

STATE OF CONNECTICUT
CONNECTICUT SITING COUNCIL

TESTIMONY OF
STEVEN J. KOCHIS
IN CONNECTION WITH
PETITION 1347A

JUNE 18, 2020

1 **Q. Please state your name, occupation and business address?**

2 A. My name is Steven J. Kochis. I am a Senior Project Engineer for Vanasse Hangen
3 Brustlin, Inc. (“VHB”) working primarily in the 100 Great Meadow Road Suite #200,
4 Wethersfield, Connecticut location. I am one of the consultants on the Petitioner’s
5 project team, and I am providing testimony on behalf of the Petitioner in this matter.

6 **Q. What are your responsibilities at VHB?**

7 A. I am responsible for project management for VHB as well as site design layout and
8 engineering. A copy of my resume is attached to this testimony and incorporated herein.

9 **Q. In addition to the project that is the subject of this Petition, have you been involved**
10 **in other commercial-scale solar PV developments?**

11 A. Yes.

12 **Q. Briefly describe those projects and your role in connection with those projects.**

13 A. I was responsible for site design layout and engineering of the Tobacco Valley Solar
14 project in Simsbury, performed remedial construction oversight and engineering guidance
15 related to the Woods Hill Solar project in Pomfret, performed remedial construction
16 oversight and engineering guidance related to the Fusion Solar project in Sprague, and
17 am responsible for site design layout and engineering of the Gravel Pit Solar project in
18 East Windsor. Separately, I am project managing and designing multiple projects
19 currently for which applications have not been submitted.

20 **Q. What is the purpose of your testimony?**

Testimony of Steve Kochis

1 A. The purpose of my testimony is to discuss whether the solar panels at commercial-scale
2 solar PV projects should be considered impervious or pervious for stormwater purposes.

3 **Q. Under the applicable regulations in Connecticut for stormwater permitting, when is**
4 **a feature on a site considered impervious?**

5 A. Both the 2004 Connecticut Stormwater Quality Manual and Technical Release 55, *Urban*
6 *Hydrology for Small Watersheds* from the U.S. Department of Agriculture Natural
7 Resources Conservation Service suggest that imperviousness shall be measured by a
8 combination of elements including, but not limited to, cover type and native infiltration
9 rates. It is generally accepted that impervious surfaces completely prevent infiltration of
10 stormwater runoff into the native soil and instead produce runoff.

11 **Q. Are any regulatory requirement or guidance documents published by the State of**
12 **Connecticut to suggest that panels should be considered impervious for the purposes**
13 **of computing post-construction peak rates and volumes of runoff?**

14 A. Not that I am aware of.

15 **Q. Under the applicable regulations in Connecticut for stormwater permitting, would**
16 **the solar panels in a commercial-scale solar PV facility be considered pervious or**
17 **impervious?**

18 A. Generally, they would be considered pervious, because they consist of vegetated surfaces
19 below the panels which allow stormwater to infiltrate into the ground, unlike roofs or
20 roads, which are considered impervious.

1 **Q. Under the applicable regulations in Connecticut for stormwater permitting, would**
2 **the solar panels in the project being considered by this Petition be considered**
3 **pervious or impervious?**

4 A. Pervious.

5 **Q. Why would the solar panels in this project be considered pervious?**

6 A. Elevated ground-mounted solar panels consist of vegetated surfaces below the panels to
7 which stormwater runoff will be directed and which will allow infiltration into the native
8 soil as if the panels were not there. The spacing between the rows of panel racks and also
9 the individual spacing between panels themselves allow for direct rainfall to fall off the
10 panels and across these landscapes. Lastly, the Project has been designed such that it
11 meets the Design and Construction Guidance Item 1 (a) through (e) found in the
12 CTDEEP publication distributed for public comment Guidance Regarding Solar Arrays
13 dated January 8, 2020, allowing the panels to be considered pervious for water quality
14 purposes. While this suggests that no water quality treatment would be recommended for
15 the panel arrays themselves, the Project water quality treatment measures were designed
16 using the Minnesota Manual Solar Panel Calculator to be conservative.

17 **Q. Please describe what is commonly referred to as the “Minnesota Manual” for**
18 **stormwater permitting purposes.**

19 A. The “Minnesota Manual” is the Minnesota Stormwater Manual produced by the
20 Minnesota Pollution Control Agency. The Manual contains guidance pertaining to the
21 handling of stormwater from solar projects for projects in the state.

1 **Q. Did you use the Minnesota Manual in developing the stormwater permitting**
2 **materials for this Project?**

3 A. Yes.

4 **Q. How did you use the Minnesota Manual?**

5 A. The Minnesota Manual is silent on the topic of whether panels should be considered
6 impervious for the purposes of computing peak flow rates and volumes. However, the
7 Manual contains information on how to compute required water quality treatment
8 volumes based upon a solar panel calculator document. In concert with conversations
9 with CTDEEP Stormwater staff, the Minnesota Manual was used to develop required
10 water quality treatment volumes for the Project.

11 **Q. Have you investigated whether other jurisdictions consider solar panels on**
12 **commercial-scale projects to be pervious or impervious?**

13 A. I've investigated standards in a variety of jurisdictions. I have not found any jurisdictions
14 that consider solar panels to be impervious in all situations. However, several
15 jurisdictions, including Maryland, Massachusetts, and New Jersey all consider
16 commercial-scale solar panels to be pervious, either as a matter of law or as a matter of
17 regulation.

18

19 **Q. Does this complete your testimony?**

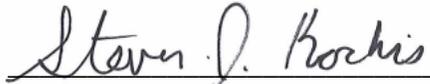
20 A. Yes, it does.

21 [REMAINDER OF PAGE INTENTIONALLY LEFT BLANK]
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Testimony of Steve Kochis

1 IN WITNESS WHEREOF, the undersigned has executed and delivered this testimony as of the
2 date set forth above.

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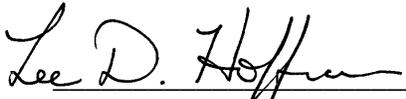
By: 
Name: Steven J. Kochis
Title: Senior Project Engineer

9 STATE OF CONNECTICUT)
10) SS: HARTFORD
11 COUNTY OF HARTFORD)
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13 On this 18th day of June, 2020, before me, the undersigned, Steven J. Kochis, personally
14 appeared via Zoom, and he is known to me to be the person whose name is subscribed to the
15 within instrument and acknowledged that he executed the same as his free act for the purposes
16 therein contained.

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18 In witness whereof, I hereunto set my hand.

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Lee D. Hoffman
Commissioner of the Superior Court