



**Appendix 13-E**  
**Cider Solar Farm Invasive Species Survey Baseline Report**





**Cider Solar Farm Invasive Species  
Survey Baseline Report**

April 30, 2021

Prepared for:

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Prepared by:

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## 1.0 INTRODUCTION

Hecate Energy Cider Solar LLC (Hecate), is proposing to construct, operate and maintain an up to 500-megawatt (MW) alternating current (AC) photovoltaic (PV) solar energy generation facility, referred to as the Cider Solar Farm (Project). The Project will interconnect on-site to the New York Power Authority (NYPA) Dysinger – New Rochester 345-kilovolt (kV) transmission line to deliver power to the New York State (NYS) grid. It is anticipated that the Project will be constructed between 2022 and 2023, with a planned Commercial Operation Date of December 31, 2023.

The Project is situated to the north of the Village of Oakfield, Village of Elba, and approximately five miles north of the City of Batavia in Genesee County. The area is roughly bordered by County Route 9 (Albion Road) to the west, and Miller Road, State Route 98, and vacant land to the east. Lockport Road bisects the Project Area from east to west. The Project Area consists of approximately 7,518 acres of land characterized as level to rolling hills with predominantly agricultural land interspersed with forested land, and rural residential development along roadways. Low density rural residential development and farms are located within and adjacent to the Project Area. The northern portion of the Project Area is bisected by the NYPA 345 kilovolt (kV) Dysinger – New Rochester transmission line and the Empire Gas Pipeline, which are located adjacent to each other and run east-west through the Project. The proposed Project substation interconnects to the NYPA transmission line in the center of the Project Area.

Approximately 2,470 acres will be used for the Project in the final Project Footprint (Appendix A, Figure 1). The Project components will be located on approximately 70 parcels of leased private land owned by 31 private landowners (Project Site). The total Project Footprint includes both temporary and permanent disturbance to resulting from project construction and operation.

The Project will involve the construction, operation and maintenance of a utility scale solar project consisting of photovoltaic panels arrayed primarily in fields on tracking structures and include buried electrical collection cables, inverters, access drives, an electrical transmission line and a point of interconnection, fencing, and temporary laydown areas for equipment staging during construction.

Concurrent with wetland and stream delineations, Stantec Consulting Services Inc. (Stantec) conducted a baseline invasive species survey within and adjacent to the proposed facility components, as described above. The Study Area for the delineation effort includes an area of 100-feet from the limits of disturbance around all facility components (Study Area). The Study Area comprised approximately 4,306 acres and is depicted in Figure 1 (Appendix A).

## 2.0 PURPOSE

This report has been prepared to support the review process under Section 94-c of the New York State (NYS) Executive Law (NYSEL). The information within this report includes a description of the methods and results of the baseline invasive species survey effort conducted by Stantec. As part of the Invasive





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Species Control Plan (ISCP; Appendix B), this report is intended to provide the necessary information to document the occurrence and extent of non-native invasive species (NNIS) prior to the start of facility construction. For the purposes of these surveys, NNIS are those regulated by the New York State Department of Environmental Conservation (NYSDEC) in 6 New York Codes, Rules and Regulations (NYCRR) Part 575 (NYSDEC 2009; Appendix C). The focus of this invasive species survey is plant species listed as either prohibited or regulated species under 6 NYCRR Part 575.

### 3.0 SURVEY METHODS

Stantec biologists conducted the baseline invasive plant survey concurrently with wetland and stream delineations during July and September 2020. Meander surveys were conducted to identify invasive species within the study area. For invasive species occurrences consisting of a single plant or a small area, a Global Positioning System (GPS) point was taken near the center of a population or at an individual plant, and the size of the affected area and abundance of plants were estimated. For larger invasive species occurrences, a GPS polygon was collected the occurrence area and the abundance of plants was estimated. For each GPS point collected, population information and cover were visually estimated and recorded utilizing ArcGis® Collector applications. Occurrence information collected during surveys included categories for population abundance, population distribution, percent cover, and reproduction (Table 1). Each occurrence was identified using the first three letters of the scientific genus and species names (e.g., an occurrence of common buckthorn – *Rhamnus cathartica* – was recorded as RHA\_CAT). Representative photographs of the different species observed during surveys are included in Appendix D.

**Table 1. Data Collection Categories for Invasive Species Baseline Monitoring, 2020, Stantec.**

Category Ranges	Population Abundance	Population Distribution	Percent Cover	Reproduction
	1	Single Plant	< 1%	Vegetated
	< 10	Single Patch	1-5%	Vegetated with Flowers
	10-100	Evenly Sparse	6-25%	Vegetated with Fruit and Flowers
	100-999	Multiple Patches	26-50%	Vegetated with Fruit
	> 1,000	Dense Throughout	51-75%	-
	-	-	76-100%	-

The survey methods utilized during data collection will enable post-construction evaluation of NNIS occurrences as they relation to the goals of the ISCP. Post-construction monitoring of NNIS occurrences will utilize qualified biologist to implement the same baseline survey methodology to allow for comparison of pre- and post-construction conditions.





## 4.0 SURVEY RESULTS

The Study Area is generally characterized by active agriculture, primarily row crops such as soybean, corn, and wheat; and rural residential land interspersed with forested areas/hedgerows with level to rolling topography. Upland forests border many of the agricultural lands and are characterized by a mixture of northern hardwood forests and planted pine and spruce stands. The majority of NNIS occurrences were primarily located in areas that have a history of human disturbance. These include forests with a history of silviculture and the edges of active agriculture areas. Fewer NNIS occurrences were observed in undisturbed upland forests or wetlands. A total of 14 different invasive plant species were observed with the Study Area (Table 2).

**Table 2. Invasive Species Observed During Baseline Invasive Species Surveys, 2020, Stantec.**

Common Name	Scientific Name	Collection ID	Number of Occurrences
garlic mustard	<i>Alliaria petiolata</i>	ALL_PET	81
mugwort	<i>Artemisia vulgaris</i>	ART_VUL	26
Japanese barberry	<i>Berberis thunbergii</i>	BER_THU	1
Canada thistle	<i>Cirsium arvense</i>	CIR_ARV	82
cut-leaf teasel	<i>Dipsacus laciniatus</i>	DIP_LAC	7
autumn olive	<i>Eleagnus umbellata</i>	ELE_UMB	2
Morrow's honeysuckle	<i>Lonicera morrowii</i>	LON_MOR	19
Tatarian honeysuckle	<i>Lonicera tatarica</i>	LON_TAT	29
purple loosestrife	<i>Lythrum salicaria</i>	LYT_SAL	1
Japanese stilt-grass	<i>Microstegium vimineum</i>	MIC_VIM	10
Japanese knotweed	<i>Reynoutria japonica</i>	REY_JAP	1
reed canary grass	<i>Phalaris arundinacea</i>	PHA_ARU	127
common reed	<i>Phragmites australis</i>	PHR_AUS	37
kudzu	<i>Pueraria montana</i>	PUE_MON	1
common buckthorn	<i>Rhamnus cathartica</i>	RHA_CAT	39
black locust	<i>Robinia pseudoacacia</i>	ROB_PSE	2
multiflora rose	<i>Rosa multiflora</i>	ROS_MUL	45
<b>TOTAL</b>			<b>510</b>

A total of 510 NNIS occurrences were observed during the 2020 Cider Solar Farm baseline invasive plant surveys. Reed canary grass was the most commonly observed species accounting for 25% (N = 127) of all observed occurrences. Garlic mustard and Canada thistle were the second most common invasive plant species, both with 16% (N = 81, N = 82, respectively) of all observed occurrences. All other invasive plant species had fewer than 50 observed occurrences. Representative photographs of the different





## CIDER SOLAR FARM INVASIVE SPECIES SURVEY BASELINE REPORT

species observed during surveys are included in Appendix D. The occurrence and observed density of invasive plant species is shown on the Invasive Species Locations Maps (Appendix A). Invasive species were found throughout the Study Area but were especially common along edge habitat, including: hedge rows, public roads, existing woods roads and/or farm roads. Existing populations of invasive plants often are transported or spread through disturbance activities.

No incidental observations of invasive insect species were recorded during field surveys. The Project's location in Genesee county is within an area with documented emerald ash borer (EAB) locations and of the NYSDEC EAB restricted zone (NYSDEC 2017). Dead ash trees (*Fraxinus spp.*) were observed throughout the Study Area. The Asian long-horned beetle (*Anoplophora glabripennis*) has only been detected in the boroughs of New York City, Islip, and central Long Island and documented infestations in Manhattan, eastern Queens, Staten Island, and Islip have been eradicated (NYSDEC 2018a). It is not anticipated that this species would be present within the Cider Solar Study Area. Hemlock Woolly Adelgid has not been documented in Genesee County (NYSDEC 2020). No eastern hemlock trees were observed during surveys, and the hemlock woolly adelgid is not expected to occur within the Study Area. The southern pine beetle is native to the southeastern US; however, it has been expanding northward in recent years. The only known occurrences of this species in NY are near Albany and Long Island and have not been documented in upstate New York at this time; therefore, this species is not expected to occur within the Study Area (NYSDEC 2018b).

## 5.0 CONCLUSIONS AND RECOMMENDATIONS

Invasive plant occurrences were observed throughout the Study Area and were generally dense along all hedgerows and roadsides. As such, invasive plant occurrences were observed within or around the majority of project components, including solar arrays, access roads, and buried collector lines.

To the extent practicable during construction, the ISCP should be followed to minimize the possibility of spreading existing invasive plant populations or invasive insect species should they be present. As stated in the ISCP, equipment should be clean prior to working on site and cleaned prior to leaving the site. In areas with existing invasive plant populations, the movement or storing of disturbed soil should be restricted to the immediate work area. Disturbed soils should be re-seeded and stabilized with native seed mixtures to reduce the amount of time soil are exposed, which will help reduce the amount of time invasive species have to establish and potentially spread.

The ISCP lists control methods for commonly found invasive plant species. The Environmental Energy Alliance of New York Best Management Practices for Preventing the Transportation of Invasive Plant Species is also attached to this report, as an additional guidance document to minimize the spread of invasive species (Appendix E).

The ISCP goal states that there should be no net increase of invasive species coverage within the area disturbed by facility construction. While invasive plant populations outside the area disturbed by construction may increase, a qualified biologist should perform post-construction monitoring to achieve





## CIDER SOLAR FARM INVASIVE SPECIES SURVEY BASELINE REPORT

results that can be directly compared to those collected in the baseline survey. All activities throughout construction and restoration should implement the control measures described in the ISCP.





## 6.0 REFERENCES

McCay, T.S., McCay, D.H., and Czajka, J.L. 2009. Deposition of exotic bird-dispersed seeds into three habitats of a fragmented landscape in the northeastern United States. *Plant Ecology* Vol. 203, Issue 1: 59-67.

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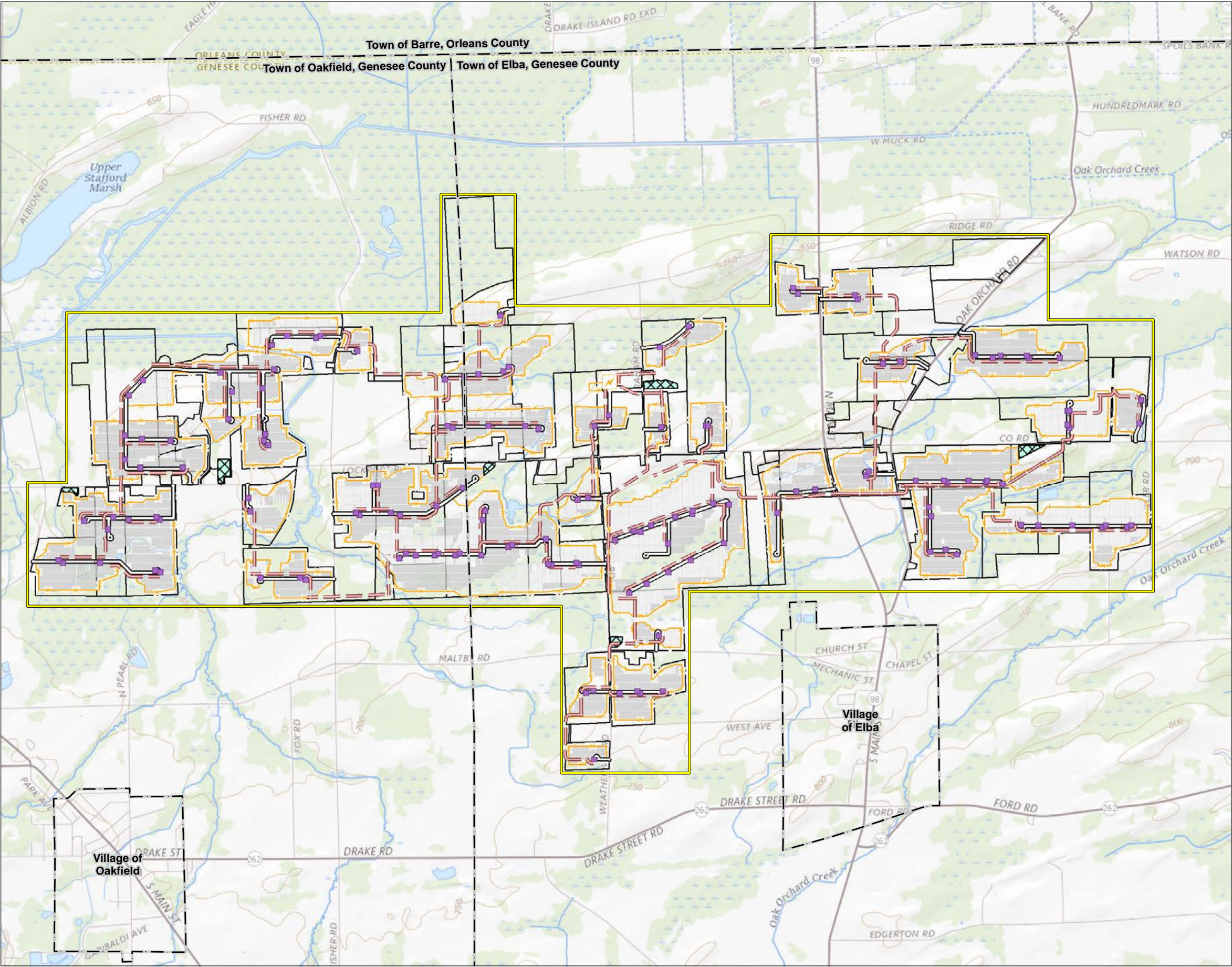


## Appendix A FIGURES





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Legend

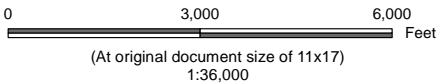
Project Area

Proposed Project

- Substation and Switchyard
- Inverter
- PV Panel Array
- Collection Line
- Fence Line
- Access Road
- Laydown Area
- Project Site

Existing Features

Municipal Boundary



**Notes**  
1. Coordinate System: NAD 1983 StatePlane New York West FIPS 3103 Feet  
2. Data Sources: NYS Office of ITS GPO, NYS Civil Boundaries, 2018  
3. Background: USGS Topo Basemap - The National Map (Web Map Service); Data refreshed May, 2020.



**Project Location**  
Towns of Elba and Oakfield  
Genesee County, NY

Prepared by AS on 2021-03-30  
TR by EE on 2021-03-30  
IR by NL on 2021-03-30

**Client/Project**  
Hecate Energy Cider Solar LLC  
Cider Solar Farm

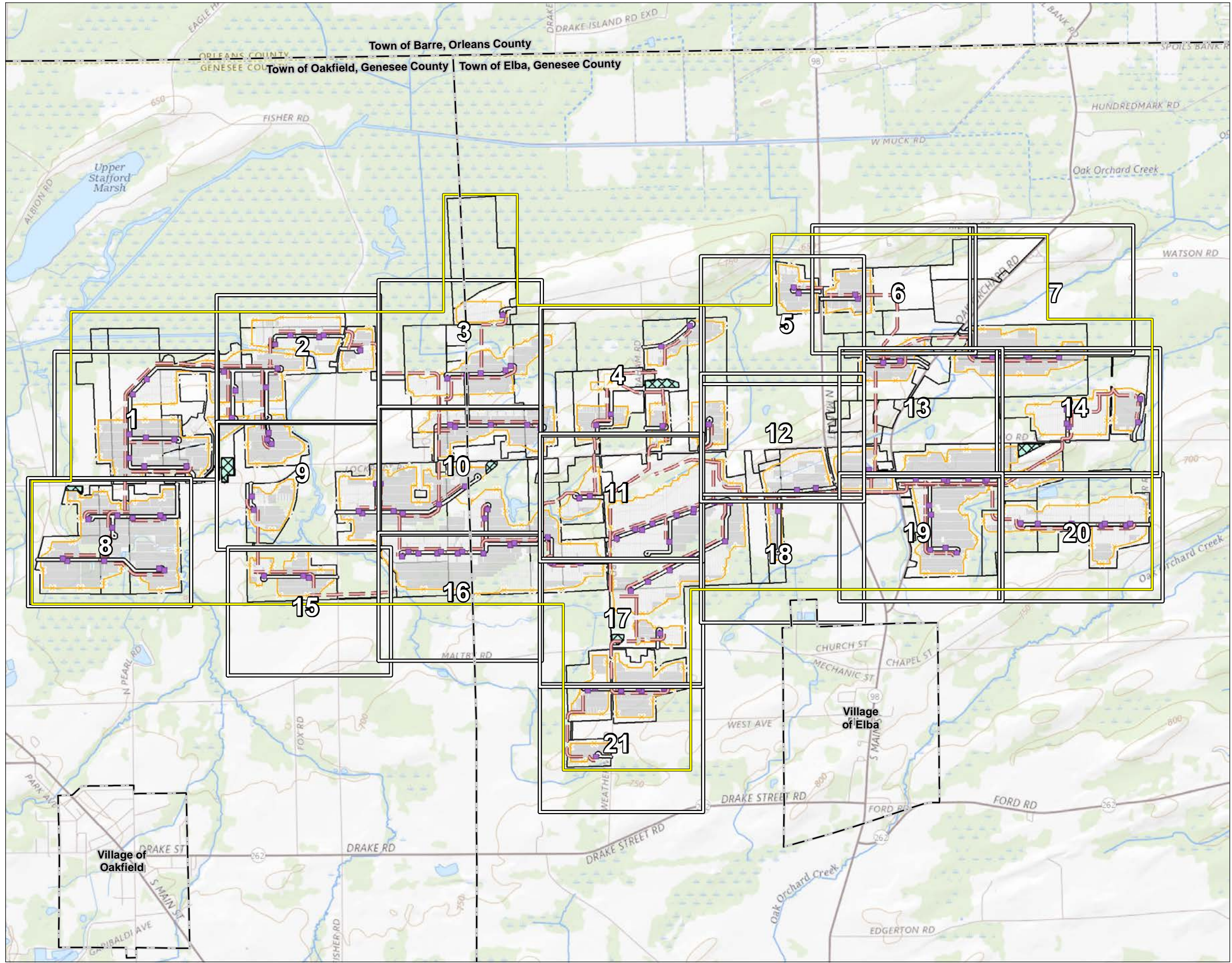
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**Figure No.**  
Proposed Layout

**Title**  
Invasive Species Locations



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Legend

Project Area

Proposed Project

Substation and Switchyard

Inverter

PV Panel Array

Collection Line

Fence Line

Access Road

Laydown Area

Project Site

Existing Features

Municipal Boundary



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(At original document size of 11x17)  
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**Notes**  
1. Coordinate System: NAD 1983 StatePlane New York West FIPS 3103 Feet  
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Towns of Elba and Oakfield  
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IR by NL on 2021-03-30

Client/Project

Hecate Energy Cider Solar LLC  
Cider Solar Farm

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Figure No.

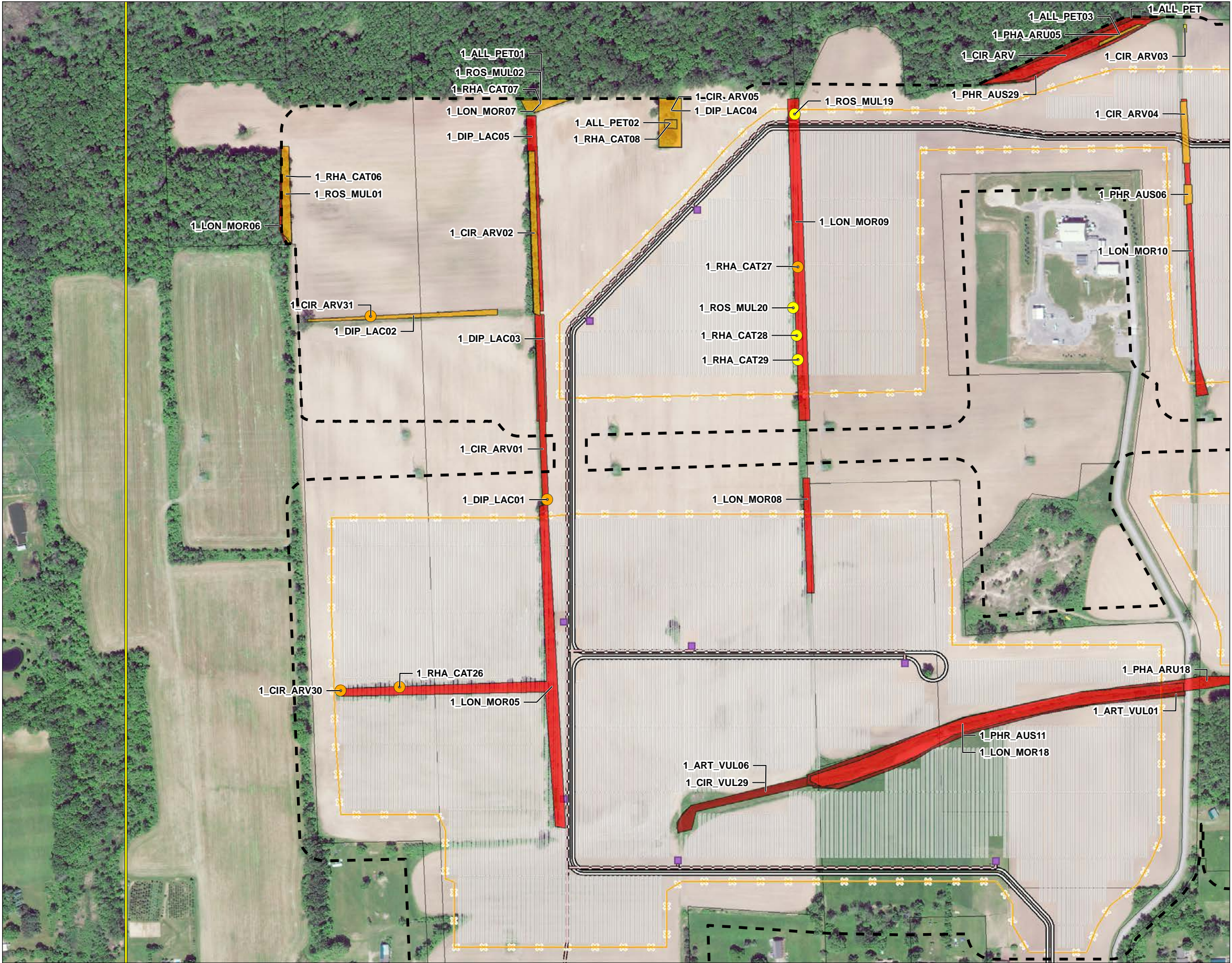
Key Map

Title

Invasive Species Key Map



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Legend

Project Area Study Area

Proposed Project

Substation and Switchyard  
Inverter  
PV Panel Array  
Access Road  
Laydown Area  
Collection Line  
Fence Line  
Project Site

Existing Features

Municipal Boundary

Invasive Species Occurrence and Abundance

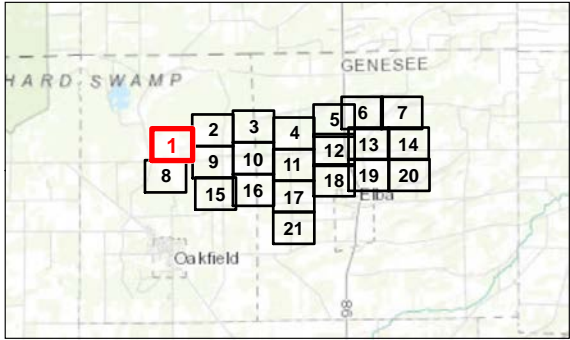
Single Plant  
<10  
10 - 100  
100 - 999  
>1000

Common Name	Collection ID
Autumn Olive	ELA-UMB
Black Locust	ROB-PSE
Canada Thistle	CIR-ARV
Common Buckthorn	RHA-CAT
Common Reed Grass	PHR-AUS
Cut-lead Teasel	DIP-LAC
Garlic Mustard	ALL-PET
Japanese Honeysuckle	LON-JAP
Japanese Silt Grass	MIC-VIM
Kudzu	PUE-MON
Morrow's Honeysuckle	LON-MOR
Mugwort	ART-VUL
Multiflora	ROS-MUL
Reed Canary Grass	PHA-ARU
Tartarian Honeysuckle	LON-TAT



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(At original document size of 11x17)  
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Notes  
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2. Data Sources: Cornell University Geospatial Information Repository (<https://cugir.library.cornell.edu/>), NYS GIS Clearinghouse (<https://gis.ny.gov/>), U.S. Fish & Wildlife Service (<https://www.fws.gov/>)  
3. Background: WorldView-3 satellite imagery purchased on June 6, 2020



Project Location  
Town of Oakfield  
Genesee County, NY

Prepared by EE on 2021-04-29  
TR by AS on 2021-04-30  
IR by AS on 2021-04-30

Client/Project

Hecate Energy Cider Solar LLC  
Cider Solar Farm

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Figure No.

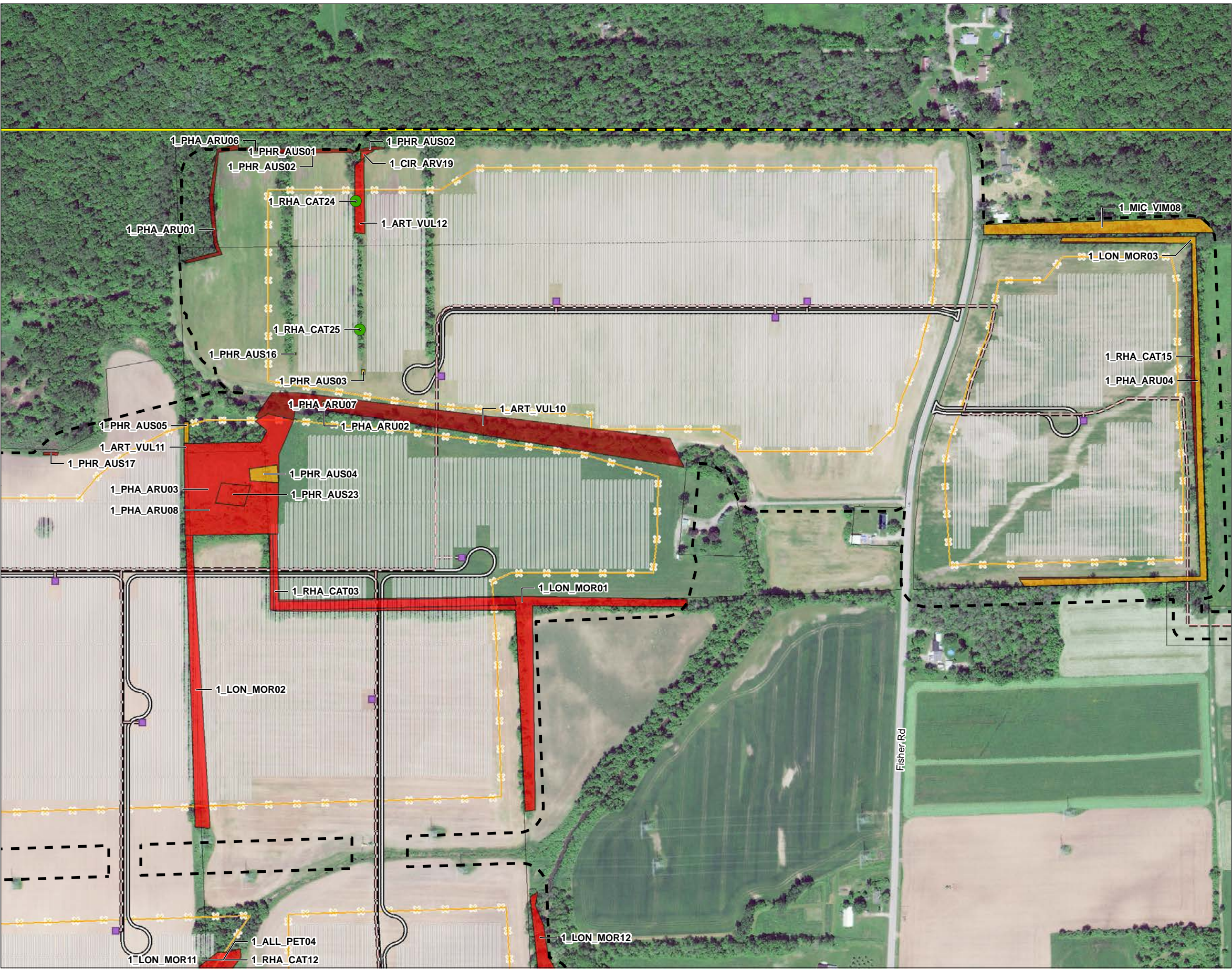
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Title

Invasive Species Locations  
Map 1 of 21



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Legend

Project Area      Study Area

Proposed Project

- Substation and Switchyard
- Inverter
- PV Panel Array
- Access Road
- Laydown Area
- Collection Line
- Fence Line
- Project Site

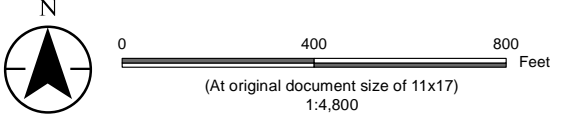
Existing Features

- Municipal Boundary

Invasive Species Occurrence and Abundance

- Single Plant
- <10
- 10 - 100
- 100 - 999
- >1000

Common Name	Collection ID
Autumn Olive	ELA-UMB
Black Locust	ROB-PSE
Canada Thistle	CIR-ARV
Common Buckthorn	RHA-CAT
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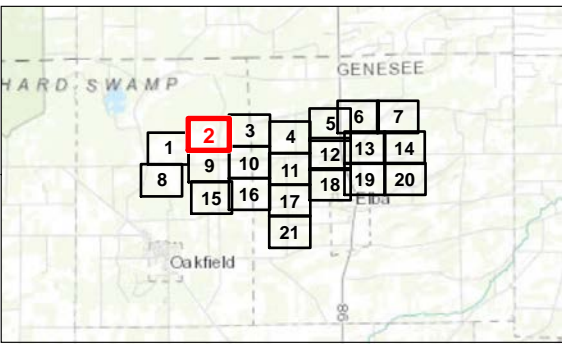


Notes

1. Coordinate System: NAD 1983 StatePlane New York West FIPS 3103 Feet

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3. Background: WorldView-3 satellite imagery purchased on June 6, 2020



Project Location  
Town of Oakfield  
Genesee County, NY

Prepared by EE on 2021-04-29  
TR by AS on 2021-04-30  
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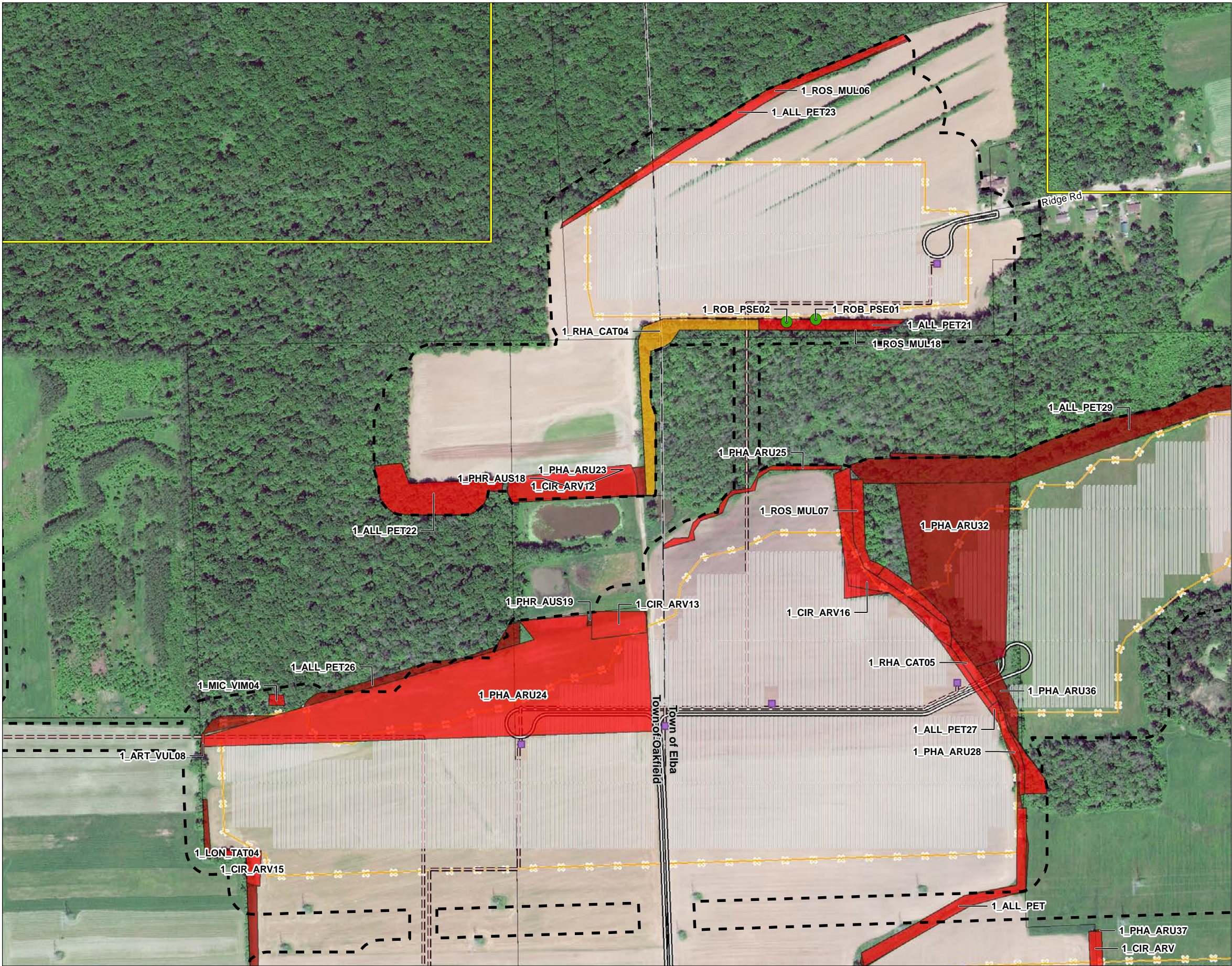
Client/Project  
Hecate Energy Cider Solar LLC  
Cider Solar Farm

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Figure No.  
1

Title  
**Invasive Species Locations  
Map 2 of 21**





Legend

- Project Area
- Study Area

Proposed Project

- Substation and Switchyard
- Inverter
- PV Panel Array
- Access Road
- Laydown Area
- Collection Line
- Fence Line
- Project Site

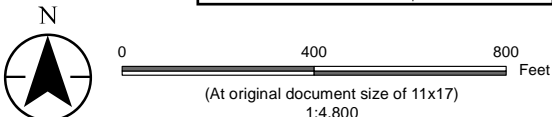
Existing Features

- Municipal Boundary

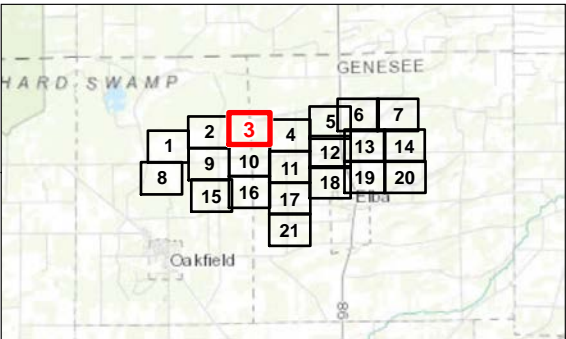
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Notes  
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Client/Project  
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Cider Solar Farm

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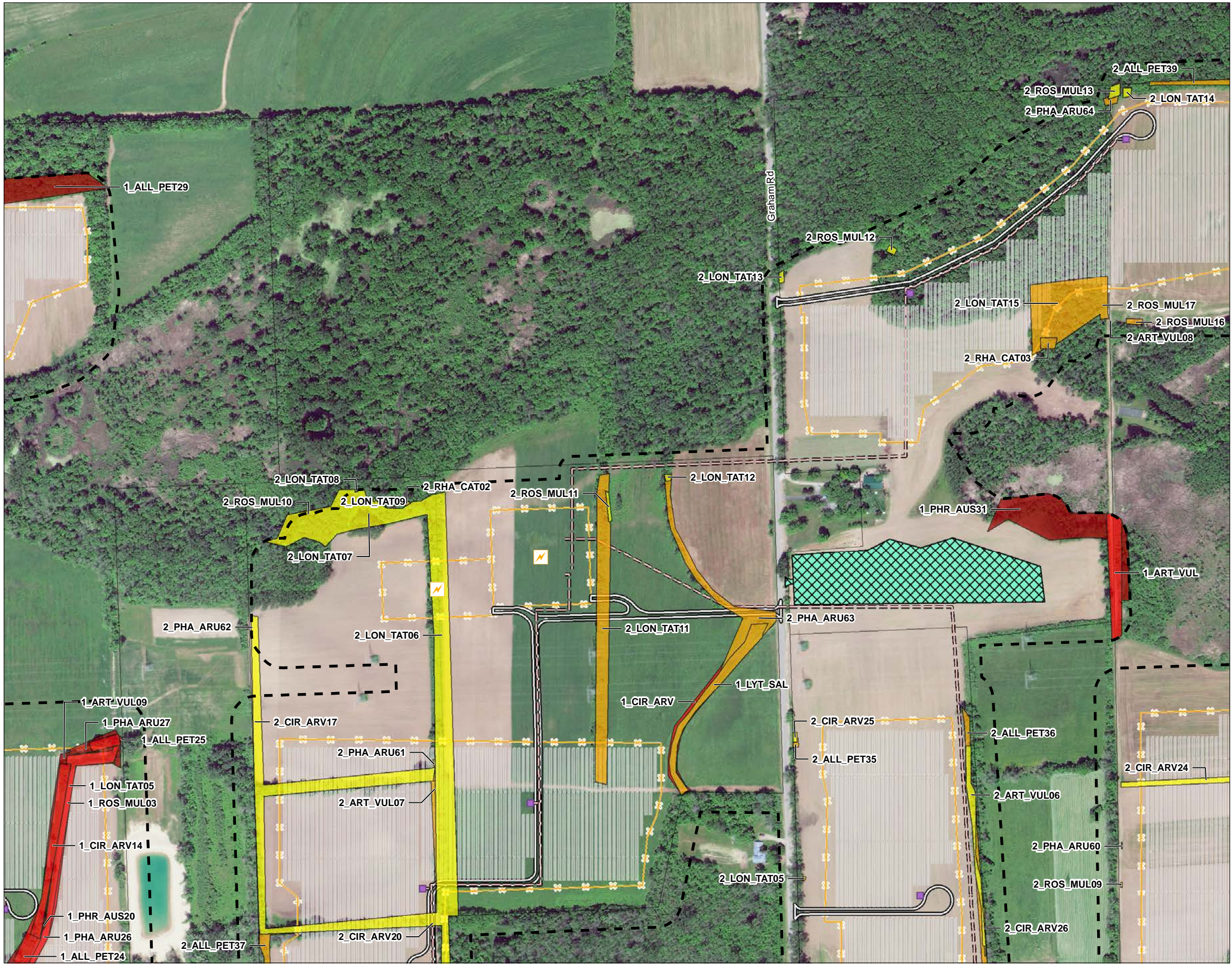
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Title  
**Invasive Species Locations**  
**Map 3 of 21**

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Legend

- Project Area      Study Area
- Proposed Project
- Substation and Switchyard
  - Inverter
  - PV Panel Array
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  - Fence Line
  - Project Site

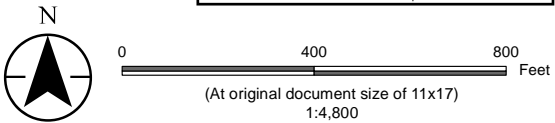
Existing Features

- Municipal Boundary

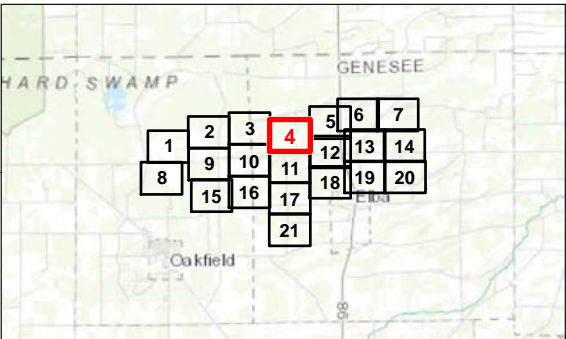
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Project Location  
Town of Elba  
Genesee County, NY

Prepared by EE on 2021-04-29  
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IR by AS on 2021-04-30

Client/Project  
Hecate Energy Cider Solar LLC  
Cider Solar Farm

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Figure No.  
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Title  
**Invasive Species Locations  
Map 4 of 21**




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Legend


 Project Area


 Study Area


Proposed Project


 Substation and Switchyard


 Inverter


 PV Panel Array


 Access Road

 Laydown Area


 Municipal Boundary

 Collection Line


 Fence Line


 Project Site


Existing Features


 Municipal Boundary


Invasive Species Occurrence and Abundance


 Single Plant


 <10


 10 - 100

 100 - 999


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Morrow's Honeysuckle	LON-MOR
Mugwort	ART-VUL
Multiflora	ROS-MUL
Reed Canary Grass	PHA-ARU
Tartarian Honeysuckle	LON-TAT



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**Notes**

- Coordinate System: NAD 1983 StatePlane New York West FIPS 3103 Feet
- Data Sources: Cornell University Geospatial Information Repository (<https://cugir.library.cornell.edu/>), NYS GIS Clearinghouse (<https://gis.ny.gov/>), U.S. Fish & Wildlife Service (<https://www.fws.gov/>)
- Background: WorldView-3 satellite imagery purchased on June 6, 2020

Project Location

Town of Elba

Genesee County, NY

Prepared by EE on 2021-04-29

TR by AS on 2021-04-30

IR by AS on 2021-04-30

Client/Project

Hecate Energy Cider Solar LLC

Cider Solar Farm

190502038 REV B

Figure No.

1

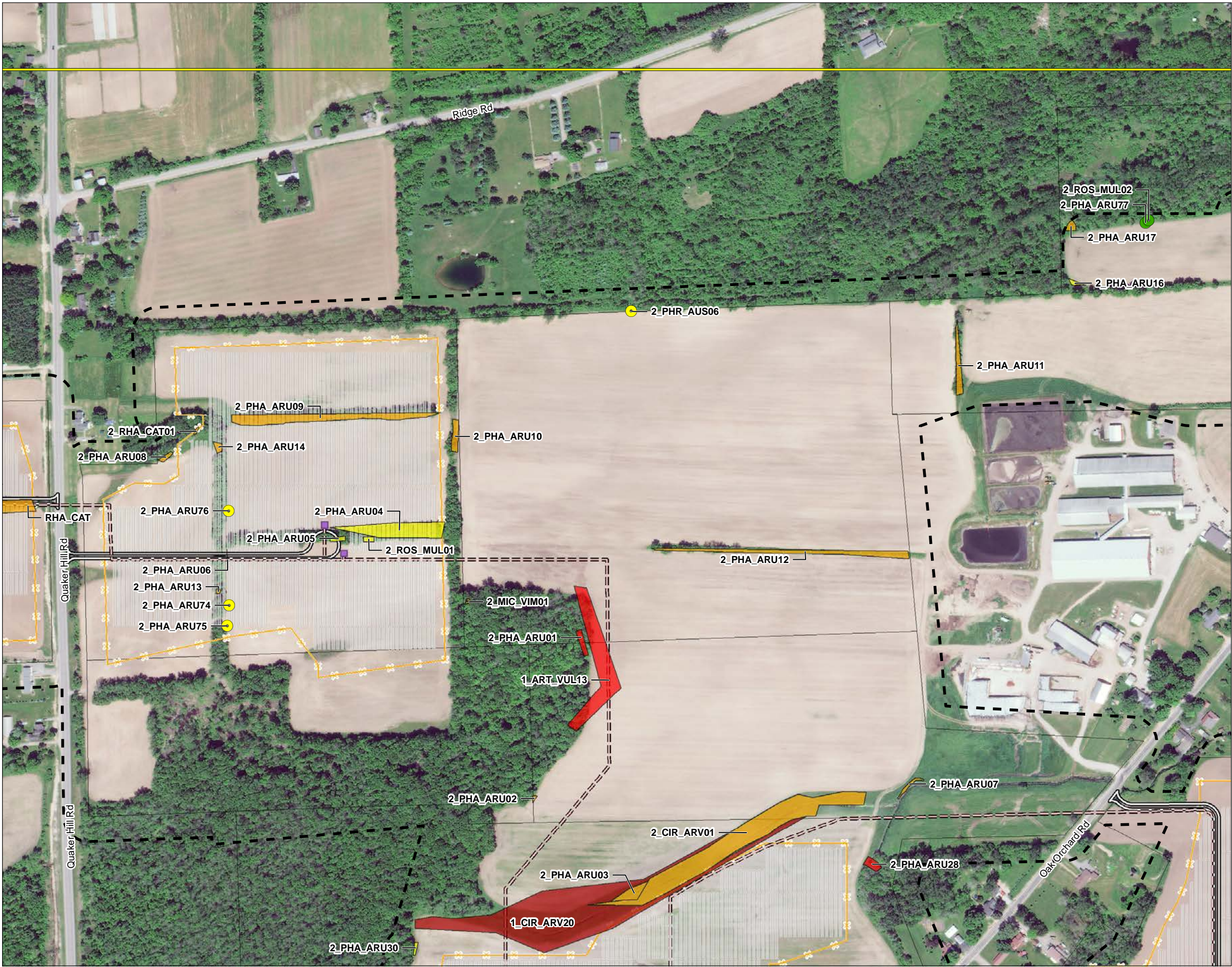
Title

Invasive Species Locations

Map 5 of 21

Disclaimer: This document has been prepared based on information provided by others as cited in the Notes section. Stantec has not verified the accuracy and/or completeness of this information and shall not be responsible for any errors or omissions which may be incorporated herein as a result. Stantec assumes no responsibility for data supplied in electronic format, and the recipient accepts full responsibility for verifying the accuracy and completeness of the data.





Legend

Project Area

Study Area

Proposed Project

Substation and Switchyard

Inverter

PV Panel Array

Access Road

Laydown Area

Municipal Boundary

Collection Line

Fence Line

Project Site

Existing Features

Municipal Boundary

Invasive Species Occurrence and Abundance

Single Plant

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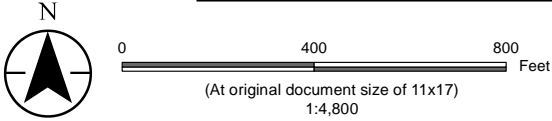
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Common Name	Collection ID
Autumn Olive	ELA-UMB
Black Locust	ROB-PSE
Canada Thistle	CIR-ARV
Common Buckthorn	RHA-CAT
Common Reed Grass	PHR-AUS
Cut-lead Teasel	DIP-LAC
Garlic Mustard	ALL-PET
Japanese Honeysuckle	LON-JAP
Japanese Silt Grass	MIC-VIM
Kudzu	PUE-MON
Morrow's Honeysuckle	LON-MOR
Mugwort	ART-VUL
Multiflora	ROS-MUL
Reed Canary Grass	PHA-ARU
Tartarian Honeysuckle	LON-TAT

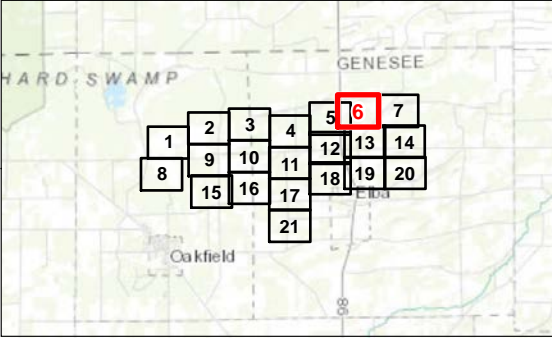


**Notes**

1. Coordinate System: NAD 1983 StatePlane New York West FIPS 3103 Feet

2. Data Sources: Cornell University Geospatial Information Repository (<https://cugir.library.cornell.edu/>), NYS GIS Clearinghouse (<https://gis.ny.gov/>), U.S. Fish & Wildlife Service (<https://www.fws.gov/>)

3. Background: WorldView-3 satellite imagery purchased on June 6, 2020



Project Location

Town of Elba

Genesee County, NY

Prepared by EE on 2021-04-29

TR by AS on 2021-04-30

IR by AS on 2021-04-30

Client/Project

Hecate Energy Cider Solar LLC

Cider Solar Farm

190502038 REV B

Figure No.

1

Title

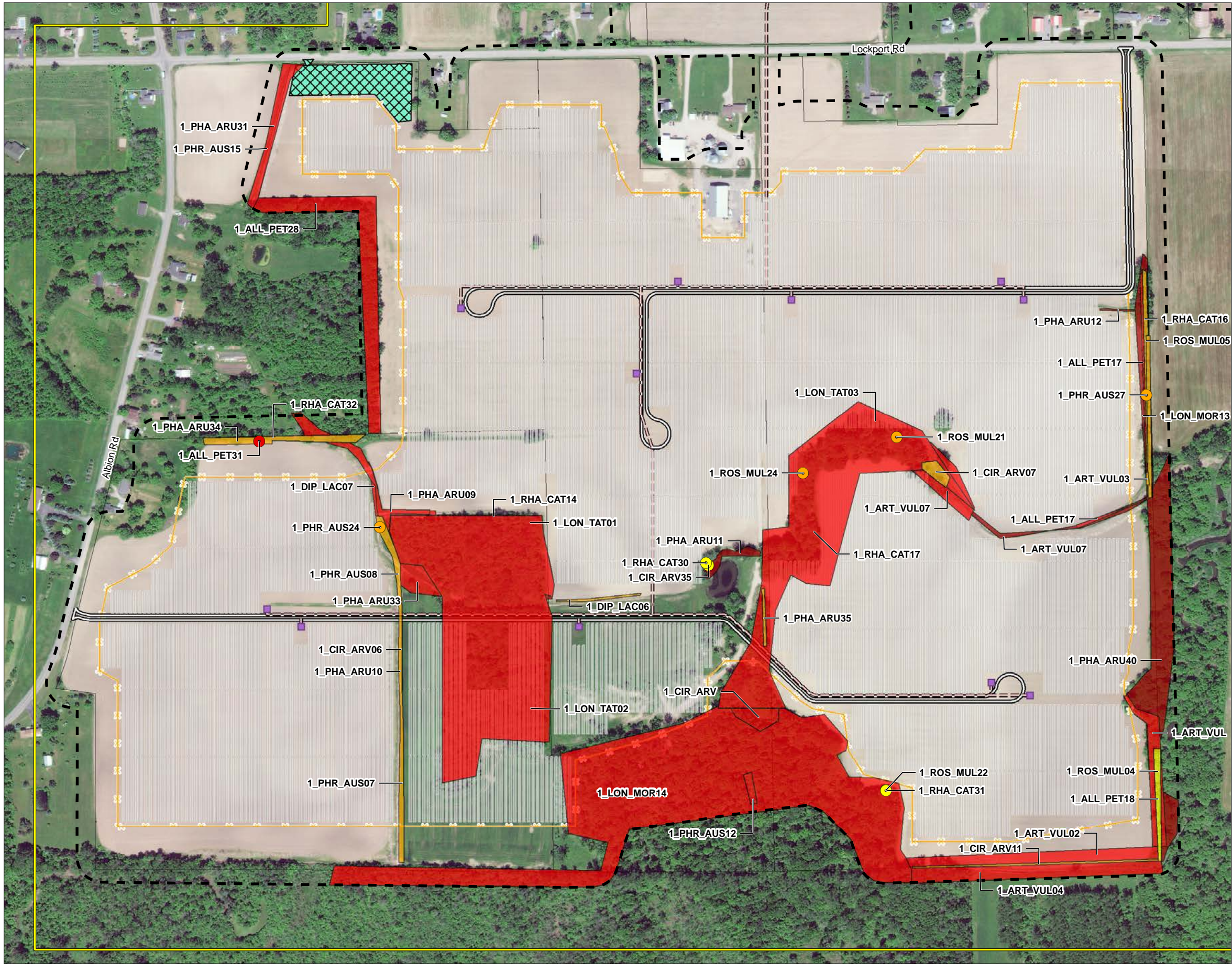
Invasive Species Locations

Map 6 of 21









Legend

- Project Area Study Area

Proposed Project

- Substation and Switchyard  
Inverter  
PV Panel Array  
Access Road  
Laydown Area  
Collection Line  
Fence Line  
Project Site

Existing Features

- Municipal Boundary

Invasive Species Occurrence and Abundance

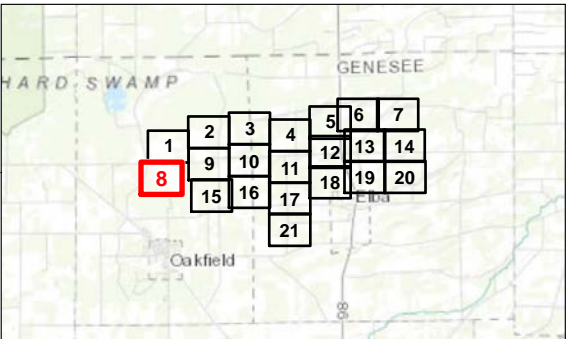
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Common Name	Collection ID
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Black Locust	ROB-PSE
Canada Thistle	CIR-ARV
Common Buckthorn	RHA-CAT
Common Reed Grass	PHR-AUS
Cut-lead Teasel	DIP-LAC
Garlic Mustard	ALL-PET
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Japanese Silt Grass	MIC-VIM
Kudzu	PUE-MON
Morrow's Honeysuckle	LON-MOR
Mugwort	ART-VUL
Multiflora	ROS-MUL
Reed Canary Grass	PHA-ARU
Tartarian Honeysuckle	LON-TAT



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Notes  
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2. Data Sources: Cornell University Geospatial Information Repository (<https://cugir.library.cornell.edu/>), NYS GIS Clearinghouse (<https://gis.ny.gov/>), U.S. Fish & Wildlife Service (<https://www.fws.gov/>)  
3. Background: WorldView-3 satellite imagery purchased on June 6, 2020



Project Location  
Town of Oakfield  
Genesee County, NY  
Prepared by EE on 2021-04-29  
TR by AS on 2021-04-30  
IR by AS on 2021-04-30

Client/Project  
Hecate Energy Cider Solar LLC  
Cider Solar Farm  
190502038 REV B

Figure No.  
1


Title  
Invasive Species Locations  
Map 8 of 21


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Legend


 Project Area


 Study Area


Proposed Project


 Substation and Switchyard


 Inverter


 PV Panel Array


 Access Road

 Laydown Area


 Municipal Boundary

 Collection Line


 Fence Line


 Project Site


Existing Features


 Municipal Boundary


Invasive Species Occurrence and Abundance


 Single Plant


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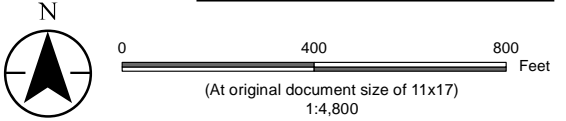
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Common Name	Collection ID
Autumn Olive	ELA-UMB
Black Locust	ROB-PSE
Canada Thistle	CIR-ARV
Common Buckthorn	RHA-CAT
Common Reed Grass	PHR-AUS
Cut-lead Teasel	DIP-LAC
Garlic Mustard	ALL-PET
Japanese Honeysuckle	LON-JAP
Japanese Silt Grass	MIC-VIM
Kudzu	PUE-MON
Morrow's Honeysuckle	LON-MOR
Mugwort	ART-VUL
Multiflora	ROS-MUL
Reed Canary Grass	PHA-ARU
Tartarian Honeysuckle	LON-TAT

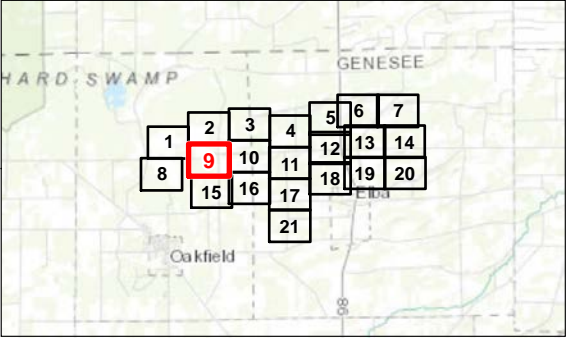


Notes

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2. Data Sources: Cornell University Geospatial Information Repository (<https://cugir.library.cornell.edu/>), NYS GIS Clearinghouse (<https://gis.ny.gov/>), U.S. Fish & Wildlife Service (<https://www.fws.gov/>)

3. Background: WorldView-3 satellite imagery purchased on June 6, 2020



Project Location

Town of Oakfield  
Genesee County, NY

Prepared by EE on 2021-04-29  
TR by AS on 2021-04-30  
IR by AS on 2021-04-30

Client/Project

Hecate Energy Cider Solar LLC  
Cider Solar Farm

190502038 REV B

Figure No.

1

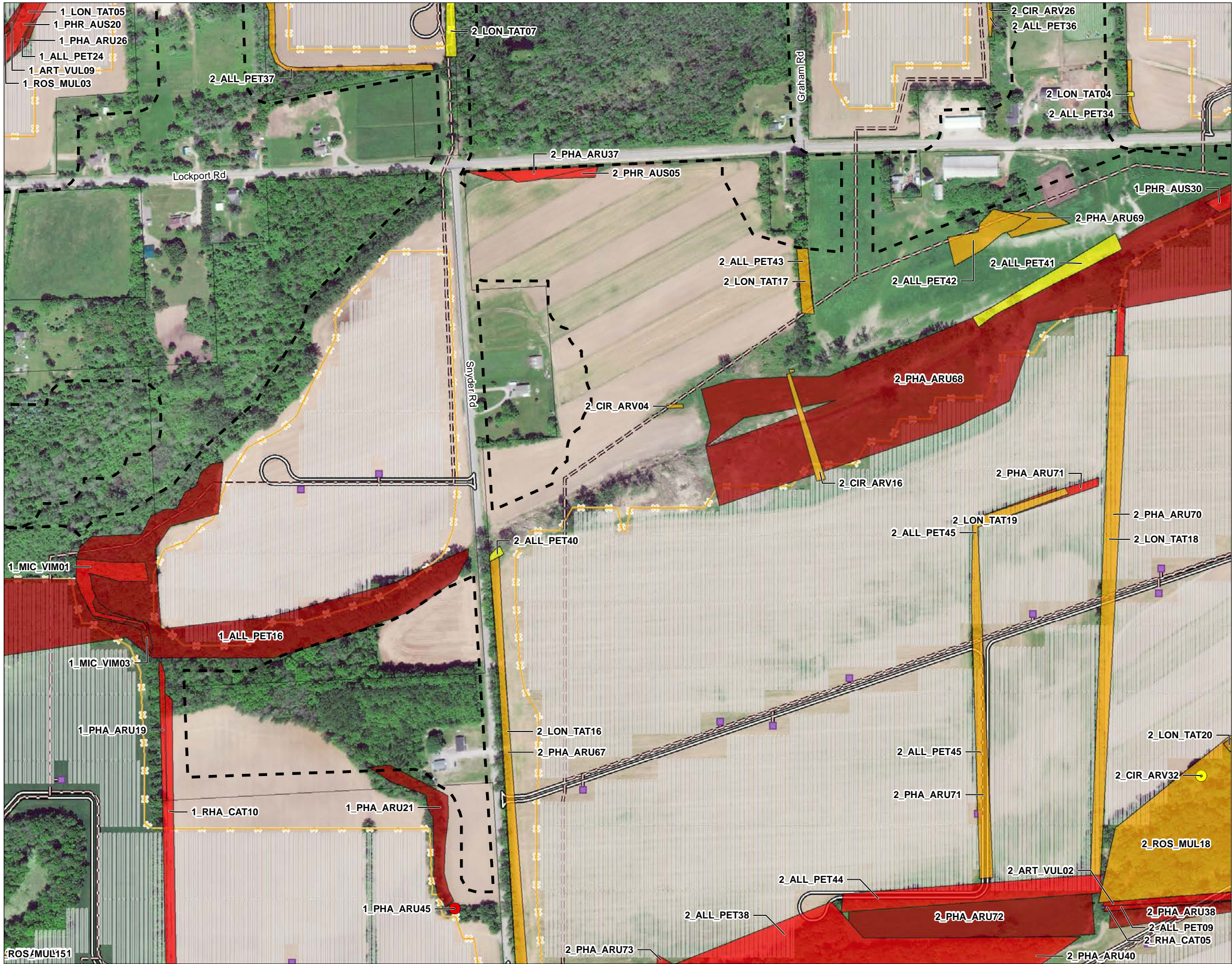
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Invasive Species Locations  
Map 9 of 21









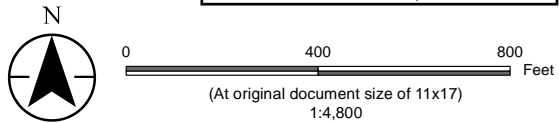
Legend

- Project Area
- Study Area
- Proposed Project
  - Substation and Switchyard
  - Inverter
  - PV Panel Array
  - Access Road
  - Laydown Area
  - Municipal Boundary
- Existing Features
  - Collection Line
  - Fence Line
  - Project Site

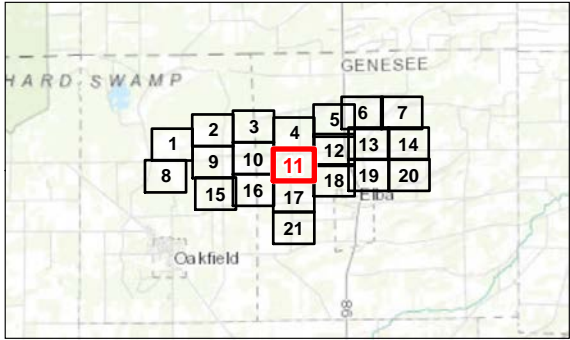
Invasive Species Occurrence and Abundance

- Single Plant
- <10
- 10 - 100
- 100 - 999
- <10
- 10 - 100
- 100 - 999
- >1000

Common Name	Collection ID
Autumn Olive	ELA-UMB
Black Locust	ROB-PSE
Canada Thistle	CIR-ARV
Common Buckthorn	RHA-CAT
Common Reed Grass	PHR-AUS
Cut-lead Teasel	DIP-LAC
Garlic Mustard	ALL-PET
Japanese Honeysuckle	LON-JAP
Japanese Silt Grass	MIC-VIM
Kudzu	PUE-MON
Morrow's Honeysuckle	LON-MOR
Mugwort	ART-VUL
Multiflora	ROS-MUL
Reed Canary Grass	PHA-ARU
Tartarian Honeysuckle	LON-TAT



Notes  
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3. Background: WorldView-3 satellite imagery purchased on June 6, 2020



Project Location  
Town of Elba  
Genesee County, NY

Prepared by EE on 2021-04-29  
TR by AS on 2021-04-30  
IR by AS on 2021-04-30

Client/Project  
Hecate Energy Cider Solar LLC  
Cider Solar Farm

190502038 REV B

Figure No.  
1

Title  
Invasive Species Locations  
Map 11 of 21

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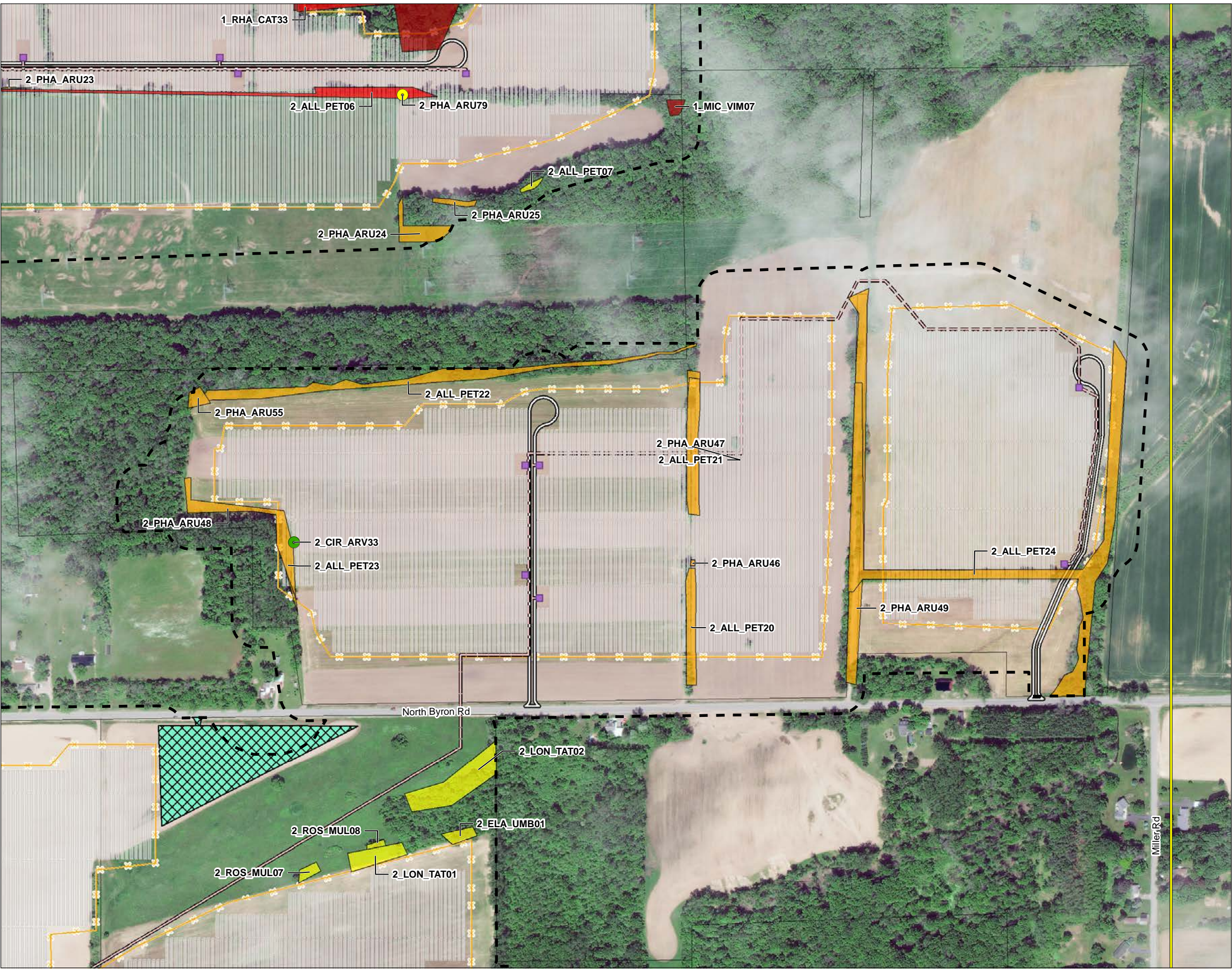








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Legend

Project Area Study Area

Proposed Project

Substation and Switchyard  
Inverter  
PV Panel Array  
Access Road  
Laydown Area  
Collection Line  
Fence Line  
Project Site

Existing Features

Municipal Boundary

Invasive Species Occurrence and Abundance

Single Plant  
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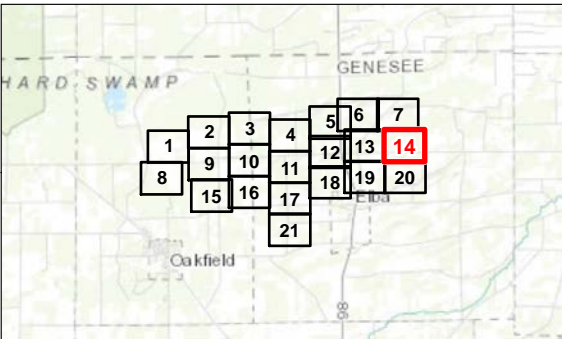
Common Name	Collection ID
Autumn Olive	ELA-UMB
Black Locust	ROB-PSE
Canada Thistle	CIR-ARV
Common Buckthorn	RHA-CAT
Common Reed Grass	PHR-AUS
Cut-lead Teasel	DIP-LAC
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Japanese Honeysuckle	LON-JAP
Japanese Silt Grass	MIC-VIM
Kudzu	PUE-MON
Morrow's Honeysuckle	LON-MOR
Mugwort	ART-VUL
Multiflora	ROS-MUL
Reed Canary Grass	PHA-ARU
Tartarian Honeysuckle	LON-TAT



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Notes

- Coordinate System: NAD 1983 StatePlane New York West FIPS 3103 Feet
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- Background: WorldView-3 satellite imagery purchased on June 6, 2020



Project Location  
Town of Elba  
Genesee County, NY

Prepared by EE on 2021-04-29  
TR by AS on 2021-04-30  
IR by AS on 2021-04-30

Client/Project

Hecate Energy Cider Solar LLC  
Cider Solar Farm

190502038 REV B

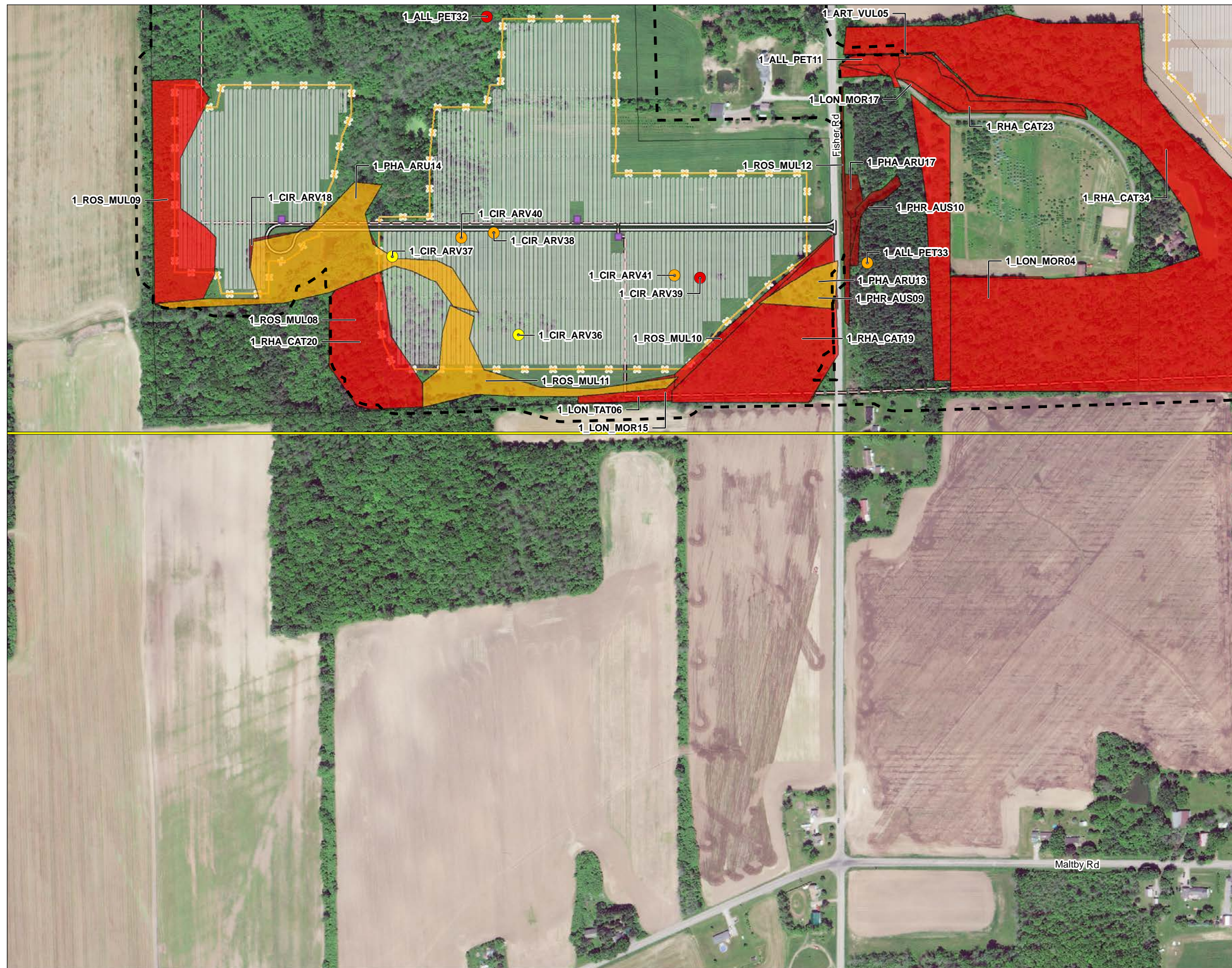
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Invasive Species Locations  
Map 14 of 21

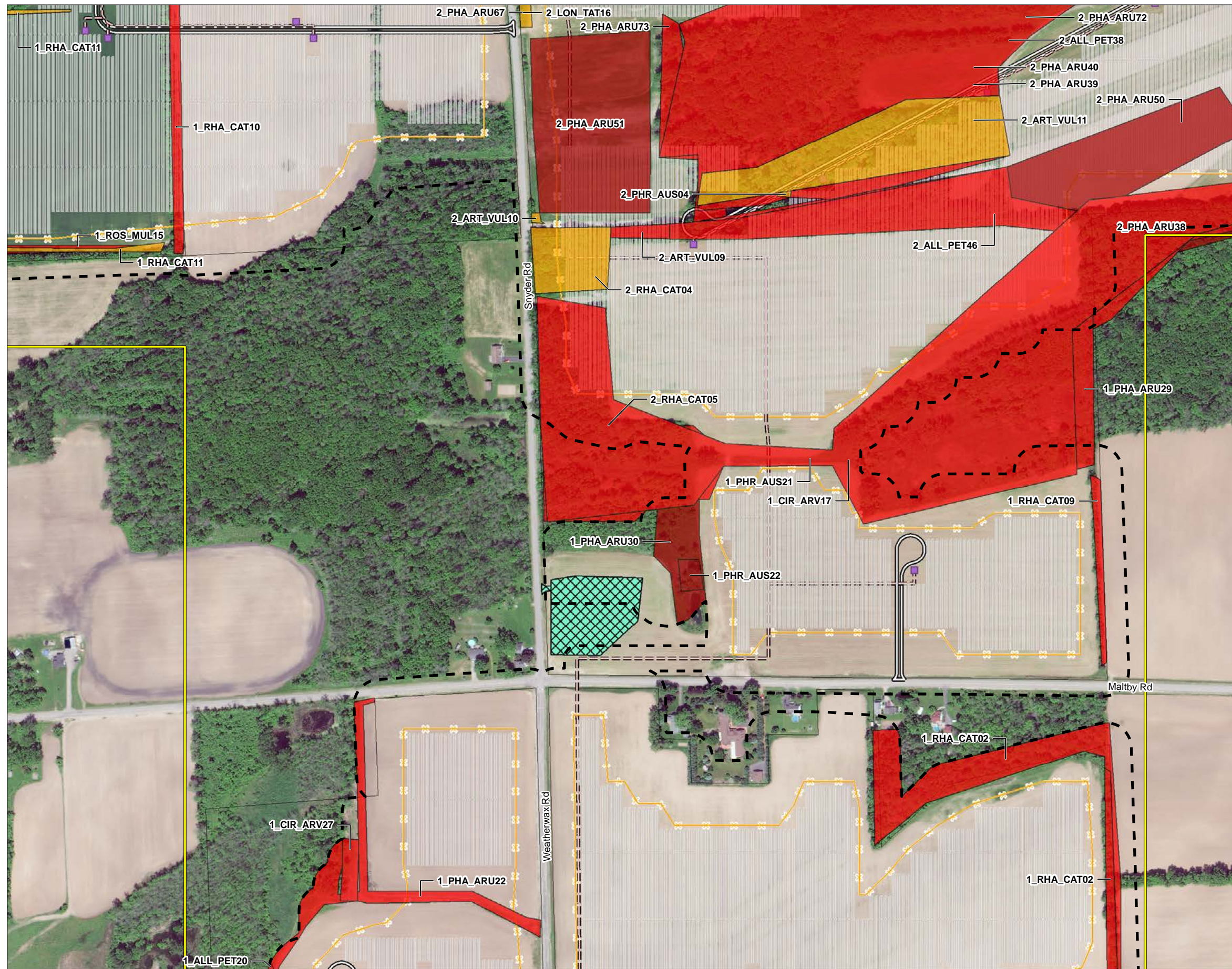






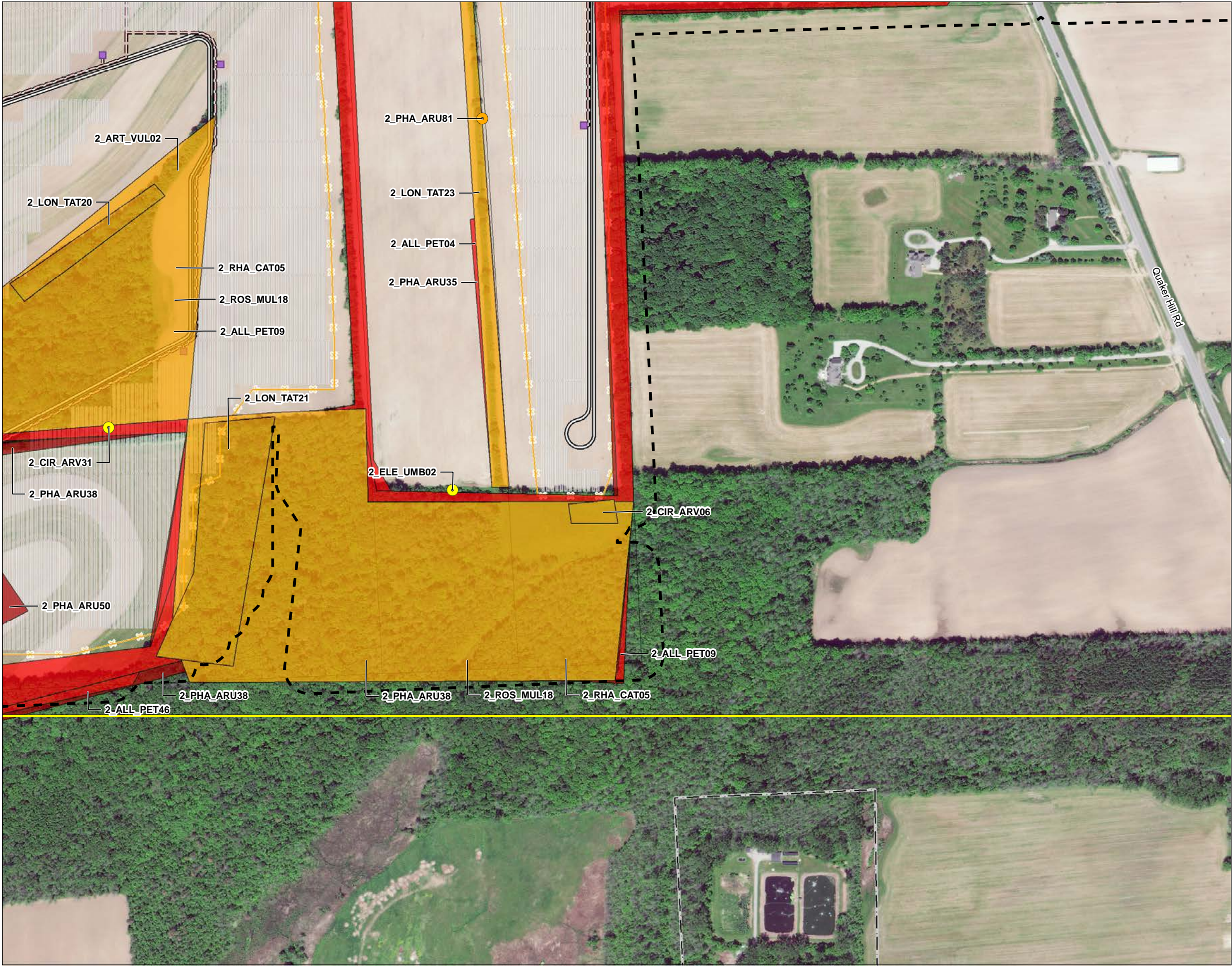








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Legend

Project Area Study Area

Proposed Project

Substation and Switchyard  
Inverter  
PV Panel Array  
Access Road  
Laydown Area  
Collection Line  
Fence Line  
Project Site

Existing Features

Municipal Boundary

Invasive Species Occurrence and Abundance

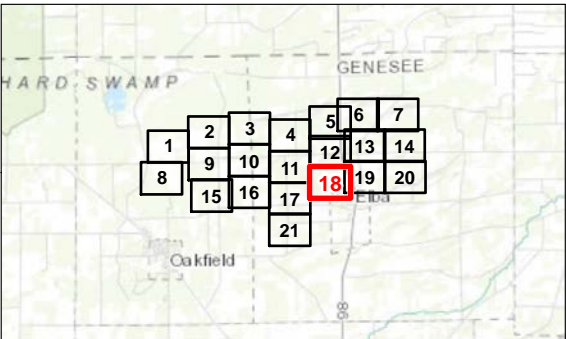
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<10  
10 - 100  
100 - 999  
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Common Name	Collection ID
Autumn Olive	ELA-UMB
Black Locust	ROB-PSE
Canada Thistle	CIR-ARV
Common Buckthorn	RHA-CAT
Common Reed Grass	PHR-AUS
Cut-lead Teasel	DIP-LAC
Garlic Mustard	ALL-PET
Japanese Honeysuckle	LON-JAP
Japanese Silt Grass	MIC-VIM
Kudzu	PUE-MON
Morrow's Honeysuckle	LON-MOR
Mugwort	ART-VUL
Multiflora	ROS-MUL
Reed Canary Grass	PHA-ARU
Tartarian Honeysuckle	LON-TAT



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Notes  
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3. Background: WorldView-3 satellite imagery purchased on June 6, 2020



Project Location  
Town of Elba  
Genesee County, NY

Prepared by EE on 2021-04-29  
TR by AS on 2021-04-30  
IR by AS on 2021-04-30

Client/Project  
Hecate Energy Cider Solar LLC  
Cider Solar Farm

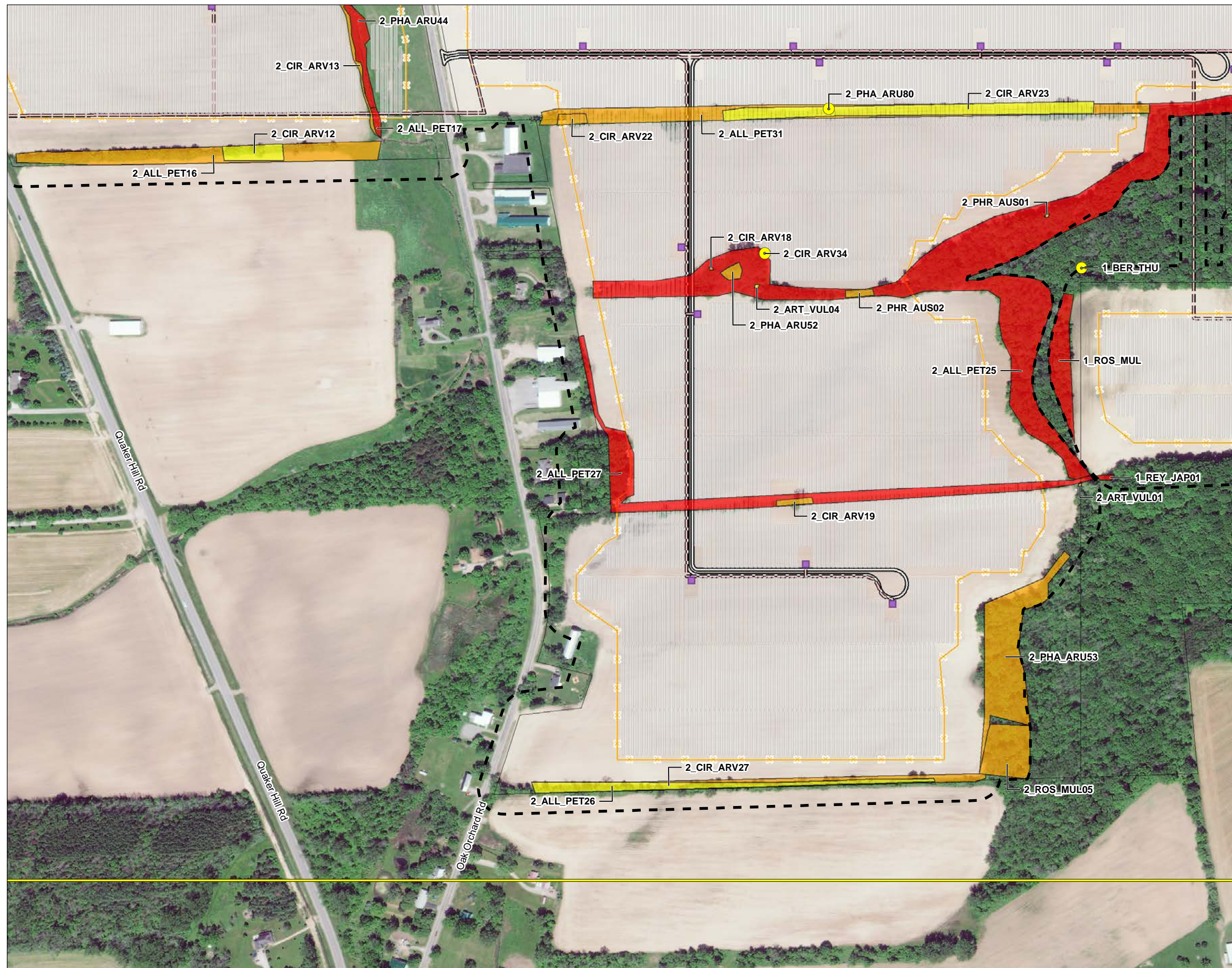
190502038 REV B

Figure No.

1

Title  
Invasive Species Locations  
Map 18 of 21





**Legend**

**Project Area**

**Study Area**

**Proposed Project**

- Substation and Switchyard
- Inverter
- PV Panel Array
- Access Road
- Laydown Area
- Project Site
- Collection Line
- Fence Line

**Existing Features**

- Municipal Boundary

**Invasive Species Occurrence and Abundance**

- Single Plant
- <10
- 10 - 100
- 100 - 999
- <10
- 10 - 100
- 100 - 999
- >1000

Common Name	Collection ID
Autumn Olive	ELA-UMB
Black Locust	ROB-PSE
Canada Thistle	CIR-ARV
Common Buckthorn	RHA-CAT
Common Reed Grass	PHR-AUS
Cut-lead Teasel	DIP-LAC
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Japanese Honeysuckle	LON-JAP
Japanese Silt Grass	MIC-VIM
Kudzu	PUE-MON
Morrow's Honeysuckle	LON-MOR
Mugwort	ART-VUL
Multiflora	ROS-MUL
Reed Canary Grass	PHA-ARU
Tartarian Honeysuckle	LON-TAT

**Notes**

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- Background: WorldView-3 satellite imagery purchased on June 6, 2020

**Project Location**  
Town of Elba  
Genesee County, NY

**Prepared by** EE on 2021-04-21  
TR by AS on 2021-04-30  
IR by AS on 2021-04-30

**Client/Project**  
Hecate Energy Cider Solar LLC  
Cider Solar Farm

190502038 REV B

**Figure No.**  
**1**

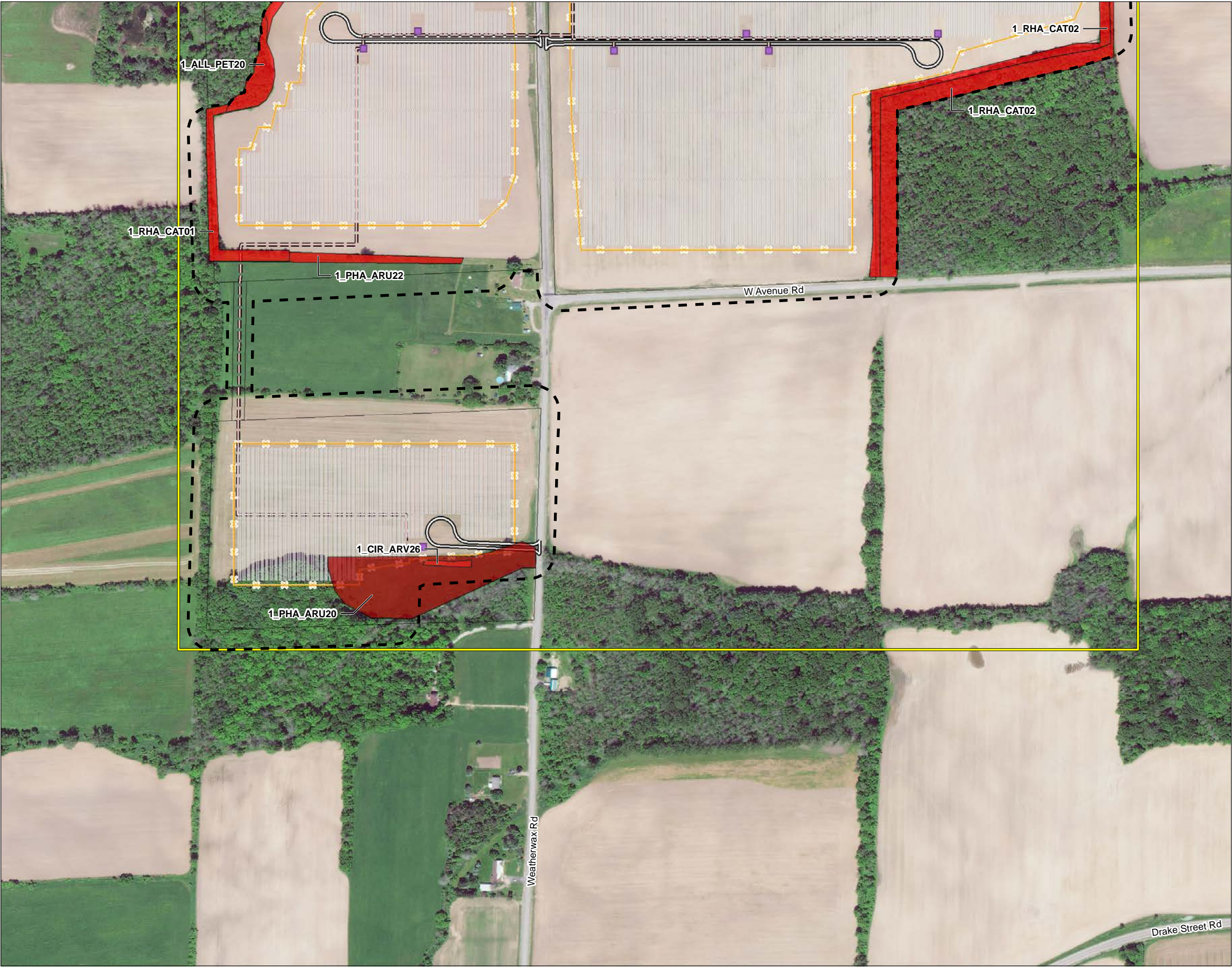
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**Invasive Species Locations**  
**Map 19 of 21**







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Legend

Project Area Study Area

Proposed Project

Substation and Switchyard  
Inverter  
PV Panel Array  
Access Road  
Laydown Area  
Collection Line  
Fence Line  
Project Site

Existing Features

Municipal Boundary

Invasive Species Occurrence and Abundance

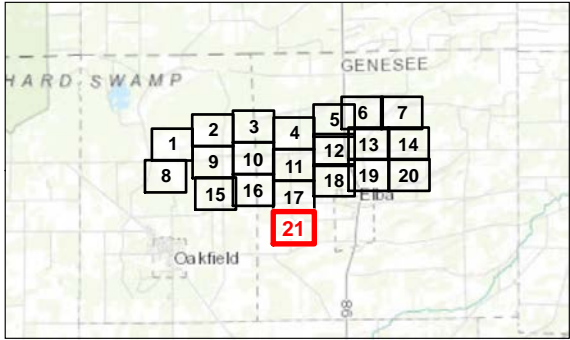
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100 - 999  
>1000

Common Name	Collection ID
Autumn Olive	ELA-UMB
Black Locust	ROB-PSE
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Japanese Silt Grass	MIC-VIM
Kudzu	PUE-MON
Morrow's Honeysuckle	LON-MOR
Mugwort	ART-VUL
Multiflora	ROS-MUL
Reed Canary Grass	PHA-ARU
Tartarian Honeysuckle	LON-TAT



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Notes  
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3. Background: WorldView-3 satellite imagery purchased on June 6, 2020



Project Location  
Town of Elba  
Genesee County, NY  
Prepared by EE on 2021-04-29  
TR by AS on 2021-04-30  
IR by AS on 2021-04-30

Client/Project  
Hecate Energy Cider Solar LLC  
Cider Solar Farm  
190502038 REV B

Figure No.  
1

Title  
Invasive Species Locations  
Map 21 of 21



## **Appendix B INVASIVE SPECIES CONTROL PLAN**







**Cider Solar Farm Invasive Species  
Control Plan**

April 30, 2021

Prepared for:

Hecate Energy Cider Solar LLC  
621 W. Randolph Street  
Chicago, IL 60661

Prepared by:

Stantec Consulting Services Inc  
61 Commercial Street, Suite 100  
Rochester NY, 14614





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# CIDER SOLAR FARM INVASIVE SPECIES CONTROL PLAN

April 30, 2021

## 1.0 INTRODUCTION

Hecate Energy Cider Solar LLC (Hecate), is proposing to construct, operate and maintain an up to 500-megawatt (MW) alternating current (AC) photovoltaic (PV) solar energy generation facility, referred to as the Cider Solar Farm (Project). The Project will interconnect on-site to the New York Power Authority (NYPA) Dysinger – New Rochester 345-kilovolt (kV) transmission line to deliver power to the New York State (NYS) grid. It is anticipated that the Project will be constructed between 2022 and 2023, with a planned Commercial Operation Date of December 31, 2023.

The Project is situated to the north of the Village of Oakfield, Village of Elba, and approximately five miles north of the City of Batavia in Genesee County. The area is roughly bordered by County Route 9 (Albion Road) to the west, and Miller Road, State Route 98, and vacant land to the east. Lockport Road bisects the Project Area from east to west. The Project Area consists of approximately 7,518 acres of land characterized as level to rolling hills with predominantly agricultural land interspersed with forested land, and rural residential development along roadways. Low density rural residential development and farms are located within and adjacent to the Project Area. The northern portion of the Project Area is bisected by the NYPA 345 kilovolt (kV) Dysinger – New Rochester transmission line and the Empire Gas Pipeline, which are located adjacent to each other and run east-west through the Project. The proposed Project substation interconnects to the NYPA transmission line in the center of the Project Area.

Approximately 2,470 acres will be used for the Project in the final Project Footprint (See Appendix A, of the Invasive Species Survey Baseline Report). The Project components will be located on approximately 70 parcels of leased private land owned by 31 private landowners (Project Site). The total Project Footprint includes both temporary and permanent disturbance to resulting from project construction and operation.

The Project will involve the construction, operation and maintenance of various project components including photovoltaic solar panels arrayed primarily in active agricultural fields on tracking structures in addition to buried electrical collection cables, inverters, access drives, security fencing, a substation and temporary laydown areas for equipment staging during construction.

The proposed Project will be located within a mix of undeveloped forested areas, active agriculture land, and rural residential areas. Both vegetation clearing and soil disturbance will be required for construction and include the use of heavy equipment. Where Project components will be sited in forested communities, the area would convert to communities dominated by shrubs and herbaceous vegetation. Additionally, soil disturbance will occur throughout the existing natural and managed communities for Project construction. Because of this disturbance, these areas could be subject to colonization by new or expanded areas of non-native invasive species (NNIS). In addition, equipment used to construct the Project and materials imported to the site for construction have the potential to introduce or spread NNIS if not properly managed.

NNIS are defined in 6 New York Codes, Rules and Regulations (NYCRR) Part 575 as “a species that is nonnative to the ecosystem under consideration, and whose introduction causes or is likely to cause economic or environmental harm or harm to human health”. Non-native invasive species have the





# CIDER SOLAR FARM INVASIVE SPECIES CONTROL PLAN

April 30, 2021

potential to negatively affect aquatic environments. To minimize potential impact from invasive species, the New York State Department of Conservation (NYSDEC) regulates the possession, transport, importation, sale, purchase, and introduction of select invasive species (6 NYCRR 575). The NYSDEC maintains a list of regulated terrestrial and aquatic species online (NYSDEC 2014).

This Invasive Species Control Plan (ISCP) is prepared in accordance with Section 94-c of the NYS Executive Law and the Stipulations for Exhibit 13. This ISCP outlines the control and management of NNIS and describes the best management practices (BMPs) used to treat NNIS that would be introduced or spread as a result of the construction, operation, or maintenance of the Project.

## 2.0 CONTROL PLAN GOALS AND OBJECTIVES

In accordance with 16 NYCRR §1001.22(p), and the Stipulations for Exhibit 13, the ISCP includes:

- (i) Baseline mapping of all invasive species within the PIA and for one hundred (100) feet beyond the Project's limit of disturbance (LOD). The baseline mapping and data shall include the relative abundance and distribution of each invasive species prior to the commencement of any construction activities;
- (ii) Identification of specific control, removal, and disposal measures to be implemented for each identified and mapped invasive species/plant community during construction activities. The ISCMP shall include a detailed sequence and schedule for all mechanical and chemical control measures to be implemented during construction activities;
- (iii) A detailed monitoring plan and specific sampling protocols for each identified and mapped invasive species/plant community within the Project area and for one hundred (100) feet beyond the LOD;
- (iv) Identification of specific control contingency measures to be implemented as part of the ISCMP for each identified and mapped invasive species for the duration of the Project adaptive management and monitoring period (i.e., 5 years, unless extended). The ISCMP shall include a detailed sequence and schedule for all contingency mechanical and chemical control measures to be implemented during the monitoring period;
- (v) Specific contingency measures to be implemented (i.e., regrading, re-planting of native species etc.) to achieve the final site restoration criteria (i.e., eighty (80) percent survivorship of appropriate native species reestablishment over all portions of the replanted areas, unless the baseline survey indicates a smaller percentage of appropriate species exists prior to construction);
- (vi) Details regarding the responsible party or parties designated to implement the ISCMP and what financial assurances exist to ensure successful monitoring and ISCMP implementation; and

## 3.0 EXISTING CONDITIONS

Stantec conducted an Invasive Species Survey in 2020 and 2021, throughout the project study area, the results of which are provided in the Invasive Species Survey Baseline Report (Stantec 2021). The study





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area includes 100 feet from the edge of disturbance of Project components described in Section 1.0, above (Study Area). Seventeen invasive species in 510 different locations were documented within the Study Area. Reed canary grass (*Phalaris arundinacea*) was the most commonly observed species accounting for 25% (N = 127) of all observed occurrences, and was documented throughout the Study Area. Garlic mustard (*Alliaria petiolata*) and Canada thistle (*Cirsium arvense*) were the second most common invasive plant species, both with 16% (N = 81, N = 82, respectively) of all observed occurrences. Common buckthorn (*Rhamnus cathartica*) and honeysuckle species were prevalent along hedgerows and along edges of fields throughout the Study Area. Common reed (*Phragmites australis*) was common within mapped wetlands and ditches. Existing NNIS occurrence details and location figures are provided in the Invasive Species Survey Baseline Report submitted as part of Exhibit 13 of the Application prepared pursuant to Section 94-c of the Public Service Law.

Prior to the start of construction, the results of the Invasive Species Baseline Report will be field verified. The verification of the baseline survey will be conducted simultaneous to other pre-construction survey efforts (e.g. preconstruction walk over, wetland/stream flagging, etc.). Qualified biologists will verify the 2020 baseline survey results through meander survey methods and denote substantial changes in the existing conditions. If substantially modified conditions are observed, Stantec will conduct additional survey with the same protocol as the baseline report. For invasive species occurrences consisting of a single plant or a small area, a Global Positioning System (GPS) point will be taken near the center of a population or at an individual plant, and the size of the affected area and abundance of plants will be estimated. For larger invasive species occurrences, a GPS polygon will be collected around the occurrence area and the abundance of plants will be estimated. For each GPS point collected, population information and cover will be visually estimated and recorded utilizing ArcGis® Collector applications. Occurrence information collected during supplemental surveys will include categories for population abundance, population distribution, percent cover, and reproduction. Photographs will be taken to document changes to pre-construction conditions of invasive species occurrences. Supplemental GPS data will be used to produce a map showing the location of documented occurrences, as applicable. Supplemental baseline invasive species surveys also will include documenting previously undocumented algal blooms that may be associated with prohibited or regulated algae and cyanobacteria, and characteristic damage to host plants that may be attributable to prohibited fungi or prohibited terrestrial invertebrates. Specific supplemental surveys for prohibited or regulated fish, aquatic invertebrates, and terrestrial and aquatic vertebrates will not be conducted. However, incidental observations of these species will be documented.

## 4.0 INVASIVE SPECIES CONTROL PLAN

The Applicant is committed to monitoring and assessing the introduction or spread of NNIS within the Project site as a result of construction, and to identify areas where invasive species control measures will be required to control NNIS. BMPs will apply throughout the Project site in areas of construction disturbance associated with Project components. The monitoring program will assess known occurrences of invasive species identified in Section 3.0 above to determine if they are expanding due to Project





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construction disturbances, document any new occurrences of invasive species listed by NYSDEC within the area disturbed by Project construction, and will provide recommendations that will be used to select and implement appropriate control options for these invasive species locations.

### 4.1 CONTROL METHODS DURING CONSTRUCTION

The following methods will be used to prevent the spread and introduction of invasive species during construction:

1. Worker education: Contractor training sessions conducted by a qualified individual will be conducted to help workers understand methods that they can employ to reduce the spread and introduction of invasive species such as properly cleaning tools and equipment.

2. Construction material inspections: Imported construction material such as seed mixes, mulch, topsoil, sand, gravel, crushed stone, and rock brought to the Project site must be visibly free of non-native invasive species material, seeds, and parts based upon a source inspection or other methods. If construction material, is not free of these species, they will only be used within areas already containing those specific non-native plant or invertebrate species. Temporarily stockpiled soil and/or spoil materials will be spread and graded to match original contours at the earliest practicable time following construction activities. Soil and/or spoils excavated from areas free of invasive species will be stockpiled in areas with no invasive species. To the maximum extent practicable, excavated soil will be reused in the same area from which it was excavated to minimize potential spread and introduction of invasive species. Erosion and sediment control measures detailed in the Cider Solar Project stormwater pollution prevention plan also will help minimize the spread of invasive species related to construction activities.

3. Movement of wood from site: To control the potential spread of specific insect pests and disease, movement of trees cut on site that might harbor these pests and disease will be restricted to transport of no more than 50 miles from the Project site. These efforts will be directed at controlling the spread of emerald ash borer (*Agrilus planipennis*), pine shoot beetle (*Tomicus piniperda*), Asian long-horned beetle (*Anoplophora glabripennis*), and oak wilt. According to the NYSDEC, there are known occurrences of emerald ash borer Genesee county, and there was a prevalence of dead ash trees (*Fraxinus* spp.) throughout the Survey Area for the Cider Solar Farm (NYSDEC 2017). Clearings that include ash trees would be treated according to NYSDEC and New York State Department of Agriculture and Markets regulations.

All of New York state is within the quarantine area for the pine shoot beetle and movement of regulated articles (i.e., Christmas trees, pine nursery stock, and pine, logs, stumps and lumber with bark attached) from these quarantine areas into or through unquarantined areas is prohibited by the US Department of Agriculture (USDA). As such no regulated article as they related to the pine shoot beetle would be transported beyond the USDA quarantine limits. No damage attributable to the pine shoot beetle were observed during baseline surveys conducted at the Cider Solar Farm.





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In New York state, the Asian long-horned beetle has only been detected in the boroughs of New York City, Islip, and central Long Island and documented infestations in Manhattan, eastern Queens, Staten Island, and Islip have been eradicated. If the status of the Asian long-horned beetle within Genesee county were to change, New York State firewood regulations, which limit the movement of untreated firewood to no more than 50 miles, would be followed.

Oak wilt, which is caused by a fungus (*Ceratocystis fagacearum*), has been documented on Long Island and in Canandaigua in Ontario County and Glenville in Schenectady County, New York. Currently, oak wilt protective zones and quarantine districts have been established in the towns of Canandaigua and Glenville, the borough of Brooklyn, and all of Suffolk County. Within these quarantine districts oak logs or branches, and wood pieces less than 29 inches long, regardless of the species, are prohibited from leaving the quarantine districts. If the status of the oak wilt within Genesee county were to change, these restrictions would be followed for wood cut during construction of the Project.

4. Target species treatment and removal: For areas containing target invasive species appropriate treatment and removal methods may be conducted prior to soil disturbance. Treatment and removal methods will be determined through consultation with the Project Environmental Monitor(s). Based upon the density and area of the invasive species occurrence, recommended control methods may include, but not be limited to: herbicide treatment; mechanical removal with proper offsite disposal; or keeping the invasive species and associated soil within the area of occurrence. Herbicide treatments would be applied by a Certified Commercial Pesticide Applicator, Commercial Pesticide Technician, or a Private Pesticide Applicator (i.e., individuals that meet the requirements set forth in 6 NYCRR Part 325, Application of Pesticides), in accordance with NYSDEC approved herbicide and treatment measures.

5. Construction equipment and personnel sanitation: Construction equipment will be clean upon arrival the site. Construction vehicles/equipment and construction mats used in infested areas will be cleaned prior to moving out of the infested area. To prevent the potential introduction or spread of invasive aquatic plants or aquatic invertebrates, water for washing equipment and for other construction needs will not be withdrawn from a surface waterbody known to contain these invasive species. Prior to exiting an infested area, all personnel clothing, footwear, and tools should be free of visible signs of plant material.

6. Restoration: Areas where soil is temporarily disturbed during construction will be stabilized and restored as soon as practicable. To minimize the chance of invasive species spreading or increasing in abundance, disturbed soils within and adjacent to these areas will be stabilized with a native seed mix and weed-free mulch as soon as possible.

## 4.2 POST CONSTRUCTION MONITORING AND CONTROL

Following construction, the Applicant will retain qualified, independent contractor to implement invasive species monitoring, which will consist of field surveys of the Project site to determine whether existing invasive species populations have expanded, new invasive species populations are present, and to provide recommendations concerning control options. For each invasive species location, researchers will complete invasive species monitoring forms, take photographs of the species and the surrounding





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landscape, and record the location of the invasive species using a GPS receiver. Conditions that would influence the recommended invasive species control method will also be noted (e.g., wetlands, streams, private residences.). Populations of invasive species identified immediately adjacent to the Project site also will be noted, although control strategies for these populations will not be developed. Field surveys will be conducted during the growing season when plant species are most easily identifiable. The monitoring effort will be scheduled to allow time for invasive species treatments to be implemented in the same growing season.

Invasive species monitoring within the Project site will be conducted in the first full growing season following the completion of Project construction and for 4 subsequent years. Based upon monitoring results and consultation with NYSDEC, changes to the duration of monitoring may occur. For example, if densities of invasive species are found to be low at some point before the end of the first 5 years of monitoring, monitoring frequency may be reduced. Construction of the Project is expected to occur in 2022. See Table 2 below for the expected monitoring schedule. The goal of the monitoring effort will be to identify new or expanded locations where invasive species are present so that control measures can be implemented as soon as practicable, particularly in any areas where invasive species colonization appears to be the direct result of Project construction. The monitoring also will allow the effectiveness of control measures to be evaluated. During monitoring and treatments, appropriate changes such as modification of treatment methods will be integrated into the Applicant's existing ISCP. For example, monitoring and control schedules may be adjusted to respond to site-specific issues (e.g., monitoring less frequently as densities decrease, instituting treatment in consecutive years to control an aggressive population). Over time, the ISCP is expected to become a standard component of the Applicant's vegetation management program.

The Applicant is committed to monitoring and assessing the introduction or spread of NNIS within the Project site as a result of construction, and to identify areas where invasive species control measures will be required to control NNIS. BMPs will apply throughout the Project site in areas of construction disturbance associated with Project components. This monitoring program will target known occurrences of invasive species identified in Section 3.0 above, along with new occurrences of the invasive species listed by NYSDEC and will provide recommendations that will be used to select and implement appropriate control options for each invasive species location.

**Table 1. Anticipated Invasive Species Monitoring Schedule**

<b>Year</b>	<b>Date of Monitoring</b>	<b>Monitoring Report Submitted</b>
1	Summer 2022	January 2023
2	Summer 2023	January 2024
3	Summer 2024	January 2025
4	Summer 2025	January 2026
5	Summer 2026	January 2027

### 4.3 MONITORING REPORT

The results of each year of invasive species monitoring will be detailed in a report that will include a summary of the field survey methods and results, a table that identifies the invasive species occurrences,





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a map showing the GPS location of each invasive species occurrences, copies of the monitoring forms, and representative photographs. Comparisons will be made as to whether invasive species are becoming more or less prevalent, based on a review of the pre-construction data and on the results of the previous year's monitoring results. The monitoring report will include recommendations regarding where invasive species control measures are required, the suggested type of control strategy, and the schedule for the implementation of control measures.

During the monitoring, reports will be submitted annually. The monitoring report will be provided to the Corps and the NYSDEC by January 31 of the year following the year in which the monitoring was conducted (e.g., for monitoring conducted in the summer of 2022, the monitoring report will be submitted by January 31, 2023).

Implementation of invasive species control measures will be based on the results of the monitoring and will not require pre-approval from regulatory agencies. The application of control measures will be performed pursuant to any standard permit and safety requirements governing such activities.

## **5.0 INVASIVE SPECIES CONTROL STRATEGIES**

### **5.1 TYPES OF CONTROL**

In general, there are three types of invasive species control methods: mechanical, chemical, and biological. These control methods may be combined to provide a more effective control strategy. Mechanical control measures such as digging, pulling, and cutting may be effective in controlling isolated invasive plants or small stands of plants. These methods are often necessary in sensitive natural resource areas such as wetlands, streams, and wildlife habitat buffers, where chemical control is not permitted or ecologically appropriate. However, such techniques may be labor-intensive and may be impractical in areas with dense infestations of invasive species.

Chemical control (i.e., herbicides) is the most common alternative used for controlling invasive species along ROWs. If used selectively and in limited areas (i.e., not in wetlands with standing water or in or adjacent to streams), herbicides can be successfully applied in an environmentally-sound manner. In addition, herbicide applications often provide the most cost-effective method for controlling dense infestations of invasive species.

Biological controls can be effective in controlling purple loosestrife under certain conditions, but biological controls are not yet proven for the control of other species that could be present. At this time, the use of biological controls is unlikely to be recommended.

### **5.2 SCHEDULE FOR IMPLEMENTATION OF INVASIVE SPECIES CONTROL**

The Applicant will institute the control measures described herein during all construction activities where the identified invasive species are present. Following construction, the Applicant recognizes that early





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treatment measures can prevent the spread of invasive species, particularly in areas where such species were not present prior to construction. As a result, the Applicant will implement an aggressive invasive species control approach in the first 5 years immediately following the completion of construction. Treatment efforts will be focused on preserving and enhancing the functions and values of wetlands.

Based on the results of the monitoring program conducted after construction, the Applicant will schedule invasive species treatment measures annually, as soon as practicable after the field monitoring recommendations are received. The schedule for the treatment will depend on the types of controls recommended and the species identified. For example, mechanical removal of certain species can be performed almost any time of the year when plant species are identifiable, while herbicide applications and biological controls may require that work be done during the growing season to be most effective. Within the five-year post-construction period and depending on monitoring results, the Applicant may contract a field biologist or wetland scientist to work with its vegetation management contractor to oversee the implementation of invasive species control measures, to recommend methods for maximizing the potential re-establishment of native vegetation, and to suggest wetland plantings to enhance habitat values. For locations where invasive species controls are implemented, monitoring performed in subsequent years will serve to assess the effectiveness of such measures.

### 5.3 CONTROL STRATEGIES

Although specific treatments will be refined based on the results of the monitoring program, it is anticipated that the most effective general approach for controlling invasive species will likely be a combination of mechanical removal and application of herbicides in selected locations during the growing season. Repeated spot herbicide applications may be required in subsequent growing seasons to achieve effective control. Goals of control strategies will reflect the knowledge that invasive plant populations naturally to spread over time, with or without disturbance.

The need for and types of chemical control of invasive species will be carefully evaluated, particularly in sensitive areas such as wetlands, streams, and vernal pools, and where landowner agreements may limit use of herbicides. Additionally, invasive species may be present in wetland and upland areas that are outside of the Project site. The Applicant has no authority to attempt to control invasive species that may be present in adjacent areas outside of the Project.

Herbicide applications will be performed according to applicable laws and regulations put forth by the NYSDEC (6 NYCRR Part 325), and the US Environmental Protection Agency. The type of herbicide(s) to be used, method of application, and schedule for application will be determined based on the locations of the targeted areas and the particular invasive species to be controlled. Any species used for biological control will be obtained from approved sources and released pursuant to specifications.





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### 6.0 REFERENCES

New York State Department of Environmental Conservation (NYSDEC). 2014. New York State Prohibited And Regulated Invasive Plants. September 10, 2014.  
<[http://www.dec.ny.gov/docs/lands\\_forests\\_pdf/isprohibitedplants2.pdf](http://www.dec.ny.gov/docs/lands_forests_pdf/isprohibitedplants2.pdf)>.

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US Environmental Protection Agency. 2002. Methods for Evaluating Wetland Condition: Using Algae to Assess Environmental Conditions in Wetlands. Office of Water, US Environmental Protection Agency, Washington, DC. EPA-822-R-02-021.

Stantec Consulting Services (Stantec). 2021. Invasive Species Baseline Survey Report. Prepared April 2021.





## **Appendix C NYSDEC PROHIBITED AND REGULATED INVASIVE PLANTS**





# New York State Prohibited and Regulated Invasive Plants

September 10, 2014



NYS DEPARTMENT OF  
ENVIRONMENTAL CONSERVATION



NYS DEPARTMENT OF  
AGRICULTURE AND MARKETS



**New York State Department of Environmental Conservation**  
**NYCRR Part 575 Invasive Species Regulations**  
**Questions and Answers**

**<http://www.dec.ny.gov/regulations/2359.html>**

**What are invasive species?**

Invasive species means a species that is nonnative to a particular ecosystem, and whose introduction causes or is likely to cause economic or environmental harm or harm to human health.

**Why are invasive species a problem?**

Invasive species can harm natural communities and systems (plants and animals found in particular physical environments) by out-competing native species, reducing biological diversity, altering community structure and, in some cases, changing ecosystems. Invasive species threaten New York's food supply, not only agriculture but also harvested wildlife, fish and shellfish; our landscaping, parks, gardens, and pets; and our recreation resources and even animal and human health. All New Yorkers have a stake in the invasive species issue.

**How will these regulations help?**

These regulations are to help control invasive species by reducing the introduction and spread of them by limiting commerce in such species. By preventing introduction of new invasive species, New York will save time, effort, and money in the future.

**How were the lists included in the regulations developed?**

The lists of prohibited and regulated species were developed using the species assessment and listing process outlined in the 2010 report "A Regulatory System for Non-native Species," which can be found at <http://www.dec.ny.gov/animals/63402.html>.

**When will the regulations be implemented?**

The final regulations (or a summary) were published in the State Register September 10, 2014, they become effective 6 months thereafter.

**What is the difference between prohibited and regulated invasive species?**

Prohibited invasive species cannot be knowingly possessed with the intent to sell, import, purchase, transport or introduce. In addition, no person shall sell, import, purchase, transport, introduce or propagate prohibited invasive species. Regulated invasive species, on the other hand, are species which cannot be knowingly introduced into a free-living state, or introduced by a means that one should have known would lead to such an introduction, although such species shall be legal to possess, sell, buy, propagate and transport.

**What species have grace periods established in the regulations?**

A one-year grace period is included in the regulations for Japanese Barberry (*Berberis thunbergii*), during which existing stock of this species may be sold.

**Who will enforce the regulations?**

The regulations will be enforced by the Department of Environmental Conservation, with assistance from the Department of Agriculture and Markets.



# TERRESTRIAL PLANTS

PROHIBITED



**Amur Cork Tree** *Phellodendron amurense*

PROHIBITED



**Amur Honeysuckle** *Lonicera maackii*

PROHIBITED



**Autumn Olive** *Elaeagnus umbellata*

PROHIBITED



**Beach Vitex** *Vitex rotundifolia*

PROHIBITED



**Black Swallow-wort** *Cynanchum louiseae*  
(*C. nigrum*, *Vincetoxicum nigrum*)

PROHIBITED



**Bohemian Knotweed** *Reynoutria x bohemica*  
(*Fallopia x bohemica*, *Polygonum x bohemica*)

PROHIBITED



**Border Privet** *Ligustrum obtusifolium*

PROHIBITED



**Broad-leaved Pepper-grass**  
*Lepidium latifolium*

PROHIBITED



**Canada Thistle** *Cirsium arvense*  
(*C. setosum*, *C. incanum*, *Serratula arvensis*)



# TERRESTRIAL PLANTS

PROHIBITED



**Chinese Lespedeza** *Lespedeza cuneata*

PROHIBITED



**Chinese Yam** *Dioscorea polystachya (D. batatas)*

PROHIBITED



**Cogon Grass** *Imperata cylindrica*  
(*I. arundinacea*, *Lagurus cylindricus*)

PROHIBITED



**Common Buckthorn** *Rhamnus cathartica*

PROHIBITED



**Cup-plant** *Silphium perfoliatum*

PROHIBITED



**Cut-leaf Teasel** *Dipsacus laciniatus*

PROHIBITED



**Cypress Spurge** *Euphorbia cyparissias*

PROHIBITED



**Fly Honeysuckle** *Lonicera x bella*

PROHIBITED



**Garden Loosestrife** *Lysimachia vulgaris*



# TERRESTRIAL PLANTS

PROHIBITED



**Garlic Mustard** *Alliaria petiolata*

PROHIBITED



**Giant Hogweed** *Heracleum mantegazzianum*

PROHIBITED



**Giant Knotweed** *Reynoutria sachalinensis*  
(*Fallopia sachalinensis*, *Polygonum sachalinensis*)

PROHIBITED



**Golden Bamboo** *Phyllostachys aurea*

PROHIBITED



**Gray Florist's Willow** *Salix atrocinerea*

PROHIBITED



**Japanese Angelica Tree** *Aralia elata*

PROHIBITED



**Japanese Barberry** *Berberis thunbergii*

PROHIBITED



**Japanese Chaff Flower** *Achyranthes japonica*

PROHIBITED



**Japanese Honeysuckle** *Lonicera japonica*



# TERRESTRIAL PLANTS

PROHIBITED



**Japanese Hops** *Humulus japonicus*

PROHIBITED



**Japanese Knotweed** *Reynoutria japonica*  
(*Fallopia japonica*, *Polygonum cuspidatum*)

PROHIBITED



**Japanese Stilt Grass** *Microstegium vimineum*

PROHIBITED



**Kudzu** *Pueraria montana*

PROHIBITED



**Leafy Spurge** *Euphorbia esula*

PROHIBITED



**Lesser Celandine** *Ficaria verna*  
(*Ranunculus ficaria*)

PROHIBITED



**Mile-a-minute Weed** *Persicaria perfoliata*  
(*Polygonum perfoliatum*)

PROHIBITED



**Morrow's Honeysuckle** *Lonicera morrowii*

PROHIBITED



**Mugwort** *Artemisia vulgaris*



# TERRESTRIAL PLANTS

PROHIBITED



**Multiflora Rose** *Rosa multiflora*

PROHIBITED



**Narrowleaf Bittercress** *Cardamine impatiens*

PROHIBITED



**Oriental Bittersweet** *Celastrus orbiculatus*

PROHIBITED



**Pale Swallow-wort** *Cynanchum rossicum*  
(*C. medium*, *Vincetoxicum medium*, *V. rossicum*)

PROHIBITED



**Porcelain Berry** *Ampelopsis brevipedunculata*

PROHIBITED



**Slender False Brome**  
*Brachypodium sylvaticum*

PROHIBITED



**Small Carpetgrass** *Arthraxon hispidus*

PROHIBITED



**Spotted Knapweed** *Centaurea stoebe*  
(*C. biebersteinii*, *C. diffusa*, *C. maculosa* misapplied,  
*C. xpsammogena*)

PROHIBITED



**Sycamore Maple** *Acer pseudoplatanus*



## TERRESTRIAL PLANTS

PROHIBITED



**Tartarian Honeysuckle** *Lonicera tatarica*

PROHIBITED



**Wavyleaf Basketgrass** *Oplismenus hirtellus*

PROHIBITED



**Wild Chervil** *Anthriscus sylvestris*

PROHIBITED



**Wineberry** *Rubus phoenicolasius*

PROHIBITED



**Yellow Groove Bamboo**  
*Phyllostachys aureosulcata*



## TERRESTRIAL PLANTS

REGULATED



**Black Locust** *Robinia pseudoacacia*

REGULATED



**Burning Bush** *Euonymus alatus*

REGULATED



**Chinese Silver Grass** *Miscanthus sinensis*

REGULATED



**Japanese Virgin's Bower**  
*Clematis terniflora*

REGULATED



**Norway Maple** *Acer platanoides*

REGULATED



**Winter Creeper** *Euonymus fortunei*



# WETLAND PLANTS

PROHIBITED



**Common Reed Grass** *Phragmites australis*

PROHIBITED



**Marsh Dewflower** *Murdannia keisak*

PROHIBITED



**Purple Loosestrife** *Lythrum salicaria*

PROHIBITED



**Reed Manna Grass** *Glyceria maxima*

PROHIBITED



**Smooth Buckthorn** *Frangula alnus*  
(*Rhamnus frangula*)

PROHIBITED



**Yellow Iris** *Iris pseudacorus*



# AQUATIC PLANTS

PROHIBITED



**Brazilian Waterweed** *Egeria densa*

PROHIBITED



**Broadleaf Water-milfoil Hybrid**  
*Myriophyllum heterophyllum* x *M. laxum*

PROHIBITED



**Curly Pondweed** *Potamogeton crispus*

PROHIBITED



**Eurasian Water-milfoil**  
*Myriophyllum spicatum*

PROHIBITED



**Fanwort** *Cabomba caroliniana*

PROHIBITED



**Floating Primrose Willow**  
*Ludwigia peploides*

PROHIBITED



**Frogbit** *Hydrocharis morsus-ranae*

PROHIBITED



**Hydrilla/Water Thyme** *Hydrilla verticillata*

PROHIBITED



**Parrot-feather** *Myriophyllum aquaticum*



# AQUATIC PLANTS

PROHIBITED



**Uruguayan Primrose Willow**  
*Ludwigia hexapetala* (*L. grandiflora*)

PROHIBITED



**Water Chestnut** *Trapa natans*

PROHIBITED



**Yellow Floating Heart** *Nymphoides peltata*

## Photo Credits

**TERRESTRIAL PLANTS, PROHIBITED:** **Amur Cork Tree:** large photo and inset - Patrick Breen, Oregon State University, Bugwood.org; **Amur Honeysuckle:** large photo - John M. Randall, The Nature Conservancy, Bugwood.org, inset - Chuck Barger, University of Georgia, Bugwood.org; **Autumn Olive:** James R. Allison, Georgia Department of Natural Resources, Bugwood.org; **Beach Vitex:** Forest and Kim Starr, Starr Environmental, Bugwood.org; **Black Swallow-wort:** Leslie J. Mehrhoff, University of Connecticut, Bugwood.org; **Bohemian Knotweed:** Robert Vidéki, Doronicum Kft., Bugwood.org; **Border Privet:** Leslie J. Mehrhoff, University of Connecticut, Bugwood.org; **Broad-leaved Pepper-grass:** Steve Dewey, Utah State University, Bugwood.org; **Canada Thistle:** Steve Dewey, Utah State University, Bugwood.org; **Chinese Lespedeza:** James H. Miller, USDA Forest Service, Bugwood.org; **Chinese Yam:** Chris Evans, Illinois Wildlife Action Plan, Bugwood.org; **Cogon Grass:** Nancy Loewenstein, Auburn University, Bugwood.org; **Common Buckthorn:** large photo - Chris Evans, Illinois Wildlife Action Plan, Bugwood.org, inset - Paul Wray, Iowa State University, Bugwood.org; **Cup-plant:** Leslie J. Mehrhoff, University of Connecticut, Bugwood.org; **Cut-leaf Teasel:** Chris Evans, Illinois Wildlife Action Plan, Bugwood.org; **Cypress Spurge:** Todd Pfeiffer, Klamath County Weed Control, Bugwood.org; **Fly Honeysuckle:** Leslie J. Mehrhoff, University of Connecticut, Bugwood.org; **Garden Loosetrife:** Leslie J. Mehrhoff, University of Connecticut, Bugwood.org; **Garlic Mustard:** Chris Evans, Illinois Wildlife Action Plan, Bugwood.org; **Giant Hogweed:** large photo - Thomas B. Denholm, New Jersey Department of Agriculture, www.forestryimages.org, top inset - Terry English, USDA APHIS PPQ, www.forestryimages.org, bottom inset - Randy Westbrook, U.S. Geological Survey, www.forestryimages.org; **Giant Knotweed:** Jan Samanek, State Phytosanitary Administration, Bugwood.org; **Golden Bamboo:** James R. Allison, Georgia Department of Natural Resources, Bugwood.org; **Gray Florist's Willow:** Leslie J. Mehrhoff, University of Connecticut, Bugwood.org; **Japanese Angelica Tree:** large photo - T. Davis Sydnor, The Ohio State University, Bugwood.org, inset - John M. Randall, The Nature Conservancy, Bugwood.org; **Japanese Barberry:** large photo and inset - John Ruter, University of Georgia, Bugwood.org; **Japanese Chaff Flower:** Chris Evans, Illinois Wildlife Action Plan, Bugwood.org; **Japanese Honeysuckle:** large photo and inset - Chuck Barger, University of Georgia, Bugwood.org; **Japanese Hops:** Leslie J. Mehrhoff, University of Connecticut, Bugwood.org; **Japanese Knotweed:** Tom Heutte, USDA Forest Service, Bugwood.org; **Japanese Stilt Grass:** Chuck Barger, University of Georgia, Bugwood.org; **Kudzu:** large photo - James H. Miller, USDA Forest Service, Bugwood.org, top inset - Forest and Kim Starr, Starr Environmental, Bugwood.org, bottom inset - James H. Miller, USDA Forest Service, Bugwood.org; **Leafy Spurge:** Norman E. Rees, USDA Agricultural Research Service - Retired, Bugwood.org; **Lesser Celandine:** Leslie J. Mehrhoff, University of Connecticut, Bugwood.org; **Minute Weed:** Leslie J. Mehrhoff, University of Connecticut, Bugwood.org; **Morrow's Honeysuckle:** large photo - Leslie J. Mehrhoff, University of Connecticut, Bugwood.org, inset - Stacey Leicht, University of Connecticut, Bugwood.org; **Mugwort:** large photo - Christian Fischer, WikimediaCommons.org, inset - Ohio State Weed Lab Archive, The Ohio State University, Bugwood.org; **Multiflora Rose:** James R. 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**WETLAND PLANTS, PROHIBITED:** **Common Reed Grass:** Joseph M. DiTomaso, University of California - Davis, Bugwood.org; **Marsh Dewflower:** Linda Lee, University of South Carolina, Bugwood.org; **Purple Loosetrife:** John D. Byrd, Mississippi State University, Bugwood.org; **Reed Manna Grass:** large photo - WikimediaCommons.org, top and bottom insets - Leslie J. Mehrhoff, University of Connecticut, Bugwood.org; **Smooth Buckthorn:** Leslie J. Mehrhoff, University of Connecticut, Bugwood.org; **Yellow Iris:** Nancy Loewenstein, Auburn University, Bugwood.org

**AQUATIC PLANTS, PROHIBITED:** **Brazilian Waterweed:** Robert Vidéki, Doronicum Kft., Bugwood.org; **Broadleaf Water-milfoil Hybrid:** Donald Cameron, geobotany.newenglandwild.org; **Curly Pondweed:** Leslie J. Mehrhoff, University of Connecticut, Bugwood.org; **Eurasian Water-milfoil:** Alison Fox, University of Florida, www.forestryimages.org; **Fanwort:** large photo - Robert Vidéki, Doronicum Kft., Bugwood.org, inset - Leslie J. Mehrhoff, University of Connecticut, Bugwood.org; **Floating Primrose Willow:** John M. Randall, The Nature Conservancy, Bugwood.org; **Frogbit:** large photo - Mark Malchoff, Lake Champlain Sea Grant Program, inset - Leslie J. Mehrhoff, University of Connecticut, Bugwood.org; **Hydrilla/Water Thyme:** Jon Rodgers, http://www.galvbayinvasives.org; **Parrot-feather:** John M. Randall, The Nature Conservancy, Bugwood.org; **Uruguayan Primrose Willow:** Karan A. Rawlins, University of Georgia, Bugwood.org; **Water Chestnut:** large photo - John M. Randall, The Nature Conservancy, Bugwood.org, inset - Steve Hurst, USDA NRCS PLANTS Database, Bugwood.org; **Yellow Floating Heart:** Leslie J. Mehrhoff, University of Connecticut, Bugwood.org



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## **Appendix D REPRESENTATIVE INVASIVE SPECIES PHOTOS**





## CIDER SOLAR FARM INVASIVE SPECIES SURVEY BASELINE REPORT

### Appendix D Representative Invasive Species Photos



Photo 1. Typical garlic mustard.



Photo 2. Typical mugwort.





## CIDER SOLAR FARM INVASIVE SPECIES SURVEY BASELINE REPORT

### Appendix D Representative Invasive Species Photos



Photo 3. Typical Japanese barberry (blurry photo due to weather conditions).



Photo 4. Typical Canada thistle.





## CIDER SOLAR FARM INVASIVE SPECIES SURVEY BASELINE REPORT

### Appendix D Representative Invasive Species Photos



Photo 5. Typical cut-leaf teasel.



Photo 6. Typical autumn olive.



## CIDER SOLAR FARM INVASIVE SPECIES SURVEY BASELINE REPORT

### Appendix D Representative Invasive Species Photos



Photo 7. Typical Morrow's honeysuckle.



Photo 8. Typical Tatarian honeysuckle





## CIDER SOLAR FARM INVASIVE SPECIES SURVEY BASELINE REPORT

### Appendix D Representative Invasive Species Photos



Photo 9. Typical Japanese stilt-grass.



Photo 10. Typical reed canary grass.





## CIDER SOLAR FARM INVASIVE SPECIES SURVEY BASELINE REPORT

### Appendix D Representative Invasive Species Photos



Photo 11. Typical common reed.



Photo 12. Typical kudzu.



## CIDER SOLAR FARM INVASIVE SPECIES SURVEY BASELINE REPORT

### Appendix D Representative Invasive Species Photos



Photo 13. Typical Japanese knotweed.



Photo 14. Typical common buckthorn.





## CIDER SOLAR FARM INVASIVE SPECIES SURVEY BASELINE REPORT

### Appendix D Representative Invasive Species Photos



Photo 15. Typical black locust.



Photo 16. Typical multiflora rose.





## **Appendix E BEST MANAGEMENT PRACTICES FOR PREVENTING THE TRANSPORTATION OF INVASIVE PLANT SPECIES**





# Best Management Practice for Preventing the Transportation of Invasive Plant Species



Environmental Energy Alliance of New York

4/26/12/2012



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Appendix 1 - Best Management Practices (BMP's) for Invasive Species Transportation Prevention

Appendix 2 - DEC Revised Interim List of Invasive Plants Species in New York State, January 23, 2012



## 1.0 Introduction

Invasive species are non-native plant, animal, or microbial species that cause, or are likely to cause, economic or ecological harm or harm to human health (Presidential Executive Order 13112). Invasive species means, “A species that is nonnative to the ecosystem under consideration; and whose introduction causes or is likely to cause economic or environmental harm or harm to human health. Harm must significantly outweigh benefit” [New York Environmental Conservation Law §9-1703(10)(a)] Invasive species have been introduced by human action into a region outside their natural geographic range. Introductions occur along a variety of pathways or vectors, either intentionally such as intentional transport of a species for trade, or by accidental means, as in the case of stowaway species found in the ballast-water of ocean-going vessels.

Most scientists regard invasive species as second only to habitat loss as a threat to biodiversity. The presence of invasive species in a given region is one of the leading causes of endangerment to species native to that region. On a nationwide basis, about half of plant and animal species listed as federally Endangered or Threatened are at risk because of invasive species.

Currently, annual economic losses due to invasive species in the U.S. are estimated at over \$138 billion (Pimentel et al. 2000). These losses include damage to crops and pasture, forest losses, damage from insect and other invertebrate pests, human diseases, and associated control costs.

In an effort, where feasible, to limit the introduction and spread of *invasive plant species*, this Best Management Practice (“BMP”) will be employed when performing activities that occur in *jurisdictional areas* as authorized by the DEC. The BMP identifies procedures that will be incorporated into routine work practices to prevent the introduction and spread of *invasive plant species*.



## 2.0 Definitions

The following definitions are applicable to this BMP.

***Environmental Energy Alliance of New York (EEANY)*** – is an association of electric and gas Transmission and Distribution (T&D) companies and electric generating companies that provide energy services in the State of New York. This BMP was prepared by the Land Use Subcommittee of the T&D Committee, which currently represents the following members: Central Hudson Gas & Electric Corporation, Consolidated Edison Company of New York, Long Island Power Authority, National Grid USA Service Company, Inc., New York Power Authority, New York State Electric & Gas Corporation, Orange and Rockland Utilities, and Rochester Gas & Electric Corporation.

***Invasive plant species*** – species that are non-native to the ecosystem under consideration and whose introduction causes or is likely to cause economic or environmental harm or harm to human health (Management Plan National Invasive Species Council, 2001). For purposes of this document, *invasive plant species* are those contained on the “Revised Interim List of Invasive Plants Species in New York State” dated January 23, 2012 developed by NYS DEC (Appendix – 2).

***Invasive species plant material*** – seeds, roots, or pieces of plant material that could germinate into live plants.

***Jurisdictional Area*** – lands under the statutory jurisdiction of the NYSDEC such as certain freshwater wetlands and adjacent areas, tidal wetlands, certain water bodies, and any protected and species habitat areas specified by natural resource supervisors.

***NYSDEC General Permit*** – a NYSDEC permit authorizing certain utility line activities under Articles 15, 24, and 25 of NYS Environmental Conservation Law. These activities include: inspection, maintenance, repair, restoration, reconstruction of pre-existing structures, vegetation cutting and trimming, and emergency actions affecting tidal wetlands, protected waters, regulated freshwater wetlands, adjacent areas, and protected habitat areas.

***Regulated Activity*** – an activity taking place within a *jurisdictional area* that requires authorization from the NYSDEC.

***Utility Rights-of-Way*** - is an easement-acquired or fee-owned corridor in which gas or electric transmission facilities are located.



### 3.0 Purpose or Goal

This BMP provides guidance for inspecting and cleaning vehicles and equipment to help prevent the spread of invasive plant species. The procedures identified within this manual outline cost-effective and realistic practices that *Environmental Energy Alliance of New York (EEANY)* utility members will implement when conducting a *regulated activity* within a *jurisdictional area*.

### 4.0 Applicability

This management practice applies to all *EEANY* utility members performing *NYSDEC regulated activities* within *jurisdictional areas* with populations of *invasive plant species*.

### 5.0 Procedures

There are two procedural options for *EEANY* companies to follow; one is to conduct the BMPs as detailed in the following sections of this plan or to conduct vegetation surveys for invasive species as outlined in Section 5.6. Field crews will be provided a flowchart to assist with determining when to implement these best management practices (Appendix 1).

The following detailed practices will apply where feasible when invasive species are present and when the work is covered by a GP or individual wetland permit.

#### 5.1 Equipment

- a. Equipment must arrive clean without visible soil clumps, plant or animal material.
- b. Equipment includes, but is not limited to, vehicles, trailers, machinery, matting, boats, barges, and other watercraft, tools, and other materials.
- c. Transporting equipment will be cleaned before accepting a new load.
- d. Consider tracking pads as a means to remove soil from equipment. If tracking pads are used they must be cleaned after each use in a specific area.
- e. Equipment will be cleaned using one of the methods listed below (use the most effective method that is practical):
  - Brush, broom, shovel or other similar hand tools (used without water)
  - High pressure air (when feasible)
- f. Equipment must be cleaned within one of the below areas:
  - the infested work area



- an area immediately adjacent to the work area that is itself currently infested with *invasive plant species*
- g. Do not clean equipment in or near waterways as it may promote the spread of *invasive plant species* downstream.
- h. Where possible, staging areas will be established in locations that are free of *invasive plant species*. Otherwise, all equipment will be cleaned using the techniques described in 5.3 before leaving the area.
- i. When wetland matting is required, it will arrive on site visibly clean, be installed prior to any activities, and will be appropriately cleaned before leaving the area.

## 5.2 Inspection and Cleaning

- a. Inspections and cleaning should be conducted especially when moving from an infested area to an un-infested area.
- b. Prior to exiting work area clothing, footwear, and gear should be cleaned of visible signs of plant material.
- c. Carry appropriate cleaning equipment (e.g. wire brush, small screwdriver, boot brush) to help remove soils, seeds, and plant material.
- d. Preferred locations for cleaning are those where:
  - Work activities are taking place;
  - *Invasive plant species* are already established; or
  - An area immediately adjacent to the work site that is itself currently infested with *invasive plant species*.
- e. No cleaning of clothing, footwear, gear in or adjacent to waterways – it may promote the spread of *invasive plant species* downstream.
- f. Cleaning will include brushing or self “pat down” of clothing, footwear, and other personal gear within the infested work area.

## 5.3 Disposal of Impacted Material

- a. Preferred locations for equipment cleaning are those areas where work activities are taking place or immediately adjacent areas currently impacted with *invasive plant species*.
- b. Do not clean equipment, vehicles or trailers in or near waterways.
- c. Do not dispose of soil, seeds, or plant material in storm drains.
- d. Any plant materials that are incidentally removed after completion of steps a-c from site will be properly disposed of in a manner that prevents viable plant parts and propagules from being spread



## 5.4 Other Prevention Measures

- a. Reasonable steps to avoid transportation of *invasive plant species*, including small, isolated, populations, will be taken.
- b. As an alternative to cleaning, ancillary equipment such as spare tires and winches when feasible will be covered when entering *jurisdictional areas* containing populations of *invasive plant species*.
- c. Vehicular access into areas containing populations of *invasive plant species* will be reduced or minimized to the maximum extent practical. When practical vehicles will be parked outside of the impacted area and crews will enter on foot.

## 5.5 Site Restoration

- a. Minimize soil disturbances by reducing work areas and reducing activities that may result in soil disturbances.
- b. Re-vegetate bare soils as soon as feasible to minimize the possible establishment of *invasive plant species*. When seeding, non-invasive or local native species must be used (seed mixes will vary from region to region). Seed will be broadcasted over all bare soil areas and covered with a mulch layer such as straw. Choose appropriate seed mixes based on site conditions.
- c. On steep sloping areas (i.e. slopes exceeding 20 percent), soil erosion control matting (i.e. jute mesh or straw blankets) must be installed over the seeded area. The matting should be secured with biodegradable tacks.
- d. Stabilize disturbed soils using appropriate erosion and sediment control procedures as soon as possible. Use invasive free materials such as straw or wood chips; avoid using hay.

## 5.6 Vegetation Survey (Optional)

If the above BMPS are not followed, then vegetation surveys of site(s) to detect populations of invasive species should be made in advance prior to any activities. If the optional vegetation survey is performed and no invasive species are found, then the procedures outlined above in section 5.1 through 5.5 will not be followed. Survey inspections can be integrated with other activities such as ROW inspections and should be kept as simple as possible to meet invasive species management objectives. If significant populations of invasive species are detected on surveys, then Sections 5.1 to 5.5 apply.

- a. Prior to implementing activities scout for, locate and document significant invasive species infestations.
- b. Consider the need for actions based on: 1) the degree of invasiveness; 2) severity of the current infestation; 3) amount of additional habitat or host at risk for invasion; and 4) feasibility of managing the spread.
- c. Plan activities to limit the potential for introduction and spread of invasive species, prior to construction.



- d. Provide appropriate resources in identification of known invasive species for corridor workers.

## 6.0 Training

A flowchart (Appendix 1) to assist field crews on when to implement the above procedures will be distributed to all field crews.

All transmission vegetation management planners, foresters, and ROW maintenance personnel will be trained in the procedures outlined in Section 5.0 above. Additionally, training sessions focused on the identification of *invasive plant species* identified in Appendix 3 will be conducted by the individual utility companies. This may take the form of hard copy materials, tail gate briefings and/or presentations during regular staff meetings.

## 7.0 Emergency Work

During emergencies, *EEANY* utility members will strictly comply with the Emergency Action condition protocol outlined in the *NYSDEC General Permit*. Appropriate site-specific *invasive plant species* controls and restoration efforts will be determined on an individual basis in conjunction with the regional NYSDEC office.

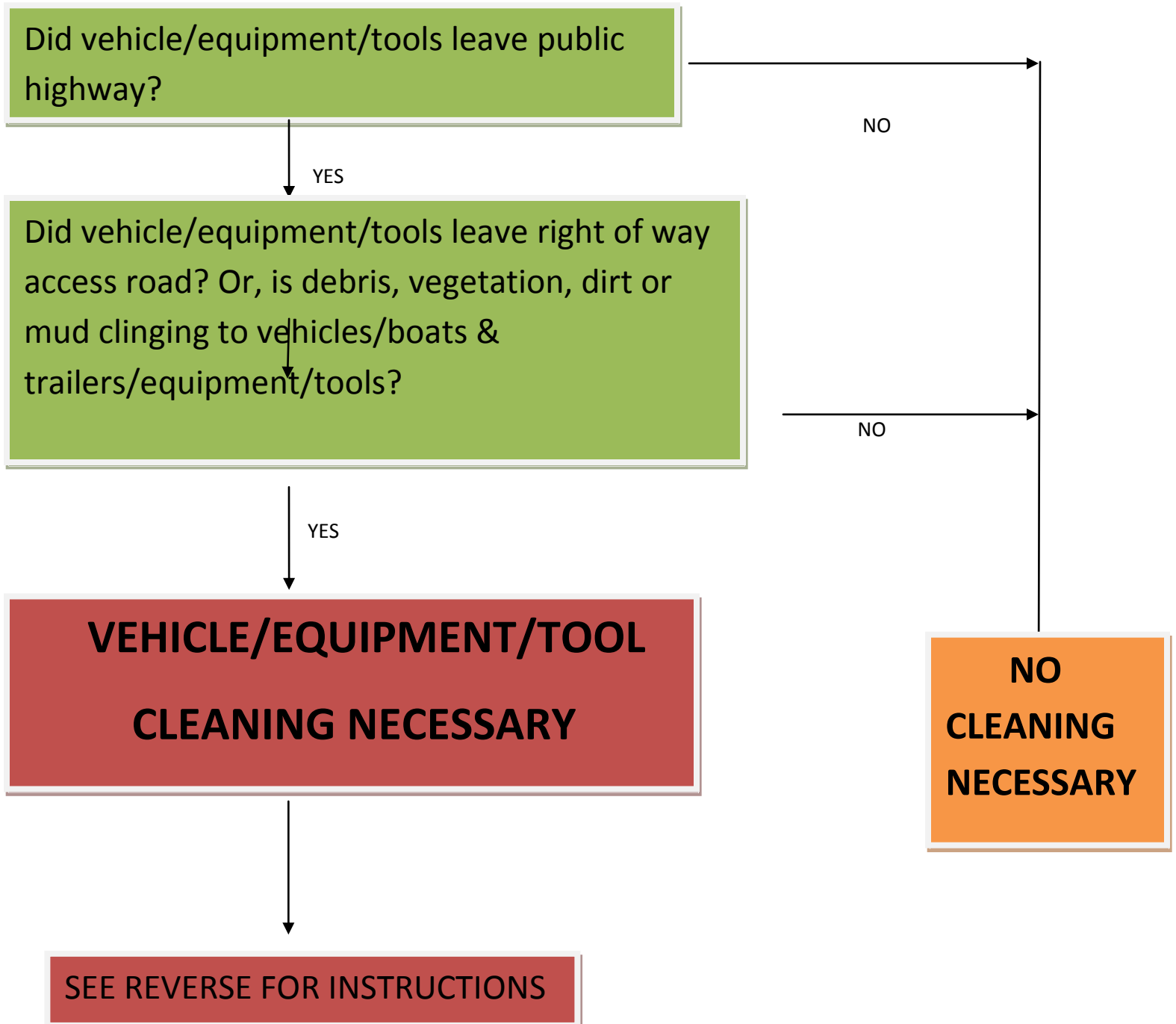


## 8.0 References

- Electric Power Research Institute, 2008 “Invasive Species and Utility Rights of Way: A Review of the Science”. EPRI Publication number 1014032, Palo Alto, CA
- Pimentel, D., Lach, L., Zuniga, R. & Morrison, D. 2000. Environmental and economic costs of nonindigenous species in the United States. *Bioscience*, 50(1): 53-65.
- Presidential Executive Order 13112. Volume 64, Federal Register 1999. Invasive Species.
- Wisconsin Council on Forestry. 2010. *Invasive Species Best Management Practice for Transportation and Utility Rights-of-Way*.



## BEST MANAGEMENT PRACTICES (BMP'S) for INVASIVE SPECIES TRANSPORT PREVENTION





## PRIOR TO LEAVING THE RIGHT-OF-WAY

- Prior to loading vehicle/equipment/tools remove as much debris, vegetation, dirt and mud clinging to the equipment as feasible using a brush, broom, shovel or other similar hand tool.
- High pressure air can be used on site for cleaning debris, vegetation, dirt and mud off vehicles/equipment/tools.
- Pick-ups and other small road vehicles shall remove on the right-of-way, as much debris, vegetation, dirt and mud clinging to vehicle as feasible prior to entering the highway.
- Small equipment/tools/boots shall be cleaned on site before removal or storage.
- Arrangements can be made for onsite cleaning or washing of vehicles/equipment/tools if deemed necessary.



## APPENDIX - 2

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### REVISED INTERIM LIST OF INVASIVE PLANT SPECIES IN NEW YORK STATE

23 January 2012

#### Purpose

This list was not prepared pursuant to ECL 9-1705 (5) (h), the so-called “four-tier system”.

The primary purpose of this list to inform New York State agencies so they can incorporate invasive species management into their funding, regulatory and other activities pursuant to ECL 9-1705 (b) and especially ECL 9-1709 (2):

“...[DEC] in cooperation with [DAM] shall have the authority...to... coordinate state agency and public authority actions to do the following: (a) **phasing out uses of invasive species**; (b) **expanding use of native species**; (c) **promoting private and local government use of native species as alternatives to invasive species**; and (d) wherever practical and where consistent with watershed and/or regional invasive species management plans, **prohibiting and actively eliminating invasive species at project sites funded or regulated by the state**;....”

It is intended to inform regulatory actions pursuant to existing statutory authorities, e.g., protection of waters (ECL Article 15), wetlands (ECL Articles 24 and 25), State Environmental Quality Review (ECL Article 8), biocontrol (ECL Article 11), and pesticides (ECL Article 33). This list is also intended to inform non-regulatory management decisions and actions, such as for planning and priority-setting, prevention, early detection, monitoring, rapid response, control and eradication, restoration, research, and public education.

This list does not include *all* plant species that are invasive or potentially-invasive in New York State. Rather, it includes many of those plant species that are widely-recognized as invasive or potentially-invasive in New York State. ECL 9-1703 (10) defines “invasive species” as:

“...a species that is: (a) nonnative to the ecosystem under consideration; and (b) whose introduction causes or is likely to cause economic or environmental harm or harm to human health. For the purposes of this paragraph, the harm must significantly outweigh any benefits.”

Thus, when complying with the provisions of 9-1709, agency staff use professional judgment in assessing the potential environmental harm (or harm to human health) when considering particular species in particular contexts.

*Invasive Plants Field and Reference Guide: An Ecological Perspective of Plant Invaders of Forests and Woodlands* [http://www.fs.fed.us/ne/newtown\\_square/publications/information\\_bulletins/NA-TP-05-04.pdf](http://www.fs.fed.us/ne/newtown_square/publications/information_bulletins/NA-TP-05-04.pdf)

*Mistaken Identity? Invasive Plants and their Native Look-alikes: an Identification Guide for the Mid-Atlantic*

[http://www.nybg.org/files/scientists/rnaczi/Mistaken\\_Identity\\_Final.pdf](http://www.nybg.org/files/scientists/rnaczi/Mistaken_Identity_Final.pdf)



## REVISED INTERIM LIST OF INVASIVE PLANT SPECIES IN NEW YORK STATE

<b>Floating &amp; Submerged Aquatic</b>		
<b>Common Name</b>	<b>Scientific Name</b>	<b>Rank</b>
Water thyme	<i>Hydrilla verticillata</i>	Very High
Frog Bit	<i>Hydrocharis morsus-ranae</i>	Very High
Floating Primrose Willow	<i>Ludwigia peploides</i>	Very High
Broadleaf Water-milfoil	<i>Myriophyllum heterophyllum</i>	Very High
Eurasian Water-milfoil	<i>Myriophyllum spicatum</i>	Very High
Water Chestnut	<i>Trapa natans</i>	Very High
Rock Snot (diatom)	<i>Didymosphenia geminata</i>	
Carolina Fanwort	<i>Cabomba caroliniana</i>	High
Brazilian Waterweed	<i>Egeria densa</i>	High
Parrot-feather	<i>Myriophyllum aquaticum</i>	High
Yellow Floating Heart	<i>Nymphoides peltata</i>	High
Curly Pondweed	<i>Potamogeton crispus</i>	High

<b>Emergent Wetland &amp; Littoral</b>		
<b>Common Name</b>	<b>Scientific Name</b>	<b>Rank</b>
Japanese Knotweed	<i>Fallopia japonica</i>	Very High
Purple Loosestrife	<i>Lythrum salicaria</i>	Very High
European Common Reed Grass	<i>Phragmites australis</i>	Very High
Tall Glyceria	<i>Glyceria maxima</i>	High
Yellow Iris	<i>Iris pseudacorus</i>	High
Marsh Dewflower	<i>Murdannia keisak</i>	High
Reed Canary-grass	<i>Phalaris arundinacea</i>	High

<b>Terrestrial - Herbaceous</b>		
<b>Common Name</b>	<b>Scientific Name</b>	<b>Rank</b>
Garlic Mustard	<i>Alliaria petiolata</i>	Very High
Slender False Brome	<i>Brachypodium sylvaticum</i>	Very High
Oriental Bittersweet	<i>Celastrus orbiculatus</i>	Very High
Black swallow-wort	<i>Cynanchum louiseae</i>	Very High
Pale Swallow-wort	<i>Cynanchum rossicum</i>	Very High
Japanese Stilt Grass	<i>Microstegium vimineum</i>	Very High
Lesser Celandine	<i>Ranunculus ficaria</i>	Very High
Wild Chervil	<i>Anthriscus sylvestris</i>	High
Mugwort	<i>Artemisia vulgaris</i>	High
Small Carpgrass	<i>Arthraxon hispidus</i>	High
Narrowleaf Bittercress	<i>Cardamine impatiens</i>	High
Spotted Knapweed*	<i>Centaurea stoebe ssp. micranthos</i>	High
Canada Thistle	<i>Cirsium arvense</i>	High
Chinese Yam	<i>Dioscorea polystachya</i>	High
Cut-leaf Teasel	<i>Dipsacus laciniatus</i>	High
Winter Creeper	<i>Euonymus fortunei</i>	High
Cypress Spurge	<i>Euphorbia cyparissias</i>	High
Leafy Spurge	<i>Euphorbia esula</i>	High



Giant Hogweed	<i>Heracleum mantegazzianum</i>	High
Japanese Hops	<i>Humulus japonicus</i>	High
Cogon Grass	<i>Imperata cylindrica</i>	High
Broad-leaf Pepper-grass	<i>Lepidium latifolium</i>	High
Chinese Lespedeza	<i>Lespedeza cuneata</i>	High
Garden Loosestrife	<i>Lysimachia vulgaris</i>	High
Chinese Silver Grass	<i>Miscanthus sinensis</i>	High
Wavyleaf Basketgrass	<i>Oplismenus hirtellus</i>	High
Cup-plant	<i>Silphium perfoliatum</i>	High

Terrestrial - Vines		
Common Name	Scientific Name	Rank
Japanese Honeysuckle	<i>Lonicera japonica</i>	Very High
Mile-a-minute Weed	<i>Persicaria perfoliata</i>	Very High
Kudzu	<i>Pueraria montana</i>	Very High
Porcelain Berry	<i>Ampelopsis brevipedunculata</i>	High
Japanese Virgin's Bower	<i>Clematis terniflora</i>	High

Terrestrial - Shrubs & Trees		
Common Name	Scientific Name	Rank
Norway Maple	<i>Acer platanoides</i>	Very High
Japanese Angelica Tree	<i>Aralia elata</i>	Very High
Japanese Barberry	<i>Berberis thunbergii</i>	Very High
Autumn Olive	<i>Elaeagnus umbellata</i>	Very High
Winged Euonymus	<i>Euonymus alatus</i>	Very High
Amur Honeysuckle	<i>Lonicera maackii</i>	Very High
Morrow's Honeysuckle	<i>Lonicera morrowii</i>	Very High
Uruguayan primrose willow	<i>Ludwigia grandiflora</i>	Very High
Common Buckthorn	<i>Rhamnus cathartica</i>	Very High
Black Locust	<i>Robinia pseudoacacia</i>	Very High
Multiflora Rose	<i>Rosa multiflora</i>	Very High
Wineberry	<i>Rubus phoenicolasius</i>	Very High
Gray Florist's Willow	<i>Salix atrocinerea</i>	Very High
Sycamore Maple	<i>Acer pseudoplatanus</i>	High
Porcelain Berry	<i>Ampelopsis brevipedunculata</i>	High
Smooth Buckthorn	<i>Frangula alnus</i>	High
Border Privet	<i>Ligustrum obtusifolium</i>	High
Amur Cork Tree	<i>Phellodendron amurense</i>	High
Beach vitex	<i>Vitex rotundifolia</i>	High

\* Brown and Black Knapweed have also been known to be problematic in grassland habitats

~ END ~