



DATE: November 17, 2022

TO: Krysti Barksdale-Noble  
Community Development  
**United City of Yorkville**  
800 Game Farm Road  
Yorkville, IL 60560

RE: Stormwater Narrative  
Beecher Solar 1, LLC  
Proposed Ground-Mounted Solar Farm  
Beecher Road, Kendall County  
PIN# 02-18-400-005, 02-18-400-006,  
02-17-300-002

Dear Mrs. Barksdale-Noble,

Beecher Solar 1, LLC, c/o New Leaf Energy, Inc. (New Leaf) plans to construct a 5 MW community solar facility along Beecher Road in Yorkville, IL. A project area of approximately 18.44 acres will be affected by construction and operation of the facility. This includes the areas encompassed by a fence and the associated access road. See the attached Layout and Materials Plan for the location of the system and associated roads.

The proposed stormwater management system for the solar array field is based on improved ground cover as compared to existing conditions to yield a reduction in stormwater runoff. Currently, row crops occupy the existing development area. After the installation of the solar arrays, gravel access road and equipment pads, a low maintenance shade tolerant seed mix (Meadow) will be planted for ground cover. As demonstrated by the calculations, the curve number (CN) is greatly reduced, which yields a reduction in stormwater runoff for any given storm event.

The solar array field will be designed to match current topography with limited grading proposed at the transformer pads and driveway apron. The solar panels in the array field will be supported by posts driven into the ground. There are no concrete footings or foundations proposed to support the solar array panels. The impervious footprint for the supports is negligible. Please note that the proposed solar panels will rotate with the sun up to fifty-two (52) degrees from horizontal reducing the chance of a concentrated flow/erosion along and below the edge of the panels.

55 Technology Drive, Suite 102  
Lowell, MA 01851  
newleafenergy.com

The following table depicts the calculations of weighted CN values for existing and proposed conditions. Under proposed conditions, the CN for the project limits will be reduced from existing conditions.

**Stormwater Calculations - 312 Solar Development, LLC**

Existing Conditions:					
Soil Type <sup>1</sup>	Acres	% of AOI	Hydrologic Soil Group (HSG)	CN <sup>2</sup>	Comments
134C2	3.5	17.4%	B	78	Row Crop/SR/Good
149A	4.0	19.8%	B/D	78	
152A	0.0	0.0%	B/D	78	
219A	0.0	0.0%	C/D	88	
330A	4.7	23.3%	C/D	88	
668B	8.0	39.6%	C/D	88	
<b>Total</b>	<b>20.2</b>	<b>100%</b>		<b>84.3</b>	weighted ave.

Proposed Conditions:					
Soil Type <sup>1</sup>	Acres	% of AOI	Hydrologic Soil Group (HSG)	CN <sup>2</sup>	Comments
134C2	3.0	14.7%	B	58	Meadow Cover
149A	3.8	19.0%	B/D	58	
152A	0.0	0.0%	B/D	58	
219A	0.0	0.0%	C/D	72	
330A	4.3	21.2%	C/D	72	
668B	7.7	38.0%	C/D	72	
134C2	0.1	0.6%	B	96	Gravel
149A	0.0	0.0%	B/D	96	
152A	0.0	0.0%	B/D	96	
330A	0.2	1.2%	C/D	96	
668B	0.3	1.7%	C/D	96	
134C2	0.42	2.1%	B	98	Concrete Pads
149A	0.21	1.0%	B/D	98	
<b>Total</b>	<b>20.1</b>	<b>100%</b>		<b>68.6</b>	weighted ave.

1. Based on USDA/NRCS Web Soil Survey for affected acreage
2. NRCS National Engineering Handbook, Part 630 Hydrology, Chapter 9

In addition to the reduction in stormwater runoff, the proposed solar field will provide an improved water quality condition with the elimination of the plowing, tilling and harvesting of row crops. There will be no herbicides, pesticides or fertilizers used for proposed low maintenance shade tolerant ground cover. Stormwater impacts resulting from construction activities will be addressed by the conditions of the ILR10 General NPDES permit and associated SWPPP as required by the IEPA.

Thank you,

A handwritten signature in blue ink that reads "C. Dean Smith". The signature is fluid and cursive, with a long horizontal stroke extending from the end of the name.

C. Dean Smith, PE  
Civil Engineering Lead