

MEMORANDUM

TO: Mr. Marc Resnick
Director of Land Management
Town of Manchester-by-the-Sea
10 Central Street
Manchester-by-the-Sea, MA 01944

FROM: Daron Kurkjian, PE, LSP, Team Leader
M. James Riordan, LEED AP, Team Leader
Weston & Sampson Engineers, Inc.

DATE: April 12, 2024

SUBJECT: Peer Review: Cell Signaling Technology
Proposed Phase I Office Building and Garage

Introduction

Weston & Sampson Engineers, Inc. (Weston & Sampson) was requested by the Town of Manchester by the Sea (the Town) to provide a peer review of the Site Plan and Special Permit for the Cell Signaling Technology development by Old Quarry LLC, the Applicant. Weston & Sampson understands that the Town is reviewing a Site Plan Approval for the Development for of the Old Quarry parcel. The land includes Town Lots 7 and 8 on Assessor's Map 37. Additional details are copied below from the Applicant's description of the project:

Phase I will include the construction of a five-story building containing 127,000 square feet of floor area, a lobby/atrium containing 6,972 square feet of floor area, a loading dock containing 1,629 square feet of floor area, and a portion of the attached five-story parking garage with 227 parking spaces, 45 surface parking spaces (including 16 at the trailhead of the Trustees' property), and 2,855 feet of a looped driveway. Phase II will include the construction of a five-story building containing 133,000 square feet of floor area connected to the westerly side of the lobby/atrium, an addition to the easterly side of the parking garage with 252 parking spaces, and 16 surface parking spaces. The improvements will be connected to and served by municipal sewer and water lines which are to be extended to the Property under Route 128 from Mill Street. (Source: Applicant submission to Town Planning Board, January 18, 2024)

This memorandum summarizes the results of our peer review of application documents. The letter report is prepared pursuant to our existing contract with the Town, and our February 23, 2024, proposal. Requirements of specific Town Bylaws are discussed further under the Peer Review section of this letter report. In general, materials that we reviewed to prepare this letter report include those submitted with the Site Plan Review as summarized below:

1. Special Permit/Site Plan Review Application;
2. "Permit Site Plan — Cell Signaling Technology at the Old Quarry," dated January 12, 2024, prepared by Hancock Associates (21 sheets);
3. Architectural Plans entitled, "Cell Signaling Technology at the Old Quarry," dated January 10, 2024, prepared by HGA (9 sheets);
4. Drainage Report entitled, "Stormwater Report in Support of Special Permit Application for Atwater Avenue (Map 37, Lots 7 and 8), Manchester By the Sea, MA," dated January 2024, prepared by Hancock Associates,
5. Ecological Assessment Memorandum, dated November 13, 2023, prepared by Biohabitats;
6. Signage Plan and Design Details, dated January 11, 2024, prepared by HGA (7 sheets);
7. Geotechnical Report, dated February 25, 2022, prepared by GZA;
8. Landscape Plans entitled, "Cell Signaling Technology at the Old Quarry," dated January 12, 2024, prepared by HGA (22 sheets);
9. Site Lighting Plan entitled, "Cell Signaling Technology at the Old Quarry," dated January 12, 2024, prepared by HGA (2 sheets);
10. "Site Lighting Fixture Cutsheets," dated January 12, 2024, prepared by HGA;
11. "Traffic Impact, Access and Parking Study," dated January 13, 2023, prepared by TEC, Inc;
12. "Fiscal Impact Analysis," dated October 23, 2023, prepared by Fougere Planning & Development;
13. "Parking Structure Parking Geometrics," dated April 17, 2023, prepared by Walker Consultants;
14. Certificate from the Commonwealth of Massachusetts, dated July 24, 2023, in response to Environmental Notification Form, dated May 22, 2023; and
15. Decision of the Manchester Zoning Board of Appeals filed with the Town Clerk on December 13, 2023.

Weston & Sampson attended the Planning Board hearing on March 11, 2024, during which the Applicant presented a summary of the proposed development.

Peer Review

This memorandum serves as a peer review document following the Town Zoning Bylaws § 6.3 Performance Standards for Special Permits and Site Plan Review and the Town General Bylaws Article XXIII Stormwater Management Special Permit. Specifically, our review covers the following standards:

1. (§ 6.3.4) Outdoor Lighting Standards.
2. (§ 6.3.5) Noise Standards.
3. (§ 6.3.6) Topographical Changes and Clearing.
4. (§ 6.3.7) Site Development Standards.
5. (§ 6.3.8) Pedestrian and Vehicular Access; Traffic Management, Parking.
6. (§ 6.3.9) Aesthetic Standards.
7. (§ 6.3.10) Landscaping, Walls, and Fences.
8. (§ 6.3.11) Utilities; Security; Emergency System Standards.
9. (§ 6.3.12) Fiscal Analysis Standards.
10. (Article XXIII §7-§8) Stormwater Management Plan & Operation and Maintenance Plans

The format of each reviewed items is the *italicized applicable standard and enforceable policy*, our evaluation and analysis, and an underlined recommendation or action for the Applicant. This initial peer review memo excludes review of the geothermal system, which will be included in a future review as

additional system documentation is provided. Weston & Sampson reviewed the application based on the following bylaws and policies as well as engineering industry standards:

- Town Zoning Bylaws § 6.3 Performance Standards for Special Permits and Site Plan Review
- Town General Bylaws Article XXIII Stormwater Management Special Permit

1.0 OUTDOOR LIGHTING STANDARDS

Weston & Sampson reviewed the Applicant's documentation related to the Town's Outdoor Light Standards. The following items include a review of the submitted materials that follows from the Town Zoning Bylaws requirements of § 6.3.4 Outdoor Lighting Standards:

Lighting practices and systems shall (i) reduce light pollution, light trespass and glare in order to preserve and enhance the natural, scenic, and aesthetic qualities of the Town; (ii) conserve energy and minimize lighting cost without decreasing nighttime safety, security, and productivity; and (iii) preserve the night sky as a natural resource to enhance nighttime enjoyment of property within the Town. The proposed development shall not produce lighting that causes negative impacts such as light trespass, glare, light pollution, or energy waste, in order to protect from intrusion of unwanted light and to preserve and enhance the natural, scenic, and aesthetic qualities of the Town. Glare is not allowed, including within property boundaries. Glare is light that enters the eye directly from light fixtures or indirectly from reflective surfaces that causes visual discomfort or reduced visibility. Lighting practices and systems shall (i) provide sufficient lighting for public safety, (ii) mitigate light trespass, and glare for abutters and the public at large; (iii) conserve energy; and (iv) prevent light pollution and preserve the night sky as a natural resource in order to reduce negative impacts on wildlife and to protect views of the night sky.

1.1 Shielding:

§ 6.3.4.1: *All outdoor light fixtures shall be shielded so as to meet the goals of this Section.*

On Sheet AL030 (Lighting Site Plan and Luminaire Schedule), the Applicant notes that "All exterior luminaires are fully shielded." No action needed.

1.2 Light Trespass:

§ 6.3.4.2: *All light fixtures shall be located, aimed, and shielded so as to minimize light pollution and light trespass across property boundaries including any buffer zones or setbacks. Lighting shall comply with International Dark Sky Standards.*

On Sheet AL030 (Lighting Site Plan and Luminaire Schedule), it is noted that "all exterior luminaires are fully shielded" and that the "automatic lighting control system will be provided with the following hours of operation: except for site safety or security, all exterior lighting, including lighting accessories to authorize signs, shall be automatically turned off 1.5 hours after the facility is closed for the business day. The exterior lighting shall be automatically timed to turn on 1.5 hours prior to the arrival of the first employee on the premises." The duration of the light and does not comply with the hours of operation requirements; see action required under Item 1.10.

Based upon the provided Photometrics Site Plan, illumination from outdoor lighting does not leave the project site, except for near the last three light poles, where the site access road meets Atwater Avenue.

Weston & Sampson recommends the Applicant adjust pole locations or photometrics, as needed, to ensure no light trespass is proposed off-site.

Sheet AL030 also notes that “Site lighting complies with International DarkSky standards for zone LZ2.” (There are 5 Lighting Zones (LZ) that are used by DarkSky to describe/reflect the base (or ambient) light levels desired by a community. Zone LZ2 is “Moderate Ambient Lighting” - *Areas of human activity where the vision of human residents and users is adapted to moderate light levels. Lighting may typically be used for safety, security, and/or convenience, but it is not necessarily uniform or continuous. After curfew, lighting may be extinguished or reduced as activity levels decline.*) This Lighting Zone appears to be appropriate for this site. No action needed.

1.3 Light Intensity:

§ 6.3.4.3: *Color, and Efficiency. Lighting shall be designed to provide the minimum intensity needed at any particular time with a 0.5-foot candle average maintained. Color temperature shall not exceed 3,500 Kelvin. Lighting shall be LED or approved current technology to minimize energy use.*

The proposed LED outdoor lighting (base on submitted cut sheets) have a color temperature of 3000K (a warm white light with a yellowish hue) that complies with the Town’s requirements. The submitted Photometric Site Plan identifies that all roadways will be illuminated to a minimum of 0.5 foot candle, as required. Weston & Sampson recommends that the Applicant review and confirm conformance with standards for:

- Instances where proposed street tree plantings restrict even and adequate lighting levels on roadways and/or pedestrian areas;
- Lower-level pedestrian paved plazas have areas that are below 0.5 foot candles and should be revisited to confirm sufficient lighting present to provide a safe egress path away from the building during an emergency;
- Add the proposed illumination levels under the loading dock canopy to confirm they are adequate; and
- Confirm that the “Battery Area” southeast of the parking garage needs no emergency lighting, as well as the loading dock on the west side of the Phase 2 Building Addition.

1.4 Illuminated Surfaces:

§ 6.3.4.4: *Area lighting shall be reduced or eliminated outside business hours. The Planning Board or SPGA may require that parking areas be equipped to support shut-off for specific periods of time or unused areas to reduce lighting trespass.*

On sheet AL030 (Lighting Site Plan and Luminaire Schedule), it is noted that the proposed “Automatic lighting control system will be provided with the following hours of operation: except for site safety or security, all exterior lighting, including lighting accessories to authorize signs, shall be automatically turned off 1.5 hours after the facility is closed for the business day. The exterior lighting shall be automatically timed to turn on 1.5 hours prior to the arrival of the first employee on the premises.” The duration of the light and does not comply with the hours of operation requirements; see action required under Item 1.10.

1.5 Flickering and Flashing Lights:

§ 6.3.4.5: *No flickering or flashing lights shall be permitted. Processes such as arc welding, which create light flashes shall be confined within buildings or shielded to prevent either direct glare or flashing.*

Weston & Sampson recommends that the Applicant confirm that there are no proposed flickering or flashing lights in daily operations of this proposed project. If there are flickering or flashing lights proposed, please describe the use, intensity, and frequency for the Town's consideration.

1.6 Searchlights:

§ 6.3.4.6: The operation of laser shows or searchlights for advertising is prohibited.

Weston & Sampson recommends that the Applicant confirm no proposed operation of laser shows or searchlights are planned at the property. No documents indicate searchlight use is planned.

1.7 Indoor Lighting:

§ 6.3.4.7: Indoor light sources will not be projected outside in a manner to defeat the intent of this Section.

No interior lighting plans have been provided. Light fixture cutsheets included in the Filing Package for Old Quarry dated January 18, 2024 indicates that LED fixtures with a color temperature less than the 3,500 Kelvin required under this section are being provided.

Weston & Sampson recommends that the Applicant provides lighting plan and a lighting analysis indicating that there will not be lighting trespass.

1.8 Outdoor Signs:

§ 6.3.4.8: Outdoor light fixtures used to illuminate an outdoor sign shall be mounted on top of the sign structure or otherwise restricted to prevent up-light and light trespass. Internally illuminated signage is prohibited.

Schematic Details of the Exterior Signage have been provided on Sheet C12. Weston & Sampson recommends that the Applicant provide the location and type of illumination, if proposed of outdoor signs.

1.9 Height of Fixtures:

§ 6.3.4.9.a: Wall-Mounted Fixtures attached to a building for area lighting shall be mounted no higher than twelve (12') feet above grade.

The proposed LED wall-mounted lighting has a maximum mounting height of 10' above finished grade, according to a notation as such, on sheet AL030 (Lighting Site Plan and Luminaire Schedule). No action needed.

§ 6.3.4.9.b: Pole-mounted exterior lighting fixture types shall be mounted no higher than fourteen (14') feet above grade for pedestrian walkway lighting and twenty (20') feet above grade for parking lot lighting.

According to the Lighting Site Plan and Luminaire Schedule (sheet AL030) the light poles on the top deck of the parking garage will be 15' above the surface, the roadway light poles will be 20' tall, and the pedestrian light poles will be 14' tall. In addition, a lower level of lighting will be provided in pedestrian areas as lighted bollards and illuminated handrails. No action needed.

1.10 Hours of Operation:

§ 6.3.4.10: Except as may be deemed appropriate for site safety or security, all external lighting, including lighting accessory to authorized signs, shall be extinguished one-half hour after the facility is closed for

the business day. Such lighting may be timed to resume one-half hour prior to the arrival of the first employee on the premises. Motion activated lights are encouraged for security purposes.

Currently, the Applicant's submission includes information that describes lighting of the property for a greater length of time (1.5 hours) than the Town's regulations (0.5 hour). Weston & Sampson recommends that the Applicant adjust the hours of illumination to comply with the Town's regulations or request a variance from this requirement.

1.11 Exemptions:

§ 6.3.4.11a: Lighting within public ways for the purpose of illuminating public ways.

The proposed lighting plan is a standard approach of using pole mounted lights to illuminate paved surfaces for safety and convenience, complying with the standard illumination minimum level of 0.5 foot candles. No action needed.

§ 6.3.4.11b: Lighting for outdoor recreational athletic facilities, with proper controls to minimize glare and light trespass, and automatic shutoff no later than 11:00 pm.

There are no proposed athletic facilities proposed at this site. No action needed.

§ 6.3.4.11c: Lighting in swimming pools and other water features.

There are no proposed swimming facilities proposed at this site. No action needed.

§ 6.3.4.11d: Lighting for public monuments, public art and statuary, flagpoles, or historic buildings at the discretion of the Planning Board or SPGA.

Weston & Sampson recommends that the Applicant confirm that this is the case, or present information about such proposed illumination.

2.0 NOISE STANDARDS

Weston & Sampson reviewed the Applicant's documentation related to the Town's Noise Standards. The following items include a review of the submitted materials that follows from the Town Zoning Bylaws requirements of § 6.3.5 Noise Standards:

The proposed development shall not unreasonably interfere with the reasonable use and enjoyment of property within the Town as a result of the generation of noise. Practices and systems shall (i) reduce noise pollution in order to preserve and enhance the natural and aesthetic qualities of the Town; (ii) preserve property values; and (iii) preserve neighborhood character. The proposed development shall meet all Town, State, and Federal noise regulations as certified by a professional acoustical engineer if the Inspector of Buildings deems such certification necessary.

2.1 Limitation:

§ 6.3.5.1: No person or entity shall operate or cause to be operated any source of sound in a manner that creates a sound level of 10 dBA above ambient, as set forth in 310 CMR 7.10, measured at the property boundary of the receiving land use.

Weston & Sampson recommends that the Applicant confirm that noise mitigation measures are in place during demolition and construction. Odors from construction work should also be controlled with construction-phase trash management. The dumpster area while fenced will also need to be maintained to avoid nuisance odors.

2.2 Hours of Operation:

§ 6.3.5.2: As a condition of any special permit or site plan approval, the SPGA or Planning Board may prohibit or regulate the following circumstances regarding hours of operation.

§ 6.3.5.2.a: The loading, unloading, opening, closing or other handling of boxes, crates, containers, building materials, garbage cans, or other objects or materials for sale or storage or use in a manner that causes a condition of noise pollution at any time but most specifically between the hours of 6:00 P.M. and 8:00 A.M. across a real property boundary in any district established under this By-law.

The Applicant's hours of operation for their headquarters and their other facilities located elsewhere are listed as between 8:00 AM and 5:00PM on the Applicant's website. Weston & Sampson recommends that the Applicant confirm the operation hours for this proposed facility.

§ 6.3.5.2.b: Operating or permitting the operation of tools or equipment used in construction, drilling or demolition work between the hours of 6:00 P.M. and 8:00 A.M. on weekdays or Saturday or at any time on Sundays or Holidays so that the sound creates a condition of noise pollution across a real property boundary.

The Applicant's hours of operation for their headquarters and their other facilities located elsewhere are listed as between 8:00 AM and 5:00PM on the Applicant's website. Weston & Sampson recommends that the Applicant confirm the operation hours for this proposed facility.

§ 6.3.5.2.c: The operation of construction devices between the hours 8:00 A.M. and 6:00 P.M. including such items as compressors, jackhammers, bulldozers, cranes, etc., in a manner that causes a condition of noise pollution that could be avoided by the application of best available technology, which might include mufflers where commercially available.

Weston & Sampson recommends that the Applicant confirm that noise mitigation measures are in place during the demolition and construction phases of this development. We also recommend that the Applicant confirms that they will employ sound dampening measures, where feasible, to ensure the avoidance of any undue noise pollution.

3.0 TOPOGRAPHICAL CHANGES AND CLEARING

Weston & Sampson reviewed the Applicant's documentation related to the Town's Topographical Changes and Clearing. The following items include a review of the submitted materials that follows from the Town Zoning Bylaws requirements of § 6.3.6 Topographical Changes and Clearing: *The standards*

described in Section 6.4 shall apply to all applications for Special Permit or Site Plan Review. The requirements of § 6.4 are related to Earth Removal and Filling and include:

3.1 Minimize Negative Impacts:

§ 6.4.1.1: Minimize Negative Impacts on the Area. Protect adjoining premises from seriously detrimental uses, including making provisions for stormwater management and surface water drainage, sound and sight buffers, and preservation of views, light, and air;

The Applicant project protects existing site features, such as the bedrock outcrop, and restores vegetation removed in historic quarrying operations. Please refer to Section 6.1 for comments and actions related to the views of the proposed development and Section 10.0 of this memo for stormwater management review and actions.

3.2 Protect Public Health, Safety, and Welfare:

§ 6.4.1.2: Protect public health, safety, and welfare. Promote the convenience and safety of vehicular and pedestrian movement within the site and on adjacent streets. If applicable, this shall include the location of driveway openings, access by emergency vehicles, the arrangement of parking and loading spaces, and provisions for persons with disabilities;

The Applicant has included traffic study information reviewed in Section 5.0 of this memo. Signage and emergency vehicle access information is provided including fire truck turning maps on Drawing C7.1. Americans with Disabilities Act (ADA) parking stalls and ramps are provided on Drawing C11. Please see Section 5.0 for traffic related action items.

3.3 Be Harmonious with the Area:

§ 6.4.1.3: Be harmonious with the area. Promote land development and site planning practices that are compatible with and reinforce the Town's scenic character and are harmonious with existing natural landforms;

The Applicant has proposed land improvements including placement of additional trees and landscaping at the site. The proposed building will be constructed around a large bedrock outcrop and natural landform. Based on site topography, the five-story building rises two-stories as viewed from the south; this matches area low-rise buildings more consistent with the Town. The Applicant building material palette is also informed by Cape Ann architecture including brick and granite elements. No action needed.

3.4 Protect the Natural Landscape:

§ 6.4.1.4: Protect the natural landscape. Ensure that clearing and grading activities will not excessively alter existing landscape, vegetation, water resources or natural systems.

The Applicant has proposed improvements to the former quarry to improve the natural landscape. These include protecting approximately 35,000 sf of existing vegetation and expanding vegetation areas (after 10-year growth) to include 150,000 sf of canopy. Please also see review items in Section 4.2 related to natural landscape improvements. No action needed.

4.0 SITE DEVELOPMENT STANDARDS

Weston & Sampson reviewed the Applicant's documentation related to the Town's Site Development Standards. The following items include a review of the submitted materials that follows from the Town Zoning Bylaws requirements of § 6.3.7 Site Development Standards:

To the maximum extent feasible, the proposed development shall be located and designed to preserve and enhance the natural features and topography of the site, to avoid disturbances to existing healthy mature vegetation and environmentally sensitive areas, to maintain or mimic natural hydrologic conditions, to minimize adverse impacts of development on adjoining properties and the general public, to minimize the alteration of the natural features of the site, to adhere to the principles of resiliency and sustainability and to preserve and enhance scenic points and viewsheds, historic buildings and places, and similar community assets which add value and attractiveness to the development and the Town.

4.1 Land Disturbance:

§ 6.3.7.1: Site/building design shall preserve natural topography outside of the development footprint to reduce unnecessary land disturbance and to preserve natural drainage on the site.

The Applicant has noted in the provided Stormwater Report that the proposed condition discharge rates of runoff are at or below the existing rates to the same discharge points. Weston & Sampson finds this answer acceptable based on in the Stormwater Report. No action needed.

4.2 Replication:

§ 6.3.7.2: Cleared vegetation and alteration of topography shall be replicated with native woodland vegetation planted in disturbed areas as needed to enhance or restore wildlife habitat and pre-development site characteristics.

The Applicant has provided a detailed landscaping plan, Stormwater Report, and memorandum from Biohabitats, Inc. which both categorize existing and proposed vegetation. The Applicant has shown willingness to improve upon the topographic and the ecological aspects of the subject site of the proposed development. No action needed.

4.3 Clearing for Utility Trenching:

§ 6.3.7.3: Clearing for utility trenching shall be limited to the minimum area necessary to maneuver a backhoe or other construction equipment. Roots should be cut cleanly rather than pulled or ripped out during utility trenching. Tunneling for utilities installation should be utilized wherever feasible to protect root systems of trees.

Weston & Sampson recommends that the Applicant provide additional information demonstrating the compliance with this bylaw requirement.

4.4 Site Design:

§ 6.3.7.4.a: Placement of buildings, structures, or parking facilities shall not detract from the site's scenic qualities and shall blend with the natural landscape.

The Applicant has provided robust evidence of their intention to enhance the site's scenic qualities and to improve upon the natural landscape. No action needed.

§ 6.3.7.4.b: Building sites shall be directed away from the crest of hills, and foundations shall be constructed to take advantage of the natural terrain.

Due to the nature of the proposed redevelopment and the existing facilities, structures, and previous uses of the site. Weston & Sampson finds that the site plan as proposed to be in adherence with this requirement. No action needed.

§ 6.3.7.4.c: Sites shall be designed in such a way as to prevent impacts to rare and endangered species and protect wildlife habitat on a site, and to maintain contiguous forested areas.

As noted above, the Applicant has provided a detailed landscaping plan, Stormwater Report, and memorandum from Biohabitats, Inc. which both categorize existing or observed flora and fauna on this site. References to rare or endangered species do not appear in the supplied. The Applicant proposes to improve upon the ecological aspects of the proposed development. No action needed.

§ 6.3.7.4.d: Site design shall be guided by energy conservation and sustainability principles and resiliency principles and best practices to protect human and environmental health.

Per the certificate of the Secretary of Energy and Environmental Affairs it has been determined that the project does not require an Environmental Impact report and has outlined the Applicants adherence to and exceeded all requirements pertaining to Adaptation and Resiliency as well as Greenhouse Gas Emissions. No action needed.

4.5 Archeological or Historical Resources:

§ 6.3.7.5: The SPGA or Planning Board may require Applicants to submit the proposed development plan to the Town's Historical Commission and/or the Massachusetts Historical Commission for review and comment regarding possible archaeological or historical resources on the site.

Due to the nature of this proposal being a redevelopment project Weston & Sampson finds this requirement to have been met. No action needed.

4.6 Preservation of Existing Vegetation:

§ 6.3.7.6: Priority shall be given to the preservation of existing stands of trees, trees at site perimeter, contiguous vegetation with adjacent sites (particularly existing sites protected through conservation restrictions), and specimen trees. Understory vegetation beneath the dripline of preserved trees should be retained in an undisturbed state. During clearing and/or construction activities, all vegetation to be retained shall be surrounded by temporary protective fencing or other measures located a minimum of twelve (12") inches outside of the dripline before any clearing or grading occurs and maintained until all construction work is completed and the site is cleaned up. Barriers shall be large enough to encompass the essential zone of all vegetation to be protected. All vegetation within the protective fencing shall be retained in an undisturbed state. No staging or stockpiling of construction materials or activities shall occur in tree root protection zones. All work within the root zone of existing trees to be preserved shall be carried out under the direction and supervision of a Certified Arborist.

Weston & Sampson recommends that the Applicant provide additional details related to tree protection and barriers and controls related to stockpiling activities in areas of existing vegetation.

4.7 Revegetation:

§ 6.3.7.7: Proper revegetation techniques shall be employed during construction using native plant species, proper seed bed preparation, fertilizer and mulching to protect germinating plants. Revegetation shall occur as soon as possible and shall occur during the planting season appropriate to the selected plant species.

The Applicant has provided a detailed landscaping plan, Stormwater Report, and memorandum from Biohabitats, Inc. which both categorize existing vegetation and proposed improvements. The Applicant has proposed rebuilding of the native vegetation. No action needed.

4.8 Limit of Clearing:

§ 6.3.7.8: Development envelopes for structures, driveways, wastewater disposal, lawn areas and utility work shall be designated to limit clearing and grading. In order to minimize the clearing and grading on a site associated with construction activities such as parking of construction vehicles, offices/trailers, stockpiling of equipment/materials, such activities may be limited to areas already planned for permanent structures. Topsoil shall not be stockpiled in areas of protected trees, wetlands, and/or their vegetated buffers.

The Applicant has depicted limited areas of clearing. Weston & Sampson recommends that the Applicant provide additional details on construction phasing related to these bylaw requirements.

4.9 Finished Grade:

§ 6.3.7.9: Finished Grade. Finished grades should preserve, match, or blend with the natural contours and undulations of the land to the greatest extent possible. Finished grade shall be no higher than the trunk flare(s) of trees to be retained.

The Applicant has developed finished grade plans showing areas meeting existing grades and in areas of vegetation to remain. No action needed.

4.10 Topsoil:

§ 6.3.7.10: A minimum of eighteen (18") inches of topsoil shall be placed on all disturbed surfaces which are proposed to be planted with trees or other woody plant material. A minimum of six (6") inches of topsoil shall be placed in lawn or grass areas.

The Applicant has proposed to use 24" – 36" of planting bed soil for shrubs and trees, and a minimum of 6" for "grass habitat and lawn areas". Weston & Sampson recommends that the Applicant provide more information about how "Seed Areas" that will receive 4" of soil differs from providing 6" soil for "grass habitat and lawn areas".

4.11 Irrigation:

§ 6.3.7.11: The Planning Board or SPGA may require that water for the purpose of irrigation shall be provided by an onsite well, after consultation with the Water Department.

The Applicant has noted that the irrigation improvements will be connected to and served by municipal sewer and water lines. Weston & Sampson recommends the Applicant review the irrigation plan with the Town Water Department.

4.12 Phasing of Development:

§ 6.3.7.12: *The Planning Board or SPGA may limit the extent of a site exposed at any one time through phasing of construction operations. Effective sequencing shall occur within the boundaries of natural drainage areas.*

The Applicant has proposed a two phased development via the submitted "Permit Site Plan, Cell Signaling Technology at the Old Quarry." No action needed.

5.0 PEDESTRIAN AND VEHICULAR ACCESS; TRAFFIC MANAGEMENT, PARKING

Weston & Sampson reviewed the Applicant's documentation related to the Town's 5.0 Pedestrian and Vehicular Access; Traffic Management, Parking Standards. The following items include a review of the submitted materials that follows from the Town Zoning Bylaws requirements of § 6.3.8 Pedestrian and Vehicular Access; Traffic Management Standards:

The proposed development and/or redevelopment shall be designed with a forecast for the next five (5) years from the time of application to (i) minimize hazards to public health and safety as a result of traffic; (ii) provide safe access and circulation on the site for expected vehicles, bicyclists, pedestrians, and emergency vehicles; (iii) provide off-site traffic mitigation, where required, to offset the impact of the development; (iv) reduce the traffic impacts of the proposed development on the area and the Town by incorporating traffic management devices; and (v) minimize the impact on scenic roads, historic districts, natural resources, and community character. The development shall not degrade safety for pedestrians, bicyclists, motor vehicle occupants, or property.

5.1 Access:

§ 6.3.8.1: *To the extent feasible, access to nonresidential uses and structures shall be provided via one of the following: (i) Access via a common driveway serving adjacent lots or premises; (ii) Access via an existing side street; (iii) Access via a cul-de-sac or loop road shared by adjacent lots or premises. Access via roadways abutting residential districts shall be avoided where possible. Access and egress to a development with frontage on more than one street shall be in a manner that causes the least impact to the surrounding neighborhoods as determined by the Planning Board or SPGA.*

The site has two existing driveways that are proposed to remain. No action needed.

5.2 Driveways:

§ 6.3.8.2: *Each development shall be served by an adequate driveway. The Planning Board or SPGA may, in certain circumstances, allow additional driveways as a condition of approval where the access is shared or the project has frontage on two separate streets. All driveways shall be designed to afford adequate sight distance to pedestrians, bicyclists, and motorists exiting to public ways. Improvements may be required on the public way for vehicular turning movements in or out of the site and safe pedestrian access to adjoining sidewalks, paths, walking trails or bikeways.*

The site has two existing driveways that are proposed to remain. No action needed.

5.3 Curb Cuts:

§ 6.3.8.3: *Curb cuts shall be limited to the minimum width for safe entering and exiting as determined by the Planning Board in consultation with Town public safety departments. The location of driveway*

openings in relation to traffic and to adjacent streets shall provide for the convenience and safety of vehicular and pedestrian movement within the site. The number of curb cuts on state and local roads shall be minimized.

The site has two existing driveways that are proposed to remain. No action needed.

5.4 Interior Circulation:

§ 6.3.8.4: The proposed development shall assure safe interior circulation within its site by separating pedestrian, bikeways, and vehicular traffic.

Sidewalks are proposed internal to the site with a sidewalk adjacent to most internal roadways and connecting the building, parking garage and pedestrian amenities. Please see Part 5.12 discussion of § 6.3.8.12a and § 6.3.8.12b for recommendations about internal connections to external road.

5.5 Transportation Plan Approval.

§ 6.3.8.5: The proposed development shall be subject to Transportation Plan approval by the Planning Board or SPGA. The Transportation Plan shall consist of the following information:

§ 6.3.8.5a: A plan showing the proposed parking, loading, and traffic circulation within the site; access and egress points; and other features related to traffic generated by the proposed use.

Sheet C7.1 of the Permit Site Plan is labeled "TRAFFIC AND SIGNAGE PLAN" and depicts the required elements per § 6.3.8.5a but is not a separate document. See part below discussion of § 6.3.8.5d for action needed.

§ 6.3.8.5b: A traffic study, prepared by a qualified traffic engineer licensed by the Commonwealth of Massachusetts, detailing the expected traffic impacts. For proposed development in excess of twenty-five thousand (25,000) gross square feet, the required traffic study shall substantially conform to the Institute of Transportation Engineers "Traffic Access and Impact Studies for Site Development: A Recommended Practice," latest edition (TIAS). The SPGA shall approve the geographic scope and content of the TIAS. In addition, the Applicant shall submit a Transportation Demand Management (TDM) plan tailored to the specific uses and the geographic location of the site.

The requirement above specifies requirement of a traffic study and a transportation demand management (TDM) plan. The Applicant submitted a traffic study within which includes a chapter entitled "TRANSPORTATION DEMAND MANAGEMENT" but did not submit a Transportation Demand Management plan. Weston & Sampson recommends that the Applicant provide a separate document to include the content of the indicated chapter and summary of other transportation elements from the traffic study.

§ 6.3.8.5c: Proposed mitigation measures, if any, such as left-turn lanes, roadway widening, signage, signalization of intersections.

The Applicant proposed the following two off-site improvements to roadway infrastructure:

1. Restripe and sign for a 5-foot buffered bike lane on School Road from the terminus of recently striped buffered bike lanes north of Route 128 to Atwood Avenue.

Weston & Sampson expects this potential improvement may be infeasible; the traffic study indicates that the roadway is 28' wide. Even without buffers, adding 5-foot bike lanes would leave 9' travel lanes where the roadway is 28' wide. If buffers are present, the travel lanes would be narrower than 9'. Furthermore, School Street does not have a sidewalk along this segment so marking a potential shoulder as a bike only space may not be preferable to the Town/State.

Weston & Sampson recommends reevaluation of restriping benefits and the Town/State consider the corridor for potential complete streets improvements base with respect to presence of trailheads and conservation areas.

2. Following opening of Phase 1, Perform a signal warrant analysis at the intersection of School Street & Route 128 NB Ramps to reevaluate if signalization would be warranted at full buildout. If so, construct a traffic signal at the intersection.

Weston & Sampson notes that the Phase 1 analysis within the traffic study indicates that the volume-to-capacity ratio is 1.03 during the AM peak hour and 0.93 during the PM peak hour for the eastbound left-turn movement. Weston & Sampson recommends that the Applicant discuss with the Town if installing traffic signal equipment is appropriate with Phase 1 as signalization may still be appropriate or if it is allowable to be delayed until after Phase 1.

Page 37 includes a reference to *MassDOT TIA Guidelines* Section 3.I.C as part of reasoning that a potential improvement may be delayed to Phase 2. The referenced thresholds are for traffic study requirements regardless of phasing and is not a requirement related to mitigation. Page 37 also provides an abbreviated analysis of Phase 1 conditions. Weston & Sampson recommends removing this reference if a revised traffic study is produced. Weston & Sampson recommends the Applicant be able to produce Phase 1 trip generation, peak hour traffic volumes and warrant analysis that were not included within the traffic study's narrative or attachments. The Synchro reports for 2033 Build conditions (without mitigation) were also not included in Attachment L.

§ 6.3.8.5d: For proposed development in excess of twenty-five thousand (25,000) square feet of gross floor area, the Applicant shall submit a Traffic Management Component (TMC) as part of the Transportation Plan. The TMC shall provide information on the number of expected person trips to and from the site, broken down by various travel modes (e.g., single occupancy vehicle, carpool, walk, bicycle, commuter rail, shuttle bus, etc.). The TMC may also incorporate one or more of the following techniques to reduce the number of single occupancy vehicle trips by employees coming to and departing from the proposed use:

- 1) of or contribution to a Traffic Management Association (TMA) within the region, which provides shuttle services for employees and other services as may be appropriate.*
- 2) Employee carpools or vanpools sponsored by the employer or the TMA.*
- 3) Subsidized commuter rail passes, provided by the employer, and sold on the site or offered through payroll deduction.*
- 4) Monetary incentives to employees who do not use a parking space.*
- 5) On-site shower facilities and bicycle racks for employees who do not drive to work.*
- 6) Other techniques as may be deemed appropriate by the SPGA or Planning Board or its traffic consultant.*

Though the information is provided within the traffic study and Sheet C7.1 of the Permit Site Plan, there is not a separate document found within the Applicant's submittal documents. The Applicant indicates

it will provide preferential carpool parking, develop an employee rideshare/vanpool/carpool program, electric vehicle charging stations, indoor bicycle parking, shower facilities, transit and rideshare subsidies, provide public transportation maps, guaranteed ride home program via an employee transportation coordinator.

Weston & Sampson recommends the Applicant submit a Transportation Plan including a Traffic Management Component.

5.6 Reduction in Parking:

§ 6.3.8.6: In consideration of the Applicant providing one or more of the above measures to reduce vehicular traffic to and from the site, the Planning Board or SPGA may reduce the number of required parking spaces below what would ordinarily be required by Section 6.1 of this By-law. To be considered for such a reduction, the Applicant's traffic engineer shall determine and justify the parking demand for the project, as well as reduction in needed parking spaces attributable to each traffic management measure.

The Applicant notes that Section 6.1 does not provide a parking ratio for research and development land use and refers to text within Section 6.1.2, "for accessory uses not listed...the required number of parking spaces to accommodate expected demand will be determined by the Inspector of Buildings, with the advice of the Planning Board." The traffic study references the Institute of Transportation Engineers' Parking Generation Manual, which rates would indicate an 85th percentile maximum parking demand of 539 spaces. The site proposes 535 spaces. No action needed.

5.7 Level of Service Maintenance or Improvement:

§ 6.3.8.7a: If the proposed project will result in an intersection level of service below a rating of LOS D, the Applicant may be required to provide detailed plans with a cost estimate (including reconstruction concepts), that when implemented would result in an intersection level of service rating of D or better.

Several of the study intersections are evaluated to operate at LOS E or F without the proposed development. No cost estimate is included. See also part 5.5 discussion of § 6.3.8.5c, and part 5.7 discussion of § 6.3.8.7b.

§ 6.3.8.7b: If the proposed project will result in a reduction in level-of-service of one letter grade or an increase of ten (10) seconds of delay to a signalized or unsignalized intersection, the Applicant may be required to provide detailed plans with a cost estimate that when implemented would result in a return to existing conditions.

Weston & Sampson reviewed the traffic study and noted the following locations are projected to have a level-of-service reduction and/or increase in delay per vehicle by at least ten seconds:

1. School Street and Atwater Avenue
 - Westbound approach (single approach lane)
 - AM peak hour LOS C to D (17 to 28 seconds); PM peak hour LOS C to E (15 to 49 seconds)
 - No intersection specific changes are proposed, noting that the volume-to-capacity ratio is projected to be 0.86 with a queue length of approximately eight vehicles.

2. School Street and Route 128 SB Ramps
 -Westbound left-turn lane
 AM peak hour LOS D to F (30 to 59 seconds); PM peak hour LOS D to F (29 to 86 seconds)
 No intersection improvements are proposed, noting that the volume-to-capacity ratio is projected to be 0.76 with a queue length of approximately four vehicles.
3. School Street and Route 128 NB Ramps
 -Eastbound left-turn movement
 AM peak hour LOS F to F (53 to 233 seconds); PM peak hour LOS F to F (60 to 94 seconds)
 An additional signal warrant analysis is proposed after occupancy of Phase 1 and signalization proposed contingent on the results of the analysis.
4. School Street and Pleasant Street
 -Eastbound approach (single lane approach)
 AM peak hour LOS D to E (31.9 to 41.3 seconds)
 -Westbound right-turn lane
 AM peak hour LOS F (62 sec) to LOS F (87 sec)
 -Southbound approach (single approach lane)
 AM peak hour LOS F (104 sec) to LOS F (124 sec)
 No intersection improvements are proposed, noting existing intersection conditions and little change in vehicle queues.

The bylaw does not state that mitigation is required at every location meeting the specified threshold. Weston & Sampson provided the information above to assist with potential discussion regarding mitigation needs. Weston & Sampson recommends the Applicant clarify the statement on page 29 – “Project-specific mitigation at this location is not expected to change the results of the traffic operational analysis.”

5.8 Dangerous Intersections:

§ 6.3.8.8: The Planning Board or SPGA may require mitigation for any net increase in traffic volumes of ten (10%) percent or more at an intersection that has an accident history of more than five (5) accidents in the last three (3) years for which data is available.

The intersection of School Street and Route 128 NB Ramps is the study intersection. An additional signal warrant analysis is proposed after occupancy of Phase 1 and signalization proposed contingent on the results of the analysis. Weston & Sampson recommends the Applicant discuss with the Town if signalization is appropriate with Phase 1 of the development.

5.9 Sight Distance:

§ 6.3.8.9: Acceptable sight distance shall be provided and maintained at all access locations, egress locations, and all intersections affected by the Development. At a minimum, these site distances shall meet the stricter of the Massachusetts Highway Department and American Association of State Highway Transportation Officials standards for safe-stopping sight distances.

Sight distance is adequate at the existing driveways. No action needed.

5.10 Maximum Parking:

§ 6.3.8.10: The maximum parking allowed for a development shall be the minimum number of spaces required under this Zoning By-law. The SPGA may allow a greater number of parking spaces provided the need is supported by a transportation study completed by a qualified transportation planner. 11. Mitigation. The Planning Board or SPGA may require as a condition of any special permit off- site

improvements to mitigate the impact of the proposed development. Such improvements include intersection widening and traffic signals or the Traffic Management Component of the Transportation Plan, referenced above.

See Part 5.6 discussion of § 6.3.8.6. No action needed.

5.11 No Town Standard:

§ 6.3.8.11: *No Town Standard*

5.12 Pedestrian and Bicycle Safety:

§ 6.3.8.11: *Pedestrian and bicycle circulation, and the amenities required thereof, on and off site, shall be in accordance with the following requirements:*

§ 6.3.8.12a: *All development and redevelopment shall provide for pedestrian and bicyclist connections on the property, and allow for possible future connections with adjoining properties, where deemed appropriate by the Planning Board or SPGA.*

Sidewalk connections do not exist and are not proposed at either existing driveway. Weston & Sampson recommends sidewalks to the following locations:

- Along main entry to connect Atwater Avenue and proposed internal sidewalk (approximately 300 feet). Also add crosswalk across main entry at Atwater Avenue to improve the connection towards the Manchester Athletic Club for employees on break or after hours.
- Along secondary entry/Beaver Dam Road that connects Atwater Avenue to sidewalk around Rain Garden (approximately 350'). This will allow a continuous sidewalk from Atwater Avenue to the trailhead.

§ 6.3.8.12b: *Pedestrian access shall connect to all building entrances with further connections to local sidewalks.*

Internal sidewalks connect all building, parking garage and pedestrian amenities. Weston & Sampson recommends the following:

- Add an additional sidewalk between the NW corner of the parking garage north to the proposed sidewalk/crosswalk for the adjacent to the service ramp (approximately 80'). This will separate pedestrian traffic from the service ramp along the shortest path from the garage to the Quarry Garden/north side of the proposed buildings.
- Crosswalk on NE corner of Rain Garden near Phase 2 building access is far from intersection corner. We recommend shifting the crosswalk to intersection. If a crosswalk is desirable from the building to the mid-southern portion of the Rain Garden, consider adding a separate crosswalk at south side of service ramp.

§ 6.3.8.12c: *All road and intersection widening, and new traffic signals or modification of existing traffic signals required as part of a Development or Redevelopment shall include appropriate bicycle and pedestrian accommodation.*

The traffic study recommended improved pedestrian facilities with the traffic signal that may be installed at the intersection of School Street and Route 128 NB Ramps. No action needed.

§ 6.3.8.12d: The Planning Board or SPGA may require proposed development and redevelopment to provide sufficient rights-of-way on their properties to accommodate expected needs for bicycle and pedestrian use.

Sidewalks are proposed along most roadways. See Part 5.12 discussion of § 6.3.8.12a.

§ 6.3.8.12e: Sidewalks, crosswalks, walkways, bike racks or other pedestrian access shall be provided to allow access to adjacent properties and between individual businesses within a development.

Not applicable as Phase I site contains a single building. No action needed.

§ 6.3.8.12f: If the property abuts a public bikeway/right-of-way, a paved access route to the bikeway may be required.

Not applicable. No action needed.

5.13 Location of Parking Areas:

§ 6.3.8.13: Where feasible, the Planning Board or SPGA may require parking areas to be located to the side or behind buildings so as to provide an appropriate setting for the building within the context of the site and neighborhood and allow parking areas to be shared with adjacent businesses. The Planning Board or SPGA may require alternative studies of parking area layouts. Except where physical constraints, site configuration, or safety considerations preclude strict compliance, all parking must be accessible by driveways to the parking areas of adjacent nonresidential uses and land zoned for nonresidential uses.

Parking is provided adjacent to trailhead on the northeast corner of the site. No action needed.

5.14 Parking in Required Front Setback:

§ 6.3.8.14: The Planning Board or SPGA may prohibit parking within the required front setback.

No parking is proposed within the front setback. No action needed.

5.15 Traffic Calming Features:

§ 6.3.8.15: Traffic calming measures such as crosswalks, bike lanes, rumble strips and landscaped islands may be required.

No internal traffic calming is discussed. Weston & Sampson does not foresee a need for adding traffic calming based roadway lengths, curvature, and provided crosswalks. No action needed.

6.0 AESTHETICS STANDARDS

Weston & Sampson reviewed the Applicant's documentation related to the Town's Aesthetics Standards. Additional detailed technical review areas and the associated bylaw provisions are provided in the other sections of this peer review. This section of the Peer Review includes Bylaw Compliance.

The following items include a review of the submitted materials that follows from the Town Zoning Bylaws requirements of § 6.3.9 Aesthetic Standards:

The location, size and design, building materials, and operating characteristics of the proposed development shall be compatible with and shall not adversely affect the livability or appropriate development of abutting properties, with natural and built environment in the area and the surrounding neighborhood.

6.1 Views:

§ 6.3.9.1: Existing scenic viewsheds shall be preserved or enhanced by the proposed development.

The Town Planning Board has noted that the project site shall be screened from Route 128. The Applicant's renderings as presented to the Planning Board on March 11, 2024, indicate that the proposed building will not be visible from Route 128 and that additional plantings and trees will screen the building. The Applicant has noted that in the winter, the screening effect may allow the building to be visible from Route 128. The extent of this review is unclear and should reflect the length of Route 128 that could view the new building.

Weston & Sampson recommends the Applicant confirm through additional renderings or study along Route 128 in eastbound and westbound directions that the structure will not be visible. Elevation changes along the highway and view from taller vehicles (e.g., buses, trucks) may allow views of the building. The Applicant has added evergreen trees for screening, and the Planning Board may require additional evergreen trees to improve winter screening of the building.

6.2 Compatibility with Neighborhood.

§ 6.3.9.2: The location, size and design, building materials, and operating characteristics of the proposed development shall be compatible with and shall not adversely affect the livability or appropriate development of abutting properties, with natural and built environment in the area and the surrounding neighborhood, with consideration to be given to the following:

§ 6.3.9.2a: harmony in scale, bulk, massing, and density.

The two-phase project being proposed at the Old Quarry in Manchester-By-The-Sea responds to the existing terrain features in its site layout while having a minimal impact in the existing area topography. The buildings drape over the hills with an overall maximum building height of 63' in respect to the mean grade level. The building material pallet consist of natural stone and earthy colors which will help blend the structures with the natural backdrops. Overall impression is that the buildings, though larger than the nearby structures in scale, will be a complementary and positive influence for future development in the area. No action needed.

A height variance was filed for an allowance of eight-foot increase in height of the building from 55' to 63', a four-foot increase in height for mechanical appurtenances from 15' to 19' and an eleven-foot increase in height of the vent pipes from 15' to 26'. To serve as a reminder, chapter 40A, 5 of the Zoning By-Laws of the Town of Manchester-By-The-Sea, "rights acquired under a variance shall lapse if they are not exercised within one year."

§ 6.3.9.2b: consistency with the goals and objectives of the Master Plan and with any other plan that has been adopted by the Town.

The Applicant has worked to preserve and restore natural resources by constructing in chosen areas and by the proposed rebuilding of the native vegetation. Character of the area should be positively

impacted by the presence of the proposed structure while adhering to the master plan goals on energy efficiency and renewable energy implementation. No action needed.

7.0 LANDSCAPING, WALLS, AND FENCES

Weston & Sampson reviewed the Applicant's documentation related to the Town's Landscaping, Walls, and Fences Standards. The following items include a review of the submitted materials that follows from the Town Zoning Bylaws requirements of § 6.3.10 Landscaping, Walls, and Fences:

7.1 Landscaping:

§ 6.3.10.1: This Section is intended to ensure that the proposed development shall, through green infrastructure landscaping practices using vegetation, soils, and natural features: reduce runoff and treat stormwater at its source; promote groundwater recharge; protect water and air quality; provide shade and cooling with canopy trees and plantings to mitigate urban heat island effect; and, provide landscape amenities that contribute to human and environmental health. Landscaping shall screen negative impacts from public and private views, shall avoid and/or minimize clearing of trees and mature vegetation, and minimize soil removal and grade change. Proposed landscaping shall require adaptive and drought-tolerant species and prohibit invasive plants. Plantings shall be laid out in informal drifts rather than formal rows and shall undulate with site topography. Planting of native trees, shrubs, and other plants is required in disturbed areas intended for natural re-growth. Site plans must conform with stormwater requirements in General Bylaws.

Although the construction of a 5-story building and parking garage would typically create a substantial impact to the site, the Applicant has approached the site development with an eye towards *fitting into the site* and ecological restoration. Included in this approach is re-establishing some of the pre-existing biohabitats and improving ecological connectivity with the surrounding landscape, especially the protected forest to the north.

Plans currently include stormwater management on site that allows for required treatment and infiltration, echoing the natural hydrologic process. A substantial effort is shown in the landscape plan to reintroduce the forest canopy to this highly disturbed site, and use of primarily native plant materials that are suited to the site conditions.

The location (and height) of the building on the site takes advantage of the natural landforms to provide visual screening from Route 128 and an earthen berm is proposed along the northern access road to screen views from/to existing development to the north. Conformance with stormwater requirements is discussed further below relative to Article XXIII of the General Bylaws. No action needed.

7.2 Street Trees:

§ 6.3.10.2: Street trees are shade trees located along a Road and/or Street. Where existing street trees are more than fifty (50') feet apart on average or do not exist along a Street or Road, the Applicant shall plant street trees. Street Trees shall be placed in a linear fashion along the Right-of-Way or way boundary, at a maximum spacing of forty (40') feet on center. Where the character of the site is predominantly wooded or pastoral, the Applicant may cluster trees informally along the lot line, with a maximum of seventy-five (75') feet between clusters of three or more trees.

The proposed landscaping plan for this site provides a robust street tree planting program (deciduous) combined with screening (evergreen trees) along many roadway edges. Most street tree spacing is 30'

– 40', meeting the requirements. In several areas the street tree spacing is greater, when it is an area transitioning to meadow, on the interior of the site. Weston & Sampson recommends that the Applicant augment the street tree planting immediately east of the Phase 2 parking garage structure to meet the guidelines in the bylaws.

7.3 Fencing:

§ 6.3.10.3: Fencing up to six (6') feet in height, may be allowed in conjunction with plantings. At least fifty (50%) percent in length of built fences that face a public way shall be softened with plantings. Design and height of such fencing, with accompanying landscaping, shall be subject to the approval of the SPGA or Planning Board.

It appears that the plans show two locations of fencing, both internal to the site (not along a public right-of-way). The first is a fence for screening of the generator along the north side of the parking garage. It is proposed to be a metal, 8' tall, louvered fence to screen views of the generator from pedestrian spaces on-site. The second location is a fence around the upper pedestrian plaza (on top of the rock outcropping) to presumably provide a barrier for safety.

Weston & Sampson recommends that the Applicant provide more information about the fence material including height to review conformance with the standard.

7.4 Retaining Walls:

§ 6.3.10.4: Retaining walls shall be constructed to a maximum height of six (6') feet. If site conditions require elevation changes of greater than six (6') feet, retaining walls shall be terraced and landscaped. Any retaining wall greater than thirty-six (36") inches in height shall be designed by a structural engineer. The face of any retaining walls visible from residential districts shall be designed with textured or natural stone, solid fieldstone or fieldstone veneer or other similar material. At least fifty (50%) percent in length of built walls that face a public way shall be softened with plantings.

The Applicant has identified the use of many retaining walls on-site to negotiate grade changes – most of which are identified to be a maximum of 6' in height, complying with regulations. However, the parking garage access bridge and those identified on the plans as W5 and W6 do not have their heights identified. Weston & Sampson recommends the Applicant provide the proposed retaining wall heights and, as proposed, the associated safety protections.

7.5 Berms:

§ 6.3.10.5: The Planning Board or SPGA may require a berm or berms in appropriate circumstances to promote the goals of this Section.

An earthen berm is shown on the plans along the north side of the northern access road, presumably for visual screening from/to off-site development to the north. No action needed.

7.6 Unsightly Uses and Areas:

§ 6.3.10.6: Exposed storage areas, refuse disposal facilities, HVAC, machinery, service areas, truck loading areas, utility buildings and structures and other unsightly uses shall be screened from view from neighboring properties and streets using dense, hardy evergreen plantings, or earthen berms, or wall or tight fence complemented by evergreen plantings.

Most "Unsightly Use Areas" appear to have been screened from public view by vegetation or fencing.

Weston & Sampson recommends that the Applicant evaluate the level of screening of the proposed generator and electrical equipment (Phase 2) by existing vegetation and augment it as needed with proposed plantings.

7.7 Maintenance:

§ 6.3.10.7: All landscaping features, structures and areas required for buffering or screening shall be properly maintained. Dead shrubs or trees shall be replaced within one growing season as a condition of approval. Green infrastructure systems shall be inspected and maintained to preserve stormwater management functions.

Weston & Sampson recommends that the Applicant develop an Operations and Maintenance manual to ensure the proposed landscape features continue to provide the desired function and effect at this site.

7.8 Waiver:

§ 6.3.10.8: The Planning Board or SPGA, during the course of special permit or site plan review, may waive any provision of this Section, upon a finding that no substantial detriment shall result.

No action needed.

8.0 UTILITIES; SECURITY; EMERGENCY SYSTEMS STANDARDS

Weston & Sampson reviewed the Applicant's documentation related to the Town's Utilities; Security; Emergency System Standards. The following items include a review of the submitted materials that follows from the Town Zoning Bylaws requirements of § 6.3.11 Utilities; Security; Emergency System Standards: The proposed development shall be adequately served by public or private utilities, security systems, and emergency systems.

8.1 Wastewater Treatment and Disposal:

§ 6.3.11.1: The SPGA or Planning Board may require a report from the Board of Health confirming that the proposed site development provides for wastewater treatment and or disposal in a manner that is consistent with regulations of the Commonwealth of Massachusetts and the Board of Health.

Based on comments provided herein, it is unclear where the engineer proposes to connect the new force main shown on the plans to an existing sewer system. We recommend that the engineer clarify the location of the proposed sewer connection.

8.2 Water:

§ 6.3.11.2: There shall be sufficient water capacity to meet the flow demands of the proposed use without causing municipal water flow characteristics off-site to fall below the standards adopted by the Town.

The submission does not include information regarding the required peak flow demands for fire and/or domestic use at the site, and no information has been provided to confirm whether these flows will be within acceptable parameters. One means by which to evaluate this would be for a flow test to be conducted to ensure that system pressures do not drop below acceptable levels during peak flow

events. The Planning Board may wish for the engineer to coordinate with the Town Water Department to identify acceptable criteria, conduct a flow test, and provide this analysis for review.

8.3 Site Security:

§ 6.3.11.3: There shall be a certification by the Police Chief that the petitioner has provided a written plan for site security, which plan has been approved by the Police Chief.

Weston & Sampson did not readily identify the documentation related to Applicant communication with the Police Chief. Weston & Sampson recommends the Applicant include this documentation for review and the plan for site security.

8.4 Underground:

§ 6.3.11.4: All electrical, cable and telecommunications services shall be installed underground.

Plans show these utilities to be installed underground. This standard has been met. No action needed.

8.5 Fire Alarm System:

§ 6.3.11.5: There shall be sufficient municipal fire alarm system capacity to meet the operating requirements of the proposed site development and use under applicable codes, regulations, and statutes enforced by the Fire Chief.

Weston & Sampson did not readily identify the documentation related to Applicant communication with the Fire Chief. Weston & Sampson recommends the Applicant include this documentation for review and the plan for fire alarm systems.

As noted in the Introduction, the following discipline areas of review and Section 2.0, 3.0, and 4.0 are excluded from this peer review memo and will be included in subsequent peer review memos:

9.0 FISCAL ANALYSIS STANDARDS

Weston & Sampson reviewed the Applicant's documentation related to the Town's Fiscal Analysis Standards. The following items include a review of the submitted materials that follows from the Town Zoning Bylaws requirements of § 6.3.11 Fiscal Analysis Standards: *The SPGA or Planning Board shall require a fiscal analysis of the proposed development to determine the long-term benefit and cost to maintain a positive net fiscal position, giving consideration to revenue estimates and actual growth in municipal service costs induced by the proposed development. The long-term social benefit to the Town shall also be taken into consideration in this analysis.*

9.1 Fiscal Impact 1:

§ 6.3.12.1: The Applicant shall provide an analysis of fiscal costs from the development, including increases in marginal costs, assessment of the capacity of existing municipal facilities to serve the new development, and, by order of magnitude, share of capital costs if improvements are needed.

The Applicant has provided a "Fiscal Impact Analysis" report prepared by Fougere Planning and Development which references a Net Positive Fiscal Impact Range of \$562,286.00. No action needed.

9.2 Fiscal Impact 2:

§ 6.3.12.2: *The Applicant shall identify an order of magnitude estimate as to the extent to which this development would generate the additional need for Town services including responses from police, fire, EMS, schools and affordable housing.*

The Applicant has provided this information via a “Fiscal Impact Analysis” report prepared by Fougere Planning and Development. The projected increase in utilization of the mentioned services was found to be minimal, approximating a total cost of \$35,000. No action needed.

9.3 Fiscal Impact 3:

§ 6.3.12.3: *The Applicant shall provide an estimate of future real estate tax revenue to be generated by the project based on reasonable estimates of assessed value and current tax rates.*

The Applicant has provided this information via a “Fiscal Impact Analysis” report prepared by Fougere Planning and Development. The document noted that the proposed lab/office complex will generate approximately \$597,000 in gross revenues per year. No action needed.

10.0 STORMWATER MANAGEMENT STANDARDS

Weston & Sampson reviewed the Applicant’s documentation related to the Town’s Stormwater Management Special Permit Requirements. These requirements are provided in Article XXIII of the Town General Bylaws as reproduced below:

Article XXIII, §7 STORMWATER MANAGEMENT PLAN

A. The Stormwater Management Plan shall contain sufficient information for the Planning Board to evaluate the environmental impact, effectiveness, and acceptability of the measures proposed by the Applicant for reducing adverse impacts from stormwater. The Plan shall be designed to meet the Massachusetts Stormwater Management Standards as set forth in Part B of this section and DEP Stormwater Management Handbook Volumes I and II. The Stormwater Management Plan shall fully describe the project in drawings, and narrative.

B. The Plan shall include:

- 1. A locus map;*
- 2. The existing zoning and land use at the site;*
- 3. The proposed land use;*
- 4. The location(s) of existing and proposed easements;*
- 5. The location of existing and proposed utilities;*
- 6. The site's existing and proposed topography with contours at 2-foot intervals;*
- 7. The existing site hydrology;*
- 8. A description and delineation of existing stormwater conveyances, impoundments, and wetlands on or adjacent to the site or into which stormwater flows;*
- 9. A delineation of 100-year flood plains, if applicable;*
- 10. Estimated seasonal high groundwater elevation (November to April) in areas to be used for stormwater retention, detention, or infiltration;*
- 11. The existing and proposed vegetation and ground surfaces with runoff coefficient for*

each;

12. A drainage area map showing pre-construction and post-construction watershed boundaries, drainage area, and stormwater flow paths;

13. A description and drawings of all components of the proposed drainage system including:

a. locations, cross sections, and profiles of all brooks, streams, drainage swales, and their method of stabilization;

b. all measures for the detention, retention, or infiltration of water;

c. all measures for the protection of water quality;

d. the structural details for all components of the proposed drainage systems and stormwater management facilities;

e. notes on drawings specifying materials to be used and construction specifications; and

f. expected hydrology with supporting calculations.

14. Proposed improvements including location of buildings or other structures, impervious surfaces, and drainage facilities, if applicable;

15. Timing, schedules, and sequence of development including clearing, stripping, rough grading, construction, final grading, and vegetative stabilization;

16. A maintenance schedule for the period of construction; and

17. Any other information requested by the Planning Board.

The plans generally appear to include the information listed above, except for the following:

- The proposed sewer force main shown on Sheet C6.1 appears to run to a point off of the page, it is unclear where this will connect to an existing sewer.
- A general project timing, schedule and sequence summary was not found on the plans.

We recommend that the engineer address these items.

C. Standards

Projects shall meet the Standards of the Massachusetts Stormwater Management Policy, which are as follows:

1. No new stormwater conveyances (e.g. outfalls) may discharge untreated stormwater directly to or cause erosion in wetlands or waters of the Commonwealth.

A new outfall pipe is proposed at the northwest corner of the site. Plans include a riprap apron detail but no apron sizing calculations were found. We recommend that the engineer provide apron sizing calculations.

2. Stormwater management systems must be designed so that post-development peak discharge rates do not exceed pre-development peak discharge rates. This Standard may be waived for discharges to land subject to coastal storm flowage as defined in 310 CMR 10.04.

The engineer has provided calculations suggesting that peak discharges for the post-development condition do not exceed the pre-development condition. The engineer has used rainfall values using the RMAT tool for estimated 2090 rainfall values, which are higher in magnitude and conservative in comparison with data sets such as TP-40, NOAA Atlas 14 and the Northeast Regional Climate Center

data set. There were various technical issues noted in our review which should be addressed in order to ensure that this standard has been met. Some of these issues include the following:

- The total area analyzed in the pre-development HydroCAD model is 272,110 square feet and in the proposed conditions model it is 278,675 square feet. The models should be corrected to use the same areas for comparison.
- Discrepancies were noted between the plans and HydroCAD calculations for Infiltration Basin #1. These include the following:
 - The bottom area of the basin seems larger on the plans than indicated in the calculations;
 - Plans show a weir plate with top elevation of 48.0, this device is not included in the calculations;
 - Plans indicate only a single pipe barrel exiting the outlet control structure whereas the calculations indicate three pipe barrels;
 - The outlet pipe on the plans is at an invert of 47.0 whereas the calculations use 47.10; and
 - Plans show an outlet control structure with rim of 51.0 which is not included as an outlet in the calculations.
- Discrepancies were noted between the plans and HydroCAD calculations for Infiltration Basin #2. These include the following:
 - The outlet control structure detail on the plans has an outlet invert elevation of 83.50 whereas the calculations show an elevation of 80.50; and
 - Calculations provide for a sharp-crested weir and orifice at the outlet control structure but these are not shown on the detail in the plan set.
- The peak water surface elevation exceeds the embankment elevation of 67.50 for Rain Garden #1 for all storm events modeled.

We recommend that the engineer address these issues.

3. Loss of annual recharge to groundwater shall be eliminated or minimized with infiltration measures including environmentally sensitive site design, low impact development techniques, stormwater best management practices, and good operation and maintenance. The annual recharge from the post-development site should approximate the annual recharge rate from the pre-development or existing site conditions based on soil types. This Standard is met when the stormwater management system is designed to infiltrate the required recharge volume as determined in accordance with the Massachusetts Stormwater Handbook.

The following issues are noted relative to this standard:

- No test pit information was provided within the footprint of Rain Garden #1;
- Rain garden details do not show the required bioretention soil profile required for the rain gardens; and
- Other issues noted elsewhere in this section may impact compliance with this standard.

We recommend that the engineer address these issues.

4. Stormwater management systems shall be designed to remove 80% of the average annual post-construction load of Total Suspended Solids (TSS). It is presumed that this standard is met when:

- a. Suitable practices for source control and pollution prevention are in a long-term pollution prevention plan and are thereafter implemented and maintained;*
- b. Structural stormwater management best management practices (BMPs) are sized to capture the required water quality volume determined in accordance with the Massachusetts Stormwater Handbook; and*
- c. Pre-treatment is provided in accordance with the Massachusetts Stormwater Handbook.*

The engineer has noted that the site is located within or discharging to critical areas and has proposed appropriate pretreatment methods to promote water quality. We offer the following comments:

- It was noted in the engineer's TSS removal calculation worksheet that credit was given for both a sediment forebay at 25% and infiltration basin/rain garden at 80%. It is our understanding of DEP policy that a combined sediment forebay and rain garden (or sediment forebay and infiltration basin) are allowed to take credit for only a total 80% TSS removal and don't receive separate credit when combined.
- The claimed water quality volume should be re-evaluated to confirm that it is still adequate after discrepancies between the plans and calculations noted elsewhere in this section are resolved.

We recommend that the engineer address these items.

5. For land uses with higher potential pollutant loads, source control and pollution prevention shall be implemented in accordance with the Massachusetts Stormwater Handbook to eliminate or reduce the discharge of stormwater runoff from such land uses to the maximum extent practicable. If through source control and/or pollution prevention all land uses with higher potential pollutant loads cannot be completely protected from exposure to rain, snow, snow melt, and stormwater runoff; the proponent shall use the specific structural stormwater BMPs determined by the Department to be suitable for such uses as provided in the Massachusetts Stormwater Handbook. Stormwater discharges from land uses with higher potential pollutant loads shall also comply with the requirements of the Massachusetts Clean Waters Act, G.L. c. 21, ss. 26-53 and the regulations promulgated thereunder at 314 CMR 3.00, 314 CMR 4.00 and 314 CMR 5.00.

The engineer has claimed that the site is not a Land Uses with Higher Potential Pollutant Loads (LUHPPL). The engineer should confirm whether the parking onsite generates more than 1,000 vehicle trips per day, as such would constitute a parking lot with a high-intensity use and would be considered a LUHPPL. We recommend that the engineer review and confirm the vehicle trips and designation.

6. Stormwater discharges to critical areas within the Zone II or Interim Wellhead Protection Area of a public water supply and stormwater discharges near or to any other critical area require the use of the specific source control and pollution prevention measures and the specific structural stormwater best management practices determined by the Department to be suitable for managing discharges to such areas as provided in the Massachusetts Stormwater Handbook. A discharge is near a critical area if there is a strong likelihood of a significant impact occurring to said area, considering site-specific factors. Stormwater discharges to Outstanding Resource Waters and Special Resource Waters shall be removed and set back from the receiving water or wetland and receive the highest and best practical method of treatment. A "storm water discharge" as defined in 314 CMR 3.04(2)(a)1 or (b) to an Outstanding Resource Water or Special Resource Water shall comply with 314 CMR 3.00 and 314 CMR 4.00. Stormwater discharges to a Zone I or Zone A are prohibited unless essential to the operation of a public water supply. Critical areas also include swimming beaches and cold-water fisheries.

As noted above, the engineer has acknowledged critical areas relative to the site. Provided that the issues noted elsewhere in this section are addressed, this standard will be met.

7. Redevelopment of previously-developed sites must meet the Stormwater Management Standards only to the maximum extent practicable: Standard 2, Standard 3, and the pretreatment and structural best management practice requirements of Standards 4, 5, and 6. Existing stormwater discharges shall comply with Standard 1 only to the maximum extent practicable. A redevelopment project shall also comply with all other requirements of the Stormwater Management Standards and stormwater management systems must be designed to improve existing conditions.

Despite indicating that the project is a redevelopment, the engineer appears to have taken the approach of meeting the standards. Provided that the issues noted elsewhere in this section are addressed, this standard will be met.

8. A plan to control construction-related impacts including erosion, sedimentation and other pollutant sources during construction and land disturbance activities (construction period erosion, sedimentation, and pollution prevention plan) shall be developed and implemented.

The engineer has submitted an erosion and sediment control plan for the project. The plan appears to be generally reasonable. Compost filter tubes of unknown size appear to be the sole device for perimeter erosion control. Given the large area of the site it may be questionable whether this alone will provide adequate silt storage capacity for such a large site, as opposed to using them in combination with silt fence. We recommend that the engineer evaluate this and respond to this comment.

9. All stormwater management systems must have a long-term Operation and Maintenance Plan to ensure that systems function as designed.

The engineer has submitted a long-term operation and maintenance plan as part of the stormwater report. The operation and maintenance plan generally appears to be adequate relative to the MA Stormwater Handbook standard, though additional requirements may apply as discussed further below. Presently the O&M plan and the maintenance log form are separate documents in different locations within the stormwater report, whereas we believe it would be better if this plan and checklist were able to be consolidated and separated as a stand-alone document. The O&M plan should also include a figure showing the location of the stormwater BMPs that are subject to the requirements of the O&M plan. We recommend that the engineer address these items.

10. All illicit discharges to the stormwater management system are prohibited.

The engineer has provided a statement in the stormwater report indicating that there are no existing or proposed illicit discharges from the site. This standard has been met. No action needed.

When one or more of the Standards cannot be met, an Applicant may demonstrate that an equivalent level of environmental protection will be provided.

D. Reporting Requirements

The Applicant shall prepare and submit semi-annual reports to the Planning Board for the first two (2) years after issuance of the Certificate of Completion, and annual reports thereafter demonstrating compliance with the terms and conditions of the special permit received from the Planning Board.

In addition to the foregoing, there were several other issues noted in reviewing the plans and stormwater calculations which may impact compliance with the standards above:

- Numerous discrepancies were noted concerning catch basin/drainage structure rim, invert elevations and storm drainpipe sizes between the calculations and the plans;
- Rain Garden #3 is labeled as Rain Garden #2 on the plans;
- Plans show a contour of 66 at Rain Garden #1 which is not possible if Rain Garden 1 has a bottom elevation of 66.5;
- The catch basin at Rain Garden #2 appears to be incorrectly labeled as CB24; and
- On the proposed subcatchment map, there is no boundary separating 10B from 10C.

We recommend that the engineer address these issues.

Article XXIII, §7 OPERATION AND MAINTENANCE PLANS

A. An Operation and Maintenance Plan (O&M Plan) is required at the time of application for all projects. The O&M Plan shall be designed to ensure that compliance with the Permit, this By-Law and the Massachusetts Surface Water Quality Standards, 314 CMR 4.00 are met in all seasons and throughout the life of the system. The Planning Board shall make the final decision of what maintenance option is appropriate in each situation. The Planning Board will consider natural features, proximity of site to water bodies and wetlands, extent of impervious surfaces, size of the site, the types of stormwater management structures, and potential need for ongoing maintenance activities when making this decision. The O&M Plan shall remain on file with the Planning Board and shall be an ongoing requirement. The O&M Plan shall include:

1. *The name(s) of the owner(s) for all components of the system;*
The O&M plan lists the owner's name. This standard has been met. No action needed.
2. *Maintenance agreements that specify:*
 - a. *The names and addresses of the person(s) responsible for operation and maintenance;*
 - b. *The person(s) responsible for financing maintenance and emergency repairs;*
 - c. *A Maintenance Schedule for all drainage structures including swales and ponds;*
 - d. *A list of easements with the purpose and location of each; and*
 - e. *The signature(s) of the owner(s).*

A formal maintenance agreement with signature lines has not been provided. We recommend that the engineer address this.

3. *Stormwater Management Easement(s):*
 - a. *Stormwater management easements shall be provided by the property owner(s) as necessary for:*
 - i. *access for facility inspections and maintenance;*
 - ii. *preservation of stormwater runoff conveyance, infiltration, and detention areas and facilities, including flood routes for the 100- year storm event; and*
 - iii. *direct maintenance access by heavy equipment to structures requiring regular cleanout.*
 - b. *The purpose of each easement shall be specified in the maintenance agreement signed by the property owner(s);*

- c. Stormwater management easements are required for all areas used for off-site stormwater control unless a waiver is granted by the Planning Board;*
- d. Easements shall be recorded with the Essex County South Registry of Deeds prior to issuance of a Certificate of Completion by the Planning Board;*

It appears that the entire site will fall under common ownership and therefore no easements would be required for the property owner to gain access to the BMPs that they are responsible for maintaining. We do not believe that easements in favor of the owner/developer are required.

4. Changes to Operation and Maintenance Plans;

- a. The owner(s) of the stormwater management system must notify the Planning Board of changes in ownership or assignment of financial responsibility.*
- b. The maintenance schedule in the Maintenance Agreement may be amended to achieve the purposes of this By-law by mutual agreement of the Planning Board and the Responsible Parties. Amendments must be in writing and signed by all Responsible Parties. Responsible Parties shall include owner(s), persons with financial responsibility, and persons with operational responsibility.*

The board may wish to include this as a condition of approval. No action required.