APPENDIX TO

APPLICATION P24-03

DRC REVIEW MEMO

FOR

PRELIMINARY & FINAL MAJOR SITE & SUBDIVISION PLAN

WRV Nurseries Plainsboro Owner, LLC
Block 102, Lots 5 and 6; Block 106 Lot 1
PMUD Planned Unit Development Zoning District
Princeton Nurseries General Development Plan, Approved 2020

March 6, 2025

A. Project Wide Issues

1. Site Plan and Subdivision Comments

a. Staff has the following comments related to the Preliminary Final Major P.M.U.D. Subdivision Plat:
    i. Proposed lot and block numbers approved by the Plainsboro Tax Assessor shall be provided.
    ii. Per Resolution P00-19, Closure reports for all proposed lots, easements, roads, alleys, and dedications shall be provided for plan/map comparison.
    iii. Per NJSA 46:26B-2.b.(16), A Clerk's affidavit stating that the Township has approved the streets, avenues, roads, and lanes or alleys shall be provided.
    iv. A condominium, townhouse, manor and/or building plan with metes and bounds, dimensions, and offsets shall be provided.
    v. Legal descriptions for all proposed lots, easements, roads, alleys, and dedications shall be provided.

b. The Information Sheet, CS0201, shall be amended as follows:
    i. Paving Note 8 shall be revised to identify the surface course pavement proposed.
    ii. General Note No. G-26 shall be revised to state that all concrete shall be NJDOT Class 'B', 4,500 psi.
    iii. General Note No. G-29 shall be revised to replace Middlesex County Soil Conservation District with Freehold Soil Conservation District.

c. The Applicant shall coordinate, with the respective utility companies, the removal of any exiting utility poles and overhead wires within the subject property as depicted on the Overall Demolition Plan, CS0501.

d. The Applicant's Engineer shall revise the limit of disturbance to encompass all areas of demolition, including tree clearing, consistent with sheet CS0501.

e. Stone construction entrances shall be placed at the ingress/egress between each internal phase of the proposed development subject to Freehold Soil Conservation District review and approval. We note that the stone construction entrances may not be installed at the start of Phase 1 of the project but would be installed as necessary when construction begins for a Phase 2 and Phase 3.

f. Silt fence shall be added to the southern portion of Seminary Drive and College Road West around the perimeter of the proposed off-site improvements.

g. The Basins Outlet Structures Detail on plan sheet Soil Erosion and Sediment Control Notes and Details – 2, CS1807, shall be revised to provide 6-inches of 3/4-inch clean stone beneath the foundation of same.

h. The Sanitary Sewer Details Sheet 1, CS6001, shall be amended as follows:
    i. The Sanitary/Water System Crossing Detail shall be revised to add the linework associated with the detail.

ii. The Sanitary Riser Cover Detail and the Sanitary Frame & Cover Detail shall be revised to be AASHTO HS-25 loading within paved areas for the proposed castings.
iii. The Sanitary Sewer Manhole Detail shall be revised to provide 4,500 psi concrete and provide a 6-inch concrete shelf on either side.

k. The Stormwater Details Sheet 1, CS6002, shall be amended as follows:
i. The Type 'E' Inlet Detail, Type 'B' Inlet Detail, NJDOT Type 'A' Inlet With Bicycle Safe Grates Detail, and Storm Cleanout Detail shall be revised to be AASHTO HS-25 loading within paved areas for the proposed castings.
ii. The Type 'E' Inlet Detail, Type 'B' Inlet Detail, NJDOT Type 'A' – Shallow Inlet Base & Riser Detail, Headwall & Apron Detail, (Flared) End Sections For Concrete Pipe Detail, and Typical Doghouse Storm Manhole / Inlet Detail shall be revised to provide 4,500 psi concrete.
iii. The Type 'E' Inlet Detail, Type 'B' Inlet Detail, and the NJDOT Type 'A' – Shallow Inlet Base & Riser Detail shall be revised to provide 6-inches of 3/4-inch clean stone beneath the foundation of same.

l. The Storm Sewer Manhole Detail on the Stormwater Details Sheet 4, CS6004, shall be revised to be AASHTO HS-25 loading within paved areas for the proposed casting and 4,500 psi concrete.

m. Utility Easements shall be provided for all private utilities as required by the utility providers. Copies of same shall be submitted to Staff when filed.

n. The Site Details Sheet 6, CS6006, shall be amended as follows:
i. The Concrete Sidewalk Detail and Concrete Apron at Driveway Detail shall be revised to provide welded wire mesh reinforcement.
ii. The Concrete Sidewalk Detail shall be revised to indicate a 2.0% maximum cross slope across same.
iii. The Existing Pavement Trench Repair Detail and Pavement Key Joint Detail shall be revised to provide 6-inches of dense graded aggregate subbase, 8-inches bituminous stabilized base course Mix I-2, and 2-inches of bituminous surface course Mix I-5.
iv. There appears to be two (2) Concrete Sidewalk Details on the proposed detail sheet. The Applicant's Engineer shall clarify the need for two (2) details.

o. The Typical Alley Section (Full Reveal Curb; No Driveways) and Typical Alley Section (With Walkway) on Site Details Sheet 7, CS6007, shall be revised to match the layout on the proposed site plans.

p. The Trash Enclosure and Loading Screen Wall Details on Site Details Sheet 8, CS6008, shall be revised to provide NJDOT Class 'B' concrete, 4,500 psi.

q. The Applicant's Engineer shall depict the soil profile pit locations on the grading plans.

r. The water observation level shall be depicted within the test pit and boring logs of the Preliminary Geotechnical Investigation Report where seasonal high-water table was encountered.

s. Staff notes there was a residential dwelling on-site that was previously vacated. Any existing septic systems shall be shown to be removed on the Overall Demolition Plan, CS0501, and a note shall be added to same stating that removal shall be done in accordance with the Plainsboro Township and the Middlesex County Health Department requirements.

2. Traffic, Parking, Signage, Pedestrian, and Circulation Comments

a. The Vehicle Maneuvering Plan, sheet CS0901, shall be amended as follows:
   i. The Applicant's Engineer shall confirm the largest proposed vehicle to enter the site is a WB-62.
   ii. The vehicle movement plan shall be split so that the paths of only one design vehicle is shown per sheet in order to perform an adequate review.

b. The design and placement of all traffic signs and striping shall follow the requirements specified in the latest "Manual on Uniform Traffic Control Devices for Streets and Highways," (MUTCD) published by the U.S. Department of Transportation and adopted by the N.J. Department of Transportation. Staff takes no exception to the first note provided within the General Traffic Notes on Sheet SP-14. However, the note on Sheet 74 in the Traffic Signal Details shall be revised to indicate the current edition of the MUTCD.

c. The Applicant's Engineer shall provide intersection sight distance triangles whose lengths conform to the latest AASHTO (American Association of State Highway and Transportation Officials) guidelines as published in the current edition of A Policy on Geometric Design of Highways and Streets for each intersection and non-residential driveway. These intersection sight distance triangles shall be provided for a left turn and a right turn at each site intersection. The Applicant's Engineer shall review the sight triangles to verify that no existing or proposed objects will obstruct the sight triangles. Per AASHTO guidelines, the design speed is 5 mph over the posted speed limit.

d. The Applicant's Engineer shall design all proposed curb ramps, sidewalks, and crosswalks, to meet the latest ADA requirements and shall provide turning spaces before and after proposed ramps as necessary at the required slopes. The locations of proposed detectable warning surfaces shall be clearly indicated on the plans. This ADA compliance issue shall be reviewed relative to all curb ramps, sidewalks, and crosswalks currently proposed under this project.

3. Grading, Drainage, and Stormwater Management Comments

a. The time of concentration pathway for ‘EDA-1 Pervious’ does not appear to be the most hydraulically distant flow path within the drainage area of same and shall be amended accordingly.

b. The sheet flow length for ‘EDA-2 Imp’ shall be amended to follow the requirements for pre-construction conditions. Refer to NJ Stormwater BMP Manual – Chapter 5 for guidance.

c. All post-condition sheet flow lengths shall be amended to follow the McCuen-Speiss limitation. Refer to NJ Stormwater BMP Manual – Chapter 5 for guidance.

d. The Pre-Developed Drainage Area Plan shall be amended to show sub catchment areas EDA-6 Imp and SBruns-6 Per. Additionally, the narrative section of the Stormwater Management Report shall be amended to mention these sub catchment areas.

e. The curve number (CN) for all impervious areas, including porous asphalt, shall be amended to be 98 for all routing calculations involving peak flow rates. Refer to NJ Stormwater BMP Manual – Chapter 9.6 for guidance.

f. The Post Developed Drainage Area Plan shall be amended to clearly show and label all of the sub catchment areas as analyzed in the site runoff analysis. Time of concentration flow paths, pervious and impervious areas, and curve numbers shall be provided on same and the legend shall be revised to match the linework on the plan.

g. The Applicant’s Engineer shall provide a separate inlet drainage area plan for review.

h. The Applicant’s Engineer shall provide a routing diagram showing all sub catchments in the pre-development and post-development conditions in order to verify the routing for the site runoff analysis.

i. The CN for all basin sub catchments areas shall be amended to be a CN of 98 within the basin footprint and up to the top of berm in order to accurately model the conditions during a storm event.

j. The outlet control structure for all proposed basins shall be amended to set the first orifice elevation at the Water Quality Design Storm maximum water surface elevation.

k. When exfiltration is included in the routing calculations, the groundwater mounding calculations must account for the total discarded volume via exfiltration for the maximum design storm (in this case the 100-year projected design storm) when calculating the duration of the infiltration period. When exfiltration is not included in the site runoff analysis, the volume to be used is the entire Water Quality Design Storm. The groundwater mounding calculations shall be amended accordingly. Refer to NJ Stormwater BMP Manual – Chapter 13 for guidance.

l. The Applicant's Engineer shall provide soil test results in accordance with Chapter 12 of the NJ Stormwater BMP Manual, particularly for all green infrastructure BMPs greater than 500 square feet in area. It is not clear how the estimated seasonal high-water table was determined for most of the proposed basins that are not situated within a soil test pit/boring location. Refer to NJ Stormwater BMP Manual – Chapter 12 for guidance.

m. The maximum and minimum design permeability rate to be used in all design calculations is to be 10 in/hr and 0.5 in/hr respectively. The design permeability rate to be used is to be based upon the tested permeability rate with a factor of safety of 2 applied. All design calculations, particularly the groundwater mounding calculations, shall be amended accordingly.

n. The Water Quality Design Storm routing computations shall be amended to utilize the Projected 2-year design storm depth when calculating the time of concentration. Refer to NJ Stormwater BMP Manual – Chapter 5 for guidance.

o. The proposed basin surface areas and storage volumes utilized in the site runoff analysis, the groundwater mounding analyses, groundwater recharge analyses, and the grading and drainage plans shall be all amended for consistency.

p. The 'Stormtech SC-740 Chamber Systems', 'Stormtech SC-310 Chamber Systems', and 'Aquabox' construction details shall be amended to only propose geotextile filter fabric on the top and sides of the stone storage course.

q. Soil replacement to the depth of suitable soil shall be proposed beneath all green infrastructure basins designed to infiltrate in the subsoil that have a test permeability rate of less than 1-inch/hour.

r. All subsurface basins shall be amended to provide inspection ports on the Site Drainage Plans. Additionally, the Applicant's Engineer shall provide cleanout and invert elevations of same. Refer to NJ Stormwater BMP Manual – Chapter 9.8 for guidance.

s. The stabilized basin access area shall be shown for each proposed surface basin in order to demonstrate conformance with the access roadway requirement for same. Refer to NJ Stormwater BMP Manual – Chapter 9.8 for guidance.

t. The site runoff analysis and Basin Schedule table within the Stormwater Management Report references Infiltration Basin 8. However, same is not indicated on any of the Site Drainage Plans. The Applicant's Engineer shall amend the plans and report for consistency. Additionally, a groundwater mounding analysis shall be provided for same, if applicable.

u. The site runoff analysis shall be amended to include all areas within the limit of disturbance shown on the Site Soil Erosion and Sediment Control Plans.

v. Staff notes that the contributary drainage area for stormwater basins includes the inflow areas that are attenuated and ultimately discharged from upstream basins that are in series with same. If the contributary drainage area is greater than 2.5-acres, the basin is subject to the requirements of a large-scale basin which only permits use for stormwater quantity control. Therefore, the groundwater recharge and water quality calculations shall be amended accordingly to exclude any basins deemed large-scale.

w. The Basin Outlet Structures Detail on sheet CS1807 indicates an outlet pipe material of HDPE which is inconsistent with what is proposed on the construction plans. The detail and plans shall be revised for consistency.

x. Post-Construction testing for the infiltration basins and subsurface systems shall be performed in accordance with the Construction and Post-Construction Oversight and Soil Permeability Testing Section in Chapter 12 of the NJ Stormwater BMP Manual for the proposed stormwater management systems. Where as-built testing shows a longer drain time than designed, corrective action must be taken. The design drain time as well as a note to this effect shall be provided on the plans. It shall be noted the Applicant's Engineer has provided a note to this effect on the plan only for the proposed bioretention basins.

y. The basin volume calculations for all underground basins shall be amended to accurately reflect the storage course volume as indicated by the top of stone elevation within the Basin Schedule chart for same.

z. There appears to be two subsurface infiltration basins labeled UGS 54 on Site Drainage Plan – 3, to the southeast of the intersection of Road B and Alley 1 and on Site Drainage Plan – 4 within the Building D1 parking lot. Additionally, the Basin Schedule Table within the report and the site runoff analysis only reference one UGS 54. The Applicant's Engineer shall revise the plans and report.

aa. All proposed pervious paving systems and details shall be amended to be in conformance with the green infrastructure requirements. Refer to NJ Stormwater BMP Manual – Chapter 9.6 for guidance.

bb. The Applicant's Engineer shall provide calculations demonstrating that all porous pavement areas do not exceed the maximum area of additional inflow. Refer to NJ Stormwater BMP Manual – Chapter 9.6 for guidance.

cc. All inspection ports and underdrain piping associated with the proposed porous pavement systems shall be shown on the Site Drainage Plans. Additionally, the Applicant's Engineer shall provide cleanout and invert elevations of same. Refer to NJ Stormwater BMP Manual – Chapter 9.6 for guidance.

dd. It is not clear based upon the Drainage Plans and the provided construction details how the areas of porous pavement will convey runoff to downstream stormwater

conveyance systems and stormwater management basins. The Applicant's Engineer shall provide testimony regarding same.

ee. The footprint of the proposed porous pavement shall be clearly shown on the Drainage Plans.

ff. Sizing calculations shall be provided for all underdrain piping proposed as part of the porous pavement systems in order to demonstrate same with drain within 72 hours. Refer to NJ Stormwater BMP Manual – Chapter 9.6 for guidance.

gg. The basin routing computations shall be amended to model the outlet pipe for all outlet control structures in order to verify the outlet pipe has adequate capacity to handle the projected 100-year design storm event.

hh. The Applicant's Engineer shall provide construction notes for the proposed Manufactured Treatment Devices.

ii. The Applicant's Engineer shall provide a construction detail for the Modular Wetlands GI Manufactured Treatment Devices proposed within the Stormwater Management Report.

jj. The Applicant's Engineer shall provide invert elevations at all pipes discharging into proposed basins on the Site Drainage Plans.

kk. The Operations & Maintenance Manual shall be amended to include a telephone number for the responsible party and estimated price for vacuuming services of porous pavement systems.

ll. The Basin Outlet Structures Detail appears to be specific for all proposed surface basins. A construction detail shall be provided for the subsurface systems.

mm. The manning's n coefficient for all reinforced concrete pipe sections shall be per pipe manufacturer's standards and specifications. Additionally, proof that the reinforced concrete pipe manning's n coefficient can be 0.015 shall be provided to our office for review.

nn. The hydraulic calculations within Appendix F of the Stormwater Management Report shall be revised to provide the hydraulic grade line and gutter spread calculations for the Township's review.

oo. The Applicant's Engineer shall establish the 100-year design storm event surcharge and freeboard elevations of all drainage systems per Ordinance Section 85-28.C of the Township Code.

pp. There are several inconsistencies within the Stormwater Management Report narrative section and the proposed stormwater management systems as analyzed in

the calculations and shown on the Site Drainage Plans. The Applicant's Engineer shall resolve these discrepancies.

qq. The Basin Schedule tables provided on the Soil Erosion and Sediment Control Notes and Details – 2, CS1807, and the Stormwater Details Sheet 3, CS6003, shall be amended to indicate the water surface elevations provided are for the projected design storm events.

rr. The Site Drainage Plans shall be amended to provide pipe and cleanout information (i.e., location, material, size, slope, and invert and cleanout elevations) for all roof drains, leaders, and cleanouts connecting to the proposed stormwater conveyance and stormwater management systems.

ss. A roof leader construction detail with an emergency overflow shall be provided for all leaders connecting to downstream stormwater systems.

tt. The Storm Sewer Profiles shall be amended to provide elevations and callouts for all subsurface basins. Additionally, the subsurface basins shall be accurately depicted on same (i.e., stone base depth, stone cover depth, chamber depth, chamber lengths, etc.).

uu. The Site Drainage Plans shall be amended to accurately depict the subsurface systems as proposed per their respective construction details (i.e., chamber lengths, chamber rows, side stone width, etc.).

vv. Subsurface basins UGB 18 and UGB 4B shall be amended to provide adequate separation from the proposed fire hydrants.

ww. All proposed storm sewer profiles shall be amended to provide the vertical clearance dimensions for all utility crossings shall also be shown. Concrete encasements, cradles, or support blocks shall be indicated on the plan and profile sheets where vertical clearance between pipes is less than 18 inches. Additionally, same shall be amended to provide the finished grade linework wherever gaps are present within same.

xx. The grading shall be amended between all proposed buildings in order to demonstrate a minimum slope of 2.0% is provided along pervious areas and away from proposed buildings.

4. <u>Landscaping Comments</u>

a. The Applicant's Landscape Architect shall revise the plans to finalize the proposed landscaping. It appears the proposed landscape plans are lacking specific locations and quantities for proposed shrubs, perennials and ornamental grasses that are not indicated on the plans.

b. The Applicant's Landscape Architect shall provide a greater variety of shrubs and perennial species on the proposed plans. Staff recommends including (where appropriate on the site) Spicebush, Arrowwood Viburnum, Witch Hazel, Bottlebrush Buckeye, Pink Muhly grass, Little Bluestem, Amsonia, Millenium Ornamental Onion, New England Aster, Goldenrod, Narrow-leaved Sundrop, etc.

c. The Applicant's Landscape Architect shall revise the proposed landscape plans to relocate AL (Serviceberry) and JV (Eastern Red Cedar). These species shall not be installed near each other as these are the two (2) host species required for the Cedar Apple Rust fungus to complete its life cycle.

d. The landscape plans shall be revised to provide foundation landscaping for the base of the site identification signs.

e. The area within each sight triangle shall be revised at all proposed intersections to ensure visibility. Staff has concerns with the proposed locations for street trees in close proximity to the proposed street corners.

f. The Applicant's Landscape Architect shall revise the proposed landscaping plans to shift proposed trees away from any hardscaping to reduce future conflicts and upheaval of same. The proposed trees are directly adjacent to sidewalks and curbs, where space exists to shift trees further away from same.

g. The proposed landscaping plans shall be reviewed and revised as necessary to provide oak species in park and open space areas at a greater quantity than proposed. There are numerous proposed oaks as street trees, with minimal oaks provided in these areas.

h. The Applicant's Landscape Architect shall revise the proposed plans to provide maintenance requirements for the seed mixes proposed on sheet L-13, to ensure these areas will not be mowed weekly and will be able to properly establish.

i. The planting details on sheet L-13 shall be revised to remove the reference to trunk wrap, as current research does not endorse the use of such. Instead, provide rigid, plastic open mesh trunk guards, to protect from buck rub. Additionally, the Applicant's Landscape Architect shall revise the proposed plans to indicate only two (2) tree stakes in lieu of the three (3) indicated for both evergreen and deciduous trees.

j. The Applicant's Landscape Architect shall revise the proposed plans to provide a percentage breakdown of shade, evergreen, and ornamental tree categories to be selected from for the reforestation areas.

k. Due to the heavy deer pressure of the area, deer deterrents shall be considered for the reforestation plantings. Staff recommends a temporary fence for these areas until trees are large enough that they are above the deer browse line.

l. The Applicant's Landscape Architect shall provide landscaping and a landscape schedule for the proposed Clubhouse Area and second floor outdoor space.

5. Lighting Comments

a. The proposed plans shall be revised to provide the manufacturer's catalog cuts and full ordering information for the proposed light fixtures and poles.

b. The light fixtures along the roadways are proposed to be 4100 Kelvins, while all other lighting indicates 3,000 Kelvins. Staff recommends providing all fixtures with the same light color temperature.

c. The Applicant's Landscape Architect shall revise the proposed plans to provide isolux pattern details with a scale and graph for all proposed light fixtures.

d. The Applicant's Landscape Architect shall indicate proposed colors and finish for all fixtures and poles.

e. The Tenon Arm Mount Area Light Foundation Detail and Bollard/Column Light Foundation Detail shall be revised to provide NJDOT Class 'B' concrete, 4,500 PSI.

6. Sanitary Sewer and Solid Waste Comments

a. The Applicant's Engineer shall revise the sanitary sewer main between SAN MH-40 and SAN MH-42 to provide a 0.30% minimum slope between same.

7. Potable Water and Fire Protection Comments

a. The Applicant's Engineer shall provide profiles for the proposed water system.

b. The Applicant's Engineer shall provide a hydrant for flushing purposes at the end of the water mains along Road L, Road N (after the services connections), and Alley 12.

c. Fire hydrants shall be provided every 800-feet, or as required by the Fire Subcode Official, so that the distace between any dwelling and a fire hydrant does not exceed 400-feet.

8. As-Built Plans

As-built grading plans and stormwater management plans are required to be submitted by the developer to the Township Engineer's Office prior to occupying the site. At a minimum the following shall be provided:

a. Storm System:
    i. Pipe sizes, types and classes.
    ii. Manhole rim and invert elevations.

iii. Inlet grate and invert elevations.
iv. Capacity calculations for deficient pipe slopes and velocity calculations for excessive pipe slopes.
v. Any other pertinent information.
vi. A certification shall be provided from the stormwater management facilities design engineer indicating that same have been constructed in accordance with the final plans and specifications and that the facilities will function as originally designed prior to site occupancy.

b. Roadway Systems:
i. Roadway location relative to the Right-of-Way.
ii. As-Built elevations at 50-foot stations throughout the development (top of curb, gutter, and centerline grades shall be provided).

c. Buildings:
i. Submit as-built grading plans for each phase of the building(s) prior to the issuance of certificates of occupancy.

d. Parking Areas:
i. Where parking area slopes are less than 1% provide as-built top of curb and gutter elevations at breaks and angle points and sufficient pavement elevations to establish positive drainage to the nearest storm sewer system.

e. Water Distribution System:
i. Pipe sizes, types, and classes.
ii. Three (3) ties to all valves (in-line and services).
iii. Stationing of all corporations on the main.
iv. Sizes of services.
v. Location of all fittings and caps.
vi. Any other pertinent information.

f. Sanitary Sewer System:
i. Pipe sizes, types, classes, and slopes.
ii. Manhole rim and invert elevations.
iii. Stationing of all tee-wyes.
iv. Three (3) ties to all cleanouts.
v. Capacity calculations for deficient pipe slopes and velocity calculations for excessive pipe slopes.
vi. Any other pertinent information.

B. Non-Residential/Mixed Use Area

1. Site Plan and Subdivision Comments

a. The Site Layout Plan - 4, sheet CS1004, shall be amended as follows:
i. The 8-foot high screen fence shall be extended to screen the entirety of the proposed park to the east from the loading area of Building D3.

ii. The retaining wall at the southeast corner of the property near the Route 1 ramp shall be labeled with the material and called out on the proposed plan.
iii. The pylon sign at the southeast corner of the property near the Route 1 ramp shall be labeled on the proposed plan.

b. The Applicant's Engineer shall provide inlet protection for the outlet control structures of UGB-10 and 17 on the Site Soil Erosion and Sediment Control Plan – 1, sheet CS1801.

c. The Applicant's Engineer shall provide inlet protection for proposed B Inlet-(224) and the outlet control structures of UGB-32, 33, and 34 on the Site Soil Erosion and Sediment Control Plan – 2, sheet CS1802.

d. The Applicant's Engineer shall provide inlet protection for the outlet control structures of UGB-55 on the Site Soil Erosion and Sediment Control Plan – 3, sheet CS1803.

e. The Applicant's Engineer shall provide inlet protection for the outlet control structures of UGB-54, 57, 60, 61, 62, and 63 on the Site Soil Erosion and Sediment Control Plan – 4, sheet CS1804.

f. The Applicant's Engineer depicts two (2) separate underground basins with the same identifier, UGB-54. The proposed plans and reports shall be revised to provide separate identifiers for each basin on both plan sheets CS1803 and CS1804 in order to eliminate confusion.

2. Traffic, Parking, Signage, Pedestrian, and Circulation Comments

a. Site Layout Plan – 1, sheet CS1001, shall be amended as follows:
i. Within the proposed Roundabout connecting Nursery Road / Road A and Road B, there is a proposed Pedestrian crossing warning sign assembly within the roundabout that does not point to a crosswalk. The proposed crosswalk assembly sign shall be relocated to the proposed crosswalk crossing Nursery Road / Road A and the Applicant's Engineer shall indicate what sign is proposed.
ii. The Applicant's Engineer shall propose Yield Signs for the proposed roundabout on the western leg.
iii. The Applicant's Engineer shall consider providing No Stopping or Standing Signs in lieu of the proposed No Parking Signs along Road G.

b. Site Layout Plan – 2, sheet CS1002, shall be amended as follows:
i. Within the proposed Roundabout connecting Nursery Road / Road A and Road C, there are two proposed Pedestrian crossing warning sign assemblies that do not point to a crosswalk. The proposed crosswalk assembly sign shall be relocated to the proposed crosswalk crossing from Nursery Road / Road A to Road C and indicate what sign is proposed.
ii. The Applicant's Engineer shall propose Yield signs for the proposed roundabout.

c. Site Layout Plan – 3, sheet CS1003, shall be amended as follows:
    i. The Applicant's Engineer shall consider proposing No Stopping or Standing Signs in lieu of the proposed No Parking Signs along the easterly portion of Road G.
    ii. Two parking spaces are proposed in the vicinity of a stop line in the Hotel parking lot by the hotel canopy entrance. The Applicant's Engineer shall consider eliminating the two (2) parking spaces in the vicinity of the stop line in the Hotel parking lot as access to these parking spaces may conflict with vehicles in queue of the proposed stop line. Parking is not permitted under NJSA 39:4-138 within 50-feet of a stop sign unless modified by a municipal ordinance as indicated in NJSA 39:4-138.6.
    iii. Parking spaces are proposed in the vicinity of an unsignalized intersection to the immediate south of the Road D and Road G intersection. The Applicant's Engineer shall consider relocating these parking spaces away from the intersection to provide additional space between same.
    iv. It appears the Applicant's Engineer proposes a canopy for the hotel entrance. The proposed canopy entrance height shall comply with the proposed building code requirements and shall provide access to the larger design vehicles (garbage, fire, delivery) as required.

d. Site Layout Plan – 4, sheet CS1004, shall be amended as follows:
    i. The Applicant's Engineer proposes parking spaces in the vicinity of various stop lines within the Mixed-Use Development. The Applicant's Engineer shall consider eliminating those parking spaces as access to these parking spaces could conflict with vehicles in queue of the proposed stop line. Parking is not permitted under NJSA 39:4-138 within 50-feet of a stop sign unless modified by a municipal ordinance as indicated in NJSA 39:4-138.6.
    ii. The Applicant's Engineer shall propose a by-pass lane through the proposed drive-thru.
    iii. The Applicant's Engineer proposes a Stop Sign (MUTCD Sign Designation R1-1) and a Do Not Enter Sign (R5-1) on the same sign post exiting the proposed drive-through driveway opposite Alley 10. The proposed Do Not Enter sign cannot obscure the proposed Stop Sign as per MUTCD Section 2A.05. The Applicant's Engineer shall address same.

e. Vehicle Maneuvering Plan, sheet CS0901, shall be amended as follows:
    i. The WB-62 vehicle path at the proposed Roundabout of Nursery Road / Road A and Road B / Road C traverses the central circular apron and the islands on each side. The Applicant's Engineer shall modify the plans to size the proposed roundabout appropriately, so the WB-62 does not encroach on the circular apron.
    ii. The fire truck vehicle path at the proposed Roundabout of Nursery Road / Road A and Road B / Road C is depicted as only shown traveling one

path – south to west. Turning paths for the other possible movements at this roundabout shall be provided in order to conduct a thorough review.

iii. The garbage truck vehicle path at the proposed Roundabout of Nursery Road / Road A and Road B / Road C shall be provided for review.

3. Grading, Drainage, and Stormwater Management Comments

a. The outlet control structure, OCS-(594), is located outside of the bottom of the surface basin on the proposed plans. The Applicant's Engineer shall revise the location of the outlet control structure to be within the bottom footprint of the proposed basin and the grading around same shall be revised accordingly.

b. The Applicant's Engineer shall provide documentation showing adherence to the requirements for a dam in accordance with N.J.A.C. 7:20 for proposed surface basin BIO 25 and Ex. Basin 6 as same are proposed to impound water five feet or more above the downstream toe-of dam.

c. The Top of Structure 'F' column in the outlet control structure detail table on sheet CS1807 does not match Site Drainage Plan – 1, sheet CS1601, for the basin UGB 17. The Applicant's Engineer shall revise the table and plan for consistency.

d. The Applicant's Engineer shall provide top of curb and bottom of curb spot elevations at all points of tangency, points of curvature, where curb changes direction horizontally, and where proposed curb ties into existing curb.

e. Spot elevations shall be provided where proposed pavement meets existing curb.

f. Additional spot elevations shall be provided in all grassed islands and paved islands in proposed parking lots to demonstrate minimum slopes of 2.0% for pervious surfaces and 0.50% for impervious surfaces.

g. The grassed area within Future Buildings E1 and E2 shall be amended to demonstrate 2.0% minimum slopes along all pervious surfaces.

h. The grading/inverts shall be amended at outfalls FES-(586) and FES-(595) as same are proposed approximately 7 feet above grade.

i. The storm sewer model shall be amended for the following items inconsistent with the Drainage Plan:
    i. The Applicant's Engineer shall include structures STM MH-(420) and STM MH-(449) in the storm sewer calculation.
    ii. Structures I-147, I-158, and I-582 are provided in the hydraulic calculations. However, same are not depicted on the Site Drainage Plans. The Applicant's Engineer shall revise the plans and hydraulic calculations for consistency.
    iii. The pipe data for following pipe lengths are inconsistent with the Drainage Plan:

I-533 to UGB 57, I-285 to UGB 62, OCS-529 to MH-332, OCS-486 to MH-487, MH-334 to MH-335, MH-335 to MH-336, MH-336 to MH-338, MH-338 to MH-212, I-502 to UGB 32, MH-419 to UGB 32, I-319 to MH-323, I-227 to I-228, I-410 to I-411, I-411 to I-412, I-389 to UGB 55, I-576 to I-2, I-5 to MH-6, MH-6 to UGB 22, I-147 to I-149, I-158 to I-150, I-452 to I-163, I-163 to I-164, I-264 to I-265, I-265 to I-169, I-169 to I-164, I-164 to I-165, I-170 to I-165, I-166 to I-171, I-171 to MH-469, UGB 17 to I-176, MH-469 to I-296, I-296 to MH-580, I-581 to I-582, I-582 to I-167, I-167 to MH-580, MH-580 to EX BASIN 6, I-280 to I-281, I-275 to I-276, I-276 to MH-585, I-295 to I-294, I-294 to BASIN 25, and OCS-589 to FES 588.

j. Storm sewer profiles shall be provided for the missing pipe runs of the following storm sewer structures: B Inlet-(581) to B Inlet-(167), B Inlet-(167) to 60" MH-(580), B Inlet-(3) to UGB 17, OCS-(515) to STM MH-(449), STM MH-(449) to B Inlet-(176), B Inlet-(175) to B Inlet-(176), B Inlet-(176) to STM MH-(466), STM MH-(466) to STM MH-(469), EX-Inlet to B Inlet-(149), B Inlet-(149) to MH-Structure – (591), MH-Structure – (591) to B Inlet-(150), EX-Inlet to B Inlet-(150), B Inlet-(153) to B Inlet-(150), B Inlet-(150) to B Inlet-(451), B Inlet-(454) to B Inlet-(451), B Inlet-(451) to B Inlet-(452), B Inlet-(455) to B Inlet-(452), B Inlet-(452) to B Inlet-(163), B Inlet-(168) to B Inlet-(163), B Inlet-(163) to B Inlet-(164), B Inlet-(264) to B Inlet-(265), B Inlet-(265) to B Inlet-(169), B Inlet-(169) to B Inlet-(164), B Inlet-(164) to B Inlet-(165), B Inlet-(170) to B Inlet-(165), B Inlet-(165) to B Inlet-(166), B Inlet-(166) to B Inlet-(171), B Inlet-(171) to STM MH-(469), STM MH-(469) to B Inlet-(296), B Inlet-(296) to 60" MH-(580), B Inlet-(280) to B Inlet-(281), B Inlet-(281) to E Inlet-(275), B Inlet-(271) to B Inlet-(272), B Inlet-(272) to B Inlet-(273), B Inlet-(4) to UGB 17, B Inlet-(502) to UGB 32, B Inlet-(277) to STM MH-(419), STM MH-(419) to UGB 32, B Inlet-(278) to UGB 32, B Inlet-(267) to B Inlet-(266), B Inlet-(266) to STM MH-(269), STM MH-(269) to UGB 32, B Inlet-(244) to UGB 62, B Inlet-(292)- GI WQ MTD to UGB 63, B Inlet-(288) to UGB 61, OCS-(486) to 60" MH-(487), B Inlet-(533) to UGB 57, OCS-(528) to STM MH-(331), B Inlet-(576) to B Inlet-(2), B Inlet-(2) to STM MH-(6), B Inlet-(5) to STM MH-(6), B Inlet-(1) to STM MH-(6), B Inlet-(410) to B Inlet-(411), B Inlet-(411) to B Inlet-(412), B Inlet-(412) to B Inlet-(17), and B Inlet-(389) to UGB 55.

k. The storm sewer profiles shall be amended for the following items:
   i. The pipe length between MH-(580) to MH-Structure – (593) within the profiles is inconsistent with Site Drainage Plan – 2, sheet CS1602. The Applicant's Engineer shall revise the plan and profile for consistency.
   ii. The grate elevation for OCS-Structure – (594) within the profiles is inconsistent with Site Drainage Plan – 5, sheet CS1605. The Applicant's Engineer shall revise the plan and profile for consistency.

C. East Residential Area

1. Site Plan and Subdivision Comments

a. The Site Layout Plan - 2, sheet CS1002, shall be amended as follows:
   i. The retaining wall and fence screening to the west of Road C shall be

labeled with the material called out on the proposed plan.

ii. The Applicant's Engineer shall propose curbing along the proposed 2.5-foot wide concrete sidewalk within Alley's 13 and 14 in order to provide separation from pedestrians and vehicular traffic.

b. The Applicant's Engineer shall provide inlet protection for proposed B Inlet-(224) and the outlet control structures of UGB-27, 31, 37, 41, 42, 43, and 44 on the Site Soil Erosion and Sediment Control Plan – 2, sheet CS1802.

c. The Applicant's Engineer shall provide inlet protection for the outlet control structures of UGB-47 and 50 on the Site Soil Erosion and Sediment Control Plan – 4, sheet CS1804.

2. Traffic, Parking, Signage, Pedestrian, and Circulation Comments

a. Site Layout Plan – 2, sheet CS1002, shall be amended as follows:

i. Road C has a midblock crosswalk proposed on the curvature between Road K and Road L connecting to South Brunswick. The Applicant's Engineer shall consider relocating the proposed crosswalk to the intersection of Road C and Road L.

ii. The Applicant's Engineer shall consider a turnaround area with a sufficient radius for emergency vehicles for the proposed dead end of Road L.

iii. The Applicant's Engineer shall relocate the proposed W14-2, No Outlet, sign for Road L to be on the entry point of the part of Road L that dead ends without intersecting another street as indicated in the MUTCD.

iv. Road D has a midblock crosswalk proposed on the curvature to the east of Alley 14. The Applicant's Engineer shall consider relocating the proposed midblock crosswalk to the intersection of Road D and Alley 14.

v. Staff notes that 15 mph is proposed for Road D and 25 mph is depicted within the construction detail, and that speed limit signs are proposed on the same post that a curve warning sign is depicted on, which would be an inappropriate combination. The Applicant's Engineer shall provide analyses to set the speed limit proposed on the plans and confirm the speed limit proposed in conjunction with Title 39 of the New Jersey Statute.

vi. The Applicant's Engineer shall confirm that the proposed radii are appropriate for the proposed posted speed limit or proposed curve advisory speed sign.

vii. The Applicant's Engineer shall consider proposing stop lines and stop signs for Road O at the intersection with Road N.

viii. The Applicant's Engineer shall provide 50-foot double yellow centerlines at a minimum with stop lines at unsignalized intersections of proposed roadways.

ix. The Applicant's Engineer shall provide speed limits signs along all proposed roadways. Staff notes that the Applicant's Engineer only provide speed limits signs along Road D.

b. Site Layout Plan – 4, sheet CS1004, shall be amended as follows:

i. Staff notes that 15 mph is proposed on the plan along Road D and 25 mph is depicted within the construction detail, and that speed limit signs are proposed on the same post that a curve warning sign is depicted on, which would be an inappropriate combination. The Applicant's Engineer shall provide analyses to set the speed limit proposed on the plans and confirm the speed limit proposed in conjunction with Title 39 of the New Jersey Statute.
ii. Staff notes that Road D has several uncontrolled crosswalks proposed. The Applicant's Engineer shall consider adding advanced signage to the proposed uncontrolled crosswalks as necessary in accordance with the MUTCD requirements.
iii. There is a stop line proposed on Road D to the east of Nursery Road / Road A. The Applicant's Engineer shall clarify the proposed intersection controls here and provide pedestrian signage and advanced warning signage per MUTCD requirements.
iv. The Applicant's Engineer shall provide a 50-foot double yellow centerline at a minimum where Stop Lines are proposed at unsignalized intersections.
v. Staff notes that 15 mph is proposed on the plan along Nursery Road / Road A and 25 mph is depicted within the construction detail. The Applicant's Engineer shall provide analyses to set the speed limit proposed on the plans and confirm the speed limit proposed in conjunction with Title 39 of the New Jersey Statute.
vi. The Applicant's Engineer shall provide speed limit signs along all proposed roadways.
vii. The Applicant's Engineer shall revise the two-way arrows on the proposed plan to depict the appropriate driving direction.

c. Vehicle Maneuvering Plan, sheet CS0901, shall be amended as follows:
i. The Applicant's Engineer shall show the proposed fire truck turning movement paths for the proposed dead end on Road L.
ii. On the north end of Alley 13, the Applicant's Engineer proposes turning maneuver paths that encroach into the on-street parking spaces. The Applicant's Engineer shall revise the plan to eliminate the encroachments.
iii. The Applicant's Engineer proposes a reverse turn maneuver to the south of the unsignalized intersection of Road D, Road O, and the site driveway. The reverse maneuver appears to conflict with vehicles entering the roadway. The Applicant's Engineer shall address this concern.
iv. The Applicant's Engineer proposes a truck turning path at the unsignalized intersection of Road D and the site driveway west of Road K where the vehicle encroaches on the curb. The Applicant's Engineer shall revise the turning maneuver accordingly.

3. <u>Grading, Drainage, and Stormwater Management Comments</u>

a. The Site Grading Plan – 2 and Site Drainage Plan – 2 shall be amended to show the full extents of the improvements for proposed basin BIO 45 and adjacent grading.

b. The Applicant's Engineer shall amend the outlet pipe from outlet control structure OCS-(522) to be less than the 15.48% provided. Staff recommends the outlet pipe be revised to less than 10.0% for any stormwater conveyance pipe.

c. There are numerous outlet control structures located outside of the bottom of the surface basins on the proposed plans. The Applicant's Engineer shall revise the location of the outlet control structures to be within the bottom footprint of the proposed basins and the grading around same shall be revised accordingly.

d. The Applicant's Engineer shall provide documentation showing adherence to the requirements for a dam in accordance with N.J.A.C. 7:20 for proposed surface basins BIO 25, INFIL 30, BIO 36, and BIO 45 as same are proposed to impound water five feet or more above the downstream toe-of dam.

e. The Top of Structure – 'F' column in the outlet control structure detail table on plan sheet CS1807 does not match the Drainage Plan for basins UGB 31, UGB 37, UGB 42, UGB 43, UGB 44, and UGB 47. The Applicant's Engineer shall revise the table and plans for consistency.

f. The Outlet Pipe Size/Slope/Inv 'G' column in the outlet control structure detail table on plan sheet CS1807 does not match the Drainage Plan for basins UGB 27, UGB 44, and UGB 46. The Applicant's Engineer shall revise the table and plans for consistency.

g. The outlet pipe slope in the outlet control structure detail table on sheet CS1807 does not match the routing computations for basin UGB 28. The Applicant's Engineer shall revise the table and plans for consistency.

h. The Outlet Pipe Size/Slope/Inv 'G' column in the outlet control structure detail table does not match the routing computations for basin UGB 30. The Applicant's Engineer shall revise the table and plans for consistency.

i. Proposed basin UGB 27 does not appear to have any inlet pipes proposed to same. The Applicant's Engineer shall clarify the drainage area to be attenuated by same.

j. Pretreatment via the use of Green Infrastructure MTDs or other approved Green Infrastructure BMPs shall be provided for runoff entering subsurface infiltration basins UGB 27, UGB 33, UGB 34, UGB 37, UGB 43, UGB 44, UGB 46, UGB 47, and UGB 50. Refer to NJ Stormwater BMP Manual – Chapter 9.8 for guidance.

k. Additional spot elevations shall be provided in the vicinity of the proposed clubhouse to demonstrate minimum slopes of 2.0% for pervious surfaces and 0.50% for impervious surfaces away from same.

l. The outlet pipe from B Inlet-(262) shall be provided on the Site Drainage Plan.

m. The existing outlet pipe exiting structure STM MH-(564) shall be depicted on the Site Drainage Plan – 2, CS1602. Additionally, hydraulic computations shall be provided for same to verify the pipe has adequate capacity to convey discharge from basins BIO 28 and BIO 30.

n. The grading shall be amended near structure STM MH-(564) and the upstream pipe shall be amended to provide sufficient cover for same.

o. The Headwall and Apron Detail on sheet CS6002 is inconsistent with the outfall size proposed on Site Drainage Plan – 2, CS1602. The Applicant's Engineer shall revise the detail and plan for consistency.

p. Site Drainage Plan – 2, CS1602, appears to provide the incorrect pipe length for the proposed pipe from B Inlet-(235)- GI WQ MTD to STM MH-(478). The Applicant's Engineer shall revise the plan.

q. The storm sewer model shall be amended for the following items:
    i. Manhole structure STM MH-(601) shall be included in the hydraulic calculations.
    ii. B Inlet-(252) and B Inlet-(254) are modelled as connect to basin UGB 35 and modelled incorrectly as being connected to basin UGB 35. However, these inlets are depicted on Site Drainage Plan – 2, CS1602, connecting to UGB 37. The Applicant's Engineer shall revise the hydraulic calculations accordingly.
    iii. The Applicant's Engineer modelled proposed inlet I-477 within the hydraulic calculations. However, same is not depicted on the Site Drainage Plans. The Applicant's Engineer shall revise the hydraulic calculations and plans for consistency.
    iv. The pipe data for following pipe lengths are inconsistent with the Site Drainage Plans:
    MH-212 to FES-213, I-193 to I-537, I-537 to I-178, I-189 to I-190, I-190 to MH-191, MH-191 to FES-192, I-326 to FES-329, OCS-538 to FES-541, I-278 to UGB 32, I-256 to UGB 34, I-258 to UGB 34, I-262 to UGB 33, I-325 to I-182, I-182 to I-184, I-184 to FES-183, I-242 to I-243, I-180 to FES-181, I-252 to UGB 35, I-254 to UGB 35, I-239 to I-240, I-235 to I-477, I-477 to MH-478, MH-478 to UGB 31, I-219 to UGB 44, I-431 to I-432, I-432 to UGB 43, I-214 to UGB 42, OCS-504 to MH-421, MH-421 to UGB 33, OCS-426 to MH-427, OCS-506 to MH-379, MH-384 to MH- 381, OCS-523 to I-200, I-224 to I-225, I-225 to I-413, I-249 to I-248, I-319 to MH- 323, I-227 to I-228, I-229 to OCS-230, MH-476 to OCS-230, MH-375 to I-233, MH-212 to FES 213, BASIN 45 to FES 418, BASIN 30 to EXIST, BASIN 28 to EXIST, and OCS-589 to FES 588.

r. Storm sewer profiles shall be provided for missing pipe runs of the following storm sewer structures;
B Inlet-(327) to B Inlet-(326), B Inlet-(326) to FES-(329), 72" MH-(384) to 72" MH-(481), B Inlet-(215) to B Inlet-(214)- GI WQ MTD, B Inlet-(214)- GI WQ MTD to UGB

42, B Inlet-(254) to UGB 37, B Inlet-(252) to UGB 37, OCS-(522) to UGB 43, A Inlet-(431) to UGB 43, B Inlet-(260) to UGB 33, B Inlet-(262) to UGB 33, OCS-(426) to STM MH-(427), B Inlet-(256) to UGB 34, B Inlet-(258) to UGB 34, OCS-(504) to STM MH-(419), STM MH-(419) to STM MH-(421), OCS-(505) to STM MH-(421), STM MH-(421) UGB 33, B Inlet-(221) to B inlet-(219)- GI WQ MTD, B inlet-(219)- GI WQ MTD to UGB 44, STM MH-(475) to STM MH-(476), STM MH-(476) to OCS-(230), OCS-(230) to E Inlet-(229), OCS-(230) to OCS-(524), OCS-(524) to STM MH-(375), STM MH-(375) to B Inlet-(232), B Inlet-(227) – GI WQ MTD to B Inlet-(228), B Inlet-(228) to STM MH-(323), B Inlet-(319) to STM MH-(323), STM MH-(323) to UGB 50, B Inlet-(322) to B Inlet-(320), B Inlet-(320) to UGB 46, B Inlet-(244) to B Inlet-(245), B Inlet-(245) to B Inlet-(247), and B Inlet-(318) to B Inlet-(247).

s. The storm sewer profiles shall be amended for the following items:
    i. All pipe runs with horizontal elliptical reinforced concrete pipe (HERCP) shall be amended to show the pipe size.
    ii. The top of structure/grate elevations for OCS-(538), OCS-(565), OCS-(562), OCS-45, and OCS-(382) depict differing elevations with the Site Drainage Plans. The Applicant's Engineer shall revise the plans and profiles for consistency.
    iii. The outfall inverts shall be provided on all storm sewer profiles.
    iv. MH-Structure-(601) shall be depicted on the storm sewer profiles.

D. West Residential Area

1. Site Plan & Subdivision Comments

a. The Site Layout Plan - 1, sheet CS1001, shall be amended as follows:
    i. The retaining wall and fence screening to the west of the Pump Station shall be labeled and the material shall be called out on the proposed plan.
    ii. The retaining wall along the northerly portion of Road B to the east of the cul-de-sac shall be labeled with the material on the proposed plan. Additionally, the retaining wall shall be revised to be entirely within the Plainsboro Township limits.
    iii. The Applicant's Engineer shall propose curbing along the proposed 2.5-foot wide concrete sidewalk within each Alley in order to provide separation from pedestrians and vehicular traffic.
    iv. The Applicant's Engineer shall clarify the proposed easement linework in order to verify the type of easement required.

b. The Site Layout Plan - 3, sheet CS1003, shall be amended as follows:
    i. The Applicant's Engineer shall propose curbing along the proposed 2.5-foot wide concrete sidewalk within each Alley in order to provide separation from pedestrians and vehicular traffic.
    ii. The retaining wall between Road E and Road B shall be labeled with the material and called out on the proposed plan.
    iii. The NVR monument sign at the northeast corner of the intersection of Road

E, Evergreen Drive, and Seminary Drive shall be labeled on the proposed plan.

c. The Applicant's Engineer shall provide inlet protection for the outlet control structures of UGB-4A, 4B, 5, 6, 7, 13, 14, 15, 16, 18, 19, and 20 on the Site Soil Erosion and Sediment Control Plan – 1, sheet CS1801.

d. The Applicant's Engineer shall provide inlet protection for the outlet control structures of UGB-21, 41, 48, 49, 53, 54, and 59 on the Site Soil Erosion and Sediment Control Plan – 3, sheet CS1803.

2. Traffic, Parking, Signage, Pedestrian, & Circulation Comments

a. Site Layout Plan – 1, sheet CS1001, shall be amended as follows:
   i. Staff notes that 15 mph is proposed on the plan and 25 mph is depicted within the construction detail, and that speed limit signs are proposed on the same post that a curve warning sign is depicted on, which would be an inappropriate combination. The Applicant's Engineer shall provide analyses to set the speed limit proposed on the plans and confirm the speed limit proposed in conjunction with Title 39 of the New Jersey Statute.
   ii. The Applicant's Engineer shall confirm that the proposed radius is appropriate for the proposed posted speed limit or proposed curve advisory speed sign.
   iii. Staff notes that a Curve Symbol on Road B is proposed, where a Turn Symbol might be more appropriate. The Applicant's Engineer shall review the current MUTCD and revise the plan if necessary. Additionally, details shall be provided for same.
   iv. Road B has a midblock crosswalk proposed (at the vicinity of the South Brunswick – Plainsboro border). The Applicant's Engineer shall consider relocating the proposed midblock crosswalk to an intersection of two streets.
   v. It appears that Road B has an uncontrolled crosswalk proposed at the intersection with Road F. Staff notes a Stop Here for Pedestrian Sign is proposed at this intersection. The Applicant's Engineer shall consider revising the plan to add advanced signage to the proposed uncontrolled crosswalk and same shall be compliant with the MUTCD.
   vi. The Applicant's Engineer shall consider adding proposed stop lines and stop signs for Alley 3 at both intersections with Road F.
   vii. The Applicant's Engineer shall provide a minimum of 50-foot long double yellow centerlines where stop lines are proposed.
   viii. The Applicant's Engineer shall provide speed limit signs along all proposed roadways and alleys.

b. Site Layout Plan – 3, sheet CS1003, shall be amended as follows:
   i. Staff notes that 15 mph is proposed for Road B on the plan and 25 mph is depicted within the construction detail. The Applicant's Engineer shall provide analyses to set the speed limit proposed on the plans, and confirm

the speed limit proposed in conjunction with Title 39 of the New Jersey Statute.

ii. The Applicant's Engineer shall relocate the proposed midblock crosswalk along Road B between Road D and Alley 1 to one of the two intersections of either Road B and Road D or Road B and Alley 1.

iii. The Applicant's Engineer proposes to reduce the width of Road B from Road E to the north. The Applicant's Engineer shall propose warning signs per the MUTCD.

iv. The Applicant's Engineer shall provide a minimum of 50-foot long double yellow centerlines where stop lines are proposed.

v. The Applicant's Engineer shall propose speed limit signs along Road B.

vi. The unsignalized intersection of Road B and Road E is adjacent to the proposed intersection of Road E, Seminary Drive, and Evergreen Drive. The Applicant's Engineer shall consider relocating the intersection of Road B and Road E farther away from the intersection of Road E and Seminary Drive.

c. Vehicle Maneuvering Plan, sheet CS0901, shall be amended as follows:

i. The Fire Truck circulation path for Road E to Road D encroaches into the on-street parking spaces during the maneuver and shall be revised to avoid any conflicts.

ii. The fire truck vehicle path at the proposed Alley 1 and Alley 4 intersection was only shown traveling one path – east to north. Turning paths for all possible movements at this intersection shall be provided in order to conduct a thorough review.

iii. The garbage truck vehicle path at the proposed Alley 1 and Alley 4 intersection shall be provided for review.

iv. The WB-62 truck vehicle path at the proposed Alley 1 and Alley 4 intersection shall be provided for review.

v. The vehicle paths for all design vehicles shall be shown circulating the curve on Road B between Road H and Alley 8.

3. <u>Grading, Drainage & Stormwater Management Comments</u>

a. The outlet pipe downstream invert and a construction note for the downstream structure shall be provided for outlet control structure OCS-(578).

b. The Top of Berm Elevation for basin BIO 1 shown on the Basin Schedule table on sheet CS1807 is inconsistent with the elevation provided in the Stormwater Management Report. The Applicant's Engineer shall revise the plans and report for consistency.

c. A construction detail shall be provided for the Stormtech SC-800 Chamber System and the subsurface pipe storage system as proposed for basin UGB 3.

d. The Applicant's Engineer shall amend the basin routing calculations for subsurface basin UGB 3 to provide the pipe storage system embedded within the stone storage course in order to account for the additional basin volume provided.

e. There are numerous outlet control structures located outside of the bottom of the surface basins on the proposed plans. The Applicant's Engineer shall revise the location of the outlet control structures to be within the bottom footprint of the proposed basins and the grading around same shall be revised accordingly.

f. The outlet control structure construction detail table on sheet CS1807 shall be amended to include design information for OCS-(370).

g. The Applicant's Engineer shall provide basin volume calculations for proposed subsurface basin UGB 59.

h. The basin routing calculations indicate that proposed subsurface basins UGB 6 and UGB 11 will overtop during several of the design storms. These basins shall be revised to provide adequate storage without overtopping in any design storm event.

i. The number of chambers per row for proposed subsurface basin UGB 2 shown on the Basin Schedule table within sheet CS1807 is inconsistent with the basin routing calculations. The Applicant's Engineer shall revise the table and report for consistency.

j. The labelling for the outlet control structure of proposed subsurface basin UGB 7 has inconsistent labelling between Site Drainage Plan – 1, CS1601, and the outlet control construction detail table on the Soil Erosion and Sediment Control Notes and Details – 2, CS1807. The Applicant's Engineer shall revise the table and plans for consistency.

k. The Applicant's Engineer shall provide documentation showing adherence to the requirements for a dam in accordance with N.J.A.C. 7:20 for proposed surface basins BIO 1, BIO 12, BIO 35, BIO 51, BIO 52, BIO 53, and BIO 58 as same are proposed to impound water five feet or more above the downstream toe-of dam.

l. The First Weir Width/El. 'D' column in the outlet control structure detail table on sheet CS1807 does not match the basin routing computations for basins BIO 1, UGB 2, and UGB 3. The Applicant's Engineer shall revise the table and report for consistency.

m. The 1st Weir Width/El. 'D' column in the outlet control structure detail table on sheet CS1807 does not match the Site Drainage Plan – 1, CS1601, for basin UGB 3. The Applicant's Engineer shall revise the table and plan for consistency.

n. The 2nd Weir Width/El. 'E' column in the outlet control structure detail table on sheet CS1807 does not match the basin routing computations for basin UGB 2. The Applicant's Engineer shall revise the table and report for consistency.

o. The Top of Structure 'F' column in the outlet control structure detail table on sheet CS1807 does not match the Site Drainage Plans for basins BIO 1, UGB 4A/4B, UGB 5, UGB 6, UGB 7, UGB 11, UGB 13, UGB 15, UGB 16, UGB 18, UGB 19, UGB 20, UGB 21, UGB 41, and UGB 59. The Applicant's Engineer shall revise the table and plans for consistency.

p. The outlet pipe slopes in the outlet control structure detail table on sheet CS1807 does not match the Site Drainage Plans for basins BIO 1 and BIO 58. The Applicant's Engineer shall revise the table and plans for consistency.

q. The Outlet Pipe Size/Slope/Inv 'G' column in the outlet control structure detail table on sheet CS1807 does not match the Site Drainage Plans for basin UGB 6, UGB 15, UGB 16, and UGB 59. The Applicant's Engineer shall revise the table and report for consistency.

r. The Outlet Pipe Size/Slope/Inv 'G' column in the outlet control structure detail table does not match the basin routing computations for UGB 35. The Applicant's Engineer shall revise the table and report for consistency.

s. Pretreatment via the use of Green Infrastructure MTDs or other approved Green Infrastructure BMPs must be provided for runoff entering subsurface infiltration basins UGB 2, UGB 3, UGB 4B, UGB 5, UGB 6, UGB 7, UGB 10, UGB 11, UGB 13, UGB 14, UGB 18, UGB 19, UGB 20, UGB 21, UGB 48, UGB 49, UGB 54, UGB 55, and UGB 59.

t. Per Resolution P00-19 Condition 1.e, the Applicant's Engineer shall provide top of curb and bottom of curb spot elevations along each point of curvature, point of tangency, where proposed curb transitions from full height to depressed height, where existing curb meets proposed curb and at depressed curb. Spot elevations shall also be provided on the proposed plans at all curb returns, gutter lines, along the centerline of the proposed access drives and review same to prevent bottom scraping of vehicles entering and leaving the site.

u. Proposed sidewalks on Road F, Road H, Road A, and Road B shall be revised to show spot elevations along same in order to demonstrate a minimum cross slope of 0.5% across same.

v. Additional spot elevations shall be provided at the residential sections between proposed Road B and Alley 6 in order to demonstrate 2.0% minimum slopes along pervious surfaces and 0.50% minimum slopes for impervious surfaces and away from the proposed buildings.

w. The grading shall be amended west of proposed Alley 5 between Stations 3+00 and 4+00 in order to demonstrate 2.0% minimum slopes along pervious surfaces and away from the proposed buildings.

x. The grading shall be amended north of proposed Road F in order to demonstrate 2.0% minimum slopes away from the 104 contour.

y. The storm sewer model shall be amended for the following items:
   i. The Applicant's Engineer shall include structures STM MH-(518), STM MH-(600), B INLET-(48), STM MH-(441-A), E INLET-(441-B), and STM MH-(369) in the hydraulic calculations.
   ii. Basin 14 appears to be mislabeled as Basin 12 as Basin 14 in the hydraulic calculations. The Applicant's Engineer shall revise plan and hydraulic calculations for consistency.
   iii. The Applicant's Engineer labeled Structure MH-374 in the hydraulic calculations as an inlet on the Site Drainage Plans. The Applicant's Engineer shall revise the plans and hydraulic calculations for consistency.
   iv. The pipe data for following pipe lengths are inconsistent with the Drainage Plan:
   I-304 to UGB 10, I-76 to UGB 7, I-572 to UGB 7, I-72 to UGB 9, UGB 9 to I-85, I-87 to UGB 6, MH-81 to UGB 5, UGB 7 to MH-520, UGB 5 to MH-460, MH-462 to FES 463, I-300 to UGB 4, I-368 to BASIN 16, I-51 to MH-52, MH-52 to BASIN 15, BASIN 16 to BASIN 15, BASIN 15 to MH-374, MH-374 to I-68, MH-311 to UGB 11, UGB 11 to MH-492, UGB 4A to MH-488, MH-490 to I-104, I-47 to I-112, I-545 to UGB 21, I-21 to MH-22, MH-22 to UGB 41, I-24 to UGB 49, I-26 to UGB 49, I-28 to UGB 48, I-30 to UGB 48, I-32 to UGB 54, I-34 to UGB 54, UGB 21 to MH-12, UGB 20 to MH-440, MH-440 to MH-441, I-309 to UGB 18, UGB 41 to MH-544, MH-342 to MH-434, BASIN 52 to MH-434, UGB 18 to MH-353, BASIN 58 to BASIN 59, I-130 to I-131, I-124 to MH-125, BASIN 59 to BASIN 35, MH-369 to UGB 3, UGB 3 to BASIN 14, BASIN 14 to MH-508, MH-508 to MH-371, MH-371 to BASIN 1, and BASIN 1 to EX MH.

z. Storm sewer profiles shall be provided for missing pipe runs of the following storm sewer structures:
   OCS-(578) to EX-MH, OCS-(516) to STM MH-(459), STM MH-(459) to STM MH-(520), STM MH-(520) to STM MH-(460), B Inlet-(75) to B-Inlet-(76), B Inlet-(79) to B Inlet-(80), B Inlet-(80) to STM MH-(81), STM MH-(81) to UGB 5, STM MH-(460) to STM MH-(461), B Inlet-(94) to STM MH-(461), B-Inlet-(95) to STM MH-(461), B-Inlet-(83) to UGB 5, E Inlet-(70) to UGB 10, B Inlet-(575) to B Inlet-(87)- GI WQ MTD, B Inlet-(87)- GI WQ MTD to UGB 6, B Inlet-(87)- GI WQ MTD to B Inlet-(302), B Inlet-(302) to UGB 4B, OCS-(496) to STM MH-(488), STM MH-(488) to STM MH-(566), OCS-(298) to STM MH-(566), STM MH-(566) to STM MH-(489), B Inlet-(567) to UGB 4B, STM MH-(489) to STM MH-(490), STM MH-(492) to STM MH-(490), STM MH-(490) to B Inlet-(104), B Inlet-(102) to B Inlet-(104), B Inlet-(104) to STM MH-(108), B Inlet-(71)- GI WQ MTD to UGB 9, B Inlet-(74)- GI WQ MTD to UGB 9, B Inlet-(72) to UGB 9, OCS-(517) to STM MH-(518), STM MH-(518) to B Inlet-(85), B Inlet-(85) to B Inlet-(96), B Inlet-(99) to B Inlet-(96), B Inlet-(96) to B Inlet-(97), B Inlet-(569) to B Inlet-(97), B Inlet-(118) to B Inlet-(120), B Inlet-(57) to B Inlet-(58), B Inlet-(61) to B Inlet-(58), B Inlet-(58) to B Inlet-(59)- GI WQ MTD, B Inlet-(62) to B Inlet-(59)- GI WQ MTD, B Inlet-(59)- GI WQ MTD to B Inlet-(368), B Inlet-(50) to B Inlet-(51), B Inlet-

(51) to STM MH-(52)- GI WQ MTD, B Inlet-(54) to B Inlet-(55), B Inlet-(55) to STM MH-(52)- GI WQ MTD, STM MH-(52)- GI WQ MTD to MH-Structure – (600), MH-Structure – (600) to UGB 15, B Inlet-(46) to B Inlet-(110), B Inlet-(47) to B Inlet-(48), B Inlet-(48) to B Inlet-(112), B Inlet-(122) to B Inlet-(409), B Inlet-(9) to B Inlet-(8), B Inlet-(8) to B Inlet-(545)- GI WQ MTD, B Inlet-(545)- GI WQ MTD to UGB 21, E Inlet-(441-B) to STM MH-(441-A), STM MH-(440) to STM MH-(441-A), STM MH-(441-A) to STM MH-(441), OCS-(447) to 60" MH-(353), 60" MH-(353) to 60" MH-(344), OCS-(351) to FES-(352), 60" MH-(354) to UGB 3, B Inlet-(142) to B Inlet-(38), B Inlet-(28)-GI WQ MTD to UGB 48, B Inlet-(32) to UGB 54, B Inlet-(34) to UGB 54, OCS-(512) to 60" MH-(513), 60" MH-(343) to 60" MH-(513), 60" MH-(513) to 60" MJ-(353), B Inlet-(129) to B Inlet-(130), E Inlet-(21) to MH-(22) -GI WQ MTD, and MH-(22) -GI WQ MTD to UGB 41.

aa. The storm sewer profiles shall be amended for the following items:

i. The Applicant's Engineer shall include FES-(372) and FES-(463) within the storm sewer profiles.

ii. The Applicant's Engineer shall correctly labeled UGB 4A and UGB 4B within the profiles for consistency with Site Drainage Plan – 1, sheet CS1601.

iii. The pipe lengths between structures B Inlet-(368) to UGB 16, B Inlet-(24)-Gi WQ MTD to UGB 49, and B Inlet-(131)- GI WQ MTD to UGB 59 shall be revised for consistency with the Site Drainage Plans.

iv. The top of structure/grate elevations for OCS-(349), OCS-(143), OCS-(360), OCS-(347), and OCS-(433) shall be revised for consistency with the Site Drainage Plans.

v. Storm sewer profile OCS373 to B Inlet 68 shall be revised to depict the correct location of UGB 15 and for consistency with the Site Drainage Plans.

vi. The Applicant's Engineer shall provide all proposed MTD structures on the storm sewer profiles.