

PHOTOVOLTAIC PROJECT INFORMATION:

1,279.80 KW (DC) / 1,000.00 KW (AC)
PV UTILITY INTERACTIVE SYSTEM

STONINGTON - B1 PROJECT

35 TAUGWONK SPUR RD.

STONINGTON, CT 06378

AHJ: STONINGTON

UTILITY: EVERSOURCE

LAT/LONG: 41° 23' 18.33" N / 71° 53' 30.74" W
ELEVATION: ±195 FT
IRRADIANCE: 4.77 KWH / M² / DAY

ASHRAE AVG LOW TEMP: -9.4°F / -23°C
ASHRAE AVG HIGH TEMP: 89.6°F / 32°C

PROJECT NUMBER:

446-14

PROJECT SHEET:

L-1A

SHEET TITLE:
SITE PLAN & ARRAY LAYOUT

PROJECT DEVELOPER:

GREEN SKIES

(A CLEAN FOCUS COMPANY)

180 JOHNSON ST

MIDDLETON, CT 06457

PHONE: 860.398.5408

EMAIL: INFO@GREENSKIES.COM



SOLAR PV CONSULTANT:

RENEWABLE DESIGN SOLUTIONS

10945 ESTATE LANE

SUITE E-105

DALLAS, TX 75238

PHONE: 214.564.9535

WWW.RENEWABLEDESIGNSOLUTIONS.COM

ELECTRICAL ENGINEER:

JOE GIGANTIETTO PE (ELECTRICAL)

PHONE: 267.882.5393

EMAIL: JGIGANTIETTO@RDSSOLAR.COM



10/04/19

POINT OF INTERCONNECTION

OVERHEAD ELECTRICAL SERVICE AND UTILITY POLES (TYP)

70-1-5

NF

212 TAUGWONK ROAD

ROGER W. & CHERYL PRESTON

DEED 580-91

PLAN 3241

LIMIT OF CLEARING (TYP)

70-1-6

NF

212 TAUGWONK ROAD

ROGER W. & CHERYL PRESTON

DEED 580-91

PLAN 3241

OVERHEAD ELECTRICAL SERVICE AND UTILITY POLES TO FOLLOW SOUTH SIDE OF EXIST GRAVEL DRIVE. UTILITY POLES SHALL SPAN WETLAND AREAS WHERE POSSIBLE.

50'-PROPERTY SETBACK (LI-130 SIDE)

70-1-30

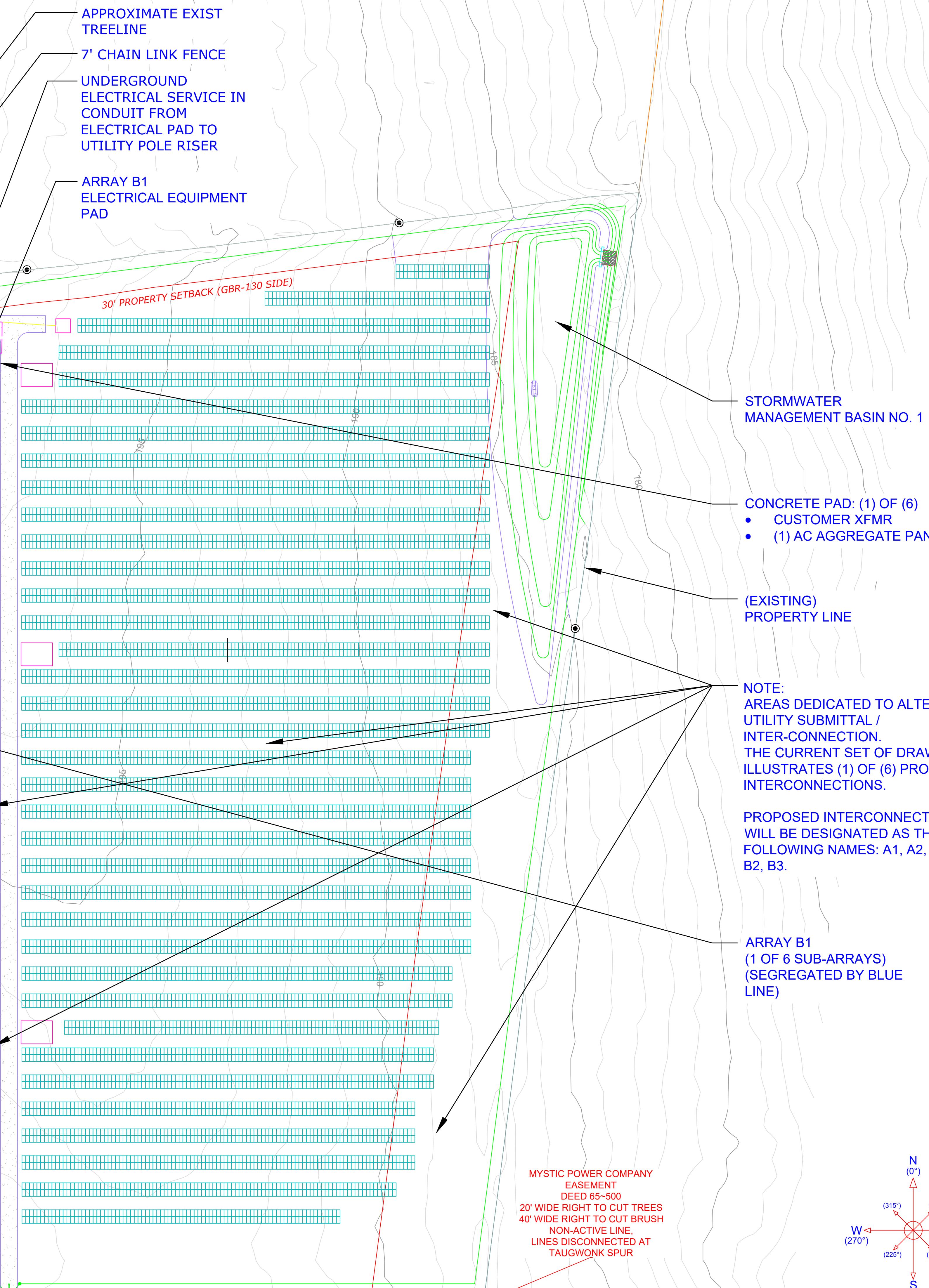
NF

100' WETLAND BUFFER

1

PV ARRAY: 1,279.80 KW (DC) / 1,000.00 KW (AC)
MODULES: (3240) LG SOLAR LG395N2W-A5 MONO 395W MODULES
STRING DESIGN: (27) MODULES PER SOURCE CIRCUIT
INVERTERS: (8) SOLECTRIA XGI1500-125/125 (125kW / 125kVA AC) UTILITY INTERACTIVE INVERTERS
RACKING: RBI FIXED TILT RACKING SYSTEM
TIPT ANGLE: 25° DEG.
AZIMUTH: 180° DEG. - DUE SOLAR SOUTH
INTER-ROW SPACING: 12'-0"
DC / AC RATIO: 1.28 : 1

7' CLF SWING GATE
OVERHEAD ELECTRICAL SERVICE AND UTILITY POLES (TYP)
12" RCP
75' PROPERTY SETBACK (GBR-130 FRONT)
75' PROPERTY SETBACK (GBR-130 SIDE)



PHOTOVOLTAIC PROJECT INFORMATION:
 1,279.80 KW (DC) / 1,000.00 KW (AC)
PV UTILITY INTERACTIVE SYSTEM
STONINGTON - B1 PROJECT
 35 TAUGWONK SPUR RD.
 STONINGTON, CT 06378
AHJ: STONINGTON
UTILITY: EVERSOURCE
 LAT/LONG: 41° 23' 18.33" N / 71° 53' 30.74" W
 ELEVATION: ±195 FT
 IRRADIANCE: 4.77 KWH / M² / DAY
 ASHRAE AVG LOW TEMP: -9.4°F / -23°C
 ASHRAE AVG HIGH TEMP: 89.6°F / 32°C

PROJECT NUMBER: 446-14

PROJECT SHEET: L-1B

SHEET TITLE: SITE PLAN & ARRAY LAYOUT (ENLARGED)



PROJECT DEVELOPER:

GREEN SKIES
(A CLEAN FOCUS COMPANY)
180 JOHNSON ST
MIDDLETON, CT 06457
PHONE: 860.398.5408
EMAIL: INFO@GREENSKIES.COM



SOLAR PV CONSULTANT:

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PHONE: 214.564.9535
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ELECTRICAL ENGINEER:

JOE GIGANTIELLO PE (ELECTRICAL)
PHONE: 267.882.5393
EMAIL: JGIGANTIELLO@RDSSOLAR.COM



10% DESIGN PHASE DOCUMENTS. NOT FOR CONSTRUCTION OR BIDDING PURPOSES. FOR UTILITY SUBMITTAL ONLY

REVIEWED BY: J. GIGANTIELLO

DATE: 09 / 25 / 2019

REVISED:

1. N/A
2. N/A
3. N/A
4. N/A
5. N/A

SCALE: 1" = 50'-0"

PAPER SIZE: 24" x 36"

PV ARRAY:	1,279.80 KW (DC) / 1,000.00 KW (AC)
MODULES:	(3240) LG SOLAR LG395N2W-A5 MONO 395W MODULES
STRING DESIGN:	(27) MODULES PER SOURCE CIRCUIT
INVERTERS:	(8) SOLECTRIA XG1500-125/125 (125kW / 125kVA AC) UTILITY INTERACTIVE INVERTERS
RACKING:	RBI FIXED TILT RACKING SYSTEM
TILT ANGLE:	25° DEG.
AZIMUTH:	180° DEG. - DUE SOLAR SOUTH
INTER-ROW SPACING:	12'-0"
DC / AC RATIO:	1.28 : 1

MV EQUIPMENT SCHEDULE						
DESCRIPTION	QTY	MANUFACTURER	MODEL	VOLTAGE RATING	CURRENT RATING	NOTES
CUSTOMER METER, PTS. CTS	(1)	TBD	TBD	TBD	TBD	TBD
GANG OPERATED SWITCH	(1)	S&C	TBD	15KV	200A	TBD
FUSED CUTOUT	(1)	S&C	TBD	15KV	200A	TBD
POWER POLE	(2)	TBD	TBD	TBD	TBD	TBD
SURGE ARRESTOR	(6)	TBD	TBD	TBD	TBD	TBD

PHOTOVOLTAIC PROJECT INFORMATION:
1,279.80 KW (DC) / 1,000.00 KW (AC)
PV UTILITY INTERACTIVE SYSTEM
STONINGTON - B1 PROJECT
35 TAUGWONK SPUR RD.
STONINGTON, CT 06378
AHJ: STONINGTON
UTILITY: EVERSOURCE
LAT/LONG: 41° 23' 18.33" N / 71° 53' 30.74" W
ELEVATION: ±195 FT
IRRADIANCE: ±4.77 KWH / M² / DAY
ASHRAE AVG LOW TEMP: -9.4°F / -23°C
ASHRAE AVG HIGH TEMP: 89.6°F / 32°C

PROJECT NUMBER: 446-14

PROJECT SHEET: E-4

SHEET TITLE: AC COLLECTION SYSTEM (3-LINE DIAGRAM)



PROJECT DEVELOPER:

GREEN SKIES
(A CLEAN FOCUS COMPANY)
180 JOHNSON ST
MIDDLETON, CT 06457
PHONE: 860.398.5408
EMAIL: INFO@GREENSKIES.COM



SOLAR PV CONSULTANT:

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WWW.RENEWABLEDESIGNSOLUTIONS.COM

ELECTRICAL ENGINEER:

JOE GIGANTIETTO PE (ELECTRICAL)
PHONE: 267.882.5393
EMAIL: JGIGANTIETTO@RDSSOLAR.COM



10/04/19

ANTI-ISLANDING LETTER:

YASKAWA

June 25, 2018

XGI 1500 – National Grid Anti-Islanding Information

Identify the manufacturer:	Yaskawa – Solectria Solar
Identify the model:	XGI 1500-166, XGI 1500-125
Contact information for manufacturer contact:	Product Manager Solectria Renewables, LLC 978-683-9700 x137 eric.everly@solectria.com
Identify if the inverter is 3-phase or 1-phase:	3 Phase
Provide brief description of island detection method proposed:	Perturbation is applied by injecting a small amount of reactive power (or phase angle) into its output current during every cycle. The magnitude of the perturbation increases if the inverter detects an island condition.
Does the inverter employ active or passive islanding detection? Provide documentation confirming that the islanding detection is “turned on” for the proposed inverter:	Active. The anti-islanding detection algorithm is hardcoded into the inverter operating firmware and cannot be disabled or “turned off” by the user.
For active islanding detection, various methods are available in the market. Identify the type of detection proposed. Is the method based on Sandia Frequency Shift, Sandia Voltage Shift, Sandia Impedance Detection, or Other? If Other, specify:	The active islanding detection algorithm is based on the Sandia Frequency Shift Detection methodology.
Does the active islanding detection employ a uni-directional or bi-directional perturbation?	Yes
Does the inverter use an isolating transformer?	Bi-directional
If yes, what is the low voltage phase to neutral voltage?	No
How is the AC output voltage limited? Specifically, how do the inverter controls limit the AC output voltage when generation exceeds available load?	The inverter detects the AC voltage and converts available DC power to AC when the AC voltage is in normal range. Inverters do not limit the AC output voltage. Instead, if the AC voltage is higher than threshold, inverters stop operation (cease to energize) according to IEEE1547 standards.

SOLECTRIA SOLAR

Yaskawa Solectria Solar
380 Merrimack Street
Lawrence, MA 01843
solectria.com

1-978-683-5700
Email: inverters@solectria.com

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YASKAWA

INVERTER SETTINGS:

YASKAWA

January 16, 2019

RE: Voltage and Frequency Setpoints for XGI 1500-125/125-UL, XGI 1500-125/150-UL, XGI 1500-150/166-UL and XGI 1500-166/166-UL

To Whom It May Concern:

XGI 1500-125/125-UL, XGI 1500-125/150-UL, XGI 1500-150/166-UL and XGI 1500-166/166-UL utility interactive inverters will cease power production in the event of abnormal grid conditions. These voltage and frequency setpoints adhere to IEEE1547a-2014, which has the default setpoints and range of adjustability specified below.

Voltage Range (p.u.)	Default Clearing Time (s)	Clearing Time: adjustable up to and including (s)
V < 0.45	0.16	0.16
0.45 <= V < 0.60	1	11
0.60 <= V < 0.88	2	21
1.1 < V < 1.2	1	13
V >= 1.2	0.16	0.16

Response to Abnormal AC Voltage

Protective Function	Default Settings	Ranges of Adjustability		
Frequency (Hz)	Clearing Time (s)	Frequency (Hz)	Clearing Time: adjustable up to and including (s)	
81U-1	f < 57.0	0.16	56 - 60	10
81U-2	f < 59.5	2	56 - 60	300
81D-1	f > 60.5	2	60 - 64	300
81D-2	f > 62	0.16	60 - 64	10

Response to Abnormal Frequency

At the request of the utility, the adjustable settings specified can be changed through a password-protected menu on the user interface. Upon grid disturbances the inverter will wait 5 minutes after the grid voltage and frequency return to nominal values before attempting to reconnect. Please refer to the XGI 1500 Installation and Operations Manual for additional information.

Sincerely,

Emily Hwang | Applications Engineering Manager
+1 978.636.9700 | emily.hwang@solectria.com

SOLECTRIA SOLAR

Yaskawa Solectria Solar
380 Merrimack Street
Lawrence, MA 01843
solectria.com

1-978-683-5700
Email: inverters@solectria.com

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YASKAWA

UL1741SA LISTING:

Intertek
TOTAL Quality Assured.

AUTHORIZATION TO MARK

This authorizes the application of the Certification Mark(s) shown below to the models described in the Product(s) Covered section when made in accordance with the conditions set forth in the Certification Agreement and Listing Report. The authorization also applies to multiple listed model(s) identified on the correlation page of the Listing Report.

This document is the property of Intertek Testing Services and is not transferable. The certification mark(s) may be applied only at the location of the Party Authorized To Apply Mark.

Applicant: Solectria Renewables LLC 380 Merrimack Street Bldg 9, Floor 2 LAWRENCE, MA 01843	Manufacturer: Yaskawa America Inc 1067 Johnson Drive Buffalo Grove, IL 60089
Country: USA	Country: USA
Contact: Wei Zhou (primary) Jihua Ma (alternate)	Contact: Arthur Folta (primary) Joe Kleczkowski(alternate)
Phone: (978) 683-9700	Phone: 847-887-7555 (primary)
FAX: (978) 683-9702	FAX: 414-956-2301
Email: wei.zhou@solectria.com	Email: arthur.folta@yaskawa.com

Party Authorized To Apply Mark: Same as Manufacturer
Report Issuing Office: Conford NY 13045
Control Number: 5010538
Authorized by: *David J. Folta*
for Dean Davidson, Certification Manager

ETL
Intertek

This document supersedes all previous Authorizations to Mark for the noted Report Number.

This Authorization to Mark is for the exclusive use of Intertek's Client and is granted pursuant to the Certification Agreement and Listing Report. Intertek's Client is responsible for its use and liability is limited to the terms and conditions of the agreement. Intertek assumes no liability to its Client in accordance with the agreement for any loss, expense or damage occasioned by the use of this Authorization to Mark. Only the Client is authorized to permit copying or distribution of this Authorization to Mark and then only in its entirety. Use of Intertek's Certification mark is restricted to the products and services described in the listing report. Intertek's Client is responsible for ensuring that the products and services described in the listing report are in compliance with the applicable standard(s) and that the use of the Intertek's mark is in accordance with the terms and conditions of the listing report. Intertek's Client is responsible for first being approved in writing by Intertek. Initial Factory Assessments and Follow-up Services are for the purpose of assuring appropriate usage of the Certification mark in accordance with the agreement; they are not for the purpose of product quality control and do not relieve Intertek's Client of their obligations in this respect.

Intertek Testing Services NA Inc
645 East Algonquin Road, Schaumburg, IL 60065
Telephone 800-345-3861 or 847-429-6667, Fax 312-283-1672

Standard(s): Inverters, Converters, Controllers And Interconnection System Equipment For Use With Distributed Energy Resources (DERS) - UL1741-2010 Ed 2-R15-eb2018

Product: Grid Interactive PV inverter

Brand Name: Yaskawa Solectria Solar

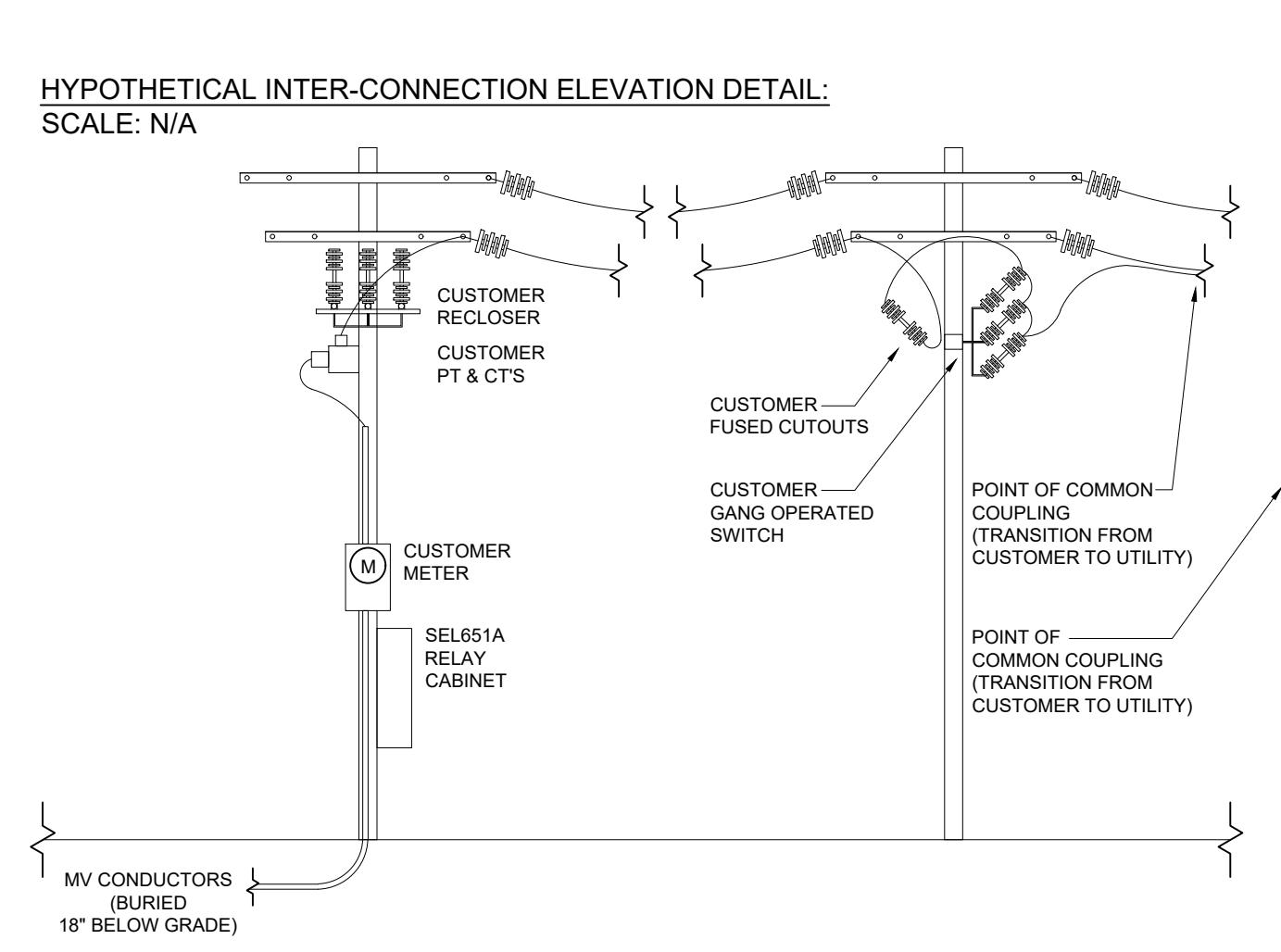
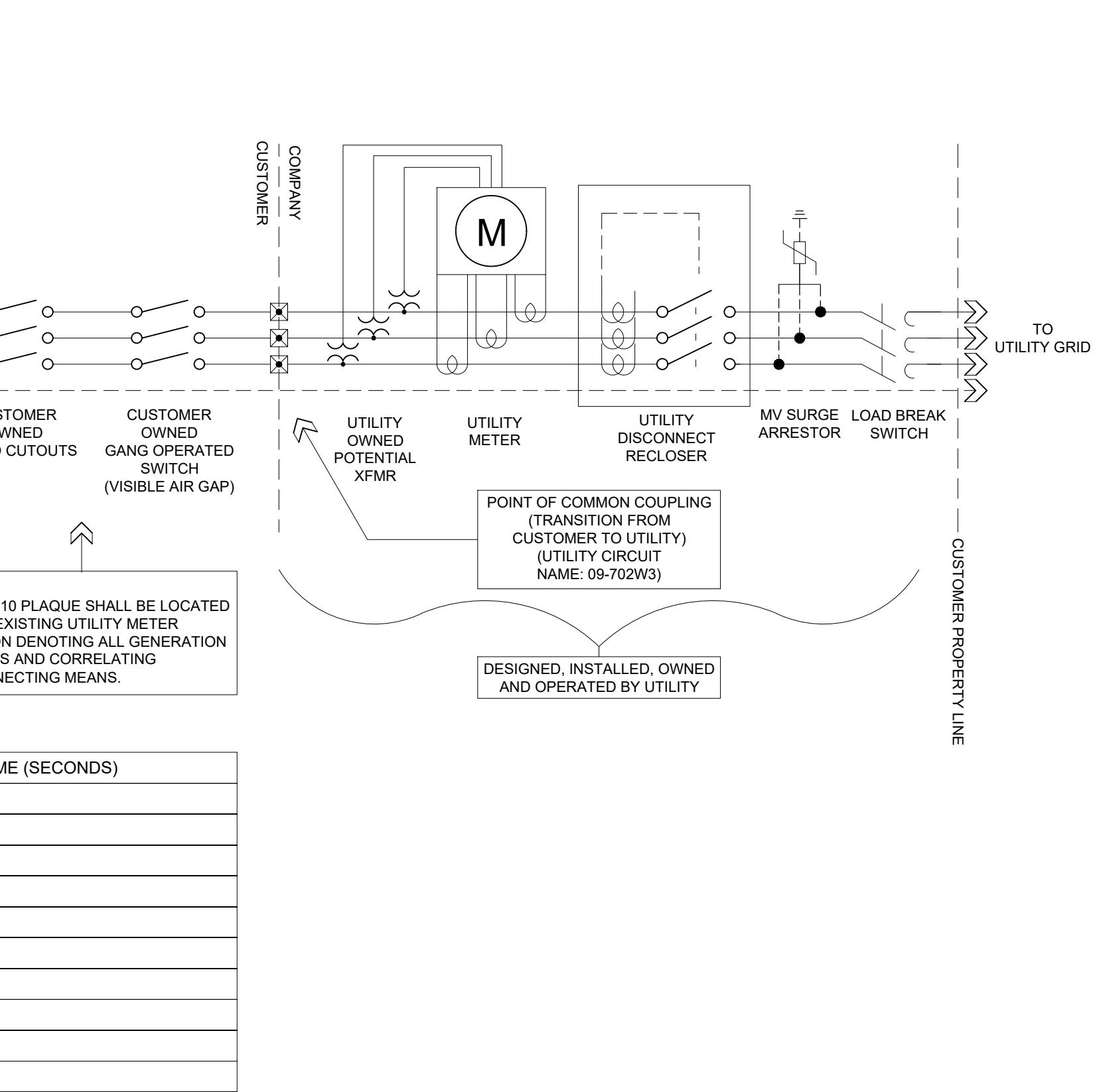
Models: XGI 1500-125/125, XGI 1500-125/150, XGI 1500-150/166, XGI 1500-166/166

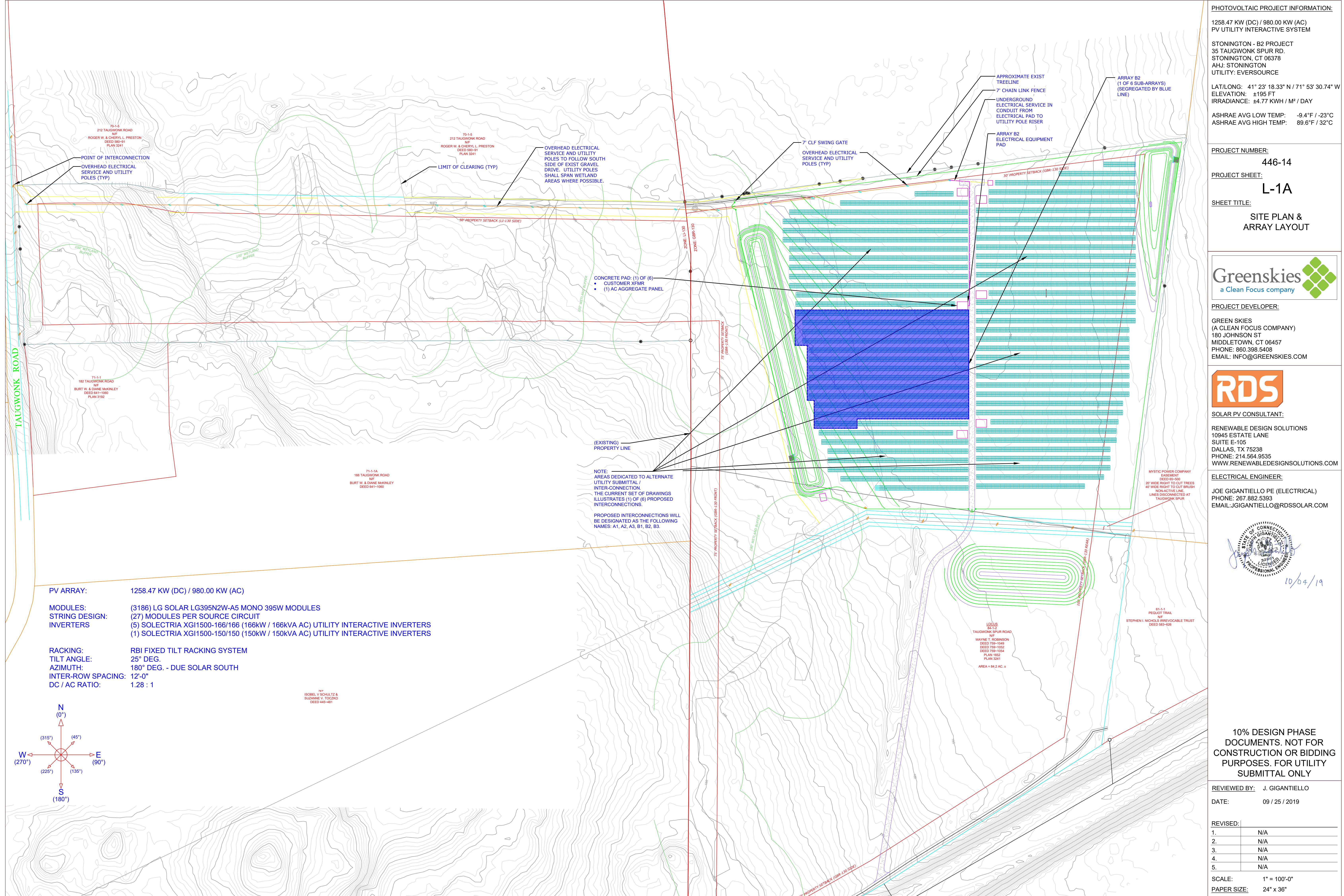
ATM for Report 103561512CRT-001c

ATM Issued: 31-Aug-2018
ED 16.3.15 (20-Apr-17) Mandatory

REVISED:
1. N/A
2. N/A
3. N/A
4. N/A
5. N/A

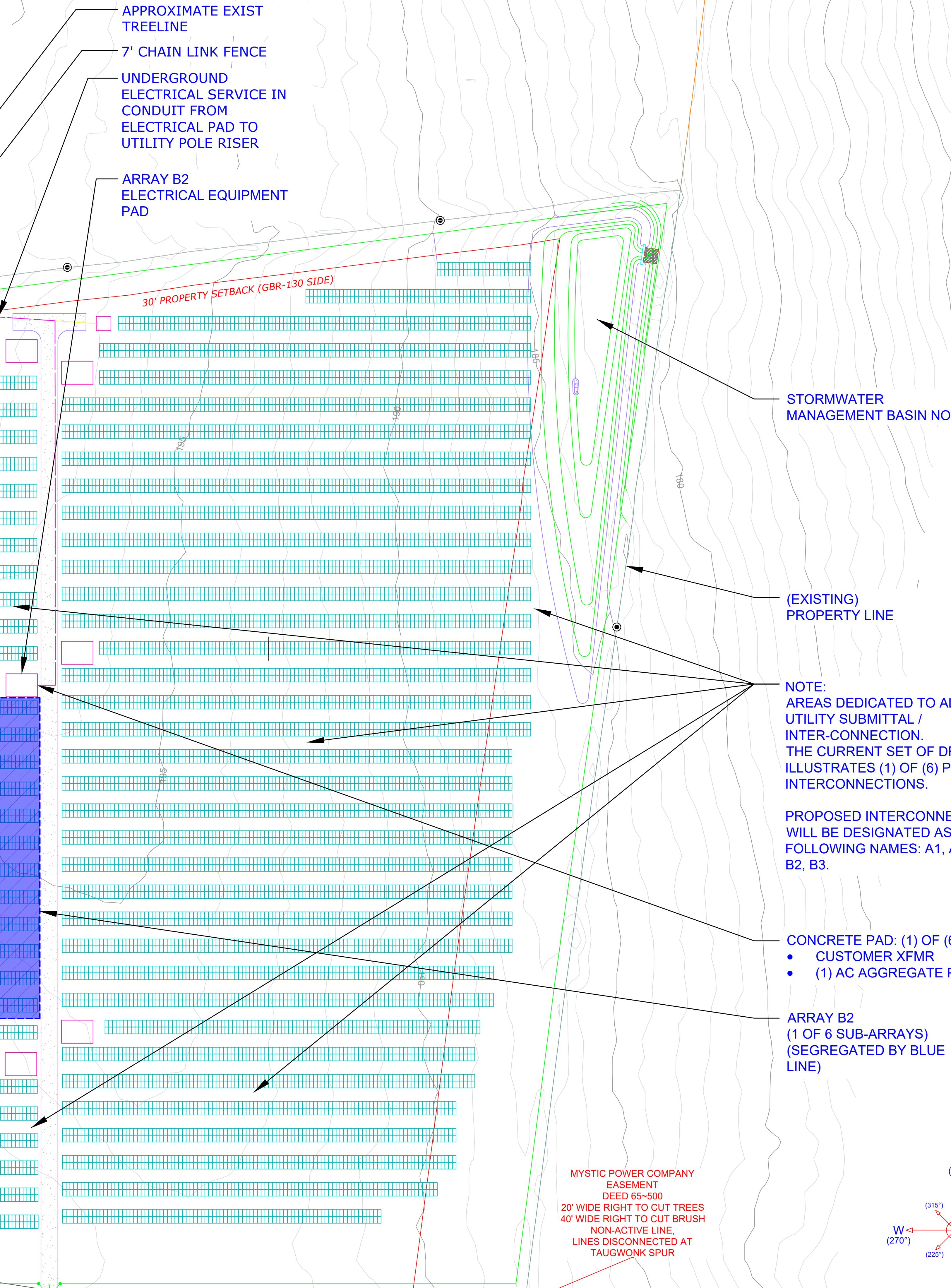
SCALE: N/A
PAPER SIZE: 24" x 36"





PV ARRAY: 1258.47 KW (DC) / 980.00 KW (AC)
MODULES: (3186) LG SOLAR LG395N2W-A5 MONO 395W MODULES
STRING DESIGN: (27) MODULES PER SOURCE CIRCUIT
INVERTERS: (5) SOLECTRIA XGI1500-166/166 (166kW / 166kVA AC) UTILITY INTERACTIVE INVERTERS
RACKING: (1) SOLECTRIA XGI1500-150/150 (150kW / 150kVA AC) UTILITY INTERACTIVE INVERTERS
RBI FIXED TILT RACKING SYSTEM
TIPT ANGLE: 25° DEG.
AZIMUTH: 180° DEG. - DUE SOLAR SOUTH
INTER-ROW SPACING: 12'-0"
DC / AC RATIO: 1.28 : 1

7' CLF SWING GATE
OVERHEAD ELECTRICAL SERVICE AND UTILITY POLES (TYP)
12' RCP
75' PROPERTY SETBACK (GBR-130 FRONT)
100' PROPERTY SETBACK (GBR-130 SIDE)



PHOTOVOLTAIC PROJECT INFORMATION:
 1258.47 KW (DC) / 980.00 KW (AC)
 PV UTILITY INTERACTIVE SYSTEM
 STONINGTON - B2 PROJECT
 35 TAUGWONK SPUR RD.
 STONINGTON, CT 06378
 AH: STONINGTON
 UTILITY: EVERSOURCE
 LAT/LONG: 41° 23' 18.33" N / 71° 53' 30.74" W
 ELEVATION: ±195 FT
 IRRADIANCE: ±4.77 KWH / M² / DAY
 ASHRAE AVG LOW TEMP: -9.4°F / -23°C
 ASHRAE AVG HIGH TEMP: 89.6°F / 32°C

PROJECT NUMBER: 446-14
PROJECT SHEET: L-1B
 SHEET TITLE: SITE PLAN & ARRAY LAYOUT (ENLARGED)



PROJECT DEVELOPER:
 GREEN SKIES
 (A CLEAN FOCUS COMPANY)
 180 JOHNSON ST
 MIDDLETON, CT 06457
 PHONE: 860.398.5408
 EMAIL: INFO@GREENSKIES.COM



SOLAR PV CONSULTANT:
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 PHONE: 214.564.9535
 WWW.RENEWABLEDESIGNSOLUTIONS.COM

ELECTRICAL ENGINEER:
 JOE GIGANTIETTO PE (ELECTRICAL)
 PHONE: 267.882.5393
 EMAIL: JGIGANTIETTO@RDSSOLAR.COM



10/04/19

10% DESIGN PHASE DOCUMENTS. NOT FOR CONSTRUCTION OR BIDDING PURPOSES. FOR UTILITY SUBMITTAL ONLY

REVIEWED BY: J. GIGANTIETTO
 DATE: 09 / 25 / 2019

REVISED:
 1. N/A
 2. N/A
 3. N/A
 4. N/A
 5. N/A
 SCALE: 1" = 50'-0"
 PAPER SIZE: 24" x 36"

PV ARRAY:	1258.47 KW (DC) / 980.00 KW (AC)
MODULES:	(3186) LG SOLAR LG395N2W-A5 MONO 395W MODULES
STRING DESIGN:	(27) MODULES PER SOURCE CIRCUIT
INVERTERS	(5) SOLECTRIA XGI1500-166/166 (166kW / 166kVA AC) UTILITY INTERACTIVE INVERTERS
	(1) SOLECTRIA XGI1500-150/150 (150kW / 150kVA AC) UTILITY INTERACTIVE INVERTERS
RACKING:	RBI FIXED TILT RACKING SYSTEM
TILT ANGLE:	25° DEG.
AZIMUTH:	180° DEG. - DUE SOLAR SOUTH
INTER-ROW SPACING:	12'-0"
DC / AC RATIO:	1.28 : 1

MV EQUIPMENT SCHEDULE						
DESCRIPTION	QTY	MANUFACTURER	MODEL	VOLTAGE RATING	CURRENT RATING	NOTES
CUSTOMER METER, PTS, CTS	(1)	TBD	TBD	TBD	TBD	TBD
GANG OPERATED SWITCH	(1)	S&C	TBD	15KV	200A	TBD
FUSED CUTOUT	(1)	S&C	TBD	15KV	200A	TBD
POWER POLE	(2)	TBD	TBD	TBD	TBD	TBD
SURGE ARRESTOR	(6)	TBD	TBD	TBD	TBD	TBD

PHOTOVOLTAIC PROJECT INFORMATION:
1258.47 KW (DC) / 980.00 KW (AC)
PV UTILITY INTERACTIVE SYSTEM
STONINGTON - B2 PROJECT
35 TAUGWONK SPUR RD.
STONINGTON, CT 06378
AHJ: STONINGTON
UTILITY: EVERSOURCE
LAT/LONG: 41° 23' 18.33" N / 71° 53' 30.74" W
ELEVATION: ±195 FT
IRRADIANCE: 14.77 kWh / M² / DAY
ASHRAE AVG LOW TEMP: -9.4°F / -23°C
ASHRAE AVG HIGH TEMP: 89.6°F / 32°C

PROJECT NUMBER: 446-14

PROJECT SHEET: E-3

SHEET TITLE: AC COLLECTION SYSTEM (1-LINE DIAGRAM)



PROJECT DEVELOPER:

GREEN SKIES
(A CLEAN FOCUS COMPANY)
180 JOHNSON ST
MIDDLETON, CT 06457
PHONE: 860.398.5408
EMAIL: INFO@GREENSKIES.COM



SOLAR PV CONSULTANT:

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SUITE E-105
DALLAS, TX 75238
PHONE: 214.564.9535
WWW.RENEWABLEDESIGNSOLUTIONS.COM

ELECTRICAL ENGINEER:

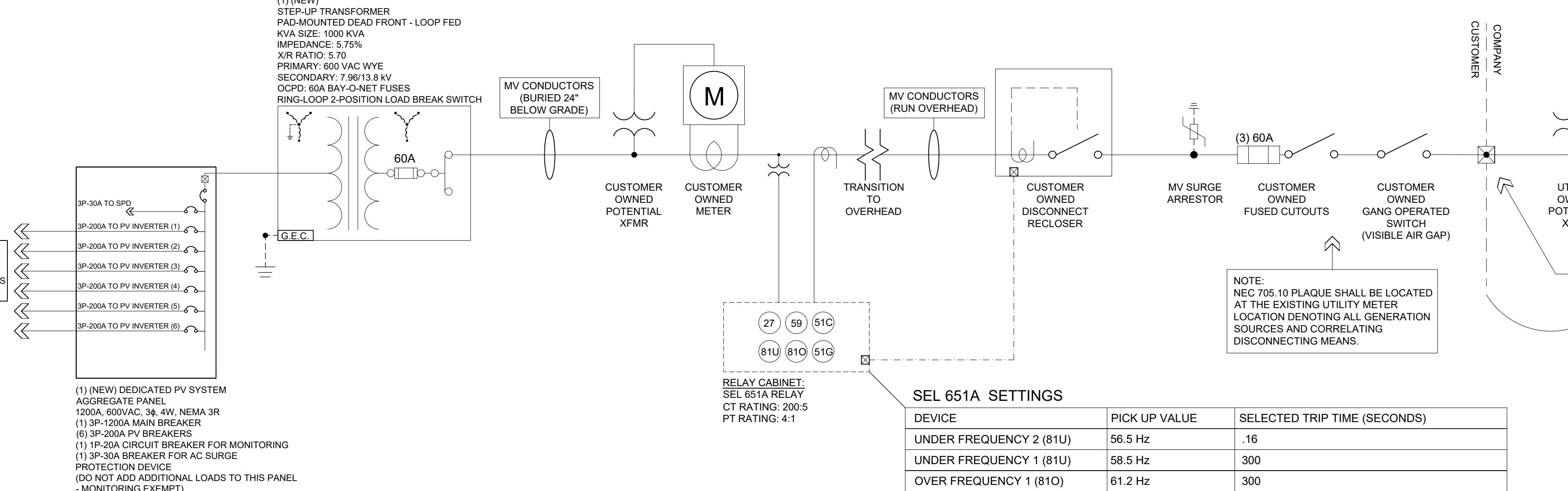
JOE GIGANTIETTO PE (ELECTRICAL)
PHONE: 267.882.5393
EMAIL: JGIGANTIETTO@RDSSOLAR.COM



10/04/19

(NEW) PHOTOVOLTAIC DC COLLECTION SYSTEM

PV ARRAY:	1,258.47 KW (DC) / 980.00 KW (AC)
MODULES:	(3186) LG SOLAR LG395N2W-A5 MONO 395W MODULES
INVERTERS:	(5) SOLECTRIA XGI1500-166/166 (166kW / 166kVA AC) UTILITY INTERACTIVE INVERTERS



ANTI-ISLANDING LETTER:



June 25, 2018

XGI 1500 – National Grid Anti-Islanding Information

Identify the manufacturer:	Yaskawa – Solectria Solar
Identify the model:	XGI 1500-166, XGI 1500-125
Contact information for manufacturer contact:	Eric Every Product Manager Solectria Renewables, LLC 978-683-9700 x137 eric.every@solectria.com
Identify if the inverter is 3-phase or 1-phase:	3 Phase
Provide brief description of island detection method proposed:	Perturbation is applied by injecting a small amount of reactive power (or phase angle) into the output current during every cycle. The magnitude of the perturbation increases if the inverter detects an island condition.
Does the inverter employ active or passive islanding detection? Provide documentation confirming that the islanding detection is "turned on" in the proposed inverter:	Active. The anti-islanding detection algorithm is hardcoded into the inverter operating firmware and cannot be disabled or "turned off" by the user.
For active islanding detection, various methods are available in the market. Identify the type of detection proposed. Is the method based on Sandia Frequency Shift, Sandia Voltage Shift, Frequency Shift Detection, or Other? If Other, specify:	The active islanding detection algorithm is based on the Sandia Frequency Shift Detection methodology.
Does the active islanding detection utilize positive feedback?	Yes
If utilizing positive feedback, does the island detection employ a uni-directional or bi-directional perturbation?	Bi-directional
Does the inverter use an isolation transformer?	No
If yes, what is the low voltage phase to neutral voltage?	N/A
How is the AC output voltage limited? Specifically, how do the inverter controls limit the AC output voltage when generation exceeds available load?	The inverter detects the AC voltage and converts available DC power to AC when the AC voltage is in normal range. Inverters do not limit the AC output voltage. Instead, if the AC voltage is higher than threshold, inverters stop operation (cease to energize) according to IEEE1547 standards.

SOLECTRIA SOLAR

Yaskawa Solectria Solar
300 Merrimack Street
Lawrence, MA 01843
solectria.com

YASKAWA

INVERTER SETTINGS:



January 16, 2019

RE: Voltage and Frequency Setpoints for XGI 1500-125/125-UL, XGI 1500-125/150-UL, XGI 1500-150/150-UL and XGI 1500-166/166-UL and XGI 1500-166/166-UL

To Whom It May Concern:
Selectria XGI 1500-125/125-UL, XGI 1500-125/150-UL, XGI 1500-150/150-UL and XGI 1500-166/166-UL utility interactive Inverters will cease power production in the event of abnormal grid conditions. These voltage and frequency setpoints adhere to IEEE1547-2014, which has the default setpoints and range of adjustability specified below:

Voltage Range (p.u.)	Default Clearing Time (s)	Clearing Time: adjustable up to and including (s)
V < 0.45	0.16	0.16
0.45 <= V < 0.60	1	11
0.60 <= V < 0.88	2	21
1.1 < V < 1.2	1	13
V >= 1.2	0.16	0.16

Response to Abnormal AC Voltage

Protective Function	Default Settings	Ranges of Adjustability
	Frequency (Hz)	Clearing Time (s)
81U-1	f < 57.0	0.16
81U-2	f > 59.5	2
81O-1	f > 60.5	2
81O-2	f > 62	0.16

Response to Abnormal Frequency

At the request of the utility, the adjustable settings specified can be changed through a password-protected menu on the user interface. Upon grid disturbances the inverter will wait 5 minutes after the grid voltage and frequency return to nominal values before attempting to reconnect. Please refer to the XGI 1500 Installation and Operations Manual for additional information.

Sincerely,

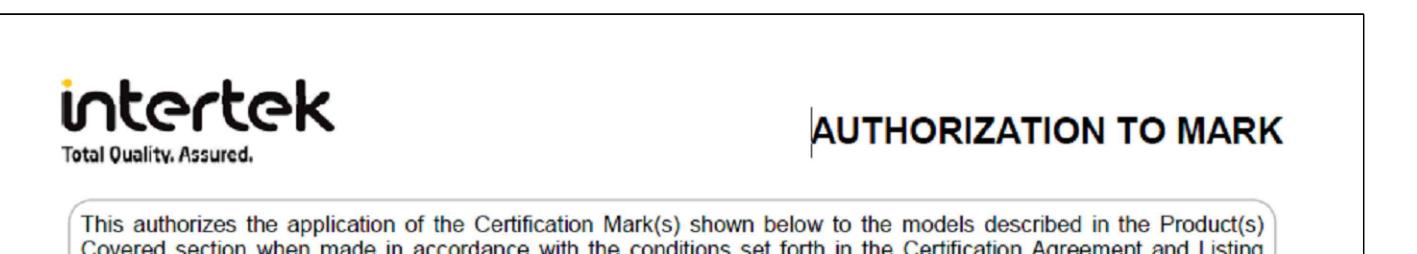
Emily Hwang | Applications Engineering Manager
+1 978.683.9700 | emily.hwang@solectria.com

SOLECTRIA SOLAR

Yaskawa Solectria Solar
300 Merrimack Street
Lawrence, MA 01843
solectria.com

YASKAWA

UL1741SA LISTING:



Applicant:	Solectria Renewables LLC 300 Merrimack Street Bldg 9, Floor 2 LAWRENCE, MA 01843	Manufacturer:	Yaskawa America Inc 1067 Johnson Drive Buffalo Grove, IL 60089
Country:	USA	Country:	USA
Contact:	Wei Zhou (primary) Jihua Ma (alternate)	Contact:	Arthur Folla (primary) Joe Kleczkowski (alternate)
Phone:	(978) 683-9700	Phone:	847-987-7555 (primary) 414-856-2501
FAX:	(978) 683-9702	FAX:	
Email:	wei.zhou@solectria.com jihua.ma@solectria.com	Email:	arthur.folla@yaskawa.com joe.kleczkowski@yaskawa.com

Party Authorized To Apply Mark: Same as Manufacturer
Report Issuing Office: Cortland NY 13045

Control Number: 5010838 Authorized by:

for Dean Davidson, Certification Manager

ETL US

Intertek

This document supersedes all previous Authorizations to Mark for the noted Report Number.

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Intertek Testing Services NA Inc.
545 East Algonquin Road, Arlington Heights, IL 60005
Telephone 800-345-8851 or 847-435-6667 Fax 312-283-1672

Standard(s): Inverters, Converters, Controllers And Interconnection System Equipment For Use With Distributed Energy Resources (UL 1741-2010 Ed.2-R 15Feb2018)

Product: Grid interactive PV inverter

Brand Name: Yaskawa Solectria Solar

PV ARRAY:	1258.47 KW (DC) / 980.00 KW (AC)
MODULES:	(3186) LG SOLAR LG395N2W-A5 MONO 395W MODULES
STRING DESIGN:	(27) MODULES PER SOURCE CIRCUIT
INVERTERS:	(5) SOLECTRIA XGI1500-166/166 (166kW / 166kVA AC) UTILITY INTERACTIVE INVERTERS
(1) SOLECTRIA XGI1500-150/150 (150kW / 150kVA AC) UTILITY INTERACTIVE INVERTERS	
RACKING:	RBI FIXED TILT RACKING SYSTEM
TILT ANGLE:	25° DEG.
AZIMUTH:	180° DEG. - DUE SOLAR SOUTH
INTER-ROW SPACING:	12'-0"
DC / AC RATIO:	1.28 : 1

MV EQUIPMENT SCHEDULE						
DESCRIPTION	QTY	MANUFACTURER	MODEL	VOLTAGE RATING	CURRENT RATING	NOTES
CUSTOMER METER, PTS, CTS	(1)	TBD	TBD	TBD	TBD	
GANG OPERATED SWITCH	(1)	S&C	TBD	15KV	200A	TBD
FUSED CUTOUT	(1)	S&C	TBD	15KV	200A	TBD
POWER POLE	(2)	TBD	TBD	TBD	TBD	TBD
SURGE ARRESTOR	(6)	TBD	TBD	TBD	TBD	TBD

PHOTOVOLTAIC PROJECT INFORMATION:
1258.47 KW (DC) / 980.00 KW (AC)
PV UTILITY INTERACTIVE SYSTEM
STONINGTON - B2 PROJECT
35 TAUGWONK SPUR RD.
STONINGTON, CT 06378
AHJ: STONINGTON
UTILITY: EVERSOURCE
LAT/LONG: 41° 23' 18.33" N / 71° 53' 30.74" W
ELEVATION: ±195 FT
IRRADIANCE: ±4.77 KWH / M² / DAY
ASHRAE AVG LOW TEMP: -9.4°F / -23°C
ASHRAE AVG HIGH TEMP: 89.6°F / 32°C

PROJECT NUMBER: 446-14

PROJECT SHEET: E-4

SHEET TITLE: AC COLLECTION SYSTEM (3-LINE DIAGRAM)



PROJECT DEVELOPER:

GREEN SKIES
(A CLEAN FOCUS COMPANY)
180 JOHNSON ST
MIDDLETON, CT 06457
PHONE: 860.398.5408
EMAIL: INFO@GREENSKIES.COM



SOLAR PV CONSULTANT:

RENEWABLE DESIGN SOLUTIONS
10945 ESTATE LANE
SUITE E-105
DALLAS, TX 75238
PHONE: 214.564.9535
WWW.RENEWABLEDESIGNSOLUTIONS.COM

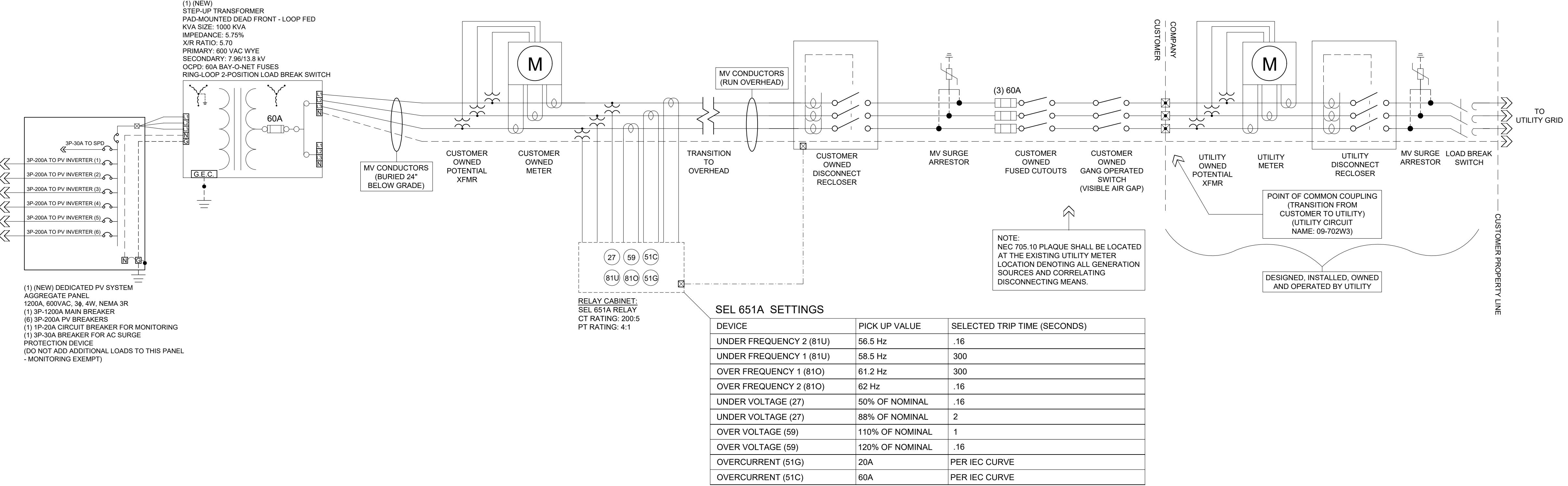
ELECTRICAL ENGINEER:

JOE GIGANTIETTO PE (ELECTRICAL)
PHONE: 267.882.5393
EMAIL: JGIGANTIETTO@RDSSOLAR.COM



(NEW) PHOTOVOLTAIC DC COLLECTION SYSTEM

PV ARRAY: 1.258.47 KW (DC) / 980.00 KW (AC)
MODULES: (3186) LG SOLAR LG395N2W-A5 MONO 395W MODULES
INVERTERS: (5) SOLECTRIA XGI1500-166/166 (166kW / 166kVA AC) UTILITY INTERACTIVE INVERTERS
(1) SOLECTRIA XGI1500-150/150 (150kW / 150kVA AC) UTILITY INTERACTIVE INVERTER



ANTI-ISLANDING LETTER:



June 25, 2018

XGI 1500 – National Grid Anti-Islanding Information

Identify the manufacturer:	Yaskawa – Solectria Solar
Identify the model:	XGI 1500-166, XGI 1500-125
Contact information for manufacturer contact:	
Product Manager	Solectria Renewables, LLC 978-683-9700 x137 eric.everly@solectria.com
Identify if the inverter is 3-phase or 1-phase:	3 Phase
Provide brief description of island detection method proposed:	Perturbation is applied by injecting a small amount of reactive power (or phase angle) into its output current during every cycle. The magnitude of the perturbation increases if the inverter detects an island condition.
Does the inverter employ active or passive islanding detection? Provide documentation confirming that the islanding detection is "turned on" for the proposed inverter:	Active. The anti-islanding detection algorithm is hardcoded into the inverter operating firmware and cannot be disabled or "turned off" by the user.
For active islanding detection, various methods are available in the market. Identify the type of detection proposed. Is the method based on Sandia Frequency Shift, Sandia Voltage Shift, Sandia Impedance Detection, or Other? If Other, specify:	The active islanding detection algorithm is based on the Sandia Frequency Shift Detection methodology.
Does the active islanding detection employ a uni-directional or bi-directional perturbation?	Yes
Bi-directional	
Does the inverter use an isolation transformer?	No
N/A	
What is the low voltage phase to neutral voltage?	
How is the AC output voltage limited? Specifically, how do the inverter controls limit the AC output voltage when generation exceeds available load?	The inverter detects the AC voltage and converts available DC power to AC when the AC voltage is in normal range. Inverters do not limit the AC output voltage. Instead, if the AC voltage is higher than threshold, inverters stop operation (cease to energize) according to IEE1547 standards.

SOLECTRIA SOLAR

Yaskawa Solectria Solar
380 Merrimack Street
Lawrence, MA 01843
solectria.com

YASKAWA

INVERTER SETTINGS:



January 16, 2019

RE: Voltage and Frequency Setpoints for XGI 1500-125/125-UL, XGI 1500-125/150-UL, XGI 1500-150/166-UL and XGI 1500-166/166-UL

To Whom It May Concern:
Solectria XGI 1500-125/125-UL, XGI 1500-125/150-UL, XGI 1500-150/166-UL and XGI 1500-166/166-UL utility interactive inverters will cease power production in the event of abnormal grid conditions. These voltage and frequency setpoints adhere to IEEE1547a-2014, which has the default setpoints and range of adjustability specified below.

Voltage Range (p.u.)	Default Clearing Time (s)	Clearing Time: adjustable up to and including (s)
V < 0.45	0.16	0.16
0.45 <= V < 0.60	1	11
0.60 <= V < 0.88	2	21
1.1 < V < 1.2	1	13
V >= 1.2	0.16	0.16

Response to Abnormal AC Voltage		
Protective Function	Default Settings	Ranges of Adjustability
81U-1	f < 57.0	0.16
81U-2	f < 59.5	2
81D-1	f > 60.5	2
81D-2	f > 62	0.16
	Frequency (Hz)	Clearing Time (s)
	56 - 60	10
	56 - 60	300
	60 - 64	300
	60 - 64	10

At the request of the utility, the adjustable settings specified can be changed through a password-protected menu on the user interface. Upon grid disturbances the inverter will wait 5 minutes after the grid voltage and frequency return to nominal values before attempting to reconnect. Please refer to the XGI 1500 Installation and Operations Manual for additional information.

Sincerely,

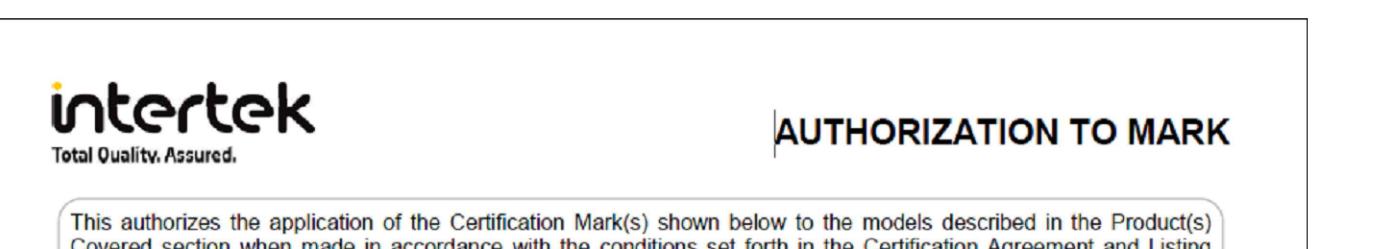
Emily Hwang | Applications Engineering Manager
+1 978.636.9700 | emily.hwang@solectria.com

SOLECTRIA SOLAR

Yaskawa Solectria Solar
380 Merrimack Street
Lawrence, MA 01843
solectria.com



UL1741SA LISTING:



AUTHORIZATION TO MARK

This authorizes the application of the Certification Mark(s) shown below to the models described in the Product(s) Covered section when made in accordance with the conditions set forth in the Certification Agreement and Listing Report. The authorization also applies to multiple listed model(s) identified on the correlation page of the Listing Report.

This document is the property of Intertek Testing Services and is not transferable. The certification mark(s) may be applied only at the location of the Party Authorized To Apply Mark.

Applicant: Solectria Renewables LLC
380 Merrimack Street
Bldg 9, Floor 2
LAWRENCE, MA 01843
Country: USA
Contact: Wei Zhou (primary)
Phone: (978) 683-9700
FAX: (978) 683-9702
Email: wei.zhou@solectria.com
Manufacturer: Yaskawa America Inc
1067 Johnson Drive
Buffalo Grove, IL 60089
Country: USA
Contact: Arthur Folta (primary)
Jihua Ma (alternate)
Phone: 847-887-7555 (primary)
414-956-2301 (alternate)
FAX: 414-956-2301
Email: arthur.folta@yaskawa.com
jihua.ma@yaskawa.com

Party Authorized To Apply Mark: Same as Manufacturer
Report Issuing Office: Confined NY 13045
Control Number: 5010583
Authorized by:

for Dean Davidson, Certification Manager

Intertek

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645 East Algonquin Road, Skokie, Illinois, IL 60005
Telephone 800-345-3861 or 847-429-6667, Fax 312-283-1672

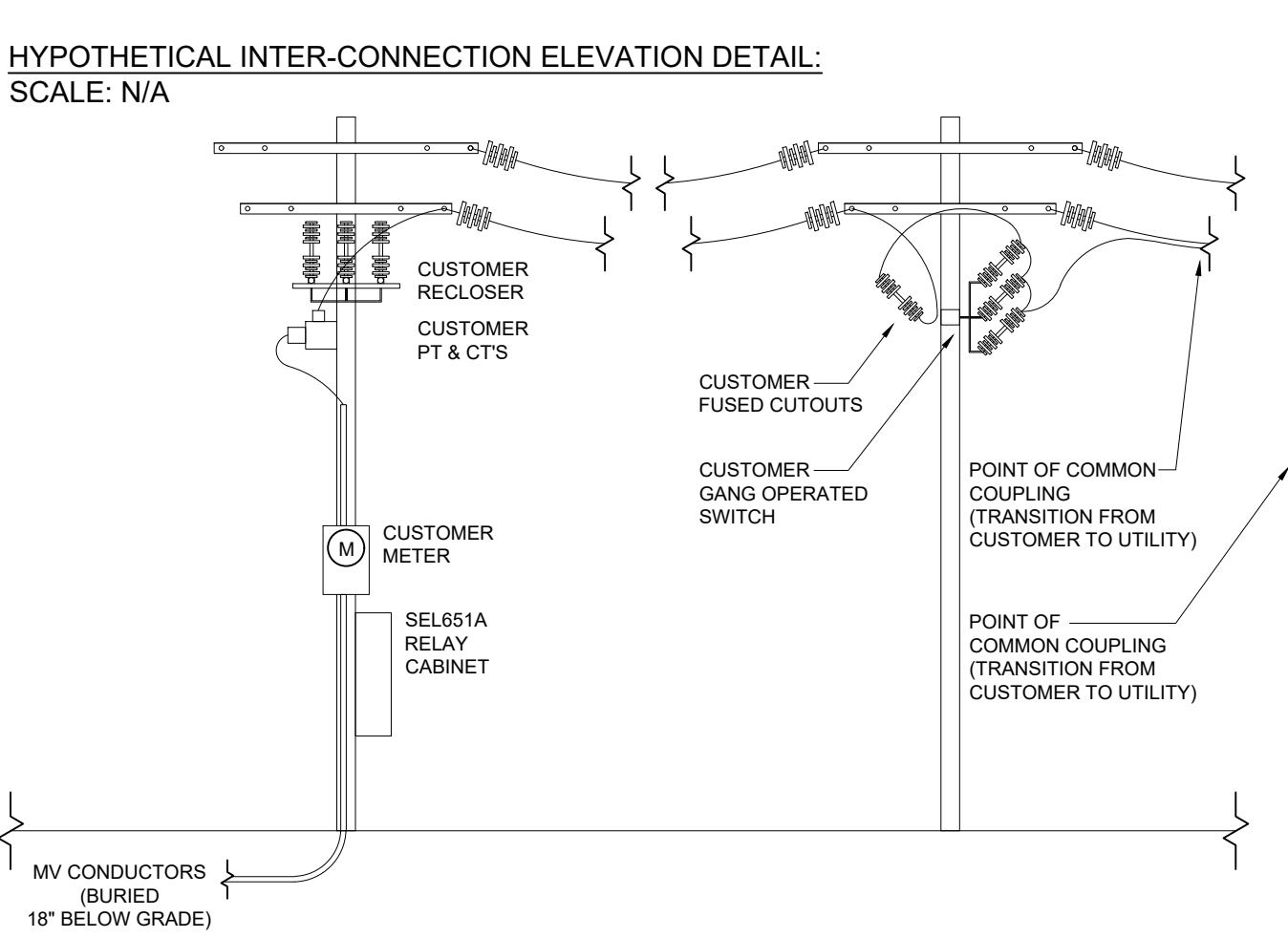
Standard(s): Inverters, Converters, Controllers And Interconnection System Equipment For Use With Distributed Energy Resources, UL1741-2010 Ed 2-R15-eb2018
Product: Grid Interactive PV inverter
Brand Name: Yaskawa Solectria Solar
Models: XGI 1500-125/125, XGI 1500-125/150, XGI 1500-150/166, XGI 1500-166/166

ATM Issued: 31-Aug-2018
ED 16.1.15 (20-Apr-17) Mandatory

ATM Issued: 31-Aug-2018
ED 16.1.15 (20-Apr-17) Mandatory

HYPOTHETICAL INTER-CONNECTION ELEVATION DETAIL:

SCALE: N/A



10% DESIGN PHASE DOCUMENTS. NOT FOR CONSTRUCTION OR BIDDING PURPOSES. FOR UTILITY SUBMITTAL ONLY

REVIEWED BY: J. GIGANTIETTO

DATE: 09 / 25 / 2019

REVISED:

1. N/A
2. N/A
3. N/A
4. N/A
5. N/A

SCALE: N/A

PAPER SIZE: 24" x 36"

PHOTOVOLTAIC PROJECT INFORMATION:

639.90 kW (DC) / 500.00 kW (AC)
PV UTILITY INTERACTIVE SYSTEM

STONINGTON - B3 PROJECT

35 TAUGWONK SPUR RD.

STONINGTON, CT 06378

AHJ: STONINGTON

UTILITY: EVERSOURCE

LAT/LONG: 41° 23' 18.33" N / 71° 53' 30.74" W
ELEVATION: ±195 FT
IRRADIANCE: 4.77 kWh / m² / DAY

ASHRAE AVG LOW TEMP: -9.4°F / -23°C
ASHRAE AVG HIGH TEMP: 89.6°F / 32°C

PROJECT NUMBER:

446-14

PROJECT SHEET:

L-1A

SHEET TITLE:
SITE PLAN & ARRAY LAYOUT

PROJECT DEVELOPER:

GREEN SKIES

(A CLEAN FOCUS COMPANY)

180 JOHNSON ST

MIDDLETON, CT 06457

PHONE: 860.398.5408

EMAIL: INFO@GREENSKIES.COM



SOLAR PV CONSULTANT:

RENEWABLE DESIGN SOLUTIONS

10945 ESTATE LANE

SUITE E-105

DALLAS, TX 75238

PHONE: 214.564.9535

WWW.RENEWABLEDESIGNSOLUTIONS.COM

ELECTRICAL ENGINEER:

JOE GIGANTIETTO PE (ELECTRICAL)

PHONE: 267.882.5393

EMAIL: JGIGANTIETTO@RDSSOLAR.COM



10/04/19

POINT OF INTERCONNECTION
OVERHEAD ELECTRICAL
SERVICE AND UTILITY
POLES (TYP)

LIMIT OF CLEARING (TYP)

OVERHEAD ELECTRICAL
SERVICE AND UTILITY
POLES TO FOLLOW SOUTH
SIDE OF EXIST GRAVEL
DRIVE. UTILITY POLES
SHALL SPAN WETLAND
AREAS WHERE POSSIBLE.

7 CLF SWING GATE
OVERHEAD ELECTRICAL
SERVICE AND UTILITY
POLES (TYP)

APPROXIMATE EXIST
TREELINE
UNDERGROUND
ELECTRICAL SERVICE IN
CONDUIT FROM
ELECTRICAL PAD TO
UTILITY POLE RISER

ARRAY B3
(1 OF 6 SUB-ARRAYS)
(SEGREGATED BY BLUE
LINE)

30' PROPERTY SETBACK (GBR-130 SIDE)

100' WETLAND
BUFFER

100' WETLAND
BUFFER

100' WETLAND
BUFFER100' WETLAND
BUFFER

PV ARRAY: 639.90 KW (DC) / 500.00 KW (AC)
MODULES: (1620) LG SOLAR LG395N2W-A5 MONO 395W MODULES
STRING DESIGN: (27) MODULES PER SOURCE CIRCUIT
INVERTERS: (4) SOLECTRIA XGI1500-125/125 (125kW / 125kVA AC) UTILITY INTERACTIVE INVERTERS
RACKING: RBI FIXED TILT RACKING SYSTEM
TIPT ANGLE: 25° DEG.
AZIMUTH: 180° DEG. - DUE SOLAR SOUTH
INTER-ROW SPACING: 12'-0"
DC / AC RATIO: 1.28 : 1

7' CLF SWING GATE
OVERHEAD ELECTRICAL SERVICE AND UTILITY POLES (TYP)
12" RCP
100' WETLAND BUFFER
75' PROPERTY SETBACK (GBR-130 FRONT)

APPROXIMATE EXIST TREELINE
7' CHAIN LINK FENCE
UNDERGROUND ELECTRICAL SERVICE IN CONDUIT FROM ELECTRICAL PAD TO UTILITY POLE RISER
ARRAY B3 ELECTRICAL EQUIPMENT PAD

30' PROPERTY SETBACK (GBR-130 SIDE)
STORMWATER MANAGEMENT BASIN NO. 1

(EXISTING) PROPERTY LINE

NOTE:
AREAS DEDICATED TO ALTERNATE UTILITY SUBMITTAL / INTER-CONNECTION.
THE CURRENT SET OF DRAWINGS ILLUSTRATES (1) OF (6) PROPOSED INTERCONNECTIONS.

PROPOSED INTERCONNECTIONS WILL BE DESIGNATED AS THE FOLLOWING NAMES: A1, A2, A3, B1, B2, B3.

CONCRETE PAD: (1) OF (6)

- CUSTOMER XFMR
- (1) AC AGGREGATE PANEL

ARRAY B3 (1 OF 6 SUB-ARRAYS) (SEGREGATED BY BLUE LINE)

MYSTIC POWER COMPANY EASEMENT DEED 65-500
20' WIDE RIGHT TO CUT TREES
40' WIDE RIGHT TO CUT BRUSH
NON-ACTIVE LINE, LINES DISCONNECTED AT TAUGWONK SPUR

PHOTOVOLTAIC PROJECT INFORMATION:
639.90 KW (DC) / 500.00 KW (AC)
PV UTILITY INTERACTIVE SYSTEM
STONINGTON - B3 PROJECT
35 TAUGWONK SPUR RD.
STONINGTON, CT 06378
AHJ: STONINGTON
UTILITY: EVERSOURCE
LAT/LONG: 41° 23' 18.33" N / 71° 53' 30.74" W
ELEVATION: ±195 FT
IRRADIANCE: 4.77 KWH / M² / DAY
ASHRAE AVG LOW TEMP: -9.4°F / -23°C
ASHRAE AVG HIGH TEMP: 89.6°F / 32°C

PROJECT NUMBER: 446-14

PROJECT SHEET: L-1B

Sheet Title:
SITE PLAN & ARRAY LAYOUT (ENLARGED)



PROJECT DEVELOPER:

GREEN SKIES
(A CLEAN FOCUS COMPANY)
180 JOHNSON ST
MIDDLETON, CT 06457
PHONE: 860.398.5408
EMAIL: INFO@GREENSKIES.COM



SOLAR PV CONSULTANT:

RENEWABLE DESIGN SOLUTIONS
10945 ESTATE LANE
SUITE E-105
DALLAS, TX 75238
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ELECTRICAL ENGINEER:

JOE GIGANTIETTO PE (ELECTRICAL)
PHONE: 267.882.5393
EMAIL: JGIGANTIETTO@RDSSOLAR.COM



10% DESIGN PHASE DOCUMENTS. NOT FOR CONSTRUCTION OR BIDDING PURPOSES. FOR UTILITY SUBMITTAL ONLY

REVIEWED BY: J. GIGANTIETTO

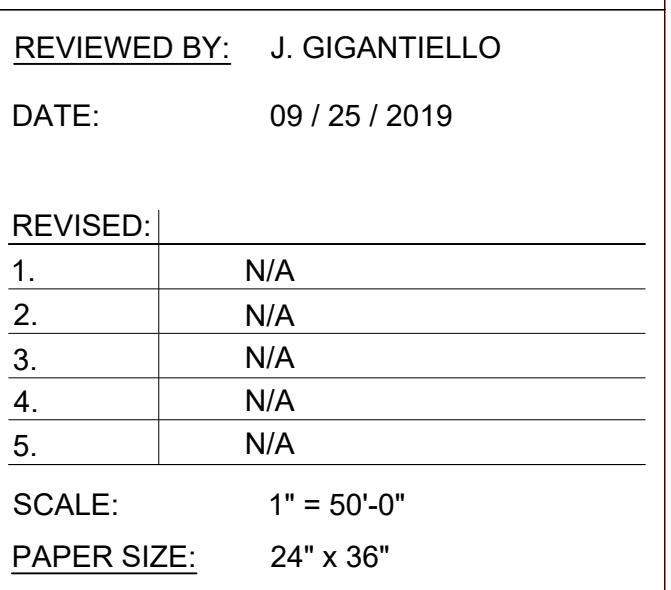
DATE: 09 / 25 / 2019

REVISED:

1. N/A
2. N/A
3. N/A
4. N/A
5. N/A

SCALE: 1" = 50'-0"

PAPER SIZE: 24" x 36"



PV ARRAY:	639.90 kW (DC) / 500.00 kW (AC)
MODULES:	(1620) LG SOLAR LG395N2W-A5 MONO 395W MODULES
STRING DESIGN:	(27) MODULES PER SOURCE CIRCUIT
INVERTERS	(4) SOLECTRIA XGI1500-125/125 (125kW / 125kVA AC) UTILITY INTERACTIVE INVERTERS
RACKING:	RBI FIXED TILT RACKING SYSTEM
TILT ANGLE:	25° DEG.
AZIMUTH:	180° DEG. - DUE SOLAR SOUTH
INTER-ROW SPACING:	12'-0"
DC / AC RATIO:	1.28 : 1

MV EQUIPMENT SCHEDULE						
DESCRIPTION	QTY	MANUFACTURER	MODEL	VOLTAGE RATING	CURRENT RATING	NOTES
CUSTOMER METER, PTS, CTS	(1)	TBD	TBD	TBD	TBD	TBD
GANG OPERATED SWITCH	(1)	S&C	TBD	15KV	200A	TBD
FUSED CUTOUT	(1)	S&C	TBD	15KV	200A	TBD
POWER POLE	(2)	TBD	TBD	TBD	TBD	TBD
SURGE ARRESTOR	(6)	TBD	TBD	TBD	TBD	TBD

PHOTOVOLTAIC PROJECT INFORMATION:
 639.90 kW (DC) / 500.00 kW (AC)
 PV UTILITY INTERACTIVE SYSTEM
 STONINGTON - B3 PROJECT
 35 TAUGWONK SPUR RD.
 STONINGTON, CT 06378
 AHJ: STONINGTON
 UTILITY: EVERSOURCE
 LAT/LONG: 41° 23' 18.33" N / 71° 53' 30.74" W
 ELEVATION: ±195 FT
 IRRADIANCE: 14.77 kWh / m² / DAY
 ASHRAE AVG LOW TEMP: -9.4°F / -23°C
 ASHRAE AVG HIGH TEMP: 89.6°F / 32°C

PROJECT NUMBER:

446-14

PROJECT SHEET:

E-3

SHEET TITLE:

AC COLLECTION SYSTEM
(1-LINE DIAGRAM)



PROJECT DEVELOPER:

GREEN SKIES
(A CLEAN FOCUS COMPANY)
180 JOHNSON ST
MIDDLETON, CT 06457
PHONE: 860.398.5408
EMAIL: INFO@GREENSKIES.COM



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JOE GIGANTIETTO PE (ELECTRICAL)
PHONE: 267.882.5393
EMAIL: JGIGANTIETTO@RDSSOLAR.COM



10/04/19

(NEW) PHOTOVOLTAIC DC COLLECTION SYSTEM

PV ARRAY: 639.90 kW (DC) / 500.00 kW (AC)
 MODULES: (1620) LG SOLAR LG395N2W-A5 MONO 395W MODULES
 INVERTERS: (4) SOLECTRIA XGI1500-125/125 (125kW / 125kVA AC) UTILITY INTERACTIVE INVERTERS

PHOTOVOLTAIC DC COLLECTION SYSTEM

PV ARRAY: 639.90 kW (DC) / 500.00 kW (AC)
 MODULES: (1620) LG SOLAR LG395N2W-A5 MONO 395W MODULES
 INVERTERS: (4) SOLECTRIA XGI1500-125/125 (125kW / 125kVA AC) UTILITY INTERACTIVE INVERTERS

PHOTOVOLTAIC DC COLLECTION SYSTEM

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PHOTOVOLTAIC DC COLLECTION SYSTEM

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PHOTOVOLTAIC DC COLLECTION SYSTEM

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PHOTOVOLTAIC DC COLLECTION SYSTEM

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 INVERTERS: (4) SOLECTRIA XGI1500-125/125 (125kW / 125kVA AC) UTILITY INTERACTIVE INVERTERS

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<p

PV ARRAY: 639.90 KW (DC) / 500.00 KW (AC)

MODULES: (1620) LG SOLAR LG395N2W-A5 MONO 395W MODULES

STRING DESIGN: (27) MODULES PER SOURCE CIRCUIT

INVERTERS (4) SOLECTRIA XGI1500-125/125 (125kW / 125kVA AC) UTILITY INTERACTIVE INVERTERS

RACKING: RBI FIXED TILT RACKING SYSTEM

TIILT ANGLE: 25° DEG.

AZIMUTH: 180° DEG. - DUE SOLAR SOUTH

INTER-ROW SPACING: 12'-0"

DC / AC RATIO: 1.28 : 1

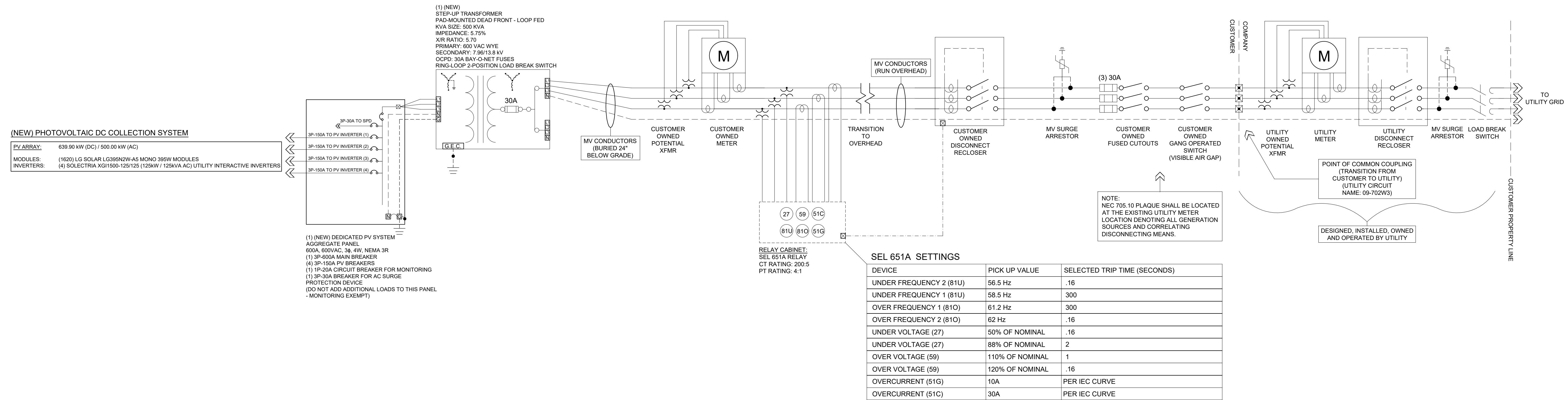
EQUIPMENT SCHEDULE						
DESCRIPTION	QTY	MANUFACTURER	MODEL	VOLTAGE RATING	CURRENT RATING	NOTES
STOMER METER, , CTS	(1)	TBD	TBD	TBD	TBD	TBD
NG OPERATED TCH	(1)	S&C	TBD	15KV	200A	TBD
ED CUTOUT	(1)	S&C	TBD	15KV	200A	TBD
WER POLE	(2)	TBD	TBD	TBD	TBD	TBD
RGE ARRESTOR	(6)	TBD	TBD	TBD	TBD	TBD

PHOTOVOLTAIC PROJECT INFORMATION:
90 KW (DC) / 500.00 KW (AC)
UTILITY INTERACTIVE SYSTEM
STONINGTON - B3 PROJECT
TAUGWONK SPUR RD.
STONINGTON, CT 06378
STONINGTON
ILITY: EVERSOURCE
/LONG: 41° 23' 18.33" N / 71° 53' 30.74" W
VATION: ±195 FT
DIANCE: ±4.77 KWH / M² / DAY

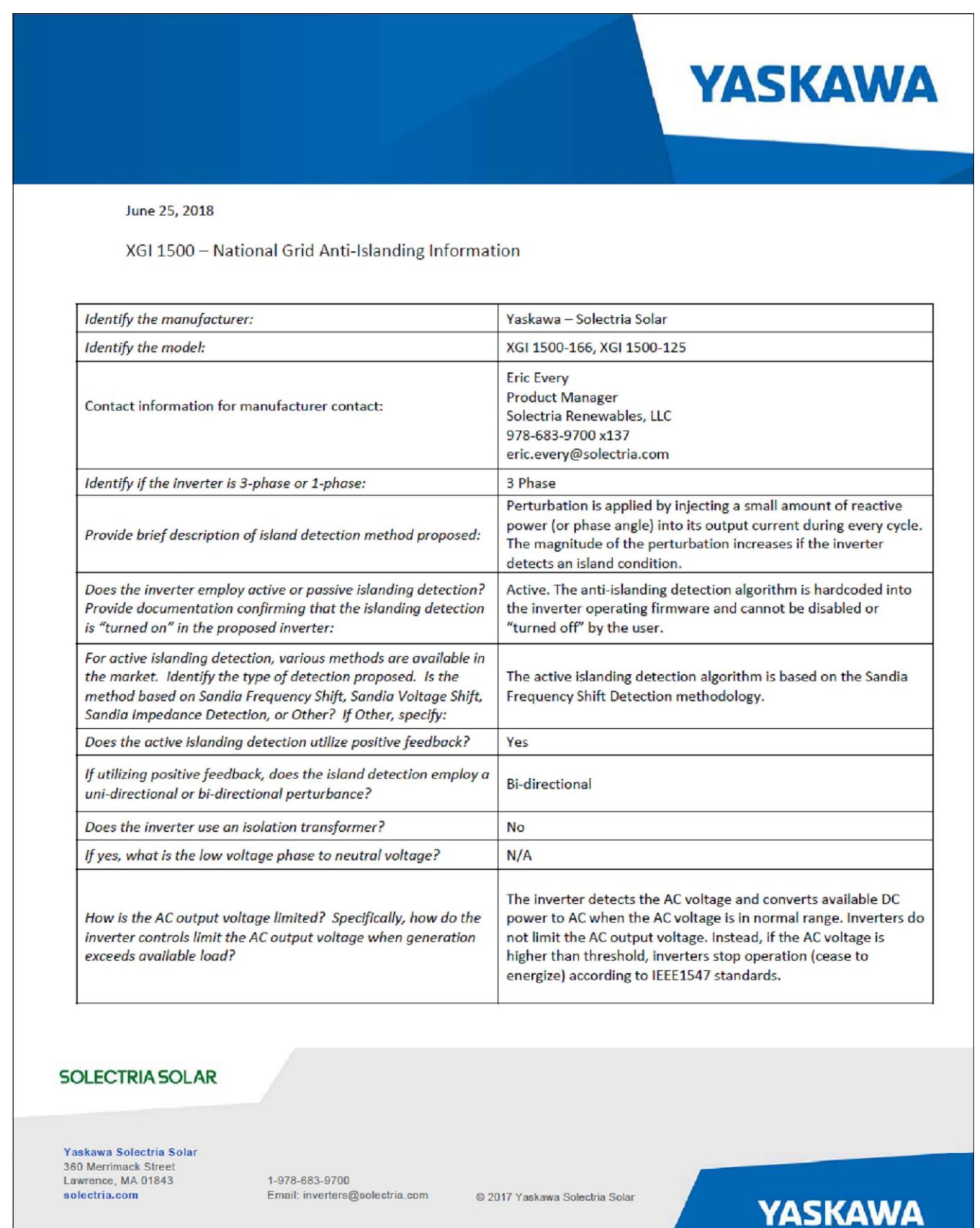
ASHRAE AVG HIGH TEMP: 89.6°F / 32.0°C

446-14

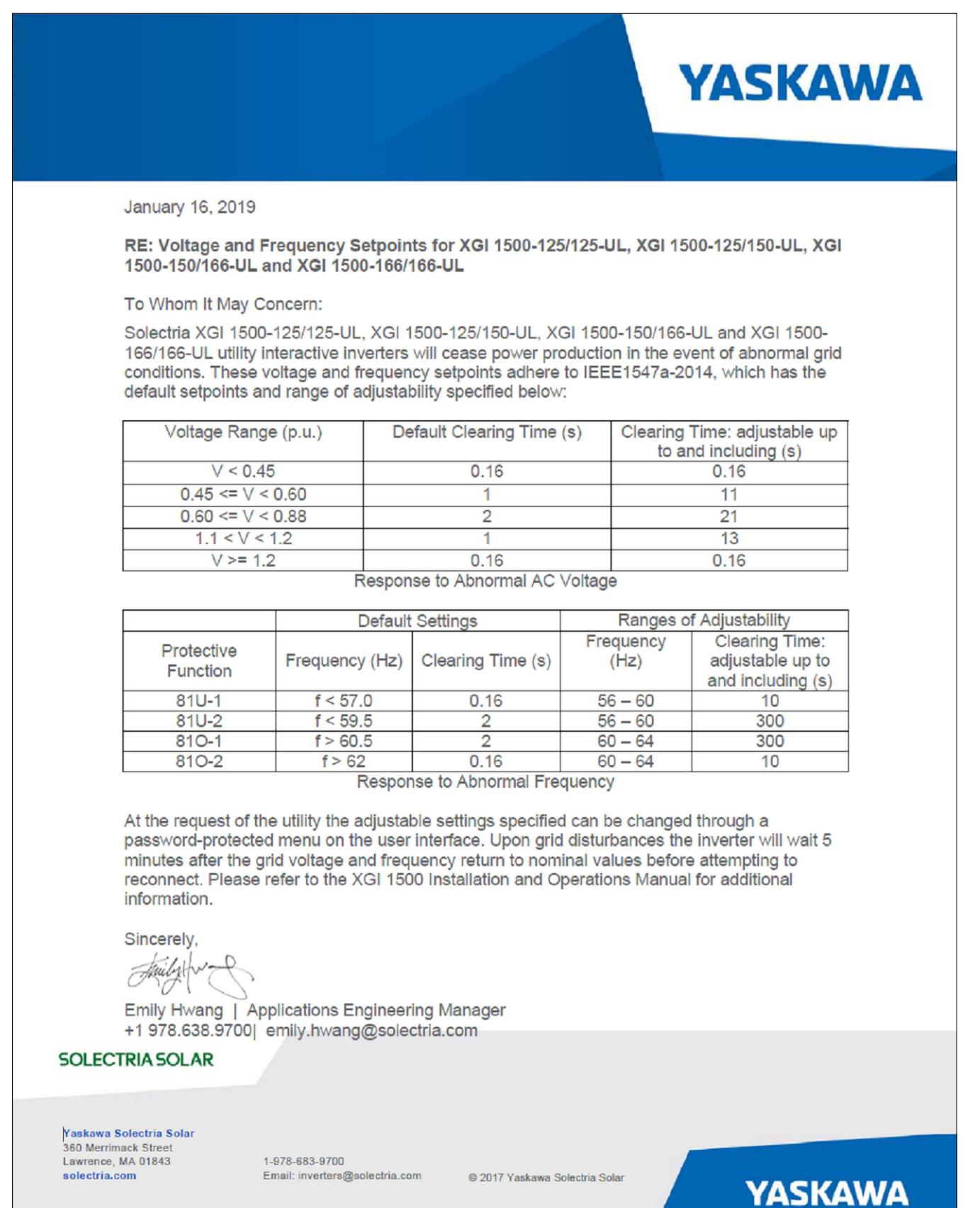
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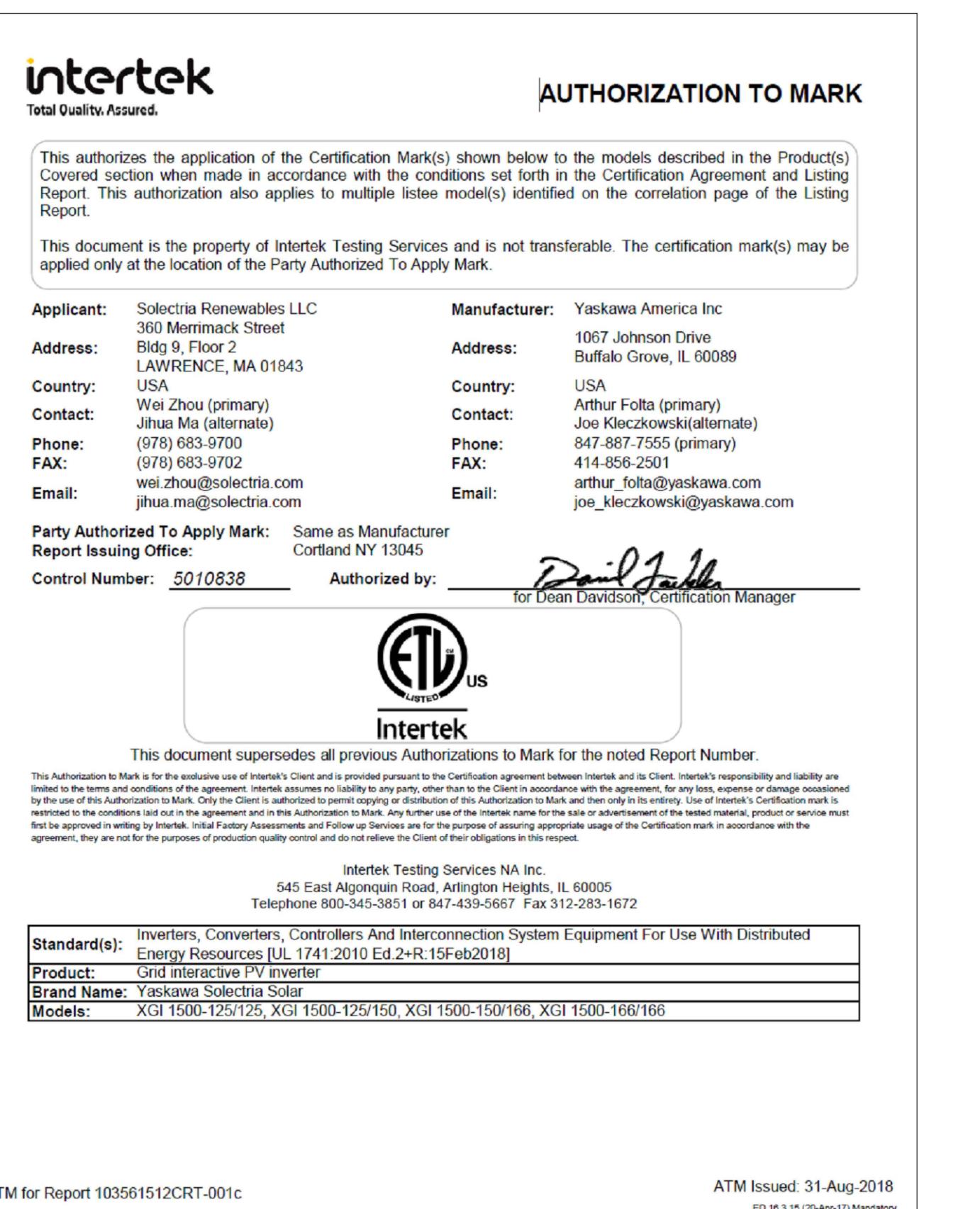
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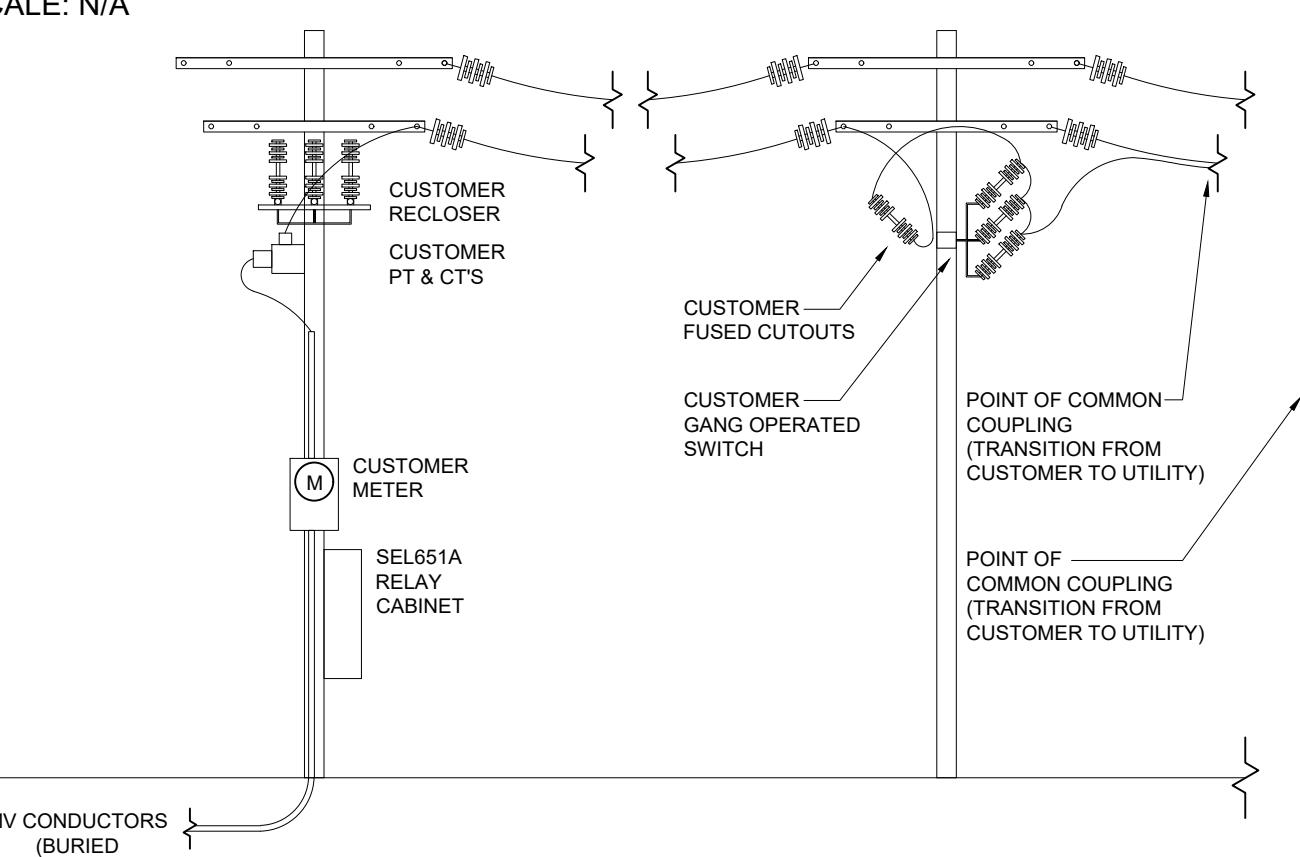
INVERTER SETTINGS:



1741SA LISTING:



HYPOTHETICAL INTER-CONNECTION ELEVATION DETAIL:
SCALE: N/A



10% DESIGN PHASE
DOCUMENTS. NOT FOR
CONSTRUCTION OR BIDDING
PURPOSES. FOR UTILITY
SUBMITTAL ONLY

REVIEWED BY: J. GIGANTI FELLO

DATE: 09 / 25 / 2011

REVISED: N/A

N/A

N/A

N/A

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