Development & Facilities Services
298 E. Depot Street, Ste 100 | Mocksville, NC 27028 | 336.753.6050 | f 336.751.7689
DavieCountyNC.gov

There will be a meeting of the **Davie County Planning Board** on **Tuesday February 23, 2021 at 6:00 p.m.** at the **Brock Performing Arts Center Auditorium located at 622 N. Main Street** Mocksville, N.C. The public is invited to attend. Business will be conducted as follows:

**A. Call to order**

**B. Approval of the Minutes** of October 27, 2020

**C. Public Comment**.

**D. Zoning Map Amendment 2020-05.** Junction Solar Project LLC has applied to rezone 853.35 acres of land consisting of six parcels from Residential Agricultural (R-A), Residential 20 (R-20) and Cooleemee Zoning Overlay District (CZ-O) to Special Purpose-Special Conditions (SP-S) to operate a solar energy generating facility. The proposed solar facility will occupy approximately 545 acres of the total 853 acres. The subject properties are located along Junction Road and Ratledge Road. The properties are further described as parcels of the Davie County Tax Map K300000065, K300000058, L300000017, L400000016, L400000055 and L400000017.

**E. Old or New Business**

**F. Adjournment.**

# Minutes of the
# Davie County Planning Board
# October 27, 2020

## A. CALL TO ORDER

| Attendee Name | Title | Status |
|---|---|---|
| Ellen Grubb | Board Member | Present |
| Mark White | Board Member | Present |
| Mariam Wright | Board Member | Present |
| Jeffrey Allen | Chairman | Present |
| Jeffrey Vaughn | Board Member | Absent |
| Wendy Gallimore | Board Member | Present |
| Alan Miller | Alternate Member | Present |
| Tamara Taylor | Alternate Member | Present |

Others present: Andrew Meadwell, Amy Flyte, Adam Barr
Chairman Allen called the meeting to order.

## B. APPROVAL OF THE MINUTES: REGULAR MEETING – AUG 25, 2020

| | |
|---|---|
| **RESULT:** | **APPROVED [UNANIMOUS]** |
| **MOVER:** | Wendy Gallimore |
| **SECONDER:** | Ellen Grubb |
| **AYES:** | Grubb, White, Wright, Allen, Gallimore, Miller, Taylor |
| **ABSENT:** | Vaughn |

## C. PUBLIC COMMENT

There were none.

**D. ZONING MAP AMENDMENT.** Roger Hunckler has applied to amend the conditions for a 4.683 acre parcel of land zoned Highway Business-Special Conditions (HB-S) to add the use Services B as an approved use for the property. The subject property is located at 3311 US HWY 601 N. The property is further described as parcel of the Davie County Tax Map E300000097.

Andrew Meadwell introduced the item.

Chairman Allen open the public comment period.

1. Roger Hunckler, the applicant, outlined the project and answered questions.

Chairman Allen closed the public comment period.

The Board held discussion on the proposed amendment.

Mariam Wright made a motion to approve: the amendment is consistent with all applicable adopted plans and considers the action to be reasonable and in the public interest.

| | |
|---|---|
| **RESULT:** | **CONDITIONS APPROVED [UNANIMOUS]** |
| **MOVER:** | Mariam Wright |
| **SECONDER:** | Mark White |
| **AYES:** | Grubb, White, Wright, Allen, Gallimore, Miller, Taylor |
| **ABSENT:** | Vaughn |

Minutes Acceptance: Minutes of Oct 27, 2020 6:00 PM (Approval of the Minutes)

**E**. **ZONING TEXT AMENDMENT 2020-02.** The Board reviewed text amendments of the Zoning Ordinance regarding temporary use, borrow pits.

Andrew Meadwell introduced the item.

Chairman Allen open the public comment period.

Chairman Allen closed the public comment period.

The Board held discussion on the proposed amendment.

Tamara Taylor made a motion to approve: the amendment promotes public health, safety and general welfare; is consistent with all applicable adopted plans and considers the action to be reasonable and in the public interest; that said approval furthers the goals, objectives, actions and policies of the Land Development Plan and Growth Enhancement Strategy by addressing site development needs.

| | |
|---|---|
| **RESULT:** | **APPROVED [UNANIMOUS]** |
| **MOVER:** | Tamara Taylor |
| **SECONDER:** | Mark White |
| **AYES:** | Grubb, White, Wright, Allen, Gallimore, Miller, Taylor |
| **ABSENT:** | Vaughn |

**F**. **ZONING TEXT AMENDMENT 2020-01.** The Board will review text amendments of the Zoning Ordinance regarding compliance with General Statute 160D

Amy Flyte introduced the item.

Chairman Allen open the public comment period.

Chairman Allen closed the public comment period.

The Board held discussion on the proposed amendment.

Mariam Wright made a motion to approve: the amendment is consistent with all applicable adopted plans and considers the action to be reasonable and in the public interest.

| | |
|---|---|
| **RESULT:** | **APPROVED [UNANIMOUS]** |
| **MOVER:** | Mariam Wright |
| **SECONDER:** | Jeff Allen |
| **AYES:** | Grubb, White, Wright, Allen, Gallimore, Miller, Taylor |
| **ABSENT:** | Vaughn |

**E. OLD OR NEW BUSINESS**

There was none.

**F. ADJOURNMENT**

Minutes Acceptance: Minutes of Oct 27, 2020 6:00 PM (Approval of the Minutes)

| | |
|---|---|
| **RESULT:** | **ADJOURNED [UNANIMOUS]** |
| **MOVER:** | Wendy Gallimore |
| **SECONDER:** | Ellen Grubb |
| **AYES:** | Grubb, White, Wright, Allen, Gallimore, Miller, Taylor |
| **ABSENT:** | Vaughn |

**Davie County**
**ZONING MAP AMENDMENT 2020-05** **Submittal Date**
**Junction Solar Project LLC** **October 26, 2020**

**STAFF REPORT TO THE PLANNING BOARD** **Planning Staff**
February 23, 2021 Meeting Date Amy Flyte

## I. REQUEST

To rezone an 853.35 acres of land consisting of six parcels from Residential Agricultural (R-A), Residential 20 (R-20) and Cooleemee Zoning Overlay District (CZ-O) to Special Purpose-Special Conditions (SP-S) to operate a solar energy generating facility. The proposed solar facility will occupy approximately 545 acres of the total 853 acres.

Each of the six parcels vary in acreage size and all are part of this application packet.

- K300000065: Cartner property, 98 acres
- K300000058: Shore property, 44 acres
- L300000017: Shore property: 80 acres
- L400000016: Forks of the Yadkin Museum property: 283 acres
- L400000055: Forks of the Yadkin Museum property: 299 acres
- L400000017: Sapp & Moose property, 49 acres

## II. PROJECT LOCATION

The properties are located along Junction Road and Ratledge Road. The properties are further described as parcels of the Davie County Tax Map K300000065, K300000058, L300000017, L400000016, L400000055, and L400000017. The parcels are not all adjoining.

## III. PROJECT PROFILE

DAVIE COUNTY PIN: K300000065, K300000058, L300000017, L400000016, L400000055, and L400000017.

ZONING DISTRICT: Residential Agricultural (R-A), Residential-20 (R-20), and Cooleemee Zoning Overlay District (CZ-O)

LAND USE PLAN: Rural Residential, Conservation, Industrial.

WATERSHED: WS-IV-P

FLOOD PLAIN: located on portions of parcels L300000017, L400000016 and L400000055. See maps below.

CROSS REFERENCE FILES: N/A

APPLICANT: Junction Solar Project LLC

Attachment: StaffReport_Junction_Rd_SP_20210223 (Zoning Map Amendment_2020-05 Junction Solar Project LLC)

PROPERTY OWNERS: Sam Cartner, James Cartner, David Cartner, Jerry Shore, Linda Shore, Brandon Shore, Candace Shore, Forks of the Yadkin and Davie County History Museum c/o Mark Hager, Barbara Moose and Kathy Sapp

PROPERTY SIZE: 853.35 acres

CURRENT LAND USE: agricultural

PROPOSED LAND USE: solar farm

**PROJECT SETTING – SURROUNDING ZONING DISTRICTS AND LAND USES**

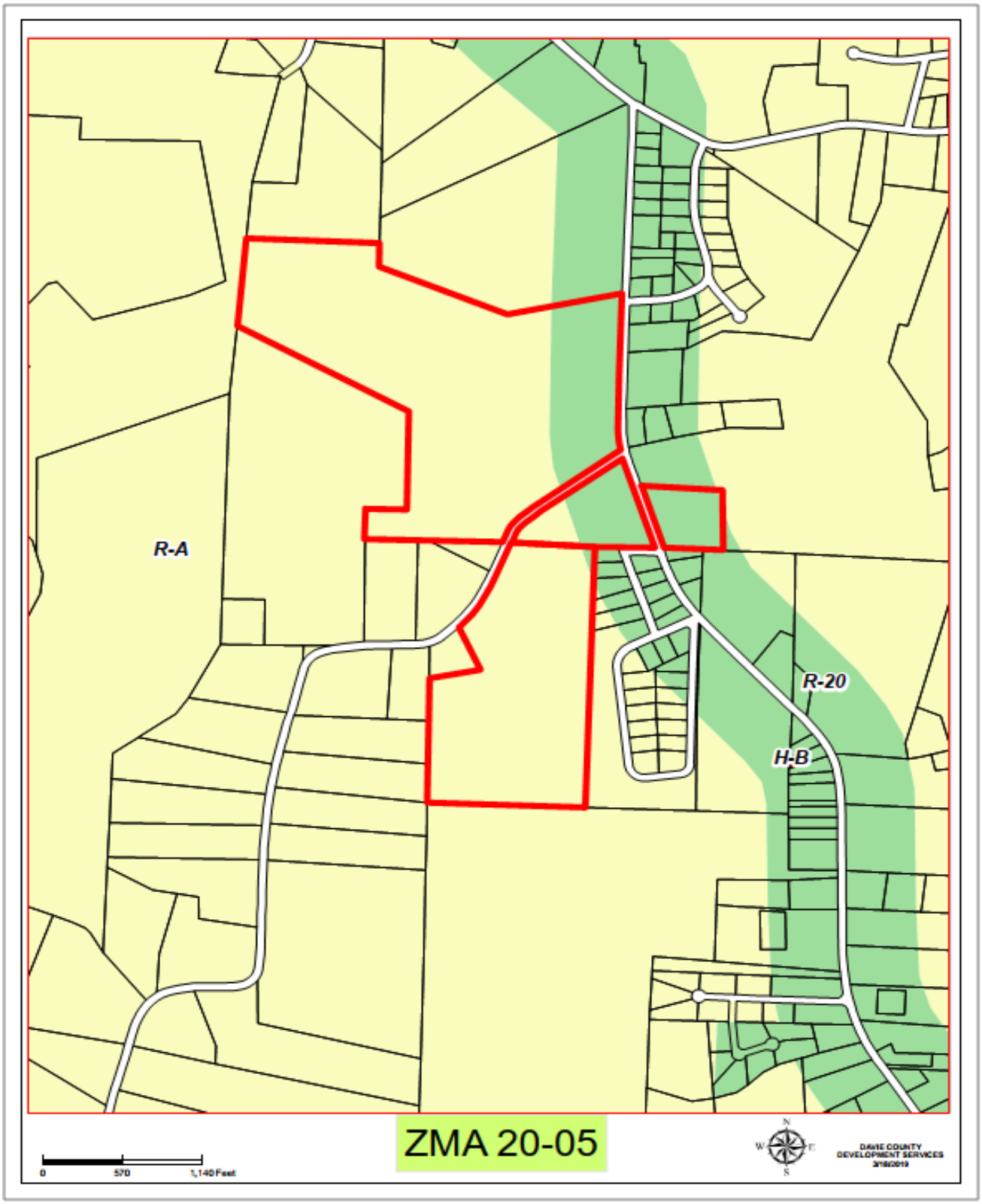
| DIRECTION | LAND USE | ZONING |
|---|---|---|
| North | Residential/agricultural | R-20, R-A |
| West | Residential/agricultural | R-20, R-A |
| South | Residential/agricultural | R-20, R-A |
| East | Residential/agricultural, solar farm off Crawford Road | R-20, R-A |

We have broken down the six parcels of this request into three mapping areas.

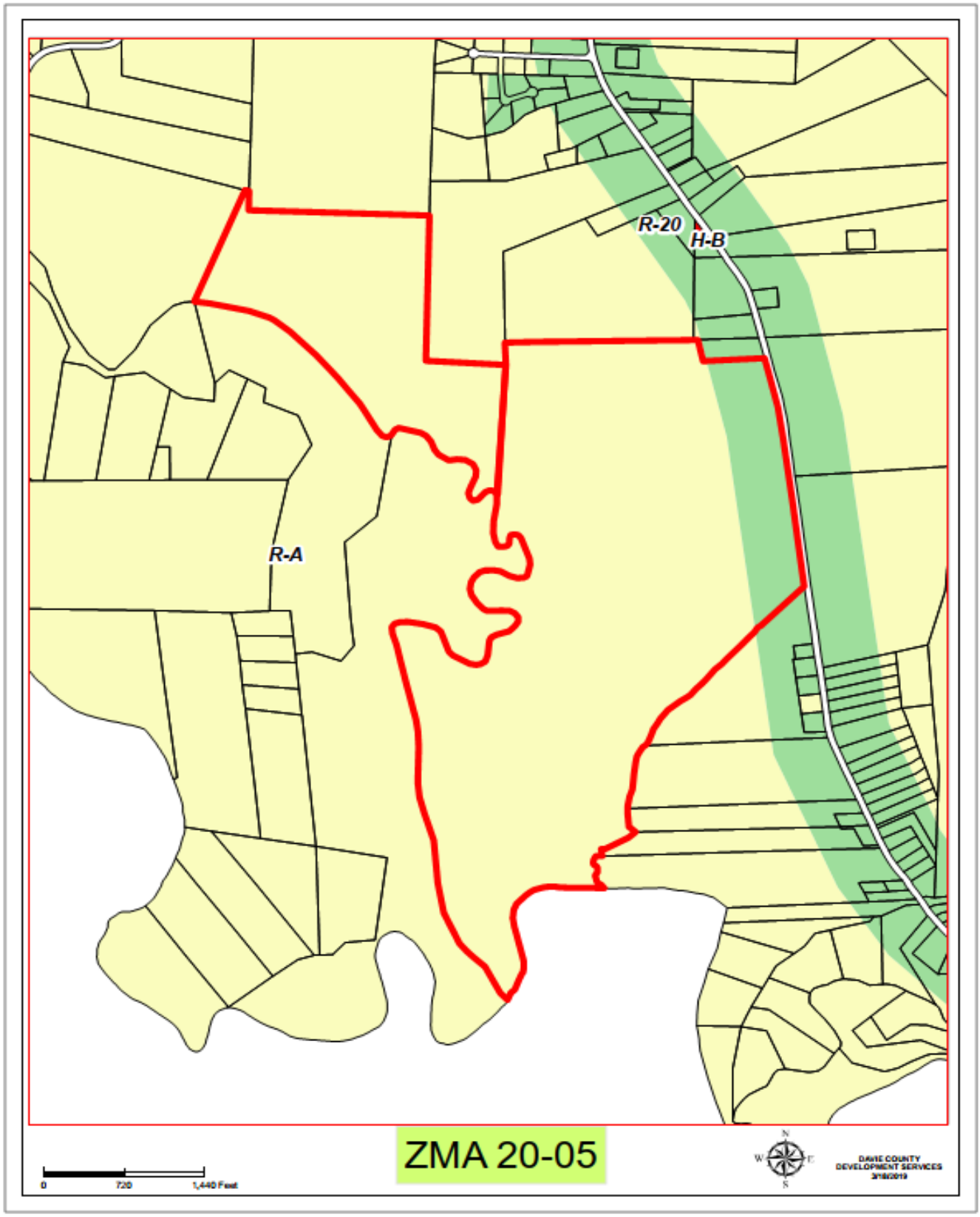
1. The area at the intersection of Junction Road & Ratledge Road. This includes two of the requested parcels.
2. An area along the western side of Junction Road. This includes two of the requested parcels and is located between 898 Junction Road and 1116 Junction Road.
3. An area along the eastern side of Junction Road. It is essentially across the street from area 2 and includes the final 2 parcels of the request.

Attachment: StaffReport_Junction_Rd_SP_20210223 (Zoning Map Amendment_2020-05 Junction Solar Project LLC)

## IV. Zoning Maps




Attachment: StaffReport_Junction_Rd_SP_20210223 (Zoning Map Amendment_2020-05 Junction Solar Project LLC)

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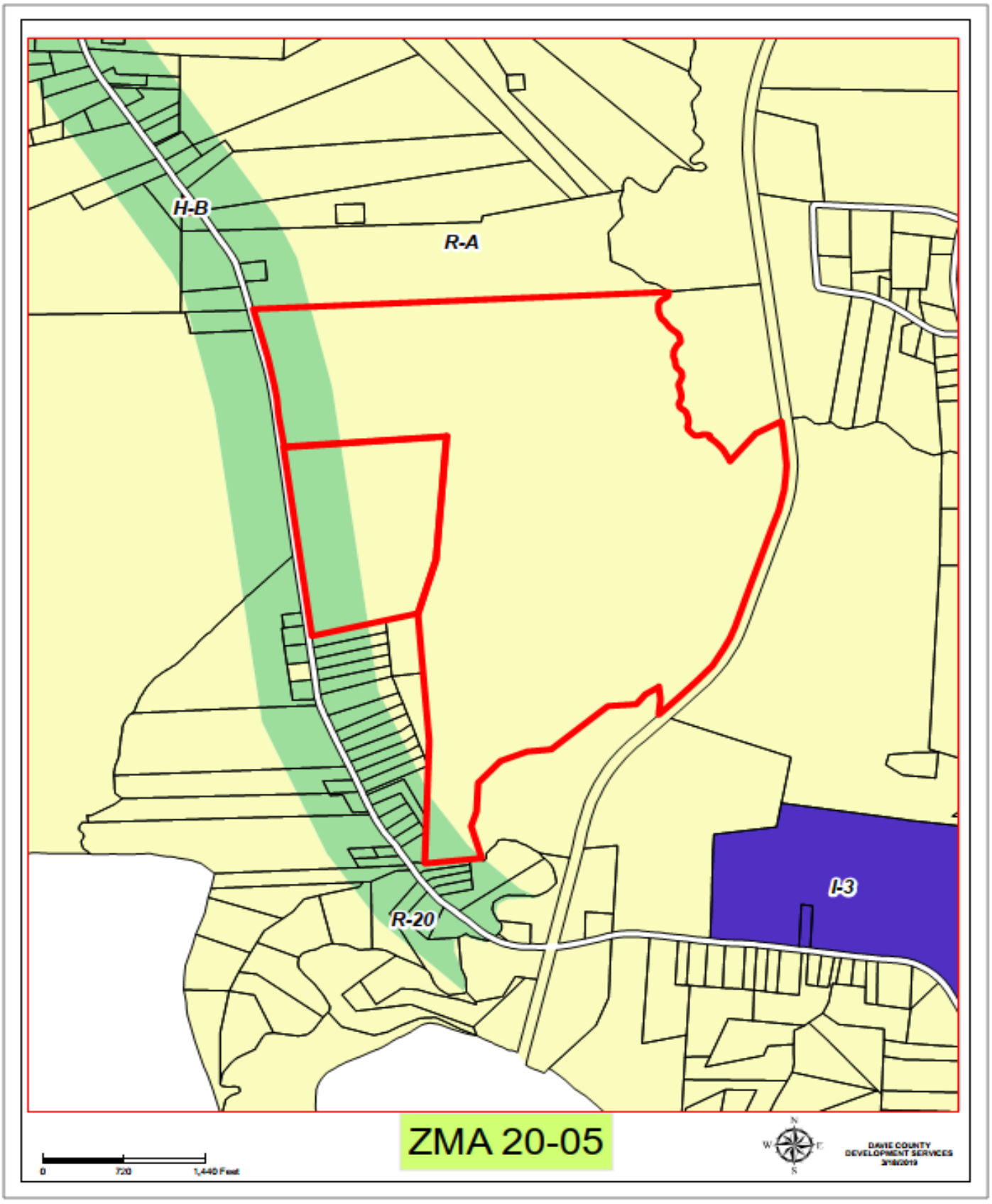
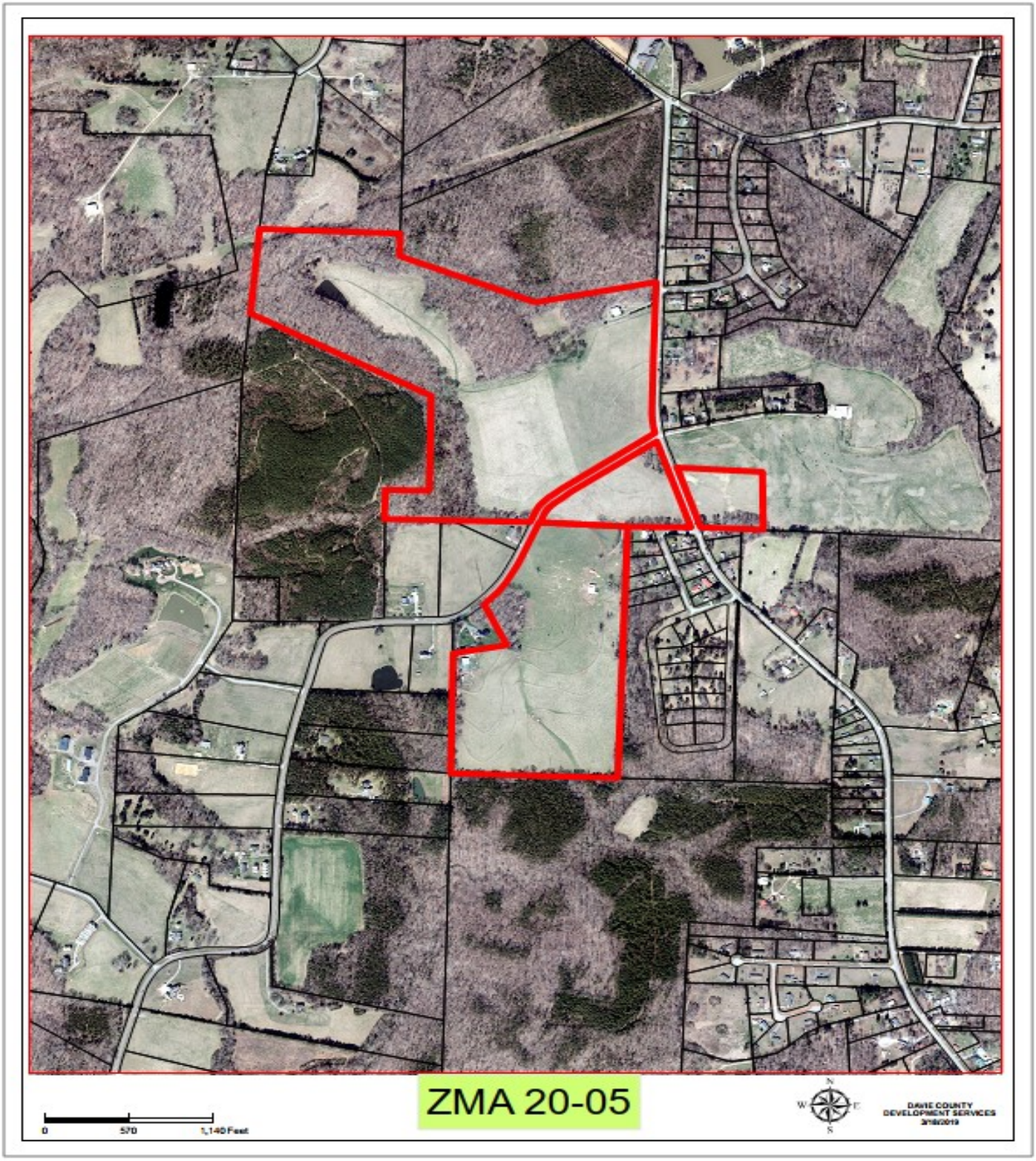



Attachment: StaffReport_Junction_Rd_SP_20210223 (Zoning Map Amendment_2020-05 Junction Solar Project LLC)

## V. 2018 Aerial Maps

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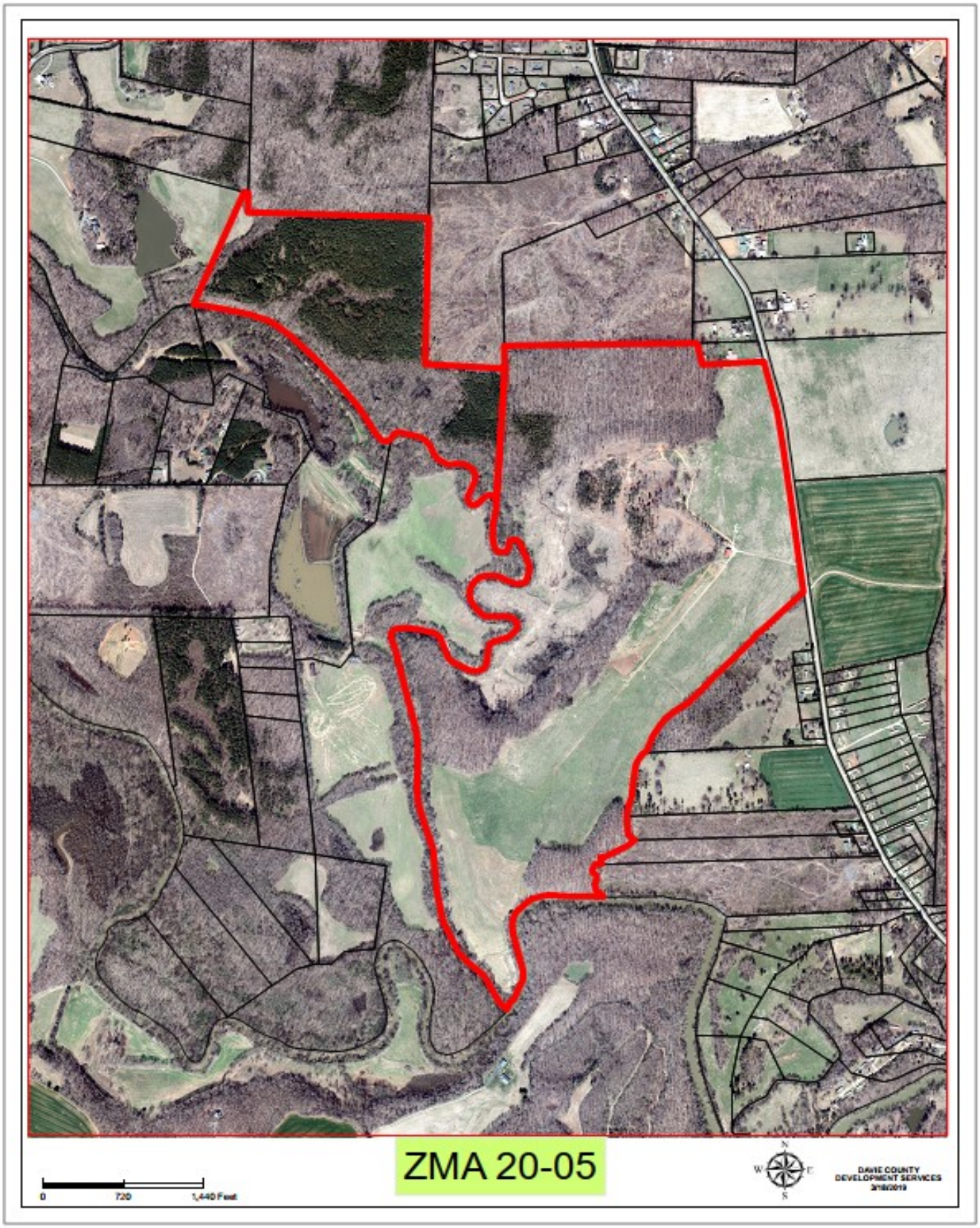


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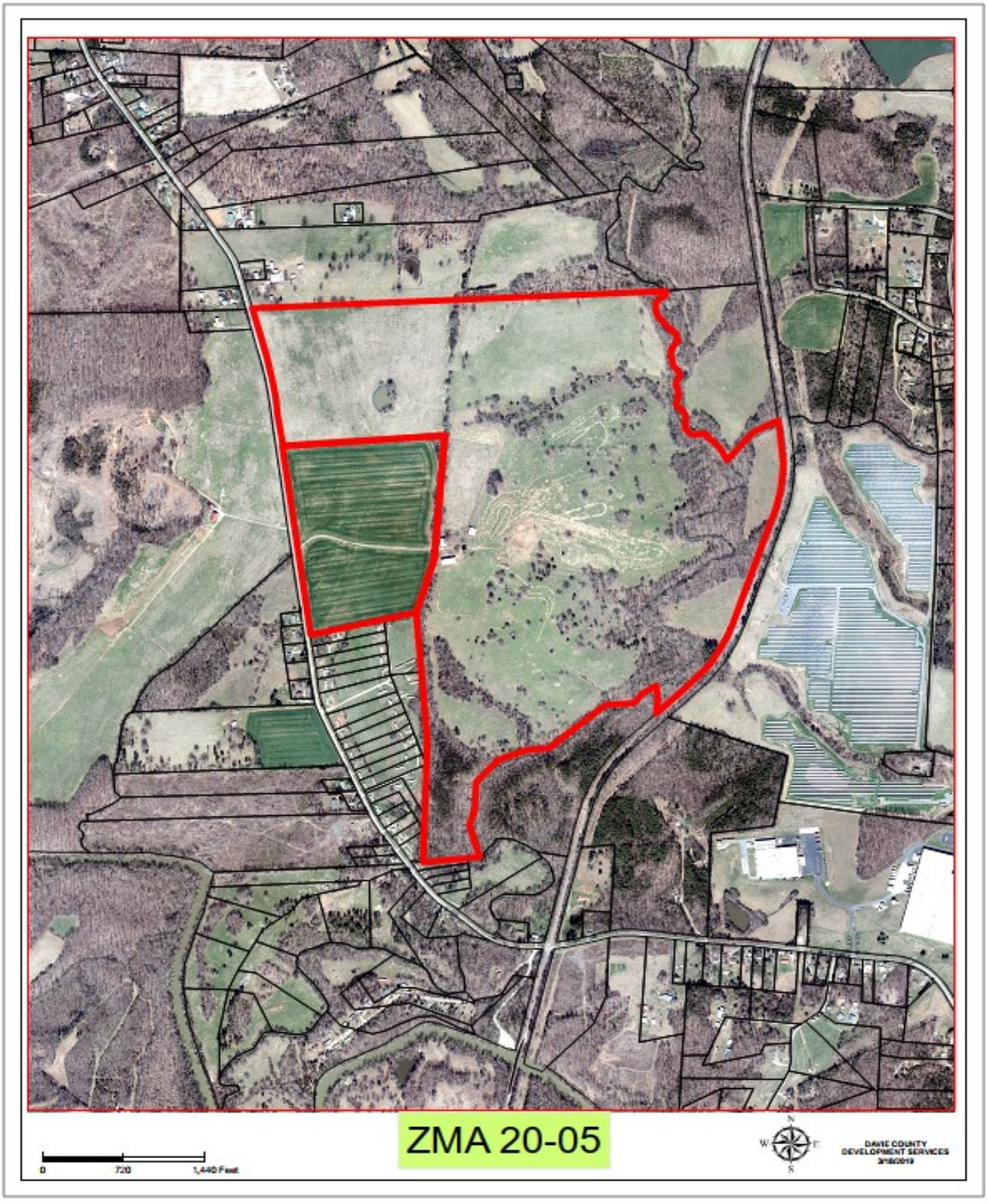
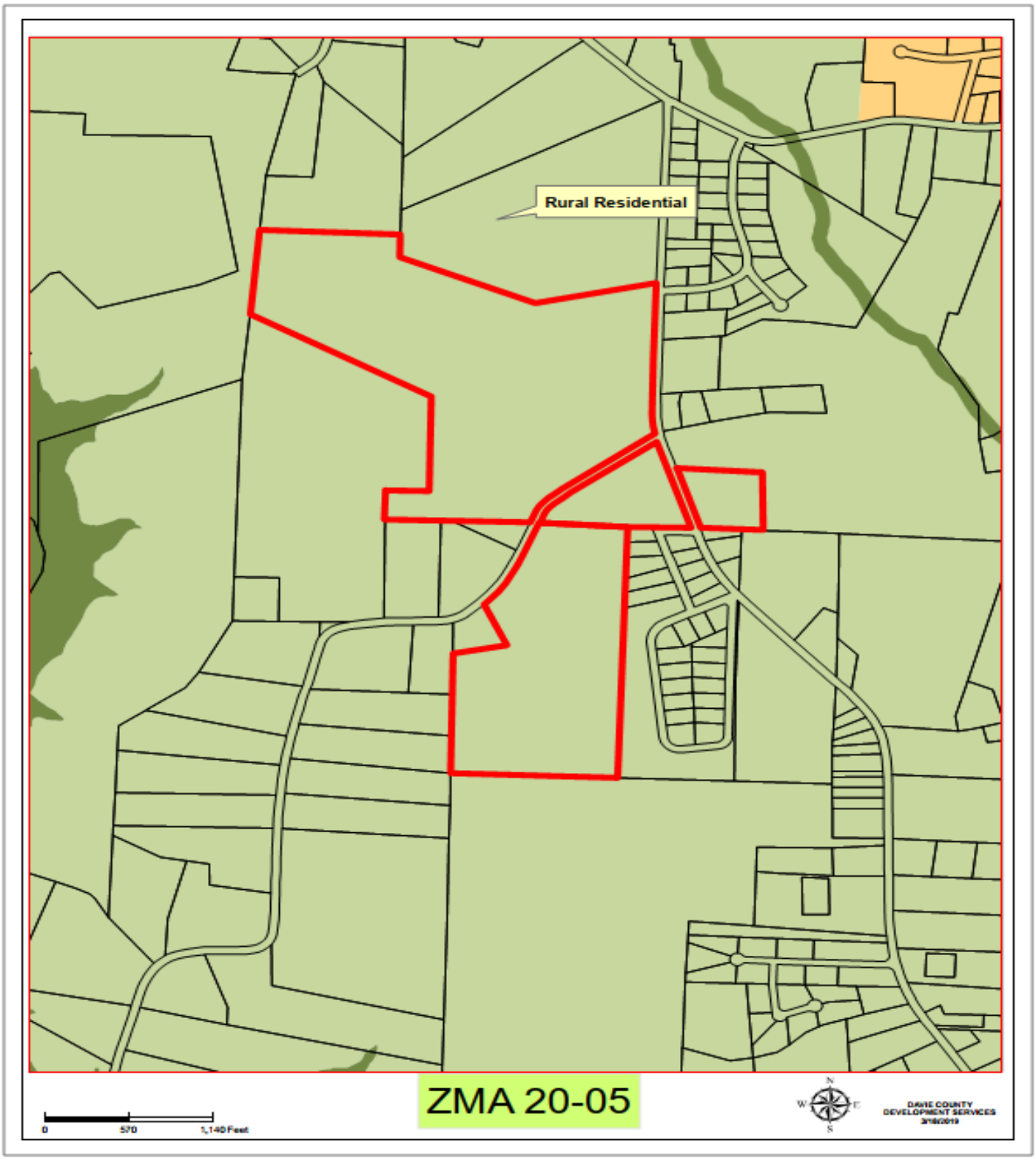



Attachment: StaffReport_Junction_Rd_SP_20210223 (Zoning Map Amendment_2020-05 Junction Solar Project LLC)

## VII. Land Development Plan Maps

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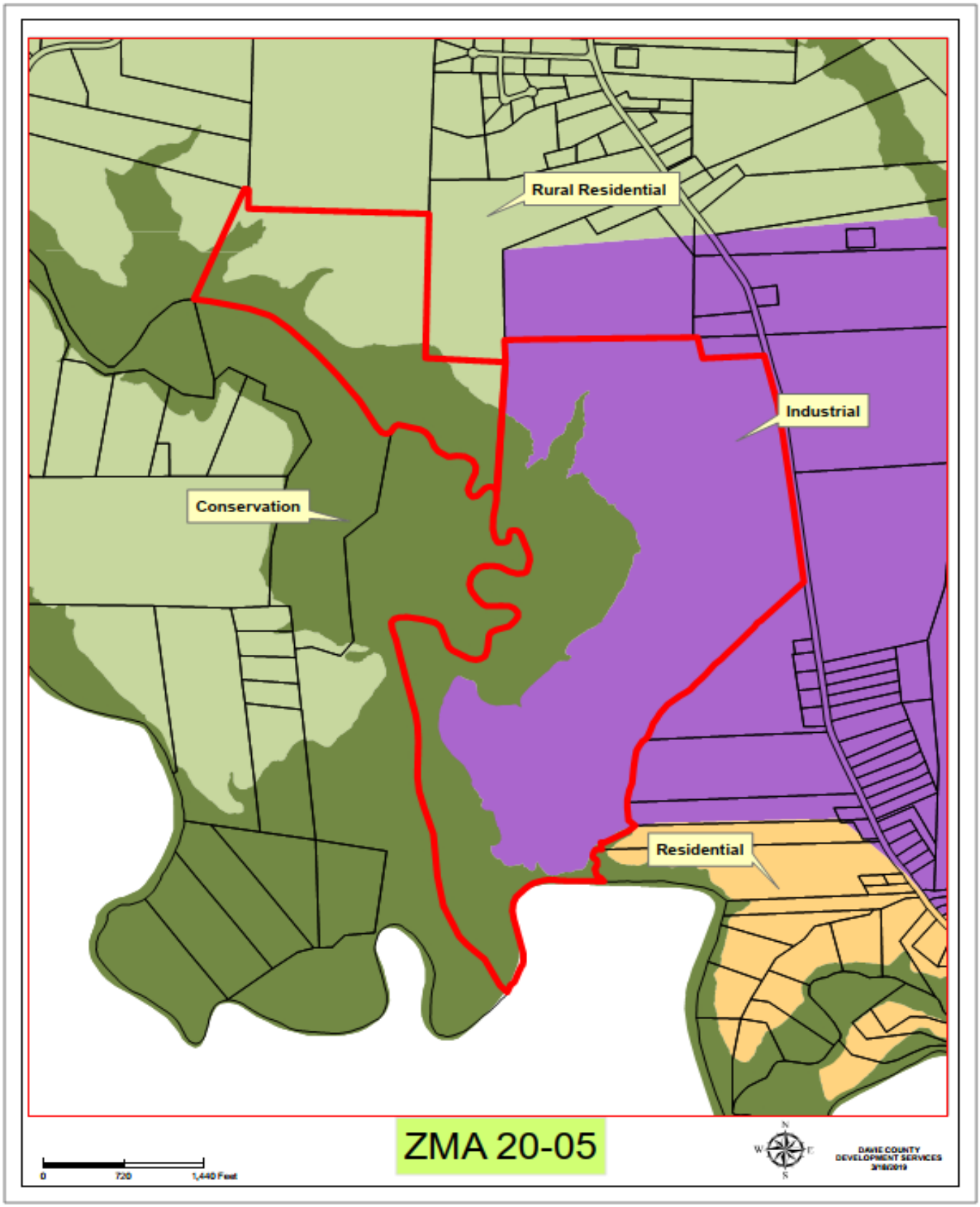


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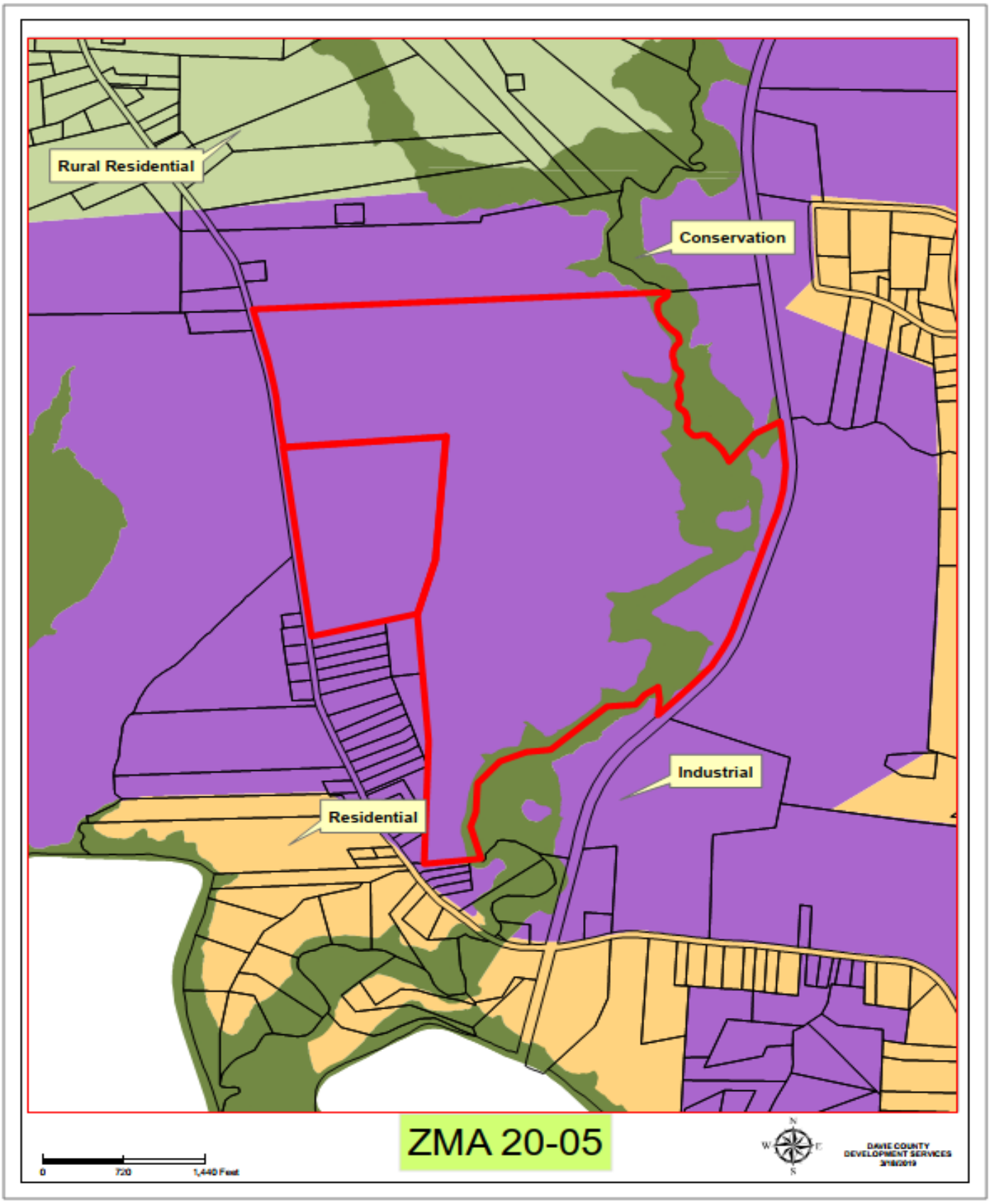
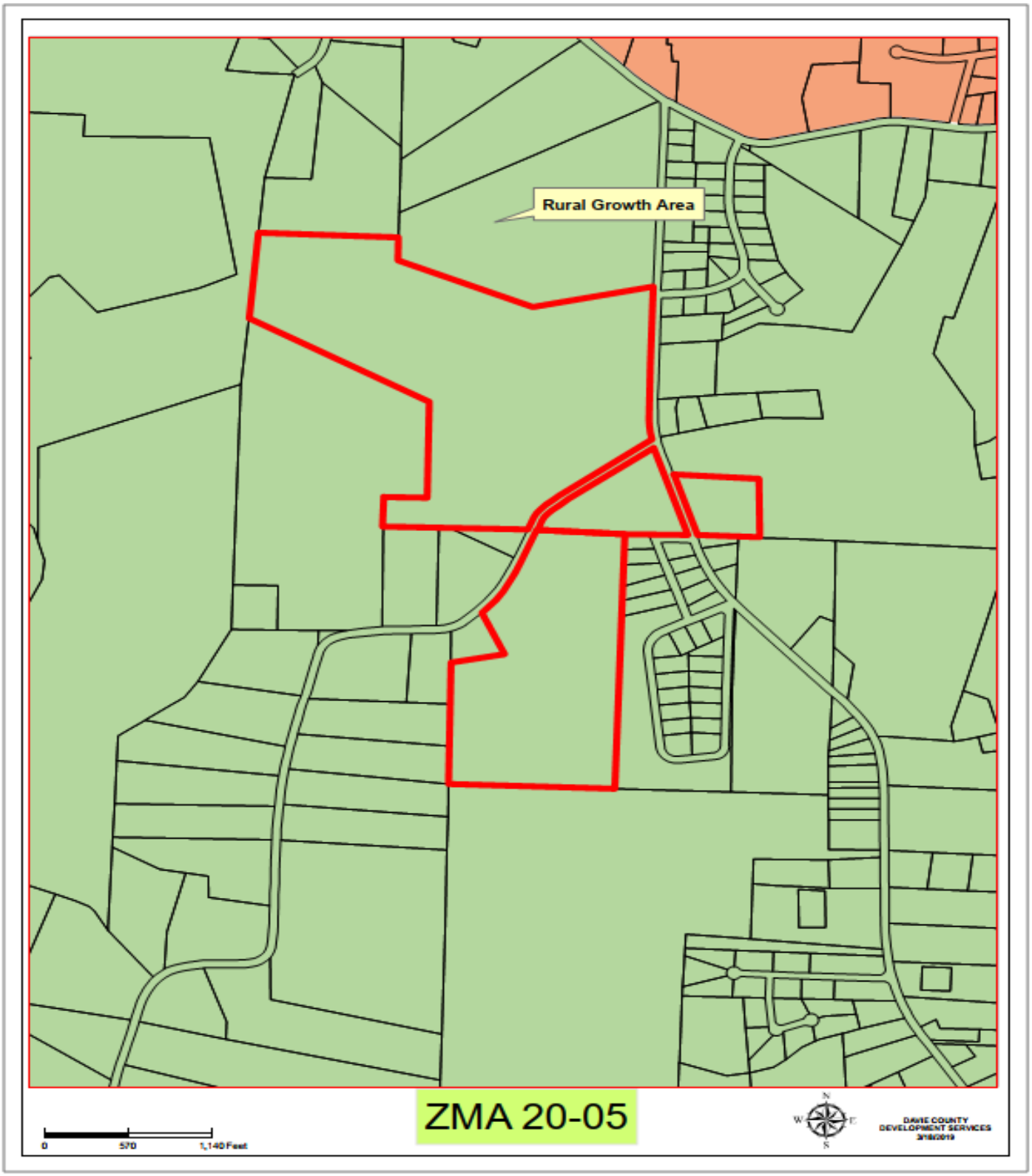



Attachment: StaffReport_Junction_Rd_SP_20210223 (Zoning Map Amendment_2020-05 Junction Solar Project LLC)

## VIII. Davie County Growth Enhancement Strategy Maps

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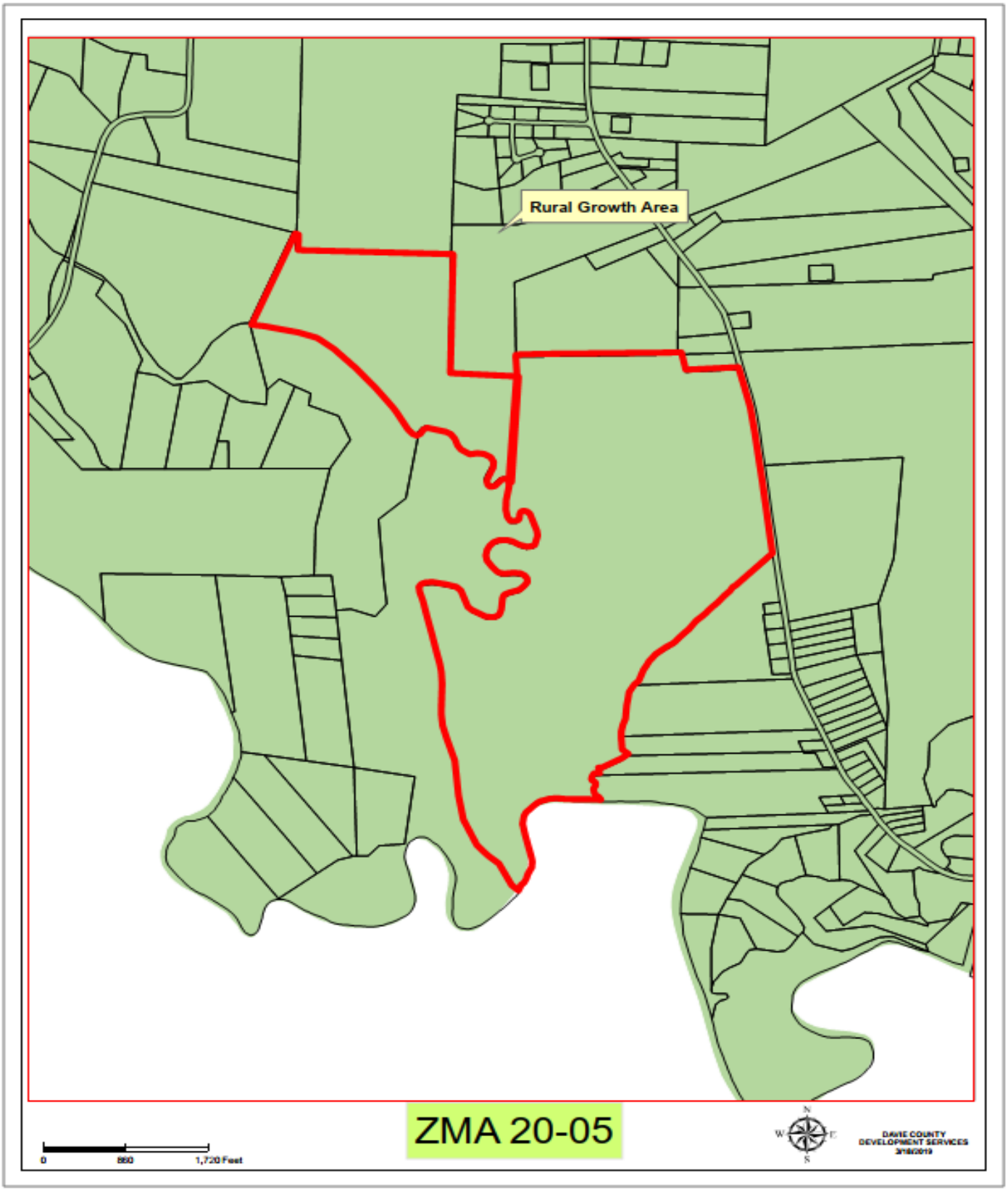


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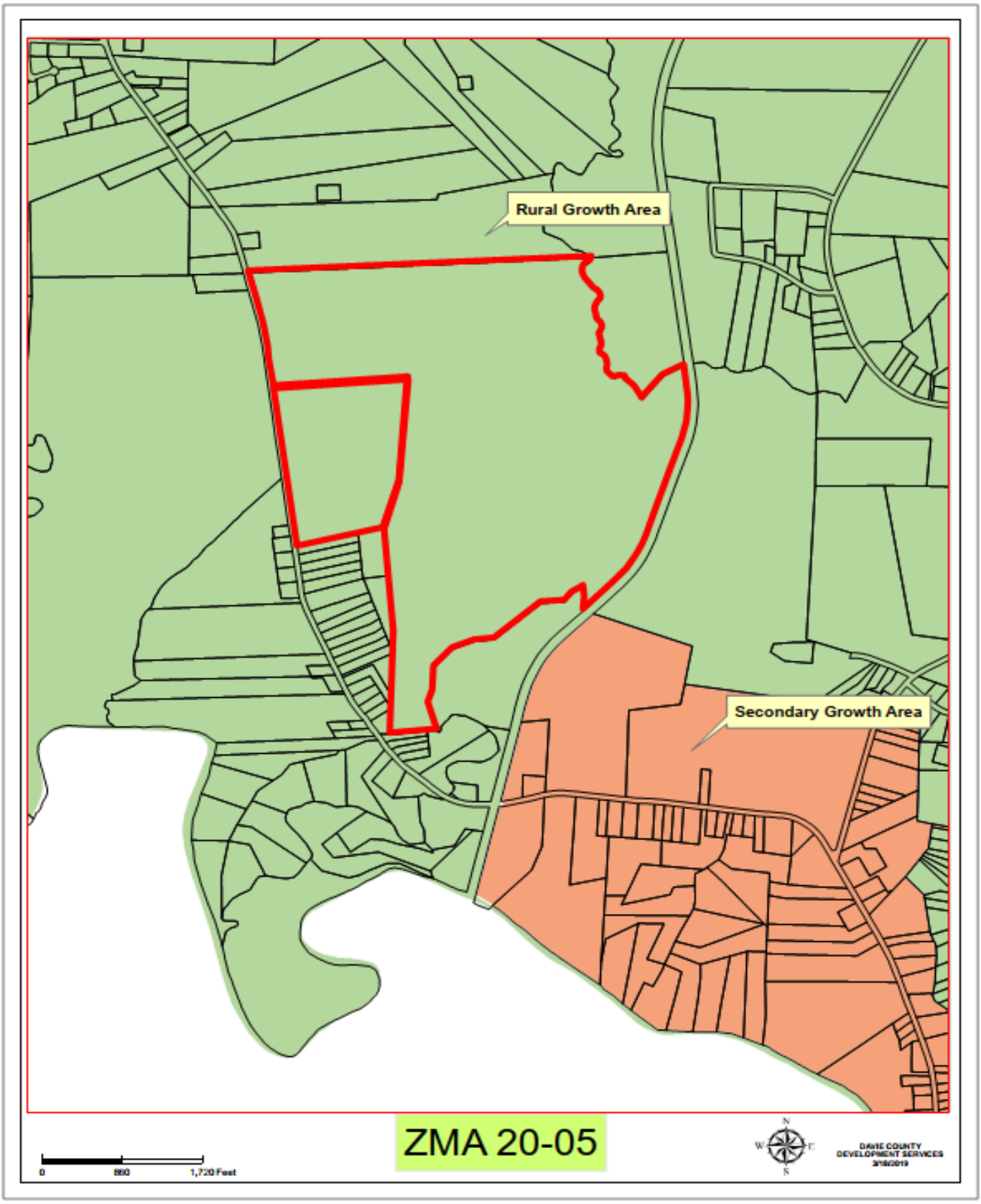
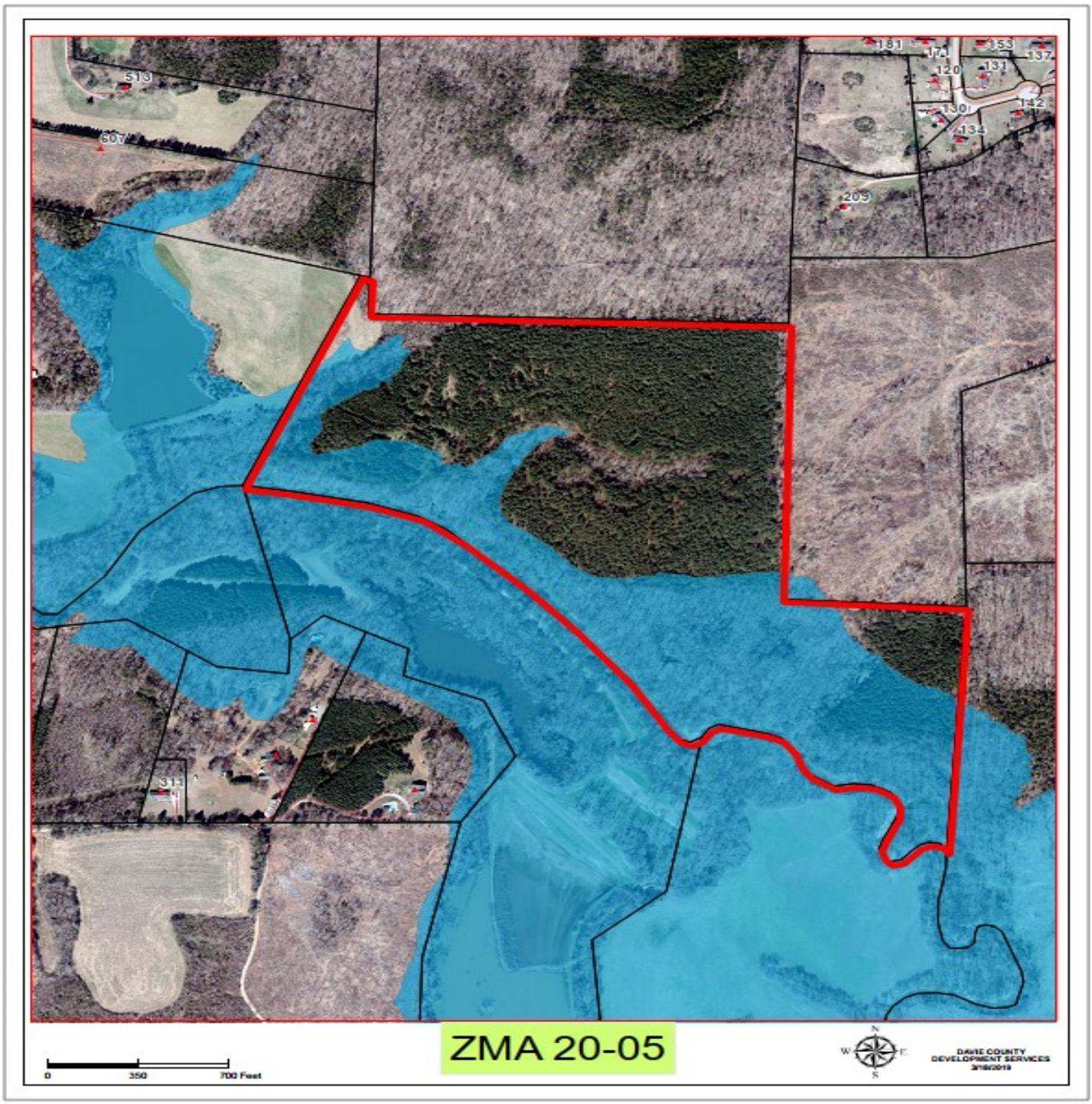


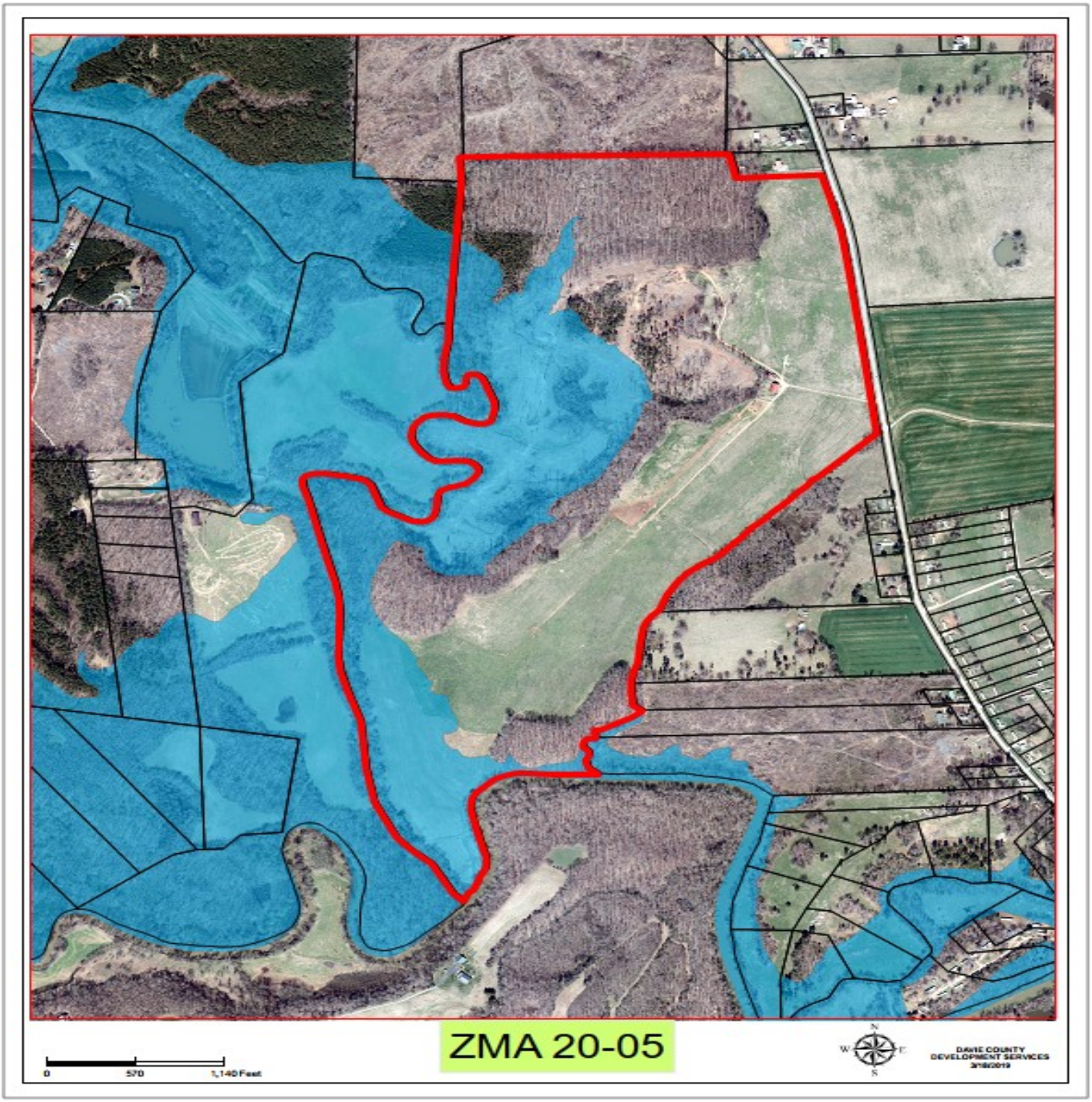

Attachment: StaffReport_Junction_Rd_SP_20210223 (Zoning Map Amendment_2020-05 Junction Solar Project LLC)

**Floodplain Maps:**
**Parcel L300000017**



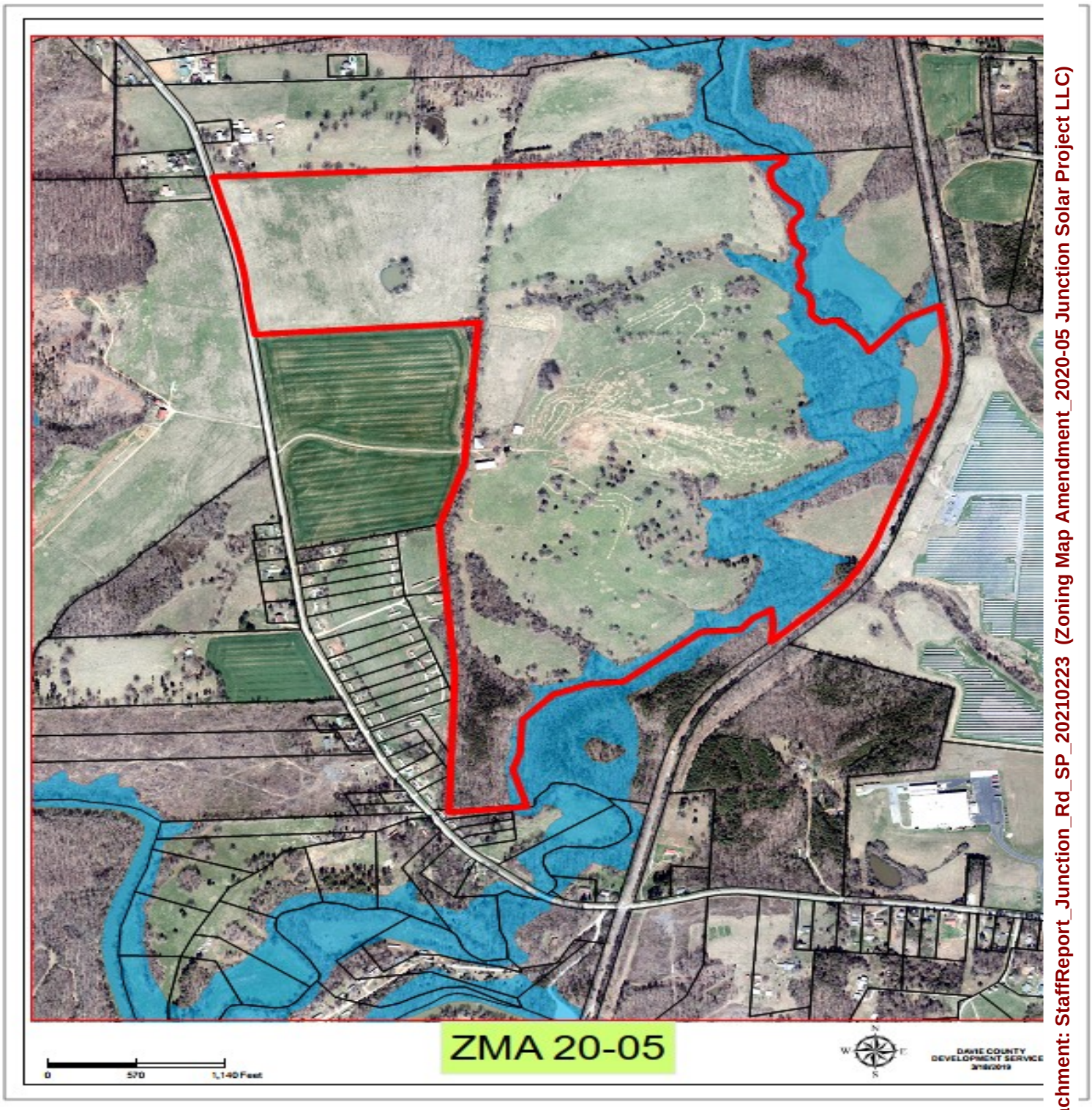

Attachment: StaffReport_Junction_Rd_SP_20210223 (Zoning Map Amendment_2020-05 Junction Solar Project LLC)

**Parcel L400000016**




Attachment: StaffReport_Junction_Rd_SP_20210223 (Zoning Map Amendment_2020-05 Junction Solar Project LLC)

**Parcel L400000055**




Attachment: StaffReport_Junction_Rd_SP_20210223 (Zoning Map Amendment_2020-05 Junction Solar Project LLC)

## IX. LAND USE/ ZONING HISTORY

- **1973:** The properties are originally zoned Residential (R-20)/Residential Agricultural (R-A).

### A. Proposed Zoning: 155.151 Special Purpose zoning district

(A) Intent. The Special Purpose district is established to accommodate uses that may constitute health or safety hazards, have greater than average impacts on the environment, or diminish the use and enjoyment of nearby property by generation of noise, smoke, fumes, odors, glare, vibration, commercial vehicle traffic, or similar nuisances.

(B) Dimensional requirements.

1. Lot size. Twenty-five (25) acres shall be the minimum lot area. Any part of the property located in the road right-of-way shall not be included in this minimum lot area.
2. Lot width. No specified minimum.
3. Front yard. One hundred feet shall be the minimum setback of the structure or any installed equipment, measured from the nearest point of the building and the right-of-way line.
4. Side yard setback. Twenty-five feet shall be the minimum side yard for each structure or any installed equipment, measured from the nearest point of the building to the side lot line.
5. Rear yard setback. Forty feet shall be the minimum rear yard for each structure or any installed equipment, measured from the point of the building nearest the rear line and the rear lot line.
6. Off-street loading and unloading. Buildings constructed or converted to uses permitted in this district shall provide off-street loading and unloading space as required in §§ 155.070 through 155.072 of this chapter.
7. Off-street parking. Requirements specified in §§ 155.050 through 155.053 of this chapter.
8. Buffer strip. Upon any lot line which abuts a residential district or public street, there shall be a densely planted and maintained Type B buffer strip as specified in 155.172 of this chapter.

(C) Access. Except for Solar Energy Generating Facilities, which shall require access to a state maintained road, the Special Purpose site shall be accessed by a major or minor arterial road way as identified on the Davie County Comprehensive Transportation Plan.

(D) Community Meeting. The applicant shall organize and conduct a community meeting with the surrounding property owners at minimum 30 days prior to the scheduled Planning Board meeting date. The petitioner must file in the office of the county clerk a written report of any community meeting held by the petitioner. The report shall include, among other things, a listing of those persons and organizations contacted about the meeting and the manner and date of contact, the date, time and location of the meeting, a roster of the persons in attendance at the meeting, a summary of issues discussed at the meeting, and a description of any changes to the rezoning petition made by the petitioner as a result of the meeting

- The applicant conducted a community meeting on October 15th at the Triple J Manor House. The sign in sheets & copies of letters sent to property owners are attached. A total of 89 letters were sent to property owners and 19 residents attended the floating session from 11am-7pm. The applicant has included a summary of the meeting & discussion topics (see attached). Following the meeting the applicant made 3 revisions to the submittal including increased buffering next to

Attachment: StaffReport_Junction_Rd_SP_20210223 (Zoning Map Amendment_2020-05 Junction Solar Project LLC)

a specific residential home, reducing panels in the area closest to the Native American archeological site and revising the visual simulation photographs.

**B. Special Conditions Zoning- § 155.161 PROCEDURES FOR REGULAR DISTRICTS.**

(B) If the applicant elects to petition for special use district zoning, the petition must specify the actual use intended for the property and it must be one permitted in the corresponding general district. If the petition is for special use district zoning, the Board of Commissioners shall approve or disapprove the petition on the basis of the specific use requested. If the petition is approved, the Board of Commissioners may issue a special use zoning permit authorizing the use with specific conditions. The Planning Director shall maintain a separate file of all special use district zoning permits in the County Zoning Office.

(C) When issuing special use district zoning permits, the Board of Commissioners may place conditions on each specific use. Specific conditions applicable to the districts may be proposed by the petitioner or the county or its agencies, but only those conditions mutually approved by the county and the petitioner may be incorporated into the zoning regulations or permit requirements. Conditions and site-specific standards imposed on a special use district shall be limited to those that address the conformance of the development and use of the site to county ordinances and an officially adopted land development plan or other plans, and those that address the impacts reasonably expected to be generated by the development or use of the site. The intent of this process is to insure compatibility between uses. These conditions may include, but are not limited to the following:

(1) Location of the use on the property;
(2) The location and extent of supporting facilities such as parking lots, driveways, and access streets;
(3) The timing of development;
(4) Location and extent of buffer areas;
(5) Positioning other special purpose areas on the tract;
(6) That petitioners shall incorporate in any future conveyance of this property, a detailed description of this special use and all the conditions imposed; and
(7) Such other matters as may be imposed by the Board of Commissioners.

**B. Utilities**

N/A however, public water & a private septic system appears to be viable options for the site.

**C. Davie County Comprehensive Plan**

The property is located in an area designated as Rural Residential, Industrial, and Conservation. The land use categories presented on the future land use map are intended to indicate the predominant land uses for that particular area of the county. It is not a map of zoning districts but is a general geographical guide for land use and development. The Davie County Comprehensive Plan describes the Rural Residential area as rural activities including farming, rural commercial business, and limited residential development to preserve the rural character of the County. Not intended for intense urban or suburban development, including major residential subdivisions; the Industrial area as industrial and manufacturing uses with adequate street access, water/sewer services, and may require relatively large tracts of land. Intended to preserve and protect important industrial properties from encroachment by non-industrial land uses; and the Conservation area as open or vacant lands preserve the natural environment. Other land uses may be

Attachment: StaffReport_Junction_Rd_SP_20210223 (Zoning Map Amendment_2020-05 Junction Solar Project LLC)

appropriate on a limited basis, but the general land use will be conservation activities which do not impair the environment.

The Comprehensive Plan future development policy recommendations state:

- Preserve the rural character of Davie County.
- Increase education and awareness around housing options and styles: strengthen the County's green and energy efficiency initiatives.
- Support innovative and flexible land planning techniques as a means of encouraging development configurations which are more desirable and which may better safeguard existing natural land and water resources.
- Limit rural area commercial development to local convenience store, farm supply stores, and generally accepted rural retailing establishments and require them to be clustered near road intersections.
- Ensure that the location and design of parking and loading areas is well integrated into the overall development site and is designed to minimize visual and operational offsite impacts whenever practicable.
- Locate industrial development in areas which would not diminish the desirability of existing and planned non-industrial uses or encroach upon existing or planned non-industrial sites.
- Separate heavy industrial sites from non-industrial areas by natural features, mature tree canopy buffering, major transportation facilities, light industrial areas and/or other suitable means.
- Identify and prioritize prime farmland that is most at risk and develop strategies with landowners to preserve their land.
- Promote farmland protection through Voluntary Agricultural Districts and Enhanced Voluntary Agricultural Districts.
- Support marketing and production training and facilitate greater diversity in agricultural enterprises.
- Preserve open space and natural resources.

**E. Davie County Growth Enhancement Strategy**

The property is located in an area that is designated as a Rural Growth Area. This area is characterized by traditional agricultural operations, pasture land, forestry, and open space scattered non-farm residences on large tracts of land. Rural scenic vistas are a natural part of the landscape. There is normally an abundance of large, undeveloped tracts not experiencing significant residential development encroachment or pressure. There are natural, scenic, historic, or other heritage assets that contribute to the special characteristics of the area that might require special conservation and management. Land use changes in this area should be designated to protect the rural character and discourage premature public infrastructure demands by sustaining groundwater recharge capacity.

The Growth Enhancement Strategy describes policies within the rural growth area as:

**Policy 4.2** Highway-oriented commercial uses will be clustered along segments of arterial streets and contain land uses that are mutually compatible and reinforcing in use and design. They will be designed in a way that minimizes signage, access points and excessive lengths of commercial strip development.

**Policy 4.3** Rural area commercial development should be limited to neighborhood business uses, farm supply stores, and generally accepted rural business establishments.

Attachment: StaffReport_Junction_Rd_SP_20210223 (Zoning Map Amendment_2020-05 Junction Solar Project LLC)

**Policy 4.4** Commercial uses will be encouraged to develop by consolidation and deepening of existing commercially zoned property, only when such consolidation and deepening can be developed in a way that lessens the effect of incompatibility with adjoining residential land uses.
**Policy 4.5** Effective buffering and/or landscaping will be provided where commercial development adjoins existing or planned residential uses.
**Policy 4.6** Compatible land uses such as rural neighborhood retail and service establishments located close to general residential areas will be considered during the rezoning process with the general goal of reducing automobile travel distances and promoting better livability in the community.

## X. ISSUES TO CONSIDER

As a Special Conditions rezoning, the Board may place conditions on the use. Conditions and site-specific standards imposed on a special use district shall be limited to those that address the conformance of the development and use of the site to county ordinances and an officially adopted land development plan or other plans and those that address the impacts reasonably expected to be generated by the development or use of the site. The Board may approve or deny, or defer the request for additional consideration. The Board should consider the following in making its recommendation:

1. The property's potential as a residential or agricultural use.
2. If rezoning is approved, any new solar farm will go through a Project Review to ensure compliance with zoning ordinance standards such as setbacks, landscaping, buffers, parking, etc.
3. Whether the proposed reclassification is consistent with the purposes, goals, objectives, and policies of adopted plans for the area.
4. Whether the proposed reclassification is consistent with the overall character of existing development in the immediate vicinity of the subject property.
5. Applicable Zoning Ordinance Sections: The following sections of the Zoning Ordinance are applicable to this request: §155.125(B) Table of Uses; §155.151 Special Purpose district; §155.161(B) Procedures for Special Use Districts; and, §155.250-253 Changes and Amendments.

**DRAFT CONDITIONS:**

1. The site shall be limited to a solar energy generating facility.

## XI. PLANNING BOARD RECOMMENDATION

The Board should consider one of the following actions:

**Rezoning**

☐ **Move that the following statement be adopted in support of a Motion to Approve**; the amendment promotes public health, safety and general welfare; is consistent with most applicable adopted plans and considers the action to be reasonable and in the public interest; that said approval furthers the goals, objectives, actions and policies of the Comprehensive Plan because it is in harmony with the surrounding area and uses, and fits within the County's future land use plans as it integrates within the land use fabric of the county by limiting rural areas to generally accepted uses that protects

Attachment: StaffReport_Junction_Rd_SP_20210223 (Zoning Map Amendment_2020-05 Junction Solar Project LLC)

the character and quality of the County's environment, reducing land use incompatibilities, and insuring adequate public facilities.

☐ **Move that the following statement be adopted in support of a Motion to Deny**, the amendment is consistent with some applicable adopted plans; however the amendment does not promote the public health, safety and general welfare and does not consider the action to be reasonable and in the public interest due to: the amendment does not protect the areas residential, rural historic character, the proposed structure/use is incompatible with the surrounding residential and business structures, the amendment will have detrimental effects and will not protect, enhance and encourage a high quality of life, and image enjoyed by area residents due to…

☐ **Defer** the amendment for additional consideration.

**Conditions**

☐ **Move that the following statement be adopted in support of a Motion to Approve**; the amendment promotes public health, safety and general welfare; is consistent with all applicable adopted plans and considers the action to be reasonable and in the public interest; that said approval furthers the goals, objectives, actions and policies of the Comprehensive Plan because it is in harmony with the surrounding area and uses, and fits within the County's future land use plans as it integrates within the land use fabric of the county by limiting rural areas to generally accepted uses that protects the character and quality of the County's environment, reducing land use incompatibilities, and insuring adequate public facilities.

☐ **Move that the following statement be adopted in support of a Motion to Deny**, the amendment is consistent with some applicable adopted plans; however the amendment does not promote the public health, safety and general welfare and does not consider the action to be reasonable and in the public interest due to: the amendment does not protect the areas residential, rural historic character, the proposed structure/use is incompatible with the surrounding residential and business structures, the amendment will have detrimental effects and will not protect, enhance and encourage a high quality of life, and image enjoyed by area residents due to…

☐ **Defer** the amendment for additional consideration

Attachment: StaffReport_Junction_Rd_SP_20210223 (Zoning Map Amendment_2020-05 Junction Solar Project LLC)

**E. Merrick Parrott**
***Associate***
t: 919.828.0564
f: 919.834.4564
merrickparrott@parkerpoe.com

Parker Poe

Atlanta, GA
Charleston, SC
Charlotte, NC
Columbia, SC
Greenville, SC
Raleigh, NC
Spartanburg, SC
Washington, DC

October 26, 2020

**Via Hand Delivery**

Davie County Department of Development Services
298 E. Depot Street
Mocksville, NC 27028
Phone: 336-753-6050

*Re: Petition for Rezoning to Special Purpose Special Use ("S-P-S") Zoning District by Junction Solar Project LLC for a Solar Energy Generating Facility*

To Whom It May Concern:

Enclosed for filing is the Petition for a rezoning to the S-P-S zoning district by Junction Solar Project LLC to allow for the use as a Solar Energy Generating Facility. The submission includes:

- Petition Form and attachments, including landowner signatures, landowner information, project narrative, and community meeting summary
- Exhibit 1 – Site Plan
- Exhibit 2 – Statement of consistency with Davie County adopted plans
- Exhibit 3 – Community Meeting
- Exhibit 4 – Glare Analysis
- Exhibit 5 – Decommissioning Cost Analysis
- Exhibit 6 – Economic Benefit Analysis
- Exhibit 7 – Health and Safety Study
- Exhibit 8 – Landscape Buffer Visual Simulations
- Exhibit 9 – Supplementary information (recorded deeds and MOLs)

As detailed on the application form, enclosed are two copies of the complete submission, twelve copies of the site plan, and a thumb drive containing a PDF copy of the site plan. Also enclosed is the check payable to Davie County in the amount of $1,000 for the filing fee. Please return a copy of this cover letter, marked received, with our courier.

Thank you again for your attention to this submission. Please let us know if you have any questions or need anything further from us.

Sincerely,

E. Merrick Parrott

Enclosures
cc: Peter Moritzburke (via email)



Attachment: Full application_novPB (Zoning Map Amendment_2020-05 Junction Solar Project LLC)

ZMA No. _____ - _____

# Zoning Amendment Application Package

# Davie County, North Carolina

## Department of Development Services
298 E Depot Street
Mocksville, NC 27028
Phone: (336) 753-6050 - Fax: (336) 751-7689

Website: http://www.daviecountync.gov



Attachment: Full application_novPB (Zoning Map Amendment_2020-05 Junction Solar Project LLC)

ZMA No. _____ - _____

# Zoning Map Amendment Process

## Steps for a Zoning Map Amendment (rezoning)

1. Applicant schedules a pre-application meeting with the staff of the Davie County Development Services no later than 10 days prior to their desired submission deadline (Not mandatory, but highly recommended).
2. Applicant submits their application along with all necessary documentation and fees by the first of the month they desire the Planning Board to hear their case.
3. Davie County Development Services staff reviews and considers application for a Zoning Map Amendment.
4. Application is submitted to the Planning Board for review and consideration. The Planning Board must submit a report on their findings within 30 days of submittal. The Davie County Planning Board generally meets the 4th Tuesday of every month. Please consult the Planning Board's calendar of events on the Davie County Development Services website or contact the staff for a schedule at 336-753-6050. Hearings take place on the Second Floor of the Davie County Administration Building at 123 South Main Street in the Commissioners Chambers. If the Planning Board does not submit a report, then the application gains automatic approval from the Planning Board.
5. The Davie County Board of Commissioners holds a public hearing for application. The Davie County Board of Commissioners generally meets the 1st Monday of every month. All public hearings are located Second Floor of the Davie County Administration Building in the Commissioners Chambers. If the application is denied, the property cannot apply for a new Zoning Map Amendment until 6 months has passed from the previous denial.

## When is a Zoning Map Amendment needed?

A rezoning or Zoning Map Amendment change is a change in the zoning district classification. The property owner may wish to develop the property with a different use other than what the property is currently zoned for. Or they may wish to sell the property to another with the intention of the property to have a use other than the current use.. If a prospective property owner submits the Zoning Map Amendment, the current owner must give their written consent in order for the amendment to be considered.

There are two types of Zoning Map Amendment Changes. A **General Use** Zoning Map Amendment Change is where a property is changed from one land use district to another. A **Special Conditions** Amendment Change is where the rezoning is contingent on several special conditions being met or fulfilled.

## Fees required

Please refer to the Zoning Fees Schedule on the website for the current fee structure for Davie County. Most fees for Zoning Amendment Changes are under the subheading Zoning Reviews. All checks must be paid to the order of Davie County.

## How long does the Zoning Map Amendment change remain?

Once a Zoning Map Amendment is approved, the property is rezoned until a new request is submitted at a later date. Property ownership changes have no effect on the zoning of the property.



Attachment: Full application_novPB (Zoning Map Amendment_2020-05 Junction Solar Project LLC)

ZMA No. _____ - _____

## How will the public be notified of the Zoning Map Amendment change?

The public will be notified in three ways. First, a sign will be posted on the property being rezoned. Second, a public notice will be submitted by the Davie County Development Services Department to the *Davie County Enterprise*. Third, by a notice being sent to all property owners located within 500 feet of the property lines of the property being rezoned.

## Davie County Application for a Zoning Map Amendment

**To: Board of County Commissioners of Davie County** **Date:** 10 / 22 / 20

**Applicant's Name:** Junction Solar Project LLC
**Applicant's Address:** c/o Orion Renewable Energy Group LLC
155 Grand Avenue, Suite 706
Oakland, CA 94612

**Address and brief description of the property To be rezoned or amendment to be made:** See Attachment 1

**Tax Map:** See Attachment 1
**Parcel(s):** See Attachment 1

**Applicant's interest in the property:** ☐ Ownership ☒ Lease Agreement ☐ Other (explain below)

If Property is not owned by the applicant, lease agreement or other binding legal documentation stating Applicant's legal right(s) for use of the above listed property shall be required upon submittal of application.

**Type of rezoning requested:** **From:** See Attachment 1 **To:** S-P-S

**(or brief description of request):** Request to rezone property to Special Purpose special use ("S-P-S") district to allow for the development of a solar farm.

**Reason(s) for the requested rezoning:** Solar farms are an allowed use in the Special Purpose district, with conditions. The Applicant is requesting to rezone to the special use district in order to commit that the rezoned parcels will be developed as a solar farm.

**Applicant's Signature:** _____ **This the** 22nd **day of** October, 20 20
**(Applicant)**

By signing this form, applicant hereby states all information written herein is accurate and true. Applicant further states the Planning and Zoning Staff have fully explained the requirements of the ordinance and the information required for the Board of Commissioners to render a decision.



Attachment: Full application_novPB (Zoning Map Amendment_2020-05 Junction Solar Project LLC)

ZMA No. _____ - _____

Office Use Only

Planning Board Date: Date: ____/____/_____ Planning Board Action: ☐ Approval ☐ Denial

Comments: _____

_____

Fee Paid: ☐ Yes ☐ No Amount Paid: $_____._____

Public Hearing Date: Date: ____/____/_____ Commissioners Action: ☐ Approval ☐ Denial

# Zoning Map Amendment Application Checklist

Please submit this checklist along with all required items within the Zoning Amendment Application to:

**Department of Development Services**
298 E Depot Street
Mocksville, NC 27028
Phone: (336) 753-6050
Fax: (336) 751-7689

When a Zoning Amendment Application is submitted, several things are needed in addition to the application itself. Please review the list and make sure every item is accounted for in order to have your request handled expeditiously. If an item is unaccounted for, it may slow down the process or your request or cease it altogether.

**Notes:**

- All documents and maps submitted as required by the application process become property of Davie County Development Services.
- All application fees are non-refundable.
- Development Services Staff may waive required information if they certify in writing as unnecessary to determine compliance with applicable standards and requirements.
- The ZMA Number given should be referenced on all related correspondence subsequent to application acceptance.

| For each item below, check (√) if provided, write **"N/A"** if the feature does not exist or is not proposed, and write **"W"** if a waiver from the requirement is justified because it is unnecessary in the particular case to determine compliance with applicable regulations or to address the required conclusions. | | | | **Staff use only** |
|---|---|---|---|---|
| **√, n/a, or w** | | **Application Requirement** | **UDO** | **√, X, or W** |
| | 1 | Completed Zoning Amendment Application (2 copies) (attached) | | |
| | 2 | All necessary signatures are present on both copies of the applications | | |
| | 3 | Diagram of property proposed (existing conditions) (2 copies) | §155.253 | |



Attachment: Full application_novPB (Zoning Map Amendment_2020-05 Junction Solar Project LLC)

| | | | | |
|---|---|---|---|---|
| | a | All property lines with dimensions including North Arrow | §155.253 | |
| | b | Adjoining street with right-of-way and paving widths | §155.253 | |
| | c | The location of all structures; the use of all land | §155.253 | |
| | d | The zoning classification of all abutting zoning districts | §155.253 | |
| | e | Comprehensive site plan if the application is for commercial, industrial, or multi-family development. | §155.253 | |
| | f | Topographic contours (at intervals of not more than 10 feet) | | |
| | g | Surface Waters, FEMA 100-year floodway and floodway fringe boundaries, flood hazard soils, all streams and/or rivers | | |
| | h | Inset Map showing site's location relative to County's cities and major roads | | |
| | i | Title block showing name and address of site owner(s), name of plan designer, parcel identification numbers, date map prepared (and revised), bar scale, north arrow, and title "Existing Conditions Map". | | |
| | j | All Adjacent Property Owners names are present in their appropriate parcel locations. | | |
| | **4** | **12 Sketch or Site Plan** copies attached and folded | | |
| | a | All property lines with dimensions including North Arrow | §155.253 | |
| | b | Adjoining street with right-of-way and paving widths | §155.253 | |
| | c | The location of all structures; the use of all land | §155.253 | |
| | d | The zoning classification of all abutting zoning districts | §155.253 | |
| | e | Comprehensive site plan if the application is for commercial, industrial, or multi-family development. | §155.253 | |
| | f | Topographic contours (at intervals of not more than 10 feet) | | |
| | g | Surface Waters, FEMA 100-year floodway and floodway fringe boundaries, flood hazard soils, all streams and/or rivers | | |
| | h | Inset Map showing site's location relative to County's cities and major roads | | |
| | I | Title block showing name and address of site owner(s), name of plan designer, parcel identification numbers, date map prepared (and revised), bar scale, north arrow, and title "Site Plan" or "Rezoning Request". | | |
| | **5** | Copy of all Site Plans in Electronic Form (in Adobe – PDF form) | | |
| | **6** | Copy of Deed for the Property | | |
| | **7** | Offer to Purchase Agreement *(financials can be omitted or blacked out)* | | |
| | **8** | Written Consent from current owner to have Zoning Amendment applied for by prospective owner | | |
| | **9** | Attachment of any Special Conditions applicant wishes to propose as a part of the application process | | |
| | **10** | Legal Survey of Property *(if Special Conditions are required)* | | |
| | **11** | Current owner and Applicant's information are both present *(name, phone, address)* | | |
| | **12** | Stamps *(signed and dated)* by Professional Engineers, Architects, Surveyors and/or Landscape Architects | | |
| | **13** | Check paid to the order of Davie County *(Fee for processing)* | | |

Attachment: Full application_novPB (Zoning Map Amendment_2020-05 Junction Solar Project LLC)

ZMA No. _____ - _____

## Project Overview Statement

On the following lines, please give a synopsis or overview of the project, including information relevant to use, density, lot, layout, housing type, planned amenities, and similar information. Please attach any supporting documentation to your application.

See Attachment 2.

Attachment: Full application_novPB (Zoning Map Amendment_2020-05 Junction Solar Project LLC)

## Additional Signature Page to Junction Solar Project LLC Rezoning Application

I, the undersigned, do certify that all of the information presented in this application is accurate to the best of my knowledge, information, and belief. By signing this form, applicant hereby states all information written herein is accurate and true. Applicant further states the Planning and Zoning Staff have fully explained the requirements of the ordinance and the information required for the Board of Commissioners to render a decision.

**Applicant's Signature:** DocuSigned by: 3BFB2A528EF5437... **This the** 20 **day of** October, 20 20
**(Brandon Phillip Shore)**

**Applicant's Signature:** DocuSigned by: Candace M Shore 7FD499... **This the** 20 **day of** October, 20 20
**(Candace Morris Shore)**



Attachment: Full application_novPB (Zoning Map Amendment_2020-05 Junction Solar Project LLC)

## Additional Signature Page to Junction Solar Project LLC Rezoning Application

I, the undersigned, do certify that all of the information presented in this application is accurate to the best of my knowledge, information, and belief. By signing this form, applicant hereby states all information written herein is accurate and true. Applicant further states the Planning and Zoning Staff have fully explained the requirements of the ordinance and the information required for the Board of Commissioners to render a decision.

**Applicant's Signature** _____ **This the** 21 **day of** Oct. **, 20**20
**(David William Cartner, Trustee, Cartner Brothers Consolidated Irrevocable Trust)**

**Applicant's Signature:** _____ **This the** 21 **day of** October **, 20**20
**(James Patton Cartner, Trustee, Cartner Brothers Consolidated Irrevocable Trust)**

**Applicant's Signature:** _____ **This the** 21 **day of** October **, 20**20
**(Samuel Corbin Cartner, Trustee, Cartner Brothers Consolidated Irrevocable Trust)**

Attachment: Full application_novPB (Zoning Map Amendment_2020-05 Junction Solar Project LLC)

## Additional Signature Page to Junction Solar Project LLC Rezoning Application

I, the undersigned, do certify that all of the information presented in this application is accurate to the best of my knowledge, information, and belief. By signing this form, applicant hereby states all information written herein is accurate and true. Applicant further states the Planning and Zoning Staff have fully explained the requirements of the ordinance and the information required for the Board of Commissioners to render a decision.

**Applicant's Signature** Mark Thomas Hagan **This the** 21st **day of** October, **20** 20
**(Forks of the Yadkin and Davie County History Museum, Inc., a North Carolina non-profit corporation)**

Attachment: Full application_novPB (Zoning Map Amendment_2020-05 Junction Solar Project LLC)

## Additional Signature Page to Junction Solar Project LLC Rezoning Application

I, the undersigned, do certify that all of the information presented in this application is accurate to the best of my knowledge, information, and belief. By signing this form, applicant hereby states all information written herein is accurate and true. Applicant further states the Planning and Zoning Staff have fully explained the requirements of the ordinance and the information required for the Board of Commissioners to render a decision.

**Applicant's Signature:** Barbara Sapp Moose **This the** 31st **day of** October, 2020
**(Barbara Sapp Moose)**

**Applicant's Signature:** Jacob Otha Moose III **This the** 22 **day of** October, 2020
**(Jacob Otha Moose, III)**

**Applicant's Signature:** Kathy Beine Sapp **This the** 21 **day of** October, 2020
**(Kathy Beine Sapp)**

**Applicant's Signature:** Tracy Sapp Beine **This the** 21 **day of** October, 2020
**(Tracey Sapp Beine)**



Attachment: Full application_novPB (Zoning Map Amendment_2020-05 Junction Solar Project LLC)

## Additional Signature Page to Junction Solar Project LLC Rezoning Application

I, the undersigned, do certify that all of the information presented in this application is accurate to the best of my knowledge, information, and belief. By signing this form, applicant hereby states all information written herein is accurate and true. Applicant further states the Planning and Zoning Staff have fully explained the requirements of the ordinance and the information required for the Board of Commissioners to render a decision.

**Applicant's Signature:** Linda C. Shore **This the** 22 **day of** October, 2020
**(Linda C. Shore)**

**Applicant's Signature:** Jerry L. Shore **This the** 22 **day of** October, 2020
**(Jerry L. Shore)**

Attachment: Full application_novPB (Zoning Map Amendment_2020-05 Junction Solar Project LLC)

**Junction Solar**
**Rezoning Application**
**Attachment 1 – Property Owner Information**

Parcel 1
Owner: Sam Cartner & Cartner Brothers Trust
Address: PO Box 247, Newland, NC 28657-0000
Property Location: Junction Road
Acreage: 97.63
Zoning District: R-A, with a portion of R-20 along Junction Road
County ID: K300000065
PIN: 5727328444

Parcel 2
Owner: Jerry L. Shore & Linda C. Shore
Address: 253 Ratledge Road, Mocksville NC 27028-0000
Property Location: Ratledge Road
Acreage: 43.9
Zoning District: R-A, with a portion of R-20 along Junction Road
County ID: K300000058
PIN: 5727401549

Parcel 3
Owner: Brandon P. Shore & Candace M. Shore
Address: 130 Emerald Isle Court, Lexington, NC 27292-7775
Property Location: Ratledge Road
Acreage: 79.94
Zoning District: R-A
County ID: L300000017
PIN: 5726350889

Parcel 4
Owner: Forks of the Yadkin & Davie Co. History Museum
Address: 34 Court Square, Mocksville, NC 27028-2415
Property Location: Junction Road
Acreage: 283.62
Zoning District: R-A, with a portion of R-20 along Junction Road and a portion with CZOD overlay
County ID: L400000016
PIN: 5726627625

Parcel 5
Owner: Forks of the Yadkin & Davie Co. History Museum
Address: 34 Court Square, Mocksville, NC 27028-2415
Property Location: Junction Road
Acreage: 298.96

Attachment: Full application_novPB (Zoning Map Amendment_2020-05 Junction Solar Project LLC)

Zoning District: R-A, with a portion of R-20 along Junction Road and a portion with CZOD overlay
County ID: L400000055
PIN: 5736130064

Parcel 6
Owner: Barbara Sapp Moose and Kathy Beine Sapp
Address [Moose]: 1012 Quarry Street, Faith, NC 28041-0000
Address [Sapp]: 3352 Chicken Bridge Road, Pittsboro, NC 27312
Property Location: Junction Road
Acreage: 49.3
Zoning District: R-A, with a portion of R-20 along Junction Road and a portion with CZOD overlay
County ID: L400000017
PIN: 5726930100

Attachment: Full application_novPB (Zoning Map Amendment_2020-05 Junction Solar Project LLC)

ORION
RENEWABLE ENERGY GROUP LLC

Junction Solar Project LLC
c/o Orion Renewable Energy Group LLC
155 Grand Avenue, Suite 706
Oakland, CA 94612
Phone: (510) 267-8921

**Junction Solar Project LLC**
**Rezoning Application Attachment 2**
**Project Narrative**

Junction Solar Project LLC ("Junction") is a proposed approximately 545-acre Solar Energy Generating Facility ("Solar Facility") proposed to be sited on approximately 853 acres in Davie County (the "Property"). The Property is located largely south of Ratledge Road and on the east and west sides of Junction Road. The nearest point of the Property is approximately two miles northwest of downtown Cooleemee and approximately three miles southwest of downtown Mocksville.

Solar panel arrays and other facilities shown on the preliminary site plan attached as Exhibit 1 will adhere to all conditions in the Davie County Zoning Ordinance ("Ordinance") for a Solar Facility, as well as all conditions in the special purpose district. Locations of all improvements shown on the preliminary site plan may be modified to accommodate project criteria, subject to Davie County standards and required Davie County approvals, if any.

The Solar Facility will consist of rows of photovoltaic (PV) panels mounted on single-axis trackers on piles driven into the ground, as well as inverters, power collection system, transmission lines, substations and switchyards, interconnection facilities, roads, buildings or structures, fencing, gates, and related and ancillary facilities and equipment. The Solar Facility will be surrounded by a security fence at least eight feet in height and will be surrounded by a Type B vegetative buffer in accordance with the Ordinance. Solar Facility equipment is safe, and will not generate hazardous substances during operations. The Solar Facility's equipment will be manufactured to all applicable safety standards and will be UL rated and installed by licensed electrical contractors. Construction of the proposed Solar Facility requires very little grading and creates hardly any impervious area post-construction. The Solar Facility will comply with all North Carolina Department of Environmental Quality regulations regarding erosion and soil control measures.

The Solar Facility will not burden existing infrastructure because it generates only a small amount of traffic during operation (much less than the average single-family home), and requires no municipal water, sewer, electrical or trash collection services. The public will benefit from the Solar Facility's substantial contribution to the county's tax base. The Solar Facility will create income for the property owners, and will generate jobs during construction and operations in Davie County, as explained in the Economic Benefit Analysis. Furthermore, once the Solar Facility is decommissioned at the end of its life, the Property can return to farmland or be redeveloped at the appropriate time as permitted in the future.

The proposed rezoning is consistent with all applicable Davie County adopted plans, as further described on Exhibit 2.

Details of a community meeting held on October 15, 2020, are attached as Exhibit 3.



Attachment: Full application_novPB (Zoning Map Amendment_2020-05 Junction Solar Project LLC)

For further details on the benefits of the proposed Solar Facility, the following exhibits are attached:

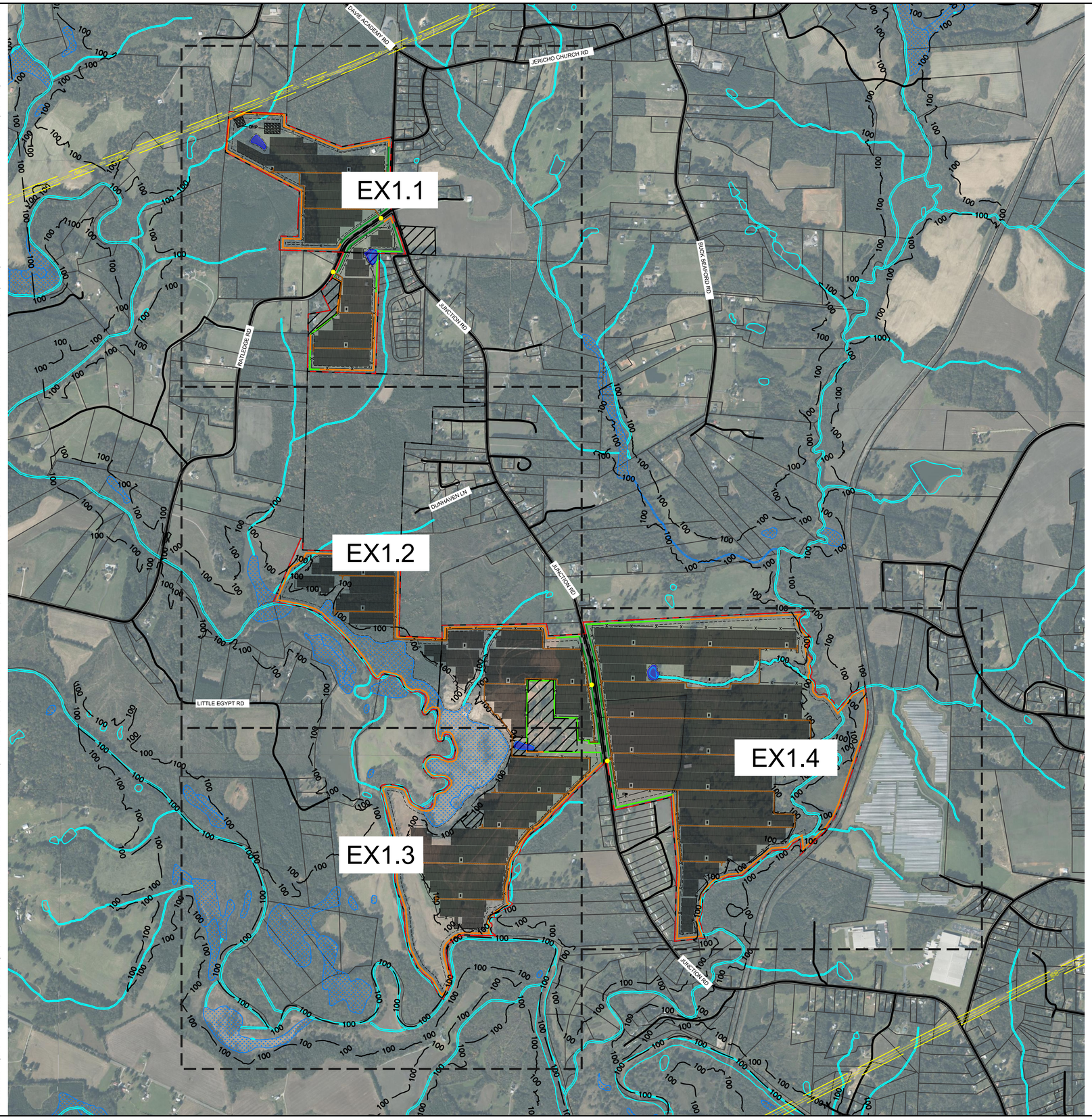
- Exhibit 4: Glare Analysis (finding no negative impact)
- Exhibit 5: Decommissioning Cost Analysis (finding that the recycled value of the Solar Facility will exceed site restoration cost)
- Exhibit 6: Economic Benefit Analysis (further addressing economic benefits including property taxes resulting from approval of the Solar Facility)
- Exhibit 7: Health and Safety Study (concluding that the Solar Facility will create positive health benefits and will not create negative health and safety impacts)
- Exhibit 8: Landscape Buffer Visual Simulations (simulating the future growth of the proposed landscape buffer, which meets or exceeds Ordinance requirements)

Attachment: Full application_novPB (Zoning Map Amendment_2020-05 Junction Solar Project LLC)

# Exhibit 1

# Site Plan

Attachment: Full application_novPB (Zoning Map Amendment_2020-05 Junction Solar Project LLC)




## LEGEND

- EXISTING ROAD
- PROPOSED INTERNAL ROADS
- PROJECT BOUNDARY
- PROJECT PARCEL LINE
- OFFSITE PARCEL LINE
- BUILDING SETBACK
- PLANNING LEVEL ENVIRONMENTAL BUFFER
- EXISTING TRANSMISSION LINE
- PROPOSED TRANSMISSION LINE
- TRANSMISSION LINE ROW
- FEMA 100-YEAR FLOODPLAIN
- PROPOSED FENCE LINE
- STREAM
- PROPOSED VEGETATIVE BUFFER
- PROPOSED VEGETATIVE BUFFER WITH BERM
- EXISTING VEGETATIVE BUFFER TO REMAIN
- WETLAND
- ONSITE EXISTING SURFACE WATER
- PROPOSED ARRAY LOCATION
- AREA TO BE EXCLUDED
- PROPOSED SUBSTATION / PROPOSED DISCONNECT SWITCH
- PROPOSED INVERTER
- PROPOSED ACCESS POINT

NOTES:

1. EXISTING PROJECT BOUNDARY IS BASED ON KMZ FILE PROVIDED BY ORION RENEWABLE RESOURCES LLC ON 05/19/2020. EXISTING CONSTRAINTS AND ENVIRONMENTAL FEATURES ARE BASED ON PUBLICLY AVAILABLE DATA COMPILED IN DESKTOP REVIEW BY KIMLEY-HORN DATED 06/22/2020 AND AERIAL IMAGERY.
2. STREAM LOCATIONS ARE BASED ON PUBLICLY AVAILABLE NATIONAL WETLAND INVENTORY DATA DOWNLOADED ON 10/05/2020.
3. LOCATIONS OF ALL IMPROVEMENTS MAY BE MODIFIED TO ACCOMMODATE PROJECT CRITERIA, SUBJECT TO COUNTY STANDARDS AND REQUIRED COUNTY APPROVALS. IF ANY.

| SITE DATA TABLE/ASSUMPTIONS | |
|---|---|
| PROJECT AREA | ±853 ACRES |
| FENCED AREA | ±545 ACRES |
| GROUND COVERAGE RATIO | 42.0% |
| DAVIE COUNTY ZONING ORDINANCE REQUIREMENTS | |
| STRUCTURE MAXIMUM HEIGHT | 15' |
| * SOUND PRODUCING EQUIPMENT MINIMUM SETBACK | 100' |

* SOUND PRODUCING EQUIPMENT INCLUDES TRACKERS, INVERTERS, TRANSFORMERS, AND SUBSTATION

NORTH

GRAPHIC SCALE IN FEET
0 400 800 1600

NOTES:

1. EXISTING TOPOGRAPHY IS BASED ON PUBLICLY AVAILABLE QL2 LIDAR DOWNLOADED FROM NC SPACIAL DATA ON 06/22/2020.
2. CONCEPTUAL ARRAY LAYOUT IS AN INITIAL CONCEPT ONLY, SUBJECT TO CHANGE, AND NOT A DETAILED DESIGN. ADDITIONAL CONSIDERATION WILL NEED TO BE GIVEN FOR SPECIFIC MODULE AND RACKING SPECIFICATIONS, INVERTER LOCATIONS AND CAPACITY, SUBSTATION LOCATION & LOCATION WHERE WIRES ARE BROUGHT TOGETHER TO INTERCONNECT SYSTEM COMPONENTS, ACCESS ROADS, PERIMETER FENCES, AND LOCAL JURISDICTIONAL REQUIREMENTS.
3. ENVIRONMENTAL BUFFER IS PLANNING LEVEL ONLY. JURISDICTIONAL BUFFER TO BE VERIFIED WITH ENVIRONMENTAL DUE DILIGENCE.
4. APPROXIMATE WETLAND AND SURFACE WATER FEATURES BASED UPON DESK TOP REVIEW AND LIMITED FIELD REVIEW ON 06/22/2020. DETAILED DELINEATION AND FIELD VERIFICATION WITH ARMY CORPS OF ENGINEERS AND DWR TO BE COMPLETED AT A LATER DATE.
5. ARRAY LAYOUT IS PRELIMINARY IN NATURE AND BASED ON A 2D LAYOUT ONLY. NO LOSSES FOR TOPOGRAPHY, SHADING, ROW SPACING, ETC. HAVE BEEN ACCOUNTED FOR. NO CONSIDERATION HAS BEEN GIVEN FOR ROADS, FENCES, EROSION CONTROL MEASURES, OR GRADING.
6. TRANSMISSION LINE DATA AND LOCATION DOWNLOADED ON 09/23/2020 FROM THE PUBLICLY AVAILABLE HOMELAND INFRASTRUCTURE FOUNDATION LEVEL DATABASE.
7. VEGETATION IN THE BUFFER YARD (TYPE B) WILL COMPLY WITH SECTION 155.172(E)(2) OF THE DAVIE COUNTY CODE OF ORDINANCES.
8. SETBACKS WILL COMPLY WITH SECTION 155.151 OF THE DAVIE COUNTY CODE OF ORDINANCES.
9. PERIMETER FENCING SHALL COMPLY WITH SECTION 155.130.29(4) OF THE DAVIE COUNTY CODE OF ORDINANCES.
10. AREAS AROUND THE SOLAR PANELS WILL BE PLANTED IN NATIVE GRASSES OR IN POLLINATOR HABITAT OR A COMBINATION THEREOF.

| No. | REVISIONS | DATE | BY |
|---|---|---|---|

Kimley»Horn
© 2010 KIMLEY-HORN AND ASSOCIATES, INC.
421 FAYETTEVILLE STREET, SUITE 600, RALEIGH, NC 27601
PHONE: 919-677-2000 FAX: 919-677-2050
WWW.KIMLEY-HORN.COM
#F-0102

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 046621 DELLA M SHAW
10/22/2020

| | |
|---|---|
| KHA PROJECT | 013551003 |
| DATE | 10/22/2020 |
| SCALE | AS SHOWN |
| DESIGNED BY | DAD |
| DRAWN BY | WH |
| CHECKED BY | DMS |

# OVERALL PRELIMINARY SITE PLAN EXHIBIT

# JUNCTION SOLAR CENTER

PREPARED FOR
ORION RENEWABLE RESOURCES LLC

DAVIE COUNTY NORTH CAROLINA

SHEET NUMBER
EX1.0

Attachment: Full application, novPB (Zoning Map Amendment_2020-05 Junction Solar Project LLC)

Plotted By: Snow, Della Sheet Set: 013551003_Junction_Solar Layout: OVERALL October 23, 2020 07:26:51pm \\kimley-horn.com\SE_RAL\RAL_IDEV\013551003_Junction_Solar\CAD Files\PlanSheets\Preliminary Site Plan\SITE PLAN.dwg
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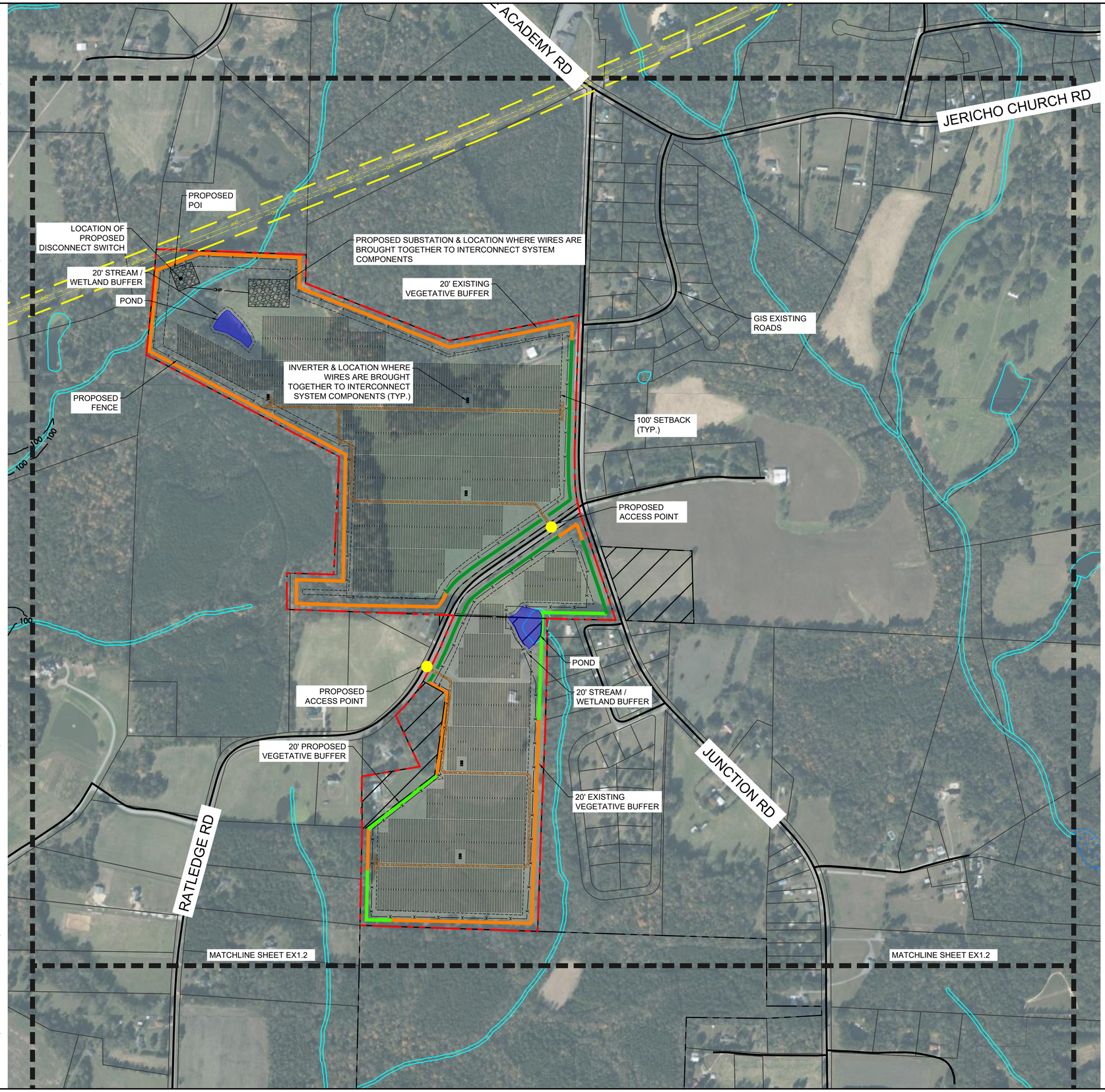


LEGEND

- EXISTING ROAD
- PROPOSED INTERNAL ROADS
- PROJECT BOUNDARY
- PROJECT PARCEL LINE
- OFFSITE PARCEL LINE
- BUILDING SETBACK
- PLANNING LEVEL ENVIRONMENTAL BUFFER
- EXISTING TRANSMISSION LINE
- PROPOSED TRANSMISSION LINE
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NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 042621 DELLA M SHAW
10/22/2020

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# PRELIMINARY SITE PLAN EXHIBIT

JUNCTION SOLAR CENTER
PREPARED FOR
ORION RENEWABLE RESOURCES LLC
DAVIE COUNTY NORTH CAROLINA

SHEET NUMBER
EX1.1

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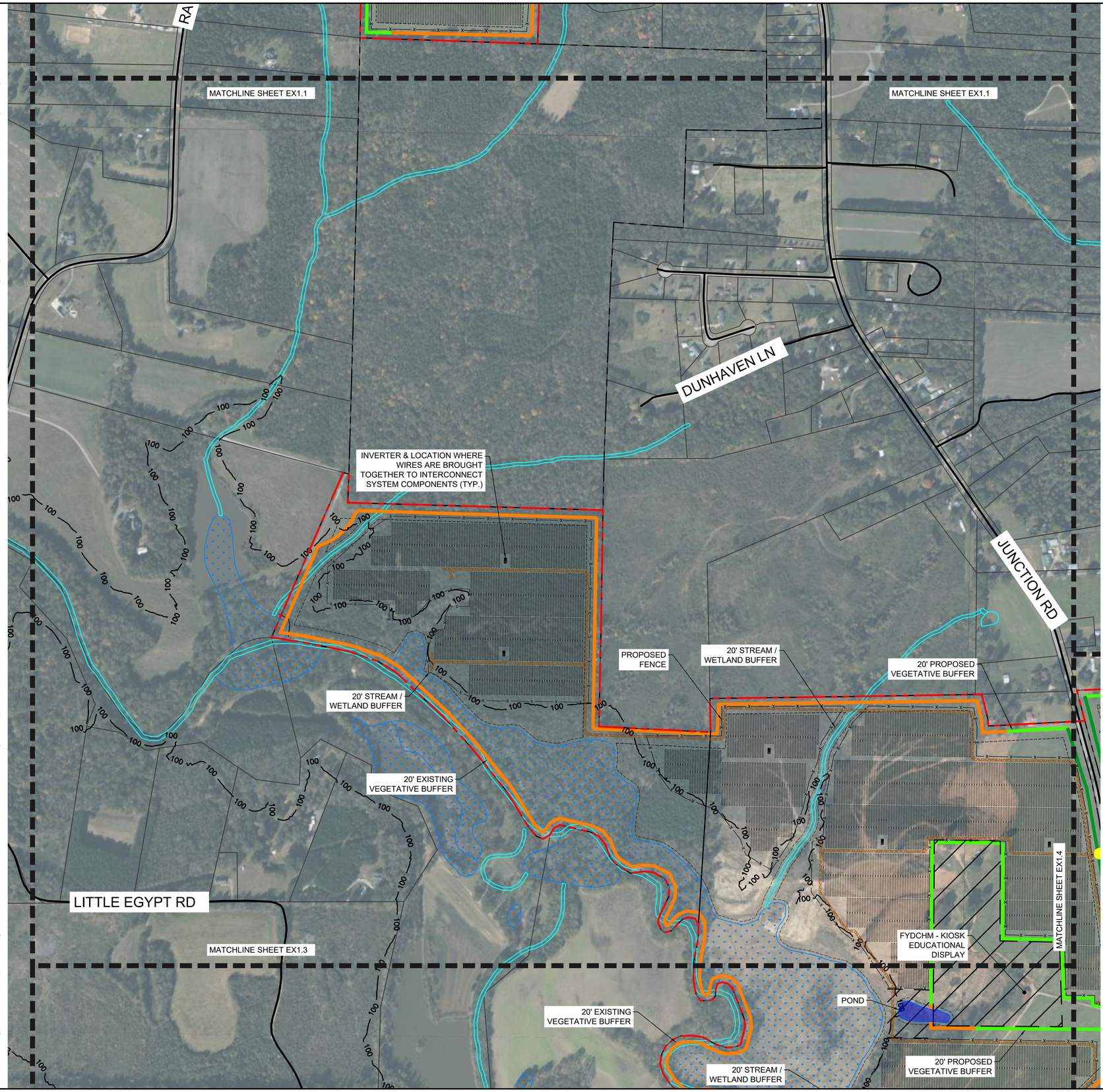


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- OHP — PROPOSED TRANSMISSION LINE
- TRANSMISSION LINE ROW
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# PRELIMINARY SITE PLAN EXHIBIT

JUNCTION SOLAR CENTER
PREPARED FOR
ORION RENEWABLE RESOURCES LLC
DAVIE COUNTY NORTH CAROLINA

SHEET NUMBER
EX1.2

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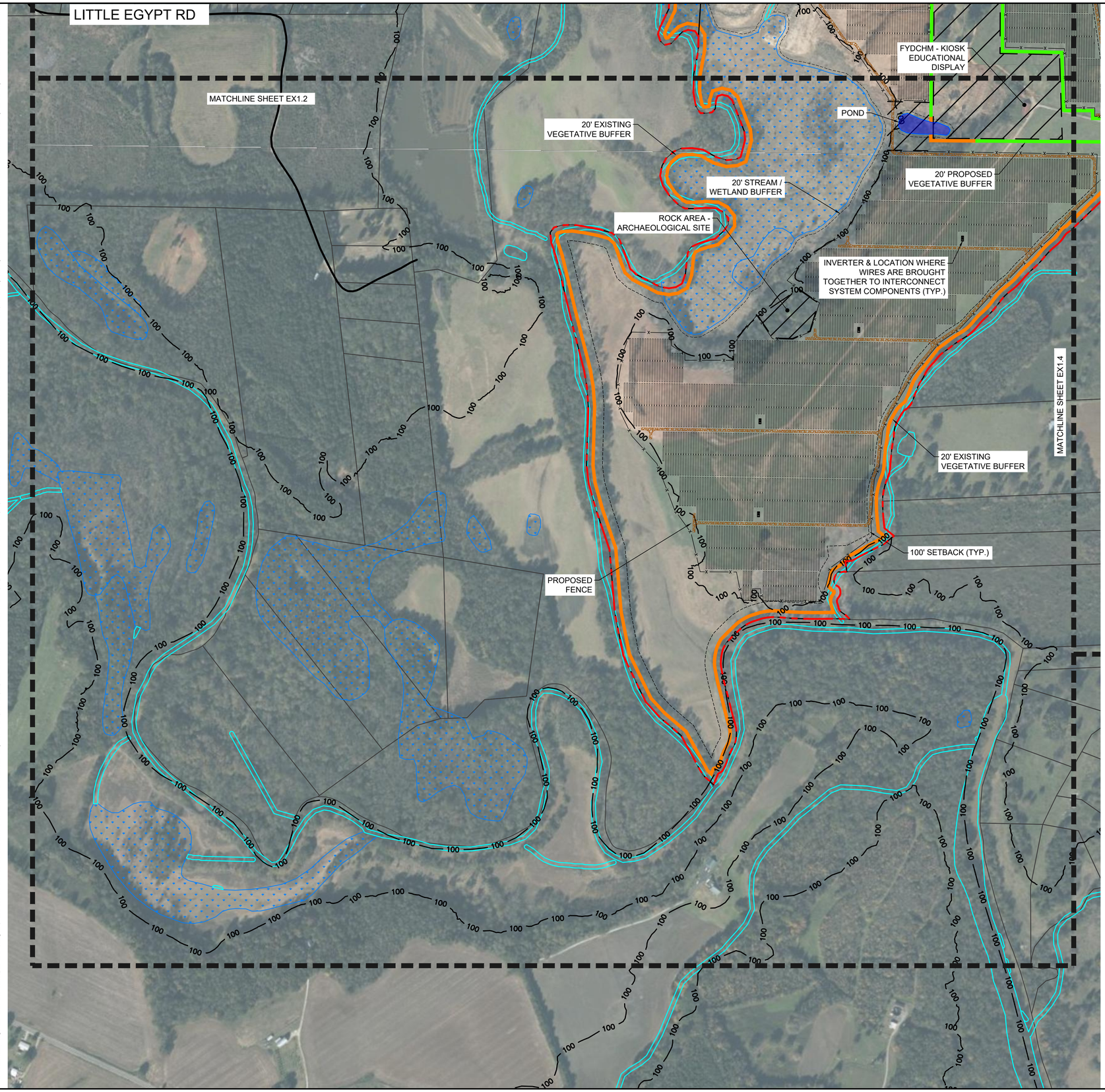


LEGEND

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10/22/2020

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# PRELIMINARY SITE PLAN EXHIBIT

JUNCTION SOLAR CENTER
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ORION RENEWABLE RESOURCES LLC
DAVIE COUNTY NORTH CAROLINA

SHEET NUMBER
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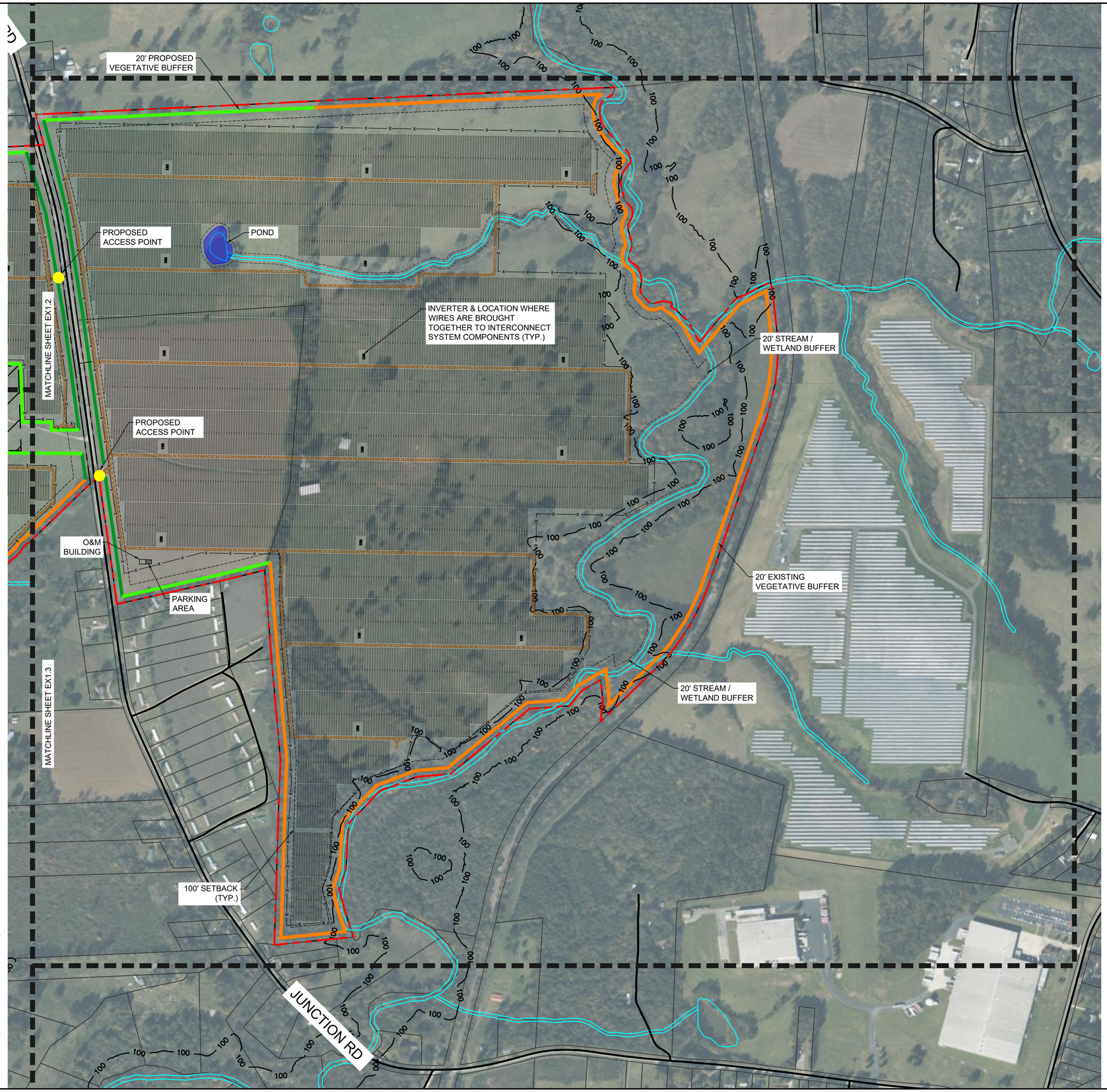


## LEGEND

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10/22/2020

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# PRELIMINARY SITE PLAN EXHIBIT

JUNCTION SOLAR CENTER
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DAVIE COUNTY NORTH CAROLINA

SHEET NUMBER
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Attachment: Full application_novPB (Zoning Map Amendment_2020-05 Junction Solar Project LLC)

# Exhibit 2

## Statement of consistency with Davie County adopted plans

Attachment: Full application_novPB (Zoning Map Amendment_2020-05 Junction Solar Project LLC)

ORION
RENEWABLE ENERGY GROUP LLC

Junction Solar Project LLC
c/o Orion Renewable Energy Group LLC
155 Grand Avenue, Suite 706
Oakland, CA 94612
Phone: (510) 267-8921

**Junction Solar Project LLC**
**Rezoning Application Exhibit 2**
**Consistency with Applicable Adopted Plans**

Junction requests the rezoning of the Property from the zoning districts reflected on Attachment 1 to the rezoning application to the Special Purpose special use ("S-P-S") zoning district to allow for the construction and operation of a Solar Energy Generating Facility ("Solar Facility"). A Solar Facility is a permitted use within the Special Purpose zoning district subject to conditions. *Davie County Zoning Ordinance ("Ordinance") §§ 155.125, 155.130.29, 155.151.* Junction is petitioning for special use district zoning, pursuant to Ordinance § 155.161.

Rezoning the Property to S-P-S is consistent with the applicable Davie County's ("County") adopted plans, as outlined below.

1. 2019 Davie County Comprehensive Plan ("Comprehensive Plan")

The requested rezoning supports numerous goals of the Comprehensive Plan, including:

- *Land Use and Community Appearance, Goal 2*: Preserve the rural character of Davie County (p. 77).
- *Economic Development, Goal 3.2*: Strengthen the County's green and energy efficiency initiatives (p. 82).
- *Farmland Preservation, Goal 3*: Identify and prioritize prime farmland that is most at risk and develop strategies with landowners to preserve their land (p. 85).
- *Farmland Preservation, Goal 10*: Strengthen support for agricultural economic development (p. 86).

The Solar Facility will help preserve the rural character of the County and will help preserve farmland as described below. Solar facilities do not cause any loss of top soil and grass continues to grow underneath the solar panels. The Solar Facility is a passive use of the land, will result in very little traffic once in operation, will not emit noxious fumes, will have nominal and only essential lighting primarily at access gate and substation areas, and will generate very low noise levels. The locations of any equipment producing noise or sound will adhere to all required setbacks. The Solar Facility is in harmony with rural residential and agricultural uses, generally having a lower visual profile than many improvements allowed or present in the area. The setbacks and buffers required by the Ordinance are intended to ensure harmony with adjoining properties, and the proposed Solar Facility meets or exceeds all setback and buffering requirements.

The Solar Facility will strengthen the County's green initiatives, will help the participating landowners preserve their land for future use once the Solar Facility is decommissioned, and will provide economic support for participating landowners. Once the Solar Facility is decommissioned, the farm land will be immediately usable for pasture or farming.



Attachment: Full application_novPB (Zoning Map Amendment_2020-05 Junction Solar Project LLC)

a. *Comprehensive Plan - Future Land Use Map*

The Future Land Use Map designates a portion of the Property as Rural Residential and a portion as Industrial. *Comprehensive Plan, p. 75.* The Comprehensive Plan describes these areas as below:

- Rural Residential is meant to include activities such as "farming, rural commercial business, and limited residential development to preserve the rural character of the County. Not intended for intense urban or suburban development, including major residential subdivisions." *Comprehensive Plan, p. 74.*

- Industrial is meant to include "[i]ndustrial and manufacturing uses with adequate street access, water/sewer services, and may require relatively large tracts of land. Intended to preserve and protect important industrial properties from encroachment by non-industrial land uses." *Comprehensive Plan, p. 76.*

As stated above, the proposed Solar Facility will preserve the rural character of the County and is a suitable use for the Rural Residential area. Further, it is a suitable use for the portion in the Industrial area, as it has adequate street access, will not require water or sewer services, and will preserve and protect the land for future development, including future industrial land uses.

b. *Comprehensive Plan - Growth Strategy Areas Map*

The Property is located in an area designated as a Rural Growth Area on the Comprehensive Plan Growth Strategy Areas map. *Comprehensive Plan, p. 71.* Land use changes in the Rural Growth area "should be designated to protect the rural character and discourage premature public infrastructure demands by sustaining groundwater recharge capacity."

The Solar Facility is an appropriate use in the Rural Growth Area. It is a passive use of the land, is in a rural area of the County that is not experiencing significant residential development encroachment or pressure, will be surrounded by a vegetative buffer, will protect the rural character of the area, and will not require premature public infrastructure demands as it will not require water or sewer.

2. 2010 Davie County Growth Enhancement Strategy ("Growth Enhancement Strategy")

The requested rezoning also supports the Growth Enhancement Strategy. The Property is primarily located in an area that is designated as a Rural Growth Area, with a small area of one parcel (PIN 5736130064) in the Secondary Growth Area. *Growth Enhancement Strategy, p. 33.*

The Rural Growth Area normally has "an abundance of large, undeveloped tracts not experiencing significant residential development encroachment or pressure. . . . Land use changes in this area should be designated to protect the rural character and discourage premature public infrastructure demands by sustaining groundwater recharge capacity." *Growth Enhancement Strategy, p. 22.* One of the Rural Growth Area development policies is to "preserve elements of county's rural character by minimizing perceived subdivision density from existing road." *Growth Enhancement Strategy, p. 24.*

Attachment: Full application_novPB (Zoning Map Amendment_2020-05 Junction Solar Project LLC)

The Secondary Growth Area is characterized by transitional residential development "with major subdivisions scattered between agricultural and commercial land use patterns. Both public water and sewer infrastructure access is unlikely within the immediate future. The availability of large undeveloped tracts can substantially alter the development character of established residential areas." *Growth Enhancement Strategy, p. 22*. Development policies within the Secondary Growth Area include "safeguard existing natural land and groundwater resources," "utilize buffering between commercial and residential areas," and "mixed land uses." *Growth Enhancement Strategy, p. 23*.

The proposed Solar Facility is an appropriate use in both the Rural Growth Area and the Secondary Growth Area. As stated above, the Solar Facility is a passive use of the land, is in a rural area of the County that is not experiencing significant residential development encroachment or pressure, and the proposed use as a Solar Facility will protect the rural character of the area and will not require premature public infrastructure demands as it will not require water or sewer. The Solar Facility will not burden municipal water or sewer infrastructure. The Solar Facility will be surrounded by a vegetative buffer, will not negatively impact existing natural land and groundwater resources, and will provide a mix of land uses that is still compatible with the rural area.

The Solar Facility particularly benefits the southern portion of Davie County because it is the first economic development project to occur in this area in some time. The project complies with the County's adopted plans and will provide financial support to the Forks of the Yadkin and Davie County History Museum, which will enable the Museum to pursue its goal of building its Museum facility, as well as to develop the historical sites and exhibits on Museum property on which a portion of the Solar Facility will be located.

Attachment: Full application_novPB (Zoning Map Amendment_2020-05 Junction Solar Project LLC)

# Exhibit 3

# Community Meeting

Attachment: Full application_novPB (Zoning Map Amendment_2020-05 Junction Solar Project LLC)

ORION
RENEWABLE ENERGY GROUP LLC

Junction Solar Project LLC
c/o Orion Renewable Energy Group LLC
155 Grand Avenue, Suite 706
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Phone: (510) 267-8921

**Community Meeting Report**

Junction Solar Project LLC, the applicant, submits this report of the Community Meeting it held on October 15, 2020, as required by the Davie County Ordinance § 155.151(D). This report includes the following:

1. A listing of those persons and organizations contacted about the meeting
    - *Exhibit A (Surrounding Property Owners) provides a list of parties contacted. Invitations were sent to all 89 community members with property within 500 feet of parcels participating in the Junction Solar Facility, as determined by the Davie County GIS system.*
2. The manner and date of contact
    - *Exhibit B (Community Meeting Invitation) is an example of the letter sent by U.S. Post and FedEx between September 29 and October 9.*
3. The date, time and location of the meeting
    - *The meeting was held on October 15, 2020, at Triple J. Manor House in Mocksville, North Carolina beginning at 11:00 am and ending at 7:00 pm. The meeting time was planned to be long in order to accommodate as many people as possible while conforming to COVID-19 restrictions on public gatherings.*
4. A roster of the persons in attendance at the meeting
    - *Exhibit C (Roster of Attendees) provides a list of the 19 individuals that registered at the door. The list may exclude a small number of people (fewer than 5) that may have attended without registering.*
5. A summary of issues discussed at the meeting
    - *Provided below.*
6. A description of any changes to the rezoning petition made by the petitioner as a result of the meeting
    - *Changes made to the site plan and Landscape Buffer Visual Simulations are discussed below.*

Meeting Overview

The Triple J. Manor has a large indoor space with room for tables, exhibits and up to 100 people. Although COVID-19 restrictions limited participants to 25 at a time, the meeting had a steady flow of people during the day. The Orion team consisted primarily of project developers, engineers, legal and outreach support. Exhibits in 24"x36" format included Landscape Buffer Visual Simulations, a summary infographic of the Economic Benefit Analysis, the site plan, a landscape buffer schematic, and frequently asked questions about solar and the project.

Issues Discussed at the Meeting

Issues discussed with meeting participants include the following:

1. Several attendees asked about the effectiveness of vegetative buffers for achieving desired screening in specific areas, most typically focused on Ratledge Road and the intersection of Ratledge and

Attachment: Full application_novPB (Zoning Map Amendment_2020-05 Junction Solar Project LLC)

ORION RENEWABLE ENERGY GROUP LLC

Junction Roads. The topic of tree height and opacity within 2 years was discussed in the context of the ordinance requirements and Landscape Buffer Visual Simulations. The question of adequacy of combined plantings and berms as compared to solar panel height was raised. Attendees were shown the Landscape Buffer Visual Simulations as well as the Davie County Ordinance buffer requirements. Attendees asked if there were photos of any operating solar projects, with buffering, to demonstrate effectiveness of buffers. Orion is attempting to locate any such photos and will follow-up with attendees to discuss.

2. The appropriateness of tree and shrub species proposed initially for vegetative buffers was raised, and the suggestion of Leyland cypress was taken into consideration.
3. The topic of construction timing and duration, and potential for traffic disruption along Ratledge Road was discussed. Traffic control requirements and typical work hours were explained as designed to minimize community disruptions.
4. Property tax revenues, jobs and economic development broadly, and the potential for the Solar Facility to attract other businesses interested in locating to an area with clean power, were discussed.
5. A few attendees asked about the composition and operation of solar equipment, in particular solar panels, and risks to local residents and the environment. Attendees were referred to the comprehensive and detailed scientific Health and Safety Study located on Junction's website which shows that Solar Facilities are safe and beneficial for humans and the environment.
6. Several attendees asked about decommissioning and equipment handling at the end of the Solar Facility's life. Panel reuse, recycling feasibility, and disposal as a last resort were discussed.
7. Condition of the land following decommissioning was raised. Land fertility following it being left uncultivated during project operations and groundcover requirements to prevent soil erosion were discussed.
8. Questions related to impacts on neighboring property values were discussed. Effective buffering as required by the ordinance was considered. Junction team members explained to attendees that studies conducted in North Carolina, including Davie County, have found that Solar Facilities do not adversely affect neighboring property values.

Changes Made Following the Meeting

In response to feedback gathered at the Community Meeting, the following changes have been made to the Junction site plan:

1. In response to a neighbor's concern about visibility of solar panels from the back of their property, the level of vegetative buffer was increased to supplement existing vegetation along the southwest corner of parcel County ID K300000058.
2. Panels were reduced in the area of a Native American archeological site on parcel County ID L400000016.
3. The inset maps on the Landscape Buffer Visual Simulations were modified to clarify the vantage point of the photograph.

Attachment: Full application_novPB (Zoning Map Amendment_2020-05 Junction Solar Project LLC)

| County ID | NCPIN | Name 1 | Name 2 | Address | City | State | Zip Code |
|---|---|---|---|---|---|---|---|
| K3120A0013 | 5727407983 | ADAMES LUIS GERARDO | | 130 WILLOW LN | MOCKSVILLE | NC | 27028 |
| K3120A0001 | 5727512197 | ALLEN JOHNNY R | ALLEN AMBER BOST | 365 JUNCTION ROAD | MOCKSVILLE | NC | 27028-5316 |
| K3050B0013 | 5727533002 | ANDERSON JAMES L | ANDERSON JANE W | 199 CAROLINA AVENUE | MOCKSVILLE | NC | 27028-0000 |
| K3050A0012 | 5727530241 | BARRON STEPHEN H | BARRON SHIRLEY C | 189 JUNCTION ROAD | MOCKSVILLE | NC | 27028-5314 |
| K3120A0007 | 5727501778 | BENFIELD JOHNNY EUGENE | BENFIELD PATRICIA DIANE | 392 JUNCTION ROAD | MOCKSVILLE | NC | 27028-0000 |
| K30000005901 | 5727303260 | BERKELEY VICKI A | | 269 RATLEDGE ROAD | MOCKSVILLE | NC | 27208-0000 |
| K30000003201 | 5727246076 | BERRY STEVEN LLOYD | BERRY LINDA LEE | 223 ADAMS ROAD | MOCKSVILLE | NC | 27028 |
| 800 001 | 572502694122 | BLACKWOOD LLOYD | BLACKWOOD TRACY | PO BOX 142 | WOODLEAF | NC | 27054-0142 |
| K30000006401 | 5727301898 | CAMPBELL SHARRIE SOUTHER | | 280 RATLEDGE ROAD | MOCKSVILLE | NC | 27028-5425 |
| L30000002009 | 5726098548 | CARRABBA LLC | | 336 WHISPERING OAKS LANE | MOCKSVILLE | NC | 27028-0000 |
| K300000055 | 5727507855 | CARROLL NANCY L | | 429 JUNCTION RD | MOCKSVILLE | NC | 27028-0000 |
| K3050A0009 | 5727531595 | CARTNER JERRY WAYNE | | PO BOX 383 | MOCKSVILLE | NC | 27028-0000 |
| M400000008 A | 5726800145 | CLARK OZENER | | PO BOX 1072 | MOCKSVILLE | NC | 27028-5443 |
| L30000001802 | 5726263839 | CORRELL HOWARD L JR | CORRELL TERESA S | 222 NEW HAMPSHIRE CT | MOCKSVILLE | NC | 27028-4266 |
| L30000002001 | 5726275327 | COULSTON JACQUELINE W | | PO BOX 1165 | MOCKSVILLE | NC | 27028-1165 |
| M400000003 | 5726814805 | DEESE CHARLES WAYNE | DEESE DELORES | PO BOX 563 | COOLEEMEE | NC | 27014-0563 |
| M400000011 | 5735095358 | DETWEILER MICAH D | DETWEILER RACHAEL E | 1415 JUNCTION ROAD | MOCKSVILLE | NC | 27028 |
| K3120A0014 | 5727408801 | DIEHL PHILIP C JR | DIEHL RUTH ANN | 140 WILLOW LANE | MOCKSVILLE | NC | 27028-0000 |
| L40000001401 | 5726756282 | DWIGGINS EUNICE | | 880 JUNCTION ROAD | MOCKSVILLE | NC | 27028 |
| M400000006 | 5726719035 | DWIGGINS RAY M | DWIGGINS EUNICE M | 880 JUNCTION ROAD | MOCKSVILLE | NC | 27028-0000 |
| K300000050 | 5727521863 | EDWARDS JAMES KIRK | | 241 JUNCTION ROAD | MOCKSVILLE | NC | 27028 |
| L40000003802 | 5736343648 | ELLIS PAUL JR | SHORT RUN SWISS INC | 714 EAST EDNA PLACE | COVINA | CA | 91723-0000 |
| L300000016 | 5726424704 | FORKS OF THE YADKIN & DAVIE CO HISTORY MUSEUM | | 220 PROSPECT ROAD | STATESVILLE | NC | 28625 |
| L300000029 | 5726565025 | FREEMAN WILLIAM R | | 744 JUNCTION ROAD | MOCKSVILLE | NC | 27028-0000 |
| L30000001802 | 5726263839 | FRISBY JEFFREY D | FRISBY DEBORAH C | 208 POPLAR AVE | WAYNE | PA | 19087-0000 |
| L300000025 | 5726473839 | FULK JACK Z JR | C/O DONNA F HADDOCK | 4905 WATERS EDGE DRIVE | RALEIGH | NC | 27606-0000 |
| L300000011 | 5726142918 | GARNETT STEVEN LEE | GARNETT JANE KYLE | 781 RATLEDGE ROAD | MOCKSVILLE | NC | 27028-0000 |
| K400000044 | 5736498072 | GOSHEN LANDS INCORPORATED | C/O EVELYN B DANIEL | 570 DANIEL ROAD | MOCKSVILLE | NC | 27028-0000 |
| K300000059 | 5727300223 | GREEN JOHN WAYNE | GREEN LOIS H | 820 JUNCTION ROAD | MOCKSVILLE | NC | 27028-0000 |
| L400000015 | 5726757014 | GREEN SHANE | GREEN JENNIFER | 898 JUNCTION RD | MOCKSVILLE | NC | 27028-5321 |
| L30000002702 | 5726563812 | HALTEMAN WILLIS ALDERFER JR | HALTEMAN JUDITH YVONNE | 209 DUNHAVEN LANE | MOCKSVILLE | NC | 27028 |
| M400000000901 | 5725991997 | HAMPTON CHARLES LEE | | 1294 JUNCTION ROAD | MOCKSVILLE | NC | 27028-5325 |
| K3120A0008 | 5727501829 | HARRIS JOSHUA A | | 380 JUNCTION ROAD | MOCKSVILLE | NC | 27028 |
| K3120A0012 | 5727417075 | HARRIS STEVEN DOUGLAS | | 120 WILLOW LANE | MOCKSVILLE | NC | 27028-0000 |
| K3120A0010 | 5727510161 | HARRIS WILLIAM E | HARRIS JOAN DAVIS | 111 WILLOW LANE | MOCKSVILLE | NC | 27028-0000 |
| L40000001202 | 5726655652 | HOWELL LAURA ELAINE | HOWELL DOUGLAS WAYNE | 188 CENTER CIRCLE | MOCKSVILLE | NC | 27028 |
| K300000066 | 5727431688 | JOHNSON TERESA K | | 195 TOMLIN RD | HARMONY | NC | 28634-9042 |
| L400000014 | 5726850439 | JONES JACKIE RENEE DWIGGINS | JONES DARRELL L | 117 HUFFMAN ROAD | MOCKSVILLE | NC | 27028 |
| M400000019 | 5736108515 | JONES MELVIN | JONES CARRIE B | 120 MARCONI STREET | MOCKSVILLE | NC | 27028-0000 |
| M400000004 | 5726814648 | KEATON JONATHAN | | 4675 NEEDMORE ROAD | CLEVELAND | NC | 27013 |
| K30000003201 | 5727246076 | KELLY PATRICK M | KELLY JANICE M | 223 ADAMS RD | MOCKSVILLE | NC | 27028-5101 |
| L30000000704 | 5726054715 | KENNEDY CHRISTOPHER | | 832 RATLEDGE ROAD | MOCKSVILLE | NC | 27028 |
| K300000066 | 5727431688 | KURFEES DORIS CHAFFIN | | 195 TOMLIN RD | HARMONY | NC | 28634-0000 |
| K300000042 | 5727349440 | KURFEES JOEL E | | 209 DAVIE ACADEMY ROAD | MOCKSVILLE | NC | 27028-0000 |
| K3050B0015 | 5727530030 | LOOKABILL BILLIE C | LOOKABILL IRIS D POTTS | PO BOX 362 | MOCKSVILLE | NC | 27028-0362 |
| M400000000902 | 5725990906 | LOY SONYA HAMPTON | | 276 KNOLL CREST ROAD | MOCKSVILLE | NC | 27028-5337 |
| K3050A0007 | 5727530669 | LYTLE JAMES HERBERT JR | LYTLE LOIS S | 173 JUNCTION ROAD | MOCKSVILLE | NC | 27028-0000 |
| L300000024 | 5726299108 | MARION DAVID MATTHEW | | 417 RATLEDGE ROAD | MOCKSVILLE | NC | 27028-5427 |
| K300000053 | 5727522165 | MENZEL MICAH T | MENZEL HELEN C | 163 WHITE DRIVE | MOCKSVILLE | NC | 27028 |
| L300000023 | 5726289904 | MITCHELL THOMAS J | MITCHELL LANA M | 435 RATLEDGE ROAD | MOCKSVILLE | NC | 27028 |
| K3050A0014 | 5727532295 | MOXLEY CHRISTOPHER SCOTT | MOXLEY AMESHA LYNN | 172 CAROLINA AVENUE | MOCKSVILLE | NC | 27028 |
| K300000049 | 5727630368 | OLIVER WALTER R | OLIVER SHELIA F | 8017 LINVILLE RD | OAK RIDGE | NC | 27310-9313 |
| K3120A0013 | 5727407983 | PATTERSON RAYMER J | C/O SUE SEAMON | 157 PINE VALLEY ROAD | MOCKSVILLE | NC | 27028-0000 |
| K300000063 | 5727215651 | PILCHER CHARLES PHILLIP | PILCHER JONATHAN EDWARD | 2728 FARMINGTON ROAD | MOCKSVILLE | NC | 27028-0000 |
| M400000000101 | 5726823177 | POMPEY CURTIS | POMPEY KAREN | PO BOX 1012 | COOLEEMEE | NC | 27014-0000 |
| K300000051 | 5727521553 | PREVETTE BETTY J | | 247 JUNCTION ROAD | MOCKSVILLE | NC | 27028-5315 |
| M400000007 | 5726709523 | PRUITT JOHN MILTON | | PO BOX 122 | COOLEEMEE | NC | 27014-0122 |
| M400000002 | 5726823092 | PRUITT LONELL | | PO BOX 601 | COOLEEMEE | NC | 27014-0000 |
| M400000000702 | 5726707397 | PRUITT RICHARD DOUGLAS | PRUITT GLORIA R | 1246 JUNCTION ROAD | MOCKSVILLE | NC | 27028-5325 |
| K3050B0014 | 5727531041 | RIDINGS ROSALIND | | 213 CAROLINA AVENUE | MOCKSVILLE | NC | 27028 |
| K3120A0009 | 5727510080 | SANTIAGO GUSTAVO | SANTIAGO ALMA | 372 JUNCTION ROAD | MOCKSVILLE | NC | 27028-0000 |
| M30000000801 | 5725493703 | SHOAF EARL F | | 5117 WYNEEFORD WAY | RALEIGH | NC | 27614-0000 |
| L300000018 | 5726079346 | SHOAF EARL FRANKLIN | SHOAF CRAIG SCOTT | 5117 WYNEEFORD WAY | RALEIGH | NC | 27614-0000 |
| K30000005801 | 5727306349 | SHORE JERRY L | SHORE LINDA C | 253 RATLEDGE ROAD | MOCKSVILLE | NC | 27028-0000 |
| K3120A0006 | 5727502629 | SHORE KAY BECK | | 400 JUNCTION ROAD | MOCKSVILLE | NC | 27028-0000 |
| L300000033 | 5726246967 | SHORE PHILLIP D | | 347 LITTLE EGYPT ROAD | MOCKSVILLE | NC | 27028-0000 |
| K300000052 | 5727429153 | SHORES RICHARD I | SHORES JUDY W | 980 MAIN CHURCH ROAD | MOCKSVILLE | NC | 27028-0000 |
| K300000054 | 5727614961 | SLOGICK NICHOLAS ALAN | SLOGICK VALERIE D TUCAK | 341 MAGNOLIA DRIVE | MOCKSVILLE | NC | 27028-2913 |
| L400000015 | 5726757014 | SOLIS JESUS C | GUZMAN PASTORA | 898 JUNCTION ROAD | MOCKSVILLE | NC | 27028-5321 |
| M4010A0013 | 5726902900 | SPILLMAN CLARENCE | | 1949 JUNCTION ROAD | MOCKSVILLE | NC | 27028-0000 |
| M40000001018 | 5725997692 | SPILLMAN CLARENCE L | | 1949 JUNCTION ROAD | MOCKSVILLE | NC | 27028-0000 |
| M40000001014 | 5725894703 | SPILLMAN CLARENCE L ETAL | | PO BOX 738 | COOLEEMEE | NC | 27014-0738 |
| K3130A0018 | 5726497593 | SPILLMAN EDDIE AUSTIN | | 168 WILLOW LANE | MOCKSVILLE | NC | 27028-5489 |
| K3130A001801 | 5727407653 | SPILLMAN JOHN A TRUSTEE | JOHN A SPILLMAN REV TRUST | PO BOX 292 | MOCKSVILLE | NC | 27028-0292 |
| M4010A0022 | 5725994946 | SPILLMAN ROGER P | | PO BOX 738 | COOLEEMEE | NC | 27014-0000 |
| K3050B0011 | 5727524998 | STARNES KELLY | STARNES ELIZABETH J | 191 CAROLINA AVENUE | MOCKSVILLE | NC | 27028-0000 |

Attachment: Full application_novPB (Zoning Map Amendment_2020-05 Junction Solar Project LLC)

Exhibit A

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| K300000055 | 5727507855 | STERN LORI | | 429 JUNCTION RD | MOCKSVILLE | NC | 27028-5317 |
| K300000061 | 5726299426 | STEVENSON ANGELA P | STEVENSON DANIEL E | 391 RATLEDGE ROAD | MOCKSVILLE | NC | 27028-0000 |
| M400000001 | 5726719715 | STOCKTON DARRYL T | | PO BOX 297 | COOLEEMEE | NC | 27014-0297 |
| M400000005 | 5726814561 | STOCKTON HOWARD J | STOCKTON AZALEE P | PO BOX 297 | COOLEEMEE | NC | 27014-0000 |
| L30000001701 | 5726261068 | STROUD JAMES RICHARD | | 2596 LANDMARK DRIVE | WINSTON SALEM | NC | 27103 |
| K3120A0004 | 5727503980 | STROUSE KENNETH L | STROUSE DIANE M | 157 WEST CHURCH STREET | MOCKSVILLE | NC | 27028-0000 |
| M400000011 | 5735095358 | TORRES CRISTIAN CADENA | GARCIA ADRIANA LOPEZ | 1415 JUNCTION RD | MOCKSVILLE | NC | 27028-5327 |
| L30000001801 | 5726067967 | WARD SUZANNE SHOAF | | 5117 WYNNEFORD WAY | RALEIGH | NC | 27614 |
| K30000003302 | 5717938178 | WEAVER ABRAHAM A | WEAVER IVA A | 246 ADAMS ROAD | MOCKSVILLE | NC | 27028-0000 |
| K300000069 | 5727236952 | WEAVER DAVID ABE | WEAVER ANDREA FAYE | 215 ADAMS ROAD | MOCKSVILLE | NC | 27028 |
| K3120A0003 | 5727513041 | WISHON KEVIN FORREST | | 383 JUNCTION ROAD | MOCKSVILLE | NC | 27028-0000 |
| K30000006402 | 5727318109 | WYATT MORGAN LEIGH | | 198 RATLEDGE RD | MOCKSVILLE | NC | 27028-5424 |
| K300000060 | 5726299787 | YORK CALVIN | | 417 OLIN LOOP ROAD | OLIN | NC | 28660 |

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ORION
RENEWABLE ENERGY GROUP LLC

Junction Solar Center

Orion Renewable Energy Group LLC
155 Grand Ave., STE 706
Oakland, CA 94612
Phone: (510) 267-8921

September 29, 2020

Dear [Addressee],

You may have recently heard about a new solar opportunity under development near the southern border of Davie County just northwest of Cooleemee. The purpose of this letter is to invite you to join us at our community meeting at the Triple J. Manor House on Thursday, October 15th where Orion representatives will present the merits of the opportunity, answer your questions, and work to open lines of communication with the community.

To ensure your safety, our meeting will comply with all state and local COVID-19 requirements. As an added precaution, we are offering one-hour time slots to ensure we schedule smaller audiences over the course of the event, which will begin at 11 am and conclude at 7 pm.

In the interim, we have provided a website for you to visit at www.JunctionSolarProject.com. There you can quickly learn more about us, solar power, and the benefits we seek to bring to the local community and North Carolina. Those include creating new local jobs and generating millions of dollars in new property tax revenues that will support local schools and services, while offering clean, locally-grown, cost-competitive electricity.

Your thoughts, opinions and questions are important to us so please take the time to check out the website, and let us know about your interest in attending our upcoming open house: Triple J. Manor House located at 362 Interstate Drive in Mocksville.

If you are planning to attend, please RSVP to Adriana Guevara at (510)267-8921 or JunctionSolar@orionrenewables.com with your preferred one-hour time slot between 11am and 7pm. We will limit participation to 25 people per hour indoors, in accordance with state orders, and we will do our best to accommodate your time slot preference. If you have any questions, please feel free to contact me by email at peter@orionrenewables.com.

We look forward to working with you, your neighbors, and county leadership to bring this new opportunity to Davie County. Thank you for your time and we hope to see you on October 15th.

Best regards,

Peter Moritzburke
Development Consultant

Attachment: Full application_novPB (Zoning Map Amendment_2020-05 Junction Solar Project LLC)

# Meeting Attendance Sign-In

## Junction Solar Center

## Triple J Manor House, Mocksville, NC

Thursday, October 15, 2020

| Name(please print) | Address | Phone (opt) | Email |
|---|---|---|---|
| Hank Von Ha | 621 W. Maple St Mocksville | | Lvhlaw@vhlaw.com |
| David Gilbreath | 495 Eaton Church Rd. Mocksville, N.C. | | bicep22853@yadtel.net |
| Mark Hager | 220 Prospect Rd Statesville | | forks of the yadkin@yadtel.net |
| JERRY SHORE | 253 RATLEDGE RD | | JSHOEE2250@YADTELNET |
| LINDA SHORE | " " | | " |
| TERRY BRALLEY | | | |
| Linda Leonard | 126 W Church Mocksville, NC 27028 | | linda leonard2@gmail.com |
| Carolyn McMahan | | | CMCMahan@davie county.com |
| Tim Prewett | 811 Ratledge Rd | | prewett1961@gmail.com |
| Earl Ratledge | 966 Ratledge Rd | | |
| Jonathan Angus | ~~Mocksville NC~~ | | |
| Debra Marsh | 848 S. Main St | | |
| Annette Miller | 926 Ratledge Rd | | |
| Brent Miller | " " " | | abmiller27028@gmail.com |



Attachment: Full application_novPB (Zoning Map Amendment_2020-05 Junction Solar Project LLC)

# Meeting Attendance Sign-In

## Junction Solar Center

## Triple J Manor House, Mocksville, NC

Thursday, October 15, 2020

| Name(please print) | Address | Phone (opt) | Email |
|---|---|---|---|
| Jim CARTNER | 504 W. End Ave Statesville | 704-871-7525 | JCARTNER54@AOL.COM |
| Morgan Wyatt | wyattmo24@gmail.com | 336 909 2051 | |
| Benita Finney | Taylor Rd, Advance | 3366710343 | DC Commissioner |
| MARY MARION | 417 RALLEDGE ROAD MOCKSVILLE, NC | 336 909-9329 | MARYMARION12@YAHOO.COM |
| MANDY GARNER | 417 RALLEDGE ROAD MOCKSVILLE, NC | (336) | |
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# Exhibit 4

# Glare Analysis

Attachment: Full application_novPB (Zoning Map Amendment_2020-05 Junction Solar Project LLC)

# Junction Solar Project

Orion Renewable Energy Group

*Davie County, North Carolina*

*Glint & Glare Analysis*

October 15, 2020

Capitol Airspace Group

*capitolairspace.com*

*(703) 256 - 2485*

Attachment: Full application_novPB (Zoning Map Amendment_2020-05 Junction Solar Project LLC)

Capitol Airspace Group
5400 Shawnee Road, Suite 304
Alexandria, VA 22312
703-256-2485
capitolairspace.com

## Summary

Orion Renewable Energy Group is proposing to construct solar arrays near the town of Cooleemee in Davie County, North Carolina (***Figure 1***) On behalf of Orion Renewable Energy Group, Capitol Airspace performed a Glint and Glare Analysis utilizing the Solar Glare Hazard Analysis Tool (SGHAT) in order to identify the potential for glare impacts. Specifically, this analysis considered the potential for glare impacts on aircraft approaching Boyd's Hawks Creek Airport (4NC0) Runway 11/29. Additionally, this analysis considered the potential for glare impacts on nearby residences and roadways.

The results of the analysis indicate that there are no predicted glare occurrences for approaches to Boyd's Hawks Creek Airport (4NC0) as a result of proposed single-axis tracking solar arrays. Since Boyd's Hawks Creek Airport (4NC0) is a non-towered airport, this analysis did not consider the potential for impact on air traffic control tower personnel. These results conform to, and are in accordance with, the FAA's interim policy for *Solar Energy System Projects on Federal Obligated Airports*.

Additionally, there is no predicted glare for residences or roadways as a result of the proposed single-axis tracking solar arrays. These results are based on the application of FAA glint and glare standards in the absence of non-aviation regulatory guidelines.

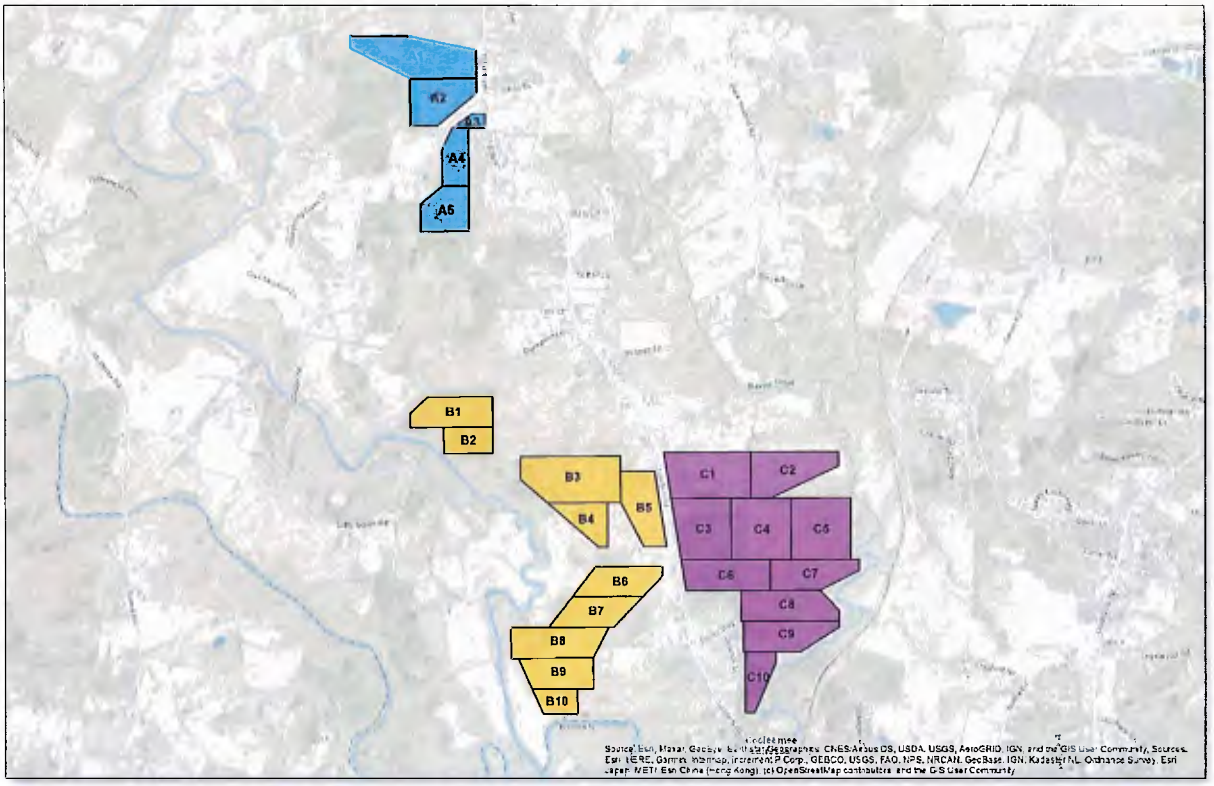


***Figure 1: Location and identification of Junction Solar Project solar parcels***

Attachment: Full application_novPB (Zoning Map Amendment_2020-05 Junction Solar Project LLC)

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703-256-2485
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## Methodology

In cooperation with the Department of Energy (DOE), the Federal Aviation Administration (FAA) developed and validated the Sandia National Laboratories Solar Glare Hazard Analysis Tool (SGHAT), now licensed through ForgeSolar. The FAA requires the use of the SGHAT in order to enhance safety by providing standards for measuring the ocular impact of proposed solar energy systems on pilots and air traffic controllers. ForgeSolar has enhanced the SGHAT for glare hazard analysis beyond the aviation environment. These enhancements include a route module for analyzing roadways as well as an observation point module for analyzing residences.

The SGHAT analyzes potential for glare over the entire calendar year in one-minute intervals from when the sun rises above the horizon until the sun sets below the horizon. The glare hazard determination relies on several approximations including observer eye characteristics, angle of view, and typical blink response time. The SGHAT does not account for physical obstructions between reflectors and receptors. When glare is found, SGHAT classifies the ocular impact into three categories:

Green: Low potential for temporary after-image
Yellow: Potential for temporary after-image
Red: Potential for permanent eye damage

The FAA interim policy for *Solar Energy System Projects on Federally Obligated Airports* requires the absence of red or yellow predicted glare occurrences in the cockpit. This analysis utilized the FAA approved default SGHAT setting which simulates the pilot's view from the cockpit. No glare occurrences of any category are allowed for ATCT personnel. Currently, there are no defined standards for acceptable ocular impact on residences or roadways.

## Data

Solar array specifications (***Table 1***) as well as location and height information were provided by Orion Renewable Energy Group. The SGHAT determines site elevations unless entered manually. The FAA National Airspace System Resource (NASR) dataset did not contain runway end coordinates for Boyd's Hawks Creek Airport (4NC0) Runway 11/29. As a result, runway end coordinates were identified using aerial imagery. Final approach path parameters were generated using FAA's approved default settings.

***Table 1: Junction Solar Project solar array specifications***

| Parameter | Value |
|---|---|
| **Axis tracking:** | Single-axis rotation |
| **Tracking axis orientation:** | 180° |
| **Tracking axis tilt:** | 0° |
| **Max tracking angle:** | 60° |
| **Resting angle:** | 20° |
| **Panel material:** | Light textured glass with AR coating |
| **Reflectivity:** | Vary with sun |
| **Slope error:** | Correlate with material |

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## Results

Boyd's Hawks Creek Airport (4NC0)

*Runway 11/29*

The SGHAT results do not predict glare occurrences along the Runway 11 or Runway 29 approach paths (dashed purple line, ***Figure 2***)

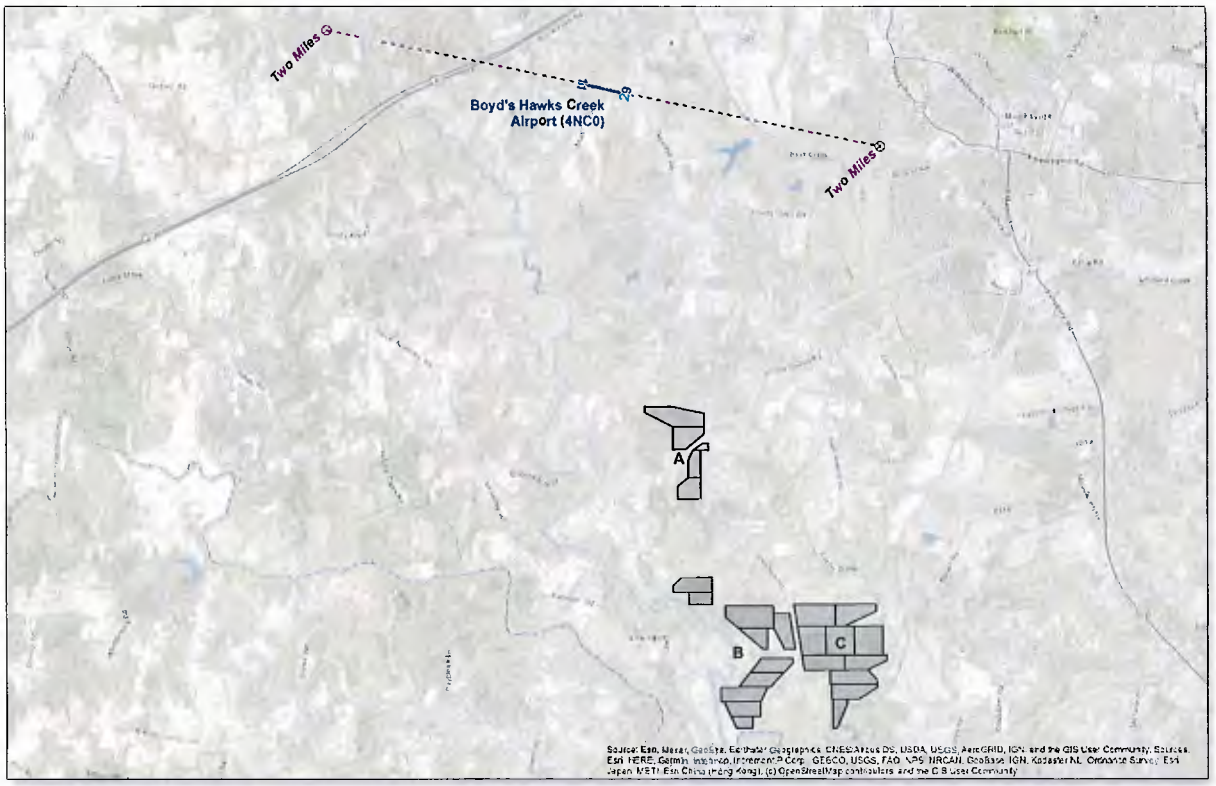


***Figure 2: Boyd's Hawks Creek Airport (4NC0) approach paths (dashed lines)***

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Residences

The SGHAT assessed the potential for glare occurrences at 152 discrete observation point receptors (purple points, ***Figure 3***, ***Figure 4***, & ***Figure 5***) Each observation point was assessed at an eight-foot first story viewing height and a 16-foot second story viewing height. The SGHAT results do not predict glare occurrences for any of the 152 observation points at either viewing height as a result of single-axis tracking arrays.

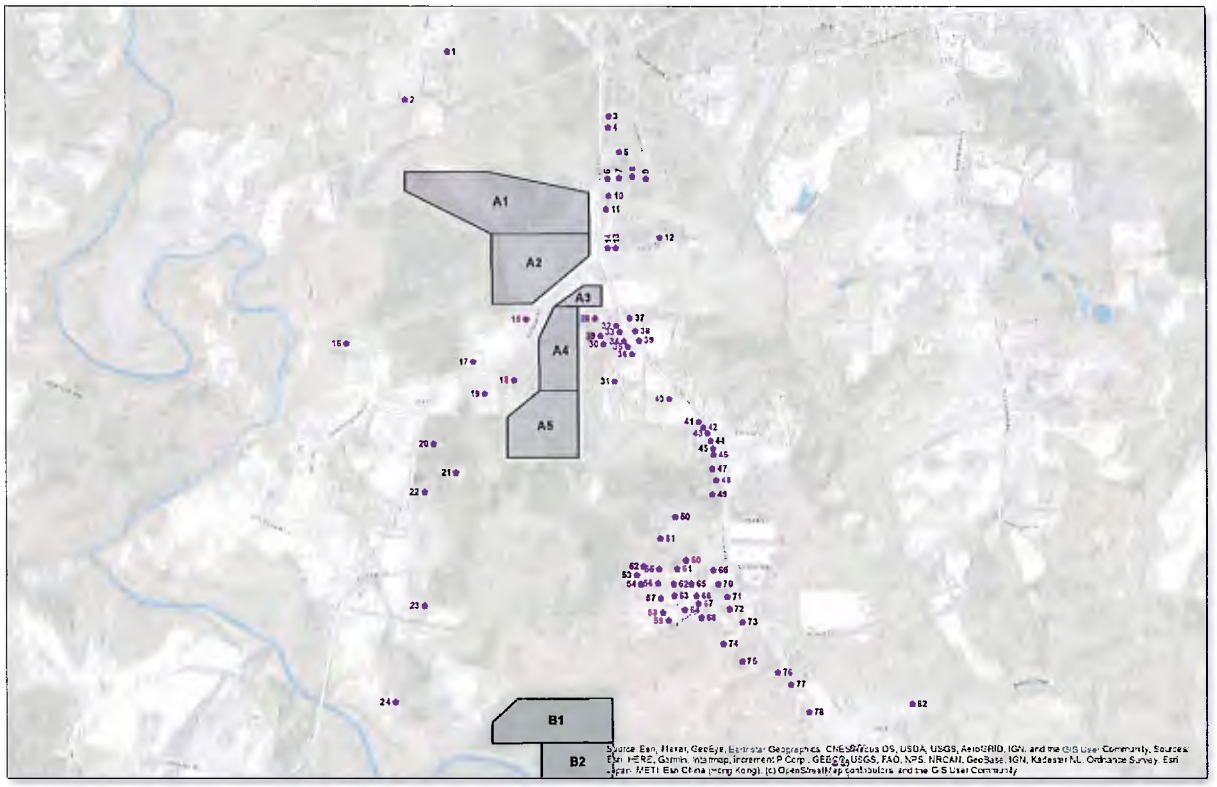


*Figure 3: Array A and Array B solar parcels with surrounding discrete observation point receptors (purple points)*

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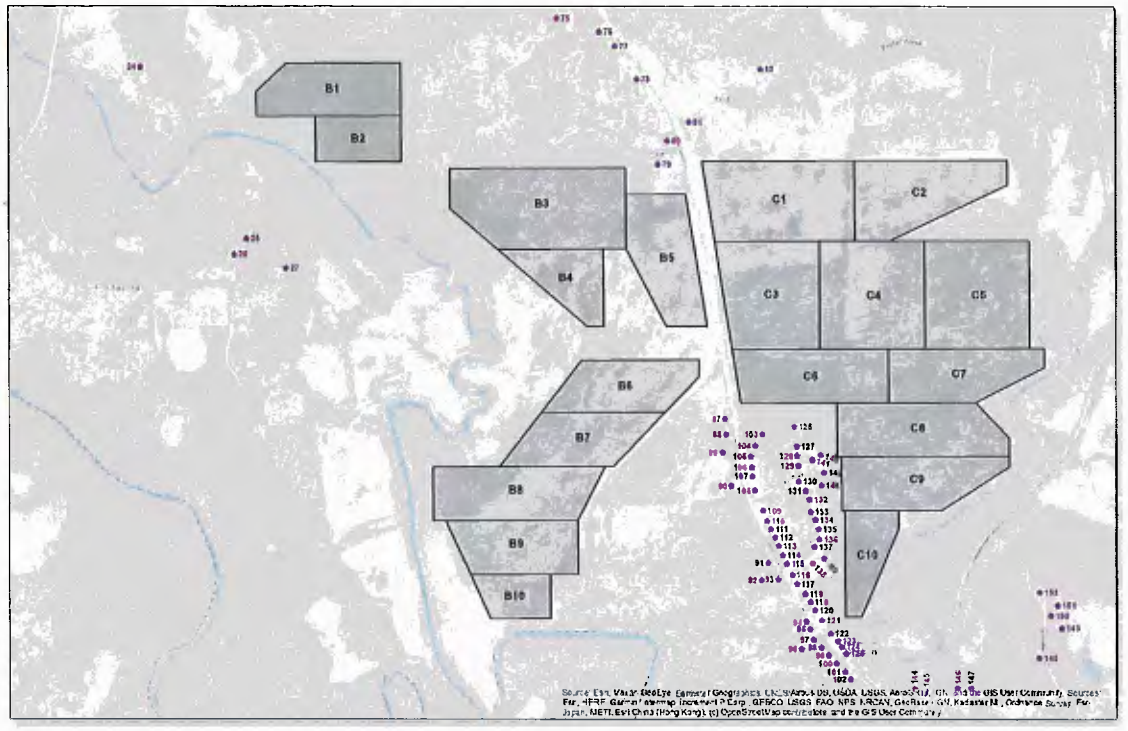


*Figure 4: Array B and Array C solar parcels with surrounding discrete observation point receptors (purple points)*

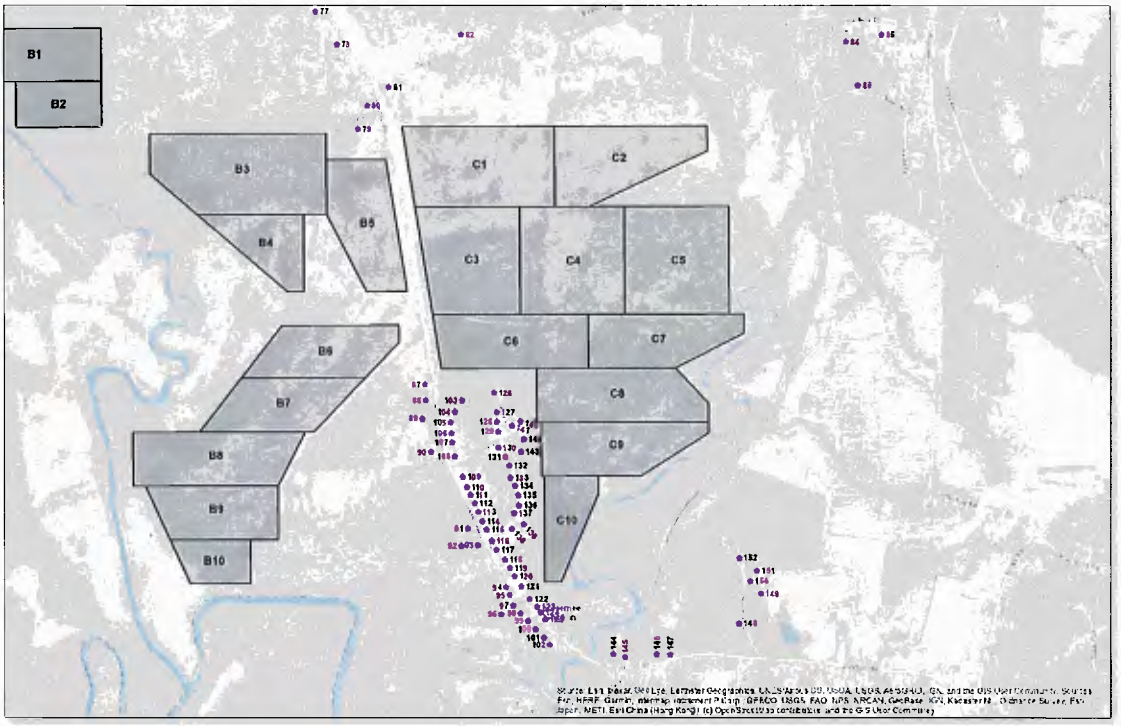


*Figure 5: Array B and Array C solar parcels with surrounding discrete observation point receptors (purple points)*

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capitolairspace.com

Routes

The SGHAT assessed the potential for glare occurrences along two route receptors (solid lines, ***Figure 6***) Each roadway was assessed at a four-foot car viewing height and an eight-foot truck viewing height. The SGHAT results do not predict glare occurrences for any of the roadways at either viewing height as a result of single-axis tracking arrays.

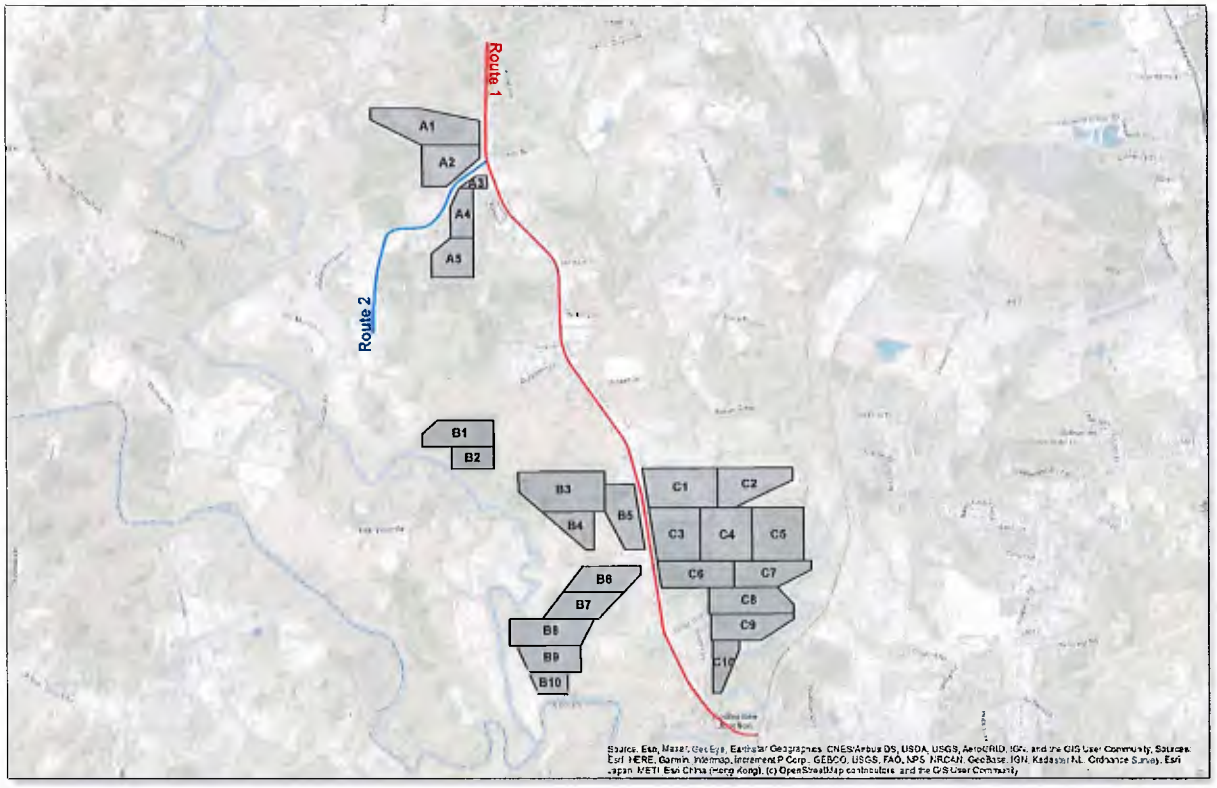


*Figure 6: Roadway receptors (solid lines)*

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Alexandria, VA 22312
703-256-2485
capitolairspace.com

## Conclusion

The SGHAT does not predict any glare occurrences for aircraft approaching Boyd's Hawks Creek Airport (4NC0) Runway 11/29 as a result of single-axis tracking arrays. These findings are compliant with the FAA interim policy for *Solar Energy System Projects on Federally Obligated Airports*. Additionally, the SGHAT does not predict any glare occurrences for nearby residences or roadways as a result of single-axis tracking arrays. As noted in the assumptions, the glint and glare analysis does not consider vegetation, fencing, or other natural obstructions. This glint and glare analysis takes the most conservative approach in assessing the possibility of glare occurrences.

*Table 2: Annual glare occurrence summary*

| Receptor | Green Glare (Hours:Minutes) | Yellow Glare (Hours:Minutes) | Red Glare (Hours:Minutes) |
|---|---|---|---|
| 4NC0 – Runway 11 | 0:00 | 0:00 | 0:00 |
| 4NC0 – Runway 29 | 0:00 | 0:00 | 0:00 |
| Route 1 - Cars | 0:00 | 0:00 | 0:00 |
| Route 2 - Cars | 0:00 | 0:00 | 0:00 |
| Route 1 - Trucks | 0:00 | 0:00 | 0:00 |
| Route 2 - Trucks | 0:00 | 0:00 | 0:00 |
| Residences (First Story) | 0:00 | 0:00 | 0:00 |
| Residences (Second Story) | 0:00 | 0:00 | 0:00 |

If you have any questions regarding the findings in this analysis, please contact *Rick Coles* or *Jason Auger* at (703) 256-2485.

Attachment: Full application_novPB (Zoning Map Amendment_2020-05 Junction Solar Project LLC)

# Exhibit 5

# Decommissioning Cost Analysis

Attachment: Full application_novPB (Zoning Map Amendment_2020-05 Junction Solar Project LLC)

Chris Sandifer PE

3118 Green Road Spring Hope, NC 27882
919-632-6519

# Site Decommissioning Report

2 October 2020

## Site Identification

| | | | |
|---|---|---|---|
| Name | | Junction Solar | |
| Size | Queue | **74.4 MW AC Net Capacity**<br>**80 MW AC Gross Capacity** | none |
| Address | | Junction Road, Mocksville, NC | |
| POI Coordinates | | 35.863941° -80.610632° | |
| County / State | | Davie NC | |

## Transmission Data

| | | | |
|---|---|---|---|
| Owner/Operator | | Duke Energy Carolinas | |
| Circuit Name | | Mocksville B or W | |
| Voltage | Type | 100 kV | Network |

### Qualifications

The estimated costs herein are based on the author's 40 year's engineering experience and 30 years' electrical contracting experience in the design, construction and deconstruction of utility scale energy facilities.

### Work Scope

This decommission plan with its estimated costs includes the complete removal of the solar photovoltaic renewable energy generator equipment in association with the project identified above. This plan and estimate was requested by and provided to:
Orion Renewable Energy Group LLC
155 Grand Avenue, Suite 706
Oakland CA 94612

Not included:
The cost of removal of Duke Energy Carolinas' (regulated utility owned) interconnection facilities such as a ring bus switch; over current protection, metering and power quality monitoring equipment, pads, grounding, and fencing is not included. Planting of trees, shrubs, or any other woody vegetation (re-forestation) is not included. It is assumed that re-grading of the site to remove any erosion control diversion dikes and retention ponds is not desirable and therefore should not be removed.



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Included in the removal cost: Buried power, communications, control cables and conduits, concrete equipment pads, gravel, fencing, transformers, switch gear, inverters, piles, racks, tracking equipment, and panels. It is expected that the entire disturbed site will be limed and re-seeded with native grasses.

**Cost considerations**

The cost estimates are based on employing a contractor with the experience and the ordinary equipment used in the construction and decommissioning of PV solar farms or similar facilities. Cost estimates include current rates for the labor, materials, equipment depreciation, taxes, insurance, transport costs, equipment rental, overheads, and profit. Labor costs have been estimated using nonunion regional labor rates. There has been no future cost escalation or dollar deflation considerations. The equipment being decommissioned is assumed to be undamaged and in operating condition. Disassembly and removal of all equipment is assumed to be performed without regard for any specific future material re-use except as recycled materials or landfill disposal.

**Worst Case Scenario**

Although the transformers, panels, solid state electronics and switch gear commonly have a resale value above scrap value in secondary after markets, this report assumes that all equipment will be sold at scrap value.

**Equipment and Assumptions**

This estimate is based on a preliminary layout and design provided by Orion. 35 kV was the assumed distribution collection voltage with four different feeder circuits which each extended to its natural project segmentation. The substation transformer and static VAR compensation ratings used were based on typical interconnection requirements by this utility. The overcurrent protection equipment considered was in accordance with the NEC and NESC. Assumed:

- 80 MVA rated 100 kV to 34.5 kV Substation transformer
- copper conductors for the DC strings
- copper conductors for the low and medium voltage AC collector systems
- four 34.5 kV feeders to inverters, one equip power breaker
- 640 kVAR shunt capacitor – static VAR bank
- hydraulically installed racking piles – no concrete bases

The specific equipment below is based information provided by Orion Renewable Energy Group LLC.

- 224,640 LONGi LR4-72HBD-450M-Glaze PERC mono-crystalline panels



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Chris Sandifer PE

- Axone Duo single axis trackers with 54 modules per rack
- 24 Power Electronics HEM FS3350M skid mounted inverters with transformers
- eight foot perimeter chain link fencing (assume 11 gauge X 2 inch mesh)
- 14 foot wide compacted soil internal paths

**Methods**

All facilities will be considered to be de-energized with a visible means of "lock out – tag out" before any equipment removal. All the Solar facilities are assumed to be removed on the same mobilization and that no part of the total facility will remain after decommissioning. The transformers and inverters would be removed intact. The other above ground and underground PV plant will be mechanically disassembled in appropriate sizes, staged on site without crossing public Right of Ways, loaded and transported to their applicable destinations.

**Results**

This net decommissioning results in a positive cash flow. That amount is $1,669,208.00. The total scrap values for the materials removed exceeds their removal and disposal cost including the site restoration cost.

| Item | Qty | unit labor Cost $ | Extended labor Cost $ | tons | Freight Cost $ | Land Fill Cost $ | Total Restoration Cost $ | unit salvage $/Lb | Extended salvage Cost $ | Net Total $$ |
|---|---|---|---|---|---|---|---|---|---|---|
| 80 MVA transformer | 1 | $25K | $40,000 | 60 | $5,000 | | $45,000 | $2/kVA | $160,000 | $115,000 |
| 3.35 MVA inverter skids | 24 | $1800 ea | $43,200 | 370 | $7,200 | | $50,400 | $3/kVA | $241,200 | $190,800 |
| 3000 A 35kV bus 4 Lb./ft. | 400 ft. | $2.5/ft | $1,000 | 1 | $13.33 | | $1,013 | $1.87/lb | $2,992 | $1,979 |
| 35 kV Vacuum breakers | 6 | $800/ea | $4,800 | 1 | $13.33 | | $4,813 | $2000/ea | $12,000 | $7,187 |
| 100 kV circuit switchers | 3 | $1250/ea | $3,750 | 1.5 | $20.00 | | $3,770 | $5000/ea | $15,000 | $11,230 |
| 200 kVAR shunt capacitors | 240 | $40/ea | $9,600 | 2 | $13.33 | | $9,613 | $1.87/lb | $10,800 | $1,187 |
| Control panels | 1 | $200/ea | $200 | 0.5 | $4.44 | | $204 | $1.87/lb | $1,870 | $1,666 |
| single axis frame 3500 Lb. | 4160 | $200/ea | $832,000 | 7280 | $64,711 | | $896,711 | $250/ton | $1,820,000 | $923,289 |
| racking pile 165 Lb. each | 14,740 | $14/ea | $206,360 | 1216 | $10,809 | | $217,169 | $250/ton | $304,013 | $86,843 |
| tracking motor 54 Lb. each | 2080 | $25 | $52,000 | 56 | $499 | | $52,499 | $1/lb | $112,320 | $59,821 |
| racking harnesses (feet) | 1300 k ft | $0.10/ft | $130,000 | 260 | $3,467 | | $133,467 | $0.90/lb | $187,200 | $53,733 |
| UG 35 kV cable .75 lb/ft. | 50,000 | $1.1/ft | $55,000 | 18.75 | $250.00 | | $55,250 | $0.90/lb | $112,500 | $57,250 |
| communications cable ft. | 50,000 | $0.10/ft | $5,000 | 0.6 | $8.00 | | $5,008 | $0.03 | $1,500 | -$3,508 |
| fence mesh 3.84 Lb./ft. | 59,200 | $0.45/ft | $26,640 | 114 | $1,516 | | $28,156 | $104/ton | $11,821 | -$16,334 |
| concrete fence post | 5920 | $3 each | $17,760 | 148 | $1,973 | $14,060 | $33,793 | 0 | $0 | -$33,793 |
| concrete pads - yards$^3$ | 24 | $400/each | $9,600 | 135 | $1,200 | $12,825 | $23,625 | 0 | $0 | -$23,625 |
| Gravel path ft | 0 | $3/yd | $0 | 0 | $0 | $0 | $0 | 0 | $0 | $0 |
| PV modules 27.5 kG | 224,640 | $2.25/ea | $505,440 | 6807 | $90,755 | | $596,195 | $4/ea | $898,560 | $302,365 |
| Re-seeding & lime (acre) | 549 | $120/acre | $65,880 | | | | $65,880 | | | -$65,880 |
| Net Decommissioning is a Positive cash flow | | | | | | | $2,222,567 | | $3,891,776 | $1,669,208 |



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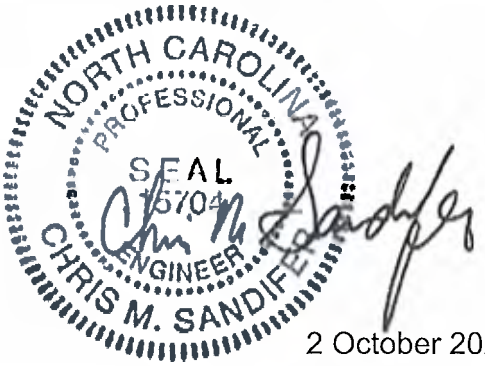


2 October 2020

The engineer accepts no liability for errors, omissions, or the accuracy and adequacy of this opinion. It is a violation of state law for any person, unless they are acting under direction of a licensed professional engineer to alter this document in any way.



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# Exhibit 6

# Economic Benefit Analysis

Attachment: Full application_novPB (Zoning Map Amendment_2020-05 Junction Solar Project LLC)

# Economic Impact and Land Use Analysis of the Junction Solar Project

August 2020

David G. Loomis, Ph.D.

SER Strategic Economic Research, LLC

Attachment: Full application_novPB (Zoning Map Amendment_2020-05 Junction Solar Project LLC)

# About the Author

**Dr. David G. Loomis** is Professor of Economics at Illinois State University and Co-Founder of the Center for Renewable Energy. He has over 10 years of experience in the renewable energy field and has performed economic analyses at the county, region, state, and national levels for utility-scale wind and solar generation. He has served as a consultant for Apex Clean Energy, Clean Line Energy Partners, EDF Renewables, E.ON Climate and Renewables, Geronimo Energy, Invenergy, J-Power, the National Renewable Energy Laboratories, Ranger Power, State of Illinois, Tradewind, and others. He has testified on the economic impacts of energy projects before the Illinois Commerce Commission, Missouri Public Service Commission, Illinois Senate Energy and Environment Committee, the Wisconsin Public Service Commission, and numerous county boards. Dr. Loomis is a widely recognized expert and has been quoted in the Wall Street Journal, Forbes Magazine, Associated Press, and Chicago Tribune as well as appearing on CNN.

Dr. Loomis has published over 25 peer-reviewed articles in leading energy policy and economics journals. He has raised and managed over $7 million in grants and contracts from government, corporate and foundation sources. He received the 2011 Department of Energy's Midwestern Regional Wind Advocacy Award and the 2006 Best Wind Working Group Award. Dr. Loomis received his Ph.D. in economics from Temple University in 1995.

SER Strategic Economic Research, LLC

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SER Strategic Economic Research, LLC

# I. Executive Summary

Orion Renewable Energy Group LLC (Orion) is developing the Junction Solar Project in Davie County, North Carolina. The purpose of this report is to aid decision makers in evaluating the economic impact of this project on Davie County and the State of North Carolina. The basis of this analysis is to study the direct, indirect, and induced impacts on job creation, wages, and total economic output.

Junction Solar is an 80 MW solar project using single-axis tracking panels. The project represents total capital investment of almost $96 million. The total development is anticipated to result in the following:

## Economic Impact

Jobs - all jobs numbers are full-time equivalents

- 79 new local jobs during construction for Davie County
- 215 new local jobs during construction for the State of North Carolina
- Between 5 and 7 new local long-term jobs for Davie County
- Over 9 new local long-term jobs for the State of North Carolina

Earnings

- Over $6.6 million in new local earnings during construction for Davie County
- Over $33.3 million in new local earnings during construction for the State of North Carolina
- Between $194 thousand and $268 thousand in new local long-term earnings for Davie County annually
- Over $897 thousand in new local long-term earnings for the State of North Carolina annually

Output

- Over $8.3 million in new local output during construction for Davie County
- Over $26.2 million in new local output during construction for the State of North Carolina
- Between $731 thousand and $825 thousand in new local long-term output for Davie County annually
- Over $1.4 million in new local long-term output for the State of North Carolina annually

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Property Taxes

- On average over 20 years Davie County will receive over $98 thousand annually and the Fire District will receive over $5 thousand annually from property taxes. Year 1 property taxes will total over $222 thousand.

This report also performs an economic land use analysis regarding the leasing of agricultural land for the new solar farm. That analysis yields the following results:

Land Use

- Using a real-options analysis, the land use value of solar leasing for landowners differs greatly from the value generated by agricultural use.
- Davie County:
  - The price of hay would need to rise to $1,015.53 per ton or yields for hay would need to rise to 13 tons per acre by the year 2052 for hay farming to generate more income for the landowner and local community than the solar lease.
  - The price of corn would need to rise to $23.93 per bushel or yields for corn would need to rise to 363.4 bushels per acre by the year 2052 for corn farming to generate more income for the landowner and local community than the solar lease.
  - Alternatively, the price of soybeans would need to rise to $72.19 per bushel or yields for soybeans would need to rise to 157.1 bushels per acre by the year 2052 for soybean farming to generate more income for the landowner and local community than the solar lease.
  - At the time of this report, hay, corn and soybean prices are $101 per ton, $4.45 per bushel and $8.80 per bushel respectively and yields are 2.3 tons, 120 bushels and 34 bushels per acre respectively.

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# II. Solar PV Industry Growth and Economic Development

## a. U.S. Solar PV Industry Growth

The U.S. solar industry is growing at a rapid but uneven pace, with systems installed for onsite use, including residential, commercial and industrial properties and with utility-scale facilities intended for wholesale distribution, such as Junction Solar. From 2013 to 2018, the amount of electricity generated from solar had more than quadrupled, increasing 444% (EIA, 2020). The industry continued to add increasing numbers of PV systems to the grid. In 2019, the U.S. installed 13,300 MWdc of solar PV driven mostly by utility-scale PV, which is a 23% increase from 2018. The installations have stabilized after a record-setting year in 2016.[1] As Figure 1 clearly shows, the capacity additions in 2017-2019 still outpaced any year before 2016. The primary driver of this overall sharp pace of growth is large price declines in solar equipment. Since 2000, the price of solar PV declined from about $10-$12/watt in 2000 to $2.4-$3.7/watt in 2018 according to Figure 2. Solar PV also benefits from the Federal Investment Tax Credit (ITC) which provides 26% tax credit for residential and commercial properties. Still, various federal tax reform measures and new tariffs on imported solar panels by the Trump Administration may lessen the price declines in 2020 and beyond.

Utility-scale PV leads the installation growth in the U.S. A total of 8,402 MWdc of utility PV projects were completed in 2019 and accounted for 63% of the total installed capacity in 2019. An additional 9,988 MWdc are under construction and are expected to come on-line in 2020. According to Figure 3, there are 340,954 MWdc of utility-scale PV solar operating in the U.S. and an additional 48,118 MWdc has been contracted as well as another 59,669 MWdc announced.

[1] There was a dramatic increase in 2016 because the industry was expecting the expiration of the federal investment tax credit and rushed to complete as many projects as possible before the expected expiration. This rush effectively pulled projects that were originally slated for 2017 and 2018 forward into 2016 resulting in the high amount installed in 2016 but a lower amount installed in 2017 and 2018.



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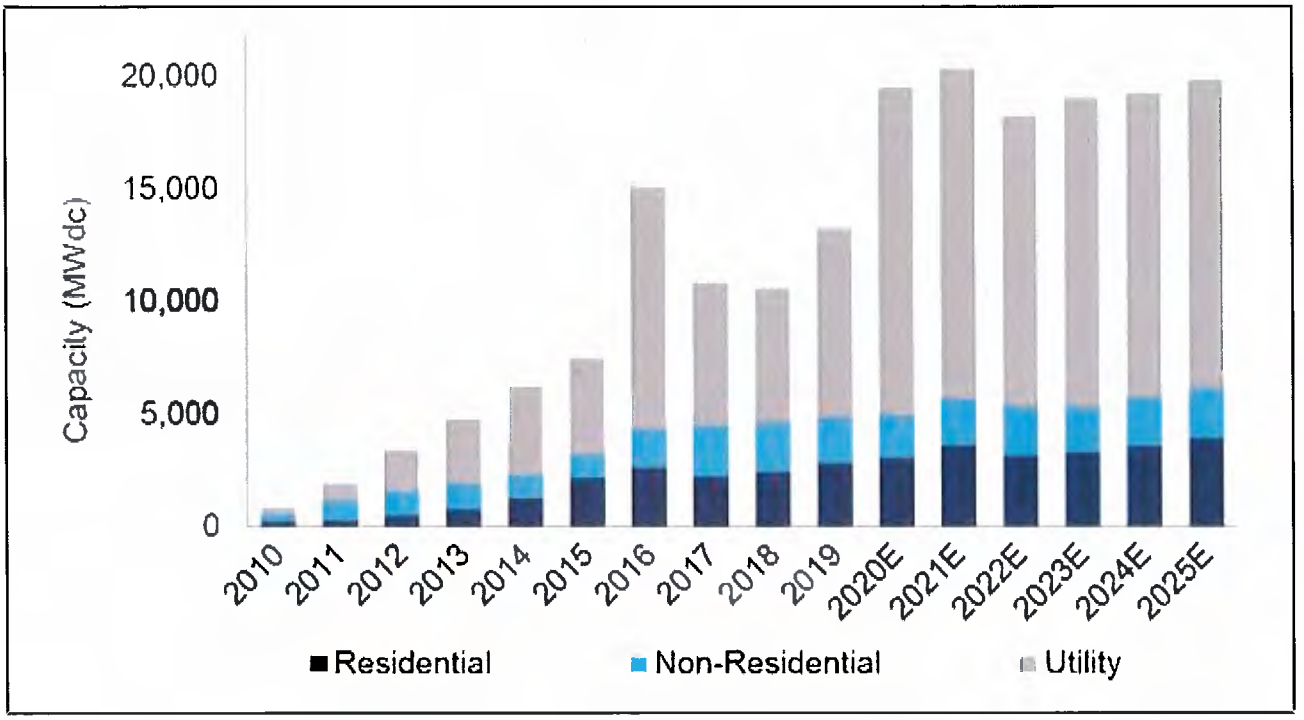
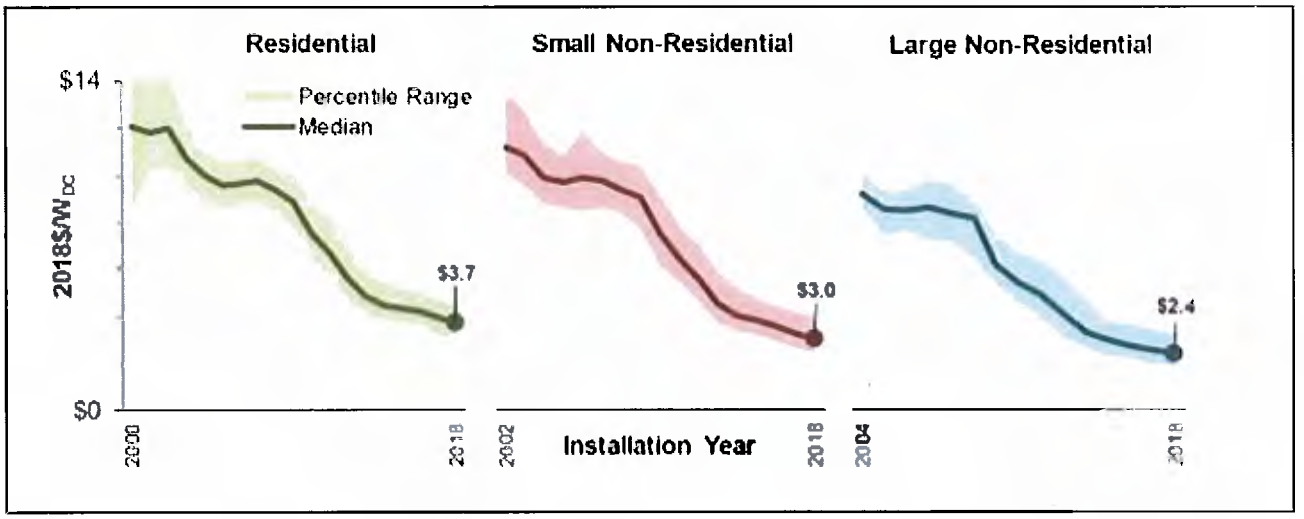
**Figure 1.—U.S. Annual Solar PV Installations, 2010-2025E**




Source: Solar Energy Industries Association, Solar Market Insight Report 2019 Year in review

**Figure 2.—U.S. Annual Solar PV Installed Price Trends Over Time**




Source: Tracking the Sun: Pricing and Design Trends for Distributed Photovoltaic Systems in the United States, 2019 Edition

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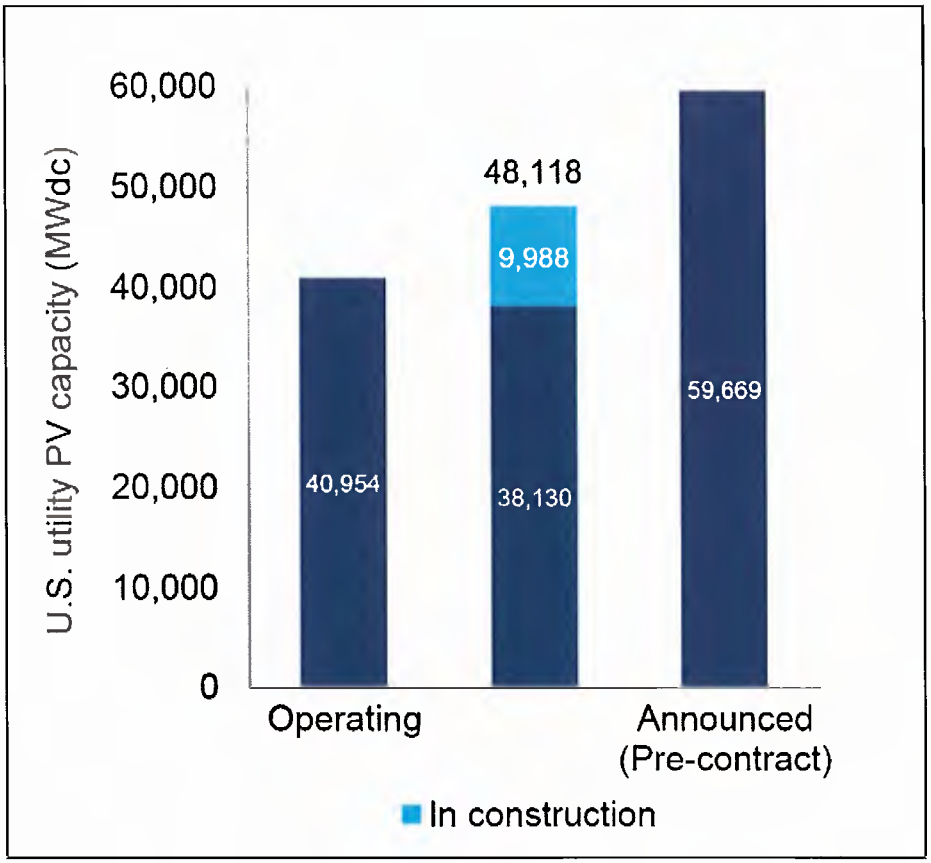
**Figure 3.—U.S. Utility PV Pipeline**




Source: Solar Energy Industries Association, Solar Market Insight Report 2019 Year in Review

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## b. North Carolina Solar PV Industry

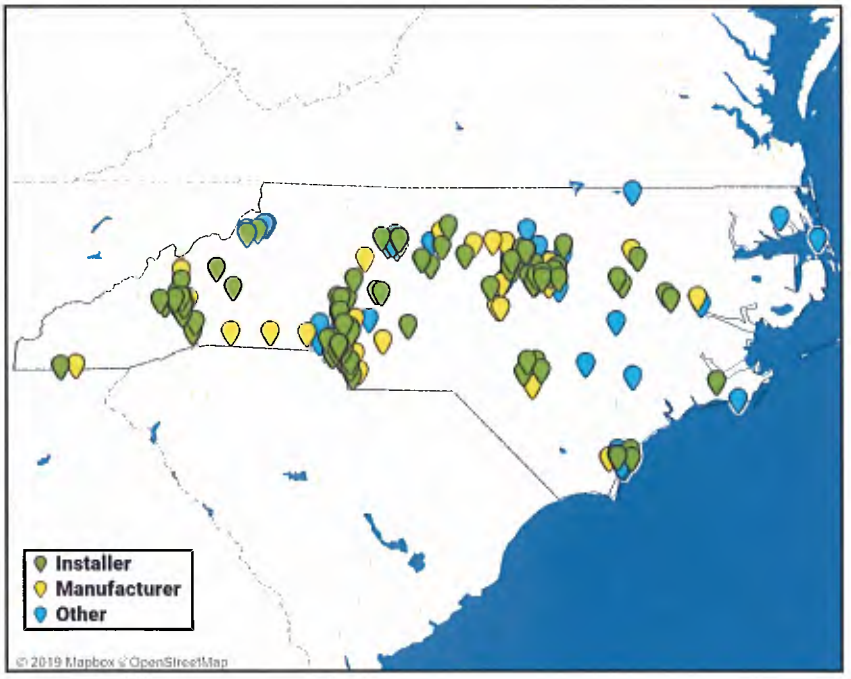
According to SEIA, North Carolina is ranked second in the U.S. in cumulative installations of solar PV. California, North Carolina, and Arizona are the top three states for solar PV which may not be surprising because of the high solar irradiance that they receive. In 2019, North Carolina installed 869.7 MW of solar electric capacity bringing its cumulative capacity to 6,435 MW.

North Carolina has great potential to expand its solar installations. The 80 MW Junction Solar Project will be among the largest installations in North Carolina to date.

There are more than 232 solar companies in North Carolina including 38 manufacturers, 98 installers/developers, and 96 others.[2] Figure 4 shows the locations of solar companies in North Carolina as of the time of this report. Currently, there are 6,617 solar jobs in the State of North Carolina according to SEIA.

Figure 5 shows the North Carolina historical installed capacity by year according to the SEIA.

**Figure 4.—Solar Company Locations in North Carolina**




Source: Solar Energy Industries Association, Solar Spotlight: North Carolina

[2] "Other" includes Sales and Distribution, Project Management, and Engineering.

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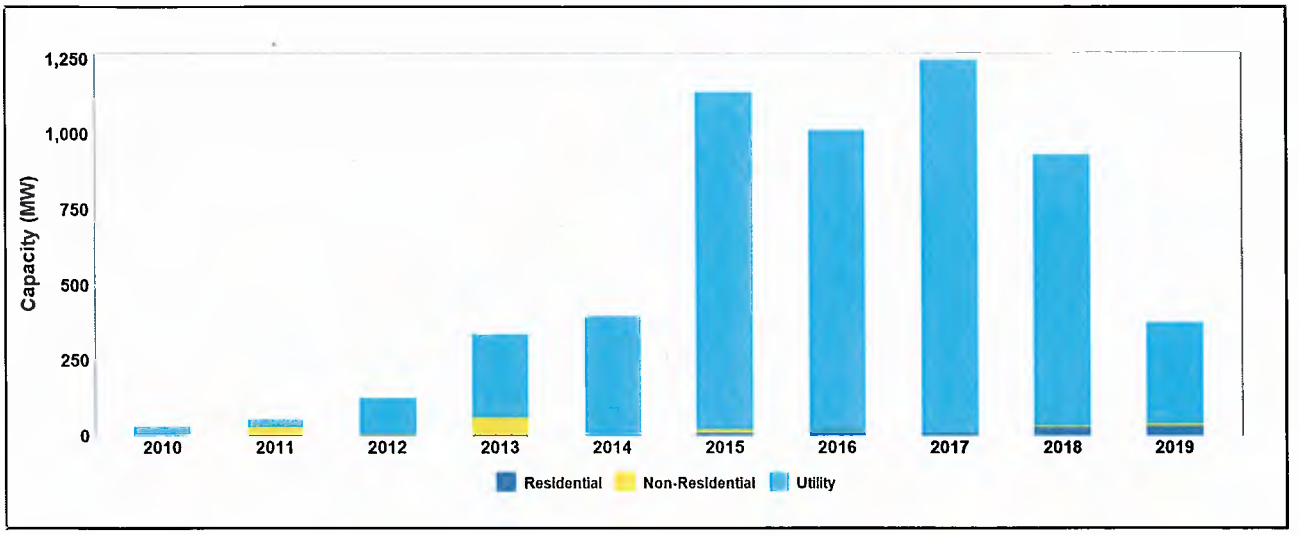
**Figure 5.—North Carolina Annual Solar Installations**




Source: Solar Energy Industries Association, Solar Spotlight: North Carolina

## c. Economic Benefits of Utility-Scale Solar PV Energy

Utility-scale solar energy projects have numerous economic benefits. Solar installations create job opportunities in the local area during both the short-term construction phase and the long-term operational phase. In addition to the workers directly involved in the construction and maintenance of the solar energy project, numerous other jobs are supported through indirect supply chain purchases and the higher spending that is induced by these workers. Solar projects strengthen the local tax base and help improve county services and local infrastructure, such as public roads.

Numerous studies have quantified the economic benefits of Solar PV projects across the U.S. and have been published in peer-reviewed academic journals using the same methodology as this report. Some of these studies examine smaller-scale solar systems, and some examine utility-scale solar energy. Croucher (2012) uses NREL's Jobs and Economic Development Impacts ("JEDI") modeling methodology to find which state will receive the greatest economic impact from installing one hundred 2.5 kW residential systems. He shows that Pennsylvania ranked first supporting 28.98 jobs during installation and 0.20 jobs during operations. Illinois ranked second supporting 27.65 jobs during construction and 0.18 jobs during operations.



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Jo et. al. (2016) analyzes the financing options and economic impact of solar PV systems in Normal, IL and uses the JEDI model to determine the county and state economic impact. The study examines the effect of 100 residential retrofit fixed-mount crystalline-silicone systems having a nameplate capacity of 5kW. Eight JEDI models estimated the economic impacts using different input assumptions. They found that county employment impacts varied from 377 to 1,059 job-years during construction and 18.8 to 40.5 job-years during the operating years. Each job-year is a full-time equivalent job of 2,080 hours for a year.

Loomis et. al. (2016) estimates the economic impact for the State of Illinois if the state were to reach its maximum potential for solar PV. The study estimates the economic impact of three different scenarios for Illinois – building new solar installations of either 2,292 MW, 2,714 MW or 11,265 MW. The study assumes that 60% of the capacity is utility-scale solar, 30% of the capacity is commercial, and 10% of the capacity is residential. It was found that employment impacts vary from 26,753 to 131,779 job years during construction and from 1,223 to 6,010 job years during operating years.

Several other reports quantify the economic impact of solar energy. Bezdek (2006) estimates the economic impact for the State of Ohio, and finds the potential for PV market in Ohio to be $25 million with 200 direct jobs and 460 total jobs. The Center for Competitive Florida (2009) estimates the impact if the state were to install 1,500 MW of solar and finds that 45,000 direct jobs and 50,000 indirect jobs could be created. The Solar Foundation (2013) uses the JEDI modeling methodology to show that Colorado's solar PV installation to date created 10,790 job-years. They also analyze what would happen if the state were to install 2,750 MW of solar PV from 2013 to 2030 and find that it would result in nearly 32,500 job years. Berkman et. al (2011) estimates the economic and fiscal impacts of the 550 MWAC Desert Sunlight Solar Farm. The project creates approximately 440 construction jobs over a 26-month period, $15 million in new sales tax revenues, $12 million in new property revenues for Riverside County, CA, and $336 million in indirect benefits to local businesses in the county.

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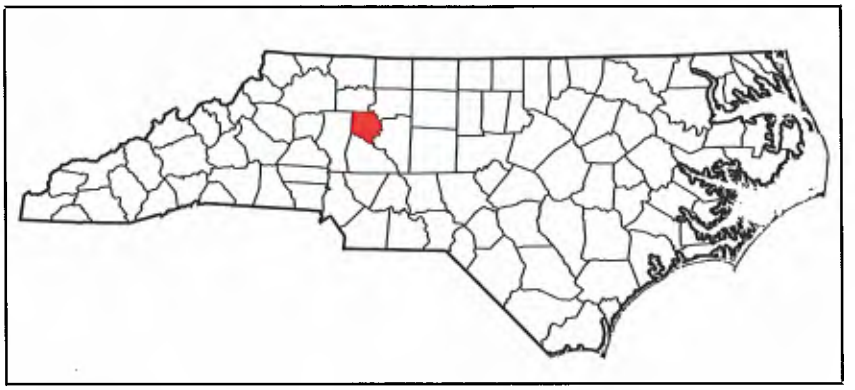
# III. Junction Solar Project Description and Location

**Figure 6.—Location of Davie County, North Carolina**



Source: https://en.wikipedia.org/wiki/Davie_County,_North_Carolina#/media/File:Davie_County,_NC_location2.png,%20public%20domain, public domain

## a. Junction Solar Project Description

The proposed Junction Solar Project will be located on roughly 500 fenced acres of privately-owned land located in Davie County roughly three miles southwest of Mocksville, NC. The project will interconnect to the 100kV transmission system adjacent to the project and provide North Carolina customers with 80 megawatts of solar power. Target date for start of construction is early 2023, with the project entering commercial operation by end of 2023.

## b. Davie County, North Carolina

Davie County is located in the Northwestern part of North Carolina (see Figure 6). It has a total area of 267 square miles and the U.S. Census estimates that the 2010 population was 41,240. The County has a population density of 156 (persons per square mile) compared to 209 for the State of North Carolina. Median household income in the county was $60,801 (2018).

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## Economic and Demographic Statistics

As shown in Table 1, the largest industry is "Manufacturing" followed by "Retail Trade," "Administrative Services" and "Administrative Government." These data for Table 1 come from IMPLAN covering the year 2018 (the latest year available).

**Table 1.—Employment by Industry in Davie County**

| Industry | Number | Percent |
|---|---|---|
| Manufacturing | 3,000 | 15.5% |
| Retail Trade | 1,907 | 9.8% |
| Administrative and support and waste management and remediation services | 1,835 | 9.5% |
| Administrative Government | 1,512 | 7.8% |
| Professional, Scientific, and Technical Services | 1,489 | 7.7% |
| Construction | 1,465 | 7.6% |
| Other Services (except Public Administration) | 1,392 | 7.2% |
| Health Care and Social Assistance | 1,375 | 7.1% |
| Accommodation and Food Services | 1,146 | 5.9% |
| Real Estate and Rental and Leasing | 840 | 4.3% |
| Transportation and Warehousing | 813 | 4.2% |
| Wholesale Trade | 654 | 3.4% |
| Finance and Insurance | 618 | 3.2% |
| Agriculture, Forestry, Fishing and Hunting | 609 | 3.1% |
| Arts, Entertainment, and Recreation | 345 | 1.8% |
| Management of Companies and Enterprises | 113 | 0.6% |
| Government Enterprises | 81 | 0.4% |
| Information | 71 | 0.4% |
| Educational Services | 70 | 0.4% |
| Mining, Quarrying, and Oil and Gas Extraction | 17 | 0.1% |
| Utilities | 10 | 0.0% |

Source: Impact Analysis for Planning (IMPLAN), County Employment by Industry

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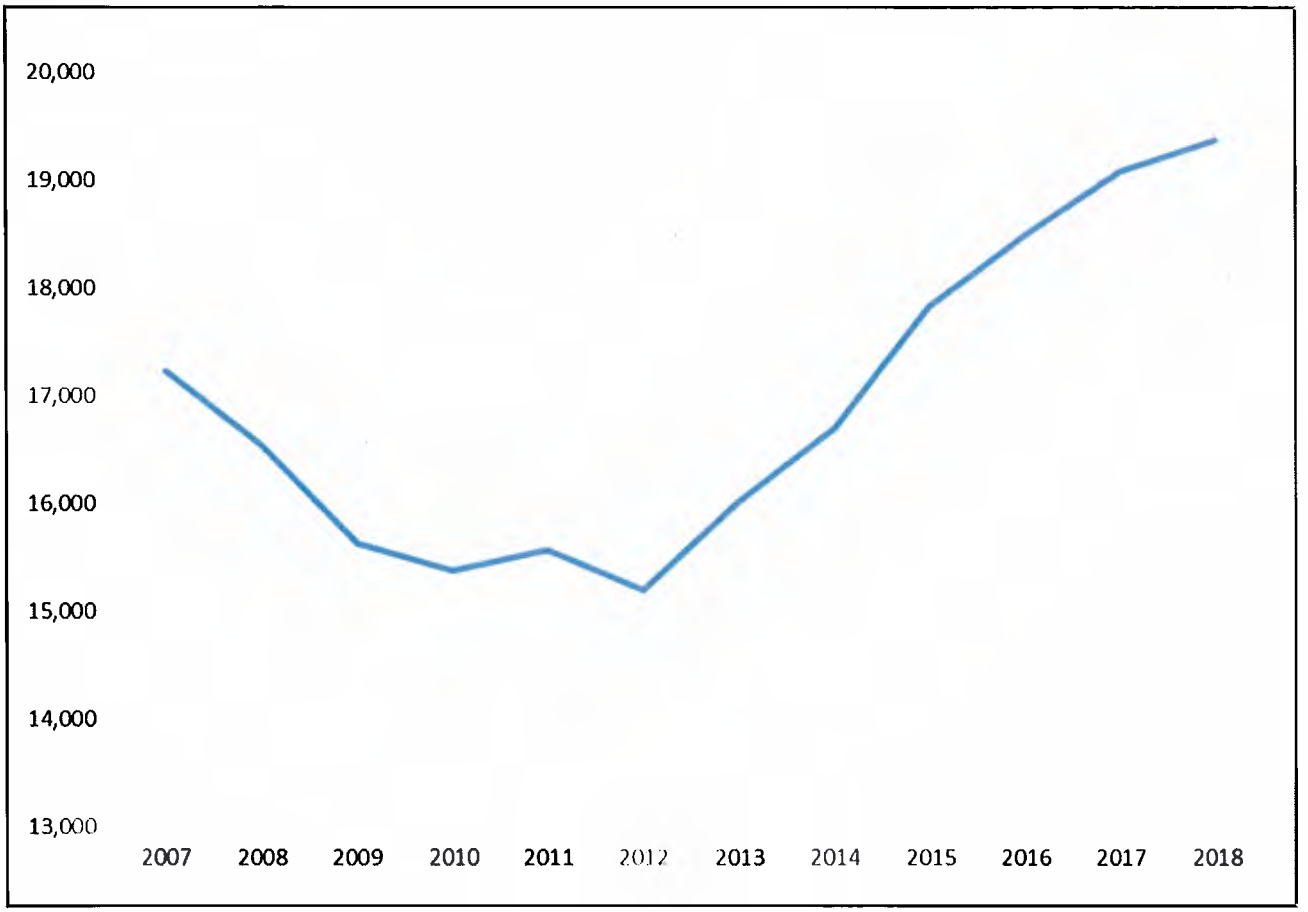
Table 1 provides the most recent snapshot of employment but does not examine the historical trends within the county. Figure 7 shows the total employment from 2007 to 2018. Total employment in Davie County hit its lowest at 15,196 in 2012 and its highest at 19,371 in 2018.

**Figure 7.—Total Employment in Davie County from 2007 to 2018**




Source: Bureau of Economic Analysis, Regional Data, GDP and Personal Income

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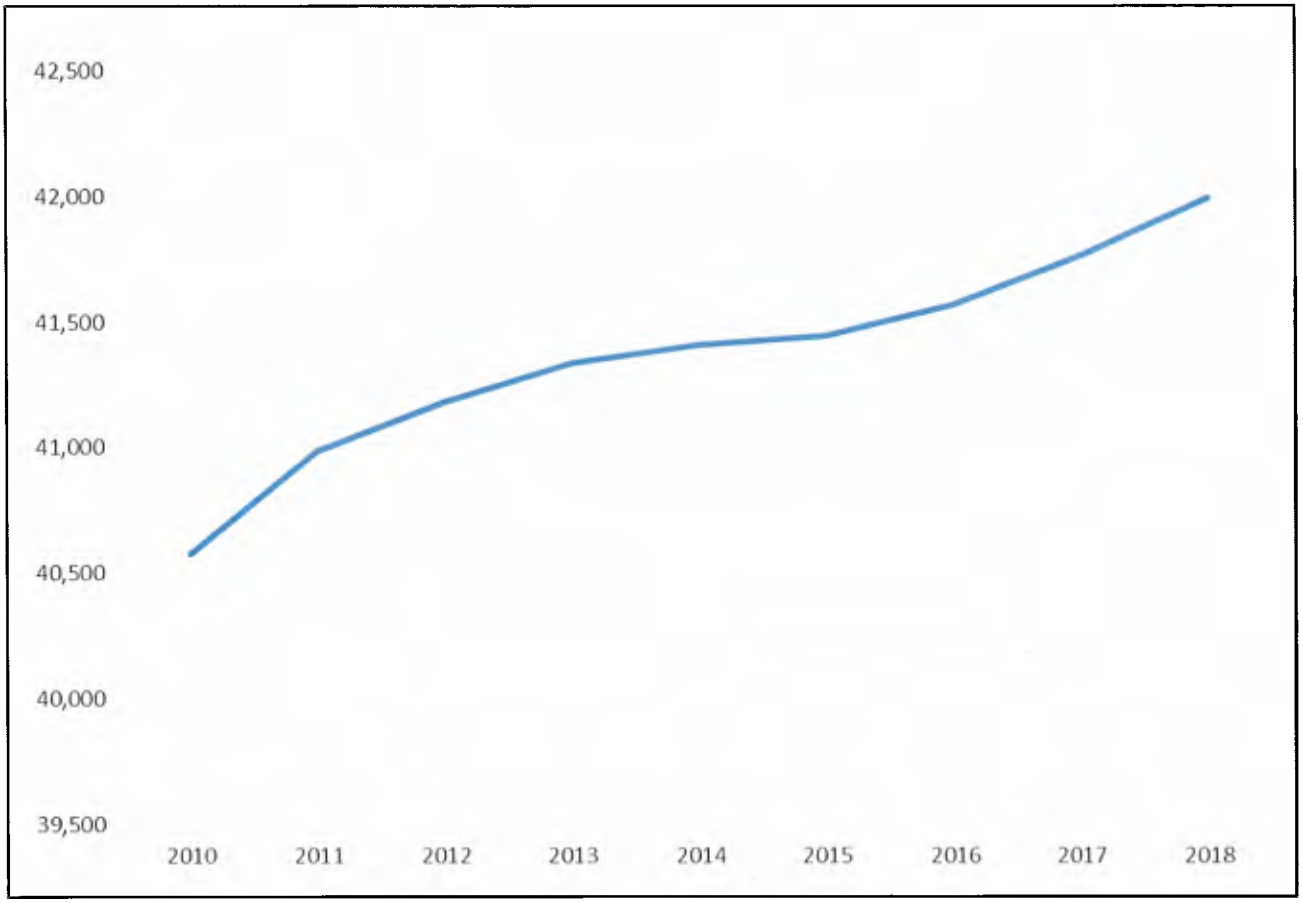
Similar to the employment trend, the overall population trend in the county has been at a steady incline. As shown in Figure 8, Davie County population has been trending higher since 2010. Davie County population was 40,581 in 2010 and 41,991 in 2018, a gain of 1,410. The average annual population increase over this time period was 176.

**Figure 8.— Population in Davie County 2010 to 2018**

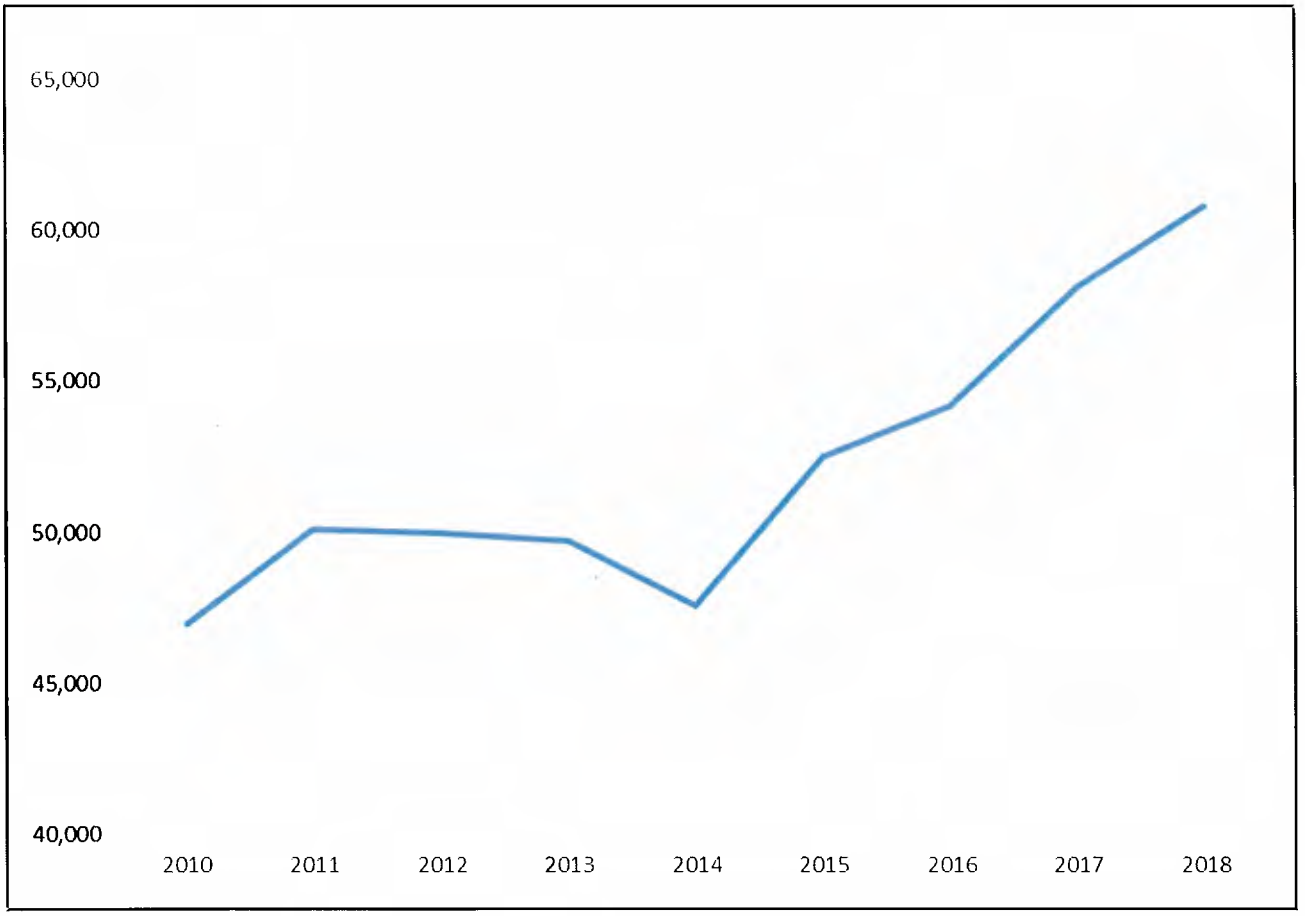



Source: Federal Reserve Bank of St. Louis Economic Data, U.S. Census Bureau, Total Population Estimates

Attachment: Full application_novPB (Zoning Map Amendment_2020-05 Junction Solar Project LLC)

Similar to the population trends, the trends in household income have been trending upward in Davie County. Figure 9 shows the median household income in Davie County from 2010 to 2018. Median income was at its lowest at $46,957 in 2010 and at its highest at $60,801 in 2018.

**Figure 9.—Median Household Income in Davie County from 2010 to 2018**




Source: Federal Reserve Bank of St. Louis Economic Data, U.S. Census Bureau, Estimate of Median Household Income

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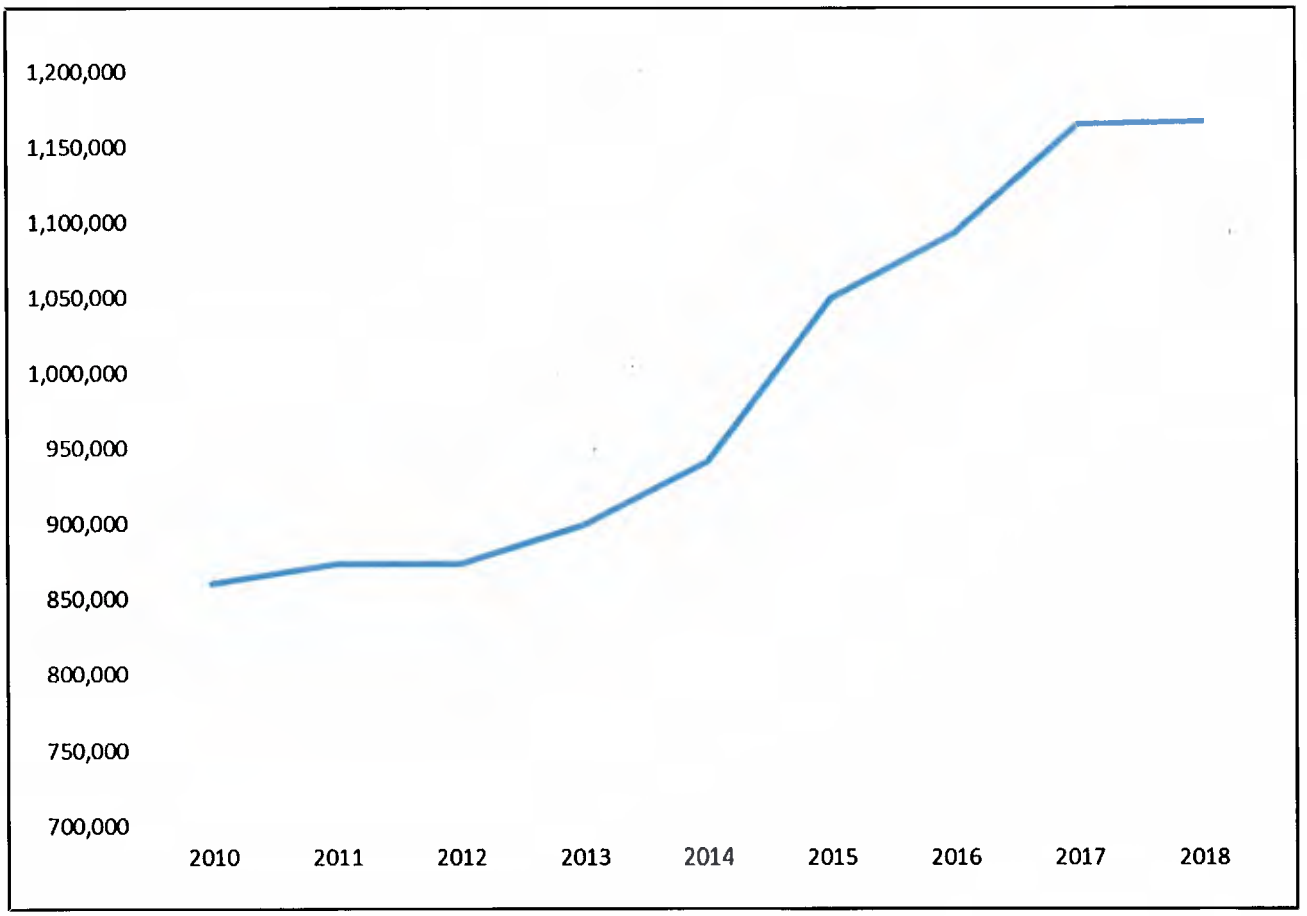
Real Gross Domestic Product (GDP) is a measure of the value of goods and services produced in an area and adjusted for inflation over time. The Real GDP for Davie County has been increasing since hitting a low in 2010, as shown in Figure 10.

**Figure 10.—Real Gross Domestic Product (GDP) in Davie County from 2010-2018**

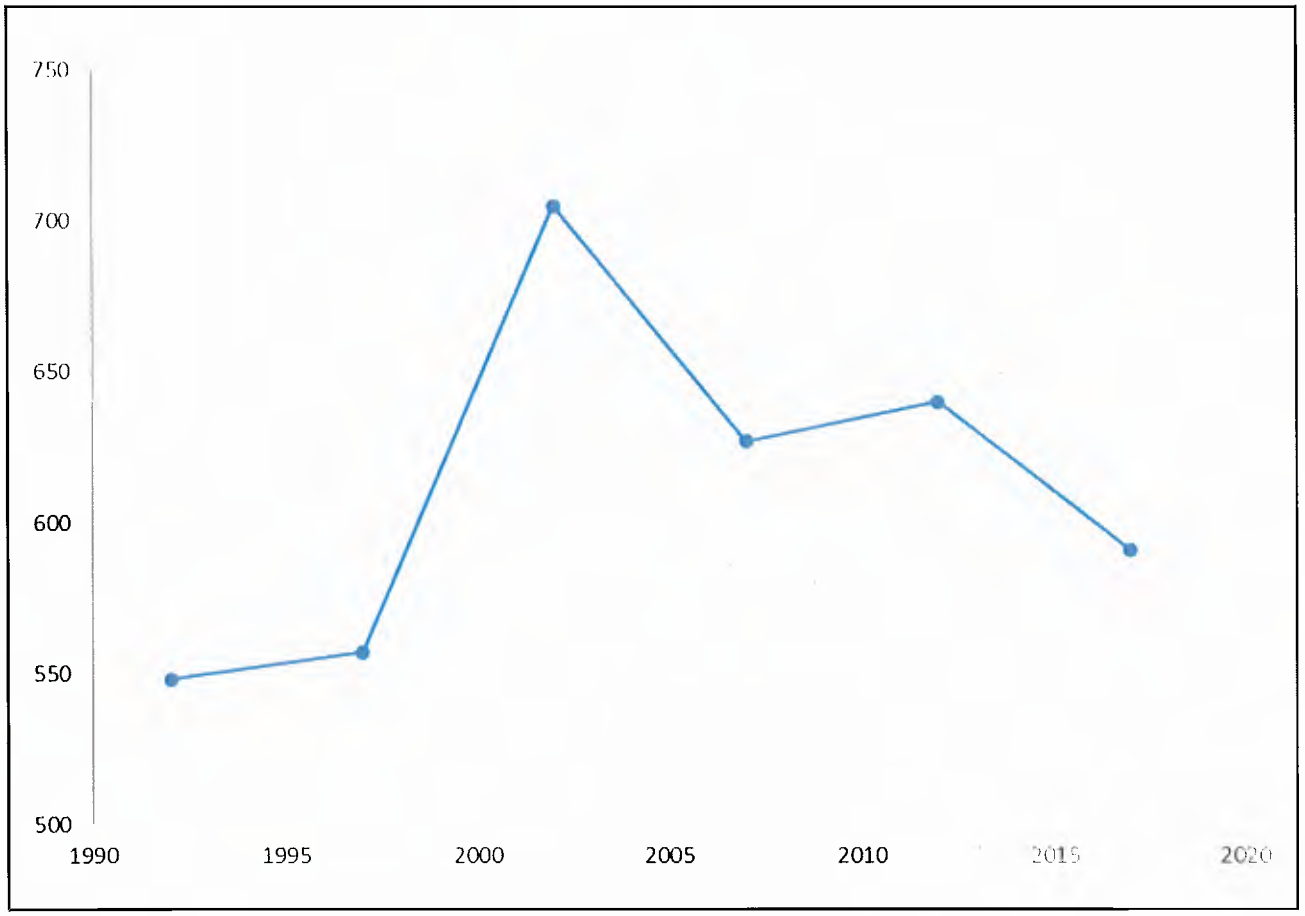



Source: Bureau of Economic Analysis, Regional Data, GDP and Personal Income

Attachment: Full application_novPB (Zoning Map Amendment_2020-05 Junction Solar Project LLC)

The farming industry has fluctuated in Davie County over the years. As shown in Figure 11, the number of farms has decreased from 705 in 2002 to 591 in 2017. The amount of land in farms has been increasing in recent years. The County farmland was at a low of 59,618 in 2012 and then hit a high of 76,933 acres in 2017 according to Figure 12.

**Figure 11.—Number of Farms in Davie County from 1992 to 2017**




Source: Census of Agriculture, 1992-2017



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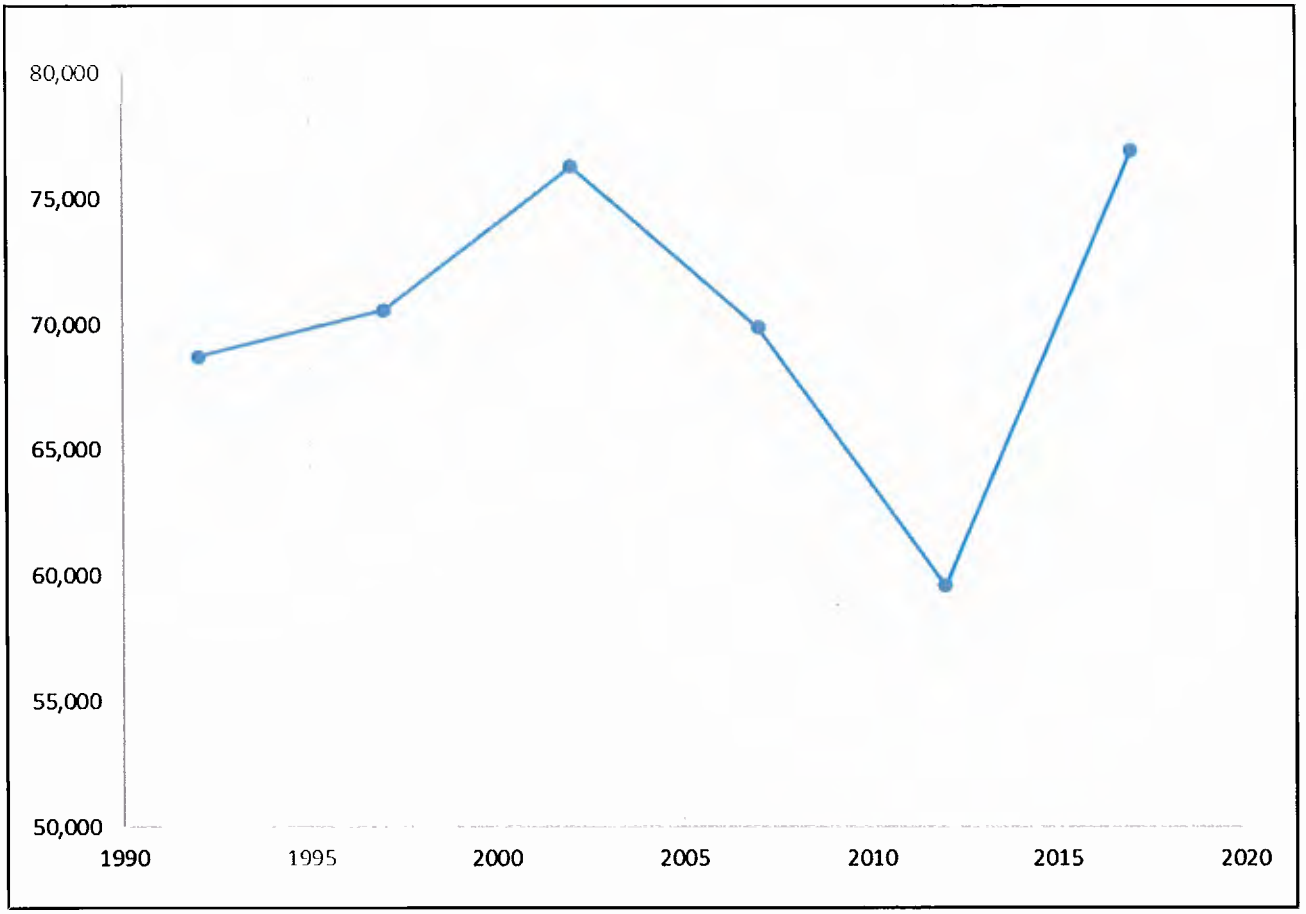
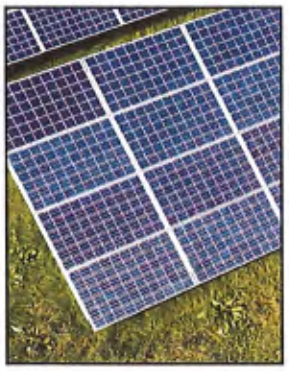
**Figure 12.—Land in Farms in Davie County from 1992 to 2017**




Source: Census of Agriculture, 1992-2017

Attachment: Full application_novPB (Zoning Map Amendment_2020-05 Junction Solar Project LLC)



## Agricultural Statistics

North Carolina is ranked eighth among U.S. states in total value of agricultural products sold (Census, 2017). It is ranked sixth in the value of livestock, and seventeenth in the value of crops (Census, 2017). In 2019, North Carolina had 46,200 farms and 8.4 million acres in operation with the average farm being 182 acres (State Agricultural Overview, 2019). North Carolina had 420 thousand cattle and produced 902 million pounds of milk (State Agricultural Overview, 2019). In 2019, North Carolina yields averaged 111 bushels per acre for grain corn with a total market value of $459 million (State Agricultural Overview, 2019). Soybean yields averaged 35 bushels per acre with a total market value of $468 million (State Agricultural Overview, 2019). The average net cash farm income per farm is $86,645 (Census, 2017).

In 2017, Davie County had 591 farms covering 76,933 acres for an average farm size of 130 acres (Census, 2017). The total market value of products sold was $26 million, with 34% coming from livestock sales and 66% coming from crop sales (Census, 2017). The average net cash farm income of operations was $8,117 (Census, 2017).

The roughly 500 acres planned to be used by the Junction Solar Project represents just 0.6% of the acres used for farming in Davie County. In total, including Junction and at existing solar projects, acres used for solar would equal roughly 1% of the acres used for farming in Davie County. As we will show in the next section, on purely an economic basis solar farming as a land use outproduces livestock or crops for the particular land participating in this Project.

Attachment: Full application_novPB (Zoning Map Amendment_2020-05 Junction Solar Project LLC)

# IV. Land Use Methodology

## a. Agricultural Land Use

Total U.S. cropland has remained steady over the past five years. In 2012, 257.4 million acres in the U.S. were cropland while in 2017, 249.8 million acres were cropland. In 2012, just over 40% of all U.S. land was farmland (Census of Agriculture, 2012). According to the World Bank, the percentage of agricultural land has increased worldwide from 36.0 in 1961 to 37.3 in 2015. The Arab World, Caribbean Small States, East Asia, South Asia and Sub-Sahara Africa have all experienced growth in the percentage of agricultural land. Thus, from a global perspective, it is simply not true that we are running out of farmland. Even in the U.S., large quantities of farmland are not disappearing.

One valid criticism of the "market forces" arguments is that flow of land only goes from agricultural to non-agricultural uses. In theory, land should move in a costless way back and forth between urban and rural uses in response to new market information. Since agricultural land seldom goes back to agricultural use once it is converted, one needs to account for this in the analysis of farmland. The common assumption then is that urban development is irreversible and leads to an "option value" argument (Gottlieb, 2015).

In finance, an option is a contract which gives the holder the right but not the obligation to buy or sell an underlying asset. A real option value is a choice made with business investment opportunities, referred to as "real" because it typically references a tangible asset instead of financial instrument. In the case of agricultural land, the owner retains the right to sell the land in future years if they don't sell in the current year. From a finance viewpoint, this "option" to sell in the future has value to the owner and since it is a tangible asset rather than a financial instrument, we call it a "real option."

Attachment: Full application_novPB (Zoning Map Amendment_2020-05 Junction Solar Project LLC)

## a. Agricultural Land and Solar Farms

The present case of leasing agricultural land for a solar energy generating facility rises above this debate in several important ways.

1. The use of agricultural land for a solar energy center is only temporary, and certainly not irreversible. The term of the solar leases for this Project is 30 years with two possible extensions of 10 years, then the leases would expire. Project life may be significantly shorter owing to typical duration of offtake contracts with the utility, and typical life expectancies of the equipment. At the end of the lease, the land will be restored to its original condition and will likely return to agricultural use. This restoration is ensured by lease terms and conditions as well as local zoning permit requirements. This is very different from residential or commercial development where the land is often owned in fee and there are no decommissioning requirements or surety.

2. The total amount of agricultural land being used for solar energy is miniscule compared to the conversion of agricultural land permanently to residential housing and commercial development.

3. The ongoing annual solar lease payments will continue to go to the landowner who will retain ownership of the land both during and after the lease. At the end of the lease and when the project is responsibly decommissioned, the landowner could resume farming the land. In other conversions, the land is sold by the farmer to another party – usually a housing developer or commercial real estate broker. In this case, the values and goals of the new landowner differ significantly from the original landowner.

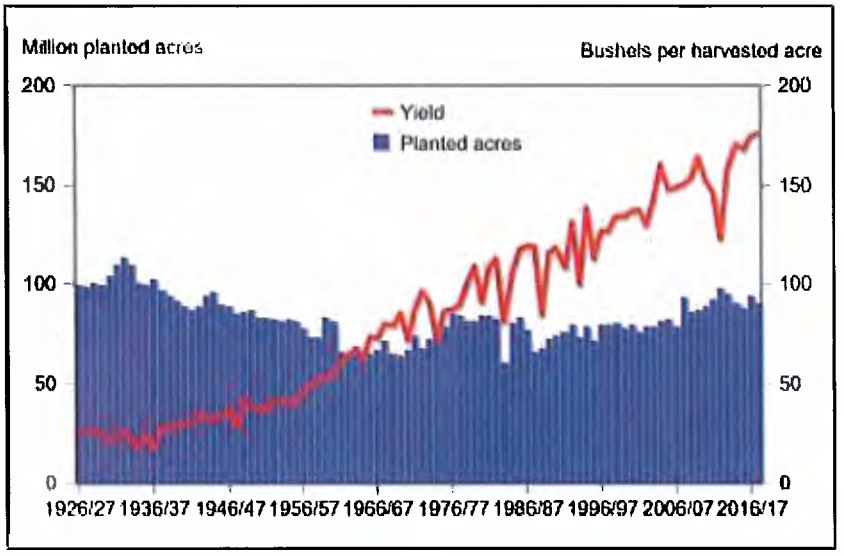
4. The free market economic forces are working properly because solar farms present landowners with an opportunity for a higher value use on their land. This also allows the landowner to diversify their income away from agricultural products alone, better weather economic downturns, and keep the land in the family.

Farmland has become more productive over the years with better farming equipment and techniques resulting in higher yields on the same amount of land. Corn production has risen due to improvements in seed varieties, fertilizers, pesticides, machinery, reduced tillage, irrigation, crop rotations and pest management systems. Figure 13 shows the dramatic increase U.S. corn yields since 1926. Soybean yields have also increased though not as dramatically. Figure 14 displays the soybean yields in the U.S. since 1980.



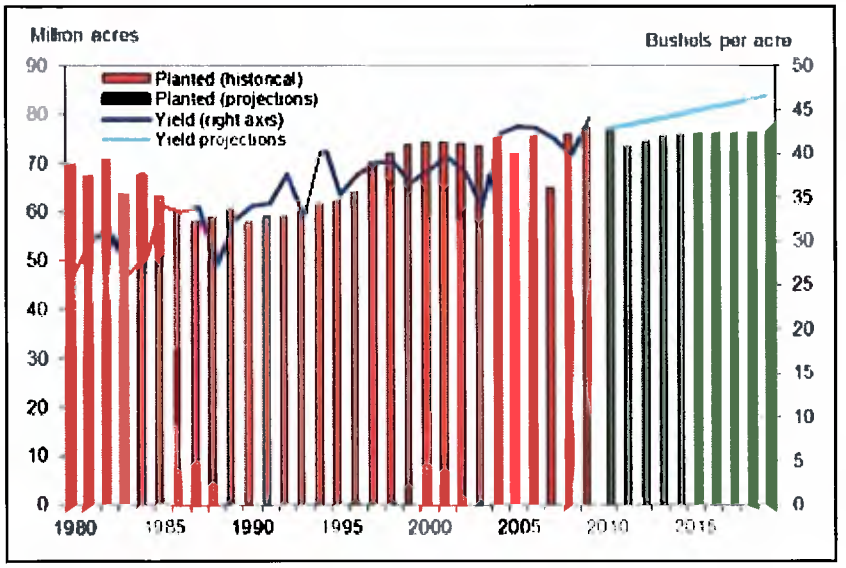
Attachment: Full application_novPB (Zoning Map Amendment_2020-05 Junction Solar Project LLC)

## Figure 13.—U.S. Corn Acreage and Yield




Source: USDA, Economic Research Service, https://www.ers.usda.gov/topics/crops/corn-and-other-feedgrains/background/

## Figure 14.—U.S. Soybean Acreage and Yield




Source: USDA Agricultural Projections to 2019, February 2010, USDA, Economic Research Service

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## c. Methodology

To analyze the specific economic land use decision for a solar energy center, this section uses a methodology first proposed by Gazheli and Di Corato (2013). A "real options" model is used to look at the critical factors affecting the decision to lease agricultural land to a company installing a solar energy generating facility. According to their model, the landowner will look at his expected returns from the land that include the following: the price that they can get for the crop (typically corn or soybeans); the average yields from the land that will depend on amount and timing of rainfall, temperature and farming practices; and the cost of inputs including seed, fuel, herbicide, pesticide and fertilizer. Not considered is the fact that the landowner faces annual uncertainty on all these items and must be compensated for the risk involved in each of these parameters changing in the future. In a competitive world with perfect information, the returns to the land for its productivity should relate to the cash rent for the land.

For the landowner, the key analysis will be comparing the net present value of the annual solar lease payments to expected profits from farming. The farmer will choose the solar farm lease if:

$$NPV(Solar\ Lease\ Payment_t) > NPV\ (P_t * Yield_t - Cost_t)$$

Where NPV is the net present value; Solar Lease Payment$_t$ is the lease payment the owner receives in year t; $P_t$ is the price that the farmer receives for the crop (corn or soybeans) in year t; Yield$_t$ is the yield based on the number of acres and historical average of county-specific productivity in year t; Cost$_t$ is the total cost of farming in year t and will include (the cost of seed, fertilizer, the opportunity cost of the farmer's time. Farming profit is the difference between revenue (price times yield) and cost. The model will use historical agricultural data from the county (or state when the county data is not available).

Attachment: Full application_novPB (Zoning Map Amendment_2020-05 Junction Solar Project LLC)

The standard net present value calculation presented above, uses the expected value of many of the variables that are stochastic (have some randomness to them). The "real options" enhancement allows for the possibility that subsequent decisions could modify the farming NPV. This enhancement allows for a more dynamic modeling process than the static analysis implied by the standard NPV. By projecting historical trends and year-to-year variations of farming profits into the future, the real options model captures the new information about farming profitability that comes from crop prices, yields and cost in each future year.

In order to forecast returns from agriculture in future years, we use a linear regression using an intercept and time trend on historical data to predict future profits.

$\pi_t = \alpha + \beta * time$

Where $\pi_t$ is the farming profit in year t; $\alpha$ is intercept; $\beta$ is the trend and time is a simple time trend starting at 1 and increasing by 1 each time period.

Attachment: Full application_novPB (Zoning Map Amendment_2020-05 Junction Solar Project LLC)

# V. Land Use Results

In order to analyze future returns from farming the land, we will use historical data from Davie County to examine the local context for this analysis. The U.S. Department of Agriculture's National Agricultural Statistics Service publishes county-level statistics every five years. Table 2 shows the historical data from 1992 to 2017 for total farm income, production expenses, average farm size, net cash income, and average market value of machinery per farm.

**Table 2.— Agricultural Statistics for Davie County, North Carolina**

| | 1992 | 1997 | 2002 | 2007 | 2012 | 2017 |
|---|---|---|---|---|---|---|
| Total Farm Income Per Farm | NA | NA | $9,577 | $11,485 | $5,694 | $10,753 |
| Total Farm Production Expenses (average/farm) | $21,159 | $22,199 | $22,246 | $28,177 | $39,608 | $40,725 |
| Average Farm Size (acres) | 125 | 127 | 108 | 111 | 93 | 130 |
| Net Cash Income per Farm[3] | $1,555 | $3,552 | -$2,760 | $3,674 | $2,026 | $8,117 |
| Average Market Value of Machinery Per Farm | $22,987 | $36,027 | $49,668 | $50,271 | $50,453 | $71,003 |

Source: United States Department of Agriculture's National Agricultural Statistics Service (NASS), Census of Agriculture

[3] Net Cash Income per farm is reported by the NASS and does not exactly equal income minus expenses. NASS definition for this item is, "Net cash farm income of the operators. This value is the operators' total revenue (fees for producing under a production contract, total sales not under a production contract, government payments, and farm-related income) minus total expenses paid by the operators. Net cash farm income of the operator includes the payments received for producing under a production contract and does not include value of commodities produced under production contract by the contract growers. Depreciation is not used in the calculation of net cash farm income."



Attachment: Full application_novPB (Zoning Map Amendment_2020-05 Junction Solar Project LLC)

The production expenses listed in Table 2 include all direct expenses like seed, fertilizer, fuel, etc., but do not include the depreciation of equipment and the opportunity cost of the farmer's own time in farming. To estimate these last two items, we can use the average market value of machinery per farm and use straight-line depreciation for 20 years with no salvage value. This is a very conservative estimate of the depreciation since the machinery will likely qualify for a shorter life and accelerated or bonus depreciation. To calculate the opportunity cost of the farmers time, we obtained the mean hourly wage for farming in each of these years from the Bureau of Labor Statistics. Again, to be conservative, we estimate that the farmer spends a total of 16 weeks at 40 hours/week farming in a year. It seems quite likely that a farmer spends many more hours than this including direct and administrative time on the farm. These statistics and calculations are shown in Table 3.

**Table 3.—Machinery Depreciation and Opportunity Cost of Farmer's Time for Davie County, North Carolina**

| | 1992 | 1997 | 2002 | 2007 | 2012 | 2017 |
|---|---|---|---|---|---|---|
| Average Market Value Machinery Per Farm | $22,987 | $36,027 | $49,668 | $50,271 | $50,453 | $71,003 |
| Annual Machinery Depreciation over 30 years - Straight Line (Market Value divided by 30) | $766 | $1,201 | $1,656 | $1,676 | $1,682 | $2,367 |
| Mean Hourly Wage in NC for Farming (Bureau of Labor Statistics) | $7.81 | $8.88 | $7.56 | $8.63 | $9.77 | $11.05 |
| Annual Opportunity Cost of Farmer's Time (Wage times 8 weeks times 40 Hours/Week) | $2,500 | $2,842 | $2,419 | $2,762 | $3,126 | $3,536 |

Source: United States Department of Agriculture's National Agricultural Statistics Service (NASS), Census of Agriculture and Bureau of Labor Statistics

Attachment: Full application_novPB (Zoning Map Amendment_2020-05 Junction Solar Project LLC)

To get the total profitability of the land, we take the net cash income per farm and subtract depreciation expenses and the opportunity cost of the farmer's time. To get the profit per acre, we divide by the average farm size. Finally, to account for inflation, we use the Consumer Price Index (CPI) to convert all profit into 2017 dollars (i.e. current dollars).[4] These calculations and results are shown in Table 4.

**Table 4.—Profit Per Farm Calculations for Davie County, North Carolina**

| | 1992 | 1997 | 2002 | 2007 | 2012 | 2017 |
|---|---|---|---|---|---|---|
| Net Cash Income per Farm | $1,555 | $3,552 | ($2,760) | $3,674 | $2,026 | $8,117 |
| Machinery Depreciation | ($766) | ($1,201) | ($1,656) | ($1,676) | ($1,682) | ($2,367) |
| Opportunity Cost of Farmer's Time | ($2,500) | ($2,842) | ($2,419) | ($2,762) | ($3,126) | ($3,536) |
| Profit | ($1,711) | ($491) | ($6,835) | ($763) | ($2,782) | $2,214 |
| Average Farm Size (Acres) | 125 | 127 | 108 | 111 | 93 | 130 |
| Profit Per Acre in 2012 Dollars | ($13.69) | ($3.86) | ($63.29) | ($6.88) | ($29.92) | $17.03 |
| CPI | 141.9 | 161.3 | 180.9 | 210.036 | 229.601 | 246.524 |
| Profit Per Acre in 2017 Dollars | ($23.78) | ($5.90) | ($86.24) | ($8.07) | ($32.12) | $17.03 |

Source: United States Department of Agriculture's National Agricultural Statistics Service (NASS), Census of Agriculture and Author's Calculations

[4] We will use the Consumer Price Index for All Urban Consumers (CPI-U) which is the most common CPI used in calculations. For simplicity, we will just use the CPI abbreviation.



Attachment: Full application_novPB (Zoning Map Amendment_2020-05 Junction Solar Project LLC)

Using an unsophisticated static analysis, the farmer would be better off using his land for solar if the solar lease rental per acre exceeds the 2017 profit per acre of $17.03 which adjusts to $17.90 after counting for inflation in Davie County. Yet this static analysis fails to capture the dynamics of the agricultural market and the farmer's hope for future prices and crop yields to exceed the current level. To account for this dynamic, we use the real options model discussed in the previous section. Recall that the net returns from agriculture fluctuates according to the following equation:

$$\pi_t = \alpha + \beta * time$$

Where $\pi_t$ is the farming profit in year t; $\alpha$ is intercept; $\beta$ is the trend and time is a simple time trend starting at 1 and increasing by 1 each time period.

Using the Census of Agriculture data from 1992 to the present, the intercept is $-38.89 with a standard error of $28.60. The time trend is $1.16 with a standard error of 1.79. This means that agriculture profits are expected to rise by $1.16. Both the intercept and the coefficient on the time trend have a wide variation as measured by the standard error. The wide variation means that there will be a lot of variability in agricultural profits from year to year.

Over the period from 2017 to 2052, we assume that the profit per acre follows the equation above but allows for the random fluctuations. Because of this randomness, we can simulate multiple futures using Monte Carlo simulation. We assume that the solar farm will begin operation in 2023 and operate through 2052. Using 500 different simulations, the real profit per acre never exceeds $499 in any single year. Overall, the maximum average annual profit over the 30 years is $69 and the minimum average annual profit is $-13. Figure 15 is a graph of the highest and lowest real profit per acre simulations. **When comparing the average annual payment projected in the maximum simulation by 2052 to the solar lease per acre payment, the solar lease provides higher returns than farming in all of the 500 simulations. This means the farmer is financially better off under the solar lease in 100% of the 500 scenarios analyzed.**

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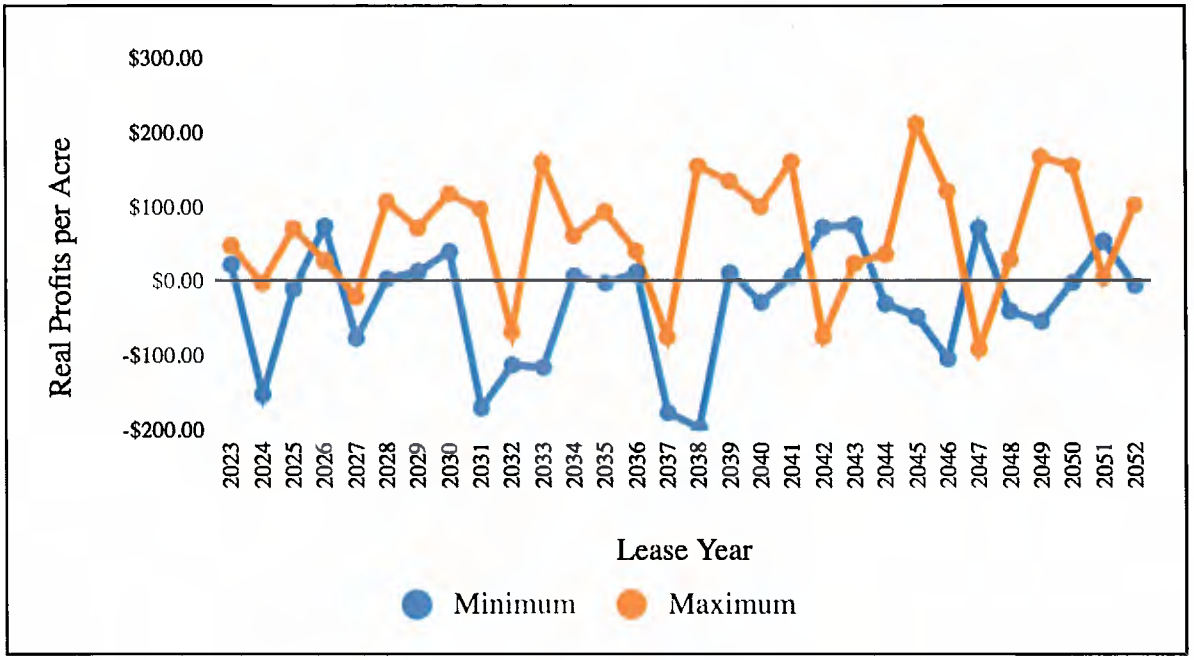
**Figure 15.—Simulations of Real Profits Per Acre Based on Data from 1992**

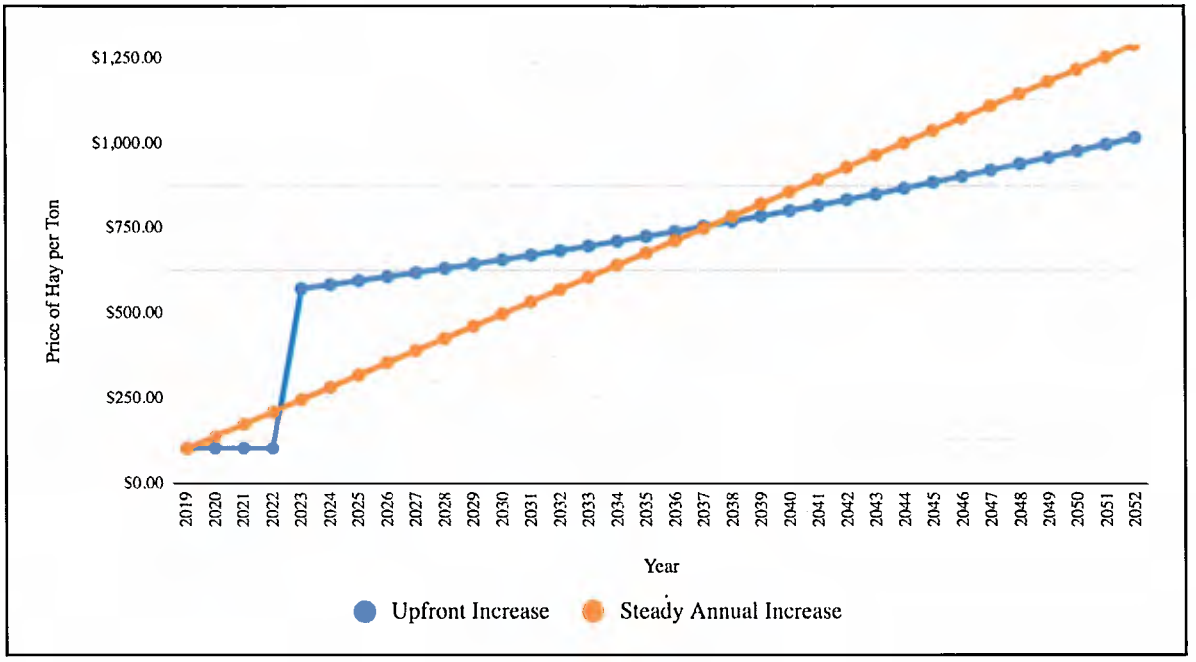



Source: Author's Calculations

Another way to look at this problem would be to ask: How high would the price of hay have to rise to make farming more profitable than the solar lease? Below we assume that the yields on the land and all other input costs stay the same. In this case, the price of hay would have to rise from $101 per ton in 2019 to $571.86 in 2022 and rise to $1,015.53 per ton by 2052 as shown in Figure 16. Alternatively, the price of hay would need to rise by $35.95 per ton each year from 2019 to 2052 when it would reach $1,287.42 per ton.

Attachment: Full application_novPB (Zoning Map Amendment_2020-05 Junction Solar Project LLC)

**Figure 16.—Simulated Price of Hay per Ton to Match the Solar Lease**

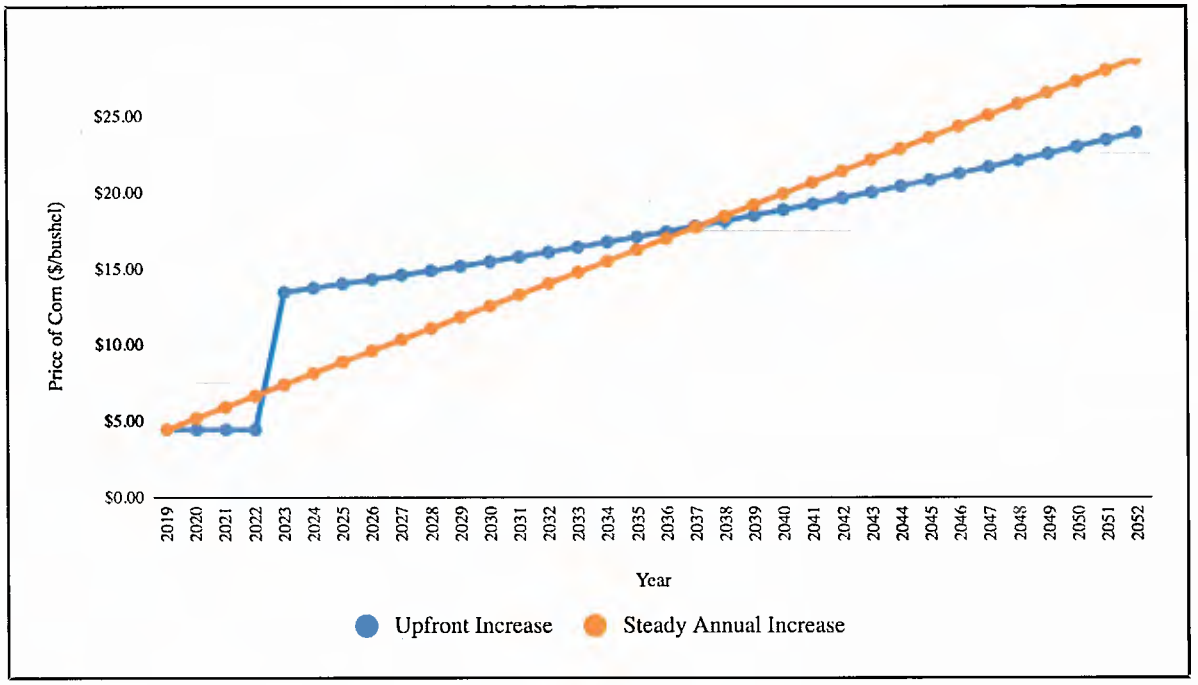



Source: Author's Calculations

Now let's turn our attention to corn. Below we assume that the yields on the land and all other input costs stay the same. In this case, the price of corn would have to rise from $4.45 per bushel in 2019 to $13.47 in 2022 and rise to $23.93 per bushel by 2052 as shown in Figure 17. Alternatively, the price of corn would need to rise by $0.74 per bushel each year from 2019 to 2052 when it would reach $28.75 per bushel.

Attachment: Full application_novPB (Zoning Map Amendment_2020-05 Junction Solar Project LLC)

**Figure 17.—Simulated Price of Corn per Bushel to Match the Solar Lease**



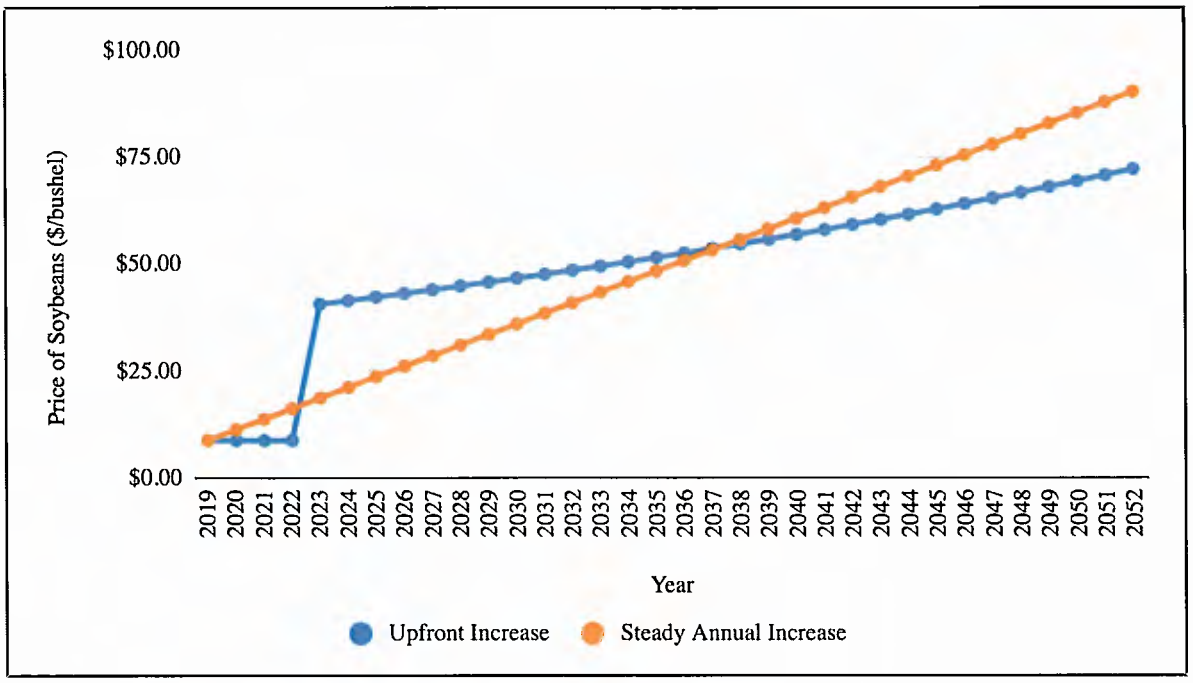

Source: Author's Calculations

We also want to take a look at soybeans. If we assume the yields and input costs stay the same, the price of soybeans would have to rise from $8.80 per bushel in 2019 to $40.65 per bushel in 2022 and rise to $72.19 by 2052 as shown in Figure 18. For a linear increase, the price of soybeans would need to rise by $2.47 per bushel each year from 2019 to 2052 when it would reach $90.28 per bushel.



Attachment: Full application_novPB (Zoning Map Amendment_2020-05 Junction Solar Project LLC)

**Figure 18.—Simulated Price of Soybeans per Bushel to Match the Solar Lease**




Source: Author's Calculations

If we assume that the price of hay stays the same, the yields for hay would need to increase from 2.3 tons per acre in 2019 to 13 tons per acre in 2023 and stay at that level until 2052. The yields for corn would need to increase from 120 bushels per acre in 2019 to 363.4 bushels per acre in 2023 and stay at that level until 2052. The yields for soybeans would need to rise from 34 bushels per acre in 2019 to 157.1 bushels per acre in 2023 and stay there until 2052.

Attachment: Full application_novPB (Zoning Map Amendment_2020-05 Junction Solar Project LLC)

# VI. Economic Impact Methodology

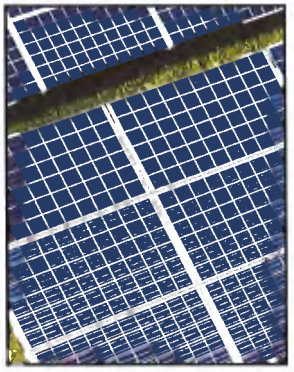
The economic analysis of solar PV project presented uses NREL's latest Jobs and Economic Development Impacts (JEDI) PV Model (PV12.23.16). The JEDI PV Model is an input-output model that measures the spending patterns and location-specific economic structures that reflect expenditures supporting varying levels of employment, income, and output. That is, the JEDI Model takes into account that the output of one industry can be used as an input for another. For example, when a PV system is installed, there are both soft costs consisting of permitting, installation and customer acquisition costs, and hardware costs, of which the PV module is the single largest component. The purchase of a module not only increases demand for manufactured components and raw materials, but also supports labor to assemble and install a module. When a module is purchased from a manufacturing facility, the manufacturer uses some of that money to pay employees. The employees use a portion of their compensation to purchase goods and services within their community. Likewise, when a developer pays workers to install the systems, those workers spend money in the local economy that boosts economic activity and employment in other sectors. The goal of economic impact analysis is to quantify all of those reverberations throughout the local and state economy.

The first JEDI Model was developed in 2002 to demonstrate the economic benefits associated with developing wind farms in the United States. Since then, JEDI models have been developed for biofuels, natural gas, coal, transmission lines and many other forms of energy. These models were created by Marshall Goldberg of MRG & Associates, under contract with the National Renewable Energy Laboratory. The JEDI model utilizes state-specific industry multipliers obtained from IMPLAN (IMpact analysis for PLANning). IMPLAN software and data are managed and updated by the Minnesota IMPLAN Group, Inc., using data collected at federal, state, and local levels. This study analyzes the gross jobs that the new solar energy project development supports and does not analyze the potential loss of jobs due to declines in other forms of electric generation.

The total economic impact can be broken down into three distinct types: direct impacts, indirect impacts, and induced impacts. **Direct impacts** during the construction period refer to the changes that occur in the onsite construction industries in which the direct final demand (i.e., spending on construction labor and services) change is made. Onsite construction-related services include installation labor, engineering, design, and other professional services. Direct impacts during operating years refer to the final demand changes that occur in the onsite spending for the solar operations and maintenance workers.



Attachment: Full application_novPB (Zoning Map Amendment_2020-05 Junction Solar Project LLC)



The initial spending on the construction and operation of the PV installation will create a second layer of impacts, referred to as "supply chain impacts" or "indirect impacts." **Indirect impacts** during the construction period consist of changes in inter-industry purchases resulting from the direct final demand changes and include construction spending on materials and PV equipment, as well as other purchases of goods and offsite services. Utility-scale solar PV indirect impacts include PV modules, invertors, tracking systems, cabling, and foundations.

**Induced impacts** during construction refer to the changes that occur in household spending as household income increases or decreases as a result of the direct and indirect effects of final demand changes. Local spending by employees working directly or indirectly on the Project that receive their paychecks and then spend money in the community is included. The model includes additional local jobs and economic activity that are supported by the purchases of these goods and services.

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# VII. Economic Impact Results

The economic impact results were derived from detailed project cost estimates supplied by Orion. In addition, incorporating guidance from SER based on similar allocations in other regions, Orion Renewables also estimated the percentages of project materials and labor that will be coming from within Davie County and the State of North Carolina. Because it is uncertain whether all of the onsite operations employees will actually live in the county, we estimated a range with 25% coming from the county at the low end and 75% coming from the county at the high end. We assume that 100% will live in the State of North Carolina.

Two separate JEDI models were produced to show the economic impact of the Junction Solar Project. The first JEDI model used the 2018 Davie County multipliers from IMPLAN. The second JEDI model used the 2018 IMPLAN multipliers for the State of North Carolina and the same project costs.

Tables 5-7 show the output from these models. Table 5 lists the total employment impact from the Junction Solar Project for Davie County and the State of North Carolina. Table 6 shows the impact on total earnings and Table 7 contains the impact on total output.

**Table 5.—Total Employment Impact from Junction Solar Project**

| | Davie County Jobs | State of North Carolina Jobs |
|---|---|---|
| **Construction** | | |
| Project Development and Onsite Labor Impacts (direct) | 60 | 97 |
| Module and Supply Chain Impacts (indirect) | 14 | 76 |
| Induced Impacts | 5 | 42 |
| *New Local Jobs During Construction* | 79 | 215 |
| | | |
| **Operations** | | |
| Onsite Labor Impacts (direct) | 0.7- 2.1 | 2.8 |
| Local Revenue and Supply Chain Impacts (indirect) | 4.1- 4.2 | 4.0 |
| Induced Impacts | 0.8- 0.9 | 2.8 |
| *New Local Long Term Jobs* | 5.6- 7.2 | 9.6 |



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The results from the JEDI model show significant employment impacts from the Junction Solar Project. Employment impacts can be broken down into several different components. Direct jobs created during the construction phase typically last anywhere from 12 to 18 months depending on the size of the project; however, the direct job numbers present in Table 5 from the JEDI model are based on a full time equivalent (FTE) basis for a year. In other words, 1 job = 1 FTE = 2,080 hours worked in a year. A part time or temporary job would constitute only a fraction of a job according to the JEDI model. For example, the JEDI model results show 60 new full-time direct jobs during construction in Davie County, though the construction of the solar center could involve closer to 120 workers working half-time for a year. Thus, due to the short-term nature of construction projects, the JEDI model often significantly understates the number of people actually hired to work on the project. It is important to keep this fact in mind when looking at the numbers or when reporting the numbers.

As shown in Table 5, new local jobs created or retained during construction total 79 for Davie County, and 215 for the State of North Carolina. New local long-term jobs created from the Junction Solar Project total between 5.6 and 7.2 for Davie County and 9.6 for the State of North Carolina.

Direct jobs created during the operational phase last the life of the solar energy project, typically 20-30 years. Direct construction jobs and operations and maintenance jobs both require highly skilled workers in the fields of construction, management, and engineering. These well-paid professionals boost economic development in rural communities where new employment opportunities are often welcome due to economic downturns. Accordingly, it is important to not just look at the number of jobs but also the earnings that they produce. Table 6 shows the earnings impacts from the Junction Solar Project, which are categorized by construction impacts and operations impacts. The new local earnings during construction total over $6.6 million for Davie County and over $33.3 million for the State of North Carolina. The new local long-term earnings total between $194 thousand and $268 thousand for Davie County and over $897 thousand for the State of North Carolina.

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**Table 6.— Total Earnings Impact from Junction Solar Project**

| | Davie County | State of North Carolina |
|---|---|---|
| **Construction** | | |
| Project Development and Onsite Earnings Impacts | $6,060,630 | $11,146,924 |
| Module and Supply Chain Impacts | $462,428 | $20,167,737 |
| Induced Impacts | $159,479 | $2,054,891 |
| *New Local Earnings During Construction* | $6,682,537 | $33,369,551 |
| | | |
| **Operations (Annual)** | | |
| Onsite Labor Impacts | $34,027- $102,082 | $271,689 |
| Local Revenue and Supply Chain Impacts | $133,946- $138,571 | $488,434 |
| Induced Impacts | $26,050- $27,784 | $137,440 |
| *New Local Long Term Earnings* | $194,023- $268,437 | $897,563 |

Output refers to economic activity or the value of production in the state or local economy. It is an equivalent measure to the Gross Domestic Product, which measures output on a national basis. According to Table 7, the new local output during construction totals over $8.3 million for Davie County and over $26.2 million for the State of North Carolina. The new local long-term output totals between $731 thousand and $825 thousand for Davie County and over $1.4 million for the State of North Carolina.

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**Table 7.— Total Output Impact from Junction Solar Project**

| | Davie County | State of North Carolina |
|---|---|---|
| **Construction** | | |
| Project Development and Onsite Jobs Impacts on Output | $6,243,572 | $10,342,604 |
| Module and Supply Chain Impacts | $1,529,413 | $9,397,874 |
| Induced Impacts | $604,899 | $6,527,520 |
| *New Local Output During Construction* | $8,377,885 | $26,267,998 |
| | | |
| **Operations (Annual)** | | |
| Onsite Labor Impacts | $34,027- $102,082 | $271,689 |
| Local Revenue and Supply Chain Impacts | $599,782- $619,098 | $766,649 |
| Induced Impacts | $97,914- $104,493 | $433,560 |
| *New Local Long-Term Output* | $731,723- $825,673 | $1,471,898 |

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# VIII. Tax Revenue

Solar energy projects increase the property tax base of a county, creating a new revenue source for education and other local government services, such as fire protection, parks, health and safety. Junction Solar would be subject to both personal property and real property taxes. Estimates of the taxable value of each type of property were obtained from the client.

Table 8 details the tax implications of Junction Solar Project. There are several important assumptions built into the analysis in these tables.

- First, the analysis assumes that the total taxable personal property at the start of the Project will be $95.8 million and total taxable real property will be $1.74 million.
- Second, the tables assume real property inflation of 2% per year and personal property depreciation based on Schedule Y, 18-year useful life.
- Third, all tax rates are assumed to increase by 1% each year from their 2020 (2019 tax year) rates of 0.00738 for the County and 0.0004 for the fire district. This is less than the historical trend for increases in the tax rates.
- Fourth, no comprehensive tax payment was calculated, and these calculations are only to be used to illustrate the economic impact of the Project.

According to Table 8, a conservative estimate of the total property taxes paid by the Project starts out at over $222 thousand but declines due to depreciation (and offset by the trending factor) until it reaches the bottom in 2037. After that, the Project is fully depreciated, and the trending factor causes the taxable value and taxes to increase. The expected total property taxes paid over the lifetime of the Project is over $2 million and the average annual property taxes paid will be over $103 thousand. The Fire District will receive over $106 thousand and Davie County will receive over $1.9 million over the lifetime of the Project.

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**Table 8.—Property Tax Revenue from Junction Solar Project**

| Tax Year | Fire District | Davie County (Excluding Fire District) | Total |
|---|---|---|---|
| 2023 | $11,436 | $210,993 | $222,429 |
| 2024 | $7,605 | $140,311 | $147,916 |
| 2025 | $7,382 | $136,196 | $143,578 |
| 2026 | $7,083 | $130,681 | $137,764 |
| 2027 | $6,707 | $123,741 | $130,447 |
| 2028 | $6,486 | $119,660 | $126,146 |
| 2029 | $6,640 | $122,511 | $129,151 |
| 2030 | $6,339 | $116,953 | $123,292 |
| 2031 | $6,116 | $112,842 | $118,958 |
| 2032 | $5,659 | $104,404 | $110,063 |
| 2033 | $5,175 | $95,473 | $100,647 |
| 2034 | $4,634 | $85,500 | $90,134 |
| 2035 | $4,015 | $74,074 | $78,088 |
| 2036 | $3,396 | $62,651 | $66,046 |
| 2037 | $2,884 | $53,216 | $56,100 |
| 2038 | $2,898 | $53,462 | $56,360 |
| 2039 | $2,911 | $53,712 | $56,623 |
| 2040 | $2,925 | $53,965 | $56,890 |
| 2041 | $2,968 | $54,765 | $57,733 |
| 2042 | $2,982 | $55,029 | $58,012 |
| TOTAL | $106,241 | $1,960,139 | $2,066,379 |
| AVG ANNUAL | $5,312 | $98,007 | $103,319 |

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# X. Curriculum Vitae

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## Education

Doctor of Philosophy, Economics, Temple University, Philadelphia, PA, May 1995.

Bachelor of Arts, Mathematics and Honors Economics, Temple University, Philadelphia, PA, Magna Cum Laude, May 1985.

## Experience

1996-present Illinois State University, Normal, IL
**Professor, Department of Economics** (2010-present)
**Associate Professor, Department of Economics** (2002-2009)
**Assistant Professor, Department of Economics** (1996-2002)

- Taught Regulatory Economics, Telecommunications Economics and Public Policy, Industrial Organization and Pricing, Individual and Social Choice, Economics of Energy and Public Policy and a Graduate Seminar Course in Electricity, Natural Gas and Telecommunications Issues.
- Supervised as many as 5 graduate students in research projects each semester.
- Served on numerous departmental committees.

1997-present Institute for Regulatory Policy Studies, Normal, IL
**Executive Director** (2005-present)
**Co-Director** (1997-2005)

- Grew contributing membership from 5 companies to 16 organizations.
- Doubled the number of workshop/training events annually.
- Supervised 2 Directors, Administrative Staff and internship program.
- Developed and implemented state-level workshops concerning regulatory issues related to the electric, natural gas, and telecommunications industries.

2006-2017 Illinois Wind Working Group, Normal, IL
**Director**

- Founded the organization and grew the organizing committee to over 200 key wind stakeholders.
- Organized annual wind energy conference with over 400 attendees.
- Organized strategic conferences to address critical wind energy issues.
- Initiated monthly conference calls to stakeholders.
- Devised organizational structure and bylaws.

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**Experience (cont.)**

2007-2018 Center for Renewable Energy, Normal, IL
**Director**
- Created founding document approved by the Illinois State University Board of Trustees and Illinois Board of Higher Education.
- Secured over $150,000 in funding from private companies.
- Hired and supervised 4 professional staff members and supervised 3 faculty members as Associate Directors.
- Reviewed renewable energy manufacturing grant applications for Illinois Department of Commerce and Economic Opportunity for a $30 million program.
- Created technical "Due Diligence" documents for the Illinois Finance Authority loan program for wind farm projects in Illinois.

2011-present Strategic Economic Research, LLC, Normal, IL
**President**
- Performed economic impact analyses on policy initiatives and energy projects such as wind energy, solar energy, natural gas plants and transmission lines at the county and state level.
- Provided expert testimony before state legislative bodies, state public utility commissions, and county boards.
- Wrote telecommunications policy impact report comparing Illinois to other Midwestern states.

1997-2002 International Communications Forecasting Conference
**Chair**
- Expanded Planning Committee with representatives from over 18 different international companies and delivered high quality conference attracting over 500 people over 4 years.

1985-1996 Business Research Bell Atlantic, Philadelphia, PA
**Economist**
- Wrote and taught Applied Business Forecasting multimedia course.
- Developed and documented 25 econometric demand models that were used in regulatory filings.
- Provided statistical and analytic support to regulatory costing studies.
- Served as subject matter expert in switched and special access.
- Administered $4 million budget including $1.8 million consulting budget.

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**Professional Awards and Memberships**

2016 Outstanding Cross-Disciplinary Team Research Award with Jin Jo and Matt Aldeman – recognizes exemplary collaborative research conducted by multiple investigators from different disciplines.

2011 Midwestern Regional Wind Advocacy Award from the U. S. Department of Energy's Wind Powering America presented at WindPower 2011

2009 Economics Department Scott M. Elliott Faculty Excellence Award – awarded to faculty who demonstrate excellence in teaching, research and service.

2009 Illinois State University Million Dollar Club – awarded to faculty who have over $1 million in grants through the university.

2008 Outstanding State Wind Working Group Award from the U. S. Department of Energy's Wind Power America presented at WindPower 2008.

1999 Illinois State University Teaching Initiative Award

Member of the American Economic Association, National Association of Business Economists, International Association for Energy Economics, Institute for Business Forecasters; Institute for International Forecasters, International Telecommunications Society.

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Adams Township (Michigan) Planning Commission Hearing, on behalf of Invenergy, Direct Oral Testimony, August 27, 2019.

Christian County (Illinois) Zoning Board of Appeals, on behalf of Invenergy, Direct Oral Testimony, July 23, 2019.

Wheatland Township (Michigan) Planning Commission Hearing, on behalf of Invenergy, Direct Oral Testimony, July 18, 2019.

Christian County (Illinois) Board Meeting, on behalf of Invenergy and Tradewind Energy, Direct Oral Testimony, May 29, 2019.

DeWitt County (Illinois) Zoning Board of Appeals, on behalf of Tradewind Energy, Direct Oral Testimony, February 8, 2019.

Public Service Commission of Wisconsin, Docket No. 9697-CE-100, Application of Badger Hollow Solar Farm for a Certificate of Public Convenience and Necessity, on behalf of Badger Hollow Solar Farm LLC (Invenergy): Written Direct Testimony filed November 20, 2018; Written Rebuttal Testimony filed January 8, 2019; Surrebuttal Testimony filed January 14, 2019; Oral Cross-Examination, January 16, 2019.

Ford County (Illinois) Zoning Board of Appeals, on behalf of Pattern Energy and Apex Clean Energy, Direct Oral Testimony, October 3, 2018.

DeKalb County (Illinois) County Board Hearing, on behalf of EDF Renewable Development, Inc., Direct Oral Testimony, September 24, 2018.

Ford County (Illinois) Planning Commission, on behalf of Pattern Energy, Direct Oral Testimony, September 5, 2018.

DeKalb County (Illinois) Zoning Board of Appeals, on behalf of EDF Renewable Development, Inc., Direct Oral Testimony, June 27, 2018.

Ford County (Illinois) Zoning Board, on behalf of Apex Clean Energy, Inc., Direct Oral Testimony, June 11, 2018.

McLean County (Illinois) Zoning Board of Appeals, Application for Special Use Permit for a Wind Energy Conversion System, on behalf of Invenergy, LLC, Direct Oral Testimony, January 4, 2018.

New Mexico Public Regulation Commission, Case No. 17-00275-UT, Application of Sagamore Wind Energy LLC, on behalf of Invenergy, LLC: Direct Written Testimony filed November 6, 2017; Oral Cross-examination Testimony appeared before the Commission on March 13, 2018.



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Kankakee County (Illinois) Planning, Zoning, and Agriculture Committee, Application for Special Use Permit for a Wind Energy Conversion System, on behalf of EDF Renewables, Direct Oral Testimony, July 22, 2015.

Kankakee County (Illinois) Zoning Board of Appeals, Application for Special Use Permit for a Wind Energy Conversion System, on behalf of EDF Renewables, Direct Oral Testimony, July 13, 2015.

Bureau County (Illinois) Zoning Board of Appeals, Application for Special Use Permit for a Wind Energy Conversion System, on behalf of Berkshire Hathaway Energy/Geronimo Energy, Direct Oral Testimony, June 16, 2015.

Illinois Commerce Commission, Case No. 15-0277, on behalf of Grain Belt Express Clean Line LLC: Written Direct Testimony filed April 10, 2015; Written Rebuttal Testimony filed August 7, 2015; Oral Cross-Examination Testimony, August 19, 2015.

Livingston County (Illinois) Zoning Board of Appeals, Application for Special Use Permit for a Wind Energy Conversion System, on behalf of Invenergy, Oral Cross-Examination, December 8-9, 2014.

Livingston County (Illinois) Zoning Board of Appeals, Application for Special Use Permit for a Wind Energy Conversion System, on behalf of Invenergy, Direct Oral Testimony, November 17-19, 2014.

Missouri Public Service Commission, Case No. EA-2014-0207, on behalf of Grain Belt Express Clean Line LLC: Written Direct Testimony filed March 26, 2014; Written Surrebuttal Testimony, filed October 14, 2014; Oral Cross-examination Testimony, November 21, 2014.

Boone County (Illinois) Board, Examination of Wind Energy Conversion System Ordinance, Direct Testimony and Cross-Examination, April 23, 2013.

Illinois Commerce Commission, Case No. 12-0560, on behalf of Rock Island Clean Line LLC: Written Direct Testimony filed October 10, 2012; Written Rebuttal Testimony filed August 20, 2013; Oral Cross-Examination Testimony, December 11, 2013 .

Attachment: Full application_novPB (Zoning Map Amendment_2020-05 Junction Solar Project LLC)

**Expert Testimony (cont.)**

Whiteside County (Illinois) Board and Whiteside County Planning and Zoning Committee, Examination of Wind Energy Conversion System Ordinance, Direct Testimony and Cross-Examination, on behalf of the Center for Renewable Energy, April 12, 2012.

State of Illinois Senate Energy and Environment Committee, Direct Testimony and Cross-Examination, on behalf of the Center for Renewable Energy, October 28, 2010.

Livingston County (Illinois) Zoning Board of Appeals, Application for Special Use Permit for a Wind Energy Conversion System, on behalf of the Center for Renewable Energy, Direct Testimony and Cross-Examination, July 28, 2010.

Attachment: Full application_novPB (Zoning Map Amendment_2020-05 Junction Solar Project LLC)

**Selected Presentations**

"Renewable Energy in McLean County," presented December 13, 2018 at Bloomington-Normal Economic Development Council's BN By the Numbers, Normal, IL.

"Smart Cities and Micro Grids: Cost Recovery Issues," presented September 12,2017 at the National Association of Regulatory Utility Commissioners Staff Subcommittee on Accounting and Finance Meeting, Springfield, IL.

"Cloud Computing: Regulatory Principles and ICC NOI," presented September 11,2017 at the National Association of Regulatory Utility Commissioners Staff Subcommittee on Accounting and Finance Meeting, Springfield, IL.

"Illinois Wind, Illinois Solar and the Illinois Future Energy Jobs Act," presented July 25, 2017 at the Illinois County Assessors Meeting, Normal, IL.

"Illinois Wind, Illinois Solar and the Illinois Future Energy Jobs Act," presented April 21, 2017 at the Illinois Association of County Zoning Officers Meeting, Bloomington, IL.

"Energy Storage Economics and RTOs," presented October 30, 2016 at the Energy Storage Conference at Argonne National Laboratory.

"Wind Energy in Illinois," on October 6, 2016 at the B/N Daybreak Rotary Club, Bloomington, IL.

"Smart Grid for Schools," presented August 17, 2016 to the Ameren External Affairs Meeting, Decatur, IL.

"Solar Energy in Illinois," presented July 28, 2016 at the 3rd Annual K-12 Teachers Clean Energy Workshop, Richland Community College, Decatur, IL

"Wind Energy in Illinois," presented July 28, 2016 at the 3rd Annual K-12 Teachers Clean Energy Workshop, Richland Community College, Decatur, IL

"Smart Grid for Schools," presented June 21, 2016 at the ISEIF Grantee and Ameren Meeting, Decatur, IL.

"Costs and Benefits of Renewable Energy," presented November 4, 2015 at the Osher Lifelong Learning Institute at Bradley, University, Peoria, IL.

"Energy Sector Workforce Issues," presented September 17, 2015 at the Illinois Workforce Investment Board, Springfield, IL.

"The Past, Present and Future of Wind Energy in Illinois," presented March 13, 2015 at the Peoria Rotary Club, Peoria, IL.

"Where Are All the Green Jobs?" presented January 28, 2015 at the 2015 Illinois Green Economy Network Sustainability Conference, Normal, IL.

"Teaching Next Generation Energy Concepts with Next Generation Science Standards: Addressing the Critical Need for a More Energy-Literate Workforce," presented September 30, 2014 at the Mathematics and Science Partnerships Program 2014 Conference in Washington, DC.

Attachment: Full application_novPB (Zoning Map Amendment_2020-05 Junction Solar Project LLC)

**Selected Presentations (cont.)**

"National Utility Rate Database," presented October 23, 2013 at Solar Power International, Chicago, IL.

"Potential Economic Impact of Offshore Wind Energy in the Great Lakes," presented May 6, 2013 at WindPower 2013, Chicago, IL.

"Why Illinois? Windy City, Prairie Power," presented May 5, 2013 at WindPower 2013, Chicago, IL.

"National Utility Rate Database," presented January 29, 2013 at the EUEC Conference, Phoenix, AZ.

"Energy Learning Exchange and Green Jobs," presented December 13, 2012 at the TRICON Meeting of Peoria and Tazewell County Counselors, Peoria, IL.

"Potential Economic Impact of Offshore Wind Energy in the Great Lakes," presented November 12, 2012 at the Offshore Wind Jobs and Economic Development Impacts Webinar.

"Energy Learning Exchange," presented October 31, 2012 at the Utility Workforce Development Meeting, Chicago, IL.

"Wind Energy in McLean County," presented June 26, 2012 at BN By the Numbers, Normal, IL.

"Wind Energy," presented June 14, 2012 at the Wind for Schools Statewide Teacher Workshop, Normal, IL.

"Economic Impact of Wind Energy in Illinois," presented June 6, 2012 at AWEA's WINDPOWER 2012, Atlanta, GA.

"Trends in Illinois Wind Energy," presented March 6, 2012 at the AWEA Regional Wind Energy Summit – Midwest in Chicago, IL.

"Challenges and New Growth Strategies in the Wind Energy Business," invited plenary session speaker at the Green Revolution Leaders Forum, November 18, 2011 in Seoul, South Korea.

"Overview of the Center for Renewable Energy," presented July 20, 2011 at the University-Industry Consortium Meeting at Illinois Institute of Technology, Chicago, IL.

"Building the Wind Turbine Supply Chain," presented May 11, 2011 at the Supply Chain Growth Conference, Chicago, IL

"Building a Regional Energy Policy for Economic Development," presented April 4, 2011 at the Midwestern Legislative Conference's Economic Development Committee Webinar.

"Wind Energy 101," presented February 7, 2011 at the Wind Power in Central Illinois - A Public Forum, CCNET Renewable Energy Group, Champaign, IL.

"Alternative Energy Strategies," presented with Matt Aldeman November 19, 2010 at the Innovation Talent STEM Education Forum, Chicago, IL.

"Siting and Zoning in Illinois," presented November 17, 2010 at the Wind Powering America Webinar.



Attachment: Full application_novPB (Zoning Map Amendment_2020-05 Junction Solar Project LLC)

**Selected Presentations (cont.)**

"What Governor Quinn Should Do about Energy?" presented November 15, 2010 at the Illinois Chamber of Commerce Energy Forum Conference, Chicago, IL.

"Is Wind Energy Development Right for Illinois," presented with Matt Aldeman October 28, 2010 at the Illinois Association of Illinois County Zoning Officials Annual Seminar in Utica, IL.

"Economic Impact of Wind Energy in Illinois," presented July 22, 2010 at the AgriEnergy Conference in Champaign, IL.

"Renewable Energy Major at ISU," presented July 21, 2010 at Green Universities and Colleges Subcommittee Webinar.

"Economics of Wind Energy," presented May 19, 2010 at the U.S. Green Building Council meeting in Chicago, IL.

"Forecasting: A Primer for the Small Business Entrepreneur," presented with James E. Cox, Jr. April 14, 2010 at the Allied Academies' Spring International Conference in New Orleans, LA.

"Are Renewable Portfolio Standards a Policy Cure-All? A Case Study of Illinois' Experience," presented January 30, 2010 at the 2010 William and Mary Environmental Law and Policy Review Symposium in Williamsburg, VA.

"Creating Partnerships between Universities and Industry," presented November 19, 2009, at New Ideas in Educating a Workforce in Renewable Energy and Energy Efficiency in Albany, NY.

"Educating Illinois in Renewable Energy, presented November 14, 2009 at the Illinois Science Teachers Association in Peoria, IL.

"Green Collar Jobs," invited presentation October 14, 2009 at the 2009 Workforce Forum in Peoria, IL.

"The Role of Wind Power in Illinois," presented March 4, 2009 at the Association of Illinois Electric Cooperatives Engineering Seminar in Springfield, IL.

"The Economic Benefits of Wind Farms," presented January 30, 2009 at the East Central Illinois Economic Development District Meeting in Champaign, IL.

"Green Collar Jobs in Illinois," presented January 6, 2009 at the Illinois Workforce Investment Board Meeting in Macomb, Illinois.

"Green Collar Jobs: What Lies Ahead for Illinois?" presented August 1, 2008 at the Illinois Employment and Training Association Conference.

"Mapping Broadband Access in Illinois," presented October 16, 2007 at the Rural Telecon '07 conference.

"A Managerial Approach to Using Error Measures to Evaluate Forecasting Methods," presented October 15, 2007 at the International Academy of Business and Economics.

"Dollars and Sense: The Pros and Cons of Renewable Fuel," presented October 18, 2006 at Illinois State University Faculty Lecture Series.

Attachment: Full application_novPB (Zoning Map Amendment_2020-05 Junction Solar Project LLC)

**Selected Presentations (cont.)**

"Broadband Access in Illinois," presented July 28, 2006 at the Illinois Association of Regional Councils Annual Meeting.

"Broadband Access in Illinois," presented November 17, 2005 at the University of Illinois' Connecting the e to Rural Illinois.

"Improving Forecasting Through Textbooks – A 25 Year Review," with James E. Cox, Jr., presented June 14, 2005 at the 25th International Symposium on Forecasting.

"Telecommunications Demand Forecasting with Intermodal Competition, with Christopher Swann, presented April 2, 2004 at the Telecommunications Systems Management Conference 2004.

"Intermodal Competition," with Christopher Swann, presented April 3, 2003 at the Telecommunications Systems Management Conference 2003.

"Intermodal Competition in Local Exchange Markets," with Christopher Swann, presented June 26, 2002 at the 20th Annual International Communications Forecasting Conference.

"Assessing Retail Competition," presented May 23, 2002 at the Institute for Regulatory Policy Studies' Illinois Energy Policy for the 21st Century workshop.

"The Devil in the Details: An Analysis of Default Service and Switching," with Eric Malm presented May 24, 2001 at the 20th Annual Advanced Workshop on Regulation and Competition.

"Forecasting Challenges for U.S. Telecommunications with Local Competition," presented June 28, 1999 at the 19th International Symposium on Forecasting.

"Acceptance of Forecasting Principles in Forecasting Textbooks," presented June 28, 1999 at the 19th International Symposium on Forecasting.

"Forecasting Challenges for Telecommunications With Local Competition," presented June 17, 1999 at the 17th Annual International Communications Forecasting Conference.

"Measures of Market Competitiveness in Deregulating Industries," with Eric Malm, presented May 28, 1999 at the 18th Annual Advanced Workshop on Regulation and Competition.

"Trends in Telecommunications Forecasting and the Impact of Deregulation," Proceedings of EPRI's 11th Forecasting Symposium, 1998.

"Forecasting in a Competitive Age: Utilizing Macroeconomic Forecasts to Accurately Predict the Demand for Services," invited speaker, Institute for International Research Conference, September 29, 1997.

"Regulatory Fairness and Local Competition Pricing," presented May 30, 1996 at the 15th Annual Advanced Workshop in Regulation and Public Utility Economics.

"Optimal Pricing For a Regulated Monopolist Facing New Competition: The Case of Bell Atlantic Special Access Demand," presented May 28, 1992 at the Rutgers Advanced Workshop in Regulation and Public Utility Economics.



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2705 Kolby Court, Bloomington, IL 61704
815-905-2750

SER Strategic Economic Research, LLC

# Exhibit 7

# Health and Safety Study

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# HEALTH AND SAFETY ASSESSMENT REPORT

Junction Solar Center

80 $MW_{AC}$ Photovoltaic Facility

Davie County, NC

## ABSTRACT

This is an assessment to address the potential health and safety impacts of the proposed 80 $MW_{AC}$ Junction Solar Center photovoltaic facility in Davie County, NC. Considering the project design, equipment specifications and operations, the assessment evaluates potential positive and negative impacts on public health and safety. The conclusion of the assessment is that the Junction Solar Center will not create negative health and safety impacts. The clean electricity the project will produce will help to reduce the burning of fossil fuels, which will reduce pollution from those sources and provide millions of dollars' worth of local public health benefits as a result.

**Tommy Cleveland, PE**
Consulting Engineer
Solar Health and Safety Expert
October 14, 2020

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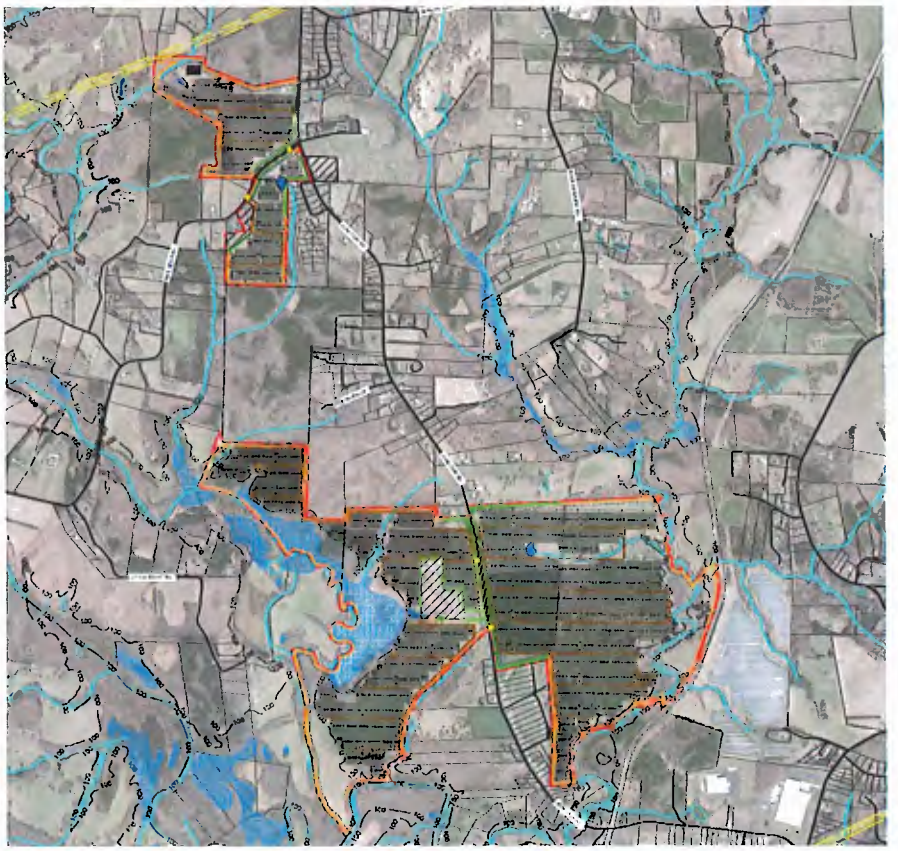
# Health & Safety Assessment Report

## Junction Solar Center Facility – Davie County, NC

## Project Overview:

- **Project Name:** Junction Solar Center
- **Developer**: Orion Renewable Energy Group
- **Capacity**: 80 $MW_{AC}$ (~100 $MW_{DC}$)
- **Project Area**: ~540 Acres
- **Solar Panels**: crystalline silicon
- **Structure**: single-axis trackers (north-south rows)
- **Inverters**: central station type (~3 MW each)
- **Point of Interconnection**: Duke Energy 100kV transmission line at northern tip of the project
- **Interconnection Equipment**: 34.5kV/100kV project substation and interconnection facilities



## Report Author

The author of this report is **Tommy Cleveland, PE**, a consulting engineer licensed as a professional engineer in NC since 2007. Mr. Cleveland graduated from North Carolina State University with undergraduate and master's degrees in mechanical engineering, where he focused on energy. His solar career started with his master's thesis, which led to working over 12 years at the North Carolina Clean Energy technology Center at NC State University. While at the university Tommy worked on every aspect of solar energy; from teaching, to testing equipment, to research & development, to leading a statewide stakeholder group in the development of a template solar ordinance. During his time at NC State, North Carolina became the state to install more photovoltaic (PV) capacity than any state other than California, mostly in the form of 3-5 $MW_{AC}$ utility-scale solar facilities covering around 40 acres each. Utility-scale solar was unfamiliar to the hundreds of communities around the state where the systems were proposed, and many of those communities had questions about the technology and its potential to harm public health or the environment in their community. Many of those questions found their way to Mr. Cleveland and he expanded his already broad knowledge of photovoltaics to research and find answers to the questions being asked. Over time he became an expert on the potential health and safety impacts of photovoltaics and was the lead author of the 2017 NC State white paper on the topic.

Attachment: Full application_novPB (Zoning Map Amendment_2020-05 Junction Solar Project LLC)

# Executive Summary

This report assesses the potential health and safety impacts of the proposed Junction Solar Center 80 $MW_{AC}$ project. The Junction facility, located in Davie County, North Carolina, will install crystalline silicon solar panels on single-axis tracking racks that slowly rotate each row of panels to follow the sun across the sky. Central station inverters will convert the DC solar electricity generated by the solar panels into grid-synced AC electricity. Step-up transformers at each inverter will boost the voltage for connection to an onsite substation that connects to a Duke Energy transmission power line crossing the site.

Photovoltaic panels are not new. They have been used and studied for over 40 years and are well understood by the scientific community. Utility-scale solar facilities are newer, but they too have been installed and studied for over a decade, and scientists also have a clear understanding of their function and impacts.

Photovoltaic systems produce emission-free electricity. This replaces electricity production from fossil fuel power plants that do produce harmful emissions. The health benefits of clean solar electricity are hard to put a dollar figure on, but the EPA's best attempt at doing just that puts the value in the southeast US between 1.6 and 4.1 cents per kWh produced. Even at the bottom end of this range, for the Junction project this equates to over $2.5 million of public health benefit per year, and over $75 million in 30 years.

The only identifiable risks to health and safety of the Junction project are not unique to solar but exist for any source or use of electricity. These are electric shock, arc flash, and fire. Due to world-class safety regulations in the U.S. and an experienced solar industry, these risks are extremely low, and the secure and isolated nature of ground-mounted PV facilities, including Junction Solar, results in minimal risk to the general public.

Common concerns about toxicity and EMF from solar facilities are understandable, but the operating characteristics and materials present in the equipment means that neither toxicity nor EMF pose a material risk to public health or safety. Research and experience regarding heat island effect shows that, like other utility-scale PV projects, the Junction project will not create either of these potential impacts. The single-axis trackers at Junction that will keep the panels facing in the direction of the sun minimizes the potential for the project to create any glare. A forthcoming engineering glare study of the Junction Project is expected to confirm the lack of glare creation potential.

Based on my knowledge of engineering and science, personal experience with PV technology, review of academic research, and review of materials provided by Orion Renewable Energy Group about the proposed Junction Solar Center PV facility in Davie County, North Carolina, my opinions are summarized as follows:

- The development and operation of the Junction facility will not result in any environmental contamination or negative impacts to public health or safety.
- The PV panels utilized at the Junction facility are most likely be reused or recycled when they are taken out of service in 30+ years.
- The Junction facility will not increase the temperature of the area surrounding the site.
- The Junction facility is not expected to create any glare hazards or other negative glare impacts.

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# Introduction

## Purpose.

This report assesses the potential health and safety impacts of the proposed Junction Solar Center ("Junction") 80 $MW_{AC}$ project. It also seeks to educate readers on the health and safety impacts of photovoltaic systems using accurate scientific sources of information.

## Overview of Potential Impacts

The proposed solar photovoltaic (PV) system is likely to remain in operation at least 30 years, and this report considers its potential impacts in Davie County from the start of construction onward, including decommissioning of the project and restoration of the land. This assessment considers all aspects of the project but focuses on those unique to solar projects.

### *Potential Positive Health and Safety Impacts*

Every utility-scale PV project creates a significant reduction in pollution because it produces emission-free electricity that replaces electricity that otherwise would have been largely produced by burning coal and natural gas. Burning these fossil fuels for electricity production is a significant source of air, water, and soil pollution, so reducing their use is a clear public health benefit.

The US Environmental Protection Agency (EPA) conducted a study to determine how much pollution PV systems save and to estimate the public health value of the cleaner air, water, and soil they provide. These experts calculated that in the southeast, based on the sunshine available, the way electricity is produced, and the public health impacts of fossil fuel-fired electricity, every kilowatt-hour (kWh) of solar electricity produced provides 1.6 to 4.1 cents of public health benefit.[1] At this rate of benefit, **the Junction project will produce over $2.6-6.6 million of public health benefits every year**, which could add up to $100-$200 million over the life of the project. The public health benefits of generating pollution-free electricity with PV are very significant.

The positive benefits of photovoltaics are widely understood and well documented, so this report will not address them further. Furthermore, the positive public health impacts of the Junction project significantly outweigh any health and safety risks as described below.

### *Potential Negative Health and Safety Impacts*

While PV facilities, as electricity generating facilities, in general provide some potential for negative health and safety impacts, the Junction project does not present any negative health and safety risks specific to its location or technology choice. The only aspect of PV systems that presents risk of physical harm is the potential for electrical shock or arc flash, which are hazards present with any electrical system and not unique to solar. There are several other aspects of PV systems that often raise public health and safety concerns, but no other aspect of PV systems poses more than an insignficant risk of negative public health or safety impacts.

This report will address all the potential health and/or safety risks of the Junction project, including common concerns that have no potential for public health impact. Specifically, this report addresses the following possible negative impacts/concerns:

- Electrical Shock and Arc Flash
- Fire and Emergency Response
- Toxicity
- Electromagnetic Fields (EMF)
- Heat Island Effect
- Glare

Before addressing each of these impact categories, this report provides an overview of utility-scale photovoltaics equipment and facility construction and operations.

[1] US Environmental Protection Agency, Public Health Benefits per kWh of Energy Efficiency and Renewable Energy in the United States: A Technical Report. July 2019, www.epa.gov/statelocalenergy/public-health-benefits-kwh-energy-efficiency-and-renewable-energy-united-states

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# Utility-scale PV Equipment, Construction, and Operations[2]

To understand the potential impacts of a utility-scale PV system it is helpful to understand the components of the facility, as well as how a facility is constructed and maintained. The components and practices in this overview are typical of the industry and representative of the proposed Junction project. The initial site work occurs first, but the order of the other construction steps is flexible and may occur concurrently.

## Initial Site Work (construction entrance/driveway, sedimentation and erosion control installation, clearing and grubbing, potentially some grading, perimeter fence, and internal roads)

## Underground Work (trenching for wires from PV combiner boxes to inverters, inverter pad installation, medium voltage cables to interconnection equipment)

## PV Panel Structure/Racking (driving of steel piles, installation of racking "tables", installation of PV panels)

[2] Photo sources: author, ncre-usa.com, NC DEQ, blueoakenergy.com, solarbuildermag.com, hbc-inc.com, solarprofessional.com, ccrenew.com, and landiscontracting.com

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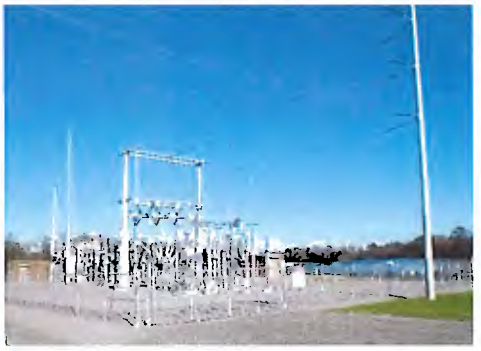
## Electrical Work (connection of PV module wiring, combiner boxes, inverters, transformers, interconnection facilities)



## Establishment of Ground Cover (required to close out sedimentation and erosion control permit)

## Operations and Maintenance (24/7 monitoring, vegetation maintenance, preventative maintenance)

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# Electrical Shock and Arc Flash

Any electricity over 50 volts presents an electrical shock hazard, including the electricity in PV facilities. However, like electrical systems in buildings, the solar facility must adhere to the National Electrical Code (NEC) and the equipment must be certified to the appropriate UL safety standards. Unlike buildings, members of the public are restricted from entering a utility-scale solar facility. To help ensure that only qualified people have access to the equipment, the NEC requires a perimeter security fence with electrical warning signs, and this conforms to the Davie County ordinance as well. The lack of public access coupled with the high U.S. electrical safety standards greatly reduces the risk of electric shock for the public.

*Figure 1. Perimeter Fence with Warning Signs*

In circuits with significant available fault current there is another electrical hazard, called arc flash, which is an explosion of energy that can occur due to a short circuit. This explosive release of energy causes a flash of light and heat, and creates a shockwave that can knock someone off their feet. The risk of arc flash in a solar facility is no different than the risk at commercial or industrial buildings, except that solar facilities are much less accessible. Equipment with an arc flash risk require arc flash warning labels, and only trained personnel wearing the proper personal protective equipment are allowed to work on it. Due to the secure perimeter and the high U.S. electrical safety standards there is extremely low arc flash risk to the public.

# Fire and Emergency Response

Every electrical system has some risk of starting a fire, including electrical systems in residential, commercial and industrial buildings. It is this hazard that motivated creation of the National Electrical Code over 100 years ago. Due to the high standard required by the NEC, modern electrical systems rarely start fires. Like electrical systems in buildings, photovoltaic systems must also adhere to the NEC. In the rare case that a PV system has a fault that starts a fire there is very little combustible material present for it to ignite. The only flammable portions of PV panels are the few thin plastic layers, the plastic junction box, and the insulation on its wires.

Heat from a small flame is not adequate to ignite a PV panel, but an intense fire or an electrical fault can ignite a PV panel. One real-world example illustrating the low flammability of PV panels occurred during July 2015 in an arid area of California. Three acres of grass under a utility-scale PV facility burned without igniting the panels mounted just above the grass.[3]

No special equipment is required to respond to a fire incident at a utility-scale PV facility. As long as the sun is shining on the PV panels they will produce voltage, but multiple electrical disconnect switches in PV systems allow problem areas to be electrically isolated quickly.

Risks of fire associated with ground cover and screening vegetation are reduced by landscaping plans that are developed with this specific goal. Local emergency responders typically have access to locked gates, and training with locations of disconnect switches, and are able to extinguish grass fires with typical fire response equipment to ensure the fire does not spread to surrounding areas. Solar facility representatives monitor facilities remotely, are available 24/7 for emergencies. The International Association of Fire Fighters (IAFF) provides online training on responding to fires at photovoltaic facilities at www.iaff.org/solar-pv-safety.

[3] Matt Fountain. The Tribune. Fire breaks out at Topaz Solar Farm. July 2015. www.sanluisobispo.com/news/local/article39055539.html

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# Toxicity (Equipment and Operations)

Toxicity is probably the most common health and safety concern about photovoltaic systems members of the public may have, although as detailed below the systems do not pose a material toxicity risk to the public or the environment. This report examines all possible sources of toxicity, from site construction to decommissioning at the end of the project life. The potential sources of toxicity are organized by equipment and operations and maintenance (O&M).

## Toxicity: Equipment

The main equipment installed at a solar facility includes photovoltaic modules (aka solar panels or PV panels), metal structures for mounting the solar panels, and wiring to collect the electricity they produce. The other major components are inverters and transformers. Inverters are enclosed power electronic equipment that do not contain liquids and are treated like other e-waste at the end of their life. Transformers contain non-toxic mineral or vegetable oil and are no different than the typical transformers outside of most schools and shopping centers. Solar panels have raised the most public concerns related to toxicity, so they are the only component addressed in this section.

### *Contents of PV Panels*

The Junction project will use crystalline silicon PV panels from a Bloomberg Tier 1 manufacturer[4]. The PV panels are the most expensive and most important component in a solar facility, so the project owner performs industry-standard due diligence to ensure that the panels selected and delivered to the project are properly manufactured, certified, and tested.

The diagram below shows the components of a typical silicon PV panel, including a closeup of the solar cells and the electrical connections between each cell. Over 80% of the weight of a PV panel is the tempered glass cover and the structural aluminum frame, which work together to create a strong, durable panel that outlasts its 30-year performance warranty. The encapsulation films are clear plastic lamination layers that protect the PV cells and electrical contacts from moisture for the life of the panel. These layers also maintain the panel as a single unit in the event of breakage of the tempered glass front cover, similar to the film in auto windshields that keeps them from fragmenting if the windshield shatters.

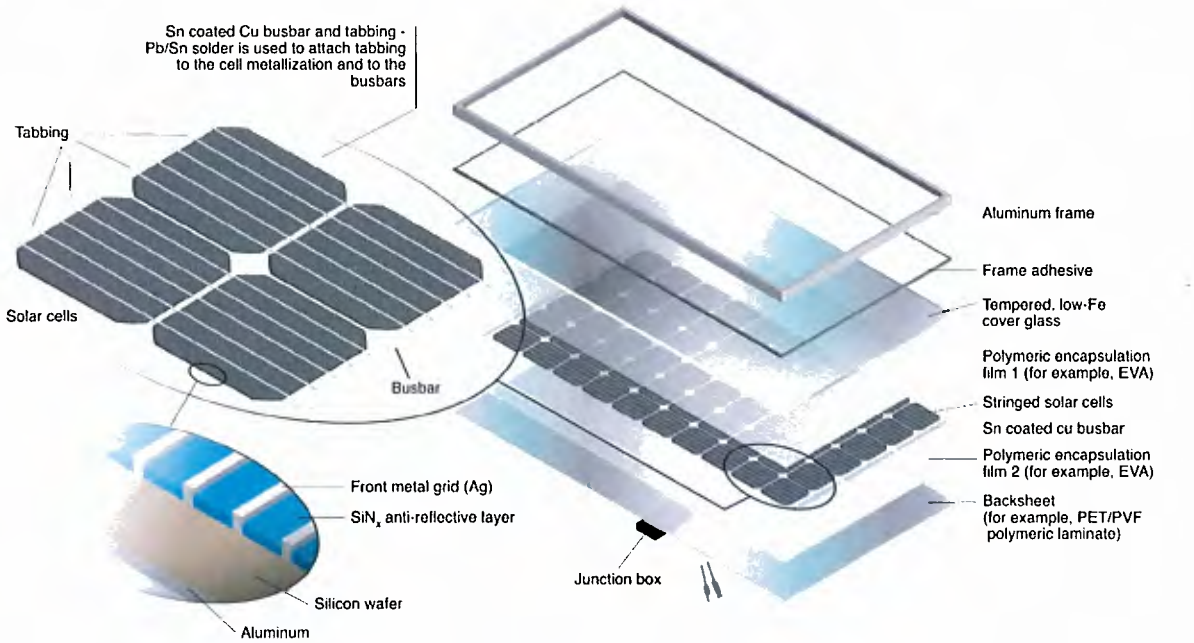


*Figure 2. Contents of Framed Crystalline Silicon Panels (Source: NREL)*

[4] The financial information firm Bloomberg has developed a tiering system for PV module makers based on bankability that is the standard the PV industry uses to differentiate between the hundreds of manufacturers of solar modules on the market. Tier 1 is the highest of three tiers, which are determined by banks' confidence in a manufacturer's PV panels as demonstrated by their willingness to supply project financing backed only by the assets of the project. The details are described by BloombergNEF in this document: PV Module Tier 1 List Methodology https://data.bloomberglp.com/bnef/sites/4/2012/12/bnef_2012-12-03_PVModuleTiering.pdf

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As can be seen in the above diagram, there are no liquids to leak from a broken panel. The plastic layers are inert. The silicon PV cells are nearly 100% silicon, which is harmless and is the second most common element in the Earth's crust. The only components of a PV panel that have any potential of toxic impact is the solder used to connect the solar cells together and to the busbars at the end of the panel, and the thin strips of silver that collect electricity from each cell. The solder, which is the same tin-lead solder standard in the electronic industry, is 36% lead. The tiny amount of silver in a panel does not create a toxicity hazard, but it does add potential recycling value.

## Broken PV Panels

There is zero risk of toxicity escape from undamaged PV panels because any lead is sealed from air and water exposure. Individual panels damaged during the life of the solar facility are identified in days to months through either remote monitoring of system performance or from visual inspections during maintenance by onsite staff. Recently an international team of experts conducted an International Energy Agency - Photovoltaic Power Systems Programme (IEA-PVPS) study to assess if there is a public health hazard caused by lead leaching from the broken PV panels during the life of a utility-scale solar facility utilizing conservative assumptions to evaluate extreme scenarios.[5] The study examined worst-case exposure routes of soil, air, and ground water for a typical 100 $MW_{AC}$ PV facility. For example, the worst-case residential groundwater exposure assumed that all broken panels from the entire array were within 25 feet of the groundwater well, and the chemicals released from every broken panel transported to the same groundwater well. The study found that worst-case lead exposure via air, soil, and water were each orders of magnitude less than the levels defined by the US Environmental Protection Agency (EPA) to have no adverse health effects. In the case of water, the health-screening level is the same as the maximum concentration level (MCL) set by the EPA for water quality in public water systems. This study demonstrates that there is no risk to public health from lead leached from broken PV panels.

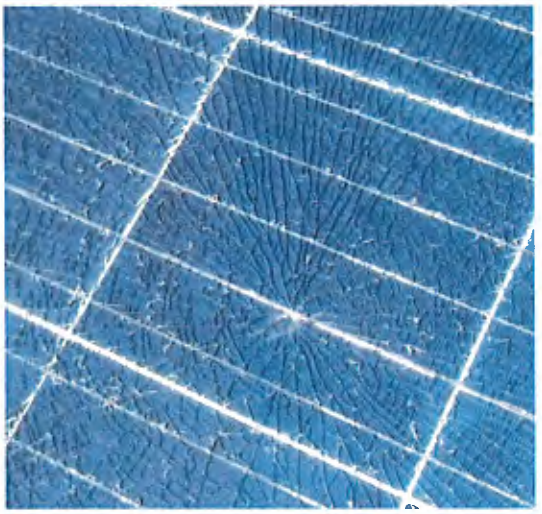


*Figure 3. Close-up photo of impact point that broke the glass front of this PV panel*

## GenX and PFAS

Following the discovery that a chemical plant near Fayetteville, NC had been dumping the unregulated chemical known as GenX into the Cape Fear river for many years, some solar opponents raised questions about the possibility of GenX or other PFAS chemicals being emitted by solar panels. PFAS chemicals are a group of chemicals informally known as "forever chemicals" due to their durability in the environment. These chemicals are found in many products, including food packaging materials, firefighting foam, and stain resistant carpet treatments. The author has not found any evidence for the existence of PFAS in PV panels.

## PV Panel End-of-Life

PV panels last a very long time, but they do not last forever. Their output declines slightly each year, but panels rarely fail in less than 40 years. The expected economic life of utility-scale PV panels is 25-40 years, at which point they may be replaced by new panels or the entire project may be decommissioned, bringing the land back to how it was before the solar facility was installed. In both instances, the original PV panels are removed from the site. There are three possible fates for solar panels at the end of their economic life at a project:

- **Reuse**: Most likely when the PV panels at the Junction project are decommissioned they will still produce 80% of their original output and have another decade of productive life, making them most valuable to be reused as solar panels on rooftops or ground-mounted applications.

[5] P. Sinha, G. Heath, A. Wade, K. Komoto, 2019, Human health risk assessment methods for PV, Part 2: Breakage risks, International Energy Agency (IEA) PVPS Task 12, Report T12-15:2019. ISBN 978-3-906042-87-9, September 2019

Attachment: Full application_novPB (Zoning Map Amendment_2020-05 Junction Solar Project LLC)

- **Recycling:** Any panels that are not reused as working panels could be recycled. Currently in the US it is possible to recycle the largest constituents of PV panels using the existing glass and metal recycling infrastructure. Today this recycling comes at a cost premium to disposing the panels in a landfill. However, as PV recycling technology improves and the number of panels reaching end-of-life increases dramatically, it is possible that in the future recycling PV panels will more than pay for itself. Recycling plants built specifically to recycle PV panels can recycle nearly 100% of the panel, including the valuable silver and refined silicon they contain, and can be optimized for the task, significantly reducing the cost to recycle each panel. Currently only one PV-specific recycling plant has been built, in France, but in the coming decades it is expected that PV-specific recycling plants will become commonplace. PV recycling technology is clearly still in its infancy. However, it is expected that when the Junction Solar PV panels reach the end of their useful life in 30+ years that the US PV recycling infrastructure will be robust, such that reuse or recycling of the PV panels will be the preferred options or required by new U.S. regulations, as it has been for years in Europe.

*Figure 4. PV Panels Waiting to be Recycled (Source: LuxChemtech GmbH)*

- **Disposal**: If panels are not reused or recycled, federal waste management laws (Resource Recovery and Conservation Act, RCRA) require that PV panels, like any other commercial/industrial waste, be disposed of properly, which would typically be in a landfill. In order to determine the proper disposal method, RCRA requires that all commercial/industrial waste be identified as either hazardous or non-hazardous waste, which is generally determined using the Toxic Characteristic Leaching Procedure (TCLP) test developed by the U.S. EPA. This test seeks to simulate landfill conditions and check for leaching of 8 toxic metals and 32 organic compounds. Little data has been published about the TCLP test results of solar panels, but it is known that some older silicon panels that contain more lead then modern panels exceed the TCLP test limits for lead. Researchers at Arizona State University's Photovoltaic Reliability Laboratory have done the most robust investigation of methods for conducting accurate TCLP test on PV panels, and their latest research found that all three of the crystalline silicon PV panels tested passed the TCLP test, classifying them as non-hazardous waste.[6]

  A worst-case scenario would be tons of PV panels being disposed of in a non-sanitary landfill, which is essentially a huge pile of garbage with little to no effort to minimize leaching from the waste that is ill-legal in many world regions, including in North Carolina. A recent IEA-PVS research study on PV panels disposal risks used this worst-case situation to evaluate the potential for cancer and non-cancer hazards through comparison of predicted exposure-point concentrations in soil, air, groundwater, and surface water with risk-based screening levels created by the EPA and the World Health Organization (WHO).[7] One the report's authors, Gavin Heath with the US Department of Energy's National Renewable Energy Laboratory (NREL), summarized their findings about lead in silicon PV panels this way: "under the worst-case conditions, none of them exceeded health-screening thresholds, meaning they're not deemed to potentially have significant enough risk that you'd want to do a more detailed health risk assessment."[8] The worst-case scenario defined in the research has many conservative assumptions, and thus likely overestimates the risk of disposal in a *non-sanitary* landfill. It is important to stress that North Carolina only allows solid waste disposal in sanitary landfills, which are engineered facilities with plastic liners, leachate collection systems, and covers, all of which dramatically reduce the potential for human exposure compared to non-sanitary landfills. This and other research show that if the Junction PV panels are disposed of in a landfill they will not create any negative public health impact. To ensure proper decommissioning in an unlikely scenario in which the project is abandoned by the owner, the Junction project will have decommissioning bonding as required by its land leases and by the Davie County zoning ordinance.

[6] Tamizhmani, G., et al. (2019). Assessing Variability in Toxicity Testing of PV Modules. In 2019 IEEE 46th Photovoltaic Specialists Conference (pp. 2475-2481). Institute of Electrical and Electronics Engineers Inc.. https://doi.org/10.1109/PVSC40753.2019.8980781 Publicly-accessible version: https://dev-pvreliability.ws.asu.edu/sites/default/files/93_assessing_variability_in_toxicity_testing_of_pv_modules.pdf

[7] P. Sinha, G. Heath, A. Wade, K. Komoto, Human health risk assessment methods for PV, Part 3: Module disposal risks, International Energy Agency (IEA) PVPS Task 12, Report T12-16:2020. ISBN 978-3-906042-96-1, May 2020

[8] Green Tech Media, Landfilling Old Solar Panels Likely Safe for Humans, IEA Research Suggests, April 2020, www.greentechmedia.com/articles/read/solar-panel-landfill-deemed-safe-as-recycling-options-grow

Attachment: Full application_novPB (Zoning Map Amendment_2020-05 Junction Solar Project LLC)

## Toxicity. Operations & Maintenance

The only two aspects of operations and maintenance (O&M) that have raised concerns about toxicity are the fluids used to wash panels and herbicides used to maintain vegetation.

- **Panel Washing** – Across NC there is ample rain to keep the panels clean. If the panels need to be washed, it would occur infrequently and typically with use of deionized water and cleaning brushes.
- **Herbicides** – The industry standard practice for maintaining the vegetation at solar facilities is similar to how most cities maintain their parks, which is they primarily rely on mowing and string trimmers for vegetation and use herbicides along fences and some equipment. Parks and solar facilities also use herbicides to strategically remove problem weeds, especially woody weeds, to maintain a healthy cover of the desired species of grasses and other low-growing vegetation. This mode of herbicide use applies significantly less than the herbicide volume commonly applied in NC agriculture. For example, Round-Up-Ready crops are common row crops that have been engineered for the entire field to be sprayed with Round-Up (glyphosate) several times each season. Additionally, farmers applying most types of herbicides to their fields are not required to be certified or licensed, but a NC commercial pesticide applicators license is required to apply any herbicide to a solar facility.

### *Sources for Further Reading on Toxicity:*

- International Renewable Energy Agency (IRENA) report: End-of-Life management: Solar Photovoltaic Panels www.irena.org/publications/2016/Jun/End-of-life-management-Solar-Photovoltaic-Panels (June 2016)
- Electric Power Research Institute (EPRI) report: Environmental and Economic Considerations for PV Module End-of-Life Management, www.epri.com/research/products/3002014407 (Dec. 2018)
- EPRI report on recycling: Program on Technology Innovation: Feasibility Study on Photovoltaic Module Recycling in the United States, www.epri.com/research/products/000000003002012461, (April 2018)

# Electromagnetic Fields (EMF)

Exposure to EMF, or electric and magnetic fields, is a fact of everyday modern life. Electromagnetic fields come in many different frequencies, ranging from grid electricity with a frequency of 60 hertz to x-rays and gamma rays that are billions of billions of times faster. The faster the frequency the stronger the EMF. The EMF coming from grid electricity, including from the inverters, transformers, and AC wires to be used at the Junction facility, has much lower frequency and therefore much lower energy than the EMF from cell phones, wireless internet, and even radio and TV towers. The solar panels and the wire connecting them to the inverters carry direct current electricity, which has a frequency of zero hertz, and thus produces static electric and magnetic fields. The voltage and current of these circuits are both relatively low, so the electric and magnetic fields they produce are both rather weak. The static magnetic fields the panels generate are much weaker than the Earth's natural static magnetic field, which can be demonstrated by a compass still pointing north when placed near the panels.

Electric fields are created around wires and equipment wherever a voltage exists, however it is easily blocked with common materials such as metal, wood, and soil. The World Health Organization (WHO) in 2005 concluded that there were no substantive health issues related to electric fields (0 to 100,000 Hz) at levels generally encountered by members of the public.[9] The proposed solar project does not produce any voltages higher than the existing power lines, and therefore does not produce any electric fields not generally encountered by members of the public.

Magnetic fields are the other aspect of EMF, and they are created by electric current. Typical Americans are exposed to about 1 miligauss of magnetic field from grid electricity on average during their day, primarily from sources at homes and work[10]. The primary source of magnetic fields in a solar facility are the inverters and the short section of wires between each central inverter and its step-up transformer. To convert direct current to alternating current inverters use a series of switches that

[9] WHO factsheet: Electromagnetic fields and public health, Exposure to extremely low frequency fields, June 2007, www.who.int/peh-emf/publications/facts/fs322/en/

[10] World Health Organization (WHO), webpage: Electromagnetic Fields – Typical exposure levels at home and in the environment, www.who.int/peh-emf/about/WhatisEMF/en/index3.html

Attachment: Full application_novPB (Zoning Map Amendment_2020-05 Junction Solar Project LLC)

turn off and on several thousand times a second, creating EMF in the range of 5 kHz to 100 kHz, which is much faster than the 60 Hz of grid electricity but still much slower than even the lowest frequency radio signals. Also, the energy output of inverters has the highest electrical current of any portion of the solar facility, making the few feet of wire between the inverter and the transformer the source for the strongest magnetic fields in the facility, yet because the strength of a magnetic field decreases dramatically with increasing distance from the source these magnetic fields only extend about 150 feet from the inverter, which is less than the distance from each inverter to the perimeter of the Junction project, at which point they measure less than 0.5 miligauss.[11] Similarly, the magnetic fields from substations generally do not extend far enough to leave the fence around the substation, so the same can be expected for the Project's substation.[12]

The bottom line is that the EMF from the Junction PV system will not leave the solar site boundary, and thus will not increase the EMF exposure of any neighbors. Even if some EMF from the PV facility were to extend beyond the fenced perimeter of the site, there would still be no public health impact because low levels of extremely low frequency (ELF) EMF exposure are not harmful to humans. After extensive study of the potential health impacts of EMF from grid electricity the World Health Organization (WHO) concludes:

> *"Despite extensive research, to date there is no evidence to conclude that exposure to low level electromagnetic fields is harmful to human health."*[13]

### *Sources for Further Reading on EMF:*

- Electric Power Research Institute: EMF and Your Health: 2019 Update and emf.epri.com
- World Health Organization: www.who.int/peh-emf/about/WhatisEMF/

## Heat Island Effect

The localized effects of large-scale PV facilities on temperature and moisture are not yet well understood. However, the localized micro-climate effects of large-scale PV facilities are understood well enough to determine that they do not create a heat island effect similar to the well-documented urban heat island effect from dark, massive, surfaces in urban environments, such as asphalt paved streets and parking lots, that cause urban areas to be significantly warmer than the surrounding rural area during the day and night. The changes that solar panels may make to the way land absorbs, reflects, and emits the energy from sunlight are minimal compared to the changes created by buildings, vehicles, and many miles of concrete and asphalt. By comparison, solar panels absorb and reflect a similar amount of solar energy as vegetation and soil does. Solar panels are lightweight and cannot store large amounts of thermal energy, and the ground remains covered in vegetation with its natural exposure to air and water.

Initial research into the potential for PV systems to cause a heat island effect have used a variety of techniques, including conceptual energy flow calculations, advanced fluid dynamic computer simulations, and field measurements of temperature.[14, 15, 16] This research found a range of different effects on temperature, but none indicate that a large PV system could affect the temperature of the surrounding community. Most found that compared to similar undeveloped land the air temperature in a solar facility increases during the day, but the nighttime results were mixed. Some studies found PV sites to be cooler than non-PV sites at night, but others found them to be warmer. Much of this variation is likely explained by the different climates studied but may also be due to the different methods of the studies. Much of the research on solar heat

[11] Study of Acoustic and EMF Levels from Solar Photovoltaic Projects. Tech Environmental, Inc., December 2012, www.masscec.com/study-acoustic-and-emf-levels-solar-photovoltaic-projects
[12] www.niehs.nih.gov/health/materials/electric_and_magnetic_fields_associated_with_the_use_of_electric_power_questions_and_answers_english_508.pdf
[13] World Health Organization (WHO), webpage: Electromagnetic Fields – Summary of health effects, www.who.int/peh-emf/about/WhatisEMF/en/index1.html
[14] Broadbent, Ashley & Krayenhoff, Eric & Georgescu, Matei & Sailor, David. (2019). The Observed Effects of Utility-Scale Photovoltaics on Near-Surface Air Temperature and Energy Balance. Journal of Applied Meteorology and Climatology. 58. 10.1175/JAMC-D-18-0271.1.
[15] Barron-Gafford, G. A. et al. The Photovoltaic Heat Island Effect: Larger solar power plants increase local temperatures. Sci. Rep. 6, 35070; doi: 10.1038/srep35070 (2016).
[16] V. Fthenakis and Y. Yu, "Analysis of the potential for a heat island effect in large solar farms," 2013 IEEE 39th Photovoltaic Specialists Conference (PVSC), Tampa, FL, 2013, pp. 3362-3366, doi: 10.1109/PVSC.2013.6745171.

Attachment: Full application_novPB (Zoning Map Amendment_2020-05 Junction Solar Project LLC)

island effect occurred in arid regions of the U.S. southwest where the results are unlikely to translate perfectly to wetter climates in the southeast.

The available studies agree that the slight increase of air temperature in the PV site dissipates quickly with height and distance from the panels as natural processes remove and spread the heat. As a result, any temperature increase that may occur at the Junction project during the day will be limited to the site and will not increase the temperature of any of the surrounding community.

### *Sources for Further Reading on Heat Island Effect*

- EPA: Learn about heat islands: www.epa.gov/heatislands/learn-about-heat-islands

## Glare

Photovoltaic panels are designed to absorb, and thus not reflect, the solar energy that they receive. However, when sunlight strikes the glass front of a solar panel at a glancing angle a significant portion of the solar radiation is reflected, which can potentially lead to solar glint (a brief flash) or glare. Glint or glare can temporarily impact a person's vision, including pilots landing aircraft, or motorists driving vehicles. However, the conditions required for a PV project to create glare rarely occur.

PV facilities, such as Junction, that utilize single axis trackers to slowly rotate the solar panels to follow the sun have even less potential to create glare because the trackers help avoid a situation where sunlight hits the panels at a glancing angle. Most modern trackers implement an advanced control strategy known as "backtracking" that increases the electricity production of the site by flattening the tilt of the panels early and late in the day to keep the rows of solar panels from shading one another. Backtracking can result in brief periods near sunrise and sunset where the sun strikes the panels at a glancing angle, creating a situation that could result in a few minutes of visible glare at sunrise and sunset. For anyone to see this glare they must be looking across the solar panels in the direction of the rising or setting sun, which is a situation where the sun obviously will create significant glare for the viewer with or without the solar project.

*Figure 5. 20 MW PV System at Indianapolis International Airport (Photo source: inhabitat.com)*

A clear indication of the lack of glare problems from large ground-mounted PV systems are the PV systems installed on airports across the U.S., including Denver International and Indianapolis International. While there is the potential for a PV system to create glare there is also the ability to predict when and where a system may create glare and incorporate any needed mitigation before construction. The Federal Aviation Administration (FAA) and the U.S. Department of Energy developed specialized solar glare analysis software to predict when and where a PV project may produce glint or glare for sensitive receptors nearby. Using this software, an engineering firm is conducting a glare analysis for the Junction facility.

### *Sources for Further Reading on Solar Glare:*

- National Renewable Energy Laboratory (NREL): Webpage on glare impacts from PV www.nrel.gov/state-local-tribal/blog/posts/research-and-analysis-demonstrate-the-lack-of-impacts-of-glare-from-photovoltaic-modules.html
- ForgeSolar: Solar glare analysis software documentation covering solar glare fundamentals www.forgesolar.com/help/

Attachment: Full application_novPB (Zoning Map Amendment_2020-05 Junction Solar Project LLC)

# Conclusions

Based on my knowledge of engineering and science, personal experience with PV technology, review of academic research, and review of materials provided by Orion Renewable Energy Group about the proposed Junction Solar Center PV facility in Davie County, North Carolina, my opinions are summarized as follows:

- The development and operation of the Junction facility will not result in any environmental contamination or negative impacts to public health or safety.
- The PV panels utilized at the Junction facility are most likely be reused or recycled when they are taken out of service in 30+ years.
- The Junction facility will not increase the temperature of the area surrounding the site.
- The Junction facility is not expected to create any glare hazards or other negative glare impacts.

Attachment: Full application_novPB (Zoning Map Amendment_2020-05 Junction Solar Project LLC)

# Exhibit 8

# Landscape Buffer Visual Simulations

Attachment: Full application_novPB (Zoning Map Amendment_2020-05 Junction Solar Project LLC)

**JUNCTION SOLAR CENTER**

OCTOBER 2020

**JUNCTION ROAD** - EXISTING CONDITIONS

DAVIE COUNTY, NORTH CAROLINA

Kimley»Hor

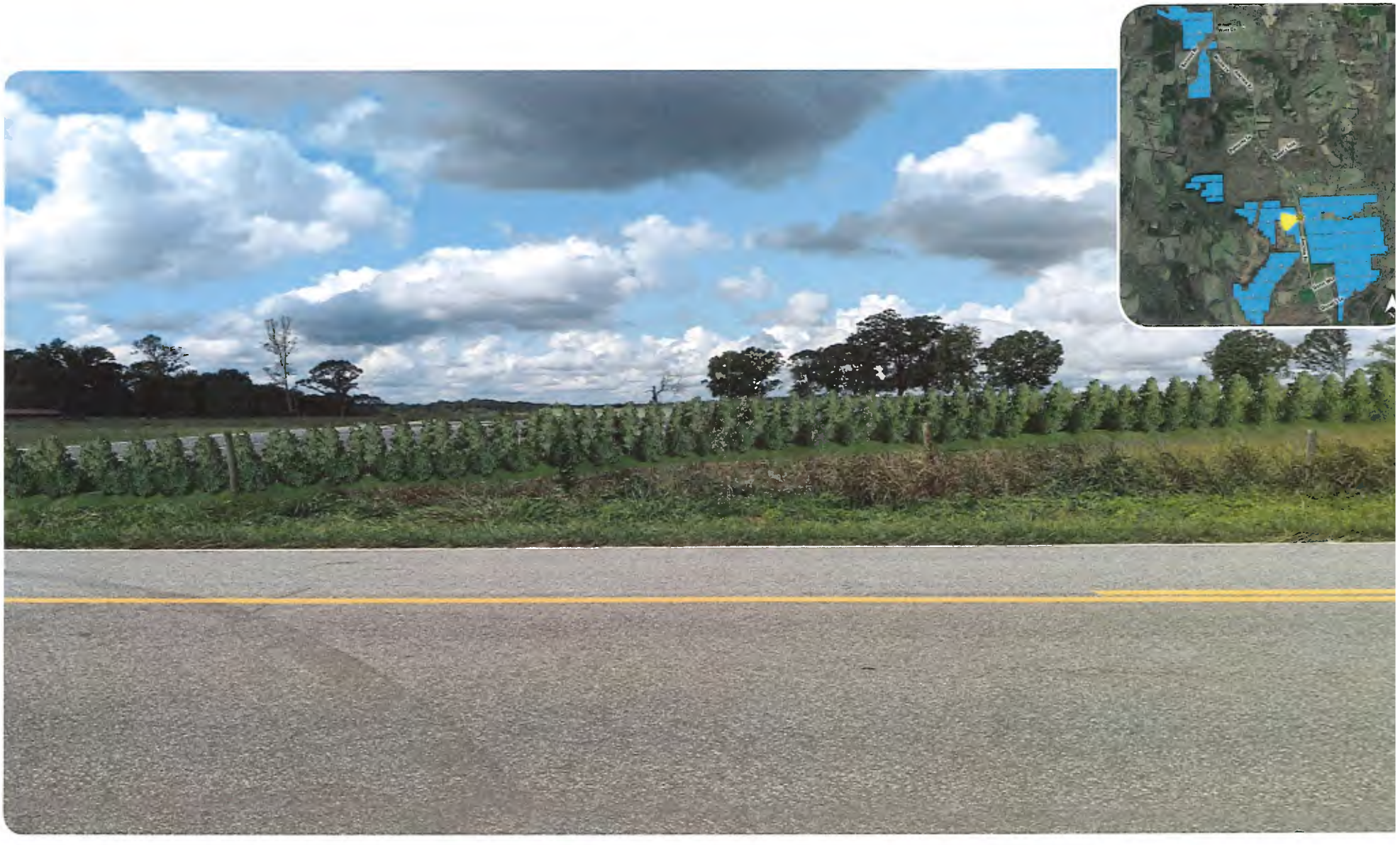
Attachment: Full application_novPB (Zoning Map Amendment_2020-05 Junction Solar Project LLC)

**JUNCTION SOLAR CENTER**
OCTOBER 2020

**JUNCTION ROAD** - PLANTED BUFFER AT 2 YEARS OF GROWTH
DAVIE COUNTY, NORTH CAROLINA

Kimley»Hor

Attachment: Full application_novPB (Zoning Map Amendment_2020-05 Junction Solar Project LLC)



**JUNCTION SOLAR CENTER**
OCTOBER 2020

**JUNCTION ROAD** - Planted Buffer at 5-7 Years of Growth
DAVIE COUNTY, NORTH CAROLINA

Kimley»Hor

Attachment: Full application_novPB (Zoning Map Amendment_2020-05 Junction Solar Project LLC)

# JUNCTION SOLAR CENTER

OCTOBER 2020

## RATLEDGE ROAD - Existing Conditions

DAVIE COUNTY, NORTH CAROLINA

Kimley»Hor

Attachment: Full application_novPB (Zoning Map Amendment_2020-05 Junction Solar Project LLC)

**JUNCTION SOLAR CENTER**

OCTOBER 2020

**RATLEDGE ROAD** - PLANTED BUFFER AT 2 YEARS OF GROWTH

DAVIE COUNTY, NORTH CAROLINA

Kimley»Hor

Attachment: Full application_novPB (Zoning Map Amendment_2020-05 Junction Solar Project LLC)

**JUNCTION SOLAR CENTER**

OCTOBER 2020

**RATLEDGE ROAD** - PLANTED BUFFER AT 5-7 YEARS OF GROWTH

DAVIE COUNTY, NORTH CAROLINA

Kimley»Hor

Attachment: Full application_novPB (Zoning Map Amendment_2020-05 Junction Solar Project LLC)

**JUNCTION SOLAR CENTER**
OCTOBER 2020

**CORNER OF JUNCTION & RATLEDGE** - EXISTING CONDITIONS
DAVIE COUNTY, NORTH CAROLINA

Kimley»Hor

Attachment: Full application_novPB (Zoning Map Amendment_2020-05 Junction Solar Project LLC)

JUNCTION SOLAR CENTER

OCTOBER 2020

CORNER OF JUNCTION & RATLEDGE - PLANTED BUFFER AT 2 YEARS OF GROWTH

DAVIE COUNTY, NORTH CAROLINA

Kimley»Hor

Attachment: Full application_novPB (Zoning Map Amendment_2020-05 Junction Solar Project LLC)

**JUNCTION SOLAR CENTER**

OCTOBER 2020

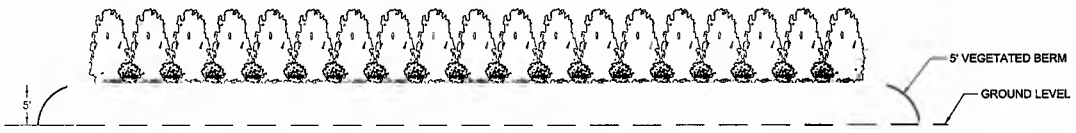
**CORNER OF JUNCTION & RATLEDGE** - PLANTED BUFFER AT 5-7 YEARS OF GROWTH

DAVIE COUNTY, NORTH CAROLINA

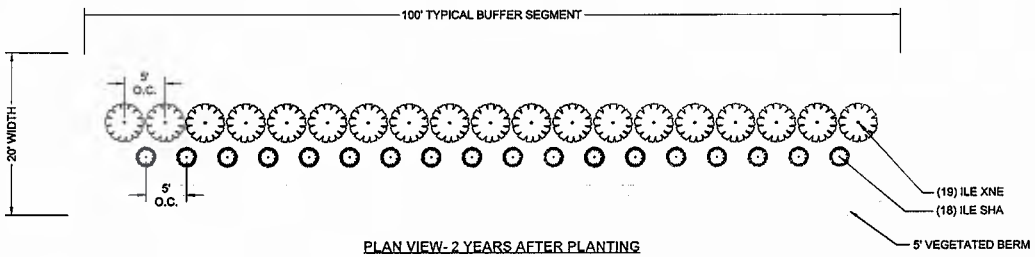
Kimley»Hor

Attachment: Full application_novPB (Zoning Map Amendment_2020-05 Junction Solar Project LLC)

## BUFFER TYPE B




ELEVATION VIEW- 2 YEARS AFTER PLANTING




PLAN VIEW- 2 YEARS AFTER PLANTING

| PLANT SCHEDULE LANDSCAPE BUFFER | | | | | | | |
|---|---|---|---|---|---|---|---|
| TREES | CODE | QTY | BOTANICAL NAME | COMMON NAME | INSTALL HT. | 2 YEAR HT. | 5-7 YEAR HT. |
| | ILE XNE | 19 | ILEX X 'NELLIE R. STEVENS' | NELLIE R. STEVENS HOLLY | 3'-4' HT. | 8'-10' HT. | 14'-16' HT. |
| SHRUBS | CODE | QTY | BOTANICAL NAME | COMMON NAME | INSTALL HT. | 2 YEAR HT. | 5-7 YEAR HT. |
| | ILE SHA | 18 | ILEX GLABRA 'SHAMROCK' | INKBERRY HOLLY | 1'-1.5' HT. | 2'-3 HT. | 3'-4' HT. |

| PLANTING ALTERNATIVES FOR LANDSCAPE BUFFER | | |
|---|---|---|
| **PLANT TYPE** | **SCIENTIFIC NAME** | **COMMON NAME** |
| **EVERGREEN TREES** | *ILEX X ATTENUATA 'FOSTERI'* | FOSTER HOLLY |
| | *JUNIPERUS VIRGINIANA* | EASTERN RED CEDAR |
| | *PRUNUS CAROLINIANA* | CAROLINA CHERRY LAUREL |
| | *THUJA OCCIDENTALIS* | ARBORVITAE |
| EVERGREEN SHRUBS | *AZALEA SPP* | AZALEA |
| | *CAMELLIA SPP.* | CAMELLIA |
| | *ILEX VOMITORIA 'NANA'* | DWARF YAUPON HOLLY |
| | *MYRICA CERIFERA* | WAX MYRTLE |

DAVIE COUNTY CODE OF ORDINANCES - SECTION 155.172 (E)(2)

TYPE B.
A. BUFFER: TWENTY (20) FEET.
B. SCREENING SHALL CONSIST OF:
1. A ROW OF EVERGREEN CONIFERS OR BROADLEAF EVERGREENS PLACED NOT MORE THAN FIVE (5) FEET APART WHICH WOULD GROW TO FORM A CONTINUOUS HEDGE OF AT LEAST SIX (6) FEET IN HEIGHT WITHIN TWO (2) YEARS OF PLANTING; OR
2. A WALL LOCATED WITHIN THE REQUIRED BUFFER; SUCH WALL SHALL BE A MINIMUM HEIGHT OF SIX (6) FEET (ABOVE FINISHED GRADE;) AND, IF A BLOCK WALL, IT SHALL BE PAINTED ON ALL SIDES; OR AN OPAQUE FENCE SIX (6) FEET IN HEIGHT; OR
3. A BERM AND PLANTING COMBINATION, WITH THE BERM AN AVERAGE HEIGHT OF THREE (3) FEET AND DENSE PLANTINGS WHICH WILL, WHEN COMBINED WITH THE BERM, ACHIEVE A MINIMUM HEIGHT OF SIX (6) FEET AND SEVENTY-FIVE (75) PERCENT OPACITY WITHIN TWO (2) YEARS.
4. LAWN, LOW-GROWING EVERGREEN SHRUBS, EVERGREEN GROUND COVER, OR ROCK MULCH COVERING THE BALANCE OF THE BUFFER.

NOTES:

1. PLANT SPECIES LISTED IN TABLE HAVE BEEN SELECTED BY A PROFESSIONAL LANDSCAPE ARCHITECT AND ARE REPRESENTATIVE OF BUT NOT LIMITED TO THE PLANT TYPES USED IN THE PROPOSED SCREENING BUFFERS. FINAL PLANT SELECTIONS ARE TO BE COORDINATED AND CONFIRMED WITH THE DAVIE COUNTY PLANNING DEPARTMENT.

2 PLANTS LISTED IN TABLE ABOVE FAVOR NATIVE SPECIES AND HARDY TO THE LOCAL CLIMATE

JUNCTION SOLAR CENTER
OCTOBER 2020

PLANTED BUFFER EXHIBIT
DAVIE COUNTY, NORTH CAROLINA

Kimley»Hor

Attachment: Full application_novPB (Zoning Map Amendment_2020-05 Junction Solar Project LLC)

# Exhibit 9

# Supplementary information

# (recorded deeds and MOLs)

Attachment: Full application_novPB (Zoning Map Amendment_2020-05 Junction Solar Project LLC)

BK 333 PG 504

03056

FILED FOR REGISTRATION
May 4, 2000 2:50 P.M.
DATE TIME
AND RECORDED IN BOOK 333 PAGE 504
HENRY L SHORE, REGISTER OF DEEDS
DAVIE COUNTY, NC
BY Carol J. Forest Deputy
Recording Time, Book and Page

NO TAXABLE CONSIDERATION STATED
Excise Tax

Tax Lot No. ..... Parcel Identifier No. .....
Verified by ..... County on the ..... day of ....., .....
by .....

Mail after recording to Wade's Bnf
.....
This instrument was prepared by Wade H. Leonard, Jr.
Brief description for the Index 2-4-12

# NORTH CAROLINA NON-WARRANTY DEED

THIS DEED made this 3rd day of May, 2000, by and between

| GRANTOR | GRANTEE |
|---|---|
| Faye K. Dwiggins(Widow) | Ray M. Dwiggins and wife, Eunice M. Dwiggins |

Enter in appropriate block for each party: name, address, and, if appropriate, character of entity, e.g. corporation or partnership.

The designation Grantor and Grantee as used herein shall include said parties, their heirs, successors, and assigns, and shall include singular, plural, masculine, feminine or neuter as required by context.

WITNESSETH, that the Grantor, for a valuable consideration paid by the Grantee, the receipt of which is hereby acknowledged, has and by these presents does grant, bargain, sell and convey unto the Grantee in fee simple, all that certain lot or parcel of land situated in the City of ....., ..... Township, Davie ..... County, North Carolina and more particularly described as follows:

See attached Exhibit "A"

DEED TRANSFER CHEC
DATE 5-4-2000 BY P-C
TAX SUP

N. C. Bar Assoc. Form No. 7 © 1977 — James Williams & Co., Inc., Box 127, Yadkinville, N. C. 27055
Printed by Agreement with the N. C. Bar Assoc. — 1981

Attachment: Full application_novPB (Zoning Map Amendment_2020-05 Junction Solar Project LLC)

The property hereinabove described was acquired by Grantor by instrument recorded in .....

.....

A map showing the above described property is recorded in Plat Book ..... page .....

TO HAVE AND TO HOLD the aforesaid lot or parcel of land and all privileges and appurtenances thereto belonging to the Grantee in fee simple.

The Grantor makes no warranty, express or implied, as to title to the property hereinabove described.

IN WITNESS WHEREOF, the Grantor has hereunto set his hand and seal, or if corporate, has caused this instrument to be signed in its corporate name by its duly authorized officers and its seal to be hereunto affixed by authority of its Board of Directors, the day and year first above written.

USE BLACK INK ONLY

| | |
|---|---|
| ..... (Corporate Name) | Faye H. Driggers (SEAL) |
| By: ..... President | ..... (SEAL) |
| ATTEST: ..... Secretary (Corporate Seal) | ..... (SEAL) |
| | ..... (SEAL) |

SEAL - STAMP

DONNA STROUD NOTARY PUBLIC My Comm Exp 7-23-2024 DAVIE COUNTY, N. C.

USE BLACK INK ONLY

NORTH CAROLINA, Davie County.

I, a Notary Public of the County and State aforesaid, certify that .....

Faye H. Driggers Grantor,

personally appeared before me this day and acknowledged the execution of the foregoing instrument. Witness my hand and official stamp or seal, this 3rd day of May, 2021.

My commission expires: 7/23/2024 Notary Public

SEAL - STAMP

Use Black Ink

NORTH CAROLINA, .....County.

I, a Notary Public of the County and State aforesaid, certify that .....,

personally came before me this day and acknowledged that he is ..... Secretary of ..... a North Carolina corporation, and that by authority duly given and as the act of the corporation, the foregoing instrument was signed in its name by its ..... President, sealed with its corporate seal and attested by ..... as its .....Secretary.

Witness my hand and official stamp or seal, this ..... day of .....

My commission expires: ..... Notary Public

The foregoing Certificate(s) of Donna Stroud, Notary Public of Davie County, NC,

.....

.....

is/~~are~~ certified to be correct. This instrument and this certificate are duly registered at the date and time and in the Book and Page shown on the first page hereof.

HENRY L. SHORE REGISTER OF DEEDS FOR DAVIE COUNTY

By Carol J. Forrest Deputy/~~Assistant~~ Register of Deeds.

N. C. Bar Assoc, Form No. 7 © 1977 — James Williams & Co., Inc., Box 127, Yadkinville, N. C. 27055
Printed by Agreement with the N. C. Bar Assoc. — 1981

Attachment: Full application_novPB (Zoning Map Amendment_2020-05 Junction Solar Project LLC)

B eing Tracts Numbered Thirteen (13) Containing 20.6 Acres and Fifteen (15) containing 33.15 Acres as shown on Map "C" of "Property of Erwin Mills, Inc., Cooleemee, N. C." as surveyed and platted by G. Sam Rowe, C. E., dated October 1953 recorded in the office of the Register of Deeds for Davie County, North Carolina, in Plat Book 3, Page 25 (1 sheets); being one of several maps designated Maps A, B. C, D, E and F, of property of Erwin Mills, Inc., Cooleemee, N. C. recorded in said Register's office in Plat Book 3, at pages 23, 24, 25, 26, 27 and 28; to which maps reference is hereby made for a more particular description.

This conveyance is made and accepted subject to those conditions, restrictions, reservations and easements as are contained in the deed from Erwin Mills, Inc. to the parties of the first part herein and are covenants running with the property herein described and shall be binding upon the party of the second part, his heirs, successors or assigns.

Attachment: Full application_novPB (Zoning Map Amendment_2020-05 Junction Solar Project LLC)

Attachment: Full application_novPB (Zoning Map Amendment_2020-05 Junction Solar Project LLC)

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0348
Env

Recording Requested By and
When Recorded Return to:

Orion Renewable Resources LLC
c/o Orion Renewable Energy Group LLC
155 Grand Avenue, Suite 706
Oakland, CA 94612
Attn: General Counsel

FILED
DAVIE COUNTY NC
M. BRENTSHOAF
REGISTER OF DEEDS

| | |
|---|---|
| FILED | May 17, 2019 |
| AT | 09:35 am |
| BOOK | 01105 |
| START PAGE | 0348 |
| END PAGE | 0358 |
| INSTRUMENT # | 02326 |
| EXCISE TAX | (None) |

#NC-JCT1- 233
Davie County, North Carolina

## MEMORANDUM OF SOLAR LEASE AGREEMENT

THIS MEMORANDUM OF SOLAR LEASE AGREEMENT (this "Memorandum") is made, dated and effective as of April 25, 2019 (the "Effective Date"), between **Barbara Sapp Moose and Jacob Otha Moose, III, married persons, and Kathy Beine Sapp and Tracey Sapp Beine, married persons** (collectively "Owner"), and **Orion Renewable Resources LLC, a Delaware limited liability company** ("Lessee").

1. Lease Agreement. Owner and Lessee are parties to that certain Lease Agreement ("Agreement") dated concurrently herewith. Under the Agreement, Owner hereby leases to Lessee the real property of Owner consisting of approximately 53.75 acres located in Davie County, North Carolina, and legally described on Exhibit A attached hereto and incorporated herein by reference. The Agreement includes the right to access and utilize all radiant energy emitted from the sun upon, over and across the real property ("Solar Energy"), and any easements, rights-of-way, and other rights and benefits relating or appurtenant to such real property (collectively, the "Property").

2. Addresses. All notices, requests and communications required or permitted by the Agreement shall be addressed as follows:

If to Owner:
Barbara Sapp Moose
1012 Quarry Street
Faith, NC 28041

Kathy Beine Sapp
3352 Chicken Bridge Rd.
Pittsboro, NC 27312

If to Lessee:
Orion Renewable Resources LLC
c/o Orion Renewable Energy Group LLC
155 Grand Avenue, Suite 706
Oakland, CA 94612
Attn: General Counsel

Attachment: Full application_novPB (Zoning Map Amendment_2020-05 Junction Solar Project LLC)

3. Purposes. Lessee shall have the exclusive right to use the Property and the unobstructed flow of Solar Energy upon, over and across the Property for electric power, heat and/or steam generation purposes ("Solar Energy Purposes") and to derive all profits therefrom. Solar Energy Purposes include, without limitation, the right to convert the Solar Energy into electrical energy and to collect and transmit the electrical energy so converted, together with any and all activities related thereto, including, without limitation, (a) determining the feasibility of Solar Energy conversion and power generation on the Property, including studies of the Solar Energy emitted upon, over and across the Property and other meteorological, archeological and environmental studies, land surveys and due diligence activities; (b) constructing, installing, using, replacing, relocating and removing from time to time, and maintaining, refurbishing and operating, Solar Energy collection and electrical generating equipment of all types including, without limitation, any such equipment utilizing photovoltaic and/or solar thermal technology (collectively referred to herein as "Solar Generating Equipment"), overhead and underground electrical transmission and communications lines, electric transformers, energy storage facilities, telecommunications equipment, power generation facilities to be operated in conjunction with Solar Generating Equipment, roads and gates, meteorological towers and Solar Energy measurement equipment, control buildings, maintenance yards, and related facilities and equipment (the Solar Generating Equipment together with all of the other foregoing equipment and improvements, collectively "Solar Facilities") on the Property; and (c) undertaking any other activities, whether accomplished by Lessee or a third party authorized by Lessee, that Lessee reasonably determines are necessary, useful or appropriate to accomplish any of the foregoing. Subject to Owner's rights to use the Property in any manner consistent with the Agreement, Lessee shall have the right under the Agreement to control and restrict access onto and over the Property and exclude others (other than any parties with preexisting easement rights) as it deems necessary or appropriate for safety and security reasons.

4. Term. The Agreement shall be for a term that expires thirty-four years after the Effective Date unless sooner terminated or unless extended pursuant to and in accordance with the Agreement.

5. Ownership. Owner shall have no ownership or other interest in any Solar Facilities installed on the Property, or any profits derived therefrom, and Lessee may remove any or all Solar Facilities at any time.

6. Construction Easement. Owner hereby grants to Lessee an easement in, over and across the Property ("Construction Easement") which may be utilized on a temporary basis for access, construction laydown or other purposes to facilitate the construction, maintenance or repair of Solar Facilities (whether located on the Property or nearby properties) during any time that Lessee is conducting such work. Lessee will use commercially reasonable efforts to minimize surface disturbance on the portion of the Property lying outside of the Project Site during construction. The Construction Easement shall run with the Property, and shall inure to the benefit of and be binding upon Owner and Lessee and their respective transferees, successors and assigns, and all persons claiming under them. The Construction Easement shall expire upon the termination or expiration of the term of the Agreement.



Attachment: Full application_novPB (Zoning Map Amendment_2020-05 Junction Solar Project LLC)

7. Access Easement. Owner grants to Lessee the right of ingress to and egress from Solar Facilities (whether located on the Property, on adjacent property or elsewhere) over and across the Property by means of roads and lanes thereon if existing, or otherwise by such route or routes as Lessee may construct from time to time ("Access Easement"). The Access Easement shall include the right to improve existing roads and lanes, shall run with the Property, and shall inure to the benefit of and be binding upon Owner and Lessee and their respective transferees, successors and assigns, and all persons claiming under them. The Access Easement shall expire upon the latter of the termination or expiration of the term of the Agreement.

8. Transmission Easement. Owner grants to Lessee an exclusive easement ("Transmission Easement") in, on, along and under the Property for the right to erect, construct, reconstruct, replace, relocate, remove, maintain and use the following from time to time in connection with Solar Energy Purposes, whether carried out on the Property or elsewhere: (a) a line or lines of poles or towers, together with such wires and cables as from time to time are suspended therefrom, and/or underground wires and cables, for the transmission of electrical energy and/or for communication purposes, and all necessary and proper foundations, footings, crossarms and other appliances and fixtures for use in connection with said towers, wires and cables on, along and in the Property; and (b) one or more substations or interconnection or switching facilities from which Lessee or others that generate energy may interconnect to a utility transmission system or the transmission system of another purchaser of electrical energy, together with the appropriate rights-of-way, on, along and in the Property. The Transmission Easement shall run with the Property and shall inure to the benefit of and be binding upon Owner and Lessee and their respective transferees, successors and assigns, and all persons claiming under them. The Transmission Easement shall expire upon termination or expiration of the term of the Agreement.

9. Assignees. Lessee and any Assignee (as hereinafter defined) have the right, without obtaining the consent of Owner, to do any of the following with respect to all or any portion of its right, title and/or interest in and to the Agreement, the Lease, the Property, any Project Site and/or the Solar Facilities: (i) grant subleases, separate easements, co-easements, subeasements, licenses or similar rights (however denominated) to one or more Assignees, (ii) collaterally assign, mortgage, encumber, pledge or transfer all or any portion of its right, title or interest therein to one or more parties providing financing to Lessee, and/or (iii) sell, lease, assign, transfer or otherwise convey all or any portion of its right, title or interest therein to one or more Assignees. For these purposes, an "Assignee" is any of the following: (i) any one or more parties involved in the development, financing or refinancing of any Solar Facilities, including, without limitation, any lender to or investor in, or purchaser or Lessee of, Solar Facilities; (ii) any one or more parties involved in financing or refinancing the development of the Project or any Solar Facilities, or any purchaser or owner of Solar Facilities; (iii) a corporation, partnership or limited liability company now existing or hereafter organized (including Lessee) in which Lessee or any of its owners, or any affiliate or partner of either, owns (directly or indirectly) a controlling interest at the time of assignment; (iv) a partnership now existing or hereafter organized, a general partner of which is such a corporation, partnership or limited liability company; or (v) a corporation, partnership, limited liability company, or other entity that acquires all or substantially all of Lessee's business, assets or capital stock, directly or indirectly, by purchase, merger, consolidation or other means.



Attachment: Full application_novPB (Zoning Map Amendment_2020-05 Junction Solar Project LLC)

10. Leasehold Mortgages. In the event that any mortgage, deed of trust or other security interest in all or any portion of Lessee's interest in the Lease, the Property, the Agreement, the Project Site or in any Solar Facilities is entered into by Lessee (a "Leasehold Mortgage"), then any person who is the mortgagee of a Leasehold Mortgage shall, for so long as its Leasehold Mortgage is in existence and until the lien thereof has been extinguished, be entitled to the protections set forth in the Agreement.

11. Non-exclusive Grant of Rights. Owner grants to Lessee a non-exclusive right, privilege, license and interest covering all of the following:

(a) Any and all easements, rights-of-way, rights of entry, hereditaments, privileges and appurtenances benefiting, belonging to or inuring to the benefit of Owner and pertaining to the Property.

(b) Any and all right, title and interest of Owner in and to any land in the bed of any street, road, avenue or alley (open, proposed or closed) in front of or adjoining the Property and any and all right, title and interest of Owner, in and to any rights-of-way, rights of ingress or egress, or other interests in, on, or to any land, highway, street, road, avenue or alley (open, proposed or closed) in, on, or across, in front of, abutting, or adjoining the Property.

(c) Any and all right, title and interest of Owner, in and to any strips or gores of land adjacent or contiguous to the Property, whether those lands are owned or claimed by deed, limitations, or otherwise.

12. Restrictive Covenant; No Interference. Lessee shall have the quiet use and enjoyment of the Property in accordance with the terms of the Agreement. Owner's activities and any grant of rights Owner makes to any person or entity, whether located on the Property or elsewhere, shall not, currently or prospectively, interfere with: the development, construction, installation, maintenance, or operation of Solar Facilities, whether located on the Property or elsewhere; access over the Property to such Solar Facilities; Lessee's rights granted hereunder to use the Property for any other Solar Energy Purposes; or the undertaking of any other activities permitted under the Agreement. Without limiting the generality of the foregoing, the activities of Owner shall not disturb or interfere with the unobstructed flow of Solar Energy upon, over and across the Property, whether by placing towers or antennas of any type, planting trees or constructing buildings or other structures or facilities, or by engaging in any other activity on the Property or elsewhere that might delay the installation of, disrupt, or otherwise cause a decrease in the output or efficiency of the Solar Facilities. The area of land to remain unobstructed by Owner will consist horizontally of the entire Property, and vertically all space located above the surface of the Property. If Lessee builds Solar Facilities on only a portion of the Property, Owner may use the rest of the Property in any manner that complies with the foregoing.

13. Setback Waiver. To the extent permitted by law, Owner hereby waives any setbacks or other restrictions on the location of any Solar Facilities to be installed on the Property or on adjacent properties, including but not limited to waiver of all property line setbacks, pursuant to state or county rules, regulations or ordinances (that is, Owner approves a reduction of each such setback to zero), and Owner shall cooperate with Lessee in providing documentation of such



Attachment: Full application_novPB (Zoning Map Amendment_2020-05 Junction Solar Project LLC)

setback waivers and shall execute any documents reasonably requested by Lessee to evidence Owner's waiver of such setbacks.

14. Conflicts. In the event of any direct conflict between the Agreement and this Memorandum, the terms of the Agreement shall prevail. Nothing herein contained shall be deemed to amend, modify, alter or change any of the provisions contained in the Agreement.

15. Successors and Assigns. The Agreement and this Memorandum shall inure to the benefit of and be binding upon Owner and Lessee and, to the extent provided in any assignment or other permitted transfer, any Assignee, and their respective heirs, transferees, successors and assigns, and all persons claiming under them. In the event of any inaccuracy in Exhibit A attached hereto, Lessee may correct such inaccuracy in order to accomplish the intent of Lessee and Owner.

16. Counterparts. This Memorandum may be executed in multiple counterparts, no one of which need be executed by all parties hereto, each of which shall constitute an original. Counterparts thus executed shall together constitute one and the same instrument.

[*Signatures on following page.*]



Attachment: Full application_novPB (Zoning Map Amendment_2020-05 Junction Solar Project LLC)

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IN WITNESS WHEREOF, AND INTENDING TO BE LEGALLY BOUND HEREBY, the parties have duly executed this Memorandum the day and year first above written.

"OWNER"

Name: Barbara Sapp Moose
Date signed: _____, 2019

Name: Jacob Otha Moose, III
Date signed: _____, 2019

Kathy Beine Sapp
Name: Kathy Beine Sapp
Date signed: 3/14, 2019

Tracy Sapp Beine
Name: Tracey Sapp Beine
Date signed: 3/14, 2019

"LESSEE"

**Orion Renewable Resources LLC,**
**a Delaware limited liability company**

By: _____
Name: _____
Title: _____

Nicholas A. Hiza
Vice President



Attachment: Full application_novPB (Zoning Map Amendment_2020-05 Junction Solar Project LLC)

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0354

IN WITNESS WHEREOF, AND INTENDING TO BE LEGALLY BOUND HEREBY, the parties have duly executed this Memorandum the day and year first above written.

**"OWNER"**

Barbara Sapp Moose
**Name: Barbara Sapp Moose**
**Date signed:** 4-15-, **2019**

Jacob Otha Moose III
**Name: Jacob Otha Moose, III**
**Date signed:** 4-15-19, **2019**

**Name: Kathy Beine Sapp**
**Date signed:** _____, **2019**

**Name: Tracey Sapp Beine**
**Date signed:** _____, **2019**

**"LESSEE"**

**Orion Renewable Resources LLC,**
**a Delaware limited liability company**

By: _____
Name: _____
Title: Nicholas A. Hiza
Vice President



Attachment: Full application_novPB (Zoning Map Amendment_2020-05 Junction Solar Project LLC)

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STATE OF ~~NORTH CAROLINA~~ Florida §
§
COUNTY OF Lee §

I, Olivia McQueen Girgis, a Notary Public for said County and State, do hereby certify that Kathy Sapp, personally appeared before me this day and acknowledged the due execution of the foregoing instrument.

WITNESS my hand and official seal, this 14th day of March 2019

OLIVIA MCQUEEN GIRGIS
Notary Public – State of Florida
Commission # GG 170875
My Comm. Expires Dec 26, 2021
Bonded through National Notary Assn.

Notary Public

Olivia McQueen Girgis
Notary's printed or typed name

My Commission Expires: 12/26/2021

[NOTARY SEAL] (MUST BE FULLY LEGIBLE)

STATE OF ~~NORTH CAROLINA~~ Florida §
§
COUNTY OF Lee §

I, Olivia McQueen Girgis, a Notary Public for said County and State, do hereby certify that Tracy Sapp Beine, personally appeared before me this day and acknowledged the due execution of the foregoing instrument.

WITNESS my hand and official seal, this 14th day of March, 2019

OLIVIA MCQUEEN GIRGIS
Notary Public – State of Florida
Commission # GG 170875
My Comm. Expires Dec 26, 2021
Bonded through National Notary Assn.

Notary Public

Olivia McQueen Girgis
Notary's printed or typed name

My Commission Expires: 12/26/2021

[NOTARY SEAL] (MUST BE FULLY LEGIBLE)



Attachment: Full application_novPB (Zoning Map Amendment_2020-05 Junction Solar Project LLC)

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STATE OF NORTH CAROLINA §
§
COUNTY OF Rowan §

I, Christine H. Smith, a Notary Public for said County and State, do hereby certify that Barbara Sapp Moose, personally appeared before me this day and acknowledged the due execution of the foregoing instrument.

WITNESS my hand and official seal, this 15th day of April, 2019

CHRISTINE SMITH NOTARY PUBLIC ROWAN COUNTY, NORTH CAROLINA

Christine Smith
Notary Public

CHRISTINE SMITH
Notary's printed or typed name

My Commission Expires: March 29th, 2022

[NOTARY SEAL] (MUST BE FULLY LEGIBLE)

STATE OF NORTH CAROLINA §
§
COUNTY OF Rowan §

I, Christine H. Smith, a Notary Public for said County and State, do hereby certify that Jacob Otha Moose III., personally appeared before me this day and acknowledged the due execution of the foregoing instrument.

WITNESS my hand and official seal, this 15th day of April, 2019

CHRISTINE SMITH NOTARY PUBLIC ROWAN COUNTY, NORTH CAROLINA

Christine Smith
Notary Public

CHRISTINE SMITH
Notary's printed or typed name

My Commission Expires: March 29th, 2022

[NOTARY SEAL] (MUST BE FULLY LEGIBLE)



Attachment: Full application_novPB (Zoning Map Amendment_2020-05 Junction Solar Project LLC)

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CALIFORNIA ALL-PURPOSE ACKNOWLEDGEMENT

*A Notary Public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.*

State of California
County of Alameda }

On April 25, 2019, before me, Emily Molina, Notary Public,
personally appeared Nicholas A. Hiza

who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of State of California that the foregoing paragraph is true and correct.

EMILY MOLINA
Commission # 2137950
Notary Public - California
Alameda County
My Comm. Expires Dec 21, 2019

WITNESS my hand and official seal.

SIGNATURE Emily Molina

PLACE NOTARY SEAL ABOVE



Attachment: Full application_novPB (Zoning Map Amendment_2020-05 Junction Solar Project LLC)

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## EXHIBIT A

### Description of Property

ALL THAT CERTAIN real estate lying and being situated in Davie County, North Carolina, being more particularly bounded and described as follows:

Real Property Tax Parcel No. 5726930100

Being Tracts Numbers Thirteen (13) Containing 20.6 acres and Fifteen (15) containing 33.15 acres as shown on Map "C" of "Property of Erwin Mills, Inc., Cooleemee, N.C." as surveyed and platted by G. Sam Rowe, C.E., dated October 1953 recorded in the office of the Register of Deeds for Davie County, North Carolina, in Plat Book 3, Page 25 (1 sheet); being one of several maps designated Maps A, B, C, D, E and F, of property of Erwin Mills, Inc., Cooleemee, N.C. recorded in said Register's office in Plat Book 3, at pages 23, 24, 25, 26, 27 and 28; to which maps reference is hereby made for a more particular description.

(In the event of inaccuracies or insufficiencies in the foregoing legal description, Lessee may record an amendment of this Memorandum to correct the inaccuracies or insufficiencies)



Attachment: Full application_novPB (Zoning Map Amendment_2020-05 Junction Solar Project LLC)

Attachment: Full application_novPB (Zoning Map Amendment_2020-05 Junction Solar Project LLC)

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FILED
DAVIE COUNTY NC
M. BRENTSHOAF
REGISTER OF DEEDS

| | |
|---|---|
| FILED | Jun 20, 2018 |
| AT | 03:22 pm |
| BOOK | 01080 |
| START PAGE | 0791 |
| END PAGE | 0793 |
| INSTRUMENT # | 03192 |
| EXCISE TAX | $352.00 |

DEED TRANSFER CHECKED

DATE 6-20-2018 BY

**Excise Tax: $352.00-** **Recording Information**

**Drafted by: Tamara A. Fleming, Attorney at Law, Ten Court Square, Mocksville, NC 27028**
**Mail to: Grantee @ 130 Emerald Isle Ct, Lexington, NC 27292**
**Property Address: Tract off Ratledge Rd, Mocksville, NC 27028**
**Tax Map: L-3, Pcl 17**

# WARRANTY DEED

**THIS DEED** made this 15 day of June, 2018, by and between **JEFFREY D. FRISBY and wife, DEBORAH C. FRISBY (Grantor Address: 208 Poplar Avenue, Wayne, PA 19087);** hereinafter referred to as the GRANTORS, to **BRANDON PHILLIP SHORE and wife, CANDACE MORRIS SHORE (Grantee Address: 130 Emerald Isle Ct, Lexington, NC 27292);** hereinafter referred to as the GRANTEE;

**WITNESSETH:**

**THE GRANTORS,** for valuable consideration paid by the GRANTEE, receipt of which is acknowledged, have and by these presents do convey unto the GRANTEE in fee simple, all that certain parcel of land situated (the "property") in Mocksville Township, Davie County, North Carolina, and more particularly described on attached **"Exhibit A."**

**TO HAVE AND TO HOLD** the property and all privileges and appurtenances thereto belonging to the GRANTEE in fee simple.

**THE GRANTORS COVENANT** with the GRANTEE, that the GRANTORS are seized of the property in fee simple, have the right to convey the property in fee simple, that title is marketable and free and clear of all encumbrances, and that the GRANTORS will warrant and defend the title against the lawful claims of all persons whomsoever except for the exceptions hereinafter stated.

**Title to the property is subject to the following exceptions:**

Easements and restrictions of record.

Attachment: Full application_novPB (Zoning Map Amendment_2020-05 Junction Solar Project LLC)

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All or a portion of the property herein conveyed _____ includes or _X____ does not include the primary residence of Grantor.

The terms GRANTORS and GRANTEE as used herein include the masculine and the feminine, the singular and the plural, as the context requires, and the heirs, successors, and assigns of the parties hereto.

**IN WITNESS WHEREOF,** the GRANTORS have hereunto set their hands and seals the day and year first above written.

**GRANTORS:**

_____ **(SEAL)**
**Jeffrey D. Frisby**

_____ **(SEAL)**
**Deborah C. Frisby**

**********

STATE OF PA

COUNTY OF Delaware

I, a Notary Public, of the aforesaid County, do hereby certify that Jeffrey D. Frisby and Deborah C. Frisby personally appeared before me this day and acknowledged the due execution of the foregoing instrument for the purposes therein expressed.

Witness my hand and Notarial stamp or seal, this 16 day of June, 2018.

**Notary Stamp or Seal:**

COMMONWEALTH OF PENNSYLVANIA
NOTARIAL SEAL
Albert Covington, Notary Public
Radnor Twp., Delaware County
My Commission Expires May 16, 2021
MEMBER, PENNSYLVANIA ASSOCIATION OF NOTARIES

_____
**Signature of Notary Public**

Albert Covington
**Printed Name of Notary Public**

My Commission Expires: 05/16/2021

Attachment: Full application_novPB (Zoning Map Amendment_2020-05 Junction Solar Project LLC)

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**EXHIBIT A**

**FIRST PARCEL: BEGINNING** at a stake on the bank of Hunting Creek and runs North 4° East 18.25 chains to a stake in the line of Lot #3; thence North 71° West 36.50 chains to a stake at road; corner of Lot #3; thence South 12° West with road 13.25 chains to the creek at bridge; thence down and with said creek with its meanderings to the beginning, containing seventy-four (74) acres, more or less, and being Tract #2 in DB 37, PG 267, Davie County Registry.

**SECOND PARCEL: BEGINNING** at a stake on river bank Cooleeemee Corner runs North 5 deg East 18.25 chains to a stake; thence North 88 deg West 11.30 to an iron, Tayse Corner, thence North 2 deg East 21.60 chains to a stone, thence North 85 deg West 24.60 chains to a stone, thence North 4 deg East 2.75 chains to a stake; thence North 71 deg West 3.00 chains to a stake, corner of Lot No. 2A; thence South 4 deg West 18.25 chains to a stake on Hunting Creek Bank; thence down and with said creek as it meanders to the **BEGINNING,** containing 65 acres, more or less, and being Tract #1A in DB 37, PG 267, Davie County Registry.

**TOGETHER** with a 50 ft wide nonexclusive perpetual easement of ingress and egress as access to SR 1142 (Ratledge Rd) with the southern right of way margin of the easement being more particularly described as follows:

**BEGINNING** at a magnail set at spike found under the paving of SR. 1142 (Ratledge Rd) and the spike being located 6 ft east of the centerline of the road and being in the southwest corner of the Jeffrey D. Frisby property described in DB 362, PG 146; thence South 74 deg 42 min 18 sec East 24.35 ft to iron in the northwest corner of James Richard Stroud (DB 965, PG 855); thence with Stroud's northern line South 74 deg 42 min 18 sec East 2,208.77 ft to an iron in the Southeast corner of Frisby's property in DB 362, PG 146, as set forth on a survey of Marty S. Cline, PLS, dated 6-10-18.

**SAVE AND EXCEPT** from the First Parcel 66.74199 acres conveyed to James Richard Stroud in DB 965, PG 855, Davie County Registry.

**FOR BACK TITLE,** see DB 206, PG 321; DB 177, PG 57; and DB 163, PG 524; Davie County Registry. See also Tax Map L-3, Pcl 17, located in Mocksville Township, Davie County, North Carolina.

TE/TAR
N: /My Files/Real Est Desc/Shore, Brandon, File No. 31227.1

Attachment: Full application_novPB (Zoning Map Amendment_2020-05 Junction Solar Project LLC)

Attachment: Full application_novPB (Zoning Map Amendment_2020-05 Junction Solar Project LLC)

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0166

ENV

Recording Requested By and
When Recorded Return to:

Orion Power Generation LLC
c/o Orion Renewable Energy Group LLC
155 Grand Avenue, Suite 706
Oakland, CA 94612
Attn: General Counsel

FILED
DAVIE COUNTY NC
M. BRENTSHOAF
REGISTER OF DEEDS

| | |
|---|---|
| FILED | Sep 27, 2019 |
| AT | 09:21 am |
| BOOK | 01117 |
| START PAGE | 0166 |
| END PAGE | 0175 |
| INSTRUMENT # | 04981 |
| EXCISE TAX | (None) |

#NC-JCT1-073
Davie County, North Carolina

## MEMORANDUM OF SOLAR LEASE AGREEMENT

THIS MEMORANDUM OF SOLAR LEASE AGREEMENT (this "Memorandum") is made, dated and effective as of August 21, 2019 (the "Effective Date"), between **Brandon Phillip Shore and Candace Morris Shore, husband and wife** (collectively "Owner"), and **Orion Power Generation LLC, a Delaware limited liability company** ("Lessee").

1. Lease Agreement. Owner and Lessee are parties to that certain Lease Agreement ("Agreement") dated concurrently herewith. Under the Agreement, Owner hereby leases to Lessee the real property of Owner consisting of approximately 79.81 acres located in Davie County, North Carolina, and legally described on Exhibit A attached hereto and incorporated herein by reference. The Agreement includes the right to access and utilize all radiant energy emitted from the sun upon, over and across the real property ("Solar Energy"), and any easements, rights-of-way, and other rights and benefits relating or appurtenant to such real property (collectively, the "Property").

2. Addresses. All notices, requests and communications required or permitted by the Agreement shall be addressed as follows:

If to Owner: Brandon Phillip and Candace Morris Shore
130 Emerald Isle Court
Lexington, NC 27292

If to Lessee: Orion Power Generation LLC
c/o Orion Renewable Energy Group LLC
155 Grand Avenue, Suite 706
Oakland, CA 94612
Attn: General Counsel

3. Purposes. Lessee shall have the exclusive right to use the Property and the unobstructed flow of Solar Energy upon, over and across the Property for electric power, heat and/or steam generation purposes ("Solar Energy Purposes") and to derive all profits therefrom. Solar Energy Purposes include, without limitation, the right to convert the Solar Energy into

Attachment: Full application_novPB (Zoning Map Amendment_2020-05 Junction Solar Project LLC)

electrical energy and to collect and transmit the electrical energy so converted, together with any and all activities related thereto, including, without limitation, (a) determining the feasibility of Solar Energy conversion and power generation on the Property, including studies of the Solar Energy emitted upon, over and across the Property and other meteorological, archeological and environmental studies, land surveys and due diligence activities; (b) constructing, installing, using, replacing, relocating and removing from time to time, and maintaining, refurbishing and operating, Solar Energy collection and electrical generating equipment of all types including, without limitation, any such equipment utilizing photovoltaic and/or solar thermal technology (collectively referred to herein as "Solar Generating Equipment"), overhead and underground electrical transmission and communications lines, electric transformers, energy storage facilities, telecommunications equipment, power generation facilities to be operated in conjunction with Solar Generating Equipment, roads and gates, meteorological towers and Solar Energy measurement equipment, control buildings, maintenance yards, and related facilities and equipment (the Solar Generating Equipment together with all of the other foregoing equipment and improvements, collectively "Solar Facilities") on the Property; and (c) undertaking any other activities, whether accomplished by Lessee or a third party authorized by Lessee, that Lessee reasonably determines are necessary, useful or appropriate to accomplish any of the foregoing. Subject to Owner's rights to use the Property in any manner consistent with the Agreement, Lessee shall have the right under the Agreement to control and restrict access onto and over the Property and exclude others (other than any parties with preexisting easement rights) as it deems necessary or appropriate for safety and security reasons.

4. Term. The Agreement shall be for a term that expires thirty-four years after the Effective Date unless sooner terminated or unless extended pursuant to and in accordance with the Agreement.

5. Ownership. Owner shall have no ownership or other interest in any Solar Facilities installed on the Property, or any profits derived therefrom, and Lessee may remove any or all Solar Facilities at any time.

6. Construction Easement. Owner hereby grants to Lessee an easement in, over and across the Property ("Construction Easement") which may be utilized on a temporary basis for access, construction laydown or other purposes to facilitate the construction, maintenance or repair of Solar Facilities (whether located on the Property or nearby properties) during any time that Lessee is conducting such work. Lessee will use commercially reasonable efforts to minimize surface disturbance on the portion of the Property lying outside of the Project Site during construction. The Construction Easement shall run with the Property, and shall inure to the benefit of and be binding upon Owner and Lessee and their respective transferees, successors and assigns, and all persons claiming under them. The Construction Easement shall expire upon the termination or expiration of the term of the Agreement.

7. Access Easement. Owner grants to Lessee the right of ingress to and egress from Solar Facilities (whether located on the Property, on adjacent property or elsewhere) over and across the Property by means of roads and lanes thereon if existing, or otherwise by such route or routes as Lessee may construct from time to time ("Access Easement"). The Access Easement shall include the right to improve existing roads and lanes, shall run with the Property, and shall



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inure to the benefit of and be binding upon Owner and Lessee and their respective transferees, successors and assigns, and all persons claiming under them. The Access Easement shall expire upon the latter of the termination or expiration of the term of the Agreement.

8. Transmission Easement. Owner grants to Lessee an exclusive easement ("Transmission Easement") in, on, along and under the Property for the right to erect, construct, reconstruct, replace, relocate, remove, maintain and use the following from time to time in connection with Solar Energy Purposes, whether carried out on the Property or elsewhere: (a) a line or lines of poles or towers, together with such wires and cables as from time to time are suspended therefrom, and/or underground wires and cables, for the transmission of electrical energy and/or for communication purposes, and all necessary and proper foundations, footings, crossarms and other appliances and fixtures for use in connection with said towers, wires and cables on, along and in the Property; and (b) one or more substations or interconnection or switching facilities from which Lessee or others that generate energy may interconnect to a utility transmission system or the transmission system of another purchaser of electrical energy, together with the appropriate rights-of-way, on, along and in the Property. The Transmission Easement shall run with the Property and shall inure to the benefit of and be binding upon Owner and Lessee and their respective transferees, successors and assigns, and all persons claiming under them. The Transmission Easement shall expire upon termination or expiration of the term of the Agreement.

9. Assignees. Lessee and any Assignee (as hereinafter defined) have the right, without obtaining the consent of Owner, to do any of the following with respect to all or any portion of its right, title and/or interest in and to the Agreement, the Lease, the Property, any Project Site and/or the Solar Facilities: (i) grant subleases, separate easements, co-easements, subeasements, licenses or similar rights (however denominated) to one or more Assignees, (ii) collaterally assign, mortgage, encumber, pledge or transfer all or any portion of its right, title or interest therein to one or more parties providing financing to Lessee, and/or (iii) sell, lease, assign, transfer or otherwise convey all or any portion of its right, title or interest therein to one or more Assignees. For these purposes, an "Assignee" is any of the following: (i) any one or more parties involved in the development, financing or refinancing of any Solar Facilities, including, without limitation, any lender to or investor in, or purchaser or Lessee of, Solar Facilities; (ii) any one or more parties involved in financing or refinancing the development of the Project or any Solar Facilities, or any purchaser or owner of Solar Facilities; (iii) a corporation, partnership or limited liability company now existing or hereafter organized (including Lessee) in which Lessee or any of its owners, or any affiliate or partner of either, owns (directly or indirectly) a controlling interest at the time of assignment; (iv) a partnership now existing or hereafter organized, a general partner of which is such a corporation, partnership or limited liability company; or (v) a corporation, partnership, limited liability company, or other entity that acquires all or substantially all of Lessee's business, assets or capital stock, directly or indirectly, by purchase, merger, consolidation or other means.

10. Leasehold Mortgages. In the event that any mortgage, deed of trust or other security interest in all or any portion of Lessee's interest in the Lease, the Property, the Agreement, the Project Site or in any Solar Facilities is entered into by Lessee (a "Leasehold Mortgage"), then any person who is the mortgagee of a Leasehold Mortgage shall, for so long as



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its Leasehold Mortgage is in existence and until the lien thereof has been extinguished, be entitled to the protections set forth in the Agreement.

11. Non-exclusive Grant of Rights. Owner grants to Lessee a non-exclusive right, privilege, license and interest covering all of the following:

(a) Any and all easements, rights-of-way, rights of entry, hereditaments, privileges and appurtenances benefiting, belonging to or inuring to the benefit of Owner and pertaining to the Property.

(b) Any and all right, title and interest of Owner in and to any land in the bed of any street, road, avenue or alley (open, proposed or closed) in front of or adjoining the Property and any and all right, title and interest of Owner, in and to any rights-of-way, rights of ingress or egress, or other interests in, on, or to any land, highway, street, road, avenue or alley (open, proposed or closed) in, on, or across, in front of, abutting, or adjoining the Property.

(c) Any and all right, title and interest of Owner, in and to any strips or gores of land adjacent or contiguous to the Property, whether those lands are owned or claimed by deed, limitations, or otherwise.

12. Restrictive Covenant; No Interference. Lessee shall have the quiet use and enjoyment of the Property in accordance with the terms of the Agreement. Owner's activities and any grant of rights Owner makes to any person or entity, whether located on the Property or elsewhere, shall not, currently or prospectively, interfere with: the development, construction, installation, maintenance, or operation of Solar Facilities, whether located on the Property or elsewhere; access over the Property to such Solar Facilities; Lessee's rights granted hereunder to use the Property for any other Solar Energy Purposes; or the undertaking of any other activities permitted under the Agreement. Without limiting the generality of the foregoing, the activities of Owner shall not disturb or interfere with the unobstructed flow of Solar Energy upon, over and across the Property, whether by placing towers or antennas of any type, planting trees or constructing buildings or other structures or facilities, or by engaging in any other activity on the Property or elsewhere that might delay the installation of, disrupt, or otherwise cause a decrease in the output or efficiency of the Solar Facilities. The area of land to remain unobstructed by Owner will consist horizontally of the entire Property, and vertically all space located above the surface of the Property. If Lessee builds Solar Facilities on only a portion of the Property, Owner may use the rest of the Property in any manner that complies with the foregoing.

13. Setback Waiver. To the extent permitted by law, Owner hereby waives any setbacks or other restrictions on the location of any Solar Facilities to be installed on the Property or on adjacent properties, including but not limited to waiver of all property line setbacks, pursuant to state or county rules, regulations or ordinances (that is, Owner approves a reduction of each such setback to zero), and Owner shall cooperate with Lessee in providing documentation of such setback waivers and shall execute any documents reasonably requested by Lessee to evidence Owner's waiver of such setbacks.



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14. Conflicts. In the event of any direct conflict between the Agreement and this Memorandum, the terms of the Agreement shall prevail. Nothing herein contained shall be deemed to amend, modify, alter or change any of the provisions contained in the Agreement.

15. Successors and Assigns. The Agreement and this Memorandum shall inure to the benefit of and be binding upon Owner and Lessee and, to the extent provided in any assignment or other permitted transfer, any Assignee, and their respective heirs, transferees, successors and assigns, and all persons claiming under them. In the event of any inaccuracy in Exhibit A attached hereto, Lessee may correct such inaccuracy in order to accomplish the intent of Lessee and Owner.

16. Counterparts. This Memorandum may be executed in multiple counterparts, no one of which need be executed by all parties hereto, each of which shall constitute an original. Counterparts thus executed shall together constitute one and the same instrument.

[*Signatures on following page.*]



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IN WITNESS WHEREOF, AND INTENDING TO BE LEGALLY BOUND HEREBY, the parties have duly executed this Memorandum the day and year first above written.

**"OWNER"**

Name: Brandon Phillip Shore

Name: Candace Morris Shore

**"LESSEE"**

**Orion Power Generation LLC,**
**a Delaware limited liability company**

By: _____
Name: Reid M. Buckley
Title: Vice President



Attachment: Full application_novPB (Zoning Map Amendment_2020-05 Junction Solar Project LLC)

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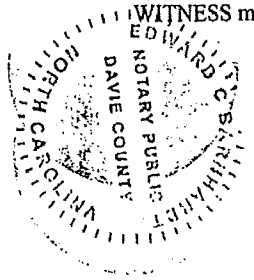
STATE OF NORTH CAROLINA §
§
COUNTY OF Davie §

I, Edward C. Barnhardt, a Notary Public for said County and State, do hereby certify that Brandon Phillip Shore personally appeared before me this day and acknowledged the due execution of the foregoing instrument.

WITNESS my hand and official seal, this 12 day of August, 2019




Edward C Barnhardt
Notary Public

Edward C. Barnhardt
Notary's printed or typed name

My Commission Expires: 07/21/2020

[NOTARY SEAL] (MUST BE FULLY LEGIBLE)

STATE OF NORTH CAROLINA §
§
COUNTY OF _____ §

I, _____, a Notary Public for said County and State, do hereby certify that Candace Morris Shore personally appeared before me this day and acknowledged the due execution of the foregoing instrument.

WITNESS my hand and official seal, this _____ day of _____, 201___

_____
Notary Public

_____
Notary's printed or typed name

My Commission Expires: _____

[NOTARY SEAL] (MUST BE FULLY LEGIBLE)



Attachment: Full application_novPB (Zoning Map Amendment_2020-05 Junction Solar Project LLC)

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STATE OF NORTH CAROLINA §
§
COUNTY OF _____ §

I, _____, a Notary Public for said County and State, do hereby certify that Brandon Phillip Shore personally appeared before me this day and acknowledged the due execution of the foregoing instrument.

WITNESS my hand and official seal, this _____ day of _____, 201___

_____
Notary Public

_____
Notary's printed or typed name

My Commission Expires: _____

[NOTARY SEAL] (MUST BE FULLY LEGIBLE)

STATE OF NORTH CAROLINA §
§
COUNTY OF Davie §

I, Edward C. Barnhardt, a Notary Public for said County and State, do hereby certify that Candace Morris Shore personally appeared before me this day and acknowledged the due execution of the foregoing instrument.

WITNESS my hand and official seal, this 12 day of August, 2019

NOTARY PUBLIC DAVIE COUNTY NORTH CAROLINA EDWARD C BARNHARDT

Edward C Barnhardt
Notary Public

Edward C. Barnhardt
Notary's printed or typed name

My Commission Expires: 07/21/2020

[NOTARY SEAL] (MUST BE FULLY LEGIBLE)



Attachment: Full application_novPB (Zoning Map Amendment_2020-05 Junction Solar Project LLC)

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CALIFORNIA ALL-PURPOSE ACKNOWLEDGEMENT

*A Notary Public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.*

State of California
County of Alameda

On August 21, 2019, before me, Max Rosen, Notary Public,
personally appeared Reid M. Buckley

who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of State of California that the foregoing paragraph is true and correct.

MAX ROSEN
Notary Public - California
Alameda County
Commission # 2288484
My Comm. Expires May 13, 2023

PLACE NOTARY SEAL ABOVE

WITNESS my hand and official seal.

SIGNATURE



Attachment: Full application_novPB (Zoning Map Amendment_2020-05 Junction Solar Project LLC)

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**EXHIBIT A**

**Description of Property**

ALL THAT CERTAIN real estate lying and being situated in Davie County, North Carolina, being more particularly bounded and described as follows:

Real Property Tax Parcel No. 5726350889 (79.81 acres)

FIRST PARCEL: BEGINNING at a stake on the bank of Hunting Creek and runs North 4° East 18.25 chains to a stake in the line of Lot #3; thence North 71° West 36.50 chains to a stake at road; corner of Lot #3; thence South 12° West with road 13.25 chains to the creek at bridge; thence down and with said creek with its meanderings to the beginning, containing seventy-four (74) acres, more or less, and being Tract #2 in DB 37, PG 267, Davie County Registry.
SECOND PARCEL: BEGINNING at a stake on river bank Cooleemee Corner runs North 5 deg East 18.25 chains to a stake; thence North 88 deg West 11.30 to an iron, Tayse Corner, thence North 2 deg East 21.60 chains to a stone, thence North 85 deg West 24.60 chains to a stone, thence North 4 deg East 2.75 chains to a stake; thence North 71 deg West 3.00 chains to a stake, corner of Lot No. 2A; thence South 4 deg West 18.25 chains to a stake on Hunting Creek Bank; thence down and with said creek as it meanders to the BEGINNING, containing 65 acres, more or less, and being Tract #l A in DB 37, PG 267, Davie County Registry. TOGETHER with a 50 ft wide nonexclusive perpetual easement of ingress and egress as access to SR 1142 (Ratledge Rd) with the southern right of way margin of the easement being more particularly described as follows: BEGINNING at a magnail set at spike found under the paving of SR. 1142 (Ratledge Rd) and the spike being located 6 ft east of the centerline of the road and being in the southwest corner of the Jeffrey D. Frisby property described in DB 362, PG 146; thence South 74 deg 42 min 18 sec East 24.35 ft to iron in the northwest corner of James Richard Stroud (DB 965, PG 855); thence with Stroud's northern line South 74 deg 42 min 18 sec East 2,208.77 ft to an iron in the Southeast corner of Frisby's property in DB 362, PG 146, as set forth on a survey of Marty S. Cline, PLS, dated 6-10-18.
SAVE AND EXCEPT from the First Parcel 66.74199 acres conveyed to James Richard Stroud in DB 965, PG 855, Davie County Registry. FOR BACK TITLE, see DB 206, PG 321; DB 177, PG 57; and DB 163, PG 524; Davie County Registry. See also Tax Map L-3, Pcl 17, located in Mocksville Township, Davie County, North Carolina.

(In the event of inaccuracies or insufficiencies in the foregoing legal description, Lessee may record an amendment of this Memorandum to correct the inaccuracies or insufficiencies)



Attachment: Full application_novPB (Zoning Map Amendment_2020-05 Junction Solar Project LLC)

Attachment: Full application_novPB (Zoning Map Amendment_2020-05 Junction Solar Project LLC)

1026
1125

BK 1026 PG 1125

DEED TRANSFER CHECKED

DATE 8.17.2016 BY

FILED
DAVIE COUNTY, NC
M. BRENT SHOAF
REGISTER OF DEEDS

| | |
|---|---|
| FILED | Aug 17, 2016 |
| AT | 03:07 pm |
| BOOK | 01026 |
| START PAGE | 1125 |
| END PAGE | 1134 |
| INSTRUMENT # | 04267 |
| EXCISE TAX | (None) |

Deed Stamps : none — Recording Information

TAX PARCELS:
MAIL AFTER RECORDING TO GRANTEE @ 220 Prospect Road, Statesville, NC 28625
THIS INSTRUMENT WAS PREPARED BY Henry P. Van Hoy, II

**NORTH CAROLINA NON-WARRANTY DEED**

THIS DEED made this 16 day of August, 2016, by and between

**GRANTOR:**

Donald G. Bowles, successor Trustee of the Dwight Linnie Myers Revocable Trust, dated August 11, 2011, the Grantor

**to**

**GRANTEE:**

Forks of the Yadkin and Davie County History Museum, Inc., a North Carolina non-profit corporation, the Grantee

**REQUIRED INFORMATION:**

The address of the Grantor is: 854 Valley Road, Suite 300, Mocksville NC 27028

The address of the Grantee is: 220 Prospect Road, Statesville, NC 28625

**Primary Residence Information:**

The Property described in Exhibit A does not include the primary residence of the Grantor.

Attachment: Full application_novPB (Zoning Map Amendment_2020-05 Junction Solar Project LLC)

BK1026PG1126

**WITNESSETH:**

**THE GRANTOR,** for valuable consideration paid by the GRANTEE, receipt of which is acknowledged, has and by these presents does grant, bargain, sell and convey unto the GRANTEE, with NO-WARRANTY, in fee simple the GRANTOR's interest in those parcels of land situated in Davie County, North Carolina (the "Property") and more particularly described in the attached Exhibit "A".

**TO HAVE AND TO HOLD** the Property as a tenant in common and all privileges and appurtenances thereto belonging to the GRANTEE in fee simple.

**THE GRANTOR** makes no warranty, express or implied, as to the title to the Property herein described.

**Title to the Property is subject to the following exceptions:**

1. Easements and restrictions of record, including those referred to on Exhibit "A".

2. Ad valorem taxes for 2015 and subsequent years.

3. Memorandum of Lease recorded in Book 993, Page 66 of the Davie County Registry, North Carolina pertaining to Tract II on Exhibit A, excluding the Lake House and Lot.

4. Agreement recorded in Book 896, Page 394 of the Davie County Registry, North Carolina.

5. Right of way recorded in Book 203, Page 483 (applies to Tax Map L-4-55)

6. Easement recorded in Book 731, Page 749 (applies to Tax Map L-4-43.3)

7. Those rights, reservations, easements, restrictions in Book 352, Page 793 (Tax Map L-4-16).

**Title to the Property** was acquired under the will of Dwight Linnie Myers filed in the Office of the Clerk of Court, Davie County, North Carolina, 13 E 115. For further back reference see Exhibit "A".

**Trustee's Authority, Certification.** The Trustee has recorded a Certification of Trust in the Office of the Register of Deeds of Davie County, North Carolina in Book 995, Page 753 pursuant to §36C-10-1013 of the North Carolina General Statutes. This deed is also made pursuant to specific instruction contained in Article III, Section 1 of the Dwight Linnie Myers Revocable Trust dated August 11, 2011.

Attachment: Full application_novPB (Zoning Map Amendment_2020-05 Junction Solar Project LLC)

**NOTE:** This deed is made pursuant to the terms of the Trust above referred to and a like kind exchange agreement.

**IN WITNESS WHEREOF,** the Grantor, with full authority to do so, has executed this deed the day and year first above written.

**GRANTOR:**

Donald G. Bowles

Donald G. Bowles, Successor Trustee of the Dwight Linnie Myers Revocable Trust, dated August 11, 2011

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STATE OF NORTH CAROLINA
COUNTY OF Davie

I certify that the following person personally appeared before me this day, acknowledging to me that he voluntarily signed the foregoing document for the purpose stated herein and in the capacity indicated: *(here state names of principals office/capacity)*

Donald G. Bowles, Successor Trustee of the Dwight Linnie Myers Revocable Trust, dated August 11, 2011

This 16 day of August, 2016.

Renee' L. Bradshaw

Official Signature of Notary

*(Official Seal)*

Renee' L. Bradshaw

Notary's printed or typed name, Notary Public

My commission expires: 03-26-20

RENEE L. BRADSHAW NOTARY PUBLIC DAVIE COUNTY, NC

N:\MyFiles\Hank Van Hoy\Estate Administration\Myers, Dwight L. - Trustees deed to trust for Historial Museum under the Dwigh Myers rev. trust, Sept. 2015.wpd

Attachment: Full application_novPB (Zoning Map Amendment_2020-05 Junction Solar Project LLC)

BK 1026 PG 1128

## EXHIBIT "A"

TRACT 1: Tax Map L-4-16, Back Reference: Book 352, Page 793. (The "Hanes Farm")

Being Tract #14, containing 265 acres, more or less, as shown on Map No. C of Erwin Mills, Inc. Property, Jerusalem Township and Mocksville Township, Cooleemee, North Carolina as per plat and survey thereof by G. Sam Rowe, C.E. dated October 1953 and recorded in the Office of the Register of Deeds for Davie County, North Carolina, in Plat Book 3, at Page 25, to which map reference is hereby made for a more particular description; bounded on the North by the Clement Heirs Estate, on the West by J.F. Ratteree and Hunting Creek, on the South by the South Fork of the Yadkin River, and on the East by a branch and by the Mocksville-Cooleemee Road.

SAVE AND EXCEPT the following described tract of land:

BEGINNING at Edward Dwiggins' Southeast corner on the West side of the Davie Academy Road and running thence with the line of the said Davie Academy Road South 87 degrees 15 minutes West 545 feet to a new corner; thence South 15 degrees East 160 feet, a new corner; thence North 87 degrees 15 minutes East 545 feet to a point on the West side of Davie Academy Road; thence with the West side of the Davie Academy Road North 15 degrees West 160 feet to the BEGINNING, containing 2 acres, more or less, and being a portion of Tract No. 8, Map C of the Erwin Mills Property, which said Tract No. 8 is identical to Tract No. 14, Map C, of the Erwin Mills property as the same is recorded in Map Book 3, at Page 25, in the Office of the Register of Deeds of Davie County.

THIS CONVEYANCE is made subject to such restrictions and reservations as appear in an option from Erwin Mills, Inc. To Alfred F. Coble et ux recorded in Book 65, Page 479, Davie County Registry and a deed from said Erwin Mills, Inc. to Alfred J. Cobble et ux recorded in Book 55, Page 402, Davie County Registry.

Attachment: Full application_novPB (Zoning Map Amendment_2020-05 Junction Solar Project LLC)

BK1626PG1129

TRACT 2: Tax Map L-4-55, Back Reference: Book 160, Page 824.
(Part of the Moose Farm, Junction Road). Note, Tract 2 has three tracts.

Tract 1: A parcel of land consisting of 30.724 acres, more or less, lying on the West side of the Southern Railway in Clarksville Township, Davie County, North Carolina, approximately 4 miles more or less northwest of the Town of Mocksville, with said tract being bound on the North by Armand T. Daniel, Jr., et al., on the east by a Southern Railway right-of-way, on the South by Melvin Jones, et al., and on the West by Duman Williams Moose Family Trust, et al., and being more particularly described by metes and bounds as follows:

BEGINNING at an unmarked point in the center of a branch on the Armand T. Daniel, Jr., et al. Line as the same intersects with the western margin of the Southern Railway right-of-way, thence running with the said railway right-of-way the following thirteen (13) calls and distances: (1) South 4-1-23 East 104.58 feet to a new iron pin; (2) South 3-45-13 East 113.82 feet to a point; (3) South 1-42-50 East 116.60 feet to a point; (4) with the arc of a curve to the right with radius 1330.51 feet, arc distance 457.31 feet, with a chord bearing South 9-49-38 West 455.06 feet to a new iron pin; (5) South 21-17-41 West 104.18 feet to a point; (6) South 23-05-14 West 102.22 feet to a new iron pin; (7) South 23-27-38 West 908.99 feet to a new iron pin; (8) South 23-41-07 West 114.83 feet to a point; (9) South 25-56-54 West 113.72 feet to a fence post; (10) with the arc of a curve to the right with radius 1347.04 feet, arc distance 343.95 feet, with a chord bearing South 37-14-41 West 433.06 feet to a point; (11) South 48-20-13 West 115.84 feet to a point; (12) South 50-26-06 West 116.84 feet to a new iron pin; (13) South 50-43-56 West 302.59 feet to a new iron pin on the railroad, Melvin Jones, et al. corner; thence leaving said railroad and running with the said Jones line the following three (3) calls and distances: (1) North 13-47-00 East 129.74 feet to a placed iron pin; (2) North 3-19-48 East 118.50 feet to an existing iron pin; (3) South 77-07-00 West 198.31 feet to an existing iron pin, common corner of Jones and Moose; thence with the Moose line and Bear Creek the following twenty-two (22) calls and distances: (1) North 11-03-00 East 218.98 feet to a point; (2) South 48-24-00 East 131.90 feet to a point; (3) North 82-41-00 East 151.40 feet to a point; (4) North 54-50-00 East 237.68 feet to a point; (5) North 00-41-00 West 145.23 feet to a point; (6) South 86-31-00 West 204.18 feet to a point; (7) North 22-16-00 West 193.27 feet to a point; (8) North 70-14-00 West 149.00 feet to a point; (9) North 09-44-00 East 209.73 feet to a point; (10) North 53-00-00 East 299.04 feet to a point; (11) North 64-29-00 East 267.35 feet to a point; (12) North 53-40-00 East 200.90 feet to a point; (13) North 83-30-00 East 179.78 feet to a point; (14) North 25-37-00 West 146.44 feet to a point; (15) North 72-02-00 West 111.30 feet to a point; (16) South 89-25-00 West 198.68 feet to a point; (17) North 36-19-00 West 77.94 feet to a point; (18) North 02-25-00 East 148.50 feet to a point; (19) North 75-39-00 East 301.76 feet to a point; (20) North 18-45-00 East 149.74 feet to a point; (21) North 65-50-00 East 207.95 feet to a point; (22) North 28-55-00 West 202.51 feet to a point at the intersection of a branch and Bear Creek on the Armand T. Daniel, Jr., et al. Line; thence with

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the Daniel, et al. Line the following three (3) calls and distances (1) North 42-54-00 East 131.12 feet to a point; (2) North 43-42-00 East 222.30 feet to a point; (3) North 65-54-00 East 256.48 feet to point and place of Beginning.

This description is taken from a map of the property by Grady L. Tutterow, Registered Surveyor, dated September 10,1991, and contains 30.724 acres, more or less.

There is also included with the Tract a twenty (20) foot non-exclusive right-of-way along the existing farm road extending in the easterly direction from the railroad crossing to State Road 1126 and as a part of the consideration for this non-exclusive right-of-way, the Grantors shall have the full right to move this non-exclusive right-of-way to any location that they may presently own with a non-exclusive right-of-way equal to the present non-exclusive right-of-way. The Grantors have no responsibility for any upkeep of this non-exclusive right-of-way and the Grantees receiving this non-exclusive right-of-way receive only a non-exclusive use for the said farm road right-of-way and are responsible for any damages done by their use of said non-exclusive right-of-way.

Tract 2: Being Tracts #16 and #17 as appears from a plat designated as Map No. C. of the property of Erwin Mills, Inc. Cooleemee, N.C., by G. Sam Rowe, Civil Engineer, dated October 1953, and recorded in Plat Book 3, at page 25, Office of the Register of Deeds of Davie County, North Carolina, which said plats are more particularly described as follows:

BEGINNING at a point in the center of State Road #1116, being the common corner of Tracts #17 and #16, as it appears from a plat and survey of the Erwin Mills, Inc. Property hereinabove designated, being the Northwest corner of the within described tract, which point of beginning is located South 13 degrees 55 minutes East 761.5 feet to a point in the center of said road in Clement Heirs' line, runs thence with center of said road South 7 1/3 degrees East 400 feet to a point in the center thereof; thence South 6 degrees 50 minutes East 200 feet to a point in the center thereof, Northwest corner of Tract #15 on said plat and survey of Erwin Mills, Inc. Property; thence with the line of said Tract #15 North 87 degrees 15 minutes East 1509 feet to a point in Kelly Heirs' line, Northeast corner of said Tract #15; thence with said Kelly Heirs' line North 6 degrees 45 minutes East 623 feet to a point, Southeast corner of said Tract # 17; thence with said Tract #17 South 87 degrees 15 minutes West 1610 feet to the BEGINNING, containing twenty-one and six-tenths (21.6) acres, more or less, and being Tract # 16 on said plat of the Erwin Mills, Inc. Property hereinabove designated.

BEGINNING at a point in the center of State Road No. 1116 in Clement Heirs' line, being the Northeast corner in said road of Tract #14 and the Northwest corner of Tract #17, the within described tract, of said Erwin Mills, Inc. Property above designated, runs thence with the center of said road South 13 degrees 55 minutes East 761.5 feet to a point in the center thereof. Northwest corner of Tract

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#16 of said Erwin Mills, Inc. Property; thence with the line of said Tract #16 North 87 degrees 15 minutes East 1610 feet to a point in the line of Kelly Heirs' property, Northeast corner of said Tract #16; thence with the said Kelly Heirs' line North 6 degrees 45 minutes East 623 feet to a point, an original corner at a large Hickory, said Kelly Heirs' corner in Clement Heirs' line; thence with said Clement Heirs' line South 87 degrees 15 minutes West 1831 feet to the BEGINNING, containing twenty-four and twenty-five hundredths (24.25) acres, more or less, and being Tract #17, as appears from said plat and survey hereinabove designated.

Tract 3: BEGINNING at an iron stake, the Northeast corner of T. Green (see Plat Book 3, Page 25, Davie County Registry) in Ed Dwiggins line and Running thence South 89 degrees 34 minutes 35 seconds East 1887.16 feet to a point in Bear Creek; thence with the center of said Creek as it meanders in a southwestwardly direction the following courses and distances: South 25 degrees 58 minutes East 186.58 feet to a point; North 51 degrees 50 minutes West 168.85 feet; South 64 degrees 33 minutes West 81.35 feet; South 13 degrees 52 minutes East 245.45 feet; South 33 degrees 51 minutes East 283.53 feet; South 47 degrees 14 minutes West 107.35 feet; South 01 degrees 31 minutes West 100 feet; South 62 degrees 42 minutes East 111.80 feet; South 46 degrees 41 minutes West 142 feet; South 0 degrees 30 minutes East 330 feet; South 48 degrees 08 minutes East 324.15 feet; South 35 degrees 20 minutes East 326.98 feet; South 28 degrees 55 minutes East 202.51 feet; South 65 degrees 50 minutes West 207.95 feet; South 18 degrees 45 minutes West 149.74 feet; South 75 degrees 39 minutes West 301.76 feet; South 02 degrees 25 minutes West 148.50 feet; South 36 degrees 19 minutes East 77.84 feet; North 89 degrees 25 minutes East 198.68 feet; South 72 degrees 02 minutes East 111.30 feet; South 25 degrees 37 minutes East 146.44 feet; South 83 degrees 30 minutes West 179.78 feet; South 53 degrees 40 minutes West 200.90 feet; South 64 degrees 24 minutes West 267.35 feet; South 53 degrees 00 minutes West 299.04 feet; South 09 degrees 44 minutes West 209.73 feet; South 70 degrees 14 minutes East 149 feet; South 22 degrees 16 minutes East 193.27 feet; North 86 degrees 31 minutes East 204.18 feet; South 0 degrees 41 minutes East 145.23 feet; South 54 degrees 50 minutes West 237.68 feet; South 82 degrees 41 minutes West 151.40 feet; North 48 degrees 24 minutes West 131.90 feet; South 11 degrees 03 minutes West 218.98 feet; South 43 degrees 59 minutes West 127.20 feet; South 89 degrees 47 minutes West 252.50 feet; South 54 degrees 29 minutes West 650.58 feet; South 88 degrees 57 minutes West 214.86 feet; South 73 degrees 10 minutes West 249.50 feet; South 47 degrees 51 minutes West 288.90 feet; South 07 degrees 03 minutes West 289.17 feet; South 23 degrees 13 minutes West 135.40 feet; South 11 degrees 15 minutes East 162.71 feet; South 14 degrees 30 minutes East 152.24 feet to a point in the center of said creek, A.G. Spillman Line; thence with said Spillman line South 87 degrees 48 minutes 45 seconds West 504 feet to an iron stake, Spillman corner; thence with Spillman line North 07 degrees 46 minutes 35 seconds East 738.28 feet to an iron stake; thence North 07 degrees 11 minutes East 340 feet to an iron stake; thence North 01 degrees 09 minutes 30 seconds West 574.41 feet to an iron

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stake, Northeast corner of A.G. Spillman and Southeast corner of Ed dwiggins; thence with Dwiggins line North 01 degrees 44 minutes 10 seconds West 724.64 feet to an iron stake; thence North 21 degrees 57 minutes 40 seconds East 518.84 feet to an iron stake; thence North 07 degrees 15 minutes East 124.04 feet to an iron stake on the South margin of a roadway leading from the within described property to State Road #1116; thence North 08 degrees 21 minutes 20 seconds East 2394.32 feet to the POINT AND PLACE OF BEGINNING and containing 222.9 acres, more or less, as surveyed and platted by Kestler and McKay, Registered Surveyors, Statesville, North Carolina, December 16, 1968. For reference, see also Book 47, Page 454, Davie County Registry.

TRACT 3: Tax Map L-4-43.3, Back Reference: Book 358, Page 813. (Known as the "Bear Creek Farm, part of Moose Farm)

**BEGINNING** at an iron pin, the Northwestern corner of the within-described tract placed on the western edge of a creek bank, said iron pin also being the Northeastern corner of Shcedule A, Tract 3, Set forth in Deed Book 160, page 824, belonging to Dwight L. Myers, said iron pin also being the corner of Faye K. Dwiggins (DB 65, page 621; DB 72, page 615; DB 78, page 198; and DB 333, page 510), said iron pin also being the corner of Goshen Land Corporation (DB 82, page 106), said iron pin also being located North 89° 32' 22" West 847.39 feet from a nail in the centerline of the Southern Railroad right of way; thence from the **BEGINNING** South 89° 32' 22" East 797.24 feet to an iron pin, the Northeastern corner of the within-described tract; thence South 03° 59' 55" East 1330.23 feet to an unmarked point on the bank of a branch, said unmarked point being located South 77° 42' 15" West 50.53 feet from a nail in the centerline of the Southern Railway right of way, said nail also being a corner of Dwight L. Myers (DB 160, page 824); thence the following courses and distances with a branch: South 65° 54' 00" West 256.49 feet to an unmarked point; thence South 43° 42' 00" West 222.30 feet to an unmarked point; thence South 42° 54' 00" West 131.12 feet to an unmarked point, the intersection of the branch with the centerline of Bear Creek; thence with the Centerline of Bear Creek in the line of Dwight L. Myers (DB 160, page 824), the following courses and distances: North 32° 31' 41" West 300.67 feet to a point; thence North 48° 05' 47" West 324.15 feet to an unmarked point in the centerline of the creek; thence North 00° 27' 47" West 330.00 feet to an unmarked point in the centerline of the creek; thence North 46° 02' 13" East 142 feet to a point in the centerline of

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the creek; thence North 62° 39' 47" West 111.80 feet to an unmarked point in the centerline of the creek; thence North 01° 33' 13" East 100 feet to an unmarked point in the centerline of the creek; thence North 47° 16' 13" East 107.35 feet to an unmarked point in the centerline of the creek; thence North 33° 48' 47" West 283.53 feet to an unmarked point in the centerline of the creek; thence North 13° 49' 47" West 245.45 feet to an unmarked point in the centerline of the creek; thence North 64° 35' 13" East 81.35 feet to an unmarked point in the centerline of the creek; thence South 51° 47' 47" East 168.85 feet to an unmarked point in the centerline of the creek; thence North 25° 55' 47" West 186.58 feet to the **POINT AND PLACE OF BEGINNING**, containing 28.195 acres as shown on a survey by Grady L. Tutterow dated February 7, 2001, (drawing #4401-3) and being that same property described in Deed Book 130, page 520, Davie County Registry.

TRACT 4: L-3-16, Back Reference: Book 435, Page 591. (Known as "Little Egypt" off of Ratledge Road)

That certain tract of land containing 181.15 acres, more or less, ( inclusive of exceptions hereinafter described), located in Jerusalem Township, Davie County, North Carolina,; and bounded, now or formerly, by natural boundaries and/or lands owned by and/or in the possession of persons as follows: North, East and South by Hunting Creek and South Yadkin River, and West by Ratledge Heirs, Koontz Heirs, Daywalt and Mart Godbey; said tract lying approximately 7 miles Southeast from the town of Mocksville, and being more specifically described as follows:

BEGINNING at a point on North bank of the South Yadkin River, a corner for the Ratledge Heirs, runs thence North 55 degrees East 613 feet; thence North 77 degrees East 369 feet; thence North 32 degrees East 171 feet; thence North 75 degrees East 254 feet to a Gum; thence North 8 degrees East 782 feet; thence North 80 degrees West 638 feet; thence North 5 degrees 30 minutes West 2,329 feet to an iron stake; thence North 87 degrees West 175 feet; thence North 2 degrees East 474 feet; thence North 13 degrees East 672 feet to an iron stake; thence North 25 degrees East 408 feet; thence North 24 degrees 30 minutes West 313 feet; thence North 72 degrees West 333 feet to a Poplar; thence North 12 degrees East 130 feet to a Poplar; thence North 56 degrees West 380 feet; thence South 48 degrees West 168 feet; thence South 5 degrees West 180 feet; thence North 82 degrees West 277 feet to a Persimmon Tree; thence North 55 degrees West 419 feet; thence South 80 degrees West 158 feet; thence North 56 degrees West 204 feet; thence North 80 degrees West 214 feet; thence North 21 degrees East 148 feet; thence North 24 degrees West 454 feet; thence North 43 degrees West 449 feet; thence North 28 degrees East

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183 feet; thence North 57 degrees West 534 feet crossing Rural Road #1142 to a stake; thence North 24 degrees East 74 feet to a stake on the bank of Hunting Creek; thence with Hunting Creek Southwardly as it meanders to its junction with the South Yadkin River; thence with the South Yadkin River as it meanders Westwardly TO THE BEGINNING, containing 181.15 acres.

SAVE AND EXCEPT a certain tract conveyed by Harold G. Koach and wife, Mary O. Koach, to Latham T. Moose by a deed recorded in Deed Book 94, Page 186, Davie County Registry and being more particularly described as follows:

BEING that small tract of land containing approximately ½ acre, more or less, conveyed to the grantors by John Durham et als which said tract is bounded by NCSR 1142, the waters of Hunting Creek and property of Latham T. Moose and being that portion of the above lands lying West of NCSR 1142 and above the bridge crossing Hunting Creek.

FOR BACK REFERENCE, see Deed Book 166, Page 550, Davie County Registry.

NO TITLE EXAM HAS BEEN PERFORMED OR REQUESTED

HVH/1856.37

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ENV

Recording Requested By and
When Recorded Return to:

Orion Renewable Resources LLC
c/o Orion Renewable Energy Group LLC
155 Grand Avenue, Suite 706
Oakland, CA 94612
Attn: General Counsel

FILED
DAVIE COUNTY NC
M. BRENTSHOAF
REGISTER OF DEEDS

| | |
|---|---|
| FILED | May 13, 2019 |
| AT | 10:00 am |
| BOOK | 01104 |
| START PAGE | 0996 |
| END PAGE | 1006 |
| INSTRUMENT # | 02219 |
| EXCISE TAX | (None) |

#NC-JCT1-232
Davie County, North Carolina

# MEMORANDUM OF SOLAR LEASE AGREEMENT

THIS MEMORANDUM OF SOLAR LEASE AGREEMENT (this "Memorandum") is made, dated and effective as of February 18, 2019 (the "Effective Date"), between **Forks of the Yadkin and Davie County History Museum, Inc., a North Carolina non-profit corporation** ("Owner"), and **Orion Renewable Resources LLC, a Delaware limited liability company** ("Lessee").

1. Lease Agreement. Owner and Lessee are parties to that certain Lease Agreement ("Agreement") dated concurrently herewith. Under the Agreement, Owner hereby leases to Lessee the real property of Owner consisting of approximately 582.58 acres located in Davie County, North Carolina, and legally described on Exhibit A attached hereto and incorporated herein by reference. The Agreement includes the right to access and utilize all radiant energy emitted from the sun upon, over and across the real property ("Solar Energy"), and any easements, rights-of-way, and other rights and benefits relating or appurtenant to such real property (collectively, the "Property").

2. Addresses. All notices, requests and communications required or permitted by the Agreement shall be addressed as follows:

If to Owner: Forks of the Yadkin and Davie
County History Museum, Inc.
c/o Mark Hager, President
220 Prospect Road
Statesville, NC 28625

If to Lessee: Orion Renewable Resources LLC
c/o Orion Renewable Energy Group LLC
155 Grand Avenue, Suite 706
Oakland, CA 94612
Attn: General Counsel

3. Purposes. Lessee shall have the exclusive right to use the Property and the unobstructed flow of Solar Energy upon, over and across the Property for electric power, heat

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and/or steam generation purposes ("Solar Energy Purposes") and to derive all profits therefrom. Solar Energy Purposes include, without limitation, the right to convert the Solar Energy into electrical energy and to collect and transmit the electrical energy so converted, together with any and all activities related thereto, including, without limitation, (a) determining the feasibility of Solar Energy conversion and power generation on the Property, including studies of the Solar Energy emitted upon, over and across the Property and other meteorological, archeological and environmental studies, land surveys and due diligence activities; (b) constructing, installing, using, replacing, relocating and removing from time to time, and maintaining, refurbishing and operating, Solar Energy collection and electrical generating equipment of all types including, without limitation, any such equipment utilizing photovoltaic and/or solar thermal technology (collectively referred to herein as "Solar Generating Equipment"), overhead and underground electrical transmission and communications lines, electric transformers, energy storage facilities, telecommunications equipment, power generation facilities to be operated in conjunction with Solar Generating Equipment, roads and gates, meteorological towers and Solar Energy measurement equipment, control buildings, maintenance yards, and related facilities and equipment (the Solar Generating Equipment together with all of the other foregoing equipment and improvements, collectively "Solar Facilities") on the Property; and (c) undertaking any other activities, whether accomplished by Lessee or a third party authorized by Lessee, that Lessee reasonably determines are necessary, useful or appropriate to accomplish any of the foregoing. Subject to Owner's rights to use the Property in any manner consistent with the Agreement, Lessee shall have the right under the Agreement to control and restrict access onto and over the Property and exclude others (other than any parties with preexisting easement rights) as it deems necessary or appropriate for safety and security reasons.

4. Term. The Agreement shall be for a term that expires thirty-four years after the Effective Date unless sooner terminated or unless extended pursuant to and in accordance with the Agreement.

5. Ownership. Owner shall have no ownership or other interest in any Solar Facilities installed on the Property, or any profits derived therefrom, and Lessee may remove any or all Solar Facilities at any time.

6. Construction Easement. Owner hereby grants to Lessee an easement in, over and across the Property ("Construction Easement") which may be utilized on a temporary basis for access, construction laydown or other purposes to facilitate the construction, maintenance or repair of Solar Facilities (whether located on the Property or nearby properties) during any time that Lessee is conducting such work. Lessee will use commercially reasonable efforts to minimize surface disturbance on the portion of the Property lying outside of the Project Site during construction. The Construction Easement shall run with the Property, and shall inure to the benefit of and be binding upon Owner and Lessee and their respective transferees, successors and assigns, and all persons claiming under them. The Construction Easement shall expire upon the termination or expiration of the term of the Agreement.

7. Access Easement. Owner grants to Lessee the right of ingress to and egress from Solar Facilities (whether located on the Property, on adjacent property or elsewhere) over and across the Property by means of roads and lanes thereon if existing, or otherwise by such route or



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routes as Lessee may construct from time to time ("Access Easement"). The Access Easement shall include the right to improve existing roads and lanes, shall run with the Property, and shall inure to the benefit of and be binding upon Owner and Lessee and their respective transferees, successors and assigns, and all persons claiming under them. The Access Easement shall expire upon the latter of the termination or expiration of the term of the Agreement.

8. Transmission Easement. Owner grants to Lessee an exclusive easement ("Transmission Easement") in, on, along and under the Property for the right to erect, construct, reconstruct, replace, relocate, remove, maintain and use the following from time to time in connection with Solar Energy Purposes, whether carried out on the Property or elsewhere: (a) a line or lines of poles or towers, together with such wires and cables as from time to time are suspended therefrom, and/or underground wires and cables, for the transmission of electrical energy and/or for communication purposes, and all necessary and proper foundations, footings, crossarms and other appliances and fixtures for use in connection with said towers, wires and cables on, along and in the Property; and (b) one or more substations or interconnection or switching facilities from which Lessee or others that generate energy may interconnect to a utility transmission system or the transmission system of another purchaser of electrical energy, together with the appropriate rights-of-way, on, along and in the Property. The Transmission Easement shall run with the Property and shall inure to the benefit of and be binding upon Owner and Lessee and their respective transferees, successors and assigns, and all persons claiming under them. The Transmission Easement shall expire upon termination or expiration of the term of the Agreement.

9. Assignees. Lessee and any Assignee (as hereinafter defined) have the right, without obtaining the consent of Owner, to do any of the following with respect to all or any portion of its right, title and/or interest in and to the Agreement, the Lease, the Property, any Project Site and/or the Solar Facilities: (i) grant subleases, separate easements, co-easements, subeasements, licenses or similar rights (however denominated) to one or more Assignees, (ii) collaterally assign, mortgage, encumber, pledge or transfer all or any portion of its right, title or interest therein to one or more parties providing financing to Lessee, and/or (iii) sell, lease, assign, transfer or otherwise convey all or any portion of its right, title or interest therein to one or more Assignees. For these purposes, an "Assignee" is any of the following: (i) any one or more parties involved in the development, financing or refinancing of any Solar Facilities, including, without limitation, any lender to or investor in, or purchaser or Lessee of, Solar Facilities; (ii) any one or more parties involved in financing or refinancing the development of the Project or any Solar Facilities, or any purchaser or owner of Solar Facilities; (iii) a corporation, partnership or limited liability company now existing or hereafter organized (including Lessee) in which Lessee or any of its owners, or any affiliate or partner of either, owns (directly or indirectly) a controlling interest at the time of assignment; (iv) a partnership now existing or hereafter organized, a general partner of which is such a corporation, partnership or limited liability company; or (v) a corporation, partnership, limited liability company, or other entity that acquires all or substantially all of Lessee's business, assets or capital stock, directly or indirectly, by purchase, merger, consolidation or other means.

10. Leasehold Mortgages. In the event that any mortgage, deed of trust or other security interest in all or any portion of Lessee's interest in the Lease, the Property, the



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Agreement, the Project Site or in any Solar Facilities is entered into by Lessee (a "Leasehold Mortgage"), then any person who is the mortgagee of a Leasehold Mortgage shall, for so long as its Leasehold Mortgage is in existence and until the lien thereof has been extinguished, be entitled to the protections set forth in the Agreement.

11. Non-exclusive Grant of Rights. Owner grants to Lessee a non-exclusive right, privilege, license and interest covering all of the following:

(a) Any and all easements, rights-of-way, rights of entry, hereditaments, privileges and appurtenances benefiting, belonging to or inuring to the benefit of Owner and pertaining to the Property, including a non-exclusive right to use the existing access road depicted as "Existing Access Road" on Exhibit A-1 to the Agreement, which access road is twenty feet in width.

(b) Any and all right, title and interest of Owner in and to any land in the bed of any street, road, avenue or alley (open, proposed or closed) in front of or adjoining the Property and any and all right, title and interest of Owner, in and to any rights-of-way, rights of ingress or egress, or other interests in, on, or to any land, highway, street, road, avenue or alley (open, proposed or closed) in, on, or across, in front of, abutting, or adjoining the Property.

(c) Any and all right, title and interest of Owner, in and to any strips or gores of land adjacent or contiguous to the Property, whether those lands are owned or claimed by deed, limitations, or otherwise.

12. Restrictive Covenant; No Interference. Lessee shall have the quiet use and enjoyment of the Property in accordance with the terms of the Agreement. Owner's activities and any grant of rights Owner makes to any person or entity, whether located on the Property or elsewhere, shall not, currently or prospectively, interfere with: the development, construction, installation, maintenance, or operation of Solar Facilities, whether located on the Property or elsewhere; access over the Property to such Solar Facilities; Lessee's rights granted hereunder to use the Property for any other Solar Energy Purposes; or the undertaking of any other activities permitted under the Agreement. Without limiting the generality of the foregoing, the activities of Owner shall not disturb or interfere with the unobstructed flow of Solar Energy upon, over and across the Property, whether by placing towers or antennas of any type, planting trees or constructing buildings or other structures or facilities, or by engaging in any other activity on the Property or elsewhere that might delay the installation of, disrupt, or otherwise cause a decrease in the output or efficiency of the Solar Facilities. The area of land to remain unobstructed by Owner will consist horizontally of the entire Property, and vertically all space located above the surface of the Property. If Lessee builds Solar Facilities on only a portion of the Property, Owner may use the rest of the Property in any manner that complies with the foregoing. The parties agree that the cattle operation as currently conducted on the Excluded Property (as defined in the Agreement) and property adjacent to the Property do not interfere with the rights granted to Lessee under the Agreement.

13. Setback Waiver. To the extent permitted by law, Owner hereby waives any setbacks or other restrictions on the location of any Solar Facilities to be installed on the Property



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or on adjacent properties, including but not limited to waiver of all property line setbacks, pursuant to state or county rules, regulations or ordinances (that is, Owner approves a reduction of each such setback to zero), and Owner shall cooperate with Lessee in providing documentation of such setback waivers and shall execute any documents reasonably requested by Lessee to evidence Owner's waiver of such setbacks.

14. Conflicts. In the event of any direct conflict between the Agreement and this Memorandum, the terms of the Agreement shall prevail. Nothing herein contained shall be deemed to amend, modify, alter or change any of the provisions contained in the Agreement.

15. Successors and Assigns. The Agreement and this Memorandum shall inure to the benefit of and be binding upon Owner and Lessee and, to the extent provided in any assignment or other permitted transfer, any Assignee, and their respective heirs, transferees, successors and assigns, and all persons claiming under them. In the event of any inaccuracy in Exhibit A attached hereto, Lessee may correct such inaccuracy in order to accomplish the intent of Lessee and Owner.

16. Counterparts. This Memorandum may be executed in multiple counterparts, no one of which need be executed by all parties hereto, each of which shall constitute an original. Counterparts thus executed shall together constitute one and the same instrument.

[*Signatures on following page.*]

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IN WITNESS WHEREOF, AND INTENDING TO BE LEGALLY BOUND HEREBY, the parties have duly executed this Memorandum the day and year first above written.

"OWNER"

**Forks of the Yadkin and Davie County History Museum, Inc., a North Carolina non-profit corporation**

By: _____
**Name: Mark Hager, President**

"LESSEE"

**Orion Renewable Resources LLC,**
**a Delaware limited liability company**

By: _____
Name: Nicholas A. Hiza
Title: Vice President

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North Carolina )

Davie County )

This 10th day of April, 2019, personally came before me, Brenda R. Bailey,

Notary Public for said County and State, Mark Hager, who, being by me duly sworn, says that he

is President of the Forks of the Yadkin and Davie County History Museum, Inc., a corporation, and that the seal affixed to the foregoing instrument in writing is the corporate seal of said company, and that said writing was signed and sealed by him in behalf of said corporation by its authority duly given. And the said Mark Hager, President acknowledged the said writing to be the act and deed of said corporation.

Witness my hand and official seal, this the 10th day of April, 2019.

(Official Seal)

BRENDA R. BAILEY
My Commission Expires
NOTARY
PUBLIC
August 21, 2021
DAVIE COUNTY, NC

Notary Public Brenda R. Bailey

My commission expires August 21, 2021

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A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

STATE OF CALIFORNIA §
§
COUNTY OF ALAMEDA §

On April 22, 2019, before me, Emily Molina, a Notary Public, personally appeared Nicholas A. Hiza, who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

[Notary Stamp/Seal]

EMILY MOLINA
Commission # 2137950
Notary Public - California
Alameda County
My Comm. Expires Dec 21, 2019

Notary Public in and for the State of California

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# EXHIBIT A

## Description of Property

ALL THAT CERTAIN real estate lying and being situated in Davie County, North Carolina, being more particularly bounded and described as follows:

Real Property Tax Parcel No. 5726627625

Being Tract #14, containing 265 acres, more or less, as shown on Map No. C of Erwin Mills, Inc. Property, Jerusalem Township and Mocksville Township, Cooleemee, North Carolina as per plat and survey thereof by G. Sam Rowe, C. E. dated October 1953 and recorded in the Office of the Register of Deeds for Davie County, North Carolina, in Plat Book 3, at Page 25, to which map reference is hereby made for a more particular description; bounded on the North by the Clement Heirs Estate, on the West by J. F. Ratteree and Hunting Creek, on the South by the South Fork of the Yadkin River, and on the East by a branch and by the MocksvilleCooleemee Road.

SAVE AND EXCEPT the following described tract of land:

BEGINNING at Edward Dwiggins' Southeast corner on the West side of the Davie Academy Road and running thence with the line of the said Davie Academy Road South 87 degrees 15 minutes West 545 feet to a new corner; thence South 15 degrees East 160 feet, a new corner; thence North 87 degrees 15 minutes East 545 feet to a point on the West side of Davie Academy Road; thence with the West side of the Davie Academy Road North 15 degrees West 160 feet to the BEGINNING, containing 2 acres, more or less, and being a portion of Tract No. 8, Map C of the Erwin Mills Property, which said Tract No. 8 is identical to Tract No. 14, Map C, of the Erwin Mills property as the same is recorded in Map Book 3, at Page 25, in the Office of the Register of Deeds of Davie County.

Real Property Tax Parcel No. 5736130064

Tract 1: A parcel of land consisting of 30.724 acres, more or less, lying on the West side of the Southern Railway in Clarksville Township, Davie County, North Carolina, approximately 4 miles more or less northwest of the Town of Mocksville, with said tract being bound on the North by Armand T. Daniel, Jr., et al., on the east by a Southern Railway right-of-way, on the South by Melvin Jones, et al., and on the West by Duman Williams Moose Family Trust, et al., and being more particularly described by metes and bounds as follows:

BEGINNING at an unmarked point in the center of a branch on the Armand T. Daniel, Jr., et al. Line as the same intersects with the western margin of the Southern Railway right-of-way, thence running with the said railway rightof-way the following thirteen (13) calls and distances: (1) South 4-1-23 East 104.58 feet to a new iron pin; (2) South 3-45-13 East 113.82 feet to a point; (3) South 1-42-50 East 116.60 feet to a point; (4) with the arc of a curve to the right with radius 1330.51 feet, arc distance 457.31 feet, with a chord bearing South 9-49-38 West 455.06 feet to a new iron pin; (5) South 21-17-41 West 104.18 feet to a point; (6) South 23-05-14 West 102.22 feet to a new iron pin; (7) South 23-27-38 West 908.99 feet to a new iron pin; (8) South 23-41-07 West 114.83 feet to a point; (9) South 25-56-54 West 113.72 feet to a fence post; (10) with the arc of a curve to the right with radius 1347.04 feet, arc distance 343.95 feet, with a chord bearing South 37-14-41 West 433.06 feet to a point; (11) South 48-20-13 West



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115.84 feet to a point; (12) South 50-26-06 West 116.84 feet to a new iron pin; (13) South 50-43-56 West 302.59 feet to a new iron pin on the railroad, Melvin Jones, et al. corner; thence leaving said railroad and running with the said Jones line the following three (3) calls and distances: (1) North 13-47-00 East 129.74 feet to a placed iron pin; (2) North 3-19-48 East 118.50 feet to an existing iron pin; (3) South 77-07-00 West 198.31 feet to an existing iron pin, common corner of Jones and Moose; thence with the Moose line and Bear Creek the following twenty-two (22) calls and distances: (1) North 11-03-00 East 218.98 feet to a point; (2) South 48-24-00 East 131.90 feet to a point; (3) North 82-41-00 East 151.40 feet to a point; (4) North 54-50-00 East 237.68 feet to a point; (5) North 00-41-00 West 145.23 feet to a point; (6) South 86-31-00 West 204.18 feet to a point; (7) North 22-16-00 West 193.27 feet to a point; (8) North 70-14-00 West 149.00 feet to a point; (9) North 09-44-00 East 209.73 feet to a point; (10) North 53-00-00 East 299.04 feet to a point; (11) North 64-29-00 East 267.35 feet to a point; (12) North 53-40-00 East 200.90 feet to a point; (13) North 83-30-00 East 179.78 feet to a point; (14) North 25-37-00 West 146.44 feet to a point; (15) North 72-02-00 West 111.30 feet to a point; (16) South 89-25-00 West 198.68 feet to a point; (17) North 36-19-00 West 77.94 feet to a point; (18) North 02-25-00 East 148.50 feet to a point; (19) North 75-39-00 East 301.76 feet to a point; (20) North 18-45-00 East 149.74 feet to a point; (21) North 65-50-00 East 207.95 feet to a point; (22) North 28-55-00 West 202.51 feet to a point at the intersection of a branch and Bear Creek on the Armand T. Daniel, Jr., et al. Line; thence with the Daniel, et. al. Line the following three (3) calls and distances (1) North 42-54-00 East 131.12 feet to a point; (2) North 43-42-00 East 222.30 feet to a point; (3) North 65-54-00 East 256.48 feet to point and place of Beginning.

This description is taken from a map of the property by Grady L. Tutterow, Registered Surveyor, dated September 10,1991, and contains 30.724 acres, more or less. There is also included with the Tract a twenty (20) foot non-exclusive right-of way along the existing farm road extending in the easterly direction from the railroad crossing to State Road 1126.

Tract 2: Being Tracts #16 and #17 as appears from a plat designated as Map No. C. of the property of Erwin Mills, Inc. Cooleemee, N.C., by G. Sam Rowe, Civil Engineer, dated October 1953, and recorded in Plat Book 3, at page 25, Office of the Register of Deeds of Davie County, North Carolina, which said plats are more particularly described as follows:

BEGINNING at a point in the center of State Road #1116, being the common corner of Tracts #17 and #16, as it appears from a plat and survey of the Erwin Mills, Inc. Property hereinabove designated, being the Northwest corner of the within described tract, which point of beginning is located South 13 degrees 55 minutes East 761.5 feet to a point in the center of said road in Clement Heirs' line, runs thence with center of said road South 7 1/3 degrees East 400 feet to a point in the center thereof; thence South 6 degrees 50 minutes East 200 feet to a point in the center thereof, Northwest corner of Tract #15 on said plat and survey of Erwin Mills, Inc. Property; thence with the line of said Tract #15 North 87 degrees 15 minutes East 1509 feet to a point in Kelly Heirs' line, Northeast corner of said Tract #15; thence with said Kelly Heirs' line North 6 degrees 45 minutes East 623 feet to a point, Southeast corner of said Tract# 17; thence with said Tract #17 South 87 degrees 15 minutes West 1610 feet to the BEGINNING, containing twenty-one and six-tenths (21.6) acres, more or less, and being Tract # 16 on said plat of the Erwin Mills, Inc. Property hereinabove designated.

BEGINNING at a point in the center of State Road No. 1116 in Clement Heirs' line, being the Northeast corner in said road of Tract #14 and the Northwest corner of Tract #17, the within described tract, of said Erwin Mills, Inc. Property above designated, runs thence with the center of said road South 13 degrees 55 minutes East 761.5 feet to a point in the center thereof. Northwest corner of Tract #16 of said Erwin Mills, Inc. Property; thence with the line of said Tract #16 North 87 degrees 15 minutes East 1610 feet to a point in the line of Kelly Heirs' property, Northeast corner of said Tract #16; thence with the said Kelly



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Heirs' line North 6 degrees 45 minutes East 623 feet to a point, an original corner at a large Hickory, said Kelly Heirs' corner in Clement Heirs' line; thence with said Clement Heirs' line South 87 degrees 15 minutes West 1831 feet to the BEGINNING, containing twenty-four and twenty-five hundredths (24.25) acres, more or less, and being Tract #17, as appears from said plat and survey hereinabove designated.

Tract 3: BEGINNING at an iron stake, the Northeast corner of T. Green (see Plat Book 3, Page 25, Davie County Registry) in Ed Dwiggins line and Running thence South 89 degrees 34 minutes 35 seconds East 1887.16 feet to a point in Bear Creek; thence with the center of said Creek as it meanders in a southwestwardly direction the following courses and distances: South 25 degrees 58 minutes East 186.58 feet to a point; North 51 degrees 50 minutes West 168.85 feet; South 64 degrees 33 minutes West 81.35 feet; South 13 degrees 52 minutes East 245.45 feet; South 33 degrees 51 minutes East 283.53 feet; South 47 degrees 14 minutes West 107.35 feet; South 01 degrees 31 minutes West 100 feet; South 62 degrees 42 minutes East 111.80 feet; South 46 degrees 41 minutes West 142 feet; South 0 degrees 30 minutes East 330 feet; South 48 degrees 08 minutes East 324.15 feet; South 35 degrees 20 minutes East 326.98 feet; South 28 degrees 55 minutes East 202.51 feet; South 65 degrees 50 minutes West 207.95 feet; South 18 degrees 45 minutes West 149.74 feet; South 75 degrees 39 minutes West 301.76 feet; South 02 degrees 25 minutes West 148.50 feet; South 36 degrees 19 minutes East 77.84 feet; North 89 degrees 25 minutes East 198.68 feet; South 72 degrees 02 minutes East 111.30 feet; South 25 degrees 37 minutes East 146.44 feet; South 83 degrees 30 minutes West 179.78 feet; South 53 degrees 40 minutes West 200.90 feet; South 64 degrees 24 minutes West 267.35 feet; South 53 degrees 00 minutes West 299.04 feet; South 09 degrees 44 minutes West 209.73 feet; South 70 degrees 14 minutes East 149 feet; South 22 degrees 16 minutes East 193.27 feet; North 86 degrees 31 minutes East 204.18 feet; South 0 degrees 41 minutes East 145.23 feet; South 54 degrees 50 minutes West 237.68 feet; South 82 degrees 41 minutes West 151.40 feet; North 48 degrees 24 minutes West 131.90 feet; South 11 degrees 03 minutes West 218.98 feet; South 43 degrees 59 minutes West 127.20 feet; South 89 degrees 47 minutes West 252.50 feet; South 54 degrees 29 minutes West 650.58 feet; South 88 degrees 57 minutes West 214.86 feet; South 73 degrees 10 minutes West 249.50 feet; South 47 degrees 51 minutes West 288.90 feet; South 07 degrees 03 minutes West 289.17 feet; South 23 degrees 13 minutes West 135.40 feet; South 11 degrees 15 minutes East 162.71 feet; South 14 degrees 30 minutes East 152.24 feet to a point in the center of said creek, A.G. Spillman Line; thence with said Spillman line South 87 degrees 48 minutes 45 seconds West 504 feet to an iron stake, Spillman corner; thence with Spillman line North 07 degrees 46 minutes 35 seconds East 738.28 feet to an iron stake; thence North 07 degrees 11 minutes East 340 feet to an iron stake; thence North 01 degrees 09 minutes 30 seconds West 574.41 feet to an iron stake, Northeast corner of A.G. Spillman and Southeast corner of Ed Dwiggins; thence with Dwiggins line North 01 degrees 44 minutes 10 seconds West 724.64 feet to an iron stake; thence North 21 degrees 57 minutes 40 seconds East 518.84 feet to an iron stake; thence North 07 degrees 15 minutes East 124.04 feet to an iron stake on the South margin of a roadway leading from the within described property to State Road #1116; thence North 08 degrees 21 minutes 20 seconds East 2394.32 feet to the POINT AND PLACE OF BEGINNING and containing 222.9 acres, more or less, as surveyed and platted by Kestler and McKay, Registered Surveyors, Statesville, North Carolina, December 16, 1968. For reference, see also Book 47, Page 454, Davie County Registry.

(In the event of inaccuracies or insufficiencies in the foregoing legal description, Lessee may record an amendment of this Memorandum to correct the inaccuracies or insufficiencies)



Attachment: Full application_novPB (Zoning Map Amendment_2020-05 Junction Solar Project LLC)

Attachment: Full application_novPB (Zoning Map Amendment_2020-05 Junction Solar Project LLC)

DEED BOOK 140 PAGE 701

Mail To:

WARRANTY DEED--Form WD-601 — Printed and for sale by James Williams & Co., Inc., Yadkinville, N. C.

STATE OF NORTH CAROLINA, Davie County.

THIS DEED, Made this 4 day of November, 19 87, by and between

Ailene W. Cartner (widow) of Davie County and state of North Carolina, hereinafter called Grantor, and Linda C. Shore and husband Jerry Shore of County and State of North Carolina, hereinafter called Grantee, whose permanent mailing address is

WITNESSETH: That the Grantor, for and in consideration of the sum of **********ONE AND NO/100********** Dollars and other good and valuable considerations to him in hand paid by the Grantee, the receipt whereof is hereby acknowledged, has given, granted, bargained, sold and conveyed, and by these presents does give, grant, bargain, sell, convey and confirm unto the Grantee, his heirs and/or successors and assigns, ~~XXXXXXX~~ reserving to the Grantor an estate therein for her natural life, premises in Township, Davie County, North Carolina, described as follows:

FIRST TRACT:
BEGINNING at a stone corner of Lot No. 3 in R. M. Allen's line running N. 3 1/2 degs. E. 29.75 chs to a stone in Z. C. Kurfees line; thence N. 86 1/2 degs. W. 10.38 chs to a stone corner of Lot No. 1; thence S. 3 1/2 degs. W. 29.75 chs to a stone; thence S. 86 1/2 degs. E. 10.23 chs to the BEGINNING containing 30 acres more or less, being Lot No. 2 in the division of the lands of B. R. Ijames.

See Book 22, page 472.

And being the identical property described in a deed dated February 12, 1954 to William W. Cartner and wife, Ailene C. Cartner recorded in Deed Book 54, page 482, Davie County Registry and said description is set forth as existing prior to date of said deed.

NO TAXABLE CONSIDERATION STATED

SECOND TRACT:
A tract or parcel located in Mocksville Township, Davie County and being a part of Lot No. 1 in the division of the lands of B. R. Ijames conveyed to J. N. Ijames by R. M. Ijames, et al by deed recorded in Book 22, page 473, Register's Office of Davie County, N.C. and described as follows:

BEGINNING at a stake and stone northwest corner on the south side of Renshawford Road, said J. B. Wilson's southwest corner and runs S. 3 1/2 degs. W. 17.80 chs. to a stone, said Mrs. T. M. Hendrix's corner in the J. F. Ratledge heirs' line; thence S. 86 1/2 degs. E. 6.73 chs. with said Mrs. Hendrix line to a stone corner of Lot No. 2, now W. W. Cartner's corner; thence N. 3 1/2 degs. E. 27.08 chs. with said Cartner's line to a stone on the south side of Renshawford Road; thence 4 calls with said road S. 28 degs. W. 2 chs.; thence S. 33 degs. W. 2 chs., thence S. 38 degs. W. 2.00 chs.; thence S. 47 degs. W. 4.10 chs. to the BEGINNING corner and containing 14 and 1/10 acres, and being the identical property described in a deed dated September 6, 1955 to W. W. Cartner and wife, Ailene W. Cartner recorded in Deed Book 57, page 69, Davie County Registry and said description is set forth as existing prior to the date of said deed.

SAVE & EXCEPT: 2.03 acres conveyed to Jerry L. Shore et ux recorded in Deed Book 105, page 571, Davie County Registry.

The above land was conveyed to Grantor by , See Book No. , Page .

TO HAVE AND TO HOLD The above described premises, with all the appurtenances thereunto belonging, or in any wise appertaining, unto the Grantee, his heirs and/or successors and assigns forever, reserving to the Grantor an estate therein for her natural life.

And the Grantor covenants that he is seized of said premises in fee, and has the right to convey the same in fee simple; that said premises are free from encumbrances (with the exceptions above stated, if any); and that he will warrant and defend the said title to the same against the lawful claims of all persons whomsoever, reserving to the Grantor an estate therein for her natural life.

When reference is made to the Grantor or Grantee, the singular shall include the plural and the masculine shall include the feminine or the neuter.

IN WITNESS WHEREOF, The Grantor has hereunto set his hand and seal, the day and year first above written.

(SEAL) Ailene W. Cartner (SEAL)

(SEAL) (SEAL)

STATE OF NORTH CAROLINA Davie COUNTY.

I, Shelia McClamrock, a Notary Public of said County, do hereby certify that Ailene W. Cartner

Grantor, personally appeared before me this day and acknowledged the execution of the foregoing deed.

Witness my hand and notarial seal, this the 4 day of November, 19 87.

My Commission Expires: 12-08-91 Shelia McClamrock N. P. [SEAL]

STATE OF NORTH CAROLINA COUNTY.

I, , a Notary Public of said County, do hereby certify that

Grantor, personally appeared before me this day and acknowledged the execution of the foregoing deed.

Witness my hand and notarial seal, this the day of , 19 .

My Commission Expires: , N. P. [SEAL]

STATE OF NORTH CAROLINA, Davie COUNTY.

The foregoing certificate(s) of Shelia McClamrock, Notary Public of Davie County

is (are) certified to be correct. This instrument was presented for registration this 4 day of November, 19 87 at 3:00 ~~A~~ P. M., and duly recorded in the office of the Register of Deeds of Davie County, North Carolina, in Book 140, Page 701.

This the 4 day of November, A. D., 19 87.

J. K. Smith Register of Deeds By Ellen G. Smith ~~Assistant~~, Deputy Register of Deeds

This Deed drawn by John T. Brock, P. O. Box 347, Mocksville, NC 27028

Attachment: Full application_novPB (Zoning Map Amendment_2020-05 Junction Solar Project LLC)

Attachment: Full application_novPB (Zoning Map Amendment_2020-05 Junction Solar Project LLC)

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FILED ELECTRONICALLY
DAVIE COUNTY NC
M. BRENT SHOAF
REGISTER OF DEEDS

| | |
|---|---|
| FILED | Jul 02, 2020 |
| AT | 02:58:00 PM |
| BOOK | 01142 |
| START PAGE | 0550 |
| END PAGE | 0558 |
| INSTRUMENT # | 03693 |
| EXCISE TAX | $0.00 |

Recording Requested By and
When Recorded Return to:

Orion Power Generation LLC
c/o Orion Renewable Energy Group LLC
155 Grand Avenue, Suite 706
Oakland, CA 94612
Attn: General Counsel

#NC-JCT1-175
Davie County, North Carolina

# MEMORANDUM OF SOLAR LEASE AGREEMENT

THIS MEMORANDUM OF SOLAR LEASE AGREEMENT (this "Memorandum") is made, dated and effective as of June 3, 2020 (the "Effective Date"), between **Linda C. Shore and Jerry L. Shore, wife and husband** (collectively "Owner"), and **Orion Power Generation LLC, a Delaware limited liability company** ("Lessee").

1. Lease Agreement. Owner and Lessee are parties to that certain Lease Agreement ("Agreement") dated concurrently herewith. Under the Agreement, Owner hereby leases to Lessee the real property of Owner consisting of approximately 43.88 acres located in Davie County, North Carolina, and legally described on Exhibit A attached hereto and incorporated herein by reference. The Agreement includes the right to access and utilize all radiant energy emitted from the sun upon, over and across the real property ("Solar Energy"), and any easements, rights-of-way, and other rights and benefits relating or appurtenant to such real property (collectively, the "Property").

2. Addresses. All notices, requests and communications required or permitted by the Agreement shall be addressed as follows:

If to Owner: Jerry L. Shore and Linda C. Shore
253 Ratledge Road
Mocksville, NC 27028

If to Lessee: Orion Power Generation LLC
c/o Orion Renewable Energy Group LLC
155 Grand Avenue, Suite 706
Oakland, CA 94612
Attn: General Counsel

3. Purposes. Lessee shall have the exclusive right to use the Property and the unobstructed flow of Solar Energy upon, over and across the Property for electric power, heat and/or steam generation purposes ("Solar Energy Purposes") and to derive all profits therefrom. Solar Energy Purposes include, without limitation, the right to convert the Solar Energy into electrical energy and to collect and transmit the electrical energy so converted, together with any

Attachment: Full application_novPB (Zoning Map Amendment_2020-05 Junction Solar Project LLC)

and all activities related thereto, including, without limitation, (a) determining the feasibility of Solar Energy conversion and power generation on the Property, including studies of the Solar Energy emitted upon, over and across the Property and other meteorological, archeological and environmental studies, land surveys and due diligence activities; (b) constructing, installing, using, replacing, relocating and removing from time to time, and maintaining, refurbishing and operating, Solar Energy collection and electrical generating equipment of all types including, without limitation, any such equipment utilizing photovoltaic and/or solar thermal technology (collectively referred to herein as "Solar Generating Equipment"), overhead and underground electrical transmission and communications lines, electric transformers, energy storage facilities, telecommunications equipment, power generation facilities to be operated in conjunction with Solar Generating Equipment, roads and gates, meteorological towers and Solar Energy measurement equipment, control buildings, maintenance yards, and related facilities and equipment (the Solar Generating Equipment together with all of the other foregoing equipment and improvements, collectively "Solar Facilities") on the Property; and (c) undertaking any other activities, whether accomplished by Lessee or a third party authorized by Lessee, that Lessee reasonably determines are necessary, useful or appropriate to accomplish any of the foregoing. Subject to Owner's rights to use the Property in any manner consistent with the Agreement, Lessee shall have the right under the Agreement to control and restrict access onto and over the Property and exclude others (other than any parties with preexisting easement rights) as it deems necessary or appropriate for safety and security reasons.

4. Term. The Agreement shall be for a term that expires thirty-four years after the Effective Date unless sooner terminated or unless extended pursuant to and in accordance with the Agreement.

5. Ownership. Owner shall have no ownership or other interest in any Solar Facilities installed on the Property, or any profits derived therefrom, and Lessee may remove any or all Solar Facilities at any time.

6. Construction Easement. Owner hereby grants to Lessee an easement in, over and across the Property ("Construction Easement") which may be utilized on a temporary basis for access, construction laydown or other purposes to facilitate the construction, maintenance or repair of Solar Facilities (whether located on the Property or nearby properties) during any time that Lessee is conducting such work. Lessee will use commercially reasonable efforts to minimize surface disturbance on the portion of the Property lying outside of the Project Site during construction. The Construction Easement shall run with the Property, and shall inure to the benefit of and be binding upon Owner and Lessee and their respective transferees, successors and assigns, and all persons claiming under them. The Construction Easement shall expire upon the termination or expiration of the term of the Agreement.

7. Access Easement. Owner grants to Lessee the right of ingress to and egress from Solar Facilities (whether located on the Property, on adjacent property or elsewhere) over and across the Property by means of roads and lanes thereon if existing, or otherwise by such route or routes as Lessee may construct from time to time ("Access Easement"). The Access Easement shall include the right to improve existing roads and lanes, shall run with the Property, and shall inure to the benefit of and be binding upon Owner and Lessee and their respective transferees,



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successors and assigns, and all persons claiming under them. The Access Easement shall expire upon the latter of the termination or expiration of the term of the Agreement.

8. Transmission Easement. Owner grants to Lessee an exclusive easement ("Transmission Easement") in, on, along and under the Property for the right to erect, construct, reconstruct, replace, relocate, remove, maintain and use the following from time to time in connection with Solar Energy Purposes, whether carried out on the Property or elsewhere: (a) a line or lines of poles or towers, together with such wires and cables as from time to time are suspended therefrom, and/or underground wires and cables, for the transmission of electrical energy and/or for communication purposes, and all necessary and proper foundations, footings, crossarms and other appliances and fixtures for use in connection with said towers, wires and cables on, along and in the Property; and (b) one or more substations or interconnection or switching facilities from which Lessee or others that generate energy may interconnect to a utility transmission system or the transmission system of another purchaser of electrical energy, together with the appropriate rights-of-way, on, along and in the Property. The Transmission Easement shall run with the Property and shall inure to the benefit of and be binding upon Owner and Lessee and their respective transferees, successors and assigns, and all persons claiming under them. The Transmission Easement shall expire upon termination or expiration of the term of the Agreement.

9. Assignees. Lessee and any Assignee (as hereinafter defined) have the right, without obtaining the consent of Owner, to do any of the following with respect to all or any portion of its right, title and/or interest in and to the Agreement, the Lease, the Property, any Project Site and/or the Solar Facilities: (i) grant subleases, separate easements, co-easements, subeasements, licenses or similar rights (however denominated) to one or more Assignees, (ii) collaterally assign, mortgage, encumber, pledge or transfer all or any portion of its right, title or interest therein to one or more parties providing financing to Lessee, and/or (iii) sell, lease, assign, transfer or otherwise convey all or any portion of its right, title or interest therein to one or more Assignees. For these purposes, an "Assignee" is any of the following: (i) any one or more parties involved in the development, financing or refinancing of any Solar Facilities, including, without limitation, any lender to or investor in, or purchaser or Lessee of, Solar Facilities; (ii) any one or more parties involved in financing or refinancing the development of the Project or any Solar Facilities, or any purchaser or owner of Solar Facilities; (iii) a corporation, partnership or limited liability company now existing or hereafter organized (including Lessee) in which Lessee or any of its owners, or any affiliate or partner of either, owns (directly or indirectly) a controlling interest at the time of assignment; (iv) a partnership now existing or hereafter organized, a general partner of which is such a corporation, partnership or limited liability company; or (v) a corporation, partnership, limited liability company, or other entity that acquires all or substantially all of Lessee's business, assets or capital stock, directly or indirectly, by purchase, merger, consolidation or other means.

10. Leasehold Mortgages. In the event that any mortgage, deed of trust or other security interest in all or any portion of Lessee's interest in the Lease, the Property, the Agreement, the Project Site or in any Solar Facilities is entered into by Lessee (a "Leasehold Mortgage"), then any person who is the mortgagee of a Leasehold Mortgage shall, for so long as



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its Leasehold Mortgage is in existence and until the lien thereof has been extinguished, be entitled to the protections set forth in the Agreement.

11. Non-exclusive Grant of Rights. Owner grants to Lessee a non-exclusive right, privilege, license and interest covering all of the following:

(a) Any and all easements, rights-of-way, rights of entry, hereditaments, privileges and appurtenances benefiting, belonging to or inuring to the benefit of Owner and pertaining to the Property.

(b) Any and all right, title and interest of Owner in and to any land in the bed of any street, road, avenue or alley (open, proposed or closed) in front of or adjoining the Property and any and all right, title and interest of Owner, in and to any rights-of-way, rights of ingress or egress, or other interests in, on, or to any land, highway, street, road, avenue or alley (open, proposed or closed) in, on, or across, in front of, abutting, or adjoining the Property.

(c) Any and all right, title and interest of Owner, in and to any strips or gores of land adjacent or contiguous to the Property, whether those lands are owned or claimed by deed, limitations, or otherwise.

12. Restrictive Covenant; No Interference. Lessee shall have the quiet use and enjoyment of the Property in accordance with the terms of the Agreement. Owner's activities and any grant of rights Owner makes to any person or entity, whether located on the Property or elsewhere, shall not, currently or prospectively, interfere with: the development, construction, installation, maintenance, or operation of Solar Facilities, whether located on the Property or elsewhere; access over the Property to such Solar Facilities; Lessee's rights granted hereunder to use the Property for any other Solar Energy Purposes; or the undertaking of any other activities permitted under the Agreement. Without limiting the generality of the foregoing, the activities of Owner shall not disturb or interfere with the unobstructed flow of Solar Energy upon, over and across the Property, whether by placing towers or antennas of any type, planting trees or constructing buildings or other structures or facilities, or by engaging in any other activity on the Property or elsewhere that might delay the installation of, disrupt, or otherwise cause a decrease in the output or efficiency of the Solar Facilities. The area of land to remain unobstructed by Owner will consist horizontally of the entire Property, and vertically all space located above the surface of the Property. If Lessee builds Solar Facilities on only a portion of the Property, Owner may use the rest of the Property in any manner that complies with the foregoing.

13. Setback Waiver. To the extent permitted by law, Owner hereby waives any setbacks or other restrictions on the location of any Solar Facilities to be installed on the Property or on adjacent properties, including but not limited to waiver of all property line setbacks, pursuant to state or county rules, regulations or ordinances (that is, Owner approves a reduction of each such setback to zero), and Owner shall cooperate with Lessee in providing documentation of such setback waivers and shall execute any documents reasonably requested by Lessee to evidence Owner's waiver of such setbacks.



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14. Conflicts. In the event of any direct conflict between the Agreement and this Memorandum, the terms of the Agreement shall prevail. Nothing herein contained shall be deemed to amend, modify, alter or change any of the provisions contained in the Agreement.

15. Successors and Assigns. The Agreement and this Memorandum shall inure to the benefit of and be binding upon Owner and Lessee and, to the extent provided in any assignment or other permitted transfer, any Assignee, and their respective heirs, transferees, successors and assigns, and all persons claiming under them. In the event of any inaccuracy in Exhibit A attached hereto, Lessee may correct such inaccuracy in order to accomplish the intent of Lessee and Owner.

16. Counterparts. This Memorandum may be executed in multiple counterparts, no one of which need be executed by all parties hereto, each of which shall constitute an original. Counterparts thus executed shall together constitute one and the same instrument.

[*Signatures on following page.*]

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IN WITNESS WHEREOF, AND INTENDING TO BE LEGALLY BOUND HEREBY, the parties have duly executed this Memorandum the day and year first above written.

**"OWNER"**

Name: Linda C. Shore

Name: Jerry L. Shore

**"LESSEE"**

**Orion Power Generation LLC,**
**a Delaware limited liability company**

By:
Name: Michael Haas
Title: President

Attachment: Full application_novPB (Zoning Map Amendment_2020-05 Junction Solar Project LLC)

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STATE OF NORTH CAROLINA §
§
COUNTY OF Davie §

I, Jessica A. Frye, a Notary Public for said County and State, do hereby certify that Linda C. Shore personally appeared before me this day and acknowledged the due execution of the foregoing instrument.

WITNESS my hand and official seal, this 4 day of May, 2020

JESSICA A. FRYE NOTARY PUBLIC DAVIE COUNTY, NC

Jessica A. Frye
Notary Public

Jessica A. Frye
Notary's printed or typed name

My Commission Expires: 03/10/2023

[NOTARY SEAL] (MUST BE FULLY LEGIBLE)

STATE OF NORTH CAROLINA §
§
COUNTY OF Davie §

I, Jessica A. Frye, a Notary Public for said County and State, do hereby certify that Jerry L. Shore personally appeared before me this day and acknowledged the due execution of the foregoing instrument.

WITNESS my hand and official seal, this 4 day of May, 2020

JESSICA A. FRYE NOTARY PUBLIC DAVIE COUNTY, NC

Jessica A. Frye
Notary Public

Jessica A. Frye
Notary's printed or typed name

My Commission Expires: 03/10/2023

[NOTARY SEAL] (MUST BE FULLY LEGIBLE)



Attachment: Full application_novPB (Zoning Map Amendment_2020-05 Junction Solar Project LLC)

1142
0557

CALIFORNIA ALL-PURPOSE ACKNOWLEDGEMENT

*A Notary Public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.*

State of California
County of Alameda }

On June 3, 2020, before me, Max Rosen, Notary Public,
personally appeared Michael Haas

who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of State of California that the foregoing paragraph is true and correct.

MAX ROSEN
Notary Public - California
Alameda County
Commission # 2288484
My Comm. Expires May 13, 2023

WITNESS my hand and official seal.

SIGNATURE

PLACE NOTARY SEAL ABOVE



Attachment: Full application_novPB (Zoning Map Amendment_2020-05 Junction Solar Project LLC)

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# EXHIBIT A

## Description of Property

ALL THAT CERTAIN real estate lying and being situated in Davie County, North Carolina, being more particularly bounded and described as follows:

Parcel Identification Number 5727401549 (43.88 acres)

FIRST TRACT:
Beginning at a stone corner of Lot No. 3 in R. M. Allen's line running N. 3 ½ degs. E. 29.75 chs to a stone in Z. C. Kurfees line; thence N. 86 ½ degs. W. 10.38 chs to a stone corner of Lot No. 1; thence S. 3 ½ degs. W. 29.75 chs to a stone; thence S. 86 ½ degs. E. 10.23 chs to the Beginning containing 30 acres more or less, being Lot No. 2 in the division of the lands of B. R. Ijames. See book 22, page 472.
And being the identical property described in a deed dated February 12, 1954 to William W. Cartner and wife, Ailene C. Cartner recorded in Deed Book 54, page 482, Davie County Registry and said description is set forth as existing prior to date of said deed.
SECOND TRACT:
A tract or parcel located in Mocksville Township, Davie County and being a part of Lot No. 1 in the division of the lands of B. R. Ijames conveyed to J. N. Ijames by R. M. Ijames, et al by deed recorded in Book 22, page 473, Register's Office of Davie County, N.C. and described as follows:
BEGINNING at a stake and stone northwest corner on the south side of Renshawford Road, said J. B. Wilson's southwest corner and runs S. 3 ½ degs. W. 17.80 chs. to a stone, said Mrs, T. M. Hendrix's corner in the J. F. Ratledge heirs' line; thence S. 86 1/2 degs. E. 6.73 chs. with said Mrs. Hendrix line to a stone corner of Lot No. 2, now W. W. Cartner's corner; thence N. 3 ½ degs. E. 27.08 chs. with said Cartner's line to a stone on the south side of Renshawford Road; thence 4 calls with said road: S. 28 degs. W. 2 chs.; thence S. 33 degs. W. 2 chs., thence S. 38 degs. W. 2.00 chs.; thence S. 47 degs. W. 4.10 chs. to the BEGINNING corner and containing 14 and 1/10 acres, and being the identical property described in a deed dated September 6, 1955 to W. W. Cartner and wife, Ailene w. Cartner recorded in Deed Book 57, page 69, Davie County Registry and said description is set forth as existing prior to the date of said deed.
SAVE AND EXCEPT: 2.03 acres conveyed to Jerry L. Shore et ux recorded in Deed Book 105, page 571, Davie County Registry.

(In the event of inaccuracies or insufficiencies in the foregoing legal description, Lessee may record an amendment of this Memorandum to correct the inaccuracies or insufficiencies)



Attachment: Full application_novPB (Zoning Map Amendment_2020-05 Junction Solar Project LLC)

Attachment: Full application_novPB (Zoning Map Amendment_2020-05 Junction Solar Project LLC)

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FILED ELECTRONICALLY
DAVIE COUNTY NC
M. BRENT SHOAF
REGISTER OF DEEDS

| | |
|---|---|
| FILED | Mar 05, 2020 |
| AT | 01:08:00 PM |
| BOOK | 01130 |
| START PAGE | 0616 |
| END PAGE | 0621 |
| INSTRUMENT # | 01197 |
| EXCISE TAX | $0.00 |

Attachment: Full application_novPB (Zoning Map Amendment_2020-05 Junction Solar Project LLC)

Revenue Stamps: -0-
Parcel Identifier No. 5727328444
This instrument was prepared by: Cartner & Cartner Law Firm, PA
Mail after recording to: Cartner & Cartner Law Firm, PA. 7 Orchard St. Asheville, N.C. 28801
Brief Description: **111.8 ac Junction Rd.**

***All or a portion of the property herein conveyed ___ includes or _X__ does not include the primary residence of a Grantor. This instrument was prepared by David W. Cartner, a licensed North Carolina attorney. Delinquent taxes, if any, to be paid by the closing attorney to the county tax collector upon disbursement of closing proceeds.***

---

## NORTH CAROLINA GENERAL WARRANTY DEED

**THIS DEED,** made this 16th day of August 2019, by and between **David William Cartner; James Patton Cartner; and Sam Corbin Cartner Individually and as Successor Co-Trustees of the Sam Cartner Revocable Trust U/A dated January 28, 1992 as amended and as Successor Co-Trustees of the Margaret C. Cartner Revocable Trust U/A dated January 28, 1992 as amended; Co-Trustees of the Cartner Brothers Irrevocable Trust 12/27/91; Co-Trustees of Cartner Brother Irrevocable Trust 12/14/94, Co-Trustees of Cartner Brothers Consolidated Irrevocable Trust 12/12/03; Cartner Brothers LLC, A N.C Limited Liability Company and Cartner Brothers Partnership, A N.C. General Partnership** whose address is P.O. Box 247, Newland, N.C. 28657 (hereinafter called **"GRANTOR").**

And

**CARTNER BROTHERS CONSOLIDATED IRREVOCABLE TRUST U/A/D 12/12/03**
Co-Trustees: David William Cartner, James Patton Cartner, and Samuel Corbin Cartner, whose address is P.O. Box 247 Newland, N.C. 28657 (hereinafter called **"GRANTEE").**

Submitted electronically by "Cartner & Cartner Law Firm, PA"
in compliance with North Carolina statutes governing recordable documents
and the terms of the submitter agreement with the Davie County Register of Deeds.

The designation Grantor and Grantee as used herein shall include said parties, their heirs, successors, and assigns, and shall include singular, plural, masculine, feminine or neuter as required by context.

**NOW, THEREFORE,** Grantors, for and consideration the sum of ten dollars ($10.00) and other good and valuable consideration receipt of which is hereby acknowledged and the Grantors by these presents do give, bargain, sell, convey and confirm into the Grantee its heirs and/or successors and assigns in fee simple, all that certain parcel of tract of land lying and being in Avery County, North Carolina and being described as follows:

**Attached as Exhibit A**

**It is the intent of this deed to correct any scrivener's errors, recording issues or mistakes with regard to prior conveyances by or to any of the Grantors named herein.**

**This deed conveys in fee simple all interest owned by any and all of the Grantors, including, any interest owned by Margaret Cartner and Sam Cartner during their lifetimes or interest remaining at their deaths.**

**Historical information is included in the Certification of Trust recorded in Deed Book 535 Page 832 of Avery County Registry.**

BEING the same property described in a General Warranty Deed recorded in Book ____at Page _____ of the Deed Records of Davie County, North Carolina.

The property hereinabove described was acquired by Grantor by instrument recorded in a portion of Deed book and Page **Book**_____ **Page** _____of the Avery County Registry.

A map showing the above described property is recorded in **Plat Book** ____ **at Page** _____of the **Davie** County Registry.

**TO HAVE AND TO HOLD** the aforesaid tract or parcel of land and all privileges and appurtenances thereunto belonging, or in anywise thereunto appertaining, unto Grantee **Cartner Brothers Consolidated Irrevocable Trust U/A/D 12/12/03** in the interest hereinabove set forth.

And the Grantor covenants with the Grantee, that Grantor is seized of the premises in fee simple, has the right to convey the same in fee simple, that title is marketable and free and clear of all encumbrances, and that Grantor will warrant and defend the title against lawful claims of all persons whomsoever except for the exceptions herein stated.

**IN TESTAMONY WHEREOF,** as Trustees we do set our hand and seal as of the day and year first above set forth.

Attachment: Full application_novPB (Zoning Map Amendment_2020-05 Junction Solar Project LLC)

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David William Cartner, Individually and as Successor Trustee
Sam Cartner Revocable Trust 1/28/1992 and any amendments thereto
Margaret C. Cartner Revocable Trust 1/29/1992 and any amendment thereto

(SEAL)
David William Cartner, Trustee
Cartner Brothers Irrevocable Trust dated December 27, 1991
Cartner Brothers Irrevocable Trust dated December 14, 1994
Cartner Brothers Consolidated Irrevocable Trust dated December 12, 2003.

Cartner Brothers, LLC

By: David W. Cartner, Managing Member

Cartner Brothers, A N.C. General Partnership

By: David W. Cartner, General Partner

STATE OF NORTH CAROLINA

COUNTY OF BUNCOMBE

I am Notary Public of the County and State aforesaid and certify that David William Cartner personally appeared before me this day and acknowledged the due execution of the foregoing instrument for the purposes therein expressed and the capacities indicated: Individually and as Successor Trustee of Sam Cartner Revocable Trust 1/28/1992 and any amendments thereto; Successor Trustee of Margaret C. Cartner Revocable Trust1/28/1992 and any amendments thereto; Trustee of Cartner Brothers Irrevocable Trust dated December 27, 1991 and any amendments thereto; Trustee of Cartner Brothers Irrevocable Trust dated December 14, 1994 and any amendments thereto; Trustee of Cartner Brothers Consolidated Irrevocable Trust dated December 12, 2003 and any amendments thereto; as manager/member of Cartner Brothers LLC, a N.C. Limited Liability Company and as General Partner of Cartner Brothers, A N.C. General Partnership.

Witness my hand and Notarial stamp or seal, this the 19 day of Dec 2019.

8.19.22
My commission expires

Notary Public

CHRISTINE A BELL
Notary Public
Buncombe
County
NORTH CAROLINA

Attachment: Full application_novPB (Zoning Map Amendment_2020-05 Junction Solar Project LLC)

1130
0619

**SIGNATURE PAGE 2 OF 3**

_____ (SEAL)
James Patton Cartner, Individually and as Successor Trustee
Sam Cartner Revocable Trust 1/28/1992 and any amendments thereto
Margaret C. Cartner Revocable Trust 1/28/1992 and any amendment thereto

_____ (SEAL)
James Patton Cartner, Trustee
Cartner Brothers Irrevocable Trust dated December 27, 1991
Cartner Brothers Irrevocable Trust dated December 14, 1994
Cartner Brothers Consolidated Irrevocable Trust dated December 12, 2003.

STATE OF NORTH CAROLINA

COUNTY OF Iredell

I am a Notary Public of the County and State aforesaid and certify that James Patton Cartner personally appeared before me this day and acknowledged the due execution of the foregoing instrument for the purposes therein expressed and the capacities indicated :

Individually and as Successor Trustee of Sam Cartner Revocable Trust 1/28/1992 and any amendments thereto
Successor Trustee of Margaret C. Cartner Revocable Trust1/28/1992 and any amendments thereto; Trustee of Cartner Brothers Irrevocable Trust dated December 27, 1991 and any amendments thereto ; Trustee of Cartner Brothers Irrevocable Trust dated December 14, 1994 and any amendments thereto ; Trustee of Cartner Brothers Consolidated Irrevocable Trust dated December 12, 2003 and any amendments thereto.

Witness my hand and Notarial stamp or seal, this the 16th day of August 2019.

April 30 2023 _____
My commission expires Notary Public

(Notary seal)

JENNIFER C. JOLLY
NOTARY PUBLIC
IREDELL COUNTY, NORTH CAROLINA

Attachment: Full application_novPB (Zoning Map Amendment_2020-05 Junction Solar Project LLC)

1130
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**SIGNATURE PAGE 3 OF 3**

_____(SEAL)
Samuel Corbin Cartner, Individually and as Successor Trustee
Sam Cartner Revocable Trust 1/28/1992 and any amendments thereto
Margaret C. Cartner Revocable Trust 1/28/1992 and any amendment thereto

_____(SEAL)
Samuel Corbin Cartner, Trustee
Cartner Brothers Irrevocable Trust dated December 27, 1991
Cartner Brothers Irrevocable Trust dated December 14, 1994
Cartner Brothers Consolidated Irrevocable Trust dated December 12, 2003.

STATE OF North Carolina

COUNTY OF Buncombe

I am a Notary Public of the County and State aforesaid and certify that Samuel Corbin Cartner personally appeared before me this day and acknowledged the due execution of the foregoing instrument for the purposes therein expressed and the capacities indicated below:

Individually and as Successor Trustee of Sam Cartner Revocable Trust 1/28/1992 and any amendments thereto
Successor Trustee of Margaret C. Cartner Revocable Trust 1/28/1992 and any amendments thereto; Trustee of Cartner Brothers Irrevocable Trust dated December 27, 1991 and any amendments thereto ; Trustee of Cartner Brothers Irrevocable Trust dated December 14, 1994 and any amendments thereto ; Trustee of Cartner Brothers Consolidated Irrevocable Trust dated December 12, 2003 and any amendments thereto.

Witness my hand and Notarial stamp or seal, this the 9 day of Sept. 2019.

8.19.22
My commission expires

Notary Public

CHRISTINE A BELL
Notary Public
Buncombe
County
NORTH CAROLINA

Attachment: Full application_novPB (Zoning Map Amendment_2020-05 Junction Solar Project LLC)

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EXHIBIT A

**TRACT 1:** BEING LOT NUMBERED 1. As shown upon a Map of A. M. Grant Property, as surveyed and platted by A. L. Bowles, Surveyor, in April 1951. And said Map recorded in Book 30, at Page 377 in the Register of Deeds Office of Davie County, North Carolina, to which reference is hereby made for a more particular description of said lot.

**TRACT 2:** A tract beginning at Pine, now dead, thence N. 5 degs. E. 7 chs. to a stone; thence N. 85 degs. W. 11.35 chs. to a stone; thence N. 5 degs. E 22.40 chs. to a stone; thence S. 82 degs. W. 13.50 chs. to a Maple; thence N. 6 degs. W. following the Branch 14.75 chs. to a stone in the Branch; thence N. 2 degs. E. 2.75 chs. to a stone; thence S. 5 degs. W. 10.20 chs. to a stone; thence S. 59 degs. E. 21 chs. to a stone; thence S. 5 degs. W. 11.32 chs. to a stone; thence N 85 degs. W. 4.95 chs. to a stone; thence S. 5 degs. W. 3.50 chs. to a stone; thence S. 85 degs. E. 39.50 chs. to the BEGINNING, containing 111 8/10 acres, more or less, being the same lands described in the deeds from A. T. Grant, commissioner, to R. W. Kurfees, recorded in Book 35, Page 82 to which reference is hereby made for a more particular description.

For back deed reference see Deed recorded in Book 96, Page 617, Davie County Registry.

Being also the same property conveyed from Laura C. Lutz and husband Duray Lutz to Sam (NMI) Cartner recorded in Deed Book 147, Page 777 in Davie County Registry.

ADDRESS: 111.80 AC Junction Road
PIN 5727328444

Attachment: Full application_novPB (Zoning Map Amendment_2020-05 Junction Solar Project LLC)

Attachment: Full application_novPB (Zoning Map Amendment_2020-05 Junction Solar Project LLC)

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FILED ELECTRONICALLY
DAVIE COUNTY NC
M. BRENT SHOAF
REGISTER OF DEEDS

| | |
|---|---|
| FILED | Oct 12, 2020 |
| AT | 04:32:00 PM |
| BOOK | 01154 |
| START PAGE | 0130 |
| END PAGE | 0139 |
| INSTRUMENT # | 06196 |
| EXCISE TAX | $0.00 |

Recording Requested By and
When Recorded Return to:

Orion Power Generation LLC
c/o Orion Renewable Energy Group LLC
155 Grand Avenue, Suite 706
Oakland, CA 94612
Attn: General Counsel

#NC-JCT1-035
Davie County, North Carolina

# MEMORANDUM OF SOLAR LEASE AGREEMENT

THIS MEMORANDUM OF SOLAR LEASE AGREEMENT (this "Memorandum") is made, dated and effective as of June 15, 2020 (the "Effective Date"), between **DAVID WILLIAM CARTNER, Trustee, JAMES PATTON CARTNER, Trustee, and SAMUEL CORBIN CARTNER, Trustee, Co-Trustees of The Cartner Brothers Consolidated Irrevocable Trust dated December 12, 2003** (collectively "Owner"), and **Orion Power Generation LLC, a Delaware limited liability company** ("Lessee").

1. Lease Agreement. Owner and Lessee are parties to that certain Lease Agreement ("Agreement") dated concurrently herewith. Under the Agreement, Owner hereby leases to Lessee the real property of Owner consisting of approximately 106.4 acres located in Davie County, North Carolina, and legally described on Exhibit A attached hereto and incorporated herein by reference. The Agreement includes the right to access and utilize all radiant energy emitted from the sun upon, over and across the real property ("Solar Energy"), and any easements, rights-of-way, and other rights and benefits relating or appurtenant to such real property (collectively, the "Property").

2. Addresses. All notices, requests and communications required or permitted by the Agreement shall be addressed as follows:

If to Owner:
David W. Cartner
James P. Cartner
Samuel C. Cartner
Cartner Brothers Trust
7 Orchard Street
Asheville, NC 28801

If to Lessee:
Orion Power Generation LLC
c/o Orion Renewable Energy Group LLC
155 Grand Avenue, Suite 706
Oakland, CA 94612
Attn: General Counsel

Submitted electronically by Orion Renewable Energy Group, LLC in compliance with North Carolina Statutes governing recordable documents and the terms of the submitter agreement with the Davie County Register of Deeds

Attachment: Full application_novPB (Zoning Map Amendment_2020-05 Junction Solar Project LLC)

3. Purposes. Lessee shall have the exclusive right to use the Property and the unobstructed flow of Solar Energy upon, over and across the Property for electric power, heat and/or steam generation purposes ("Solar Energy Purposes") and to derive all profits therefrom. Solar Energy Purposes include, without limitation, the right to convert the Solar Energy into electrical energy and to collect and transmit the electrical energy so converted, together with any and all activities related thereto, including, without limitation, (a) determining the feasibility of Solar Energy conversion and power generation on the Property, including studies of the Solar Energy emitted upon, over and across the Property and other meteorological, archeological and environmental studies, land surveys and due diligence activities; (b) constructing, installing, using, replacing, relocating and removing from time to time, and maintaining, refurbishing and operating, Solar Energy collection and electrical generating equipment of all types including, without limitation, any such equipment utilizing photovoltaic and/or solar thermal technology (collectively referred to herein as "Solar Generating Equipment"), overhead and underground electrical transmission and communications lines, electric transformers, energy storage facilities, telecommunications equipment, power generation facilities to be operated in conjunction with Solar Generating Equipment, roads and gates, meteorological towers and Solar Energy measurement equipment, control buildings, maintenance yards, and related facilities and equipment (the Solar Generating Equipment together with all of the other foregoing equipment and improvements, collectively "Solar Facilities") on the Property; and (c) undertaking any other activities, whether accomplished by Lessee or a third party authorized by Lessee, that Lessee reasonably determines are necessary, useful or appropriate to accomplish any of the foregoing. Subject to Owner's rights to use the Property in any manner consistent with the Agreement, Lessee shall have the right under the Agreement to control and restrict access onto and over the Property and exclude others (other than any parties with preexisting easement rights) as it deems necessary or appropriate for safety and security reasons.

4. Term. The Agreement shall be for a term that expires thirty-four years after the Effective Date unless sooner terminated or unless extended pursuant to and in accordance with the Agreement.

5. Ownership. Owner shall have no ownership or other interest in any Solar Facilities installed on the Property, or any profits derived therefrom, and Lessee may remove any or all Solar Facilities at any time.

6. Construction Easement. Owner hereby grants to Lessee an easement in, over and across the Property ("Construction Easement") which may be utilized on a temporary basis for access, construction laydown or other purposes to facilitate the construction, maintenance or repair of Solar Facilities (whether located on the Property or nearby properties) during any time that Lessee is conducting such work. Lessee will use commercially reasonable efforts to minimize surface disturbance on the portion of the Property lying outside of the Project Site during construction. The Construction Easement shall run with the Property, and shall inure to the benefit of and be binding upon Owner and Lessee and their respective transferees, successors and assigns, and all persons claiming under them. The Construction Easement shall expire upon the termination or expiration of the term of the Agreement.



Attachment: Full application_novPB (Zoning Map Amendment_2020-05 Junction Solar Project LLC)

7. Access Easement. Owner grants to Lessee the right of ingress to and egress from Solar Facilities (whether located on the Property, on adjacent property or elsewhere) over and across the Property by means of roads and lanes thereon if existing, or otherwise by such route or routes as Lessee may construct from time to time ("Access Easement"). The Access Easement shall include the right to improve existing roads and lanes, shall run with the Property, and shall inure to the benefit of and be binding upon Owner and Lessee and their respective transferees, successors and assigns, and all persons claiming under them. The Access Easement shall expire upon the latter of the termination or expiration of the term of the Agreement.

8. Transmission Easement. Owner grants to Lessee an exclusive easement ("Transmission Easement") in, on, along and under the Property for the right to erect, construct, reconstruct, replace, relocate, remove, maintain and use the following from time to time in connection with Solar Energy Purposes, whether carried out on the Property or elsewhere: (a) a line or lines of poles or towers, together with such wires and cables as from time to time are suspended therefrom, and/or underground wires and cables, for the transmission of electrical energy and/or for communication purposes, and all necessary and proper foundations, footings, crossarms and other appliances and fixtures for use in connection with said towers, wires and cables on, along and in the Property; and (b) one or more substations or interconnection or switching facilities from which Lessee or others that generate energy may interconnect to a utility transmission system or the transmission system of another purchaser of electrical energy, together with the appropriate rights-of-way, on, along and in the Property. The Transmission Easement shall run with the Property and shall inure to the benefit of and be binding upon Owner and Lessee and their respective transferees, successors and assigns, and all persons claiming under them. The Transmission Easement shall expire upon termination or expiration of the term of the Agreement.

9. Assignees. Lessee and any Assignee (as hereinafter defined) have the right, without obtaining the consent of Owner, to do any of the following with respect to all or any portion of its right, title and/or interest in and to the Agreement, the Lease, the Property, any Project Site and/or the Solar Facilities: (i) grant subleases, separate easements, co-easements, subeasements, licenses or similar rights (however denominated) to one or more Assignees, (ii) collaterally assign, mortgage, encumber, pledge or transfer all or any portion of its right, title or interest therein to one or more parties providing financing to Lessee, and/or (iii) sell, lease, assign, transfer or otherwise convey all or any portion of its right, title or interest therein to one or more Assignees. For these purposes, an "Assignee" is any of the following: (i) any one or more parties involved in the development, financing or refinancing of any Solar Facilities, including, without limitation, any lender to or investor in, or purchaser or Lessee of, Solar Facilities; (ii) any one or more parties involved in financing or refinancing the development of the Project or any Solar Facilities, or any purchaser or owner of Solar Facilities; (iii) a corporation, partnership or limited liability company now existing or hereafter organized (including Lessee) in which Lessee or any of its owners, or any affiliate or partner of either, owns (directly or indirectly) a controlling interest at the time of assignment; (iv) a partnership now existing or hereafter organized, a general partner of which is such a corporation, partnership or limited liability company; or (v) a corporation, partnership, limited liability company, or other entity that acquires all or substantially all of Lessee's business, assets or capital stock, directly or indirectly, by purchase, merger, consolidation or other means.



Attachment: Full application_novPB (Zoning Map Amendment_2020-05 Junction Solar Project LLC)

10. Leasehold Mortgages. In the event that any mortgage, deed of trust or other security interest in all or any portion of Lessee's interest in the Lease, the Property, the Agreement, the Project Site or in any Solar Facilities is entered into by Lessee (a "Leasehold Mortgage"), then any person who is the mortgagee of a Leasehold Mortgage shall, for so long as its Leasehold Mortgage is in existence and until the lien thereof has been extinguished, be entitled to the protections set forth in the Agreement.

11. Non-exclusive Grant of Rights. Owner grants to Lessee a non-exclusive right, privilege, license and interest covering all of the following:

(a) Any and all easements, rights-of-way, rights of entry, hereditaments, privileges and appurtenances benefiting, belonging to or inuring to the benefit of Owner and pertaining to the Property.

(b) Any and all right, title and interest of Owner in and to any land in the bed of any street, road, avenue or alley (open, proposed or closed) in front of or adjoining the Property and any and all right, title and interest of Owner, in and to any rights-of-way, rights of ingress or egress, or other interests in, on, or to any land, highway, street, road, avenue or alley (open, proposed or closed) in, on, or across, in front of, abutting, or adjoining the Property.

(c) Any and all right, title and interest of Owner, in and to any strips or gores of land adjacent or contiguous to the Property, whether those lands are owned or claimed by deed, limitations, or otherwise.

12. Restrictive Covenant; No Interference. Lessee shall have the quiet use and enjoyment of the Property in accordance with the terms of the Agreement. Owner's activities and any grant of rights Owner makes to any person or entity, whether located on the Property or elsewhere, shall not, currently or prospectively, interfere with: the development, construction, installation, maintenance, or operation of Solar Facilities, whether located on the Property or elsewhere; access over the Property to such Solar Facilities; Lessee's rights granted hereunder to use the Property for any other Solar Energy Purposes; or the undertaking of any other activities permitted under the Agreement. Without limiting the generality of the foregoing, the activities of Owner shall not disturb or interfere with the unobstructed flow of Solar Energy upon, over and across the Property, whether by placing towers or antennas of any type, planting trees or constructing buildings or other structures or facilities, or by engaging in any other activity on the Property or elsewhere that might delay the installation of, disrupt, or otherwise cause a decrease in the output or efficiency of the Solar Facilities. The area of land to remain unobstructed by Owner will consist horizontally of the entire Property, and vertically all space located above the surface of the Property. If Lessee builds Solar Facilities on only a portion of the Property, Owner may use the rest of the Property in any manner that complies with the foregoing.

13. Setback Waiver. To the extent permitted by law, Owner hereby waives any setbacks or other restrictions on the location of any Solar Facilities to be installed on the Property or on adjacent properties, including but not limited to waiver of all property line setbacks, pursuant to state or county rules, regulations or ordinances (that is, Owner approves a reduction of each such setback to zero), and Owner shall cooperate with Lessee in providing documentation of such



Attachment: Full application_novPB (Zoning Map Amendment_2020-05 Junction Solar Project LLC)

setback waivers and shall execute any documents reasonably requested by Lessee to evidence Owner's waiver of such setbacks.

14. Conflicts. In the event of any direct conflict between the Agreement and this Memorandum, the terms of the Agreement shall prevail. Nothing herein contained shall be deemed to amend, modify, alter or change any of the provisions contained in the Agreement.

15. Successors and Assigns. The Agreement and this Memorandum shall inure to the benefit of and be binding upon Owner and Lessee and, to the extent provided in any assignment or other permitted transfer, any Assignee, and their respective heirs, transferees, successors and assigns, and all persons claiming under them. In the event of any inaccuracy in Exhibit A attached hereto, Lessee may correct such inaccuracy in order to accomplish the intent of Lessee and Owner.

16. Counterparts. This Memorandum may be executed in multiple counterparts, no one of which need be executed by all parties hereto, each of which shall constitute an original. Counterparts thus executed shall together constitute one and the same instrument.

[*Signatures on following page.*]

Attachment: Full application_novPB (Zoning Map Amendment_2020-05 Junction Solar Project LLC)

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IN WITNESS WHEREOF, AND INTENDING TO BE LEGALLY BOUND HEREBY, the parties have duly executed this Memorandum the day and year first above written.

**"OWNER"**

DAVID WILLIAM CARTNER, Trustee; JAMES PATTON CARTNER, Trustee; SAMUEL CORBIN CARTNER, Trustee, Co-Trustees of The Cartner Brothers Consolidated Irrevocable Trust dated December 12, 2003

Name: DAVID WILLIAM CARTNER, Trustee

Name: JAMES PATTON CARTNER, Trustee

Name: SAMUEL CORBIN CARTNER, Trustee

**"LESSEE"**

**Orion Power Generation LLC,**
**a Delaware limited liability company**

By: _____
Name: Michael Haas
Title: President



Attachment: Full application_novPB (Zoning Map Amendment_2020-05 Junction Solar Project LLC)

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STATE OF NORTH CAROLINA §
§
COUNTY OF Buncombe §

I, Christine A. Bell, a Notary Public for said County and State, do hereby certify that DAVID WILLIAM CARTNER, Co-Trustee of The Cartner Brothers Consolidated Irrevocable Trust dated December 12, 2003, personally appeared before me this day and acknowledged the due execution of the foregoing instrument.

WITNESS my hand and official seal, this 26 day of June, 2020

Notary Public

Christine A. Bell
Notary's printed or typed name

My Commission Expires: 8.19.22

[NOTARY SEAL] (MUST BE FULLY LEGIBLE)

CHRISTINE A BELL
Notary Public
Buncombe
County
NORTH CAROLINA

STATE OF NORTH CAROLINA §
§
COUNTY OF Buncombe §

I, Christine A. Bell, a Notary Public for said County and State, do hereby certify that JAMES PATTON CARTNER, Co-Trustee of The Cartner Brothers Consolidated Irrevocable Trust dated December 12. 2003, personally appeared before me this day and acknowledged the due execution of the foregoing instrument.

WITNESS my hand and official seal, this 26 day of June, 2020

Notary Public

Christine A. Bell
Notary's printed or typed name

My Commission Expires: 8.19.22

[NOTARY SEAL] (MUST BE FULLY LEGIBLE)

CHRISTINE A BELL
Notary Public
Buncombe
County
NORTH CAROLINA



Attachment: Full application_novPB (Zoning Map Amendment_2020-05 Junction Solar Project LLC)

1154
0137

STATE OF NORTH CAROLINA §
§
COUNTY OF Buncombe §

I, Christine A. Bell, a Notary Public for said County and State, do hereby certify that SAMUEL CORBIN CARTNER, Co-Trustee of The Cartner Brothers Consolidated Irrevocable Trust dated December 12, 2003, personally appeared before me this day and acknowledged the due execution of the foregoing instrument.

WITNESS my hand and official seal, this 24 day of June, 2020

CHRISTINE A BELL
Notary Public
Buncombe
County
NORTH CAROLINA

Christine A. Bell
Notary Public

Christine A. Bell
Notary's printed or typed name

My Commission Expires: 8.19.22

☜ [NOTARY SEAL] (MUST BE FULLY LEGIBLE)



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1154
0138

CALIFORNIA ALL-PURPOSE ACKNOWLEDGEMENT

*A Notary Public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.*

State of California
County of Alameda

On July 16, 2020, before me, Max Rosen, Notary Public,
personally appeared Michael Haas

who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of State of California that the foregoing paragraph is true and correct.

MAX ROSEN
Notary Public - California
Alameda County
Commission # 2288484
My Comm. Expires May 13, 2023

WITNESS my hand and official seal.

SIGNATURE

PLACE NOTARY SEAL ABOVE



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## EXHIBIT A

## Description of Property

ALL THAT CERTAIN real estate lying and being situated in Davie County, North Carolina, being more particularly bounded and described as follows:

Parcel Identification Number 5727328444 ptn (106.40 acres)

TRACT 1: BEING LOT NUMBERED 1, as shown upon a Map of A. M. Grant Property, as surveyed and platted by A. L. Bowles, Surveyor, in April 1951. And said Map recorded in Book 30 at Page 377 in the Register of Deeds Office of Davie County, North Carolina, to which reference is hereby made for a more particular description of said lot.

TRACT 2: A tract beginning at a Pine, now dead, thence N. 5° E. 7 chs. to a stone; thence N. 85° W. 11.35 chs. to a stone; thence N. 5° E. 22.40 chs. to a stone; thence S. 82° W. 13.50 chs. to a Maple; thence N. 6° W. following the branch 14.75 chs. to a stone in the Branch; thence N. 2° E. 2.75 chs. to a stone; thence N. 85° W. 15 chs. to a stone; thence S. 5° W. 11.32 chs. to a stone; thence S. 85° W. 4.95 chs. to a stone; thence S. 5 deg. W. 3.50 chs. to a stone; thence S. 85° 39.50 chs. to the BEGINNING, containing 111 and 8/10 acres more or less, being the same lands described in deed from T. Grant, Commissioner to R. W. Kurfees, recorded in Book 35, Page 82, to which reference is hereby made for a more particular description. Being the same property which was conveyed by a Warranty Deed dated January 3, 1992 and filed with the Davie County Registry.

SAVE AND EXCEPT all that portion of Tracts 1 and 2 lying on the east side of Junction Road, being a 5.36 acre parcel, more or less.

(In the event of inaccuracies or insufficiencies in the foregoing legal description, Lessee may record an amendment of this Memorandum to correct the inaccuracies or insufficiencies)



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KURFEES JOEL E
209 DAVIE ACADEMY ROAD

MOCKSVILLE, NC 27028-0000

SHORE JERRY L
253 RATLEDGE ROAD

MOCKSVILLE, NC 27028-0000

Junction Solar Project LLC
c/o Orion Renewable Energy Group LLC
155 Grand Ave. Suite 706
Oakland, CA 94612

CARTNER SAM
PO BOX 247

NEWLAND, NC 28657-0000

PILCHER CHARLES PHILLIP
2728 FARMINGTON ROAD

MOCKSVILLE, NC 27028-0000

JOHN A SPILLMAN REV TRUST
PO BOX 292
MOCKSVILLE, NC 27028-0292

JOHNSON TERESA K
195 TOMLIN RD

HARMONY, NC 28634-9042

STROUSE KENNETH L
157 WEST CHURCH STREET

MOCKSVILLE, NC 27028-0000

SLOGICK NICHOLAS ALAN
341 MAGNOLIA DRIVE

MOCKSVILLE, NC 27028-2913

WEAVER ABRAHAM A
246 ADAMS ROAD
MOCKSVILLE, NC 27028-0000

SPILLMAN EDDIE AUSTIN
168 WILLOW LANE
MOCKSVILLE, NC 27028-5489

GREEN JOHN WAYNE
820 JUNCTION ROAD
MOCKSVILLE, NC 27028-0000

CAMPBELL SHARRIE SOUTHER
280 RATLEDGE ROAD
MOCKSVILLE, NC 27028-5425

BERKELEY VICKI A
269 RATLEDGE ROAD
MOCKSVILLE, NC 27208-0000

LYTLE JAMES HERBERT JR
173 JUNCTION ROAD
MOCKSVILLE, NC 27028-0000

ALLEN JOHNNY R
365 JUNCTION ROAD
MOCKSVILLE, NC 27028-5316

SANTIAGO GUSTAVO
372 JUNCTION ROAD
MOCKSVILLE, NC 27028-0000

DIEHL PHILIP C JR
140 WILLOW LANE
MOCKSVILLE, NC 27028-0000

SHORE KAY BECK
400 JUNCTION ROAD
MOCKSVILLE, NC 27028-0000

HARRIS JOSHUA A
380 JUNCTION ROAD
MOCKSVILLE, NC 27028

OLIVER WALTER R
8017 LINVILLE RD
OAK RIDGE, NC 27310-9313

BARRON STEPHEN H
189 JUNCTION ROAD
MOCKSVILLE, NC 27028-5314

STEVENSON ANGELA P
391 RATLEDGE ROAD
MOCKSVILLE, NC 27028-0000

MITCHELL THOMAS J
435 RATLEDGE ROAD
MOCKSVILLE, NC 27028

YORK CALVIN
417 OLIN LOOP ROAD
OLIN, NC 28660

RIDINGS ROSALIND
213 CAROLINA AVENUE
MOCKSVILLE, NC 27028

LOOKABILL BILLIE C
PO BOX 362
MOCKSVILLE, NC 27028-0362

PREVETTE BETTY J
247 JUNCTION ROAD
MOCKSVILLE, NC 27028-5315

BENFIELD JOHNNY EUGENE
392 JUNCTION ROAD
MOCKSVILLE, NC 27028-0000

WISHON KEVIN FORREST
383 JUNCTION ROAD
MOCKSVILLE, NC 27028-0000

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FULK JACK Z JR
4905 WATERS EDGE DRIVE
RALEIGH, NC 27606-0000

MENZEL MICAH T
163 WHITE DRIVE
MOCKSVILLE, NC 27028

WEAVER DAVID ABE
215 ADAMS ROAD
MOCKSVILLE, NC 27028

SHORES RICHARD I
980 MAIN CHURCH ROAD
MOCKSVILLE, NC 27028-0000

ANDERSON JAMES L
199 CAROLINA AVENUE
MOCKSVILLE, NC 27028-0000

EDWARDS JAMES KIRK
PO BOX 1591
MOCKSVILLE, NC 27028-1591

HARRIS STEVEN DOUGLAS
120 WILLOW LANE
MOCKSVILLE, NC 27028-0000

MARION DAVID MATTHEW
417 RATLEDGE ROAD
MOCKSVILLE, NC 27028-5427

CARTNER JERRY WAYNE
PO BOX 383
MOCKSVILLE, NC 27028-0000

GRACE FARMS LLC
336 WHISPERING OAKS LN
MOCKSVILLE, NC 27028-5502

HARRIS PHILLIP A
111 WILLOW LN
MOCKSVILLE, NC 27028-5489

ADAMES LUIS GERARDO
130 WILLOW LN
MOCKSVILLE, NC 27028

KELLY PATRICK M
223 ADAMS RD
MOCKSVILLE, NC 27028-5101

WYATT MORGAN LEIGH
198 RATLEDGE RD
MOCKSVILLE, NC 27028-5424

MOXLEY AMESHA LYNN
172 CAROLINA AVE
MOCKSVILLE, NC 27028-5107

GARNETT STEVEN LEE
781 RATLEDGE ROAD
MOCKSVILLE, NC 27028-0000

COULSTON JACQUELINE W
PO BOX 1165
MOCKSVILLE, NC 27028-1165

FREEMAN WILLIAM R
744 JUNCTION ROAD
MOCKSVILLE, NC 27028-0000

SHOAF EARL FRANKLIN
5117 WYNEEFORD WAY
RALEIGH, NC 27614-0000

STROUD JAMES RICHARD
2596 LANDMARK DRIVE
WINSTON SALEM, NC 27103

STERN LORI
429 JUNCTION RD
MOCKSVILLE, NC 27028-5317

SHORE PHILLIP D
347 LITTLE EGYPT ROAD
MOCKSVILLE, NC 27028-0000

HOWELL LAURA ELAINE
188 CENTER CIRCLE
MOCKSVILLE, NC 27028

KENNEDY CHRISTOPHER
832 RATLEDGE ROAD
MOCKSVILLE, NC 27028

HALTEMAN WILLIS ALDERFER JR
209 DUNHAVEN LANE
MOCKSVILLE, NC 27028

SHORE BRANDON PHILLIP
130 EMERALD ISLE CT
LEXINGTON, NC 27292-7775

FORKS OF THE YADKIN & DAVIE CO
HISTORY MUSEUM
34 COURT SQ
MOCKSVILLE, NC 27028-2415

GALE ALBERT D
293 WILLOW CREEK LANE
MOCKSVILLE, NC 27028-5880

COUCH GEORGE EDGAR JR
154 PEE WEES WAY
MOCKSVILLE, NC 27028-0000

ONEAL LEON ANTHONY&TAMMY B.
PO BOX 907
COOLEEMEE, NC 27014-0000

RUTH'S TREE FARM LLC
PO BOX 2148
BLOWING ROCK, NC 28605

KEATON JONATHAN
933 WALLACE STREET
STATESVILLE, NC 28677

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STOCKTON DARRYL T
PO BOX 297
COOLEEMEE, NC 27014-0297

SPILLMAN CLARENCE
1949 JUNCTION ROAD
MOCKSVILLE, NC 27028-0000

DEESE CHARLES WAYNE
PO BOX 563
COOLEEMEE, NC 27014-0563

POMPEY CURTIS
PO BOX 1012
COOLEEMEE, NC 27014-0000

STOCKTON HOWARD J
PO BOX 297
COOLEEMEE, NC 27014-0000

PRUITT LONELL
196 LEGION HUT RD
Mocksville, NC 27028-0000

CLARK OZENER
PO BOX 1072
MOCKSVILLE, NC 27028-5443

GOSHEN LANDS INCORPORATED
C/O EVELYN B DANIEL
570 Daniel Road
MOCKSVILLE, NC 27028-0000

ELLIS PAUL JR
SHORT RUN SWISS INC
714 East Edna Place
COVINA, CA 91723-0000

STARNES KELLY
191 CAROLINA AVENUE
MOCKSVILLE, NC 27028-0000

WARD SUZANNE SHOAF
5117 WYNNEFORD WAY
RALEIGH, NC 27614

CORRELL HOWARD L JR
222 NEW HAMPSHIRE CT
MOCKSVILLE, NC 27028-4266

HAMPTON CHARLES LEE
1294 JUNCTION ROAD
MOCKSVILLE, NC 27028-5325

JONES MELVIN
120 MARCONI STREET
MOCKSVILLE, NC 27028-0000

SPILLMAN CLARENCE L ETAL
PO BOX 738
COOLEEMEE, NC 27014-0738

LOY SONYA HAMPTON
276 KNOLL CREST ROAD
MOCKSVILLE, NC 27028-5337

JONES JACKIE RENEE DWIGGINS
117 HUFFMAN ROAD
MOCKSVILLE, NC 27028

DWIGGINS EUNICE
PO BOX 231
FAITH, NC 28041

DWIGGINS RAY M
PO BOX 231
FAITH, NC 28041-0000

TORRES CRISTIAN CADENA
1415 JUNCTION RD
MOCKSVILLE, NC 27028-5327

GREEN SHANE
898 JUNCTION RD
MOCKSVILLE, NC 27028-5321

SPILLMAN ROGER P
PO BOX 738
COOLEEMEE, NC 27014-0000

Barbara Sapp Moose
1012 Quarry Street
Faith, NC 28041

Kathy Beine Sapp
3352 Chicken Bridge Road
Pittsboro, NC 27312

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