

City of San Antonio  
Development Services Department  
1901 S. Alamo  
San Antonio, TX 78204-1605  
Phone: (210) 207-0000

02/16/2017 13:55 Trn 543933  
Cashier DD18872

CASE Permit #	150976	\$600.00
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Subtotal	7	\$600.00
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Tax		\$0.00
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<b>Total</b>		<b>\$600.00</b>
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Received CHECK		\$600.00
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Check # 1197

Change		\$0.00
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City of San Antonio  
Development Services Department  
Zoning Section: Board of Adjustment

Received by (Initials): ZSS

Appeal  
of HDRC  
Decision

Date of Application

BOA Case #:

Hansen Case #:

Tentative Board of Adjustment Date:

Rescheduled Date 1:

Rescheduled Date 2:

Council District:

Historic District:

River Improvement Overlay District:

Neighborhood Conservation District:

2-16-17

A-17-070

150976

3-20-17

1

River Road

RIO-1

M<sup>4</sup>

**Board of Adjustment Fees Due:**

**Zoning:**

Homestead (\$400.00)

\$

Non-Homestead (\$600.00)

\$

Sign Fee (\$600.00)

\$

Appeal Fee (\$600.00)

\$

600.00

Base:

R-4

AHOD

MLOD

MSAO

H, HL, HS, RIO

ERZD

MPOD/MAOZ

NCD

GC/PC/MC

**Total Fees:**

\$

600.00

**Check the following:**

**Indicate Name Here**

☒ Within Neighborhood Association

Name: River Road

☒ W/in 200 Ft of Neighborhood Association

Name: NO

☒ Subject Property within Plan

Name: River Road NP

Future Land Use Designation

Name: Low Density Residential

**Agency Notification**

Office of Historic Preservation:

Historic/RIO require submission for HDRC review prior to being considered by the Board of Adjustment

Appeal:

Signs:

All sign variance applications should be reviewed by the signs team prior to being considered by the Board of Adjustment

**Application Items submitted:**

☒ BOA Application Form

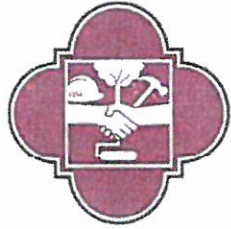
Site Plan

☒ BOA Acknowledgment/Initials Page

Pictures (If Applicable)

☒ BCAD Tax Appraisal Information

☒ Deed/Ownership Information



CITY OF SAN ANTONIO  
DEVELOPMENT SERVICES DEPARTMENT

CITY OF SAN ANTONIO

§  
§  
§

COUNTY OF BEXAR

STATE OF TEXAS

**TO THE HONORABLE BOARD OF ADJUSTMENT:**

Property description (Attach field notes if necessary):

Lot no. 14 (Belmont Place Subd)

Block No. 3

NCB 6202 Property Address: 603 River Road, San Antonio, TX 78212

Per Section 35-481 of the Unified Development Code (UDC), the Zoning Board of Adjustment is empowered to consider appeals of a decision made by an administration official.

The Applicant, Myfe Moore of Bexar County, alleges that

the following administrative official Shanon Shea Miller, in his/her capacity as

Historic Preservation Officer, made an incorrect decision, or interpretation regarding Section 35-\_\_\_\_  
(Name of Official)  
(Title of Official)

of the UDC. This incorrect decision or interpretation was (List the section(s) of the UDC that was applied incorrectly. Provide details why the decision was incorrect or misinterpreted.): The incorrect decision was made when interpreting section 6.C. of the Guidelines

for Additions for the City of San Antonio. The solar collectors were located in this specific location to minimize

visibility from the public right-of-way while maximizing solar access. Moreover, due to the limited solar

access in the primary structure, another array (item #3) was located on the outbuilding of the

property. Please refer to the attached exhibits for more information on how solar production/savings

are negatively impacted if we were to relocate the solar collectors to the north-east facing portion of the primary structure.

The correct decision or interpretation should be as follows (List the section(s) of the UDC that should be applied in this decision. Provide details how the decision should be made.): Staff should reconsider and recommend approval for item #2 based

on the following: Per the Guidelines for Additions 6.C., "where solar access is insufficient a more visible location (bottom) may be

considered if panels are of a low profile...". Please reference Exhibit A for more information on this. Staff should also reconsider and

recommend approval for item #3 based on the following: Per the Guidelines for Additions 6.C.i, "Alternatively, locate solar collectors

on a garage or outbuilding...where solar access to the primary structure is limited". Please reference Exhibit A for more information on this.

\*Note: Local Government Code § 211.010 (b) and San Antonio City Code § 35-481 (b)(1) require that the applicant give notice of the specific grounds for the appeal. Failure to state the reasons for the alleged error and applicable code sections will result in the return of your application. Please attach additional pages if necessary.

Respectfully submitted:

Applicant's name: Myfe Moore

Status: Owner ( ) Agent ( )

Mailing address: 603 River Rd

Telephone: (210) 213-8400 Alternate: \_\_\_\_\_

Email: myfe@mwmlc.com

Myfe Moore 2-10-17  
Applicant's Signature Date

Property Owner: Myfe Moore

Mailing address: 603 River Rd

Telephone: (210) 213-8400 Alternate: \_\_\_\_\_

Email: myfe@mwmlc.com

I, Myfe Moore the owner of the subject property, authorize

Freedom Solar Power to submit this application and represent me in this appeal before the Board of Adjustment.

Please include the following items with this appeal

- ☐ Documentation from City of San Antonio representing the decision you are appealing and proof that you are within the mandatory 30 day time limit to file the appeal.
- ☐ Sections of the UDC from which the decision was based, including all support sections which potentially reinforce your assertion that an error was made.
- ☐ Property Ownership documentation, including a copy of the warranty deed and Bexar County Appraisal District.
- ☐ Filing Fee of \$600.



# CITY OF SAN ANTONIO OFFICE OF HISTORIC PRESERVATION

## HISTORIC AND DESIGN REVIEW COMMISSION CERTIFICATE OF APPROPRIATENESS

January 18, 2017

**HDRC CASE NO:** 2017-021

**ADDRESS:** 603 RIVER RD

**LEGAL DESCRIPTION:** NCB 6202 BLK 3 LOT 14 (BELMONT PLACE SUBD)

**HISTORIC DISTRICT:** River Road

**PUBLIC PROPERTY:** No

**APPLICANT:** Myfe Moore - 603 River Road

**OWNER:** Myfe Moore - 603 River Road

**TYPE OF WORK:** Solar installation

### REQUEST:

The applicant is requesting a Certificate of Appropriateness for approval to install 38 solar panels at this address, including: 1. 8 panels on the flat roof to left of the front gable 2. 16 panels on the left front gable 3. 14 panels on the front slope of the accessory structure

### FINDINGS:

a. The home is a new construction home located in the River Road Historic District, which was designated in 2010. b. The main structure has three front gables and a flat roof and standing seam metal. The side accessory structure along River Road is two-story with a side gable roof. Of the 38 proposed solar panels 16 panels will be installed on the left slope of the front gable; 8 panels will be installed on the flat roof to the left of the front gable, and 14 will be installed on the front slope of the side accessory structure. According to the Guidelines for Additions 6.C., installations should be in locations that minimize visibility from the public right-of-way. c. Staff visited the site on January 11, 2017. The home is located on the corner of River Road and Armour Place., on the east edge of the district. Staff found that there are many trees on the lot that reduce the visibility of the solar panels, but that the front facing panels would still be seen from the public right-of-way and negatively impact the neighboring historic structures. Staff finds the proposed panels on the flat roof consistent with the Guidelines, but finds the panels mounted on the front gable and the front slope of the accessory structure not consistent with the Guidelines for locations of solar panels. Staff recommends that alternate locations be explored. d. The proposed panels will be mounted flush with the pitched and flat roofs. According to the Guidelines for Additions 6.C.ii, solar collectors should be flush with the roof surface. Staff finds the proposal consistent with the guidelines.

### RECOMMENDATION:

Staff recommends approval of item #1 based on finding a through d. Staff does not recommend approval of items #2 and 3 based on findings a through d and recommends the applicant explore alternate locations for the solar panels.

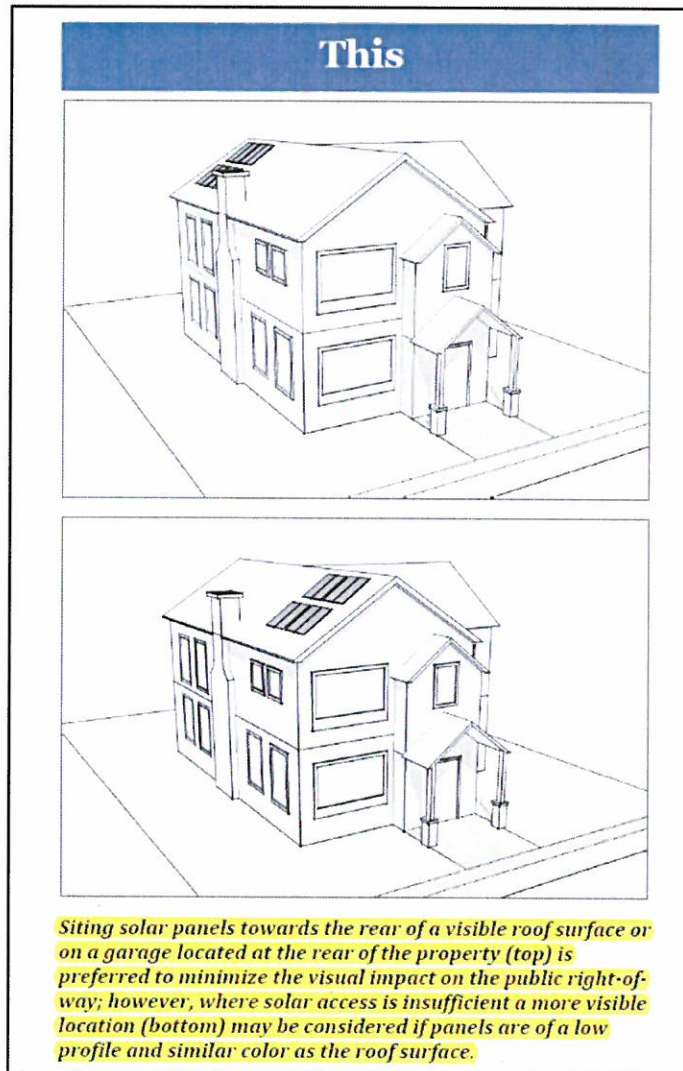
### COMMISSION ACTION:

Approval of item #1 and denial of items #2 and #3.

Shanon Shea Miller  
Historic Preservation Officer

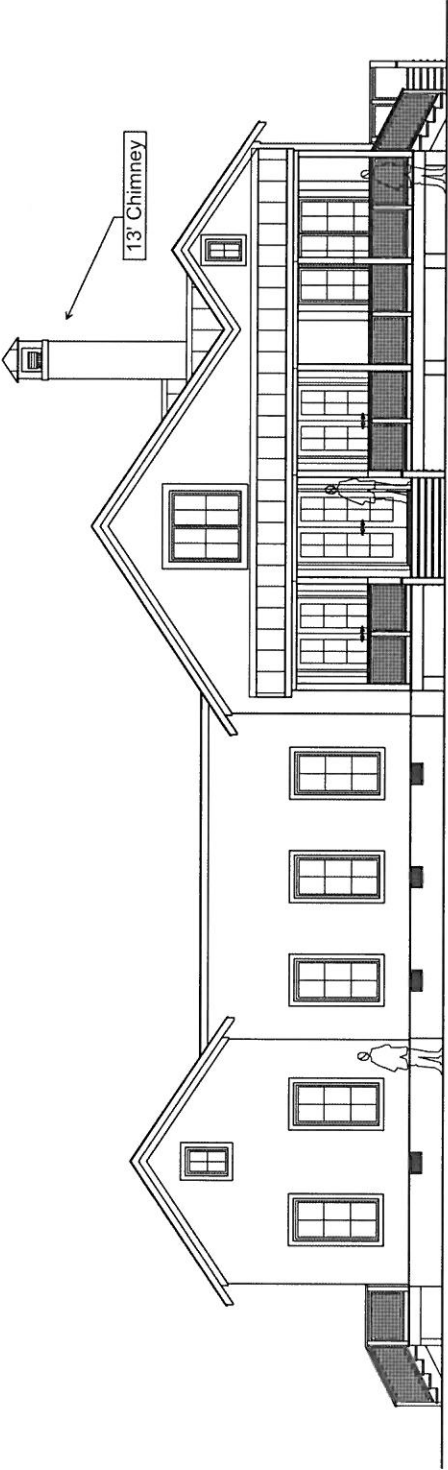
## Exhibit A

- Per the Guidelines for Additions 6.C., "where solar access is insufficient a more visible location (bottom) may be considered if panels are of a low profile...". With regards to the solar access, the solar collectors on item #2 are located in a portion of the roof where solar access is maximized. That said, if we were to relocate these collectors to the north-east facing portion of the roof, solar access would be insufficient due to the 13' chimney sitting there (reference Exhibit B, C and D).



The Moore residence will be using SunPower's InvisiMount mounting system. It has the best in-class system aesthetics, with premium--- low profile ---design. Please refer to attached specification sheet for more information on this.

Exhibit B



MOORE RESIDENCE

603 RIVER ROAD | SAN ANTONIO, TEXAS 78212

STRUCTURAL ENGINEER

M & S ENGINEERING  
376 LANDA STREET  
NEW BRAUNFELS, TEXAS 78130

ARCHITECT

CAMPOS ARCHITECTURE, PLLC  
P.O. BOX 241658  
SAN ANTONIO, TEXAS 78224

GENERAL CONTRACTOR

JEMCO CONTRACTING LLC  
661 CREEKSIDE CIRCLE  
NEW BRAUNFELS, TEXAS 78130

MOORE RESIDENCE		
GENERAL CONTRACTOR	1-2-18	
ARCHITECT	2-2-18	
STRUCTURAL ENGINEER	2-2-18	
MECHANICAL ENGINEER	2-2-18	
ELECTRICAL ENGINEER	2-2-18	
CIVIL ENGINEER	2-2-18	
LANDSCAPE ARCHITECT	2-2-18	
INTERIOR DESIGNER	2-2-18	
PAINTER	2-2-18	
PLUMBER	2-2-18	
ROOFER	2-2-18	
WALLPAPER HANGER	2-2-18	
WINDOOR HANGER	2-2-18	
YARD WORK	2-2-18	



# Exhibit C

## RESULTS

# 7,620 kWh per Year \*

System output may range from 7,330 to 7,748 kWh per year near this location.

**Caution:** Photovoltaic system performance predictions calculated by PVWatts® include many inherent assumptions and uncertainties and do not reflect variations between PV technologies nor site-specific characteristics except as represented by PVWatts® inputs. For example, PV modules with better performance are not differentiated within PVWatts® from lesser performing modules. Both NREL and private companies provide more sophisticated PV modeling tools (such as the System Advisor Model at <http://sam.nrel.gov>) that allow for more precise and complex modeling of PV systems.

The expected range is based on 30 years of actual weather data at the given location and is intended to provide an indication of the variation you might see. For more information, please refer to this NREL report: The Error Report.

**Disclaimer:** The PVWatts® Model ("Model") is provided by the National Renewable Energy Laboratory ("NREL"), which is operated by the Alliance for Sustainable Energy, LLC ("Alliance") for the U.S. Department of Energy ("DOE") and may be used for any purpose whatsoever.

The names DOE/NREL/ALLIANCE shall not be used in any representation, advertising, publicity or other manner whatsoever to endorse or promote any entity that adopts or uses the Model. DOE/NREL/ALLIANCE shall not provide

any support, consulting, training or assistance of any kind with regard to the use of the Model or any updates, revisions or new versions of the Model.

YOU AGREE TO INDEMNIFY DOE/NREL/ALLIANCE, AND ITS AFFILIATES, OFFICERS, AGENTS, AND EMPLOYEES AGAINST ANY CLAIM OR DEMAND, INCLUDING REASONABLE ATTORNEYS' FEES, RELATED TO YOUR USE, RELIANCE, OR ADOPTION OF THE MODEL FOR ANY PURPOSE WHATSOEVER. THE MODEL IS PROVIDED BY DOE/NREL/ALLIANCE "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING BUT NOT LIMITED TO THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE EXPRESSLY DISCLAIMED. IN NO EVENT SHALL DOE/NREL/ALLIANCE BE LIABLE FOR ANY SPECIAL, INDIRECT OR CONSEQUENTIAL DAMAGES OR ANY DAMAGES WHATSOEVER, INCLUDING BUT NOT LIMITED TO CLAIMS ASSOCIATED WITH THE LOSS OF DATA OR PROFITS, WHICH MAY RESULT FROM ANY ACTION IN CONTRACT, NEGLIGENCE OR OTHER TORTIOUS CLAIM THAT ARISES OUT OF OR IN CONNECTION WITH THE USE OR PERFORMANCE OF THE MODEL.

The energy output range is based on analysis of 30 years of historical weather data for nearby , and is intended to provide an indication of the possible interannual variability in generation for a Fixed (open rack) PV system at this location.

Month	Solar Radiation ( kWh / m <sup>2</sup> / day )	AC Energy ( kWh )	Energy Value ( \$ )
January	3.68	476	44
February	4.44	516	48
March	5.00	641	59
April	5.47	669	62
May	5.75	722	67
June	6.11	725	67
July	6.55	794	73
August	6.24	757	70
September	5.63	665	61
October	5.19	647	60
November	4.28	528	49
December	3.69	479	44
<b>Annual</b>	<b>5.17</b>	<b>7,619</b>	<b>\$ 704</b>

### Location and Station Identification

Requested Location	603 river road, san antonio, texas
Weather Data Source	(TMY2) SAN ANTONIO, TX 5.6 mi
Latitude	29.53° N
Longitude	98.47° W

### PV System Specifications (Residential)

DC System Size	5.232 kW
Module Type	Premium
Array Type	Fixed (roof mount)
Array Tilt	34°
Array Azimuth	234°
System Losses	14%
Inverter Efficiency	96%
DC to AC Size Ratio	1.1

### Economics

Average Cost of Electricity Purchased from Utility	0.09 \$/kWh
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### Performance Metrics

Capacity Factor	16.6%
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## Exhibit D



Cautions: Photovoltaic system performance predictions calculated by PVWatts® include many inherent assumptions and uncertainties and do not reflect variations between PV technologies nor site-specific characteristics except as represented by PVWatts® inputs. For example, PV modules with better performance are not differentiated within PVWatts® from lesser performing modules. Both NREL and private companies provide more sophisticated PV modeling tools (such as the System Advisor Model at <http://sam.nrel.gov>) that allow for more precise and complex modeling of PV systems.

The expected range is based on 30 years of actual weather data at the given location and is intended to provide an indication of the variation you might see. For more information, please refer to this NREL report: The Error Report.

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any support, consulting, training or assistance of any kind with regard to the use of the Model or any updates, revisions or new versions of the Model.

YOU AGREE TO INDEMNIFY DOE/NREL/ALLIANCE, AND ITS AFFILIATES, OFFICERS, AGENTS, AND EMPLOYEES AGAINST ANY CLAIM OR DEMAND, INCLUDING REASONABLE ATTORNEYS' FEES, RELATED TO YOUR USE, RELIANCE, OR ADOPTION OF THE MODEL FOR ANY PURPOSE WHATSOEVER. THE MODEL IS PROVIDED BY DOE/NREL/ALLIANCE "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING BUT NOT LIMITED TO THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE EXPRESSLY DISCLAIMED. IN NO EVENT SHALL DOE/NREL/ALLIANCE BE LIABLE FOR ANY SPECIAL, INDIRECT OR CONSEQUENTIAL DAMAGES OR ANY DAMAGES WHATSOEVER, INCLUDING BUT NOT LIMITED TO CLAIMS ASSOCIATED WITH THE LOSS OF DATA OR PROFITS, WHICH MAY RESULT FROM ANY ACTION IN CONTRACT, NEGLIGENCE OR OTHER TORTIOUS CLAIM THAT ARISES OUT OF OR IN CONNECTION WITH THE USE OR PERFORMANCE OF THE MODEL.

The energy output range is based on analysis of 30 years of historical weather data for nearby , and is intended to provide an indication of the possible interannual variability in generation for a fixed (open rack) PV system at this location.

## RESULTS

# 4,034 kWh per Year \*

System output may range from 3,881 to 4,102kWh per year near this location.

Month	Solar Radiation ( kWh / m <sup>2</sup> / day )	AC Energy ( kWh )	Energy Value ( \$ )
January	1.99	180	17
February	2.75	228	21
March	3.69	340	31
April	4.21	370	34
May	5.05	456	42
June	5.65	483	45
July	6.06	530	49
August	5.35	469	43
September	4.11	350	32
October	3.18	283	26
November	2.24	193	18
December	1.71	152	14
<b>Annual</b>	<b>3.83</b>	<b>4,034</b>	<b>\$ 372</b>

## Location and Station Identification

Requested Location	603 river road, san antonio, texas
Weather Data Source	(TMY2) SAN ANTONIO, TX 5.6 mi
Latitude	29.53° N
Longitude	98.47° W

## PV System Specifications (Residential)

DC System Size	5.232 kW
Module Type	Premium
Array Type	Fixed (roof mount)
Array Tilt	34°
Array Azimuth	54°
System Losses	37.99%
Inverter Efficiency	96%
DC to AC Size Ratio	1.1

## Economics

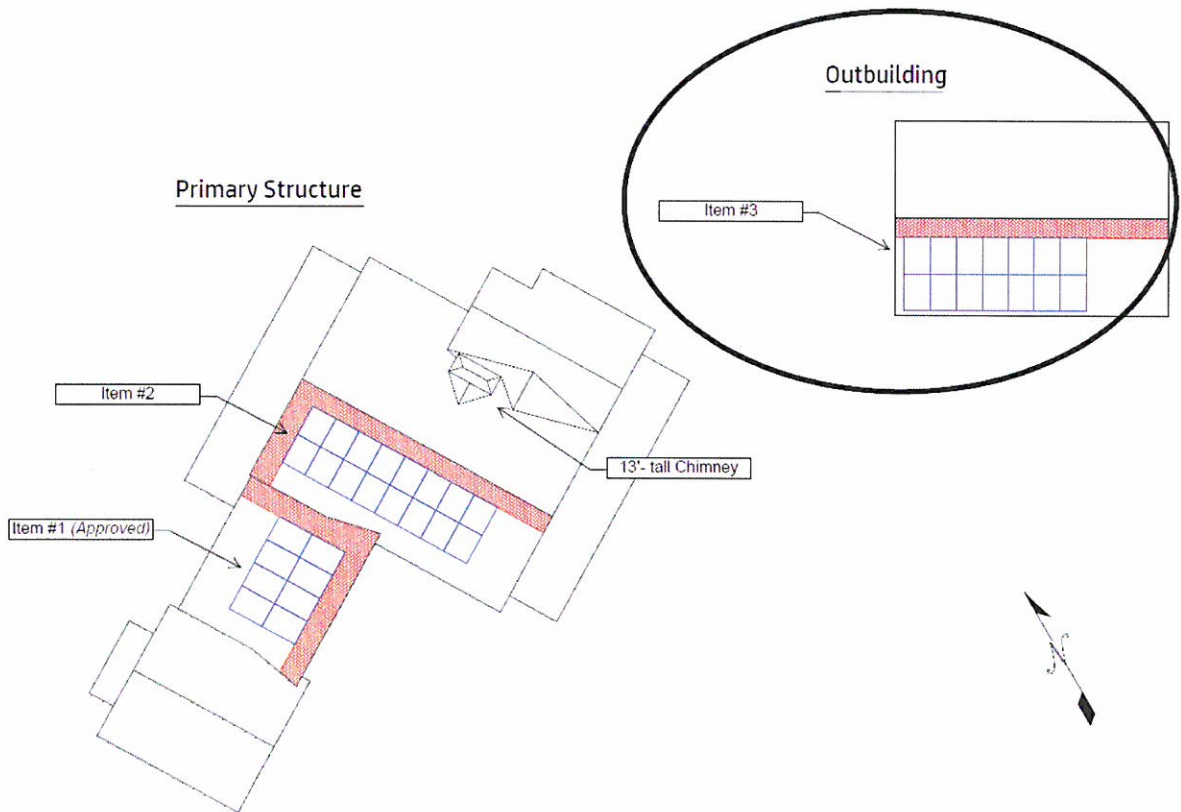
Average Cost of Electricity Purchased from Utility	0.09 \$/kWh
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## Performance Metrics

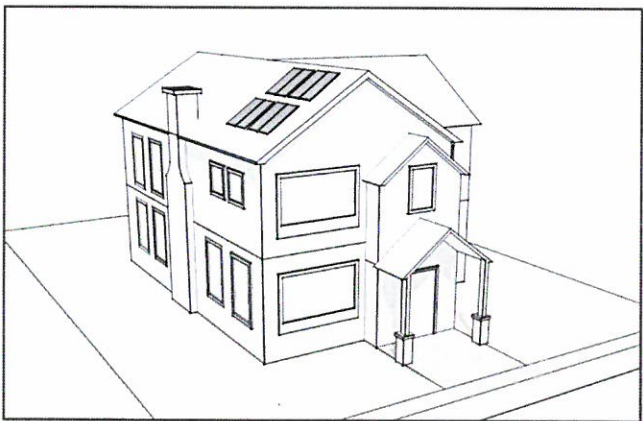
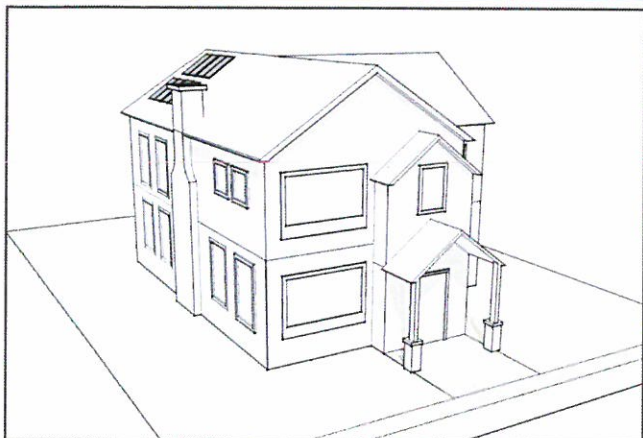
Capacity Factor	8.8%
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## Exhibit E

- Per the Guidelines for Additions 6.C.i, "Locate solar collectors on side or rear roof pitch of the primary historic structure to the maximum extent feasible to minimize visibility from the public right-of-way while maximizing solar access. Alternatively, locate solar collectors on a garage or outbuilding or consider a ground-mount system where solar access to the primary structure is limited." That said, due to the limited solar access on the primary structure, we had to locate the 14 solar collectors (item #3) on the front slope of the accessory structure (the outbuilding).

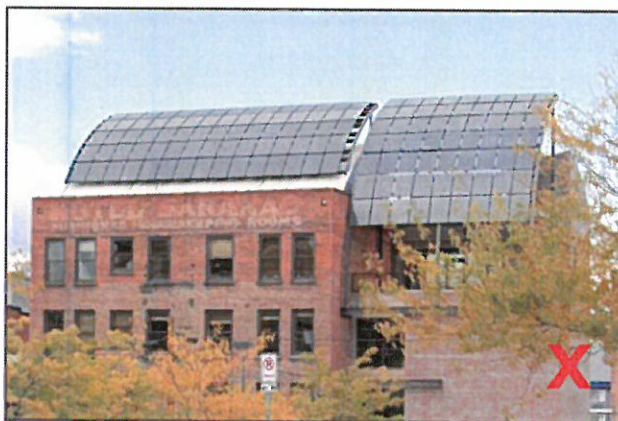


## This



*Siting solar panels towards the rear of a visible roof surface or on a garage located at the rear of the property (top) is preferred to minimize the visual impact on the public right-of-way; however, where solar access is insufficient a more visible location (bottom) may be considered if panels are of a low profile and similar color as the roof surface.*

## Not This



*Solar panels should be mounted flush with the surface of the roof to minimize their visibility from the public right-of-way, regardless of the building type they are attached to. The design and placement of solar panels should not create a visual distraction that detracts from the historic building they are mounted to.*

### Additional Resources

*Incorporating Solar Panels in a Rehabilitation Project*, ITS #52, by Jenny Parker.  
<http://www.nps.gov/tps/standards/applying-rehabilitation/its-bulletins/ITS52-SolarPanels.pdf>

### Did you know?

The greenest building is one that is already built. Take care to preserve materials, and avoid damaging the historic structure when installing new sustainable technologies.

## 6. Designing for Energy Efficiency

### Why is this Important?

The use of energy efficient building features, alternative energy sources, and site design techniques in additions and new construction can help conserve energy and water, reduce heating and cooling costs, and support citywide sustainability goals.



*If designed and sited properly, energy and water efficient features such as the solar panels (top) and cistern (bottom) can be incorporated into historic districts with minimal visual impact. Ideally, such features should be located towards the rear of the property to minimize the visual impact on the public right-of-way.*

### Guidelines

#### A. BUILDING DESIGN

- i. **Energy efficiency**—Design additions and new construction to maximize energy efficiency.
- ii. **Materials**—Utilize green building materials, such as recycled, locally-sourced, and low maintenance materials whenever possible.
- iii. **Building elements**—Incorporate building features that allow for natural environmental control – such as operable windows for cross ventilation.
- iv. **Roof slopes**—Orient roof slopes to maximize solar access for the installation of future solar collectors where compatible with typical roof slopes and orientations found in the surrounding historic district.

#### B. SITE DESIGN

- i. **Building orientation**—Orient new buildings and additions with consideration for solar and wind exposure in all seasons to the extent possible within the context of the surrounding district.
- ii. **Solar access**—Avoid or minimize the impact of new construction on solar access for adjoining properties.

#### C. SOLAR COLLECTORS

- i. **Location**—Locate solar collectors on side or rear roof pitch of the primary historic structure to the maximum extent feasible to minimize visibility from the public right-of-way while maximizing solar access.  
**Alternatively, locate solar collectors on a garage or outbuilding or consider a ground-mount system where solar access to the primary structure is limited.**
- ii. **Mounting (sloped roof surfaces)**—Mount solar collectors flush with the surface of a sloped roof. Select collectors that are similar in color to the roof surface to reduce visibility.
- iii. **Mounting (flat roof surfaces)**—Mount solar collectors flush with the surface of a flat roof to the maximum extent feasible. Where solar access limitations preclude a flush mount, locate panels towards the rear of the roof where visibility from the public right-of-way will be minimized.

Exhibit G

Primary Structure

Outbuilding

Item #3

13'- tall Chimney

Item #2

Item #1 (Approved)



CONSTRUCTION NOTES

- 1.) ALL EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS.
- 2.) ALL OUTDOOR EQUIPMENT SHALL BE RAIN-TIGHT WITH MINIMUM NEMA 3R RATING.
- 3.) ALL LOCATIONS ARE APPROXIMATE AND REQUIRE FIELD VERIFICATION.

DESIGN & DRAFTING BY:  
CLAY MCKELVEY  
NABCEP

REVISIONS		DATE	REV
DESCRIPTION	ORIGINAL	10/24/2018	A
	REVISION	11/28/2018	A

CONTRACTOR

**FREEDOM SOLAR POWER**  
FREEDOM SOLAR POWER  
4111 DORRILL STREET, SUITE 100  
AUSTIN, TX 78744  
TEL: # 28621

PROJECT NAME  
MOORE, MYFE  
603 RIVER ROAD  
SAN ANTONIO, TX, 78212

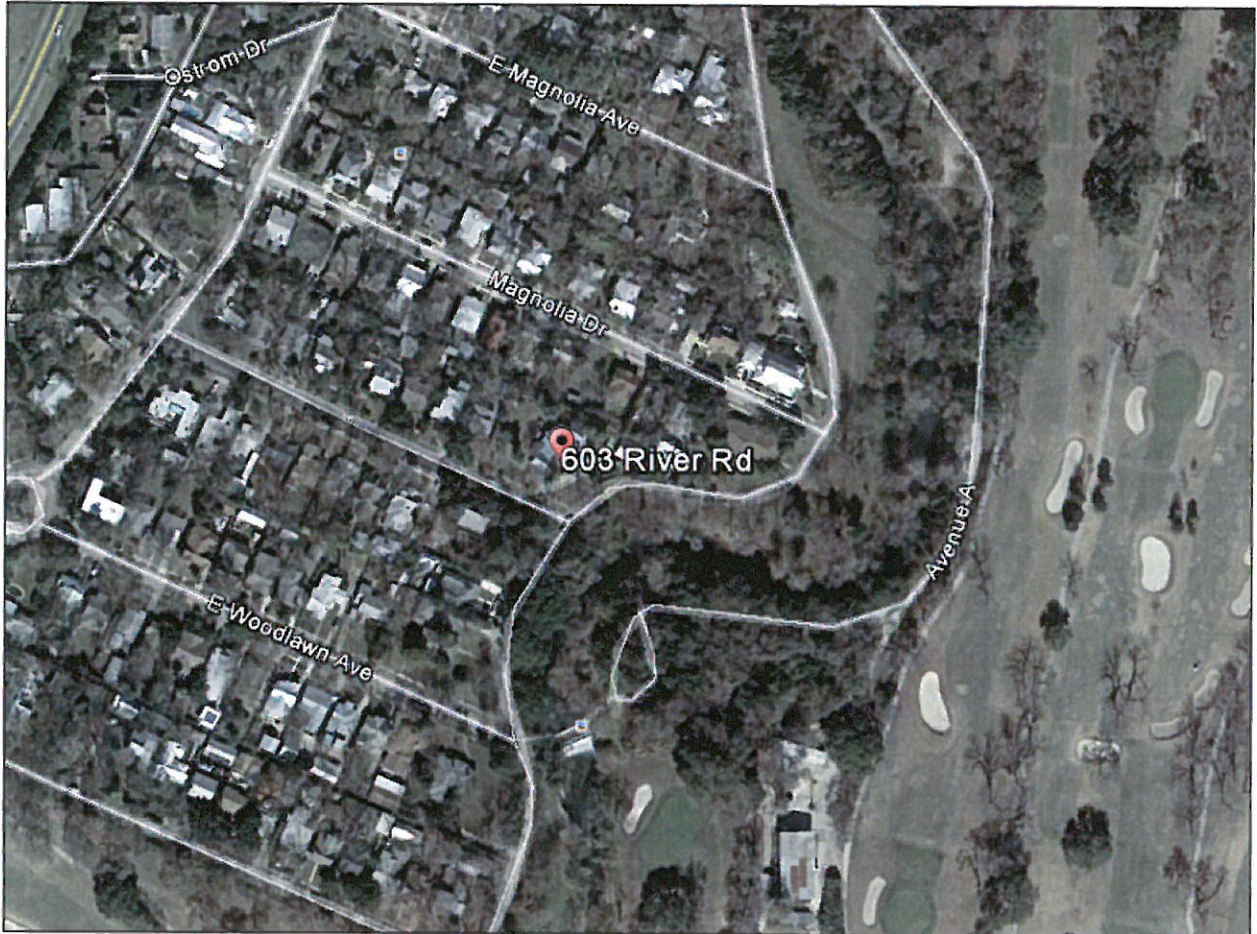
SHEET NAME  
SITE MAP &  
PV LAYOUT

SHEET SIZE  
ANSI B  
11" x 17"

SHEET NUMBER  
PV-1

Exhibit H

- The home is also located on River Road, which happens to be a dead-end road. There is no access to the golf course or to Brackenridge Park through this street. That said, the limited traffic that this home will receive will be almost exclusively for the neighbors (who are aware of and approve this installation as is).
- Given the orientation of the residence, the solar collectors will not be visible from the San Antonio River or the San Antonio Brackenridge Park.



# SUNPOWER®

by Freedom Solar

**Item #2 (Current Location)**  
603 River Road, San Antonio, TX 78212

**5.2 kW Solar Proposal**  
Prepared Feb 07, 2017

TECL28621



**#1 Solar Contractor in Texas for 2014**  
according to Solar Power World Magazine. Thanks ya'll.

**SUNPOWER®**

by Freedom Solar

# Custom Solar Design

System Size

5,232 W-DC

Annual Production

7,619 kWh

Materials

16

16

1

1

SPR-E20-327-C-AC Solar Modules

SunPower Factory-integrated Micro Inverters

InvisiMount Racking System

SunPower Monitoring System

NEC Compliant Electrical Equipment

Miscellaneous Materials

Stats

42%

42% Energy Needs Met by Solar

7,619 kWh

Year 1 Solar Production

220,474 kWh

Lifetime Solar Production

\$749

Year 1 Energy Savings

\$40,209

Lifetime Energy Savings

IRR

Financing

Cash

8.4%

14.4%

Performance Estimate

Timing	Consumption	Solar Production	Contribution
January	1,500 kWh	476 kWh	31.7%
February	1,500 kWh	516 kWh	34.4%
March	1,500 kWh	641 kWh	42.7%
April	1,500 kWh	669 kWh	44.6%
May	1,500 kWh	722 kWh	48.1%
June	1,500 kWh	725 kWh	48.3%
July	1,500 kWh	794 kWh	52.9%
August	1,500 kWh	757 kWh	50.5%
September	1,500 kWh	665 kWh	44.3%
October	1,500 kWh	647 kWh	43.1%
November	1,500 kWh	528 kWh	35.2%
December	1,500 kWh	479 kWh	31.9%
Year	18,000 kWh	7,619 kWh	42.3%

Monthly Energy Offset

Electricity from Solar

Electricity from Utility

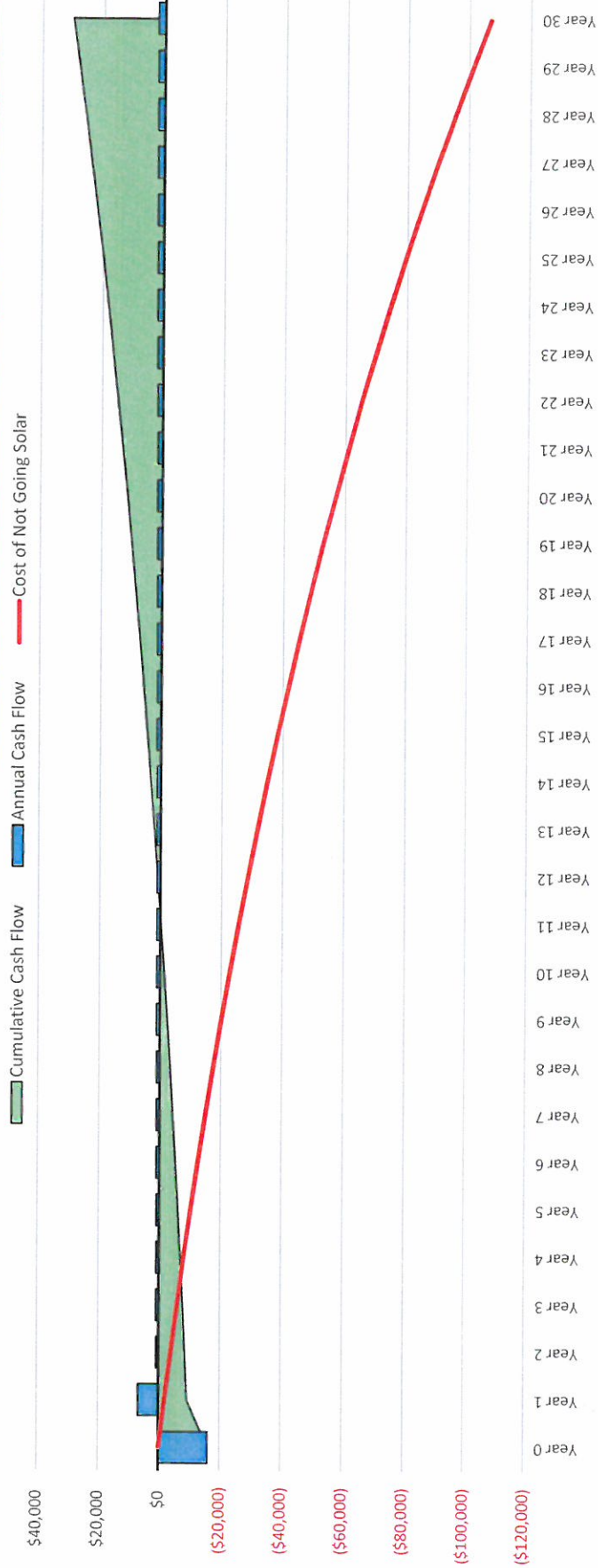
Month	Electricity from Solar (kWh)	Electricity from Utility (kWh)
Jan	476	1024
Feb	516	984
Mar	641	859
Apr	669	831
May	722	778
Jun	725	775
Jul	794	706
Aug	757	743
Sep	665	835
Oct	647	853
Nov	528	972
Dec	479	1021

## Cash Purchase - Summary

System Cost		
	ITC on Net	ITC on Gross
Total Cost	\$19,882	\$19,882
Utility Rebate	(\$3,704)	(\$3,704)
<b>Out of Pocket Cost</b>	<b>\$16,178</b>	<b>\$16,178</b>
Federal Tax Credits	(\$4,853)	(\$5,964)
<b>Adjusted Total</b>	<b>\$11,325</b>	<b>\$10,214</b>

\*Utility rebate may need to be claimed as income. Please consult a tax professional.

Financial Benefits		
Savings Over 25 Years	\$19,894	
25Y Net Present Value (5%)	\$4,982	
Payback	11.2 Years	
Internal Rate of Return (IRR)	8.4%	
Freedom Solar Energy Price (25Y Avg)	5.52 ¢/kWh	
Avoided Utility Energy Price (25Y Avg)	17.67 ¢/kWh	



# SUNPOWER®

by Freedom Solar

Item #2 (North-East Portion of Roof)

603 River Road, San Antonio, TX 78212

**5.2 kW Solar Proposal**

Prepared Feb 07, 2017

TECL28621



#1 Solar Contractor in Texas for 2014

according to Solar Power World Magazine. Thanks ya'll.

SUNPOWER®

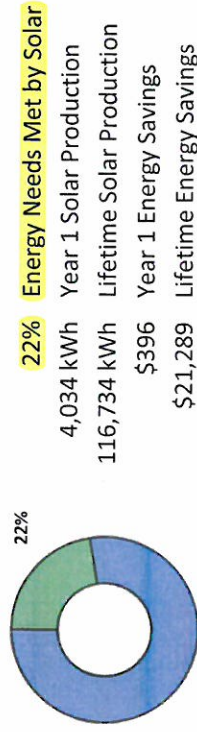
by Freedom Solar

System Size	5,232 W-DC
Annual Production	4,034 kWh

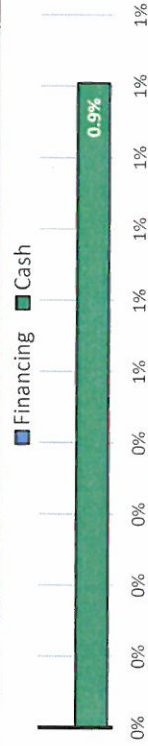
## Materials

- |    |   |
|----|---|
| 16 | SPR-E20-327-C-AC Solar Modules              |
| 16 | SunPower Factory-integrated Micro Inverters |
| 1  | InvisiMount Racking System                  |
| 1  | SunPower Monitoring System                  |
|    | NEC Compliant Electrical Equipment          |
|    | Miscellaneous Materials                     |

## Stats



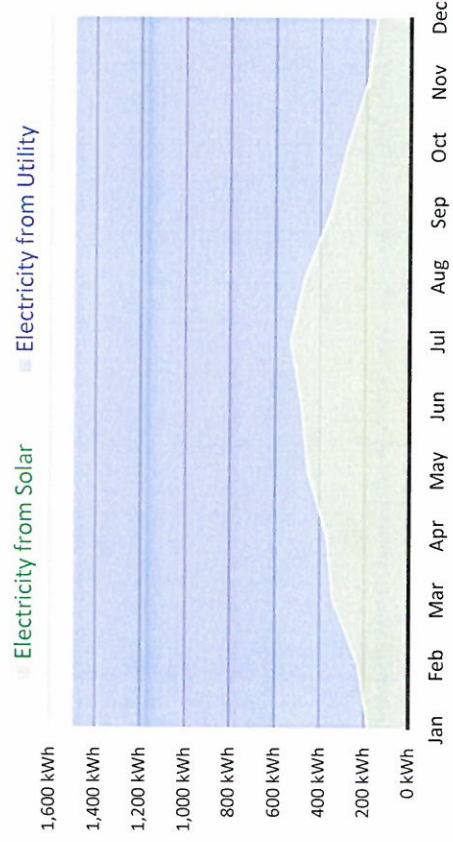
## IRR



## Performance Estimate

Timing	Consumption	Solar Production	Contribution
January	1,500 kWh	180 kWh	12.0%
February	1,500 kWh	228 kWh	15.2%
March	1,500 kWh	340 kWh	22.7%
April	1,500 kWh	370 kWh	24.7%
May	1,500 kWh	456 kWh	30.4%
June	1,500 kWh	483 kWh	32.2%
July	1,500 kWh	530 kWh	35.3%
August	1,500 kWh	469 kWh	31.3%
September	1,500 kWh	350 kWh	23.3%
October	1,500 kWh	283 kWh	18.9%
November	1,500 kWh	193 kWh	12.9%
December	1,500 kWh	152 kWh	10.1%
Year	18,000 kWh	4,034 kWh	22.4%

## Monthly Energy Offset



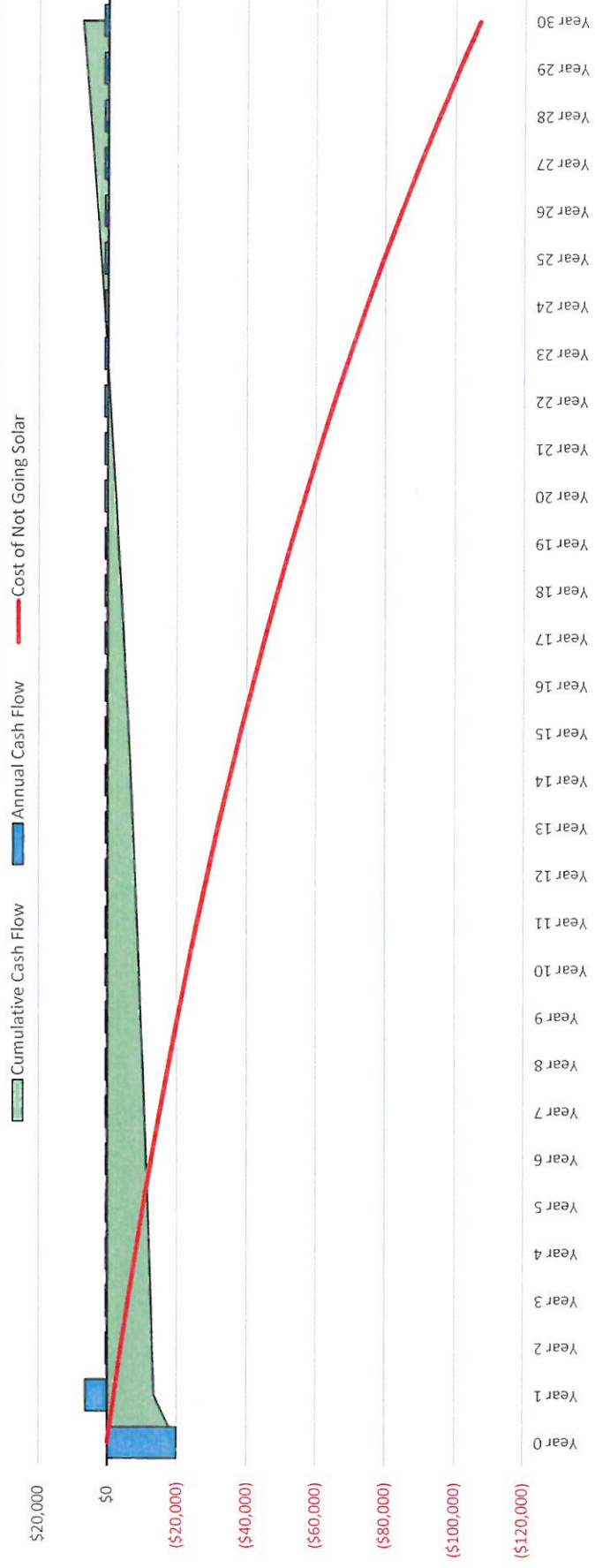
## Cash Purchase - Summary

### System Cost

Total Cost	\$19,882
<b>Out of Pocket Cost</b>	<b>\$19,882</b>
Federal Tax Credits	(\$5,964)
<b>Adjusted Total</b>	<b>\$13,917</b>

### Financial Benefits

Savings Over 25 Years	\$2,024
25Y Net Present Value (5%)	-\$6,005
Payback	22.8 Years
Internal Rate of Return (IRR)	0.9%
Freedom Solar Energy Price (25Y Avg)	14.22 ¢/kWh
Avoided Utility Energy Price (25Y Avg)	17.67 ¢/kWh





## SunPower® E20-327-C-AC | Residential AC Module Series

### Design-Driven Advantages

- #1 module aesthetics and efficiency<sup>1</sup>
- Unmatched module reliability<sup>2</sup>
- No electrolytic capacitors
- 25-year Combined Power and Product Warranty

### Maximize Value for Roof

- Size system for roof, not for string inverter
- Optimize performance of each module

### Expand Deployment Options

- Complex roofs and partial shading
- Small systems
- System expandability

### Simplify & Speed Installation

- Factory-integrated microinverter
- Robust, double-locking AC connectors
- Design flexibility offsite and onsite
- No DC string sizing process
- Fewer installation steps than competing systems
- Intuitive commissioning

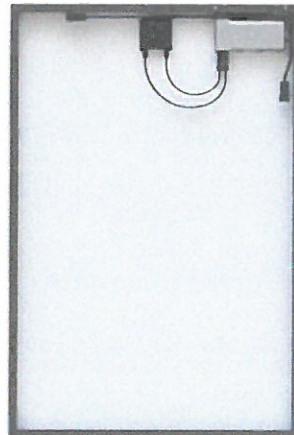
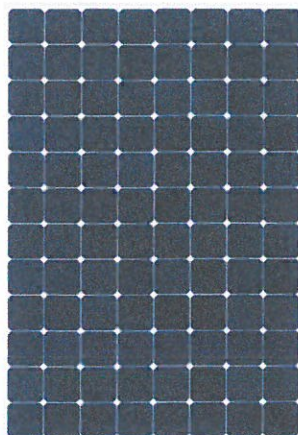
### Component of Complete System

- Built for use with SunPower® InvisiMount™ and SunPower Monitoring System
- Superior system reliability and aesthetics



<sup>1</sup>Highest of over 3,200 silicon solar panels. Photon Module Survey, Feb. 2014

<sup>2</sup>#1 rank in "PV Module Durability Initiative Public Report." Fraunhofer CSE, Feb. 2013. Five out of the top eight largest manufacturers were tested. Campeau, Z. et al. "SunPower Module Degradation Rate." SunPower white paper, Feb. 2013. See [www.sunpowercorp.com/facts](http://www.sunpowercorp.com/facts) for details.



### Optimize System and Installation Efficiency

SunPower® AC Modules, which include a factory-integrated SunPower microinverter, provide a revolutionary combination of high efficiency, high reliability, and module-level DC-to-AC power conversion. Designed specifically for use with SunPower InvisiMount™ and SunPower Monitoring System, SunPower AC Modules enable rapid installation, best-in-class system aesthetics, and intuitive visibility into system performance. All this comes with the best Combined Power and Product Warranty.



[sunpower.com](http://sunpower.com)



## SunPower® E20-327-C-AC | Residential AC Module Series

Model: E20-327-C-AC

DC Electrical Data		
Measured at Standard Test Conditions (STC): irradiance of 1000 W/m <sup>2</sup> , AM 1.5, and cell temperature 25° C		
Nominal Power <sup>3</sup>	P <sub>nom</sub>	327 W
Power Tolerance	P <sub>tol</sub>	+5/-0%
Avg. Power Efficiency <sup>4</sup>	η	20.4%
Temperature Coefficient (Power)	P	-0.38 % / °C
Shade Tolerance	<ul style="list-style-type: none"> <li>• Three bypass diodes</li> <li>• Integrated panel-level maximum power point tracking</li> </ul>	

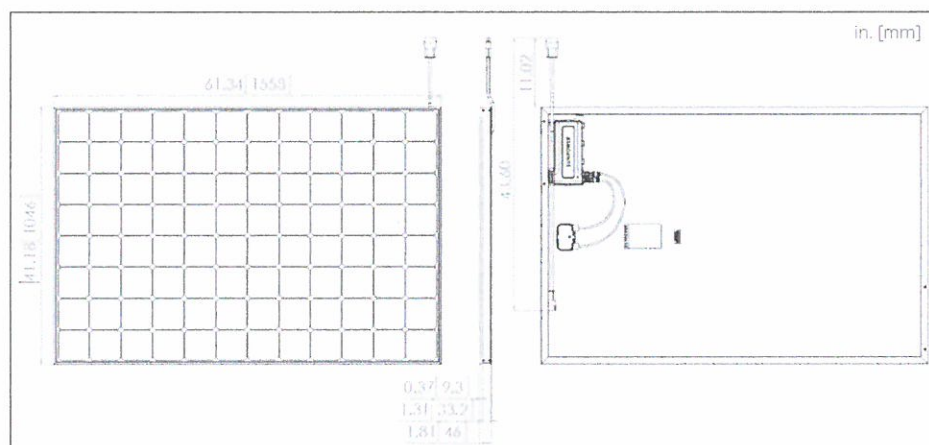
AC Electrical Data	
Output @ 240 V (min./nom./max.)	211/240/264 V
Output @ 208 V (min./nom./max.)	183/208/229 V
Operating Frequency (min./nom./max.)	59.3/60.0/60.5 Hz
Output Power Factor (min.)	0.99
AC Max. Continuous Output Current @ 240 V	1.33 A
AC Max. Continuous Output Current @ 208 V	1.54 A
AC Max. Continuous Output Power	320 W
DC/AC CEC Conversion Efficiency	96.0%
Max. Units Per Branch Circuit @ 240 V	12 (single phase)
Max. Units Per Branch Circuit @ 208 V	10 (two pole)

Mechanical Data	
Solar Cells	96 Monocrystalline Maxeon® Gen III
Front Glass	High-transmission tempered glass with anti-reflective (AR) coating
Environmental Rating	Outdoor Rated
Frame	Class 1 black anodized (highest AAMA rating)
Weight	45.5 lbs (20.6 kg)
Max. Recommended Module Spacing	1.3 in. (33 mm)

Tested Operating Conditions	
Operating Temp.	-40° F to +185° F (-40° C to +85° C)
Max. Ambient Temp.	133° F (56° C)
Max. Load	Wind: 3000 Pa (62.6 psf, 305.6 kg/m <sup>2</sup> ) front & back Snow: 6000 Pa (125.3 psf, 611.7 kg/m <sup>2</sup> ) front
Impact Resistance	1 inch (25 mm) diameter hail at 52 mph (23 m/s)

Warranties and Certifications	
Warranties	<ul style="list-style-type: none"> <li>• 25-year limited power warranty</li> <li>• 25-year limited product warranty</li> </ul>
Certifications	<ul style="list-style-type: none"> <li>• UL 1741, including compliance with applicable requirements of IEEE 1547 and IEEE 1547.1</li> <li>• Alternating Current (AC) Module designation enables installation in accordance with NEC 690.6</li> <li>• Type 2 Fire Rated</li> </ul>

### Dimensions



<sup>3</sup>Standard Test Conditions (1000 W/m<sup>2</sup> irradiance, AM 1.5, 25° C). NREL calibration standard: SOMS current, LACCS FF and voltage.

<sup>4</sup>Based on average of measured power values during production.

See [www.sunpower.com/facts](http://www.sunpower.com/facts) for more reference information. For more details, see extended datasheet: [www.sunpower.com/datasheets](http://www.sunpower.com/datasheets). Read safety and installation instructions before using this product.



**Flex Viewer**  
**Powered by ArcGIS Server**

Printed: Feb 16, 2017

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**CORRECTION SPECIAL WARRANTY DEED**

**Date:** December 20, 2016

**Grantor:** MWM COMMERCIAL, LTD., a Texas limited partnership

**Grantor's Mailing Address:** 603 River Rd.  
San Antonio, Texas 78212

**Grantee:** ETHEL W. MOORE

**Grantee's Mailing Address:** 603 River Rd.  
San Antonio, Texas 78212

**Consideration:**

Ten and No/100 Dollars (\$10.00) and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged.

**Property (including any improvements):**

See Exhibit "A" attached hereto and incorporated herein for all purposes

**Reservations from and Exceptions to Conveyance and Warranty:**

This conveyance is made subject to any and all conditions, covenants, restrictions, easements, exceptions, reservations, conveyances, and outstanding mineral and royalty interests, if any, of record in the Official Public Records of Real Property of Bexar County, Texas, to the extent the same are valid and subsisting and affect the Property.

Grantor, for the Consideration and subject to the Reservations from and Exceptions to Conveyance and Warranty, does hereby grant, sell, and convey to Grantee the Property, together with all and singular the rights and appurtenances thereto in any way belonging, to have and to hold it to Grantee and Grantee's heirs, successors, and assigns forever. Grantor binds Grantor and Grantor's heirs and successors to warrant and forever defend all and singular the Property to Grantee and Grantee's successors and assigns against every person whomsoever lawfully claiming or to claim the same or any part thereof when the claim is by, through, or under Grantor but not otherwise, except as to the Reservations from and Exceptions to Conveyance and Warranty.

THIS CORRECTION SPECIAL WARRANTY DEED IS MADE IN CORRECTION OF THAT CERTAIN SPECIAL WARRANTY DEED (THE "ORIGINAL DEED") FROM GRANTOR HEREIN TO GRANTEE HEREIN, DATED EFFECTIVE AS OF DECEMBER 12, 2016, AND RECORDED ON DECEMBER 15, 2016 AS DOCUMENT NO. 20160246253 OF THE OFFICIAL PUBLIC RECORDS OF REAL PROPERTY OF BEXAR COUNTY, TEXAS, WHEREIN BY ERROR AND MISTAKE THE ORIGINAL DEED INCORRECTLY LISTED GRANTEE'S MIDDLE INITIAL. THIS INSTRUMENT IS EXECUTED BY GRANTOR AND GRANTEE SOLELY IN ORDER TO CORRECT GRANTEE'S NAME, AND IN ALL OTHER RESPECTS AND PARTICULARS, THE TERMS, AGREEMENTS AND CONDITIONS SET FORTH IN THE ORIGINAL DEED ARE HEREBY RATIFIED AND CONFIRMED AND INCORPORATED HEREIN BY REFERENCE AND MADE A PART HEREOF FOR ALL PURPOSES.

When the context requires, singular nouns and pronouns include the plural.

EXECUTED on the dates shown in the acknowledgments below, to be effective as of December 20<sup>th</sup> 2016.

**[SIGNATURE PAGE FOLLOWS]**

EFFECTIVE as of the date first set forth above.

**GRANTOR:**

MWM COMMERCIAL, LTD.,  
a Texas limited partnership

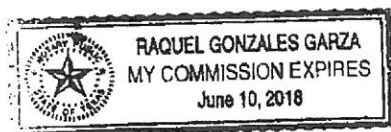
By: MWM & ASSOCIATES, L.C.,  
a Texas limited liability company,  
its General Partner

By: *Ethel W. Moore Ethel*  
Name: *Ethel W. Moore*  
Title: *Owner*

STATE OF TEXAS           §  
                                     §  
COUNTY OF BEXAR       §

BEFORE ME, the undersigned authority, on this day personally appeared *Ethel W. Moore* of MWM & ASSOCIATES, L.C., a Texas limited liability company, General Partner of MWM COMMERCIAL, LTD., a Texas limited partnership, known by me to be the person whose name is subscribed to the foregoing instrument, and acknowledged to me that he executed the same for the purposes and consideration therein expressed and in the capacity therein expressed.

Given under my hand and seal of office, this *20<sup>th</sup>* day of *December*, 2016.



*Raquel Gonzales Garza*  
Notary Public, in and for the State of Texas

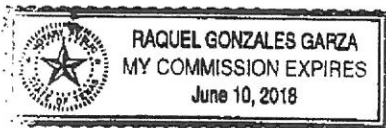
Grantee executes this Correction Special Warranty Deed for the purpose of evidencing the acceptance of this Deed.

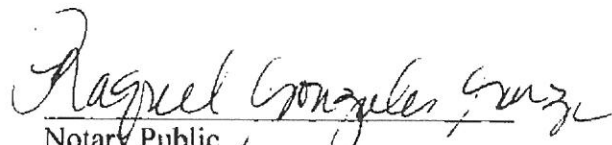
GRANTEE:

  
ETHEL W. MOORE

STATE OF TEXAS       §  
                                  §  
COUNTY OF BEXAR   §

On this 20<sup>th</sup> day of December, 2016, before me, the undersigned notary public, personally appeared ETHEL W. MOORE, known to me to be the person whose name is subscribed to the within instrument, and acknowledged that she or he executed the same for the purposes and consideration set forth therein.



  
Notary Public

After recording, please return to:  
Pulman, Cappuccio, Pullen, Benson & Jones. LLP  
Attn.: J. Bradley Jones  
2161 NW Military Hwy., Ste. 400  
San Antonio, Texas 78213

**EXHIBIT A**

**LEGAL DESCRIPTION OF PROPERTY**

Lots 10, 11, 12, and the West Irregular 74 feet, more or less, of Lot 13, Block 3, New City Block 6202, Belmont Place, in the City of San Antonio, Bexar County, Texas, according to map or plat thereof recorded in Volume 368, Page 95, Deed and Plat Records of Bexar County, Texas.

Doc# 20160250121  
# Pages 6  
12/20/2016 4:00PM  
e-Filed & e-Recorded in the  
Official Public Records of  
BEXAR COUNTY  
GERARD C. RICKHOFF  
COUNTY CLERK  
Fees \$42.00

STATE OF TEXAS  
COUNTY OF BEXAR  
This is to Certify that this document  
was e-FILED and e-RECORDED in the Official  
Public Records of Bexar County, Texas  
on this date and time stamped thereon.  
12/20/2016 4:00PM  
COUNTY CLERK, BEXAR COUNTY TEXAS



*Gerard C. Rickhoff*

## Bexar CAD

### Property Search Results > 1234665 MOORE ETHEL W for Year 2017

#### Property

##### Account

Property ID:	1234665	Legal Description:	NCB 6202 BLK 3 LOT 14 (BELMONT PLACE SUBD)
Geographic ID:	06202-003-0140	Agent Code:	60585
Type:	Real		
Property Use Code:	001		
Property Use Description:	Single Family		

##### Location

Address:	603 RIVER RD SAN ANTONIO, TX 78212	Mapsc0:	617A1
Neighborhood:	RIVER ROAD	Map ID:	
Neighborhood CD:	57032		

##### Owner

Name:	MOORE ETHEL W	Owner ID:	3040996
Mailing Address:	603 RIVER RD SAN ANTONIO, TX 78212-3123	% Ownership:	100.000000000000%
		Exemptions:	

#### Values

(+) Improvement Homesite Value:	+	N/A	
(+) Improvement Non-Homesite Value:	+	N/A	
(+) Land Homesite Value:	+	N/A	
(+) Land Non-Homesite Value:	+	N/A	Ag / Timber Use Value
(+) Agricultural Market Valuation:	+	N/A	N/A
(+) Timber Market Valuation:	+	N/A	N/A
-----			
(=) Market Value:	=	N/A	
(-) Ag or Timber Use Value Reduction:	-	N/A	
-----			
(=) Appraised Value:	=	N/A	
(-) HS Cap:	-	N/A	
-----			
(=) Assessed Value:	=	N/A	

#### Taxing Jurisdiction

Owner: MOORE ETHEL W  
 % Ownership: 100.000000000000%  
 Total Value: N/A

Entity	Description	Tax Rate	Appraised Value	Taxable Value	Estimated Tax
06	BEXAR CO RD & FLOOD	N/A	N/A	N/A	N/A
08	SA RIVER AUTH	N/A	N/A	N/A	N/A

				MWM COMMERICAL LTD			
3	3/4/2004	Deed	Deed	MWM COMMERICAL LTD	10639	2070	0

2017 data current as of Feb 13 2017 12:29AM.

2016 and prior year data current as of Jan 13 2017 3:36PM

For property information, contact (210) 242-2432 or (210) 224-8511 or email.

For website information, contact (210) 242-2500.

This year is not certified and ALL values will be represented with "N/A".

Website version: 1.2.2.11

Database last updated on: 2/13/2017 12:29 AM

© N. Harris Computer Corporation

Property Identification #: 1234665

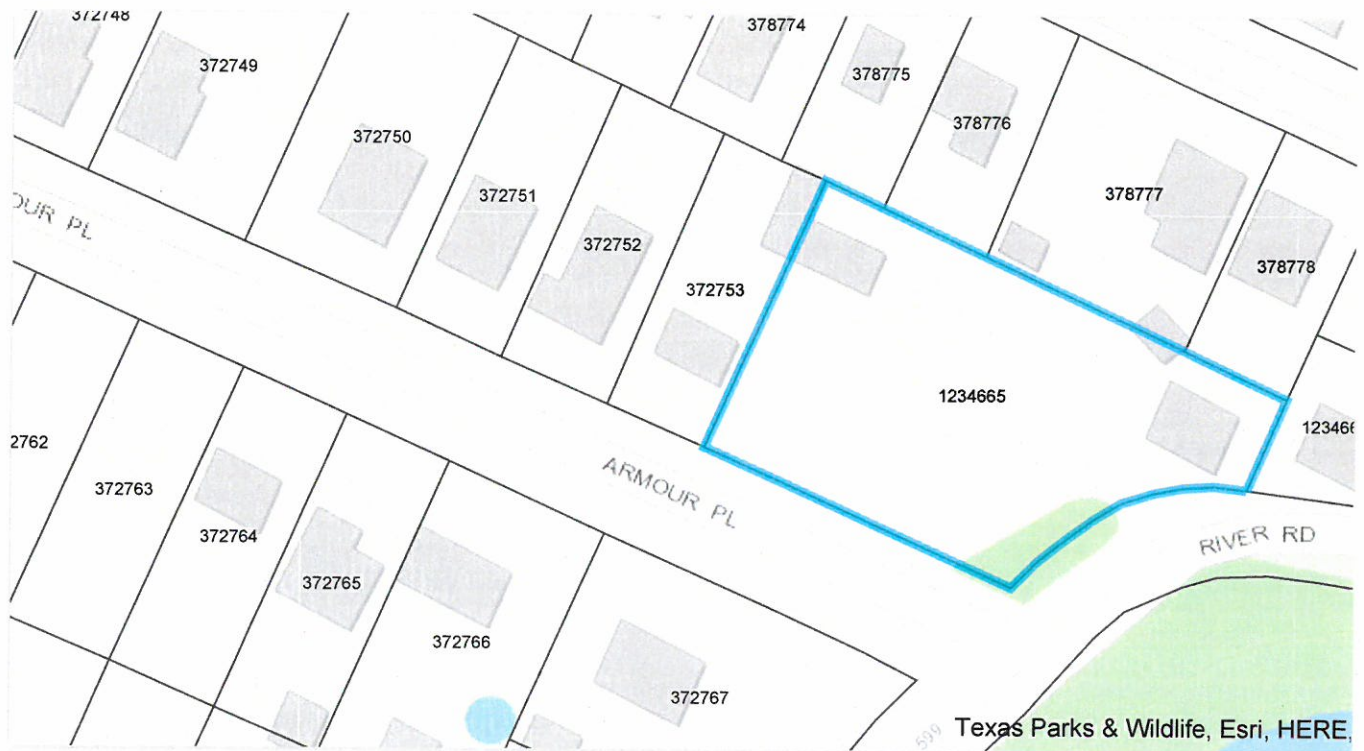
Property Information: 2017

Owner Identification #: 3040996

Geo ID: 06202-003-0140  
Situs: 603 RIVER RD SAN  
Address: ANTONIO, TX 78212  
Property Type: Real  
State Code: B1

Legal: NCB 6202 BLK 3 LOT 14  
Description: (BELMONT PLACE SUBD)  
Abstract: S06202  
Neighborhood: RIVER ROAD  
Appraised Value: N/A  
Jurisdictions: 08, 10, 06, 11, 21, 09, 57, CAD

Name: MOORE ETHEL W  
Exemptions:  
DBA: Null



Bexar CAD Map Search

This product is for informational purposes only and may not have been prepared for or be suitable for legal, engineering, or surveying purposes. It does not represent an on-the-ground survey and represents only the approximate relative location of property boundaries. The Bexar County Appraisal District expressly disclaims any and all liability in connection herewith.