

Solar Project Proposal

LASD Board of Trustees

June 12, 2017

Selection Process for Solar Provider

- District sent RFP to over 2 dozen companies
- 7 responses; short-listed 3 companies to interview
- Conducted interviews on May 9
- Terra Verde (consultant to LASD) followed up interviews with Q & A with top 2 candidates and reference checking
- Based on price and all other factors, District has selected **Forefront Power LLC** as top choice
 - Contract negotiations completed

Overview

- Power Purchase Agreement
- Proposed solar arrays would generate 85%+ of annual electricity needed (based on current consumption)
- Mitigations needed to address impacts
 - Parking lots: traffic patterns will change and impact surrounding neighborhoods
 - Tree removal: replacements may be needed
- Outreach needed: parents, neighbors, community
- Other Benefits: Electric charging stations

Source of Funds

- No Measure N funds being used for this project
- District pays utility bill to 3rd party provider
 - Estimated payments less than current bills, so the project generates savings
 - Payments come from General Fund (general operating budget)

Key Terms of Contract

- Forefront is responsible for engineering, design, fabrication, installation and maintenance of shade structures (generating facilities) to be substantially complete by December 31, 2017
- District will purchase energy produced by generating facilities from Forefront at a reduced rate with no escalation for up to 25 years
- 90% Minimum Guaranteed Output
- District has option to purchase generating facilities after 5th anniversary of Commercial Operation Date

Costs & Savings

- Rate per kWh: ~~\$0.149~~ \$0.165
- Cash Equivalent Price: \$6.35M
- Annual Payments: ~~\$337,317~~ \$396,000 (no escalation)
- Year 6 Purchase Price: \$3.4M (est.)
- Estimated Annual Savings: \$175,000+

Note: Forefront's original price was in error; the correct price is \$0.165 per kWh.

Cost/Benefit Comparison

	PPA now	PPA later	Cash Purchase
Cash Price	n/a	n/a	\$6.35M
Savings from Solar, Y1	\$571,000	\$408,000	\$570,000
PPA payments.....	\$396,000	\$396,000	
Financing cost/Operating Expense.....			\$575,000
Net Savings, Y1	\$175,000	\$12,000	<\$5,000>
Net Savings, Y1-10	\$2,700,000	\$800,000	\$760,000

Notes: "PPA later" unable to take advantage of grandfathered favorable PG&E rates.
Savings expected to increase each year; costs remain relatively constant.

Impact of Shade on Solar Arrays

- Shading even a small portion of a panel causes a significant drop in performance
- Not only reduces the efficiency but degrades the solar modules, so affects their longevity
- Thus, wherever possible any trees or other things producing shade onto the solar arrays should be removed
 - In some cases, trees can be topped-off rather than removed (see next slide)

Trees to be removed

- All trees in construction zones must be removed
 - No mature, native trees
- Other trees casting shade onto solar arrays should be removed (or topped)
 - Current analysis suggests there are only 4 sites where this is an issue—Blach, Covington, Egan, and Santa Rita
 - 1 large tree at Blach and Covington
 - 2 large trees at Egan and 3 at Santa Rita
 - None are heritage oak trees

Terra Verde's role

- Background work on this project
 - Analyzed feasibility of a project, worked to get current Time of Use rates with PG&E grandfathered, developed RFP and ushered district through vendor selection process, etc.
- Assisted in contract negotiations
- Provide construction oversight
- Audit future energy bills to ensure LASD gets credit for energy produced
- Cost: \$375,000 (included in PPA financing structure)

Timeline

- Week of June 5: Site surveys underway
- June 12: Public hearing & contract approval by board
- June 20: Kick-off meeting (Forefront, contractor, LASD, Terra Verde)
- June – late August: Forefront completes design and gets DSA approval
- Mid to late September: Construction starts
- Dec 31: Deadline to complete construction
- Feb 2018: System operational

What's Required after Public Hearing

- Board will be asked to make findings as required by Government Code section 4217.10 et seq.:
 - That the terms of the contract are in the best interests of the District; and
 - That the anticipated cost to the district for electrical energy provided by the energy conservation facility under the contract will be less than the anticipated marginal cost to the district of electrical energy that would have been consumed by the district in the absence of those purchases.
- Board will be asked to approve the Solar Power & Services Agreement for each school site

Appendix

Slides from May 22, 2017 Board Presentation

Solar Project Update

LASD Board of Trustees

May 22, 2017

Selection Process for Solar Provider

- District sent RFP to over 2 dozen companies
- 7 responses; short-listed 3 companies to interview
- Conducted interviews on May 9
- Terra Verde (consultant to LASD) followed up interviews with Q & A with top 2 candidates and reference checking
- Based on price and all other factors, District has selected **Forefront Power** as top choice
- Next Step: Negotiate contract terms

Overview

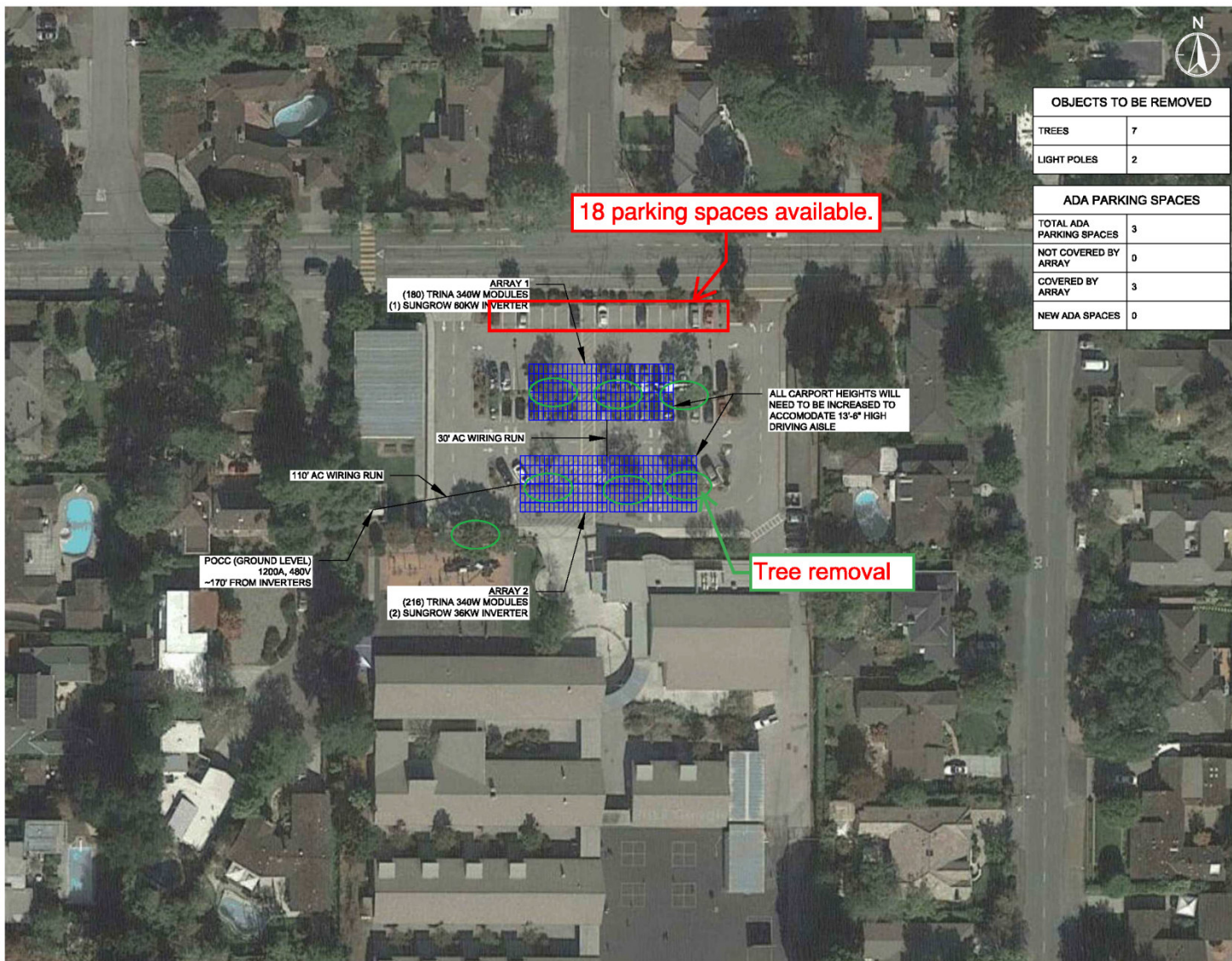
- Power Purchase Agreement
- Proposed solar arrays would generate 85%+ of annual electricity needed (based on current consumption)
- Mitigations needed to address impacts
 - Parking lots: traffic patterns will change and impact surrounding neighborhoods
 - Tree removal: replacements may be needed
- Outreach needed: parents, neighbors, community
- Other Benefits: Electric charging stations

Costs & Savings

- Rate per kWh: \$0.149
- Cash Equivalent Price: \$6.35M
- Annual Payments: \$337,317 (no escalation)
- Year 6 Purchase Price: \$3.4M (est.)
- Estimated Annual Savings: \$150,000 - \$200,000

Source of Funds

- No Measure N funds being used for this project
- District pays utility bill to 3rd party provider
 - Estimated payments less than current bills, so 150 – 200k estimated savings
 - Payments come from General Fund (general operating budget)



OBJECTS TO BE REMOVED	
TREES	7
LIGHT POLES	2

ADA PARKING SPACES	
TOTAL ADA PARKING SPACES	3
NOT COVERED BY ARRAY	0
COVERED BY ARRAY	3
NEW ADA SPACES	0



ForeFront Power LLC
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PROJECT DETAILS

PROJECT #	CA-17-0067
PORTFOLIO NAME	LOS ALTOS USD
SITE NAME	ALMOND ES
SITE ADDRESS	650 ALMOND AVE LOS ALTOS, CA 94022
LATITUDE/LONGITUDE	37°23'04.36" N 122°06'04.47" W

SYSTEM DETAILS

DC SYSTEM SIZE	134.84 KW
AC SYSTEM SIZE	132.90 KW
CEC-AC SIZE	121.97 KW

PHOTOVOLTAIC MODULES

MANUFACTURER	TRINA SOLAR
MODEL	TSM-PD14 (II) 340W
TOTAL MODULES	396

INVERTERS

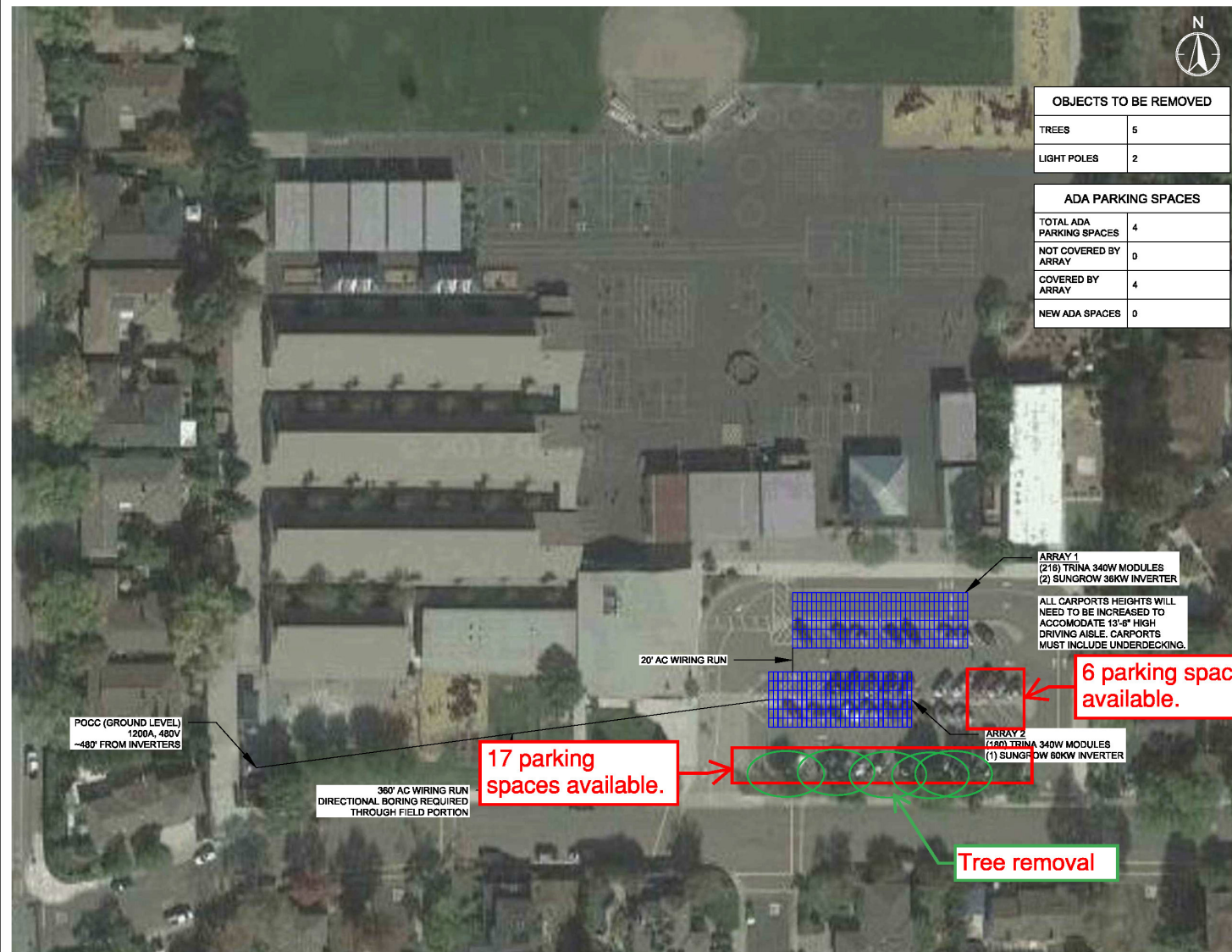
MANUFACTURER	SUNGROW
MODEL	SG38KU / SG60KU-M
TOTAL INVERTERS	2 / 1

RACKING

TYPE	CARPORT
TILT	7°
AZIMUTH	180°

SHEET INFORMATION

DATE	4/19/2017
DESIGNER	SV
SCALE	1/8" = 1'-0"
SHEET NO.	CL-1



OBJECTS TO BE REMOVED	
TREES	5
LIGHT POLES	2

ADA PARKING SPACES	
TOTAL ADA PARKING SPACES	4
NOT COVERED BY ARRAY	0
COVERED BY ARRAY	4
NEW ADA SPACES	0



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PROJECT DETAILS

PROJECT #	CA-17-0073
PORTFOLIO NAME	LOS ALTOS USD
SITE NAME	SPRINGER ES
SITE ADDRESS	1120 ROSE AVE MOUNTAIN VIEW, CA 94040
LATITUDE/LONGITUDE	37°22'16.79" N 122°05'40.33" W

SYSTEM DETAILS

DC SYSTEM SIZE	134.84 KW
AC SYSTEM SIZE	132.00 KW
CEC-AC SIZE	121.97 KW

PHOTOVOLTAIC MODULES

MANUFACTURER	TRINA SOLAR
MODEL	TSM-PD14 (II) 340W
TOTAL MODULES	386

INVERTERS

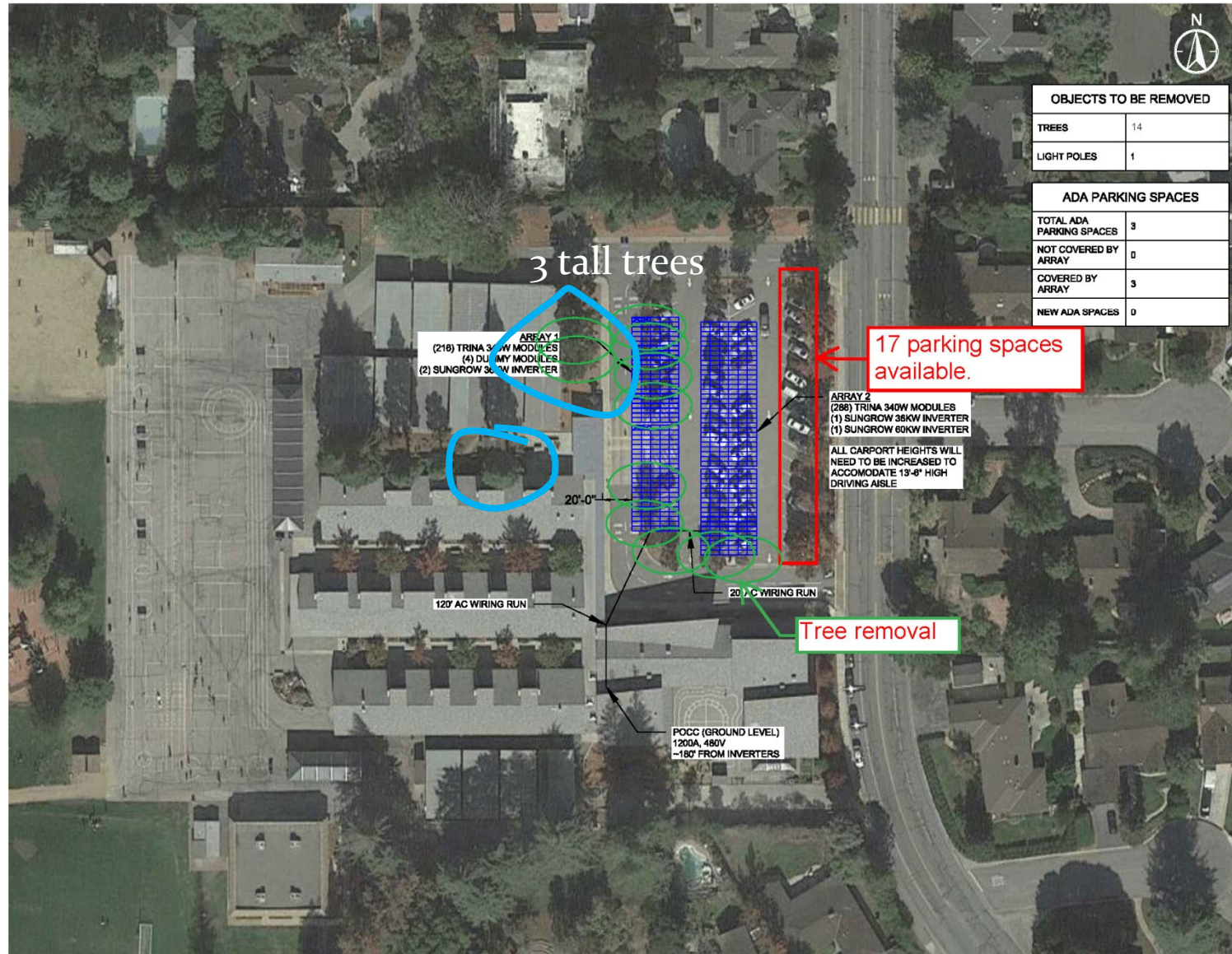
MANUFACTURER	SUNGROW
MODEL	SG38KU / SG60KU-M
TOTAL INVERTERS	2 / 1

RACKING

TYPE	CARPORT
TILT	7°
AZIMUTH	180°

SHEET INFORMATION

DATE	4/20/2017
DESIGNER	SV
SCALE	1/64" = 1'-0"
SHEET NO.	CL-1



OBJECTS TO BE REMOVED	
TREES	14
LIGHT POLES	1

ADA PARKING SPACES	
TOTAL ADA PARKING SPACES	3
NOT COVERED BY ARRAY	0
COVERED BY ARRAY	3
NEW ADA SPACES	0



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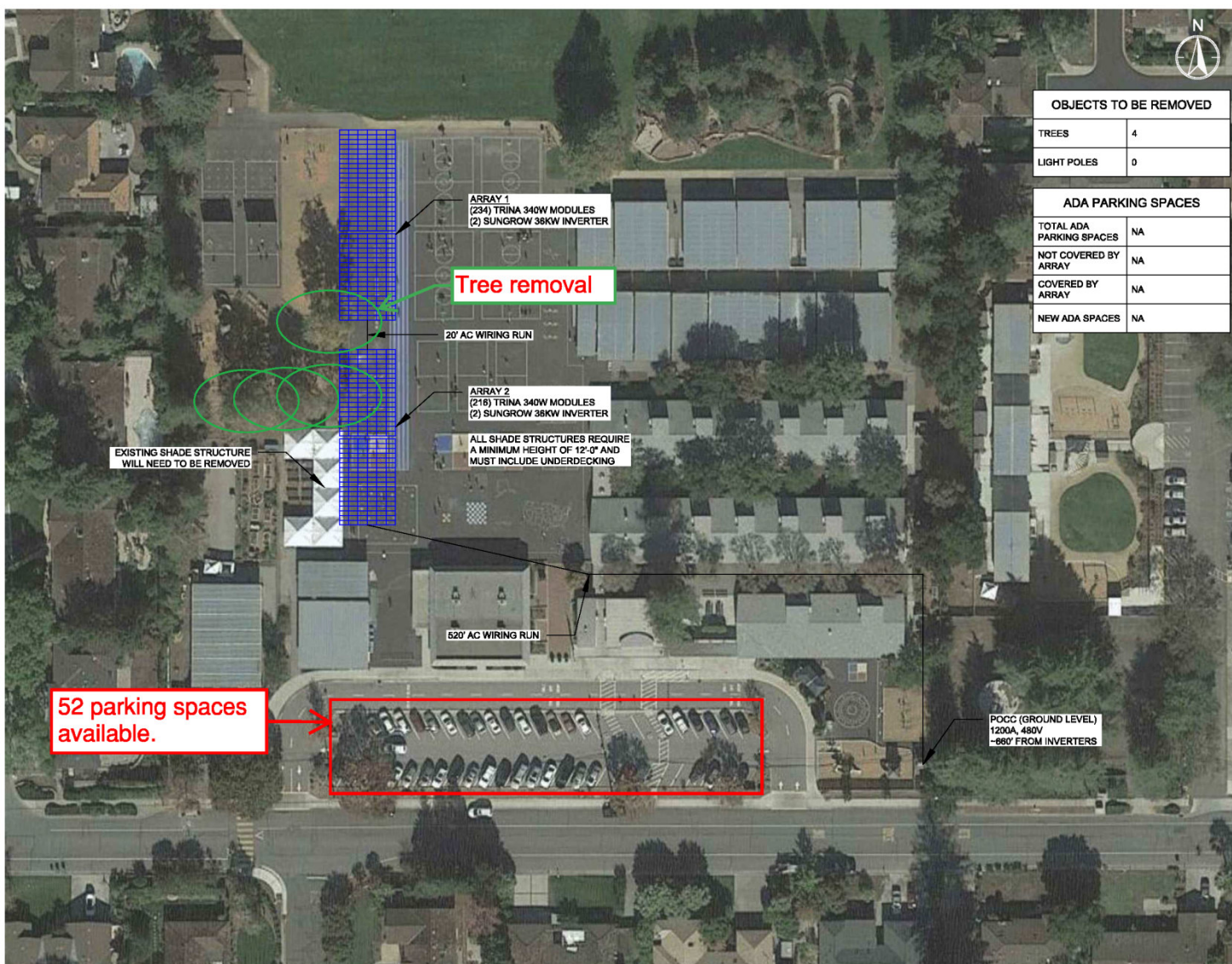
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	A	B
1	PROJECT DETAILS	
2	PROJECT #	CA-17-0072
3	PORTFOLIO NAME	LOS ALTOS USD
4	SITE NAME	SANTA RITA ES
5	SITE ADDRESS	700 LOS ALTOS AVE LOS ALTOS, CA 94022
6	LATITUDE/LONGITUDE	37°23'38.33" N 122°07'22.25" W


SYSTEM DETAILS	
DC SYSTEM SIZE	171.38 KW
AC SYSTEM SIZE	168.00 KW
CEC-AC SIZE	165.24 KW
PHOTOVOLTAIC MODULES	
MANUFACTURER	TRINA SOLAR
MODEL	TSM-PD14 (1) 340W
TOTAL MODULES	504
INVERTERS	
MANUFACTURER	SUNGROW
MODEL	SG36KU / SG60KU-M
TOTAL INVERTERS	3 / 1
RACKING	
TYPE	CARPORT
TILT	7°
AZIMUTH	270°

SHEET INFORMATION	
DATE	5/10/2017
DESIGNER	CRG
SCALE	1/64" = 1'-0"
SHEET NO.	CL-1



OBJECTS TO BE REMOVED	
TREES	4
LIGHT POLES	0

ADA PARKING SPACES	
TOTAL ADA PARKING SPACES	NA
NOT COVERED BY ARRAY	NA
COVERED BY ARRAY	NA
NEW ADA SPACES	NA



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PROJECT DETAILS

PROJECT #	CA-17-0071
PORTFOLIO NAME	LOS ALTOS USD
SITE NAME	OAK ES
SITE ADDRESS	1501 OAK AVE LOS ALTOS, CA 94024
LATITUDE/LONGITUDE	37°21'27.25" N 122°04'17.78" W

SYSTEM DETAILS

DC SYSTEM SIZE	153.00 KW
AC SYSTEM SIZE	144.00 KW
CEC-AC SIZE	138.60 KW

PHOTOVOLTAIC MODULES

MANUFACTURER	TRINA SOLAR
MODEL	TSM-PD14 (II) 340W
TOTAL MODULES	450

INVERTERS

MANUFACTURER	SUNGROW
MODEL	SG36KU
TOTAL INVERTERS	4

RACKING

TYPE	SHADE STRUCTURE
TILT	7°
AZIMUTH	270°


SHEET INFORMATION

DATE	4/20/2017
DESIGNER	SV
SCALE	1/8" = 1'-0"
SHEET NO.	CL-1



OBJECTS TO BE REMOVED	
TREES	8
LIGHT POLES	1

ADA PARKING SPACES	
TOTAL ADA PARKING SPACES	3
NOT COVERED BY ARRAY	0
COVERED BY ARRAY	3
NEW ADA SPACES	0



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PROJECT DETAILS

PROJECT #	CA-17-0070
PORTFOLIO NAME	LOS ALTOS USD
SITE NAME	LOYOLA ES
SITE ADDRESS	770 BERRY AVE LOS ALTOS, CA 94024
LATITUDE/LONGITUDE	37°21'38.03" N 122°05'35.11" W

SYSTEM DETAILS

DC SYSTEM SIZE	148.88 KW
AC SYSTEM SIZE	132.90 KW
CEC-AC SIZE	133.06 KW

PHOTOVOLTAIC MODULES

MANUFACTURER	TRINA SOLAR
MODEL	TSM-PD14 (II) 340W
TOTAL MODULES	432

INVERTERS

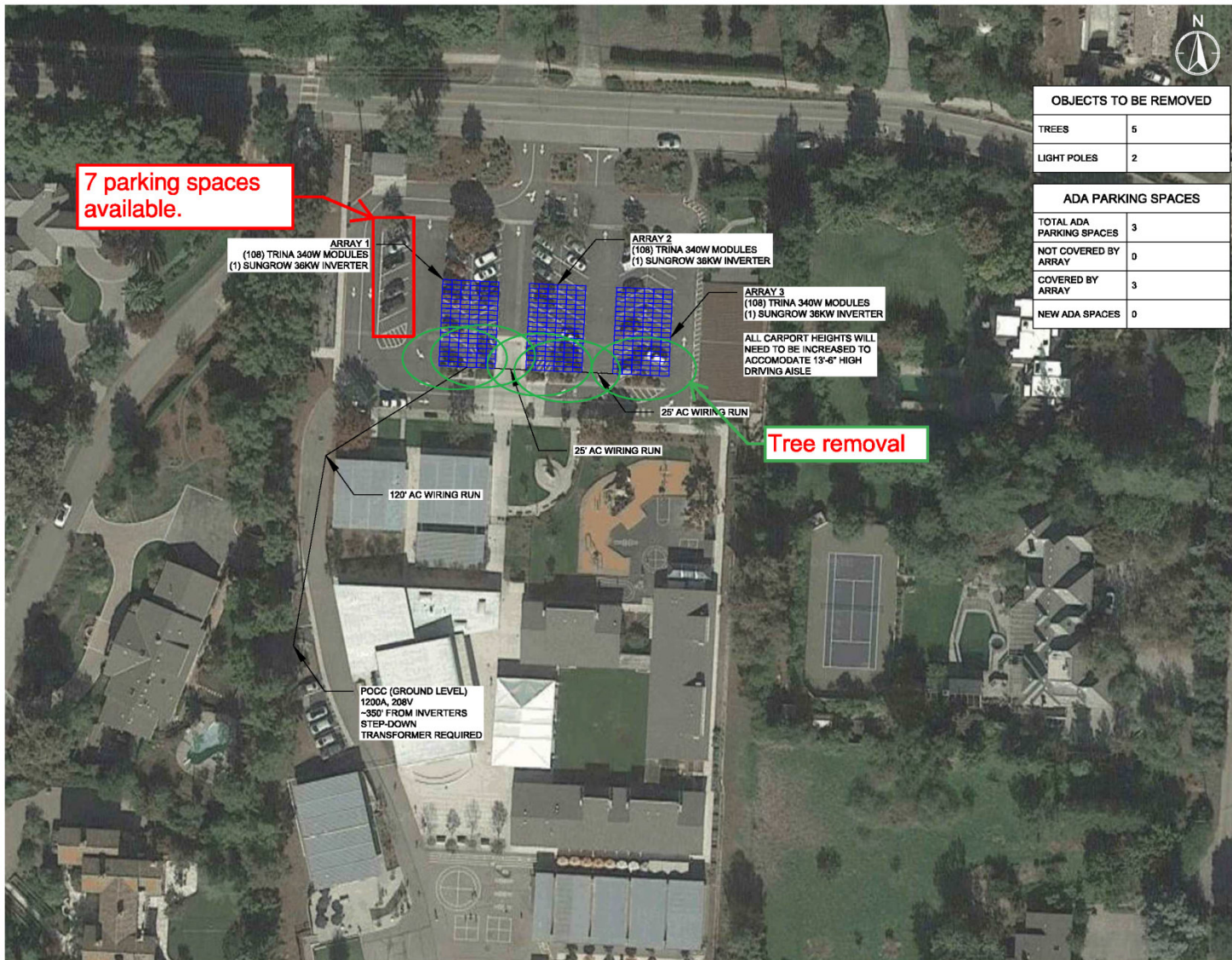
MANUFACTURER	SUNGROW
MODEL	SG38KU / SG60KU-M
TOTAL INVERTERS	2 / 1

RACKING

TYPE	CARPORT
TILT	7°
AZIMUTH	180°


SHEET INFORMATION

DATE	4/21/2017
DESIGNER	SV
SCALE	1/8" = 1'-0"
SHEET NO.	CL-1



OBJECTS TO BE REMOVED	
TREES	5
LIGHT POLES	2

ADA PARKING SPACES	
TOTAL ADA PARKING SPACES	3
NOT COVERED BY ARRAY	0
COVERED BY ARRAY	3
NEW ADA SPACES	0



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PROJECT DETAILS

PROJECT #	CA-17-0069
PORTFOLIO NAME	LOS ALTOS USD
SITE NAME	GARDNER BULLIS ES
SITE ADDRESS	25880 FREMONT RD LOS ALTOS, CA 94022
LATITUDE/LONGITUDE	37°22'53.70" N 122°07'48.41" W

SYSTEM DETAILS

DC SYSTEM SIZE	110.16 KW
AC SYSTEM SIZE	108.90 KW
CEC-AC SIZE	99.80 KW

PHOTOVOLTAIC MODULES

MANUFACTURER	TRINA SOLAR
MODEL	TSM-PD14 (II) 340W
TOTAL MODULES	324

INVERTERS

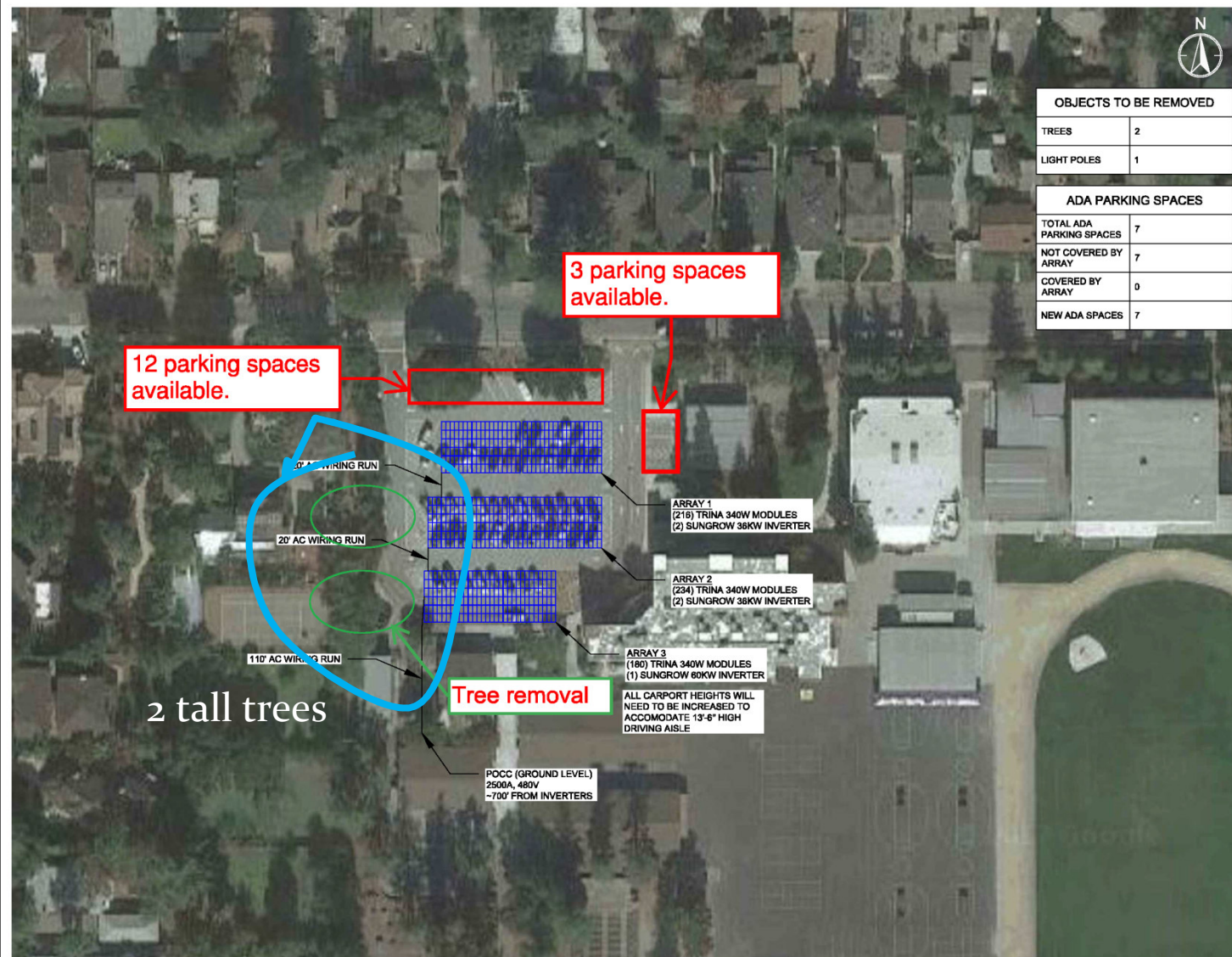
MANUFACTURER	SUNGROW
MODEL	SG38KU
TOTAL INVERTERS	3

RACKING

TYPE	CARPORT
TILT	7°
AZIMUTH	93°

SHEET INFORMATION

DATE	4/19/2017
DESIGNER	SV
SCALE	1/64" = 1'-0"
SHEET NO.	CL-1



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PROJECT DETAILS

PROJECT #	CA-17-0075
PORTFOLIO NAME	LOS ALTOS USD
SITE NAME	EGAN JHS
SITE ADDRESS	100 WEST PORTOLA AVE LOS ALTOS, CA 94022
LATITUDE/LONGITUDE	37°23'44.82" N 122°0'00.75" W

SYSTEM DETAILS

DC SYSTEM SIZE	214.20 KW
AC SYSTEM SIZE	204.00 KW
CEC-AC SIZE	194.05 KW

PHOTOVOLTAIC MODULES

MANUFACTURER	TRINA SOLAR
MODEL	TSM-PD14 (II) 340W
TOTAL MODULES	630

INVERTERS

MANUFACTURER	SUNGROW
MODEL	SG36KU / SG60KU-M
TOTAL INVERTERS	4 / 1

RACKING

TYPE	CARPORT
TILT	7°
AZIMUTH	180°

SHEET INFORMATION

DATE	5/5/2017
DESIGNER	SV
SCALE	1/8" = 1'-0"
SHEET NO.	CL-1



OBJECTS TO BE REMOVED	
TREES	5
LIGHT POLES	4

ADA PARKING SPACES	
TOTAL ADA PARKING SPACES	4
NOT COVERED BY ARRAY	0
COVERED BY ARRAY	4
NEW ADA SPACES	0



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PROJECT DETAILS

PROJECT #	CA-17-0068
PORTFOLIO NAME	LOS ALTOS USD
SITE NAME	COVINGTON ES
SITE ADDRESS	201 COVINGTON RD LOS ALTOS, CA 94024
LATITUDE/LONGITUDE	37°22'17.62" N 122°06'25.46" W

SYSTEM DETAILS

DC SYSTEM SIZE	214.20 KW
AC SYSTEM SIZE	204.00 KW
CEC-AC SIZE	194.05 KW

PHOTOVOLTAIC MODULES

MANUFACTURER	TRINA SOLAR
MODEL	TSM-PD14 (II) 340W
TOTAL MODULES	630

INVERTERS

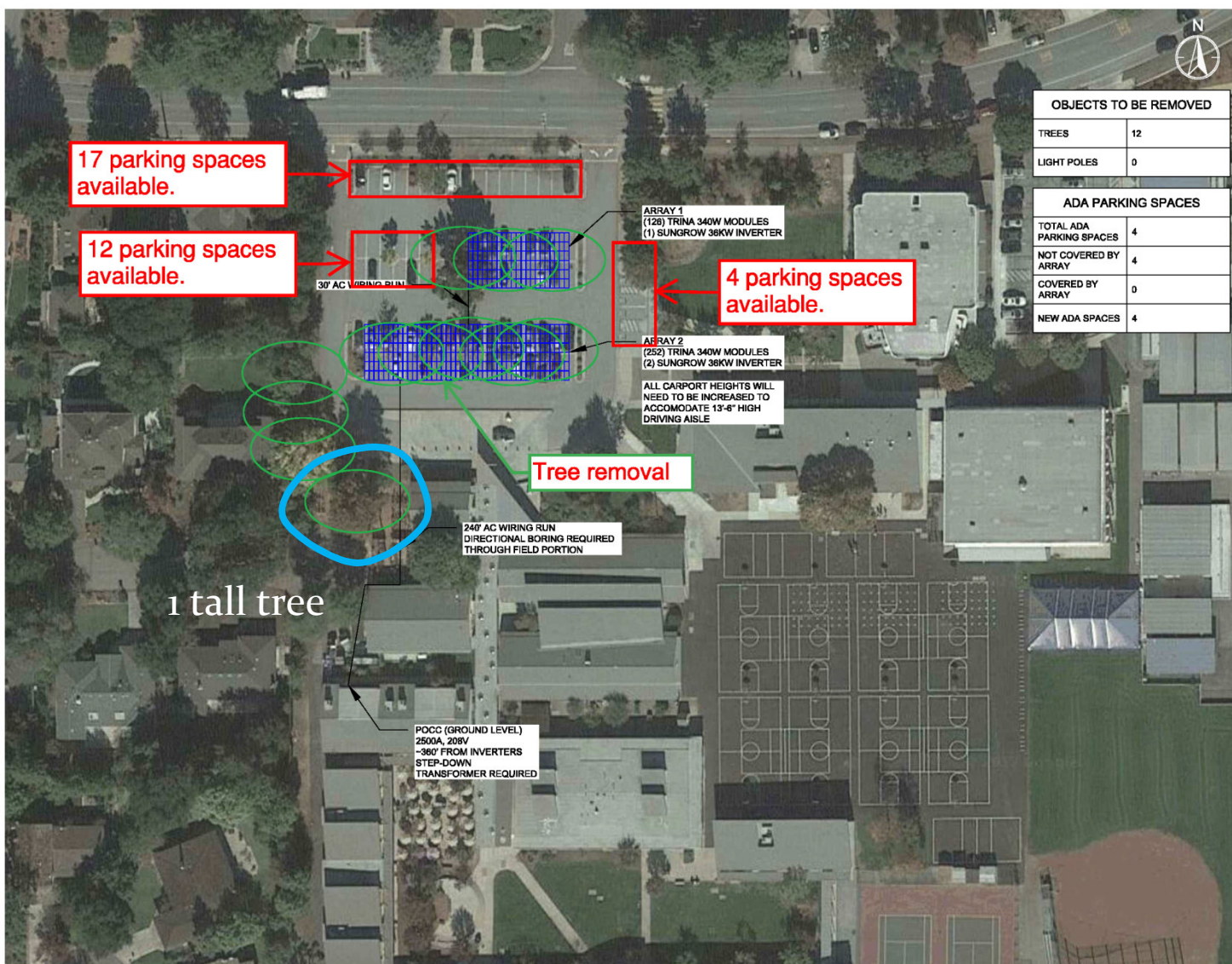
MANUFACTURER	SUNGROW
MODEL	SG38KU / SG60KU-M
TOTAL INVERTERS	4 / 1

RACKING

TYPE	CARPORT
TILT	7°
AZIMUTH	180°

SHEET INFORMATION

DATE	4/19/2017
DESIGNER	SV
SCALE	1/8" = 1'-0"
SHEET NO.	CL-1



OBJECTS TO BE REMOVED	
TREES	12
LIGHT POLES	0

ADA PARKING SPACES	
TOTAL ADA PARKING SPACES	4
NOT COVERED BY ARRAY	4
COVERED BY ARRAY	0
NEW ADA SPACES	4



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PROJECT DETAILS

PROJECT #	CA-17-0074
PORTFOLIO NAME	LOS ALTOS USD
SITE NAME	BLACH JHS
SITE ADDRESS	1120 COVINGTON RD LOS ALTOS, CA 94024
LATITUDE/LONGITUDE	37°21'52.24" N 122°04'58.28" W

SYSTEM DETAILS

DC SYSTEM SIZE	128.52 KW
AC SYSTEM SIZE	108.90 KW
CEC-AC SIZE	116.43 KW

PHOTOVOLTAIC MODULES

MANUFACTURER	TRINA SOLAR
MODEL	TSM-PD14 (II) 340W
TOTAL MODULES	378

INVERTERS

MANUFACTURER	SUNGROW
MODEL	SG38KU
TOTAL INVERTERS	3

RACKING

TYPE	CARPORT
TILT	7°
AZIMUTH	180°

SHEET INFORMATION

DATE	4/21/2017
DESIGNER	SV
SCALE	1/8" = 1'-0"
SHEET NO.	CL-1