



MEMORANDUM

TO: Marisa Tiberi, P.E.

FROM: Hormoz Pazwash, Ph.D., P.E., D.WRE

DATE: June 1, 2020

SUBJECT: USRES-540
Self-Storage Facility
100 Route 17 North
Lot 7.01, Block 1304
Borough of Upper Saddle River
Bergen County, New Jersey

I have reviewed the following listed revised plans, calculations report, Manual and letter of response, prepared by L2A Land Design, LLC:

* A set of plans, in 14 sheets, entitled "Preliminary & Final Site Plan, Proposed Self Storage Facility, 100 N.J.S.H. Route 17 North, Borough of Upper Saddle River, Bergen County, New Jersey, Block 1304; Lot: 7.01; Tax Map: 13, Zone: H-1R (Highway Retail & Commercial District & R-1 (Residence District)", dated January 17, 2020, revised May 1, 2020, and consisting of:

- "Cover Sheet," Drawing C-01
- "Existing Conditions & Demolition Plan," Drawing C-02
- "Aerial Photography," Drawing C-02A
- "Site Plan," Drawing C-03
- "Grading, Drainage & Utility Plan," Drawing C-04
- "Landscaping Plan," Drawing C-05
- "Lighting Plan," Drawing C-06
- "Soil Erosion & Sediment control Plan," Drawing C-07
- "Truck Turning Plan," Drawing C-08
- "Details-1," Drawing C-09
- "Details-2," Drawing C-10
- "Details-3," Drawing C-11
- "Details-4," Drawing C-12
- "Details-5," Drawing C-13

* A plan entitled, "Soil Movement (Cut-Fill)," Drawing SM-01, dated January 17, 2020, revised May 1, 2020.

* "Stormwater Management Report," dated January 17, 2020, revised May 1, 2020. Included in the report are three (3) drainage area maps, dated January 17, 2020, signed May 1, 2020, and consisting of:

- "Existing Drainage Area Map," Drawing DA-01
- "Proposed Drainage Area Map," Drawing DA-02
- "Inlet Drainage Area Map," Drawing DA-03

Also included in the report are:

- A March 22, 2016 memorandum by L2A relating to soil boring test
- A March 9, 2016 Geotechnical Engineering Report by Johnson Soils Company

* "Stormwater Management Maintenance Manual," dated March 16, 2020, revised May 1, 2020.

* A May 18, 2020 transmittal letter from Michael Dipple, P.E., to the Planning Board, Borough of Upper Saddle River. This letter also includes a response to our comments.

I have also reviewed:

* "ALTA/NSPS Land Title Survey Tax Lot 7.01, Block 1304, 100 Route 17 North, Borough of Upper Saddle River, Bergen County, New Jersey," dated November 7, 2019, and prepared by Lakeland Surveying.

Based on my review, I have the following comments on drainage and stormwater management elements of the project:

1. The date of Survey which is noted October 29, 2014 and August 26, 2019 on Drawing C-02 is inconsistent with the Survey by Lakeland Surveying, which is dated November 7, 2019.
2. The divide between the existing areas DA-1 and DA-2 and the divide between Areas DA-2 and DA-3 do not fully agree with the topography. The limits of these areas should be re-delineated to conform with the topographic data.

3. Runoff calculations for the existing conditions are based on a 6 minute time of concentration for both paved and pervious areas. While 6 minutes is reasonable for the paved areas, it underestimates the time of concentration, and therefore exaggerates the peak runoff from the pervious area. Calculations for the time of concentration should be revised accordingly. Runoff calculations for the existing conditions should be revised accordingly.
4. Runoff calculations for the existing area DA-3 are based on an overall area of 0.33 acres, comprising of 0.29 acres of impervious cover and 0.04 acres of pervious cover. However, area DA-3 is labeled as 0.34 on the Existing Drainage Area Map. This discrepancy should be resolved.
5. A breakdown of storage volume in chambers and void volume in stone trench should be provided in support of the storage-stage tables for the chambers in Basins 1 and 2.
6. A copy of the Survey by Kenderian Zilinski Associates, dated May 16, 1999, should be submitted to address my previous comment no. 16. Specifically, it should be proven that no runoff from Lots 6.09 and 6.08 flows to the site and enters the detention basin.
7. As was previously indicated, direct connection of Inlets 1, 2, 3, 4 and 9 through 14 to the underground Detention-1, which functions as a detention-infiltration basin, is unacceptable. The NJDEP requires all the runoff from pavements receive 80% TSS removal before entering any infiltration basin. The proposed isolator row does not meet this requirement. Therefore, either filters, approved for 80% TSS removal should be incorporated in the design or alternately solid pipes should be substituted for the proposed chambers in the stone trench.
8. Details for subsurface basins 1 and 2 on Sheet C-13 should be revised to be consistent with the Grading, Drainage & Utility Plan (Sheet C-04). Specifically, Sheet C-04 shows four (4) rows of chambers and one (1) isolator row in basin-1, whereas, the detail shows three (3) rows.

Also, Sheet C-04 shows 4.5 rows of chambers, and two (2) rows of isolator; however, the detail depicts three (3) rows of chambers, and just one (1) row of isolator.
9. Contrary to the letter of response, the Grading, Drainage and Utility Plan does not show any Flo-Gard + Plus Filter for the trench drain detail. These short comings should be corrected.
10. We understand that soil logs and percolation tests are to be performed at the location of underground basins, and test results furnished to the Borough.

11. The proposed structure (OCS-1) in underground basin 1 includes a 2.5" orifice at elevation 282.0', and 8.25" orifice at elevation 283.65', as well as a 12" long overflow weir at elevation 285.55'. As was previously indicated, a 2.5" orifice is highly vulnerable to clogging, and since it is hidden 6.5' (288.50' – 282.0') below ground, it can be left undetected. Considering functionality and maintenance, this office strongly recommends using a 6" orifice as the minimum size of an opening in any underground detention basin. The proposed outlet structure OCS-1 should be revised accordingly. Likewise, the outlet in Basin 2, which includes a 2.5" orifice, 6.5' below the manhole covers.

We understand that the NJDEP allows the use of a 2.5" orifice; however, the burden of responsibility of maintenance falls on the shoulders of the developer.

12. As was previously indicated the proposed stormwater management system does not incorporate any measure to address the low impact development requirement. On the contrary, it proposes the use of 14 inlets, two (2) trench drains, four (4) manholes, two (2) outlet structures, and nearly 950 feet of pipe. The stormwater management system should be revised to address this requirement. See the next comment.
13. We suggest, once again, that the underground basins are redesigned to serve as retention-infiltration basins for the roof runoff alone. The retention storage is adequate to fully retain the runoff from the entire building roof. A 6" overflow may be provided for emergency. Following the above suggestion, the project will eliminate the need for treatment devices, outlet structures, majority of inlets and pipe reaches. It will also reduce the runoff to Route 17 drainage system, and more importantly, lessen the maintenance significantly.
14. We also recommend substituting a bi-level building to eliminate most, if not all, of the retaining wall, and all of the inlets and pipes.
15. It should be demonstrated that the proposed diversion of runoff from the southerly property to the northerly property serves as a replacement of an existing system and that it will not adversely impact the latter property
16. The Stormwater Management Maintenance Manual should be revised/amended as follows:
 - a. The email address of the responsible party for maintenance should be indicated on Page 1.

- b. The Manual refers to 1" of rainfall which is undefined (Sheet 5, Sec. VII A & B-1). The storm duration should be specified. We suggest that the rainfall is defined as 1" in one (1) hour. Note that rainfalls exceeding one (1") inch occur many days in New Jersey, and the proposed inspection frequency (reads procedure) will require excessive unnecessary inspections
- c. Table 2 should be revised to be consistent with Table 1 in terms of rainfall duration.
- d. The StormTech chambers cannot be entered. Section V, referring to entry, should be removed/modified.
- e. Included in the manual are preventive and emergency maintenance measures (see Section IX and X on page 9). Corrective maintenance should be included in the Manual.
- f. The Manual should include an inspection and a maintenance checklist for all elements inclusive of pipes, inlets, manholes, outlet structures chambers, trench drain and water treatment devices.
- g. Design Manual for StormTech Chambers have no relevance to maintenance and should be removed from the Manual; however, the table for StormTech SC-740 Chambers may be included in support of the storage volume tables in the report.

If you have any questions, please contact me.

HP/jmp

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