









[illegible]

**TYPICAL ROAD CROSS-SECTION**

**CUT OUT EXISTING GRAVEL & DIRT**

**PLACE 12" CA-7 CLEAN CRUSHED AGGREGATE & DRESS SHOULDERS**

**CENTERLINE APPROXIMATELY 4" ABOVE EXISTING GRADE.**

**CENTERLINE MATCH EXISTING GRADE IN UNMAPPED FLOODING AREA .**

**EDGE APPROXIMATELY 3" ABOVE EXISTING GRADE.**

**EDGE MATCH EXISTING GRADE IN UNMAPPED FLOODING AREA.**

**DRESS SHOULDERS TO MATCH EXISTING GRADE**

**PERMEABILITY OF STONE ROAD WILL MATCH THE PERMEABILITY OF THE SOIL BELOW**

The site plan illustrates a proposed infrastructure project at the intersection of a vertical road and a diagonal highway. Key features include:

- Proposed Access Road:** A new road segment running vertically through the center of the plan.
- Storm Sewer:** Labeled as "STORM SEWER 12\" C/P 40 LF @ 1.0%", it runs horizontally along the bottom left, adjacent to the proposed access road.
- Relocated Light Pole:** Indicated by two black triangles pointing towards the intersection area.
- Systems:** Three distinct areas are labeled "SYSTEM 1", "SYSTEM 2", and "SYSTEM 3". Each system contains a series of black dots representing individual components or trees. System 2 is centrally located between Systems 1 and 3.
- Dimensions and Distances:** Various measurements are provided, such as "67'", "54'", "20'", "30'", "60'", and "150'".
- Elevation Contours:** Lines indicating elevations of 695, 700, and 705 feet are shown across the site.
- Scale and Orientation:** A scale bar at the top indicates "1\"=60'", and a north arrow points towards the upper right corner.
- Other Labels:** "DOUBLE GATED ACCESS" is noted near the intersection, and "PROPOSED ACCESS ROAD" is labeled at the top left.

# SITE PLAN

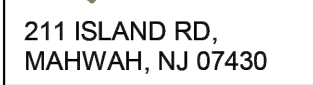
0 125' 250' 625'

1"=250'

The site plan illustrates a proposed development within a larger property. Key features include:

- Property Lines:** Indicated by dashed lines with dimensions such as 514.65', 798.68', and 81.17'.
- Topography:** Contour lines showing elevation changes across the site.
- Proposed Infrastructure:**
  - Roads:** A central gravel access road and a proposed access road at the bottom.
  - Culverts:** Multiple proposed culverts crossing the gravel access road and other areas.
  - Turnarounds:** Hammerhead turnarounds for fire access at various points.
  - Accesses:** Double-gated accesses and a drain tile.
- Environmental Features:** Wetland areas are identified with labels and specific dimensions (e.g., 197.38', 103.7').
- Dimensions:** Numerous dimensions are provided for lot sizes, road widths, and setbacks (e.g., 20', 27.8', 44.4', 115.9', 121.2').
- Orientation:** A north arrow is located in the top right corner.

CLIENT:



CONTRACTOR:



NAPERVILLE, IL 60565  
contact@inwavere.com

ELECTRICAL ENGINEER:



PROFESSIONAL DESIGN FIRM #  
184.008367-0002

CIVIL ENGINEER:



A Sevee & Maher Engineers company      DESIGN FIRM NO. 184.008857-0002



**SME**  
SEVEE & MAHER  
ENGINEERS

ENVIRONMENTAL • CIVIL • GEOTECHNICAL • WATER • COMPLIANCE

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PROJECT NAME:

ORCHARD SOLAR

LOCATION:

41°44'24.3"N 88°25'26.9"W  
SUGAR GROVE, IL

ISSUE #	ISSUED FOR:	DATE
1	SITE CHECK SET	08-25-2025
2	SITE CHECK SET	09-05-2025
3	PROGRESS SET	09-10-2025
4	PROGRESS SET	09-17-2025
5	PROGRESS SET	09-18-2025

SEAL:

**NOT FOR  
CONSTRUCTION**

DATE: 09/17/2025

TITLE:

## SITE PLAN

PROJECT #:

IW-101

SHEET:

# C-2.0







Minnesota Disconnected Impervious Area Calculations for Solar Panels

Average Horizontal Length Beneath the Panel

Ahnway Series BI-55-520 to BI-55-550 Solar Panels		
Length	2272 mm	7.45 ft
Width	1133 mm	3.72 ft
Spacing		10.00 ft
Max Angle	60 degrees	1.04719755 radians
Min Angle	0 degrees	0 radians

$Z = (\cos(\text{max angle}) \times \text{length} + \cos(\text{min angle}) \times \text{length}) / 2$

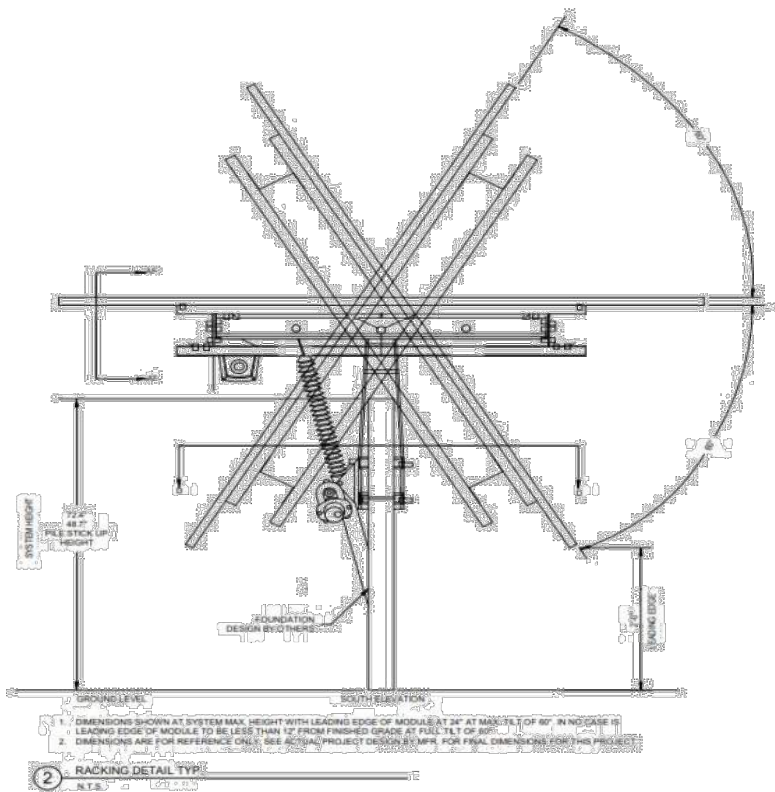
$Z = 5.59 \text{ ft}$

$\text{Impervious Area of Solar Panel} = Z \times \text{Width}$

$\text{Imp Area} = 20.78 \text{ sq ft}$

$\text{Pervious Area per Solar Panel} = (\text{Length} + \text{Spacing}) \times \text{Width}$

$\text{Perv Area} = 64.88 \text{ sq ft}$



Minnesota Disconnected Impervious Area Calculations for Solar Panels

Orchard Road Solar Panels	
Total	39,096 panels

Water Quality Volume To Be Treated Per Panel from MN spreadsheet	0.77 cu ft
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BMP Volume for Panels (MN method)	30,104 cu ft
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Impervious area (equipment pads)	4770 sq ft
BMP Volume = 1" x Imp Area	398 cu ft

Total BMP Volume Required	30,501 cu ft
	0.70 ac-ft

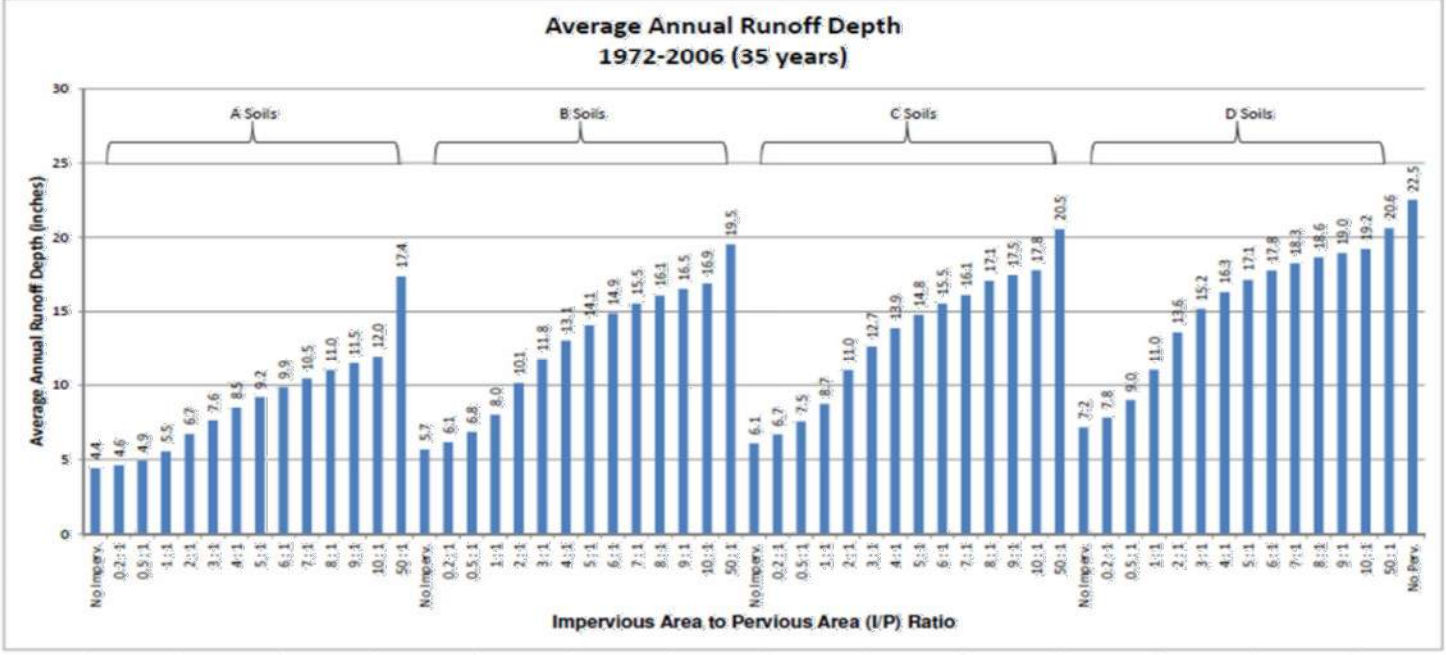
NW BMP - Bioswale - Berm up ~ 690 elevation to hold water - drained by likely existing field tile  
Field tile to be confirmed with tile survey  
Captures ~ 1/6 site area  
Stores ~ 1/6 volume required (0.1 ac-ft)

SW BMP - Bioswale - Berm up ~ 663 elevation to hold water - if no existing field tile, add new  
Field tile to be confirmed with tile survey  
If no field tile exists - install ~ 500 lf tile within bioswale and 225 lf tile to outlet at culvert  
Captures ~ 1/6 site area  
Stores ~ 1/6 volume required (0.1 ac-ft)

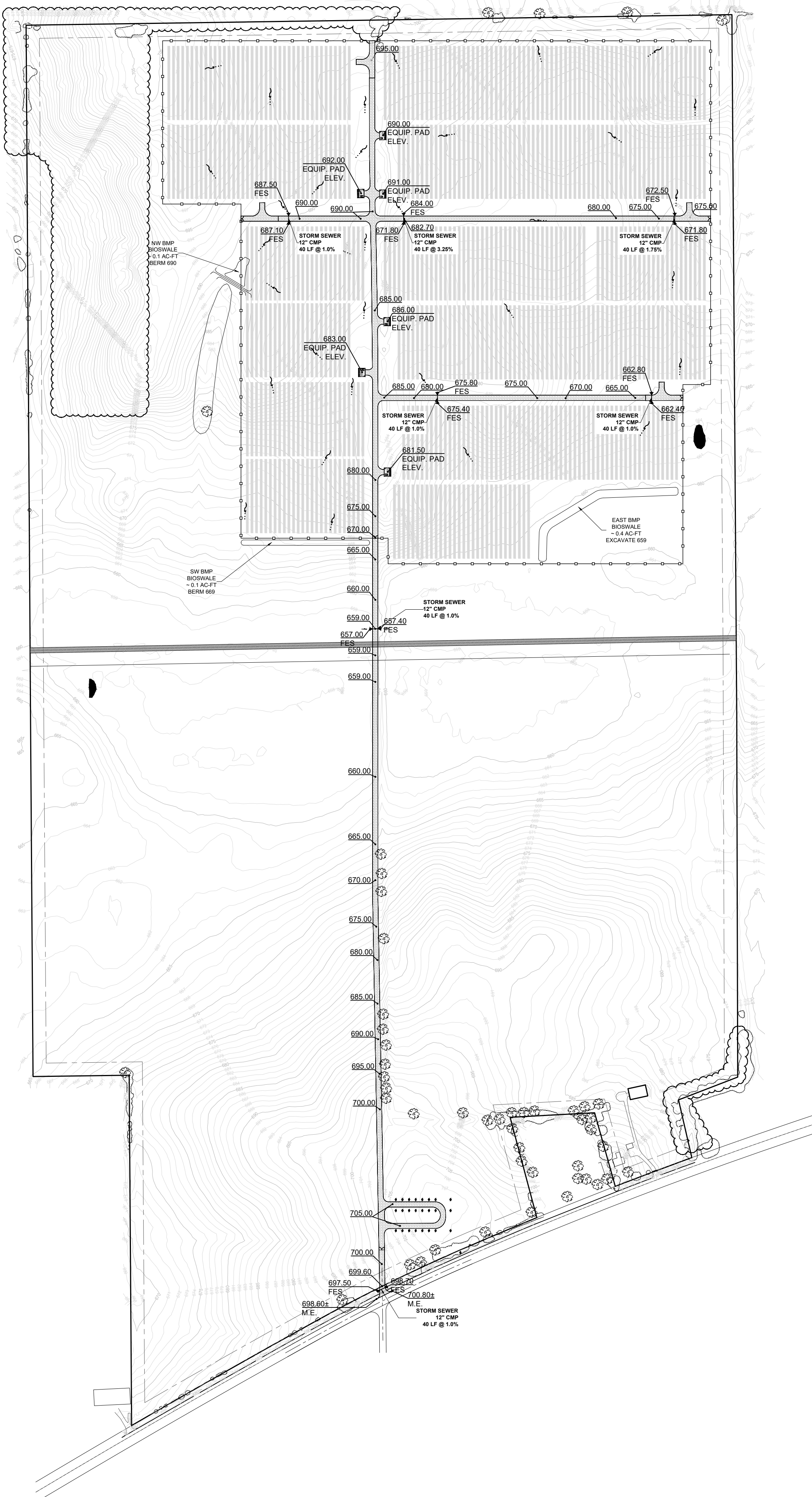
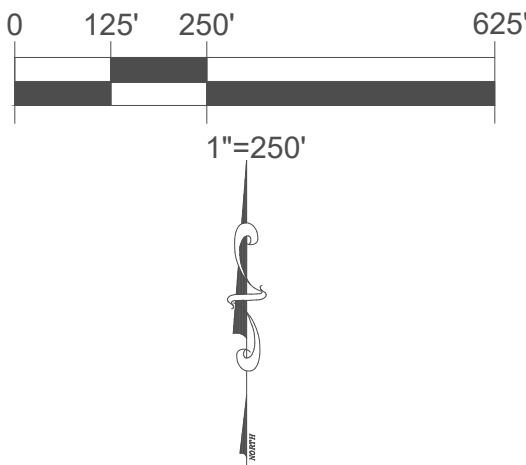
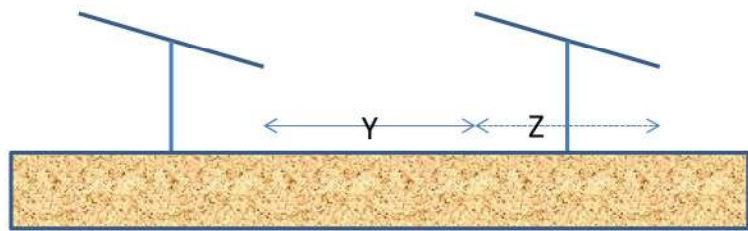
East BMP - Bioswale - excavate to ~ 659 elevation to hold water - If no existing field tile, add new  
Field tile to be confirmed with tile survey  
If no field tile exists - install ~ 1200 lf tile within bioswale and 260 lf tile to outlet at culvert  
Captures ~ 2/3 site area  
Stores ~ 2/3 volume required (0.4 ac-ft)

This spreadsheet makes calculations for an individual solar panel.

Enter values in blue cells			
Soil	C		select from dropdown; determine soil on site
I/P ratio	0.320		calculated
Term	Value	Units	
Pervious area	64.88	square feet	user entered; determine on site
Impervious area (area of solar panel)	20.78	square feet	user entered; determine on site
Runoff depth from pervious areas	6.10	inches	default = 4.4 for A soil, 5.7 for B, 6.1 for C, 7.2 for D
Redirected runoff depth from solar panel (called average annual runoff depth)	7.10	inches	determine from plot called <b>Average annual runoff depth</b>
Runoff depth from solar panel	22.50	inches	default = 22.5 inches
Performance goal	1.00	inches	
SUMMARY			
Pre-disconnection			
Runoff from impervious	39	ft3	calculated
Runoff from pervious	33	ft3	calculated
Total runoff	72	ft3	calculated
Post-disconnection			
Total runoff	51	ft3	calculated
Total runoff reduced	21	ft3	calculated
Runoff from pervious	33	ft3	calculated
Runoff from impervious	18	ft3	calculated
Adjusted impervious	9.441	square feet	calculated
Performance Goal Summary			
Performance goal	1.73	ft3	calculated
BMP volume credit (BMP <sub>volume credit</sub> )	0.94	ft3	calculated
% of performance goal achieved	54.6	%	calculated
Remaining water quality volume to be treated (per panel)	0.79	ft3	calculated



Pervious area =  $(Y + Z) * W$ ; where W is the width of the solar panel and Z is the average horizontal distance of the panel  
Impervious area =  $Z * W$ ; where W is the width of the solar panel and Z is the average horizontal distance of the panel



MUNICIPALITY APPROVAL STAMP

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DATE: 09/17/2025

TITLE:

PRELIMINARY STORMWATER  
MANAGEMENT PLAN

PROJECT #:

IW-101

SHEET:

C-2.2

NOT FOR  
CONSTRUCTION



