CIVIL DESIGN GROUP, LLC
ENGINEERING. LAND USE. PLANNING. PERMITTING.

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Memorandum #1

TO: Town of Westwood Planning Board
c/o Ms. Nora Loughnane, Westwood Town Planner
50 Carby Street
Westwood, MA 02090

From: Philip R. Henry, PE

Date: January 17, 2013

Re: Preliminary Review of the Stormwater Impacts of the University Station Redevelopment @ Cornerstone Corporation, 400 Blue Hill Drive, Westwood MA

Civil Design Group, LLC (CDG) has been retained by Cornerstone Corporation to review the proposed stormwater management design for the University Station redevelopment project and its potential impacts to Cornerstone Corporation's property located at 400 Blue Hill Drive. Cornerstone Corporation's +/- 6.6-acre property is located to the northeast and downstream of University Station and is bounded by Blue Hill Drive to the south, University Avenue to the east, Interstate 95/Route 128 to the north and the southbound on-ramp to Interstate 95/Route 128 to the west. The property and associated office building is bisected by the Westwood/Dedham Town line.

CDG has reviewed applicable stormwater plans, documents and calculations made available to date by the Town of Westwood website, including the plans entitled *Site Development Plans, University Station, Westwood, Massachusetts,* last revised November 30, 2012 and *Stormwater Management Report, University Station, University Avenue, Westwood, MA, submitted to Town of Westwood November 30, 2012* and its appendices, prepared by Tetra Tech on behalf of the developer, Westwood Marketplace Holdings, LLC. Please note that specific pages and sheets from these documents that are referenced within this letter have been attached hereto.

The documents referenced above utilize four distinct points of analysis around the University Station project for analyzing and comparing the existing and proposed drainage characteristics associated with the project. The points of analysis are intended to represent areas downstream of the University Station project where stormwater runoff converges as it leaves the project site. Of the four points of analysis studied in the above-referenced documents, Point of Analysis #3 is located at the intersection of Blue Hill Drive and University Avenue adjacent to Cornerstone Corporation's property as shown on Figure 4, *Existing Watershed Model* and Figure 5, *Proposed Watershed Model* (attached). Since this represents the portion of the University Station project that has the potential to create adverse impacts to Cornerstone Corporation's property, the comments provided in this letter focus primarily on this point of analysis.

Due to inconsistencies between the submitted plans and stormwater report, we recommend that supplemental data outlined below be provided to clarify and understand the intended stormwater

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management plan. The comments provided herein highlight key concerns that could potentially have significant and adverse impacts to Cornerstone Corporation's property and further downstream resource areas including the Neponset River if not resolved. We strongly recommend that the Town of Westwood Planning Board give full consideration to these comments and require the applicant to provide clarification on all concerns raised herein.

COMMENTS:

1. As shown on sheet C-111, *Grading & Drainage Plan* (attached), the project plans depict road-widening improvements along Blue Hill Drive and University Avenue along Cornerstone Corporation's frontage. These modifications eliminate an existing drainage swale that runs along the side of University Avenue, which lies partially on Cornerstone Corporation's property, but do not provide any detail on how stormwater in this area will be managed upon the elimination of the swale. Additional detail and further consideration should be given to stormwater management at this intersection, particularly if the swale is a wetland area. If the road-widening improvements mentioned above are not part of the University Station project, design and coordination efforts between the Applicant and MassDOT should occur during this approval process to ensure proper future planning, as this major change will directly impact Cornerstone Corporation.

2. Based on sheet C-111, *Grading & Drainage Plan* (attached), it appears that stormwater runoff from the University Station project may ultimately be conveyed to the existing drainage swale along Cornerstone Corporation's frontage as described above. However, certain key information is cut off from the plan and we are therefore unable to confirm drainage patterns in this area. Clarification is needed at this intersection to define drainage patterns and the actual point of analysis corresponding to the hydrocad modeling, industry standard software, as this could have a direct impact on Cornerstone Corporation's property. Any proposed drainage connection to the state drainage system will require review and approval from MassDOT.

3. Proposed land disturbance within wetland/buffer areas including Riverfront Area associated with the Neponset River will require a Notice of Intent filing and approval with the Westwood Conservation Commission. Furthermore, proposed offsite roadway improvements that disturb land within wetland/buffer areas adjacent to or on Cornerstone Corporation's property may lie within the jurisdictional authority of the Dedham Conservation Commission, thereby requiring a Notice of Intent filing and approval from the Town of Dedham.

4. There is insufficient information regarding the capacity of the existing street drainage system at the intersection of University Avenue and Blue Hill Drive, to which a significant portion of the stormwater from the University Station project discharges. It is important to fully evaluate this drainage system to ensure that it has sufficient capacity and is in a physical condition to handle the proposed flow, so as not to create an adverse impact on Cornerstone Corporation's property. This is of particular concern in light of the major roadway improvements proposed adjacent to Cornerstone Corporation's property.

5. As shown on sheet L-101, *Landscape Plan* (attached), the large stormwater pond proposed adjacent to the intersection of University Avenue and Blue Hill Drive is intended to permanently hold water to create a water feature. When designing such a pond to also mitigate stormwater runoff, standard

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engineering practice is not to count the volume of a pond below the standing water elevation as available storage for rainfall events, since it is always occupied by water. This practice is also consistent with the Massachusetts Stormwater Handbook, Volume 2, Chapter 2 – Wet Basins. In this case, however, the hydrocad modeling accounts for the volume between the permanent standing water elevation and the floor of the basin as usable storage for storm events, which will not actually be the case. The model therefore significantly overestimates the actual usable volume of the pond and undersizes the pond, which must be addressed to prevent downstream flooding and other adverse impacts to Cornerstone Corporation's property.

6. The project's operation and maintenance plan does not appear to include any inspection or maintenance provisions for wet ponds such as the large stormwater pond proposed adjacent to the intersection of University Avenue and Blue Hill Drive. The operation and maintenance plan should be updated to include specific provisions for inspecting and maintaining wet ponds to ensure that they will continue to function as designed over the long-term.

7. The existing drainage network collecting runoff from proposed Subwatershed S14.2 appears to drain towards Point of Analysis #3, however, it is shown in the hydrocad model as contributing to POA-2. Clarification should be provided as this could impact the modeling calculations at POA-3.

8. Subwatershed S64 is shown on Figure-4 *Existing Watershed Model* (attached), but does not appear to be modeled in hydrocad. Furthermore, a portion of subwatershed S64 that is shown adjacent to the Cornerstone Corporation property along University Avenue appears to be downstream of POA-3.

9. Hydrologic soil groups should be delineated and labeled as an underlay on the existing and proposed watershed model maps to verify accurate curve numbers (CN) and consistency between pre and post development conditions.

10. The peak elevation in the 100-year storm event for Pond 52.1 is depicted at El. 53.26'. Further detail of Pond 52.1 should be provided to include the location of the overflow spillway and top of berm elevations to ensure proper flood control and freeboard requirements.

11. We were unable to locate a detail of the boardwalk to confirm that it does not impact the volumetric capacity of Pond 52.1. Further clarification must be provided to properly access the impacts to Cornerstone Corporation's property.

12. The primary outlet devices utilized in the hydrocad modeling for Pond 52.1 do not appear to be shown on Sheet C-111, *Grading & Drainage Plan* (attached). Further clarification must be provided to properly access the impacts to Cornerstone Corporation's property.

13. Details of the secondary outlet devices for Pond 52.1, shown on sheet C-506, *Detail Sheet* (attached), appear to be inconsistent with the secondary outlet devices modeled in hydrocad. Further clarification must be provided to properly access the impacts to Cornerstone Corporation's property.

14. Based on the outlet structure detail for Pond 52.1, shown on sheet C-506, *Detail Sheet* (attached), it does not appear that the inlet pipe is routed through the outlet pipe in the hydrocad model.

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Furthermore, the detail depicts a grate atop the structure; however, it does not appear to be factored into the hydrocad model. Further clarification must be provided to properly access the impacts to Cornerstone Corporation's property.

15. The peak elevation in the 100-year storm event for Pond 52.2 is depicted at El. 50.38'. Further detail of Pond 52.2 should be provided to include the location of the overflow spillway and top of berm elevations to ensure proper flood control and freeboard requirements.

16. The primary outlet devices utilized in the hydrocad modeling for Pond 52.2 do not appear to be shown on Sheet C-111, *Grading & Drainage Plan* (attached). The outfalls/discharge pipes should be shown connecting to their respective downstream drainage structure. Further clarification must be provided to properly access the impacts to Cornerstone Corporation's property.

17. Primary outlet device #1 depicted in the hydrocad modeling for Pond 52.2 does not correspond with the outlet structure detail for Pond 52.2, shown on sheet C-506, *Detail Sheet* (attached). Further clarification must be provided to properly access the impacts to Cornerstone Corporation's property.

18. Based on the outlet structure detail for Pond 52.2, shown on sheet C-506, *Detail Sheet* (attached), it does not appear that the inlet weir is routed through an outlet pipe in the hydrocad model. Furthermore, the detail depicts a grate atop the structure; however, it does not appear to be factored into the hydrocad model. Further clarification must be provided to properly access the impacts to Cornerstone Corporation's property.

19. The tailwater elevation utilized for the primary outfall of Pond 52.1 in the 100-year storm event (El. 49.33') appears to be lower than the standing water elevation in Pond 52.2, which could have an impact on pond sizing and calculated flow rates at Point of Analysis #3.

20. Estimated seasonal high groundwater elevations do not appear to be provided for Ponds 52.1 or 52.2.

Cc. Mr. Paul Tryder, Cornerstone Corporation (via email)
Ms. Diane Rubin, Prince Lobel Tye, LLP (via email)
Ms. Janice Barba, Westwood Planning & Land Use Specialist (via email)