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May 12, 2016

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**Subject: Tufts University – Equine Arena  
Project Plan Review**

Dear Joe:

We received the following documents on May 6, 2016:

- Correspondence from Waterman Design Associates, Inc. to Graves Engineering, Inc. dated May 6, 2016 re: Equine Arena & Shared Parking Facility, The Cummings School of Veterinary Medicine at Tufts University.
- Plans entitled Project Plan Review for Proposed Equine Arena, The Cummings School of Veterinary Medicine at Tufts University in North Grafton, Massachusetts dated March 29, 2016 and revised May 6, 2016, prepared by Waterman Design Associates, Inc. and Gorman Richardson Lewis Architects for Cummings School of Veterinary Medicine at Tufts University. (18 sheets)
- Bound document entitled Stormwater Management Report for Equine Arena, Willard Road, North Grafton, Massachusetts revised May 2016, prepared by Waterman Design Associates, Inc. for Cummings School of Veterinary Medicine at Tufts University.

Graves Engineering, Inc. (GEI) has been requested to review and comment on the plans' conformance with the Tufts 2014 Master Plan, Section 9 of the Grafton Zoning By-Law, Massachusetts Department of Environmental Protection (MassDEP) Stormwater Management Policy and standard engineering practices.

This letter is a follow-up to our previous review letter dated April 15, 2016. For clarity, comments from our previous letter are *italicized* and our comments to the Applicant's responses are depicted in **bold**. Previous comment numbering has been maintained.

**Our comments follow:**

**Tufts 2014 Master Plan**

1. *The proposed project appears to be consistent with Section 3 of the 2014 Master Plan relative to size and type of building. It is worth noting that the project's proposed location was revised slightly but is in the same general area as shown in the 2014 Master Plan. We have no issue with the proposed location.*

**No further comment necessary.**

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### Grafton Zoning By-Law

2. *We have no issues relative to compliance with Section 9 of Grafton Zoning By-Law.*  
**No further comment necessary.**

### Hydrology Review & MassDEP Stormwater Management

3. *Soil testing will need to be performed at the locations of the proposed infiltration facilities to demonstrate that the soils are suitable for infiltration and that a minimum two-foot offset to groundwater can be achieved.*

**Acknowledged.** Soil testing was performed in the vicinity of the arena and also north of Westborough Road, and the plans were revised to include the soil testing data. The stormwater management system was redesigned such that the subsurface infiltration systems in the vicinity of the arena were eliminated and an open stormwater basin is proposed north of Westborough Road.

4. *The Stormwater Report did not include Total Suspended Solids (TSS) calculations. The Stormwater Report must be revised to include Total Suspended Solids (TSS) calculations as required by MassDEP Stormwater Management Standard 4.*

**Acknowledged.** The TSS removal calculations were addressed narratively and are in order.

5. *The Stormwater Report did not include an illicit discharge statement. The Stormwater Report must be revised to include an illicit discharge statement as required by MassDEP Stormwater Management Standard 10.*

**Acknowledged.** The Standard 10 was addressed narratively.

### General Engineering Comments

6. *The inlet pipe elevation needs to be identified for the proposed catch basin northeast of the isolation building (Sheet 5).*

**Acknowledged.** The plans were revised to include this information. The information formerly presented on Sheet 5 is now presented on Sheet 7.

7. *Based on the pipe slope and lengths, the invert out elevation of SIS-103 (Sheet 5) is incorrect. The information needs to be re-evaluated and revised as necessary.*

**Acknowledged.** System SIS-103 was eliminated in lieu of an open stormwater basin located north of Westborough Road.

8. *There are no slopes shown for the 6" sch. 40 PVC pipes (roof drains) from the proposed building to SIS-103 or SIS-202 (Sheet 5). The plans need to include this information.*

**Acknowledged.** The plans were revised to include pertinent pipe slopes and elevations.

9. *Sheet 5 does not show all of the inverts on the drain manhole on the north driveway entrance in which all stormwater exits the site. The plans must be revised to show all inverts at this location.*

**Acknowledged.** The plans were revised to include this information. The information formerly presented on Sheet 5 is now presented on Sheet 7.

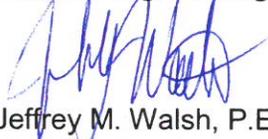
**Additional Comments, May 12, 2016**

10. **The project was revised to include a new open stormwater basin on the north side of Westborough Road. GEI reviewed the revised hydrology computations and found them to be in order.**

**We did note small increases in the peak rates of runoff at Analysis Point 2 (a catch basin near Willard Road). The catch basin discharges to other land of Tufts University and the small increases in peak rates at Analysis Point 2 will be further reduced downstream due to travel time across the other lands of Tufts. In our opinion, further analysis of the effects of peak rate reduction due to additional overland travel time is not warranted.**

We trust this letter addresses your review requirements. Feel free to contact this office if you have any questions or comments.

Very truly yours,  
**Graves Engineering, Inc.**



Jeffrey M. Walsh, P.E.  
Vice President

cc: Michael J. Scott P.E; Waterman Design Associates, Inc.  
Jean S. Poteete, Tufts University