ADMINISTRATIVE COMMITTEE

Monday, August 29, 2016
5:00 p.m.

NOTICE IS HEREBY GIVEN that the Bountiful City Administrative Committee will hold its regular meeting in the Conference Room at City Hall, 790 South 100 East, Bountiful, Utah, at the time and on the date given above. The public is invited. Persons who are disabled as defined by the Americans with Disabilities Act may request an accommodation by contacting the Bountiful City Planning Office at 298-6190. Notification at least 24 hours prior to the meeting would be appreciated.

AGENDA

1. Welcome and Introductions.

2. Consider approval of minutes for August 22, 2016.

3. **PUBLIC HEARING:** Consider approval of a Conditional Use Permit to allow for Solar Panels at 2958 South Windsor Lane, Brad Salisbury, applicant.

4. **PUBLIC HEARING:** Consider approval of a Conditional Use Permit to allow for Solar Panels at 317 South 1550 East, Jeff and Christina Lunt, applicants.

5. **PUBLIC HEARING:** Consider approval of a Conditional Use Permit to allow for Solar Panels at 334 South 1300 East, Andrea Simmons, applicant.

6. Consider approval of a Conditional Use Permit, in written form, to allow for Solar Panels at 3578 South 100 West, John Olmedo, applicant.

7. Consider approval of a Conditional Use Permit, in written form, to allow for Solar Panels at 3894 South Bountiful Boulevard, Eric and Julie Hattabaugh, applicants.

8. Miscellaneous business and scheduling.

Chad Wilkinson, City Planner

Pending minutes have not yet been approved by the Administrative Committee and are subject to change until final approval has been made.

Bountiful City
Administrative Committee Minutes
August 22, 2016

Present: Chairman – Chad Wilkinson; Committee Member – Lloyd Cheney and John Marc Knight; Assistant Planner – Andy Hulka; Recording Secretary – Julie Holmgren

1. **Welcome and Introductions.**

Chairman Wilkinson opened the meeting at 5:00 p.m. and introduced all present.

2. **Consider approval of minutes for August 15, 2016.**

Mr. Cheney made a motion to approve the minutes for August 15, 2016. Mr. Wilkinson seconded the motion.

A	Mr. Wilkinson
A	Mr. Cheney
___	Mr. Knight (Abstained)

Motion passed 2-0.

3. **PUBLIC HEARING: Consider approval of a Conditional Use Permit to allow for Solar Panels at 3578 South 100 West, John Olmedo, applicant.**

Brent Peterson (Legend Solar), representing the applicant, was present.

[Mr. Peterson was delayed in his arrival, and this item was heard after item #4.]

Andy Hulka presented a summary of the staff report (the full staff report follows).

The property where the solar panels are to be installed is located in the R-3 Single Family Zone. Solar power panels are classified in the city ordinance as "private power plants" and require a conditional use permit if they are over 10 watts. The applicant has indicated that the photovoltaic system to be installed will produce 6.90 kilowatts (6,900 watts), requiring a conditional use permit.

The application submitted indicates the proposed installation of 5 photovoltaic arrays with a total of 20 panels. The arrays will occupy approximately 332 square feet, which is smaller than the 50% maximum roof coverage. The arrays will be located on the flat roof, angled towards the south. The first two arrays will include 3 panels each, the third array will include 5 panels, the fourth array will include 4 panels, and the fifth array will include 5 panels. The roof is of joist construction and has a slope of 0:12 (flat roof). The applicant has indicated that the roofing membrane is in good condition. The panels will be connected to the roof with an Invisimount racking system. A review of information provided in the application indicates that all engineering requirements for the construction of solar panels in Bountiful City will be

Pending

met. A reflection analysis of the roof pitch indicates that photovoltaic panels should not produce a reflection nuisance to surrounding properties.

Based on the findings, staff has determined that the applicant would comply with all requirements for the conditional use permit. Staff recommends approval of the conditional use permit with the following conditions:

1. The applicant shall obtain a building permit.
2. The panels must be installed only as proposed in the application.
3. This conditional use permit is solely for this site and is non-transferable.

Mr. Wilkinson noted that the project involves a flat roof and inquired regarding the angle at which the panels would be installed. Mr. Peterson responded that they would be placed at approximately a 25 degree angle. Mr. Wilkinson stated that visual impact is always a concern with solar projects and that the angle described would be satisfactory. Mr. Cheney requested that the committee look at a Google Earth street view of the home. The committee viewed the home and it was determined the project would not create a negative visual impact.

PUBLIC HEARING: Chairman Wilkinson opened and closed the Public Hearing at 5:08 p.m. with no comments from the public.

Mr. Knight inquired regarding the engineer's letter for the project. Mr. Peterson responded that their company's procedures require photos of the joists and measurements of the trusses which are then submitted to an engineer for analysis. A discussion ensued regarding physical inspection of the attic for the project. Mr. Peterson stated that for a project with a flat roof that protocol would require attic photos or inspection of a blueprint.

Mr. Cheney made a motion for approval of a Conditional Use Permit to allow for Solar Panels at 3578 South 100 West, John Olmedo, applicant. Mr. Knight seconded the motion.

A Mr. Wilkinson
A Mr. Cheney
A Mr. Knight

Motion passed 3-0.

4. **PUBLIC HEARING: Consider approval of a Conditional Use Permit to allow for Solar Panels at 3894 South Bountiful Boulevard, Eric and Julie Hattabaugh, applicants.**

Dakota Brown (Auric Solar), representing the applicant, was present.

Andy Hulka presented a summary of the staff report (the full staff report follows).

The property where the solar panels are to be installed is located in the R-3 Single Family Zone. Solar power panels are classified in the city ordinance as "private power plants" and require a conditional use permit if they are over 10 watts. The applicant has indicated that the

photovoltaic system to be installed will produce 6.27 kilowatts (6,270 watts), requiring a conditional use permit.

The application submitted indicates the proposed installation of 2 photovoltaic arrays with a total of 22 panels. The arrays will occupy approximately 402 square feet, which is smaller than the 50% maximum roof coverage. The first array will be located on the southwest facing portion of the roof and will include 15 panels; the second array will be located on the southeast facing portion of the roof and include 7 panels. The roof is of truss construction and has a slope of 7:12. The applicant has indicated that the asphalt shingles are 3-4 years old and in good condition. The panels will be connected to the roof with a Snap N Rack racking system. A review of information provided in the application indicates that all engineering requirements for the construction of solar panels in Bountiful City will be met. A reflection analysis of the roof pitch indicates that photovoltaic panels should not produce a reflection nuisance to surrounding properties.

Based on the findings, staff has determined that the applicant would comply with all requirements for the conditional use permit. Staff recommends approval of the conditional use permit with the following conditions:

1. The applicant shall obtain a building permit.
2. The panels must be installed only as proposed in the application.
3. This conditional use permit is solely for this site and is non-transferable.

Mr. Wilkinson clarified placement of the panels on the roof and the committee viewed the applicant's home and neighboring houses in Google Earth.

PUBLIC HEARING: Chairman Wilkinson opened and closed the Public Hearing at 5:03 p.m. with no comments from the public.

Mr. Knight made a motion for approval of a Conditional Use Permit to allow for Solar Panels at 3894 South Bountiful Boulevard, Eric and Julie Hattabaugh, applicants. Mr. Cheney seconded the motion.

A Mr. Wilkinson
A Mr. Cheney
A Mr. Knight

Motion passed 3-0.

5. **Consider approval of a Conditional Use Permit, in written form, to allow for a Home Occupation Contractor Business at 670 North Main Street, Dane Garner, applicant.**

Mr. Cheney made a motion for approval of a Conditional Use Permit, in written form, to allow for a Home Occupation Contractor Business at 670 North Main Street, Dane Garner, applicant. Mr. Knight seconded the motion.

Pending minutes have not yet been approved by the Administrative Committee and are subject to change until final approval has been made.

A	Mr. Wilkinson
A	Mr. Cheney
A	Mr. Knight

Motion passed 3-0.

6. **Consider approval of a Conditional Use Permit, in written form, to allow for a New Single Family Dwelling in a Residential Multiple Family Zone at 173 West 400 South, Joel Hale, applicant.**

   Mr. Cheney made a motion for approval of a Conditional Use Permit, in written form, to allow for a New Single Family Dwelling in a Residential Multiple Family Zone at 173 West 400 South, Joel Hale, applicant. Mr. Knight seconded the motion.

A	Mr. Wilkinson
A	Mr. Cheney
A	Mr. Knight

   Motion passed 3-0.

7. **Miscellaneous business and scheduling.**

   Mr. Wilkinson ascertained there were no further items of business. The meeting was adjourned at 5:11 p.m.

_____

Chad Wilkinson, City Planner

Pending

MAYOR
RANDY LEWIS

CITY COUNCIL
RICHARD HIGGINSON
BETH HOLBROOK
JOHN M. (MARC) KNIGHT
KENDALYN HARRIS
JOHN PITT

CITY MANAGER
GARY R. HILL

Memo

Date: August 22, 2016
To: Administrative Committee
From: Andy Hulka, Assistant Planner
Re: Staff Report for the Administrative Committee Meeting on Monday, August 29, 2016

Overview

3. PUBLIC HEARING - Consider approval of a Conditional Use Permit to allow for Solar Panels at 2958 South Windsor Lane, Brad Salisbury, applicant.

Item #3

Background

The property where the solar panels are to be installed is located in the R-3 Single Family Zone. Solar power panels are classified in the city ordinance as "private power plants" and require a conditional use permit if they are over 10 watts. The applicant has indicated that the photovoltaic system to be installed will produce 7.13 kilowatts (7,130 watts), requiring a conditional use permit.

Findings

The application submitted indicates the proposed installation of 2 photovoltaic arrays with a total of 26 panels. The arrays will occupy approximately 427 square feet, which is smaller than the 50% maximum roof coverage. The first array will be located on the southeast facing portion of the roof and will include 3 rows, each with 7 panels. The second array will also be facing southeast and will include one row of 5 panels. The roof is of truss construction and has a slope of 5:12. The applicant has indicated that the asphalt shingles are brand new. The panels will be connected to the roof with a Snap N Rack racking system. A review of information provided in the application indicates that all engineering requirements for the construction of solar panels in Bountiful City will be met. A reflection analysis of the roof pitch indicates that photovoltaic panels should not produce a reflection nuisance to surrounding properties.

Staff Recommendation

Based on the findings, staff has determined that the applicant would comply with all requirements for the conditional use permit. Staff recommends approval of the conditional use permit with the following conditions:

1. The applicant shall obtain a building permit.
2. The panels must be installed only as proposed in the application.
3. This conditional use permit is solely for this site and is non-transferable.

Bountiful Land Use Ordinance

14-14-126 PRIVATE POWER PLANTS

A. A "Private Power Plant" is any device or combination of devices not owned and operated by a regulated utility company, which convert mechanical or chemical energy into electricity. A private power plant with a peak power generation capacity of 10 Watts/12v/500mAmp (or equivalent) is exempt from the provisions of this Section. A private power plant, including a windmill or wind turbine, shall not be permitted within Bountiful City limits, with the following exceptions:

1. A back-up power generator running on unleaded gasoline, diesel, natural gas, propane, or hydrogen fuel cell, rated for a single structure or building lot, located in accordance with the requirements of the zone in which it is located.
2. A photovoltaic cell array or other passive solar energy system located in accordance with the requirements for occupied structures for the zone in which it is located.

B. With the exception of a back-up power generator, no private power plant may be installed or used on any property unless a conditional use permit has been issued for the specific power generation device.

C. A private power plant is not exempt from the height requirements of the Zone in which it is located, and shall be considered an occupied structure for the purposes of calculating height.

D. <u>Solar energy design standards and requirements</u>

1. Solar energy panels or collectors that are mounted to the roof shall:
   a. Not extend beyond the roofline.
   b. Not reflect sunlight onto neighboring windows or rights-of-way.
   c. Not exceed fifty (50) percent of the total roof area.
   d. Shall be maintained in good condition.
2. Prior to installation, use, and connection to the grid, the following shall be done:
   a. A Conditional Use Permit shall be issued
   b. A Building Permit shall be issued
   c. The Power Department shall approve the application for net metering
   d. The Power Department shall approve the physical installation

2958 Windsor Ln

BOUNTIFUL
EST. 1847

For Office Use Only
Date Rec'd 8/15/16
Admin Date 8/29/16
Application $ 50

SOLAR PANEL - CONDITIONAL USE PERMIT APPLICATION

PROPERTY OWNER INFORMATION:

Property Owner Name(s): Brad w Salisbury

Property Address: 2958 Windsor Lane

Property Owner Phone Number: 801 628-3237

Property Owner E-Mail: Steakbury@Aol.com

*(Property Owner(s) - please sign **Authorization and Affidavit** on page 2)*

SOLAR CONTRACTOR INFORMATION:

Solar Company Name: ANYHOUR SERVICES

Company Address: 1374 WEST 130 SOUTH, OREM

Company Phone Number: 801-301-7894

Contact Person for Solar Project: JESSE W.

E-Mail Address: JESSE@anyhourservices.com

1. **Please include the following with your application:**

☐ **$50.00 Fee**: Conditional Use Permit Application (Administrative Committee)

☑ **SITE PLAN**: Two (2) 11"x17" sized sets of the proposed site plan drawn at 1:10 scale or as required by the City Engineer and City Planner. A site plan shall include:

- Plan view (bird's-eye) of site with placement of solar panels.
- A north arrow, the scale of the drawing, and the date of the drawing.
- Street names and addresses.
  FOR GROUND-MOUNTED SOLAR ARRAYS, THE FOLLOWING:
- Property lines with dimensions.
- All sidewalks, driveways, curbs and gutter, and parking areas.
- All existing easements, rights-of-way, and any other restrictions on the use of the property.
- Existing buildings, proposed buildings, and other significant features on the site.
- Existing buildings and significant features located on adjacent properties within 50 feet (50') of the subject property boundaries.
- When required by the City Planner or City Engineer, and for all new construction, a survey including both existing and proposed contours of the land at intervals of two feet (2') or better.

☑ **ONE-LINE DIAGRAM** (or electrical diagram or block diagram): Two (2) 11" x 17" sets (diagram must follow Bountiful City Light & Power sample diagram included in the solar packet – attachment 2, page 3).

☑ **ENGINEER ANALYSIS LETTER** (including an analysis of the existing roof structure with added solar equipment and uplift resistance)

☑ **COMPLETED SOLAR PACKET FORMS:**
☑ Solar Panel Questions
☑ Photovoltaic System Net Metering Requirements (signed by property owner)
☑ Bountiful City Light & Power - diagram form
☑ Building Permit Application

☑ **SPEC SHEETS:** Solar product information

☑ **PHOTO:** Electrical service (meter main with disconnect)

2. Property Owner Authorization and Affidavit

The undersigned, being duly sworn, depose that I am (we are) the owner(s) of the property involved in this application and that the statements contained herein and by attachment, are to the best of my (our) knowledge true and correct.

8-10-18

Property Owner

Property Owner

BOUNTIFUL
EST. 1847

MAYOR
Randy C. Lewis
CITY COUNCIL
Kendalyn Harris
Richard Higginson
Beth Holbrook
John M. Knight
John Pitt
CITY MANAGER
Gary Hill

SOLAR PANEL QUESTIONS

Please completely answer all questions (do not simply refer to an attachment)

Size of Array	
Array Dimensions Total Number of Panels Total rating of photovoltaic system:	Array #1 23.8' x 16.25' Array #2 13.6' x 5.41' 7.13 KW (26 Total Panels)
Mounting Location	
Roof/Wall/Other	Disconnecting means mounted on Garage South East Wall. Solar Panels/Rack mounted on East Roof.
Roof Pitch (Rise/Run e.g. "5/12")	5/12 Pitch (22.5°)
Roofing Material Asphalt Shingle/Tile/Steel/Other Age & Condition of Shingles	Brand New Asphalt Shingle Roof 1-Layer
Roof Construction Rafter/Truss/Joist	Trussing System.
Engineering Analysis	
Connection to Roof	Snap n rack 100
Analysis of Existing Roof Structure with added Solar Equipment	Brand new shingles

Engineers Analysis:

International Building code states that when alteration to an existing buildings gravity load is less than 5% it is allowable by code. The engineered evaluation has determined the new solar array system load is less than 5% to the existing building gravity capability. Therefore satisfying code. Do to the smoothness of the solar panels vs the roughness of the shingles.

Engineering, Inc.

801-361-5242
38 West 1250 North, Mona , UT 84645

Date: August 11, 2016

To: Jesse Wheeler
Any Hour Services

Subject: Brad Salisbury Roof Evaluation

As per your request, I have examined the roof, including the roof trusses, and evaluated the support system for the proposed solar array installation for the Brad Salisbury Residence, located at 2958 Windsor Lane, Bountiful, UT. The existing roof system appears to be in good condition and structurally sound.

Section 3404.3 of the 2012 International Building Code (IBC 2012) states that an alteration to an existing building that results in less than 5% increase in the gravity load is permissable without a detailed structural analysis of the load carrying members.

An evaluation of the loads imposed by the proposed solar system on the roof section(s) has determined that the proposed loading will not exceed 5% of the existing loading, thus satisfying the IBC 2012 code.

Due to the smoothness of the PV panels versus the roughness of the existing Asphalt Shingles, the maximun snow load condition may be reduced by 11.2 pounds per square foot for the PV panel coverage area.

It is strongly recommended that you follow the manufacturers recommendations for the assembly and installation of the PV panels, rails, and roof mounting hardware. The roof mounting fasteners will need to be embedded into at least 1-1/2" of lumber. If the roof mounting fastener is not able to be mounted directly into the roof truss, a 2x4 block placed between the trusses will be sufficient. Use roof mounting fasteners that can adequately withstand 44 pounds of tensile force (safety factor of 2).

Please see the attached calculations.

Feel free to contact me with any questions. I can be reached at 801-361-5242.

Respectfully,

PROFESSIONAL STRUCTURAL ENGINEER
Richard A
Hatfield
2774512
STATE OF UTAH

Richard Hatfield, S.E., P.E.
Apex Engineering, Inc.

Structural Calculations for Brad Salisbury Residence

Design Parameters

Measured Roof Angle:	22.5 Degrees	Exposure Factor:	0.9
Roof Materials:	Asphalt Shingles	Thermal Factor:	1
Basic Wind Speed:	115 mph	Importance Factor:	1.1
Risk Category:	II	Height Adj. Factor:	1
Terrain Category:	B	Topographic Factor:	1
Exposure Category:	Fully Exposed	Roof Slope Factor:	1.00
Module Length:	65.35 in.	PV Panel Slope Factor:	0.73
Module Width:	38.97 in.		

Snow Load - IBC 1608, as amended by Utah Code 15A-3-107(7), ASCE 7-10

$P_g = (P_o^2 + S^2(A-A_o)^2)^{0.5}$ = Ground snow load at a given elevation (psf)

Where:

P_o = Base ground snow load (psf) =	43
S = Change in ground snow load with elevation =	63
A = Elevation above sea level at the site =	5022
A_o = Base ground snow elevation =	4500
$P_g = (P_o^2 + S^2(A-A_o)^2)^{0.5}$ =	**54.1**

$P_f = 0.7C_eC_tI_sP_g$ = Flat Roof Snow Load Calculation

Where:

C_e = Exposure Factor (ASCE 7-10: Table 7-2)=	0.9
C_t = Thermal Factor (ASCE 7-10: Table 7-3)=	1.1
I_s = Importance Factor =	1.1
$P_f = 0.7C_eC_tI_sP_g$ =	**41.3**

$P_s = C_sP_f$ = Sloped Snow Load Calculation

Where:

C_s = Roof Slope Factor (ASCE 7-10: Fig. 7-2)

Sloped Snow Load for Exisitng Roof Materials:	41.3
Sloped Snow Load for Solar Panels:	30.1
Reduction in Snow Load at Solar Panel Location(s):	11.2

Gravity Load Analysis - IBC 3404.3

Section 1

Total Area of Roof Section (sf):	1092
Total Gravity Load of Roof Section, Based on Snow Load (lbs):	45,062.84
Total Weight of Solar System (lbs):	999.05
Total Percentage of Gravity Load Increase:	2.2%
Total Roof Uplift Due to Wind:	-809.64
Roof Attachments:	36
Uplift on Each Roof Attachment:	-22.49

Section 2

Total Area of Roof Section (sf):	130
Total Gravity Load of Roof Section, Based on Snow Load (lbs):	5,364.62
Total Weight of Solar System (lbs):	190.29
Total Percentage of Gravity Load Increase:	3.5%
Total Roof Uplift Due to Wind:	-154.22
Roof Attachments:	8
Uplift on Each Roof Attachment:	-19.28

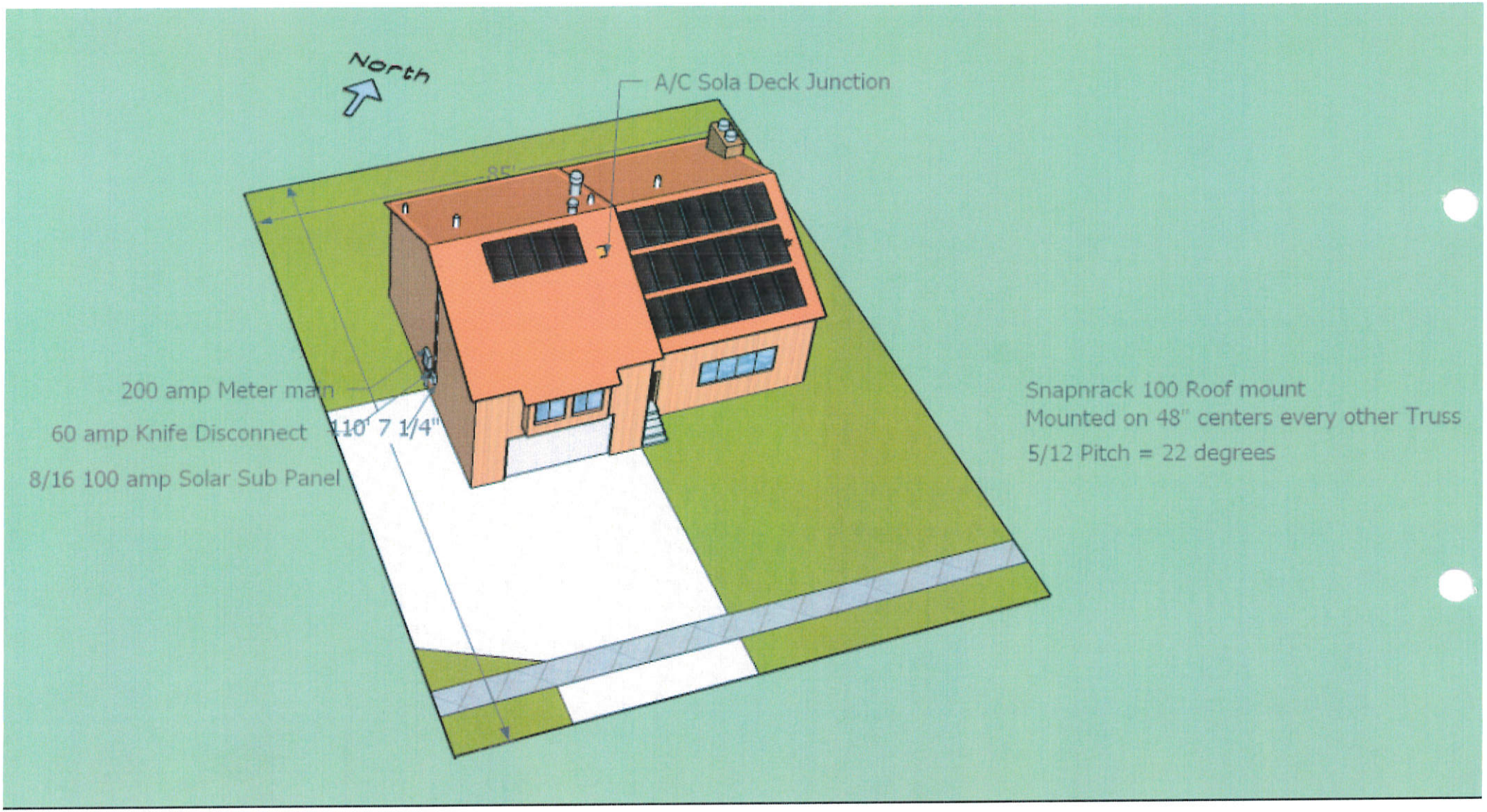
Wind Uplift

$P_{NET} = \ell K_{ZT} P_{NET30}$

Where:

ℓ= Height & Exposure Adjustment Factor (ASCE 7-10: Fig. 30.5-1)	1.0
K_{ZT}= Topographic Factor (ASCE 7-10: Fig. 30.5-1)	1.0
P_{NET30}= Wind Pressure up to 30' Height (ASCE 7-10: Fig. 30.5-1)	-21.8

$P_{NET} = \ell K_{ZT} P_{NET30}$ = (per 10 s.f. of area) -21.8


North
A/C Sola Deck Junction
200 amp Meter main
60 amp Knife Disconnect
8/16 100 amp Solar Sub Panel
110' 7 1/4"
Snapnrack 100 Roof mount
Mounted on 48" centers every other Truss
5/12 Pitch = 22 degrees

Owner: Brad Salisbury
2958 Windsor Ln, Bountiful utah
Micro inverter set up

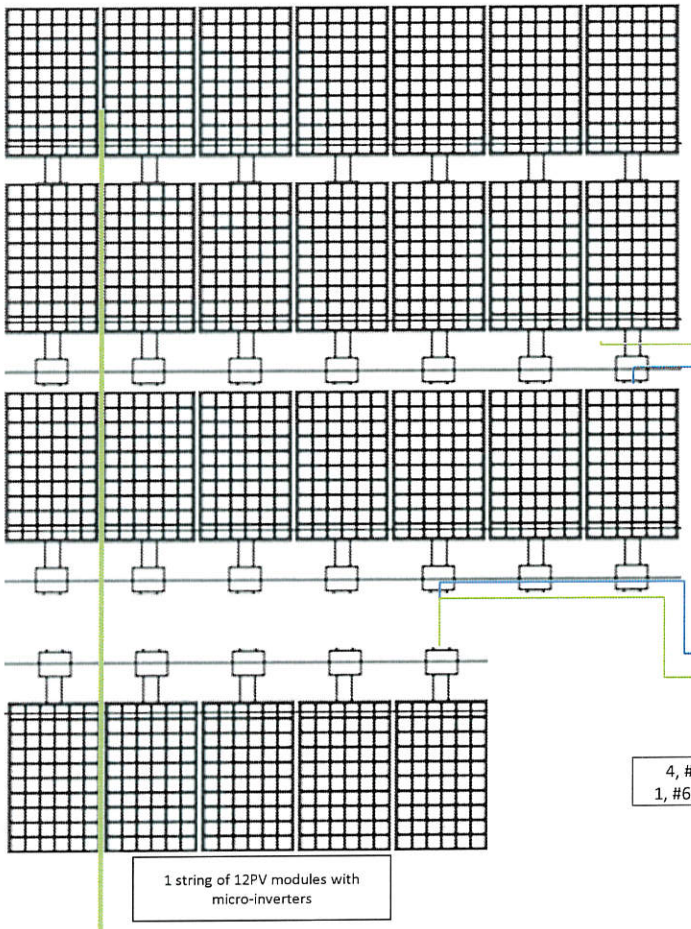
Solar PV Array:
Module Mfg. Suniva
Model: OPT 285-60-4
Output power (DC STC) 285W
Output Power (CEC) 285W
VMP 31.8
IMP 8.96
Voc 38.8
Isc 9.48

Modules: 26
Strings: 2
Array Power: 7130
Azimuth: south east 140 , Tilt 22.5
Roof: One layer Asphalt Shingles, Engineered Trusses
Meter Base: SC8/16D200C (Existing)

Inverter:
Enphase M250
DC Max Input: 310 Watts
DC Max output: 48Volts
AC Max output: 250 Watts
AC Max output current: 15 A
Max Fuse (OCPD) 20 A
Max inverters per string: 16

SNAP N RACK 100 MOUNTING:
Sun resistant Ties for wire manage
Anchored on 48" centers
Sola Deck Junction boxes flush @ 22.5

Grounding
All components grounded Per NEC 2014
Interconnection complies w/ 690.64



SAFETY AND WARNING LABELS	
A	COMBINER BOX/PASS THROUGH
B	DC BREAKER OR DC DISCONNECT
C	DC CONDUIT
D	INVERTER
E	AC BREAKER OR AC DISCONNECT
F	BREAKER PANEL
G	PRODUCTION METER
H	METER MAIN

MAYOR
RANDY LEWIS

CITY COUNCIL
RICHARD HIGGINSON
BETH HOLBROOK
JOHN M. (MARC) KNIGHT
KENDALYN HARRIS
JOHN PITT

CITY MANAGER
GARY R. HILL

Memo

Date: August 22, 2016
To: Administrative Committee
From: Andy Hulka, Assistant Planner
Re: Staff Report for the Administrative Committee Meeting on Monday, August 29, 2016

Overview

4. PUBLIC HEARING - Consider approval of a Conditional Use Permit to allow for Solar Panels at 317 South 1550 East, Jeff and Christina Lunt, applicants.

Item #4

Background

The property where the solar panels are to be installed is located in the R-3 Single Family Zone. Solar power panels are classified in the city ordinance as "private power plants" and require a conditional use permit if they are over 10 watts. The applicant has indicated that the photovoltaic system to be installed will produce 5.51 kilowatts (5,510 watts), requiring a conditional use permit.

Findings

The application submitted indicates the proposed installation of 3 photovoltaic arrays with a total of 19 panels. The arrays will occupy approximately 329 square feet, which is smaller than the 50% maximum roof coverage. The first array will be located on the southeast facing portion of the roof and will include 5 panels. The second array will be located on the southwest facing portions of the roof and will include 11 panels. The third array is also located on the southwest facing portion of the roof and will include 3 panels. The roof is of rafter construction and has a slope of 6:12 on the upper portion of the roof where the southwest facing 11-panel array will be installed and 4:12 on the lower portions of the roof where the southeast facing 5-panel array and the southwest facing 3-panel array will be installed. The applicant has indicated that the metal roof is in good condition. The panels will be connected to the roof with a ProteaBracket mounting system. A review of information provided in the application indicates that all engineering requirements for the construction of solar panels in Bountiful City will be met. A reflection analysis of the roof pitch indicates that photovoltaic panels should not produce a reflection nuisance to surrounding properties.

Staff Recommendation

Based on the findings, staff has determined that the applicant would comply with all requirements for the conditional use permit. Staff recommends approval of the conditional use permit with the following conditions:

1. The applicant shall obtain a building permit.
2. The panels must be installed only as proposed in the application.
3. This conditional use permit is solely for this site and is non-transferable.

Bountiful Land Use Ordinance

14-14-126 PRIVATE POWER PLANTS

A. A "Private Power Plant" is any device or combination of devices not owned and operated by a regulated utility company, which convert mechanical or chemical energy into electricity. A private power plant with a peak power generation capacity of 10 Watts/12v/500mAmp (or equivalent) is exempt from the provisions of this Section. A private power plant, including a windmill or wind turbine, shall not be permitted within Bountiful City limits, with the following exceptions:

1. A back-up power generator running on unleaded gasoline, diesel, natural gas, propane, or hydrogen fuel cell, rated for a single structure or building lot, located in accordance with the requirements of the zone in which it is located.
2. A photovoltaic cell array or other passive solar energy system located in accordance with the requirements for occupied structures for the zone in which it is located.

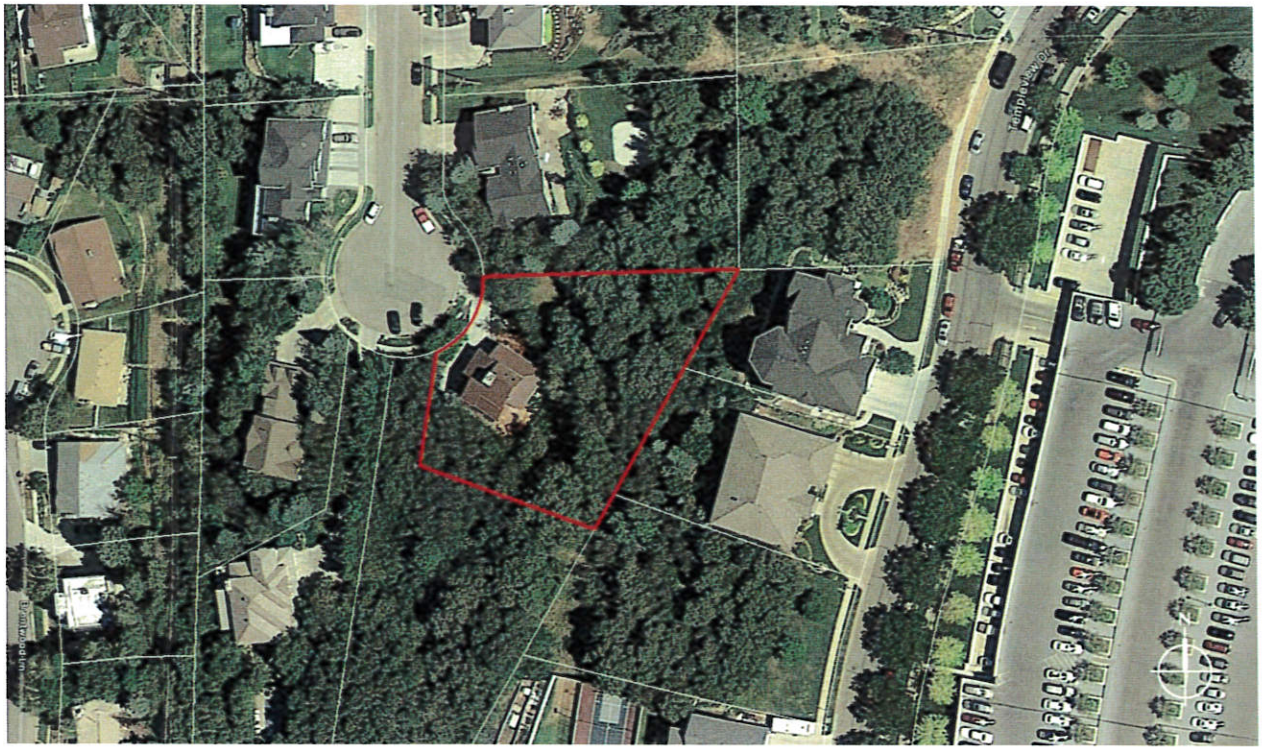
B. With the exception of a back-up power generator, no private power plant may be installed or used on any property unless a conditional use permit has been issued for the specific power generation device.

C. A private power plant is not exempt from the height requirements of the Zone in which it is located, and shall be considered an occupied structure for the purposes of calculating height.

D. Solar energy design standards and requirements

1. Solar energy panels or collectors that are mounted to the roof shall:
   a. Not extend beyond the roofline.
   b. Not reflect sunlight onto neighboring windows or rights-of-way.
   c. Not exceed fifty (50) percent of the total roof area.
   d. Shall be maintained in good condition.
2. Prior to installation, use, and connection to the grid, the following shall be done:
   a. A Conditional Use Permit shall be issued
   b. A Building Permit shall be issued
   c. The Power Department shall approve the application for net metering
   d. The Power Department shall approve the physical installation

317 S 1550 E



BOUNTIFUL
EST. 1847

For Office Use Only
Date Rec'd 8-16-16
Admin Date Aug 29
Application $

SOLAR PANEL - CONDITIONAL USE PERMIT APPLICATION

PROPERTY OWNER INFORMATION:

Property Owner Name(s): JEFF & CHRISTINA LUNT

Property Address: 317 S 1550 E

Property Owner Phone Number: 801 671-0956

Property Owner E-Mail: JEFFPRO1@OUTLOOK.COM

*(Property Owner(s) - please sign **Authorization and Affidavit** on page 2)*

SOLAR CONTRACTOR INFORMATION:

Solar Company Name: TELT Ventures dba One Solar

Company Address: 2391 S 1560 W, #C, Woods Cross UT 84087

Company Phone Number: 801-683-8168 or Jim 801-884-6945

Contact Person for Solar Project: Jim Dowdy

E-Mail Address: Jim@onesolarutah.com

1. **Please include the following with your application:**

☑ **$50.00 Fee**: Conditional Use Permit Application (Administrative Committee)

☑ **SITE PLAN**: Two (2) 11"x17" sized sets of the proposed site plan drawn at 1:10 scale or as required by the City Engineer and City Planner. A site plan shall include:

- Plan view (bird's-eye) of site with placement of solar panels.
- A north arrow, the scale of the drawing, and the date of the drawing.
- Street names and addresses.

FOR GROUND-MOUNTED SOLAR ARRAYS, THE FOLLOWING:

- Property lines with dimensions.
- All sidewalks, driveways, curbs and gutter, and parking areas.
- All existing easements, rights-of-way, and any other restrictions on the use of the property.
- Existing buildings, proposed buildings, and other significant features on the site.
- Existing buildings and significant features located on adjacent properties within 50 feet (50') of the subject property boundaries.
- When required by the City Planner or City Engineer, and for all new construction, a survey including both existing and proposed contours of the land at intervals of two feet (2') or better.

☑ **ONE-LINE DIAGRAM** (or electrical diagram or block diagram): Two (2) 11" x 17" sets (diagram must follow Bountiful City Light & Power sample diagram included in the solar packet – attachment 2, page 3).

☑ **ENGINEER ANALYSIS LETTER** (including an analysis of the existing roof structure with added solar equipment and uplift resistance)

☑ **COMPLETED SOLAR PACKET FORMS:**

☐ Solar Panel Questions
☐ Photovoltaic System Net Metering Requirements (signed by property owner)
☐ Bountiful City Light & Power - diagram form
☐ Building Permit Application

☑ **SPEC SHEETS:** Solar product information

☑ **PHOTO:** Electrical service (meter main with disconnect)

2. **Property Owner Authorization and Affidavit**

The undersigned, being duly sworn, depose that I am (we are) the owner(s) of the property involved in this application and that the statements contained herein and by attachment, are to the best of my (our) knowledge true and correct.

Property Owner

Property Owner

BOUNTIFUL
EST. 1847

MAYOR
Randy C. Lewis
CITY COUNCIL
Kendalyn Harris
Richard Higginson
Beth Holbrook
John M. Knight
John Pitt
CITY MANAGER
Gary Hill

SOLAR PANEL QUESTIONS

Please completely answer all questions (do not simply refer to an attachment)

Size of Array	
Array Dimensions Total Number of Panels Total rating of photovoltaic system:	19 panels 290 watt black mono = 5.510kW 5.510 KW
Mounting Location	
Roof/Wall/Other	Roof Mount
Roof Pitch (Rise/Run e.g. "5/12")	6/12 & 4/12
Roofing Material Asphalt Shingle/Tile/Steel/Other Age & Condition of Shingles	Metal
Roof Construction Rafter/Truss/Joist	Rafter
Engineering Analysis	
Connection to Roof	ProteaBracket S-5
Analysis of Existing Roof Structure with added Solar Equipment	Carlson Engineering confirmed the existing structure will adequately withstand the addition of the solar panels without any modifications. Structural report provided
Adequate Uplift Resistance 120 mph Exp B ASCE 7-05 155 mph Exp B ASCE 7-10	Yes 155 wind speed

August 8, 2016

One Solar
Gail Steenblik

Reference: Lunt Residence
317 South 1550 East
Bountiful, Utah.

Dear Gail,

The above reference has been reviewed for the installation of (19) solar panels. The existing structure will adequately withstand the addition of the solar panels with 2 x 8 rafters @ 24" o.c., 16" and 12" o.c. The calculations have been attached for your reference.

Please feel free to contact me with any questions or comments.

Respectfully,

R. Lynn Carlson, S.E.
CES

REGISTERED STRUCTURAL ENGINEER
No. 167797
R. LYNN CARLSON
STATE OF UTAH

8/16

Solar Panel Design Calculations

Reference: Lunt Residence
317 South 1550 East
Bountiful, Utah

Contractor: One Solar

Design Data:

Code: IBC 2015, ASCE 7-10

Solar Panels: (19) HiS-S290RG 290 Watt Panels

Wind: 120 mph, Exp B (3 second gust) (Vajd), 155 mph (Vult)

Roof Load: 40 psf (Ps)

Roof Slope: 4 (in/ft)

Roof Type: 2 x 8 rafters @ 24" o.c., 16" o.c., and 12" o.c.

REGISTERED STRUCTURAL ENGINEER
No. 167797
R. LYNN CARLSON
STATE OF UTAH

Carlson Engineering Services, Inc.
380 North 200 West
Bountiful, Utah 84010
(801) 296-2784 Fax (801) 296-6253

Roof Snow Loads - ASCE 7-10, Chapter 7

Snow = 40 psf 5089ft

Slippery Surfaces Yes (Solar Panels)

Panel Size: 1001 x 1675 mm (39.4" x 65.95")

Area: 18.04 ft^2 Weight= 46.7 #

Loading = 46.7/18.04 = 2.6 psf + 20% = 3.1 psf

Snow Load Reduction (ASCE 7-10, Chaper 7)

Pf= 0.7(0.9)(1.0)(57)= 36.0 psf (57 psf Ground Snow Load)

Ps= 0.8(36)= 28.7 psf (Based on Roof Slope) C_s Values: 0.8 (4/12), 0.67 (6/12), 0.53 (8/12), 0.36 (12/12)

Roof Design Load - Actual Required= 40 - 28.7 = 11.27 psf

Actual of 3.1 psf < 11.27 psf, Therefore Additional Load No Factor

Wind Loading Design
(Possible Suction, Uplift forces)

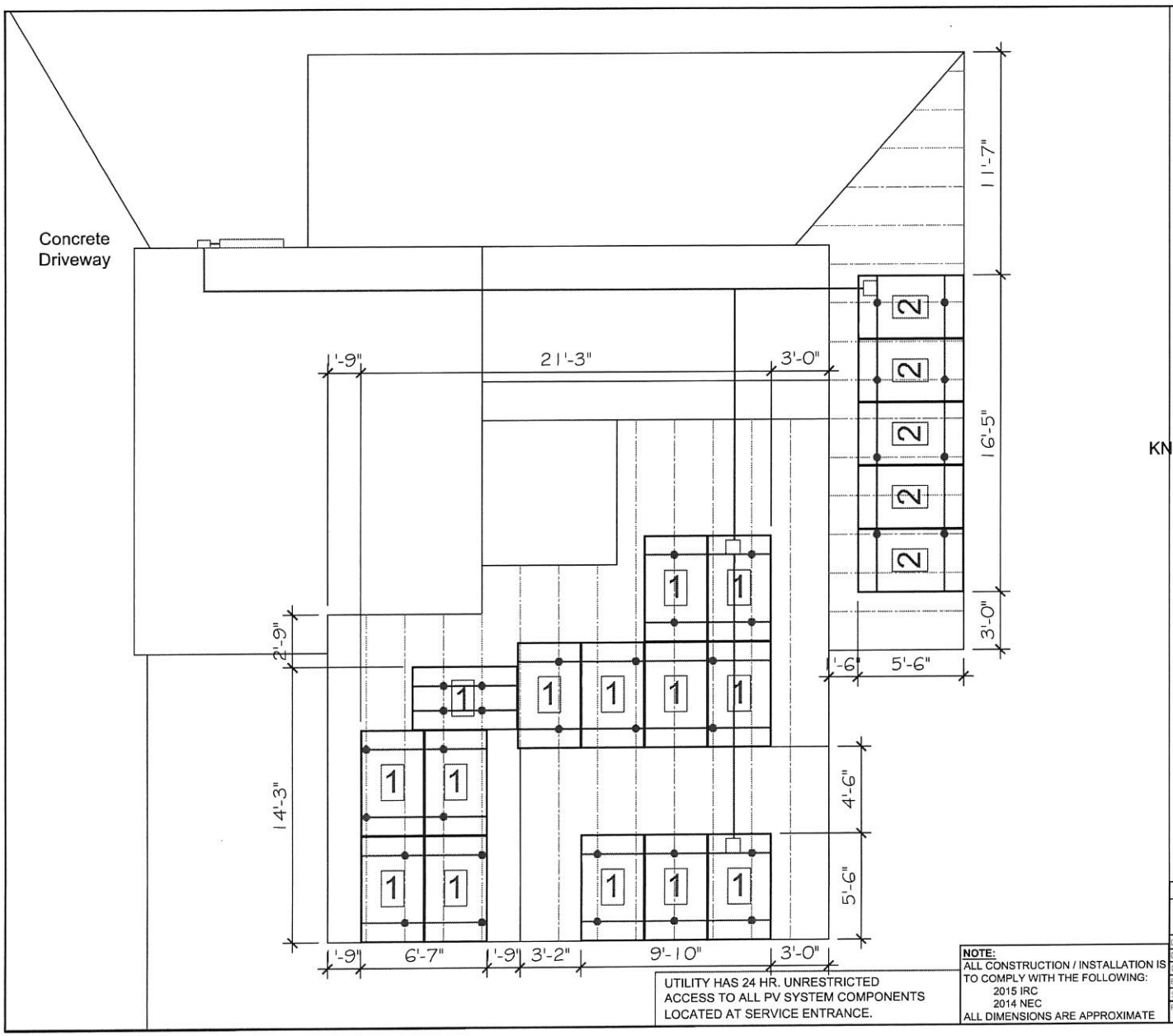
ASCE 7-10, 29.4.2

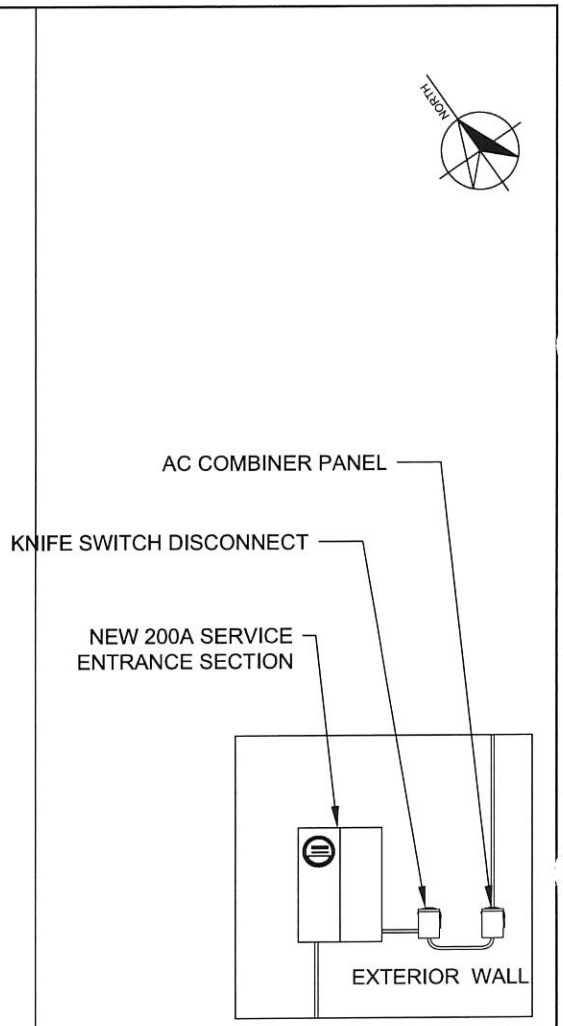
$F = g_h G C_f A_S$

$g_h = 0.00256(0.85)(1.0)(0.85)(120)^2 =$ 26.34 psf

F= (26.63)(18.04)= 480# (Each Panel)

From Installation Manual, Loadings Acceptable





UTILITY HAS 24 HR. UNRESTRICTED ACCESS TO ALL PV SYSTEM COMPONENTS LOCATED AT SERVICE ENTRANCE.

NOTE:
ALL CONSTRUCTION / INSTALLATION IS TO COMPLY WITH THE FOLLOWING:
2015 IRC
2014 NEC
ALL DIMENSIONS ARE APPROXIMATE

19 HYUNDAI HiS-S290RG 290 WATT PV PANELS

SOLAR

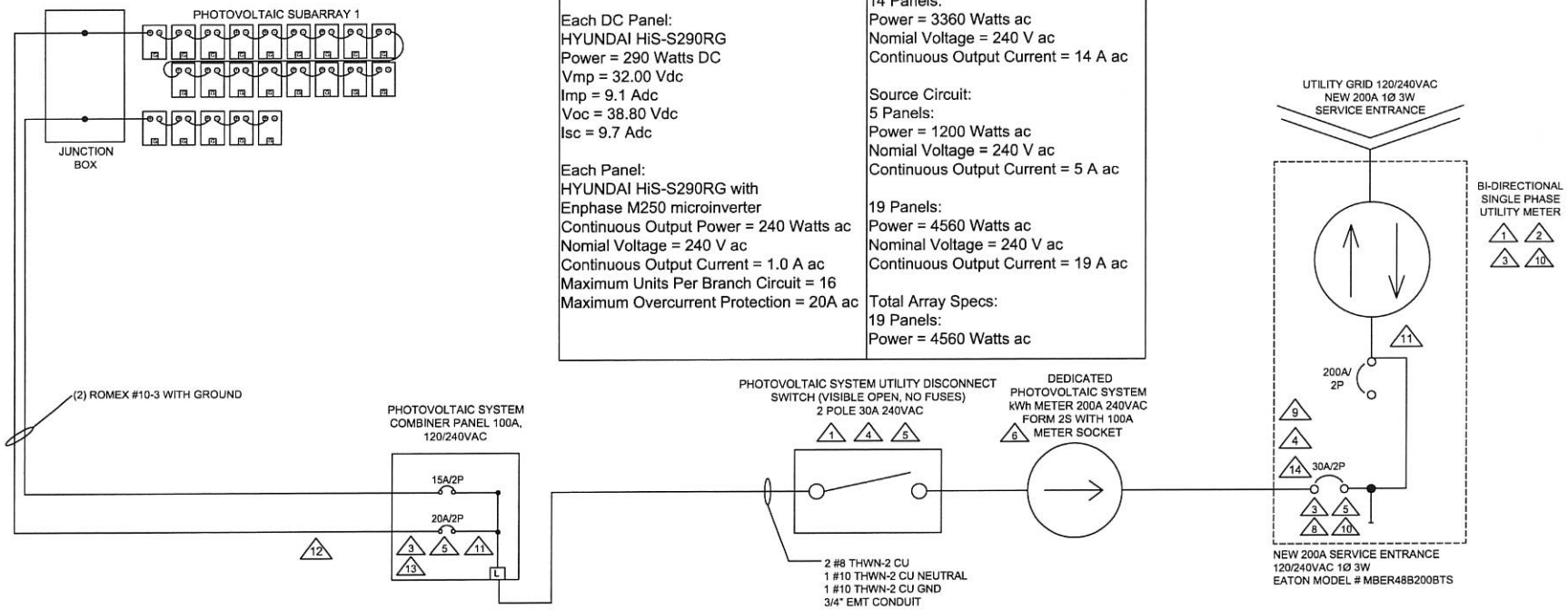
LUNT RESIDENCE
317 SOUTH 1550 EAST, BOUNTIFUL, UTAH 84010

INSTALL SITE

4.56 KW AC PHOTOVOLTAIC SYSTEM
5.510 W DC PHOTOVOLTAIC SYSTEM

DATE:	08/01/2016
DRAWN:	JMB
CHECKER:	
ENGINEER	
SALESMAN:	JP
PROJECT:	LUNT RESIDENCE

SCALE NTS



Each DC Panel:
HYUNDAI HiS-S290RG
Power = 290 Watts DC
Vmp = 32.00 Vdc
Imp = 9.1 Adc
Voc = 38.80 Vdc
Isc = 9.7 Adc

Each Panel:
HYUNDAI HiS-S290RG with
Enphase M250 microinverter
Continuous Output Power = 240 Watts ac
Nomial Voltage = 240 V ac
Continuous Output Current = 1.0 A ac
Maximum Units Per Branch Circuit = 16
Maximum Overcurrent Protection = 20A ac

14 Panels:
Power = 3360 Watts ac
Nomial Voltage = 240 V ac
Continuous Output Current = 14 A ac

Source Circuit:
5 Panels:
Power = 1200 Watts ac
Nomial Voltage = 240 V ac
Continuous Output Current = 5 A ac

19 Panels:
Power = 4560 Watts ac
Nominal Voltage = 240 V ac
Continuous Output Current = 19 A ac

Total Array Specs:
19 Panels:
Power = 4560 Watts ac

NOTES:

1. EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH THE 2014 NEC AND ALL APPLICABLE REQUIREMENTS OF THE SERVING ELECTRIC UTILITY COMPANY AND OF THE LOCAL AUTHORITY HAVING JURISDICTION.
2. BI-DIRECTIONAL UTILITY METER TO BE INSTALLED BY UTILITY COMPANY WHEN REQUIRED.
3. LABEL BREAKER "PHOTOVOLTAIC ELECTRIC POWER SOURCE" PER NEC 705-10 AND "BREAKERS ARE BACK-FED" PER NEC 705.12(D)(5). LABEL WITH THE MAXIMUM AC OUTPUT OPERATING CURRENT AND THE OPERATING VOLTAGE PER NEC 690-54
4. LABEL "PHOTOVOLTAIC SYSTEM UTILITY DISCONNECT SWITCH". SWITCH TO BE LOCKED AT ALL TIMES. SWITCH TO BE VISIBLE BLADE AND ACCESSIBLE PER UTILITY REQUIREMENTS AND CONFORM TO NEC 705.22.
5. PROVIDE WARNING SIGN PER NEC 690-17 READING " WARNING - ELECTRIC SHOCK HAZARD - DO NOT TOUCH TERMINALS. TERMINALS ON BOTH THE LINE AND THE LOAD SIDE MAY BE ENERGIZED IN THE OPEN POSITION".
6. NOT USED
7. ALL ROOF PENETRATIONS SHALL BE FLASHED IN ACCORDANCE WITH IRC M2302.2.2. MODULES SHALL NOT INSTALLED OVER, OR BLOCK ANY, ATTIC VENTS, PLUMBING VENTS, FURNACE OR WATER VENTS, ETC. ADDITIONALLY, ALL WIRING MUST BE COMPLETELY SUPPORTED ONLY BY DEVICES THAT ARE UL LISTED AND SUNLIGHT RESISTANT.
8. PER 2014 NEC 705.12 D.2: THE SUM OF THE AMPERE RATINGS OF OVERCURRENT DEVICES IN CIRCUITS SUPPLYING POWER TO THE BUS BAR SHALL NOT EXCEED 120% THE RATING OF THE BUS BAR OR OR CONDUCTOR.
9. WARNING SIGN IS TO BE PROVIDED READING "PHOTOVOLTAIC SYSTEM EQUIPPED WITH RAPID SHUTDOWN" THE SIGN SHALL BE REFLECTIVE, WITH LETTERS CAPITALIZED , 3/8" IN HEIGHT AND WHITE ON A RED BACKGROUND.
10. PER ARTICLE 705.12(D)(7) INVERTER OUTPUT CONNECTION TO BE LOCATED AT OPPOSITE (LOAD) END FROM THE MAIN CIRCUIT LOCATION. LABEL TO READ "WARNING: INVERTER OUTPUT CONNECTION, DO NOT RELOCATE THIS OVERCURRENT DEVICE."
11. LABELS ARE TO BE PERMANENTLY ETCHED, SECURELY MOUNTED IN PLACE, AND ABLE TO ENDURE THE ENVIRONMENT IN WHICH THEY ARE LOCATED.
12. FOR THE PORTION OF THE AC RUN FROM THE ARRAY THAT RUNS FROM THE ATTIC SPACE TO THE AC COMBINER PANEL, THE ROMEX SHALL BE PROTECTED BY A 1" EMT CONDUIT.
13. THERE SHALL BE A SIGN PROVIDED AT THE AC COMBINER PANEL STATING THAT IT IS DEDICATED ONLY TO THE PV SYSTEM, AND NO ADDITIONAL LOAD CONNECTIONS ARE ALLOWED TO BE CONNECTED IN ACCORDANCE WITH NEC ARTICLE 705.12(D).
14. THERE SHALL BE A SIGN PROVIDED AT THE SERVICE PANEL STATING THE TOTAL RATED AC OUTPUT CURRENT IN AMPS (17.1A), AND THE VOLTAGE OF THE SYSTEM (240 VAC) PER NEC ARTICLE 690.54.
15. THERE SHALL BE A SIGN PROVIDED AT THE RAPID SHUTDOWN DISCONNECT LABELING IT AS SUCH

SOLAR	LUNT RESIDENCE 317 SOUTH 1550 EAST, BOUNTIFUL, UTAH 84010
DATE: 08/01/2016	ONE LINE WIRING DIAGRAM
DRAWN: JMB	4.56 KW AC PHOTOVOLTAIC SYSTEM
CHECKER:	5.510 W DC PHOTOVOLTAIC SYSTEM
ENGINEER:	
SALESMAN: JP	SCALE NTS
PROJECT: LUNT RESIDENCE	SHEET 5 OF 6

MAYOR
RANDY LEWIS

CITY COUNCIL
RICHARD HIGGINSON
BETH HOLBROOK
JOHN M. (MARC) KNIGHT
KENDALYN HARRIS
JOHN PITT

CITY MANAGER
GARY R. HILL

Memo

Date: August 22, 2016
To: Administrative Committee
From: Andy Hulka, Assistant Planner
Re: Staff Report for the Administrative Committee Meeting on Monday, August 29, 2016

Overview

5. PUBLIC HEARING - Consider approval of a Conditional Use Permit to allow for Solar Panels at 334 South 1300 East, Andrea Simmons, applicant.

Item #5

Background

The property where the solar panels are to be installed is located in the R-3 Single Family Zone. Solar power panels are classified in the city ordinance as "private power plants" and require a conditional use permit if they are over 10 watts. The applicant has indicated that the photovoltaic system to be installed will produce 5.94 kilowatts (5,940 watts), requiring a conditional use permit.

Findings

The application submitted indicates the proposed installation of 1 photovoltaic array with a total of 22 panels. The arrays will occupy approximately 381 square feet, which is smaller than the 50% maximum roof coverage. The array will be located on the east facing portion of the roof and will include 2 rows of 11 panels. The roof is of truss construction and has a slope of 5:12. The applicant has indicated that the asphalt shingles are in acceptable condition. The panels will be connected to the roof with an Ironridge racking system. A review of information provided in the application indicates that all engineering requirements for the construction of solar panels in Bountiful City will be met. A reflection analysis of the roof pitch indicates that photovoltaic panels should not produce a reflection nuisance to surrounding properties.

Staff Recommendation

Based on the findings, staff has determined that the applicant would comply with all requirements for the conditional use permit. Staff recommends approval of the conditional use permit with the following conditions:

1. The applicant shall obtain a building permit.
2. The panels must be installed only as proposed in the application.
3. This conditional use permit is solely for this site and is non-transferable.

Bountiful Land Use Ordinance

14-14-126 PRIVATE POWER PLANTS

A. A "Private Power Plant" is any device or combination of devices not owned and operated by a regulated utility company, which convert mechanical or chemical energy into electricity. A private power plant with a peak power generation capacity of 10 Watts/12v/500mAmp (or equivalent) is exempt from the provisions of this Section. A private power plant, including a windmill or wind turbine, shall not be permitted within Bountiful City limits, with the following exceptions:

1. A back-up power generator running on unleaded gasoline, diesel, natural gas, propane, or hydrogen fuel cell, rated for a single structure or building lot, located in accordance with the requirements of the zone in which it is located.
2. A photovoltaic cell array or other passive solar energy system located in accordance with the requirements for occupied structures for the zone in which it is located.

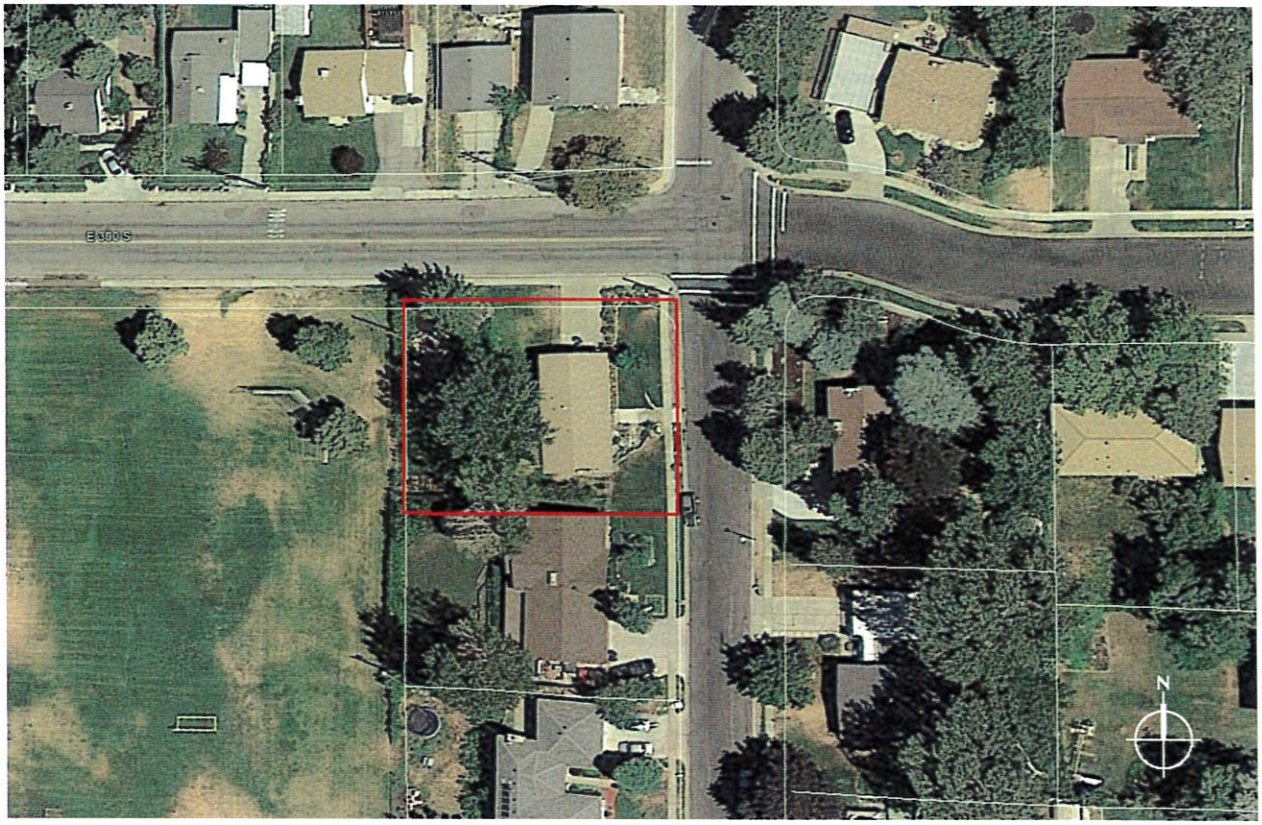
B. With the exception of a back-up power generator, no private power plant may be installed or used on any property unless a conditional use permit has been issued for the specific power generation device.

C. A private power plant is not exempt from the height requirements of the Zone in which it is located, and shall be considered an occupied structure for the purposes of calculating height.

D. <u>Solar energy design standards and requirements</u>

1. Solar energy panels or collectors that are mounted to the roof shall:
   a. Not extend beyond the roofline.
   b. Not reflect sunlight onto neighboring windows or rights-of-way.
   c. Not exceed fifty (50) percent of the total roof area.
   d. Shall be maintained in good condition.
2. Prior to installation, use, and connection to the grid, the following shall be done:
   a. A Conditional Use Permit shall be issued
   b. A Building Permit shall be issued
   c. The Power Department shall approve the application for net metering
   d. The Power Department shall approve the physical installation

334 S 1300 E



BOUNTIFUL
EST. 1847

For Office Use Only
Date Rec'd 8-16-16
Admin Date Aug 29
Application $

SOLAR PANEL - CONDITIONAL USE PERMIT APPLICATION

PROPERTY OWNER INFORMATION:

Property Owner Name(s): Andrea Simmons

Property Address: 334 S. 1300 E. Bountiful UT 84010

Property Owner Phone Number: 801-598-6121

Property Owner E-Mail: fahobc@aol.com

*(Property Owner(s) - please sign **Authorization and Affidavit** on page 2)*

SOLAR CONTRACTOR INFORMATION:

Solar Company Name: TELT Ventures dba One Solar

Company Address: 2391 S 1560 W, #C, Woods Cross UT 84087

Company Phone Number: 801-683-8168 or Jim 801-884-6945

Contact Person for Solar Project: Jim Dowdy

E-Mail Address: Jim@onesolarutah.com

1. **Please include the following with your application:**

☑ **$50.00 Fee**: Conditional Use Permit Application (Administrative Committee)

☑ **SITE PLAN**: Two (2) 11"x17" sized sets of the proposed site plan drawn at 1:10 scale or as required by the City Engineer and City Planner. A site plan shall include:

- Plan view (bird's-eye) of site with placement of solar panels.
- A north arrow, the scale of the drawing, and the date of the drawing.
- Street names and addresses.
  FOR GROUND-MOUNTED SOLAR ARRAYS, THE FOLLOWING:
- Property lines with dimensions.
- All sidewalks, driveways, curbs and gutter, and parking areas.
- All existing easements, rights-of-way, and any other restrictions on the use of the property.
- Existing buildings, proposed buildings, and other significant features on the site.
- Existing buildings and significant features located on adjacent properties within 50 feet (50') of the subject property boundaries.
- When required by the City Planner or City Engineer, and for all new construction, a survey including both existing and proposed contours of the land at intervals of two feet (2') or better.

☑ **ONE-LINE DIAGRAM** (or electrical diagram or block diagram): Two (2) 11" x 17" sets (diagram must follow Bountiful City Light & Power sample diagram included in the solar packet – attachment 2, page 3).

☑ **ENGINEER ANALYSIS LETTER** (including an analysis of the existing roof structure with added solar equipment and uplift resistance)

☑ **COMPLETED SOLAR PACKET FORMS:**
☑ Solar Panel Questions
☑ Photovoltaic System Net Metering Requirements (signed by property owner)
☑ Bountiful City Light & Power - diagram form
☑ Building Permit Application

☑ **SPEC SHEETS:** Solar product information

☑ **PHOTO:** Electrical service (meter main with disconnect)
New 200A Service upgrade with disconnect scheduled 8/31/16

2. **Property Owner Authorization and Affidavit**

The undersigned, being duly sworn, depose that I am (we are) the owner(s) of the property involved in this application and that the statements contained herein and by attachment, are to the best of my (our) knowledge true and correct.

Property Owner

Property Owner

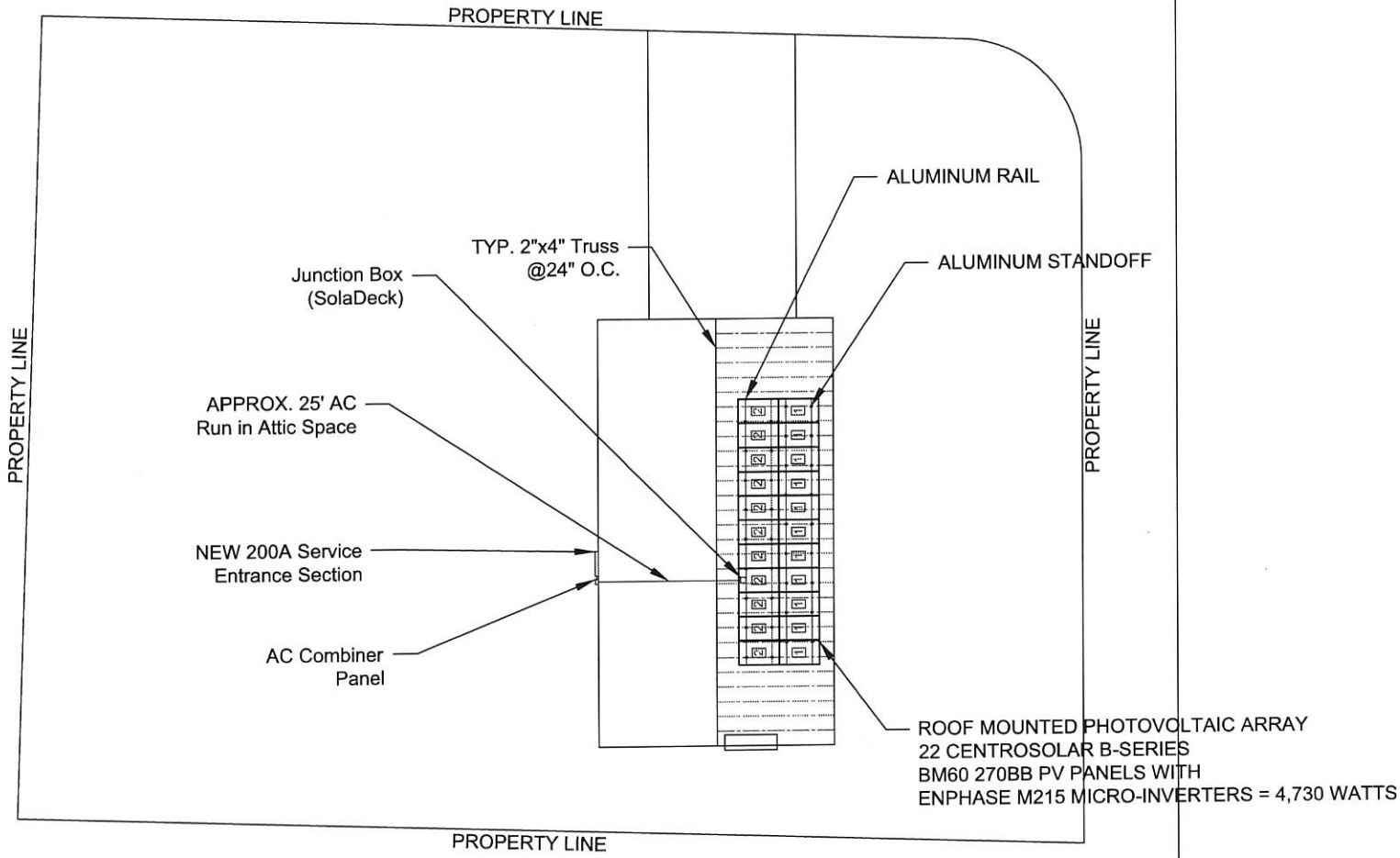
BOUNTIFUL
EST. 1847

MAYOR
Randy C. Lewis
CITY COUNCIL
Kendalyn Harris
Richard Higginson
Beth Holbrook
John M. Knight
John Pitt
CITY MANAGER
Gary Hill

SOLAR PANEL QUESTIONS

Please completely answer all questions (do not simply refer to an attachment)

Size of Array	
Array Dimensions *Total Number of Panels* *Total rating of photovoltaic system:*	270 watt 22 panels ~~290~~ watt black mono = 5.940 kW 5.940 KW
Mounting Location	
Roof/Wall/Other	Roof Mount
Roof Pitch (Rise/Run e.g. "5/12")	5/12
Roofing Material *Asphalt Shingle/Tile/Steel/Other* *Age & Condition of Shingles*	Asphalt Shingle
Roof Construction *Rafter/Truss/Joist*	Truss
Engineering Analysis	
Connection to Roof	Ironridge flash foot solar mount
Analysis of Existing Roof Structure with added Solar Equipment	Carlson Engineering confirmed the existing structure will adequately withstand the addition of the solar panels without any modifications. Structural report provided
Adequate Uplift Resistance *120 mph Exp B ASCE 7-05* *155 mph Exp B ASCE 7-10*	Yes 155 wind speed



UTILITY HAS 24 HR. UNRESTRICTED
ACCESS TO ALL PV SYSTEM COMPONENTS
LOCATED AT SERVICE ENTRANCE.

22 CENTROSOLAR B-SERIES BM60 270BB PV PANELS

SOLAR

DATE:	07/11/2016
DRAWN:	JMB
CHECKER:	
ENGINEER:	
SALESMAN:	JM
PROJECT:	SIMMONS RESIDENCE

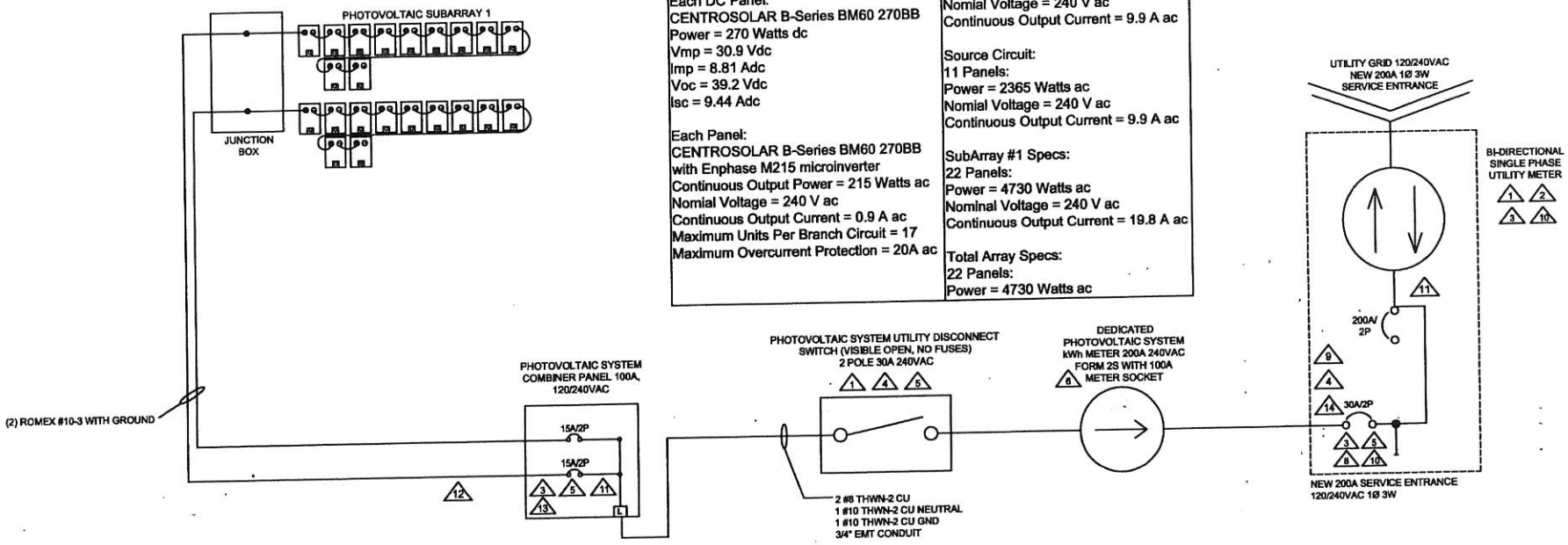
SIMMONS RESIDENCE
334 SOUTH 1300 EAST, BOUNTIFUL, UTAH 84010

SITE LAYOUT

4.73 KW AC PHOTOVOLTAIC SYSTEM
5.940 W DC PHOTOVOLTAIC SYSTEM

SCALE NTS

SHEET 3 OF 6



Each DC Panel:
CENTROSOLAR B-Series BM60 270BB
Power = 270 Watts dc
Vmp = 30.9 Vdc
Imp = 8.81 Adc
Voc = 39.2 Vdc
Isc = 9.44 Adc

Each Panel:
CENTROSOLAR B-Series BM60 270BB
with Enphase M215 microinverter
Continuous Output Power = 215 Watts ac
Nomial Voltage = 240 V ac
Continuous Output Current = 0.9 A ac
Maximum Units Per Branch Circuit = 17
Maximum Overcurrent Protection = 20A ac

Source Circuit:
11 Panels:
Power = 2365 Watts ac
Nomial Voltage = 240 V ac
Continuous Output Current = 9.9 A ac

Source Circuit:
11 Panels:
Power = 2365 Watts ac
Nomial Voltage = 240 V ac
Continuous Output Current = 9.9 A ac

SubArray #1 Specs:
22 Panels:
Power = 4730 Watts ac
Nominal Voltage = 240 V ac
Continuous Output Current = 19.8 A ac

Total Array Specs:
22 Panels:
Power = 4730 Watts ac

NOTES:

1. EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH THE 2014 NEC AND ALL APPLICABLE REQUIREMENTS OF THE SERVING ELECTRIC UTILITY COMPANY AND OF THE LOCAL AUTHORITY HAVING JURISDICTION.
2. BI-DIRECTIONAL UTILITY METER TO BE INSTALLED BY UTILITY COMPANY WHEN REQUIRED.
3. LABEL BREAKER "PHOTOVOLTAIC ELECTRIC POWER SOURCE" PER NEC 705-10 AND "BREAKERS ARE BACK-FED" PER NEC 705.12(D)(5). LABEL WITH THE MAXIMUM AC OUTPUT OPERATING CURRENT AND THE OPERATING VOLTAGE PER NEC 690-54
4. LABEL "PHOTOVOLTAIC SYSTEM UTILITY DISCONNECT SWITCH". SWITCH TO BE LOCKED AT ALL TIMES. SWITCH TO BE VISIBLE BLADE AND ACCESSIBLE PER UTILITY REQUIREMENTS AND CONFORM TO NEC 705.22.
5. PROVIDE WARNING SIGN PER NEC 690-17 READING " WARNING - ELECTRIC SHOCK HAZARD - DO NOT TOUCH TERMINALS. TERMINALS ON BOTH THE LINE AND THE LOAD SIDE MAY BE ENERGIZED IN THE OPEN POSITION".
6. LABEL "PV SYSTEM DEDICATED KWH METER"
7. ALL ROOF PENETRATIONS SHALL BE FLASHED IN ACCORDANCE WITH IRC M2302.2.2. MODULES SHALL NOT INSTALLED OVER, OR BLOCK ANY, ATTIC VENTS, PLUMBING VENTS, FURNACE OR WATER VENTS, ETC. ADDITIONALLY, ALL WIRING MUST BE COMPLETELY SUPPORTED ONLY BY DEVICES THAT ARE UL LISTED AND SUNLIGHT RESISTANT.
8. PER 2014 NEC 705.12 D.2: THE SUM OF THE AMPERE RATINGS OF OVERCURRENT DEVICES IN CIRCUITS SUPPLYING POWER TO THE BUS BAR SHALL NOT EXCEED 120% THE RATING OF THE BUS BAR OR OR CONDUCTOR.
9. WARNING SIGN IS TO BE PROVIDED READING "PHOTOVOLTAIC SYSTEM EQUIPPED WITH RAPID SHUTDOWN" ENPHASE MICROINVERTERS ARE RAPID SHUTDOWN COMPLIANT IN ACCORDANCE WITH 2014 NEC 690.12
10. PER ARTICLE 705.12(D)(7) INVERTER OUTPUT CONNECTION TO BE LOCATED AT OPPOSITE (LOAD) END FROM THE MAIN CIRCUIT LOCATION. LABEL TO READ "WARNING: INVERTER OUTPUT CONNECTION, DO NOT RELOCATE THIS OVERCURRENT DEVICE."
11. LABELS ARE TO BE PERMANENTLY ETCHED, SECURELY MOUNTED IN PLACE, AND ABLE TO ENDURE THE ENVIRONMENT IN WHICH THEY ARE LOCATED.
12. FOR THE PORTION OF THE AC RUN FROM THE ARRAY THAT RUNS FROM THE ATTIC SPACE TO THE AC COMBINER PANEL, THE ROMEX SHALL BE PROTECTED BY A 1" EMT CONDUIT.
13. THERE SHALL BE A SIGN PROVIDED AT THE AC COMBINER PANEL STATING THAT IT IS DEDICATED ONLY TO THE PV SYSTEM, AND NO ADDITIONAL LOAD CONNECTIONS ARE ALLOWED TO BE CONNECTED IN ACCORDANCE WITH NEC ARTICLE 705.12(D).
14. THERE SHALL BE A SIGN PROVIDED AT THE SERVICE PANEL STATING THE TOTAL RATED AC OUTPUT CURRENT IN AMPS (SEE ABOVE), AND THE VOLTAGE OF THE SYSTEM (240 VAC) PER NEC ARTICLE 690.54.

SOLAR	SIMMONS RESIDENCE 334 SOUTH 1300 EAST, BOUNTIFUL, UTAH 84010
DATE: 07/11/2016	ONE LINE WIRING DIAGRAM
DRAWN: JMB	4.73 KW AC PHOTOVOLTAIC SYSTEM
CHECKER:	5.940 W DC PHOTOVOLTAIC SYSTEM
ENGINEER	
SALESMAN: JM	SCALE NTS
PROJECT: SIMMONS RESIDENCE	SHEET 5 OF 6

July 15, 2016

One Solar
Gail Steenblik

Reference: Simmons Residence
334 South 1300 East
Bountiful, Utah.

Dear Gail,

The above reference has been reviewed for the installation of (22) solar panels. The existing structure will adequately withstand the addition of the solar panels without any modifications. The calculations have been attached for your reference.

Please feel free to contact me with any questions or comments.

Respectfully,

R. Lynn Carlson, S.E.
CES

REGISTERED STRUCTURAL ENGINEER
No. 167797
R. LYNN CARLSON
STATE OF UTAH
7/16

Carlson Engineering Services, Inc.
380 North 200 West, Suite 110 · Bountiful, UT 84010 · (801) 296-2784 · Fax (801) 296-6253

Solar Panel Design Calculations

Reference: Simmons Residence
334 South 1300 East
Bountiful, Utah

Contractor: One Solar

Design Data:

Code: IBC 2012, ASCE 7-10

Solar Panels: (22) Centrosolar B-Series BM60 270BB PV Panels

Wind: 120 mph, Exp B , (Basic Wind Speed)

Roof Snow: 40 psf (Ps)

Roof Slope: 6 (in/ft)

Roof Type: Manufactured Trusses

REGISTERED STRUCTURAL ENGINEER
No. 167797
R. LYNN CARLSON
STATE OF UTAH
7/16

Carlson Engineering Services, Inc.
380 North 200 West
Bountiful, Utah 84010
(801) 296-2784 Fax (801) 296-6253

Roof Snow Loads - ASCE 7-10, Chapter 7

Snow = 40 psf 4830 ft Elevation

Slippery Surfaces Yes (Solar Panels) Section 7.4

Panel Size: 1658 x 990 mm

Area: 18.0447 ft^2 Weight= 56.7 #

Loading= 56.7/18.0447 = 3.24 psf

Snow Load Reduction (ASCE 7-10, Chaper 7)

(7.3-1) Pf= 0.7(0.9)(1.0)(57.1)= 35.97 psf (57.1 psf Ground Snow Load)

(7.4-1) Ps= 0.67(35.97)= 24.10 psf (Based on Roof Slope) C_s Values: 0.8 (4/12), 0.67 (6/12), 0.53 (8/12), 0.36 (12/12)

Roof Design Load - Actual Required= 40.0 - 24.1 = 15.9 psf

Actual of 3.24 psf < 15.9 psf, Therefore Additional Load No Factor

Wind Loading Design
(Possible Suction)

ASCE 7-10, 29.4.2

$F = g_h G C_f A_S$

$g_h = 0.00256(0.85)(1.0)(0.85)(120)^2 =$ 26.63 psf

F= (24.46)(5.44)= 133# (Each Panel)

From Installation Manual, Loadings Acceptable (Reference Sheet 6)

MAYOR
RANDY LEWIS

CITY COUNCIL
RICHARD HIGGINSON
BETH HOLBROOK
JOHN M. (MARC) KNIGHT
KENDALYN HARRIS
JOHN PITT

CITY MANAGER
GARY R. HILL

Bountiful City, Utah
Conditional Use Permit

A public hearing was held on August 22, 2016, at Bountiful City Hall to consider the request of John Olmedo for a Conditional Use Permit allowing for a Private Power Plant (Solar Panels) at the following location:

3578 South 100 West, Bountiful City, Davis County, Utah

ALL OF LOT 436, BONA VISTA PLAT H. CONT. 0.225 ACRES.

Parcel: 01-026-0436

The Bountiful City Administrative Committee heard the matter and considered the statements of the applicant, the City staff, and the public. As a result, the Administrative Committee makes the following findings:

1. This matter is properly heard before the Administrative Committee.
2. Appropriate public notice has been provided and a public hearing held.
3. The proposed request to operate a Private Power Plant (Solar Panels) meets the letter and the intent of the specific requirements in §14-2 and 14-14 et seq (Conditional Use Permit provisions) of the Bountiful City Land Use Ordinance.

The Bountiful City Administrative Committee hereby grants this Conditional Use Permit for a Private Power Plant (Solar Panels) to be located at 3578 South 100 West, in Bountiful, Davis County, Utah, with the following conditions:

1. The applicant shall obtain a building permit.
2. The panels must be installed only as proposed in the application.
3. This conditional use permit is solely for this site and is non-transferable.

The Conditional Use Permit was approved on August 22, 2016, and this written form was approved this 29th day of August, 2016.

Chad Wilkinson
Planning Director

ATTEST: Julie Holmgren
Recording Secretary

MAYOR
RANDY LEWIS

CITY COUNCIL
RICHARD HIGGINSON
BETH HOLBROOK
JOHN M. (MARC) KNIGHT
KENDALYN HARRIS
JOHN PITT

CITY MANAGER
GARY R. HILL

Bountiful City, Utah
Conditional Use Permit

A public hearing was held on August 22, 2016, at Bountiful City Hall to consider the request of Eric and Julie Hattabaugh for a Conditional Use Permit allowing for a Private Power Plant (Solar Panels) at the following location:

3894 South Bountiful Boulevard, Bountiful City, Davis County, Utah

ALL OF LOT 436, BONA VISTA PLAT H. CONT. 0.225 ACRES.

Parcel: 01-152-0009

The Bountiful City Administrative Committee heard the matter and considered the statements of the applicant, the City staff, and the public. As a result, the Administrative Committee makes the following findings:

1. This matter is properly heard before the Administrative Committee.
2. Appropriate public notice has been provided and a public hearing held.
3. The proposed request to operate a Private Power Plant (Solar Panels) meets the letter and the intent of the specific requirements in §14-2 and 14-14 et seq (Conditional Use Permit provisions) of the Bountiful City Land Use Ordinance.

The Bountiful City Administrative Committee hereby grants this Conditional Use Permit for a Private Power Plant (Solar Panels) to be located at 3894 South Bountiful Boulevard, in Bountiful, Davis County, Utah, with the following conditions:

1. The applicant shall obtain a building permit.
2. The panels must be installed only as proposed in the application.
3. This conditional use permit is solely for this site and is non-transferable.

The Conditional Use Permit was approved on August 22, 2016, and this written form was approved this 29th day of August, 2016.

Chad Wilkinson
Planning Director

ATTEST: Julie Holmgren
Recording Secretary