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August 18, 2025

Neil Angus, FAICP CEP, LFA, LEED AP
Devens Enterprise Commission
Director/Land Use Administrator
33 Andrews Parkway
Devens, MA 01434

RE: Nitsch Project #9419
Proposed Building Addition
18 Independence Drive
Site Plan and Stormwater Review
Devens, MA

Dear Neil Angus:

Nitsch Engineering (Nitsch) received and reviewed the following updated documents:

- Level 2 Unified Permit Application, prepared by McCarty Engineering, Inc., revised August 6, 2025;
- Stormwater Management Report, prepared by McCarty Engineering, Inc., revised August 6, 2025;
- Waiver Request, prepared by McCarty Engineering, Inc., dated August 6, 2025; and
- Response to Comments, prepared by McCarty Engineering, Inc., dated August 6, 2025.

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

For clarity, we have provided Nitsch's initial comments from July 22, 2025, in normal font; the responses from McCarty Engineering, Inc. (MEI) on August 6, 2025, are in **bold** font; and Nitsch's updated responses are provided in blue font.

DEVENS ENTERPRISE COMMISSION (DEC) SITE DESIGN STANDARDS

1. **Exhibit C of the Zoning By-Laws** requires a maximum of 2 parking spaces per 1000 square feet of gross floor area (GFA) for Manufacturing and Industrial Uses. The employee count is proposed to increase by 67, with 38 proposed new spaces. The Applicant should provide the GFA for the entire extent of the building and provide a Plan with the entire extent of the parking lot shown to confirm compliance with this standard, along with a narrative explaining how the parking will accommodate the expansion and provide justification for the number of spaces proposed.

   MEI Response (08/06/2025): MEI has revised the parking and building area tables to clarify the revised parking count as part of the proposed project. MEI has also prbv ovided a parking figure to show the existing parking on site. The total parking provided as a result of the project accommodates the additional employees that will be added to the site. As stated in the narrative these employees will be spread across different shifts, thus all the spaces will not be occupied at one time and allow the spaces to be used by visitors during various times of the day.

   Nitsch Response (08/18/2025): Per the parking and building area tables provided on Sheet 5, the Applicant has stated that the maximum required parking spaces is 610 spaces. However, per Exhibit C of the Zoning By-Laws, we believe that the maximum number of parking spaces is 752 (see calculations below):

Use	Required Parking, Per Exhibit C of Zoning By-Laws	GSF	Max Required Parking
Manufacturing/Industrial	2 per 1000 SF GFA	268,433	537
Research and Development Offices	3 per 1000 SF GFA	30,900	93
Distribution	1 per 1000 SF GFA	122,193	122
		Total	**752**

The Applicant should revise the parking tables provided on Sheet No. 5. However, based on the employee counts and narrative describing employee shifts, Nitsch believes that the proposed parking of 419 spaces is adequate.

2. **974 CMR 3.04(3)(a)1.a** requires that in all districts, parking lots shall be located to the rear and sides of the buildings with only visitor, handicapped, and preferential parking situated within the Front Yard setback. Preferential parking includes spaces for electric, hybrid and alternative fuel vehicles, carpools, vanpools, and other ridesharing vehicles. Parking allowed in the front of the building shall be limited to 10% of the required parking spaces in accordance with 974 CMR 3.04(3)(a)1.f. The remainder of the parking serving the project shall not be located in front of the building façade. Given that the site has frontage on two sides, the front entrance of the building should be clarified on the plans to confirm that the intent of this requirement has been met. It is our understanding that the proposed parking lot is located to the side of the building, and that the majority of the existing non-conforming parking lot in the front of the building is outside of the Project Limit of Work. The Applicant has requested a waiver from 974 CMR 3.04(3)(a)1.a.

   MEI Response (08/06/2025): The front of the building is located along Independence Drive, thus the section of building along Saratoga Boulevard is considered the side. As discussed with DCC, a waiver has been requested from this regulation.

   Nitsch Response (08/18/2025): Given the conditions of the site, we feel that the Applicant has met this requirement to a practicable extent. Comment closed upon DEC acceptance.

3. **974 CMR 3.04(3)(a)1.c** mandates that handicapped spaces (dimensions, locations, etc.) shall conform to the Massachusetts Architectural Access Board (521 CMR). The number of designated handicapped parking spaces is based on the total number of spaces required (refer to table below). Handicapped parking spaces may be constructed in phases or reserved, although an adequate number shall be constructed with the initial phase. Additional handicapped spaces shall be constructed when the reserve or phased parking is constructed.

Total Parking Spaces	Required Handicapped Spaces
15 to 25 spaces	1 designated space
26 to 40 spaces	5%, but not less than 2
41 to 100 spaces	4%, but not less than 3
101 to 200 spaces	3%, but not less than 4
201 to 500 spaces	2%, but not less than 6
501 to 13,000 spaces	1.5%, not less than 10

While we believe the Applicant has met this requirement, they should provide a Plan with the entire extent of the parking lot shown to confirm the total number of parking spaces and designated handicapped spaces is compliant with this requirement.

MEI Response (08/06/2025): There is a total of 14 accessible parking spaces located throughout the site, 12 existing and 2 new spaces. MEI has provided a parking figure to show the location of the existing parking.

Nitsch Response (08/18/2025): This comment has been addressed by the Applicant; comment closed.

4. **974 CMR 3.04(3)(a)1.h** requires bicycle storage facilities for all developments. The Applicant should review and address this requirement.

   MEI Response (08/06/2025): A bicycle storage facility has been shown on Sheet 5. Contractor will verify proposed location so as to not conflict with existing landscaping.

   Nitsch Response (08/18/2025): This comment has been addressed by the Applicant; comment closed.

5. **974 CMR 3.04(3)(a)2.a** requires that parking lots, loading dock areas, and driveways shall be constructed of bituminous concrete pavement. The construction specifications shall be the following: Compacted subgrade, free of frost, roots, and debris; 8 inches of compacted gravel sub-base conforming to Massachusetts Highway Department Standard Specifications for Highways and Bridges (MHDSSHB) M.1.03.0 Type A; 4 inches of compacted gravel base conforming to MHDSSHB M.1.03.0 Type B; 2 inches of bituminous concrete binder course; 1½ inches of bituminous concrete top course. The Applicant should clarify on the detail and provide additional information to confirm compliance.

   MEI Response (08/06/2025): The Bituminous Concrete Detail on Sheet 13 has been revised to state material to conform to MHDSSHB.

   Nitsch Response (08/18/2025): This comment has been addressed by the Applicant; comment closed.

6. **974 CMR 3.04(3)(a)2.b** mandates that the portion of the parking lots, loading docks, and driveway subject to truck traffic, truck and container storage, and other railroad related vehicles, shall be constructed of bituminous concrete pavement. The construction specifications shall be the following: Compacted subgrade, free of frost, roots, and debris; 8 inches of compacted gravel sub-base conforming to Massachusetts Highway Department Standard Specifications for Highway and Bridges (MHDSSHB) M.1.03.0 Type A; 4 inches of compacted gravel base conforming to MHDSSHB M.1.03.0 Type B; 3 inches of bituminous concrete base course; 1½ inches of bituminous concrete binder course; 1½ inches of bituminous concrete top course. We note that the Applicant is specifying “Heavy duty bituminous concrete” for the loading dock and driveway area on Sheet No. 5, but no detail is provided. The Applicant should review and address this requirement.

   MEI Response (08/06/2025): A note is shown adjacent to the Bituminous Concrete Pavement Detail stating, “Heavy Duty Pavement 4.5” Bit. Conc. Pavement Typel I-1 placed in 2 layers, 2” top course over 2.5” binder course”. This pavement depth exceeds the requirement as stated above. As noted above the Bituminous Concrete Detail has been revised to state material to conform to MHDSSHB.

   Nitsch Response (08/18/2025): This comment has been addressed by the Applicant; comment closed.

7. **974 CMR 3.04(3)(a)(2.f)(v)** requires that Low Impact Development (LID) techniques shall be incorporated in accordance with 974 CMR 4.08 to the maximum extent feasible. The Applicant should consider incorporating additional LID techniques. Possible techniques include, but are not limited to, constructing the reconfigured parking stalls with permeable pavement.

MEI Response (08/06/2025): The reconfigured parking stalls shown on the north and east side of the building are located within the limits of the existing pavement on site with no permeable pavement adjacent to the area. As such MEI is maintaining the existing condition in this area. Permeable pavement is being provided in the proposed parking spaces located on the west side of the building.

Nitsch Response (08/18/2025): Given the limited proposed work in this portion of the site, we feel that the Applicant has addressed this comment to a practicable level. Comment closed upon DEC acceptance.

8. **974 CMR 3.04(3)(a)(4.d**) decrees that commercial, Industrial, and Multi-Family Residential driveway widths shall be no greater than 24 feet for a two-way driveway and 14 feet for a one-way driveway. We note that the loading dock driveway intersecting Independence Drive is 32 feet wide. We understand that the driveway must provide access for large vehicles, however, per turning movements provided by the Applicant on Sheet 11, we believe that there may be opportunities to reduce this width to be closer to compliance. The Applicant should review and address this requirement to the maximum extent practicable. Similarly, there appears to be opportunities to reduce the existing driveway entrance off of Independence to minimize pavement and maximize safety.

MEI Response (08/06/2025): The turning movements shown on Sheet 11 are for the Devens Aerial fire apparatus, which is a smaller vehicle than a WB-67, which is shown on Sheet 10. As shown on Sheet 10, the proposed driveway is designed to the minimum required for the WB-67 to enter and exit the facility.

Nitsch Response (08/18/2025): As the loading dock is intended for use by WB-67 sized vehicles, we feel that the Applicant has addressed this comment to a practicable level; comment closed.

9. **974 CMR 3.04(3)(a)(4.e)** mandates that Intersection sight distances shall be provided in accordance with current AASHTO guidelines for prevailing (85th percentile) speeds on adjacent ways to ensure adequate safety. While we believe this standard has been met, the Applicant should provide documentation to confirm compliance.

MEI Response (08/06/2025): Intersection Sight Distances have been provided on Sheet 5. Based on the MADOT Intersection Sight Distance Requirements, under Case B: Intersections with Stop control on the minor street, the required sight distance is 335 feet for a left turn out of the sight and 290 feet for a right turn out of the site. Both entrances far exceed the required sight distances.

Nitsch Response (08/18/2025): This comment has been addressed by the Applicant; comment closed.

10. **974 CMR 3.04(3)(a)(4.h)** mandates that applicants are encouraged to utilize pervious paving materials for the construction of driveways. Refer to 974 CMR 4.08(5) for LID techniques and pervious paving construction details. We note that neither driveway is constructed with pervious paving materials. However, given that both proposed driveways are subject to heavy truck traffic, we agree with the Applicant's approach of constructing driveways with bituminous concrete. There may still be opportunities for additional porous pavement in passenger vehicle parking spaces on the north and east side of the addition.

MEI Response (08/06/2025): As stated in the response to Comment 7 above, MEI is maintaining the existing condition of pavement in this area.

Nitsch Response (08/18/2025): Given the limited proposed work in this portion of the site, we feel that the Applicant has addressed this comment to a practicable level. Comment closed upon DEC acceptance.

11. **974 CMR 3.04(3)(a)(5)** requires that access to buildings shall be kept clear of hazardous substances and obstacles that may, in the opinion of the fire officials, impede the proper placement of fire apparatus and personnel in case of emergency. The Applicant shall obtain a letter from the Devens Fire Chief stating there is adequate access for fire equipment. Access for fire equipment shall be provided and maintained on at least two sides of the building. Fire lanes shall be designated with pavement marking and signage. The Applicant should provide a letter from the Devens Fire Chief to confirm compliance with this requirement.

MEI Response (08/06/2025): MCI has submitted the Plan Set to Devens Fire for review. MEI received an email from Deven's Fire on 8/5/2025 stating that they are satisfied with the access. MEI will continue to coordinate with Devens Fire on any other requirements.

Nitsch Response (08/18/2025): The Devens Fire Chief confirmed that the proposed driveway will provide adequate access for fire equipment. However, the Devens Fire Chief has also requested improved surface access to the Fire Department Connection where the fire pump room is located and the installation of a fire hydrant within 100 feet of the Fire Department Connection. The Applicant should review and address these requirements.

12. **974 CMR 3.04(6)(a)(1.c)** requires that principle building entries shall have an accessible pedestrian walkway connecting to pedestrian walkways within abutting Rights-of-Way or ways. Given that the site has frontage on two sides, the front entrance of the building should be clarified on the plans to confirm that the intent of this requirement has been met.

MEI Response (08/06/2025): The front entrance of the building is part of the existing building and is located along Independence Drive. A connection of the sidewalk at the entrance and Independence Drive has been added to Sheet 5.

Nitsch Response (08/18/2025): Nitsch does not take exception to providing a pedestrian connection. However, the Applicant should provide a detail for the proposed crosswalk pavement markings and confirm that the existing principal building entry to be used for access to the proposed addition meets accessibility requirements.

13. **974 CMR 3.04(6)(a)(2.b)** decrees that vertical granite curb, where provided, shall be Type VA4 as specified in Section M9.04.1 of the Massachusetts Highway Department Standard Specifications For Highways and Bridges (MHDSSHB) with a 6-inch reveal. Granite transition stones shall be installed when vertical granite curb changes profile to sloped granite curbing or Cape Cod berm or where curbing transitions to areas with no curbs. The Applicant should confirm that a 6-inch reveal is provided where vertical granite concrete curb is used and clarify on the detail. Additionally, there are no transition stones indicated on the Plans. The Applicant should review and address this requirement.

MEI Response (08/06/2025): The vertical granite curb detail on Sheet 13 has been updated to show a 6" reveal. Additionally, transition curbing has been added and noted on Sheet 5 of the Plan Set.

Nitsch Response (08/18/2025): This comment has been addressed by the Applicant; comment closed.

14. **974 CMR 3.04(6)(a)(2.e)** decrees that catch basins shall have curb inlet stones with transition stones when Cape Cod berm is used. The Applicant should confirm that they are using curb inlet stones with transition stones and clarify on the detail.

    MEI Response (08/06/2025): Granite throat stone and granite transition stone are called out on the Double Catch Basin Detail on Sheet 12.

    Nitsch Response (08/18/2025): This comment has been addressed by the Applicant; comment closed.

15. **974 CMR 3.04(6)(a)(2.f)** requires that Cape Cod Berm, where provided, shall be a Modified Bituminous Concrete Berm - Type A (1-inch width) as specified in Section 106.1.0 of the Construction Standards of the MHDSSHB. The Applicant should confirm that they are using a Type A and clarify on the detail.

    MEI Response (08/06/2025): 1 foot width for the berm is shown on the Bituminous Concrete Berm Detail on Sheet 13, which conforms to the Type A Berm. MEI has updated the detail to note Type A Berm.

    Nitsch Response (08/18/2025): This comment has been addressed by the Applicant; comment closed.

16. **974 CMR 3.04(6)(a)(4.c)** decrees that open Storage areas shall be designated on site plans. No open or exterior storage is permitted in undesignated locations. While we believe this requirement has been met, the Applicant should provide confirmation that no open storage areas are located within the Project Limit of Work.

    MEI Response (08/06/2025): No open storage areas are proposed as part of this project.

    Nitsch Response (08/18/2025): Noted; comment closed.

17. **974 CMR 3.04(6)(a)(4.d)** requires that recycling storage and management details shall be provided. For facilities that generate food waste, details on the collection, storage and management of compostable materials shall be provided. The Applicant should confirm that food waste will not be generated at this site.

    MEI Response (08/06/2025): The proposed addition will not generate any food waste. Any recycling storage and management will be done in accordance with existing operations.

    Nitsch Response (08/18/2025): Noted; comment closed.

18. **974 CMR 3.04(6)(a)(5)** mandates that Loading docks shall be located to the sides and rear of buildings and shall not be located forward of the front facade of the building. Given that the site has frontage on two sides, the Applicant should explain the proposed layout and how it meets the intent of this requirement. A waiver request from this requirement may be necessary.

    MEI Response (08/06/2025): The proposed loading docks are located on the western side of the building. As previously stated, the front of the building is located along Independence Drive, thus the proposed docks are located along the side of the building and do not extend beyond said front. MEI defers to DEC if a waiver is required for the location of the loading docks.

    Nitsch Response (08/18/2025): Given the context of the site, we believe the Applicant has met the intent of this requirement to a practicable extent. Comment closed upon DEC acceptance.

SITE PLAN DESIGN AND CALCULATIONS

19. Nitsch notes that two sanitary sewer lines are shown within the proposed building addition footprint on Sheet No. 6. The Applicant should provide additional documentation to demonstrate that these sanitary sewer lines will comply with the plumbing code.

    MEI Response (08/06/2025): The sewer lines will be designed according to plumbing code and will be reviewed as part of the building permit process.

    Nitsch Response (08/18/2025): The Applicant should confirm with the Department of Public Works (DPW) that they have no additional requirements or comments.

DPW COMMENTS

The DPW has provided these comments to the Applicant. Nitsch is included these comments for record-keeping purposes only. The Applicant should review and address these comments.

DPW-1. Existing Fire Service Water Line: The fire service line (maybe 8" or 10"?) that serves the building from the Saratoga Boulevard side of the existing building appears to be routed through proposed work on that side of the building. In a July 11 email, Patrick McCarty indicated he had a crew digging a test pit to determine the elevation of that water pipe to ensure the proposed work would not impact that pipe. Patrick should provide information about the test pit results to confirm there will be no impact from the proposed work on the pipe.

DPW-2. No proposed additional connection to existing water lines is shown outside of the proposed building expansion to provide water service to the proposed building. I believe that is because the plan is to provide water via the existing building water supply lines. Patrick should confirm that this is the case.

DPW-3. Devens GIS information indicates the proposed sewer connection to an existing SMH in Independence Drive has to cross several underground utility lines, including communications lines, a 13.8 kV electric ductbank with six 6" concrete-encased PVC ducts, a 12" water main and a 24" RCP drain. The invert shown for the RCP drain indicates possible interference or insufficient clearance with the proposed 6" sewer line. Have any test pits been conducted to ensure the proposed sewer line can be threaded through all those existing utilities as a gravity line without any dips and rises in the line?

DPW-4. Is there an existing sewer cleanout in the existing building from which the sewer line is to be extended or a cleanout in the sewer line routed through the proposed building expansion? Reference is made on the Utility Plan to see MEP plans for details about proposed interior sewer line. If that interior sewer line is to be under say a concrete slab, there should be a means of accessing that pipe in case of a blockage.

DPW-5. The invert shown for the proposed sewer line where it enters the existing SMH in Independence Drive results in a drop into the SMH of 2.4'. Depending on the actual constructed invert to get through the existing utilities, the invert will probably be greater than 2'. Devens requires an internal drop for sewer lines with a drop of 2' or more. I didn't see a detail for an internal drop in the construction details. Such a detail should be added to the plans. An example of an internal drop is attached.

DEC STORMWATER DESIGN STANDARDS

General Provisions

20. **974 CMR 3.04(4)(a)(2)** mandates that the DEC encourages Applicants to consider the site's location, abutting and on-site natural resources, and topographic characteristics. The Applicant shall identify all Resource Areas as defined by **974 CMR 4.06(3)**, the anticipated site uses and intensities, and propose an economic, protective, and efficient stormwater management system that is consistent with the requirements of **974 CMR 4.06 and 4.08**. All Applicants shall avoid and/or minimize clearing of mature vegetation. The Applicant is proposing the removal of mature trees located in the landscaped area on the west side of the site to construct a 9-foot tall berm. While we understand the Applicant is providing visual screening to the proposed loading dock, the Applicant should consider alternate landscaping opportunities to maintain the site's existing topographic characteristics and minimize clearing of mature vegetation.

    MEI Response (08/06/2025): Devens has a no export regulation in place, which requires all material at 18 Independence Drive to stay on site. Due to the amount of excavation that will be required to construct the proposed addition, the earth berm on the western side of the site is proposed to not only screen the loading area front the adjacent residential development but is also being used to balance the Cut & Fills to prevent any export material.

    Nitsch Response (08/18/2025): Given that the Applicant is complying with the no export regulation, we feel that the Applicant has addressed this comment to a practicable level; comment closed.

21. **974 CMR 3.04(4)(a)(3)** decrees that Low Impact Development (LID) Stormwater Management design shall be incorporated into the site plan to allow for the full utilization of the property while maintaining the pre-development characteristics of the site as though it were a "green field" (volume, frequency, peak runoff rate) to the maximum extent feasible. Maximizing the use of pervious areas minimizes stormwater runoff from a site, improves stormwater quality, and increases groundwater recharge. Maintenance of these on-site stormwater management systems must be incorporated into facility operations, and is the responsibility of the landowner. For requirements, design standards, and criteria for LID techniques, refer to 974 CMR 4.08. The Applicant must model all land cover within the Project Limit of Work as a green field in the existing HydroCAD model to comply with this requirement for a redevelopment project.

    MEI Response (08/06/2025): The HydroCAD model has been revised to account for the "green field" condition in the existing conditions model.

    Nitsch Response (08/18/2025): This Applicant has addressed the green field requirement; comment closed.

22. **974 CMR 3.04(4)(b)(4)** decrees that 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. There is no post indicator valve indicated on the Plans nor drainage infrastructure specific to the loading area. The Applicant should review and address this requirement.

    MEI Response (08/06/2025): A gate valve has been added to the inlet side of the infiltration basin, between the basin and water quality unit. It is MEI's opinion that having a valve located on the outlet side of the system in the closed position would contain any potential spill in the underground infiltration system and directly infiltrate the spill into the groundwater. By

providing a valve prior to the system in the open position, it could be closed if a spill occurs and prevent any contamination the infiltration system/groundwater. As part of the Werfen Development at 11 Grant Road, valves were installed prior to the infiltration systems in the open position. MEI defers to DCC if a waiver is required from this requirement.

Nitsch Response (08/18/2025): In order to limit potential contamination to the infiltration system, we agree with the approach to place the gate valve on the inlet side of the infiltration basin. Comment closed upon DEC acceptance.

23. **974 CMR 3.04(4)(c)** requires that the applicant shall include a Stormwater Operations and Maintenance Plan in accordance with 974 CMR 4.08(7) as may be applicable. The Site Plan shall specify the construction and post development Maintenance Schedule in detail on the Utility Plan. This will ensure that all parties understand and are aware that a Stormwater Operations and Maintenance Plan exists. The Applicant should review and address the latter portion of this standard by providing a note on Sheet No. 6 referring to Sheet No. 8.

MEI Response (08/06/2025): A note has been added to Sheet 6 to refer to Sheet 8 for the Stormwater Operation and Maintenance Plan.

Nitsch Response (08/18/2025): This comment has been addressed by the Applicant; comment closed.

24. **974 CMR 4.08(1)(c)** requires promoting water conservation and efficiency through stormwater capture, treatment and reuse. The Project should review applicability of this requirement to the building water demand such as irrigation, toilet flushing, or industrial uses.

MEI Response (08/06/2025): No irrigation is proposed as part of this project. All other aspects for water conservation and efficiency for the addition shall be consistent with the existing building.

Nitsch Response (08/18/2025): Noted; comment closed.

25. **974 CMR 4.08(2)(d.ii)** requires that irrigation water be derived from detained treated stormwater (stormwater harvesting) or roof drainage to the maximum extent feasible. On-site cisterns may be installed to store water for irrigation. The Project does not appear to include irrigation, however the Applicant should confirm for clarity.

MEI Response (08/06/2025): No irrigation is proposed as part of the project. Einsteins will be responsible for maintaining landscaping on the property.

Nitsch Response (08/18/2025): Noted; comment closed.

26. **974 CMR 4.08(2)(d.iii)** requires for all stormwater improvements, drainage calculations shall be prepared by the Applicant's Engineer in accordance with the Stormwater Management Standards (SMS**)** requirements and shall include design criteria, pre- and post-development drainage areas, and other information to verify the size and effectiveness of the proposed stormwater management technique. "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. Calculations shall be made separately for each drainage facility, showing its location, the total upstream drainage area, the underlying soil types and the flow paths for the times of concentration, the design runoff, facility size, slope, and capacity and velocity of water through all the site drainage system. Refer to Comment 21 above.

MEI Response (08/06/2025): The HydroCAD model has been revised to account for the "green field" condition in the existing conditions model.

Nitsch Response (08/18/2025): This Applicant has addressed the green field requirement; comment closed.

27. **974 CMR 4.08(2)(d.vi)** requires all projects, including flood management and culvert replacement projects, shall incorporate LID techniques for stormwater management to the maximum extent feasible. For projects proposing traditional closed drainage systems, the Applicant shall demonstrate to the satisfaction of the DEC why LID stormwater management design methods are not feasible. For LID stormwater controls not referenced in this section (974 CMR 4.08) or the Handbook, or for which pollutant removal rates have not been provided, the effectiveness and pollutant removal of the structural control must be documented through prior studies, literature reviews, or other means and receive approval from the DEC before being included in the design of a stormwater management system. Refer to Comment 7 above. The Applicant could consider constructing the reconfigured parking stalls with pervious pavement.

MEI Response (08/06/2025): The reconfigured parking stalls shown on the north and east side of the building are located within the limits of the existing pavement on site with no permeable pavement adjacent to the area. As such MEI is maintaining the existing condition in this area. Permeable pavement is being provided in the proposed parking spaces located on the west side of the building.

Nitsch Response (08/18/2025): Given the limited proposed work in this portion of the site, we feel that the Applicant has addressed this comment to a practicable level. Comment closed upon DEC acceptance.

28. **974 CMR 4.08(3)(c)** requires in addition to compliance with the SMS, the post-development peak rate of stormwater discharge off-site shall not be greater than the pre-development peak rate of stormwater discharge for the 2, 10, 25, 50 and 100-year storm events from any point of discharge on the site. In accordance with Section 2.d.iii. above, pre-development peak rate calculations shall reflect the "green field" site condition, regardless of any existing development or impervious coverage on the site at the time of application. Refer to Comment 21 above.

MEI Response (08/06/2025): The HydroCAD model has been revised to account for the "green field" condition in the existing conditions model.

Nitsch Response (08/18/2025): This Applicant has addressed the green field requirement; comment closed.

29. **974 CMR 4.08(3)(f)** requires banks of wet ponds, swales not within maintained landscaped areas (such as lawns or parking lots), and other channels shall be vegetated with native woody plant material within ten feet of the high water elevation and with herbaceous plant material at the edge of the pond at the high water elevation. Trees shall not be planted on fill embankments. The Applicant should review and address this requirement.

MEI Response (08/06/2025): The expansion of the above ground infiltration basin is not within 10' of the high water elevation. The tree restriction refers to basins associated with stormwater BMP's not landscape features.

Nitsch Response (08/18/2025): Understood; comment closed.

30. **974 CMR 4.08(3)(g)** requires shelves below the design water level (as described in the Stormwater Plan) shall be vegetated with hydrophytic native plant species at a density needed to establish full coverage by the next growing season. Plant plugs or pre-vegetated coir-mesh blankets or carpets are recommended materials. The Applicant should review and address this requirement.

MEI Response (08/06/2025): Plantings within the above ground infiltration basin have been updated to conform to this requirement.

Nitsch Response (08/18/2025): This Applicant has specified the installation of rolls of hay-scented ferns along the bottom of the detention basin. The Applicant should confirm that this species is a hydrophytic native plant species.

31. **974 CMR 4.08(3)(h)** requires recommended 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. Vegetative cover shall consist of native woody plant species installed as live brush or nursery stock, or native grasses. The Applicant should add a stabilization detail to Sheet No. 12 to address the stabilization of steep slopes.

MEI Response (08/06/2025): All proposed slopes on the plan are 3.1 or less, which are considered movable slopes. MEI has updated the straw wattle detail to show a biodegradable filter sock. Refer to Landscaping Plan and Landscaping Maintenance Plan for seeding details.

Nitsch Response (08/18/2025): This comment has been addressed by the Applicant; comment closed.

32. **974 CMR 4.08(3)(i)** 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 AND 60% of the average annual load of Total Phosphorus (TP) related to the total post-construction area on the site. The Applicant should review and address this requirement. The 60% TP removal is likely achieved through the recharge volume provided, however documentation should be provided to confirm. Refer to Comment 49 below for specific comments on TSS removal.

MEI Response (08/06/2025): As stated in 974CMR 4.08(3)(i) Average annual pollutant removal requirements are achieved through one of the following methods:

- **Installing BMPs that meet the pollutant removal percentages developed consistent with EPA Region 1' BMP Accounting Tracking Tool.....**
- **Retaining the volume of runoff equivalent to, or greater than, one (1.0) inch multiplied by the total post-construction impervious surface on the development, or**
- **Meeting a combination of retention and treatment that achieves the above standards, or**
- **Utilizing offsite mitigation in accordance with Section 4.08(3)tb) that meets the above standards within the same USGS HUC12 as the development site**

The proposed stormwater system has been designed to retain in excess of the 1.0-inch water quality volume, thus providing both 90% TSS treatment and 60% TP removal.

Nitsch Response (08/18/2025): This Applicant has provided documentation indicating that proposed stormwater systems have been designed to retain the 1.0-inch water quality volume. This comment has been addressed by the Applicant; comment closed.

33. **974 CMR 4.08(3)(j)** requires that, to support compliance with the Small Municipal Separate Storm Sewer Systems (MS4) Permit, all Best Management Practices (BMPs) must be optimized for the removal of phosphorus. 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. Documentation on Phosphorus removal should be provided.

    MEI Response (08/06/2025): As stated in 974CMR 4.08(3)(i) Average annual pollutant removal requirements are achieved through one of the following methods.
    - **Installing BMPs that meet the pollutant removal percentages developed consistent with EPA Region 1' BMP Accounting Tracking Tool.....**
    - **Retaining the volume of runoff equivalent to, or greater than, one (1.0) inch multiplied by the total post-construction impervious surface on the development, or**
    - **Meeting a combination of retention and treatment that achieves the above standards,' or**
    - **Utilizing offsite mitigation in accordance with Section 4.08(3)(b) that meets the above standards within the same USGS HUCJ 2 as the development site**

    The proposed stormwater systems has been designed to retain in excess of the 1.0-inch water quality volume for the proposed development, thus provides both 90% TSS treatment and 60% TP removal.

    Nitsch Response (08/18/2025): This Applicant has provided documentation indicating that proposed stormwater systems have been designed to retain in excess of the 1.0-inch water quality volume. This comment has been addressed by the Applicant; comment closed.

34. **974 CMR 4.08(4)(a)** requires that recharge basins minimize basin size to 5,000 square feet per basin or less (by using smaller catchment areas and/or alternative stormwater management design methods) and minimize disturbance to natural or re-established vegetated areas to the maximum extent feasible. If a basin exceeds 5,000 square feet, the Applicant shall demonstrate to the satisfaction of the DEC why a smaller size is not feasible. If a basin is a constructed stormwater wetland, it may exceed 5,000 square feet upon approval by the DEC. We note that the proposed subsurface infiltration basin is 5,943 square feet. However, we agree that the size of this subsurface system is appropriate for the proposed inflow area.

    MEI Response (08/06/2025): The proposed basin has been minimized in size to be as close to 5,000 sf as possible while still large enough to handle stormwater runoff as designed. It should be noted that the proposed infiltration system is approximately half the size of what was approved and constructed at 11 Grant Road. MEI defers to DEC if a waiver is required.

    Nitsch Response (08/18/2025): Given the capacity of the sandy soils on site, we believe that the site can support a subsurface system of 5,943 square feet. Additionally, given the proposed inflow area we feel that the Applicant has met this requirement to a practicable extent. Comment closed upon DEC acceptance.

35. **974 CMR 4.08(4)(f)** requires that the floor of all basins/infiltration structure/swales a minimum of four feet above the high groundwater elevation. High groundwater testing shall be conducted before the basin design at the proposed location of each basin in compliance with Title V (310 CMR Section 15.103), as most recently amended or reliable data pursuant thereto shall be provided. The Applicant should provide documentation to confirm high groundwater testing was conducted in the locations of all proposed infiltrating structures.

MEI Response (08/06/2025): MEI request a waiver front this regulation. Testing was conducted within the limits of the proposed underground infiltration system, and due to the nature of the sandy material, MEI was only able to get down 17' in depth before the hole collapsed in or itself. MEI used the depth of the hole as the assumed groundwater elevation and provided a 2' offset to groundwater in accordance with the MADEP Stormwater Handbook as a basis of our design. MEI has also provided a mounding analysis for the basin at the end of the Drainage Report demonstrating that the mound stays within the limits of the proposed basin and will have no impact on the basin storage 72 hours after the rain event. In addition, MEI is maintaining the elevation of bottom of the existing at grade infiltration basin as part of the basin expansion, thus did not conduct any additional testing in this area as groundwater depths on site historically are well below the required 4' offset. An updated waiver request has been submitted.

Nitsch Response (08/18/2025): Given the soil conditions at the site, we feel that the Applicant has met this requirement to a practicable extent. Comment closed upon DEC acceptance.

36. **974 CMR 4.08(4)(g)** requires a falling head soil permeability test in retention/infiltration basins before the basin design in all basins and infiltration structures. We understand that the project Site has been previously developed, and falling head soil permeability tests may have been conducted in compliance with previous submissions. The Applicant should provide the results of any previously conducted falling head soil permeability tests. If no prior falling head permeability tests have been conducted, we recommend tests be performed in the location of the proposed infiltration basin, subsurface infiltration system, and permeable pavement locations to ensure it will perform as designed. The Applicant should review an address this requirement.

MEI Response (08/06/2025): MCI request a waiver from this regulation. MEI's drainage analysis is based or the Static Method, which under the Massachusetts Stormwater Handbook, does not require a falling head permeability test to be performed, but instead is based on the Rawl's Rates. The Rawls's Rates are derived through a standard deephole soil observation.

Nitsch Response (08/18/2025): Nitsch agrees with this approach given the soil conditions on site. Comment closed upon DEC acceptance.

37. **974 CMR 4.08(4)(i)** requires fencing and/or screening of stormwater detention/retention basins if the DEC determines that safety or appearance require such measures. The DEC will require that this area be screened. The Applicant should review and address this requirement.

MEI Response (08/06/2025): The at grade infiltration basin is an expansion of the existing basin on site, which does not have any fencing around it, thus MEI is maintaining the existing condition. MCI defers to DEC if a waiver is required.

Nitsch Response (08/18/2025): While we understand that the existing basin with no screening is a nonconforming existing condition, the Applicant should consider opportunities to incorporate screening measures.

38. **974 CMR 4.08(5)(b)** mandates **permeable paving** be used where the underlying soils have a permeability of at least 0.3 inches per hour but shall not be used on high-traffic/high speed areas or on stormwater "hotspots" with high pollutant loads. Permeable paving shall meet the SMS specifications (or alternatives approved by the DEC), in addition to the following:

- Lined on the sides with a non-woven geotextile fabric to prevent influx of fines (no liner on bottom).

- A gravel trench surrounding the edge of the pavement connecting to the stone reservoir below the surface of the pavement may be required as a backup in the event of surface clogs.
- Installed by a qualified contractor with experience in permeable paving installation.
- Specification layer depths required by the SMS may be increased based on volume storage requirements.

The Applicant should review the Permeable Pavement Detail and update/add notes where required to meet the SMS specifications.

MEI Response (08/06/2025): The Porous Pavement Detail that is provided on Sheet 13 was previously reviewed and approved by Nitsch and DEC after revisions as part of the 11 Grant Road (Werfen) development.

Nitsch Response (08/18/2025): Noted; comment closed.

39. **974 CMR 4.08(6)(b)** requires Closed Drainage Systems (CDS) and swales shall be designed to accommodate the 25-year storm event based on the Rational Method without surcharging. The CDS shall be designed in accordance with the SMS. Intensity/duration/frequency curves for the Worcester area, as presented in Technical Paper 40 of the National Weather Service and the Massachusetts Hydrology Handbook for Conservation Commissioners, March 2002, as amended, shall be used in the drainage design calculations. The minimum time of concentration shall be five minutes. The Applicant has provided analysis of the Closed Drainage System using the TR-20 method by modeling the 100-year storm in HydroCAD. While we believe the proposed CDS complies with this requirement, the Applicant should provide additional information to confirm compliance, along with a grate capacity calculation for the proposed catch basins.

MEI Response (08/06/2025): Catch Basin and Pipe Sizing Calculations have been provided as part of the revised drainage analysis. MEI's drainage analysis is based on the NRCC Extreme Precipitation values which exceed the TP-40 values. The Catch Basin calculation accounts if a double catch basin is required. In this case both catch basins are required to be double Catch Basin and Pipe Sizing spreadsheets note that the minimum time of concentration is 5 minutes and the rainfall intensity frequency is based on the Worcester area.

Nitsch Response (08/18/2025): The Applicant has provided drainage analysis to confirm adequate grate capacity; comment closed.

40. **974 CMR 4.08(6)(e)** requires details for all drainage structures shall be provided. It appears neither an Infiltration Basin nor a Sediment Forebay Detail were provided. Additionally, the Applicant should review the requirement upon any updates to the Drainage Plan.

MEI Response (08/06/2025): MEI has provided a typical detail for an at grade infiltration basin and sediment forebay on Sheet 15. It should be noted that the at grade infiltration basin is an expansion of the existing basin on site.

Nitsch Response (08/18/2025): The Applicant has provided details for all drainage structures; comment closed.

41. **974 CMR 4.08(6)(f)** requires flow capacities shall be calculated, using two feet per second (fps) minimum velocity and 10 fps maximum velocity under a 2-to-25 year design storm event. The designer shall account for partial pipe flow capacities, if applicable to the design. The Applicant should take this requirement into consideration when providing the closed drainage analysis. Per sheets 158-162, it

appears pipes do not achieve the minimum of 2 fps in the 2-year design storm event. The Applicant should provide additional information to confirm compliance with this standard.

MEI Response (08/06/2025): Catch Basin and Pipe Sizing Calculations have been provided as part of the revised drainage analysis and falls within the 2 fps and 10 fps design criteria.

Nitsch Response (08/18/2025): We note that the flow from TD 1 to DMH 1 and from RL 1 to DMH 1 slightly exceeds the maximum velocity of 10 fps. However, the flow from these pipes is contained within the drainage system and is eventually directed towards the proposed subsurface infiltration system. Further, the Applicant is proposing HDPE pipes, which are generally more resistant to erosion and corrosion when compared to RCP pipes. Nitsch does not take exception with this minor increase in velocity; comment closed upon DEC acceptance.

42. **974 CMR 4.08(6)(h)** requires sub-surface infiltration systems are considered closed drainage systems and shall at a minimum meet an 80% TSS removal rate prior to infiltration to reduce maintenance and potential for system failure and replacement.

    The TSS Removal Sheet on page 55 of the Stormwater Management Report and the proprietary documentation for the HydroDome indicates that the Water Quality Unit has a TSS removal rate of 76%. The Applicant should review and address this requirement.

    MEI Response (08/06/2025): MEI has provided and updated TSS sheet showing that 80% infiltration is achieved prior to infiltration through the Water Quality Unit and the Isolator Row which acts as a sediment forebay prior to infiltration.

    Nitsch Response (08/18/2025): The Applicant has addressed this comment; comment closed.

43. **974 CMR 4.08(1)** requires an Operation and Maintenance Plan (O&M Plan) for stormwater management systems at the time of application for all projects. The O&M Plan shall be designed to ensure compliance with the Massachusetts Surface Water Quality Standards (314 CMR 4.00), the Stormwater Plan and the DEC annual stormwater reporting form requirements. The Applicant should review the submitted O&M Plan to ensure it complies (also refer to Comment 23 above). Once any updates have been made, the O&M Plan must be signed by the Owner and resubmitted.

    MEI Response (08/06/2025): O&M has been updated as part of the revised drainage analysis. O&M has been signed by the representative and facility manager for SMC.

    Nitsch Response (08/18/2025): The Applicant has provided an updated O&M Plan; comment closed.

STORMWATER DESIGN AND CALCULATIONS

44. The proposed drainage Areas 11 and 12 shown on Figure 3 – Proposed Watershed Plan should be updated to reflect the area that drains to DCB-1 and is conveyed to the proposed subsurface infiltration basin.

    MEI Response (08/06/2025): Drainage Areas have been revised as part of the updated Drainage Analysis.

    Nitsch Response (08/18/2025): The Applicant has updated the drainage areas; comment closed.

45. The HydroCAD model should be updated to better reflect the Plans and site hydrology as follows:

a. It is unclear how the area draining to the permeable pavement system will reach DCB-1 and ultimately the subsurface infiltration system.
b. It is unclear how the area draining to the permeable pavement system will reach the at grade infiltration system.

MEI Response (08/06/2025): The permeable pavement has been excluded from the revised Drainage Analysis. The revised Drainage Analysis still meets the stormwater requirements without the permeable pavement.

Nitsch Response (08/18/2025): The Applicant has excluded the permeable pavement from the revised drainage analysis; this comment is void.

46. The invert of the OCS-2 is labeled as 249.0 on Sheet No. 6, but the Outlet Control Structure detail provided on Sheet No. 12 indicates that the invert is 249.75. Additionally, the Stormtech Chambers detail provided on Sheet No. 16 indicates that the bottom connection invert is 249.88. The Applicant should address these discrepancies.

MEI Response (08/06/2025): Elevations for the OCS as well as the infiltration system have been updated accordingly. Bottom Connection invert is set slightly higher than the bottom of chamber constructability from the manifold to the chamber. The delta is only 0.13' (1.6").

Nitsch Response (08/18/2025): As indicated on the detail on Sheet No. 12, it is a manufacturer recommendation to provide a 1.5" delta. Comment closed.

CONFORMANCE WITH THE MASSDEP STORMWATER STANDARDS

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

47. **Standard 4** requires that stormwater management systems shall be designed to remove 80% of the average annual post-construction load of Total Suspended Solids (TSS). This Standard is met when:

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

Neither the TSS requirement for the MassDEP 80% removal (nor the MS4 90% removal, see Comment 32 above) are being met. Per the MassDEP Stormwater Handbook, the required water quality volume equals 1.0 inch of runoff times the total impervious area of the post-development Project site. No BMPs are proposed to capture the impervious area that comprises the reconfigured parking stalls. The Applicant should provide a weighted TSS removal calculation to demonstrate that the total TSS removal for the proposed building addition and modified parking lot areas meets the 90% standard. Additionally, the Applicant should confirm that the treatment trains approved in 2015 remain unaltered and continue to provide the previously established level of TSS removal.

Furthermore, the TSS removal sheet on page 55 of the Stormwater Management Report indicates that the subsurface infiltration system provides a TSS removal rate of 80%. The Applicant should provide proprietary documentation for the system to confirm this TSS removal rate.

The site has highly infiltrative soils, using a rate of 8.27 in/hr, thus requiring 44% TSS removal during pretreatment prior to infiltration. DCB-1 and DCB-2 do not provide the required pre-treatment. As currently designed, pre-treatment is not provided for permeable pavement systems. The TSS removal sheet on page 56 of the Stormwater Management Report indicates that runoff is directed to the permeable pavement and is subsequently directly to DCB-1, the water quality unit, and the subsurface infiltration basin; however, is is unclear how the area draining to the permeable pavement system will reach DCB-1 and ultimately the subsurface infiltration system. Nitsch recommends that the design is revised to include a connection within the stone section of the permeable pavement, with an invert above the sump of DCB-1, to meet the pretreatment described in the treatment train on page 56. Alternatively, the Applicant could revise the design to provide pretreatment prior to permeable pavement systems and provide a new treatment train.

Similarly, the TSS removal sheet on page 57 of the Stormwater Management Report indicates that runoff is directed to the permeable pavement and is subsequently directed to the peastone diaphragm and the infiltration basin; however, it is unclear how the area draining to the permeable pavement system will reach the peastone diaphragm and ultimately the infiltration basin. This treatment train should be revised.

MEI Response (08/06/2025): As stated in 974CML 4.08(3)(i) Average annual pollutant removal requirements are achieved through one of the following methods:

- **Installing BMPs that meet the pollutant removal percentages developed consistent with EPA Region 1' BMP Accounting Tracking Tool.....**
- **Retaining the volume of runoff equivalent to, or greater than, one (1.0) inch multiplied by the total post-construction impervious surface on the development, or**
- **Meeting a combination of retention and treatment that achieves the above standards, or**
- **Utilizing offsite mitigation in accordance with Section 4.08(3)(b) that meets the above standards within the same USGS HUC12 as the development site**

The proposed stormwater system has been designed to retain in excess of the 1.0-inch water quality volume of the proposed development, thus providing both 90% TSS treatment and 60% TP removal for the proposed development. As part of the project, there is no alteration to the treatment train to the existing drainage system. Pavement is being replaced in already paved areas and the existing catch basin is being replaced with another catch basin in a slightly different location. Subsurface infiltration systems provide 80% TSS removal as noted in Volume 2 of the Massachusetts Stormwater Handbook. Pre-Treatment TSS sheets are provided in the Drainage Analysis along with TSS sheets for both infiltration basins. Pre-Treatment prior to infiltration is met for the underground infiltration back through the combination of a catch basin, water quality unit, and isolator row, while the at grade infiltration basin achieves the required pre-treatment through the proposed pea stone diaphragm and sediment forebay.

Nitsch Response (08/18/2025): This Applicant has provided documentation indicating that proposed stormwater systems have been designed to retain in excess of the 1.0-inch water quality volume. This Standard has been addressed by the Applicant; comment closed.

48. **Standard 5** requires that 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, M.G.L. c. 21, §§ 26-53 and the regulations promulgated thereunder at 314 CMR 3.00, 314 CMR 4.00 and 314 CMR 5.00.

The Applicant should provide documentation of vehicle and truck trips generated per day to confirm that the proposed parking lot is not considered a land use with higher potential pollutant loads.

MEI Response (08/06/2025): The proposed addition does not qualify as a LUHPPL as it will generate less than 1,000 trips per day. Furthermore, the proposed drainage system treats in excess of the 1.0 inch water quality volume.

Nitsch Response (08/18/2025): The Applicant has addressed this Standard; comment closed.

If the Commission has any questions, please call.

Very truly yours,

Nitsch Engineering, Inc.

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Planner

Approved by:

Sandra Brock, PE, LEED AP
Vice President

KEP/SAB/pfv

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