LANDSCAPE ARCHITECTS • PLANNERS
CIVIL ENGINEERS • WETLAND SCIENTISTS
PAUL FINGER ASSOCIATES

April 20, 2020

Conservation Commission
Town of Lexington
1625 Massachusetts Avenue
Lexington MA 02420

Via: email

Reference: Peer Review Completeness and Technical Compliance Letter
91 Hartwell Avenue
Lexington, Massachusetts
PFA Project No. 201-1004.00

Dear Commission Members,

We are in receipt of a letter from Environmental Partners dated April 6, 2020 in which they reviewed the project for completeness and a second letter dated April 13, 2020 in which they reviewed the technical compliance. We would like to issue the following responses to their comments.

Letter of Completeness

Zoning Bylaws

1. Section 176 5.2.1.7 requires the title sheet to show the locations of all recorded easements abutting the project tract. The scale of the plan on the title sheet is small. It is unclear if there are any stormwater/flood easements adjacent to the project.

   Response: The are only two easements on the property. One is a drain easement that traverses the property north/south as shown on the existing conditions plan. Please refer to our response to staff comments regarding relocation of this easement. The other easement is the gas transmission line located on the eastern side of the site. The applicant will coordinate with the gas company prior to construction.

2. Section 5.3.1 requires a table of development data requiring various project dimensional data. A table is included on the cover sheet. It appears that some of the items requested in the bylaw are not included including area in vegetated wetland, impervious surface area.

   Response: The table will be revised and submitted for technical completeness.

3 Section 5.3.3 requires test pits be performed to determine suitability of soil for drainage and

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utility. Three soil borings were performed as part of the project. The borings were generally performed in the vicinity of the garage and building and were performed for structural analysis regarding the design and construction of the garage and building and not specifically for stormwater management design. The borings were not performed in the area of the proposed stormwater management facilities or the wetlands replication area. The Massachusetts Stormwater Standards require soil testing be performed in the vicinity of the stormwater management best management practices. Typically, test pits, evaluated by a Title V soil evaluator, are performed to determine soil texture and determine seasonal high groundwater through soil mottles or other methods. The applicant has estimated seasonal high groundwater at elevation 115 based on standing water measured in an observation well during August 2018. Seasonal high groundwater is typically highest in the spring and lowest in the late summer, early fall. We recommend that test holes, observed by a licensed soil evaluator, be performed in the vicinity of the proposed stormwater management facilities to confirm soil texture and seasonal high groundwater.

Response: Four test pits were excavated on April 16, 2020 and observed by a licensed soil evaluator. The test pit logs are attached. As noted in the logs, groundwater elevations across the site range from EL. 113.0 in the vicinity of Treatment Area 3 to EL. 116.7. in the vicinity of Treatment Area 2.

The results of the soil evaluation indicate that the groundwater elevations correspond directly to localized soil conditions, generally observed at the transition from fill material to the natural soil (silt loam) layer. This localized soil-controlled groundwater condition contrasts to an area-wide groundwater table controlled by regional hydrologic conditions, meaning that the groundwater elevations are likely to respond to changes in soil conditions that will occur as a result of the proposed redevelopment of the site. Specifically, areas where a gravel and/or crushed stone base is constructed to support standard and porous pavements should remain free from inundation by groundwater.

Lexington Stormwater Regulations Chapter 181, Article VI

1. Section 181-71 A (1) (a) regarding regulation of stormwater management practices states that "Any activity that results in a land disturbance greater than once acre of land…" is subject to the requirements of the stormwater bylaw. Although Section 181-71 A (2) regarding exemptions states that "Stormwater discharges that are wholly subject to jurisdiction under the Wetlands Protection Act …… and demonstrate compliance with the Massachusetts Storm Water Management Standards" are exempt from this bylaw, we feel that review under the requirements of this bylaw are appropriate and necessary. The intent of this review is to determine compliance with the Massachusetts Storm Water Management Standards. Therefore, EP's approach to this review is to review the project for all applicable – or possibly applicable – standards and bylaws.

   Response: As stated above, "Stormwater discharges that are wholly subject to jurisdiction under the Wetlands Protection Act …… and demonstrate compliance with the Massachusetts Storm Water Management Standards" are exempt from this bylaw. This project is subject to the jurisdiction of both the Wetlands Protection Act and the Town of Lexington Bylaw. In order to receive an Order of Conditions, the project must show

compliance with the Stormwater Policy and local requirements and should be exempt. However, as requested we will file a stormwater management permit under Lexington Stormwater Regulations Chapter 181, Article VI

2. Section 181-72 B requires a number of items be submitted in order to obtain a stormwater management permit. We have not received any specific items regarding the project required by the stormwater management permit as described in this section including the following:
    a. Section 181-72 B. (1) (a) Application form.
    b. Section 181-72 B. (1) (b) Projected dates of commencement and completion of construction activities.
    c. Section 181-72 B. (1) (d) List of abutters.
    d. Section 181-72 B. (1) (e) List of waivers.
    e. Section 181-72 B. (1) (i) [1] Copy of notice of intent to comply with the Construction General Permit. Typically, this would be submitted closer to the time of construction.
    f. Section 181-72 B. (1) (i) [2] Copy of receipt of EPA authorization letter. This is issued by EPA following the filing of a notice of intent.
    g. Section 181-72 B. (1) (j) A surety bond.
    h. Section 181-72 D. (1) (a) Notice of fee submittal for the stormwater management permit.
    i. Section 181-72 E. (2) Notice of abutter notification

    Response: As noted in the previous comment, we believe the project is exempt from filing for a stormwater management permit. However, since we have agreed to file the permit we will include the aforementioned documents.

General

1. As discussed during the conference call on March 26, 2020, additional information on the design of the 'Blue Roof' should be submitted. The figures submitted with the Notice of Intent show an area of Blue Roof on the garage and office building, but there are no details regarding how water will be contained and released from these areas.

    Response: Details of the Blue Roof have been submitted in our letter dated 4/8/2020.

2. As discussed on the conference call on March 26, 2020, additional information should be submitted regarding the routing of stormwater from the first story of the parking garage to the stormwater management system.

    Response: In our letter dated 4/8/2020 we submitted documentation that the plumbing code allows for discharges from the asphalt pavement on the first floor to the stormwater management system.

3. Additional sizing information is required to model the pervious asphalt. The Applicant has provided specifications only and no calculations describing how the various layers of the asphalt have been sized. There are HydroCAD calculations included for the

pervious asphalt, but the elevations included are for a specific area of the pavement. The pavement is sloped so these elevations correspond to one area of the pavement.

Response: The design intent for the porous asphalt installation includes segmented construction of flat-bottomed pavement bases separated by check dams beneath the pavement surface. The check dams will effectively create separated cells that will allow for segmented storage and release of stormwater. Configuration of the cell layout and a detail of the corresponding check dams will be provided.

4. The Stormwater Pollution Prevention Plan (SWPPP) that was submitted is a very rough draft. The SWPPP is basically a boiler plate document with extensive information left to be included.

   Response: Nitsch Engineering assembled the Draft SWPPP and has provided detailed guidance that is intended to enable the contractor eventually selected for the project to edit, finalize, and certify the SWPPP. The bulk of the information that is highlighted for completion by the contractor is related to contact information or to site-specific construction means and methods corresponding to the contractor's management of the construction site. Completion of the SWPPP and filing of a corresponding Notice of Intent with the EPA is required prior to initiation of construction activities and a copy of all finalized documents will be provided to the Town of Lexington.

5. Additional information is needed regarding the design of the wetland's replication area. The plans show a wetland replication area of 6,500 square feet. However, it appears that only half of the area includes excavation to a lower elevation that may sustain the development of wetlands vegetation. We recommend that a Professional Wetland Scientist prepare a planting plan for the wetland's replication area as well a narrative – to be included on the plan set - that describes the process and procedures for constructing the wetlands replication area.

   Response: The wetland replication area planting design was prepared by both a Landscape Architect and Wetland Scientist. Further specifications have been added to the plans as requested.

6. More detail is needed regarding the floodplain compensation areas located below the garage and the building. We recommend a more detailed grading plan be provided with abundant spot elevations to show the limit of work associated with performing this grading work as well as insuring there is a hydrologic connection between the wetland areas and the floodplain areas located beneath the proposed office building and the parking garage. A more detailed grading plan may indicate that in order to establish a hydrologic connection to the floodplain compensation areas located beneath the parking garage and building, additional work may result in additional excavation in the wetlands, which would impact the Notice of Intent process.

   Response: A more detailed grading plan has been provided under the garage and building to demonstrate the hydraulic connection required by the regulations. This design represents a significant improvement from the current existing conditions. Furthermore, all culverts on site have been cleaned and are free draining to the

adjacent wetlands.

RE: Technical Review
Lexington General Bylaws Chapter 114 Stormwater Management

No comments at this time.

Rules adopted by the Lexington Conservation Commission Pursuant to the Code of the Town of Lexington Wetlands Protection Code, Chapter 130

1. Section 5 (2) requires that all projects will not result in an increase in runoff during the 2-year, 10-year, and 100-year storms and shall not increase in an increase in total volume of surface runoff for the 1-year storm. The submitted calculation show a decrease in peak runoff for the 2, 10, and 100-year storms. However, we disagree with many of the assumptions and approaches in the drainage calculations that will impact whether this standard is met. The submitted hydrologic calculations show an increase in volume for the 1-year storm. The narrative describes this increase in volume being mitigated by a proposed blue roof. See comments below requesting additional information for the proposed blue- roof.

   Response: See related responses to specific comments that follow.

2. Section 5 (2) requires that design points for evaluating runoff be at the furthest downstream property boundary or location of a discharge to a protected resource area, whichever is further upstream. The proposed project does not evaluate flows at discharge to a protected resource area. We would expect that the analysis would include upland areas only and evaluate discharges to the wetlands on site. The proposed analysis includes wetlands resources in the watershed areas. The project should be evaluated for its discharges to wetlands and the wetland areas be removed from the watershed analysis.

   Response: The hydrologic/hydraulic analysis is being revised to correspond to the upland areas of the site only and with the on-site wetland resource area as the "design point" versus the property boundary. The results of the revised analysis will be provided in an updated Stormwater Report to be provided under separate cover.

3. Section 5 (3) requires that no building be constructed below the 10-year flood level. The entire site is located within the 100-year floodplain which is at elevation 118.5. The application states that the 10-year floodplain is at elevation 117.25. It is unclear how this elevation was determined.

   Response: The 10-year floodplain elevation was obtained from FEMA Flood Profile Plan 396P for North Lexington Brook (attached).

4. Section 5 (3) requires that no building be constructed below the 10-year flood level. The proposed parking garage first floor elevation is 117.5. The first-floor elevation of the proposed building is 123. The proposed project includes flood storage below the proposed building. We are comfortable with that approach.

No response necessary.

5. Section 5 (3) does not refer specifically to the location of stormwater management facilities within the floodplain. The proposed stormwater basins, as well as portions of the proposed pervious asphalt, are located below both the 10-year and 100-year flood elevations. Therefore, these facilities will likely be inundated with water during these storms which will limit their effectiveness to detain stormwater as well as provide adequate stormwater treatment.

   Response: The applicant acknowledges that these BMPs may be inundated during flooding events. However, the systems will consistently provide treatment of stormwater runoff from more frequent, less intense rainfall events throughout a typical year. The 10-year flood elevation corresponds to a 5.09-inch rainfall which represents an extreme storm event. Even the 1-year design storm event with a rainfall depth of 2.59-inches represents a 98.8th percentile storm event for the project region. This means that nearly 99 out of 100 rainfall events that occur throughout a typical year are likely to be less intense than a 1-year event, during which the BMPs are anticipated to function as designed and provide the requisite stormwater treatment.

6. Section 5 (5) A. provides buffer zones for New Construction elements.
   a. Section (5) A. 2 includes a buffer zone of 25 – 100 feet for roads, driveways, and retaining walls. The proposed project includes a reinforced lawn access strip within the 25-foot buffer zone.
   b. Section (5) A. 3 includes a 50-100-foot buffer zone for commercial buildings. The proposed parking garage and building are located within the 50 - foot buffer zone.

   Response: Correct. The site currently has a parking lot and impervious pavement as well as parking directly adjacent to the BVW with limited or no setback. The proposed project will set all improvements and structures outside the 25-foot buffer which we believe is a substantial improvement over existing conditions.

7. Section 5 (5) C.2.c states that within 25 feet of wetlands, areas disturbed by construction must be planted with a continuous groundcover requiring no fertilizers or pesticides for maintenance. The edge of the wetlands located north of the proposed building and north and west of the proposed garage proposes some plantings and are to be seeded with erosion control/restoration mix.

   Response: Correct

8. Section 5 (6) requires existing condition hydrologic models to model existing impervious areas as open space in good condition. The existing condition hydrologic model includes .69 acres of area as paved parking. It appears that all existing impervious surfaces will be reconstructed and should be modelled as open space in good condition to be consistent with this section.

   Response: Section 5(6) references "impervious ground cover on the property are to be demolished, removed, or otherwise taken out of service".

Portions of the existing parking and access areas that are designated for removal and replacement with proposed building structures have been included in the hydrologic analysis as "open space in good condition" per the requirements of this section. Other portions of the existing parking and access areas that are being replaced but will remain in their existing function (i.e., not "taken out of service") were included in the hydrologic analysis as existing impervious cover.

9. Section 7 (B) requires the Commission to allow the alteration of up to 5000 square feet of wetlands. The Notice of Intent describes the alteration of 1885 square feet of wetlands. In order to provide a hydrologic connection between the wetlands and the compensatory storage provided beneath the proposed building and to the garage, additional disturbance to the wetlands north of the building may be necessary, which would increase the amount of wetlands disturbed and therefore the amount of replication needed. See additional comments below.

   Response: There are three existing hydrologic connections (drain pipes) between the parking lot swales and the adjacent wetlands. When the parking structure and building are constructed, these pipes will remain in place and will provide direct hydrologic connections between the storage facilities and the surrounding floodplain. Their reuse will not require additional wetland disturbance.

10. Section 7 (B) 7 regarding wetlands compensation area provides guidance regarding using materials from wetlands that are filled to be used in wetlands replication areas. The wetlands replication area is shown as 6,000 square feet on the plans. However, only half of the area shown as wetlands replication includes the excavation of material and the lowering of existing grades. We recommend that the wetlands replication area be designed by a Professional Wetlands Scientist and the area be designed to an elevation that will support wetlands vegetation growth. We recommend that the Professional Wetlands Scientist provide a narrative on the plans that describes the sequence for constructing the wetlands replication area.

    Response: The wetland replication area planting design was prepared by both a Landscape Architect and Wetland Scientist and 6500 sf of wetland replication are proposed . Further specifications have been added to the plans as requested.

Lexington Zoning Bylaws Section 135 -7.1 National Flood Insurance District

1. Section 7.1.6. 3 prohibits encroachments in the regulatory floodway that result in any increase in flood levels. The Applicant has provided floodplain compensation calculations. However, it does not appear that the floodplain compensation areas located below the building is hydraulically connected to the lower wetland's areas. Specifically, the floodplain compensation area has been designed to an elevation of 115. However, the spot grades adjacent to the edge of the building which contains a significant compensatory floodplain volume are approximately 115.8. We recommend providing an adequate hydrologic connection at or below elevation 115 to the floodplain compensation area beneath the building. We recommend that this connection allow water to recede from the floodplain compensation areas, so that standing water is not contained underneath the building. This

could result in additional disturbance to the wetlands. We recommend that a detailed grading plan be provided to demonstrate the connection.

Response: As noted in our response to Chapter 130, Item 9 above, there are three sets of existing drain pipes in the existing parking lot that will be reused for the project and which will provide an unrestricted hydrologic connection between the proposed flood storage area within the building and the surrounding wetland/floodplain. A more detailed grading plan is also provided under the building and parking structure.

Lexington Zoning Bylaws Section 176 Planning Board Zoning Regulation

1. Section 5.2.2.1.e requires a site analysis plan show the location and results of any soil, percolation, and water table test using the Department of Environmental Protection Soil Evaluation procedures under Title V. Soil borings were provided. Soil testing was not performed in accordance with Title V. We recommend that soil testing be performed consistent with Title V by a Licensed Soil Evaluator in the vicinity of the stormwater management facilities.

   Response: Four test pits were excavated on April 16, 2020 and observed by a licensed soil evaluator. The test pit logs are attached. See our response to Item 3 in the initial section of this letter.

2. Section 5.3.2 requires a Hydrologic Drainage Analysis be submitted. This analysis has been submitted. However, we have extensive comments regarding the preparation of the analysis. Please see additional comments throughout this letter.

   Response: See responses below

3. Section 5.3.2.3 requires estimates of flood elevations, groundwater, and surface water elevations. The site's 10-year and 100- year flood elevations will result in significant flooding of substantial areas of the site. The 10-year flood elevation is 117.25, which is over two feet higher than the top of Stormwater Treatment areas 3 and 4. This elevation is over one foot higher than the top of Stormwater Treatment areas 1 and 2. Much of the proposed pervious asphalt is below elevation 117.25. The 100-year storm elevation is 118.5. Seasonal high groundwater elevation is shown as 115, which means during wet times the stormwater management facilities will be substantially filled with water.

   Response: The stormwater management facilities are designed and have been modeled as wet basins with the understanding (and intent) that they will contain water. Corresponding standing water that may be periodically present in the treatment areas is reflected in the hydraulic analysis.

   See also our response to Item 3 in the initial section of this letter and our response to Chapter 130, Item 5 above. It is our opinion that although the various BMPs designed for the project may be impacted during extreme rainfall events reflective of the 10 and 100-year storm events, they are likely to perform their intended function during nearly 99% of rainfall events in a typical year. This design represents a

significant improvement from the current existing conditions.

4. Section 5.3.3 requires soil surveys, test pits and test borings. As described above, soil borings were done in the vicinity of the proposed building and parking garage. We recommend that test holes be performed by a Title V Licensed Soil Evaluator in the vicinity of the stormwater management facilities to determine seasonal high groundwater.

   Response: Four test pits were excavated on April 16, 2020 and observed by a licensed soil evaluator. The test pit logs are attached. See our response to Item 3 in the initial section of this letter.

5. Section 6.4.2.10.b requires the submittal of hydrologic and drainage analysis for projects requiring a Special Permit. This analysis has been submitted. However, we have extensive comments regarding the preparation of the analysis. Please see comments below.

   Response: See responses below

6. Section 6.4.2.10.c requires soil surveys, test pits and test borings. As described above, soil borings were done in the vicinity of the proposed building and parking garage. We recommend that test holes be performed by a Title V Licensed Soil Evaluator in the vicinity of the stormwater management facilities to determine seasonal high groundwater.

   Response: Four test pits were excavated on April 16, 2020 and observed by a licensed soil evaluator. The test pit logs are attached. See our response to Item 3 in the initial section of this letter.

7. Section 9.5.5 requires projects seeking site plan review to meet the stormwater management standards described in Section 114 of the Code of Lexington and their rules and regulations, the Board of Health Regulations, and the Massachusetts Department of Environmental Protections Stormwater Management Standards. Please see portions of this letter regarding specific comments pertaining to those requirements.

   Response: See responses to those portions of the letter.

Lexington General Bylaws Chapter 181, Department of Public Works

1. Section 181-71 A (1) (a) regarding regulation of stormwater management practices states that “Any activity that results in a land disturbance greater than once acre of land…” is subject to the requirements of the stormwater bylaw. Although Section 181-71 A (2) regarding exemptions states that “Stormwater discharges that are wholly subject to jurisdiction under the Wetlands Protection Act …… and demonstrate compliance with the Massachusetts Storm Water Management Standards” are exempt from this bylaw, we feel that review under the requirements of this bylaw are appropriate and necessary. The intent of this review is to determine compliance with the Massachusetts Storm Water Management Standards. Therefore, EP’s approach to this review is to review the project for all applicable – or possibly applicable – standards and bylaws.

Response: As stated above, the "Stormwater discharges that are wholly subject to jurisdiction under the Wetlands Protection Act …… and demonstrate compliance with the Massachusetts Storm Water Management Standards" are exempt from this bylaw. This project is subject to the jurisdiction of both the Wetlands Protection Act and the Town of Lexington Bylaw. In order to receive an Order of Conditions, the project must show compliance with the Stormwater Policy and local requirements and should be exempt. However, as requested, we will file a stormwater management permit under Lexington Stormwater Regulations Chapter 181, Article VI

2. Section 181-72 B requires a number of items be submitted in order to obtain a stormwater management permit. We have not received any specific items regarding the project required by the stormwater management permit as described in this section including the following:
    a. Section 181-72 B. (1) (a) Application form.
    b. Section 181-72 B. (1) (b) Projected dates of commencement and completion of construction activities.
    c. Section 181-72 B. (1) (d) List of abutters.
    d. Section 181-72 B. (1) (e) List of waivers.
    e. Section 181-72 B. (1) (i) [1] Copy of notice of intent to comply with the Construction General Permit. Typically, this would be submitted closer to the time of construction.
    f. Section 181-72 B. (1) (i) [2] Copy of receipt of EPA authorization letter. This is issued by EPA following the filing of a notice of intent.
    g. Section 181-72 B. (1) (j) A surety bond.
    h. Section 181-72 D. (1) (a) Notice of fee submittal for the stormwater management permit.
    i. Section 181-72 E. (2) Notice of abutter notification.

    Response: As noted in the previous comment, we believe the project is exempt from filing for a stormwater management permit. However, since we have agreed to file the permit, we will include the aforementioned documents.

3. Section 181-73 A. requires the project meet the Massachusetts Department of Environmental Protection Stormwater Management Standards. Please see additional comments pertaining directly to these Standards.

    Response: See responses below

4. Section 181-73 B. (2) (a) requires evaluation and implementation of Low Impact Development practices. The stormwater management practices proposed as part of the project are considered Low Impact Development Standards.

    Response: Acknowledged.

5. Section 181-73 B. (2) (e) requires velocities in gutters to be not more than 5 feet per second. The Applicant should provide information regarding stormwater velocities in gutters.

    Response: Of the several portions of the proposed access drives that include curbs,

the entrance drive from Hartwell Avenue includes the steepest running slope at 8.0%. The forthcoming hydraulic model will include an evaluation of gutter flow condition at this location.

6. Section 181-74 A. (8) requires that stormwater management facilities that are used as a BMP after construction cannot be used as BMP's during construction. The Sediment and Erosion Control plans show two sediment bays. One is in the same area, and same general configuration, as stormwater treatment area 2. The other is in the same location as the wetland's replication area and stormwater treatment area 4.

   Response: We understand that this requirement prohibits reuse of a construction period stormwater BMP in the post-construction phase. Although the temporary sediment basins to be used during the construction period are in the same locations as the post-construction stormwater management BMPs as indicated, they will be completly reconstructed for their post-construction use and will not be reused in accordance with this requirement.

7. Section 181-74 contains numerous notes that should be added to the Sediment and Erosion Control plans. Generally, notes should be added to the plans similar to the requirements stated in items (9) through (22) of this section.

   Response: We will add the notes as requested.

8. Section 181-75 B (3) (b) requires a completed SWPPP be submitted as part of its Stormwater Permit application. The SWPPP that was submitted was an early draft with significant information missing.

   Response: See our response to Item 4 in the initial section of this letter. It is not possible for the Applicant to finalize the SWPPP until a contractor is selected for the project. The final SWPPP will be completed by the contractor eventually selected and a copy of the final version will be provided to the Town of Lexington.

9. Section 181-75 B (4) (b) [1] requires the name, address, and contact information of the owner in the Operations and Maintenance Plan. This should be provided in the Operation and Maintenance Plan.

   Response: We will add the contact information of the owner as requested.

10. Section 181-75 B (4) (b) [2] requires the signature of the owner in the Operations and Maintenance Plan. This should be provided in the Operation and Maintenance Plan.

    Response: The owner's signature will be added.

11. Section 181-75 B (4) (b) [3] requires the name, address, and contact information of the persons responsible for site operations in the Operations and Maintenance Plan. This should be provided in the Operation and Maintenance Plan.

    Response: We will add the name and address of the individual responsible for site operations as requested.

12. Section 181-75 B (4) (b) [5] requires descriptions of all easements – if any – be provided regarding stormwater management. We assume that no easements are being created for the stormwater management facilities since this is a private development project. However, there is a 20- foot wide drain easement shown on the site in the existing conditions plan. The purpose of this easement is unclear. We recommend the applicant provide details regarding the existing drain easement. The applicant should confirm that the proposed project does not preclude the development of the proposed project.

    Response: There is a drain easement that traverses the property north/south as shown on the existing conditions plan. Please refer to our response to staff comments regarding the intent of this easement and its possible relocation.

13. Section 181-75 B (4) (b) [6] requires an inspection and maintenance schedule be provided for all stormwater management facilities. The Operations and Maintenance Plan should include the proper stormwater management practices. For instance, the Operations and Maintenance Plan includes Deep Sump and Hooded Catch Basins. It does not appear that these structures are proposed as part of the project. Also, the proposed project includes a wet basin. An Operations and Maintenance Plan should be provided for a wet basin. The schedule should include who will be performing the inspections as well as who the results will be reported to.

    Response: The Operations and Maintenance Plan will be revised/augmented to reflect the above comment.

14. Section 181-76 A. requires the posting of a stormwater completion surety.

    Response: If the Town requires a surety and this requirement cannot be waved, one will be posted.

15. Section 181-76 B and C requires preconstruction meetings, inspections, etc. We recommend that the requirements of this section be added to the Sediment and Erosion Control Plan.

    Response: We will add this requirement to the Sediment and Erosion Control Plan.

16. Section 181 Attachment VI-C (7) (e) [10] requires a calculation of directly connected impervious area. This should be provided.

    Response: Nitsch Engineering will provide this calculation as part of the revised Stormwater Management Report.

17. Section 181 Attachment VI-C (7) (e) [10] requires a calculation of disconnected impervious area. This should be provided.

    Response: Nitsch Engineering will provide this calculation as part of the revised Stormwater Management Report.

18. Section 181 Attachment VI-C (7) (f) requires a summary table showing existing and

proposed impervious areas draining to each stormwater management facility. This should be provided.

Response: Nitsch Engineering will provide this information that will be reflective of the data included in the hydrologic analysis.

19. Section 181 Attachment VI-C (7) (g) requires soils and test pit information consistent with the Massachusetts Stormwater Handbook. As described elsewhere in this letter, this information should be provided.

Response: See previous responses.

20. Section 181 Attachment VI-D (1) (l) requires the sequence and timing of soil disturbing activities and the general construction sequence. This information should be provided.

Response: This information will be provided by the selected contractor for the project and will be reflected in the final SWPPP to be provided.

Massachusetts Department of Environmental Protection Stormwater Management Standards

1. Standard 1 – The proposed project is routing all stormwater generated by impervious surfaces that will be travelled by motor vehicles to stormwater management facilities. However, as described in other sections of this letter, we have concerns regarding the effectiveness of those facilities given the floodplain elevations and estimated seasonal high groundwater elevations. Also, we recommend that sized rip-rap pads be placed at the pipe end of the pipe connecting stormwater treatment basin 1 and 2. We also recommend that a rip-rap pad be placed at the end of the existing pipe that is proposed to include a wye connection from stormwater treatment area 1.

   Response: See our previous responses related to the functionality of the stormwater management facilities. The drawings will be augmented to include placement of rip rap aprons at the locations indicated above.

2. Standard 2 – The proposed calculations show a decrease in peak flows when comparing the existing and proposed peak flows. We have a number of comments regarding these calculations which will impact meeting the requirements of this Standard as follows:
   a. As described in Chapter 130 Section 5 (2) above, the design points for evaluating runoff should be at the furthest downstream property boundary or location of a discharge to a protected resource area, whichever is further upstream. The proposed project does not evaluate flows at discharge points to a protected resource area. We would expect that the analysis would include upland areas only and evaluate discharges to the wetlands on site. The proposed analysis includes wetlands resources in the watershed areas. The project should be evaluated for its discharges to wetlands and the wetland areas be removed from the watershed analysis.

      Response: See our previous response to this comment in Chapter 130, Item

2.

b. As described in Chapter 130 Section 5 (6) above, the existing condition hydrologic model is required to model existing impervious areas as open space in good condition. The existing condition hydrologic model includes .69 acres of area as paved parking. It appears that all impervious surfaces will be reconstructed and should be modelled as open space in good condition.

Response: See our previous response to Chapter 130, Item 8.

c. The existing condition includes a landscaped island in the existing parking lot that contains a delineated wetland resource as well as a depression. This area will collect stormwater and detain it during lower flows, before the depression fills and stormwater flows across the parking lot into the existing wetlands. We suspect this landscaped area was designed to provide stormwater mitigation when this parking lot was designed and constructed. The existing conditions model does not account for the water that is detained in the landscaped islands. We believe this should be accounted for in the existing conditions model.

Response: 91 Hartwell was subject to a Notice of Intent and Order of Conditions issued in 1978. This project predated the Mass Stormwater Policy and based on our review of the documents, it does not appear that the swales were designed to attenuate any storm events, just to collect stormwater sheeting to the swales and discharging sheet drainage to the adjacent wetlands. Nevertheless, the existing conditions hydrologic model will be modified to account for the depressions as indicated.

d. As described above, the estimated seasonal high groundwater elevation is described as elevation 115. Therefore, we believe the stormwater treatment areas should be modelled to include inundation by estimated seasonal high groundwater. Stormwater Treatment Area 3 did not account for seasonal high groundwater and storage in the basin was modelled to elevation 112.75. Also, the outlet control device for Stormwater Treatment Area 3 is modelled as two 18" culverts. The plans show one 12" pipe exiting Stormwater Treatment Area 3. Given the poor soils, high groundwater, and lack of infiltration, we would expect that storage modelled for Stormwater Treatment Area 3 would begin at the outlet pipe elevation, 114.5, and not 112.75 as shown in the model.

Response: Based on the estimated seasonal high groundwater elevation of EL. 113.0 identified in the vicinity of Treatment Basin 3 we believe that the modeling as presented is accurate relative to the basin volume. Although exfiltration from the bottom of the forebay will be limited by the silt loam soil conditions, the basin should drain via horizontal flow through the more porous fill material. The revised Stormwater Report will reflect reconciliation of the pipe discrepancy noted.

e. As described above, the 10-year flood elevation is at elevation 117.25. During this storm event, all stormwater facilities will be submerged. Therefore, the modelling provided is not accurate.

Response: Due to the physical limitations inherent to the project site it is not possible to locate the facilities above the 10-year flood elevation. The Applicant acknowledges that the BMPs will likely be submerged under a flooding event. However, flood events and extreme storm events are not necessarily coincident. In our opinion, evaluation of the BMPs under extreme storm events up to and including the 100-year design storm event is accurate insofar as it tests the functionality of the BMPs under high flow conditions. These conditions could occur under circumstances where the site experiences a high-intensity rainfall event during a period where the surrounding floodplain elevations are low. Please see also our response to Chapter 130, Item 5 above relating to the benefit that the treatment systems will provide to the surrounding wetland resource area during most ordinary rainfall events.

f. The calculations generally show less than one foot of freeboard for all stormwater management facilities for all storms, implying that the facilities are undersized as modelled.

Response: The scales of the stormwater management BMPs have been maximized relative to the site redevelopment programming requirements for the project. The Applicant acknowledges that careful construction of the facilities will be required to ensure that their as-built condition effectively reflects the dimensional design intent.

3. Standard 3 – Groundwater recharge calculations are provided which describes the porous asphalt system in the emergency truck access driveway providing the required groundwater recharge volume. We have the following comments regarding compliance with Standard 3.
   a. The Standards state that porous asphalt should be used in appropriate soil conditions and the bottom of the reservoir course should have two feet of separation between the bottom of the infiltration facilities and estimated seasonal high groundwater. As described above, estimated seasonal high groundwater will encroach on the reservoir course. Soil conditions, although not yet verified, appear to be of low permeability material which are generally not appropriate for porous asphalt. We do not feel that the proposed conditions on site are appropriate for porous asphalt and the applicant – and the Commission – should consider whether porous asphalt is the right application for this site.

   Response: Please see also our response to Chapter 130, Item 5 above relating to the benefit that the treatment systems will provide to the surrounding wetland resource area during most ordinary rainfall events. This condition also relates to the use of porous asphalt which will perform its intended function adequately despite the undesirable soil conditions and represents a net benefit to the project.

   b. The groundwater recharge calculations in the stormwater narrative describes recharge occurring via the porous asphalt. However, there are no infiltration rates

included in the modelling of the porous asphalt. The submitted narrative states that "the on-site soils are not conducive to infiltration" in the section describing groundwater recharge. Although the Applicant is contending that the porous asphalt is the practice providing the groundwater recharge, they are not accounting for it in the model, nor do they believe the soils are conductive to infiltration.

Response: The purpose of the porous asphalt is to reduce direct runoff from impervious surfaces during most rainfall events and is not intended to provide groundwater recharge due to the relatively impermeable natural soils (silt loam) which is why, as noted above, it was not accounted for in the hydraulic modeling that has been completed. As noted in Item a. above, it is our opinion that the use of the porous asphalt represents a net benefit to the project and will function as intended under most circumstances.

4. Standard 4 – During lesser storms, adequate water quality treatment will be attained. During higher storms when the site experiences flooding, the water quality elements of the stormwater management system could be flooded, possibly resulting in resuspension of solids.

   Response: The floodplain in the vicinity of the site exists is a backwater condition, meaning that flood water encroaches and recedes from the project site with extremely low velocity and resuspension of sediment is unlikely.

5. Standard 5 – We feel the proposed use is a Land Use with Higher Potential Pollutant Loads (LUHPPL). The Standards state that land uses that generate over 1,000 vehicle trips per day are considered LUHHPL. According to the traffic study, the proposed project will generate 1,050 vehicle trips per day. Therefore, it meets the definition of a LUHPPL.

   Response: Acknowledged.

6. Standard 6 – No comments.

7. Standard 7 – We agree that the site is a redevelopment site and needs to meet the Standards to the maximum extent practicable. However, the standard of 'extent practicable' is subjective. Therefore, we have performed this review to demonstrate compliance with each section of the Standards.

   Response: Acknowledged.

8. Standard 8 – Please see comments regarding the SWPPP and construction related impacts as outlined in the Town of Lexington's regulations.

   Response: See responses above.

9. Standard 9 – We have made comments regarding the submitted Operations and Maintenance Plans as outlined in the Town of Lexington's regulations.

   Response: See responses above.

10. Standard 10 – No comments.

General

1. As discussed during the conference call on March 26, 2020, additional information on the design of the 'Blue Roof' should be submitted. The figures submitted with the Notice of Intent show an area of Blue Roof on the garage and office building, but there are no details regarding how water will be contained and released from these areas. The letter submitted by Paul Finger Associates dated April 8, 2020 includes a cross section of the blue roof. We request that calculations be provided that show the volume of storage provided by the blue roof. Also, it is unclear if there are outlets from the blue roof and how water will be released. Details for outlets from this facility should be provided.

   Response: The Blue Roof and Green Roof design are usually a proprietary design element and a firm will be hired to provide this green initiative design at the time that construction documents are prepared. We would suggest that we prepare a performance specification and require a design and calculation to show compliance with the specifications prior to obtaining a building permit. The design and engineering would be stamped by a professional engineer.

2. As discussed on the conference call on March 26, 2020, additional information should be submitted regarding the routing of stormwater from the first story of the parking garage to the stormwater management system. The letter from Paul Finger Associates dated April 8, 2020 includes a quote from the 248 CMR 10.00 Section 10.09 (1) (b) (2) c that states that "Buildings or structures whose floor is unfinished or paved such that the surface is sufficiently porous that any gas, oil, or other petroleum distillates would be absorbed by the surface prior to reaching any separation or containment systems." We interpret this to mean that the first - floor surface material would need to be porous in order for this area to not be connected to an oil/water separator. Our understanding is that traditional pavement is proposed for the first floor. If that is the case than this area would need to be routed to the oil/water separator.

   Response: The Plumbing Board and Gas and Pipe Fitters indicated that they consider asphalt paving to be pervious, as oils and other volatiles will get absorbed into the pavement rather than be discharged from the surface. In the case presented, the bottom level of the building was asphalt and therefore the Plumbing Board determined a variance was not required as it was exempt from this provision of the Plumbing Code. If requested we can provide the construction documents for 746 South Street, Waltham in support of this condition. However, the applicant will install a gas and oil separator on the first floor to capture all drainage collected in the floor drains.

3. The Stormwater Pollution Prevention Plan (SWPPP) that was submitted is a very rough draft. The SWPPP is basically a boiler plate document with extensive information left to be included.

   Response: See responses above.

4. Additional information is needed regarding the design of the wetland's replication area. The plans show a wetland replication area of 6,500 square feet. However, it appears that only half of the area includes excavation to a lower elevation that may sustain the development of wetlands vegetation. We recommend that a Professional Wetland Scientist prepare a planting plan for the wetland's replication area as well a narrative – to be included on the plan set - that describes the process and procedures for constructing the wetlands replication area.

   Response: The wetland replication area planting design was prepared by both a Landscape Architect and Wetland Scientist. Further specifications have been added to the plans as requested.

5. More detail is needed regarding the floodplain compensation areas located below the garage and the building. We recommend a more detailed grading plan be provided with abundant spot elevations to show the limit of work associated with performing this grading work as well as insuring there is a hydrologic connection between the wetland areas and the floodplain areas located beneath the proposed office building and the parking garage. A more detailed grading plan may indicate that in order to establish a hydrologic connection to the floodplain compensation areas located beneath the parking garage and building, additional work may result in additional excavation in the wetlands, which would impact the Notice of Intent process.

   Response: See response above.

6. The site construction plans show permeable asphalt sidewalks. It does not appear that the permeable asphalt sidewalks were included in the stormwater model. We have similar concerns regarding the construction of the permeable asphalt sidewalks as we do the permeable asphalt driveway, given the elevation of groundwater on the site.

   Response: See our previous responses related to the benefit of inclusion of porous pavement surfaces for the project.

7. The site details include permeable pavers. It is unclear where the permeable pavers are located on the project.

   Response: All pavers within the project will be permeable pavers. The site drawing will clarify the materials used.

8. The stormwater report describes an impermeable liner beneath the sediment forebay. The sediment forebay detail should be revised to include an impermeable liner.

   Response: This liner may be eliminated in light of the updated soil information provided by the recent soil evaluation. The revised Stormwater Report will address this item.

9. The porous asphalt is described in the HydroCAD model as including check dams. Check dams are typically installed to allow water to infiltrate down rather than breaking out of the pavement when it is on a slope. However, due to the soil's conditions and high groundwater, water will not infiltrate down. Infiltration has not been included in the model.

Therefore, it could potentially break out of the pavement. Although it is described as porous asphalt with check dams, there are no check dams shown on the plans or details. There is no information provided regarding spacing, material, or installation of the check dams. If check dams are included, additional information regarding number, spacing, material, should be included.

Response: Information related to the proposed check dams, as well as overflow subdrains that will prevent breakout will be added to the plans.

10. We recommend that additional backup information be provided regarding how the Time of Concentration was calculated for the porous asphalt.

    Response: Additional information related to this item will be provided.

11. We recommend that the porous asphalt be cleaned with a vacuum truck. This requirement should be added to the Operations and Maintenance Plan.

    Response: Acknowledged.

12. We cannot verify the cut/fill plans in the vicinity of the garage. The garage is shaded so we cannot see the existing topographic information.

    Response: Clarification of this item will be provided.

13. It appears the cut and fill plans that accompany the memorandum dated November 14, 2019 are based on previously prepared grading plans. These plans should be updated.

    Response: The corresponding plan will be updated as indicated.

14. We recommend that the coir log detail be revised to include the height of the coir logs.

    Response: The detail will be revised as indicated.

15. The level spreader detail should be revised to show the level spreader dimensions.

    Response: The detail will be revised as indicated.

16. The plans show level spreaders along the north side of the proposed office building and parking garage. We understand that the stormwater generated by the office building will be routed to the porous asphalt and stormwater generated by the parking garage to the stormwater treatment areas located to the south of the building. The stormwater narrative states that the level spreaders will dissipate flow from the proposed office building and parking garage. This discrepancy should be resolved.

    Response: The revised Stormwater Report will address/clarify this discrepancy.

17. We recommend a concrete sill be added to the spillway detail to set the spillway elevation.

    Response: The detail will be revised as indicated.

18. We recommend sizing calculations be provided for all rip-rap pads.

Response: Rip rap sizing calculations will be provided in the revised Stormwater Report.

19. The 12" reinforced concrete pipe discharging from Stormwater Treatment area 1 has inverts that range from 115.25 to 115.5. The proposed grade in this area is approximately 117. This pipe will have less than one foot of cover. The applicant may want to consider a ductile iron pipe at this location because of minimal cover.

    Response: Alternate pipe material / configuration in this location is being evaluated.

20. We recommend that rip-rap pads be placed at the pipe end of the pipe connecting stormwater treatment basins 1 and 2.

    Response: The pipe connecting basins 1 and 2 is intended to provide a passive hydraulic connection between the two basins and erosive velocities at the pipe ends is not anticipated.

21. High groundwater elevations may impact the stability of the emergency access path that is located north of the parking garage and office building. Grades in these areas are within one foot of the estimate's seasonal high groundwater elevation.

    Response: There is a maintenance access pathway on the north side of the garage and proposed building. Emergency access is located between the garage and proposed building and a limited area located on the east side of the site. These pathways will require a gravel base in addition to an engineered turf in order to support the load of an emergency vehicles even during saturated conditions.

PAUL FINGER ASSOCIATES

Paul Finger

Digitally signed by Paul Finger
DN: C=US, E=pfinger@pfai.net, O=Paul Finger Associates, CN=Paul Finger
Reason: I am the author of this document
Date: 2020.04.21 10:10:32-04'00'

Paul Finger, RLA
President

Enclosures:

	LSK-01	Wetland Replication Plan
	LSK-02	Plant List
	LSK-03	Grading Plan under Garage
	LSK-04	Grading Plan Under Building
	Form 11	Test Pit Logs
	Figure 1	Test Pit Location Plan
	396P	Flood Profiles

cc: Karen Mullens, Lexington Conservation Director
Amanda Loomis, Lexington Planning Director
Scott Turner, Environmental Partners
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