

January 30, 2024

NEX-2300312.00

Ms. Elizabeth Hughes, AICP, Town Planner
Town of Concord
Planning Division
141 Keyes Road
Concord, MA 01742

SUBJECT: NOVO Riverside Commons Comprehensive Permit Application
292-294 Baker Avenue
Site and Stormwater Peer Review Letter #1

Dear Ms. Hughes and Members of the Zoning Board of Appeals:

In addition to the previously submitted Traffic Review (Peer Review #1 – Traffic Review dated November 6, 2023), Greenman-Pedersen, Inc. (GPI) has performed a peer review of the site plan and stormwater management report that have been submitted to the Concord Zoning Board of Appeals for the Proposed NOVO Riverside Commons Comprehensive Permit Application at 292-294 Baker Avenue. GPI is in receipt of following documents, which serve as the basis for this review:

- Document titled *NOVO Riverside Commons Revised Civil, Landscape and Architectural Plans and Specifications*, dated December 12, 2023
- *Novo Riverside Commons Site Plans*, prepared by Beals and Thomas, Inc.; revised December 18, 2023
- *Stormwater Management Report, Novo Riverside Commons*, prepared by Beals and Thomas, Inc., revised December 18, 2023
- *292 & 294 Baker Avenue Zoning Board Submission Plan Set*, prepared by Hawk Design, Inc., revised 12/15/23

As requested, GPI has reviewed the above materials for compliance with the applicable sections of the Town of Concord Stormwater Regulations, Concord Public Works Design & Construction Standards & Details (hereinafter CPW Standards), Town of Concord Zoning Bylaws, and MassDEP Stormwater Policy and Handbook (hereinafter MA Standards). Please note that this project is subject to other local and state bylaws and regulations (i.e., Concord Wetlands Bylaw, MA Wetlands Protection Act, etc.), however the scope of our peer review is limited to the conformance of the submitted materials to the aforementioned regulations and standards.

Based on our review, we offer the following comments for the Board's consideration:

General

1. We understand that the plans that have been submitted contain the information necessary for the review of the applicant's comprehensive permit application by the Concord Zoning Board of Appeals (ZBA) and to some extent provide only preliminary information with respect to exact details of site grading and drainage. Notwithstanding the outcome of the current review of this application by the ZBA, we recommend that prior to the issuance of a building permit that final design plans and details be submitted to the Planning Division and Public Works demonstrating compliance with the following:
 - a. Town of Concord Stormwater Regulations
 - b. Concord Public Works Design & Construction Standards & Details
 - c. Massachusetts Department of Environmental Protection Stormwater Policy and Stormwater Management Standards

2. This project will disturb more than 1 acre of land and will require coverage under the US EPA 2022 Construction General Permit program. This includes the preparation of a Storm Water Pollution Prevention Plan (SWPPP) and the filing of a Notice of Intent with the EPA at least 14 days prior to construction.

Plans

Topographic Plan – Sheet TP-3

3. Note 7 on this plan appears to be incorrect. We recommend that the note be reviewed by the project surveyor and revised as necessary.

Layout and Materials Site Plan – Sheet C2.1

4. This plan shows only two handicapped accessible parking spaces at each building. Notwithstanding the outcome of the current review of this application by the ZBA, we recommend that prior to the issuance of a building permit that final design plans be submitted to the Planning Division demonstrating full compliance with the provisions contained within the DOJ regulations under the Americans with Disabilities Act of 1990 and the MA Architectural Access Board regulations, 521 CMR.
5. We recommend that the final plans be expanded to include applicable architectural and structural details for the following improvements that are shown on this sheet:
 - Pier supported elevated deck
 - Five foot wide unpaved path
 - Headwall
 - Parking deck wingwall

Grading and Drainage Plan – Sheet C3.1

6. Two existing trees that are shown to remain behind the proposed building at 292 Baker are in an area that is proposed to be regraded and are in close proximity to the proposed public access trail. We recommend the project landscape architect evaluate whether these trees will potentially be adversely impacted by the construction in this area.
7. As discussed with the design engineer on 1/12/24, portions of the subsurface stormwater management systems are in several feet of cut. We recommend the engineer evaluate the potential for groundwater intrusion in these systems. Additionally, as part of the final design, we recommend the engineer provide test pit information to demonstrate groundwater elevations at these locations.
8. As part of the final design, we recommend a pipe table be added to the plan to specify lengths and slopes of the proposed drain pipes.
9. As part of the final design, we recommend several inspection ports be provided at each underground stormwater and compensatory storage system to facilitate post-construction inspection and maintenance.
10. Several proposed pipes have less than 3' of cover as required by CPW Standards 2.3.1.2.A.1 and 2.3.1.2.D. We recommend the design engineer revise the design to meet this standard or if it cannot be met, provide justification for the design as proposed.
11. We recommend a note be added to the plan to specify watertight pipe joints be used as required by CPW Standards Section 2.3.1.2.D.4.

12. The proposed building at 294 Baker will impact the existing 4" cast iron pipe which currently creates a hydraulic connection between the pond and the wetland adjacent to the Assabet River to the west. To maintain this connection, the plans show a proposed 4" ductile iron pipe (FE-203) rerouting the pond outflow around the proposed building and into the proposed compensatory flood storage chambers. We recommend that the elevation of FE-203 be revised to match the existing pipe invert. Further, we recommend the engineer evaluate ways to prevent future pipe clogging as is prone with a small diameter pipe.
13. Under proposed conditions the outflow from Stormwater Management Systems #2 and #3 as well as the outflow from the existing pond all discharge through the compensatory flood storage chambers and into the existing floodplain compensation basin. The floodplain compensation basin extends in a northwesterly direction and provides additional on-site flood storage, presumably to compensate for prior work that otherwise would have resulted in a loss of on-site flood storage. We note that the southeast end of this area is slightly lower in elevation than the point at which waters flow back into the wetlands adjacent to the Assabet River. With the proposed introduction of what will likely be a fairly regular discharge of water into this area (pond outflow, groundwater, and storm system outflows), there will likely be standing water in this low area, which extends under the parking deck, much of the time to the point where over time, this area may develop into a wetland. We recommend that the design engineer comment on this, including if there is an alternative design that could be considered that would alleviate or lessen this condition.
14. FE-201 and FE-202 are situated below the 100-year flood elevation of 124.7. We recommend the engineer evaluate the effects of a surcharge condition and its impacts to the overall proposed drainage system.
15. We recommend that any proposed slope greater than 3:1 be protected with an erosion control blanket and that an appropriate detail noting such be added to the plans.
16. This sheet shows an area of proposed 1:1 Engineered Rip-Rap Slope. We recommend that prior to construction that design drawings of this slope prepared by a MA licensed geotechnical or structural engineer be provided to the Concord Public Works for review and approval.
17. This sheet shows proposed retaining walls in two areas with a typical detail included on Sheet C5.1. We recommend that prior to construction that design drawings of these retaining walls prepared by a MA licensed geotechnical or structural engineer be provided to the Concord Public Works for review and approval. Further, we recommend that these walls be evaluated for the need of guardrail or protective fencing for fall protection as may be required by applicable local and State codes.

Utility Plan – Sheet C4.1

18. We note that the proposed podium elevation of 294 Baker of 118.0 is below the normal pond elevation of 121.2. As part of the final design, we recommend the engineer provide information for how floor drains and foundation drains will be discharged given this condition.

Detail Sheets – General

19. Where available, we recommend that the Concord Public Works Standard Details be added to the plans in lieu of the design engineer's typical details.

Detail Sheet – C5.1

20. We recommend that the applicable portions of the Erosion and Sedimentation Control Notes from the CPW Standards be added to this plan.

21. A detail for a Stabilized Construction Entrance is provided on the sheet. We recommend that the plans be revised to show the proposed location(s) for this.

Detail Sheet – C5.2

22. We recommend that the Precast Drain Manhole Detail reference EJ Catalog No. 0MA211000038 (frame) and 0MA211000041 (grate) per CPW Standards.
23. We recommend that the Precast Catch Basin Detail reference EJ Catalog No. 0MA552000029 (frame) and 0MA552000075 (grate) and that the grate include the words “Do Not Dump Waste, Drains to Waterways” per CPW Standards.
24. We recommend that the rip-rap apron detail include a 2’ weir consistent with CPW Standards detail DR-10A to help prevent erosion downgradient from the apron.
25. We recommend the details for drain manhole and catch basin be revised to provide 12” of gravel base as required by CPW Standards Section 2.3.1.3.A.1.

Detail Sheet – C5.3

26. The proposed Stormtrap systems for flood storage will consist of many large openings beneath the parking deck. We recommend the engineer provide fencing or some other method to prevent unintended intrusion of people, animals, trash and debris, etc.

Hawk Design Site Master Plan – L1.1

27. We recommend that the final landscape plans be coordinated with the site civil engineering drawings as currently several trees are shown located on top of the compensatory storage chambers or conflicting with other site utilities.

Stormwater Management Report

28. Executive Summary:
 - a. Table 1 identifies increases in peak flow rates to DP-1 (Pond) during the 2-year storm and DP-2 (Wetland) during all design storms. Although these areas are described as interim design points, both are resource areas that should not be used to attenuate peak runoff rates.
 - b. Table 2 notes increases in runoff volumes at DP-2, DP-3, DP-5, and DP-6 during some or all design storms. Section 2.2.1.A of the Concord Public Works Design & Construction Standards & Details requires that rates and volumes not exceed pre-development conditions. We recommend that the design engineer either revise the design to reduce the post-development runoff volumes to either match or be less than pre-development volumes or provide justification for why this standard cannot be met.
29. Stormwater Management Controls Sizing: The description of the infiltration system notes the design was performed using the Simple Dynamic Method however, calculations provided in the appendix appear to reflect the Static Method. We recommend the engineer revise the description.
30. Compliance with DEP Stormwater Management Standards: The narrative under Standard 7 describes the proposed project as a new development however, the narrative within Standard 4 states that treatment is provided “to the maximum extent practicable”. We recommend that the narratives for Standards 4 & 7 be revised as necessary to properly describe the mix of new development and redevelopment as indicated on the Checklist for Stormwater Report.

31. Checklist for Stormwater Report:

- a. We recommend the Project Type on Page 2 be identified as a mix of New Development and Redevelopment, consistent with the box checked under Standard 7.
- b. Standard 2 - We recommend the box for a Standard 2 waiver request due to coastal storm flowage be unchecked as the site is not located near coastal waters.
- c. Standard 3 – We recommend the final design provide a soil analysis (test pits, which need to be observed by a Town representative) to confirm on-site subsurface conditions within the proposed stormwater management systems.
- d. Standard 3 - As noted in a previous comment, we recommend the recharge sizing be identified as Static rather than Simple Dynamic to reflect the calculations provided.
- e. Standard 5 – The NPDES Multi-Sector General Permit is intended for industrial discharges, which we do not believe are applicable to this site.
- f. Standard 10 – We recommend the box for “No Illicit Discharge Compliance Statement is attached...” be unchecked as one is provided within the report.

32. Pre-Development Hydrologic Analysis:

- a. Pre-Development Hydrology Calculation Summary - We recommend the storm events be revised to utilize a Type III distribution per CPW Standards Section 2.2.1.D.
- b. Drainage area DP-1 follows the southern property line however, topography is not provided along this boundary to confirm that this is the actual limit of contributory area to the pond. We recommend the engineer determine the limits of the off-site contributing area to the pond and include that area in the analysis.
- c. It appears there are two existing above ground basins to the north of the existing pond. We recommend the engineer include these in the pre-development analysis as some detention of existing stormwater runoff is likely provided, which is not currently accounted for.

33. Post-Development Hydrologic Analysis:

- a. Post-Development Hydrology Calculation Summary - We recommend the storm events be revised to utilize a Type III distribution per CPW Standards Section 2.2.1.D.
- b. Post-Development Hydrology Calculation Summary – Note 8 states a rate of 2.41 in/hr was used in the model for system #1 however, Section 3.3 of the report states the rate as 0.27 in/hr. We recommend the engineer review and revise as necessary.
- c. Post-Development Hydrology Calculation Summary – Note 8 states that exfiltration was not modeled in system #2 due to the proposed bottom elevation however, later in the report this system appears to be used to satisfy the groundwater recharge standard. We recommend the engineer review and revise as necessary.
- d. Post-Development HydroCAD – Because Stormwater Management System #2 and the re-routed pond outlet discharge into the existing compensatory flood storage basin, we recommend these nodes be routed to DP-3, rather than DP-2.
- e. Post-Development HydroCAD – We note subsurface system #1 is modeled with an exfiltration outlet utilizing a rate of 2.41 in/hr. We recommend the engineer resolve discrepancies with the rate of 0.27 in/hr stated in the report. Additionally, the exfiltration outlet is modeled with conductivity to groundwater at elevation 121.42. Given that no test pits have been conducted within the footprint of this system, we recommend that the design engineer provide the justification for using this value

or alternatively, use the option in HydroCAD to model the outflow as constant velocity over surface area.

34. Floodplain & Proposed Compensatory Storage – We agree that the compensatory storage design provides excess storage for lost floodplain volume from the development at each incremental elevation. However, we disagree that the excess compensatory storage volume provided is proper mitigation for the increase in stormwater runoff volume during a 100-year design storm. We recommend the engineer provide justification for this method or revise the design to reduce stormwater runoff volumes as stated in CPW Standards Section 2.2.1.A.
35. Hydraulic Analysis – The analysis provided demonstrates that the proposed pipes have capacity in excess of design flow rates during a 25-year storm. We recommend the engineer revise these calculations to account for a 100-year frequency storm as stated CPW Standards Section 2.2.1.F. or provided justification for the calculations provided.
36. Groundwater Recharge:
 - a. We note that subsurface system #2 is included in the recharge provided calculations, but no recharge is modeled within the HydroCAD analysis. We recommend the engineer either provide further clarification or remove this system from the calculation.
 - b. Drawdown time calculations utilize a Rawls rate of 0.27 in/hr and are noted as rates for HSG-C soils. The report notes on-site soils as HSG-A and only HSG-A and HSG-D soils are modeled in HydroCAD. We recommend the engineer resolve this discrepancy. Additionally, it is unclear whether drawdown calculations for systems #2 and #3 are appropriate as they only appear to discharge via outlet pipes and orifices.
37. Water Quality Volume Summary:
 - a. We recommend that additional detail for the Provided Water Quality Volume be added to demonstrate which BMPs contribute to water quality treatment.
38. Site Owner's Manual:
 - a. We recommend that the Grading and Drainage Plan included as Figure 1 be replaced with a simpler plan with labels keyed to the various long-term maintenance items identified in this manual.

CPW Engineering has reviewed these comments and is in agreement. They stated that they reserve the right to comment on future submittal related to any new or previously submitted information provided to the Town for review. Should you have any questions or require additional information, please contact me directly at (603) 374-7912 or by email to djordan@gpinet.com.

Sincerely,

GREENMAN-PEDERSEN, INC.



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