Engineering Design Consultants, Inc.

32 Turnpike Road
Southborough, MA 01772
Phone: (508) 480-0225

E-mail: mail@edcma.com
FAX: 1-800-832-5781

April 27, 2021

Planning Board
Town of Holliston
703 Washington Street
Holliston, MA 01746

Re: **555 Hopping Brook Road – Response to Peer review comments**
(EDC Job No. 3724)

Attn. Board Members:

The following is a response to a peer review letter provided by CMG Engineering Services, dated April 6, 2021.

EDC's responses are highlighted in red text:

General Engineering & Drainage Design Comments

1. Contours and existing features shown on the Pre-Development Drainage Map don't appear to completely match the Existing Conditions survey. CMG recommends Applicant's Engineer (EDC) review and make sure the information is consistent between both plans. The Existing Conditions plan has been revised.

2. Soil Types classifications and boundaries, existing soil test pits, existing wetlands and buffers zones, are not shown. These were provided on the previously approved 2/5/20 Plan Revision #2 "Pre-Developed Runoff Areas" plan prepared by EDC. Soil type and boundaries should be shown on the pre and post development drainage maps. The plan has been revised for the all the above.

3. CMG recommends cross culverts Reach 11R as-built information be provided. Statement that "they have more than enough capacity as designed" is not adequate. In addition, HydroCAD calculations define a 2'x 3' channel with angled side slopes and not a culvert. Both existing culverts are 11-feet wide by 4-feet high and will pass all the storm events unrestricted, it is more appropriate to model the reach as the channel entering and exiting the culverts, as it is more restrictive and the existing culverts also handle all the storm events un-restrictively. EDC acknowledges that the label for the reach should have been labeled more appropriately, in support of the analysis the as-built information is attached.

4. Off-site stormwater detention basin 10P, culvert 11R, culvert 12P & underground recharge system 22P located at 465 Hopping Brook Road are included in the calculations however, no as-built details or supporting reference information is provided. EDC designed and supported the initial construction of this project, however did not complete the final site inspections or as-built surveys. EDC has no reason to doubt that the storm water improvements as specified for the 465 Hopping Brook were not constructed as designed since an occupancy permit was granted for this facility. The HydroCAD Model is of record and should be relied upon for the scale and scope of the current analysis. The detention basin expansion will be fully reconstructed as needed in order to achieve the design details that are outlined in this current plan set. This basin will continue to be a privately owned and maintained

basin that will support both the privately held sites on Hopping Brook Road that contribute storm water and Hopping Brook Road that will surely one day be accepted as a municipal public way.

5. Existing conditions and Site Plan should define existing vs. proposed layout / grading for Hopping Brook Road cul-de-sac as it differs from March 16, 2017 Certificate of Action for "Hopping Brook Business Park". The Planning Board's original approval of Hopping Brook Road allowed for a terminus as far as Roadway Station 66+25, however with the large acreage associated with the CRG Proposal the roadway can now easily be reduced to less than 58+00. Final roadway and infrastructure shall be managed with the Planning Board through the definitive subdivision amendment process which we anticipate will be a condition of this Site Plan Approval.

   CMG recommends the Planning Board make it a condition of approval that the "Hopping Brook Road" project revisions be submitted to the Planning Board for review and approval prior to issuance of a building permit to insure there are no discrepancies from the 555 Hopping Brook Site Plans and stormwater design. EDC is in full agreement with this recommendation and with the Board's conditional approval would then embark on these related tasks immediately.

6. Footing drain and building roof drain tie in locations, details, size, & type for the building are not provided. The site plan and storm water computational analysis includes the provisions for the roof drain connections (no footing drain is necessary), however the architectural plans which are not final will dictate the specific pipe connection details.

Stormwater Standard 1: *No new stormwater conveyances (e.g. outfalls) may discharge untreated stormwater directly to or cause erosion in wetlands or water of the Commonwealth.*

7. Rip-rap lined waterway designs are provided for four (4) rock lined swales, however, the report should make it clear which calculations correspond to the design plan locations. The report doesn't make it clear where the proposed design flow (Q) values used for each swale correspond with the HydroCAD calculations. The detail sheet 30 includes the location of the swales identified and the associated flows are the combination of outlet flows using the Manning's pipe flow and the flow from the outlet control structure in the Hydrocad model, and this was inadvertently left off of the design sheets in the stormwater report.

8. Dimension and sizing calculations should be provided for the swale along the bottom of the proposed 30~40 ft. height berm to insure adequate capacity and freeboard to prevent runoff towards the abutting residential properties along the Medway Town Line. A detail must be provided in the plan set. The calculations have been added to the stormwater report and the details have been added to Sheet 30 of the drawing set.

Stormwater Standard 2: *Stormwater management systems shall be designed so that post development peak discharge rates do not exceed pre-development peak discharge rates.*

9. A reference for the higher design storm rainfall event values should be provided in the report. It appears EDC is using the more conservative NOAA extreme precipitation rainfall data for the design calculations. A reference has been added to the stormwater Report.

10. No reference is provided for the infiltration rate of 0.27 in/hr rate. This value appears to be based on the 1982 Rawls rate table for a "silt loam" Type C soil type. Engineer

should provide a reference in the report. The reference has been added to the stormwater report.

Stormwater Standard 3: *Loss of annual recharge of groundwater shall be eliminated or minimized.*

11. CMG believes the "Impervious flows to the west" value to the Hopping Brook Road Detention Basin 10P is incorrect based on a review of the HydroCAD calculations. Calculations note a larger impervious area being directed to this basin. Suggest EDC provide a summary table to document all on-site and off-site impervious areas for each subcatchment directed to each basin to clarify. There is actually more impervious area that flows to the Infiltration/detention Basin 10P, however the 465 Hopping Brook Road project allowed for underground infiltration on-site, therefore the impervious areas were not added to the result, The number is the sum of subcatchments 10S, 11S, 12S, 15S, 21S, 27S, and 19S, and is 774,170 s.f. impervious, less than the number used in the report because a change was made after the report was written.

12. While the required recharge volume is calculated, the "actual" calculated recharge volumes for Basin 30P and 10P are not provided. Report states simple dynamic method was used but no supporting calculations are provided. The supporting calculations were provided in the Stormwater Report on pages 85 thru 87. The "simple dynamic" method explained in Chapter 3 of the "Massachusetts Stormwater Management Standards" was used. By adjusting the rainfall to get the required inflow volume equal to the required recharge for the hours 10 to 13, and the results show that there is no outflow through the primary outlet device, therefore the required storage volume is adequate. However, we have revised the plans and calculations based on the "Static" method to provide storage based on the greater 1-inch over impervious surfaces.

13. The 6" low flow drain outlet should be modeled for both outlet control structures in the HydroCAD calculations to insure adequate recharge volume is obtained within each basin. If the 6" pipe is to be used as an underdrain, a valve or other flow limiting device must be incorporated into the design details to allow adequate ponding within the basin. Valves have been added to the outlet control structure details.

14. Pond 30P primary outlet invert= 303.00 in HydroCad calculations does not match the detail provided. The plans and calculations have been revised.

15. Proposed elevations and spot elevations on the maintenance berm should be clearly depicted on the plans. 10 FT wide maintenance berm for both on-site Pond 30P and off-site 10P are not labeled on the plans. Proposed spot elevations have been added to the center of the 10-foot wide berms for each basin, 304.5 for basin 10P and 308.5 for basin 30P on sheet 13.

16. Pond cross sections for both on-site Pond 30P and Off-site Pond 10P with storm events peak elevations would be useful to clearly define compliance, materials, and construction standards for each basin design. Tables for the two basins have been added to the report that indicate elevations at various rainfall events with the tops of berm indicated.

17. Top of Berm Pond 30P elevation is listed as 309 in HydroCAD calculations while the plan only shows elevation 308. Therefore, it is slightly under the 1 ft of freeboard required (Peak 100 year Elev = 307.04). The spot elevations for the top of berm have been added to the plans, for basin 30P it is 308.5 for the top of berm.

18. Stormwater Basin 10P peak elevations listed on page 2 of the Stormwater Report do not match the HydroCAD calculations. Basin 10P does not have 1 ft. of freeboard during the 100-year storm event based on the values shown in the HydroCAD calculations. The elevations have been revised in 17 and 18 above, and the report has been revised, there is over 1-foot of freeboard.

19. Existing Hopping Brook Road Stormwater Basin 10P is proposed to be enlarged and the berm increased 1 ft. in height to Elev. = 284. However, it is unclear if existing contours shown represent as-built conditions. Stormwater report notes "Berm Elev: 283.50 +/- which does not match the design plan or calculations. The detention basin expansion will be reconstructed as needed in order to achieve the design details that are outlined in this current plan set. This basin will continue to be a privately owned and maintained basin that will support both the privately held sites on Hopping Brook Road that contribute storm water and Hopping Brook Road that will surely one day be accepted as a municipal public way.

20. Depth to seasonal high groundwater (ESHGW) shown on test pit information provided on the Existing Conditions Plan conflicts with test pit information shown on the Septic System Design Plan submitted to the Board of Health. Test pits performed for the septic system note ESHGW based on soil mottling at 36" below grade. This is consistent with the NRCS soil descriptions which note the depth to water table between 18" ~ 30" in the Woodbridge fine sandy loam Type C soils.

    Therefore, CMG recommends at least one additional soil test pit be conducted within on-site Basin 30P with soil logs prepared by a licensed State of Massachusetts Soil Evaluator to confirm ESHGW based on soil mottling. CMG recommends the test pit be witnessed by a representative of the Town of Holliston. EDC is in support of this recommendation and would anticipate that it will be included as a condition of approval of the Site Plan and Special Permit.

Stormwater Standard 4: *Stormwater management systems shall be designed to remove 80% of the average annual post construction load of Total Suspended Solids (TSS).*

21. Water quality volume of 1 in. is not used for the design as required for land uses with higher potential pollutant load (LUHHPL - See additional Standard 5 comments below) Contech stormwater management structures for water quality treatment have been included and the site design package continues to provide infiltration/detention based on 1-inch over the impervious surface area for extra treatment. Greater than 80% TSS removal is achieved.

22. 44% pre-treatment must be achieved prior to discharge to each stormwater infiltration basin and supporting information included in the calculations See the TSS removal spreadsheets in the stormwater report, greater than 44% pretreatment is provided.

23. Stage-storage-volume tables for each stormwater basin should be provided along with supporting calculations to illustrate the actual WQV provided for each basin. The stage storage volume tables are provided in the HydroCAD output tables.

24. The 6" low flow drain outlet should be modeled for both outlet control structures in the HydroCAD calculations to insure adequate WQV is obtained within each basin. If the 6" pipe is to be used as an underdrain, a valve or other flow limiting device must be incorporated into the design details to allow adequate ponding within the basin to achieve the required WQV. A valve has been added to each of the outlet control structure details.

25. No forebay or forebay berm construction details are provided in the plan set to correspond to the calculations provided in the Stormwater Calculations. A detail has been added to the plan set.

Stormwater Standard 5: *Land uses with higher potential pollutant loads (LUHPPL), source control and pollution prevention shall be implemented in accordance with the Massachusetts Stormwater Handbook to eliminate or reduce the discharge of stormwater runoff from such land uses to the maximum extent practicable.*

26. CMG believes this project is considered a LUHPPL as it appears there are > 1,000 vehicle trips per day proposed and is considered a high intensity parking lot. Therefore the Stormwater Report must provide supporting information to verify compliance with Standard 5. Contech Stormwater Treatment structures have been included in the site design package along with Infiltration Basins for 1-inch of runoff over the impervious areas.

27. Stormwater checklist notes the proposed use is covered under the EPA NPDES Multi-sector Industrial Stormwater permit, also identified as a LUHPPL. CMG recommends additional information be provided regarding the type of multi-sector use and any additional BMP requirements for this use. CRG has not identified a tenant, however provisions have been made to properly protect and treat storm water from the subject property including providing both proprietary treatment units and conventional sediment traps. EDC is in support of this recommendation and would anticipate that it will be included as a condition of approval of the Site Plan and Special Permit.

28. CMG recommends proof of EPA Multi-Sector Permit authorization and a copy of the project's SWPPP be submitted to the Planning Board prior to discharge of the Site's stormwater runoff to the post-construction BMPs. Again, CRG has not identified a tenant, however provisions have been made to properly protect and treat storm water from the subject property including providing both proprietary treatment units and conventional sediment traps. EDC is in support of this recommendation and would anticipate that it will be included as a condition of approval of the Site Plan and Special Permit.

29. Water Quality Volume (WQV) = 1.0" rainfall must be utilized for the stormwater design. The current design only provides for a WQV = 0.5". Contech stormwater management structures have been included in the site design package and are based on an equivalent 1.0" of runoff, as well as, the 1.0" for basin infiltration that was included in the original submittal package.

30. Engineer must document how all of the LUHPPL requirements are being met including but not limited to the addition of oil / grit separators to the BMP treatment train. CRG has not identified a tenant, however provisions have been made to properly protect and treat storm water from the subject property including providing both proprietary treatment units and conventional sediment traps. EDC is in support of this recommendation and would anticipate that it will be included as a condition of approval of the Site Plan and Special Permit.

31. TSS summary should be revised to include LUHPPL best management practices and pre-treatment requirements. CRG has not identified a tenant, however provisions have been made to properly protect and treat storm water from the subject property including providing both proprietary treatment units and conventional sediment traps. EDC is in support of this recommendation and would anticipate that it will be included as a condition of approval of the Site Plan and Special Permit.

Stormwater Standard 6: *Stormwater discharges within a Zone II or Interim Wellhead Protection Area of a public water supply, and stormwater discharges near or to any other critical area.*

32. Not applicable – Site does not discharge stormwater to or near a critical area. No comment required.

Stormwater Standard 7: *Redevelopment Projects*

33. Not Applicable – Site is not a redevelopment project. No comment required.

Stormwater Standard 8: *Construction period erosion and sedimentation control*

34. The Site is > 1 Acre therefore an NPDES SWPPP is required to be submitted prior to construction. Applicant's Engineer (EDC) previously submitted a 12/10/20 NPDES SWPPP and supporting materials to the Planning Board for review and comment. No comment required.

35. CMG recommends the Applicant update the 12/10/20 SWPPP to correspond to the current 2021 Definitive Site Plan Modification plan set and address any remaining comments from CMG's January 7, 2021 NPDES CGP SWPPP Peer Review Letter #2. EDC is in support of this recommendation and would anticipate that it will be included as a condition of approval of the Site Plan and Special Permit.

Stormwater Standard 9: *Long term operation and maintenance plan*

36. A long term operation and maintenance plan is not provided in the 2/5/21 Stormwater Calculations report. The Construction & Long-term O&M provision are included on the SWPPP sheet 33.

Stormwater Standard 10: *Illicit discharges*

37. An illicit discharge statement is not provided in the 2/5/21 Stormwater Calculations report. The Illicit Discharge Statement is included on the SWPPP sheet 33.

With the application for Special Permit and Modifications of Site Plan for 555 Hopping Brook Road properly before the Board and the administrative review process for both permits exhaustively reviewed, we respectfully request that the Board grant approval of the Site Plan Modifications and Special Permit with conditions as deemed appropriate. Thank you for your consideration of this request.

Very truly yours,

ENGINEERING DESIGN CONSULTANTS, INC.

Peter Bemis

Peter S. Bemis

cc: CRG Integrated Real Estate Solutions