Community Planning & Permitting (CPP)

Courthouse Annex - 2045 13th Street - Boulder, Colorado 80302 - (303) 441-3930 - Fax 303-441-4856
Mailing Address: Post Office Box 471 - Boulder, Colorado 80306 **www.bouldercounty.org**

MEMORANDUM

TO: **Agencies, Adjacent Property Owners And Interested Parties**

FROM: **Jonathan Tardif, Planner I**

SUBJECT: **Request to waive Site Plan Review at 8829 MARATHON ROAD, UNINCORPORATED, CO 80503**

DOCKET: **SPRW-22-0053: Stone Ground Mount Solar**

DATE: **11/04/2022**

The purpose of this memorandum is to inform interested parties that the above listed address is under consideration by the CPP Director for a waiver from the Site Plan Review process for:

Site Plan Review Waiver for construction of a ground-mounted solar array on a 1.03-acre parcel.

The Site Plan Review (SPR) regulations allow for certain types of minor projects, which are likely to be less impacting, to be waived from the full SPR process that would normally be required to approve their construction. These projects are eligible for an expedited review called the "Site Plan Review Waiver (SPRW)," during which the SPR standards are analyzed in a shorter timeframe.

Accessory ground-mounted solar energy systems (as defined by Art. 4-516.G of the Land Use Code) and roof-mounted wind-powered energy systems (as defined by Art. 4-516.P of the Land Use Code), which are proposed to exceed the roofline or zoning district by more than five feet (but no more than 15 feet), are subject to the Site Plan Review Waiver process in order to analyze, in particular, any significant adverse visual impacts on neighboring private and public property.

Waivers from SPR may be granted if the CPP Department does not find the proposal to be in conflict with the standards listed in Article 4-806 of the Boulder County Land Use Code. However, the SPRW determination may include written terms and conditions. The project, even if granted a waiver, is subject to the applicable building permit and building code requirements.

Article 4-802(C) requires that adjacent property owners be notified of the request to waive SPR. The CPP Department appreciates any comments that you may have regarding this proposal. Please direct any written or verbal comments to the CPP Department by **11/14/2022**. If you have any questions or comments, feel free to contact this office at **planner@bouldercounty.org** or **(303) 441-3930**.

cc: STONE CHRISTOPHER W & SUSAN J, Property Owner
Nicholas Hirsch, Agent

Boulder County Land Use Department

Courthouse Annex Building
2045 13th Street • PO Box 471 • Boulder, Colorado 80302
Phone: 303-441-3930
Email: planner@bouldercounty.org
Web: www.bouldercounty.org/lu
Office Hours: Mon., Wed., Thurs., Fri. 8 a.m. to 4:30 p.m.
Tuesday 10 a.m. to 4:30 p.m.

Shaded Areas for Staff Use Only
Intake Stamp

Planning Application Form

The Land Use Department maintains a submittal schedule for accepting applications. Planning applications are accepted on Mondays, by appointment only. Please call 303-441-3930 to schedule a submittal appointment.

Project Number	Project Name

❑ Appeal	❑ Modification of Site Plan Review	❑ Road Name Change	❑ Special Use (Oil & Gas development)
❑ Correction Plat	❑ Modification of Special Use	❑ Road/Easement Vacation	❑ State Interest Review (1041)
❑ Exemption Plat	❑ Preliminary Plan	❑ Site Plan Review	❑ Subdivision Exemption
❑ Final Plat	❑ Resubdivision (Replat)	❑ Site Plan Review Waiver	❑ Variance
❑ Limited Impact Special Use	❑ Rezoning	❑ Sketch Plan	☒ Other: Ground Mounted Solar
❑ Limited Impact Special Use Waiver		❑ Special Use/SSDP	
❑ Location and Extent			

Location(s)/Street Address(es)	8829 Marathon Road			
Subdivision Name				
Lot(s)	Block(s)	Section(s)	Township(s)	Range(s)
Area in Acres	Existing Zoning	Existing Use of Property		Number of Proposed Lots
Proposed Water Supply		Proposed Sewage Disposal Method		

Applicants:

Applicant/Property Owner	Christopher Stone		Email chrisstone579@gmail.com
Mailing Address	8829 Marathon Road		
City Longmont	State CO	Zip Code 80503	Phone 303-589-2778
Applicant/Property Owner/Agent/Consultant	No Problem Electric		Email permitting@rocketsolarcolorado.com
Mailing Address	6975 Hwy 66		
City Platteville	State CO	Zip Code 80651	Phone 320-761-2899

Agent/Consultant			Email
Mailing Address			
City	State	Zip Code	Phone

Certification (Please refer to the Regulations and Application Submittal Package for complete application requirements.)

I certify that I am signing this Application Form as an owner of record of the property included in the Application. I certify that the information and exhibits I have submitted are true and correct to the best of my knowledge. I understand that all materials required by Boulder County must be submitted prior to having this matter processed. I understand that public hearings or meetings may be required. I understand that I must sign an Agreement of Payment for Application processing fees, and that additional fees or materials may be required as a result of considerations which may arise in the processing of this docket. I understand that the road, school, and park dedications may be required as a condition of approval.

I understand that I am consenting to allow the County Staff involved in this application or their designees to enter onto and inspect the subject property at any reasonable time, without obtaining any prior consent.

All landowners are required to sign application. If additional space is needed, attach additional sheet signed and dated.

Signature of Property Owner	Printed Name Christopher Stone	Date 8/16/2022
Signature of Property Owner	Printed Name	Date

The Land Use Director may waive the landowner signature requirement for good cause, under the applicable provisions of the Land Use Code.

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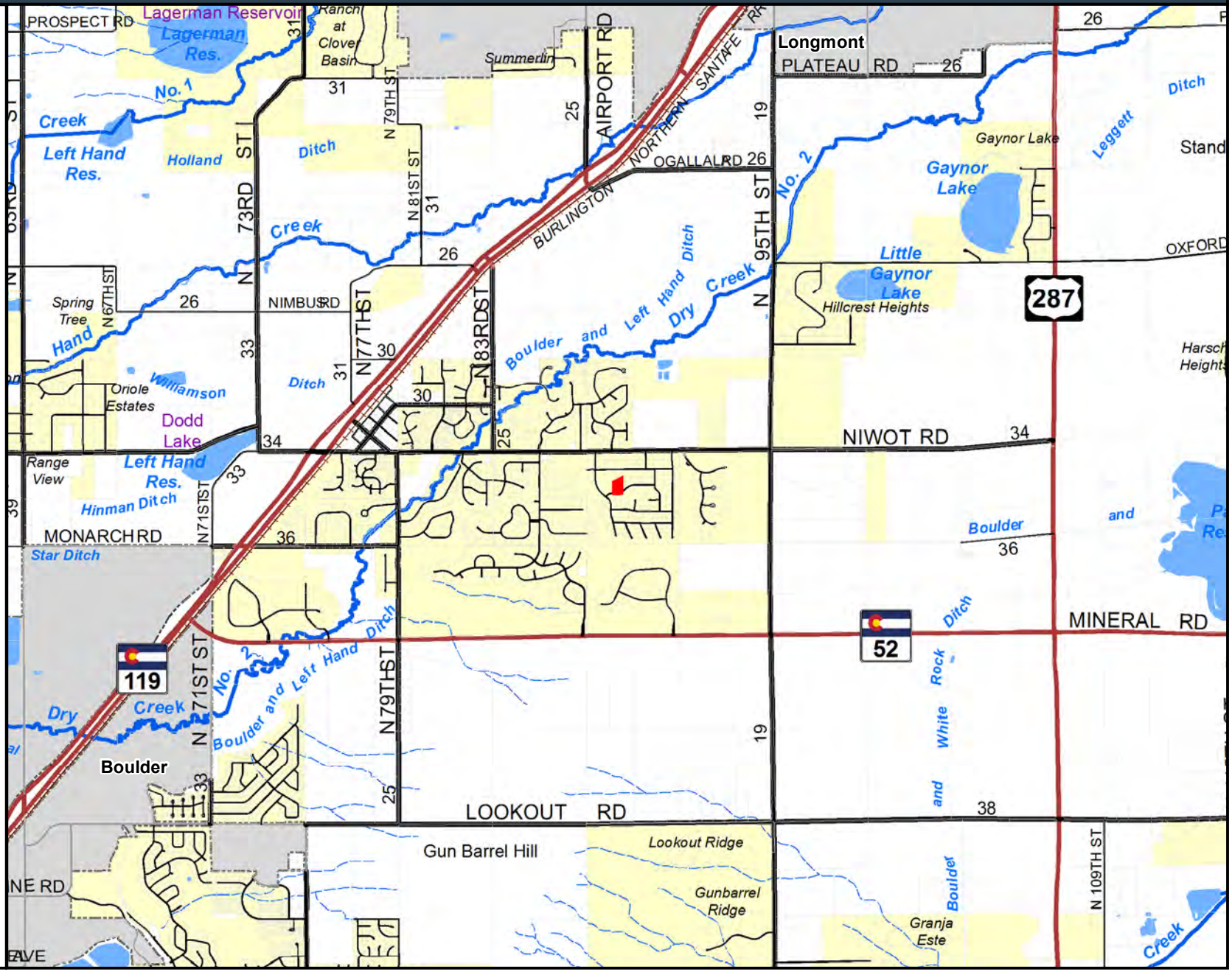
Vicinity

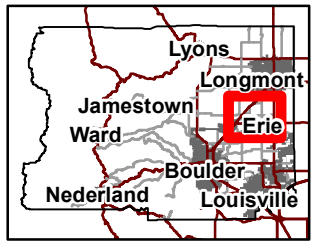
8829 MARATHON RD



0 0.35 0.7 Miles

North

Area of Detail Date: 11/1/2022



joryan

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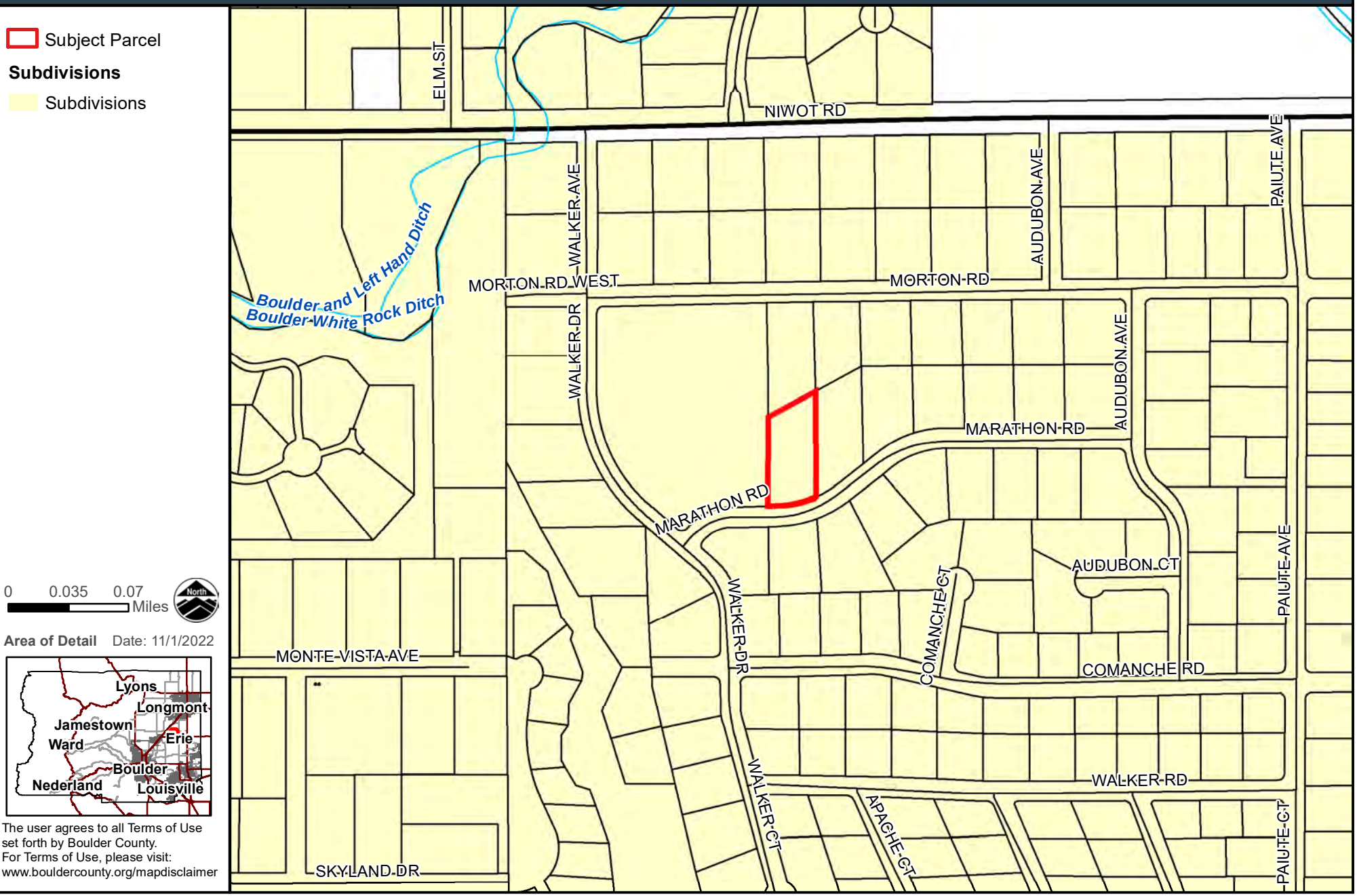
Location

8829 MARATHON RD



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Aerial

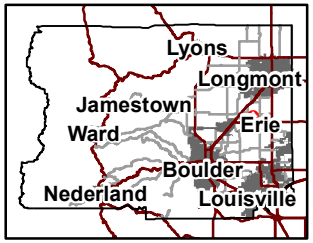
8829 MARATHON RD

Subject Parcel

0 0.005 0.01 Miles

North

Area of Detail Date: 11/1/2022



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Aerial

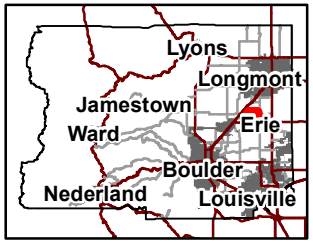
8829 MARATHON RD

Subject Parcel

0 0.05 0.1 Miles

North

Area of Detail Date: 11/1/2022



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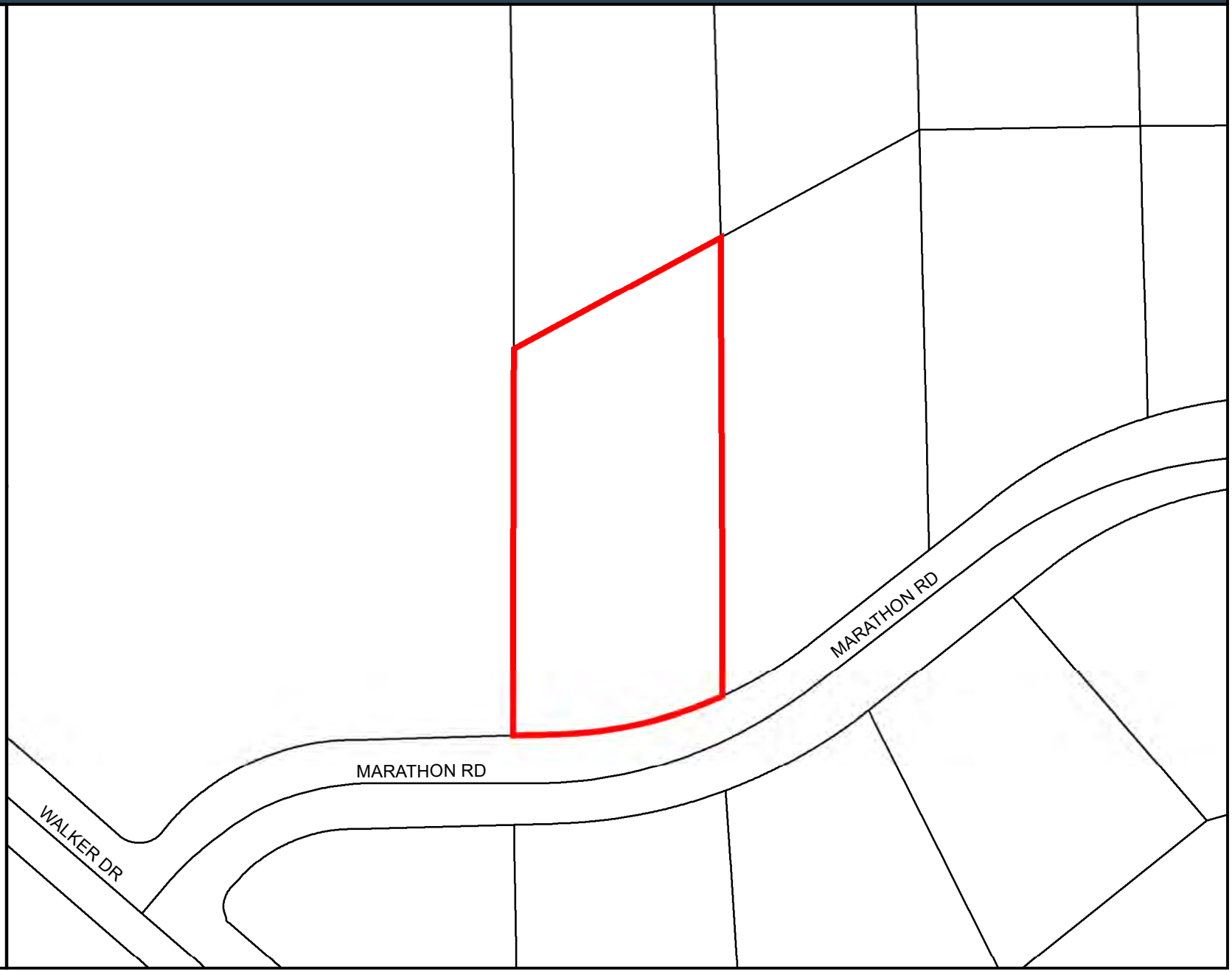
Comprehensive Plan

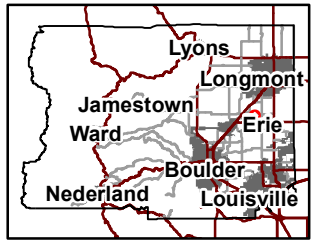
8829 MARATHON RD



0 0.0085 0.017 Miles

North

Area of Detail Date: 11/1/2022



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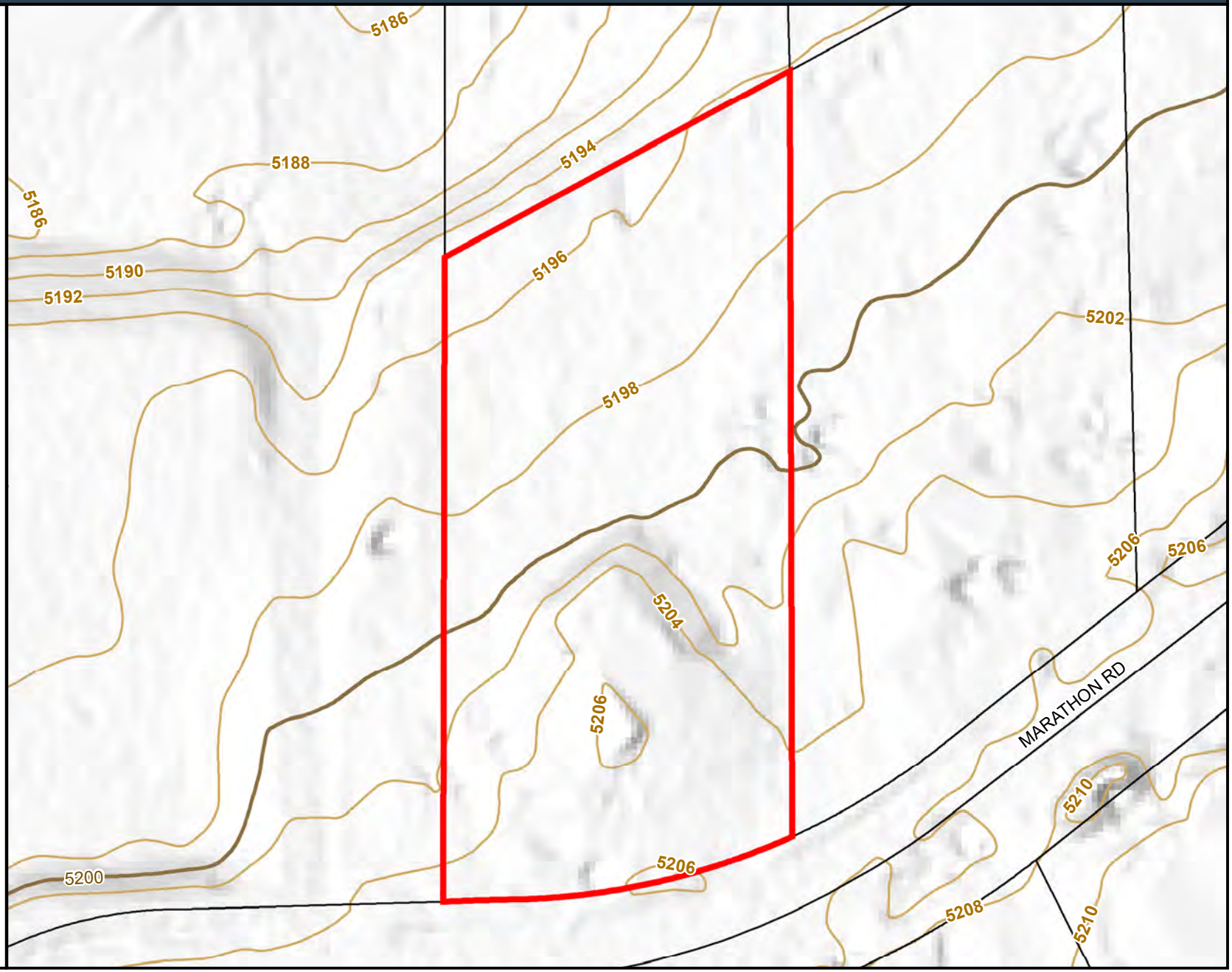
Elevation Contours

8829 MARATHON RD



0 0.005 0.01 Miles

North

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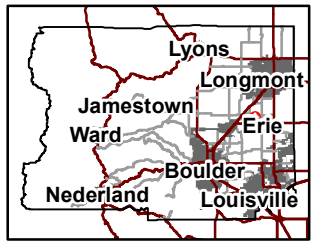

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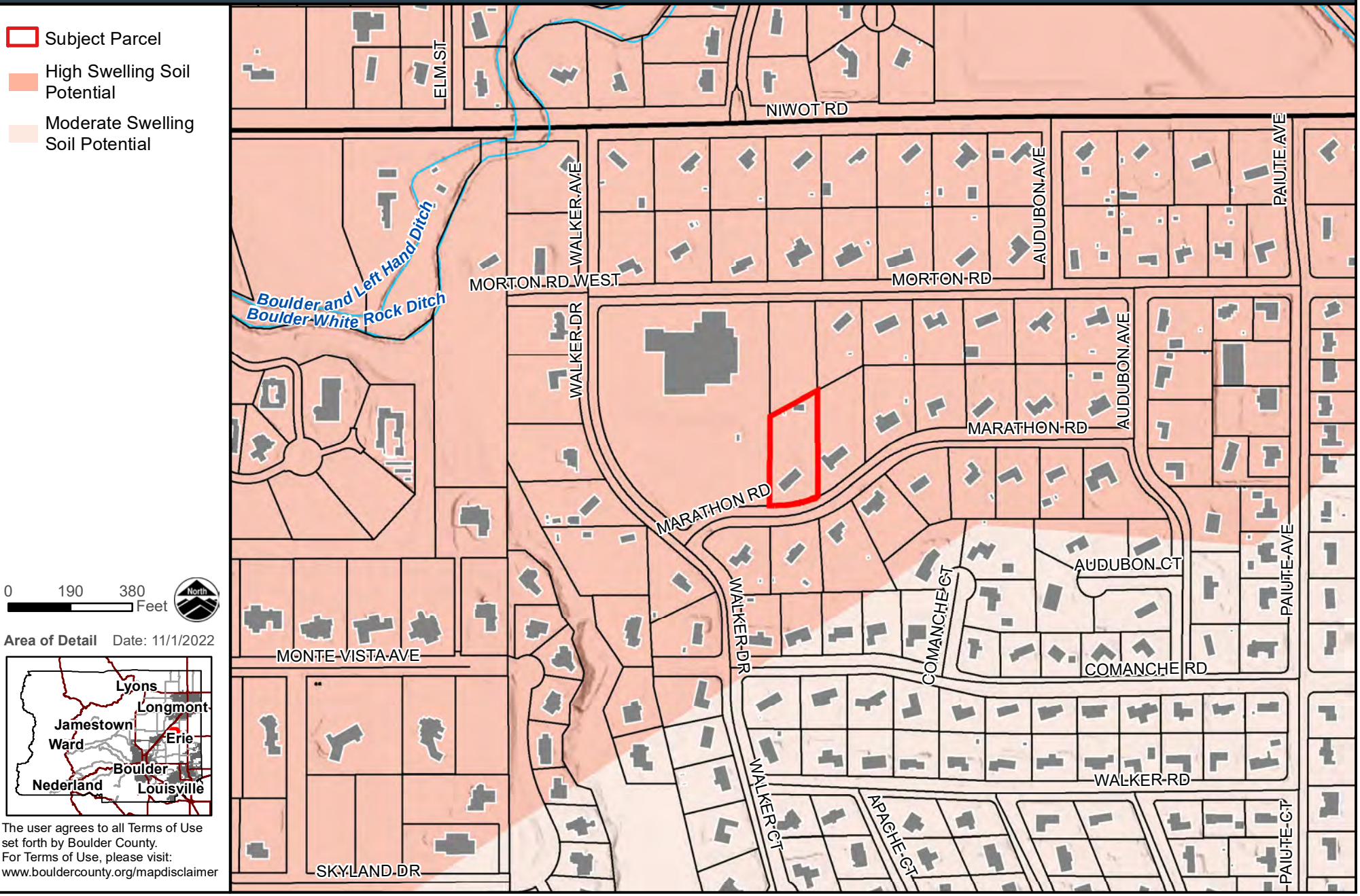
Geologic Hazards

8829 MARATHON RD



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Public Lands & CEs

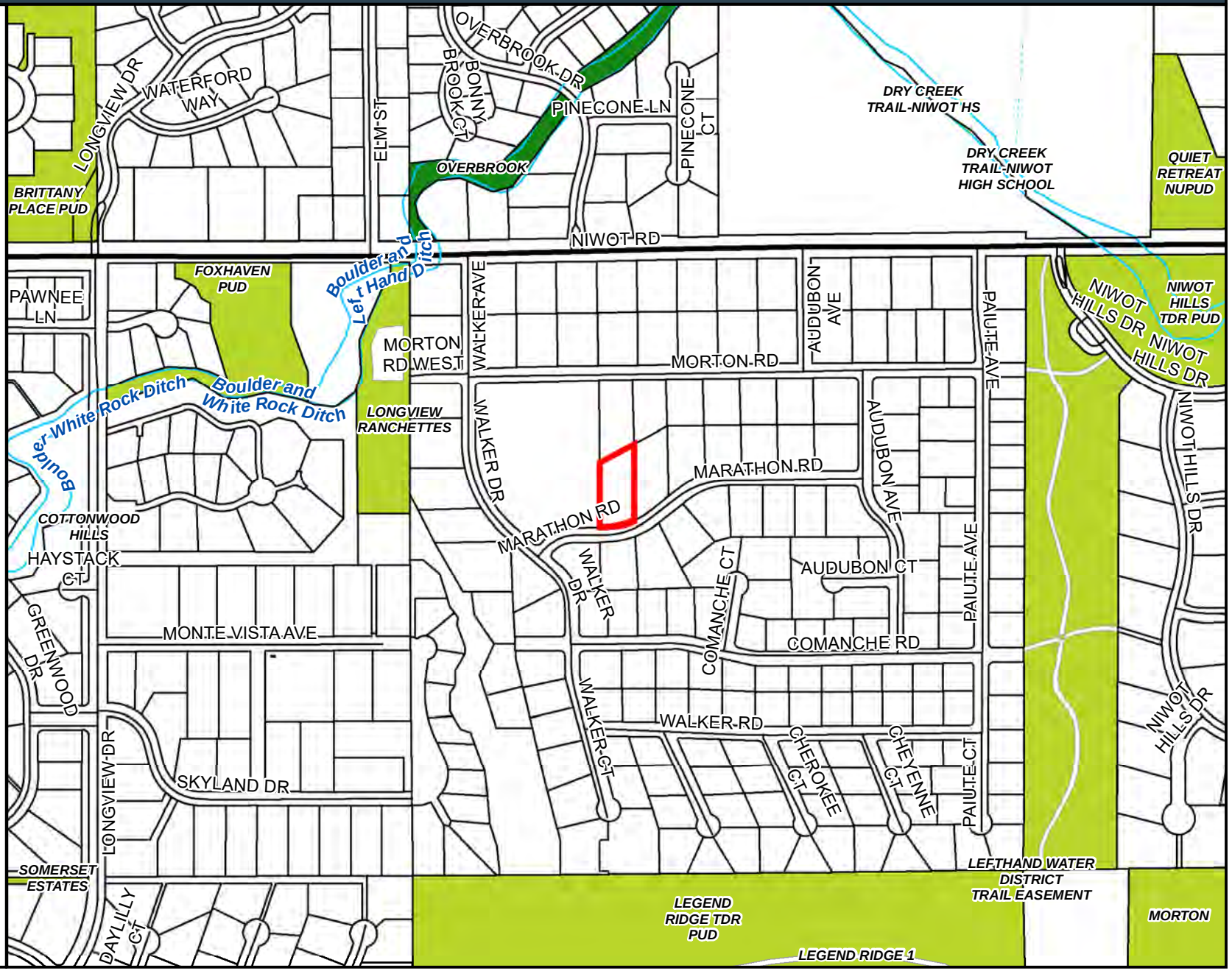
8829 MARATHON RD

Subject Parcel

Boulder County Open Space

County Open Space

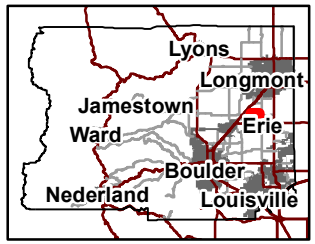
County Conservation Easement



0 0.05 0.1 Miles

North

Area of Detail Date: 11/1/2022



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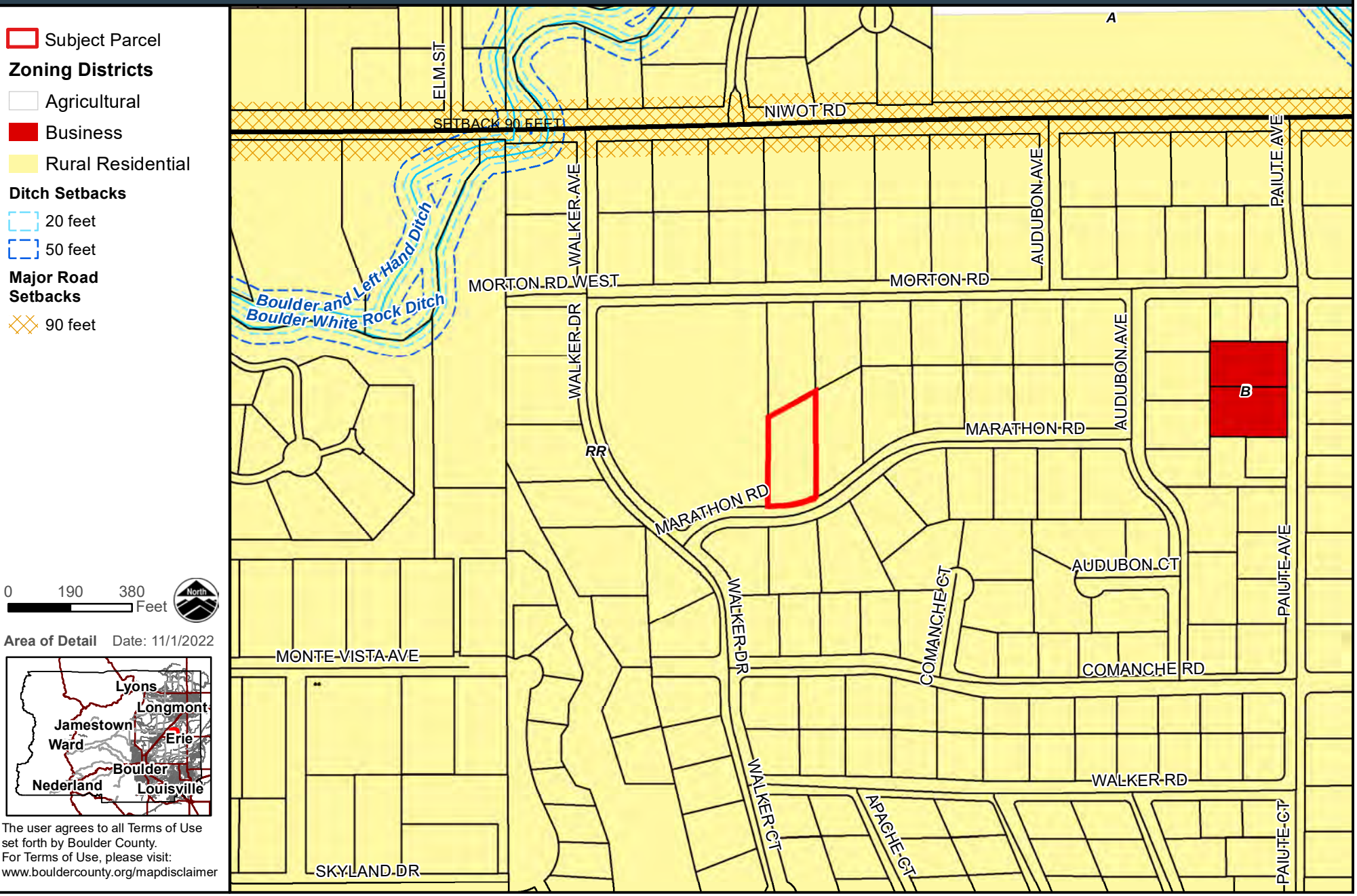
Zoning

8829 MARATHON RD



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AERIAL VIEW:

STREET VIEW:

GENERAL NOTES

1. INSTALLATION OF SOLAR PHOTOVOLTAIC SYSTEM SHALL BE IN ACCORDANCE WITH NEC ARTICLE 690, AND ALL OTHER APPLICABLE NEC CODES WHERE NOTED OR EXISTING.
2. PROPER ACCESS AND WORKING CLEARANCE AROUND EXISTING AND PROPOSED ELECTRICAL EQUIPMENT WILL COMPLY WITH NEC ARTICLE 110.
3. ALL WIRES, INCLUDING THE GROUNDING ELECTRODE CONDUCTOR SHALL BE PROTECTED FROM PHYSICAL DAMAGE IN ACCORDANCE WITH NEC ARTICLE 250
4. THE PV MODULES ARE CONSIDERED NON-COMBUSTIBLE; THIS SYSTEM IS UTILITY INTERACTIVE PER UL 1741
5. ALL DC WIRES SHALL BE SIZED ACCORDING TO [NEC 690.8]
6. DC CONDUCTORS SHALL BE WITHIN PROTECTED RACEWAYS IN ACCORDANCE WITH [NEC 690.31]
7. ALL SIGNAGE TO BE PLACED IN ACCORDANCE WITH LOCAL JURISDICTIONAL BUILDING CODE.

PHOTOVOLTAIC (PV) SYSTEM SPECIFICATIONS

EQUIPMENT:
AC SYSTEM SIZE: 6.96 kW AC
DC SYSTEM SIZE: 8.64 kW DC
(24) Silfab SIL-360 NX mono PERC PV MODULES
(24) Enphase IQ8PLUS-72-2-US INVERTER(S)
(1) Enphase Encharge 10 BATTERIES
RACKING: GROUND MOUNT

APPLICABLE GOVERNING CODES

2020 NEC
2015 IRC
2015 IFC
2015 IBC

SITE SPECIFICATIONS

OCCUPANCY: R-3
ZONING: RESIDENTIAL

ROCKET SOLAR
Saving Energy at Rocket Speed.

CONTRACTOR INFORMATION:
No Problem Electric Corp.
6975 HWY 66
Platteville, CO 80651
License # EC.0100746

SITE INFORMATION

Christopher Stone
8829 Marathon Rd
Longmont, CO 80503
AC SYSTEM SIZE: 6.96 kW AC
DC SYSTEM SIZE: 8.64 kW DC
Lat, 40.099011072655
Long, -105.147033304382
(24) Silfab SIL-360 NX mono PERC PV MODULES
(24) Enphase IQ8PLUS-72-2-US INVERTER(S)
XCEL Energy CO

SHEET INDEX:

DRAWN BY: SoloCAD

DATE:
May 30, 2022

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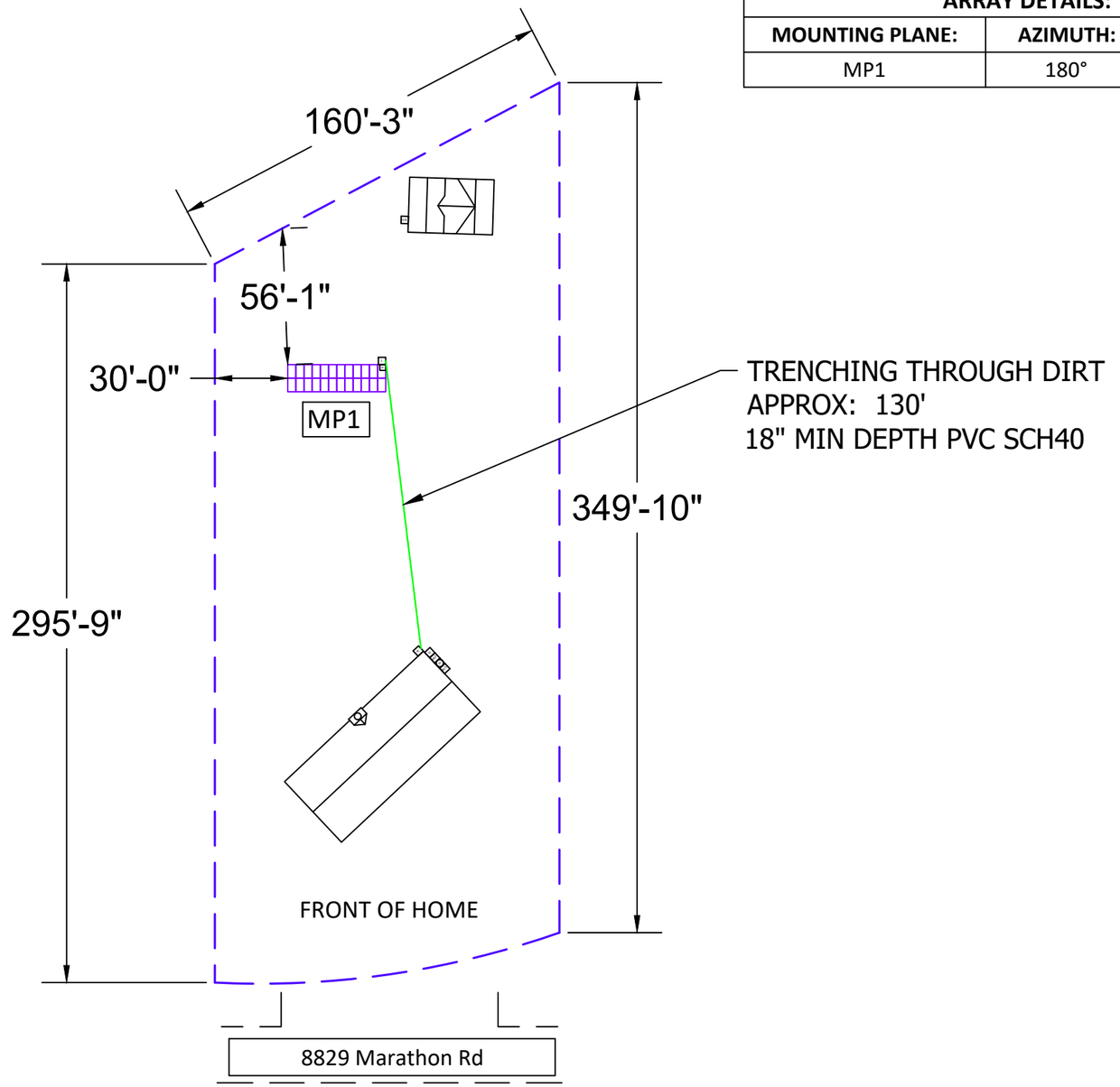

ARRAY DETAILS:		
MOUNTING PLANE:	AZIMUTH:	TILT:
MP1	180°	35°

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(24) Enphase IQ8PLUS-72-2-US INVERTER(S)

XCEL Energy CO

EQUIPMENT LEGEND:

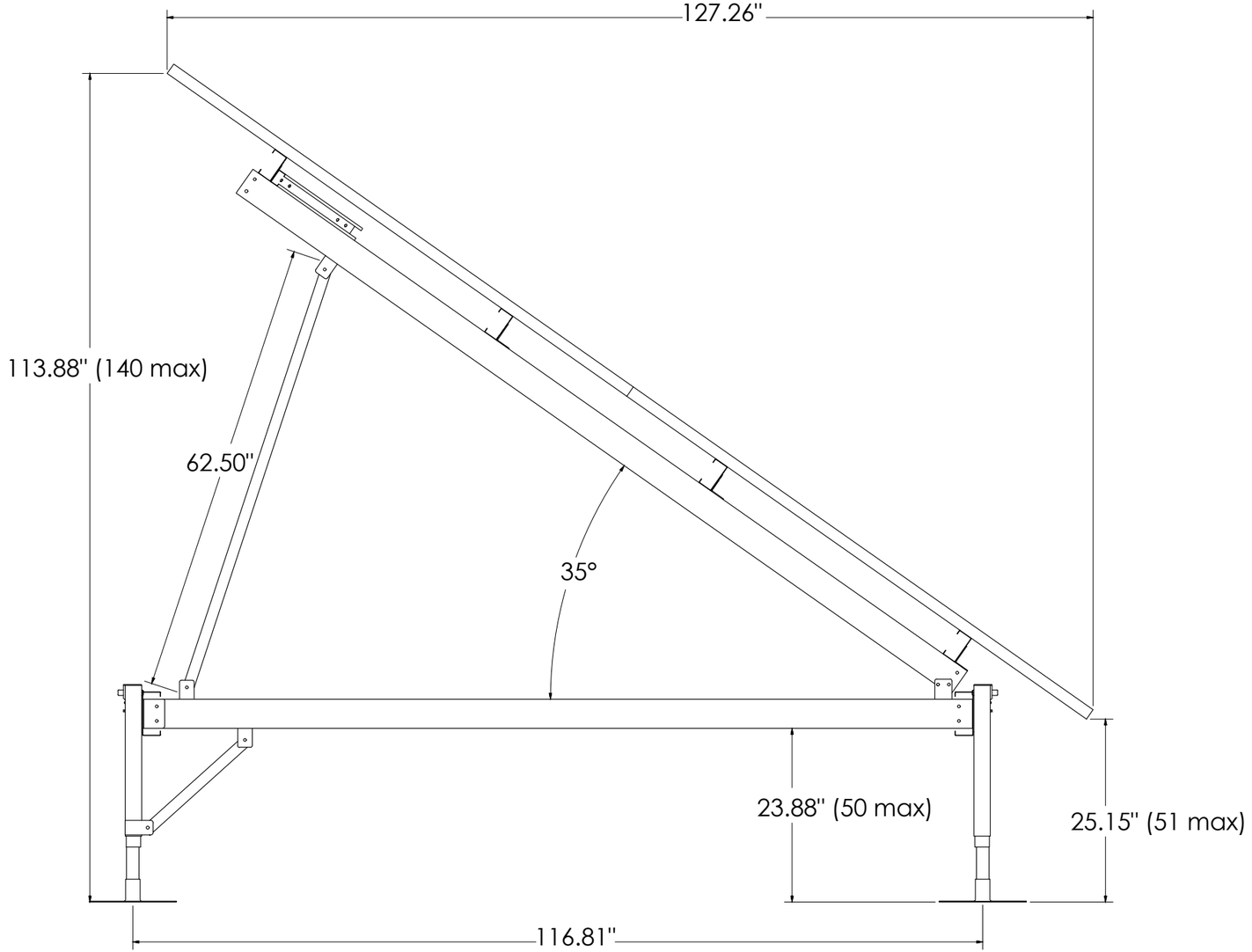
- M — UTILITY METER
- MSP — MAIN SERVICE PANEL
- AC — VISIBLE, LOCKABLE, LABELED AC DISCONNECT
- PV — METER SOCKET (FOR UTILITY PV METER)
- INV — INVERTER
- C — COMBINER BOX
- SUB — SUB PANEL
- LC — LOAD CENTER
- FIRE ACCESS PATHWAY (3' TYP)
- PROPERTY LINE
- BATT — BATTERY(IES)

VISIBLE, LOCKABLE, LABELED AC DISCONNECT LOCATED WITHIN 10' OF UTILITY METER

DRAWN BY: SoloCAD

DATE: May 30, 2022

SITE PLAN - PV02



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(24) Enphase IQ8PLUS-72-2-US INVERTER(S)

XCEL Energy CO

DRAWN BY: SoloCAD

DATE:
May 30, 2022

ROOF ATTACHMENTS - PV03

1. Select a location on the Rear Chassis for a grounding lug to be installed.

2. Drill a through hole in the back of the Rear Chassis and install an ILSCO GBL-4DBT or other UL and cETL listed lay-in grounding lug. Refer to Figure 21 below.

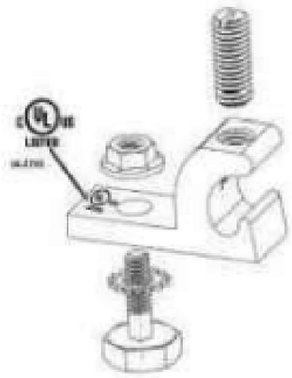
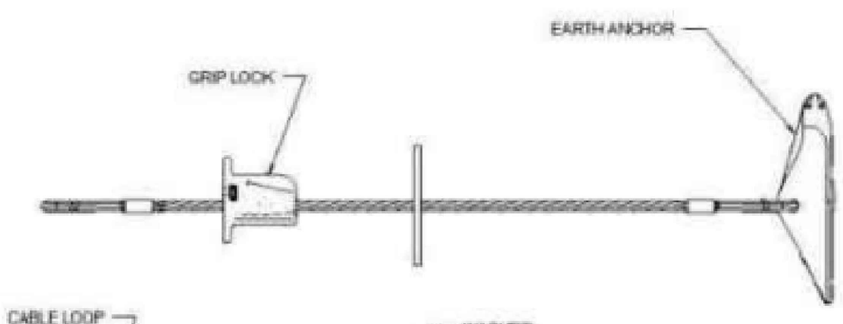
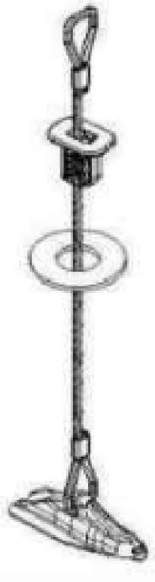
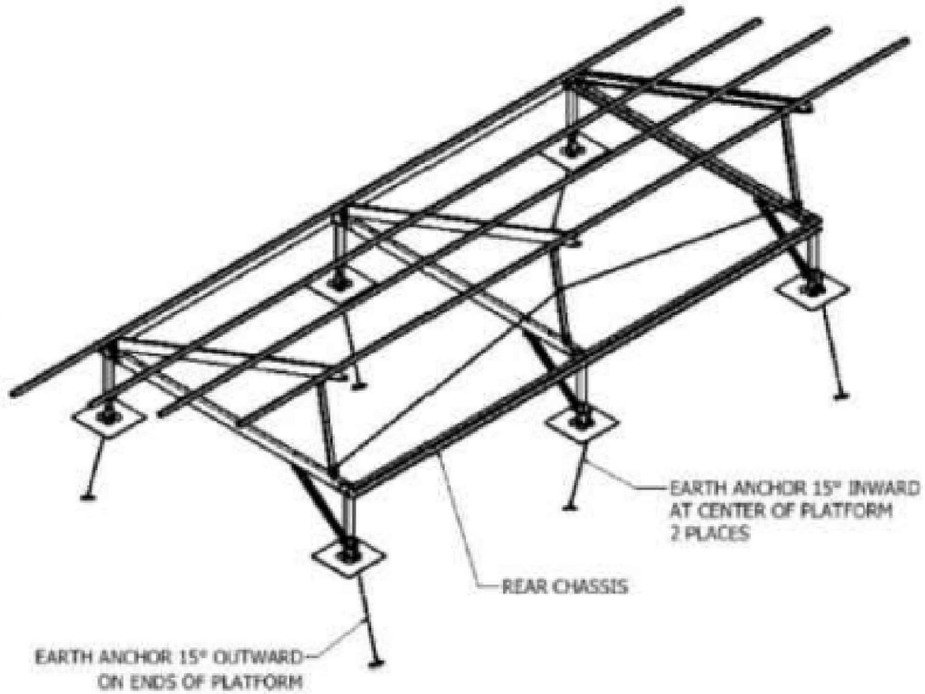


Figure 21: ILSCO GBL-4DBT GROUNDING LUG







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(24) Enphase IQ8PLUS-72-2-US INVERTER(S)

XCEL Energy CO

DRAWN BY: SoloCAD

DATE:
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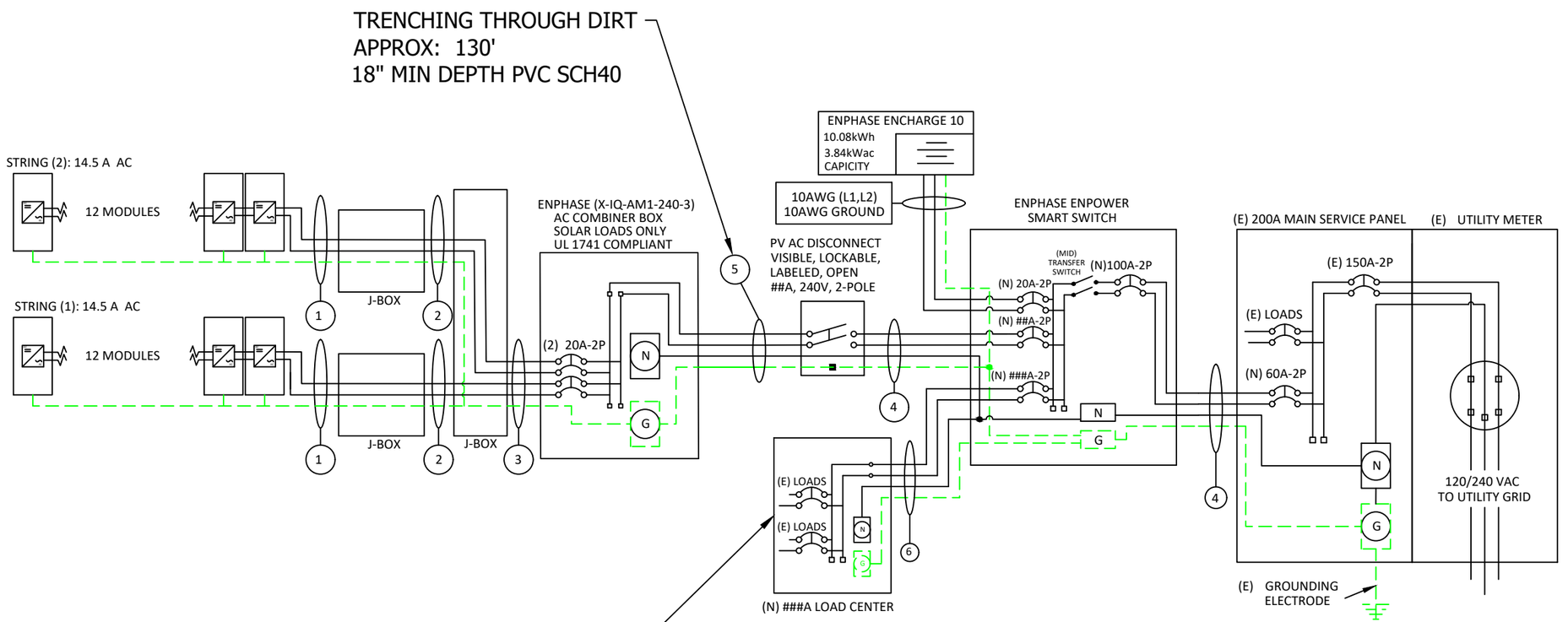
MOUNTING DETAIL - PV04

Silfab SIL-360 NX mono PERC Specs	
POWER MAX (PMAX):	360W
OPEN CIRCUIT VOLTAGE (VOC):	40.4V
MAX POWER-POINT CURRENT (IMP):	7.8A
MAX POWER-POINT VOLTAGE (VMP):	33.1V
SHORT CIRCUIT CURRENT (ISC):	8.2A
SERIES FUSE RATING:	20A

Enphase IQ8PLUS-72-2-US Specs	
MAX INPUT VOLTAGE:	60 V
MAX DC SHORT CIRCUIT CURRENT:	15 A
MAXIMUM OUTPUT POWER:	290 W
MAXIMUM OUTPUT CURRENT:	1.21 A
NOM. OUTPUT VOLTAGE:	240 V
MAX UNITS PER 20A CIRCUIT:	13
1-Phase, 60 HZ, UL 1741 Listed	

Equipment Schedule			
TYPE:	QTY:	DESCRIPTION:	RATING:
MODULES:	(24)	Silfab SIL-360 NX mono PERC	360 W
INVERTERS:	(24)	Enphase IQ8PLUS-72-2-US	290 W
AC DISCONNECT(S):	(1)	PV AC DISCONNECT, 240V, 2-POLE	60A
ENERGY STORAGE:	(1)	Enphase Encharge 10	10.5 kWh

Conduit & Conductor Schedule				
TAG	QTY	WIRE GAUGE	DESCRIPTION	CONDUIT SIZE
1	(2)	12-2	TC-ER, THWN-2, COPPER (L1, L2)	N/A - FREE AIR
	(1)	6 AWG	BARE, COPPER (GROUND)	
2	(2)	10 AWG	THWN-2, or THHN COPPER - (L1, L2)	3/4" EMT
	(1)	10 AWG	THWN-2, or THHN COPPER - (GROUND)	
3	(4)	10 AWG	THHN/THWN-2, COPPER - (L1, L2)	3/4" EMT
	(1)	10 AWG	THHN/THWN-2 - (GROUND)	
4	(3)	6 AWG	THWN-2 COPPER - (L1, L2, NEUTRAL)	3/4" EMT
	(1)	10 AWG	THWN-2 COPPER - (GROUND)	
5	(3)	6 AWG	THWN-2 COPPER - (L1,L2,NEUTRAL)	1.5" PVC
	(1)	10 AWG	THWN-2 COPPER - (GROUND)	
6	(3)	2 AWG	THWN-2 COPPER - (L1,L2,NEUTRAL)	1.25" EMT
	(1)	8 AWG	THWN-2 COPPER - (GROUND)	



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LOCATED WITHIN 10'
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XCEL Energy CO

DRAWN BY: SoloCAD

DATE:
May 30, 2022

LINE DIAGRAM - PV05

STRING CALCULATIONS		
Enphase IQ8PLUS-72-2-US	STRING #1	STRING #2
OPTIMIZER MAX OUTPUT CURRENT:	14.520000A	14.520000A
OPTIMIZERS IN SERIES:	12	12
NOMINAL STRING VOLTAGE:	240V	240V
ARRAY OPERATING CURRENT:	3480A	3480A
ARRAY DC POWER:	8640W	
TOTAL MAX AC CURRENT:	29.040000A	

NUMBER OF CURRENT CARRYING CONDUCTORS	PERCENT OF VALUES
4-6	.80
7-9	.70
10-20	.50

SYSTEM OCPD CALCULATIONS	
INVERTER MODEL(S):	Enphase IQ8PLUS-72-2-US
# OF INVERTERS:	24
MAX OUTPUT CURRENT:	1.21A
(# OF INVERTERS) X (MAX OUTPUT CURRENT) X 125% <= OCPD RATING	
(24 X 1.21 A X 1.25) = 36.3A <= 40A, OK	

BUSBAR CALCULATIONS - 120% RULE	
MAIN BUSBAR RATING:	200A
MAIN DISCONNECT RATING:	150A
BACKFEED BREAKER RATING:	40A (PV) + 20A (BATTERY) = 60A
(MAIN BUS RATING X 120%) - MAIN DISCONNECT RATING >= OCPD RATING	
(200A X 1.2) - 150A = 90A, >= 60A, OK	

Conduit & Conductor Schedule

TAG	QTY	WIRE GAUGE	DESCRIPTION	CONDUIT SIZE	CONDUCTOR RATING	CONDUCTOR TEMP. RATE	AMBIENT TEMP	TEMP. DERATE	# OF CONDUCTORS DERATE	CONDUCTOR RATING W/DERATES	CONDUIT FILL
1	(2)	12-2	TC-ER, THWN-2, COPPER (L1, L2)	N/A - FREE AIR	30A	90°C	34°C	0.96	N/A - FREE AIR	28.8A	N/A - FREE AIR
	(1)	6 AWG	BARE, COPPER (GROUND)								
2	(2)	10 AWG	THWN-2, or THHN COPPER - (L1, L2)	3/4" EMT	40A	90°C	34°C	0.96	1	38.4A	11.9%
	(1)	10 AWG	THWN-2 COPPER - (GROUND)								
3	(4)	10 AWG	THHN/THWN-2, COPPER - (L1, L2)	3/4" EMT	40A	90°C	34°C	0.96	0.8	30.72A	19.8%
	(1)	10 AWG	THWN-2 COPPER - (GROUND)								
4	(3)	6 AWG	THWN-2 COPPER - (L1, L2, NEUTRAL)	3/4" EMT	65A	75°C	34°C	0.96	1	62.4A	32.6%
	(1)	10 AWG	THWN-2 COPPER - (GROUND)								
5	(3)	6 AWG	THWN-2 COPPER - (L1,L2,NEUTRAL)	1.5" PVC	65A	75°C	34°C	0.96	1	62.4A	10.12%
	(1)	10 AWG	THWN-2 COPPER - (GROUND)								
6	(3)	2 AWG	THWN-2 COPPER - (L1,L2,NEUTRAL)	1.25" EMT	115A	75°C	34°C	0.96	1	110.4A	25.59%
	(1)	8 AWG	THWN-2 COPPER - (GROUND)								

GROUNDING & GENERAL NOTES:

1. PV INVERTER IS UNGROUNDED, TRANSFORMER-LESS TYPE.
2. DC GEC AND AC EGC TO BE SPLICED TO EXISTING ELECTRODE
3. ANY EXISTING WIRING INVOLVED WITH PV SYSTEM CONNECTION THAT IS FOUND TO BE INADEQUATE PER CODE SHALL BE CORRECTED PRIOR TO FINAL INSPECTION.
4. JUNCTION BOX QUANTITIES, AND PLACEMENT SUBJECT TO CHANGE IN THE FIELD - JUNCTION BOXES DEPICTED ON ELECTRICAL DIAGRAM REPRESENT WIRE TYPE TRANSITIONS.
5. AC DISCONNECT NOTED IN EQUIPMENT SCHEDULE OPTIONAL IF OTHER AC DISCONNECTING MEANS IS LOCATED WITHIN 10' OF SERVICE DISCONNECT.

INTERCONNECTION NOTES:

1. INTERCONNECTION SIZING, LIMITATIONS AND COMPLIANCE DETERMINED IN ACCORDANCE WITH [NEC 705.12] AND [NEC 690.64].
2. GROUND FAULT PROTECTION IN ACCORDANCE WITH [NEC 215.9], [NEC 230.95] AND [NEC 690.5]
3. ALL EQUIPMENT TO BE RATED FOR BACKFEEDING.
4. PV BREAKER TO BE POSITIONED AT THE OPPOSITE END OF THE BUSBAR RELATIVE TO THE MAIN BREAKER.

DISCONNECT NOTES

1. DISCONNECTING SWITCHES SHALL BE WIRED SUCH THAT WHEN THE SWITCH IS OPENED THE CONDUCTORS REMAINING LIVE ARE CONNECTED TO THE TERMINALS MARKED LINE SIDE (TYPICALLY THE UPPER TERMINALS)
2. AC DISCONNECT MUST BE ACCESSIBLE TO QUALIFIED UTILITY PERSONNEL, BE LOCKABLE AND BE A VISIBLE-BREAK SWITCH

ROCKET SOLAR
Saving Energy at Rocket Speed.

CONTRACTOR INFORMATION:

No Problem Electric Corp.
6975 HWY 66
Platteville, CO 80651
License # EC.0100746

SITE INFORMATION

Christopher Stone

8829 Marathon Rd

Longmont, CO 80503

AC SYSTEM SIZE: 6.96 kW AC

DC SYSTEM SIZE: 8.64 kW DC

Lat, 40.099011072655

Long, -105.147033304382

(24) Silfab SIL-360 NX mono PERC PV MODULES

(24) Enphase IQ8PLUS-72-2-US INVERTER(S)

XCEL Energy CO

DRAWN BY: SoloCAD

DATE:
May 30, 2022

ELECTRICAL CALCS - PV06

MAIN PHOTOVOLTAIC SYSTEM DISCONNECT

LABEL 1
PLACED ON THE MAIN DISCONNECTING MEANS FOR THE PV SYSTEM.
[NEC 690.13(B)]

⚠ WARNING
ELECTRIC SHOCK HAZARD
TERMINALS ON THE LINE AND LOAD SIDES MAY BE ENERGIZED IN THE OPEN POSITION

LABEL 2
FOR PV DISCONNECTING MEANS WHERE THE LINE AND LOAD TERMINALS MAY BE ENERGIZED IN THE OPEN POSITION.
[NEC 690.13(B)]

⚠ WARNING
POWER SOURCE OUTPUT CONNECTION. DO NOT RELOCATE THIS OVERCURRENT DEVICE.

LABEL 3
PLACED ADJACENT TO THE BACK-FED BREAKER FROM THE INVERTER IF TIE IN CONSISTS OF LOAD SIDE CONNECTION TO BUSBAR.
[NEC 705.12(B)(2)(3)(c)]

⚠ WARNING DUAL POWER SOURCE
SECOND SOURCE IS PHOTOVOLTAIC SYSTEM

LABEL 4
PLACED ON EQUIPMENT CONTAINING OVERCURRENT DEVICES IN CIRCUITS SUPPLYING POWER TO A BUSBAR OR CONDUCTOR SUPPLIED FROM MULTIPLE SOURCES
[NEC 705.10(C)]

⚠ WARNING
THIS EQUIPMENT IS FED BY MULTIPLE SOURCES. TOTAL RATING OF ALL OVERCURRENT DEVICES, EXCLUDING MAIN SUPPLY OVERCURRENT DEVICE, SHALL NOT EXCEED AMPACITY OF BUSBAR.

LABEL 5
EQUIPMENT CONTAINING OVERCURRENT DEVICES IN CIRCUITS SUPPLYING POWER TO A BUSBAR OR CONDUCTOR SUPPLIED FROM MULTIPLE SOURCES SHALL BE MARKED TO INDICATE THE PRESENCE OF ALL SOURCES.[NEC 705.12(B)(2)(3)(c)]

PHOTOVOLTAIC AC DISCONNECT
RATED AC OUTPUT CURRENT: 29
NOMINAL OPERATING AC VOLTAGE: 240

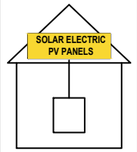
LABEL 6
MARKED AT AC DISCONNECTING MEANS.
[NEC 690.54]

PHOTOVOLTAIC POWER SOURCE

LABEL 7
AT DIRECT-CURRENT EXPOSED RACEWAYS, CABLE TRAYS, COVERS AND ENCLOSURES OF JUNCTION BOXES, AND OTHER WIRING METHODS; SPACED AT MAXIMUM 10FT SECTION OR WHERE SEPARATED BY ENCLOSURES, WALLS, PARTITIONS, CEILINGS, OR FLOORS.
[NEC 690.31(D)(2)]

SOLAR PV SYSTEM EQUIPPED WITH RAPID SHUTDOWN

TURN RAPID SHUTDOWN SWICH TO THE "OFF" POSITION TO SHUT DOWN PV SYSTEM AND REDUCE SHOCK HAZARD IN ARRAY



LABEL 8
FOR PV SYSTEMS THAT SHUT DOWN THE ARRAY AND CONDUCTORS LEAVING THE ARRAY:
SIGN TO BE LOCATED ON OR NO MORE THAN 3 FT AWAY FROM SERVICE DISCONNECTING MEANS TO WHICH THE PV SYSTEMS ARE CONNECTED AND SHALL INDICATE THE LOCATION OF ALL IDENTIFIED RAPID SHUTDOWN SWITCHES IF NOT AT THE SAME LOCATION.
[NEC 690.56(C)(1)(A)]

RAPID SHUTDOWN SWITCH FOR SOLAR PV SYSTEM

LABEL 9
SIGN LOCATED ON OR NO MORE THAN 3FT FROM INITIATION DEVICE
[NEC 690.56(C)(2)].

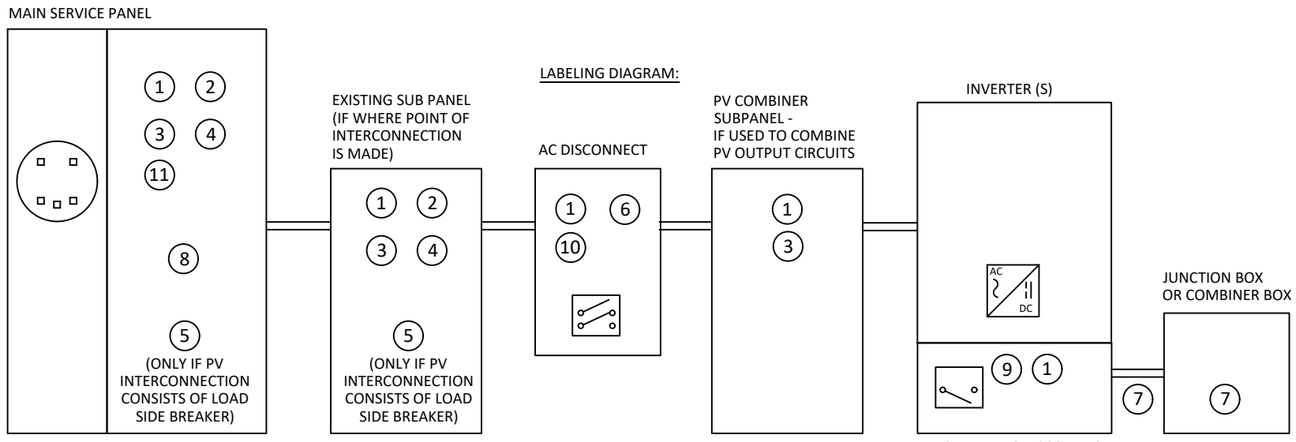
PV AC DISCONNECT

LABEL 10
PLACARD TO BE PLACED AT THE AC DISCONNECT.

PHOTOVOLTAIC SYSTEM CONNECTED

LABEL 11
PLACARD TO BE PLACED AT THE MAIN BILLING METER PER XCEL ENERGY.

LABELING DIAGRAM:



*ELECTRICAL DIAGRAM SHOWN ABOVE IS FOR LABELING PURPOSES ONLY. NOT AN ACTUAL REPRESENATION OF EQUIPMENT AND CONNECTIONS TO BE INSTALLED. LABEL LOCATIONS PRESENTED MAY VERY DEPENDING ON TYPE OF INTERCONNECTION METHOD AND LOCATION PRESENTED ON THE ELECTRICAL DIAGRAM PAGE.

LABELING NOTES:
1. LABELS CALLED OUT ACCORDING TO ALL COMMON CONFIGURATIONS. ELECTRICIAN TO DETERMINE EXACT REQUIREMENTS IN THE FIELD PER CURRENT NEC AND LOCAL CODES AND MAKE APPROPRIATE ADJUSTMENTS.
2. LABELING REQUIREMENTS BASED ON THE 2020 NATIONAL ELECTRIC CODE, OSHA STANDARD 19010.145, ANSI Z535.
3. MATERIAL BASED ON THE REQUIREMENTS OF THE AUTHORITY HAVING JURISDICTION.
4. LABELS TO BE OF SUFFICIENT DURABILITY TO WITHSTAND THE ENVIRONMENT INVOLVED [NEC 110.21]
5. LABELS TO BE A MINIMUM LETTER HEIGHT OF 3/8", WHITE ON RED BACKGROUND; REFLECTIVE, AND PERMANENTLY AFFIXED [IFC 605.11.1.1]

ROCKET SOLAR
Saving Energy at Rocket Speed.

CONTRACTOR INFORMATION:
No Problem Electric Corp.
6975 HWY 66
Platteville, CO 80651
License # EC.0100746

SITE INFORMATION

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Longmont, CO 80503
AC SYSTEM SIZE: 6.96 kW AC
DC SYSTEM SIZE: 8.64 kW DC
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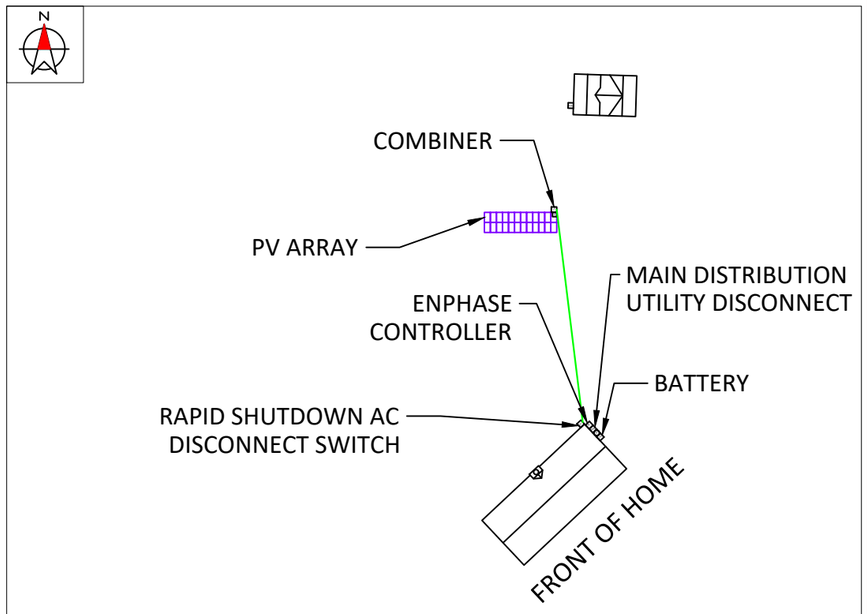
Long, -105.147033304382
(24) Silfab SIL-360 NX mono PERC PV MODULES
(24) Enphase IQ8PLUS-72-2-US INVERTER(S)
XCEL Energy CO

DRAWN BY: SoloCAD
DATE:
May 30, 2022
LABELS - PV07

CAUTION

POWER TO THIS BUILDING IS ALSO SUPPLIED FROM ROOF MOUNTED SOLAR ARRAYS WITH SAFETY DISCONNECTS AS SHOWN:



8829 Marathon Rd, Longmont CO 80503

DIRECTORY

PERMANENT PLAQUE OR DIRECTORY PROVIDING THE LOCATION OF THE SERVICE DISCONNECTING MEANS AND THE PHOTOVOLTAIC SYSTEM.

(ALL PLAQUES AND SIGNAGE WILL BE INSTALLED AS OUTLINED WITHIN: NEC 690.56(B)&(C), [NEC 705.10])

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(24) Enphase IQ8PLUS-72-2-US INVERTER(S)

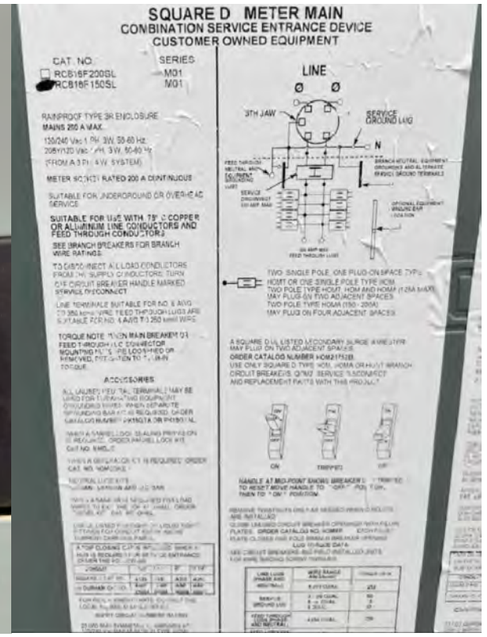
XCEL Energy CO

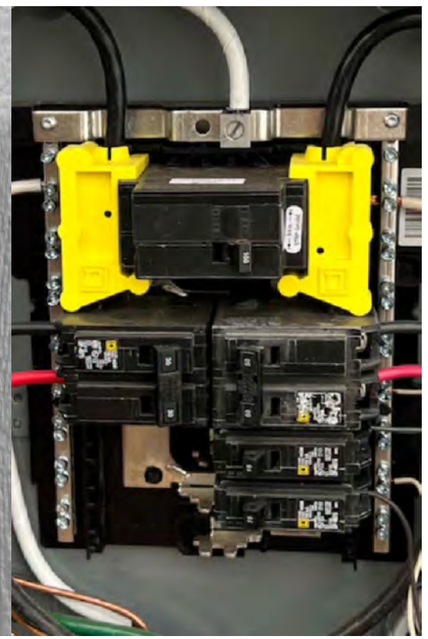
DRAWN BY: SoloCAD

DATE:
May 30, 2022

PLACARD - PV08

SITE PHOTOS:





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(24) Enphase IQ8PLUS-72-2-US INVERTER(S)

XCEL Energy CO

DRAWN BY: SoloCAD

DATE:
May 30, 2022

SITE PHOTOS - PV09

SIL-360 NX

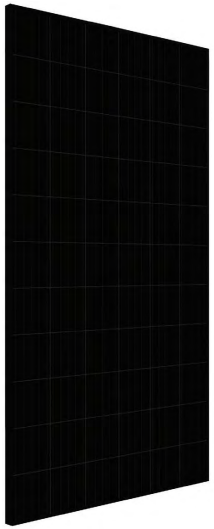
HIGH EFFICIENCY PREMIUM MONO-PERC PV MODULE

CHUBB
* Chubb provides error and omission insurance to Silfab Solar Inc.

INDUSTRY LEADING WARRANTY
All our products include an industry leading 25-year product workmanship and 30-year performance warranty.

35+ YEARS OF SOLAR INNOVATION
Leveraging over 35+ years of worldwide experience in the solar industry, Silfab is dedicated to superior manufacturing processes and innovations such as Bifacial and Back Contact technologies, to ensure our partners have the latest in solar innovation.

NORTH AMERICAN QUALITY
Silfab is the leading automated solar module manufacturer in North America. Utilizing premium quality materials and strict quality control management to deliver the highest efficiency, premium quality PV modules.



BAA / ARRA COMPLIANT
Silfab panels are designed and manufactured to meet Buy American Act Compliance. The US State Department, US Military and FAA have all utilized Silfab panels in their solar installations.

LIGHT AND DURABLE
Engineered to accommodate high wind load conditions for test loads validated up to 4000Pa uplift. The light-weight frame is exclusively designed for wide-ranging racking compatibility and durability.

QUALITY MATTERS
Total automation ensures strict quality controls during the entire manufacturing process at our ISO certified facilities.

DOMESTIC PRODUCTION
Silfab Solar manufactures PV modules in two automated locations within North America. Our 500+ North American team is ready to help our partners win the hearts and minds of customers, providing customer service and product delivery that is direct, efficient and local.

AESTHETICALLY PLEASING
All black sleek design, ideal for high-profile residential or commercial applications.

PID RESISTANT
PID Resistant due to advanced cell technology and material selection. In accordance to IEC 62804-1.

Electrical Specifications		SIL-360 NX mono PERC	
Test Conditions		STC	NOCT
Module Power (Pmax)	Wp	360	258
Maximum power voltage (Vpmax)	V	36.6	33.1
Maximum power current (Ipmax)	A	9.9	7.8
Open circuit voltage (Voc)	V	44.5	40.4
Short circuit current (Isc)	A	10.5	8.2
Module efficiency	%	19.7	17.6
Maximum system voltage (VDC)	V	1000	
Series fuse rating	A	20	
Power Tolerance	Wp	0 to +10	

Measurement conditions: STC 1000 W/m2 • AM 1.5 • Temperature 25 °C • NOCT 800 W/m² • AM 1.5 • Measurement uncertainty ≤ 3%
• Sun simulator calibration reference modules from Fraunhofer Institute. Electrical characteristics may vary by ±5% and power by 0 to +10W.

Temperature Ratings	SIL-360 NX mono PERC
Temperature Coefficient Isc	+0.064 %/°C
Temperature Coefficient Voc	-0.279 %/°C
Temperature Coefficient Pmax	-0.36 %/°C
NOCT (± 2°C)	46 °C
Operating temperature	-40/+85 °C

Mechanical Properties and Components	SIL-360 NX mono PERC	
	Metric	Imperial
Module weight	20±0.2 kg	44±0.4 lbs
Dimensions (H x L x D)	1832 mm x 1000 mm x 38 mm	72.13 in x 39.4 in x 1.5 in
Maximum surface load (wind/snow)*	4000 Pa rear load / 5400 Pa front load	83.5/112.8 lb/ft^2
Hail impact resistance	ø 25 mm at 83 km/h	ø 1 in at 51.6 mph
Cells	66 - Si mono-PERC - 5 busbar 158.75 x 158.75 mm	66 - Si mono-PERC - 5 busbar 62.25 x 62.25 in
Glass	3.2 mm high transmittance, tempered, DSM anti-reflective coating	0.126 in high transmittance, tempered, DSM anti-reflective coating
Cables and connectors (refer to installation manual)	1200 mm ø 5.7 mm, MC4 from Staubli	47.2 in, ø 0.22 (12AWG), MC4 from Staubli
Backsheet	High durability, superior hydrolysis and UV resistance, multi-layer dielectric film, fluorine-free PV backsheet	
Frame	Anodized Aluminum (Black)	
Bypass diodes	3 diodes-30SQ045T (45V max DC blocking voltage, 30A max forward rectified current)	
Junction Box	UL 3730 Certified, IEC 62790 Certified, IP67 rated	

Warranties	SIL-360 NX mono PERC			
Module product workmanship warranty	25 years**			
Linear power performance guarantee	30 years			
	≥ 97.1% end 1st year	≥ 91.6% end 12th year	≥ 85.1% end 25th year	≥ 82.6% end 30th year

Certifications	SIL-360 NX mono PERC
Product	ULC ORD C1703, UL1703, CEC listed***, UL 61215-1/-1-1/-2, UL 61730-1/-2, IEC 61215-1/-1-1/-2***, IEC 61730-1/-2***, CSA C22.2#61730-1/-2, IEC 62716 Ammonia Corrosion; IEC61701:2011 Salt Mist Corrosion Certifed, UL Fire Rating: Type 2
Factory	ISO9001:2015

All states except California
- Modules Per Pallet: 26
- Pallets Per Truck: 34
- Modules Per Truck: 884

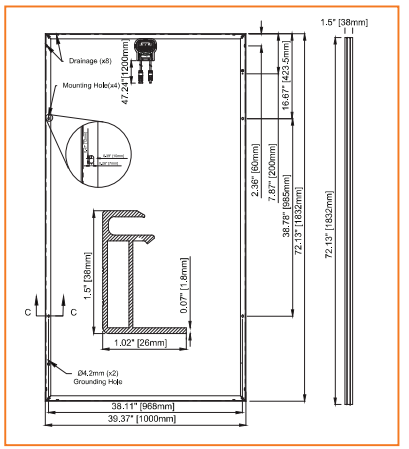
California
- Modules Per Pallet: 26
- Pallets Per Truck: 32
- Modules Per Truck: 832

*⚠ Warning. Read the Safety and Installation Manual for mounting specifications and before handling, installing and operating modules.

**12 year extendable to 25 years subject to registration and conditions outlined under "Warranty" at www.silfabsolar.com.

***Certification and CEC listing in progress.

PAN files generated from 3rd party performance data are available for download at: www.silfabsolar.com/downloads.



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ENPHASE

DATA SHEET

IQ8 Series Microinverters

Our newest IQ8 Microinverters are the industry's first microgrid-forming, software-defined microinverters with split-phase power conversion capability to convert DC power to AC power efficiently. The brain of the semiconductor-based microinverter is our proprietary application-specific integrated circuit (ASIC) which enables the microinverter to operate in grid-tied or off-grid modes. This chip is built in advanced 55nm technology with high speed digital logic and has super-fast response times to changing loads and grid events, alleviating constraints on battery sizing for home energy systems.

Part of the Enphase Energy System, IQ8 Series Microinverters integrate with the Enphase IQ Battery, Enphase IQ Gateway, and the Enphase App monitoring and analysis software.

IQ8 Series Microinverters redefine reliability standards with more than one million cumulative hours of power-on testing, enabling an industry-leading limited warranty of up to 25 years.

Connect PV modules quickly and easily to IQ8 Series Microinverters using the included Q-DCC-2 adapter cable with plug-n-play MC4 connectors.

IQ8 Series Microinverters are UL Listed as PV Rapid Shut Down Equipment and conform with various regulations, when installed according to manufacturer's instructions.

IQ8SE-DS-0001-01-EN-US-2021-10-19

Easy to install

- Lightweight and compact with plug-n-play connectors
- Power Line Communication (PLC) between components
- Faster installation with simple two-wire cabling

High productivity and reliability

- Produce power even when the grid is down
- More than one million cumulative hours of testing
- Class II double-insulated enclosure
- Optimized for the latest high-powered PV modules

Microgrid-forming

- Complies with the latest advanced grid support
- Remote automatic updates for the latest grid requirements
- Configurable to support a wide range of grid profiles
- Meets CA Rule 21 (UL 1741-SA) requirements

IQ8 Series Microinverters

INPUT DATA (DC)		IQ8H-240-72-US	IQ8PLUS-72-2-US	IQ8M-72-2-US	IQ8A-72-2-US	IQ8H-240-72-2-US	IQ8H-208-72-2-US
Commonly used module pairings[2]	W	235 - 350	235 - 440	260 - 460	295 - 500	320 - 540+	295 - 500+
Module compatibility		60-cell/120 half-cell		60-cell/120 half-cell and 72-cell/144 half-cell			
MPPT voltage range	V	27 - 37	29 - 45	33 - 45	36 - 45	38 - 45	38 - 45
Operating range	V	25 - 48			25 - 58		
Min/max start voltage	V	30 / 48			30 / 58		
Max input DC voltage	V	50			60		
Max DC current[3] (module Isc)	A			15			
Overvoltage class DC port				II			
DC port backfeed current	mA			0			
PV array configuration		1x1 Ungrounded array; No additional DC side protection required; AC side protection requires max 20A per branch circuit					
OUTPUT DATA (AC)		**IQ8H-240-X-US**	**IQ8PLUS-72-X-US**	**IQ8M-72-X-US**	**IQ8A-72-X-US**	**IQ8H-240-72-X-US**	**IQ8H-208-72-X-US**
Peak output power	VA	245	300	330	366	384	366
Max continuous output power	VA	240	290	325	349	380	360
Nominal (L-L) voltage/range[4]	V			240 / 211 - 264			208 / 183 - 229
Max continuous output current	A	1.0	1.21	1.35	1.45	1.58	1.73
Nominal frequency	Hz			60			
Extended frequency range	Hz			50 - 68			
Max units per 20 A (L-L) branch circuit[5]		16	13	11	11	10	9
Total harmonic distortion				<5%			
Overvoltage class AC port				III			
AC port backfeed current	mA			30			
Power factor setting				1.0			
Grid-tied power factor (adjustable)				0.85 leading - 0.85 lagging			
Peak efficiency	%	97.5	97.6	97.6	97.6	97.6	97.4
CEC weighted efficiency	%	97	97	97	97.5	97	97
Night-time power consumption	mW			60			
MECHANICAL DATA							
Ambient temperature range		-40°C to +60°C (-40°F to +140°F)					
Relative humidity range		4% to 100% (condensing)					
DC Connector type		MC4					
Dimensions (HxWxD)		212 mm (8.3") x 175 mm (6.9") x 30.2 mm (1.2")					
Weight		1.08 kg (2.38 lbs)					
Cooling		Natural convection - no fans					
Approved for wet locations		Yes					
Acoustic noise at 1 m		<60 dBA					
Pollution degree		PD3					
Enclosure		Class II double-insulated, corrosion resistant polymeric enclosure					
Environ. category / UV exposure rating		NEMA Type 6 / outdoor					
COMPLIANCE							
Certifications		CA Rule 21 (UL 1741-SA), UL 62109-1, UL1741/IEEE1547, FCC Part 15 Class B, ICES-0003 Class B, CAN/CSA-C22.2 NO. 107.1-01 This product is UL Listed as PV Rapid Shut Down Equipment and conforms with NEC 2014, NEC 2017, and NEC 2020 section 690.12 and C22.1-2018 Rule 64-218 Rapid Shutdown of PV Systems, for AC and DC conductors, when installed according to manufacturer's instructions.				

(1) The IQ8H-208 variant will be operating in grid-tied mode only at 208V AC. (2) No enforced DC/AC ratio. See the compatibility calculator at https://link.enphase.com/module-compatibility (3) Maximum continuous input DC current is 10.8A (4) Nominal voltage range can be extended beyond nominal if required by the utility. (5) Limits may vary. Refer to local requirements to define the number of microinverters per branch in your area.

IQ8SE-DS-0001-01-EN-US-2021-10-19

Data Sheet
Enphase Networking

Enphase IQ Combiner 4/4C

X-IQ-AM1-240-4
X-IQ-AM1-240-4C

The **Enphase IQ Combiner 4/4C** with Enphase IQ Gateway and integrated LTE-M1 cell modem (included only with IQ Combiner 4C) consolidates interconnection equipment into a single enclosure and streamlines IQ microinverters and storage installations by providing a consistent, pre-wired solution for residential applications. It offers up to four 2-pole input circuits and Eaton BR series busbar assembly.

Smart

- Includes IQ Gateway for communication and control
- Includes Enphase Mobile Connect cellular modem (CELLMODEM-M1-06-SP-05), included only with IQ Combiner 4C
- Includes solar shield to match Enphase IQ Battery aesthetics and deflect heat
- Flexible networking supports Wi-Fi, Ethernet, or cellular
- Optional AC receptacle available for PLC bridge
- Provides production metering and consumption monitoring

Simple

- Centered mounting brackets support single stud mounting
- Supports bottom, back and side conduit entry
- Up to four 2-pole branch circuits for 240 VAC plug-in breakers (not included)
- 80A total PV or storage branch circuits

Reliable

- Durable NRTL-certified NEMA type 3R enclosure
- Five-year limited warranty
- Two years labor reimbursement program coverage included for both the IQ Combiner SKU's
- UL listed

UL LISTED

To learn more about Enphase offerings, visit **enphase.com**

ENPHASE

Enphase IQ Combiner 4/4C

MODEL NUMBER	
IQ Combiner 4 (X-IQ-AM1-240-4)	IQ Combiner 4 with Enphase IQ Gateway printed circuit board for integrated revenue grade PV production metering (ANSI C12.20 +/-0.5%) and consumption monitoring (+/- 2.5%). Includes a silver solar shield to match the IQ Battery system and IQ System Controller 2 and to deflect heat.
IQ Combiner 4C (X-IQ-AM1-240-4C)	IQ Combiner 4C with Enphase IQ Gateway printed circuit board for integrated revenue grade PV production metering (ANSI C12.20 +/-0.5%) and consumption monitoring (+/- 2.5%). Includes Enphase Mobile Connect cellular modem (CELLMODEM-M1-06-SP-05), a plug-and-play industrial-grade cell modem for systems up to 60 microinverters. (Available in the US, Canada, Mexico, Puerto Rico, and the US Virgin Islands, where there is adequate cellular service in the installation area.) Includes a silver solar shield to match the IQ Battery and IQ System Controller and to deflect heat.
ACCESSORIES AND REPLACEMENT PARTS	(not included, order separately)
Ensemble Communications Kit COMMS-CELLMODEM-M1-06 CELLMODEM-M1-06-SP-05 CELLMODEM-M1-06-AT-05	- Includes COMMS-KIT-01 and CELLMODEM-M1-06-SP-05 with 5-year Sprint data plan for Ensemble sites - 4G based LTE-M1 cellular modem with 5-year Sprint data plan - 4G based LTE-M1 cellular modem with 5-year AT&T data plan
Circuit Breakers BRK-10A-2-240V BRK-15A-2-240V BRK-20A-2P-240V BRK-15A-2P-240V-B BRK-20A-2P-240V-B	Supports Eaton BR210, BR215, BR220, BR230, BR240, BR250, and BR260 circuit breakers. Circuit breaker, 2 pole, 10A, Eaton BR210 Circuit breaker, 2 pole, 15A, Eaton BR215 Circuit breaker, 2 pole, 20A, Eaton BR220 Circuit breaker, 2 pole, 15A, Eaton BR215B with hold down kit support Circuit breaker, 2 pole, 20A, Eaton BR220B with hold down kit support
EPLC-01	Power line carrier (communication bridge pair), quantity = one pair
XA-SOLARSHIELD-ES	Replacement solar shield for IQ Combiner 4/4C
XA-PLUG-120-3	Accessory receptacle for Power Line Carrier in IQ Combiner 4/4C (required for EPLC-01)
XA-ENV-PCBA-3	Replacement IQ Gateway printed circuit board (PCB) for Combiner 4/4C
X-IQ-NA-HD-125A	Hold down kit for Eaton circuit breaker with screws.
ELECTRICAL SPECIFICATIONS	
Rating	Continuous duty
System voltage	120/240 VAC, 60 Hz
Eaton BR series busbar rating	125 A
Max. continuous current rating	65 A
Max. continuous current rating (input from PV/storage)	64 A
Max. fuse/circuit rating (output)	90 A
Branch circuits (solar and/or storage)	Up to four 2-pole Eaton BR series Distributed Generation (DG) breakers only (not included)
Max. total branch circuit breaker rating (input)	80A of distributed generation / 95A with IQ Gateway breaker included
Envoy breaker	10A or 15A rating GE/Siemens/Eaton included
Production metering CT	200 A solid core pre-installed and wired to IQ Gateway
Consumption monitoring CT (CT-200-SPLIT)	A pair of 200 A split core current transformers
MECHANICAL DATA	
Dimensions (WxHxD)	37.5 x 49.5 x 16.8 cm (14.75" x 19.5" x 6.63"). Height is 21.06" (53.5 cm) with mounting brackets.
Weight	7.5 kg (16.5 lbs)
Ambient temperature range	-40° C to +46° C (-40° to 115° F)
Cooling	Natural convection, plus heat shield
Enclosure environmental rating	Outdoor, NRTL-certified, NEMA type 3R, polycarbonate construction
Wire sizes	• 20 A to 50 A breaker inputs: 14 to 4 AWG copper conductors • 60 A breaker branch input: 4 to 1/0 AWG copper conductors • Main lug combined output: 10 to 2/0 AWG copper conductors • Neutral and ground: 14 to 1/0 copper conductors Always follow local code requirements for conductor sizing.
Altitude	To 2000 meters (6,560 feet)
INTERNET CONNECTION OPTIONS	
Integrated Wi-Fi	802.11b/g/n
Cellular	CELLMODEM-M1-06-SP-05, CELLMODEM-M1-06-AT-05 (4G based LTE-M1 cellular modem). Note that an Enphase Mobile Connect cellular modem is required for all Ensemble installations.
Ethernet	Optional, 802.3, Cat5E (or Cat 6) UTP Ethernet cable (not included)
COMPLIANCE	
Compliance, IQ Combiner	UL 1741, CAN/CSA C22.2 No. 107.1, 47 CFR, Part 15, Class B, ICES 003 Production metering: ANSI C12.20 accuracy class 0.5 (PV production) Consumption metering: accuracy class 2.5
Compliance, IQ Gateway	UL 60601-1/CAN/CSA 22.2 No. 61010-1

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NUANCE ENERGY
Leading Solar Innovation™

INDUSTRY'S FASTEST INSTALLATION TIME + DRAMATIC COST REDUCTIONS

OSPREY POWERPLATFORM®
2MW INSTALLATION

16
DAYS TO INSTALL
*Fully trained, 16-person crew installing the foundation, racking and modules

$130,000+
SAVINGS
*Savings due to lower field labor costs, no pile driving, and no geotechnical reports

VS

CONVENTIONAL FOUNDATION INSTALLATION
2MW INSTALLATION

60+
DAYS TO INSTALL

SAVE TIME AND MONEY

No Geotechnical Reports[1]
No Heavy Equipment
No Ground Screws
No Concrete
No Skilled Labor[2]

[1] *In atypical soil conditions, a geotechnical report may be advisable.* [2] *May not be applicable under certain instances (i.e., union labor wages).*

Nuance Energy's Osprey PowerPlatform® is a proprietary ground-mounted racking system that has revolutionized the solar industry – both in terms of cost and time.

You hit a home run with this product!
— Jack Ramsey, CEO, AltSys Solar




KEY SPECIFICATIONS

- Each unit holds as many as 16 panels; average installation time: 59 minutes, 4-person crew
- Average labor cost: $0.0125/watt installed
- Total power output per unit up to 6kW
- Panel technology neutral; UL2703 certified
- Wind loads <150 mph and snow loads <60+ psf, CPP fully tested
- Anchors hold in all permafrost conditions
- 25-year "bumper to bumper" warranty protection
- Fixed tilt orientation (15° to 35°)
- Independent power adjustable legs
- Engineered for sloped terrain (up to 12°)
- Custom engineering for sloped terrain (up to 23°)
- Galvanized (G90) steel finish (standard); other options available
- Self-bonding mid clamps
- Tamper-proof module fasteners (optional)
- Integrated wire management
- Ideal for mounting string inverters

Quick & Easy Installation = Lower Costs

Installation is blazing fast with six main steel components to assemble. Osprey PowerPlatform solar structures assemble on site using standard power hand tools.

Eliminate the higher cost of skilled labor and on site heavy machinery.

- **No foundations, no concrete**
- **No cutting, welding or drilling**
- **Minimal site prep and clean up**

Sustainable Solution

A geotechnical report or 3rd party special inspection is usually not required. Real-time soil verification and load (pull) test is achieved through proprietary use of earth anchors during installation.

Anchors act like underground toggle bolts to secure structure to ground.

Up to 30 cubic feet of earth and sediment above each earth anchor support and ballast these versatile solar racking structures.

Structural Engineering

A site specific Structural Calculation and Engineering Report complete with vertical and lateral analysis (dead load, live load, wind load and seismic load, etc.) is provided.

MODEL	PANEL TYPE	DIMENSIONS[3]	TILT	LEG ADJUSTMENT	SOLAR PANEL LAYOUT[4]	WIND/MPH**
OSP - STD	(60, 72 Cell) & SPR[2]	12ft x 26ft	15° - 35°	up to 26"	2x5 2x6 2x7 2x8*	< 150mph
OSP - HD[1]	(60, 72 Cell) & SPR[2]	12ft x 26ft	15° - 35°	up to 26"	2x5 2x6 2x7 2x8*	< 150mph

[1] Available in HD: Heavy Duty Snow Load or XHD: Extra Heavy Duty Snow Load; [2] SunPower Modules
[3] Based on 2x8 footprint; smaller footprint available; [4] All Sizes Portrait Design; Landscape available

*Standard
**110mph Standard

ETL CLASSIFIED
Intertek

12.24.17

Enphase IQ Battery 10

The **Enphase IQ Battery 10** all-in-one AC-coupled storage system is **reliable**, **smart**, **simple**, and **safe**. It is comprised of three base IQ Battery 3 units, has a total usable energy capacity of 10.08 kWh and twelve embedded Grid-forming Microinverters with 3.84 kW power rating. It provides backup capability and installers can quickly design the right system size to meet the needs of both new and retrofit solar customers.

Reliable

- Proven high reliability IQ Series Microinverters
- Ten-year limited warranty
- Three independent IQ Battery base units
- Twelve embedded IQ8X-BAT Microinverters
- Passive cooling (no moving parts/fans)

Smart

- Grid-forming capability for backup operation
- Remote software and firmware upgrade
- Mobile app-based monitoring and control
- Support for self consumption
- Utility time of use (TOU) optimization

Simple

- Fully integrated AC battery system
- Quick and easy plug-and-play installation
- Interconnects with standard household AC wiring

Safe

- Cells safety tested
- Lithium iron phosphate (LFP) chemistry for maximum safety and longevity

To learn more about Enphase offerings, visit **enphase.com**

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Enphase IQ Battery 10

MODEL NUMBER	
ENCHARGE-10-1P-NA	IQ Battery 10 system with integrated Enphase IQ Microinverters and battery management unit (BMU). Includes: - Three IQ Battery 3.36 kWh base units (B03-A01-US00-1-3) - One IQ Battery 10 cover kit with cover, wall mounting bracket, watertight conduit hubs, and interconnect kit for wiring between batteries (B10-C-10SC-0)
ACCESSORIES	
ENCHARGE-HNDL-R1	One set of IQ Battery base unit installation handles
OUTPUT (AC)	**@ 240 VAC[1]**
Rated (continuous) output power	3.84 kVA
Peak output power	5.7 kVA (10 seconds)
Nominal voltage / range	240 / 211 – 264 VAC
Nominal frequency / range	60 / 57 – 61 Hz
Rated output current	16 A
Peak output current	24.6A (10 seconds)
Power factor (adjustable)	0.85 leading ... 0.85 lagging
Maximum units per 20 A branch circuit	1 unit (single phase)
Interconnection	Single-phase
Maximum AC short circuit fault current over 3 cycles	69.6 Arms
Round trip efficiency[2]	89%
BATTERY	
Total capacity	10.5 kWh
Usable capacity	10.08 kWh
Round trip efficiency	96%
Nominal DC voltage	67.2 V
Maximum DC voltage	73.5 V
Ambient operating temperature range	-15° C to 55° C (5° F to 131° F) non-condensing
Optimum operating temperature range	0° C to 30° C (32° F to 86° F)
Chemistry	Lithium iron phosphate (LFP)
MECHANICAL DATA	
Dimensions (WxHxD)	1070 mm x 664 mm x 319 mm (42.13 in x 26.14 in x 12.56 in)
Weight	Three individual 44.2 kg (97.4 lbs) base units plus 21.1 kg (48.7 lbs) cover and mounting bracket; total 154.7 kg (341 lbs)
Enclosure	Outdoor – NEMA type 3R
IQ 8X-BAT Microinverter enclosure	NEMA type 6
Cooling	Natural convection – No fans
Altitude	Up to 2500 meters (8200 feet)
Mounting	Wall mount
FEATURES AND COMPLIANCE	
Compatibility	Compatible with grid-tied PV systems. Compatible with Enphase M215/M250 and IQ Series Micros, Enphase IQ System Controller, and Enphase IQ Gateway for backup operation.
Communication	Wireless 2.4 GHz
Services	Backup, self-consumption, TOU, Demand Charge, NEM Integrity
Monitoring	Enphase Installer Platform and Enphase App monitoring options; API integration
Compliance	UL 9540, UN 38.3, UL 9540A, UL 1998, UL 991, NEMA Type 3R, AC156 EMI: 47 CFR, Part 15, Class B, ICES 003 Cell Module: UL 1973, UN 38.3 Inverters: UL 62109-1, IEC 62109-2, UL 1741SA, CAN/CSA C22.2 No. 107.1-16, and IEEE 1547
LIMITED WARRANTY	
Limited Warranty[3]	>70% capacity, up to 10 years or 4000 cycles

1. Supported in backup/off grid operations
2. AC to Battery to AC at 96% power rating
3. Whichever occurs first. Restrictions apply.

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Enphase IQ System Controller 2

The **Enphase IQ System Controller 2** connects the home to grid power, the IQ Battery system, and solar PV. It provides microgrid interconnection device (MID) functionality by automatically detecting and seamlessly transitioning the home energy system from grid power to backup power in the event of a grid failure. It consolidates interconnection equipment into a single enclosure and streamlines grid independent capabilities of PV and storage installations by providing a consistent, pre-wired solution for residential applications.

Reliable

- Durable NEMA type 3R enclosure
- Ten-year limited warranty

Smart

- Controls safe connectivity to the grid
- Automatically detects grid outages
- Provides seamless transition to backup

Simple

- Connects to the load or service equipment[1] side of the main load panel
- Centered mounting brackets support single stud mounting
- Supports conduit entry from the bottom, bottom left side, and bottom right side
- Supports whole home and partial home backup and subpanel backup
- Up to 200A main breaker support
- Includes neutral-forming transformer for split phase 120/240V backup operation
- IQ System Controller supports backward compatibility with older generation of PV microinverters (M215, M250 and S series), making it simple for home owners to upgrade their systems
- Easy integration with generator from major manufacturers

1. IQ System Controller 2 is not suitable for use as service equipment in Canada.

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Enphase IQ System Controller 2

MODEL NUMBER

EP200G101-M240US01	Enphase IQ System Controller 2 with neutral-forming transformer (NFT), Microgrid Interconnect Device (MID), breakers, and screws. Streamlines grid-independent capabilities of PV and battery installations.

ACCESSORIES and REPLACEMENT PARTS

EP200G-NA-XA-E3	Replacement IQ System Controller 2 printed circuit board
EP200G-NA-HD-200A	Eaton type BR circuit breaker hold-down screw kit, BRHDK125
CT-200-SPLIT	200 A split core current transformers for Generator metering (+/- 2.5%)
Circuit breakers (as needed)[2,3] • BRK-100A-2P-240V : Main breaker, 2 pole, 100A, 25kAIC, CSR2100 • BRK-125A-2P-240V: Main breaker, 2 pole, 125A, 25kAIC, CSR2125N • BRK-150A-2P-240V: Main breaker, 2 pole, 150A, 25kAIC, CSR2150N • BRK-175A-2P-240V: Main breaker, 2 pole, 175A, 25kAIC, CSR2175N • BRK-200A-2P-240V: Main breaker, 2 pole, 200A, 25kAIC, CSR2200N	Not included, must order separately: • BRK-20A-2P-240V-B: Circuit breaker, 2 pole, 20A, 10kAIC, BR220B • BRK-30A-2P-240V: Circuit breaker, 2 pole, 30A, 10kAIC, BR230B • BRK-40A-2P-240V: Circuit breaker, 2 pole, 40A, 10kAIC, BR240B • BRK-60A-2P-240V: Circuit breaker, 2 pole, 60A, 10kAIC, BR260 • BRK-80A-2P-240V: Circuit breaker, 2 pole, 80A, 10kAIC, BR280
EP200G-HNDL-R1	IQ System Controller 2 installation handle kit (order separately)
EP200G-LITKIT	IQ System Controller 2 literature kit, including labels, feed-through headers, screws, filler plates, and QIG
BRK-20A40A-2P-240V	2 pole, 20A/40A, 10kAIC, BQC220240

ELECTRICAL SPECIFICATIONS

Assembly rating	Continuous operation at 100% of its rating
Nominal voltage / range (L-L)	240 VAC / 100 - 310 VAC
Voltage measurement accuracy	±1% V nominal (±1.2V L-N and ±2.4V L-L)
Auxiliary contact for load control, excess PV control, and generator two-wire control	24V, 1A
Nominal frequency / range	60 Hz / 56 - 63 Hz
Frequency measurement accuracy	±0.1 Hz
Maximum continuous current rating	160A
Maximum input overcurrent protection device	200A
Maximum output overcurrent protection device	200A
Maximum overcurrent protection device rating for Generator circuit[4]	80A
Maximum overcurrent protection device rating for storage branch circuit[4] (the storage branch circuit can be replaced with PV)	80A
Maximum overcurrent protection device rating for IQ8 PV combiner branch circuit[4]	80A
Neutral Forming Transformer (NFT)	• Breaker rating (pre-installed): 40A between L1 and Neutral; 40A between L2 and Neutral • Continuous rated power: 3600VA • Maximum continuous unbalance current: 30A @ 120V • Peak rated power: 8800VA for 30 seconds • Peak unbalanced current: 80A @ 120V for 30 seconds

MECHANICAL DATA

Dimensions (WxHxD)	50cm x 91.6cm x 24.6cm (19.7 in x 36 in x 9.7 in)
Weight	39.4 kg (87 lbs)
Ambient temperature range	-40° C to +50° C (-40° F to 122° F)
Cooling	Natural convection, plus heat shield
Enclosure environmental rating	Outdoor, NEMA type 3R, polycarbonate construction
Altitude	To 2500 meters (8200 feet)

WIRE SIZES

Connections (All lugs are rated to 90C)	• Main lugs and backup load lugs • CSR breaker bottom wiring lugs • BR breakers (wire provided) • AC combiner lugs, Encharge lugs, and generator lugs • Neutral (large lugs)	Cu/Al: 1 AWG – 300 KCMIL Cu/Al: 2 AWG – 300 KCMIL 6 AWG 14 AWG – 2 AWG Cu/Al: 6 AWG - 300 KCMIL
Neutral and ground bars	Large holes (5/16-24 UNF) Small holes (10-32 UNF)	14 AWG – 1/0 AWG 14 AWG – 6 AWG

COMPLIANCE

Compliance	UL 1741, UL 1741 SA, UL 1741 PCS, UL1998, UL869A[5], UL67[5], UL508[5], UL50E[5] CSA 22.2 No. 107.1, 47 CFR, Part 15, Class B, ICES 003, AC156. IQ System Controller 2 is approved for Use as Service Equipment in the United States[5].

2. Compatible with BRHDK125 Hold-Down Kit to comply with 2017 NEC 710.15E for back-fed circuit breakers.
3. The IQ System Controller 2 is rated 22 kAIC
4. Not included. Installer must provide properly rated breaker per circuit breaker list above.
5. Sections from these standards were used during the safety evaluation and included in the UL 1741 listing.

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