Stormwater/Solar Photovoltaic Facilities: November 10th Blog Post Discusses Potential Issues

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A November 10th blog post by Kennedy/Jenks Consultants discussed potential stormwater management issues associated with solar photovoltaic ("PV") facilities. Their post discusses what they describe as:

. . . the unique hydrologic processes at these solar PV facilities and the associated stormwater permitting requirements in various states across the country.

By way of introduction, the post notes that such facilities present a unique situation for stormwater management. This is due to such facilities typically encompassing an impervious surface elevated above a pervious vegetated surface.

The blog post discusses:

- Sources of stormwater runoff from solar PV facilities, which includes:
- Access roads
- Inverter pads
- Solar PV panels themselves
- Primary factors influencing the potential erosion and/or scour (including a figure)
- Recognition of a debate as to whether solar PV panels have a significant effect on runoff volumes, peak runoff, or times to peak runoff including a discussion of an American Society of Civil Engineers 2011 study that determined:
- Solar PV panels themselves do not have a significant effect on key stormwater characteristics
- If ground cover under the panels is gravel or bare ground (resulting from design decisions or lack of maintenance) the peak discharge may increase significantly
- Kinetic energy of the sheetflow from panels was greater than that of rainfall, which may cause erosion at the base of the panels
- Identification of several state regulatory agencies that have developed guidance or specific requirements for stormwater management at solar PV facilities such as:
- Maryland Department of the Environment (indicating that the agency states that for purposes of issuing a stormwater permit for a solar project, calculations relating to the impervious surface of the project must include only the foundation or base supporting the panel)
- New Jersey Department of Environmental Protection (noting the agency exempts solar PV panels in calculations of impervious cover for the purposes of stormwater permitting)
- Massachusetts Department of Environmental Protection (agency has indicated that solar PV panels should not be considered impervious but guidance from the state Department of Energy Resources

suggests a specific approach to managing stormwater at such facilities because “panels could have the effect of altering the volume, velocity, and discharge pattern of stormwater runoff.”)

- Pennsylvania Department of Environmental Protection (agency considers solar PV panels to be pervious cover and does not require additional Post Construction Stormwater BMPs if certain guidelines are followed.)
- North Carolina (agency allows solar panels to be considered pervious if they are configured to promote sheetflow of stormwater from the panels and natural infiltration of stormwater into the ground beneath the panels.
- Minnesota Pollution Control Agency (agency allows for the use of a volume credit for solar PV facilities that are vegetated beneath and between panels/excluding sites that have rock bases.)

A link to the blog post can be found here.