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August 11, 2023

Ms. Alison Manugian  
Community Development Director  
Town of Dracut  
62 Arlington Street  
Dracut, MA 01826

**RE: Comprehensive Permit Site Plan Peer Review for “135 Greenmont Avenue”, Chapter 40B Development in Dracut, Massachusetts**

Dear Ms. Manugian:

GCG Associates, Inc. (GCG) has reviewed the following information for The Comprehensive Permit Application for 135 Greenmont Avenue, (Tax Map #47, Lot 126) Chapter 40B Development in Dracut, Massachusetts.

**Document References:**

1. Initial Notes Memorandum to the Zoning Board of Appeals (ZBA) – Greenmont Comments – 135 Greenmont, prepared by Alison Manugian, Community Development Director, dated June 27, 2023.
2. Massachusetts Housing Finance Agency (“MassHousing”) Project Eligibility/Site Approval (“Site Approval”) Chapter 40B application package for Greenmont Commons, 135 Greenmont Avenue, Dracut, MA 01826, prepared by Cornerstone Land Associates, LLC., dated August 19, 2022.
3. Comprehensive Permit Application (28 Rental Units) binder submitted to Dracut Zoning Board of Appeals, prepared by Attorney Douglas C. Deschenes of Finneran & Nicholson, P.C., dated June 22, 2023. The application package consists of the project Narrative and Exhibits A – T:
  - A. Surrounding Development Plan
  - B. MassHousing Corporate Information
  - C. Program Overview
  - D. Project Eligibility Application
  - E. Project Eligibility Letter
  - F. Affordable Housing Restriction
  - G. Proforma
  - H. Regulatory Agreement
  - I. Soil Report
  - J. Site Plans
  - K. NHESP Informal Determination
  - L. Landscaping Plan
  - M. Architectural Drawings
  - N. Drainage Calculations
  - O. Requested Exceptions
  - P. Site Control - Deed
  - Q. Legal Existence
  - R. Abutters List
  - S. Filing Fee's
  - T. Transportation Impact and Access Study

## **Plan References:**

1. Exhibit J - "Site Plan in the Town of Dracut, Middlesex County, Commonwealth of Massachusetts, Greenmont Commons, 135 Greenmont Avenue, Dracut, MA., prepared by Cornerstone Land Associates, LLC., (Cornerstone), dated May 18, 2023. Plan set consists of 8 sheets:
  1. Title Sheet
  2. C-101 Existing Conditions
  3. C-102 Layout & Utilities
  4. C-103 Grading and Drainage
  5. C-104 Erosion Control
  6. C-105 Landscape & Lighting
  7. C-106 Details and Sections
  8. C-107 Details and Sections
  9. C-108 Details and Sections
2. Exhibit M – (Architectural Drawings) "Floor Plans" Comprehensive Permit Application, prepared by Cornerstone Land Associates, LLC., dated May 8, 2022, consists of 1 sheet including Ground Floor Plan and First Floor Plan.

Based upon our review of the above information, GCG offers the following comments with respect to compliance with the current Massachusetts Wetlands Protection Act Regulations (310 CMR 10.00) and associated Stormwater Handbook, the Dracut Zoning By-Law, Town of Dracut By Laws - Chapter 24 Stormwater and Erosion Control Bylaw, Stormwater Management Rules and Regulations and general engineering standard practice.

## **GENERAL COMMENTS:**

The site is located in the Residential R-1 Zoning District where Multi-Family Dwelling's are prohibited. Hence, this project is seeking a Comprehensive Permit under Chapter 40B development. The site is in Flood Zone 'X' (Area of Minimal Flood Hazard) as shown on the FIRM panel 25017C0141E, effective date 6/4/2010. There is no NHESP Estimated and Priority Habitats of Rare Species and Wildlife in the project vicinity as shown on MassMapper (MassGIS) layers. There is a wetland resource area delineated within the southwesterly lot corner and appears to be a Bordering Vegetated Wetland (BVW). A Notice of Intent should be filed with the Dracut Conservation Commission and MassDEP. The wetland resource area delineation requires the Conservation Commission approval. This project as shown is under the jurisdiction of MGL Chapter 131, Section 40 – Massachusetts Wetland Protection Act and 310 CMR 10.00 – Wetland Protection and the associated Stormwater Management Standards under the Massachusetts Stormwater Handbook (MSH). The State of Massachusetts Codes and Regulations are not subject to Chapter 40B Comprehensive Permit waivers.

This project exceeded the National Pollutant Discharge Elimination System (NPDES) Construction General Permit (CGP) threshold. A NPDES GCP Notice of Intent shall be filed 14 days prior to the start of construction with the associated Stormwater Pollution Prevention Plan (SWPPP) prepared.

The Comprehensive Permit Site Plan is based on preliminary site plan in nature. Development details should be developed and provided on the Construction Plan set. GCG's review comments are based on the Federal and State of Massachusetts requirements with waiver determination by the ZBA.

## **REVIEW SUMMARY:**

### **Existing Conditions Plan (C-101)**

1. Existing property boundaries should include crow feet to distinguish the metes and bounds intersection point.

2. The property boundaries should be certified/stamped and signed by a Commonwealth of Massachusetts licensed Professional Land Surveyor (PLS). An attached copy of reference plan #2 is acceptable.

### Layout and Utilities Plan (C-102)

3. The general layout of the buildings and associated parking spaces comply for a multi-family development with the local By-Laws waivers. Waivers to be commented under the details.
4. Walkway, sidewalks and building entrances should be shown on the plan.
5. Applicant should clarify the discrepancy between the proposed building footprint (labeled 36' x 20') and the Ground Floor Plan shown on Exhibit 'M', which shows 42 feet length side wall by 20 feet width for each unit.
6. The proposed driveway intersection sight distance should be provided. The intersection sight distance appears to be adequate.
7. An analysis for an emergency vehicle turning path should be shown at the proposed tee-turnaround for Fire Department review and approval. The proposed tee-turnaround appeared to be sufficient for emergency vehicle maneuvering. The applicant should show fire truck turning paths and adjust if necessary.
8. The proposed curbing material should be called out on the plan.
9. The proposed water main and services, pipe size and material should be specified on the plan. The proposed water main creates 390+/- feet of dead-end water main. A hydrant should be installed at the end of the water main and connection details (valves and connection tee etc.) should be provided. Flow tests for water supply and fire protection capacity should be performed to ensure there is sufficient capacity to support this project. The system should be reviewed and approved by the Water District.
10. The proposed sewer main and services pipe sizes, pipe length and slope should be called out on the plan. Sewer service inverts at each building should be provided.
11. A zoning table would be helpful for the Board to determine the waivers requested.
12. The plan proposed 2 parking spaces per dwelling unit in the form of one ground floor garage space and a second tandem exterior space outside the garage. The tandem parking layout requires Board approval, as garage and tandem parking were not specified in the Zoning Section 3.10.00. However, the tandem parking layout for townhouse building layouts is widely utilized in the community.
13. An additional 16 guest parking spaces were provided on site, these common parking spaces should meet the ADA/AAB requirements.
14. The plan should specify the methods of solid waste/trash collection for the site. It appears to be individual unit curb side pickup. The applicant shall specify and come to an agreement with the Town if this development will utilize a private trash pickup provider or Town trash pickup service.
15. The applicant shall verify that postal services proposed meet USPS requirements.
16. Proposed ground signs should be shown on the plan.

### Grading and Drainage Plan (C-103)

17. The proposed stormwater management standards do not meet the MSH requirements as listed below:
  - a) The site soil data as presented (NRCS Web Soil Survey, Site Soil Particle Size Analysis, and Soil Permeability Testing) did not prove the site soil suitable for the proposed infiltration facilities. The NRCS soil map shows the westerly half of the site consists of Hydrologic Soil Group (HSG) "D" soil and the easterly half of the site consists of HSG "C/D" soil. The soil samples TP#1 and TP#2 (2 of the 3 samples) tested approximately 39.5% and 39% of silt and clay contents, respectively and not suitable for an infiltration system. The Soil Evaluation Report also estimated the seasonal high groundwater at 24" below the surface for all 3 test pits.

b) Bioretention Basins:

- 1) Basins 1 and 2 should have a 25' minimum length filter strip for the entire stone diaphragm.
- 2) The plan showed western bioretention Basin (#1) bottom elevation at contour 99, but HydroCAD calculations used elevation 95.50 for basin bottom storage, which is 3.5' lower than the existing ground and could be under the estimated seasonal high groundwater table (ESHGW).
- 3) The eastern bioretention basin also showed bottom contour at 99.00, but calculations used elevation 95.50 for basin bottom storage with 40% void for the gravel layer and 30% void for the engineered soil mix layer. GCG does not recommend using void storage within the gravel and engineered soil mix layers. In addition, these layers are most likely in the ESHGW.
- 4) The minimum depth of the engineered soil mix layer should be 24" (or 30" minimum if nitrogen removal required).
- 5) The bottom of the bioretention cell should meet the 2' minimum separation to the ESHGW.
- 6) Bioretention basins were designed as infiltration systems, a 10' minimum foundation wall setback is required.
- 7) Bioretention area should be sized based on 5% to 7% of the watershed area.
- 8) Deep Hole soil tests should be performed at the system location to determine ESHGW elevation based on soil redoximorphic features. MSH, Vol. 3, Ch. 1 Pg. 10. Soil test samples TP#1 and TP #2 consist of 39.5% and 39% of Silt & Clay, respectively, are not suitable for exfiltration. MSH does not recommend infiltration system in Hydrologic Soil Group (HSG) 'D' soil.
- 9) Only 50% of the in-situ soil permeability rate should be used in the exfiltration calculations. Only the system bottom should be used for infiltrative surface area, sidewall should be excluded. MSH, Vol. 3, Ch. 1 Pg. 23.
- 10) Bioretention Basin #1 has only 0.13 feet of freeboard.

c) Detention Ponds:

- 1) Tree Box Filter pre-treatment sizing calculations should be provided.
- 2) Detention Pond #1 was modeled as an infiltration basin and should meet the 50 feet setback from any surface water of the commonwealth, (including BVW). MSH Vol. 2, Ch. 2, Pg. 88.
- 3) Detention Pond #1 bottom elevation 93.0 appeared to be at the ESHGW, minimum 2 feet separation is required. MSH Vol. 2, Ch. 2, Pg. 88.
- 4) Detention Pond #1 earth berm width is only 3 feet wide and constructed in fill. The basin shall be equipped with an access path, and an emergency spillway sized with brimful conditions. A minimum of 1 foot freeboard should be provided. MSH Vol. 2, Ch. 2, Pg. 91.
- 5) Detention Pond #1 labeled a 6" pipe outlet, outlet pipe should be shown on the plan. The 12" inlet pipe invert from Detention Pond #2 should be called out on the plan.
- 6) The drainage swale and Detention Pond #1 were enclosed by a retaining wall along the westerly property line. The wall height should be approximately 5 feet high, (no spot grades were called out on the plan) and located 1 foot from the abutting property. Theoretically, it could be built with such high precision and high costs. However, encroachment during construction and future repair and maintenance should be anticipated. GCG recommends a minimum of 10 feet wide easement from the face of the retaining wall.
- 7) Detention Pond #2's proposed bottom elevation 96 is approximately 5 feet below surface and 3 feet below the ESHGW (elevation 96+/-). The soil sample has a calculated permeability rate of 0.11 inches per hour, with 50% safety factor as required by MSH, resulting a 0.055 in/hr exfiltration rate and not suitable for exfiltration. Maintenance access should be provided.

- 8) Provide additional spot grades and contour at the southeasterly lot corner to show the top of berm width and provide an emergency spillway and sized with brimful conditions. Abutting property should be protected by the earth berm.
- 9) Detention Pond #2 access path should be provided.
- d) Roof Top Recharge Basins:
  - 1) The roof top recharge basin systems consist of Cultec Leaching Chambers embedded in stone trenches and classified as shallow underground injection control (UIC) Class V injection well and shall meet the MassDEP's Energy and Environmental Affairs (EEA) Standard Design Guidelines for Shallow UIC Class V Injection Wells standards. The proposed roof top recharge systems should provide a 10-foot minimum setback from building foundation walls.
  - 2) Roof inlet pipe should be sized to avoid bypass flow. The plan shows two 6" outlet pipes per system, calculations used one 6" outlet orifice. Exfiltration rate should be based on 50% of the in-situ permeability rate, and no side wall exfiltration should be credited. Bottom of the crushed stone should meet the 2' separation to the ESHGW and provide deep hole soil test per each chambers system, the NRCS web soil survey indicated HSG "C/D" and "D" soil groups on site. The applicant should provide additional soil test data to prove exfiltration function as designed.
  - 3) The chamber systems do not meet the downhill slope setback requirements, the concrete retaining wall should be constructed according to the design requirements.
- 18. All drainage systems should be sized to drawdown within 72 hours. Provide water mounding calculations where bottom of system does not meet the 4' separation to ESHGW.
- 19. Retaining walls' top of wall and bottom of wall spot elevations should be specified on the plan with chain link protection fence equipped where necessary.
- 20. Soil logs were not shown on the plan sheet as referenced in the stormwater report.

#### Erosion Control Plan (C-104)

- 21. Proposed haybale erosion control should be installed inside the property lines, unless with easement provided.
- 22. Erosion control should be provided along the Greenmont Avenue frontage. Catch basin silt sacks should be installed at the downstream catch basin structures to provide erosion control protection with utility's connection on the street.

#### Landscape and Lighting Plan (C-105)

- 23. 3.10.49 - Proposed landscape trees should have a minimum size of 2" diameter at a height four feet above the ground at the time of planting. Trees shall be spaced so that some part of a parking space is not more than 30 feet from a tree. Waivers with 2.10.40-3.10.49 requested. GCG recommends providing additional landscape screening along the southerly property line to screen off driveway and parking spaces to the southern abutting residential dwelling.
- 24. Applicant should clarify the luminaire boundary limit shown on the plan. The footcandle luminaire lines shown higher intensity (increased footcandle) as distance further away from the light fixture. Which is opposite to the typical photometric lighting plan.
- 25. Proposed light fixture on pole is 18 feet in height.

#### Details Plan (C-106)

- 26. Stone masonry retaining wall should be detailed to assure all construction to be within the site property boundary or provided with necessary easements.

### Details Plan (C-107)

27. Plan shows Porous Pavers, Guard Rail, Stop Bar Stripe, Typical Signs, Concrete Sidewalk, Bituminous Cape Cod Berm, Vertical Granite Curb and Typical Parking and Sidewalk details. These features locations were not specified on the plans.

### Details Plan (C-108)

28. Bioretention Cell Planting soil should be 24" minimum (and 30" minimum if nitrogen removal is required). Stone diaphragm depth and width, and bioretention cell dimensions should be specified on the detail plan.
29. The leaching chamber detail should be Cultec R-330XL unit.
30. Filterra Tree Box Detail dimensions should match the plan label shown on C-103.

### Architectural Floor Plan

31. Ground floor dimensions should match the building footprint shown on layout plan C-102.
32. Third floor plan should be provided.
33. Building elevation plans should be provided and show building height and stories.

### Stormwater Report

1. The proposed peak flow and peak volume for each event, 2-year, 10-year, 25-year, and 100-year did not match the HydroCAD output and should be clarified.
2. Portion of the recharge BMPs are in HSG 'D' soils. Additional soil testing should be performed on site to prove proposed infiltration BMPs design is effective. The soil samples as shown, 2 of the 3 samples consist of approximately 40% silt clay contents, which is not suitable for infiltration.
3. Standard 8 - Construction Period Controls, Operation and Maintenance (O&M) plan should be provided.
4. Standard 9 – Long Term Operation and Maintenance (O&M) plan, O&M budget and sample log should be provided.
5. Standard 10 - An illicit Discharge Statement should be included in the report.
6. Soil Evaluation stated soil logs shown on the Grading & Drainage Plan, (not shown). Soil logs should be provided. Soil logs should match with plan labels, additional soil tests are required.
7. Drainage Areas & Curve Numbers were not matching this project site. Pre-development total watershed area consists of 5.9 ac. and the post-development total watershed area consists of 7.2 ac. (The subject site has a total area of 2.45 ac.), pre-development and post-development watershed plans should be provided. Peak flow and volume rate shown for all study events did not match the HydroCAD report.
8. The recharge volume total impervious area did not match the HydroCAD report. Drainage Area sub-catchment numbers did not match the HydroCAD report.
9. The Dracut Stormwater Management Rules & Regulations (DSMRR), Section 7.D.(1) requires performance standards for new development project to meet 90% of the average annual load of Total Suspended Solid (TSS) and 60% of the average annual load of Total Phosphorus (TP); The MassDEP Standards calculations as shown did not match this site and should be revised. The calculations used were based on the (Massachusetts Stormwater Handbook) MSH requirements and did not address Section 7.D.(1), which was imposed in the DSMRR based on the EPA's MS4 permit requirements.
10. The proposed HydroCAD calculations were based on (Technical Paper) TP-40 precipitation data. The Dracut Stormwater Management Rules & Regulations (DSMRR), Section 7.G.(9) requires drainage calculations to utilize the NRCC Extreme Precipitation in New York and New England Rainfall Data. This project The NRCC Precipitation data is more conservative than the TP-40 rainfall data. TP-40 is currently the standard data from MassDEP through its Massachusetts Stormwater Handbook (MSH). And the NRCC data is a local requirement. The

applicant has requested a waiver for the DSMRR requirements (items 9 & 10). GCG does not anticipate any major adverse impacts to the project vicinity as long as the project is in full compliance with the MSH standards.

11. Pre-development HydroCAD report – Pre-development watershed map should be provided to assess the watershed boundary. The two pre-development sub-catchments did not include any wooded area. Based on the Google Map aerial images, there could be some wooded area along the rear yard area and should be considered.
12. Post-development HydroCAD report – All bioretention basins and detention ponds with exfiltration credit should be modeled as water surface with CN 98 value. Sub-catchments 7S (PWS#4) and 13S (PWS#7) should include the landscape islands drains to the pavement area and discharge onto the Tree Box Filters and Detention Ponds #1 and #2. Total combined pavement area and landscape area should be used to size the Tree Box Filters and Detention Basins routing. Plan shows Detention Basin #2 connects to Detention Basin #1 with a 12" drainpipe, model should be revised as such.
13. Exfiltration rate used in the calculations should be verified with additional in-situ permeability analysis and reduced by 50% as factor of safety as required by MSH Vol. 3, Ch. 1, Pg. 25. Only the bottom area shall be considered. No credit shall be afforded to sidewall. Ponds 8P, 20P, and 21P were using exfiltration over wetted area.
14. Minimum acceptable field infiltration rate is 0.17 in/hr, MSN Vol. 2, Ch.2, Pg. 105.
15. Pond 25P – Basin storage starts at elevation 95.5, which is 3.5 lower than the contour shown on the plan and the ESHGW should be at elevation 98+/-.
16. Pond 26P – Void within the gravel layer and engineered soil mix layer should not be used. The layers could possibly be below ESHGW. The engineered soil mix layer's void volume is reserved for sediment collection and planting growth and should not be counted as drainage storage.
17. Proposed drainage mitigation ponds and basins should be designed with emergency spillway and freeboard as required by MSH.
18. Earth berm constructed in fill should be designed accordingly.

#### Traffic Memorandum

1. GCG concurs with the trip generation assessment. GCG recommends including a copy of the ITE Manual for Land Use Code (LUC) 230 for Residential Condominiums/Townhouses chart in the traffic report and provide the calculations in the report.
2. A stop sign control at the driveway exit is recommended.

#### Dracut Wetland Protection Bylaw

There is no building proposed within Chapter 18 section II - 50 feet wetland buffer no build zone. This project should comply with the MSH standards.

#### **CONCLUSIONS:**

The drainage calculations as presented do not meet the MSH requirements.

If you have any questions regarding this matter, please contact our office.

Respectfully Submitted,  
GCG Associates

*Michael J. Carter*

Michael J. Carter, PE, PLS  
President