



To: Town of Sudbury Zoning Board of Appeals

Date: March 4, 2016

Project #: 13125.00

Memorandum

From: Karen F. Staffier, P.E.

Re: Avalon Sudbury
526-528 Boston Post Road, Sudbury, MA
Stormwater Management Memorandum

On behalf of Sudbury Avalon, Inc. (the "Applicant"), VHB respectfully submits the following Stormwater Management Memorandum, and attached Preliminary Stormwater Management Master Plan ("Stormwater Master Plan"), to support the Site Plans issued by VHB for Comprehensive Permit Approvals titled "Avalon Sudbury" dated January 20, 2016 (the "Project") located at 526-528 Boston Post Road in Sudbury, MA (the "Site"). The Project will encompass approximately 17.4 acres located at the northwestern corner of the Site (the "Project Area").

This memorandum and attached Master Plan is provided to support the Zoning Board of Appeal's review of the Avalon Bay plans submitted for Comprehensive Permit pursuant to MGL Chapter 40B, Sections 20-23. In conjunction with further refinement of the proposed subdivision and master plan for the Site, a comprehensive Stormwater Management Report, complete with associated figures, calculations, and supporting documentation, will be submitted for the Town's review. The information included below, and as further described in the Stormwater Master Plan, serve as a summary of the design and intent of the proposed stormwater management system and the stormwater-related benefits of the Project.

Existing Site and Drainage Conditions

Under existing conditions, the approximately 50-acre commercial Site is developed and consists of predominately impervious surfaces including several buildings, most notably two large buildings and associated paved parking, with generally flat topography sloping southeasterly. The existing Site development was constructed from the 1950's to the 1980's and also includes two smaller research buildings, and a wastewater treatment plant. Pervious surfaces on the Site include a centrally located vegetated area including lawn areas surrounding the larger buildings, a manmade stormwater retention pond and a series of wetlands which were originally constructed as stormwater Best Management Practices (BMPs). The Project Area is located almost entirely within an existing paved parking area, drained by catch basins and a closed drainage system tributary to the manmade stormwater retention pond and series of wetlands located at the centroid of the Site.

The Site lies within the Town of Sudbury's Nobscot sub-watershed which flows via an unnamed stream to Landham Brook and Wash Brook and eventually to the Sudbury River. The Site consists of two major catchment areas; on-site and off-site areas tributary to the centrally located retention basin and an area that drains via a closed pipe system to the municipal stormwater system. On the southwestern perimeter of the Site, stormwater swales and wetlands also collect and convey water to the retention pond, which accepts stormwater from a majority of the Site area. Outflows from the retention pond combine with the closed drainage system located on the southern portion of the Site through an existing piping network, which ultimately discharges to a wetland on the southern side of Boston Post Road, east of the Sudbury Plaza.

The site currently contains a stormwater management system that was constructed prior to the current DEP Stormwater Management Standards and as such is a "grandfathered" existing condition. Raytheon recently undertook

101 Walnut Street
PO Box 9151
Watertown, MA 02472-4026
P 617.924.1770

a significant maintenance effort, with approval of the Sudbury Conservation Commission, to re-establish and enhance the functional characteristics of the on-site stormwater management system. While the system is compliant as an existing condition, the water quality treatment is not consistent with current state stormwater management standards that would be applicable to new developments. Stormwater from the majority of the parking areas is collected in catch basins and routed to swales and the retention pond prior to discharge. The remainder of the parking and drive aisles directly connected to the closed piping system, which provides some level of treatment, prior to discharge from the site.

Proposed Project and Project Area Drainage Conditions

The Project represents the multi-family housing portion of a multi-phase, mixed-use redevelopment project (the "Full Build Redevelopment"). The Full Build Redevelopment proposes to demolish all of the existing buildings and parking on Site (other than the 15,000 sf Beltran Building located in the rear of the property along the westerly property line), and will maintain/upgrade the wastewater treatment plant.

The Project Area site design incorporates a progressive and comprehensive stormwater management system that has been developed in accordance with the Massachusetts Stormwater Handbook to improve water quality and groundwater recharge. Low Impact Development (LID) techniques and stormwater BMPs implemented into the Project Area site design include reduction of impervious area, deep-sump and hooded catch basins, bio-retention areas, and subsurface infiltration equipped with isolator rows where feasible. All treatment BMPs will be designed to provide a minimum of 80% removal of Total Suspended Solids (TSS) for the one inch Water Quality Volume and provide a minimum of 44% TSS pretreatment prior to infiltration.

The Project provides a unique opportunity to enhance the existing on-site stormwater management system. The forthcoming analysis will demonstrate compliance with current standards developed to improve the existing conditions on the Project Area and other portions of the Site by:

- Implementing an environmentally sensitive design that optimizes proposed open space features providing a pleasant pedestrian experience and wildlife habitat benefits.
- Re-establishing components of a natural water cycle (evapotranspiration, groundwater recharge and runoff) on the Site as a result of increased open space, additional groundwater recharge and stormwater BMPs.
- Improving surface water quality and groundwater quality.
- Protecting downstream resources through the use of Low Impact Development techniques, where feasible, as well as traditional Best Management Practices combined with a concise Operation and Maintenance Plan.
- Protecting and minimizing disruption to existing wetland resource areas through the maintenance and enhancement of existing protective buffers and a thorough temporary and permanent erosion control system.

As proposed, the Project will maintain the existing retention pond and reduce impervious cover on a net basis. The stormwater management system will result in further attenuation of peak rates of runoff, improved water quality and balanced hydrologic conditions to existing wetland resource areas through the implementation of supplemental Low Impact Development techniques including decentralized stormwater BMPs. While not currently proposed, the Project

may also include minor modifications to the existing inlets and outlets to existing stormwater features including the existing retention pond. The addition of stormwater BMP's will aid to treat the Project Area runoff before discharging to the closed drainage system and introduce the opportunity for additional groundwater recharge to the underlying aquifer, subject to validation of adequate separation to groundwater. The Project will also incorporate appropriate temporary and permanent erosion controls and a comprehensive stormwater management operations and maintenance plan to enable the long-term functionality of the drainage system and associated BMPs.

The forthcoming Stormwater Management Report will document compliance with the Massachusetts Department of Environmental Protection (DEP) Stormwater Management Standards.