Mohawk Solar

Case No. 17-F-0182

1001.20 Exhibit 20

Cultural Resources

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EXHIBIT 20 CULTURAL RESOURCES

The Applicant has consulted with the New York State Office of Parks, Recreation, and Historic Preservation/State Historic Preservation Office (NYSOPRHP/SHPO) to develop the scope and methodology for cultural resources studies for the Mohawk Solar Facility¹. To date, formal consultation with NYSOPRHP/SHPO has included initiating Facility review and consultation through NYSOPRHP/SHPO's Cultural Resources Information System (CRIS) website,² submission of technical reports/work plans, and completion of follow-up cultural resource survey reports.

Cultural resources studies typically define an Area of Potential Effect (or, APE), which defines the potential impacts and appropriate study area for a given project. For Mohawk Solar, the APE includes an APE for Direct Effects, defined as those areas where soil disturbance (or direct physical impacts) is proposed to occur during construction. The APE for Indirect Effects includes those areas where the Facility may result in indirect effects on historic resources, such as visual or auditory effects. These potential effects, and the studies undertaken to evaluate the Facility's potential effects on cultural resources, are described in greater detail below.

(a) Archaeological Resources

(1) Summary of Impacts and Avoidance Measures

Solar facilities result in minimal soil disturbance relative to other types of development projects, and therefore have a lower relative potential to affect archaeological resources. The Applicant has sited the Facility in a rural agricultural region in effort to reduce the need for land clearing and minimize the need for typical construction processes such as surface grading, and soil compaction. The Applicant is also choosing the least intrusive PV panel mounting systems available to minimize soil disturbance so that the land can return to its current agricultural use following the decommissioning of the Facility. Solar panels will be installed on a low-profile racking system, which typically consists of small I-beam posts driven into the ground, without the need for excavation, concrete, or other foundations. Limited grading may be necessary in some areas, such as along the route of proposed access and maintenance roads. In those limited areas where soil disturbance is necessary, topsoil will be stripped and stockpiled for restoration purposes. Following construction, disturbed areas within the PV arrays will be restored with topsoil, and a cover of native grass species will be established underneath and around the solar panels. Areas of soil disturbance located in areas that will remain in agricultural production (such as the routes of proposed buried

¹ As defined throughout this Application, the Facility refers to all components of the proposed project, including PV panels and support structures, inverters, access roads, buried and above ground collection lines, a generation tie line (or "gen-tie"), a substation, a switching station, fences, and staging areas.

² NYSORPHP's Cultural Resources Information System is accessible at: http://www.nysparks.com/shpo/online-tools/.

collection lines) will be restored to their existing condition. The Applicant is committed to minimizing soil disturbance associated with the proposed Facility as a way to minimize impacts to cultural and natural resources.

It should also be noted that the areas proposed for development consist primarily of level to gently sloping agricultural fields. Due to the relative gentle relief, minimal grading (other than for narrow access and maintenance road corridors, as described above) will be necessary for the Facility. In general, no large areas of excavation or soil removal/disturbance are anticipated. Construction of the Facility will be accomplished with machines that are consistent in terms of size, weight, and tread with the agricultural machines that are currently used on these properties. Therefore, the existing conditions within the Facility Site, coupled with the specific construction/installation measures that will be used to construct the Facility, will serve to minimize impacts to archaeological resources.

To identify potential archaeological sites within the Facility Site, the Applicant completed a Phase IB archaeological survey (EDR, 2019a; Appendix 20-A³) in accordance with a Phase IA archaeological survey and research design (EDR, 2017a⁴), which was reviewed and approved by the NYSOPRHP/SHPO. The Phase IB archaeological survey identified a total of 61 archaeological resources, 36 of which were recommended potentially significant (i.e., potentially eligible for listing on the State and/or National Registers of Historic Places, or S/NRHP). The archaeological survey was conducted in a series of site visits and mobilizations ongoing from 2016 to 2018, concurrent with evolving Facility design. Therefore, in several instances, the Facility layout was intentionally revised to avoid impacts to archaeological resources identified during the survey. As summarized below in Section 20(a)(3), the Applicant has revised the proposed Facility layout to avoid the locations of potentially significant archaeological sites (as well as other sensitive environmental locations, such as wetlands).

The Applicant is evaluating the feasibility of project design measures to further avoid or minimize impacts to two archaeological sites (Sites A11-004 and A18-002; see Table 20-1 in Section 20(a)(3), below). The Applicant will continue to consult with NYSORPHP/SHPO to determine if additional site avoidance measures are warranted. In all other instances, the Applicant has redesigned the Facility to avoid and/or minimize impacts to archaeological resources, so no Phase II site investigations are anticipated to be necessary.

³ The Phase IB Archaeological Survey report for the Mohawk Solar Facility (EDR, 2019a) is included as a confidential Appendix (20-A) to the Article 10 Application and was submitted to the NYSOPRHP/SHPO in May 2019. Per Section 14.09 of the New York State Historic Preservation Act, archaeological site location information is considered sensitive and appropriate to be treated confidentially: "... Information on archaeological sites that may be damaged by unauthorized investigators if their location be generally known may be withheld from the public at the discretion of the commissioner in consultation with the commissioner of Education, and will be released, where appropriate, in a format approved by such commissioners" (also summarized within NYSDOT, 2015). Therefore, Phase IB Archaeological Survey Report is a confidential report. The results of the Phase IB survey are summarized herein.

⁴ The Phase IA Archaeological Survey for the Mohawk Solar Facility (EDR, 2017a) was included as Appendix D of the Preliminary Scoping Statement (or, PSS) for the project and is not reproduced herein as an Appendix to the Article 10 Application.

The mapped locations of all potentially significant (i.e., S/NRHP-eligible or unevaluated) archaeological sites within approximately 100 feet (31 meters) of proposed Facility-related impacts will be identified as "Environmentally Sensitive Areas" or similar on Facility construction maps and marked in the field by construction fencing with signs that restrict access. These measures should be adequate to ensure that impacts to archaeological resources are avoided.

In the event that unanticipated archaeological resources are encountered during construction, the Facility's unanticipated discovery plan will include provisions to stop all work in the vicinity of the archaeological finds until those resources can be evaluated and documented by an archaeologist. With the adoption of these measures, and based on continued consultation with the NYSOPRHP/SHPO, the proposed Mohawk Solar project is not anticipated to affect any significant archaeological resources.

(2) Phase IA Cultural Resources Study

The Applicant prepared a Phase IA Archaeological Resources Survey⁵ (EDR, 2017a), which was submitted through the CRIS website in September 2017, approved by NYSOPRHP/SHPO on November 24, 2017 (Herter, 2017), and is summarized below. The purpose of the Phase IA archaeological resources survey was to: 1) define the Facility's area of potential effect (APE) relative to archaeological resources based on the anticipated area of disturbance for Facility components; 2) determine whether previously identified archaeological resources are located in the APE; 3) summarize the methods and results of preliminary Phase IB archaeological fieldwork which has already been conducted; and, 4) propose a methodology to identify additional archaeological resources within the APE, evaluate their eligibility for the State/National Register of Historic Places (S/NRHP), and assess the potential effect of the Facility on those resources. The Phase IA report was prepared by professionals who satisfy the qualification criteria per the Secretary of the Interior's Standards for archaeology (36 CFR 61) and in accordance with applicable portions of NYSOPRHP/SHPO's *Phase I Archaeological Report Format Requirements* (NYSOPRHP, 2005).

Relative to the potential for archaeological sites to be located in the Facility, the results of the Phase IA archaeological resources survey for the proposed Facility can be summarized as follows:

• Twenty-six previously recorded archaeological sites occur within 1 mile (1.6 km) of the Facility Site and four of these sites occur within or partially within the Facility Site.

⁵ The Phase IA Archaeological Survey report was included as Appendix D in the Preliminary Scoping Statement (PSS) for the Facility and is not reproduced herein as an Appendix to the Article 10 Application.

- Based on topography, setting, soil, and proximity to water sources, as well as the presence of previously
 recorded archaeological sites within or near the Facility Site, there is a potential for archaeological
 resources to be located within portions of the proposed Facility Site.
- There is also a potential for historic-period (i.e., nineteenth- and/or twentieth-century) archaeological
 resources to be located within the Facility Site. This potential is generally considered to be low throughout
 the Facility Site, except in areas located in close proximity to the former locations of structures identified
 on historical maps. Archaeological resources associated with these sites could include foundations,
 structural remains, artifact scatters, and/or other features.

In addition, the Phase IA archaeological survey (EDR, 2017) proposed a methodology to conduct a Phase IB archaeological survey for the Facility, which was reviewed and approved by the NYSOPRHP/SHPO. The results of the Phase IB archaeological survey are described below.

(3) Phase IB Cultural Resources Study

The Applicant conducted a Phase IB archaeological survey (EDR, 2019a; Appendix 20-A) to identify archaeological sites within the Facility Site. The Phase IB survey was conducted under the supervision of Registered Professional Archaeologists (RPAs) in a manner consistent with the New York Archaeological Council (NYAC) *Standards for Cultural Resource Investigations and Curation of Archaeological Collections in New York State* (the NYAC *Standards*) (NYAC, 1994) and the Phase IB Archaeological Survey report was prepared in accordance with NYSOPRHP/SHPO's *Phase I Archeological Report Format Requirements* (NYSOPRHP, 2005).

The scope and methodology for the Phase IB Archaeological Survey was proposed in the Phase IA Archaeological Resources Survey (EDR, 2017a), which was submitted to NYSOPRHP/SHPO in September 2017 and approved by NYSOPRHP/SHPO on November 24, 2017 (Herter, 2017). The Phase IB methodology proposed in the Phase IA report was based on consultation with NYSOPRHP/SHPO and is responsive to the relatively minimal ground disturbance necessary to construct the Facility.

The Facility's APE for Direct Effects is defined as those areas where soil disturbance is proposed to occur during construction. The APE for Direct Effects includes the extent of potential temporary soil disturbance anticipated to occur during Facility construction is 847 acres in size. This represents the total area that could be temporarily disturbed by construction. However, much of the APE for Direct Effects consists of disturbance which is unlikely to impact archaeological resources (such as the mounting of PV panel arrays on small pile-driven posts). Therefore, a smaller area, the "Limits of Significant Ground Disturbance", which totals 225 acres, has been defined

in consultation with NYSOPRHP/SHPO. As described in the Phase IA report (EDR, 2017:35) the Limits of Significant Ground Disturbance were defined as:

"All areas where Facility-related impacts involving *significant* ground disturbance (i.e., trenching wider than 1 foot (0.3 meter), or any excavation, grading, and/or paving) will be subjected to Phase IB archaeological survey in the form of either shovel testing or pedestrian surface survey (following the methods outlined above), depending on the ground surface visibility. Areas of *significant* ground disturbance are anticipated to include:

- All proposed invertor pads;
- All proposed access roads;
- \circ $\;$ All impacts associated with the proposed substations;
- o Any buried collection lines installed in a trench greater than 1 foot (0.3 meter) wide;
- Any construction staging areas that require grading, and/or paving; and,
- Any other areas where Facility-related impacts include earth disturbance beyond the installation of small posts or Ibeams or the excavation of a less than 1-foot (0.3-meter) wide trench."

In review correspondence dated November 24, 2017, NYSOPRHP/SHPO staff indicated their concurrence with the definition of the Limits of Significant Ground Disturbance as described in the Phase IA report.

The Phase IB archaeological survey fieldwork was conducted between 2016 and 2018 in accordance with the Phase IA research design previously reviewed and approved by NYSOPRHP/SHPO (EDR, 2017; Herter, 2017). The archaeological survey fieldwork was conducted in a series of site visits and mobilizations conducted concurrent with evolving Facility design. In several instances, the Facility layout was intentionally revised to avoid impacts to archaeological resources identified during the survey.

The archaeological survey involved the excavation of 2,482 shovel tests and the pedestrian surface survey of 254 acres. Typically, survey coverage is calculated at 16 shovel tests per acre. Therefore, this Phase IB survey effort is equivalent to approximately 409 acres of Phase IB survey (254 acres of pedestrian survey and equivalent to 155 acres of shovel testing). As noted above, the Limits of Significant Ground Disturbance total approximately 225 acres. Therefore, the Phase IB level of effort is more than adequate for the proposed Facility, despite the fact that, as discussed above, some portions of the Phase IB survey were conducted outside the current Limits of Significant Ground Disturbance, based on the final project design.

As summarized below in Table 20-1 and further described in the Phase IB Archaeological Survey report for the Facility (EDR, 2019a; see Appendix 20-A), the archaeological survey resulted in the identification of 61 archaeological resources, consisting of 34 pre-contact Native American sites, 23 pre-contact Native American isolated finds, three historic-period sites, and one multicomponent historic-period/Pre-Contact Native American site. Six-hundred and seventy-six historic-period artifacts and 377 pre-contact-period artifacts were collected during the survey (1,053 artifacts total collected).

Site Name	Description	Potential Impacts	Avoidance Measures
A2-001 Pre-Contact Isolate	Pre-Contact Isolate	Within current layout: PV Array & Intra-	None (does not meet S/NRHP
		Array Cable	Criteria)
A3-001 Pre-Contact Isolate	Pre-Contact Isolate	Within current layout: PV Array	None (No significant impacts associated w/PV Arrays)
A3-002 Pre-Contact Lithic Scatter	Pre-Contact Lithic Scatter	Within current layout: PV Array	None (No significant impacts associated w/PV Arrays)
A3-003 Pre-Contact Lithic Scatter	Pre-Contact Lithic Scatter	Within current layout: PV Array & Intra- Array Cable	None (does not meet S/NRHP Criteria)
A4-001 Pre-Contact Lithic Scatter	Pre-Contact Lithic Scatter	Within current layout: Access Road.	None (does not meet S/NRHP Criteria)
A4-002 Pre-Contact Lithic Scatter	Pre-Contact Lithic Scatter	Within current layout: PV Array	None (No significant impacts associated w/PV Arrays)
A4-003 Pre-Contact Lithic Scatter	Pre-Contact Lithic Scatter	Within current layout: Access Road	None (does not meet S/NRHP Criteria)
A5-001 Pre-Contact Lithic Scatter	Pre-Contact Lithic Scatter	None	Avoided by Facility design.
A5-002 Pre-Contact Lithic Scatter	Pre-Contact Lithic Scatter	Within current layout: PV Array	None (No significant impacts associated w/PV Arrays)
A5-003 Pre-Contact Isolate	Pre-Contact Isolate	Within current layout: PV Array & Collection Line	None (does not meet S/NRHP Criteria)
A5-004 Pre-Contact Isolate	Pre-Contact Isolate	None	Avoided by Facility design.
A5-005 Pre-Contact Lithic Scatter	Pre-Contact Lithic Scatter	Within current layout: Access Road & Mitigation Planting Module	None (does not meet S/NRHP Criteria)
A5-006 Pre-Contact Lithic Scatter	Pre-Contact Lithic Scatter	None	Avoided by Facility design.
A5-007 Historic-Period Farmstead	Historic-Period Farmstead	None	Avoided by Facility design.
A5-008 Pre-Contact Isolate	Pre-Contact Isolate	None	Avoided by Facility design.
A5-009 Pre-Contact Isolate	Pre-Contact Isolate	Within current layout: PV Array & Intra- Array Cable	None (does not meet S/NRHP Criteria)
A6-001 Pre-Contact Isolate	Pre-Contact Isolate	Within current layout: PV Array	None (No significant impacts associated w/PV Arrays)
A6-002 Pre-Contact Lithic Scatter	Pre-Contact Lithic Scatter	Within current layout: PV Array & Intra- Array Cable	None (does not meet S/NRHP Criteria)
A6-003 Pre-Contact Isolate	Pre-Contact Isolate	Within current layout: PV Array	None (No significant impacts associated w/PV Arrays)
A6-004 Pre-Contact Isolate	Pre-Contact Isolate	Within current layout: PV Array	None (No significant impacts associated w/PV Arrays)
A6-006 Pre-Contact Lithic Scatter	Pre-Contact Lithic Scatter	Within current layout: Access Road	None (does not meet S/NRHP Criteria)
A8-001 Pre-Contact Lithic Scatter	Pre-Contact Lithic Scatter	None	Avoided by Facility design.
A8-002 Pre-Contact Isolate	Pre-Contact Isolate	None	Avoided by Facility design.
A8-003 Pre-Contact Lithic Scatter	Pre-Contact Lithic Scatter	None	Avoided by Facility design.
A8-004 Pre-Contact Isolate	Pre-Contact Isolate	None	Avoided by Facility design.
A8-005 Pre-Contact Lithic & Potter Scatter	Pre-Contact Lithic Scatter with Stone Tools and Pre- Contact Pottery Sherds	None	Avoided by Facility design.
A8-006 Pre-Contact Lithic Scatter	Pre-Contact Lithic Scatter	None	Avoided by Facility design.
A9-001 Pre-Contact Lithic Scatter	Pre-Contact Lithic Scatter with Stone Tools	Within current layout: PV Array, Intra- Array Cable, and Access Road	None (does not meet S/NRHP Criteria)
A9-002 Pre-Contact Isolate	Pre-Contact Isolate	Within current layout: PV Array	None (No significant impacts associated w/PV Arrays)
A9-003 Pre-Contact Isolate	Pre-Contact Isolate	None	Avoided by Facility design.
A11-001 Pre-Contact Lithic Scatter	Pre-Contact Lithic Scatter	None	Avoided by Facility design.

 Table 20-1. Summary of Archaeological Resources Identified During the Phase IB Survey

Site Name	Description	Potential Impacts	Avoidance Measures
A11-002 Pre-Contact Lithic Scatter	Pre-Contact Lithic Scatter	None	Avoided by Facility design.
A11-003 Pre-Contact Lithic Scatter	Pre-Contact Lithic Scatter	None	Avoided by Facility design.
A11-004 Pre-Contact Lithic Scatter	Pre-Contact Lithic Scatter	3% of site area is located within the Limits of Significant Ground Disturbance.	Facility redesigned to minimize impacts. PV array relocated to avoid site. Small area (0.06- acre) of site would be affected by proposed access road. Impacts to site have been minimized and are not anticipated to result in a significant adverse effect.
A11-005 Pre-Contact Lithic Scatter	Pre-Contact Lithic Scatter	None	Avoided by Facility design.
A11-006 Pre-Contact Lithic Scatter	Pre-Contact Lithic Scatter	None	Avoided by Facility design.
A12-001 Pre-Contact Pottery Sherd Scatter	Pre-Contact Pottery Sherd Scatter	None	Avoided by Facility design.
A17-001 Pre-Contact Lithic Scatter	Pre-Contact Lithic Scatter	None	Avoided by Facility design.
A18-001 Pre-Contact Lithic Scatter	Pre-Contact Lithic Scatter	None	Avoided by Facility design.
A18-002 Pre-Contact Lithic & Ceramic Scatter	Pre-Contact Lithic Scatter with Pre-Contact Pottery Sherds	29% of site is located within proposed collection line route.	Applicant is evaluating project design measures to avoid/ minimize impacts. Applicant will continue to consult with NYSORPHP/SHPO to determine if additional site avoidance measures and/or archaeological investigations are warranted.
A18-003 Pre-Contact Isolate	Pre-Contact Isolate	Within current layout: PV Array	None (No significant impacts associated w/PV Arrays)
B2-002 Pre-Contact Isolate	Pre-Contact Isolate	Within current layout: Access Road	None (does not meet S/NRHP Criteria)
B4-003 Pre-Contact Isolate	Pre-Contact Isolate	Within current layout: Access Road & Collection Line	None (does not meet S/NRHP Criteria)
B6-001 Pre-Contact Isolate	Pre-Contact Isolate	Within current layout: Access Road	None (does not meet S/NRHP Criteria)
B6-002 Pre-Contact Lithic Scatter	Pre-Contact Lithic Scatter	Within current layout: Access Road & PV Array	None (does not meet S/NRHP Criteria)
B7-001 Pre-Contact Lithic Scatter	Pre-Contact Lithic Scatter	Within current layout: Collection Line & Mitigation Planting Module	None (does not meet S/NRHP Criteria)
C3-001 Pre-Contact Lithic Scatter	Pre-Contact Lithic Scatter	Within current layout: Access Road & Collection Line	None (does not meet S/NRHP Criteria)
D7-001 Pre-Contact Isolate	Pre-Contact Isolate	Within current layout: PV Array	None (No significant impacts associated w/PV Arrays)
E3-001 Pre-Contact Isolate	Pre-Contact Isolate	None	Avoided by Facility design.
E8-001 Multicomponent Historic-Period Farmstead and Cemeteries with Pre- Contact Isolate	Multicomponent Historic- Period Farmstead and Cemeteries with Pre- Contact Isolate	None	Avoided by Facility design.
F2-001 Pre-Contact Lithic Scatter	Pre-Contact Lithic Scatter	Within current layout: PV Array & Intra- Array Cable	None (does not meet S/NRHP Criteria)
F2-002 Pre-Contact Isolate	Pre-Contact Isolate	Within current layout: PV Array & Intra- Array Cable	None (does not meet S/NRHP Criteria)
F11-001 Pre-Contact Lithic Scatter	Pre-Contact Lithic Scatter	None	Avoided by Facility design.
F11-002 Pre-Contact Isolate	Pre-Contact Isolate	None	Avoided by Facility design.
G1-003 Pre-Contact Lithic Scatter	Pre-Contact Lithic Scatter	Within current layout: Mitigation Planting Module	No trees or shrubs planted within site boundary

Site Name	Description	Potential Impacts	Avoidance Measures
G1-004 Pre-Contact Isolate	Pre-Contact Isolate	Within current layout: Mitigation Planting Module	None (does not meet S/NRHP criteria)
G4-001 Pre-Contact Isolate	Pre-Contact Isolate	Within current layout: Access Road	None (does not meet S/NRHP Criteria)
H1-001 Historic-Period Foundation	Historic-Period Outbuilding Foundation Remnant	Within current layout: Access Road, Collection Line & PV Array	None (does not meet S/NRHP Criteria)
H1-002 Pre-Contact Lithic Scatter	Pre-Contact Lithic Scatter	Within current layout: Access Road & PV Array	None (does not meet S/NRHP Criteria)
Nestle Lithic Scatter 1 Pre- Contact Lithic Scatter	Pre-Contact Lithic Scatter	None	Avoided by Facility design.
Dygert Road Cemetery	Historic-Period Cemetery with Headstones	None	Avoided by Facility design.

The Applicant is evaluating the feasibility of project design measures to further avoid or minimize impacts to Sites A11-004 and A18-002 (see Table 20-1, above). The Applicant will continue to consult with NYSORPHP/SHPO to determine if additional site avoidance measures are warranted. In all other instances, the Applicant has redesigned the Facility to avoid and/or minimize impacts to archaeological resources, so no Phase II site investigations are anticipated to be necessary.

(4) Phase II Study

As described above, the Applicant has revised the proposed Facility layout to avoid the locations of potentially significant archaeological sites (as well as other sensitive environmental locations, such as wetlands). The Applicant is evaluating the feasibility of project design measures to further avoid or minimize impacts to Sites A11-004 and A18-002 (per Table 20-1, above). The Applicant will continue to consult with NYSORPHP/SHPO to determine if additional site avoidance measures are warranted. In all other instances, the Applicant has redesigned the Facility to avoid and/or minimize impacts to archaeological resources, so no Phase II site investigations are anticipated to be necessary.

It should be noted that Phase II investigations are not warranted for archaeological sites that do not meet the criteria for listing on the S/NRHP. Although unevaluated sites have not been formally investigated and evaluated with regard to the S/NRHP, they are being treated as potentially eligible for the purposes of site avoidance. However, if necessary, Phase II studies would be designed to obtain detailed information on the integrity, limits, structure, function, and cultural/historic context of an archaeological site, as feasible, sufficient to evaluate its potential eligibility for listing on the S/NRHP.

(5) Archaeological Material Recovered During Cultural Resources Studies

As previously noted, a total of 676 historic-period and 377 pre-contact period artifacts were collected during the Phase IB archaeological survey from the ground surface and from shovel tests. These collected artifacts were

cleaned, catalogued, inventoried and curated in a manner consistent with professional standards, such as the New York Archaeological Council's (NYAC) *Standards for Cultural Resource Investigations and Curation of Archaeological Collections in New York State* (NYAC, 1994; the "NYAC Standards"). When the artifacts were collected in the field, archaeologists recorded standard provenience information and collected each artifact in sealed plastic bags per standard archaeological laboratory procedures. All recovered materials were washed, dried, and cataloged per standard archaeological laboratory procedures. Following processing and analysis, artifacts were curated in 4-mil polyethylene bags. Recovered artifacts were described to a level of detail sufficient to prepare an artifact inventory for inclusion in the Phase IB Archaeological Survey report (EDR, 2019a), which includes descriptions of each artifact's material, temporal or cultural/chronological associations (when possible to ascertain), style, and function. In addition, a selection of representative artifacts was not conducted. The Applicant understands that all artifacts recovered are the property of the land owner from which the artifacts were recovered. If appropriate, the consultant may identify local repositories (such as local historical societies or archaeological museums) for disposition of recovered artifacts.

(6) Unanticipated Discovery Plan

An Unanticipated Discovery Plan is included as Appendix 20-B of this Application. The Unanticipated Discovery Plan identifies the actions to be taken in the unexpected event that resources of cultural, historical, or archaeological importance are encountered during Facility construction. The plan includes a provision for work stoppage upon the discovery of possible archaeological or human remains. Evaluation of such discoveries, if warranted, will be conducted by a professional archaeologist, qualified according to the NYAC *Standards* (NYAC, 1994)

(b) Historic Resources

Historically significant resources are defined herein to include buildings, districts, objects, structures, and/or sites that have been listed on the S/NRHP, as well as those properties that NYSOPRHP/SHPO has formally determined are eligible for listing on the S/NRHP.

(1) A Complete Historic Resources Survey

Area of Potential Effect Relative to Aboveground Historic Resources

The Facility will have no physical impacts to aboveground historic resources (i.e., no historic structures will be damaged or removed). The Facility's potential effect on a given historic property would be a change (resulting from the introduction of PV panel arrays or other Facility components) in the property's visual setting. Therefore, the

APE for Indirect Effects on historic resources includes those areas where Facility components (including PV panel arrays) will be visible.

Per the requirements set forth in set forth in 16 NYCRR § 1000.24(ar), an appropriate study area for considering visual effects of major electrical generating facilities is the area within five miles of the Facility. In addition, as requested in review correspondence from the DPS, the Historic Resources Study Area was expanded to include "selected areas extending beyond that radius for one mile along the Route 20 Scenic Byway corridor travelling west towards East Springfield and for one mile along Route 67 North towards the Fulton County line" (DPS, 2019).

The tallest components of the generating portion of the proposed Facility will be the collection and POI substations, which are anticipated to be 55 feet high, with narrow lighting masts of up to 65 feet in height. The PV panels and inverter equipment are not expected to be more than 11 feet above grade (less than a single-story residence). However, it should be noted that constituent PV panels are typically concentrated in large arrays, and as a whole, these arrays could result in adverse effects on the visual character or setting of an historic or cultural landscape.

Indirect effects to historic properties could theoretically consist of auditory and/or visual effects; however, solar facilities produce minimal sound, so auditory effects resulting from the proposed Facility are not considered a significant type of impact to the setting of historic resources. Therefore, potential visual effects associated with the proposed Facility are the most significant consideration for defining an APE for Indirect Effects. To ensure that potential visual effects on regional visually sensitive historic resources are adequately considered, NYSOPRHP/SHPO has requested as part of ongoing consultation for the Facility that a Historic Resources Study Area be established for assessing indirect (visual/auditory) effects of the Facility.

Phase IA Historic Resources Survey

The Applicant has engaged in ongoing consultation with NYSOPRHP/SHPO in order to evaluate the Facility's potential effect on historic resources listed or eligible for listing in the S/NRHP. On August 9, 2017, the Applicant and EDR met with NYSOPRHP/SHPO staff at NYSOPRHP offices in Waterford, NY. During the meeting, the Applicant described the proposed Mohawk Solar Facility and discussed an appropriate approach to cultural resources studies in support of the Article 10 Application. During the meeting, NYSOPRHP/SHPO recommended that special consideration be given to the significance of and impacts upon traditional agricultural landscapes and scenic vistas within the study area and APE for Indirect Effects (described below).

The Applicant prepared a Phase IA Historic Architectural Resources Survey Work Plan⁶ (EDR, 2017b), which was submitted through the CRIS website on October 23, 2017. The purpose of the Phase IA Historic Architectural Resources Survey Work Plan was to define the Facility's APE relative to aboveground historic resources, determine whether previously identified historic resources are located in the APE, propose a methodology to survey historic resources within the APE, evaluate their eligibility for the S/NRHP, and assess the potential effect of the Facility on those resources.

On October 26, 2017, NYSOPRHP/SHPO provided a response via the CRIS website to the Phase IA Historic Architectural Survey Work Plan, which concurred with the historic resources survey methodology and APE proposed by EDR (Mackey, 2017).

Historic Resources Survey

The Applicant conducted a historic resources survey for the Facility (EDR, 2018; see Appendix 20-C) in accordance with the Phase IA Historic Architectural Resources Survey Work Plan (EDR, 2017b) in late 2017. The historic resources survey included review of previous similar studies within the Historic Resources Study Area, consultation with NYSOPRHP/SHPO, site visits to identify and evaluate potential historic resources within the study area, and supplemental research on specific historic properties (as necessary). All historic architectural resources fieldwork was conducted by qualified architectural historians who meet the Secretary of Interior's Standards for Historic Preservation Projects (36 CFR Part 61).

Historic resources survey fieldwork included systematically driving all public roads within the Study Area to evaluate the NRHP-eligibility of structures and properties within the APE. The entire Facility Area and adjacent parcels were surveyed in anticipation of possible changes to the Facility layout (location of solar panel arrays, etc.). Site visits were conducted on December 19 and 20, 2017, and January 11 and 17, 2018. When sites were identified that were not previously surveyed but appeared to satisfy S/NRHP-eligibility criteria, EDR's architectural historian documented the existing conditions of the property. This included photographs of the building(s) (and associated property when necessary) and field notes describing the style, physical characteristics and materials (e.g., number of stories, plan, external siding, roof, foundation, and sash), condition, physical integrity, and other noteworthy characteristics for each resource. EDR's evaluation of historic resources within the study area focused on the physical condition and integrity (with respect to design, materials, feeling, and association) to assess the potential architectural significance of each resource.

⁶ The Phase IA Historic Architectural Resources Survey Work Plan was included as Appendix E in the Preliminary Scoping Statement (PSS) for the Facility and is not reproduced herein as an Appendix to the Article 10 Application.

All properties included in the historic resources survey were photographed and assessed from public rights-ofway. The condition and integrity of all resources were evaluated based solely on the visible exterior of the structures. No inspections or evaluations requiring access to the interior of buildings, or any portion of private property, were conducted as part of this assessment. Based on consultation with NYSOPRHP/SHPO, buildings that were not sufficiently old (i.e., less than 50 years in age), that lacked architectural integrity, or have been evaluated by EDR's architectural historians as lacking historical or architectural significance were *not* included in or documented during the survey.

Properties inventoried and evaluated as part of the historic resources survey included both previously and newly identified resources. A total of 74 resources were inventoried as part of the historic resources survey:

- Twelve properties located within the APE (as defined at the time the survey was conducted⁷) are listed on the S/NRHP: the John Lehman House (11NR06246), the John Smith Farm (11NR06276), the Kilts Farmstead (08NR05913), the Jacob Nellis Farmhouse (90NR01556), the Nelliston School (02NR04989), Palatine Church (90NR01539), the Reformed Dutch Church of Stone Arabia (90NR01541), the Teepee (11NR06217), Trinity Lutheran Church and Cemetery (04NR05323), the Daniel Van Wie Farmstead (10NR06181), the Walrath-Van Horne House (90NR01558), and the Lindsey Patent Rural Historic District (95NR00877).
- Two S/NRHP-listed properties located within the Historic Resources Study Area but outside of the APE for Indirect Effects, the Webster-Wagner House (90NR01561) and Palatine Bridge Freight House (90NR01560), were observed during the field survey by EDR to be no longer extant.
- There were 21 previously identified properties whose S/NRHP eligibility was undetermined. In addition, EDR identified 19 properties within the APE that were not previously surveyed.
- One previously-identified property (the Springfield Patent Historic District [USN 07721.000649]), determined by NYSOPRHP/SHPO to be S/NRHP-eligible was recommended by EDR to be S/NRHP-eligible.
- Of the 21 previously identified properties whose S/NRHP eligibility was undetermined, five properties were
 recommended by EDR to be S/NRHP-eligible and 14 properties were recommended to be not NRHP-eligible.
 The potential S/NRHP eligibility of two historic cemeteries could not be determined due to location on private
 property without obvious public access.
- 19 newly identified properties were recommended by EDR to be S/NRHP-eligible.
- No new potentially S/NRHP-eligible historic districts were identified by EDR.

⁷ The historic resources survey included all areas with potential visibility of the Facility per the results of GIS-based viewshed analysis based on a preliminary layout of the Facility at the time the survey was conducted. The Facility layout has been reduced since that time; therefore, the surveyed area exceeds the areas of predicted visibility based on the current Facility layout.

 EDR recommended that two historic cemeteries that were not visible from the public-right-of-way, Yerding Cemetery in the Town of Canajoharie, and Dunkel Cemetery in the Town of Minden, be further examined for NRHP eligibility.

An Historic Architectural Resources Survey report (Appendix 20-C) summarizing the findings of this survey was submitted to NYSOPRHP/SHPO via the Cultural Resources Information System (CRIS) website on February 28, 2018. On March 27, 2018, NYSOPRHP/SHPO responded requesting additional information in the form of additional photographs for four potentially historic properties in the Town of Canajoharie (Mackey, 2018). On April 10, 2018, EDR provided a response to the March 27th SHPO information request by uploading additional photographs for the properties in question (Roblee, 2018). On May 9, 2018, NYSOPRHP/SHPO provided a response to the results and recommendations of the Historic Architectural Resources Survey, which included final determinations of eligibility for the S/NRHP.

Of the 74 resources identified by EDR as part of the historic resources survey, NYSOPRHP/SHPO determined the following regarding historic properties located within the APE for Indirect Effects (as defined at the time the survey was conducted⁸):

- There are 12 extant properties listed on the S/NRHP; two properties previously listed on the S/NRHP were found to be no longer extant.
- A total of 19 historic properties were determined to be S/NRHP-eligible, including a NYSOPRHP/SHPOdetermined S/NRHP-eligible rural historic district, and 14 properties were found to be not eligible for the S/NRHP.
- The S/NRHP eligibility of two previously identified historic cemeteries is undetermined due to lack of public access.
- (2) A Summary of the Nature of the Probable Impact of Facility Construction and Operation on any Historic Resources.

Construction of the Facility will not require the demolition or physical alteration of any buildings or other potential historic resources. No direct physical impacts to historic resources listed in or determined eligible for the S/NRHP will occur as a result of construction of the Facility.

⁸ The historic resources survey included all areas with potential visibility of the Facility per the results of GIS-based viewshed analysis based on a preliminary layout of the Facility at the time the survey was conducted. The Facility layout has been reduced since that time; therefore, the surveyed area exceeds the areas of predicted visibility based on the current Facility layout.

The Facility's potential effect on a given historic property would be a change (resulting from the introduction of PV panels) in the property's setting. As it pertains to historic properties, *setting* is defined as "the physical environment of a historic property" and is one of seven aspects of a property's *integrity*, which refers to the "ability of a property to convey its significance" (NPS, 1990:44-45). The other aspects of integrity include location, design, materials, workmanship, feeling, and association (NPS, 1990). The potential effect resulting from the introduction of PV panels into the visual setting for any historic or architecturally significant property is dependent on a number of factors including distance, visual dominance, orientation of views, viewer context and activity, and the types and density of modern features in the existing view (such as buildings/residences, overhead electrical transmission lines, cellular towers, billboards, highways, and silos).

The Federal Regulations entitled "Protection of Historic Resources" (36 CFR 800) include in Section 800.5(2) a discussion of potential adverse effects on historic resources. The following types of effects apply to the Mohawk Solar project:

"Adverse effects on historic properties include but are not limited to: [items i-iii do not apply]; (iv) Change of the character of the property's use or of physical features within the property's setting that contribute to its historic significance; (v) Introduction of visual, atmospheric or audible elements that diminish the integrity of the property's significant historic features; [items vi-vii do not apply]" (CFR, 2004b).

The implementing regulations for New York State Parks, Recreation and Historic Preservation Law, Section 14.09 (9NYCRR §428.7) state:

- a. In determining whether an undertaking will have an adverse impact on eligible or register property, the commissioner shall consider whether the undertaking is likely to cause:
 - 1. destruction or alteration of all or part of the property;
 - 2. isolation or alteration of the property's environment;
 - 3. introduction of visual, audible or atmospheric elements which are out of character with the property or alter its setting;
 - 4. neglect of the property resulting in its deterioration or destruction.

It is also of note that according to the NYSDEC Visual Policy, simple visibility of the Facility from any of the viewing locations does not imply detrimental effect to the beauty or structure. The policy specifically states "Aesthetic impact occurs when there is a detrimental effect on the perceived beauty of a place or structure. Significant aesthetic effects are those that may cause a diminishment of the public enjoyment and appreciation of an inventoried resource, or one that impairs the character or quality of such a place. Proposed large facilities by themselves should not be a trigger for declaration of significance. Instead, a project by virtue of its siting in a visual proximity to an inventoried resource may lead staff to conclude that there may be a significant impact" (NYSDEC, 2000).

Historic Resources Effects Analysis

The Applicant prepared a Historic Resources Effects Analysis report (EDR, 2019b; Appendix 20-D), which was submitted to NYSOPRHP/SHPO via the CRIS website in May 2019. In addition to the Historic Architectural Resources Survey and Historic Resources Effects Analysis, existing visual and aesthetic resources within the visual study area were identified as part of a Visual Impact Assessment (VIA) report (EDR, 2019c; see Exhibit 24 and Appendix 24-A in this Article 10 Application). As part of the VIA and in accordance with the requirements set forth in 16 NYCRR § 1000.24(b)(4) as well as the Article 10 PSS for the Facility, the Applicant conducted a systematic program of public outreach to assist in the identification of visually sensitive resources. Outreach included town and village historians in addition to other stakeholders relevant to historic properties (town supervisors, mayors, business owners, etc.) Copies of the correspondence sent by the Applicant as part of this process, as well as responses received from stakeholders, are included in the VIA.

The Historic Resources Effects Analysis (Appendix 20-D) includes visual simulations were prepared for the Facility's VIA report (Appendix 24-A). These simulations provide representative views of the proposed Facility from a variety of landscape settings, directions, and viewing distances from within the Historic Resources Study Area. Although these simulations do not necessarily represent the views of or from specific historic properties, the simulations do provide representative depictions of the Facility's potential visual effect on the individual historic properties and setting within the Historic Resources Study Area. Full size images of all of the simulations are included in the VIA report and included in Appendix B of the Historic Resources Effects Analysis report which is appended to this Exhibit (Appendix 20-D).

The potential visibility of the Facility from historic properties within the Historic Resources Study Area is described in the Historic Resources Effects Analysis (Appendix 20-D). Based on the viewshed analysis prepared for the current Facility layout, potential visibility of the Facility from historic properties within the Historic Resources Study Area is summarized as follows:

- There are 52 historic properties (i.e., properties listed on or determined to be eligible for listing on the S/NRHP) located within the Historic Resources Study Area. Of these, 31 will not have views of the Facility (these include 18 S/NRHP-listed resources and 2 National Historic Landmarks). The remaining 21 historic properties (which include 10 S/NRHP-listed and 11 S/NRHP-eligible properties) are located within the APE for Indirect Effects (i.e., there are 21 historic properties that will have potential views of the Facility).
- There are 10 S/NRHP-listed properties that are anticipated to have views of the PV panel arrays (from some portion of the property), and four are anticipated to have views of the substations and gen-tie poles. These

S/NRHP-listed properties with potential visibility of the Facility are located between 1.8 to 5.1 miles from the Facility fence.

- Of the 22 properties determined by NYSOPRHP/SHPO to be eligible for listing on the S/NRHP, 11 are anticipated to have views of the PV panel arrays, and three are anticipated to have views of the substations and gen-tie poles.
- The closest property eligible for listing on the S/NRHP is 122 G. Bowerman Road (USN 05702.000152), which
 is located on a parcel that is hosting a PV array, and is the only S/NRHP-eligible property located within the
 Facility Site.
- The remaining S/NRHP-eligible properties with Facility visibility are located between 2.6 to 5.2 miles away from the Facility.

As further described in the Historic Resources Effects Analysis (Appendix 20-D), the potential effect of the Facility on the historic resources and setting within the Historic Resources Study Area dependent on a number of factors including the distance to the Facility, the number of visible PV panels, the extent to which the Facility is screened or partially screened by buildings, trees, or other objects, and the amount of existing visual clutter and/or modern intrusions in the view. Generally speaking, the potential effect would be the greatest for properties immediately adjacent to the Facility (i.e. less than 0.1-mile), while the effect would be diminished at greater distances (i.e. over 2.0 miles). There is only one formally identified S/NRHP-eligible historic property, 122 G. Bowerman Road (USN 05702.000152), located approximately 150 feet from the perimeter fence for the Facility. The effects of distance effectively minimize the potential visual effect of the Facility from the other formally identified historic structures/properties with the Historic Resources Study Area.

Relative to historic properties, the potential visual effect of the Facility is therefore limited to the overall effect on the traditional agricultural landscape that serves as the setting for historic properties in the region. The introduction of modern interventions such as arrays of PV panels enclosed in chain-link perimeter fencing in the formerly open agricultural space will alter the historic character of the visual setting. To help minimize these effects, the Applicant has developed a visual mitigation planting plan, using native species and mimicking the character of successional fields in the study area, which will provide a visual buffer of natural vegetation forms and colors between the Facility and the viewer.

Substation and Overhead Gen-Tie Poles

The potential visual effect of the Facility's proposed substations and gen-tie poles was not explicitly addressed in the Historic Architectural Resources Survey (Appendix 20-D). However, Exhibit 24 and the VIA report (Appendix 24-A) prepared for the Facility, do address visibility and visual effect of the substations and gen-tie poles.

There are four S/NRHP-listed and three S/NRHP-eligible properties with potential substation/gen-tie visibility located within the Historic Resources Study Area. However, it is worth noting that these properties with potential substation/gen-tie visibility are located between 3.5 and 4.7 miles from the Facility. At these distances it would be difficult to perceive the narrow lighting masts which are the tallest elements of the substations (see Section 1.2 in Appendix 20-D). In addition, potential visibility of the substations and gen-tie line from S/NRHP-listed historic properties was primarily limited to portions of land inside the parcel boundary rather than from the main historic structure.

Operational Sound/Vibration Impacts (see Exhibit 19)

The assessment of potential sound-related impacts from the Facility is discussed in detail in Exhibit 19 (Hessler, 2019; see Appendix 19-A). This subsection focuses on potential operational sound/vibration impacts to S/NRHP-eligible historic properties within the Historic Resources Study Area. Construction-related sound/vibration impacts are not considered because they will be short-term and temporary in nature. Relevant to sound and vibration impacts to S/NRHP-eligible cultural resources, the implementing regulations for New York State Parks, Recreation and Historic Preservation Law, Section 14.09 (9 NYCRR § 428.7) state:

In determining whether an undertaking will have an adverse impact on eligible or register property, the commissioner shall consider whether the undertaking is likely to cause:

- 1. destruction or alteration of all or part of the property;
- 2. isolation or alteration of the property's environment;
- 3. introduction of visual, audible or atmospheric elements which are out of character with the property or alter its setting;
- 4. neglect of the property resulting in its deterioration or destruction. [emphasis added] (9 NYCRR § 428.7)

In addition, the Federal Regulations entitled "Protection of Historic Resources" (36 CFR Part 800) include in Section 800.5(2) a discussion of potential adverse effects on historic resources:

"Adverse effects on historic properties include but are not limited to: . . . (iv) Change of the character of the property's use or of physical features within the property's setting that contribute to its historic significance; [and] (v) *Introduction of visual, atmospheric or audible elements that diminish the integrity of the property's significant historic features*. . ." [emphasis added]

Compared to all other types of power generation facilities, the potential for any kind of adverse auditory effect from a PV solar energy facility is minimal to non-existent. Moreover, such facilities have the unique characteristic of only operating during daylight hours when ambient noise is higher. Any possible concerns about the sound emissions from a solar project are largely confined to the step-up transformer in the new substation, electrical inverters within the various solar panel fields and some short-lived activities during construction. There are no vibration issues associated with the operation of such a facility.

The potential auditory effect of the Facility was studied in the Existing Conditions Background Sound Surveys and Noise Impact Assessment (Hessler, 2019; see Appendix 19-A) and described in Exhibit 19 of the Article 10 application. Field surveys were conducted during both winter and summer conditions to establish existing levels of background noise at the nearest residence to the Facility substation. The existing background sound level was then compared to the anticipated sound levels of construction and operation of the proposed Facility in order to gauge audibility relative to the natural environment. Sound levels are calculated using A-weighted decibels (dBA), an expression of the relative loudness of sounds in air as perceived by human hearing.

The step-up transformer in the new substation had a calculated sound level of 32 dBA at the nearest residence, which is extremely quiet, and likely not audible. The electrical inverters had a calculated sound level of 26 dBA at the nearest residence, which is also most likely inaudible. By comparison, the current ambient noise levels in the Historic Resources Study Area average between 28 dBA in winter and 35 dBA in summer. Higher levels of sound up to approximately 85 dBA are anticipated to be generated during Facility construction, but this will be similar in duration and volume to levels reached during the construction of a private residence. Based on this analysis, it is unlikely that there will be any auditory effects on historic resources within the Historic Resources Study Area.

Summary of Facility's Potential Effect on Historic Properties

The potential effect of the Facility on the visual setting associated with historic resources is dependent on a number of factors including the distance to the Facility, the number of visible PV panels, the extent to which the Facility is screened or partially screened by buildings, trees, or other objects, and the amount of existing visual clutter and/or modern intrusions in the view. The introduction of large-scale PV panel arrays would occupy portions of the traditionally open fields that contribute to the historic character of the visual setting of historic properties which have been determined to be significant NYSOPRHP/SHPO. In some areas, the change from open expanses of natural green fields to clusters of modern, metallic, rectilinear PV panels would be quite noticeable. Given the specific topography of the Historic Resources Study Area, the Facility is likely to have an effect on the visual setting of locations in the within 0.5-mile of Facility components, and little to no effect on the setting of properties located greater than 0.5-mile from the Facility, from which a viewer would have difficulty perceiving the Facility.

To further minimize and mitigate the visual effect of the Facility, a conceptual visual mitigation planting plan was developed by the Applicant as part of the VIA for the Facility (see Exhibit 24 and Appendix 24-A). While the planting modules were not designed to completely screen views of the proposed Facility, the introduction of native tree and shrub mixes interspersed with pollinator plants along the roadsides adjacent to the Facility will present natural forms and colors to divert attention from the modern materials and inorganic forms of the PV panel arrays.

There is not anticipated to be any auditory effect from the Facility on historic resources located within the Historic Resources Study Area.

The Applicant anticipates that ongoing consultation with NYSOPRHP/SHPO (and other applicable consulting parties) regarding potential visual and auditory impacts of the Facility on above ground historic resources will continue through the Article 10 process and that NYSOPRHP's/SHPO's evaluation regarding potential effects and/or identification of any required mitigation will be determined as part of the U.S. Army Corps of Engineers review of the Facility under Section 106 of the National Historic Preservation Act. Section 106 review would be triggered by submission of a Joint Application for Permit, which is anticipated to occur following the submission of the Article 10 Application.

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