

# MEMO

**To:** Planning Board, Lancaster, MA  
**From:** Scott A. Miller, PE  
**Re:** Zero Point Solar / 0 Old Union Turnpike  
**Date:** October 20, 2020

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## Site Visit Summary

Scott Miller visited the above referenced site at approximately 8:00 AM on October 19, 2020 following rain event on October 16<sup>th</sup> and 17<sup>th</sup>. A photo log of the site visit is attached.

The major site slope is vegetated. Work is ongoing to install solar panel supports, the panels themselves and electrical conduit. The traffic patterns of equipment are generally perpendicular to the slope between the solar panels. This has caused some disturbance of the vegetated growth.

At the time of the visit, the ponding area just upstream of White Pond was full of tan turbid water. Some of this water continued to flow into White Pond. Reports from abutters over the weekend noted this water reaching out into White Pond.

Some water continued to flow from the agricultural drain leaving the wet field to the east of the construction site. This water was slightly clearer than the water in the ponded area. The three rows of silt fence and hay bales remained intact and without signs of inundation. The swale entering the ponded area from the South Detention Basin did show evidence of high flow with some deposited silt. There was evidence of water passing around the ends of three sets of filtration barriers downstream of the South Detention Basin.

Both detention basins were drained down at the time of my visit. Some water and silt covered the floor of the North Detention Basin. The South Detention Basin is vegetated with the pea stone underdrain wick clean and exposed.

The primary siltation barriers were in place above the South Detention Pond. The barrier above the North Detention Pond had been knocked down in one location by the flow. Flow and sediment were also apparent around the end of the barrier. One end of the first barrier below the North Detention Pond outlet was also knocked down.

There was no apparent large transport of silt below the ponds. The turbid water appears to be the result of turbidity passing through the silt barriers or previously deposited silt in the field to the east being resuspended by high flows.

JN: LAN-067

We recommend the following response actions:

- 1) The major site slope was found to be partially vegetated. The approved erosion control plan reference diagonal cross swales on the steep slopes to control the velocity of run off. The placement of these swales is not feasible due to the placement of equipment and conduits. We the limited growing season remaining, and work expected into the cold weather, alternative controls should be considered to slow the slope run off. A straw wattle diversion barrier should be placed parallel to the slope and under the solar panels to slow the flow of water down the slope. These barriers would be placed near the bottom, quarter, and midpoint of the slope. The intent of this approach is to reduce the hydraulic load on the detention basins from the partially vegetated slopes.
- 2) Remove sediment from the front of the silt barriers. The silt mixture should be removed from the site or otherwise contained on site until it can be dewatered. Stockpiling the material on site without protection and containment will likely cause the material to move again.
- 3) Repair the siltation barriers above and below the North Detention Basin
- 4) There may be short circuiting of silt laden water through the South Detention Basin underdrain. Consider placing nonwoven filter fabric over the pea stone wick on at the South Detention Basin to slow the discharge flow and to collect silt.