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December 4, 2013

Subject:       Munjoy Heights  
                  Final Level III Site Plan Application  
                  Comment Response Letter

On behalf of Redfern Properties, LLC we are pleased to respond to Woodard & Curran's November 20<sup>th</sup>, 2013 Memorandum.

To facilitate the review comments are provided below in italics followed by Acorn Engineering, Inc.'s response.

**Woodard & Curran – Peer Review Memo**

- 1) *In accordance with Section 5 of the City of Portland Technical Manual, a Level III development project is required to submit a stormwater management plan pursuant to the regulations of Maine DEP Chapter 500 Stormwater Management Rules, including conformance with the Basic, General, and Flooding Standards. We reviewed the project against each of these standards and offer the following comments:*
  - a) *Basic Standards: The Applicant has provided a stamped and signed erosion and sediment control report along with a plan, notes, and details to address erosion and sediment control requirements, inspection and maintenance requirements, and good housekeeping practices in general accordance with Appendix A, B, & C of MaineDEP Chapter 500.*
  - b) *General Standards: The project will result in a net increase in impervious area of approximately 31,975 square feet. As such, the project is required to provide stormwater management features for stormwater quality treatment. Based on the information provided and the statements contained in the Stormwater Report, the design of the Underdrained Subsurface Sand Filter was performed in accordance with the General Standards.*
  - c) *Flooding Standard: The project will result in a net increase in impervious area of approximately 31,975 square feet. As such, the project is required to provide stormwater management features to control the rate of stormwater runoff from the site, such that the peak rate of runoff from the post-development site will not exceed that from the pre-development site. Future submissions should address the following comments to properly demonstrate compliance with this standard:*
    - i) *The Applicant has utilized a “direct entry” time of concentration of 5 minutes for all subcatchments in the pre and post-development conditions. The Applicant should calculate a time of concentration for the catchments.*

**Response** – The Stormwater Management Report, Pre-development, Post-development Plans and HydroCAD Calculations were revised to include a time of concentration length, slope and surface condition for each subcatchment.

- ii) Pond 1P within the HydroCAD report - the depth of crushed stone in “Volume #2” has been modeled as 3.5-feet; however, it is detailed on the plans as 3.25-feet. The Applicant should clarify and revise as necessary.*

**Response** – The detail was revised match the HydroCAD Report.

- iii) Although the result of the Pre and Post Development stormwater modeling exercise indicates that the project will not result in a net increase in stormwater runoff rate from the overall project site, the amount of flow directed to the Walnut Street drainage system will increase while the amount of flow directed to properties that abut Washington Ave and East Cove Street (below the project property) will decrease. This was the direction provided to the Applicant by the City at the project Pre-Application meeting. The Applicant has calculated flow data for the project, and using this data, the Applicant should confirm with the City DPS that the drainage system in Walnut street (and downstream combined sewer systems) has adequate capacity to convey these additional flows.*

**Response** – The City DPS, in an email on November 28<sup>th</sup>, 2013, confirmed that they agreeable with the additional stormwater generated by this development to Walnut Street until the existing combined sewer system is separated within the next three years.

- 2) *The proposed Underdrained Subsurface Sand Filter (USSF) BMP should comply with Section 7.3 of Volume III of the MaineDEP Stormwater BMP Manual as follows:*
- a) Tables 3 and 4 of the Stormwater Management Report should reflect the total area contributing to the USSF and should be consistent with the numbers contained in the HydroCAD report.*
  - b) StormTech recommends that additional access structures be provided when the length of the Isolator Row exceeds 50 feet. The structure may be added at the opposite end of the Isolator Row or in-line with the Isolator Row at every 50 foot interval.*
  - c) Future submissions should clarify the pipe invert elevations currently indicated as “TBD”.*
  - d) The Applicant should provide a detail for the proposed Access/Diversion Structure for the Isolator Row, specifically the pipe connections from this structure to the USSF.*

**Response** – The Stormwater Report and Underdrained Subsurface Sand Filter Detail was revised to address the concerns noted above.

- 3) *The USSF is proposed on a steep fill slope; as such, the geotechnical engineer should provide a review of the system design relative to potential impacts on slope stability.*

**Response** – The Geotechnical Engineer has reviewed the USSF and confirmed in an email that Summit Geoengineering Services is not concerned that the system will impact the global stability of the site. This email was forwarded on to the City and Dave Senus – Woodard & Curran.

- 4) *The Post-Construction Stormwater Inspection & Maintenance Plan refers to attached documents (a Stormwater Drainage System Maintenance Agreement & StormTech Isolator Row Proprietary Operation and Maintenance Plan), which have not been provided at this time. Future submissions should include all referenced attachments.*

**Response** – The Post-Construction O&M Manual was updated to include the Rain Garden BMP and the proprietary StormTech O&M Plan as an attachment. A Stormwater Drainage System Maintenance Agreement will be forthcoming along with the Condominium Documents.

- 5) *Future submissions should include the following details, which may need to be either added or revised in accordance with the City of Portland Technical Manual, for work within the Right-of-Way:*
- a) *Brick Sidewalk*
  - b) *Vertical Granite Curb & Tipdown*
  - c) *Pedestrian Ramp*
  - d) *Pipe trench*

**Response** – The Detail Sheets were either added or revised to include the above details.

- 6) *Future Submissions should include a detail for the proposed field inlet.*

**Response** – Detail Sheet C-41 includes an inline drain detail with the proposed field inlet.

- 7) *Future Submissions should specify proposed pipe materials for the storm drain system.*

**Response** – Drawing Sheet C-30 notes that all storm drain pipe shall conform to City of Portland Technical Manual Section 2.5.2.

- 8) *The plans should indicate either preservation of, or demolition and proper abandonment of the existing utilities in the site entrance driveway.*

**Response** – Drawing Sheet C-20 indicates the located utilities that are to be preserved, demolished or abandoned.

- 9) *The Portland Water District's letter noted several Conditions of Service regarding the configuration of the development's connection to the Public water main; we recommend that obtaining final approval from the Portland Water District be made a condition of approval. The Portland Water District also noted in their Conditions of Service that the two inch galvanized main in the vacated paper street should be terminated. The Applicant should provide sufficient notes detailing the demolition and removal of this water main.*

**Response** - The notation on our plans regarding the abandonment of the two inch galvanized main is a result of Acorn's meeting with the PWD on October 24<sup>th</sup>, 2013. Acorn Engineering will continue to coordinate the plans with the Portland Water District to meet their Conditions of Service.

10) *Per Section 13 of the City's Technical Manual, the Applicant is required to submit a Boundary Survey that has been Stamped by a Maine Licensed Professional Surveyor. At this time, a stamped boundary survey has not been received.*

**Response** – It is Acorn Engineering’s understanding that Nadeau Land Survey has provided an electronic stamped boundary survey to the City.

11) *Disturbances over one acre require filing a Notice of Intent to Comply with the Maine Construction General Permit with the MaineDEP. Copies of this permit should be forwarded to the City for the project record.*

**Response** – Acorn Engineering will submit the NOI for the MCGP. A copy of the permit will be forwarded to the City at such time.

12) *Sheet C-20 depicts a site sewer pipe below the trees located along the north edge of the woonerf. We recommend shifting the utilities south to avoid root penetration and potential conflicts with the trees and the sewer system.*

**Response** – The following response is from Soren Deniord, “All proposed trees within a 5' proximity of the sewer pipe will be planted at a depth no greater than 3' deep. Permeable landscape fabric will be used to create a root barrier around sewer pipes.”

Acorn Engineering also added a note to Drawing C-20 allowing the Contractor to obtain approval from the PWD to reduce the horizontal separation from 10 ft. to 5 ft. thereby shifting the sewer pipe away from the proposed trees.

13) *Sheet C-20, Note 5 states that the units have individual service connections to the utilities, but that these service connections are not shown for clarity. Utility connections to all buildings should be included on the plans.*

**Response** – Drawing C-20 now includes the approximate location for individual water and sewer service connections.

14) *Sheet C-20, Note 6 states that transformer pad locations will be determined by CMP prior to construction. The plan should indicate potential transformer pad locations (based on unit needs and setbacks); these can be labeled as approximate pending confirmation by CMP and future review /approval of the City.*

**Response** – Drawing C-20 now includes potential transformer pad locations.

15) *Sheet C-20, the pavement sawcut proposed across Walnut Street should be squared off on the north and south side of the work, with a straight line across the road running curb to curb.*

**Response** – Drawing C-20 the proposed sawcut line is now perpendicular to the existing curb.

16) *Sheet C-20, it is unclear how fire and domestic water services can be provided to Units 1,2 & 3 given the location of the fire meter pit relative to the building.*

**Response** – This should be clarified with the addition of the proposed individual service connections.

17) *Sheet C-30 indicates a proposed location for potential rain gardens. Future submissions should clarify the design of these rain gardens.*

**Response** – *Drawing C-30 and C-42 clarify the design of the rain gardens.*

18) *Sheet C-30, additional detail should be added to the grading and drainage plan to ensure that runoff from the driveway does not enter onto the Rando Parcel (south/west of the entrance driveway).*

**Response** – This was not addressed on Drawing C-30. A revised drawing will include sloped granite curb to redirect the stormwater towards the proposed rain garden and USSF.

19) *Sheet C-30, the foundation and retaining wall underdrains shall not be allowed to connect to the existing combined sewer on East Cove Street. Per consultation with City DPS staff, the Applicant shall be allowed to run a separated storm drain line for these “clean” water connections to the combined sewer on Washington Avenue for future separation. Agreements for work in East Cove Street would be required from the abutting landowners.*

**Response** – The underdrains will now be connected to a series of weep holes within the base of the wall and not the existing combined sewer within East Cove Street. The City DPS, in an email on November 28<sup>th</sup>, 2013, confirmed that they agreeable with this concept.

20) *Sheet C-30, it is unclear how building roofs are connected to the stormwater collection system.*

**Response** – Runoff from the roof of building units 1-18 will outlet to the rear of the units onto the ground surface before entering into one of seven field inlets. Units 19-24 will outlet subsurface to the front before entering the drainage system. Units 25 – 29 will outlet subsurface to the front before connecting directly into the side of the StormTech chamber. Runoff from the roof of building units 1-29 will be tributary to the USSF.

21) *Sheet C-30/C-43, the Applicant should provide a detail for temporary catch basin inlet protection in addition to indicating the proposed location(s) on the plan.*

**Response** – Drawing C-30 and C-41 now note the location and provides a detail for the temporary catch basin inlet protection.

22) *Sheet C-31, the centerline profile indicates that Existing SMH1 and Existing DMH1 in Walnut street have 2’ deep sumps. This would not be a standard condition for City manholes. The applicant should review and revise the plan accordingly.*

**Response** – The two ft. sump was eliminated from the centerline profile for existing SMH1 and DMH1.

23) *Sheet C-32, the Applicant has noted that Summit Engineering Services in coordination with Structural Integrity Consulting Engineers, Inc., shall provide the retaining wall design, global stability analysis, and the design of the temporary soil restraint measures, as required. We recommend that it be made a condition of approval that this design be completed and submitted to the City as part of the Building Permit process prior to construction, and that it be stamped by a professional engineer.*

**Response** – No further comment necessary.

24) *Sheet C-41, the proposed Drain Manholes within the City Right-of-Way should match the Standard Precast Sewer Manholes, with the cover marked as “Drain”.*

**Response** – On Drawing C-41 a note was added to the Standard Precast Sewer Manhole to address the comment above.

25) *Sheet C-43, the stone size specified for the stabilized construction entrance should agree with the MaineDEP BMP Manual and the Erosion and Sedimentation Control Report.*

**Response** – The stabilized construction entrance stone size was revised to be in accordance with the MaineDEP BMP Manual and the Erosion and Sedimentation Control Report.

26) *Sheet L-1.0, it appears that a tree may be proposed within the footprint of the underdrained subsurface sand filter system, please revise or clarify.*

**Response** – The USSF does not include one StormTech Chamber beneath the proposed tree. Soren Deniord has reviewed the proposed location of the tree along with the geometry of the USSF and is comfortable with the size of the opening for the root ball and tap root.

Please let me know if you have any additional questions or comments.

Sincerely,



William H. Savage, P.E.  
Project Manager  
Acorn Engineering, Inc.

Attachment:

1. Updated Munjoy Heights Detail Sheets – 12-4-13