BROOKER ENGINEERING PLLC

NY OFFICE
74 Lafayette Avenue, Suite 501 845.357.4411 Tel
Suffern, NY 10901 845.357.1896 Fax

NJ OFFICE
22 Paris Avenue, Suite 105 201.750.3527 Tel
Rockleigh, NJ 07647

August 26, 2022

Civil Design Works LLC
19 Squadron Blvd, Suite 4
New City, New York 10956

Attn: Glenn McCreedy, P.E.

Re: Pennington Subdivision
Village of New Hempstead
Tax Lots 42.09-2-1 and 42.05-2-14

Dear Glenn,

We have received your July 5, 2022 review letter for the Pennington subdivision project. In response to your review comments, we have revised the design of the proposed stormwater management system, revised the drainage report, and revised the subdivision plans to more clearly present the results of the drainage analysis and the system design. Please see responses below…

1. ***Comment:*** *A Table of Contents shall be provided that identify the appropriate supporting sections of the analysis.*
   Response: Please see attached revised "Drainage Analysis" with table of contents added to the report.

2. ***Comment:*** *Summary Page 2 Paragraph 6. states that the new system contains a 42" HDPE and drainage swale and that it has been designed, but no calculations have been provided supporting this sizing.*
   Response: The 42" HDPE pipe has been designed as a bypass pipe to convey discharge from the westerly off-site area through the project site and into the existing conveyance system to the east of Pennington Way. The pipe has been sized to match the size of the existing pipe immediately downstream of the project site. By matching the size of the new upstream pipe to the size of the downstream pipe, the capacity of the new pipe has been maximized. Please see attached revised "Drainage Analysis" with calculations provided to clarify the sizing consideration noted herein. The new 42" pipe has capacity to pass the 100-Year discharge through the site. Please see Appendix F of the "Drainage Analysis".

3. ***Comment:*** *Summary Page 2 Paragraph 7. Shall clarify that there is offsite drainage entering the project site and a considerable portion from McNamara that would be part of the on-site wetlands, is being bypassed to the Pennington System.*
   Response: Please see attached revised "Drainage Analysis" with the section of the report describing the sizing of the 42" pipe as described revised to describe the off-site drainage from the westerly side of McNamara Road in Appendix F.

4. ***Comment:*** *Pretreatment was not appropriately addressed in the drainage analysis or design. As a result of the infiltration rate determined, the project is imposed with treating 100% of the water quality volume as pretreatment, prior to introduction into the infiltration system. Then the infiltration system must be sized to meet both the Runoff Reduction and Water Quality volume mitigation. This design will not be accepted until the pretreatment has been addressed. Note that infiltration is not satisfactory for pretreatment. Also note that the NYSDEC does not accept the Stormtech Isolation Row as pretreatment as well. Alternate means will be required.*
   Response: The design of the stormwater management system has been revised to incorporate a proprietary pretreatment device prior to discharge into the proposed Stormtech infiltration system. The selected device is a First Defense Stormwater Treatment Separator by Hydro International. It is a "flow-through" device that is on the list of NJCAT approved proprietary devices. It will be located downstream of the flow diverter and upstream of the Stormtech system. The selected unit is sized and certified to provide pretreatment of 100% of the water quality runoff volume and is capable of conveying discharge of the larger storms. Please see attached revised "Drainage Analysis" which includes the specifications for the First Defense Stormwater Treatment Separator unit. The drainage analysis has also been revised to include summary tables to demonstrate the adequacy of the selected unit as compared to the design calculations.

5. ***Comment:*** *Drainage area maps. Please identify the soil map lines with a different pen weight and label them as soil classification boundaries on the maps. This is very confusing and it looks like drainage area boundaries.*
   Response: Please see attached revised "Drainage Analysis" with drainage area maps revised to clarify the soil classification boundaries.

6. ***Comment*:** *Provide summary tables of the results that include the water surface elevation of the diversion structures as well as the Stormtech system for each of the design storms in the summary. Please also include stage versus storage versus discharge for the infiltration system. Please identify the elevation stage of the Water Quality storm.*
   Response: Please see attached revised "Drainage Analysis" with the summary tables of the water surface elevations, as requested. Summary tables for the stage/storage/discharge infiltration system have been included in the revised HydroCAD output, and references to the pages have been added within the drainage report. The proposed conditions HydroCAD model includes the water quality storm, which was calibrated to confirm the adequacy of the sizing of the pretreatment unit and the runoff reduction requirements.

7. ***Comment*:** *Hydrocad Input Data Page 8:*
   a. Existing conditions, the CN is an average composite, not calibrated.
   b. Provide a table in the summary for existing and proposed CN breakdowns. We did find these breakdowns on the drainage area maps; however, the maps show the area results in SF but in Hydrocad it is in acres. Please provide a summary of all documentation in the summary section that concludes the input data for clarity.
   Response: Please see attached revised "Drainage Analysis" with the description of the curve numbers revised to note that they are a composite average. A summary table of the curve number breakdowns used in the input data has been added to the report.

8. ***Comment:*** *Water Quality Calculations. Contributing site area for the water quality is representing off-site flow that does not contribute to the infiltration SMP. This should be reassessed.*
   Response: Please see attached revised "Drainage Analysis" with the water quality calculations have been revised to reflect only the area that contributes to the proposed stormwater management system.

9. ***Comment:*** *Runoff Reduction shall be reassessed after WQ calculations are amended. However, note that the calculated of 16,827 CF does not match any of the provided design criteria. There is a reference to "see stormtech detail on plan set", yet no further calculations are identified on plans. The output data from Hydrocad identifies that the maximum storage that can be provided at elevation 451.9 is 0.214 acre-feet (approx. 9,320 cf). The design may need to be evaluated to assure that adequate RRv has been provided.*
Response: Please see attached revised "Drainage Analysis" with the water quality calculations have been revised to demonstrate that the design of the proposed system meets the runoff reduction requirements. References to the relevant pages in the HydroCAD output have been added to the revised drainage analysis to facilitate the review of the calculations.

10. ***Comment:*** *Pre-treatment calculations are incorrect and not resolved in the design.*
Response: Please see attached revised "Drainage Analysis", Appendix E, with the design of the stormwater management system revised to incorporate a proprietary pretreatment device.

11. ***Comment:*** *Drawing No. T:*
    a. *Note 21. Contents of note are duplicated in Note 20.*
    b. *Note 23 is reiterated in Note 30.*
    c. *Note 24 and 33 are duplicated.*
    d. *Further notes 22, 31 and 34 should be coordinated for the respective governing agency.*

Response: Please see attached revised Drawing No. T with comments "a" thru "d" addressed.
    a. Note 21 has been combined with Note 20 to eliminate Note 21.
    b. Note 23 has been eliminated.
    c. Note 24 has been eliminated.
    d. Notes 22 and 31 have been eliminated as duplicates to Note 34.

12. ***Comment:*** *Drawing No. 001:*
    a. *Property at entrance identifies Proposed Drainage Easement (Infiltration System). It is understood that the proposed road was to be dedicated to the Village and constructed to Village Standards. Therefore, this lot should be dedicated and no easement would be required. No southern boundary for the road would be required since the entire parcel would be owned by the Village.*
    b. *The land on the north side of the proposed 50 foot right of way just west of Pennington Way shall be part of Lot 16 or dedicated to existing tax parcel 42.05-2-13. This would make this a corner lot but it appears no bulk requirements would be impacted as a result if the land was dedicated.*
    c. *There is a "hatched" area between lots 9 and 10 that is not identified and its disposition unknown. This shall be removed or further resolved.*

Response: Please see attached revised Drawing No. 001 with comments "a" thru "c" addressed.
    a. Property has been revised to note, "LOT #17 – DRAINAGE LOT TO BE DEDICATED TO VILLAGE OF NEW HEMPSTEAD".
    b. Correct. This land is dedicated to Lot #16 with a drainage easment.
    c. The "hatched" area between Lots 9 and 10 has been eliminated.

13. ***Comment:*** *Drawing No. 2:*
    a. *Legend on plan shall include all features for existing and proposed, including but not limited to, property lines, wetland boundary, wetland flags, regulated area, concrete walls, etc. Please note that the linetype used for proposed building does not match the plan linetype.*
    b. *Provide full bulk table evaluation for each lot of the subdivision.*
    c. *Permanent driveways shall not be located in the proposed drainage easements between lots 2 and 3 and also lots 4 and 5.*

d. *Provide adequate sidewalk transition at the intersection of Pennington Way. The intersection also must include ADA ramps, stop bar and stop sign.*
e. *Provide typical dimensioning for each driveway configuration provided. I recommend a typical part plan at an appropriate scale for clarity.*
f. *Proposed pools shall be dimensioned from the house. More detail for the proposed pools are required, including patio areas, walkways, pool size, depth, etc. Location of filtration systems shall be shown.*
g. *Walkways to front porch of each dwelling? Material? Detail?*
h. *The striping hatch pattern in the cul-de-sac bulb shall be discussed with the planning board.*
i. *Radii of all curb lines shall be provided.*
j. *Radii of cul-de-sac bulb shall be provided.*
k. *Provide grass mall between proposed curb line and sidewalk. To be discussed with Planning Board.*
l. *Show drainage easement between lots 14, 15 and 16.*
m. *Retaining wall between lots 10 and 11 shall be labeled and detailed.*
n. *All walls shall be provided with adequate fall protection (barriers, fence, railings, etc.)*

Response: Please see attached revised Drawing No. 2 with comments "a" thru "n" addressed.

a. Legends have been revised to include all features for existing and proposed, including but not limited to, property lines, wetland boundary, wetland flags, regulated area, concrete walls, etc. Linetype for proposed building has been revised to match the plan linetype.
b. Bulk table expanded for each lot.
c. Permanent driveways have been removed from proposed drainage easements.
d. Sidewalk transition to Pennington Way, ADA ramps, stop bar, and stop sign have been added.
e. Typical dimensioning for each driveway added.
f. Pool dimensions from each house and pool size have been added. Additional pool details to be provided once determined. The pool is schematic to show the disturbance to the Village Wetland Regulated Area for Planning Board consideration.
g. Walkways to front porch from driveway added for each house. Material noted.
h. Noted.
i. Curb line radii added.
j. Cul-de-sac radius added.
k. Noted. Grass mall to be discussed with Planning Board to determine if required.
l. Drainage easement between Lots 14, 15, and 16 has been added.
m. Headwalls #9 and 11 have been detailed.
n. Noted. Details to show fall protection barrier.

14. ***Comment:*** *Drawing No. 3:*

a. *We recommend removing the underground utilities from this plan for clarity.*
b. *The label for the typical swale cross section "3-3" shall be removed from this plan and moved to Drawing No. 4A.*
c. *Proposed top of wall and bottom of wall elevations hall be provided on this on this plan.*

Response: Please see attached revised Drawing No. 3 with comments "a" thru "c" addressed.

a. All underground utilities removed from plan.
b. Label has been removed and added to Drawing No. 4A.
c. Top and bottom of walls have been added to plan.

15. ***Comment:*** *Drawing No. 4:*

a. *Label SMH 6, it should be clearly labeled which pipe is to be eliminated on the plan.*
b. *HW 27 invert is "In".*
c. *Pipe between DMH 17 and Fl 26 shall be maximum of 90-degree approach at Fl 26. Adjust property lines and piping as necessary to make the adjustment.*
d. *The label for the section 1-1 shall be removed from this plan and moved to Drawing No. 4A.*
e. *Labels at DMHl,OS29 and Fl30 shall be moved for clarity.*
f. *Structure identified as "Outlet Structure" should be relabeled to Diversion Structure. Update detail as well to reflect the design identified in the Drainage Analysis.*
g. *Confirm size of pipe between Stormtech system and OS29.*
h. *Confirm that OS29 and Fl30 have adequate space to be installed at the corner location of the proposed property. I would recommend an expanded view of this location to further your intentions.*
i. *Pipe between Fl30 and CB31 appears to impact existing utility pole. This shall be resolved.*
j. *It is unclear why it is necessary to have double structures for CB 4B and 4C. Additionally, why can't the diversion structure be moved east and line up with the headworks of the Stormtech system and eliminate the manhole? Perhaps relocated CB4B and 4C and instead of 6 structures, make 2?*
k. *Fire hydrant spacing shall be per 2020 NYS Fire Code and must be approved by Fire Inspector.*
l. *10' separation between water and sewer is required. (See are near cul-de-sac bulb)*
m. *Utility plan shall show underground gas and electric and to each dwelling.*

Response: Please see attached revised Drawing No. 4 with comments "a" thru "m" addressed.

a. All sewer main pipes and manholes to be eliminated have been noted.
b. Invert note has been revised.
c. Piping has been revised.
d. Section 1-1 has been eliminated and moved to Drawing No. 4A.
e. Labels have been adjusted for clarity.
f. Label has been revised to "Diversion Structure".
g. Pipe size has been added.
h. Please see attached Drawing No. 4A for expanded view and dimensions.
i. Pipe location has been revised to avoid utility pole. Dimension has been added.
j. CB 4B and CB 4C have been revised to single catch basins.
k. Proposed fire hydrant is shown.
l. 10' separation between water and sewer has been added and shown.

16. ***Comment:*** *Drawing No. 4A:*

a. Please identify where Cross Section 2-2 is located.

b. What is the point of the "berm" for cross sections 2-2 and 3-3? Wouldn't the purpose be to allow the local run off to enter the swale and stone fill trench area?

c. The cross section 1-1 shall be expanded to a clear scale and the full system represented and fully dimensioned.

d. "Typical Berm Section Section 3-3", the underdrain should show the stone pocket that is intended to collect the local surface runoff and underground water per the detail on Drawing No. 9. Or a new detail should be provided for this specific installation.

Response: Please see attached revised Drawing No. 4A with comments "a" thru "d" addressed.

a. Portion of plan where Cross Section 2-2 is located has been added to plan.
b. The berm in Cross Section 2-2 is located between the rear of Lots 9 and 10, and the proposed trench drain. The berms intent is to make sure the runoff down the steep slope enters the trench drain and does not runoff into the backyards of Lots 9 and 10. The land naturally slopes from the trench drain towards the homes on Lots 9 and 10. The Cross Section 3-3 has been revised to flip the swale and berm. The berms intent would be to make sure any runoff from Lots 1 thru 6 does not enter the existing home backyards along Pennington Way.
c. Full scale Cross Section 1-1, fully dimensioned, has been added.
d. Stone pocket for underdrain has been added.

17. ***Comment:*** *Drawing No. 5:*

a. Field inlet protection detail is required.

b. Erosion Control Legend is required.

c. Provide approximate locations of sediment traps.

d. Limit of disturbance shall be identified on the plan and the area shown. We identify that this project will disturb approximately 9 acres. This will require a rigid phasing plan or a special exemption from the NYSDEC allowing greater than 5 acres of disturbance. We recommend contacting the NYSDEC now to review the possibility of this. Otherwise, construction plans identifying how the project can be constructed in multiple phases are required (including phased grading). Please note that the road, drainage and utility infrastructure will have to be constructed first.

e. As a result of the large volume of runoff that enters this property, we recommend that sediment traps or sediment basins be considered for this project. This should be incorporated into the above phasing plans as necessary.

Response: Please see attached revised Drawing No. 5 with comments "a" thru "e" addressed.

a. Field inlet protection detail added.
b. Legend has been added.
c. Sediment traps have been added.
d. Limit of disturbance has been added. Discussion will be had with NYSDEC.
e. Sediment traps have been added.

18. ***Comment:*** *Drawing No's 7 and 8:*

a. Water main and gas crossings shall be shown. Water main profiles are required and all crossings identified.

Response: Water Main and Sewer Main plans, profiles, and details have been added to the plan set.

19. ***Comment:*** *Drawing No. 9:*

- *a. Catch Basin Detail shows large size structure of 54" x 54". This may not be sufficient for 42" diameter pipe. This should be further evaluated. Additionally, no frame and casting has been specified for the large size structure.*
- *b. New Hempstead Detail Suburban Street Specification - Figure 1*
- *c. New Hempstead Detail Driveway Entrance Details - Figures 9 and 10. We understand that these are for two different road systems but the details are consistent with the style of design you have in place. Please provide and modify titles accordingly to meet you project.*
- *d. Headwall/Retaining Wall details (concrete and boulder).*
- *e. Sanitary doghouse manhole detail and any other details necessary to achieve RCDOH approval.*
- *f. Water System details necessary to achieve RCDOH approval.*

Response: Please see attached revised Drawing No. 9 with comments "a" thru "f" addressed.

a. 6' and 8' drainage manhole details have been added for the 42" pipe.
b. Detail added.
c. Details added.
d. Headwall/Retaining wall details added.
e. A separate sewer details sheet has been added to the plan set.
f. A separate water details sheet has been added to the plan set.

20. ***Comment:*** *Drawing No. 10:*

- *a. Please include label "OS29" with the Outlet Control Structure Detail for clarity*
  - *i. Please provide grate in lieu of solid cover.*
- *b. Rename Outlet Structure to Diversion Structure.*
- *c. Stormtech details shall be project specific and fully evaluated. Notes such as "to be determined by site engineer" shall be completed.*

Response: Please see attached revised Drawing No. 10 with comments "a" thru "c" addressed.

a. Naming labels added to details.
b. Detail revised to "Diversion Structure".
c. All Stormtech details have been added.

Thank you for your thorough review, and especially for your cooperation answering our questions in our effort to address your comments and concerns about the stormwater management system design.

Please contact me with any questions, and thank you again for your assistance.

Very truly yours,

Brian Brooker

BROOKER ENGINEERING, P.L.L.C.
Brian Brooker, P.E.