



November 30, 2022

Stow Zoning Board of Appeals  
380 Great Road  
Stow, MA 01775

Re: Stormwater Review  
Special Permit Lot 2, Harvard Road  
Places Project No. 528

Dear Board Members,

This office has reviewed the Stormwater Management Plan Report for Lot 2 Harvard Road submittal. While this single lot is technically not subject to the DEP Stormwater Regulations, we have used some of the basic criterion such as the 2,10 and 100 year storm analysis in our review.

We offer the following comments:

In general, the conversion of natural soils to impervious surfaces will result in an increase in the rate and volume of runoff from a site. For this site, the roof will be recharged into a roof recharge system and the runoff from the driveway will be recharged into shallow basins at the low area of the site, directly adjacent to Harvard Road.

We are concerned that the drainage system will require swales directly adjacent to the driveway to direct runoff into the basins – if there are snowbanks these swales may be blocked, resulting in the runoff flowing down the driveway, directly into Harvard Road.

Specific Drainage comments:

1. A 50' separation is required between the septic leaching area and the stormwater basin. We scale 40' or less to the lower trenches.
2. There are no test holes where the proposed drainage structures are proposed. The roof recharge is at existing grade but there is no data to support that there are at least two to four feet of soil below it. The basin at the bottom is a 3.5' cut, considering the sewage disposal system had groundwater at 4', testing should be provided to confirm separation to groundwater.
3. The existing site was previously cleared and subject to Planning Board special permits. At the time, I commented that the existing conditions of brush in fair conditions was not significantly different than woods in good condition and should not have been the main cause of the flooding in 2021. We recommend that the existing conditions be considered "brush, good condition" not poor condition which will result in a lower curve number for existing conditions.
4. The culvert under the driveway should be modeled as a pond at the inlet since it is not a free flowing outlet in larger storms.
5. The spot elevations for the Rain Garden, 11P do not match the HydroCAD overflow elevation of 199.90. It is unclear as to how the pond can overflow at this elevation without requiring grading into the roadway. The concern is that runoff in the street could flow into the basin, changing the dynamics of the stormwater model. It also appears that the raingarden will require grading into the Harvard Road right-of-way. The Highway Department should review

- the final grading once constructed to assure that a. the snow storage area is not diminished, b. that gutter flow in the street will not be impeded and c. road runoff does not flow into the rain garden.
6. The culvert outlet should be 198.95 per the HydroCAD output.
  7. The culvert under the driveway has barely 1' of cover. It is recommended that more spot grades or a note be added to assure adequate cover for H2O loading.
  8. The Rain Garden is very shallow and has very specific requirements for both soil and plantings.
  9. The upper reaches of the driveway are in a 4' cut. Soil testing for the septic system indicates groundwater at 4'. Will an interceptor drain be provided? Please show where the discharge point is located.
  10. The plans should show a foundation drain discharge.
  11. The plans as designed show a decrease in the rate and volume of runoff from the site. Calculations will be needed to demonstrate a similar decrease with the adjusted Curve Number for the brush noted in the Pre-Development condition.
  12. It is recommended that the Erosion and Sediment Control Measures be made part of the plan set so that the contractor will be more aware of the requirements. This office strongly recommends that the contractor have sandbags, in addition to straw bales to provide check dams, preventing erosion into Harvard Rd. It is also recommended that provisions be made for the dewatering of footings, and for extreme weather event such as occurred last July.
  13. Construction details should be added to the plan providing details on the culvert, rain garden, rain garden overflow weir etc.

It is strongly recommended that if the Board approves this lot, that the decision include the following items as conditions:

1. the roof area cannot exceed 2828 s.f. as documented in the drainage calculations without further evaluation of the recharge system.
2. The remaining impervious surfaces cannot exceed 3580 for the driveway area.
3. There can be no further clearing, grading or ledge removal on the westerly side of the lot.
4. Limit of clearing should be staked prior to initiation of construction.
5. An as-built plan should be required, to be submitted to the Building Commissioner, prior to occupancy by a Professional Land Surveyor or Engineer certifying that the site was constructed in compliance with the approved drainage calculations including basin volumes, roof and impervious areas.
6. The future homeowner(s) should be made aware of the maintenance requirements for the stormwater provisions.

Please contact this office should you need any clarification of these comments or have any other questions.

Thank you.

Very truly yours,  
PLACES ASSOCIATES, INC.  
BY:



Susan E. Carter, P.E., LEED AP  
President, Director of Engineering