LLC, dated June 24, 2019, by Michael J. Hubschman, P.C.;
- A set of plans entitled 'Amended Preliminary and Final Site Plan, Proposed 7 Townhouses, Lots 6.01,6.02, 6.03, Block 43, Borough of Alpine, Bergen County, New Jersey', containing 11drawings numbered 495-40 through 495-50, dated 5-22-2019, prepared by Hubschman Engineering, P.A.;
- A set of plans entitled ' Proposed Townhouses, Alpine, New Jersey - Alpine Three, LLC, Developer, prepared by Virgona + Virgona Architects *I* Planners, containing three drawings numbered SK-1 through SK-3, dated April 26, 2016, no revisions;
- A copy of a letter from Guliet Hirsch, Esq., dated July 8, 2019, transmitting 16 copies of the Landscape Plan not included in the submittal of June 25, 2019;
- A copy of 'Landscape Plan, Proposed Townhouses, Lots 6.01, 6.02, 6.03, Block 43, Closter Dock Road, Alpine, New Jersey', prepared by

Meuman Associates, dated 5/30/2018, last revised 7/2/2019 (Revision 3);

- A copy of a review letter dated July 29, 2019 from the Bergen County Department of Planning and Engineering 'Re: Application #SP 7356, Alpine Three, Dwg. No's 2, 3 and 5 of 11, Dated 5/22/2019, Block 43, Lot 6.01, 6.02 and 6.03 Alpine'.
- A copy of plans entitled 'Sanitary Force Main - Proposed Townhouses, Lots 6.01, 6.02 and 6.03, Block 43, Borough of Alpine, Bergen County, New Jersey ' prepared by Hubschman Engineering, P.A., last revised 4-5-13 (Received by Borough, Aug 8, 2019).
- A copy of the transmittal letter accompanying the previously described 'Sanitary Force Main' plans from Guliet D. Hirsch, Esq., of Archer & Greiner, P.C., dated August 7, 2019.

Subsequent to the August 13, 2019 letter, we have received the following application and plans:

- A copy of plans entitled 'Amended Preliminary & Final Site Plans - Proposed 7 Townhouses, Lots 6.01,6.02 & 6.03, Block 43. Borough of Alpine, Bergen County, New Jersey', containing 11drawings, dated 5-22-2019, revised through 10-7-2019 (Revision No. 2), prepared by Hubschman Engineering, P.A.
- A copy of plans entitled 'Amended Preliminary & Final Site Plans - Proposed 7 Townhouses, Lots 6.01, 6.02 & 6.03, Block 43. Borough of Alpine, Bergen County, New Jersey', containing 11drawings, dated 5-22-2019, revised through 12-18-2019 (Revision No. 3), prepared by Hubschman Engineering, P.A.;
- A copy of ' Soil Moving Report, Proposed 7 Townhouses, Lots 6.01,6.02 & 6.03, Borough of Alpine, Bergen County, New Jersey, dated December 9, 2019, prepared by Michael J. Hubschman, P.C.;
- A copy of plans entitled ' Cross Sections and Soil Moving Plan - Proposed 7 Townhouses, Lot 6.01,6.02 & 6.03, Block 43, Borough of Alpine, Bergen County, New Jersey', containing 2 drawings, dated 5-22-19, no revisions, prepared by Hubschman Engineering, P.A.
- A copy of 'Application for Soil Movement Permit' for Lots 6.01,6.02 & 6.03 of Block 43, 982 Closter Dock Road, dated
- A copy of 'Application for Soil Movement Permit' for Lots 6.01, 6.02 & 6.03 of Block 43, 982 Closter Dock Road, dated January, signed by the applicant and notarized;
- A copy of ' Soil Moving Report, Proposed Force Main, Lots 6.01,6.02 & 6.03, Borough of Alpine, Bergen County, New Jersey, dated January 9, 2020, prepared by Michael J. Hubschman, P.C.;
- A copy of plans entitled 'Sanitary Force Main - Proposed 7 Townhouses, Lots 6.01, 6.02 & 6.03, Block 43. Borough of Alpine, Bergen County, New Jersey', containing 7, drawings, dated 4-25-01, revised through 3-7-13 (Revision No. 7), prepared by Hubschman Engineering, P.A. (received by the Borough January 14, 2020);
- A copy of a letter from the Bergen County Soil Conservation District re: '(7) Townhouses, Closter Dock Road, Block 43, Lots 6.01,6.02 & 6.03, Alpine, NJ' which " ..certifies the Soil Erosion and Sediment Control Plan for the above referenced project..", no plan date, revision date(s), given;

- A copy of a letter from the County of Bergen, Division of Planning and Engineering, addressed to the applicant, dated November 22, 2019;
- Copies of correspondence from Attorneys Hirsch, Phillips and Capizzi.

To summarize these additional submittals, we have been provided with copies of revised site plans, an Application for Soil Movement in regard to the Proposed Development of the applicant's three lots, with Cross Sections and a Soil Movement Report, an Application for Soil Movement in regard to the proposed force main, with plans and profiled for the force main, and certain correspondence.

1. Application /Review Status

1. As of this date, the applicant's presentation before the Alpine Zoning Board of Adjustment has not concluded and is scheduled to be continued.

2. Given no listed revision to the Force Main Plans of 2013, our review thus far has focused on the proposed drainage design and related site plan issues. This is not to say that the Force Main plans/documents will not be reviewed, and comments provided.

3. Attached to this letter is the Memorandum of February 11, 2020, Veer, P.E., consultant to the Borough listing issues related to the proposed drainage improvements.

4. The comments referenced herein are preliminary, subject to the review of additional information being provided as requested or warranted. Other comments regarding the site plan, soil moving, landscaping, and other aspects of the application will be forwarded upon completion of the preliminary review of the submitted documents and may address issues raised in testimony.

If we can be of any further assistance regarding this matter, please feel free to contact us.

Very truly yours,

AZZOLINA & FEURY ENGINEERING, INC.

Perry E. Frenzel, P.E., P.P.

Attachment

cc: Mr. John C. Phillips, Esq. - Planning Board Attorney Mr. Alden Blackwell - Alpine Construction Official Gary Vander Veer, P.E. Hubschman Engineering, P.A. Alpine Three, LLC c/o E. Norian Guliet D. Hirsch, Esq. - Archer & Greiner, LLC Matthew G, Capizzi, Esq.

4/9/2020 COMMENTS

MEMORANDUM

To: Perry Frenzel, Board Engineer
From: Gary Vander Veer
Date: February 11, 2020

Subject: Alpine 3, LLC, A & F File No. ALP-448

This Memorandum pertains to a review of the following documents regarding the above referenced site plan application currently before the Alpine Planning Board, specifically the stormwater management:

- A set of plans {eleven sheets) entitled "Amended Preliminary & Final Site Plan, Proposed 7 Townhouses, Lots 6.01,6.02 & 6.03, Block 43, Borough of Alpine, Bergen County, New Jersey", prepared by Hubschman Engineering, P.A., dated May 22, 2019 and last revised on October 7, 2019. The plans are further described as follows:
  - Cover Sheet, sheet 1of 11
  - Site Plan, sheet 2 of 11
  - Grading, Drainage & Utilities, sheet 3 of 11 o Details, sheet 4 of 11
  - Details, sheet 5 of 11
  - Stormwater System Details, sheet 6 of 11
  - Lighting Plan, sheet 7 of 11
  - Soil Erosion & Sediment Control Plan, sheet 8 of 11
  - Existing Conditions Plan; Trees to be Removed Plan, sheet 9 of 11
  - Profile, Closter Dock Road, sheet 10 of 11
  - Storm Water Profile; Sanitary Sewer Profile, sheet 11 of 11
- A document entitled "Drainage Report, Proposed 7 Townhouses, Lots 6.01,6.02 & 6.03, Block 43, Borough of Alpine, Bergen County, New Jersey", prepared by Michael J. Hubschman, P.C. and Najarian Associates and dated May 22, 2019.

Most recent Drainage Report was dated September 24, 2019.

- A document entitled "Stormwater Management Measures Maintenance Plan & Field Manuals, Alpine Three, LLC, Block 43 Lot(s) 6.01,6.02 & 6.03, Borough of Alpine, Bergen County, New Jersey", prepared for Alpine Three Homeowners Association, prepared by Michael J. Hubschman, P.C. and dated June 20,2019.

In addition to the above, this review will make reference to a document entitled "Alpine Three, LLC v. The Planning Board of the Borough of Alpine {Docket No. BER-L-6794-13), Stormwater Management Issues Related to Design of Proposed Townhouses, Lots 6.01,6.02 and 6.03; Block 43, Borough of Alpine, Bergen County, NJ", prepared by James F. Cosgrove, Jr., P.E., Vice President and Principal, Kleinfelder, Inc. and dated May 21,2014. This report provides a general guideline *I* checklist of stormwater management issues which need to be addressed by the applicant in order to be in compliance with State and local regulations. This report will be referred to as the "Cosgrove Report".

A. Stormwater Management Report

1. Page 1.1 provides a summary at the top of the page of the existing conditions *I* drainage areas at the site. The drainage areas as noted are incorrect for the detention system and the remaining area. Corrected areas shall be provided.

Drainage Report pg. 1.1 is revised to include the drainage runoff coefficient and area corresponding to the study area (areas projected in the proposed conditions to go to the proposed detention system).

2. Page 2.2 provides the calculations for flows to the detention basin under existing conditions. The runoff coefficient utilized is for the entire site; not for only the area to the detention basin. Revised runoff calculations shall be provided.

Drainage Report pg. 2.2 is revised accordingly utilizing the calculated runoff coefficient of 0.470 for the Detention System area (Study area).

3. As a result of number 2, above, the storage requirement calculations provided on pages 4.1- 4.4 are incorrect. Revised storage calculations are required. This may necessitate a need to redesign the detention basin.

4.

The updated results of the “C” factor did not result in any increase to the proposed storage volume since the runoff coefficients for the study area went up from 0.468 to 0.470. Allowable runoffs remained the same.

4. Page 3.1 provides a tabulation of the individual drainage areas on the site. The tabulation is incorrect as it relates to the drainage areas tributary to the detention system. Drainage areas A2 and A17-A21 drain to Cultec Chamber B; part of the groundwater recharge system. The stormwater does not connect to the detention system. Likewise, drainage areas A4, A5, A7, A8, A10, A12, and A22-A24 are tributary to Cultec chamber A. An overflow pipe is provided from this system to the drainage system tributary to the detention basin but there is no documentation as to how much of the

stormwater runoff reaches the detention system versus how much of the stormwater is recharged into the ground. The drainage area to the detention basin shall be revised, which will require subsequent sections of the report to be revised.

The reviewer statements are incorrect.

New Jersey Stormwater Best Management Practices Manual • Chapter 5: Computing Stormwater Runoff Rates and Volumes: *"As required by the NJDEP Stormwater Management Rules and described in detail in Chapter 6: Groundwater Recharge, land development projects must maintain 100 percent of the site's annual pre-developed groundwater recharge. At most sites, this will require the design and construction of a groundwater recharge BMP that allows the runoff from the groundwater recharge design storm to infiltrate into the site's subsoil. This amount of infiltration can also be used by a designer to help meet the stormwater quality requirements of the Rules. Techniques to do so are presented below.* ***However, to ensure downstream safety and channel stability, the amount of groundwater recharge provided at a development site cannot be considered when complying with the Rules' stormwater quantity requirements (i.e., control of the 2, 10, and 100-year storms)".***

As described above, per NJDEP BMP Manual, the volume provided by the groundwater recharge BMP cannot be considered when complying with the stormwater quantity requirements. The volumes of the Cultec chambers A and B cannot be used for sizing of the required detention system. Therefore, the detention system for the project site is sized to receive 100% or the runoff from the areas utilized for groundwater recharge.

5. As a result of the incorrect hydrographs presented in item 3 above, the routing calculations presented on pages 6.1- 6.17 will need to be reviewed and revised as necessary.

The reviewer statements are incorrect.

For the reasons expressed in items 1-4 above, the routing calculations presented in pages 6.1 to 6.17 are correct.

6. Section 7 provides calculations for the water quality design storm and the stormfilter design summary. The report shall be revised to provide the calculations related to the treatment flow rate of 0.53 cfs (how is the flow rate calculated). The illustration provided on page 7.5 does not appear to be applicable to the current site design. It should be revised or removed.

The reviewer statements are incorrect.

Water quality peak flow is calculated in accordance with the NJAC 7:8-5.5 Stormwater runoff quality standards. Summary of the inputs and the results is included in the pg. 7.3 of the Drainage Report. The general manufactured treatment device (MTD hereafter) location sketch in the pg. 7.5 is updated. Detailed information of the MTD

including location is provided in the attached engineering drawings.

7. Section 8 applies to the groundwater recharge calculations and requirements. The calculations are based on the spreadsheet GSR-32. The post-development conditions utilize a drainage area of 0.62 acres. The contributing drainage areas to the groundwater recharge features is only 0.226 acres. The spreadsheet must be revised to reflect actual conditions, post- development. This item was previously noted in the Cosgrove Report as a deficiency but has not been addressed with this submission. Therefore, the application may not be in compliance with the groundwater recharge requirements.

GSR-32 spreadsheets have been revised accordingly. It should be noted that only a portion of the rooftop areas which equal to 9,593 sf is designated as “target area” for groundwater recharge.

8. On page 8.10 of the report, the applicant makes reference to a groundwater elevation of 427.23 based on measurements obtained on June 20, 2018. Groundwater elevations obtained during that period of the year do not reflect seasonal high-water table conditions. The groundwater recharge devices must be installed such that the bottom of the feature is two feet *above* the seasonal high-water table elevation. The design cannot be verified if the groundwater elevation is not correct.

Site testing (test pits and piezometer installation) was performed by Johnson Soil on March 19, 2020 (the piezometer readings are ongoing. Current results are included in the Appendix 5 of the drainage report

9. Section 9 of the report generally describes the requirements of non-structural stormwater management strategies according to the rules found at N.J.A.C. 7:8. The report lists those issues found at the above referenced section of NJDEP rules and concludes with the statement that the proposed nonstructural measurements in the design are adequate. This review finds that the report and the design do not comply with the minimum requirements of the NJDEP rules. The findings here are similar to those found in the Cosgrove Report; that the majority of the non-structural strategies have not been implemented. The details of the shortcomings of the design are included in following sections of this report.

All comments for non-structural stormwater management strategies are addressed by Peter via e-mail March 3, 2020. In addition, the revised NSPS spreadsheet indicate compliance with the strategies employed for the development.

10. The report attempts to document compliance with the non-structural strategies with the use of the NJDEP nonstructural strategies points system (NSPS). The end result of the document provided in the report is that the proposed nonstructural measures

are adequate since the minimum required site points ratio is 65% and the points ratio obtained in the NSPS spreadsheet is 65%. Based on this review, several of the numbers used in the spreadsheet appear to be incorrect and will cause the proposed point ratio to fall below 65% and therefore fail. The apparent errors are as follows:

a.) Step 2, Section A, item 1 is blank but should include an area (0.1 acres}. Item 7 should be corrected (0.9 acres) Item 15 should be included with an area (0.1 acres). Therefore, the existing site points noted is incorrect.

This statement is incorrect; wetland 0.1 ac has been filled. However, we revised Step 2 of the NSPS spreadsheet as requested.

b.) Step 3, Section D needs to be reviewed and corrected. Provide documentation regarding the length of runoff conveyance system and especially the length of vegetated runoff conveyance system. The length of the proposed grass swales on site is approximately 350 linear feet; not 630 linear feet. As an aside, the tributary drainage area for the grass swales is almost negligible.

Step 3 of the NSPS spreadsheet is revised as following:

- Site segment no.2 is kept as o.5 ac representing lawn and open space.
- Site segment no.12 is kept as 0.08 ac representing pervious pavers.
- Site segment no.13 is changed from 0.47 ac to 0.25 ac. The revised area represents the areas of the roadway and parts of the roof area that is not utilized as target area for groundwater recharge.
- Site segment no.14 is kept as 0.04 ac representing concrete walkways which run overland to “unconnected impervious with small D/S pervious”.
- Site segment no.15 is newly introduced and represent roof areas that are used for groundwater recharge which per NSPS user guide are considered “unconnected impervious with large D/S pervious” ….“***Roofs with Drywells: The area occupied by roofs that discharge their runoff to drywells with sufficient capacity to contain, at a minimum, the roofs’ groundwater recharge storm should be included in the Unconnected Impervious with Large Downstream Pervious category”.***

Entry D. Describe Proposed Runoff Conveyance System: conveyance system for associated with the grass swale was reduced to 350 ft as requested.

Entry F. Will the following be utilized to minimize Soil Compaction?: is activated to claim credit for the proposed

decompaction area along the Closter Dock Road. This area comprises 9% of the overall lot area.

Based on the aforementioned, the ratio of proposed to existing site points equals to 66% which is greater than the required site points ratio of 65%. Therefore, the project meets the required criteria set forth in the NJ Stormwater Best Management Practices Manual, Chapter 2 - Low Impact Development Techniques.

11. The buoyancy calculations are provided as required in order to permit the placement of the stormwater management structures (detention basin) within the area of seasonal high-water table. Page 13.1of the report provides buoyancy calculations for the detention system pipe (42- inch diameter HDPE) utilizing a minimum soil ground cover of three feet where the minimum cover over the pipe system is actually two feet. In addition, the report notes that the calculations are performed with the pipes fully submerged. Should the calculations not be performed with the pipes empty? Page 13.3 provides the buoyancy calculations for drainage structure no. 2. The applicant should explain why the seasonal high groundwater elevation for this structure is 423.67 while the groundwater elevation for the pipe system and structure no. 1 is higher. The entire system is connected and, therefore, the groundwater elevation should be. The same across the entire structure. The dimensions for both of the structures should be reviewed and revised as necessary and additional dimensions shall be provided where missing.

Grading is changed to provide a minimum of 3 ft overall pipes. Calculations are based on pipes being empty as no water weight is accounted as a resisting force. Note that the cover over the pipes was not 2 ft as stated, and the pipes were considered empty. The statement above regarding the pipes assumed full is incorrect. Conservatively, for consistency, the buoyancy calculations for DS No.2 were revised to the assumed groundwater elevation of 424.50. This elevation is a hypothetical assumption and does not reflect the groundwater elevation which for the detention system area was observed to be well below during most recent test pits.

12. Section 16 is labeled Conduit Outlet Protection. There are no calculations provided in the report.

No proposed work is associated with the outlet discharge in question. Section 16 is intended to explain why an improvement at this location is not applicable.

B. <u>Non-structural stormwater management strategies</u>

1. Nine strategies are listed, following closely with a recitation of the NJDEP regulations. There is no analysis of any of the nine strategies provided and how the proposed design includes the non-structural stormwater management strategies or why the design cannot comply with inclusion of the strategies. Therefore, the deficiencies noted in the Cosgrove Report remain to be addressed by the applicant. For example:

a.) Protect areas that provide water quality benefits or areas particularly susceptible to erosion and sediment loss. The applicant has filled all of the existing freshwater wetlands and will remove nearly all of the existing vegetation on the site.

b.) Minimize impervious surfaces. The applicant has maximized the impervious surfaces with the exception of the pervious pavers in the driveway areas, which will require maintenance to retain the design pervious values.

c.) Maximize the protection of natural drainage features and vegetation. The applicant will eliminate the large areas of wooded sheet flow and the existing freshwater wetlands area. The proposal will replace these areas with a drainage system design to capture the stormwater runoff and concentrate the discharge to one location.

d.) Minimize the decrease in the pre-construction time of concentration. As a result of the lack of addressing the issue raised in item c, above, the proposal will reduce the pre-construction time of concentration by more than one half.

e.) Minimize land disturbance. The applicant will disturb nearly the entire site.

f.) Minimize soil compaction. Since the entire site will be disturbed, the construction equipment will be traversing the site, compacting the soil over the entire site.

g.} Provide low-maintenance landscaping that encourages retention and planting of native vegetation and minimizes the use of lawns... The landscaping plan utilizes extensive areas of lawns, contrary to the regulations.

h.) Provide vegetated open-channel conveyance systems discharging into stable vegetated areas. Although the applicant does provide grass lined swales along each side of the site, the drainage areas tributary to these features is minimal and all of the impervious surfaces are tributary to a structural drainage system. The grass swales do not serve as a major factor for the stormwater management system.

2. The only one of the nine strategies addressed by the applicant is the inclusion of the stormfilter, to bring the site into compliance with respect to addressing the stormwater runoff water quality regulations. Also, the applicant will provide compliance with the installation of catch basin curb pieces which will keep large solids from entering the drainage system. These features are structural best management practices (BMP's}.

3. ln order to demonstrate compliance with the non-structural stormwater management strategies, the applicant has included the

NJDEP Nonstructural Strategies Points System (NSPS) spreadsheet. As previously reported herein, several areas are incorrect and/or misleading. The result as submitted is marginally acceptable; if corrected, it will fail.

Compliance with the non-structural stormwater management strategies cannot be verified until such time that the above issues have been addressed and revised documents submitted for review.

All comments for non-structural stormwater management strategies are addressed by Peter via e-mail March 3, 2020 and A.9 and A.10 above.

C. Stormwater Runoff Quantity Standards

1. The report indicates that there is adequate storage volume within the 42-inch diameter pipe system to reduce the peak rates of stormwater runoff for the 2-, 10- and 100-year storm events as required by regulation. As previously noted, the summary tables and calculations will need to be revised to verify adequate storage volume.

Summary Table included in pg. ii of the drainage report is revised accordingly.

2. The buoyancy calculations will need to be revised to address those issues previously raised in this report; namely the incorrect cover over the pipe system and the water table elevation issue (differing elevations despite a contiguous system).

The proposed grading change for the area around inlet grate of the DS No.2 has increased to 3 ft for the section of the detention system pipe. No calculations were changed.

Compliance with the stormwater runoff quantity standards cannot be verified until such time that the above issues have been addressed.

D. Stormwater Runoff Quality Standards

1. Page 7.1 of the Drainage Report, prepared by Contech, notes that the design is based on a five-townhouse layout. Is this a typo, based on the previous submission which related to the septic system design scenario? This should be reviewed and addressed by the applicant.

Page 7.1 is updated to seven-townhouse layout.

2. The drainage area on the worksheet (page 7.1) indicates 0.18 acres; the actual drainage area of the pavement (Al plus A3} is

0.348 acres. Why is the calculation not based on the full drainage area?

The area in question represents only portion of the impervious area which is subject to WQ requirements.

3. The construction detail on page 7.5 of the report does not appear to be applicable. If it is, a further explanation is required. It appears to be a detail applicable to the septic system design, previously submitted and subsequently withdrawn.

Pg. 7.5 includes a sketch layout of MTD which is updated in this submittal. Engineering drawings include requisite info about the proposed MTD.

Compliance with the stormwater runoff quality standards cannot be verified until such time that the above issues have been addressed and revised documents submitted for review.

E. Groundwater Recharge

1. The plans propose the use of Cultec Recharger units at two locations - the roof runoff is to be directed to groundwater.

No revision requested.

2. The applicant has provided form GSR32 to determine the development groundwater deficit and how it will be compensated. The reported deficit is 25,897 cubic feet, which is to be provided through the use of the Cultec Recharger units.

GSR32 is updated accordingly.

3.The Cosgrove Report noted that the original determination was not acceptable since the post- development area used was the total site but only a portion of the roof area contributed to the recharge. This plan and the calculations have been revised to address this issue.

Addressed in Item A.6 above.

4. The recharge units are in close proximity to the proposed footing drains for the buildings. Therefore, the recharge will not function as designed and instead the stormwater directed into the ground will be captured by the footing drains. The footing drains point of discharge is not depicted nor is it noted in the plans or the report.

Addressed by Peter in his march 3, 2020 e-mail.

5. The southwesterly unit (Cultec Chamber B) is placed directly over the detention system. Therefore, the water intended to recharge the groundwater will instead follow the quickest route out of the system; towards the roadside drainage ditch and will not recharge the groundwater.

Discharges from area in questions will initially move downwards as the soil backfill is granular. The reinforced concrete retaining wall will serve as barrier which will contain any premature breakouts.

6. The report shall be revised to provide calculations to verify the BMP areas noted on the spreadsheet.

Section 8 of the drainage report includes requisite calculations.

7. The Cosgrove Report indicated that the groundwater to be captured and directed from the site via footing drains will be a deficit, not included in the above noted Form GSR32 spreadsheet. This volume must be calculated and added to the required groundwater recharge needs of the site development.

Conditions presented in the said report are no longer applicable. The then proposed footing drain are omitted.

8. As previously noted, the groundwater determination for system A was made based on a test hole excavated in June. The separation requirement between groundwater and the bottom of the system is measured from Seasonal High Water Table (SHWT); not a random elevation taken during June.

Test pits and piezometer installation was conducted on March 17, 2020. The groundwater observations have confirmed that the design meets or exceed the required separations between the level of infiltrations and the groundwater.

9. Provide the data to document the Dwyer report findings noted on page 8.10 of the drainage report.

Dwyer input is related to the specific yield and the aquafer thickness. Both entries are used in groundwater mounding analysis.

Compliance with the groundwater recharge requirements cannot be verified until such time that the above issues have been addressed and revised documents submitted for review.

F. Maintenance

1. The manual provided for review appears to cover all of the regulation requirements specified by NJDEP.

No revision requested.

2. The primary concern is who is the responsible party once all of the units are occupied. How will the maintenance of the facilities be accomplished and by whom? How will the funding be set up to ensure that a properly certified contractor is available and on call to perform the required maintenance? Who will be responsible to ensure that the myriad of paper inspection forms is completed and filed with the Borough, to ensure that the on-site

stormwater management system will remain in compliance with the regulations, in perpetuity?

Peter has suggested that the Homeowner Association will be established and coordinate to collect the fees and be responsible for maintaining the plan and hiring professionals to perform the required inspections.

3. The Maintenance Plan and Field Manual clearly is intended as a living document and is subject to change on a regular basis. Who will be responsible to ensure that the document is kept current?

Same as answer in item F.1

4. ls there any legal assurance that, after several years, the homeowner association decides that the Borough should provide the maintenance required for the stormwater management system (as well as other site amenities) and decides to take legal action?

Same as answer in item F.1

The Maintenance Plan and Field Manuals appear to be in compliance with the applicable regulations. Enforcement of the documents through the formation of a homeowner association as well as other bonding issues will need to be addressed subsequent to any approvals.

G. NJDEP Flood Hazard Area Control Act Regulations - compliance

1. The plans and drainage report are silent with respect to compliance with NJDEP flood hazard area regulations.

Peter believes that John Peel has already testified about this. Need to further discuss!

2. A prior agreement, that this project is exempt, is confusing since there has been a failure on the part of the applicant to advance the project in a timely fashion.

No revision requested

3. The applicant should submit a request to NJDEP for an applicability determination; specific to the roadside ditch and the on-site water feature / spring as they relate to the riparian zone requirements.

Coordinate response with MJH.

4. The applicability of the riparian zone and/or SWRPA may severely impact the development potential of this site. The roadside ditch does not appear to be exempt from regulations despite the drainage area being less than 50 acres and, therefore, may be subject to riparian zone regulations.

The applicant has indicated his intention to provide expert testimony at the next meeting to discuss NJDEP permitting issues.

Further comments may be forthcoming subsequent to said testimony and the responses to questions from the Board and/or public.

H. On-site Water Feature (Spring)

1. This feature has been mis-labeled on the plans since the original applications submitted for redevelopment of this site. This includes any and all submissions made to NJDEP for permitting purposes. Due to the mislabeling of the spring and the fact that the spring is well hidden at the site, NJDEP may not have even been award of its existence. For this reason, the recommendation has been made to submit an application to NJDEP for purposes of determining if any further permitting requirements may apply to a spring versus an abandoned well.

Need to coordinate response w/MJH

2. These issues were raised in the Board Engineer's previous reports on the applications circa 2013 as well as the Cosgrove Report of 2014.

Need to coordinate response w/MJH

3. The applicant has not included any provisions in the on-site stormwater management system to address the spring water. The report does include several flow measurements attributed to the spring and testimony was presented at the most recent Planning Board meeting. Further testimony should be provided to answer several questions pertaining to the flow measurements: who took them, where were they taken, what were the hydrologic conditions during the time period when the measurements were taken, etc.

Need to coordinate response w/MJH

I. Construction Plans

1. Revise the notes for the pervious paver construction notes (sheet 5 of 11); the last sentence refers to General Note 10 on sheet no. 1which does not exist.

Note revised as requested.

2. Revise the Stormwater Stormfilter Detail, elevation view, on sheet 6 of 11 to show the additional 12-inch diameter pipe entering the chamber from 'A' Inlet No. 2. The pipe invert appears to be below the weir elevation which will cause the stormwater to back up into the 12- inch pipe. This should be corrected.

Invert of the pipe in question is raised above the weir wall as requested.

3. Sheet 6 of 11 depicts many views (plan and elevation) of the retaining wall along the southerly side of the site. Recent testimony involved this feature and the location of the fence at the top of the wall. The construction plan should be revised to depict what the applicant has indicated would be constructed, including but not limited to retaining wall construction materials, fence heights, fence location, etc. The relocation of the fence may impact the location of the stormwater management improvements in this location.

   Reinforced concrete retaining wall detail on drawing sheet 495-44 is revised accordingly.

The above items should be addressed by the applicant and resubmitted for review prior to the Board taking any action on the application. Many of the issues can be addressed but some of the items may not be fixable without significant changes to the proposed redevelopment plan.

Kindly review the above at your earliest convenience. Should you have any questions regarding this or any other matter, do not hesitate to contact me.

Sincerely yours,

Gary Vander Veer, P.E.