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August 11, 2022

Highpoint Response to Comments (Red): 07-21-2022
Highpoint Response to Comments (Blue): 08-24-2022

Devens Enterprise Commission
c/o Mr. Neil Angus, AICP CEP, LEED AP
Environmental Planner
33 Andrews Parkway
Devens, MA 01434

RE: Nitsch Project #9419
57 and 75 Jackson Road
Site Plan and Stormwater Review
Devens, MA

Dear Mr. Angus:

Nitsch Engineering received and reviewed the following updated information for 57 Jackson Road and 75 Jackson Road, Devens, Massachusetts:

1. Site Plans entitled, "57 Jackson Road – Site Development Plan, Deven, Massachusetts," prepared by HEI, revised July 21, 2022;
2. Site Plans entitled, "75 Jackson Road – Site Development Plan, Deven, Massachusetts," prepared by HEI, revised July 21, 2022; and
3. Stormwater Management Report, 57 & 75 Jackson Road – Site Development, prepared by HEI, revised July 21, 2022.

Nitsch Engineering is providing comments with respect to Site Plan and Stormwater Management in this letter. Please note that traffic and landscape review are being provided in separate letters.

For clarity, we have provided our initial comments from June 29, 2022 in normal font, the responses from HEI on July 21, 2021 are in red font, and Nitsch Engineering's updated responses are provided in **bold** font.

PROJECT UNDERSTANDING

King Devens LLC (Proponent/King Street) is seeking approval from the Devens Enterprise Commission (DEC) of a Level 2 – Unified Permit for development of 57 and 75 Jackson Road. These are the fourth and fifth projects, respectively, to be developed at Devens under King Street's biomanufacturing platform, Pathway KSP.

The project at **57 Jackson Road** includes the demolition of an existing building and construction of a new 145,000-gross-square-foot biomanufacturing building including parking, stormwater management, landscaping, and utility infrastructure. The site plan also includes the construction of a separate 8,300-gross-square-foot building featuring potential amenities such as a taproom, café, offices, and other campus uses. These improvements are proposed on a +/-7-acre parcel of land located at 57 Jackson Road (former Netsal building site). This lot is accessible from a common driveway shared with 53 Jackson Road (Xinetics).

The project at **75 Jackson Road** includes the construction of a new 275,000-gross-square-foot biomanufacturing building including parking, stormwater management, landscaping, and utilities. The property located at 75 Jackson Road (Parcel ID#0.18.0-0021-0900.0) in the Innovation & Technology Business Zoning District. This lot is proposing new driveway access from Jackson Road as well as Givry Street.

Both projects are consistent with the King Devens LLC conceptual master plan for their properties at 33, 39, 45, 57, and 75 Jackson Road.

This project site is part of a larger watershed area that was detailed in a report entitled *Stormwater Management Narrative and Calculations, Roadway Reconstruction of Jackson Road, Devens, MA, Roadway, Utility, and Drainage Improvements – Jackson Road,* dated July 1999 prepared by Baystate Environmental Consultants and BETA Engineering. Two (2) detention ponds were constructed as part of this master plan, located to the north (Hospital Road Basin) and west (Lake George Street Basin). The Hospital Road Pond was designed to provide water quality treatment, infiltration, and peak flow attenuation for a portion of the proposed 57-75 Jackson development plan. Remaining subwatersheds within the 57-75 Jackson development were identified to flow toward the Devens Stormwater Pond behind 33 Jackson Road (Lake George Street Basin). The Applicant also noted that the stormwater analysis references "TP-40 – Rainfall Frequency Atlas of the United States" for rainfall data to match the rainfall data assumptions for the design of the Jackson Road watershed areas.

Based on Nitsch Engineering's review of the submitted documents and the above-referenced regulations, we offer the following comments for consideration:

DEC SITE DESIGN STANDARDS – 57 AND 75 JACKSON ROAD

1. **Exhibit C of the Zoning By-Laws** provides a parking maximum of two (2) spaces per 1,000 square feet of gross floor area for manufacturing use. Through shared parking between 57 and 75 Jackson Road, the Applicant has provided 1.15 space per 1,000 square feet and justifies that the industry standard is closer to 1.5 space per 1,000 square feet. The Applicant also provides for a future parking garage to increase parking capacity by 512 additional spaces. This would increase the ratio to 2.06/1,000, which we note exceeds the Devens maximum. Additionally, the parking count is inconsistent between the Applications, the Parking Count text in the plan sets, and the actual parking spaces provided in the plans. This should be reviewed for consistency.

   HEI Response (07/21/2022): The parking garage size and number of spaces is a proposed maximum value, and dependent upon market trends and tenant requirements. If a parking garage is required, the final design of the garage together with the remaining site parking will not exceed the Devens Bylaw maximum allowable 2.0 spaces per 1,000 sf. Final design of the garage will be reviewed with DEC staff to demonstrate compliance with this requirement during building permit review.

   Nitsch Response (08/11/2022): Aside from the future parking garage, the total count of parking spots provided in the drawing does not match the parking summary table. We counted 386 spaces on the 75 Jackson project and 400 were shown in the table. We also counted 100 spaces for 57 Jackson and 85 were shown in the table. It should also be made clear in the parking summary table that the total parking requirement is a maximum.

   HEI Response (08/23/2022): The parking tables for both the 57 Jackson and 75 Jackson plans have been revised to depict the total parking count on each lot. 57 Jackson has 98 spaces, and 75 Jackson has 384 spaces. 4 spaces were eliminated from the 75 Jackson plan to accommodate a minor shift in the Givry access driveway and creation of two additional handicap parking spaces.

2. **974 CMR 3.04(3)(a)1** provides minimum requirements for handicapped spaces. The Applicant should review these requirements and confirm that the minimum is provided for each site (57 and 75 Jackson Road), as well as being sufficient to serve the needs of the Amenity Building. We also note that eight (8) additional handicapped spaces will be required if the future parking garage is constructed with 512 spaces.

   HEI Response (07/21/2022): The parking garage size and number of spaces is a proposed maximum value, and dependent upon market trends and tenant requirements. If a parking garage is required, the final design of the garage and its conformance with ADA accessible parking regulations will be reviewed with DEC staff to demonstrate compliance with this requirement during building permit

review.

Nitsch Response (08/11/2022): Aside from the future parking garage, it is not clear in the plans and parking summary table that the appropriate number of accessible spaces are provided. We counted six (6) spaces each for both 75 and 57 Jackson. 75 Jackson requires 2% of the 386 parking, which would require eight (8) handicap spaces for the 75 Jackson site. Each site should provide the appropriate number of accessible spaces within the respective project limits.

HEI Response (08/23/2022): The accessible parking space layout has been revised so the minimum required number of accessible spaces is provided on each lot. 57 Jackson will have six (6) accessible spaces allocated to support both the 57 Jackson Biomanufacturing and Amenity buildings. 75 Jackson will have eight (8) accessible spaces located at the primary and secondary building entrances.

3. **974 CMR 3.04(3)(a)(2)b** provides construction specifications for heavy duty pavement in areas subject to truck traffic. The current details only provide for standard duty pavement. We recommend that the Applicant specify heavy duty pavement in areas that will experience truck traffic, including the access drives to the loading docks at 57 and 75 Jackson Road. The detail should also be added to the plans.

HEI Response (07/21/2022): This campus is not designed as a trucking or distribution facility and the Applicant anticipates the number of truck trips on a weekly basis will be insignificant. Standard duty pavement is sufficient to support standard site operations. Loading docks are designed with 6" concrete pads for longer term tractor/trailer staging and storage.

Nitsch Response (08/11/2022): Given the designated truck entrance off Givry Street and route to the loading docks proposed for these sites, the requirement for heavy duty pavement for areas with truck traffic is applicable. However, 974 CMR 3.04(3)(a)2.c. allows the Applicant to propose modifications to the pavement specifications where anticipated traffic and usage justify a lesser standard. Modified pavement design calculations are required to support such requests. Additionally, these calculations should provide more information about the anticipated truck trips (frequency and truck size) to justify the proposed section. Note that this may limit future tenant/use to ensure continued pavement adequacy.

HEI Response (08/23/2022): The Applicant has consulted with their traffic engineer regarding the proposed trip generation related to trucks and delivery vehicles. No specific truck trip generation estimates exist for R&D/Manufacturing in the ITE Trip Generation Manual. Therefore, analysis of a modified pavement design based upon estimated truck trips will be arbitrary and not based upon historical or published data.

Heavy-duty pavement is typically reserved for truck traffic corridors that would be subject to constant freight transportation truck trips or vehicles carrying moderate or heavy loads for unique delivery and distribution requirements typical of warehouse or distribution centers. The number of truck trips, including small delivery (Fed-Ex, UPS, etc.) and large delivery (box truck, tractor-trailer, etc.) for 57-75 Jackson are expected to be a fraction of truck trips one would expect from a warehouse or distribution center, therefore not warranting the heavy-duty pavement section.

The Applicant also notes that the driveway network at the 33-39-45 Jackson Pathway campus was designed as a standard pavement section which was previously approved by the DEC.

4. **974 CMR 3.04(3)(a)(2)e** encourages parking lots measuring less than 10,000 square feet in area to utilize an open drainage system to minimize the depth of detention/retention basins, reduce maintenance, and decrease construction costs. The parking lot between 57 Jackson Road and the Amenity Building is less than 5,000 square feet with adjacent landscape space that provides an opportunity for open drainage, including a small rain garden.

HEI Response (07/21/2022): The parking area between the 57 Jackson and the Amenity Building is an integrated vehicular parking/pedestrian zone designed to serve as an intimate public gathering area for passive recreation, small event performances, and intermittent seating. Programming additional open drainage areas and rain gardens within this small area will reduce the available space for passive recreational uses and is not compatible with the proposed outdoor amenity programming.

Nitsch Response (08/11/2022): The relationship of the small parking area to the adjacent landscape space provides an opportunity for small low impact development (LID) interventions to provide treatment. These areas could be integrated into the landscape plantings to provide an aesthetic benefit to the plaza and would only be wet immediately following rain events.

HEI Response (08/23/2022): The Applicant's project team is reviewing the feasibility of incorporating rain gardens on both sides of the 57 Jackson Road access driveway that extends between the Biomanufacturing and Amenity Buildings. These rain gardens would take the place of catch basins that are presently proposed at this location. Due to the steep slope of the access driveway and adjacent Amenity Building site features, the rain garden design will be complex, similar to a typical rain garden designed to integrate within an urban streetscape. The Applicant will review the feasibility of the design with DEC staff and the Peer Reviewer when completed as part of the final Amenity Building LEED design effort.

5. **974 CMR 3.04(4)(g)** requires standard "STOP" at the intersection of driveways with streets and roads. The Applicant should evaluate the intersections of the internal driveways as well as the intersection of the driveway with Givry Road.

HEI Response (07/21/2022): This has been added to the Plans.

Nitsch Response (08/11/2022): The Applicant has provided a STOP sign in the plan at the entrance on Givry Street. We recommend that a STOP bar is also provided. We note that there are no STOP bars within the parking areas. We suggest implementing STOP bars and other traffic calming measures with the parking areas.

HEI Response (08/23/2022): Stop bars have not been proposed at other parking areas within the Pathway Devens campus, which have been previously approved by the DEC. We request that the Peer Review reconsider this recommendation for stop bars at each parking drive aisle access point to the driveway network.

6. **974 CMR 3.04(5)** requires that the Applicant shall obtain a letter from the Fire Chief stating there is adequate access for fire equipment. This should be provided to the DEC.

HEI Response (07/21/2022): A truck circulation plan has been submitted to Fire Chief Timothy Kelly and coordination is ongoing. An approval letter will be provided to DEC when it is available.

Nitsch Response (08/11/2022): Comment closed pending submittal of the requested letter to the DEC.

7. **974 CMR 3.04(5)** requires that all proposed developments shall demonstrate they have made reasonable efforts to consider and, where feasible, include Transportation Demand Management (TDM) initiatives early in the site design and layout process. TDM initiatives can justify a smaller amount of parking than is normally required. Refer to **974 CMR 3.04(5)a-j.** for TDM initiatives that may affect the site design and layout. Because the proposed parking ratio is less than required and less than suggested for the manufacturing industry, the project site may benefit from some of the TDM strategies. The Application for Level 2 – Unified Permit Narrative indicates that parking areas will include preferred spaces dedicated to electric vehicle charging stations, rideshare, and low-emitting hybrid or electric vehicles but the locations are not indicated on the Plans. The Applicant should review and address this requirement. A Parking Summary Table is also requested to compare the required

and provided spaces (total, accessible, compact, electric vehicle, and rideshare spaces) to demonstrate compliance with the regulations.

HEI Response (07/21/2022): Rideshare and electric vehicle spaces have been added to the plans in coordination with the Landscape Plans.

Nitsch Response (08/11/2022): The parking summary table has inconsistencies with the spaces provided. The table should clearly note EV, rideshare, and charging stations (5% needed for each) and the calculated percentage. From our space calculations, these minimums are not being provided for both sites. If it is the Applicant's intent to consider the TDM requirements collectively for both sites, this should be clearly indicated in the calculations and reviewed by the DEC. We note that there may be future implications if the appropriate spaces are not provided on a site-by-site basis if the sites were to have separate properties/ownership.

HEI Response (08/23/2022): The designed EV/Charging Station and Rideshare parking spaces have been reallocated between both sites based upon the adjusted parking counts for each lot.

For 57 Jackson, six (6) EV/Charging Spaces and five (5) Rideshare Spaces are proposed for 100 spaces within the property boundary. This equates to 6.1% EV/Charging Spaces and 5.1% Rideshare Spaces, respectively.

For 75 Jackson, twelve (12) EV/Charging Spaces and twelve (12) Rideshare Spaces are proposed for 382 spaces within the property boundary. This equates to a 3.1% allocation for both on this lot. The Applicant believes that this will meet future tenant lease requirements for the building and is consistent with the space allocation approved by the DEC for the larger 33 Jackson Road project, which provides 3.2% EV/Charging Spaces and 2.9% Rideshare spaces, respectively.

SITE PLAN DESIGN AND CALCULATIONS – 57 AND 75 JACKSON ROAD

8. Given the relationship of the two (2) sites (57 and 75 Jackson Road) and three (3) buildings, we recommend that the Applicant provide a phasing plan to clarify the construction sequencing for the buildings and supporting utilities and parking.

HEI Response (07/21/2022): The Applicant will work with the General Contractor and Site Engineer to develop a construction phasing plan and submit this to DEC staff for review at pre-construction conference prior to commencement of the work undertaken for each phase.

Nitsch Response (08/11/2022): Unless both sites will be constructed at the same time, we recommend the phasing plan be submitted at this time for review by the DEC, given the shared systems between the sites. This would include overall phasing considerations (access, utilities, stormwater management) as well as site logistics.

HEI Response (08/23/2022): The Applicant intends to phase the project by constructing the Amenity Building and related parking/site improvements only in Phase 1, while leaving the existing 57 Jackson Building and vacant 75 Jackson site in their present condition. The Amenity Building Phase 1 construction sequence plans are hereby submitted for DEC staff and Peer Reviewer consideration.

The 57-75 Jackson projects will be developed in tandem requiring specific construction sequencing considerations. We note that to balance the earthwork between both properties, it will be necessary to demolish 57 Jackson and transport borrow soil from this site to prepare the 75 Jackson site. The utility infrastructure and majority of the stormwater infrastructure will be installed after preparing both sites to a rough finished grade elevation. The General Contractor will provide DEC staff with a construction sequencing plan to construct 57-75 Jackson when those projects move forward.

9. Sheet C300 provides for utilities to be removed during site preparation, however not all existing utilities are currently shown to be removed, and there is no notation provided to maintain and protect. This information should be clarified, as well as the locations of cut/cap and plugging of manholes.

   HEI Response (07/21/2022): The plans have been revised for clarification to ensure that essential municipal utility lines are maintained and protected until the new lines are connected to provide uninterrupted service.

   Nitsch Response (08/11/2022): The revised plan is missing a few cut and cap callouts. These should be updated for consistency with the limit of work line.

   HEI Response (08/23/2022): Additional cut and cap callouts have been added for consistency.

10. The design of the site currently requires two (2) retaining walls with heights up to 19 feet high. The Applicant should review alternatives to reduce wall height or break up the walls to reduce impact on the site. Additionally, the Applicant should consider the relationship of the walls to the interior site design (parking lot, landscape, etc.) and site perimeter (screening, drainage outfalls, etc.).

    HEI Response (07/21/2022): The stormwater easement associated with the Givry stormwater pond limits the potential for stepped walls and location within the site. Site grades and associated wall heights are established to maintain a balanced site to minimize export in accordance with the Devens Soil Management Policy. The wall layout has been completed with considerations to the parking lot layout, landscape screening, and the adjacent stormwater easement. Final approval of the stormwater easement access with respect to the Plans will be coordinated with MassDevelopment.

    Nitsch Response (08/11/2022): We understand that the site is bounded by the Givry stormwater pond and associated easement; however, the retaining walls and overall limits of development could be reduced if the development footprint was reduced. We recommend that the Applicant evaluate alternatives that demonstrate the level of impact to the development (parking spaces lost, etc.) to provide additional setbacks and reduced wall heights.

    HEI Response (08/23/2022): The Applicant reviewed the 75 Jackson site plan with DEC Staff and the Peer Reviewer and reiterated the concerns for balancing earthwork for both sites as noted in the 07/21/2022 response. No objections to the Project design related to the walls were provided, though we note there was concern for wall screening. To address this the Givry access driveway was shifted 2-3' to maintain a 10' planting strip along the driveway, providing sufficient area to add tree plantings along the driveway. Furthermore, additional plantings have been considered along the toe of the wall, outside of the stormwater easement.

11. The Applicant should provide truck turning movements for accessing the loading dock to support the oversized driveways adjacent to the loading dock.

    HEI Response (07/21/2022): A truck turning study demonstrating adequate maneuvering to support a WB-67 design vehicle has been provided under separate cover.

    Nitsch Response (08/11/2022): The truck turning study was provided as requested and demonstrates the widths and turning radii required for truck movements through the site. Comment closed.

12. The Applicant should consider whether signage or other traffic management is needed to support pedestrian safety at locations where driveways intersect the proposed trail crossings.

    HEI Response (07/21/2022): A comprehensive signage plan will be submitted separately for DEC staff review and approval.

Nitsch Response (08/11/2022): Comment remains open.

HEI Response (08/23/2022): The pedestrian trail crossing at the 57-75 Jackson Road driveway entrance and 53 Jackson driveway entrance will mimic the trail crossing at 33-45 Jackson Road, which includes a painted crosswalk and flush granite curbs at the crossing point which are depicted on the plan. A comprehensive signage plan will be submitted separately to DEC staff for review at a later date once it is prepared by the signage consultant.

13. The Layout and Materials Plans should clearly indicate the various pavement types intended for all areas of the sites. Specifically, there are many hatches at the 57 Jackson entrance plaza that are not included in the Legend. Details should also be provided for all material types. We note that enlargements may improve readability for the more detailed areas, especially given the plan scale of 1" inch = 50 feet.

HEI Response (07/21/2022): Drafting hatches associated with the landscaping plans have either been removed or added to the legend.

Nitsch Response (08/11/2022): Additional detail is provided in the landscaping plans for the entrance plaza. These indicated mixed materials including vehicular concrete, pavers, and permeable pavers. This information should be coordinated and shown on the civil plans and accounted for in the stormwater calculations (permeable pavers). A detail is needed for the vehicular concrete specified for this area.

HEI Response (08/23/2022): The Layout and Materials Plans have been revised to depict the different paver types in coordination with the landscape design plans. To be conservative, the permeable pavers have not been factored into the hydrologic model, but are provided as an accepted LID measure in accordance with the Devens Bylaws.

14. The Layout and Materials Plans should clearly indicate the curbing types intended for all areas of the sites and the Legend should include all acronyms for clarity. Some curbing is labeled, but many areas are not.

HEI Response (07/21/2022): Curbing construction details and minor modifications to curb designations have been added to the Plans

Nitsch Response (08/11/2022): The majority of curb material callouts have been added. The curbs at the Jackson Road entrance should be labeled as vertical granite or cement concrete per DEC requirements. The Applicant should ensure all acronyms are included in the abbreviation table. Additionally, the Applicant should ensure that all curb types and applicable details/notes match the MHDSHB standards specified by the DEC.

HEI Response (08/23/2022): The Layout and Materials Plans have been revised to clarify the intent of various curb types proposed within both developments.

DEC STORMWATER DESIGN STANDARDS – 57 AND 75 JACKSON ROAD

15. **974 CMR 3.04(4)(b)** requires Stormwater Management options shall include green infrastructure and Low Impact Development (LID) techniques, including but not limited to vegetated swales, rain gardens, bio-filtration landscape islands, rainwater harvesting, and pervious pavement, where feasible, to achieve infiltration/capture/reuse of stormwater runoff onsite. Stormwater treatment trains may include a combination of LID techniques. While we appreciate the incorporation of rain gardens and porous pavement into the stormwater management design, there is a large quantity of conveyance structures, closed drainage, proprietary water quality, and subsurface infrastructure as part of the stormwater management design. We encourage the Applicant to expand LID to the greatest extent possible and reduce conveyance.

HEI Response (07/21/2022): Rain gardens and pervious pavement have been included in the design to provide green infrastructure within a site with spatial constraints that will promote water quality and infiltration. No credit was taken for the infiltration within the pervious pavement in the stormwater calculations to be conservative, in the event pervious pavement infiltrative capacity diminishes over time.

Nitsch Response (08/11/2022): The Applicant should further consider the opportunity to take credit and model the pervious pavement peak rate mitigation and infiltration as this may reduce the size and extent of the closed drainage. We note this is standard practice for this LID strategy.

HEI Response (08/23/2022): The Applicant's engineer does not typically analyze pervious asphalt separately from standard pavement in the hydrologic model for stormwater peak flow attenuation or recharge, as the pervious asphalt is not guaranteed to have long-term, consistent permeability/infiltration characteristics.

To address this comment a CN value of 87 has been assigned to the pervious asphalt, the watershed composite CN value adjusted to account for the pervious asphalt, and the hydrologic model revised to account for pervious asphalt. The CN value of 87 was determined based upon instructions for establishing CN for specialty pavement conditions as outlined in HydroCAD. A lower CN value was initially obtained but increased to apply a factor of safety.

The revised hydrologic model demonstrates that the peak rate of runoff was reduced at the Hospital Road Pond Point of Analysis by approximately 2%-3%. However, the stormwater management system design was not revised.

The Applicant also notes that the pervious asphalt area proposed for 57 Jackson = 6,480± SF (6.2% of total impervious surface excluding building), and 75 Jackson = 14,508± SF (8.9% of total impervious surface excluding building). This proposed pervious asphalt area compares favorably to previously approved pervious asphalt areas at 33-39-45 Jackson Road, where percentages range from 5.0%-9.2% for those projects.

16. **974 CMR 3.04(4)(b)(4)** requires catch basins or other drainage features in loading/unloading and/or fueling areas shall be equipped with post-indicator valves (which are to remain in the closed position) on the outlets for containment in the event of any spills. It appears a PIV is missing from the 57 Jackson Road loading dock. The Applicant should review and address this requirement.

HEI Response (07/21/2022): A PIV has been added to the 57 Jackson loading dock.

Nitsch Response (08/11/2022): This comment has been addressed. The appropriate signage should be added to the signage plan and submitted to the DEC as referenced in Comment #12.

17. **974 CMR 4.08(2)(d)(ii)** requires irrigation water shall be derived from detained treated stormwater (stormwater harvesting) or roof drainage to the maximum extent feasible. Onsite cisterns may be installed to store water for irrigation. It is unclear if irrigation is intended. The Applicant should review and address this requirement if applicable.

HEI Response (07/21/2022): Irrigation plans will be submitted during final design of the site and landscape improvements. Source water to be reviewed with DEC staff and MassDevelopment.

Nitsch Response (08/11/2022): The DEC requires irrigation water to be harvested from stormwater capture and reuse. The Applicant could consider converting a portion of the underground storage to detention/harvesting systems with overflow being allowed to infiltrate.

HEI Response (08/23/2022): As discussed at the Project review meeting, the Applicant consulted Aqueous (Irrigation Consultant) regarding the feasibility of incorporating small-scale rainwater harvesting into the Amenity Building design. The Applicant's conclusion after consulting with Aqueous is that the initial capital costs for a small-scale rainwater harvesting system will be significant and the associated water conservation benefit will be minimal when compared to other, more cost-effective measures such as a smart irrigation system. Investment into a smart irrigation system with weather sensors, soil moisture sensors, etc. coupled with appropriate selection of drought tolerate plants will provide most of the water conservation benefit. Based upon this consultation, the Applicant does not intend to pursue rainwater harvesting for the Project and is proposing to connect to the Devens water system for irrigation. While the Applicant does not intend to pursue rainwater harvesting, the Applicant is seeking other sustainable goals for the project not required by the DEC such as LEED certification for the Amenity Building.

18. **974 CMR 4.08(2)(d)(iii)** requires "Pre-development" drainage areas shall be considered to be "green fields" regardless of any development or improvements on the site at the time of application. We understand that the Hospital Road Pond was designed and intended to treat existing Lot 14 (a14) in a developed condition of 75% impervious. However, it is stated in the *Stormwater Management Narrative and Calculations, Roadway Reconstruction of Jackson Road, Devens, MA*, under the *Proposed Conditions, Drainage System Design Criteria* that, "Each developable lot will be considered unimproved or in the green fields state per 974 CMR Section 3 for pre-development drainage calculations." The Applicant should further review this statement to confirm that the green field has already been accounted for in the design of the Hospital Road Pond. We also note that the summary tables provided in the Stormwater Report reference a "predevelopment condition" for this design point, when these values are actually "approved allowable" rates for the developed condition.

HEI Response (07/21/2022): In Appendix D of the Stormwater Report, page 4 of BETA's narrative states that "each developable lot will be considered unimproved or in the "green fields" state per 974 CMR Section 3 for pre-development drainage calculations. Based upon BETA's assumptions, the maximum allowable peak flow mitigated within the Hospital Road Pond has been calculated assuming existing land use conditions are in an unimproved, green field state.

• The summary tables have been revised to reflect the "approved allowable" description.

Nitsch Response (08/11/2022): Understood. Comment closed.

19. **974 CMR 4.08(2)(d)(vi)** requires that projects proposing traditional closed drainage systems shall demonstrate to the satisfaction of the DEC why LID stormwater management design methods are not feasible. The Applicant should evaluate addition locations to implement LID to reduce reliance on the traditional closed drainage system. We also note that the project sites include porous pavement (asphalt and pavers) and rain gardens that are not accounted for in the HydroCAD model. The Applicant should consider taking credit for these areas if there is potential to reduce conveyance and closed drainage infrastructure.

HEI Response (07/21/2022): The site has significant spatial constraints and cannot encroach onto roadways, the Open Space / Recreation Zone, abutting properties, or the stormwater easement and there is insufficient space for additional open drainage on-site.

• The rain gardens are lined and do not provide infiltration and are designed for pre-treatment only, therefore they are only modeled in HydroCAD to determine if they are sufficiently sized for the drainage area. The porous pavement has been included to provide additional LID measures per DEC regulations, however it has been omitted from the hydrologic modeling.

Nitsch Response (08/11/2022): While we appreciate the LID strategies that are currently provided, there is opportunity to reduce reliance on catch basin and water quality structures by providing additional pretreatment in the landscape areas adjacent to the parking lots and driveways.

HEI Response (08/23/2022): The Applicant proposes to meet the LID requirements on the 57-75 Jackson Plans by providing eight (8) rain gardens, consideration for another 1-2 rain gardens at the Amenity Building area, 21,000± sf of pervious asphalt, and 5,000± sf pervious pavers.

20. **974 CMR 4.08(3)(a)2.** requires that biorientation cells abutting pavement are designed to capture sheet flow, the edge of pavement shall be reinforced to ensure the integrity of pavement is maintained. The Applicant should review and address this requirement. Additionally, the Plans do not label or provide details on the curb cuts. The Applicant should update the Plans for clarity.

HEI Response (07/21/2022): The proposed rain garden curbing with the curb inlets has been changed to concrete curb with curb breaks. A detail has been added to the plans.

Nitsch Response (08/11/2022): A label and detail has been added to the 75 Jackson Plan Set. The curbs appear to switch between PCC and CCB. CCB should be added to the list of abbreviations for clarity. Comment closed.

HEI Response (08/23/2022): Cape Cod Berm (CCB) has been added to the legend.

21. **974 CMR 4.08(3)(h)** recommends that post-construction erosion control methods include geotextile and/or biodegradable erosion control fabrics staked or anchored to the slope, with loose weave to allow vegetative cover to be established. Sheet C300 should be updated to include stabilization of any proposed slopes at a 3:1 grade or steeper. Additionally, the Applicant should provide a detail for slope stabilization.

HEI Response (07/21/2022): These have been added to the plans.

Nitsch Response (08/11/2022): A detail has been added to Sheet C802 (75 Jackson) and C702 (57 Jackson). Sheet C300 has not been updated to indicate slope stabilization.

HEI Response (08/23/2022): A slope stabilization note has been added to sheet C300.

22. **974 CMR 4.08(3)(h)** requires stormwater management systems shall be designed to meet an average annual pollutant removal equivalent to 90% of the average annual load of Total Suspended Solids (TSS) related to the total post-construction impervious area on the site. The treatment train labeled Rain Garden Overflowing to Existing Basin does not appear to meet TSS requirements. It is unclear where a deep sump hooded catch basin leads to a rain garden on the Plans. It appears to be curb cuts that lead to the rain gardens. Additionally, it is unclear if the rain garden is intended for pretreatment or infiltration. The detail shows the rain garden as lined but the HydroCAD accounts for exfiltration. The Applicant should review this treatment train.

HEI Response (07/21/2022): The catch basins have been removed from the rain garden treatment train, and the rain garden with the new pea stone diaphragm provides 90% TSS removal per Massachusetts Stormwater Regulations which meets the requirement. In conjunction with the infiltration basin, the treatment train provides 98.0% TSS removal which exceeds the minimum standard.

• The rain gardens are lined and will be used for pre-treatment, TSS removal only. The infiltration was originally modeled for the infiltration through the subsoil beneath the open-air storage, but the model has been revised and exfiltration has been removed for clarity. The open-air storage and

subsoil storage is now modeled together with an overflow grate. None of the rain gardens overflow

Nitsch Response (08/11/2022): Understood. For the record, we would like to note that the HydroCAD provided models for the 1-inch storm rather than the one-year (1-year) storm, which meets Massachusetts Department of Environmental Protection (MassDEP) requirements. Comment closed.

23. **974 CMR 4.08(3)(h and j)** requires to support compliance with the MS4 Permit, all Best Management Practices (BMPs) must be optimized for the removal of phosphorus and achieve 60% phosphorus reduction. The justification and design of such BMPs must also include a methodology for assessing BMP performance. Pollutant removal shall be consistent with EPA Region 1's evaluation tool. We note that the proposed infiltration with pretreatment aligns with phosphorus removal requirement, however the Applicant should review and address for the record.

HEI Response (07/21/2022): According to the EPA's phosphorus removal charts for Region 1, if the infiltration rate is conservatively assumed as 0.17 in/hr (which is lower than the assumed infiltration rate of 3.9 in/hr), then the minimum depth of runoff requiring treatment to achieve 60% phosphorus load reduction from impervious areas is 0.28". All proposed infiltration basins provide greater than 0.28" of runoff storage and infiltration over the impervious area and therefore comply with this requirement. See Appendix B of the Stormwater Report for details.

• All proposed infiltration basins provide greater than 0.28" of storage over the contributing impervious area and therefore comply with this permit. See Appendix B for details.

Nitsch Response (08/11/2022): Understood. Comment closed.

STORMWATER DESIGN AND CALCULATIONS – 57 AND 75 JACKSON ROAD

24. The survey identifies existing drainage pipes (maybe a cross-culvert with flared ends?) at the western property boundary, but it is not clear what the intent is with these in the proposed conditions. The Applicant should review this condition and clarify in the plans. Additionally, there is an existing catch basin in the abutter's access driveway that should most likely be reset as the curb line is being moved.

HEI Response (07/21/2022): The existing inlets to the basin will be removed and the overflow will remain. See Soil Erosion & Sedimentation Control / Site Preparation Plan revisions for clarification.

Nitsch Response (08/11/2022): Understood. However, the portion of the comment regarding the existing catch basin in the abutter's access driveway has not been addressed. Additionally, the Applicant should ensure that all catch basins that are to be removed and disposed also indicate associated pipe cut and caps/demolition.

HEI Response (08/23/2022): The proposed curb adjacent to the existing catch basin in the abutter's access driveway has been redesigned so the existing catch basin continues to collect runoff from the abutting 53 Jackson driveway, and the catch basin can be maintained and protected.

25. Can the Applicant please clarify the following statement? "Proposed developments within the contributing watershed areas of the Jackson Road drainage area shall assume that post-development stormwater runoff rates shall not exceed pre-development runoff rates for up to the 25-year storm event, with the exception of Lot 14(14a) discharges to the Hospital Road Pond. Where possible, project stormwater discharges shall store and infiltrate runoff volume onsite. Stormwater discharges exceeding the 25-year storm up to and including the 100-year storm can be released to the existing drainage system." It appears that water is discharged in the two- (2-),10-, and 25-year

storms, which does not align with this statement.

HEI Response (07/21/2022): Highpoint concurs. The peak rate of runoff is mitigated for all storms. The stormwater report has been revised accordingly.

Nitsch Response (08/11/2022): Can the Applicant provide further clarification? The confusion is stemming from the differentiation between the storm event up to and including the 25-year, and events greater than the 25-year storm. The report states, "The subsurface retention/infiltration facilities are designed to store, and infiltrate runoff volume and control discharges up to the 25-year storm event onsite. Discharges from rainfall exceeding the 25-year storm event will overflow to Devens stormwater infrastructure as allowed for in the Regulations." While we agree with your previous statement that the peak rates in all storm events are being reduced, it appears that there is discharge in the smaller storm event. The statement from the report above indicates that the site does not release any stormwater until greater than the 25-year storm, which is not the case base on the provided Table 5.

HEI Response (08/23/2022): The language in the stormwater report has been corrected.

26. The Applicant should provide more detail on the stormwater infiltration systems in the Plans such as elevations/inverts, perforated pipe size, header pipe detail, orifices, and pipe connections.

HEI Response (07/21/2022): These have been added to the Plans.

Nitsch Response (08/11/2022): The information on the elevations and pipe size of the stormwater infiltration systems have been added to the plans. However, there appears to be outstanding inconsistencies. The Applicant should provide clarification on:

- **The header pipe detail and pipe connection detail have not been added to the plans.**
- **The Outlet Control Structure details do not match the HydroCAD for the subsurface infiltration systems.**
- **The location of Outlet Control Structures onsite.**
- **The HydroCAD model shows 6-inch orifices out of the systems that are then routed through 18-inch pipes. Sheet C-500 appears to show 18-inch pipes out of the systems but C-501 calls out 6-inch pipes from the systems. This should be clarified on the plans, HydroCAD, or details.**

HEI Response (08/23/2022): There are no proposed Outlet Control Structures for the Project, and the detail has been removed from the Plans. An outlet manifold schedule and detail have been added to Sheets C705/C805.

27. The output flow from SWM-5 is missing on the closed drainage calculations.

HEI Response (07/21/2022): The output flow from SWM-5 in the 25-year storm is 0.00 cfs. See revised Stormwater Report.

Nitsch Response (08/11/2022): Understood. Comment closed.

28. The line weights on sheet C500 are very thick and make it hard to decipher the details (contours, perforated vs. solid pipes, area drains, curb cuts) of the rain gardens. We recommend that the Applicant provide enlargements or additional details to clarify the design intent.

HEI Response (07/21/2022): The Plans have been revised for clarity.

Nitsch Response (08/11/2022): It remains difficult to see the differentiation between the pipes, area drains, and contours within the rain garden. This is making it difficult to tell what direction

the rain garden overflows are going.

HEI Response (08/23/2022): A Rain Garden enlargement inset has been added to sheet C501.

29. An interceptor drain detail is provided. Can the Applicant please clarify where it is being used in the Plans.

HEI Response (07/21/2022): The detail has been removed from the Plans.

Nitsch Response (08/11/2022): The detail has been removed from the Plans. Comment closed.

30. There are many pipe sizes missing on Sheet C500 for both 57 and 75 Jackson Road. Additionally, the Applicant should ensure all pipe sizes and inverts exiting the stormwater management systems match the HydroCAD model, as the inverts are not listed in the drainage schedule. Pipe sizes, and inverts where applicable, should be added to all pipes. Inverts and pipe sizes should be added for the roof drains from 57 Jackson Road and 75 Jackson Road, as well.

HEI Response (07/21/2022): These details have been added to the Plans.

Nitsch Response (08/11/2022): Outstanding clarification is required:

- **The pipe from SWM-1 to SWM-2 is shown as a 12-inch pipe on Sheet C-500 but is an 18-inch pipe in the HydroCAD model.**
- **The pipe from SWM-2 to SWM-3 is not labeled on Sheet C-500 but is shown as an 18-inch pipe in the HydroCAD.**
- **The inlet from the roof drain from Building 57 to SWM-3 is lower than the outlet from the system. The Applicant should confirm there will be no adverse effects.**
- **The inlet from WQU-4 to SWM-1 is lower than the outlet from the system. The Applicant should confirm there will be no adverse impacts on the function of the WQU.**
- **The inlets to SWM-4 from DMH#30 and Building 75 are lower than the outlet of the system. The Applicant should confirm there will be no adverse effects.**
- **The inlet to SWM-5 from DMH#31 is lower than the outlet pipe from the system. The Applicant should confirm there will be no adverse impacts.**
- **There are still pipes that are missing labels to indicate the size and material of the pipe.**

HEI Response (08/23/2022): The comments have been addressed and the Plans revised.

31. The extents and location of TD#3 with respect to the wall/stairs should be clarified on Sheet C500 (57 Jackson).

HEI Response (07/21/2022): The design of TD#3 has been clarified on the Plans.

Nitsch Response (08/11/2022): The extents of the trench drain were clarified on the plans. Comment closed.

32. It appears that runoff from the east side of the Amenity Building will drain towards the building. The Applicant should provide spot grades or area drain to show positive pitch away from the building.

HEI Response (07/21/2022): Area drains have been added to the Plans to provide positive drainage away from the building.

Nitsch Response (08/11/2022): The Rim on AD#21 appears to have a typo. DMH#34 should be added to the rim/invert table on Sheet C501

HEI Response (08/23/2022): The rim on AD#21 has been corrected. DMH #34 has been added to the drainage schedule on Sheet C501.

33. Please note that the area drains proposed onsite are 10 inches in diameter and all pipes out are 12 inches in diameter. A reducer will be required to make the connection from the 10-inch structure to the 12-inch pipe. The 10-inch diameter will also be the hydraulic restrictor (as it is the smaller of the two [2] diameters) and should be accounted for in the closed drainage calculations.

HEI Response (07/21/2022): The area drains have been changed to 15" Nyloplast area drain structures. A detail has been added to the Plans.

Nitsch Response (08/11/2022): The Plans have been revised to show 15-inch area drains and a 15-inch area drain with dome grate detail has been added to the plans. The Applicant should clarify if any area drains are proposed in non-landscaped areas and provide a detail for a non-domed grate if any are proposed in hardscape surfaces.

HEI Response (08/23/2022): Highpoint has added a Nyloplast flat grate area drain detail to Sheet C704/C805 and identified flat grate area drains in the drainage schedule on Sheet C501.

34. It appears there are contours missing in the roadway on Sheet C500 between the 57 Jackson and 75 Jackson buildings in between WQU4 and DMH#24. The Applicant should review and address for clarity.

HEI Response (07/21/2022): The Plans have been updated for coordination with the landscape plans. A note has been added to refer to the Landscape Plans for details.

Nitsch Response (08/11/2022): All grading should be indicated on the Grading & Drainage Plan so that it is possible to review the relationship between the proposed drainage structures and drainage patterns.

HEI Response (08/23/2022): Contours have been added within the drive aisle in the area between WQU #4 and DMH #24. Further detailed grading plans will be submitted as part of the construction plan set.

35. The Stormwater Report shows a portion of the roof from 75 Jackson Road draining to SWM-4, however there is no roof drain from this portion of the building shown on C500.

HEI Response (07/21/2022): The roof drain line discharging to SWM-4 has been added to the Plans.

Nitsch Response (08/11/2022): The roof drain has been added to the Plans. Comment closed.

36. The Applicant should review the proposed deep manholes and confirm if special accommodations are needed for future entry into the structures.

HEI Response (07/21/2022): Manhole steps will be installed for access. Structure design will be reviewed during issuance of shop drawings.

Nitsch Response (08/11/2022): Given the constructability concerns, we recommend that the manhole structures be reviewed during the Design Phase to be accurately detailed in the Plan set and details.

HEI Response (08/23/2022): Manholes sizes greater than 10-feet in depth have been increased to 5-foot diameter structures. The Applicant's Engineer will coordinate final manhole designs with the pre-

cast manufacturer during show drawing.

37. The Applicant should confirm manhole sizing is adequate where multiple inlet pipes enter a manhole.

HEI Response (07/21/2022): Final manhole diameters to be confirmed with precast concrete manufacturer and reviewed upon issuance of shop drawings.

Nitsch Response (08/11/2022): Given the constructability concerns, we recommend that the manhole structures be reviewed during the Design Phase to be accurately detailed in the Plan set and details.

HEI Response (08/23/2022): Sewer manhole sizes have been increased to 5-foot diameter where multiple pipes enter and exit the structure. The Applicant's Engineer will coordinate final manhole designs with the pre-cast manufacturer during show drawing.

38. Provide a drainage area diagram to show the subcatchments going to the rain gardens and porous pavement.

HEI Response (07/21/2022): A rain garden drainage area diagram has been added to the Stormwater Report.

Nitsch Response (08/11/2022): The rain garden drainage area diagram has been provided. Comment closed.

39. The Applicant should review the drainage schedule for the following inconsistencies:

a. The invert of the pipe out of DMH#11 is 1 foot higher than the pipes into the structure. The pipe elevations should be revised so that the outlet pipe is a minimum 0.1 feet lower than the inlet.
HEI Response (07/21/2022): This has been revised.
Nitsch Response (08/11/2022): Comment closed.

b. The inverts for the pipe from CB#29 to DMH#24 appear to be set to a default value.
HEI Response (07/21/2022): This has been revised.
Nitsch Response (08/11/2022): Comment closed.

c. There is a spot grade of 327.35 adjacent to CB#25 and CB#24 which are at rim elevation 327.40. Confirm elevations are current as it appears water may bypass catch basins.
HEI Response (07/21/2022): This has been revised.
Nitsch Response (08/11/2022): Comment closed.

d. The pipe out of AD#8 is shown as a 10-inch pipe, but the pipe in is shown as 12 inches in diameter. Confirm if the outlet pipe should be 12 inches in diameter.
HEI Response (07/21/2022): This has been revised.
Nitsch Response (08/11/2022): Comment closed.

e. CB#4 and CB#5 are shown as 11 feet deep. Is it possible to make these shallower structures?
HEI Response (07/21/2022): CB#4 and CB#5 discharge to deep manholes and therefore are deep basins to avoid constructing a drop manhole.
Nitsch Response (08/11/2022): The Applicant should confirm that catch basins with such depth can be maintained with standard equipment.

HEI Response (08/23/2022): CB #4 and CB #5 have been reviewed by Highpoint and believe to be adequately sized based on their respective connections.

f. The pipe from CB#9 to DMH#6 is sloping backwards towards CB#9 instead of DMH#6.
HEI Response (07/21/2022): This has been revised.
Nitsch Response (08/11/2022): Comment closed.

g. The pipe from CB#14 to DMH#8 is sloping backwards towards CB#14 instead of DMH#8.

HEI Response (07/21/2022): This has been revised.
Nitsch Response (08/11/2022): Comment closed.

h. The rim of CB#32 is set too low. The rim elevation and pipes from the structure should be raised. This may help raise some downstream pipes.
HEI Response (07/21/2022): This has been revised.
Nitsch Response (08/11/2022): Comment closed.

i. AD#8 is shown as 19 feet deep. A drop manhole should be used in place of an area drain to manage this depth.
HEI Response (07/21/2022): Pipe inverts along this pipe run have been adjusted and AD#8 has less than a 7' drop from rim to invert.
Nitsch Response (08/11/2022): Comment closed.

j. The rim elevation of DMH#32 and the invert in from AD#17 appear to have a typo. These elevations should be revised.
HEI Response (07/21/2022): This has been revised.
Nitsch Response (08/11/2022): Comment closed.

k. Confirm constructability of WQU#3 with four (4) inlet pipes and 0.1-foot drop through the structure.
HEI Response (07/21/2022): Contech is reviewing the structures for construction feasibility. Any necessary changes will be incorporated into the construction documents.

Nitsch Response (08/11/2022): The plans should be updated to reflect Contech's review.

HEI Response (08/23/2022): Contech provided Highpoint with specific WQU's designs based upon the layout of the subcatchment areas and storm drain-pipe network layout depicted on the Plans. The WQU details shown on the plans are provided by Contech based upon this design coordination.

CONFORMANCE WITH THE MASSDEP STORMWATER STANDARDS – 57 AND 75 JACKSON ROAD

In accordance with **974 CMR 4.08(2)(a),** Nitsch Engineering reviewed the stormwater design and calculations for general conformance with the Massachusetts Department of Environmental Protection (MassDEP) Stormwater Standards. Based on this review, Nitsch Engineering offers the following comments:

40. **Standard 3** requires infiltration structures must be able to drain fully within 72 hours. How was the hydraulic conductivity of 0.075 feet/hour determined for the Drawdown Analysis?

HEI Response (07/21/2022): The Drawdown Analysis has been revised to reflect the infiltration rate of 3.9 in/hr (0.325 ft/hr) which was determined based upon infiltration testing results obtained in the field.

Nitsch Response (08/11/2022): The drawdown calculations have been revised. Comment closed.

41. **Standard 4** requires stormwater management systems shall be designed to remove 80% of the average annual post-construction load of Total Suspended Solids (TSS). Refer to comment #21. The treatment train labeled Rain Garden Overflowing to Existing Basin does not appear to meet TSS requirements.

HEI Response (07/21/2022): See response to Comment #21.

Nitsch Response (08/11/2022): Understood. For the record, this comment should refer to Comment 22. Comment closed.

42. **Standard 4** requires areas with soils with infiltration rates of 2.4 inches/hour or greater to provide 44% pretreatment prior to infiltration. The 44% pretreatment should be clearly identified in the report.

HEI Response (07/21/2022): The MassDEP worksheets show that more than 44% TSS removal will occur in all treatment trains prior to infiltration in either the on-site infiltration chambers or the Givry stormwater pond. See Attachment B in the stormwater report for more details.

Nitsch Response (08/11/2022): Understood. Comment closed.

43. **Standard 5** requires area with a Land Use with Higher Potential Pollutant Loads provide 44% pretreatment prior to infiltration. Based on the anticipated vehicle trips per day, the site should be considered a LUHPPL and the 44% pretreatment should be clearly identified in the report.

    HEI Response (07/21/2022): See response to Comment #42.

    Nitsch Response (08/11/2022): Understood. Comment closed.

44. **Standard 8** is covered by a National Pollutant Discharge Elimination System (NPDES) Construction General Permit, but no Stormwater Pollution Prevention Plan (SWPPP) has been submitted. A SWPPP should be submitted to the DEC before land disturbance begins.

    HEI Response (07/21/2022): The SWPPP will be submitted to DEC staff for review prior to construction.

    Nitsch Response (08/11/2022): Comment closed upon Stormwater Pollution Prevention Plan (SWPPP) receipt by the DEC.

45. **Standard 10** prohibits illicit discharges to the stormwater management systems. The Illicit Discharge Statement should be provided and signed and stamped by the engineer of record before construction.

    HEI Response (07/21/2022): An illicit discharge statement will be provided to DEC staff prior to construction.

    Nitsch Response (08/11/2022): Comment closed upon statement receipt by the DEC.

If the Commission has any questions, please call.

Very truly yours,

Nitsch Engineering, Inc.

Paige Simmons

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Approved by:

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PES/JLJ/ajc