



**LINCOLN COUNTY PLANNING & INSPECTIONS DEPARTMENT**  
302 NORTH ACADEMY STREET, SUITE A, LINCOLNTON, NORTH CAROLINA 28092  
704-736-8440 OFFICE 704-736-8434 INSPECTION REQUEST LINE 704-732-9010 FAX

To: Board of Commissioners  
Planning Board

From: Randy Hawkins, Zoning Administrator

Date: May 15, 2015

Re: CUP #344  
ATOOD, LLC  
Parcel ID# 31055, 83109, 84267 and 89986

*The following information is for use by the Lincoln County Board of Commissioners and Planning Board at their joint meeting/public hearing on June 1, 2015.*

**REQUEST**

The applicant is requesting a conditional use permit to establish a solar farm in the R-T (Transitional Residential) and R-R (Rural Residential) districts. Under the Unified Development Ordinance, a solar farm is a conditional use in the R-T and R-R districts.

**SITE AREA AND DESCRIPTION**

The proposed 129-acre site is located on the west side of Mariposa Road about 1.5 miles south of Old Plank Road in Catawba Springs Township. The site is adjoined by property zoned R-T and R-R. Land uses in this area are primarily residential and agricultural. The site is located in an area designated by the Lincoln County Land Use Plan as Suburban Residential.

**SOLAR FARM STANDARDS**

The UDO establishes the following standards for a solar farm:

**§4.3.7. Solar Farm**

- A. All structures and security fencing shall be set back a minimum of 50 feet from property lines and road right-of-ways.
- B. Where a site abuts a public road or property with a residential use, the following screening shall be provided unless a modification is approved by the Board of Commissioners: two parallel rows of evergreen trees or

shrubs, a minimum of five feet in height at planting, arranged in a staggered manner a maximum of 10 feet apart in each row, with the rows a maximum of 10 feet apart.

- C. No panel structures shall be greater than 20 feet in height.
- D. The electrical collection system shall be placed underground except near points of interconnection with the electric grid.
- E. A map analysis showing a radius of five nautical miles from the center of the project with any airport operations in the area highlighted shall be submitted with the conditional use permit application. If a Federal Aviation Administration (FAA) regulated airport is located within the radius, all required information shall be submitted to the FAA for review. Proof of delivery of notification and date of delivery shall be submitted with the permit application.
- F. A decommissioning plan signed by the party responsible for decommissioning and the landowner shall be submitted with the permit application and shall be recorded with the Register of Deeds prior to final electrical inspection. The plan shall include the following information: defined conditions upon which decommissioning will be initiated, the anticipated manner in which the solar farm project will be decommissioned and the site restored, a timetable for completion of decommissioning, description of any agreement with the landowner regarding decommissioning, the party responsible for decommissioning, and plans for updating the decommissioning plan.
- G. A solar farm that ceases to produce energy on a continuous basis for 12 months shall be considered abandoned and the property owner and other responsible party shall be required to decommission the facility and restore the site to its prior condition within 12 months from the time that the facility is deemed to be abandoned, unless substantial evidence is presented to the Director of the intent to maintain and reinstate the operation of the facility.
- H. In the event the property owner and/or responsible party fail to timely decommission the solar farm facility as required above, Lincoln County and the Director shall be entitled to take all measures allowed by this UDO and the North Carolina General Statutes, including, but not limited to, the right to levy penalties as provided in §11.2.1, the right to obtain a permanent injunction ordering the removal of such solar farm facility, and the right to obtain a court order permitting Lincoln County to remove such solar farm facility.



# County Of Lincoln, North Carolina

## Planning Board

Applicant **ATOOD, LLC**

Application No. **CUP #344**

Parcel ID# **31055, 83109, 84267 and 89986**

Zoning District **R-T, R-R**

Proposed Conditional Use **solar farm**

### **FINDINGS OF FACT**

1. The use will not materially endanger the public health or safety if located where proposed and developed according to plan. YES \_\_\_\_\_ NO \_\_\_\_\_

FACTUAL REASONS CITED: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

2. The use meets all required conditions and specifications. YES \_\_\_\_\_ NO \_\_\_\_\_

FACTUAL REASONS CITED: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

3. The use will not substantially injure the value of adjoining or abutting property unless the use is a public necessity. YES \_\_\_\_\_ NO \_\_\_\_\_

FACTUAL REASONS CITED: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

4. The location and character of use, if developed according to the plan as submitted and approved, will be in harmony with the area in which it is to be located and will be in general conformity with the Land Use Plan for the area in question. YES \_\_\_\_\_ NO \_\_\_\_\_

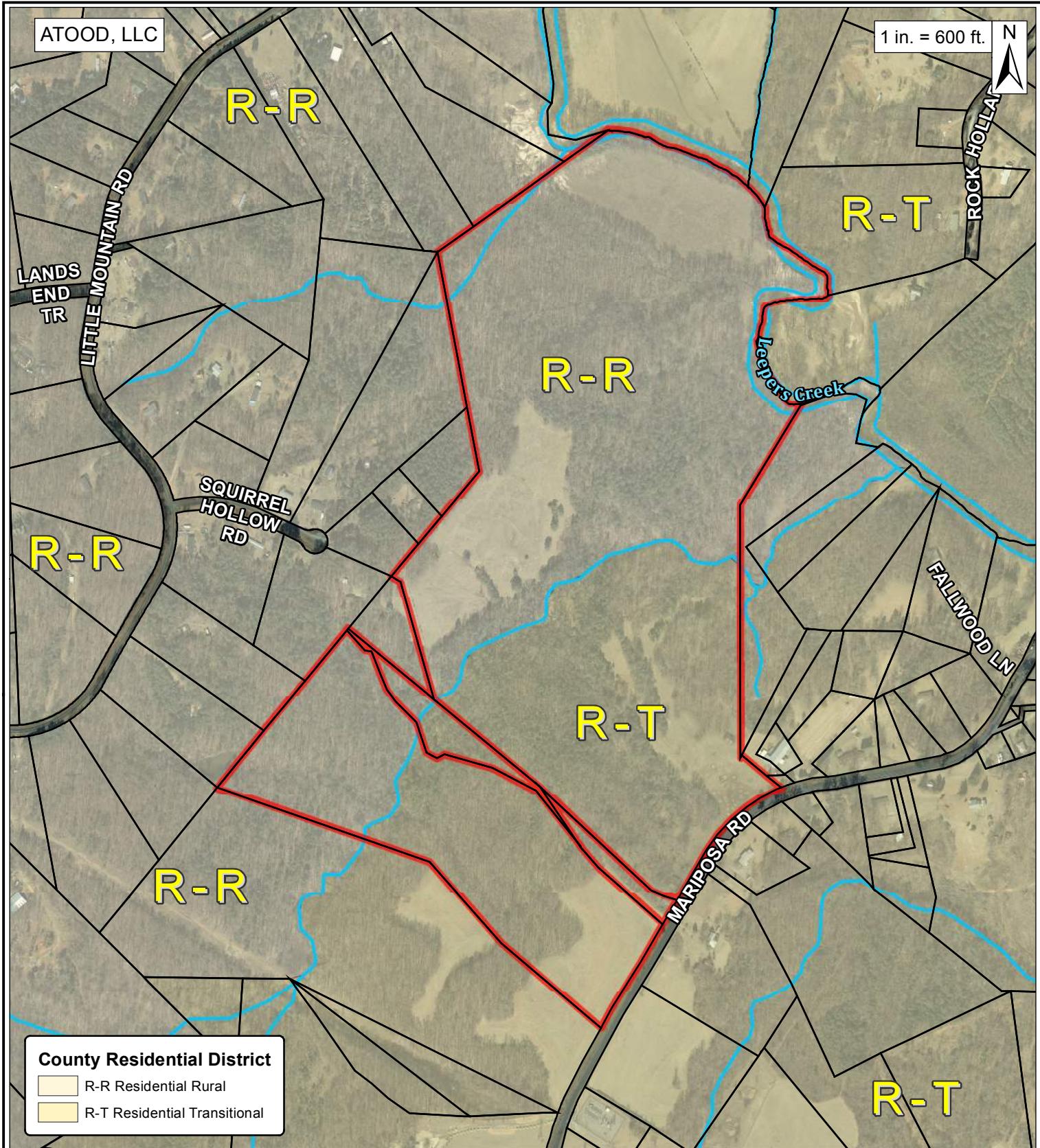
FACTUAL REASONS CITED: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

After having held a Public Hearing on \_\_\_\_\_ and in light of the Findings of Facts listed herein, the following action was taken by the Lincoln County Planning Board:

\_\_\_\_\_

In recommending such Conditional Use, the following conditions were recommended by the Lincoln County Planning Board:

\_\_\_\_\_



#### CONDITIONAL USE PERMIT



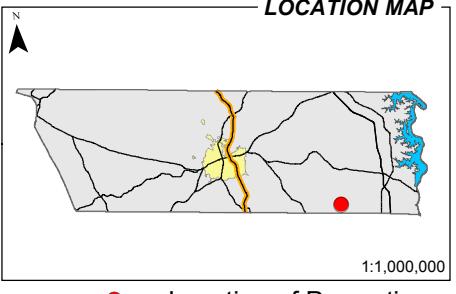
Lincoln County  
Planning & Inspections  
302 N. Academy St.  
Suite A  
Lincolnton, NC 28092

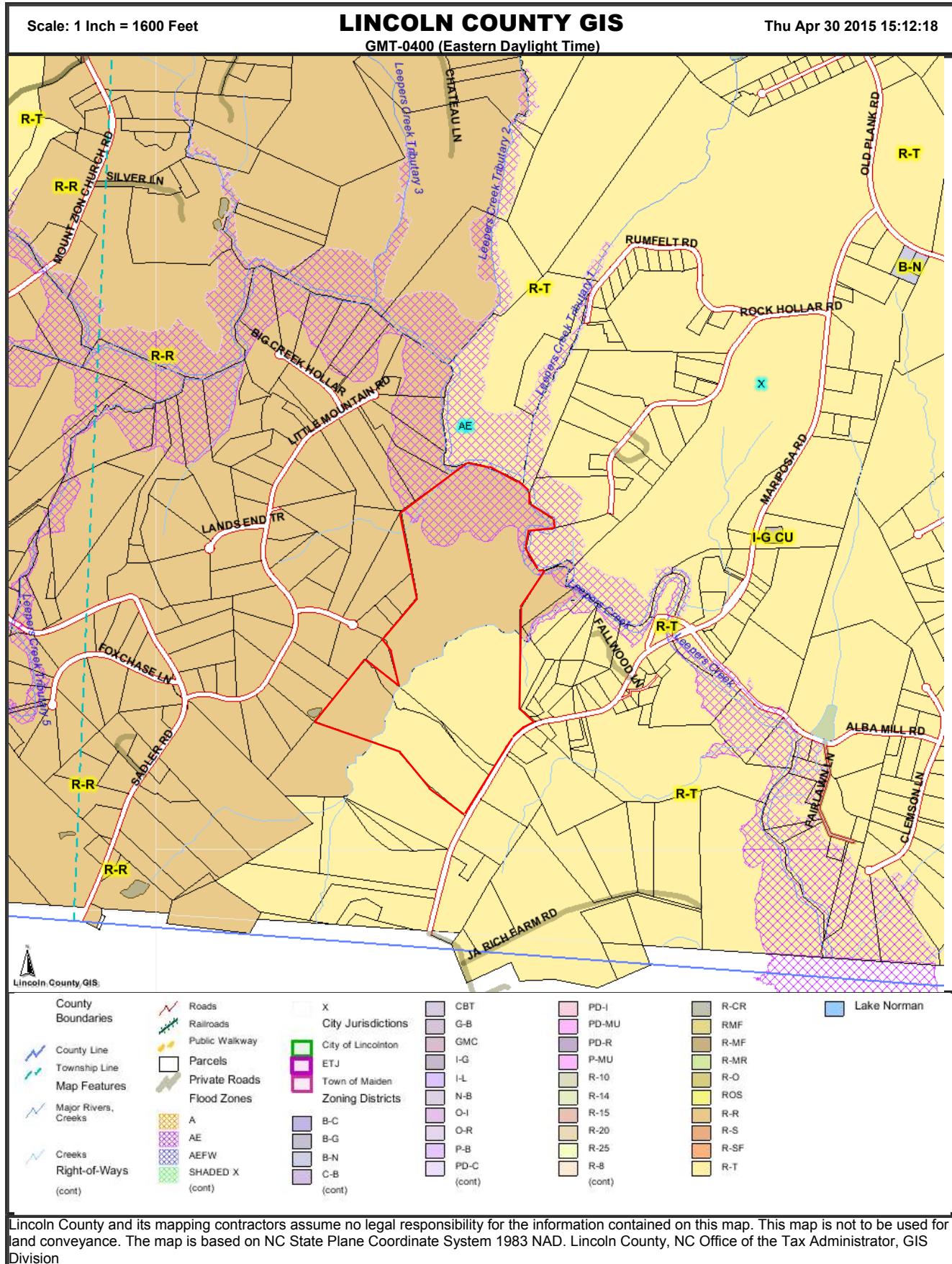
Application	<b>CUP #344</b>
NCPIN#	Multiple
PID#	31055, 83109, 84267 & 89986

- Property Location(s)

See Attached Application for Parcel Information  
Property Location(s) Outlined in Red

#### LOCATION MAP







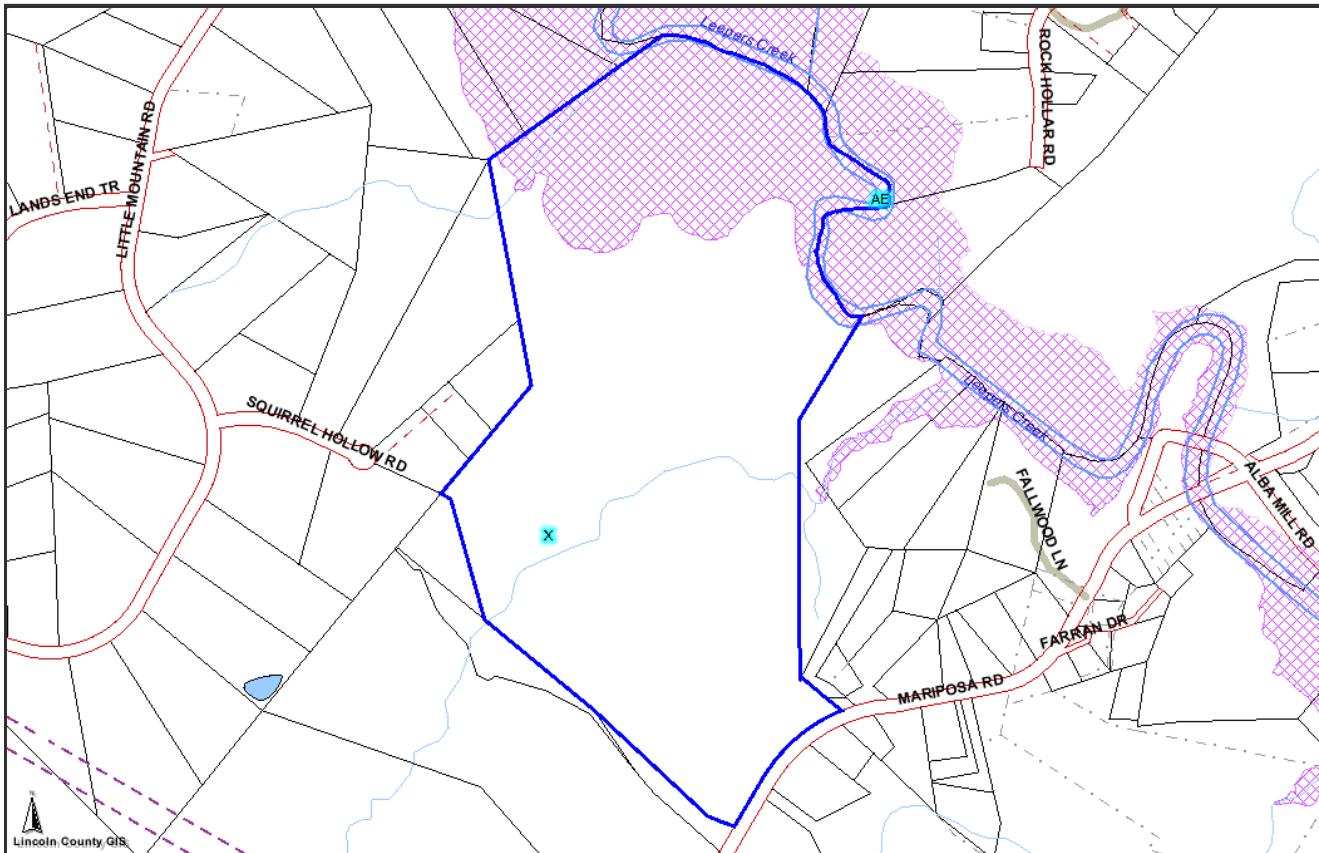
## Lincoln County, NC

### Office of the Tax Administrator, GIS Mapping Division

Lincoln County and its mapping contractors assume no legal responsibility for the information contained on this map. This map is not to be used for land conveyance. The map is based on NC State Plane Coordinate System 1983 NAD.



Date: 5/11/2015 Scale: 1 Inch = 800 Feet



#### PHOTOS



Photo Not Available

#### PARCEL INFORMATION FOR 3681-32-6812

Parcel ID	31055	Owner	RHYNE BILLY H HEIRS OF MILLER WILLIAM H
Map Account	3681-03	Mailing Address	542 WOODSONG LN STANLEY NC 281640000
Deed	20966	Recorded	1/11/1978
Land Value	05E-115	Total Value	\$579,197
----- All values are for tax year 2015. -----			
Description	RHYNE LAND RD 1412	Deed Acres	0
Address	2431 MARIPOSA RD	Tax Acres	97.4
Township	CATAWBA SPRINGS	Tax/Fire District	ALEXIS
Main Improvement		DWELLING Stories	
Main Sq Feet	768	0 Year Built	0
Zoning District	Calculated Acres	Voting Precinct	Calculated Acres
R-R	64.85	LOWESVILLE WEST (LW18)	97.41
R-T	32.56		
Watershed Class		Sewer District	
Not in a watershed	97.41	Not in the sewer district	97.41
2000 Census County		Tract	Block
37109		071000	1009 0.74
37109		071000	1016 96.66
37109		071000	1017 0.02
FloodZone Description		Panel	
AE	SPECIAL FLOOD HAZARD AREA BASE ELEVATION DETERMINED - 100	371036810023.34	
YEAR			
X	NO FLOOD HAZARD	371036810074.07	



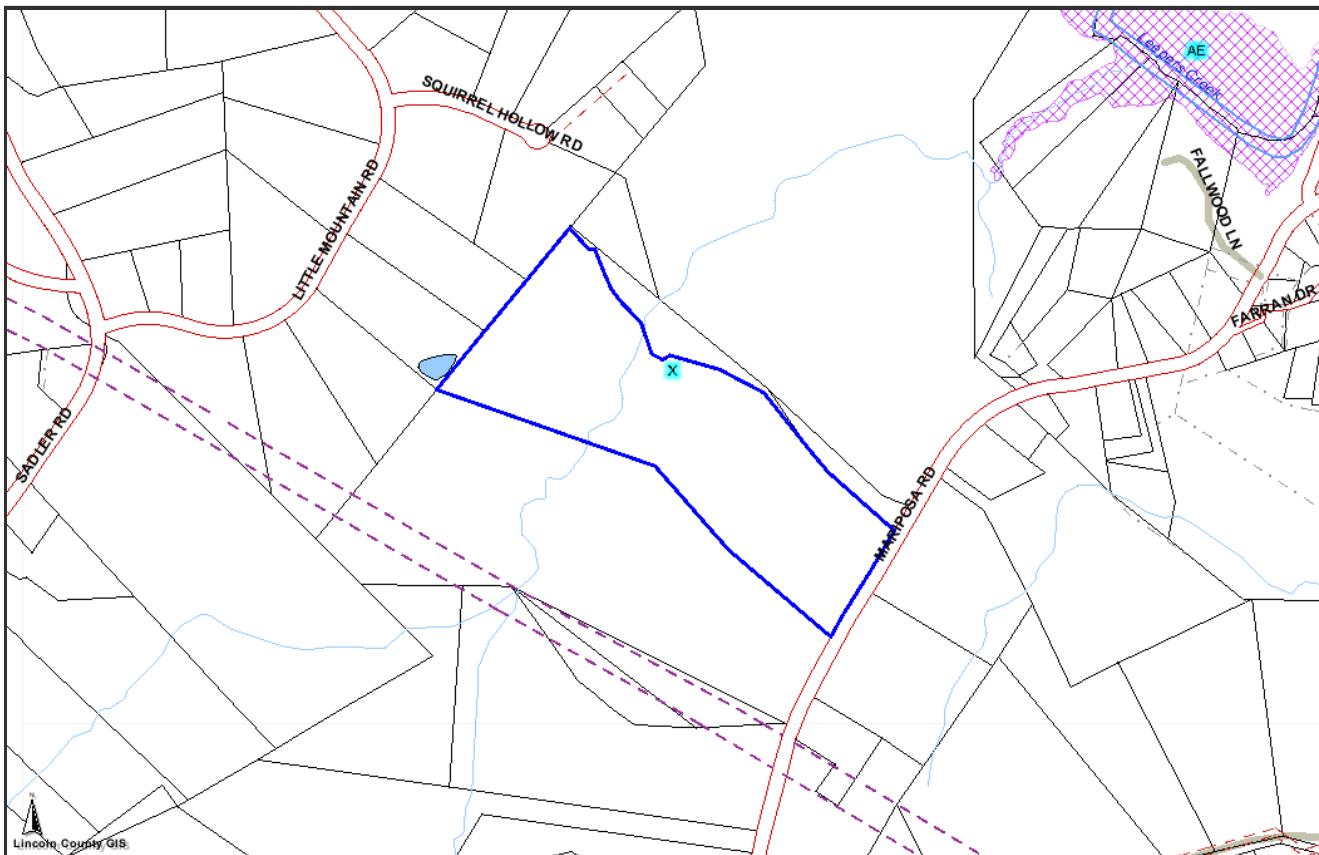
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Date: 5/11/2015 Scale: 1 Inch = 800 Feet



PHOTOS		PARCEL INFORMATION FOR 3681-21-9372					
		<b>Parcel ID</b> 83109 <b>Owner</b> CLONINGER LARRY <b>Map Account</b> 3681-03 <b>Mailing Address</b> CLONINGER ELIZABETH <b>Deed</b> 0177550 <b>Recorded</b> 710 MARIPOSA RD <b>Land Value</b> 1617-779 <b>Total Value</b> STANLEY NC 28164 <b>Subdivision</b> Lot BILLY H RHYNE <b>Sale Price</b> \$90,000 <b>Description</b> BILLY RHYNE LAND <b>Previous Parcel</b> 31055 <b>Address</b> MARIPOSA RD <b>Township</b> CATAWBA SPRINGS <b>Improvement</b> <b>Plat</b> 13-8 <b>Zoning District</b> <b>Deed Acres</b> 28.55 <b>R-T</b> <b>Tax Acres</b> 27.83 <b>R-R</b> <b>Calculated Acres</b> <b>Watershed Class</b> <b>Voting Precinct</b> ALEXIS <b>Not in a watershed</b> <b>LOWESVILLE WEST (LW18)</b> <b>2000 Census County</b> <b>Calculated Acres</b> 27.84 <b>37109</b> <b>37109</b> <b>Flood</b> <b>Zone Description</b> <b>Sewer District</b> <b>X</b> <b>NO FLOOD HAZARD</b> <b>Not in the sewer district</b> 27.84 <b>Tract</b> 071000 <b>Block</b> 1016 27.79 <b>071000</b> <b>1017</b> 0.05 <b>Panel</b> 3710368100 27.84					
<b>Photo Not Available</b>		<b>Calculated Acres</b> <b>17.24</b> <b>10.6</b> <b>27.84</b> <b>27.84</b> <b>071000</b> <b>1016</b> <b>071000</b> <b>1017</b> <b>3710368100</b> <b>27.84</b>					



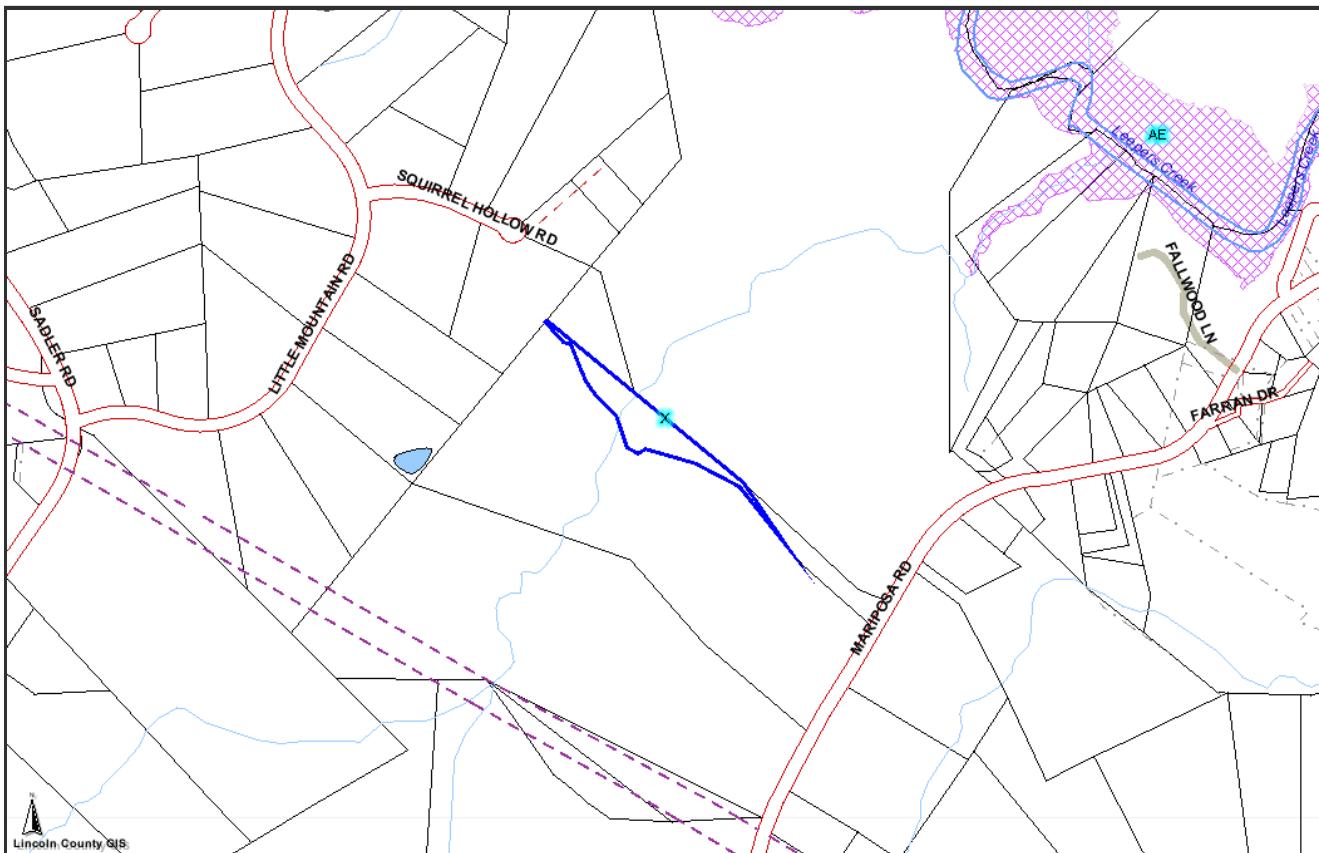
## Lincoln County, NC

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Date: 5/11/2015 Scale: 1 Inch = 800 Feet



PHOTOS		PARCEL INFORMATION FOR 3681-21-8743					
		Parcel ID 84267 Owner CLONINGER LARRY Map 3681-03 Mailing Address CLONINGER ELIZABETH Account 0177550 710 MARIPOSA RD Deed 1726-173 STANLEY NC 28164 Land Value \$11,657 8/4/2005 <b>----- All values are for tax year 2015. -----</b> Description RHYNE LAND RD 1412 Sale Price \$8,000 Address MARIPOSA RD Previous Parcel 31055 Township CATAWBA SPRINGS Improvement Tax/Fire District No Improvements Zoning District Calculated Acres Voting Precinct R-T 1.66 LOWESVILLE WEST (LW18) 2.5 R-R 0.84 Watershed Class Not in a watershed 2000 Census County 2.5 37109 Flood Zone Description X NO FLOOD HAZARD Tract Block 071000 1016 2.5 Panel 3710368100 2.5					
Photo Not Available							



## **Lincoln County, NC**

Office of the Tax Administrator, GIS Mapping Division

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**Date: 5/11/2015 Scale: 1 Inch = 800 Feet**

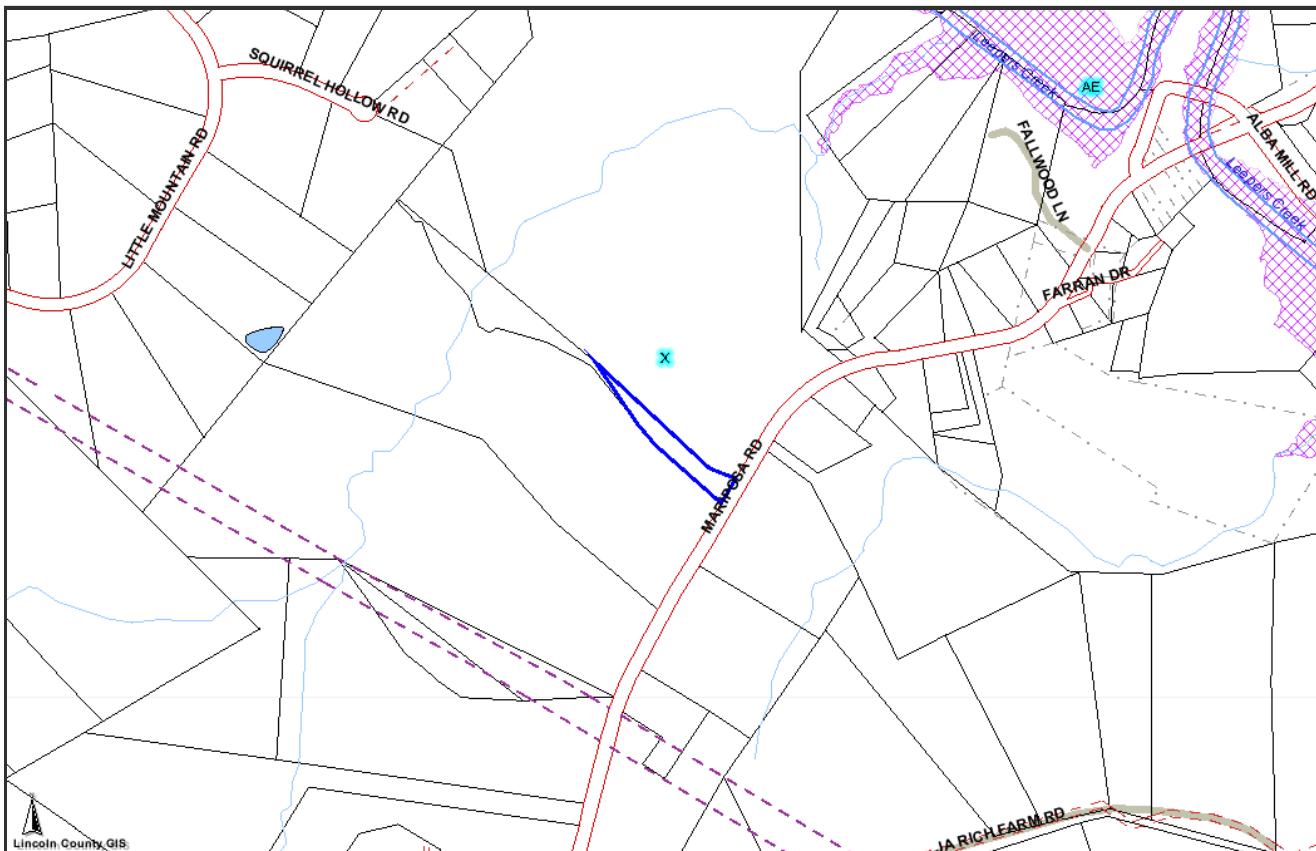


Photo Not Available

## PHOTOS

**PARCEL INFORMATION FOR 3681-31-6141**

<b>Parcel ID</b>	<b>89986</b>	<b>Owner</b>	CLONINGER LARRY CLONINGER ELIZABETH
<b>Map</b>	<b>3681-03</b>	<b>Mailing Address</b>	710 MARIPOSA RD STANLEY NC 28164
<b>Account</b>	0177550	<b>Recorded</b>	7/27/2010
<b>Deed</b>	2200-22	<b>Total Value</b>	<b>Sale Price</b> \$4,500
<b>Land Value</b>	\$8,921	\$9,318	<b>Previous Parcel</b> 31055
<b>----- All values are for tax year 2015. -----</b>			
<b>Description</b>	PT OF RHYNE LAND	<b>Deed Acres</b>	1.35
<b>Address</b>	MARIPOSA RD	<b>Tax Acres</b>	1.29
<b>Township</b>	CATAWBA SPRINGS	<b>Tax/Fire District</b>	ALEXIS
<b>Main Improvement</b>		STORAGE BARN NO FINISH	<b>Value</b> \$397
<b>Main Sq Feet</b>	750	<b>Stories</b>	<b>Year Built</b> 1960
<b>Zoning District</b>	<b>Calculated Acres</b>	<b>Voting Precinct</b>	<b>Calculated Acres</b>
R-T	1.29	LOWESVILLE WEST (LW18)	1.29
<b>Watershed Class</b>		<b>Sewer District</b>	
Not in a watershed	1.29	Not in the sewer district	1.29
<b>2000 Census County</b>		<b>Tract</b>	<b>Block</b>
37109		071000	1016
37109		071000	1017
<b>Flood</b>	<b>Zone Description</b>	<b>Panel</b>	
X	NO FLOOD HAZARD	3710368100	1.29



## Conditional Use Permit Application

Lincoln County Planning and Inspections Department  
Zoning Administrator  
302 N. Academy St., Suite A, Lincolnton, NC 28092  
Phone: (704)736-8440 FAX: (704)732-9010

### PART I

Applicant Name ATOOD, LLC, Brian Adams

Applicant Address 10018 Triple Oak Rd, Charlotte, NC 28164

Applicant Phone Number 704.776.6057

Property Owner Name William and Judy Miller

Property Owner Address 542 Woodsong Ln, Stanley, NC 28164

Property Owner Phone Number \_\_\_\_\_

### PART II

Property Location 2431 Mariposa Rd, Stanley, NC 28164

Property ID (10 digits) 3681326812 Property size 97.41 acres

Parcel # (5 digits) 31055 Deed Book(s) 05E Page(s) 155

### PART III

Existing Zoning District R-R, R-T

Briefly describe how the property is being used and any existing structures.

Property is currently undeveloped

Briefly explain the proposed use and/or structure which would require a Conditional Use Permit.

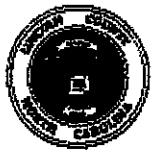
Solar farm

**\$750 APPLICATION FEE MUST BE RECEIVED BEFORE PROCESSING.**

*I hereby certify that all knowledge of the information provided for this application and attachments is true and correct to the best of my knowledge.*

\_\_\_\_\_  
Signature  
Applicant's Signature

4/9/2015  
Date



## Conditional Use Permit Application

Lincoln County Planning and Inspections Department  
Zoning Administrator  
302 N. Academy St., Suite A, Lincolnton, NC 28092  
Phone: (704)736-8440 FAX: (704)732-9010

### PART I

Applicant Name ATOOD, LLC, Brian Adams

Applicant Address 10018 Triple Oak Road, Charlotte, NC 28277

Applicant Phone Number 704.776.6057

Property Owner Name Larry and Elizabeth Cloninger

Property Owner Address 710 Mariposa Road, Stanley, NC 28164

Property Owner Phone Number \_\_\_\_\_

### PART II

Property Location Mariposa Road, Stanley, NC 28164

Property ID (10 digits) 3681219372, 3681218743 Property size 31.64 acres  
3681316141

Parcel # (5 digits) 83109, Deed Book(s) 1617, Page(s) 779, 173, 0022  
84267, 89986 1726, 2200

### PART III

Existing Zoning District R-R, R-T

Briefly describe how the property is being used and any existing structures.

Property is currently undeveloped

Briefly explain the proposed use and/or structure which would require a Conditional Use Permit.

Solar farm

**\$750 APPLICATION FEE MUST BE RECEIVED BEFORE PROCESSING.**

*I hereby certify that all knowledge of the information provided for this application and attachments is true and correct to the best of my knowledge.*

Brian Adams  
Applicant's Signature

4/9/2015  
Date

# A TOO OD

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## **Executive Summary**

The CUP package contains answers to most questions we anticipate receiving regarding the solar field. In addition, we would like to submit additional information for the project including:

**Project Name:** Fire Solar I, LLC

**Total acreage of solar farm:** 129.05

**Acreage to be leased:** 31.64 equal to 24.5% of total site acreage

**Acreage to be purchased:** 97.41 equal to 75.5% of total site acreage

**Lease length:** 15 years minimum with 3 Tenant Optional 10 year extensions; total expected length of 45 years

**Generating Output:** estimated 38,304 MWh in year 1 with 0.6% yearly degradation

**Anticipated life:** 50 years

**System type:** Fixed ground mount racking

**Extent of grading:** Anticipated grading will primarily be used to remove trees, remove stumps, smooth surface. The racking can follow slopes, and the intention is to leave the land in as close to its current state as possible before, during, and after construction.

**At the end of 45 years,** the solar panels will produce approximately 70% of their initial peak power production. This will be very useful in terms of resale value in the secondary market.

**Location:** Adjacent to existing Duke Energy / Energy United substation on a state maintained road with only a portion of one side containing road frontage.

**Topography:** The land slopes inwardly due to a stream bisecting the property meaning that the solar structures fall away from the road to reduce visibility even further.

**Site plan note:** The large boxes are equivalent to 24 (6 wide by 4 deep) of the smaller rectangles and are shown as a representation of the area that will contain solar panels.

This project represents a construction cost of approximately \$50 Million in Lincoln County between now and the end of construction (anticipated to be by the end of 2015). This is a significant construction project size and representing a significant tax base increase.

We intend to use as many local laborers as possible creating local jobs.

We see this as the first of many projects we pursue in Lincoln County. To date, a significant portion of our work has been located in Cleveland County, where we are responsible for 5 projects equaling the capacity of this project that are being built currently and developing an additional 5 projects with a total capacity equal to this project.

# A **TOO** D

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## **Proposed Findings of Fact - Fire Solar I**

### **1. The use will not endanger the public health or safety if located where proposed and developed according to plan.**

Correct. The solar farm will be built to all applicable building codes including the NEC and will not endanger the public health or safety. The racking system holding the solar panels will be designed to withstand a minimum I-90 wind and exposure class C. All electrical components will be UL listed for the application. The entire system will be grounded where necessary according to code. There will be a perimeter fence for security and protection. The system does not include any moving solar panels. The system will not contain nor does it produce or emit any hazardous materials.

### **2. The use meets all required conditions and specifications.**

Correct. A solar farm is a conditional use permit in both the R-R and R-T zoning districts. The site plan meets all Lincoln County UDO requirements including screening, setbacks, and height. The site is over 5 miles away from any FAA regulated airport. As required as part of the CUP application, a decommissioning plan is included.

### **3. The use will not substantially injure the value of adjoining or abutting property unless the use is a public necessity.**

Correct. An impact study for the subject property regarding the effect on surrounding property values has been completed by Kirkland Appraisals. Kirkland Appraisals is an MAI appraisal firm with experience studying the effects of property values near solar farms in North Carolina and Lincoln County. The impact study is included with these findings for reference.

The study concludes “the solar farm proposed at the subject property will not substantially injure the value of adjoining or abutting property and that the proposed use is in harmony with the surrounding area.”

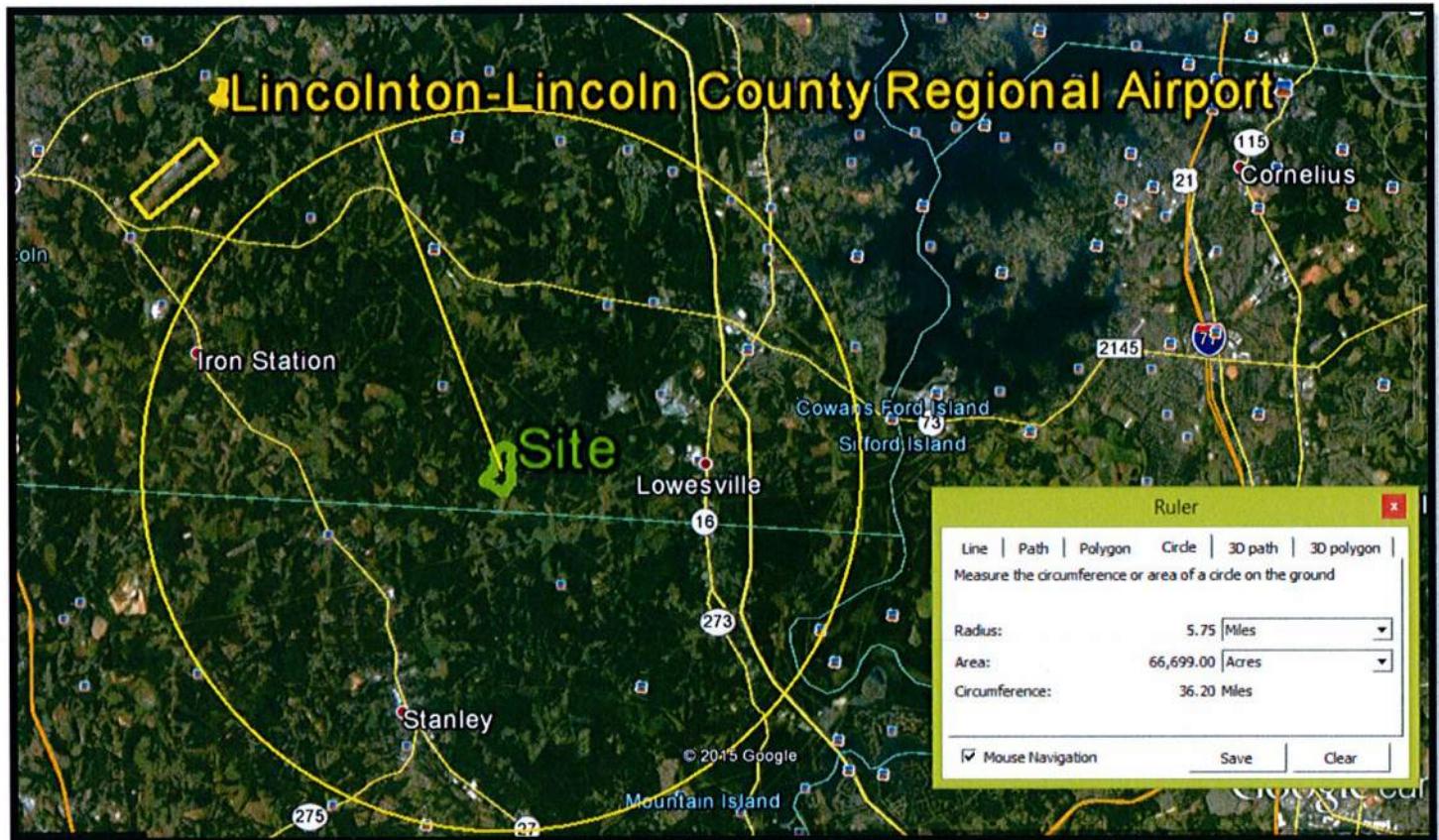
The facility will not generate traffic, produce emissions, significant noise, or glare. Most residents should be unaware of the facility as it sits away from the road and will be screened per the requirements.

### **4. The location and character of use, if developed according to the plan as submitted and approved, will be in harmony with the area in which it is to be located and will be in general conformity with the Land Use Plan for the area in question.**

Correct. The site is adjacent to an existing Energy United and Duke Energy substation. We chose this site for its close proximity and knowing that it would be in keeping with its surroundings. The site allows for the required buffers and only has road frontage on a portion of one side. The surrounding area is largely low density residential and agricultural. Solar fits well in this surrounding.

# A TOO D

## FAA Airport Analysis Map



The yellow circle in the above aerial represents a 5 nautical mile radius from the proposed Solar Site. The closest FAA regulated airport to the Site is the Lincolnton-Lincoln County Regional Airport. The proposed Solar Site (in green) is greater than 5 nautical miles from the airport, as shown.

Note: 5 nautical miles = 5.754 miles

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## **Decommissioning Plan For Fire Solar I, LLC Stanley, Lincoln County, NC**

Conditions for initiation of decommissioning include:

- Solar farm ceases to produce energy on a continuous basis for 12 months
- Any time at Fire Solar I's (Tenant's) discretion prior to the end of the lease term upon reasonable notice to the Landlord
- Any time such lease is terminated prior to the end of the term

Fire Solar I shall be obligated to remove the Generating Facility from the Landlord's property no later than the end of the lease term or other prior termination of the lease.

The anticipated manner in which the solar farm project will be decommissioned and the site restored includes:

1. Applying for and obtaining any permits (if necessary) required for decommissioning and removal of system prior to start of decommissioning;
2. Complete decommissioning and removal of all materials and components used for electricity generation as a part of the solar farm;
3. Recycle or reuse as many materials and components as possible (almost everything from the site falls in this category);
4. Following removal of solar farm, the site will be finish graded and stabilized;
5. Dispose of any necessary materials and components that cannot be effectively recycled or reused according to all applicable rules and regulations in effect at that time.

The timetable for completion of decommissioning is approximately 6 months, which is approximately equal to the time required for installation. In all cases, the Generating Facilities will be removed prior to the end of the lease or upon no longer generating electricity.

The agreement with the landowner includes:

- The right by Fire Solar I as Tenant to remove any or all of the Generating Facility at any time with reasonable notice to the Landlord;
- The requirement of Fire Solar I as Tenant to remove the entire Generating Facility according to the anticipated manner of decommissioning above no later than the end of the lease term or prior termination of the lease.

Fire Solar I, LLC shall be responsible for:

1. All decommissioning costs;
2. Following the anticipated manner of decommissioning procedures above;
3. Recording this decommissioning plan with the Register of Deeds prior to final electrical inspection;
4. Reviewing the decommissioning plan with Lincoln County Zoning Administrator once every ten years.

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Fire Solar I will review and update the decommissioning plan no less than once per decade. Any substantial changes to the plan will be recorded with the Lincoln County Register of Deeds. Upon completion of decommissioning, a final decommissioning report will be recorded with the Lincoln County Register of Deeds.

The solar panels used by the system will have a manufacturers warranty to produce a minimum of 80% of nameplate power for 25 years. Due to this, solar panels have an expected life of at least 40 years creating a valuable secondary market. Additionally, solar panels account for over half of the initial system's installed costs. By marketing the panels in a growing, secondary market, the solar farm is able to keep decommissioning costs low. The major components of the solar farm include primarily steel, aluminum, and copper (in addition to the solar panels). These components have significant value and can be sold after decommissioning. This will allow Fire Solar I to recoup significant salvage value from the project.

The estimated cost of decommissioning the project is \$8,917,830 in 2015 Dollars.

The estimated salvage value of the project is 8,803,148 in 2015 Dollars.

The estimated difference between the cost and salvage value is \$114,682 in 2015 Dollars.

Fire Solar I shall provide a bond or letter or credit to cover the portion of the salvage value on leased property multiplied by a 1.25 safety factor prior to final electrical inspection. The amount of the bond or letter or credit shall be equal to \$35,839 (25% of \$114,682 times 1.25).

ATOOD prepared the estimated cost of decommissioning and has experience with solar projects of this nature and cost estimating procedures.

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This decommissioning plan is recommended and accepted by:

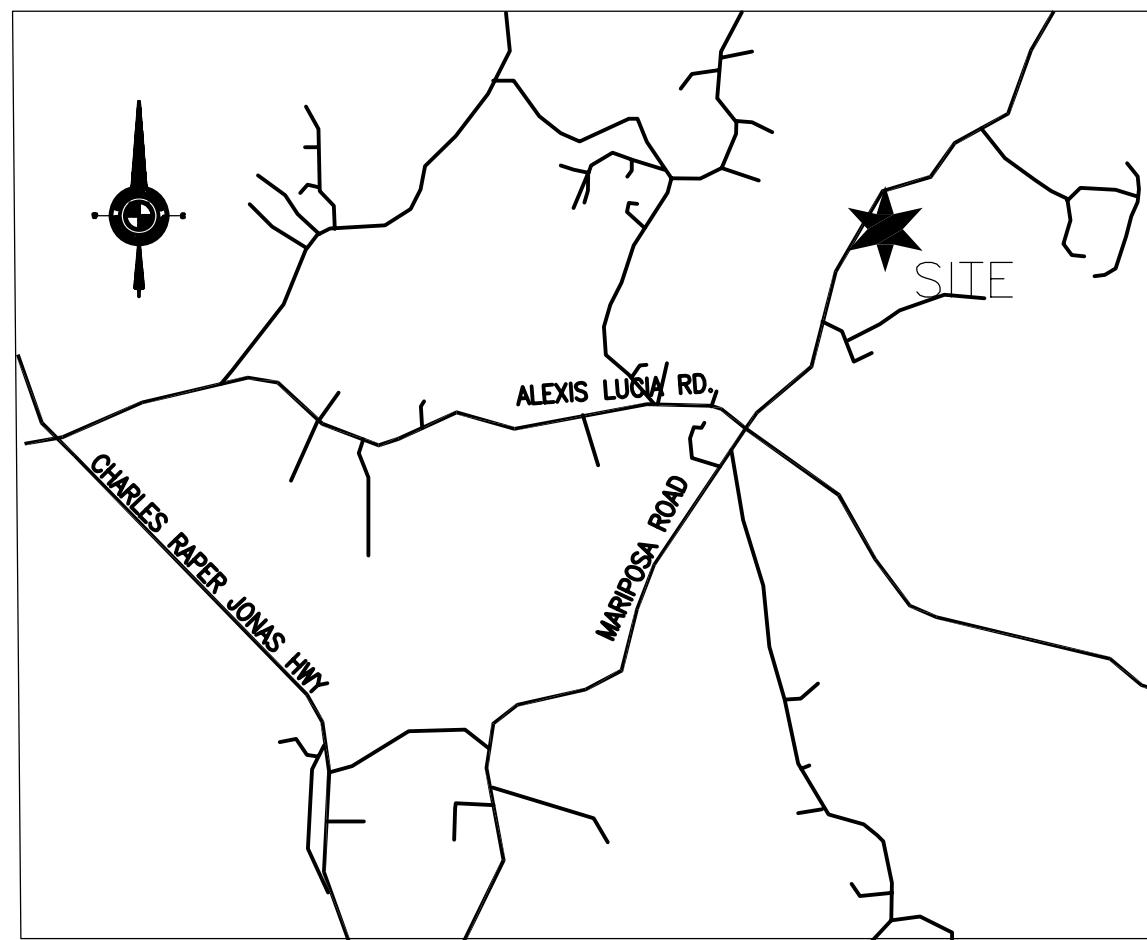
 4/17/2015  
Brian Adams, Manager, Fire Solar I Date

Larry Cloninger 4-12-15  
Larry Cloninger, Landowner Date

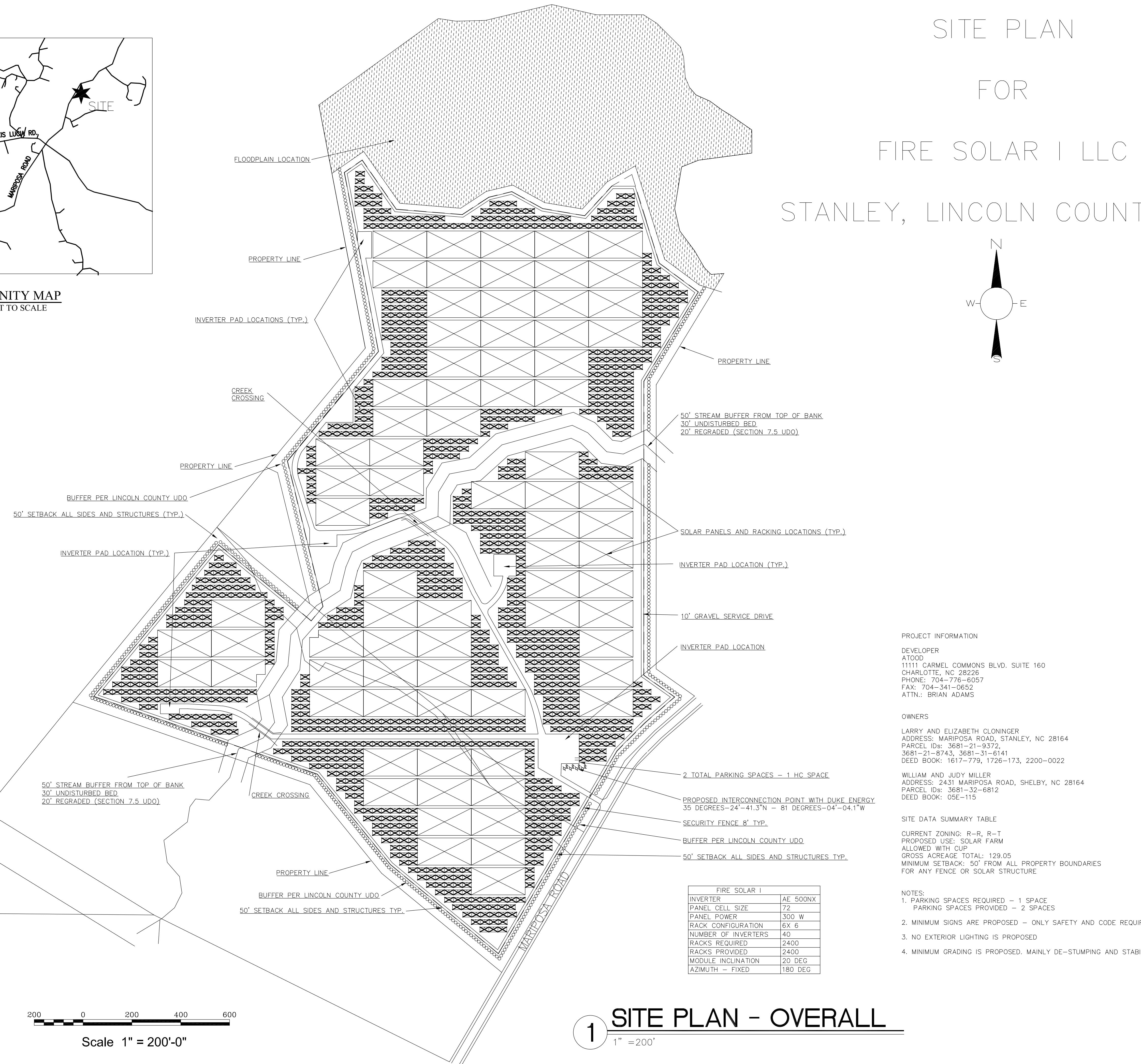
Elizabeth Cloninger 4/17/2015  
Elizabeth Cloninger, Landowner Date

William Miller 4-11-2015  
William Miller, Landowner Date

Judy Miller 4-17-2015  
Judy Miller, Landowner Date



VICINITY MAP  
NOT TO SCALE



**Adams**  
A R H C T E I S  
11111 Carmel Commons Blvd Ste 160, Charlotte, NC 28210 / 704/341-0652  
Fax: 704/341-0652  
THE DRAWING IS THE PROPERTY OF ADAMS GROUP ARCHITECTS, INC. AND IS NOT TO BE REPRODUCED OR COPIED IN  
WHOLE OR IN PART, IN WHOLE OR IN PART, OR FOR USE IN THE DESIGN OF OTHER PROJECTS.

**CONCEPTUAL  
SITE PLAN**

**FIRE SOLAR  
PV PROJECT  
19.999 MW AC FIXED PV ARRAY**  
2421 MARIPOSA ROAD  
STANLEY, NORTH CAROLINA 28164

**ISSUE DATE:**  
04-14-15

**REVISIONS**

No.	DATE



# Kirkland Appraisals, LLC

Richard C. Kirkland, Jr., MAI  
9408 Northfield Court  
Raleigh, North Carolina 27603  
Phone (919) 414-8142  
[rkirkland2@gmail.com](mailto:rkirkland2@gmail.com)  
[www.kirklandappraisals.com](http://www.kirklandappraisals.com)

April 28, 2015

Mr. Brian Adams  
Atood  
11111 Carmel Commons Boulevard, Suite 160  
Charlotte, North Carolina 28226

Dear Mr. Adams:

At your request, I have considered the likely impact of a solar farm proposed to be constructed near Stanley, North Carolina. Specifically, I have been asked to give my professional opinion on whether the proposed solar farm will "maintain or enhance adjoining or contiguous property values" and whether "the location and character of the use, if developed according to the plan as submitted and approved, will be in harmony with the area in which it is to be located."

To form an opinion on these issues, I have researched and visited existing and proposed solar farms in North Carolina, researched articles through the Appraisal Institute and other studies, and discussed the likely impact with other real estate professionals. I have not been asked to assign any value to any specific property.

This letter is a limited report of a real property appraisal consulting assignment and subject to the limiting conditions attached to this letter. My client is Atood. represented to me by Mr. Brian Adams. My findings support the Conditional Use Permit application. The effective date of this consultation is April 28, 2015.

## **Proposed Use Description**

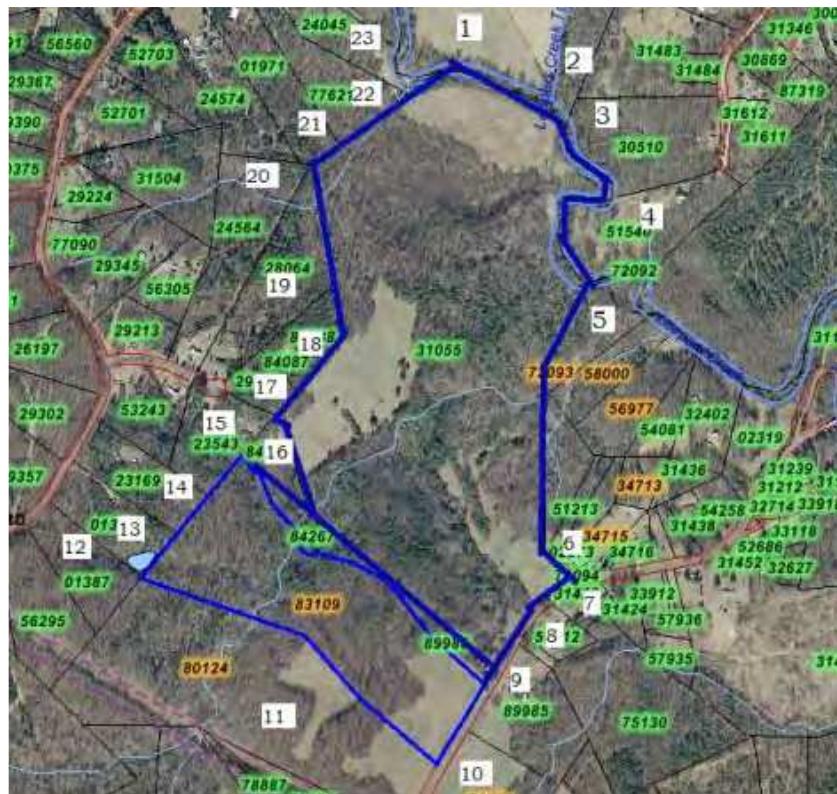
The proposed solar farm will be located on a 129.05-acre assemblage of land located on the west side of Mariposa Road south of Rock Hollar Road, Stanley, North Carolina.

Adjoining land is primarily a mix of agricultural and some residential uses, which is common for solar farms in North Carolina as shown later in this report.

The solar farm will consist of fixed solar panels that will generate no noise, no odor, and less traffic than a residential subdivision. The panels less than 12 feet in height and will be located behind a chain link fence.

I have considered adjoining uses and included a map to identify each parcel's location. The breakdown of those uses by acreage and number of parcels is summarized below.

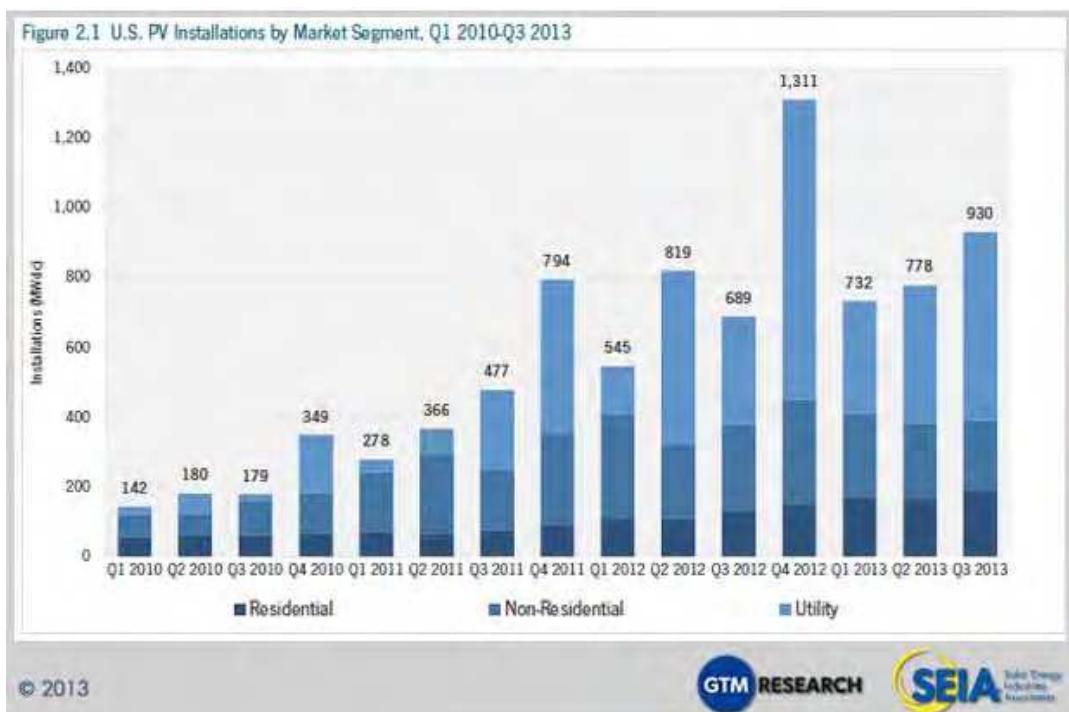
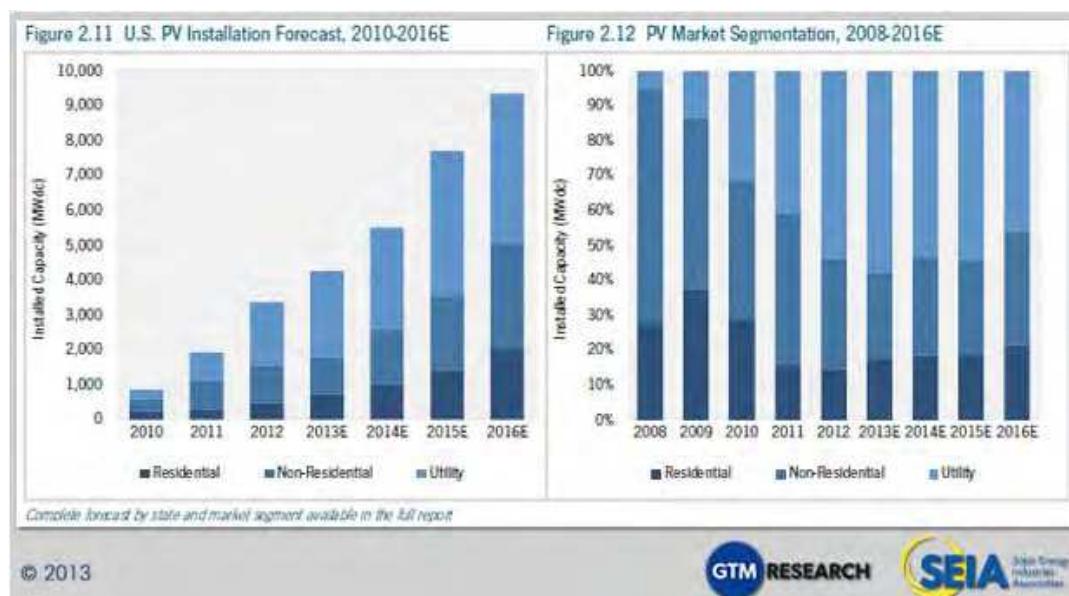
<b>Adjoining Use Breakdown</b>		
	<b>Acreage</b>	<b>Parcels</b>
Residential	41.39%	69.23%
Agri/Res	36.03%	11.54%
Agricultural	22.58%	19.23%
<b>Total</b>	<b>100.00%</b>	<b>100.00%</b>

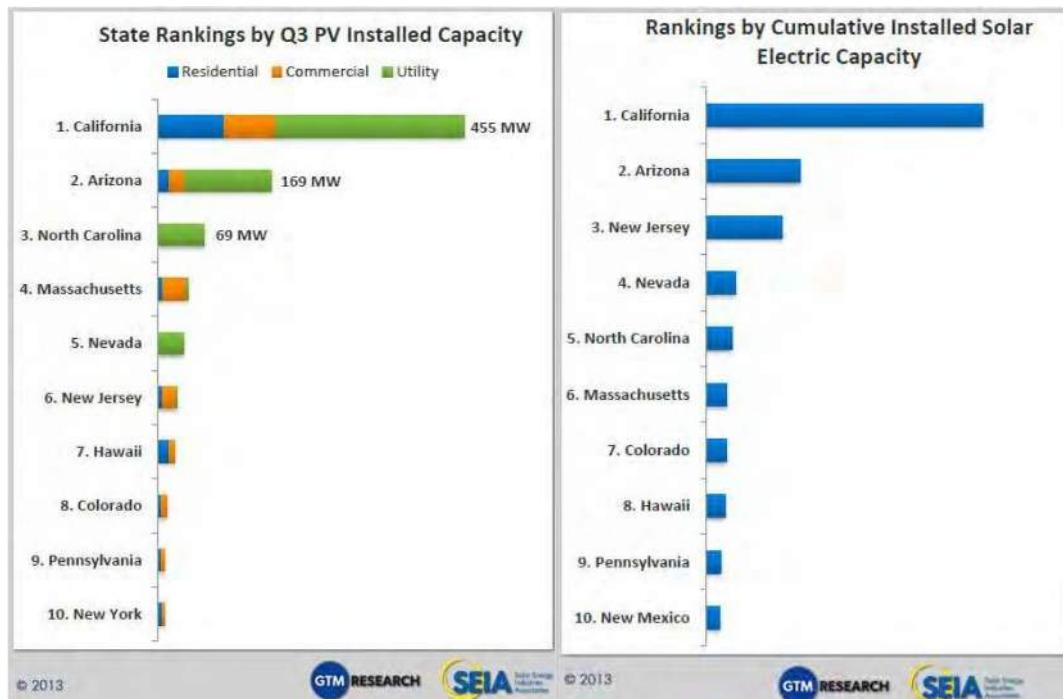

**Surrounding Uses**

#	MAP ID	Owner	GIS Data		% Adjoining	% Adjoining	Distance in Feet:
			Acres	Present Use			
1	3681-35-8439	Williams	45.400	Agri/Res	20.07%	3.85%	2,655
2	3681-45-6127	Rumfelt	21.980	Agri/Res	9.72%	3.85%	1,768
3	3681-44-8047	Maynard	9.970	Residential	4.41%	3.85%	1,087
4	3681-43-8507	First Citizens	8.790	Residential	3.89%	3.85%	890
5	3681-42-4869	Fisher	8.070	Agricultural	3.57%	3.85%	N/A
6	3681-41-3854	Anchor	1.360	Agricultural	0.60%	3.85%	N/A
6.5	3681-41-3590	Fisher	0.090	Agricultural	0.04%	3.85%	N/A
7	3681-41-5356	McGinnis	0.500	Residential	0.22%	3.85%	290
8	3681-41-2185	Sweigart	1.720	Residential	0.76%	3.85%	263
8.5	3681-40-7657	Harris	14.130	Agri/Res	6.25%	3.85%	829
9	3681-40-1635	Tallent	7.180	Residential	3.17%	3.85%	280
10	3681-30-8189	Keefer	7.300	Agricultural	3.23%	3.85%	N/A
11	3681-20-5841	Cloninger	34.260	Agricultural	15.14%	3.85%	N/A
12	3681-11-4585	Hall	5.010	Residential	2.21%	3.85%	N/A
13	3681-11-6861	Hall	5.050	Residential	2.23%	3.85%	N/A
14	3681-12-8035	Thornsberry	5.080	Residential	2.25%	3.85%	600
15	3681-22-2248	Crisp	5.150	Residential	2.28%	3.85%	193
16	3681-22-6213	Crisp	2.000	Residential	0.88%	3.85%	N/A
17	3681-22-5642	Hicks	2.020	Residential	0.89%	3.85%	302
17.5	3681-22-6795	Felton	1.140	Residential	0.50%	3.85%	140
18	3681-22-8974	Nelson	2.110	Residential	0.93%	3.85%	N/A
19	3681-25-5099	Felton	8.800	Residential	3.89%	3.85%	570
20	3681-233340	Brewster	9.490	Residential	4.19%	3.85%	740
21	3681-24-5561	Hughes	7.420	Residential	3.28%	3.85%	1,200
22	3681-24-8477	Locklair	6.080	Residential	2.69%	3.85%	885
23	3681-24-8850	Spain	6.130	Residential	2.71%	3.85%	1,240
<b>Total</b>			<b>226.230</b>		<b>100.00%</b>	<b>100.00%</b>	820

## I. Overview of Solar Farms Development in North Carolina

Across the nation the number of solar installations has dramatically increased over the last few years as changes in technology and the economy made these solar farms more feasible. The charts below show how this market has grown and is expected to continue to grow from 2010 to 2016. The U.S. Solar Market Insight Reports for 2010 and 2011 which is put out by the Solar Energy Industries Association note that 2010 was a “breakout” year for solar energy. The continued boom of solar power is shown in the steady growth. North Carolina was ranked as having the 3rd most active photovoltaic installed capacity in 2013.





As shown in the charts above, North Carolina ranked third in installed solar energy in the third quarter of 2013. North Carolina ranked fifth in installed solar energy in the United States.

## II. Market Analysis of the Impact on Value from Solar Farms

I have researched a number of solar farms in North Carolina to determine the impact of these facilities on the value of adjoining property. I have provided a breakdown of the adjoining uses to show what adjoining uses are typical for solar farms and what uses would likely be considered consistent with a solar farm use. This breakdown is included in the Harmony of Use section of this report.

I also conducted a series of matched pair analyses. A matched pair analysis considers two similar properties with only one difference of note to determine whether or not that difference has any impact on value. Within the appraisal profession, matched pair analysis is a well-recognized method of measuring impact on value. In this case, I have considered residential properties adjoining a solar farm versus similar residential properties that do not adjoin a solar farm. I have also considered matched pairs of vacant residential and agricultural land.

As outlined in the discussion of each matched pair, I concluded from the data and my analysis that there has been no impact on sale price for residential, agricultural, or vacant residential land that adjoins the existing solar farms included in my study.

## 1. Matched Pair A – AM Best Solar Farm, Goldsboro, NC

This solar farm adjoins Spring Garden Subdivision which had new homes and lots available for new construction during the approval and construction of the solar farm. The recent home sales have ranged from \$200,000 to \$250,000. This subdivision sold out the last homes in late 2014. The solar farm is clearly visible particularly along the north end of this street where there is only a thin line of trees separating the solar farm from the single-family homes.

Homes backing up to the solar farm are selling at the same price for the same floor plan as the homes that do not back up to the solar farm in this subdivision. According to the builder, the solar farm has been a complete non-factor. Not only do the sales show no difference in the price paid for the various homes adjoining the solar farm versus not adjoining the solar farm, but there are actually more recent sales along the solar farm than not. There is no impact on the sellout rate, or time to sell for the homes adjoining the solar farm.

I spoke with a number of owners who adjoin the solar farm and none of them expressed any concern over the solar farm impacting their property value.

The data presented on the following page shows multiple homes that have sold in 2013 and 2014 adjoining the solar farm at prices similar to those not along the solar farm. These series of sales indicate that the solar farm has no impact on the adjoining residential use.

The homes that were marketed at Spring Garden are shown below.



 <b>Americana</b> SqFt: 3,194 Bed / Bath: 3 / 3.5 <a href="#" style="color: blue;">View Now »</a>	 <b>Washington</b> SqFt: 3,292 Bed / Bath: 4 / 3.5 <a href="#" style="color: blue;">View Now »</a>
 <b>Presidential</b> SqFt: 3,400 Bed / Bath: 5 / 3.5 <a href="#" style="color: blue;">View Now »</a>	 <b>Kennedy</b> SqFt: 3,494 Bed / Bath: 5 / 3 <a href="#" style="color: blue;">View Now »</a>
 <b>Virginia</b> SqFt: 3,449 Bed / Bath: 5 / 3 <a href="#" style="color: blue;">View Now »</a>	

## AM Best Solar Farm, Goldsboro, NC

### Matched Pairs

As of Date: 9/3/2014

### Adjoining Sales After Solar Farm Completed

TAX ID	Owner	Acres	Date Sold	Sales Price	Built	GBA	\$/GBA	Style
3600195570	Helm	0.76	Sep-13	\$250,000	2013	3,292	\$75.94	2 Story
3600195361	Leak	1.49	Sep-13	\$260,000	2013	3,652	\$71.19	2 Story
3600199891	McBrayer	2.24	Jul-14	\$250,000	2014	3,292	\$75.94	2 Story
3600198632	Foresman	1.13	Aug-14	\$253,000	2014	3,400	\$74.41	2 Story
3600196656	Hinson	0.75	Dec-13	\$255,000	2013	3,453	\$73.85	2 Story
Average		1.27		\$253,600	2013.4	3,418	\$74.27	
Median		1.13		\$253,000	2013	3,400	\$74.41	

### Adjoining Sales After Solar Farm Announced

TAX ID	Owner	Acres	Date Sold	Sales Price	Built	GBA	\$/GBA	Style
0	Feddersen	1.56	Feb-13	\$247,000	2012	3,427	\$72.07	Ranch
0	Gentry	1.42	Apr-13	\$245,000	2013	3,400	\$72.06	2 Story
Average		1.49		\$246,000	2012.5	3,414	\$72.07	
Median		1.49		\$246,000	2012.5	3,414	\$72.07	

### Adjoining Sales Before Solar Farm Announced

TAX ID	Owner	Acres	Date Sold	Sales Price	Built	GBA	\$/GBA	Style
3600183905	Carter	1.57	Dec-12	\$240,000	2012	3,347	\$71.71	1.5 Story
3600193097	Kelly	1.61	Sep-12	\$198,000	2012	2,532	\$78.20	2 Story
3600194189	Hadwan	1.55	Nov-12	\$240,000	2012	3,433	\$69.91	1.5 Story
Average		1.59		\$219,000	2012	2,940	\$74.95	
Median		1.59		\$219,000	2012	2,940	\$74.95	

### Nearby Sales After Solar Farm Completed

TAX ID	Owner	Acres	Date Sold	Sales Price	Built	GBA	\$/GBA	Style
3600193710	Barnes	1.12	Oct-13	\$248,000	2013	3,400	\$72.94	2 Story
3601105180	Nackley	0.95	Dec-13	\$253,000	2013	3,400	\$74.41	2 Story
3600192528	Mattheis	1.12	Oct-13	\$238,000	2013	3,194	\$74.51	2 Story
3600198928	Beckman	0.93	Mar-14	\$250,000	2014	3,292	\$75.94	2 Story
3600196965	Hough	0.81	Jun-14	\$224,000	2014	2,434	\$92.03	2 Story
3600193914	Preskitt	0.67	Jun-14	\$242,000	2014	2,825	\$85.66	2 Story
3600194813	Bordner	0.91	Apr-14	\$258,000	2014	3,511	\$73.48	2 Story
3601104147	Shaffer	0.73	Apr-14	\$255,000	2014	3,453	\$73.85	2 Story
Average		0.91		\$246,000	2013.625	3,189	\$77.85	
Median		0.92		\$249,000	2014	3,346	\$74.46	

### Nearby Sales Before Solar Farm Announced

TAX ID	Owner	Acres	Date Sold	Sales Price	Built	GBA	\$/GBA	Style
3600191437	Thomas	1.12	Sep-12	\$225,000	2012	3,276	\$68.68	2 Story
3600087968	Lilley	1.15	Jan-13	\$238,000	2012	3,421	\$69.57	1.5 Story
3600087654	Burke	1.26	Sep-12	\$240,000	2012	3,543	\$67.74	2 Story
3600088796	Hobbs	0.73	Sep-12	\$228,000	2012	3,254	\$70.07	2 Story
Average		1.07		\$232,750	2012	3,374	\$69.01	
Median		1.14		\$233,000	2012	3,349	\$69.13	

**Matched Pair Summary**

	<b>Adjoins Solar Farm</b>		<b>Nearby Solar Farm</b>	
	<b>Average</b>	<b>Median</b>	<b>Average</b>	<b>Median</b>
Sales Price	\$253,600	\$253,000	\$246,000	\$249,000
Year Built	2013	2013	2014	2014
Size	3,418	3,400	3,189	3,346
Price/SF	\$74.27	\$74.41	\$77.85	\$74.46

**Percentage Differences**

Median Price	-2%
Median Size	-2%
Median Price/SF	0%

The Median Price is the best indicator to follow in any analysis as it avoids outlying samples that would otherwise skew the results. The median sizes and median prices are all consistent throughout the sales both before and after the solar farm whether you look at sites adjoining or nearby to the solar farm. The average for the homes nearby the solar farm shows a smaller building size and a higher price per square foot. This reflects a common occurrence in real estate where the price per square foot goes up as the size goes down. This is similar to the discount you see in any market where there is a discount for buying larger volumes. So when you buy a 2 liter coke you pay less per ounce than if you buy a 16 oz. coke. So even comparing averages the indication is for no impact, but I rely on the median rates as the most reliable indication for any such analysis.

**AM Best Solar Farm, Goldsboro, NC**

View of home in Spring Garden with solar farm located through the trees and panels visible.



View from vacant lot at Spring Garden with solar farm panels visible through trees.

## **2. Matched Pair B – White Cross Solar Farm, Chapel Hill, NC**

A new solar farm was built at 2159 White Cross Road in Chapel Hill, Orange County in 2013. After construction, the owner of the underlying land sold the balance of the tract not encumbered by the solar farm in July 2013 for \$265,000 for 47.20 acres, or \$5,606 per acre. This land adjoins the solar farm to the south and was clear cut of timber around 10 years ago. I compared this purchase to a nearby transfer of 59.09 acres of timber land just south along White Cross Road that sold in November 2010 for \$361,000, or \$6,109 per acre. After purchase, this land was divided into three mini farm tracts of 12 to 20 acres each. These rates are very similar and the difference in price per acre is attributed to the timber value and not any impact of the solar farm.

Type	TAX ID	Owner	Acres	Date	Price	\$/Acre	Notes	Conf By
Adjoins Solar	9748336770	Haggerty	47.20	Jul-13	\$265,000	\$5,614	Clear cut	Betty Cross, broker
Not Near Solar	9747184527	Purcell	59.09	Nov-10	\$361,000	\$6,109	Wooded	Dickie Andrews, broker

The difference in price is attributed to the trees on the older sale.

No impact noted for the adjacency to a solar farm according to the broker.

I looked at a number of other nearby land sales without proximity to a solar farm for this matched pair, but this land sale required the least allowance for differences in size, utility and location.

### **Matched Pair Summary**

	Adjoins Solar Farm		Nearby Solar Farm	
	Average	Median	Average	Median
Sales Price	\$5,614	\$5,614	\$6,109	\$6,109
Adjustment for Timber	\$500	\$500		
Adjusted	\$6,114	\$6,114	\$6,109	\$6,109
Tract Size	47.20	47.20	59.09	59.09

### **Percentage Differences**

Median Price Per Acre 0%

This matched pair again supports the conclusion that adjacency to a solar farm has no impact on adjoining residential/agricultural land.

## **3. Matched Pair C – Wagstaff Farm, Roxboro, NC**

This solar farm is located at the northeast corner of a 594-acre farm with approximately 30 acres of solar farm area. This solar farm was approved and constructed in 2013.

After approval, 18.82 acres were sold out of the parent tract to an adjoining owner to the south. This sale was at a similar price to nearby land to the east that sold in the same time for the same price per acre as shown below.

Type	TAX ID	Owner	Acres	Present Use	Date Sold	Price	\$/AC
Adjoins Solar	0918-17-11-7960	Piedmont	18.82	Agricultural	8/19/2013	\$164,000	\$8,714
Not Near Solar	0918-00-75-9812 et al	Blackwell	14.88	Agricultural	12/27/2013	\$130,000	\$8,739

**Matched Pair Summary**

	Adjoins Solar Farm		Nearby Solar Farm	
	Average	Median	Average	Median
Sales Price	\$8,714	\$8,714	\$8,739	\$8,739
Tract Size	18.82	18.82	14.88	14.88

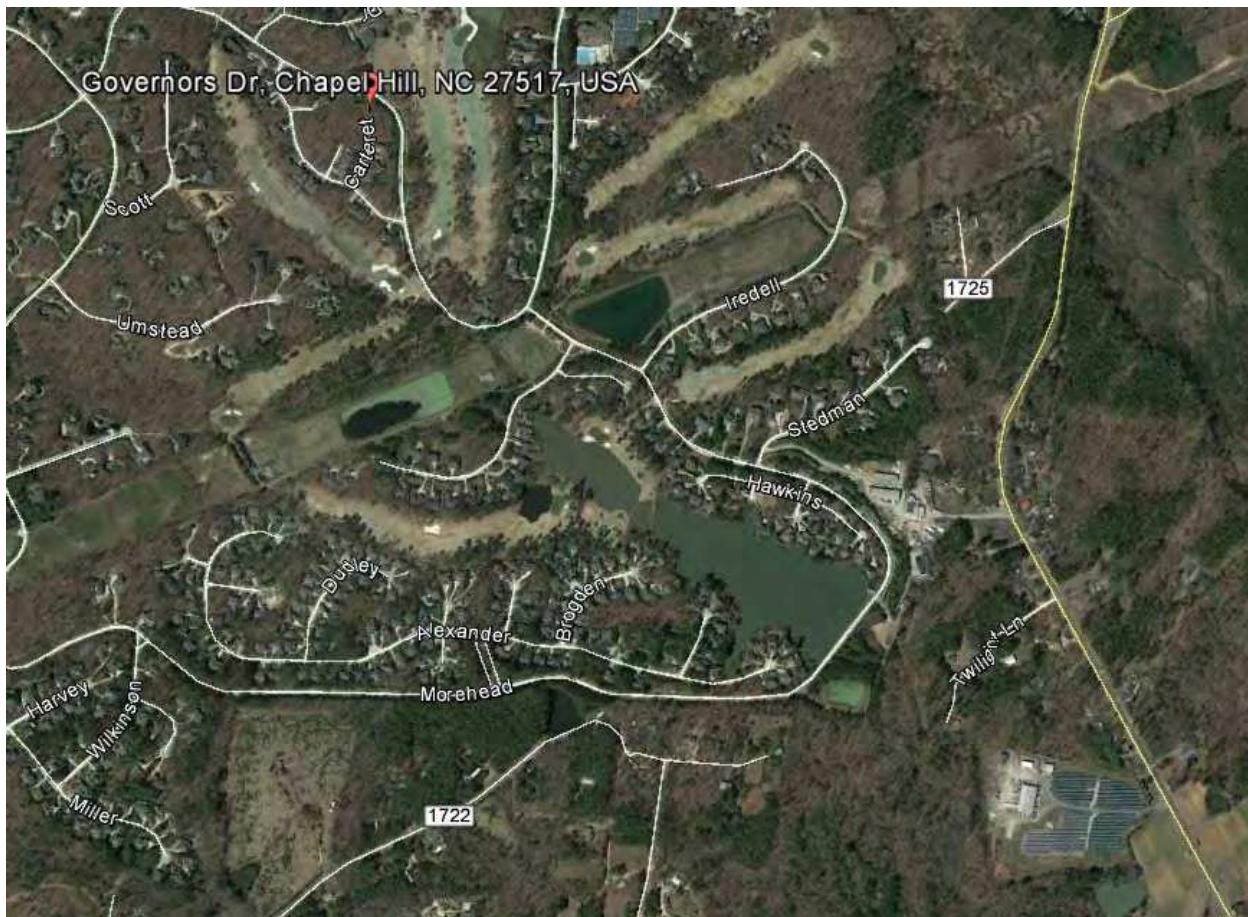
**Percentage Differences**

Median Price Per Acre 0%

This matched pair again supports the conclusion that adjacency to a solar farm has no impact on adjoining residential/agricultural land.

## **Harmony of Use/Compatibility of Use**

I have visited over 40 solar farms and sites on which solar farms are proposed in North Carolina to determine what uses are compatible with a solar farm. The data I have collected and provide in this report strongly supports the compatibility of solar farms with adjoining agricultural and residential uses. While I have focused on adjoining uses, I note that there are many examples of solar farms being located within a quarter mile of residential developments, including such notable developments as Governor's Club in Chapel Hill, which has a solar farm within a quarter mile as you can see on the following aerial map. Governor's Club is a gated golf community with homes selling for \$300,000 to over \$2 million.



The subdivisions included in the matched pair analysis also show an acceptance of residential uses adjoining solar farms as a harmonious use.

Beyond these anecdotal references, I have quantified the adjoining uses for a number of solar farm comparables to derive a breakdown of the adjoining uses for each solar farm. The chart below shows the breakdown of adjoining uses by total acreage.

Percentage By Adjoining Acreage								All Res Uses	All Comm Uses
	Res	Ag	Res/AG	Park	Sub	Comm	Ind		
1	<b>Goldsboro</b>	35%	23%	0%	0%	3%	2%	37%	61% 39%
2	<b>Willow Springs</b>	8%	26%	66%	0%	0%	0%	0%	100% 0%
3	<b>Kings Mtn</b>	3%	12%	4%	0%	0%	0%	82%	18% 82%
4	<b>White Cross</b>	5%	51%	44%	0%	0%	0%	0%	100% 0%
5	<b>Two Lines</b>	3%	87%	8%	0%	3%	0%	0%	100% 0%
6	<b>Strata</b>	0%	0%	0%	100%	0%	0%	0%	100% 0%
7	<b>Avery</b>	13%	40%	47%	0%	0%	0%	0%	100% 0%
8	<b>Mayberry</b>	24%	51%	0%	0%	0%	4%	20%	76% 24%
9	<b>Progress I</b>	0%	45%	4%	0%	0%	0%	50%	50% 50%
10	<b>Progress II</b>	1%	99%	0%	0%	0%	0%	0%	100% 0%
11	<b>Sandy Cross</b>	0%	0%	100%	0%	0%	0%	0%	100% 0%
12	<b>Baldenboro</b>	18%	59%	22%	0%	0%	0%	0%	100% 0%
13	<b>Dement</b>	33%	40%	27%	0%	0%	0%	0%	100% 0%
14	<b>Vale Farm</b>	1%	13%	86%	0%	0%	0%	0%	100% 0%
15	<b>Eastover</b>	0%	0%	0%	0%	0%	0%	0%	0% 0%
16	<b>Wagstaff</b>	7%	89%	4%	0%	0%	0%	0%	100% 0%
17	<b>Roxboro</b>	1%	93%	5%	0%	0%	0%	1%	99% 1%
18	<b>McCallum</b>	5%	93%	1%	0%	0%	0%	0%	100% 0%
19	<b>Vickers</b>	21%	58%	13%	0%	0%	2%	6%	92% 8%
20	<b>Stout</b>	52%	38%	0%	0%	0%	0%	10%	90% 10%
21	<b>Mile</b>	0%	36%	45%	0%	0%	0%	18%	82% 18%
22	<b>Sun Fish</b>	19%	57%	23%	0%	0%	0%	0%	100% 0%
23	<b>Freemont</b>	0%	100%	0%	0%	0%	0%	0%	100% 0%
24	<b>Yadkin 601</b>	4%	45%	51%	0%	0%	0%	0%	100% 0%
25	<b>Battleboro</b>	2%	75%	23%	0%	0%	0%	0%	100% 0%
26	<b>Greenville 2</b>	1%	98%	0%	0%	1%	0%	0%	100% 0%
27	<b>Parmeles Farm</b>	2%	86%	12%	0%	0%	0%	0%	100% 0%
28	<b>Erwin</b>	63%	9%	0%	0%	22%	2%	3%	94% 6%
29	<b>Star Solar</b>	6%	94%	0%	0%	0%	0%	0%	100% 0%
30	<b>Morgans Corner N</b>	29%	70%	0%	0%	1%	0%	0%	100% 0%
31	<b>Morgans Corner S</b>	16%	84%	0%	0%	0%	0%	0%	100% 0%
32	<b>Whitakers</b>	2%	94%	4%	0%	0%	0%	0%	100% 0%
33	<b>Binks</b>	15%	78%	6%	0%	0%	0%	0%	100% 0%
<b>Average</b>		12%	56%	18%	3%	1%	0%	7%	90% 7%
<b>Median</b>		5%	57%	4%	0%	0%	0%	0%	100% 0%
<b>High</b>		63%	100%	100%	100%	22%	4%	82%	100% 82%
<b>Low</b>		0%	0%	0%	0%	0%	0%	0%	0% 0%

Res = Residential, Ag = Agriculture, Sub = Substation, Com = Commercial, Ind = Industrial.

I have also included a breakdown of each solar farm by number of adjoining parcels rather than acreage. Using both factors provides a more complete picture of the neighboring properties.

Percentage By Number of Parcels Adjoining								All Res Uses	All Comm Uses
	Res	Ag	Res/AG	Park	Sub	Comm	Ind		
1	<b>Goldsboro</b>	47%	3%	0%	0%	3%	3%	43%	53% 47%
2	<b>Willow Springs</b>	42%	37%	21%	0%	0%	0%	0%	100% 0%
3	<b>Kings Mtn</b>	40%	30%	10%	0%	0%	0%	20%	80% 20%
4	<b>White Cross</b>	33%	20%	40%	0%	7%	0%	0%	100% 0%
5	<b>Two Lines</b>	38%	46%	8%	0%	8%	0%	0%	100% 0%
6	<b>Strata</b>	71%	0%	14%	14%	0%	0%	0%	100% 0%
7	<b>Avery</b>	50%	38%	13%	0%	0%	0%	0%	100% 0%
8	<b>Mayberry</b>	42%	8%	0%	0%	0%	25%	25%	50% 50%
9	<b>Progress I</b>	0%	50%	25%	0%	0%	0%	25%	75% 25%
10	<b>Progress II</b>	20%	80%	0%	0%	0%	0%	0%	100% 0%
11	<b>Sandy Cross</b>	17%	0%	83%	0%	0%	0%	0%	100% 0%
12	<b>Bladenboro</b>	62%	28%	7%	0%	3%	0%	0%	100% 0%
13	<b>Dement</b>	83%	6%	11%	0%	0%	0%	0%	100% 0%
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15	<b>Eastover</b>	0%	0%	0%	0%	0%	0%	0%	0% 0%
16	<b>Wagstaff</b>	65%	30%	3%	0%	0%	0%	3%	98% 3%
17	<b>Roxboro</b>	33%	50%	8%	0%	0%	0%	8%	92% 8%
18	<b>McCallum</b>	77%	15%	4%	0%	0%	0%	4%	96% 4%
19	<b>Vickers</b>	47%	32%	5%	0%	0%	5%	11%	84% 16%
20	<b>Stout</b>	78%	6%	0%	0%	0%	0%	17%	83% 17%
21	<b>Mile</b>	0%	36%	45%	0%	0%	0%	18%	82% 18%
22	<b>Sun Fish</b>	78%	4%	17%	0%	0%	0%	0%	100% 0%
23	<b>Freemont</b>	14%	86%	0%	0%	0%	0%	0%	100% 0%
24	<b>Yadkin 601</b>	44%	28%	28%	0%	0%	0%	0%	100% 0%
25	<b>Battleboro</b>	53%	33%	7%	0%	7%	0%	0%	100% 0%
26	<b>Greenville 2</b>	38%	50%	0%	0%	13%	0%	0%	100% 0%
27	<b>Parmeles Farm</b>	21%	68%	5%	0%	5%	0%	0%	100% 0%
28	<b>Erwin</b>	67%	5%	0%	0%	5%	19%	5%	76% 24%
29	<b>Star Solar</b>	38%	63%	0%	0%	0%	0%	0%	100% 0%
30	<b>Morgans Corner N</b>	71%	19%	0%	0%	5%	0%	5%	95% 5%
31	<b>Morgans Corner S</b>	69%	31%	0%	0%	0%	0%	0%	100% 0%
32	<b>Whitakers</b>	71%	24%	6%	0%	0%	0%	0%	100% 0%
33	<b>Binks</b>	90%	5%	5%	0%	0%	0%	0%	100% 0%
		Average	46%	29%	13%	0%	2%	2%	6% 90% 7%
		Median	44%	28%	6%	0%	0%	0%	100% 0%
		High	90%	86%	83%	14%	13%	25%	43% 100% 50%
		Low	0%	0%	0%	0%	0%	0%	0% 0% 0%

Res = Residential, Ag = Agriculture, Sub = Substation, Com = Commercial, Ind = Industrial.

Both of the above charts show a marked residential and agricultural adjoining use for most solar farms. Every single solar farm considered included an adjoining residential use except for Progress I, which included an adjoining residential/agricultural use. These comparable solar farms clearly support a compatibility with adjoining residential uses along with agricultural uses.

### **III. Specific Factors on Harmony of Use**

#### **1. Appearance**

Solar farm panels have no associated stigma at this time and in smaller collections are found in yards and roofs in many residential communities. Larger solar farms using fixed panels are a passive use of the land that is considered in keeping with a rural/residential area. As shown below, solar farms are comparable to larger greenhouses. This is not surprising given that a greenhouse is essentially another method for collecting passive solar energy. The greenhouse use is well received in residential/rural areas and has a similar visual impact as a solar farm.



The fixed solar panels are all less than 12 feet high, which means that the visual impact of the solar panels will be similar in height to a typical greenhouse or lower than a single story residential dwelling. This property could be developed with single family housing that would have a much greater visual impact on the surrounding area given that a two-story home with attic could be four times as high as these proposed panels. The panels will be located behind a chain link fence.

#### **2. Noise**

The proposed solar panels will be fixed and will not move to follow the sun. These are passive, fixed solar panels with no associated noise. The transformer reportedly has a hum that can only be heard in close proximity to this transformer and the buffers on the property are sufficient to make this hum inaudible from the adjoining properties.

There will be minimal onsite traffic generating additional noise.

The various solar farms that I have inspected were inaudible from the roadways. I heard nothing on any of these sites associated with the solar farm.

### **3. Odor**

The solar panels give off no odor of which I am aware.

The various solar farms that I have inspected and identified in the addenda produced no noticeable odor off site.

### **4. Traffic**

The solar farm will have no onsite employee's or staff. Maintenance of the site is minimal and relative to other potential uses of the site, such as a residential subdivision. The additional traffic on this site is insignificant.

### **5. Hazardous material**

The solar farm presents no potential hazardous waste byproduct as part of normal operation. Any fertilizer, weed control, vehicular traffic, or construction will be significantly less than typically applied in a residential development or even most agricultural uses.

The various solar farms that I have inspected and identified in the addenda have no known pending environmental impacts associated with the development and operation.

### **6. Conclusion**

On the basis of the factors described above, it is my professional opinion that the proposed solar farm will be in harmony with the area in which it is to be developed in Pasquotank County.

## **IV. Market Commentary**

I have surveyed a number of builders, developers and investors regarding solar farms over the last year. I have received favorable feedback from a variety of sources; below are excerpts from my conversations with different clients or other real estate professionals.

I spoke with Betty Cross with Keller Williams Realty in Chapel Hill, who sold the tract of land adjoining the White Cross Road solar farm. She indicated that the solar farm was not considered a negative factor in marketing the property and that it had no impact on the final price paid for the land.

I spoke with Lynn Hayes a broker with Berkshire Hathaway who sold a home at the entrance to Pickards Mountain where the home exits onto the Pickard Mountain Eco Institute's small solar farm. This property is located in rural Orange County west of Chapel Hill. This home closed in January 2014 for \$735,000. According to Ms. Hayes the buyer was excited to be living near the Eco Institute and considered the solar farm to be a positive sign for the area. There are currently a number of 10 acre plus lots in Pickards Meadow behind this house with lots on the market for \$200,000 to \$250,000.

A new solar farm was built on Zion Church Road, Hickory at the Two Lines Solar Farm on the Punch property. After construction of the solar farm in 2013, an adjoining tract of land with 88.18 acres sold for \$250,000, or \$2,835 per acre. This was a highly irregular tract of land with significant tree cover between it and the solar farm. I have compared this to a current listing of 20.39 acres of land that is located southeast just a little ways from this solar farm. This land is on the market for \$69,000, or \$3,428 per acre. Generally, a smaller tract of land would be listed for more per acre. Considering a size adjustment of 5% per doubling in size, and a 10% discount for the likely drop in the closed price off of the asking price, I

derive an indicated value per acre of the smaller tract of \$2,777 per acre. This is very similar to the recently closed sale adjoining the solar farm, which further supports the matched pair analysis earlier in this report.

Rex Vick with Windjam Developers has a subdivision in Chatham County off Mt. Gilead Church Road known as The Hamptons. Home prices in The Hamptons start at \$600,000 with homes over \$1,000,000. Mr. Vick expressed interest in the possibility of including a solar farm section to the development as a possible additional marketing tool for the project.

Mr. Eddie Bacon, out of Apex North Carolina, has inherited a sizeable amount of family and agricultural land, and he has expressed interest in using a solar farm as a method of preserving the land for his children and grandchildren while still deriving a useful income from the property. He believes that solar panels would not in any way diminish the value for this adjoining land.

I spoke with Carolyn Craig, a Realtor in Kinston, North Carolina who is familiar with the Strata Solar Farms in the area. She noted that a solar farm in the area would be positive: "A solar farm is color coordinated and looks nice." "A solar farm is better than a turkey farm," which is allowed in that area. She would not expect a solar farm will have any impact on adjoining home prices in the area.

Mr. Michael Edwards, a broker and developer in Raleigh, indicated that a passive solar farm would be a great enhancement to adjoining property: "You never know what might be put on that land next door. There is no noise with a solar farm like there is with a new subdivision."

These are just excerpts I've noted in my conversations with different clients or other real estate participants that provided other thoughts on the subject that seemed applicable.

## **V. Conclusion**

The matched pair analysis shows no impact in home values due to the adjacency to the solar farm as well as no impact to adjacent vacant residential or agricultural land. The solar farm at Pickards Mountain Eco Institute shows no impact on lot and home marketing nearby. The criteria for making downward adjustments on property values such as appearance, noise, odor, and traffic all indicate that a solar farm is a compatible use for a rural/residential transition area.

Similar solar farms have been approved adjoining agricultural uses and residential developments. The adjoining residential uses have included single family homes up to \$260,000 on lots as small as 0.74 acres. The solar farm at the Pickards Mountain Eco Institute adjoins a home that sold in January 2014 for \$735,000 and in proximity to lots being sold for \$200,000 to \$250,000 for homes over a million dollars. A recent sale in Chapel Hill adjoining a solar farm shows no impact. Clearly, adjoining agricultural uses are consistent with a solar farm.

Based on the data and analysis in this report, it is my professional opinion that the solar farm proposed at the subject property will not substantially injure the value of adjoining or abutting property and that the proposed use is in harmony with the surrounding area.

If you have any further questions please call me any time.

Sincerely,



Richard C. Kirkland, Jr., MAI  
State Certified General Appraiser

