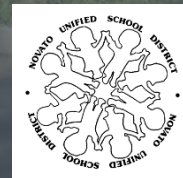


Solar Photovoltaic Project Update

Novato Unified School District

Board of Trustees Meeting

March 1, 2016



PV Project System Summary

	Proposal	Contract
Total school sites	12	10
Combined Project Size	1,572 kWp	1,422 kWp
Annual Energy Production	2,390 MWh	2,160 MWh
Energy Consumption Offset	88%	88%
Utility Bill Offset (yr-1)	99%	99%
Performance Guarantee	100%	100%
Carbon Offset (eCO ₂)	590 tons/yr.	566 tons/yr.



PV Project Financial Summary

	Proposal	Contract
Avg. PPA Rate, 20-yr, 0% escalation	\$0.1506/ _{kWh}	\$0.1473/ _{kWh}
Project Develop Cost to District	\$0.7M	\$0.6M
Year 1 Savings vs. Utility	\$179K	\$160K
25-Yr Savings vs. Utility, Nominal \$	\$8.4M	\$7.2M
Simple Payback	3.4 yrs.	4.1 yrs.
25-Yr NPV, 3.5% DR	\$4.7M	\$4.2M



Site Financial Summary

Novato USD Facility	Solar PV System Scope			Sage Estimates	
	Solar PV System Size	Year 1 Systems Production	SolarCity PPA Rate	Year 1 Savings	25-year Savings*
	(kW)	(kWh)	(\$/kWh)	\$	\$
Hamilton ES	167.40	255,871	\$ 0.1470	\$ 15,900	\$ 756,300
Loma Verde ES	61.38	90,190	\$ 0.1860	\$ 2,900	\$ 228,300
Lynwood ES	83.70	128,189	\$ 0.1810	\$ 10,000	\$ 502,200
Novato HS	334.80	505,258	\$ 0.1230	\$ 46,200	\$ 1,806,000
Olive ES	50.22	77,294	\$ 0.1860	\$ 700	\$ 127,600
Pleasant Valley ES	66.96	102,554	\$ 0.1660	\$ 6,100	\$ 314,600
Rancho ES	70.68	102,541	\$ 0.1730	\$ 5,000	\$ 291,700
San Jose MS	100.44	153,851	\$ 0.1710	\$ 8,800	\$ 477,600
San Marin HS	341.00	519,849	\$ 0.1360	\$ 42,500	\$ 1,797,600
Sinaloa MS	145.08	223,792	\$ 0.1420	\$ 21,900	\$ 900,000
Total Portfolio	1,421.66	2,159,388	\$ 0.1471**	\$ 160,000	\$ 7,201,900

*Assumes PG&E Rate escalates at 3%/year

** Weighted average PPA Rate for all sites





NOVATO USD Hamilton ES

SYSTEM SIZE: 167 KW DC
SITE ADDRESS: 5530 Nave Drive, Novato, CA 94949

DATE: 02/05/2016
MODULE: POLY 310W
INVERTER: TBD
DRAWN BY: R. SUTTER

DESCRIPTION:
PV ARRAY

CARPORTS DSA PRE-CHECKED

STRINGS OF 20 MODULES

PRELIMINARY DRAWING - NOT FOR CONSTRUCTION

ARRAY INFORMATION

MOUNTING METHOD	MODULE COUNT	TILT	AZIMUTH	KW DC
CARPORTS	540	7°	186°	167.40

GENERAL NOTES

1. THIS SYSTEM IS GRID-INTERCONNECTED VIA A UL-LISTED POWER-CORRECTING INVERTER.
2. THIS SYSTEM HAS NO BATTERIES, NO UPS.
3. ALL INVERTERS AND ARRAYS ARE NEGATIVELY GROUNDING.
4. SOLAR MOUNTING FRAMES ARE TO BE GROUNDING.
5. ALL WORK TO BE DONE TO 2015 NEC.
6. ALL ELECTRICAL WORK SHALL COMPLY WITH THE NATIONAL ELECTRIC CODE.

LEGEND

- (U) (U) UTILITY METER
- (I) INVERTER W/ INTEGRATED DC DISC & MOUNTING LUGS
- (DC) DC DISCONNECT
- (AC) AC DISCONNECT
- (J) JUNCTION BOX
- (DC) DC COMBINATION BOX
- (D) DISTRIBUTION PANEL

SHEET NOTES

1. INVERTER
2. DEDICATED PV SYSTEM METER
3. AC DISCONNECT
4. UTILITY METER
5. DC DISCONNECT

- (L) LOAD CENTER
- (M) DEDICATED PV SYSTEM METER
- (E) CONDUIT RUN ON EXTERIOR
- (I) CONDUIT RUN ON INTERIOR
- (S) INTERIOR EQUIPMENT

3055 Clearview Way
San Mateo, CA 94402
(888)-SDL-CITY (765-2489)
www.solarcity.com





NOVATO USD LOMA VERDE ES				
SYSTEM SIZE: 61 KW DC				
SITE ADDRESS: 399 Alameda De La Loma, Novato, CA				
DATE: 01/05/2016				
MODULE: POLY 310W				
INVERTER: TBD				
DRAWN BY: R. SUTTER				
DESCRIPTION: PV ARRAY				
CARPORTS DSA PRE-CHECKED				
STRINGS OF 18 MODULES				
PRELIMINARY DRAWING - NOT FOR CONSTRUCTION				
ARRAY INFORMATION				
MOUNTING METHOD	MODULE COUNT	TILT	AZIMUTH	KW DC
CARPORTS	198	7°	101°	61.38
GENERAL NOTES		LEGEND		
1. THIS SYSTEM IS GRID-INTEGRATED VIA A 30-LEAD POWER-CONVERTING INVERTER. 2. THIS SYSTEM HAS NO BATTERIES, NO UPS. 3. ALL INVERTERS AND ARRAYS ARE NEGATIVELY GROUNDING. 4. SOLAR MOUNTING FRAMES ARE TO BE GROUNDING. 5. ALL WORK TO BE DONE TO 2015 IBC. 6. ALL ELECTRICAL WORK SHALL COMPLY WITH THE NATIONAL ELECTRIC CODE.		(D) UTILITY METER (I) INVERTER W/ INTEGRATED DC DISC & MOUNTING LABLES (DC) DC DISCONNECT (AC) AC DISCONNECT (J) JUNCTION BOX (C) DC COMMUNITY BOX (D) DISTRIBUTION PANEL (L) LOAD CENTER (S) DEDICATED PV SYSTEM METER (C) CONDUIT RUN ON EXTERIOR (I) CONDUIT RUN ON INTERIOR (E) INTERIOR EQUIPMENT		
SHEET NOTES				
1. INVERTER: 2. DEDICATED PV SYSTEM METER. 3. AC DISCONNECT 4. UTILITY METER. 5. DC DISCONNECT.				
3055 Clearview Way San Mateo, CA 94402 (888)-SDL-CITY (765-2489) www.solarcity.com				





NOVATO USD LYNWOOD ES

SYSTEM SIZE: 84 KW DC

SITE ADDRESS: 1320 Lynwood Drive, Novato, CA 94947

DATE: 01/05/2016

MODULE: POLY 310W

INVERTER: TBD

DRAWN BY: R. SUTTER

DESCRIPTION:

PV ARRAY

CARPORTS DSA PRE-CHECKED

STRINGS OF 18 MODULES

PRELIMINARY DRAWING - NOT FOR CONSTRUCTION

ARRAY INFORMATION

MOUNTING METHOD	MODULE COUNT	TILT	AZIMUTH	KW DC
CARPORTS	270	7°	179°	83.7

GENERAL NOTES

1. THIS SYSTEM IS GRID-INTERCONNECTED VIA A 30-AMP POWER-CORRECTING INVERTER.
2. THIS SYSTEM HAS NO BATTERIES, NO UPS.
3. ALL INVERTERS AND ARRAYS ARE NEGATIVELY GROUNDING.
4. SOLAR MOUNTING FRAMES ARE TO BE GROUNDING.
5. ALL WORK TO BE DONE TO 2015 NEC.
6. ALL ELECTRICAL WORK SHALL COMPLY WITH THE NATIONAL ELECTRIC CODE.

LEGEND

- (U) UTILITY METER
- (I) INVERTER W/ INTEGRATED DC DISC & MOUNTING LABLES
- (D) DC DISCONNECT
- (A) AC DISCONNECT
- (J) JUNCTION BOX
- (C) DC COMBINATION BOX
- (P) DISTRIBUTION PANEL

SHEET NOTES

1. INVERTER.
2. DEDICATED PV SYSTEM METER.
3. AC DISCONNECT.
4. UTILITY METER.
5. DC DISCONNECT.

- (L) LOAD CENTER
- (M) DEDICATED PV SYSTEM METER
- (E) CONDUIT RUN ON EXTERIOR
- (I) CONDUIT RUN ON INTERIOR
- (S) INTERIOR EQUIPMENT

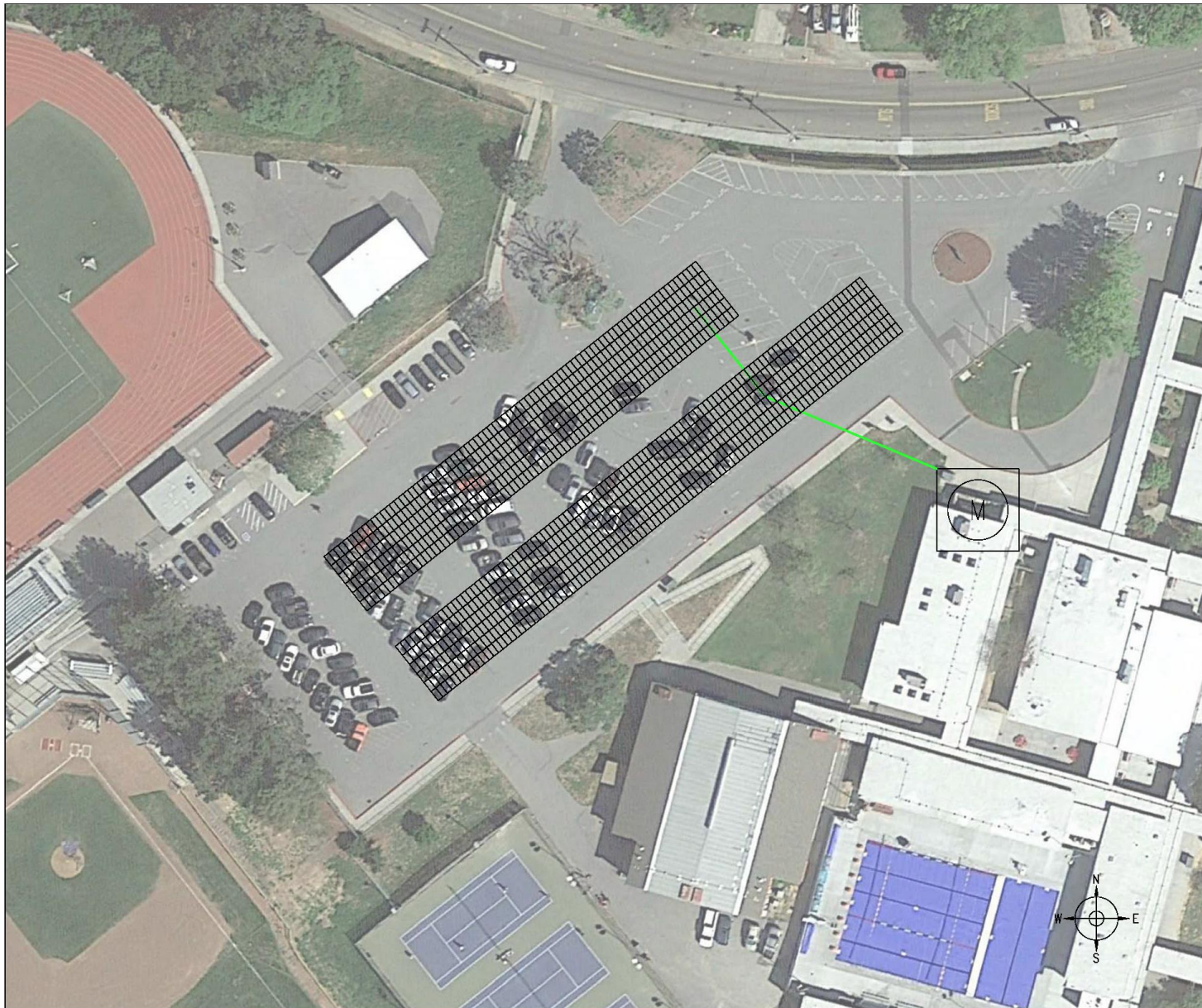
3055 Clearview Way
San Mateo, CA 94402
(888)-SDL-CITY (765-2489)
www.solarcity.com



2/2/2016

Novato USD PV Project Update





NOVATO USD NOVATO HS

SYSTEM SIZE: 335 KW DC

SITE ADDRESS: 625 Arthur Street, Novato, CA 94947

DATE: 02/08/2016

MODULE: POLY 310W

INVERTER: TBD

DRAWN BY: R. SUTTER

DESCRIPTION:

PV ARRAY

CARPORTS DSA PRE-CHECKED

STRINGS OF 20 MODULES

PRELIMINARY DRAWING - NOT FOR CONSTRUCTION

ARRAY INFORMATION

MOUNTING METHOD	MODULE COUNT	TILT	AZIMUTH	KW DC
CARPORTS	1080	5°	142°	334.80

GENERAL NOTES

- THIS SYSTEM IS GRID-INTERCONNECTED VIA A UL-LISTED POWER-CONVERTING INVERTER.
- THIS SYSTEM HAS NO BATTERIES, NO UPS.
- ALL INVERTERS AND ARRAYS ARE NEGATIVELY GROUNDING.
- SOLAR MOUNTING FRAMES ARE TO BE GROUNDING.
- ALL WORK TO BE DONE TO 2015 IBC.
- ALL ELECTRICAL WORK SHALL COMPLY WITH THE NATIONAL ELECTRIC CODE.

LEGEND

- (U) UTILITY METER
- (I) INVERTER W/ INTEGRATED DC DISC & MOUNTING LABLES
- (D) DC DISCONNECT
- (A) AC DISCONNECT
- (J) JUNCTION BOX
- (C) DC COMBINATION BOX
- (P) DISTRIBUTION PANEL

SHEET NOTES

- INVERTER:
- DEDICATED PV SYSTEM METER.
- AC DISCONNECT.
- UTILITY METER.
- DC DISCONNECT.

- (L) LOAD CENTER
- (S) DEDICATED PV SYSTEM METER
- (E) CONDUIT RUN ON EXTERIOR
- (I) CONDUIT RUN ON INTERIOR
- (T) THROUGH EQUIPMENT

3055 Clearview Way
San Mateo, CA 94402
(888)-SDL-CITY (765-2489)
www.solarcity.com





NOVATO USD OLIVE ES

SYSTEM SIZE: 50 KW DC

SITE ADDRESS: 629 Plum Street, Novato, CA 94945

DATE: 01/05/2016

MODULE: POLY 310W

INVERTER: TBD

DRAWN BY: R. SUTTER

DESCRIPTION:

PV ARRAY

CARPORTS DSA PRE-CHECKED

STRINGS OF 18 MODULES

PRELIMINARY DRAWING - NOT FOR CONSTRUCTION

ARRAY INFORMATION

MOUNTING METHOD	MODULE COUNT	TILT	AZIMUTH	KW DC
CARPORTS	162	7°	196°	50.22

GENERAL NOTES

1. THIS SYSTEM IS GRID-TIED/INTERCONNECTED VIA A 30-AMP POWER-CONVERTING INVERTER.
2. THIS SYSTEM HAS NO BATTERIES, NO UPS.
3. ALL INVERTERS AND ARRAYS ARE NEGATIVELY GROUNDING.
4. SOLAR MOUNTING FRAMES ARE TO BE GROUNDING.
5. ALL WORK TO BE DONE TO 2015 NEC.
6. ALL ELECTRICAL WORK SHALL COMPLY WITH THE NATIONAL ELECTRIC CODE.

LEGEND

- (U) UTILITY METER
- (I) INVERTER W/ INTEGRATED DC DISC & MOUNTING LUGS
- (D) DC DISCONNECT
- (A) AC DISCONNECT
- (J) JUNCTION BOX
- (C) DC COMBINATION BOX
- (P) DISTRIBUTION PANEL

SHEET NOTES

1. INVERTER
2. DEDICATED PV SYSTEM METER
3. AC DISCONNECT
4. UTILITY METER
5. DC DISCONNECT

- (L) LOAD CENTER
- (M) DEDICATED PV SYSTEM METER
- (E) CONDUIT RUN ON EXTERIOR
- (I) CONDUIT RUN ON INTERIOR
- (S) INTERIOR EQUIPMENT

3055 Clearview Way
San Mateo, CA 94402
(888)-SDL-CITY (765-2489)
www.solarcity.com



2/2/2016

Novato USD PV Project Update





NOVATO USD PLEASANT VALLEY ES

SYSTEM SIZE: 67 KW DC
SITE ADDRESS: 755 Sutro Ave, Novato, CA 94947

DATE: 01/05/2016
MODULE: POLY 310W
INVERTER: TBD
DRAWN BY: R. SUTTER

DESCRIPTION:
PV ARRAY

CARPORTS DSA PRE-CHECKED

STRINGS OF 18 MODULES

PRELIMINARY DRAWING - NOT FOR CONSTRUCTION

ARRAY INFORMATION

MOUNTING METHOD	MODULE COUNT	TILT	AZIMUTH	KW DC
CARPORTS	216	7°	179°	66.96

GENERAL NOTES

1. THIS SYSTEM IS GRID-TIED/NETTED VIA A 30-AMP POWER-CONVERTING INVERTER.
2. THIS SYSTEM HAS NO BATTERIES, NO UPS.
3. ALL INVERTERS AND ARRAYS ARE NEGATIVELY GROUND.
4. SOLAR MOUNTING FRAMES ARE TO BE GROUND.
5. ALL WORK TO BE DONE TO 2015 NEC.
6. ALL ELECTRICAL WORK SHALL COMPLY WITH THE NATIONAL ELECTRIC CODE.

LEGEND

- (U) UTILITY METER
- (I) INVERTER W/ INTEGRATED DC DISC & WARNING LABEL
- (D) DC DISCONNECT
- (A) AC DISCONNECT
- (J) JUNCTION BOX
- (C) DC COMBINATION BOX
- (P) DISTRIBUTION PANEL

SHEET NOTES

1. INVERTER
2. DEDICATED PV SYSTEM METER
3. AC DISCONNECT
4. UTILITY METER
5. DC DISCONNECT

- (L) LOAD CENTER
- (M) DEDICATED PV SYSTEM METER
- (E) CONDUIT RUN ON EXTERIOR
- (I) CONDUIT RUN ON INTERIOR
- (S) INTERIOR EQUIPMENT

3055 Clearview Way
San Mateo, CA 94402
(888)-SDL-CITY (765-2489)
www.solarcity.com



2/2/2016

Novato USD PV Project Update



10



NOVATO USD RANCHO ES

SYSTEM SIZE: 71 KW DC
SITE ADDRESS: 1430 Johnson Street, Novato, CA 94947

DATE: 01/05/2016

MODULE: POLY 310W

INVERTER: TBD

DRAWN BY: R. SUTTER

DESCRIPTION:

PV ARRAY

CARPORTS DSA PRE-CHECKED

STRINGS OF 19 MODULES

PRELIMINARY DRAWING - NOT FOR CONSTRUCTION

ARRAY INFORMATION

MOUNTING METHOD	MODULE COUNT	TILT	AZIMUTH	KW DC
CARPORTS	228	7°	90°	70.68

GENERAL NOTES

1. THIS SYSTEM IS GRID-TIED/INTERCONNECTED VIA A 3-LEADER POWER-COVERINGING INVERTER.
2. THIS SYSTEM HAS NO BATTERIES, NO UPS.
3. ALL INVERTERS AND ARRAYS ARE NEGATIVELY GROUNDING.
4. SOLAR MOUNTING FRAMES ARE TO BE GROUNDING.
5. ALL WORK TO BE DONE TO 2015 NEC.
6. ALL ELECTRICAL WORK SHALL COMPLY WITH THE NATIONAL ELECTRIC CODE.

LEGEND

- (U) UTILITY METER
- (I) INVERTER W/ INTEGRATED DC DISC & MOUNTING LABLES
- (D) DC DISCONNECT
- (A) AC DISCONNECT
- (J) JUNCTION BOX
- (C) DC COMBINATION BOX
- (P) DISTRIBUTION PANEL

SHEET NOTES

1. INVERTER:
2. DEDICATED PV SYSTEM METER.
3. AC DISCONNECT.
4. UTILITY METER.
5. DC DISCONNECT.

- (L) LOAD CENTER
- (M) DEDICATED PV SYSTEM METER
- (E) CONDUIT RUN ON EXTERIOR
- (I) CONDUIT RUN ON INTERIOR
- (S) INTERIOR EQUIPMENT

3055 Clearview Way
San Mateo, CA 94402
(888)-SDL-CITY (765-2489)
www.solarcity.com





NOVATO USD SAN JOSE MS

SYSTEM SIZE: 100 KW DC

SITE ADDRESS: 1000 Sunset Parkway, Novato, CA 94949

DATE: 02/08/2016

MODULE: POLY 310W

INVERTER: TBD

DRAWN BY: R. SUTTER

DESCRIPTION:

PV ARRAY

CARPORTS DSA PRE-CHECKED

STRINGS OF 18 MODULES

PRELIMINARY DRAWING - NOT FOR CONSTRUCTION

ARRAY INFORMATION

MOUNTING METHOD	MODULE COUNT	TILT	AZIMUTH	KW DC
CARPORTS	324	7°	180°	100.44

GENERAL NOTES

1. THIS SYSTEM IS GRID-TIED/INTERCONNECTED VIA A 30-AMP POWER-CONVERTING INVERTER.
2. THIS SYSTEM HAS NO BATTERIES, NO UPS.
3. ALL INVERTERS AND ARRAYS ARE NEGATIVELY GROUNDING.
4. SOLAR MOUNTING FRAMES ARE TO BE GROUNDING.
5. ALL WORK IS TO BE DONE TO 2015 NEC.
6. ALL ELECTRICAL WORK SHALL COMPLY WITH THE NATIONAL ELECTRIC CODE.

LEGEND

- (U) UTILITY METER
- (I) INVERTER W/ INTEGRATED DC DISC & MOUNTING LABLES
- (DC) DC DISCONNECT
- (AC) AC DISCONNECT
- (J) JUNCTION BOX
- (DC) DC COMBINATION BOX
- (D) DISTRIBUTION PANEL
- (L) LOAD CENTER
- (P) DEDICATED PV SYSTEM METER
- (E) CONDUIT RUN ON EXTERIOR
- (I) CONDUIT RUN ON INTERIOR
- (E) THROUGH EQUIPMENT

SHEET NOTES

1. INVERTER:
2. DEDICATED PV SYSTEM METER.
3. AC DISCONNECT.
4. UTILITY METER.
5. DC DISCONNECT.

3055 Clearview Way
San Mateo, CA 94402
(888)-SDL-CITY (765-2489)
www.solarcity.com

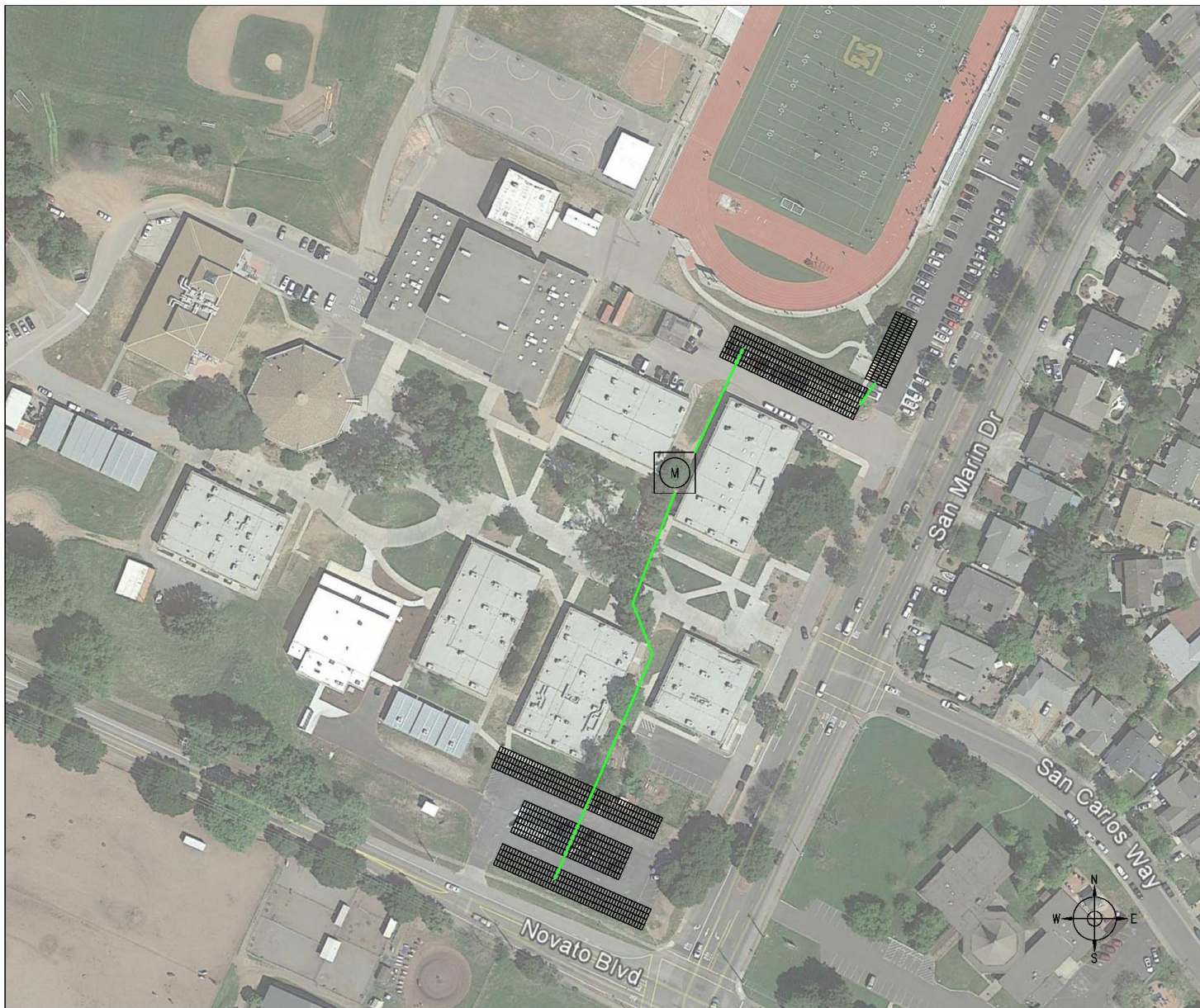


3/1/2016

Novato USD PV Project Update



12



NOVATO USD SAN MARIN HS

SYSTEM SIZE: 341 KW DC

SITE ADDRESS: 15 San Marin Drive, Novato, CA 94947

DATE: 01/05/2016

MODULE: POLY 310W

INVERTER: TBD

DRAWN BY: R. SUTTER

DESCRIPTION:

PV ARRAY

CARPORTS DSA PRE-CHECKED

STRINGS OF 20 MODULES

PRELIMINARY DRAWING - NOT FOR CONSTRUCTION

ARRAY INFORMATION

MOUNTING METHOD	MODULE COUNT	TILT	AZIMUTH	KW DC
CARPORTS	1000	5°	204°	310.00
CARPORTS	100	5°	115°	31.00

GENERAL NOTES

1. THIS SYSTEM IS GRID-INTERCONNECTED VIA A 3-LEAD POWER-CONVERTING INVERTER.
2. THIS SYSTEM HAS NO BATTERIES, NO UPS.
3. ALL INVERTERS AND ARRAYS ARE NEGATIVELY GROUNDING.
4. SOLAR MOUNTING FRAMES ARE TO BE GROUNDING.
5. ALL WORK TO BE DONE TO 2015 NEC.
6. ALL ELECTRICAL WORK SHALL COMPLY WITH THE NATIONAL ELECTRIC CODE.

LEGEND

- (M) UTILITY METER
- (I) INVERTER W/ INTEGRATED DC DISC & MOUNTING LABLES
- (D) DC DISCONNECT
- (A) AC DISCONNECT
- (J) JUNCTION BOX
- (C) DC COMMUNITY BOX
- (P) DISTRIBUTION PANEL

SHEET NOTES

1. INVERTER.
2. DEDICATED PV SYSTEM METER.
3. AC DISCONNECT.
4. UTILITY METER.
5. DC DISCONNECT.

- (L) LOAD CENTER
- (M) DEDICATED PV SYSTEM METER
- (G) CONDUIT RUN ON EXTERIOR
- (I) CONDUIT RUN ON INTERIOR
- (E) THROUGH EQUIPMENT

3055 Clearview Way
San Mateo, CA 94402
(888)-SDL-CITY (765-2489)
www.solarcity.com



2/2/2016

Novato USD PV Project Update



13



NOVATO USD SINALOA MS				
SYSTEM SIZE: 145 KW DC SITE ADDRESS: 2045 Vineyard Road, Novato, CA 94947				
DATE: 01/05/2016				
MODULE: POLY 310W				
INVERTER: TBD				
DRAWN BY: R. SUTTER				
DESCRIPTION: PV ARRAY				
CARPORTS DSA PRE-CHECKED				
STRINGS OF 18 MODULES				
PRELIMINARY DRAWING - NOT FOR CONSTRUCTION				
ARRAY INFORMATION				
MOUNTING METHOD	MODULE COUNT	TILT	AZIMUTH	KW DC
CARPORTS	468	7°	216	145.08
GENERAL NOTES		LEGEND		
1. THIS SYSTEM IS GRID-TIED/NETED VIA A 3A-300V POWER-CONVERTING INVERTER. 2. THIS SYSTEM HAS NO BATTERIES, NO UPS. 3. ALL INVERTERS AND ARRAYS ARE NEGATIVELY GROUNDING. 4. SOLAR MOUNTING FRAMES ARE TO BE GROUNDING. 5. ALL WORK TO BE DONE TO 2015 NEC. 6. ALL ELECTRICAL WORK SHALL COMPLY WITH THE NATIONAL ELECTRIC CODE.		(U) UTILITY METER (I) INVERTER W/ INTEGRATED DC DISC & MOUNTING LABLES (DC) DC DISCONNECT (AC) AC DISCONNECT (J) JUNCTION BOX (C) DC COMMUNITY BOX (D) DISTRIBUTION PANEL (L) LOAD CENTER (S) DEDICATED PV SYSTEM METER (E) CONDUIT RUN ON EXTERIOR (I) CONDUIT RUN ON INTERIOR (E) ELECTRICAL EQUIPMENT		
SHEET NOTES		1. INVERTER: 2. DEDICATED PV SYSTEM METER. 3. AC DISCONNECT 4. UTILITY METER. 5. DC DISCONNECT.		
3055 Clearview Way San Mateo, CA 94402 (888)-SDL-CITY (765-2489) www.solarcity.com				





www.sagerenew.com

David Williard

david@sagerenew.com

415.497.6242

San Rafael Office

415-663-9914

PV Project Review Process

- **Division of the State Architect (DSA)**
 - Oversight over all K-14 building projects
(Fire & Life Safety, Structural, Access)
- **California Environmental Quality Act (CEQA)**
 - Statutory Exemption for Carports
 - Categorical Exemptions for Shade Structures
- **Local Fire Authority Review**

