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CIVIL & TRAFFIC ENGINEERS / LAND SURVEYORS / PLANNERS / LANDSCAPE ARCHITECTS
Serving Connecticut, Massachusetts, & Rhode Island

November 9, 2022

Jeff Doolittle, P.E.
Town Engineer
1540 Sullivan Ave.
South Windsor, CT 06074

Re: Stormwater Management Report Supplemental
Analysis of Results & Storm Sewer Analysis
App. #22-37P ~ Nuway Tobacco Co. Solar Farm

Dear Mr. Doolittle:

This letter is intended to serve as a supplemental to the **Water Quality** section of our previously submitted Stormwater Management Report for App. #22-37P entitled "*Stormwater Management Report ~ Solar Farm ~ 200 Sullivan Avenue ~ South Windsor, Connecticut ~ Dated October 3, 2022*". For more information, please refer to the plans entitled "*Nuway Tobacco Co. ~ Solar Farm Phase 2 ~ 200 Sullivan Avenue ~ South Windsor, CT*" prepared by Design Professionals, Inc., and dated October 3, 2022, as amended to November 8, 2022.

Water Quality

The proposed water quality basin was sized to treat a 1" rain event as recommended in the 2004 Connecticut Stormwater Quality Manual. The proposed forebay was sized to store over 10% of this water quality volume as recommended by the 2004 Connecticut Stormwater Quality Manual. Water Quality Volume calculations and basin stage storage tables are included as **Attachment A** of this report.

Please contact us with any questions.

Sincerely,
DESIGN PROFESSIONALS, INC.

Daniel H. Jameson, P.E.
Project Manager

Attachment A
(In Place of October 3, 2022, Report Appendix D)
Water Quality Volume and Pond Stage Storage

200 Sullivan Ave – DPI Project No.:2829.S

November 9, 2022

Water Quality Volume Calculations

Per 2004 Connecticut Stormwater Quality Manual, Section 7.4.1:

Areas for Calculation: On Site to Forebay (P1)

	P1
Impervious	1.03
Pervious	1.53
Total Area	2.56
% Impervious	41.36%

Water Quality Volume (WQV) = (1") (R)(A)/12, where:

R = unitless volumetric runoff coefficient = $0.05 + 0.009(I)$, where:

I = percent impervious cover of drainage area = 41.36%

R = $0.05 + 0.009(I)$

R = $0.05 + 0.009(41.36)$

R = 0.422

A = drainage area in acres = 2.56 acres

WQV = (1")(R)(A acres)/12 inches per foot

WQV = (1")(0.422)(2.56 acres)/12 inches per foot

WQV = 0.09 acre-feet required = 3,920.4 cft

Proposed BMP

The proposed water quality basin will provide **3,922 cft** below its spillway @ Elev. 79.50. The water quality basin will provide more than 100% of the water quality volume. The water quality basin stage storage report is included as a part of this appendix.

STAGE STORAGE TABLE						
ELEV	AREA (sq. ft.)	DEPT H (ft)	AVG END INC. VOL. (cu. ft.)	AVG END TOTAL VOL. (cu. ft.)	CONIC INC. VOL. (cu. ft.)	CONIC TOTAL VOL. (cu. ft.)
77.00	44.82	N/A	N/A	0.00	N/A	0.00
78.00	721.78	1.00	383.30	383.30	315.48	315.48
79.00	3,577.50	1.00	2149.64	2532.94	1968.73	2284.22
79.40	4,634.22	0.40	1642.34	4175.28	1637.79	3922.01