December 7, 2020

Doug Hartnett, P.E.
Highpoint Engineering Inc.
Canton Corporate Place
45 Dan Road, Suite 140
Canton, MA 02021

Re: King Street Properties Acquisitions, LLC – 111 Hospital Road (CFS-1) Level II Unified Permit Application (#D20-095)

Dear Mr. Hartnett,
We have completed our initial review of the above referenced application. Below are the comments from the DEC and MassDevelopment. Review comments on the site plan, stormwater, landscaping, and traffic study from our peer review engineers are being provided in separate letters.

Please Note: The applicant is encouraged to submit a response to comments using this electronic file. Responses should be added after each comment as individual paragraphs with italicized colored text. Responding in this manner will improve clarity and context of responses and will expedite review time.

Devens Engineering Comments:
General:

1. ***Based on the intended subdivision of 111 Hospital Road – all material related to the permitting and development of the CFS-1 building on "Lot 1" should be identified as "117 Hospital Road" and all material related to the permitting and development of the CFS-2 building on "Lot 2" should be identified as "111 Hospital Road" to avoid confusion between project documentation in the future.***
2. A significant amount of work is being conducted on the CFS-2 parcel which is being submitted on the CFS-1 application. Prior to start of work the CFS-1 parcel is going to be sold to a 3rd party to complete the work and lease the building back to CFS. Both sets of plans should add an overall draft level I plan showing the proposed parcel boundaries and any temporary and/or permanent easements which will be needed for construction, access, etc.
3. The "Impact Area" needs to be clearly identified on all plans on which it is visible along with a note stating "Restricted Area – No Access".
4. Need to add truck turning plan. Turning movements need to include ingress and egress to/from the site at both driveways. Provide turning templates for various trucks to utilize the site as well as Devens fire and emergency vehicles. Turning movement plan should be prepared using worst case vehicle. If different vehicles are deemed "worst case" at various locations, all identified vehicles should be shown. Ingress and egress from loading docks should utilize the worst case vehicle anticipated to use each dock. Include access/egress to/from Hospital Road via Oak Hill and both site driveways.

5. Confirm with Devens Engineering Department that approved property lines are shown on plans prior to endorsement by DEC.
6. All references to plan or deed transferring property from the United States to MassDevelopment should reference those recorded in the Worcester County Registry of Deeds (current references are to documents recorded in Middlesex). This entire project is located with Worcester County.
7. Plans should include a reference to the enabling work plans and provide a narrative describing the sequence of work shown on both sets.

Sheet G100

1. See comments on plan sheet (attached).

Sheet G200

1. If required by DEC, this would be a good sheet to show the Town/County boundary and the offset distance to the CFS-1 property line.
2. CFS-1 Parcel (Lot 1) should be more clearly identified on all plans.
3. Request that the tables on this sheet be updated to clearly indicate which projects and which buildings are associated with each lot (i.e., CFS-1 = Lot 1).
4. Parcel boundaries to be adjusted prior to final approval.

Sheet C100

1. All limits of environmental restrictions should be clearly shown and noted on this sheet, including but not necessarily limited to the Pesticide AUL, the UXO/MEC LUCIP, The Impact Area, the Grant Housing LUCIP, etc. Notes should include all relevant restrictions impacting any phase of construction or operation.
2. Add zoning boundaries.
3. Identify USFWS property and limits of Grant Road Housing project.

Sheet C200

1. Show correct location of zoning district lines.

Sheet C401

1. Add 10’ of VGC and transition curbs at ends of radius curb at connection to public ways.
2. Is “island” at westerly entrance a painted or raised island? If raised it should include a break for a future crosswalk across the driveway.

Sheet C500

1. Add note to Grading Notes “1. No soil is to be disturbed or moved without the prior approval of the Devens Environmental Engineer (978-784-2917).”
2. Identify all municipal pipes/structures being installed as part of the project

Sheet C501

1. Show existing pavement elevations at centerline and sidelines of both driveways where the tie-into the existing road.
2. Add note to confirm culvert elevation at proposed DMH-20 in field prior to ordering materials.

3. Identify all municipal pipes/structures being installed as part of the project.
4. Record plans indicate a drain line coming from Oak Hill to a headwall just east of the existing entrance and another headwall with a drain line crossing Hospital Road. These lines/structures need to be verified in the field and preserved/protected during construction.

Sheet C502

1. CB 24 & 25 – explain why inverts are so deep? Devens typically calls for a minimum of 3.2 – 3.5 feet from the Rim to the invert in order to provide clearance for the oil/debris trap. At the inverts specified the CB's will be 10' deep (interior). Inverts in CB's 24 & 25 are to be raised.
2. Pipes used for relocation of municipal drain are to be Class IV RCP.
3. DMH 20 needs to show invert for culvert under Hospital Road.

Landscaping Plans:

1. Verify that the proposed planting schedule will not impair the site distance at the driveway entrances.

The applicant has indicated a need for slope easement(s) on adjacent property to be retained by MassDevelopment but has not provided details on the exact locations or extents. This information should be clearly identified on the revised plans.

Additional comments may be provided following continued review, response to comments or provision of additional material. Failure to identify any items during this review which do not conform to applicable MassDevelopment Engineering standards does not relieve the owner, engineer or contractor from such requirements.

Devens Utilities Comments:

The locations and sizes of the water and sewer stubs left for the CFS-2 building in the CFS-1 plans do not always match and need to be better coordinated between the two projects.

Sewer:

1. As currently designed, the sewer line serving the Oak Street parcel to the west of the site will be cut off from the Devens sewer system. Reconnecting the sewer line from Oak Street to existing Devens SMH 961 on the south side of Hospital Road in front of New England Studios as shown on the plan will not work as designed since, per our records, the invert elevation at Devens SMH 961 is 291.3 and is too high to connect from new SMH #7 (rim elev 291.5+/-, which means the invert in new SMH #7 on the north side of Hospital Road would be lower than the invert in SMH 961 so the flow would be in the wrong direction).

It appears that, given the invert elevations, the existing Oak Street sewer could be connected to new SMH #1 on the south side of the CFS-1 building. Otherwise, the closest available Devens SMH in service that might work elevation-wise is SMH 3512 in the middle of the Hospital Road roadway about 500' to the west of new SMH #7 or SMH 958 in the north shoulder of Hospital Road about 700' west of new SMH #7. If the decision is made to connect to one of these two manholes, the design engineer should first confirm SMH inverts and SMH locations to make sure it would be suitable.

2. At the northeast corner of the site, it appears that the new sewer line is no longer shown connecting back into the existing Devens sewer system. This connection was shown on the October 8 Utility Plan that I previously reviewed. This is no good since the wastewater from Seven Hills on Grant Road will no longer be able to flow through the site. Rather than connecting to an existing SMH north of new SMH-6, a callout says to "stub new sewer line to be continued by VHB".

3. At the northwest corner of the site, the inverts shown for the two 8" sewer stubs to be left for the future FS-2 building are 275.5. Given the lengths of pipe and slope indicated on the plan, I believe this should be 272.5.

Water:
1. The new tee and 3-way water valve configuration shown at the intersection of Oak Street and Spruce Street on the southwest portion of the site should be reconfigured so the run of the tee faces approximately east to west with one of the 3 valves on the run of the tee facing west toward Oak Street. A second valve would be on the run of the tee facing east toward the CFS-1 building. The 3rd valve would be on the branch of the tee facing south toward Hospital Road. The old AC pipe that serves Oak Street will be abandoned and not reused so the new work should not connect to the old water main that used to serve Oak Street.

2. A valve should be added to the 4" domestic water line that will serve the CFS-1 building. This will allow the domestic line to be isolated separately from the fire service line if necessary in the future.

3. The water connection to the existing Devens water main on the east side of the CFS-1 building should include a 10" x 8" reducer since the new 10" pipe will connect to an existing 8" pipe.

Devens Environmental Comments:

1. **General** -- Please update all plans and the appropriate sections of the permit application to address the inclusion of the "Impact Area" in what the application describes as the "Property."

2. **Existing Easements, Covenants Restriction and Institutional Controls** – Please include the following with appropriate descriptions:

    - The final Site-Specific 2016 Pesticides AUL (Applies only to the Oak and Maple Housing Areas)
        - the Soil Management Plan associated with the 2016 Pesticides AUL
        - the Health and Safety Plan associated with the 2016 Pesticides AUL
    - The Site-Specific Oak and Maple LUCIP Addendum (Currently being redrafted to extend its effect to include the entire Premises minus the Impact Area)
        - the NAUL associated with the Oak and Maple LUCIP Addendum
        - the Soil Management Plan associated with the Oak and Maple LUCIP Addendum

- The 2011 Grant Housing Area LUCIP
- The 2011 GERE associated with the Impact Area (only applies to the Impact Area)
- The Devens Soil Management Policy (Applies Deven-wide)
- The General Excavated Soil Management Plan, Devens Massachusetts, prepared by Haley & Aldrich, Inc. (November 1996), as amended in March 2000 (Applies Devens-wide)

3. **974 CMR 4.07 – Earth Removal** – Please update this section to reflect the current (and proposed) status of Land Use Controls with respect to Soil Movement within the "Property" and Soil Movement to a location off of the "Property. If, as we understand, no soil will be moved to a location off the "Property," please state so in this section. Also, please add a statement regarding the prohibition of disturbing soil within the Impact Area.

4. **Appendix G, Soil Reuse Report** – Please update this appendix to reflect the current (and proposed) status of Land Use Controls with respect to Soil Movement within the "Property" and Soil Movement to a location off of the "Property." If, as we understand, no soil will be moved to a location off the "Property," please state so in this appendix Also, please add a statement regarding the prohibition of disturbing soil within the Impact Area.

DEC Staff Comments:

1. Ensure project addresses requirements of 974 CMR 4.11. Will need to join DEEC and build to 780 CMR 120AA stretch code due to proposed parking spaces and traffic generation.
2. Has the Applicant considered white roof or green roof options for reduced heat island, energy efficiency, stormwater management, open space/amenities? Better to consider now to include in design specs.
3. Provide details on any stacks or rooftop mechanicals that may extend above the 40' building height.
4. Minimum 5' wide concrete sidewalks should be provided within the Hospital Road ROW for the entire frontage of this property.
5. Erosion and Sediment Control plan required.
6. Provide size of emergency generator and fuel storage details.
7. Integrated Pest Management Plan should be provided as part of Landscape O&M Plan.
8. Easements will be required from MassDevelopment for utilities running through the site.
9. Proposing irrigation well – consider plant selection, minimization of lawn and rainwater harvesting first. Check with EPA and RAB to determine if wells allowed in LUCIP AUL.
10. Please provide details on the results from the final air quality assessment referenced on page 26.
11. Notes on pavement detail on G-100 – delete and refer to DEC regulations
12. Change Town of Devens to Devens Enterprise Commission when referring to regulatory issues. Devens Utilities, Devens Engineering and Devens Public Works, Devens Fire Department should be referenced for all other relative issues.
13. Provide all details for loading docks, trench drain, stairs, railings, duct banks, utilities
14. Lighting levels seem excessive – reduce levels to prevent off-site glare and light pollution.
15. A Hazardous Materials Spill Response Plan or Spill Pollution Prevention Control and Countermeasures Plan, depending on the quantities of hazardous materials being stored (refer to 974

CMR 4.08). Plan will need to specify the materials, types, quantities, location and method of storage/containment, handling and disposal as per 974 CMR 4.09. This will be required as a condition of approval.

Please provide any responses and supporting information by **December 14, 2020**. In the meantime, feel free to contact me with any questions.

Sincerely,

Neil Angus, AICP CEP, LEED AP
Environmental Planner
Devens Enterprise Commission

cc: Tyson Reynoso, King Street Properties

Nitsch Engineering

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December 7, 2020

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

RE: Nitsch Project #9419
Commonwealth Fusion (CFS-1)
Site Plan and Stormwater Review
Devens, MA

Dear Mr. Angus:

Nitsch Engineering received and reviewed the Site Plans (the Plans) entitled, "Phase 2 – CFS-1 Manufacturing Building, 111 Hospital Road, Devens, Massachusetts", dated November 5, 2020, prepared by Highpoint Engineering, Inc. (HEI). In addition, Nitsch Engineering has received and reviewed the following documents:

1. Application for Level 2 – Unified Permit, Site Plan Review, prepared by HEI, dated November 5, 2020;
2. DRAFT Geotechnical Engineering Report, Proposed CFS-1/Lot-1 Development, 111 Hospital Road Devens, Massachusetts, prepared by GZA, dated November 2, 2020; and
3. Stormwater Report, prepared by HEI, dated November 5, 2020; and
4. Level 2 – Unified Permit, Checklist for Determination of Completeness, prepared by HEI, dated November 19, 2020.

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.

PROJECT UNDERSTANDING

Highpoint Engineering, on behalf of King Street Properties, has submitted Level 2 – Unified Permit for the construction of a +/- 164,000-gross-square-foot manufacturing and office building (CFS-1) and associated site improvements. The proposed CFS-1 building will produce advanced magnets, the key component of the CFS fusion systems. This building will also include 60,000 square feet of office space that will serve as CFS's corporate offices and will include 288 surface parking spaces. The site will be being designed, constructed, and owned by King Street Properties and leased to Commonwealth Fusion Systems.

The proposed CFS-1 project also includes the construction of access driveways and modifications of two (2) existing curb cuts off Hospital Road and the construction of parking lots, loading docks, and utilities. The proposed stormwater strategy consisted of a closed drainage network including catch basins, manholes, and water quality units with nine subsurface infiltration systems. Bioretention basins are provided for pretreatment in select parking lot areas.

DEC REGULATORY CONFORMANCE

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

DEC SITE PLAN REVIEW DESIGN STANDARDS

1. The CFS-1 project is the first phase of the two-phase Commonwealth Fusion project. We understand that CFS-1 is expected to be built first and construction of CFS-2 will begin during construction of CFS-1. Since CFS-2 has a much longer construction timeline (three to four [3 to 4] years), CFS-1 will be done prior to the completion of CFS-2. To understand the interim condition, the Applicant should provide grading, utility, and layout phasing plans for the period when CFS-1 is complete, but CFS-2 is under construction. Specifically, these plans should address the following:

    a. The layout plan should clarify the intended circulation routes (including emergency vehicle access) around the CFS-1 building while the CFS-2 roadways are under construction. There will be dead-ends created during CFS-2 construction and it is unclear how fire truck would exit the site.

    b. The utility plan should clarify temporary utility connections at the seams of the limits of work. We note that the proposed sewer collects flow from the proposed building and routes it to the north for continuation by the CFS-2 development. There is also a sewer main within Hospital Road that is routed through the site and appears to be being replaced by the proposed project. The Applicant should provide clarification for how this sewer system operates in the existing and interim condition (before CFS-2 is complete).

    c. We also note that the proposed CFS-1 grades do not tie into the existing grades, rather the proposed CFS-2 grades. This should be addressed in the phasing plan.

2. The Existing Conditions Plan (Sheet C200) is not stamped by a Professional Land Surveyor (PLS). As this plan shows property line information, we recommend that it should be stamped by a PLS.

3. The parking space counts within the Application for Level 2 – Unified Permit, Site Plan Review and in the Parking Summary table on Sheet C401 do not appear to be consistent with the parking shown on the plan. The Applicant should review these discrepancies and confirm the proposed number of spaces is in accordance with **974 CMR 3.04(3)(a)1.**

4. All of the proposed accessible parking spaces are provided in the eastern parking lot. The Applicant should confirm that no additional accessible spaces are needed in the western parking lot.

5. There are three (3) parking spaces proposed near the guard house at the front entrance. These are not accounted for in the parking summary and are assumed to be provided for staff and visitors. The Applicant should confirm the intended use of the spaces and determine the numbers of spaces can be reduced.

6. **974 CMR 2.07(2), Table 1** provides design standards by roadway classification. It is unclear if the proposed roadways would be classified as internal driveways or local roads. In either case, the proposed roadways range in width between 25 and 30 feet, which exceeds the design widths for both classifications. The Applicant should evaluate the potential to reduce the roadway width and meet the appropriate design standards.

7. **974 CMR 2.07(3)** requires traffic calming measures to be integrated into roadways. The Applicant should provide traffic calming measures accordingly, including reduced roadway width, raised intersections, signalized/raised crosswalks, or speed humps.

8. **974 CMR 2.07(3)** requires cement concrete or vertical granite curbing (VGC). The Layout and Materials Plan specifies bituminous concrete curb (BCC) and vertical granite curbing. The Applicant should review and address this requirement.

9. **974 CMR 3.04(3)(a)1.h** requires bicycle storage facilities for all developments. From the Landscape Materials Plans, it appears that bicycle storage is provided. However, it should be labeled on the Layout & Materials Plan and detailed within the Site Details. We note that the storage should be covered if the intention is to comply with LEED requirements.

10. **974 CMR 3.04(3)(a)1.d** requires reflective yellow or reflective white paint for parking lot striping. The note in the detail on Sheet C702 should be revised to note that the paint shall be reflective.

11. **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 and curb cuts at Hospital Road to provide adequate signage for traffic safety.

12. **974 CMR 3.04(5)** requires that the Applicant shall obtain a letter from Fire Chief stating there is adequate access for fire equipment. This should be provided to the DEC.

13. **974 CMR 3.04(10)** requires that all proposed developments shall demonstrate that they have made reasonable efforts to consider and implement transportation demand management strategies early in the site planning and layout process. These include providing 5% of total parking spaces for each of the following: ridesharing, hybrid or zero/low-emitting vehicles, and hybrid/electrical vehicle plug-in/recharge stations. We note that the Applicant has provided reduced parking as a TDM strategy, but the specific designations of other types of spaces has not been provided. The Applicant should review and address this requirement.

DEC STORMWATER DESIGN STANDARDS

14. **974 CMR 3.04(4)(b)** requires Stormwater Management options shall include green infrastructure and 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 on-site. The proposed stormwater management design primarily uses a large number of proprietary water quality structures for pretreatment prior to discharging to underground infiltration systems. While we appreciate that there are three (3) rain gardens within the site, the Applicant should further evaluate incorporating LID techniques throughout the site for pretreatment. We note that there appear to be locations on the site where LID techniques may be appropriate, such as porous pavement on sidewalks or parking stalls, roadside swales, and additional bioretention basins in parking islands. There are also opportunities to directly infiltrate the clean roof water that does not require pre-treatment. The Applicant should review and address this requirement.

15. **974 CMR 3.04(4)(b)(4)** requires 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. The Applicant should review and address this requirement.

16. **974 CMR 4.08(2)(c)(ii)** requires irrigation water shall 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. Can the Applicant please confirm if irrigation is intended? If so, the Applicant should review and address this requirement.

17. **974 CMR 4.08(2)(c)(vi)** requires all 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. The Applicant should review and address this requirement.

18. **974 CMR 4.08(3)(a)** requires that biofiltration basins shall be the preferred method to reduce curbing, piping and structures and provide additional overland treatment and recharge. They shall be designed in accordance with the Handbook. The Applicant should review and address this requirement.

19. **974 CMR 4.08(3)(b)** requires 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. It appears the stormwater report does not include the analysis for the 50-year storm. The Applicant should review and address this requirement.

20. **974 CMR 4.08(3)(d)** requires that side slopes above the design water level shall be 3:1 (horizontal to vertical) or flatter and conform to the slope of the existing topography without abrupt or unnatural breaks in slope. The detail for the rain garden shows the side slopes as 2:1. The Applicant should review and address this requirement.

STORMWATER DESIGN AND CALCULATIONS

21. In the Site Plan Application, the Applicant notes that the project will require the relocation of an existing 30-inch diameter storm drainage pipe they believe extends into the site from Hospital Road. Based on the existing and proposed conditions plan, it was difficult to understand the extents of this relocation work. We also note that the Applicant is requesting additional information about the system to confirm its extents and condition, including cleaning, video-inspection, and dye-testing. We agree that additional information is needed to understand the full scope of this work and how it impacts the proposed project.

22. Many of the subsurface infiltration systems do not have a specified overflow. In the event of a surcharge condition, the Applicant should evaluate where the water would overflow to confirm that it will not impact buildings or abutting properties.

23. It appears that many of the subsurface infiltration system do not fill up completely in the 100-year storm. There may be potential to make the systems more efficient. This should be evaluated in concert with Comment #22 and the emergency overflow from these systems.

24. There are two pipes at the north portion of the site that are intended to connect to CFS-2. It is our understanding that CFS-1 will be complete before CFS-2 is complete. The Applicant should clarify how will this stormwater be handled in the interim condition.

25. It appears that Area Drain 1 connects to DMH-3 so that the runoff can be treated for water quality. However, this requires an additional pipe and manhole while also create an undesired pipe crossing as compared to connecting to DMH-4. We recommend that the Applicant consider routing/treating Area Drain 1 closer to the source to avoid the more complicated pipe layout? Also, there are two outlets listed on OWS-1, so the pipe separation at the crossing cannot be verified.

26. There are some drain manholes that do not have a 0.1-foot drop between the invert in and out to promote positive drainage. There are also some catch basins (CB-12,18,22,23) that have a 3-foot or less rim to invert elevation. These catch basins will likely be hard to construct and will require specialty shallow catch basin structures. The Applicant should review and address these concerns.

27. There is a portion of driveway at the northwest portion of the site, flowing north from elevation 286 to 283, that does not seem to be captured in the proposed stormwater management system. The Applicant should review this area.

28. The plans and details refer to the rain gardens as “rain gardens” when the Stormwater Management Report refers to them as “bioretention.” Please use one name from clarity and to avoid confusion. Also, the report mentions on page 2 that there are two (2) bioretention basins but it appears there are 3 on the plans. The Applicant should review for consistency.

29. As the rain gardens/bioretention are proposed for pretreatment, they should include an underdrain and be lined to prevent infiltration. Nitsch also recommends that the filter fabric be removed from between the mulch and soil in the location shown in the detail on sheet C703 as this has been found to cause clogging. We recommend that the Applicant review the Massachusetts Department of Environmental Protection (MassDEP) Stormwater Handbook and the UNH Stormwater Center bioretention design standards for alternative sections that do not include filter fabric.

30. There are two (2) RD#11 labels on the plan. The Applicant should review and address this.

31. Pipe sizing calculations were not provided for the drain line that run down the east side of the site and connects to CFS-2. The applicant should review and address this requirement.

32. Adjacent to the stone-wrapped interceptor drain (also noted as a gravel trench drain), there is a thick black box that is not labeled in the plans. The Applicant should label this and clarify if it is part of the proposed stormwater management system. Additionally, a detail should be provided for the stone-wrapped interceptor drain.

CONFORMANCE WITH THE MASSDEP STORMWATER STANDARDS

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

33. **Standard 3** requires the annual recharge from the post-development site shall approximate the annual recharge from pre-development conditions based on soil type. This Standard is met when the stormwater management system is designed to infiltrate the required recharge volume as determined in accordance with the Massachusetts Stormwater Handbook. Based on Hydraulic Soil Group A soils a recharge volume of 0.6 inches over the impervious area is required for the site. Although we believe there is likely enough storage to meet this requirement, a breakdown of the storage provided in each system compared to the impervious areas within each drainage area would be helpful. The recharge volume should only include the storage volume below the outlet of each of the systems.

34. **Standard 3** also required that to ensure the long-term operation of infiltration BMPs, pretreatment is required before discharge to an infiltration BMP. For infiltration of stormwater runoff from land uses with higher potential pollutant loads, discharges to the ground within an area with a rapid infiltration rate (greater than 2.4 inches per hour), at least 44% of the total suspended solids must be removed prior to discharge to the infiltration structure. Based on the TSS removal works sheets, the rain gardens are being used as pretreatment, therefore water quality volume sizing calculation should be provided for the rain gardens. Also, an impermeable liner should be installed below grade to prevent infiltration in the rain garden to achieve the pre-treatment. The Applicant should review and address this requirement.

35. **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.

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

If the Commission has any questions, please call.

Very truly yours,

Nitsch Engineering, Inc.

Paige Simmons, PE, LEED GA
Project Engineer

Approved By:

Jennifer Johnson, PE, CFM®, CPSWQ, LEED AP
Project Manager

JLJ/ajc

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December 4, 2020

Mr. Neil Angus
Devens Enterprise Commission
33 Andrews Parkway
Devens, MA 01434

Re: Commonwealth Fusion Systems - 1
Nitsch Project #9419 Task 34

Dear Neil,

IBI Placemaking has reviewed the landscape plans and site lighting for the Commonwealth Fusion Systems -1 Unified Permit submission. The planting plans demonstrate a sensitivity to the Devens landscape. The following comments are offered.

3.0: SITE PLAN
3.02: REQUIREMENTS

1. **3.02 (3) (b) 6 (a) states that "All existing landscape features, especially existing trees and woodland to remain, shall be shown on ALL site plan sheets.…Scattered trees to be preserved shall also be shown as well as all "specimen trees" (trees exceeding a minimum caliper of 12") within 100' of existing or proposed lot lines have been identified and indicated"**
   - The existing tree line to remain is not indicated and limit of protection is not clearly marked on each of the plans. Identify tree protection for edge of wooded areas to remain on all sheets.
   - The tree protection line indicated at the front of the property is inaccurate, as the cutting of the existing wooded mound along Hospital Road as shown will not be able to be accomplished with the connection of proposed and existing contours at right angles. Adjust the limit of tree protection line and indentify means of tree protection to remain in place for the duration of the project on all plans.
   - Existing tree sizes are not shown on the plans; identify those over 12" within 100' of the property line.
   - Provide tree protection fencing at 12" beyond the dripline of the trees to be protected. Indicate tree protection fencing for individual trees to be protected on each of the plans. See item # 7 below.

3.04: DESIGN STANDARDS

1. **3.04 (3) describes the requirements for site lighting levels and fixtures.**
   - The light fixture selection is not yet complete.
   - The selected color of the site lighting fixtures and poles is not apparent; indicate the

color selection on the submission so that its compliance with the "dark earthtone" palette can be verified.
- Consider stipulating that the LED light be less than 3000K to provide softer lighting across the site.
- Along the east and west sides of the building three light fixtures should be moved slightly further from the fastigiate trees to ensure the trees will not interfere with the lighting.
- Indicate if any lighting is proposed to be set for the 11pm to 7am timeframe.
- Provide information regarding energy efficiency measures such as timers and sensors that are proposed for incorporation into the lighting system.

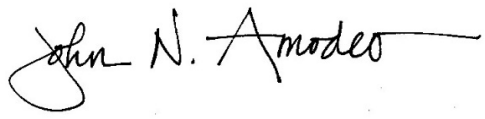
2. **3.04 (8) (c) 2 calls for native plants.**
   - The native plant palette is rich and comprehensive. Replacement of the non-native *Ginkgo biloba* at two signature locations on the site—in the plaza north of the building and at the main entry locations—as a means of highlighting a native species seems appropriate.
   - Given the genetic diversity and associated resilience that the straight species bring to the species and ecosystem, unless the native cultivar provides a shorter height, as in the parking divider islands, the straight native species is preferred.
   - Composition of all seed mixtures shall be New England native species.
   - Perennial and grass species for bioretention/bioswale areas are indicated as TBD. Provide a list of species.
   - Perennials for shrub/perennial areas are not identified. Provide a list of species.
   - The specified New England Conservation/Wildlife Mix provides a good mix of native grasses and forbs including short- and long-lived perennials. It is noted that substitutions may be made. All substitutions require DEC approval.
3. **3.04 (8) (c) 5 cites the minimum sizes for proposed trees.**
   While some of the trees in the plant list do not meet the standards, the discrepancy seems acceptable given the habit or rate of growth of the species, except where shade trees are required at the perimeter of parking areas, and the 1 ½" caliper *Populus tremuloides* is used to fulfill the requirement. Either increase the caliper of those trees or select an alternate species for those areas. See item #12 below.
4. **3.04 (8) (c) 7 states that the Applicant may request the DEC's determination that existing vegetation provides the required screening.**
   The applicant appears to be reliant on the existing wooded swath to remain along Hospital Road to provide the required softening of the building and the year-round visually impermeable screening of the parking, loading area, switching station and other utility structures. Assessment of the ability of the protected existing wooded area along Hospital Road to provide the required year-round visually impermeable screening is challenging. A suggested rule of thumb is that a 100' depth of woodland provides complete visual screening. Once the limit of tree removal is corrected and expanded for the grading as noted in item #1 under 3.02 REQUIREMENTS above, the depth of the existing woodland screening will be less than 100' for about two thirds of the Hospital Road frontage, and therefore provide inadequate screening for parking and loading areas and utility structures. See item #11 below.
5. **3.04 (8) (c) 8 calls for trees within 20' of a road or paved area to be salt tolerant.**
   Replace the proposed *Quercus palustris* 'Green Pillar' due to its sensitivity to road salt.

6. **3.04 (8) (d) 2 calls for the preservation of all trees in setback areas with a minimum 12" caliper.**
   Indicate setback lines and identify all trees within the setback of a minimum 12" caliper.
7. **3.04 (8) (d) 4-7 describes in depth the care to be taken to ensure the survival of existing trees.**
   Clear identification of the trees to remain and be protected and a description of the excavation methods within rootzones of trees to remain must be clearly defined to ensure survival of existing trees. Include a clearly defined tree protection fence located 12" beyond the drip-line of the trees to be protected on all plans to help ensure that this protection is provided.
8. **3.04 (8) (e) describes soil testing for existing soils.**
   - The application notes that "soils are sandy and fast-draining, increasing pressure for irrigation…" for establishment and drought mitigation, suggesting the importance of favoring native species adapted to sandy, well-drained soils.
   - The health of the trees located within tree pits in the plaza on the north side of the building will be promoted through the installation of interconnected treeways or the use of structural soil to increase the growing medium for the trees—striving for the recommended volume of 1200cf per tree.
9. **3.04 (8) (f) 2 requires the coverage of all unpaved areas.**
   The CFS-1 submission does not currently address the stabilization of disturbed soils on the western and northern edge of the site that will be connected to the future CFS-2. While it is understood that CFS-2 will begin partway through the construction of CFS-1, the length of the estimated construction would suggest that all disturbed areas of the site will need to be protected during construction. Identify protection of all disturbed areas of the site.
10. **3.04 (8) (f) 6 describes the limiting of construction activities to prevent soil compaction in future landscaped/natural areas.**
    Confirm that laydown and stockpiling are not located in future landscaped areas.
11. **3.04 (8) (g) describes year-round visually impermeable screening requirements.**
    - Shrub planting areas on the planting plans do not identify the location and spacing of individual shrub species.
    - Identify the location and spacing of shrub species to ensure that 6' of year-round visually impermeable screening is provided for the parking areas including the visitor parking at the gate house, the major parking area on the west side, and the parking along the east side of the building where the angle of Hospital Road and the entry to the site permit views deep into the site. The addition of evergreen trees to the planting is recommended to enhance the screening of the switching station and the parking, especially at the SE corner of the site and the site entrance, where deep views into the site will be possible.
    - Provide year-round visually impermeable screening of the switch station and the loading area and utility structures at the SE corner of the building when viewed from Hospital Road.
    - Provide the same level of screening of the parking, utilities, and the building from the Open Space Recreation Zone to the east of the site.
    - The proposed reforestation provides a good direction for the site; however, additional screening is required to provide the required screening within three growing seasons.
12. **3.04 (8) (h) 2 calls for shade trees at the perimeter of parking areas.**

Modify the tree planting at the south edge to the length of parking adjacent to the switch station to provide a minimum of one shade tree per 25 lineal feet of parking lot perimeter plus an addition one shade tree per 50 lineal feet due to the visibility of the parking from Hospital Road. See item #3 above.

13. **3.04 (8) (h) 3 and 4 describes the planting within parking areas and requires salt tolerant shrub species of a maximum height of 4' within parking islands.**
    - Consider the planting of appropriate tree species within the rain garden of the central divider island to further reduce the heat island effect within the parking area.
    - Identify the location and spacing of shrub species to ensure that the shrubs will not exceed 4' in height and are tolerant of road salt.
14. **3.04 (8) (l) 1 describes the landscape treatment of building perimeters visible from a road or Residential or Open Space Zoning District.**
    - On the south side of the building, provide five shade trees or three ornamental/evergreen trees to be located within 50' of the building face to meet the requirements of one shade tree or three ornamental/evergreen trees per 50 lineal feet of building façade. The 8.5' depth of the planting bed along the south face does not meet the requirement for bed depth of 20' in the Innovation & Technology Business District or the 10' depth requirement in all other districts, requiring approval of the reduced depth by the DEC.
    - On the east side of the building, where the building face is visible from the Open Space/Recreation Zone as well as the public way due to the angle of Hospital Road and the entry to the site, provide a minimum of one shade tree or three ornamental/evergreen trees per 50 lineal feet of building façade within 50' of the building face.
15. **3.04 (8) (n) 1 calls for the landscape to be maintained in good condition.**
    The circular tree pits in the plaza on the north side of the building will provide a challenging environment for the trees. Long-term healthy tree growth can be promoted through the installation of interconnected treeways or the use of structural soil to increase the growing medium for the trees—striving for the recommended volume of 1200cf per tree.
16. **3.04 (8) (n) 2 Landscape maintenance and water management plan.**
    - Include protocols for the maintenance of meadow, reforestation, conservation seeding, and bioretention/bioswale areas in the landscape maintenance plan.
    - Include the snow storage areas designated by the winter plowing plan in the planting plans to ensure that the plantings within the snow storage areas are tolerant of road salt.

Sincerely,



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December 4, 2020

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

RE: Nitsch Project #9419
King Street Properties
Commonwealth Fusion Systems
111 Hospital Road
Traffic Review Comments
Devens, MA

Dear Mr. Angus:

Nitsch Engineering has received copies of the Application For Level 2 – Unified Permit and associated Site Plans for both the proposed CFS-1 building and the proposed CFS-2 building at 111 Hospital Road in Devens, Massachusetts, dated November 5, 2020, prepared by Highpoint Engineering, Inc. and VHB, respectively. Since the Traffic Impact and Access Study submitted with both applications is the same document and evaluates the traffic impacts of both buildings together, this letter serves as our official traffic review comments for both applications. This letter summarizes our review of the traffic elements of the applications and plans, particularly the Access and Circulation section of the applications; the Traffic Impact and Access Study, dated November 2020, prepared by VHB; and the traffic elements of the Site Plans.

Based on Nitsch Engineering's review of the submitted documents, we have determined that the traffic study and method of analysis comply with industry practices and current transportation engineering standards in addressing the following key elements:

- Traffic Counts;
- Crash Analysis;
- 7-Year Build Horizon;
- Annual Background Growth Rate;
- Traffic Generated by Other Developments;
- Site-Generated Trips;
- HCM Capacity Analysis with delay, Level of Service (LOS), v/c ratios, and 50th and 95th percentile queues;
- Sight Distance Evaluation; and
- Transportation Demand Management.

However, based on Nitsch Engineering's review of the documents, we offer the following comments for consideration:

1. In describing the existing roadways, please include the functional classification. Also, per the MassDOT Road Inventory, none of the roadways in the study area are under local jurisdiction ("Unaccepted by city or town"). Please correct this information in the Roadways section.
2. The description of the intersection of Front Street at Hospital Road refers to the eastbound side of Hospital Road, but Hospital Road runs north-south. Please correct this information.
3. Were the adjustments to the 2020 count data for the COVID-19 pandemic (+23.7% in the AM, +9.4% in the PM, and +17.4% for ADT) calculated based on the 2015 count data *after* adjustment from 2015 to 2019 per the MassDOT Yearly Growth Rates table and adjustment for seasonal factor? Also, which Group was used for the yearly growth rates? Based on the MassDOT Road Inventory, these roadways fit the U4-U7 group since they are considered within an urbanized area (Boston), resulting in a cumulative adjustment of +7.9% from 2015 to 2019. For the same reason, the seasonal factors should use the U4-U7 group, which would indicate that April 2015 counts were above average, not below.

Please clarify whether adjustments were made to the 2015 data prior to comparison with the 2020 data, and please use the U4-U7 group for seasonal factors and yearly growth.

4. In the crash analysis, please indicate the average statewide crash rates, and please provide comparisons with the calculated intersection crash rates.
5. Please consider showing in the appendix the trip assignment at the study intersections for trips generated by other developments that was used in developing the No-Build condition traffic volumes.
6. In the Future Roadway Conditions Section, for Grant Road, the 2015 traffic volumes were grown by 1% per year to 2020. Why were MassDOT's Yearly Growth Rates not used instead?
7. Traffic Volume Data section states that "The weekday morning and evening peak periods are consistent with typical peak commuter traffic periods and coincide with the expected peak periods for traffic entering and exiting the proposed site." However, for trip generation, the peak hour of adjacent street traffic was used for the morning and evening peak hours, rather than the peak hour of the generator. Using the peak hour of the generator would result in higher numbers of trips and a more conservative analysis. Please explain why the peak hour of adjacent street traffic was used for the morning and evening peak hours, or update the trip generation using the peak hour of the generator.
8. Please consider discussing mode share for site-generated trips, even if only to state that all trips were assumed to be vehicular.
9. Table 4 (Trip Distribution) shows 11% for the Grant gateway and 6% for the Verbeck gateway. How do these correspond to the Devens Traffic Monitoring Program Trip Distributions figure in the appendix, which shows 14% for Gateway 10 and 3% for Gateway 12?
10. Please explain how the distribution between the two site driveways was determined.
11. The Level-of-Service and Delay Criteria section states that the HCM 2010 was used for the capacity analyses, but the Synchro output in the appendix for the unsignalized intersections indicate that HCM 6 methodology was used. Please correct this information in the report, and please ensure the footnote (2) matches the HCM edition used.
12. Please mention that Synchro was used for the capacity analyses and note which version.
13. Please consider including a table showing LOS designations for signalized and unsignalized intersections.
14. Please explain in the capacity analysis narrative that all PHFs were set to 0.92 for future (No-Build and Build) conditions per MassDOT guidelines.
15. Please describe the proposed lane configuration of the site driveways. Also, please show on the plans the proposed pavement markings, including centerlines and stop bars, for driveways.
16. In Table 7, please correct the desirable ISD West of Site Driveway to be 430 feet for both driveways.
17. The report states that CFS-2 will be 146,835 sf, but it is listed as 147,000 sf in both plan sets (Sheet G200 of both sets and Sheet C-1.01 of the CFS-2 plan set) with other building sizes not rounded to the nearest thousand. Please correct these sizes in either the plans or the report.
18. The Transportation Demand Management Program section states that the accompanying site plans outline where the designated preferential parking and hybrid/zero/low-emission vehicle parking will be located, but we were unable to find that information in either plan set. Please add this information to the plan sets.
19. For CFS-2 only: Please show the continuation of the fire truck path from the CFS-1 turning study to reach the CFS-2 building and to turn around.

We recommend that the Applicant review these comments and make appropriate revisions or additions prior to Devens Enterprise Commission approval of the traffic study.

We are available to discuss this review in person with the Applicant. If the Commission has any questions, please call.

Very truly yours,

Nitsch Engineering, Inc.

Adina Alpert, PE, ENV SP, PTOE
Senior Project Engineer

Approved By:

Fayssal Husseini, PE, PTOE, LEED GA
VP-Transportation

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