South Ripley Solar Project

Town of Ripley, Chautauqua County, New York

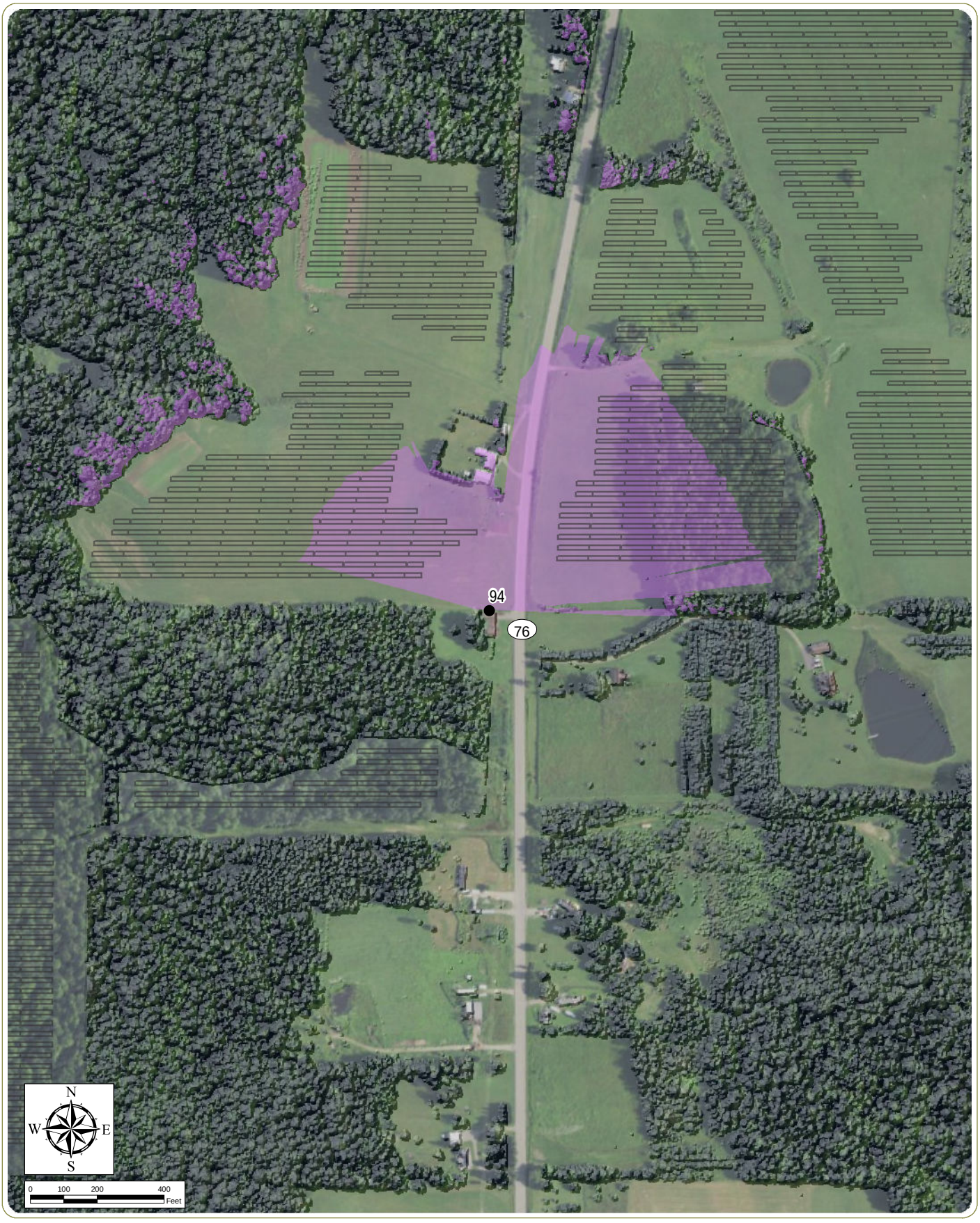
Figure 1. Receptor Viewsheds

Notes: 1. Basemap:USDA NAIP "2019 New York 60cm" orthoimagery map service. 2. This map was generated in ArcMap on July 27, 2021. 3. This is a color graphic. Reproduction in grayscale may misrepresent the data.

- Non-Participating Receptor
- PV Panel
- Receptor Viewshed

edr

www.edrdpc.com



South Ripley Solar Project

Town of Ripley, Chautauqua County, New York

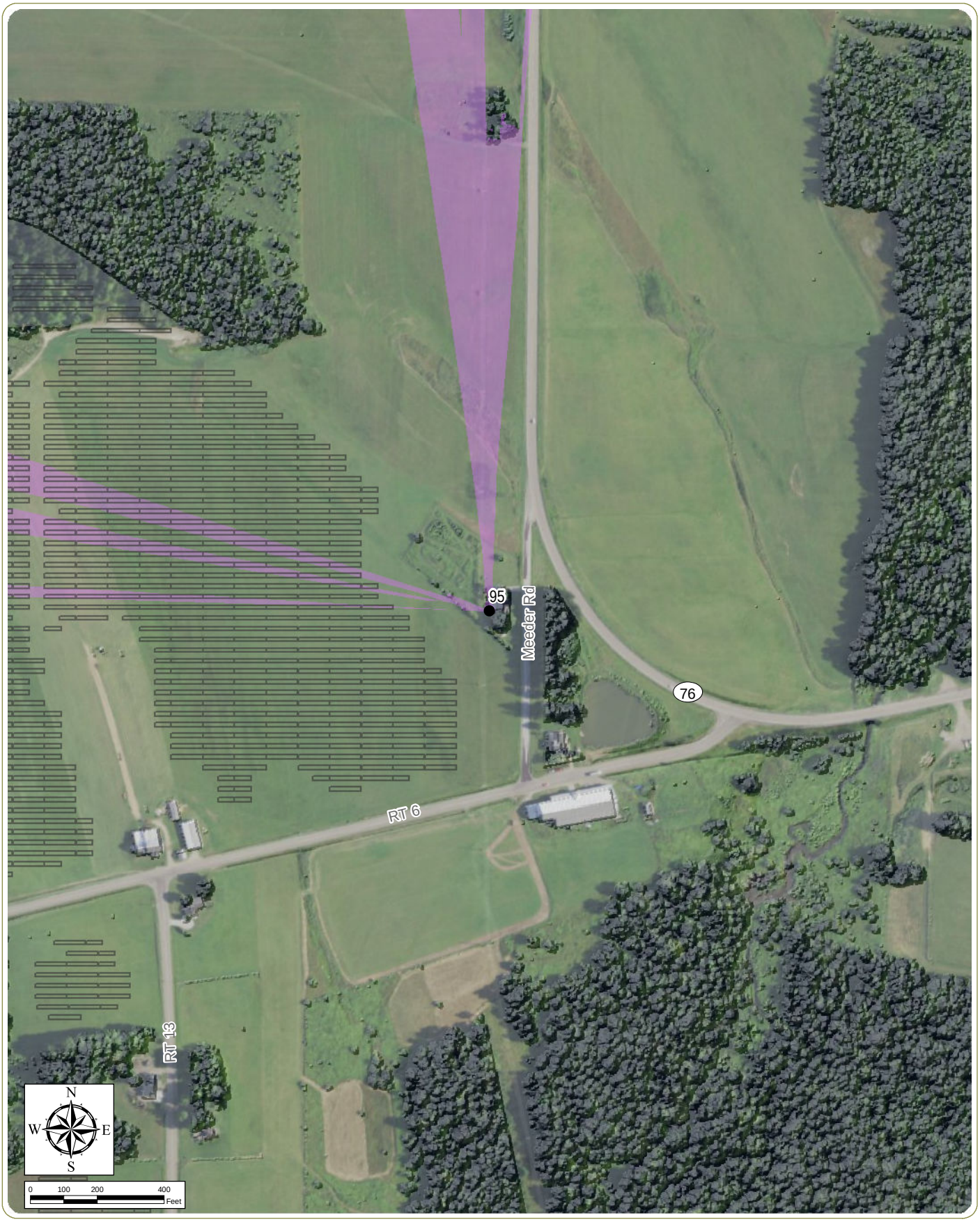
Figure 1. Receptor Viewsheds

Notes: 1. Basemap:USDA NAIP "2019 New York 60cm" orthoimagery map service. 2. This map was generated in ArcMap on July 27, 2021. 3. This is a color graphic. Reproduction in grayscale may misrepresent the data.

- Non-Participating Receptor
- PV Panel
- Receptor Viewshed

edr

www.edrdpc.com



South Ripley Solar Project

Town of Ripley, Chautauqua County, New York

Figure 1. Receptor Viewsheds

Notes: 1. Basemap:USDA NAIP "2019 New York 60cm" orthoimagery map service. 2. This map was generated in ArcMap on July 27, 2021. 3. This is a color graphic. Reproduction in grayscale may misrepresent the data.

- Non-Participating Receptor
- PV Panel
- Receptor Viewshed

edr

www.edrdpc.com

South Ripley Solar Project

Town of Ripley, Chautauqua County, New York

Figure 1. Receptor Viewsheds

Notes: 1. Basemap:USDA NAIP "2019 New York 60cm" orthoimagery map service. 2. This map was generated in ArcMap on July 27, 2021. 3. This is a color graphic. Reproduction in grayscale may misrepresent the data.

- Participating Receptor
- PV Panel
- Receptor Viewshed

edr

www.edrdpc.com

South Ripley Solar Project

Town of Ripley, Chautauqua County, New York

Figure 1. Receptor Viewsheds

Notes: 1. Basemap:USDA NAIP "2019 New York 60cm" orthoimagery map service. 2. This map was generated in ArcMap on July 27, 2021. 3. This is a color graphic. Reproduction in grayscale may misrepresent the data.

- Non-Participating Receptor
- PV Panel
- Receptor Viewshed

edr

www.edrdpc.com

South Ripley Solar Project

Town of Ripley, Chautauqua County, New York

Figure 1. Receptor Viewsheds

Notes: 1. Basemap:USDA NAIP "2019 New York 60cm" orthoimagery map service. 2. This map was generated in ArcMap on July 27, 2021. 3. This is a color graphic. Reproduction in grayscale may misrepresent the data.

- Non-Participating Receptor
- PV Panel
- Receptor Viewshed

edr

www.edrdpc.com

South Ripley Solar Project

Town of Ripley, Chautauqua County, New York

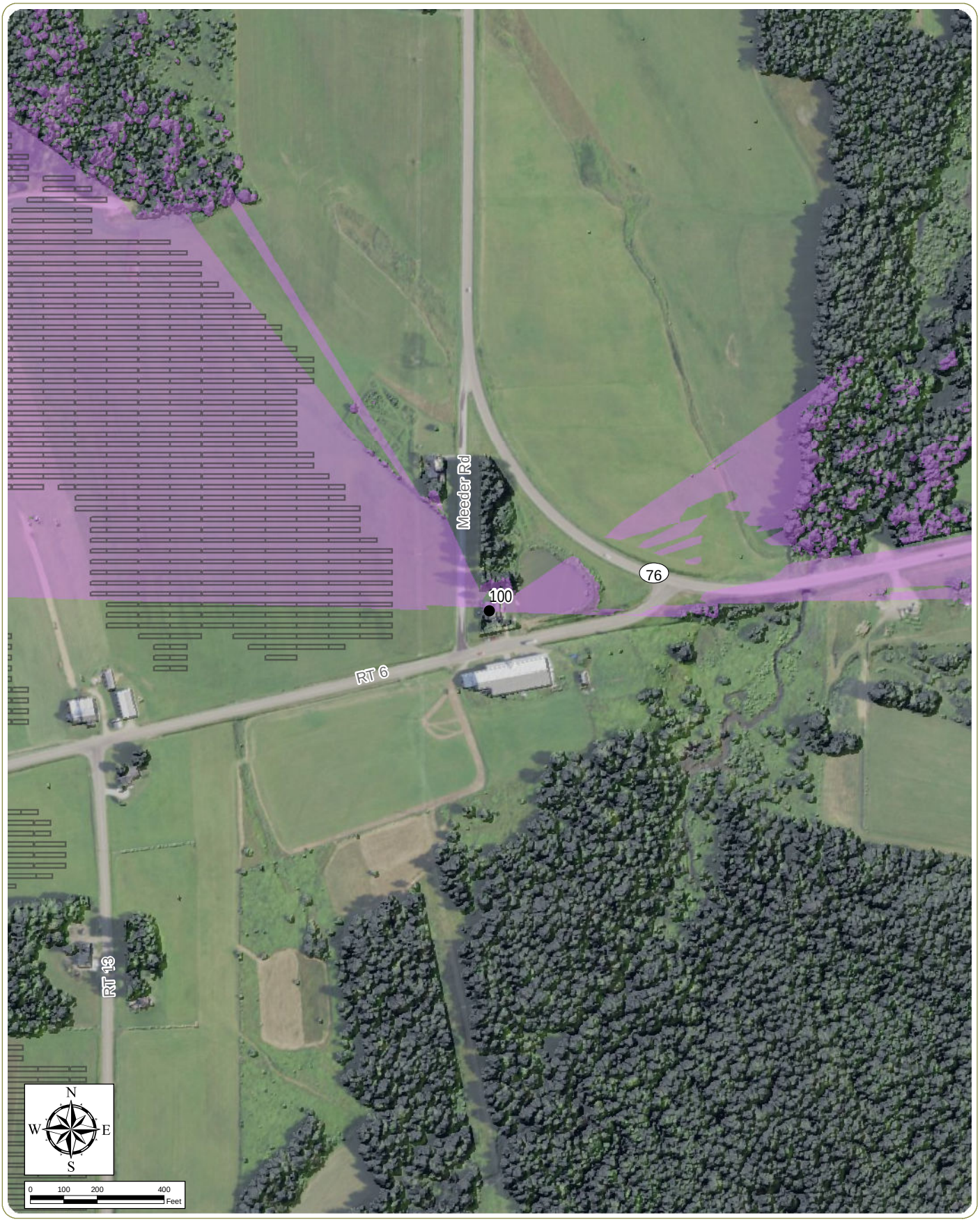
Figure 1. Receptor Viewsheds

Notes: 1. Basemap:USDA NAIP "2019 New York 60cm" orthoimagery map service. 2. This map was generated in ArcMap on July 27, 2021. 3. This is a color graphic. Reproduction in grayscale may misrepresent the data.

- Non-Participating Receptor
- PV Panel
- Receptor Viewshed

edr

www.edrdpc.com



South Ripley Solar Project

Town of Ripley, Chautauqua County, New York

Figure 1. Receptor Viewsheds

Notes: 1. Basemap:USDA NAIP "2019 New York 60cm" orthoimagery map service. 2. This map was generated in ArcMap on July 27, 2021. 3. This is a color graphic. Reproduction in grayscale may misrepresent the data.

- Non-Participating Receptor
- PV Panel
- Receptor Viewshed

edr

www.edrdpc.com

South Ripley Solar Project

Town of Ripley, Chautauqua County, New York

Figure 1. Receptor Viewsheds

Notes: 1. Basemap:USDA NAIP "2019 New York 60cm" orthoimagery map service. 2. This map was generated in ArcMap on July 27, 2021. 3. This is a color graphic. Reproduction in grayscale may misrepresent the data.

- Non-Participating Receptor
- PV Panel
- Receptor Viewshed

edr

www.edrdpc.com

South Ripley Solar Project

Town of Ripley, Chautauqua County, New York

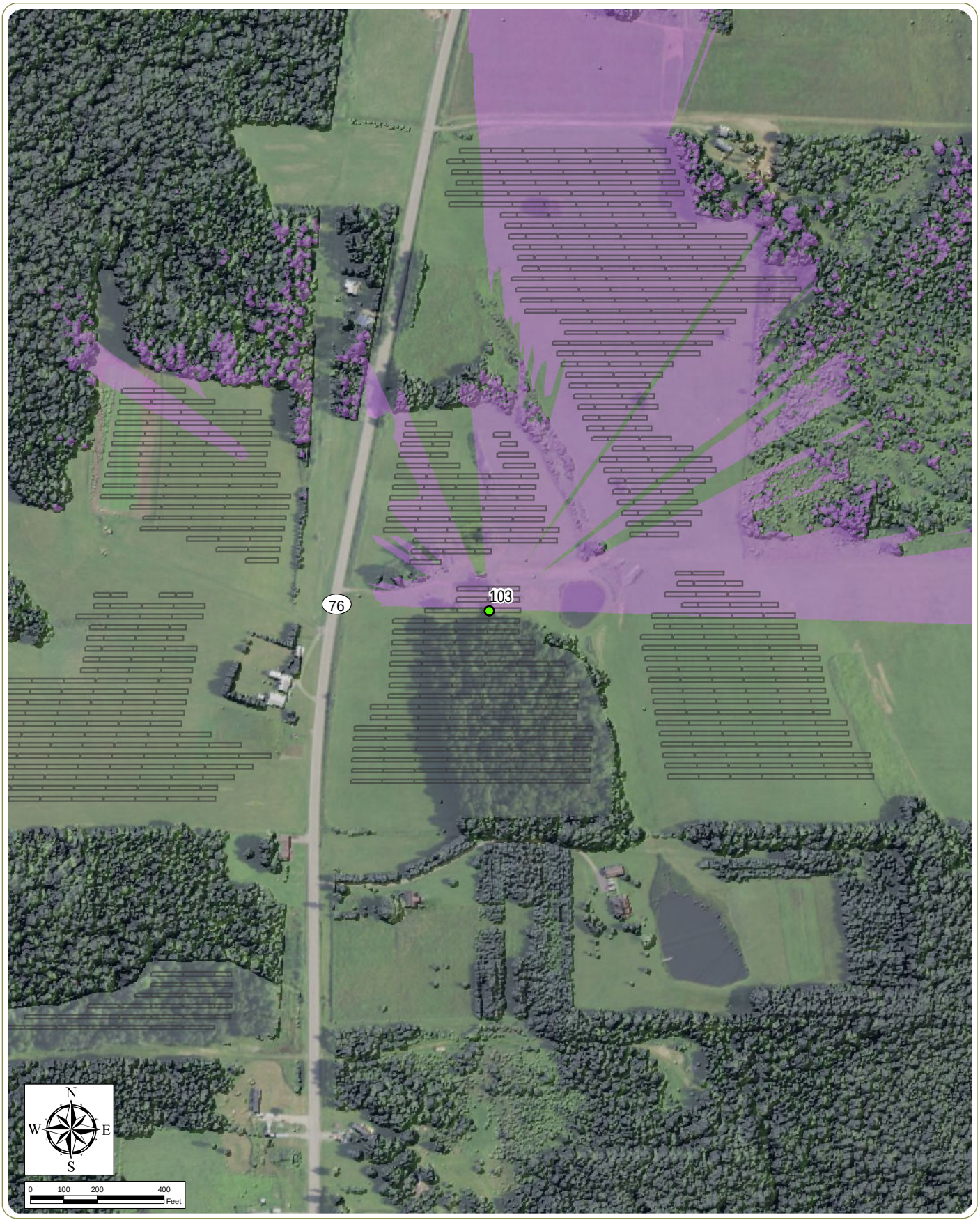
Figure 1. Receptor Viewsheds

Notes: 1. Basemap:USDA NAIP "2019 New York 60cm" orthoimagery map service. 2. This map was generated in ArcMap on July 27, 2021. 3. This is a color graphic. Reproduction in grayscale may misrepresent the data.

- Non-Participating Receptor
- PV Panel
- Receptor Viewshed

edr

www.edrdpc.com



South Ripley Solar Project

Town of Ripley, Chautauqua County, New York

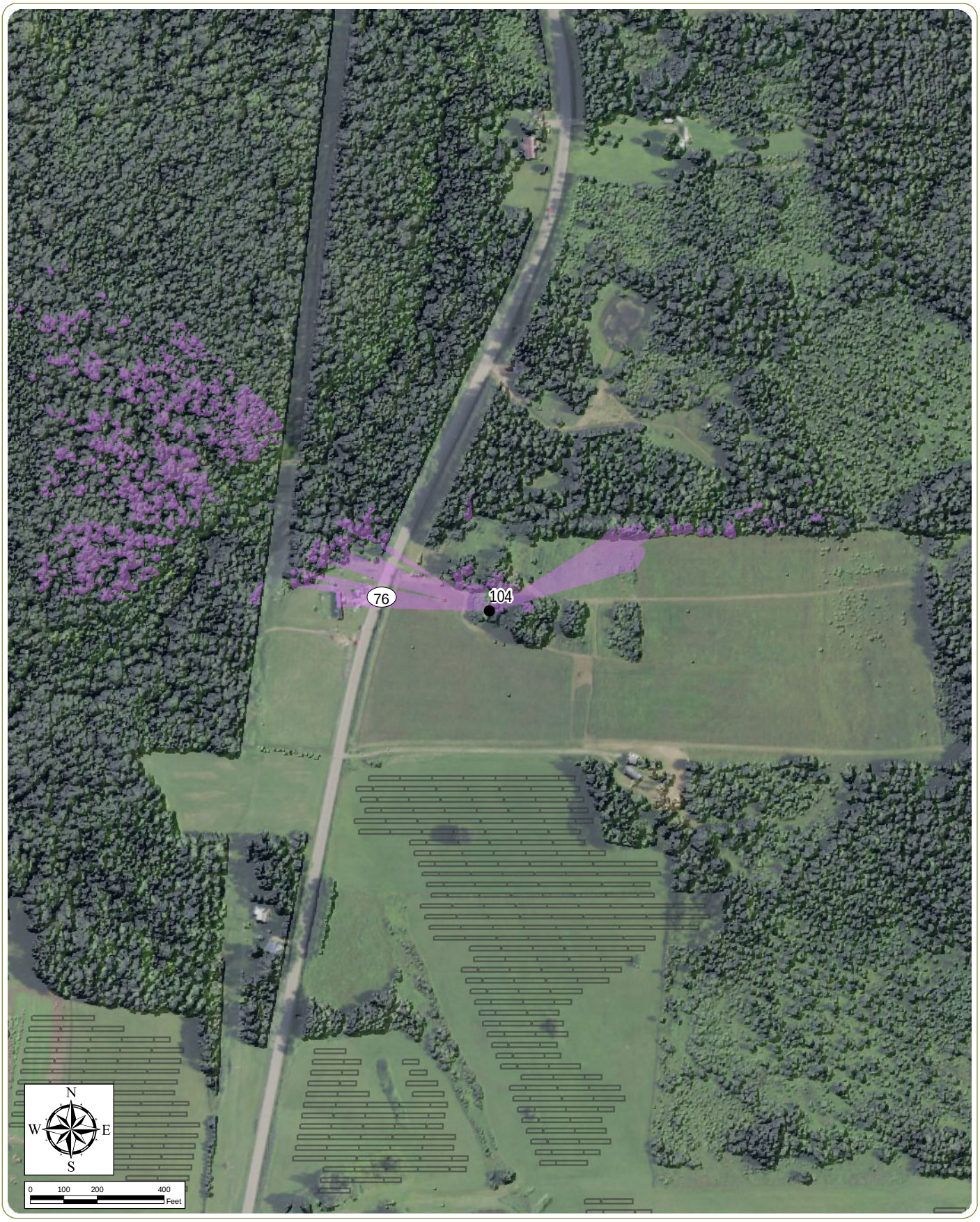
Figure 1. Receptor Viewsheds

Notes: 1. Basemap:USDA NAIP "2019 New York 60cm" orthoimagery map service. 2. This map was generated in ArcMap on July 27, 2021. 3. This is a color graphic. Reproduction in grayscale may misrepresent the data.

- Participating Receptor
- PV Panel
- Receptor Viewshed

edr

www.edrdpc.com



South Ripley Solar Project

Town of Ripley, Chautauqua County, New York

Figure 1. Receptor Viewsheds

Notes: 1. Basemap:USDA NAIP "2019 New York 60cm" orthoimagery map service. 2. This map was generated in ArcMap on July 27, 2021. 3. This is a color graphic. Reproduction in grayscale may misrepresent the data.

- Non-Participating Receptor
- PV Panel
- Receptor Viewshed

edr

www.edrdpc.com

South Ripley Solar Project

Town of Ripley, Chautauqua County, New York

Figure 1. Receptor Viewsheds

Notes: 1. Basemap:USDA NAIP "2019 New York 60cm" orthoimagery map service. 2. This map was generated in ArcMap on July 27, 2021. 3. This is a color graphic. Reproduction in grayscale may misrepresent the data.

- Non-Participating Receptor
- PV Panel
- Receptor Viewshed

edr

www.edrdpc.com

South Ripley Solar Project

Town of Ripley, Chautauqua County, New York

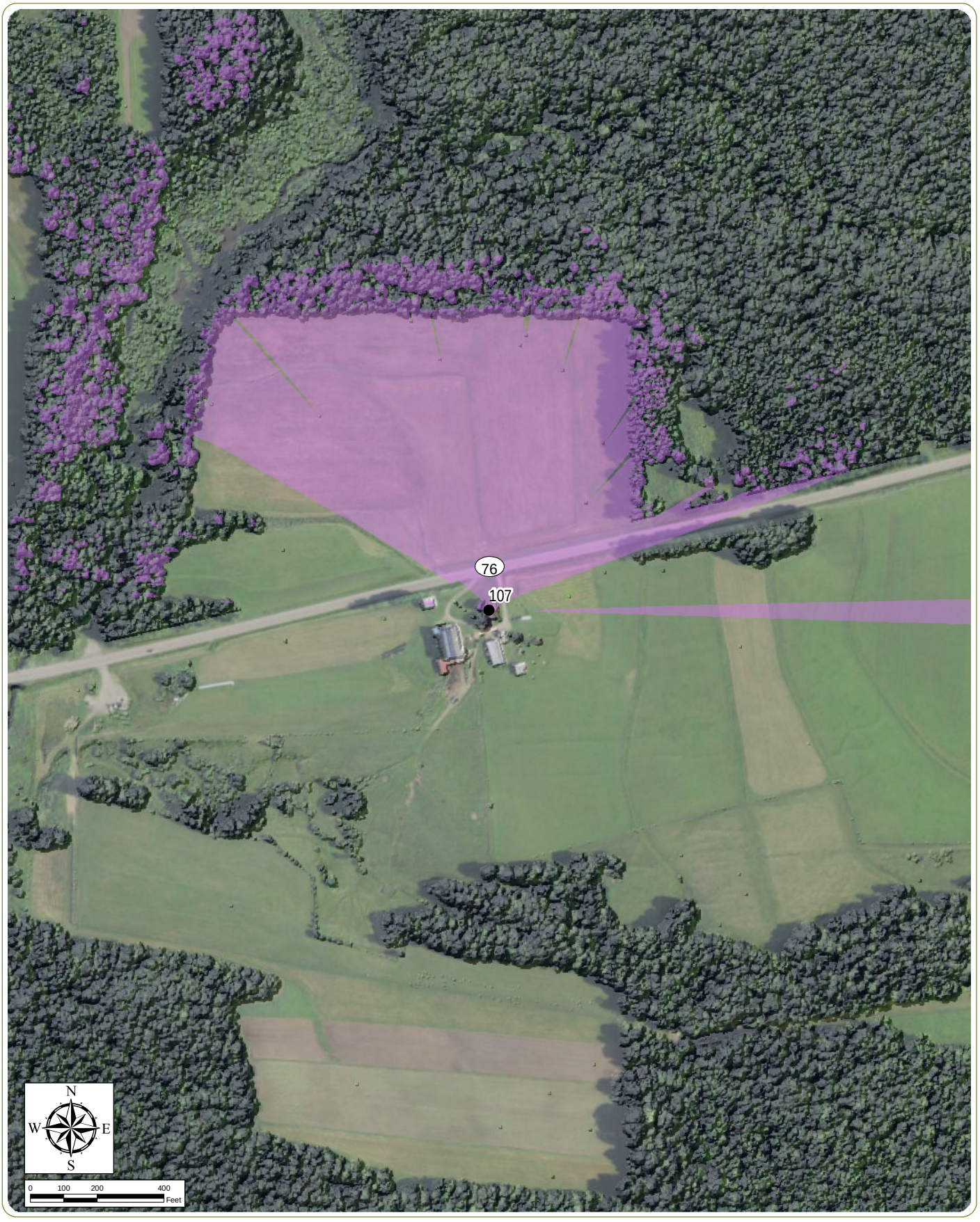
Figure 1. Receptor Viewsheds

Notes: 1. Basemap:USDA NAIP "2019 New York 60cm" orthoimagery map service. 2. This map was generated in ArcMap on July 27, 2021. 3. This is a color graphic. Reproduction in grayscale may misrepresent the data.

- Participating Receptor
- PV Panel
- Receptor Viewshed

edr

www.edrdpc.com



South Ripley Solar Project

Town of Ripley, Chautauqua County, New York

Figure 1. Receptor Viewsheds

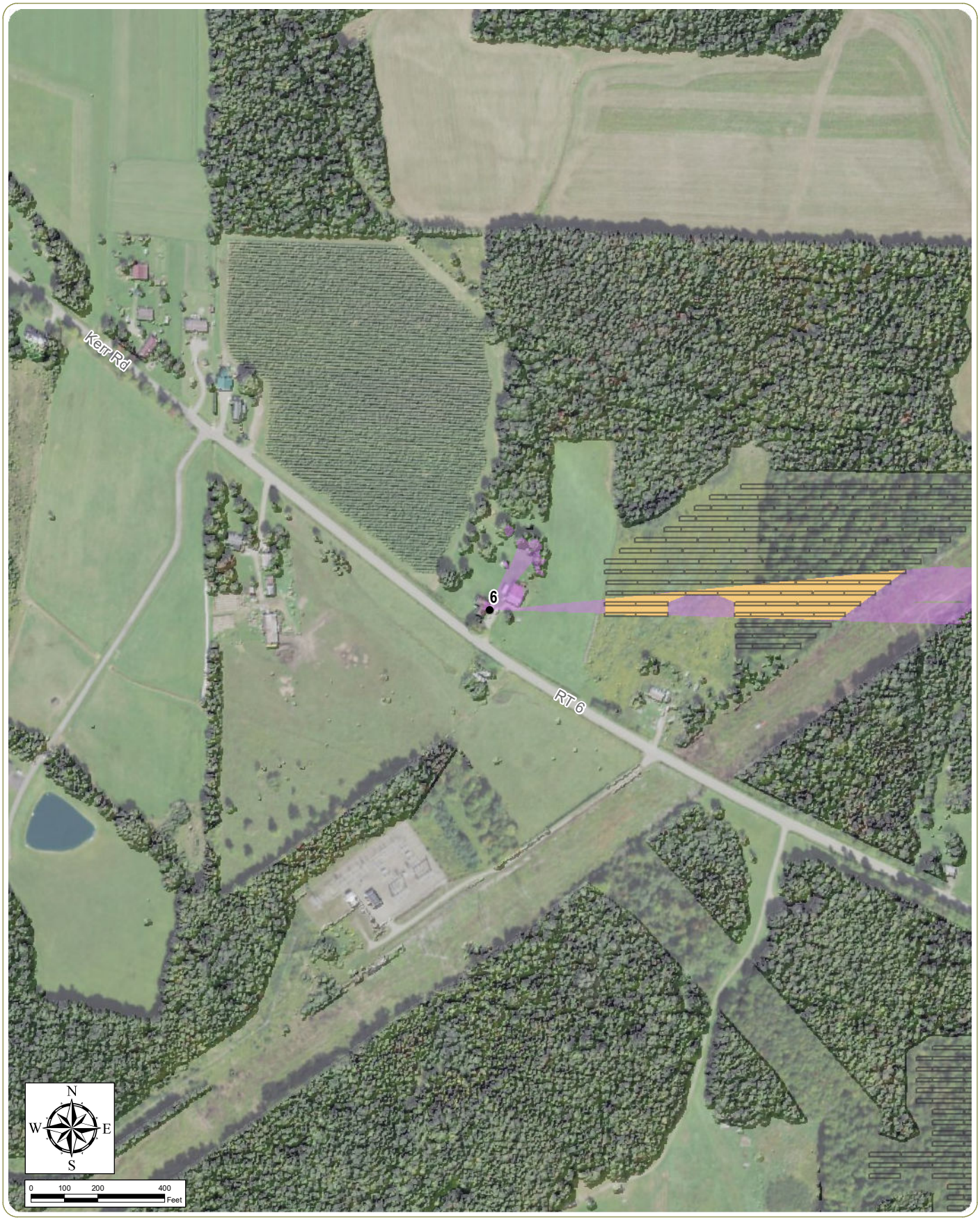
Non-Participating Receptor

Receptor Viewshed

Notes: 1. Basemap:USDA NAIP "2019 New York 60cm" orthoimagery map service. 2. This map was generated in ArcMap on July 27, 2021. 3. This is a color graphic. Reproduction in grayscale may misrepresent the data.

edr

www.edrdpc.com



South Ripley Solar Project

Town of Ripley, Chautauqua County, New York

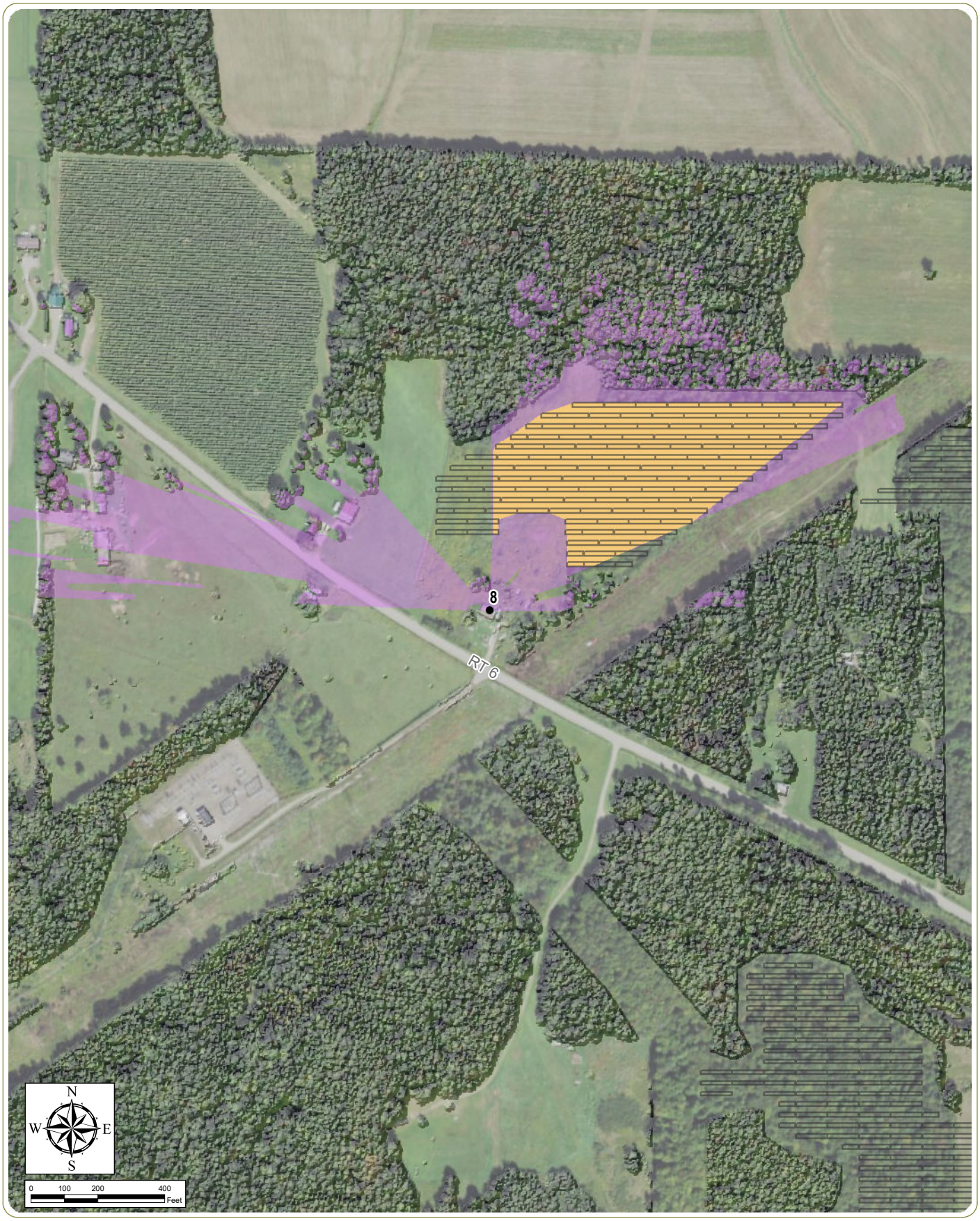
Figure 1. Final Modeling Inputs

Notes: 1. Basemap:USDA NAIP "2019 New York 60cm" orthoimagery map service. **2.** This map was generated in ArcMap on July 27, 2021. **3.** This is a color graphic. Reproduction in grayscale may misrepresent the data.

- Non-Participating Receptor
- PV Panel
- Receptor Panel Visibility with Potential for Glare
- Receptor Viewshed

edr

www.edrdpc.com



South Ripley Solar Project

Town of Ripley, Chautauqua County, New York

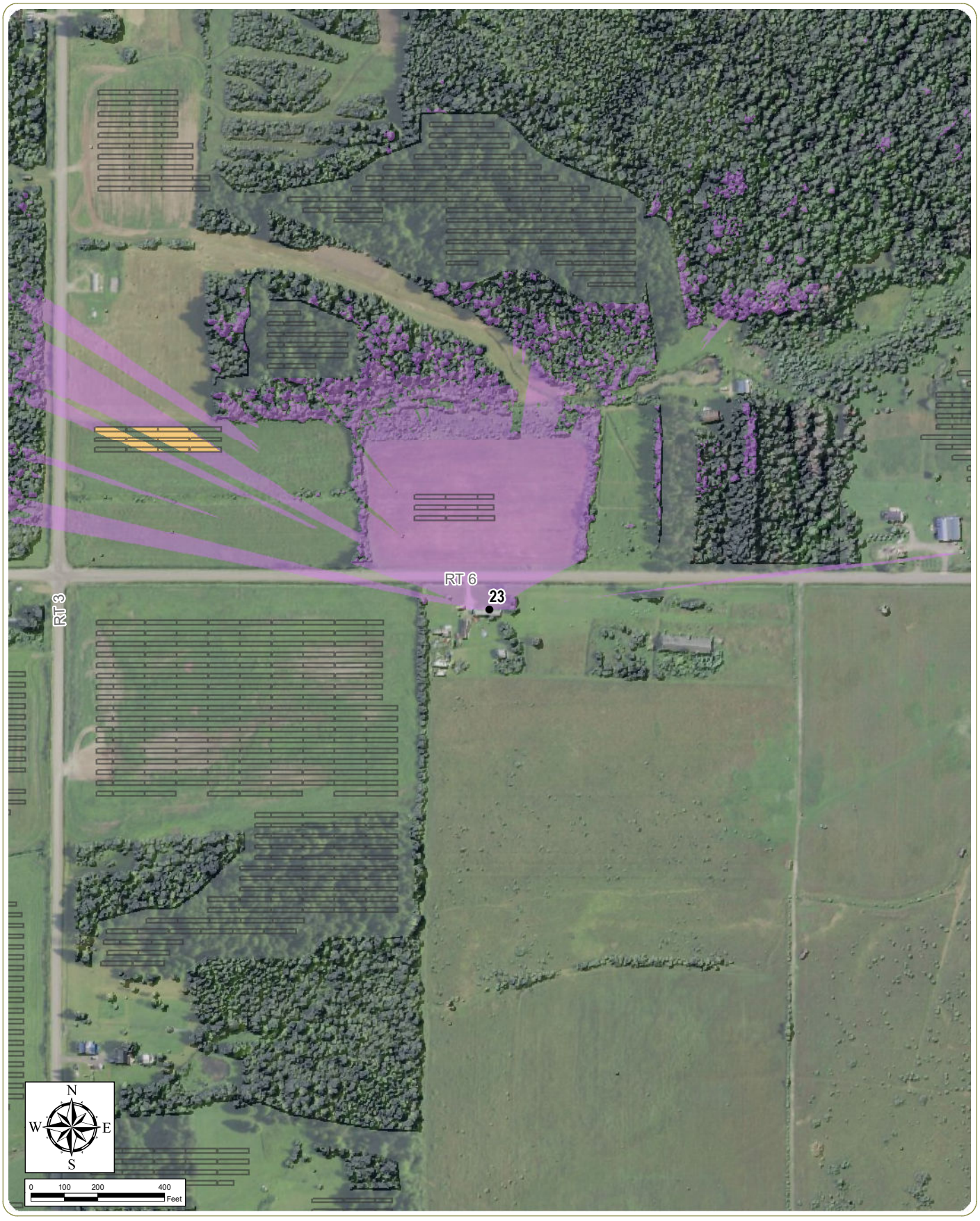
Figure 1. Final Modeling Inputs

Notes: 1. Basemap:USDA NAIP "2019 New York 60cm" orthoimagery map service. **2.** This map was generated in ArcMap on July 27, 2021. **3.** This is a color graphic. Reproduction in grayscale may misrepresent the data.

- Non-Participating Receptor
- PV Panel
- Receptor Panel Visibility with Potential for Glare
- Receptor Viewshed

edr

www.edrdpc.com



South Ripley Solar Project

Town of Ripley, Chautauqua County, New York

Figure 1. Final Modeling Inputs

Notes: 1. Basemap:USDA NAIP "2019 New York 60cm" orthoimagery map service. **2.** This map was generated in ArcMap on July 27, 2021. **3.** This is a color graphic. Reproduction in grayscale may misrepresent the data.

- Non-Participating Receptor
- PV Panel
- Receptor Panel Visibility with Potential for Glare
- Receptor Viewshed

edr

www.edrdpc.com

South Ripley Solar Project

Town of Ripley, Chautauqua County, New York

Figure 1. Final Modeling Inputs

Notes: 1. Basemap:USDA NAIP "2019 New York 60cm" orthoimagery map service. **2.** This map was generated in ArcMap on July 27, 2021. **3.** This is a color graphic. Reproduction in grayscale may misrepresent the data.

- Non-Participating Receptor
- PV Panel
- Receptor Panel Visibility with Potential for Glare
- Receptor Viewshed

edr

www.edrdpc.com

South Ripley Solar Project

Town of Ripley, Chautauqua County, New York

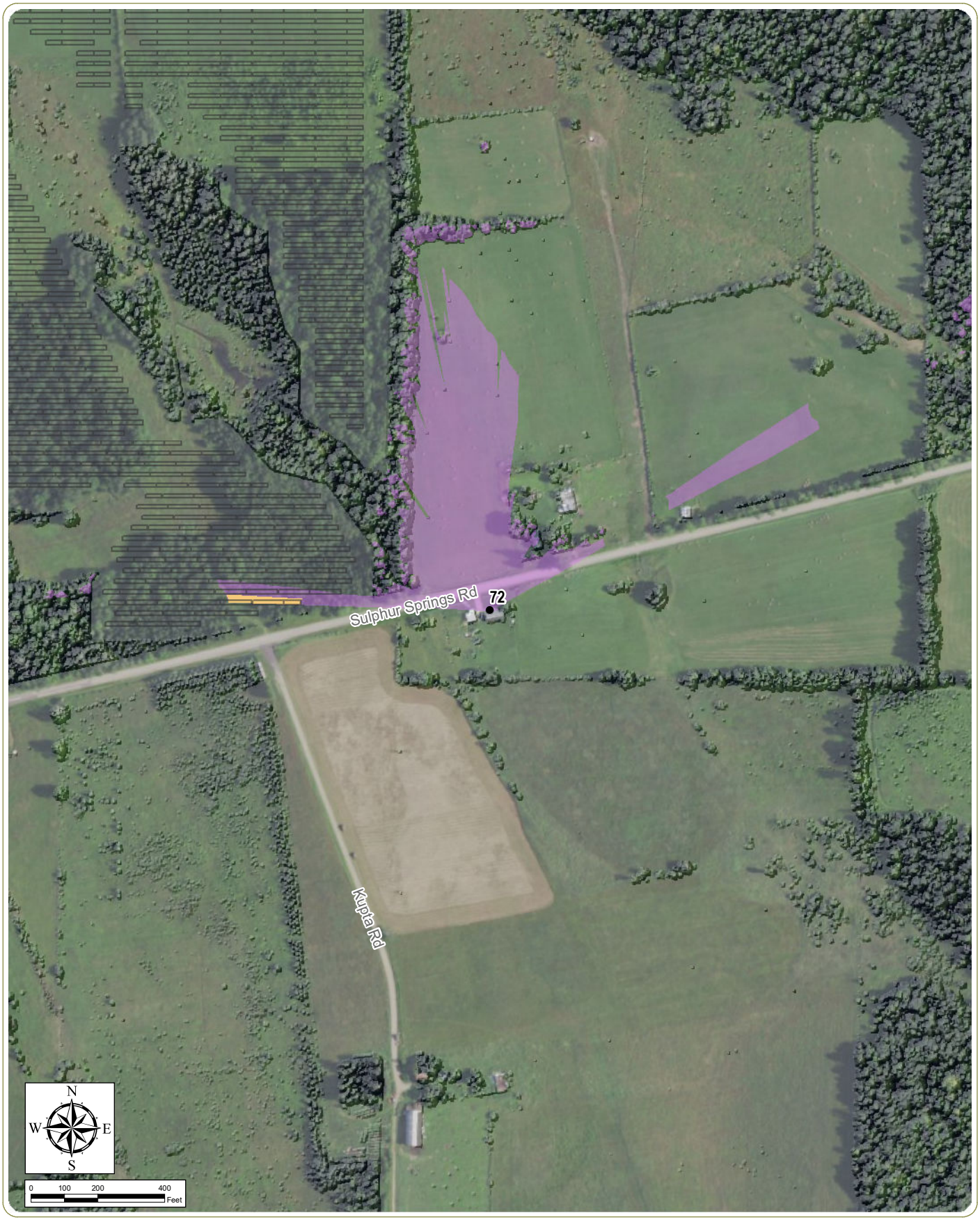
Figure 1. Final Modeling Inputs

Notes: 1. Basemap:USDA NAIP "2019 New York 60cm" orthoimagery map service. **2.** This map was generated in ArcMap on July 27, 2021. **3.** This is a color graphic. Reproduction in grayscale may misrepresent the data.

- Non-Participating Receptor
- PV Panel
- Receptor Panel Visibility with Potential for Glare
- Receptor Viewshed

edr

www.edrdpc.com



South Ripley Solar Project

Town of Ripley, Chautauqua County, New York

Figure 1. Final Modeling Inputs

Notes: 1. Basemap:USDA NAIP "2019 New York 60cm" orthoimagery map service. **2.** This map was generated in ArcMap on July 27, 2021. **3.** This is a color graphic. Reproduction in grayscale may misrepresent the data.

- Non-Participating Receptor
- PV Panel
- Receptor Panel Visibility with Potential for Glare
- Receptor Viewshed

edr

www.edrdpc.com

South Ripley Solar Project

Town of Ripley, Chautauqua County, New York

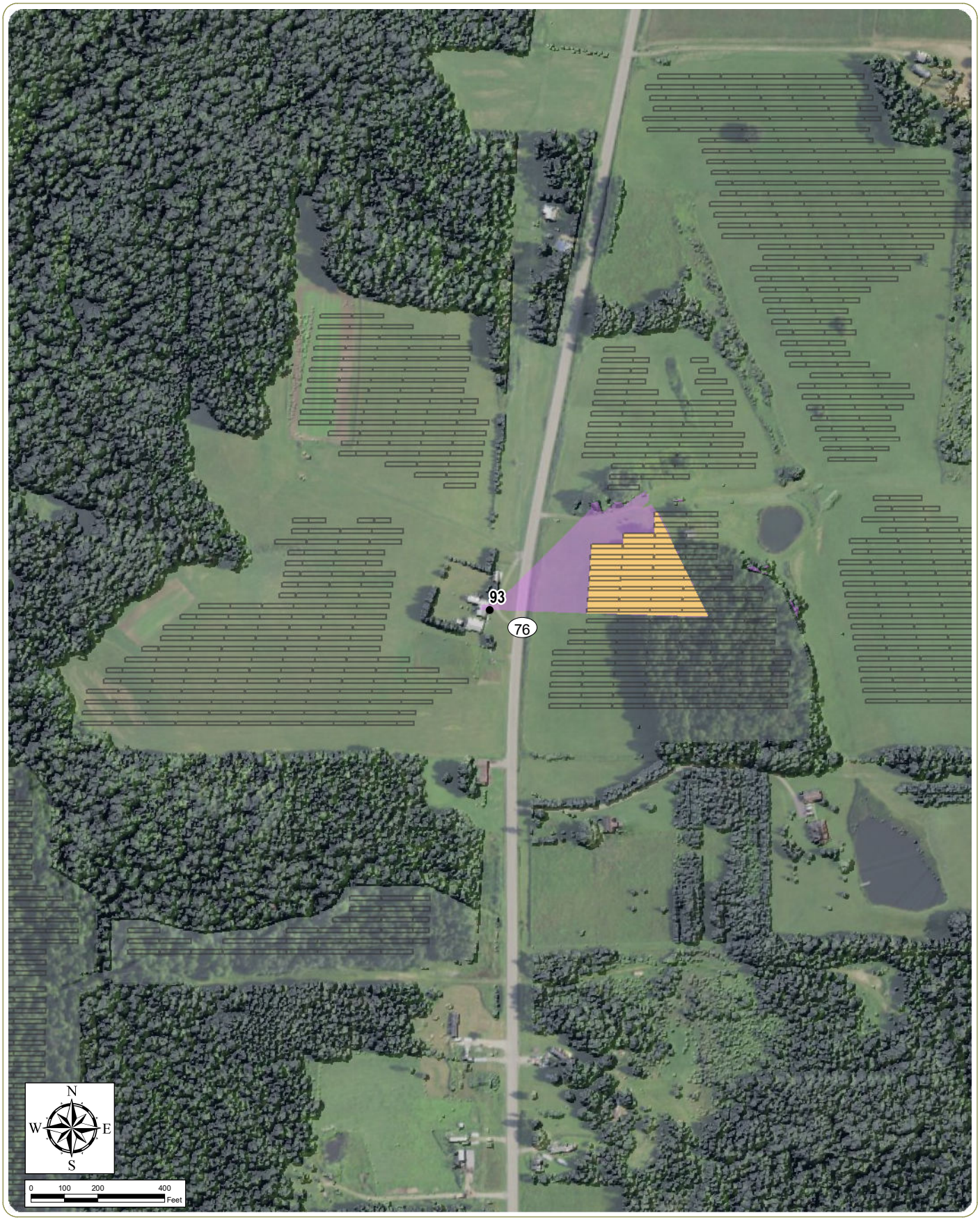
Figure 1. Final Modeling Inputs

Notes: 1. Basemap:USDA NAIP "2019 New York 60cm" orthoimagery map service. **2.** This map was generated in ArcMap on July 27, 2021. **3.** This is a color graphic. Reproduction in grayscale may misrepresent the data.

- Non-Participating Receptor
- PV Panel
- Receptor Panel Visibility with Potential for Glare
- Receptor Viewshed

edr

www.edrdpc.com



South Ripley Solar Project

Town of Ripley, Chautauqua County, New York

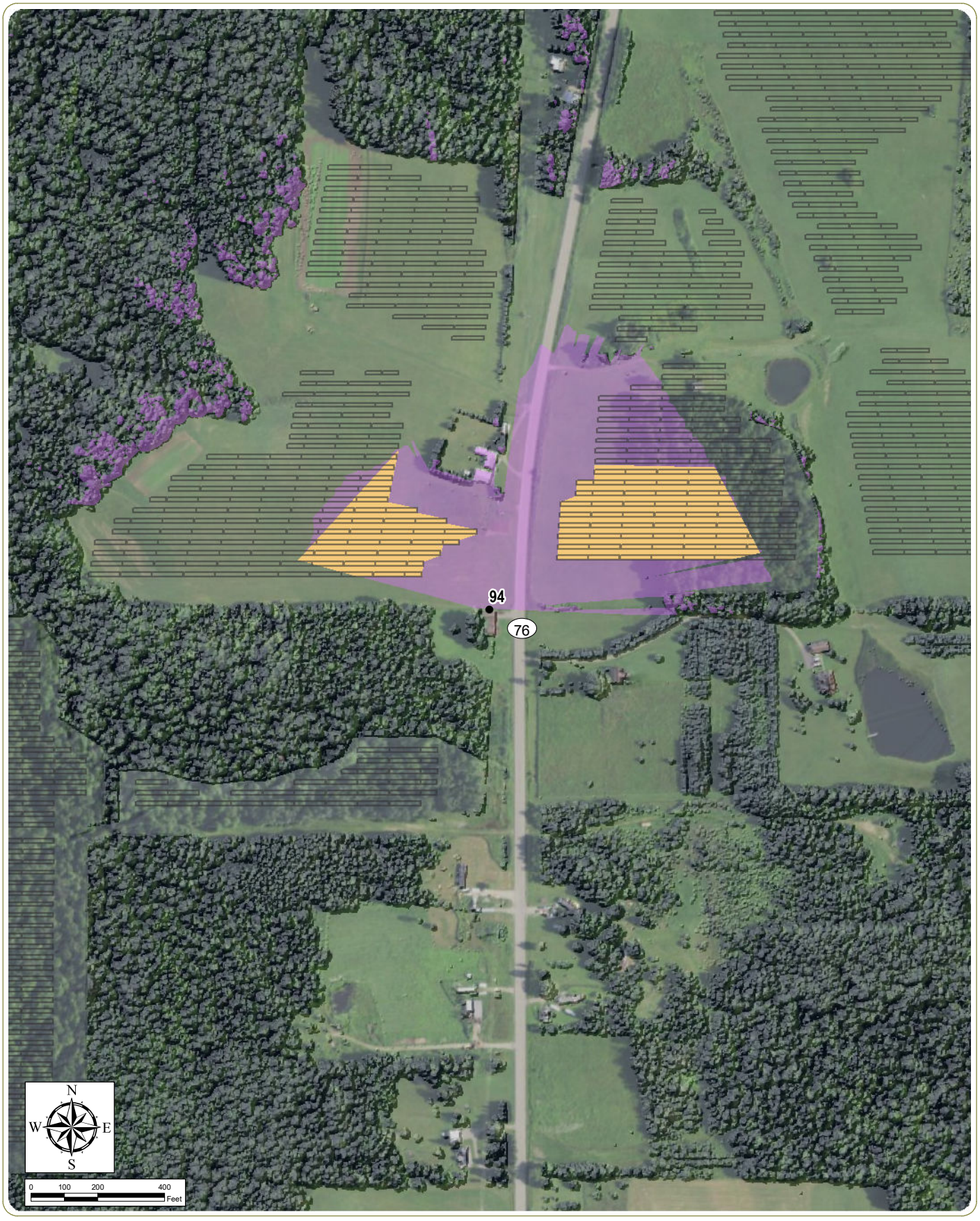
Figure 1. Final Modeling Inputs

Notes: 1. Basemap:USDA NAIP "2019 New York 60cm" orthoimagery map service. **2.** This map was generated in ArcMap on July 27, 2021. **3.** This is a color graphic. Reproduction in grayscale may misrepresent the data.

- Non-Participating Receptor
- PV Panel
- Receptor Panel Visibility with Potential for Glare
- Receptor Viewshed

edr

www.edrdpc.com



South Ripley Solar Project

Town of Ripley, Chautauqua County, New York

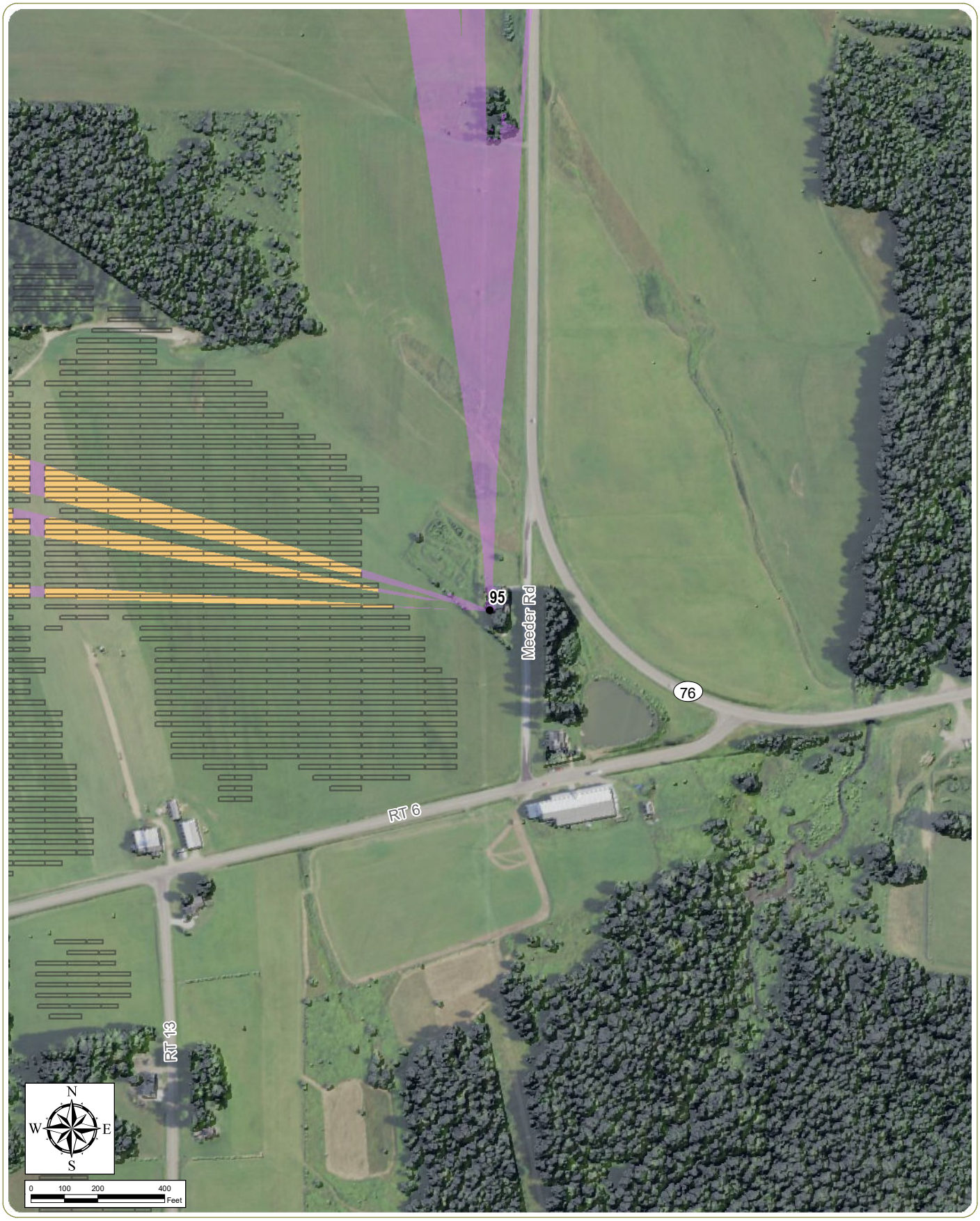
Figure 1. Final Modeling Inputs

Notes: 1. Basemap:USDA NAIP "2019 New York 60cm" orthoimagery map service. **2.** This map was generated in ArcMap on July 27, 2021. **3.** This is a color graphic. Reproduction in grayscale may misrepresent the data.

- Non-Participating Receptor
- PV Panel
- Receptor Panel Visibility with Potential for Glare
- Receptor Viewshed

edr

www.edrdpc.com



South Ripley Solar Project

Town of Ripley, Chautauqua County, New York

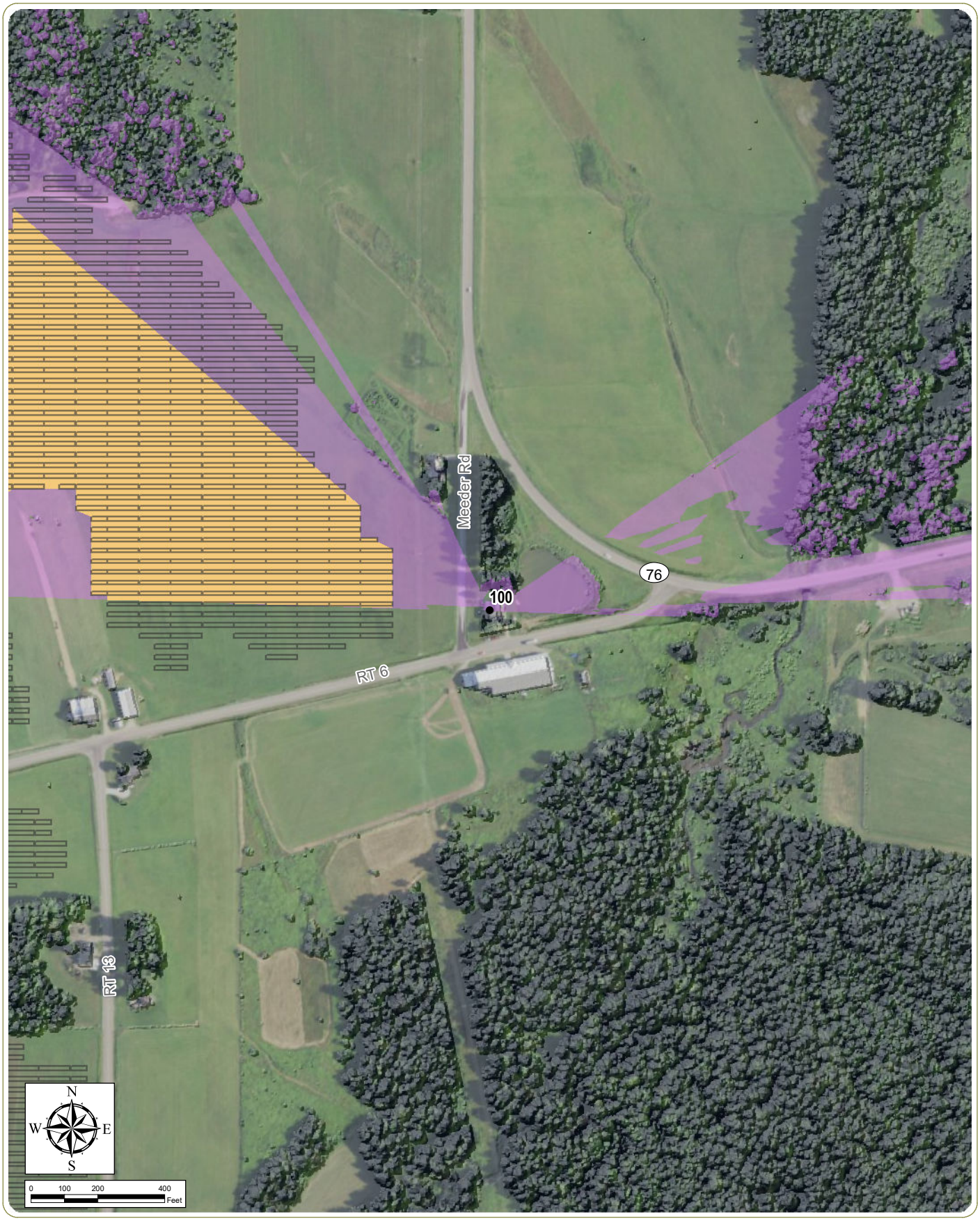
Figure 1. Final Modeling Inputs

Notes: 1. Basemap:USDA NAIP "2019 New York 60cm" orthoimagery map service. **2.** This map was generated in ArcMap on July 27, 2021. **3.** This is a color graphic. Reproduction in grayscale may misrepresent the data.

- Non-Participating Receptor
- PV Panel
- Receptor Panel Visibility with Potential for Glare
- Receptor Viewshed

edr

www.edrdpc.com



South Ripley Solar Project

Town of Ripley, Chautauqua County, New York

Figure 1. Final Modeling Inputs

Notes: 1. Basemap:USDA NAIP "2019 New York 60cm" orthoimagery map service. **2.** This map was generated in ArcMap on July 27, 2021. **3.** This is a color graphic. Reproduction in grayscale may misrepresent the data.

- Non-Participating Receptor
- PV Panel
- Receptor Panel Visibility with Potential for Glare
- Receptor Viewshed

edr

www.edrdpc.com

Appendix A. SGHAT Modeling Results

ForgeSolar

South Ripley Solar

South Ripley R6

Created June 22, 2021
Updated July 28, 2021
Time-step 1 minute
Timezone offset UTC-6
Site ID 55422.9843

Project type Advanced
Project status: active
Category 100 MW to 1 GW

Misc. Analysis Settings

DNI: **varies (1,000.0 W/m^2 peak)**
Ocular transmission coefficient: **0.5**
Pupil diameter: **0.002 m**
Eye focal length: **0.017 m**
Sun subtended angle: **9.3 mrad**

Analysis Methodologies:
- Observation point: **Version 2**
- 2-Mile Flight Path: **Version 2**
- Route: **Version 2**

Summary of Results Glare with potential for temporary after-image predicted

PV Name	Tilt	Orientation	"Green" Glare	"Yellow" Glare	Energy Produced
	deg	deg	min	min	kWh
62	30.0	180.0	116	87	1,294.0

Component Data

PV Array(s)

Total PV footprint area: 0.88 acre

Name: 62
Axis tracking: Fixed (no rotation)
Tilt: 30.0 deg
Orientation: 180.0 deg
Footprint area: 0.88 acre
Rated power: 0.55 kW
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad

Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	42.198790	-79.756080	1502.99	12.00	1514.99
2	42.198916	-79.756084	1502.51	12.00	1514.51
3	42.198967	-79.756268	1502.11	12.00	1514.11
4	42.198963	-79.756618	1501.98	12.00	1513.98
5	42.198908	-79.756822	1500.36	12.00	1512.36
6	42.198798	-79.756820	1500.54	12.00	1512.54
7	42.198806	-79.757516	1494.54	12.00	1506.54
8	42.198927	-79.757509	1494.07	12.00	1506.07
9	42.199201	-79.754188	1508.67	12.00	1520.67

Discrete Observation Receptors

Number	Latitude	Longitude	Ground elevation	Height above ground	Total Elevation
	deg	deg	ft	ft	ft
OP 1	42.198846	-79.758843	1484.28	5.40	1489.68

Summary of PV Glare Analysis

PV configuration and total predicted glare

PV Name	Tilt	Orientation	"Green" Glare	"Yellow" Glare	Energy Produced	Data File
	deg	deg	min	min	kWh	
62	30.0	180.0	116	87	1,294.0	

Distinct glare per month

Excludes overlapping glare from PV array for multiple receptors at matching time(s)

PV	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
62 (green)	0	0	2	58	0	0	0	18	38	0	0	0
62 (yellow)	0	0	0	44	0	0	0	16	27	0	0	0

PV & Receptor Analysis Results

Results for each PV array and receptor

62 potential temporary after-image

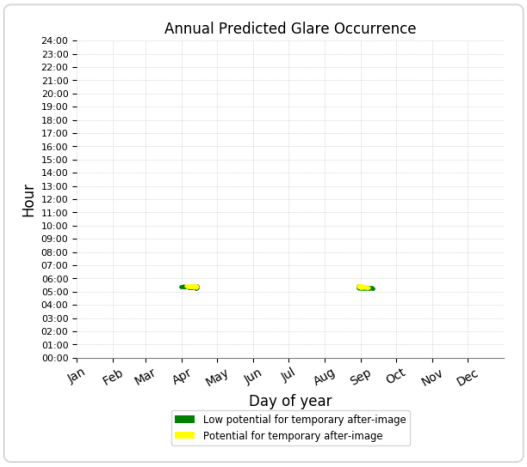
Predicted energy output: 1,294.0 kWh (assuming sunny, clear skies)

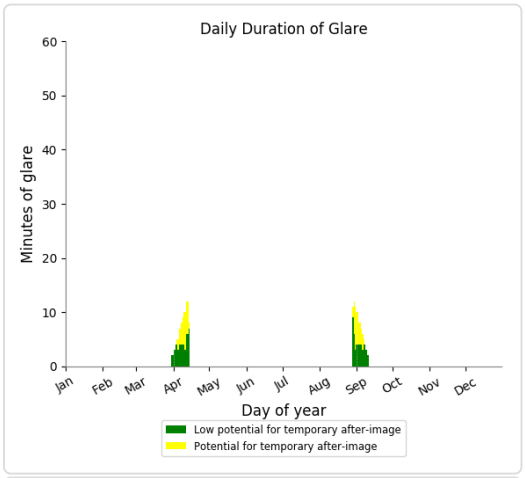
Component	Green glare (min)	Yellow glare (min)
OP: OP 1	116	87

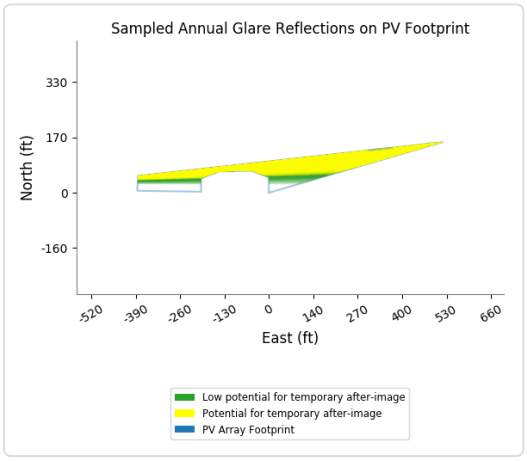
62 - OP Receptor (OP 1)

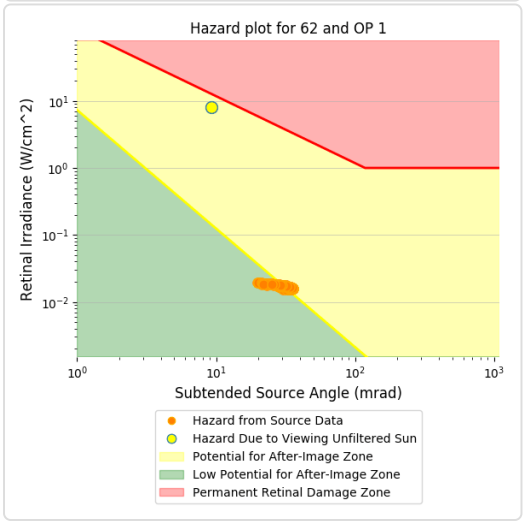
PV array is expected to produce the following glare for receptors at this location:

- 116 minutes of "green" glare with low potential to cause temporary after-image.
- 87 minutes of "yellow" glare with potential to cause temporary after-image.









Assumptions

- Times associated with glare are denoted in Standard time. For Daylight Savings, add one hour.
- Glare analyses do not account for physical obstructions between reflectors and receptors. This includes buildings, tree cover and geographic obstructions
- Detailed system geometry is not rigorously simulated.
- The glare hazard determination relies on several approximations including observer eye characteristics, angle of view, and typical blink response time. Actual values and results may vary.
- The system output calculation is a DNI-based approximation that assumes clear, sunny skies year-round. It should not be used in place of more rigorous modeling methods.
- Several V1 calculations utilize the PV array centroid, rather than the actual glare spot location, due to algorithm limitations. This may affect results for larg PV footprints. Additional analyses of array sub-sections can provide additional information on expected glare.
- The subtended source angle (glare spot size) is constrained by the PV array footprint size. Partitioning large arrays into smaller sections will reduce the maximum potential subtended angle, potentially impacting results if actual glare spots are larger than the sub-array size. Additional analyses of the combined area of adjacent sub-arrays can provide more information on potential glare hazards. (See previous point on related limitations.)
- Hazard zone boundaries shown in the Glare Hazard plot are an approximation and visual aid. Actual ocular impact outcomes encompass a continuous, nc discrete, spectrum.
- Glare locations displayed on receptor plots are approximate. Actual glare-spot locations may differ.
- Glare vector plots are simplified representations of analysis data. Actual glare emanations and results may differ.
- Refer to the **Help page** for detailed assumptions and limitations not listed here.

ForgeSolar

South Ripley Solar

South Ripley R8

Created June 22, 2021
Updated July 28, 2021
Time-step 1 minute
Timezone offset UTC-6
Site ID 56722.9843

Project type Advanced
Project status: active
Category 100 MW to 1 GW

Misc. Analysis Settings

DNI: **varies (1,000.0 W/m^2 peak)**
Ocular transmission coefficient: **0.5**
Pupil diameter: **0.002 m**
Eye focal length: **0.017 m**
Sun subtended angle: **9.3 mrad**

Analysis Methodologies:

- Observation point: **Version 2**
- 2-Mile Flight Path: **Version 2**
- Route: **Version 2**

Summary of Results

Glare with potential for temporary after-image predicted

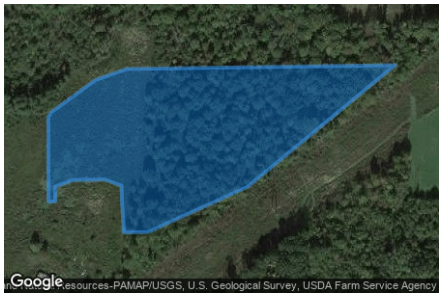
PV Name	Tilt	Orientation	"Green" Glare	"Yellow" Glare	Energy Produced
	deg	deg	min	min	kWh
62	30.0	180.0	0	1,132	1,294.0

Component Data

PV Array(s)

Total PV footprint area: 7.0 acres

Name: 62
Axis tracking: Fixed (no rotation)
Tilt: 30.0 deg
Orientation: 180.0 deg
Footprint area: 7.0 acres
Rated power: 0.55 kW
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	42.198906	-79.754688	1507.90	12.00	1519.90
2	42.198534	-79.755791	1508.46	12.00	1520.46
3	42.198531	-79.756018	1506.60	12.00	1518.60
4	42.198531	-79.756058	1505.67	12.00	1517.67
5	42.198790	-79.756080	1502.99	12.00	1514.99
6	42.198916	-79.756084	1502.51	12.00	1514.51
7	42.198967	-79.756268	1502.11	12.00	1514.11
8	42.198963	-79.756622	1501.98	12.00	1513.98
9	42.198908	-79.756822	1500.36	12.00	1512.36
10	42.198798	-79.756820	1500.54	12.00	1512.54
11	42.198786	-79.756820	1500.42	12.00	1512.42
12	42.198785	-79.756896	1499.83	12.00	1511.83
13	42.199481	-79.756898	1495.83	12.00	1507.83
14	42.199521	-79.756865	1495.30	12.00	1507.30
15	42.199789	-79.756373	1493.87	12.00	1505.87
16	42.199880	-79.756025	1495.37	12.00	1507.37
17	42.199911	-79.753048	1509.35	12.00	1521.35

Discrete Observation Receptors

Number	Latitude	Longitude	Ground elevation	Height above ground	Total Elevation
	deg	deg	ft	ft	ft
OP 1	42.198166	-79.756902	1435.41	5.40	1440.81

Summary of PV Glare Analysis

PV configuration and total predicted glare

PV Name	Tilt	Orientation	"Green" Glare	"Yellow" Glare	Energy Produced	Data File
	deg	deg	min	min	kWh	
62	30.0	180.0	0	1,132	1,294.0	

Distinct glare per month

Excludes overlapping glare from PV array for multiple receptors at matching time(s)

PV	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
62 (green)	0	0	0	0	0	0	0	0	0	0	0	0
62 (yellow)	0	0	0	0	0	879	253	0	0	0	0	0

PV & Receptor Analysis Results

Results for each PV array and receptor

62 potential temporary after-image

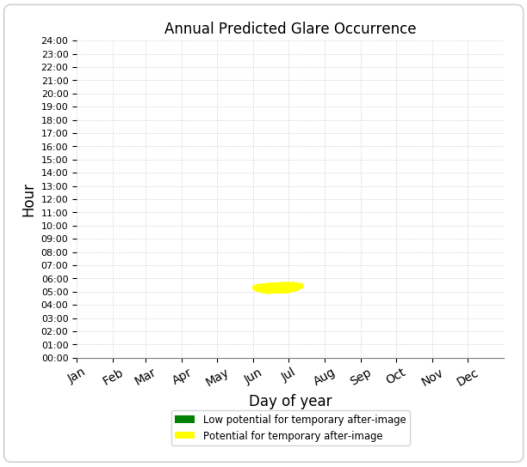
Predicted energy output: 1,294.0 kWh (assuming sunny, clear skies)

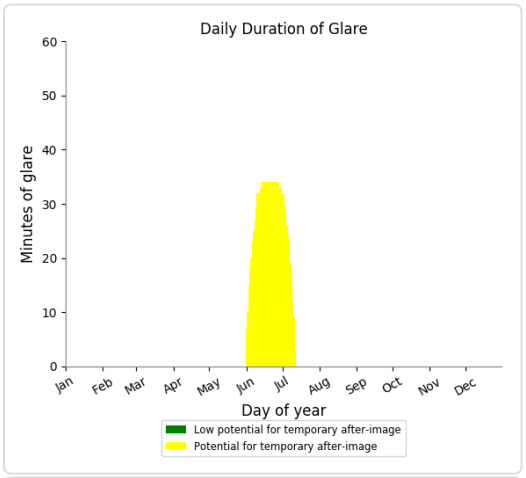
Component	Green glare (min)	Yellow glare (min)
OP: OP 1	0	1132

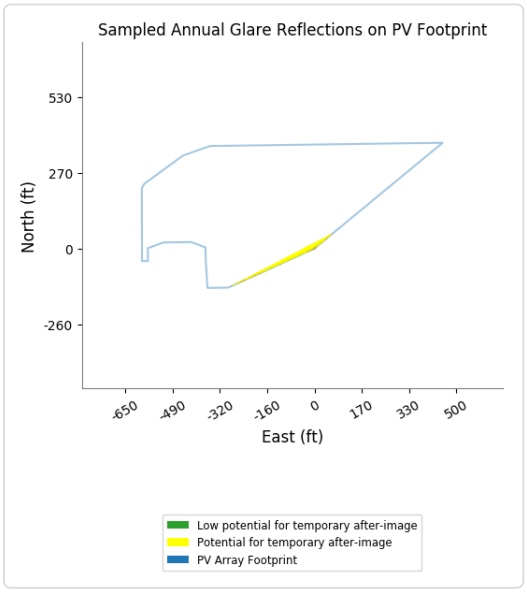
62 - OP Receptor (OP 1)

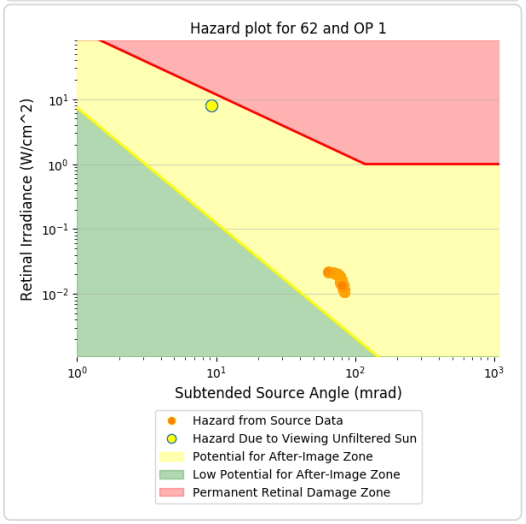
PV array is expected to produce the following glare for receptors at this location:

- 0 minutes of "green" glare with low potential to cause temporary after-image.
- 1,132 minutes of "yellow" glare with potential to cause temporary after-image.









Assumptions

- Times associated with glare are denoted in Standard time. For Daylight Savings, add one hour.
- Glare analyses do not account for physical obstructions between reflectors and receptors. This includes buildings, tree cover and geographic obstructions
- Detailed system geometry is not rigorously simulated.
- The glare hazard determination relies on several approximations including observer eye characteristics, angle of view, and typical blink response time. Actual values and results may vary.
- The system output calculation is a DNI-based approximation that assumes clear, sunny skies year-round. It should not be used in place of more rigorous modeling methods.
- Several V1 calculations utilize the PV array centroid, rather than the actual glare spot location, due to algorithm limitations. This may affect results for larg PV footprints. Additional analyses of array sub-sections can provide additional information on expected glare.
- The subtended source angle (glare spot size) is constrained by the PV array footprint size. Partitioning large arrays into smaller sections will reduce the maximum potential subtended angle, potentially impacting results if actual glare spots are larger than the sub-array size. Additional analyses of the combined area of adjacent sub-arrays can provide more information on potential glare hazards. (See previous point on related limitations.)
- Hazard zone boundaries shown in the Glare Hazard plot are an approximation and visual aid. Actual ocular impact outcomes encompass a continuous, nc discrete, spectrum.
- Glare locations displayed on receptor plots are approximate. Actual glare-spot locations may differ.
- Glare vector plots are simplified representations of analysis data. Actual glare emanations and results may differ.
- Refer to the **Help page** for detailed assumptions and limitations not listed here.

ForgeSolar

South Ripley Solar

South Ripley 23

Created Aug. 3, 2021
Updated Aug. 3, 2021
Time-step 1 minute
Timezone offset UTC-6
Site ID 56939.9843

Project type Advanced
Project status: active
Category 100 MW to 1 GW

Misc. Analysis Settings

DNI: **varies (1,000.0 W/m^2 peak)**
Ocular transmission coefficient: **0.5**
Pupil diameter: **0.002 m**
Eye focal length: **0.017 m**
Sun subtended angle: **9.3 mrad**

Analysis Methodologies:
- Observation point: **Version 2**
- 2-Mile Flight Path: **Version 2**
- Route: **Version 2**

Summary of Results

Glare with low potential for temporary after-image predicted

PV Name	Tilt	Orientation	"Green" Glare	"Yellow" Glare	Energy Produced
	deg	deg	min	min	kWh
66a	30.0	180.0	576	0	1,295.0

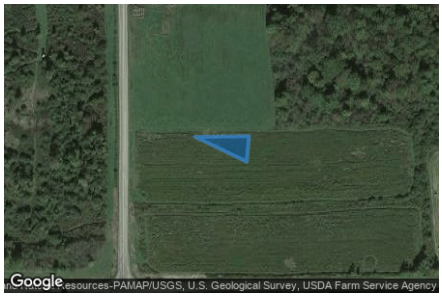
Component Data

PV Array(s)

Total PV footprint area: 0.14 acre

Name: 66a
Axis tracking: Fixed (no rotation)
Tilt: 30.0 deg
Orientation: 180.0 deg
Footprint area: 0.14 acre
Rated power: 0.55 kW
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad

Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	42.195997	-79.745421	1463.77	12.00	1475.78
2	42.195991	-79.746021	1466.58	12.00	1478.58
3	42.195786	-79.745447	1462.10	12.00	1474.10



Discrete Observation Receptors

Number	Latitude	Longitude	Ground elevation	Height above ground	Total Elevation
	deg	deg	ft	ft	ft
OP 1	42.194497	-79.742027	1464.24	5.40	1469.64

Summary of PV Glare Analysis

PV configuration and total predicted glare

PV Name	Tilt	Orientation	"Green" Glare	"Yellow" Glare	Energy Produced	Data File
	deg	deg	min	min	kWh	
66a	30.0	180.0	576	0	1,295.0	

Distinct glare per month

Excludes overlapping glare from PV array for multiple receptors at matching time(s)

PV	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
66a (green)	0	0	0	0	0	456	120	0	0	0	0	0
66a (yellow)	0	0	0	0	0	0	0	0	0	0	0	0

PV & Receptor Analysis Results

Results for each PV array and receptor

66a low potential for temporary after-image

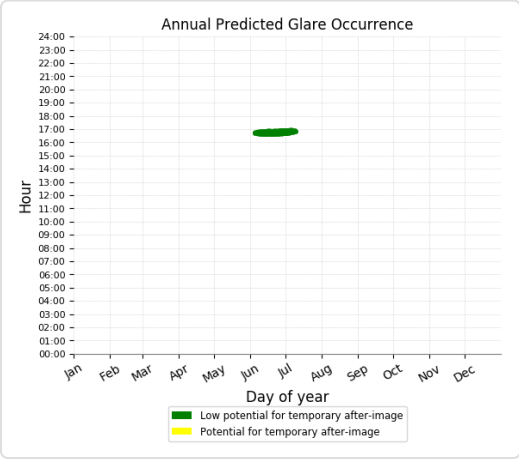
Predicted energy output: 1,295.0 kWh (assuming sunny, clear skies)

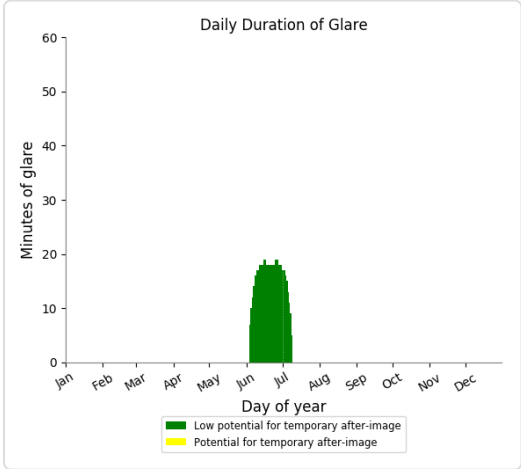
Component	Green glare (min)	Yellow glare (min)
OP: OP 1	576	0

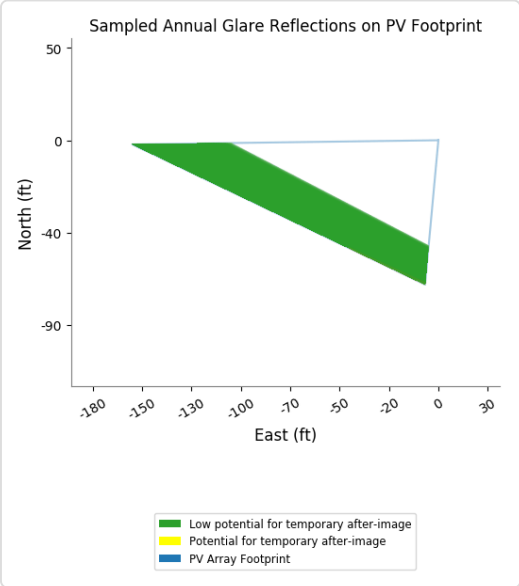
66a - OP Receptor (OP 1)

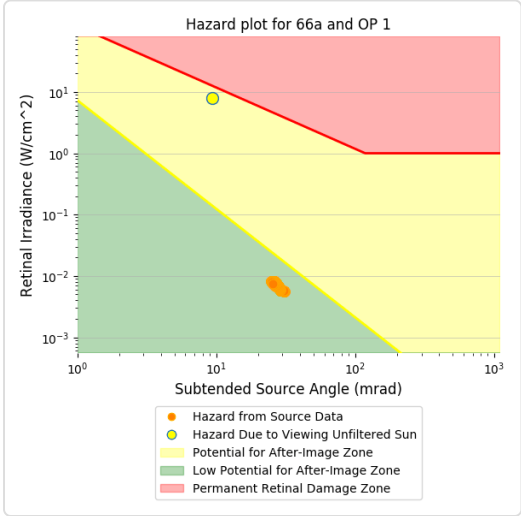
PV array is expected to produce the following glare for receptors at this location:

- 576 minutes of "green" glare with low potential to cause temporary after-image.
- 0 minutes of "yellow" glare with potential to cause temporary after-image.









Assumptions

- Times associated with glare are denoted in Standard time. For Daylight Savings, add one hour.
- Glare analyses do not account for physical obstructions between reflectors and receptors. This includes buildings, tree cover and geographic obstructions
- Detailed system geometry is not rigorously simulated.
- The glare hazard determination relies on several approximations including observer eye characteristics, angle of view, and typical blink response time. Actual values and results may vary.
- The system output calculation is a DNI-based approximation that assumes clear, sunny skies year-round. It should not be used in place of more rigorous modeling methods.
- Several V1 calculations utilize the PV array centroid, rather than the actual glare spot location, due to algorithm limitations. This may affect results for larg PV footprints. Additional analyses of array sub-sections can provide additional information on expected glare.
- The subtended source angle (glare spot size) is constrained by the PV array footprint size. Partitioning large arrays into smaller sections will reduce the maximum potential subtended angle, potentially impacting results if actual glare spots are larger than the sub-array size. Additional analyses of the combined area of adjacent sub-arrays can provide more information on potential glare hazards. (See previous point on related limitations.)
- Hazard zone boundaries shown in the Glare Hazard plot are an approximation and visual aid. Actual ocular impact outcomes encompass a continuous, nc discrete, spectrum.
- Glare locations displayed on receptor plots are approximate. Actual glare-spot locations may differ.
- Glare vector plots are simplified representations of analysis data. Actual glare emanations and results may differ.
- Refer to the **Help page** for detailed assumptions and limitations not listed here.

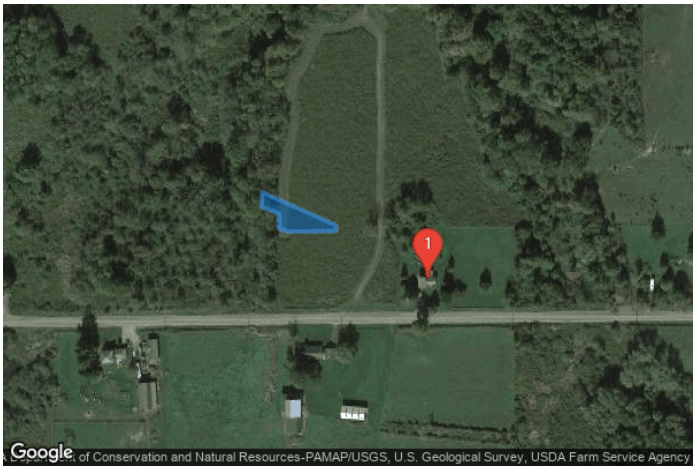
ForgeSolar

South Ripley Solar

South Ripley R47

Created June 22, 2021
Updated July 28, 2021
Time-step 1 minute
Timezone offset UTC-6
Site ID 55431.9843

Project type Advanced
Project status: active
Category 100 MW to 1 GW



Misc. Analysis Settings

DNI: **varies (1,000.0 W/m^2 peak)**
Ocular transmission coefficient: **0.5**
Pupil diameter: **0.002 m**
Eye focal length: **0.017 m**
Sun subtended angle: **9.3 mrad**

Analysis Methodologies:
- Observation point: **Version 2**
- 2-Mile Flight Path: **Version 2**
- Route: **Version 2**

Summary of Results Glare with potential for temporary after-image predicted

PV Name	Tilt	Orientation	"Green" Glare	"Yellow" Glare	Energy Produced
	deg	deg	min	min	kWh
10	30.0	180.0	0	1,495	-

Component Data

PV Array(s)

Total PV footprint area: 0.19 acre

Name: 10
Axis tracking: Fixed (no rotation)
Tilt: 30.0 deg
Orientation: 180.0 deg
Footprint area: 0.19 acre
Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad

Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	42.195550	-79.717244	1398.27	12.00	1410.27
2	42.195572	-79.717334	1398.54	12.00	1410.54
3	42.195672	-79.717338	1398.44	12.00	1410.44
4	42.195723	-79.717501	1398.85	12.00	1410.85
5	42.195822	-79.717493	1398.38	12.00	1410.38
6	42.195594	-79.716805	1403.74	12.00	1415.74
7	42.195590	-79.716805	1403.74	12.00	1415.74
8	42.195555	-79.716804	1403.71	12.00	1415.71

Discrete Observation Receptors

Number	Latitude	Longitude	Ground elevation	Height above ground	Total Elevation
	deg	deg	ft	ft	ft
OP 1	42.195229	-79.715948	1409.26	5.40	1414.66

Summary of PV Glare Analysis

PV configuration and total predicted glare

PV Name	Tilt	Orientation	"Green" Glare	"Yellow" Glare	Energy Produced	Data File
	deg	deg	min	min	kWh	
10	30.0	180.0	0	1,495	-	

Distinct glare per month

Excludes overlapping glare from PV array for multiple receptors at matching time(s)

PV	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
10 (green)	0	0	0	0	0	0	0	0	0	0	0	0
10 (yellow)	0	0	0	5	420	461	472	137	0	0	0	0

PV & Receptor Analysis Results

Results for each PV array and receptor

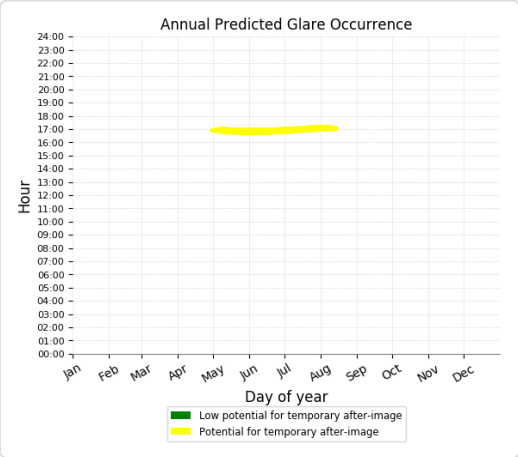
10 potential temporary after-image

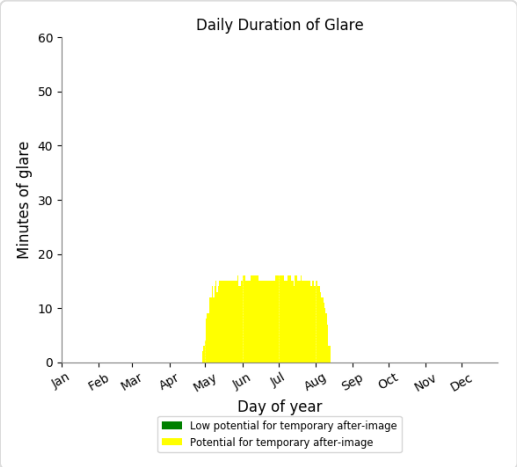
Component	Green glare (min)	Yellow glare (min)
OP: OP 1	0	1495

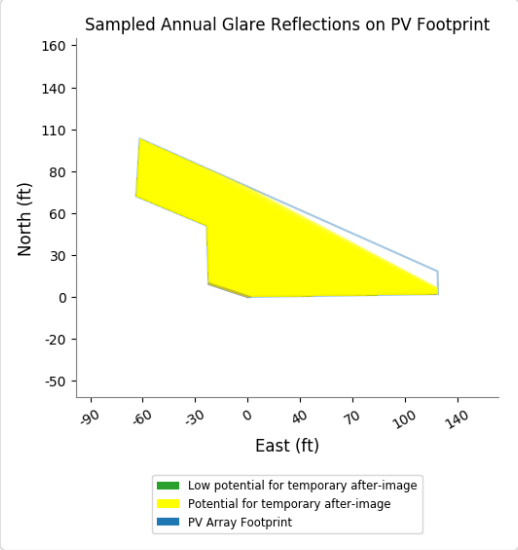
10 - OP Receptor (OP 1)

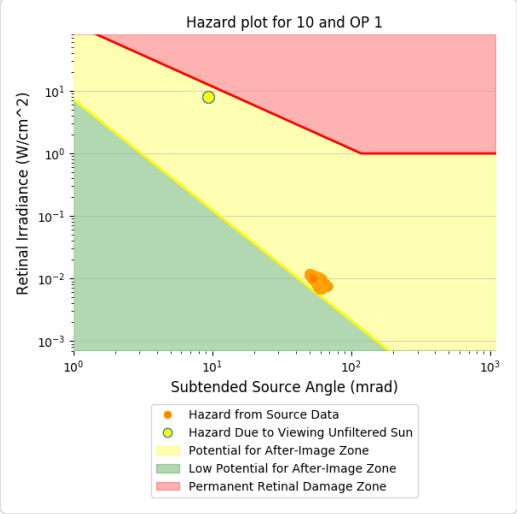
PV array is expected to produce the following glare for receptors at this location:

- 0 minutes of "green" glare with low potential to cause temporary after-image.
- 1,495 minutes of "yellow" glare with potential to cause temporary after-image.









Assumptions

- Times associated with glare are denoted in Standard time. For Daylight Savings, add one hour.
- Glare analyses do not account for physical obstructions between reflectors and receptors. This includes buildings, tree cover and geographic obstructions
- Detailed system geometry is not rigorously simulated.
- The glare hazard determination relies on several approximations including observer eye characteristics, angle of view, and typical blink response time. Actual values and results may vary.
- The system output calculation is a DNI-based approximation that assumes clear, sunny skies year-round. It should not be used in place of more rigorous modeling methods.
- Several V1 calculations utilize the PV array centroid, rather than the actual glare spot location, due to algorithm limitations. This may affect results for larg PV footprints. Additional analyses of array sub-sections can provide additional information on expected glare.
- The subtended source angle (glare spot size) is constrained by the PV array footprint size. Partitioning large arrays into smaller sections will reduce the maximum potential subtended angle, potentially impacting results if actual glare spots are larger than the sub-array size. Additional analyses of the combined area of adjacent sub-arrays can provide more information on potential glare hazards. (See previous point on related limitations.)
- Hazard zone boundaries shown in the Glare Hazard plot are an approximation and visual aid. Actual ocular impact outcomes encompass a continuous, nc discrete, spectrum.
- Glare locations displayed on receptor plots are approximate. Actual glare-spot locations may differ.
- Glare vector plots are simplified representations of analysis data. Actual glare emanations and results may differ.
- Refer to the **Help page** for detailed assumptions and limitations not listed here.

ForgeSolar

South Ripley Solar

South Ripley R72

Created June 22, 2021
Updated July 28, 2021
Time-step 1 minute
Timezone offset UTC-6
Site ID 55435.9843

Project type Advanced
Project status: active
Category 100 MW to 1 GW

Misc. Analysis Settings

DNI: **varies (1,000.0 W/m^2 peak)**
Ocular transmission coefficient: **0.5**
Pupil diameter: **0.002 m**
Eye focal length: **0.017 m**
Sun subtended angle: **9.3 mrad**

Analysis Methodologies:

- Observation point: **Version 2**
- 2-Mile Flight Path: **Version 2**
- Route: **Version 2**

Summary of Results

Glare with low potential for temporary after-image predicted

PV Name	Tilt	Orientation	"Green" Glare	"Yellow" Glare	Energy Produced
	deg	deg	min	min	kWh
29	30.0	180.0	56	0	1,295.0

Component Data

PV Array(s)

Total PV footprint area: 0.08 acre

Name: 29
Axis tracking: Fixed (no rotation)
Tilt: 30.0 deg
Orientation: 180.0 deg
Footprint area: 0.08 acre
Rated power: 0.55 kW
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad

Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	42.174113	-79.694754	1557.62	12.00	1569.62
2	42.174098	-79.694782	1558.85	12.00	1570.85
3	42.174063	-79.694781	1559.28	12.00	1571.28
4	42.174076	-79.695573	1564.88	12.00	1576.88
5	42.174112	-79.695588	1564.06	12.00	1576.06

Discrete Observation Receptors

Number	Latitude	Longitude	Ground elevation	Height above ground	Total Elevation
	deg	deg	ft	ft	ft
OP 1	42.173996	-79.692623	1529.31	5.40	1534.71

Summary of PV Glare Analysis

PV configuration and total predicted glare

PV Name	Tilt	Orientation	"Green" Glare	"Yellow" Glare	Energy Produced	Data File
	deg	deg	min	min	kWh	
29	30.0	180.0	56	0	1,295.0	

Distinct glare per month

Excludes overlapping glare from PV array for multiple receptors at matching time(s)

PV	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
29 (green)	0	0	0	29	0	0	0	0	27	0	0	0
29 (yellow)	0	0	0	0	0	0	0	0	0	0	0	0

PV & Receptor Analysis Results

Results for each PV array and receptor

29 low potential for temporary after-image

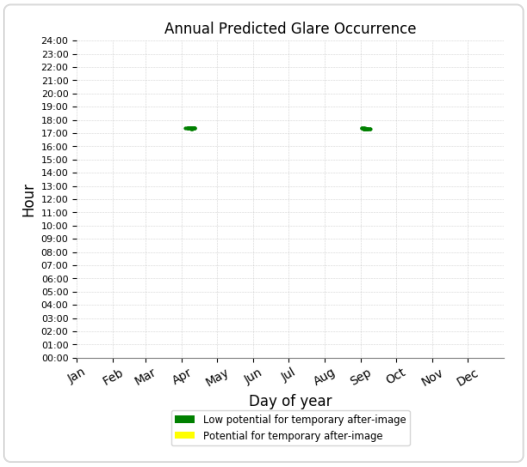
Predicted energy output: 1,295.0 kWh (assuming sunny, clear skies)

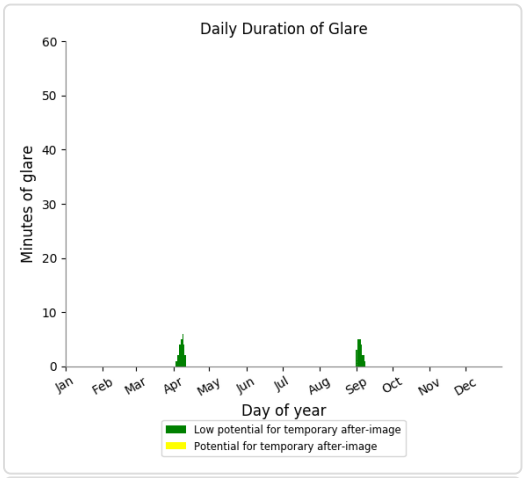
Component	Green glare (min)	Yellow glare (min)
OP: OP 1	56	0

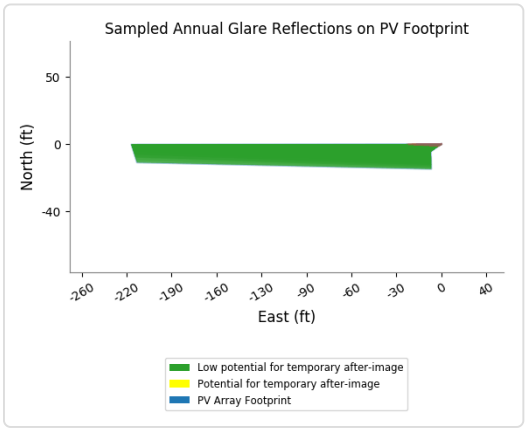
29 - OP Receptor (OP 1)

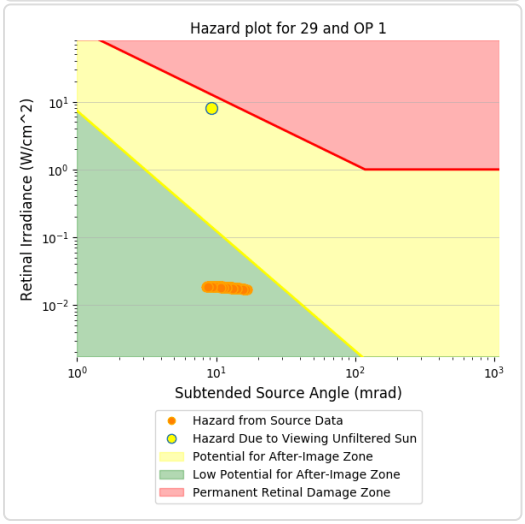
PV array is expected to produce the following glare for receptors at this location:

- 56 minutes of "green" glare with low potential to cause temporary after-image.
- 0 minutes of "yellow" glare with potential to cause temporary after-image.









Assumptions

- Times associated with glare are denoted in Standard time. For Daylight Savings, add one hour.
- Glare analyses do not account for physical obstructions between reflectors and receptors. This includes buildings, tree cover and geographic obstructions
- Detailed system geometry is not rigorously simulated.
- The glare hazard determination relies on several approximations including observer eye characteristics, angle of view, and typical blink response time. Actual values and results may vary.
- The system output calculation is a DNI-based approximation that assumes clear, sunny skies year-round. It should not be used in place of more rigorous modeling methods.
- Several V1 calculations utilize the PV array centroid, rather than the actual glare spot location, due to algorithm limitations. This may affect results for larg PV footprints. Additional analyses of array sub-sections can provide additional information on expected glare.
- The subtended source angle (glare spot size) is constrained by the PV array footprint size. Partitioning large arrays into smaller sections will reduce the maximum potential subtended angle, potentially impacting results if actual glare spots are larger than the sub-array size. Additional analyses of the combined area of adjacent sub-arrays can provide more information on potential glare hazards. (See previous point on related limitations.)
- Hazard zone boundaries shown in the Glare Hazard plot are an approximation and visual aid. Actual ocular impact outcomes encompass a continuous, nc discrete, spectrum.
- Glare locations displayed on receptor plots are approximate. Actual glare-spot locations may differ.
- Glare vector plots are simplified representations of analysis data. Actual glare emanations and results may differ.
- Refer to the **Help page** for detailed assumptions and limitations not listed here.

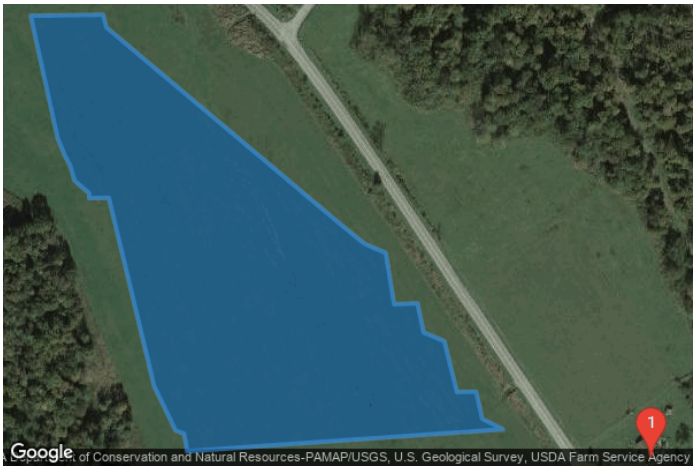
ForgeSolar

South Ripley Solar

South Ripley R79

Created June 22, 2021
Updated July 28, 2021
Time-step 1 minute
Timezone offset UTC-6
Site ID 55482.9843

Project type Advanced
Project status: active
Category 100 MW to 1 GW



Misc. Analysis Settings

DNI: **varies (1,000.0 W/m^2 peak)**
Ocular transmission coefficient: **0.5**
Pupil diameter: **0.002 m**
Eye focal length: **0.017 m**
Sun subtended angle: **9.3 mrad**

Analysis Methodologies:
- Observation point: **Version 2**
- 2-Mile Flight Path: **Version 2**
- Route: **Version 2**

Summary of Results Glare with potential for temporary after-image predicted

PV Name	Tilt	Orientation	"Green" Glare	"Yellow" Glare	Energy Produced
	deg	deg	min	min	kWh
37	30.0	180.0	0	4,780	1,294.0

Component Data

PV Array(s)

Total PV footprint area: 13.5 acres

Name: 37
Axis tracking: Fixed (no rotation)
Tilt: 30.0 deg
Orientation: 180.0 deg
Footprint area: 13.5 acres
Rated power: 0.55 kW
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad

Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	42.180604	-79.682200	1597.05	12.00	1609.05
2	42.180726	-79.682229	1600.65	12.00	1612.65
3	42.180747	-79.682309	1600.06	12.00	1612.06
4	42.181052	-79.682508	1605.67	12.00	1617.67
5	42.182349	-79.682931	1626.14	12.00	1638.14
6	42.182347	-79.683114	1624.79	12.00	1636.79
7	42.182382	-79.683115	1625.34	12.00	1637.34
8	42.182466	-79.683250	1623.76	12.00	1635.76
9	42.182572	-79.683292	1624.12	12.00	1636.12
10	42.182635	-79.683339	1624.46	12.00	1636.46
11	42.182760	-79.683409	1623.93	12.00	1635.93
12	42.183603	-79.683660	1610.93	12.00	1622.93
13	42.183610	-79.682986	1597.81	12.00	1609.81
14	42.183522	-79.682953	1599.72	12.00	1611.72
15	42.182147	-79.680737	1567.08	12.00	1579.08
16	42.182031	-79.680541	1564.80	12.00	1576.80
17	42.181970	-79.680347	1561.57	12.00	1573.57
18	42.181617	-79.680269	1562.22	12.00	1574.22
19	42.181623	-79.680051	1559.13	12.00	1571.13
20	42.181423	-79.679994	1558.82	12.00	1570.82
21	42.181362	-79.679800	1555.94	12.00	1567.94
22	42.181013	-79.679683	1554.70	12.00	1566.70
23	42.181015	-79.679504	1552.18	12.00	1564.18
24	42.180828	-79.679447	1551.53	12.00	1563.53
25	42.180755	-79.679253	1549.35	12.00	1561.35

Discrete Observation Receptors

Number	Latitude	Longitude	Ground elevation	Height above ground	Total Elevation
	deg	deg	ft	ft	ft
OP 1	42.180565	-79.677866	1546.83	5.40	1552.23

Summary of PV Glare Analysis

PV configuration and total predicted glare

PV Name	Tilt	Orientation	"Green" Glare	"Yellow" Glare	Energy Produced	Data File
	deg	deg	min	min	kWh	
37	30.0	180.0	0	4,780	1,294.0	

Distinct glare per month

Excludes overlapping glare from PV array for multiple receptors at matching time(s)

PV	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
37 (green)	0	0	0	0	0	0	0	0	0	0	0	0
37 (yellow)	0	0	65	833	905	857	884	939	297	0	0	0

PV & Receptor Analysis Results

Results for each PV array and receptor

37 potential temporary after-image

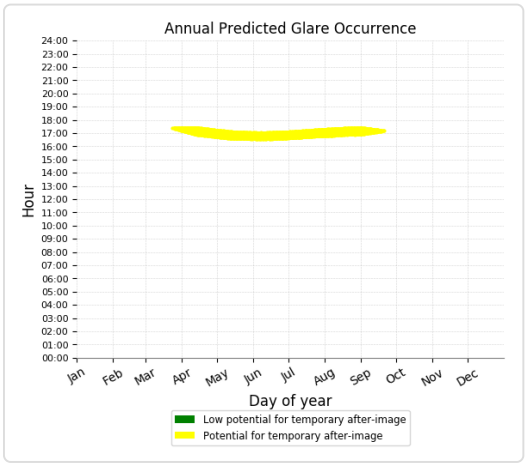
Predicted energy output: 1,294.0 kWh (assuming sunny, clear skies)

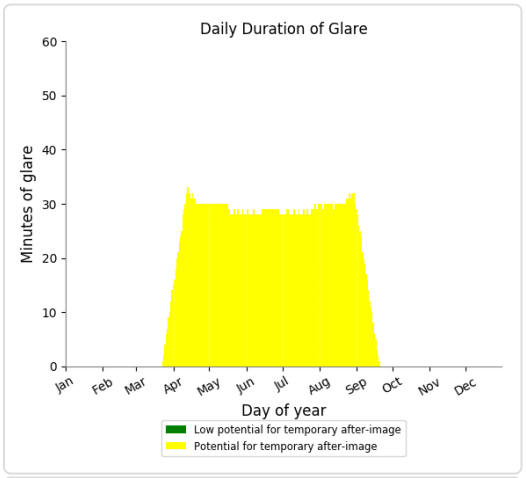
Component	Green glare (min)	Yellow glare (min)
OP: OP 1	0	4780

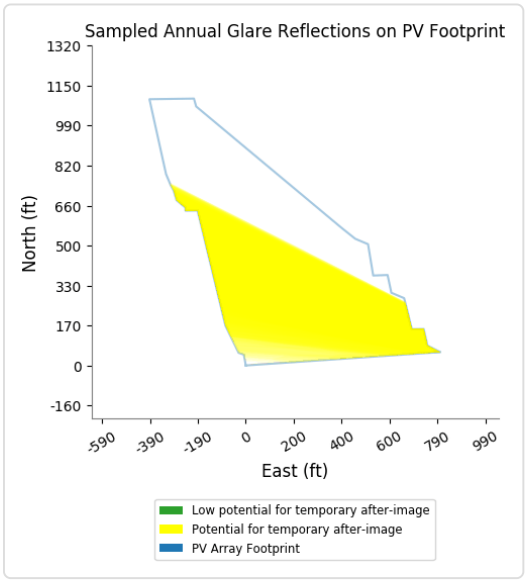
37 - OP Receptor (OP 1)

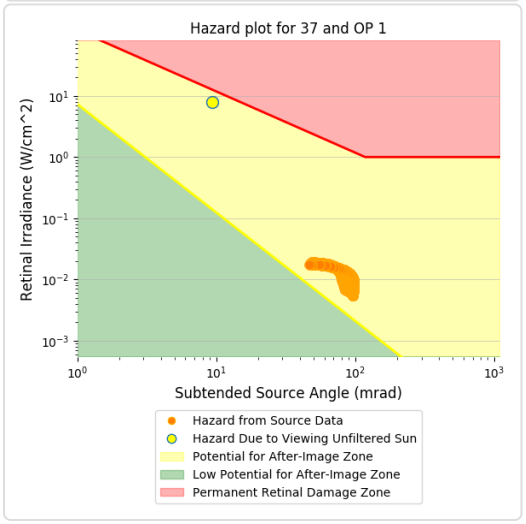
PV array is expected to produce the following glare for receptors at this location:

- 0 minutes of "green" glare with low potential to cause temporary after-image.
- 4,780 minutes of "yellow" glare with potential to cause temporary after-image.









Assumptions

- Times associated with glare are denoted in Standard time. For Daylight Savings, add one hour.
- Glare analyses do not account for physical obstructions between reflectors and receptors. This includes buildings, tree cover and geographic obstructions
- Detailed system geometry is not rigorously simulated.
- The glare hazard determination relies on several approximations including observer eye characteristics, angle of view, and typical blink response time. Actual values and results may vary.
- The system output calculation is a DNI-based approximation that assumes clear, sunny skies year-round. It should not be used in place of more rigorous modeling methods.
- Several V1 calculations utilize the PV array centroid, rather than the actual glare spot location, due to algorithm limitations. This may affect results for larg PV footprints. Additional analyses of array sub-sections can provide additional information on expected glare.
- The subtended source angle (glare spot size) is constrained by the PV array footprint size. Partitioning large arrays into smaller sections will reduce the maximum potential subtended angle, potentially impacting results if actual glare spots are larger than the sub-array size. Additional analyses of the combined area of adjacent sub-arrays can provide more information on potential glare hazards. (See previous point on related limitations.)
- Hazard zone boundaries shown in the Glare Hazard plot are an approximation and visual aid. Actual ocular impact outcomes encompass a continuous, nc discrete, spectrum.
- Glare locations displayed on receptor plots are approximate. Actual glare-spot locations may differ.
- Glare vector plots are simplified representations of analysis data. Actual glare emanations and results may differ.
- Refer to the **Help page** for detailed assumptions and limitations not listed here.

ForgeSolar

South Ripley Solar

South Ripley R93

Created June 22, 2021
Updated July 28, 2021
Time-step 1 minute
Timezone offset UTC-6
Site ID 55437.9843

Project type Advanced
Project status: active
Category 100 MW to 1 GW

Misc. Analysis Settings

DNI: **varies (1,000.0 W/m^2 peak)**
Ocular transmission coefficient: **0.5**
Pupil diameter: **0.002 m**
Eye focal length: **0.017 m**
Sun subtended angle: **9.3 mrad**

Analysis Methodologies:
- Observation point: **Version 2**
- 2-Mile Flight Path: **Version 2**
- Route: **Version 2**

Summary of Results Glare with potential for temporary after-image predicted

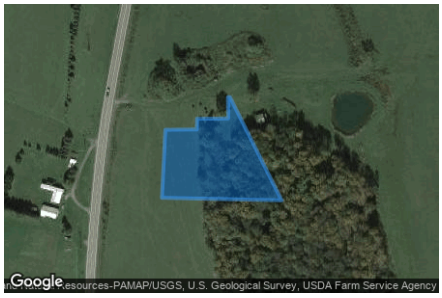
PV Name	Tilt	Orientation	"Green" Glare	"Yellow" Glare	Energy Produced
	deg	deg	min	min	kWh
57	30.0	180.0	0	3,797	1,295.0

Component Data

PV Array(s)

Total PV footprint area: 1.6 acres

Name: 57
Axis tracking: Fixed (no rotation)
Tilt: 30.0 deg
Orientation: 180.0 deg
Footprint area: 1.6 acres
Rated power: 0.55 kW
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	42.196898	-79.657816	1582.79	12.00	1594.79
2	42.196901	-79.657466	1590.68	12.00	1602.68
3	42.196989	-79.657464	1588.91	12.00	1600.91
4	42.196992	-79.657118	1590.25	12.00	1602.25
5	42.197167	-79.657120	1585.23	12.00	1597.23
6	42.197167	-79.657099	1585.24	12.00	1597.24
7	42.196316	-79.656526	1586.40	12.00	1598.40
8	42.196337	-79.657854	1581.38	12.00	1593.38

Discrete Observation Receptors

Number	Latitude	Longitude	Ground elevation	Height above ground	Total Elevation
	deg	deg	ft	ft	ft
OP 1	42.196360	-79.659009	1571.17	5.40	1576.57

Summary of PV Glare Analysis

PV configuration and total predicted glare

PV Name	Tilt	Orientation	"Green" Glare	"Yellow" Glare	Energy Produced	Data File
	deg	deg	min	min	kWh	
57	30.0	180.0	0	3,797	1,295.0	

Distinct glare per month

Excludes overlapping glare from PV array for multiple receptors at matching time(s)

PV	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
57 (green)	0	0	0	0	0	0	0	0	0	0	0	0
57 (yellow)	0	0	3	462	856	839	861	701	75	0	0	0

PV & Receptor Analysis Results

Results for each PV array and receptor

57 potential temporary after-image

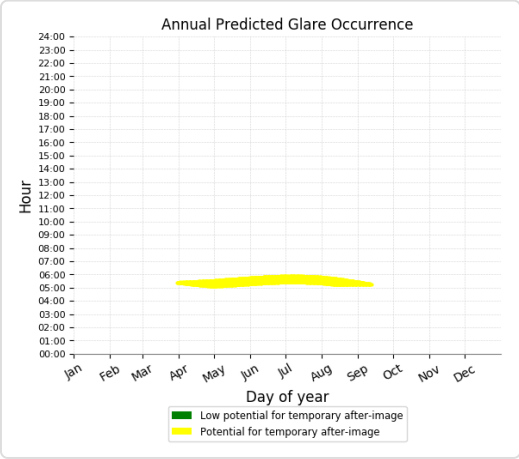
Predicted energy output: 1,295.0 kWh (assuming sunny, clear skies)

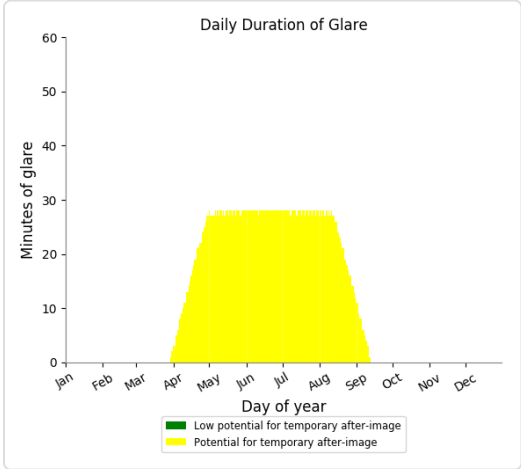
Component	Green glare (min)	Yellow glare (min)
OP: OP 1	0	3797

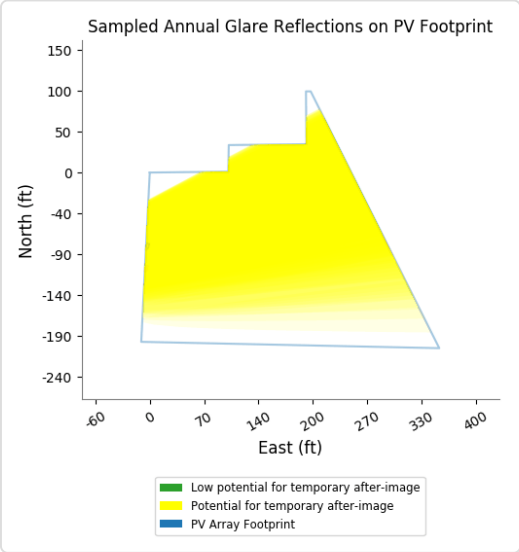
57 - OP Receptor (OP 1)

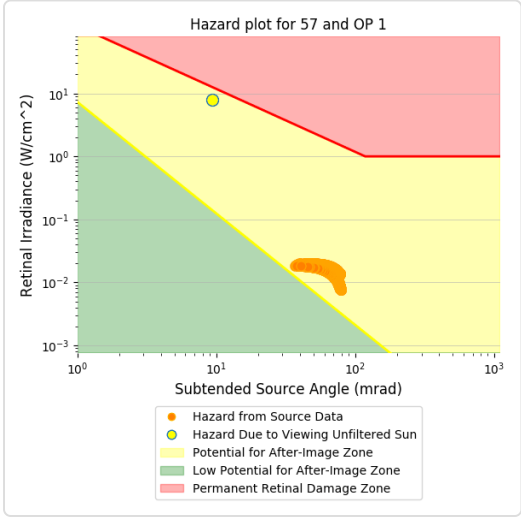
PV array is expected to produce the following glare for receptors at this location:

- 0 minutes of "green" glare with low potential to cause temporary after-image.
- 3,797 minutes of "yellow" glare with potential to cause temporary after-image.









Assumptions

- Times associated with glare are denoted in Standard time. For Daylight Savings, add one hour.
- Glare analyses do not account for physical obstructions between reflectors and receptors. This includes buildings, tree cover and geographic obstructions
- Detailed system geometry is not rigorously simulated.
- The glare hazard determination relies on several approximations including observer eye characteristics, angle of view, and typical blink response time. Actual values and results may vary.
- The system output calculation is a DNI-based approximation that assumes clear, sunny skies year-round. It should not be used in place of more rigorous modeling methods.
- Several V1 calculations utilize the PV array centroid, rather than the actual glare spot location, due to algorithm limitations. This may affect results for larg PV footprints. Additional analyses of array sub-sections can provide additional information on expected glare.
- The subtended source angle (glare spot size) is constrained by the PV array footprint size. Partitioning large arrays into smaller sections will reduce the maximum potential subtended angle, potentially impacting results if actual glare spots are larger than the sub-array size. Additional analyses of the combined area of adjacent sub-arrays can provide more information on potential glare hazards. (See previous point on related limitations.)
- Hazard zone boundaries shown in the Glare Hazard plot are an approximation and visual aid. Actual ocular impact outcomes encompass a continuous, nc discrete, spectrum.
- Glare locations displayed on receptor plots are approximate. Actual glare-spot locations may differ.
- Glare vector plots are simplified representations of analysis data. Actual glare emanations and results may differ.
- Refer to the **Help page** for detailed assumptions and limitations not listed here.

ForgeSolar

South Ripley Solar

South Ripley R94

Created June 22, 2021
Updated July 28, 2021
Time-step 1 minute
Timezone offset UTC-6
Site ID 55434.9843

Project type Advanced
Project status: active
Category 100 MW to 1 GW

Misc. Analysis Settings

DNI: **varies (1,000.0 W/m^2 peak)**
Ocular transmission coefficient: **0.5**
Pupil diameter: **0.002 m**
Eye focal length: **0.017 m**
Sun subtended angle: **9.3 mrad**

Analysis Methodologies:
- Observation point: **Version 2**
- 2-Mile Flight Path: **Version 2**
- Route: **Version 2**

Summary of Results

Glare with potential for temporary after-image predicted

PV Name	Tilt	Orientation	"Green" Glare	"Yellow" Glare	Energy Produced
	deg	deg	min	min	kWh
55a	30.0	180.0	0	1,387	1,294.0
55b	30.0	180.0	0	2,836	1,294.0

Component Data

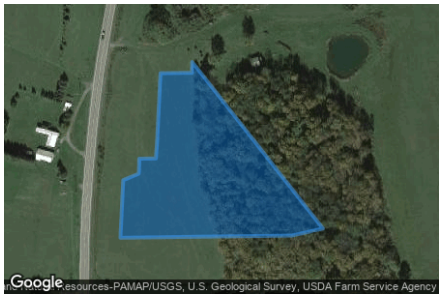
PV Array(s)

Total PV footprint area: 6.2 acres

Name: 55a
Axis tracking: Fixed (no rotation)
Tilt: 30.0 deg
Orientation: 180.0 deg
Footprint area: 2.1 acres
Rated power: 0.55 kW
Panel material: Smooth glass without AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 6.55 mrad

Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	42.195950	-79.659809	1559.60	12.00	1571.60
2	42.195915	-79.659808	1559.72	12.00	1571.72
3	42.195865	-79.659481	1561.29	12.00	1573.29
4	42.195830	-79.659480	1561.06	12.00	1573.06
5	42.195781	-79.659153	1560.81	12.00	1572.81
6	42.195746	-79.659153	1560.57	12.00	1572.58
7	42.195692	-79.659341	1559.40	12.00	1571.40
8	42.195657	-79.659341	1559.12	12.00	1571.12
9	42.195655	-79.659524	1558.66	12.00	1570.66
10	42.195567	-79.659546	1557.11	12.00	1569.11
11	42.195513	-79.659735	1555.72	12.00	1567.72
12	42.195390	-79.659756	1554.14	12.00	1566.14
13	42.195383	-79.660451	1551.79	12.00	1563.79
14	42.195383	-79.660452	1551.79	12.00	1563.79
15	42.195514	-79.661124	1541.10	12.00	1553.10
16	42.196434	-79.660028	1554.52	12.00	1566.52

Name: 55b
Axis tracking: Fixed (no rotation)
Tilt: 30.0 deg
Orientation: 180.0 deg
Footprint area: 4.1 acres
Rated power: 0.55 kW
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	42.195621	-79.656014	1585.63	12.00	1597.63
2	42.195563	-79.656356	1587.19	12.00	1599.19
3	42.195545	-79.658261	1563.29	12.00	1575.29
4	42.196018	-79.658230	1569.07	12.00	1581.07
5	42.196072	-79.658057	1572.74	12.00	1584.74
6	42.196195	-79.658051	1574.35	12.00	1586.35
7	42.196197	-79.657871	1577.63	12.00	1589.63
8	42.196197	-79.657867	1577.63	12.00	1589.63
9	42.196337	-79.657854	1579.10	12.00	1591.10
10	42.196898	-79.657816	1581.00	12.00	1593.00
11	42.196901	-79.657466	1587.60	12.00	1599.60
12	42.196989	-79.657464	1587.04	12.00	1599.04

Discrete Observation Receptors

Number	Latitude	Longitude	Ground elevation	Height above ground	Total Elevation
	deg	deg	ft	ft	ft
OP 1	42.195008	-79.658992	1560.10	5.40	1565.50

Summary of PV Glare Analysis

PV configuration and total predicted glare

PV Name	Tilt	Orientation	"Green" Glare	"Yellow" Glare	Energy Produced	Data File
	deg	deg	min	min	kWh	
55a	30.0	180.0	0	1,387	1,294.0	
55b	30.0	180.0	0	2,836	1,294.0	

Distinct glare per month

Excludes overlapping glare from PV array for multiple receptors at matching time(s)

PV	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
55a (green)	0	0	0	0	0	0	0	0	0	0	0	0
55a (yellow)	0	0	0	4	390	436	431	126	0	0	0	0
55b (green)	0	0	0	0	0	0	0	0	0	0	0	0
55b (yellow)	0	0	0	130	733	804	784	385	0	0	0	0

PV & Receptor Analysis Results

Results for each PV array and receptor

55a potential temporary after-image

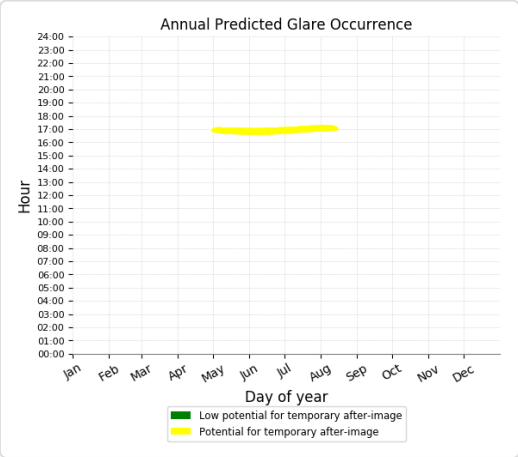
Predicted energy output: 1,294.0 kWh (assuming sunny, clear skies)

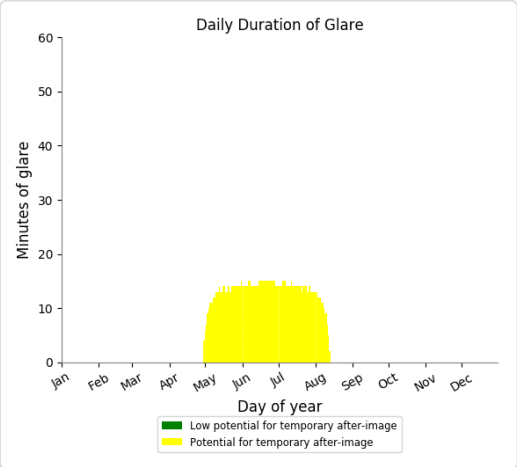
Component	Green glare (min)	Yellow glare (min)
OP: OP 1	0	1387

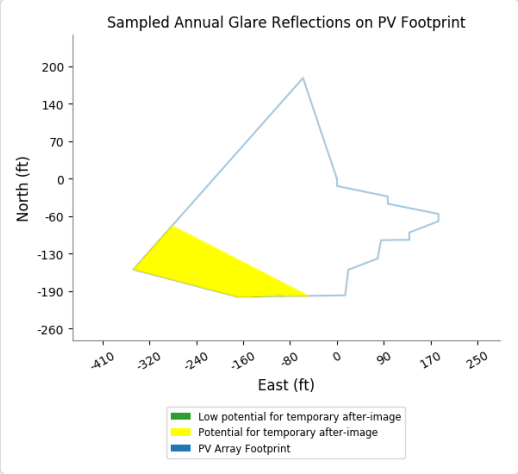
55a - OP Receptor (OP 1)

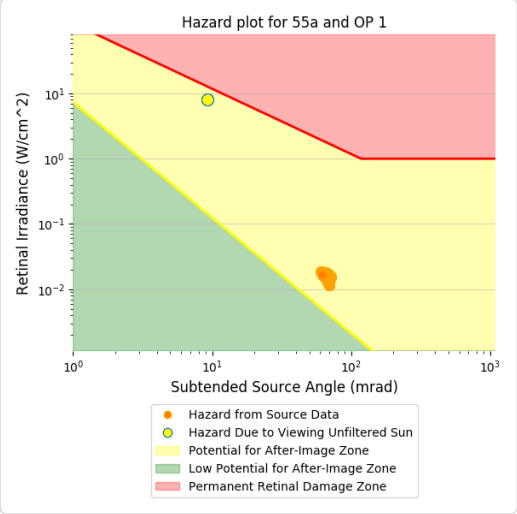
PV array is expected to produce the following glare for receptors at this location:

- 0 minutes of "green" glare with low potential to cause temporary after-image.
- 1,387 minutes of "yellow" glare with potential to cause temporary after-image.









55b potential temporary after-image

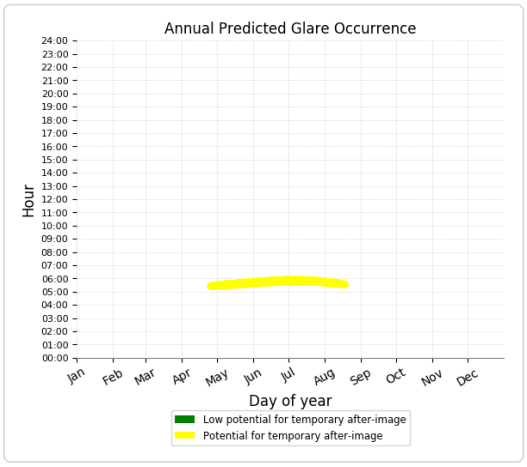
Predicted energy output: 1,294.0 kWh (assuming sunny, clear skies)

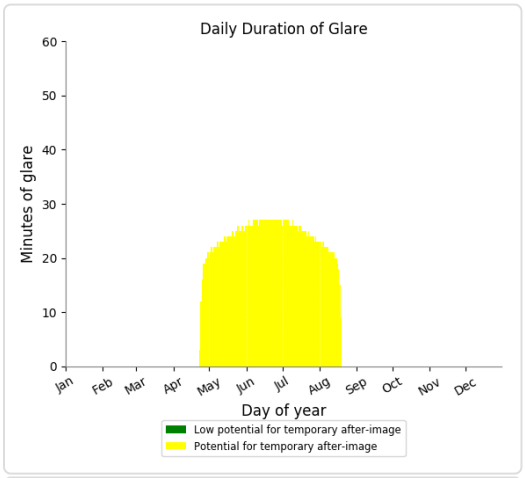
Component	Green glare (min)	Yellow glare (min)
OP: OP 1	0	2836

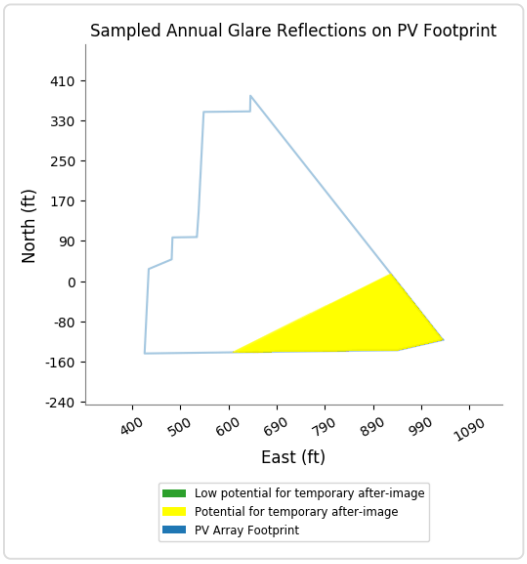
55b - OP Receptor (OP 1)

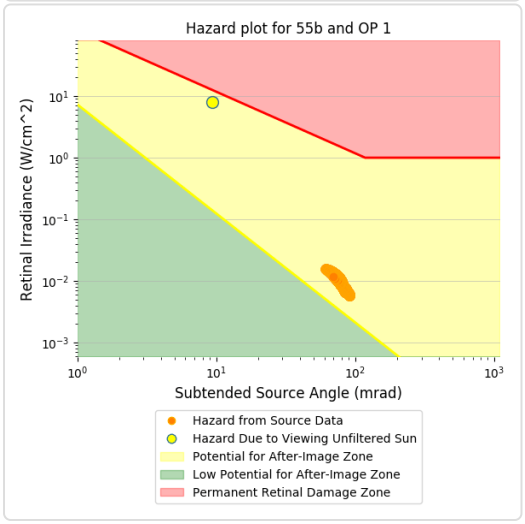
PV array is expected to produce the following glare for receptors at this location:

- 0 minutes of "green" glare with low potential to cause temporary after-image.
- 2,836 minutes of "yellow" glare with potential to cause temporary after-image.









Assumptions

- Times associated with glare are denoted in Standard time. For Daylight Savings, add one hour.
- Glare analyses do not account for physical obstructions between reflectors and receptors. This includes buildings, tree cover and geographic obstructions
- Detailed system geometry is not rigorously simulated.
- The glare hazard determination relies on several approximations including observer eye characteristics, angle of view, and typical blink response time. Actual values and results may vary.
- The system output calculation is a DNI-based approximation that assumes clear, sunny skies year-round. It should not be used in place of more rigorous modeling methods.
- Several V1 calculations utilize the PV array centroid, rather than the actual glare spot location, due to algorithm limitations. This may affect results for larg PV footprints. Additional analyses of array sub-sections can provide additional information on expected glare.
- The subtended source angle (glare spot size) is constrained by the PV array footprint size. Partitioning large arrays into smaller sections will reduce the maximum potential subtended angle, potentially impacting results if actual glare spots are larger than the sub-array size. Additional analyses of the combined area of adjacent sub-arrays can provide more information on potential glare hazards. (See previous point on related limitations.)
- Hazard zone boundaries shown in the Glare Hazard plot are an approximation and visual aid. Actual ocular impact outcomes encompass a continuous, nc discrete, spectrum.
- Glare locations displayed on receptor plots are approximate. Actual glare-spot locations may differ.
- Glare vector plots are simplified representations of analysis data. Actual glare emanations and results may differ.
- Refer to the **Help page** for detailed assumptions and limitations not listed here.