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May 20, 2024

Ms. Jackie Anderson
Assistant Planner/Conservation Agent
Dracut Town Hall
62 Arlington Street
Dracut, MA 01826

RE: Notice of Intent Application, Greenmont Commons, Dracut, Massachusetts

Dear Ms. Anderson:

GCG Associates, Inc. (GCG) has reviewed the following information for the Notice of Intent (NOI) for Greenmont Commons, 135 Greenmont Avenue, (Tax Map #47, Lot 126) in Dracut, Massachusetts.

Document References:

1. Notice of Intent Application package prepared by Cornerstone Land Associates, LLC. (CLA), dated November 29, 2023.
2. Stormwater Report, Greenmont Commons, prepared by CLA, dated May 18, 2023, last revised April 10, 2024.

Plan References:

1. "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, last revised 04/10/2024. Plan set consists of 10 sheets:
    1. C-101 Existing Conditions
    2. C-102 Layout & Utilities Plan
    3. C-103 Grading and Drainage Plan
    4. C-104 Erosion Control Plan
    5. C-105 Landscape & Lighting Plan
    6. C-106 Details Plan
    7. C-107 Details Plan
    8. C-108 Details Plan
    9. C-109 Details Plan
    10. C-110 Emergency Access 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 (M.G.L. c. 131, § 40), Massachusetts Wetlands Protection Act Regulations (310 CMR 10.00) and associated Massachusetts Stormwater Handbook, the Town of Dracut By Laws Chapter 18 – Wetland Protection, the Dracut Wetland Bylaw Regulations, and general engineering standard practice.

This project has concurrently filed a Comprehensive Permit application under the M.G.L. Chapter 40B with the Dracut Zoning Board of Appeals (ZBA). Additional drainage related comments were stated in the ZBA peer review letter previously submitted, which are also applicable to this NOI application.

GENERAL COMMENTS:

The site is located in the Residential R-1 Zoning District where multi-family dwellings 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 between wetland flagging WF-1 to WF-7 within the southwesterly lot corner by Cornerstone Land Associates, LLC. as shown on the Existing Conditions Plan (Plan Sheet C-101). This appears to be a Bordering Vegetated Wetland (BVW). The southwest portion of the lot is within the 100 feet of the BVW buffer and under the jurisdiction of MGL Chapter 131, Section 40 – Massachusetts Wetland Protection Act, 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 (USEPA NPDES requirements), State of Massachusetts (MassDEP MSH) and the Dracut Wetland Protection and Regulations.

The project narrative stated in the NOI application package described the project as Pines at Marsh Hill community, a 36-unit townhouse condominium community development on a 5.87-acre parcel of land located at 2041 and 2083 Bridge Street. It appears the incorrect narrative was included in the NOI application.

Based on the WPA Form 3 – Notice of Intent and associated Site Plan and Stormwater Report. This NOI filing is for the Greenmont Commons project filed under the M.G.L. Chapter 40B Comprehensive Permit application through the Dracut Board of Appeals, (filed concurrently). The property is at 135 Greenmont Avenue and consists of 2.45 acres, as shown on Tax Map 47, Lot 126. The site is currently occupied by a single-family two-story dwelling with an inground pool in the rear yard and paved driveway in the front yard. The lot is mostly cleared, with manicured lawn and a group of trees along the southern and southeastern rear yard boundaries. The topography consists of mild to medium slope, with the front yard pitching toward Greenmont Avenue, the side and rear yards pitching south and southwestward to the BVW area at the southwesterly lot corner. The site consists of poorly drained soils as identified on the NRCS Web Soil Survey as Hydrologic Soil Group (HSG) 'C/D' and 'D' soils. Seven (7) soil test pits were performed on-site. The soil logs were relatively consistent with estimated seasonal high groundwater at 2.5' to 3' below surface with silty sand soil. Two of the three soil samples sieve analyses showed 39% and 40% of silt and clay content (passing #200 sieve) and the third sample (Test Pit #3 was located approximately 40' east of WF-#4) showed 21% passing #200 sieve. Laboratory permeability tests for the three soil samples showed 1.08 in/hr; 0.22 in/hr, and 0.11 in/hr exfiltration rate. The highest exfiltration rate was obtained from Test Pit #3 near the BVW. Test Pit #3 is in the required 50' minimum setback from surface water of the commonwealth (including BVW), and not suitable for infiltration/recharge BMPs. Sample soils #1 and #2 exfiltration rates were too low, (a safety factor of 50% reduction of the in-situ saturated hydraulic conductivity rate is required for an infiltration system utilizing "Dynamic Field" method, MSH Vol. 3, Ch.1, Pg.17, foot note #9), and do not meet the minimum exfiltration rate (0.17 in/hr) requirements per MSH Table RR – Rules for groundwater recharge, Vol.1, Ch. 1, Pg. 8. The soil logs and laboratory report confirmed the site's HSG 'C/D' and 'D' assessments. There were no NHESP estimated habitats of rare wildlife and priority habitats of rare

species or vernal pool identified on the MassMapper/MassGIS layers. The site is in Zone 'X' – Area of minimal flood hazard.

The NOI filing was dated November 29, 2023, but the WPA Form 3 - Notice of Intent form was based on rev. 6/28/2016. This NOI should be filed with the rev. 6/18/2020 form. There were minor changes on the 2018, 2019, and 2020 versions of the WPA Form 3, which should not affect this filing. The Commission or MassDEP may require an updated WPA Form 3. The current WPA Form 3 is rev. 12/04/2023.

WPA Form 3 Section D.3. requires the applicant to identify the method for BVW and other resource area boundary delineations. This NOI shows wetland delineation flags WF-1 to WF-7 on site plan sheet C-101, which appear to be a Bordering Vegetated Wetland (BVW). The applicant should provide a project Wetland Report with the latest "Bordering Vegetated Wetland Determination Form", (Form revised July 2023). The Massachusetts Handbook for Delineation of Bordering Vegetated Wetlands was revised in September of 2022 and published in March 2023 with new data forms. It must have at least one form for each wetland zone and upland zone as described in the Wetlands Delineation Handbook. The current handbook requires a prevalence index test to also be used for vegetation determination, as well as for soils and hydrology to be reviewed. All data for which is included on the data sheets is required by DEP. The Bordering Vegetated Wetland Determination Form is needed to evaluate the BVW boundary.

NOI REVIEW SUMMARY:

1. The Dracut Wetland Regulations (DWR) - Section 5.1.4.1.2. – Within 25 feet of a resource area, the Conservation Commission does not allow any disturbance to the land. The proposed Outlet Pond, earth berm and spillway are proposed within the 25' of the BVW resource area.
2. DWR Section 5.1.4.1.3. – Within 50 feet of a resource area, the Commission does not allow building of new structures, retaining walls or impervious area. The proposed retaining wall is located within the 50' BVW wetland buffer.
3. This site plan currently proposes 6 multi-family residential dwelling structures with a total of 26 units. The southwestern property corner was identified as Bordering Vegetated Wetland with an associated 100 feet buffer zone. Therefore, the Stormwater Management Standards 310 CMR 10.05(6)(k) is applicable to this project.
4. Massachusetts Stormwater Handbook Standards were listed in the project Stormwater Report Section 4 and list below:
    - (4.1) Standard 1: No New Untreated Discharges

      The proposed discharge northward to Greenmont Avenue consists of majority lawn surface and does not require treatments. The stormwater runoff discharges to the outlet pond weir are treated through deep sump hooded catch basins, ADS Barracuda water quality unit, pipe detention system, sediment forebay, and wet pond. There were other concerns with the proposed proprietary water quality unit, pipe detention system, sediment forebay, and wet pond design and application. See Standard 4 detail comments below.

    - (4.2) Standard 2: Peak Rate Attenuation

      Even though the post-development peak rates were shown as controlled to below the pre-development conditions, there are major discrepancies between the calculations, the design, and the function of the drainage system shown on the plan. Standard 2 also requires the proponents to evaluate the impacts to off-site down steam flooding. There appeared to be two errors on the Post-Development (Proposed Conditions) summary of Flow to Rear Wetlands (DP#2). The 25-yr event peak flow rate should be 5.11 cfs with volume at 0.605 acre-ft. (see HydroCAD Prop-Conditions Revised 041024 page 47); and

the 100-yr event peak flow rate should be 10.05 cfs with volume at 0.828 acre-ft. (see HydroCAD Prop-Conditions Revised 041024 page 62); Therefore, the calculations show increased runoff volumes flow to the rear wetlands during the 25-yr and 100-yr storm events (net increases of 0.043 acre-ft and 0.091 acre-ft, respectively). Since the existing wetland is surrounded by Greenmont Avenue and Spring Park Avenue, the increased runoff volume would most likely have some adverse impacts to the downstream properties. The Applicant is responsible for providing a downstream flooding impact analysis.

a) The pipe detention system was proposed with approximately 2.4 feet of the 3 feet high storage volume within the estimated seasonal high groundwater (ESHGW). The proposed system should be raised to at least one (1) foot above the seasonal high ground water to receive the detention storage volume credit. The system calculations were based on 6 rows of 240 linear feet of 24" diameter pipe embedded within the stone bed. However, the stone bed was only 203' long in the calculations and as shown on plan sheet C-103. (During a phone conversation with the Cornerstone engineer on 5/15/2024, Cornerstone claimed that the pipe detention system was intended to be watertight design. Assuming the watertight system is achievable with the multiple pipes and cleanouts/inspection ports connections, there will be no connection between the stormwater to the 40% stone void storage. Hence, the ADS pipe detention basin calculations would become invalid. Furthermore, the calculations need to be modified with pipe storage only, which would require doubling the quantity of the 24" pipes as shown on the plan. If the watertight storage system to be proposed is below the ESHGW, buoyancy calculations must be provided.)
b) The entire sediment forebay basin was proposed below the ESHGW, TP #2. The sediment forebay should be designed as a wet sediment forebay according to the MSH Table CSW.1, Vol. 2, Ch.2, Pg. 43 requirements. Volume below the ponding water and ESHGW should not be accountable for stormwater storage.
c) The Outlet Pond #1's bottom is below ESHGW per TP #3. The pond should be designed as a constructed wetland based on MSH Table CSW.1, storage volumes below ESHGW and below the outlet weir invert elevation should not be counted as stormwater storage.

- (4.3) Standard 3: Recharge Volume

Based on the soil test pits performed onsite, GCG concurs that the soil material is not suitable for infiltration function. GCG does not agree with the applicant's stormwater report, Section 4.3: Recharge volume requirements statement, which states that, "Due to the existing soil types and analysis on site, it has been determined that recharge is not required per the Massachusetts Stormwater Handbook regulations." Based on the MSH Vol. 1, Ch.1, Pg. 6 Standard 3, which states that "For sites comprised solely of C and D soils and bedrock at the land surface, proponents are required to infiltration the required recharge volume only to the maximum extent practicable." The handbook further states that: "For the purposes of Standard 3, "to the maximum extent practicable (MEP)" means that: (1) The applicant has made all reasonable efforts to meet the Standard; (2) The applicant has made a complete evaluation of all possible applicable infiltration measures, including environmentally sensitive site design that minimizes land disturbance and impervious surfaces, low impact development techniques, and structural stormwater best management practices; and (3) If the post-development recharge does not at least approximate the annual recharge from pre-development conditions, the applicant has demonstrated that s/he is implementing the highest practicable method for infiltrating stormwater." Since all seven soil test pits were

relatively consistent with shallow seasonal high groundwater and silty sand material, infiltration practices are not feasible, (MEP requirement #1). Hence, the applicant should seek reduction of the impervious area as required under the MEP requirement #2. Furthermore, the site development without infiltration would not be able to control the post-development increased runoff volume and potentially cause downstream flooding.

- (4.4) Standard 4: Total Suspended Solids (TSS) Removal

  a) The ADS Barracuda Hydrodynamic Separator is a proprietary stormwater treatment unit. GCG was unable to find any MassDEP or institutional rating approval report or documents for the claimed 80% TSS removal credit. Based on our research, NJDEP did approve 50% TSS removal credit for the ADS Barracuda MAX Hydrodynamic Separator Stormwater Treatment Device in April 2021. According to the ADS product sheet - The “Max” version of the Barracuda is built on the base platform of the original ADS Barracuda with improved removal efficiencies and installation components. The NJDEP’s approval was for the improved Max unit, but not the base Barracuda unit. MSH Vol. 2, Ch.4, Pg.1 specified the Conservation Commission/Issuing Authority to make a case-by-case assessment of a specific proposed use of a proprietary technology at a particular site and assigns a TSS removal efficiency. Additional TSS removal rating support data for the water quality unit (WQU) should be provided. Other similar systems have received no more than 50% of the TSS removal credit.
  b) “ADS Barracuda Hydrodynamic Separator treatment” WQU sizing calculations should be provided.
  c) The applicant should re-assess the total TSS removal credit calculations. The WQU‘s 80% TSS removal credit needs additional backup data. The proposed sediment forebay is below the ESHGW and the Outlet Pond is partially below the ESHGW and does not meet the MSH standards. The outlet pond with sediment forebay as pre-treatment could qualify as Constructed Stormwater Wetland BMP with the associated TSS removal credit, if designed according to the MSH Table CSW.1 standards.

- (4.5) Standard 5: Higher Potential Pollutant Loads

  This project is not a Land Uses with Higher Potential Pollution Loads (LUHPPL)

- (4.6) Standard 6: Critical Areas

  This project does not consist of stormwater discharges within any critical areas.

- (4.7) Standard 7: Redevelopment

  This project is being treated as a new development due to the post-development increased impervious surfaces. Existing conditions’ impervious areas (existing roof and pavement) were included in the pre-development HydroCAD calculations to generate the peak runoff flow and volume for the storm events analysis.

- (4.8) Standard 8: Construction Period Controls

  The applicant will be responsible for generating a Construction Period Operation and Maintenance Plan, including the Stormwater Pollution Prevention Plan (SWPPP) associated with the National Pollution Discharge Elimination System (NPDES) Construction General Permit (CGP) filing, which is required for this project.

- (4.9) Standard 9: Operation & Maintenance (O&M)

  A final O&M plan should be provided and updated to meet the final drainage design.

- (4.10) Standard 10: Illicit Discharges

  A signed Illicit Statement should be provided and updated along with the final drainage design.

Stormwater Report

The stormwater report does not meet the MassDEP MSH requirements as listed below in addition to all other comments from our ZBA review letter submitted previously:

1. The drainage watershed map pre- and post- development were outdated. The watershed plan no longer matches the sub-catchment areas labels and square footage. A revised post-development watershed plan should be submitted for review. GCG was unable to verify the sub-catchments watershed area without an updated watershed plan.
2. This Stormwater report was based on the TP40 rainfall data as currently required by the MSH. However, the Dracut (Stormwater Management Rules and Regulations) SWMRR, Section 7.G.(9) Stormwater Management Design Standards requires "Utilize the NRCC Extreme Precipitation in New York and New England rainfall data tool." The applicant has requested a waiver with 7.G.(9) through the ZBA's Chapter 40B Comprehensive Permit application. Subject to the waiver decision, a new drainage calculation with the NRCC rain fall data may be required.

CONCLUSIONS:

Due to the updated Massachusetts Handbook for Delineation of Bordering Vegetated Wetlands revision dated September 2022, a visual verification of the BVW is no longer sufficient. A detailed wetland report with the associated "Bordering Vegetated Wetland Determination Form" and a site visit would be necessary to determine and verify the wetland delineation.

The drainage design as presented has not addressed all the stormwater management standards. The lack of infiltration due to the poor (HSG 'D') on-site soil and high groundwater table has resulted in the applicant being unable to control the post-development runoff volume and will potentially create downstream flooding issues.

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