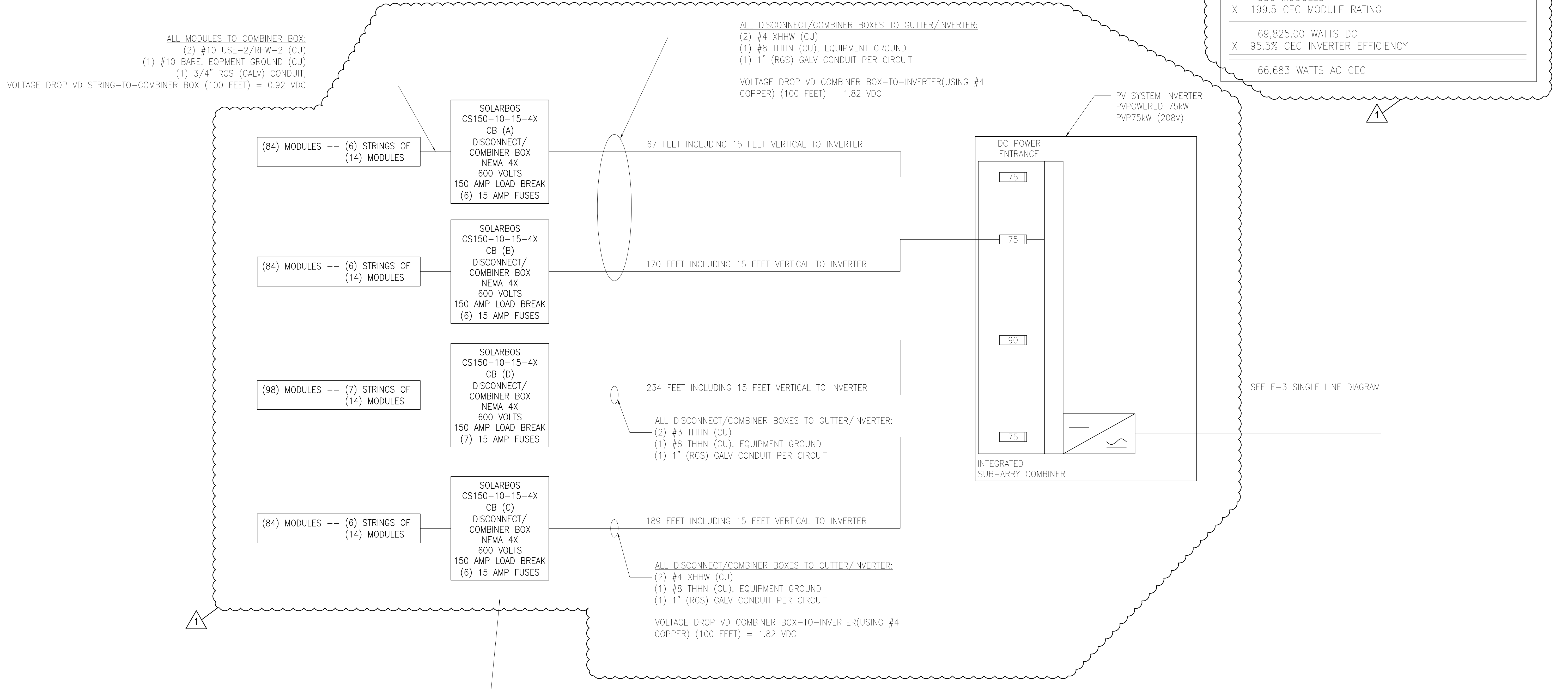


Drawing name: C:\Users\Bob\My Projects\00 Projects\General\00_Belser\GRU PV Projects\GRU Butler Plaza West Record Set\CADD - IPD\BN-E4-DC SINGLE LINE.dwg - Layout1 - Jun 23, 2011 4:30pm by: Bob
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3902 SW ARCHER RD., GAINESVILLE, FL.
SUB-SYSTEM #2

(1) PV POWERED PVP 75K-208V INVERTER
(350) ASTRONERGY CHSM 6610-P 220 WATT PV MODULES
77,000 WATTS DC NAMEPLATE

350 MODULES
X 199.5 CEC MODULE RATING

69,825.00 WATTS DC
X 95.5% CEC INVERTER EFFICIENCY

66,683 WATTS AC CEC

ALL MODULES TO COMBINER BOX:
(2) #10 USE-2/RHW-2 (CU)
(1) #10 BARE, EQPMNT GROUND (CU)
(1) 3/4" RGS (GALV) CONDUIT,
VOLTAGE DROP VD STRING-TO-COMBINER BOX (100 FEET) = 0.92 VDC

ALL DISCONNECT/COMBINER BOXES TO GUTTER/INVERTER:
(2) #4 XHHW (CU)
(1) #8 THHN (CU), EQUIPMENT GROUND
(1) 1" (RGS) GALV CONDUIT PER CIRCUIT

VOLTAGE DROP VD COMBINER BOX-TO-INVERTER(USING #4 COPPER) (100 FEET) = 1.82 VDC

ALL EQUIPMENT GROUND - MODULE TO INVERTER:
USE RACKING SYSTEM EQUIPMENT GROUNDING SYSTEM.
AT END OF MODULE SUPPORT RAILS BOND #10 BARE COPPER EQUIPMENT GROUND WITH ILSCO CBL-4DBT LAY-IN LUGS TO DISCONNECTING COMBINER BOXES.
BOND #6 FROM DISCONNECTING COMBINER BOXES TO ALL ELECTRICAL ENCLOSURES GROUND BUSES TO INVERTER TO GEC AT EQUIPMENT PAD. PER NEC 250.122

PVPOWERED 75kW PHOTOVOLTAIC INVERTER MODEL NUMBER: PVP75kW (208V)	
MAX. CONTINUOUS OUTPUT POWER:	75 KW AT 208 VAC
NOMINAL DC VOLTAGE RANGE:	295 - 500 VDC
MAXIMUM DC CURRENT:	267 ADC
AC OUTPUT VOLTAGE:	208 VAC
INVERTER EFFICIENCY (CEC):	95.5%

ASTRONERGY CHSM 6610-P 220WATT MODULE SPECIFICATIONS	
PEAK POWER (Pmax):	220 Wp (±3%)
CEC POWER RATING:	199.5 W
MAXIMUM POWER POINT VOLTAGE (Vmpp):	29.70 V
MAXIMUM POWER POINT CURRENT (Impp):	7.38 A
OPEN CIRCUIT VOLTAGE (Voc):	36.77 V
SHORT CIRCUIT CURRENT (Isc):	8.12 A
TEMPERATURE COEFFICIENT: Voc (%Voc/°C) =	-0.341%/°C

MAXIMUM VOLTAGE CALCULATIONS -
ASTROENRGT CHSM 6610-P Voc TEMPERATURE CORRECTION FACTOR: -0.35%/°C

MIN. RECORDED TEMP IN GAINESVILLE, FL IS -12°C.
ARRAY Voc= 14 * 36.77 V = 514.78 VOLTS
INCREASE IN Voc DUE TO LOW TEMP. PER MODULE = $[(25-(-12)) * (0.0035) * 36.77] = 4.76$ VOLTS

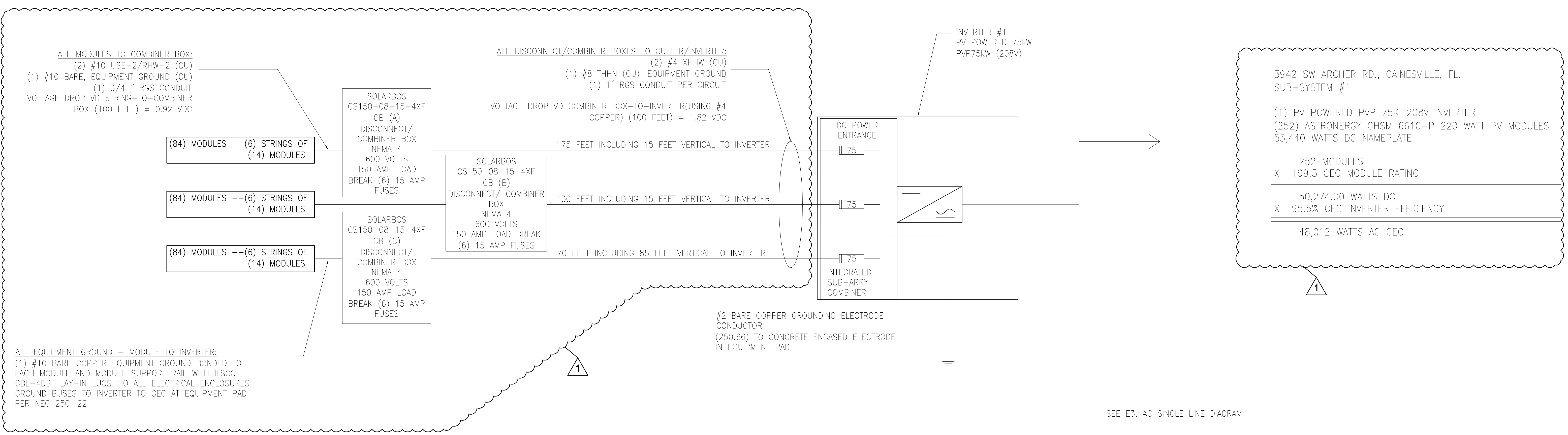
MAX. Voc PER CIRCUIT = 514.78 + $[4.76 * 14] = 581.4$ VOLTS

NOTES
1. ALL WORK PER 2008 NEC

SEE E-3 SINGLE LINE DIAGRAM

SCALE	AS NOTED	DESIGNED BY L. K. HENDERSON	DRAWN BY B. HARRIS	CHECKED BY T. BELSER	DATE	DATE	BY
		DC SINGLE LINE DIAGRAM					
		GED ARCHER II SOLAR PANEL ARRAY 3902 SW ARCHER ROAD					
		GAINESVILLE, ALACHUA COUNTY, FLORIDA					
		VERIFY SCALES BAR IS ONE INCH ON ORIGINAL DRAWING					
		IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY					
		DATE 2-28-11					
		PROJECT NO.					
		SUBMITTAL					
		BUILDING PERMIT					
		SHEET NUMBER					
		E-4					

Drawing name: C:\Users\Bob\My Projects\00 Projects\General\00 Belser\GRU PV Projects\GRU Butler Plaza West Record Set\CADD - IPD\OH-E4-DC SINGLE LINE.dwg Layout1 Jun 23, 2011 4:31pm by: Bob
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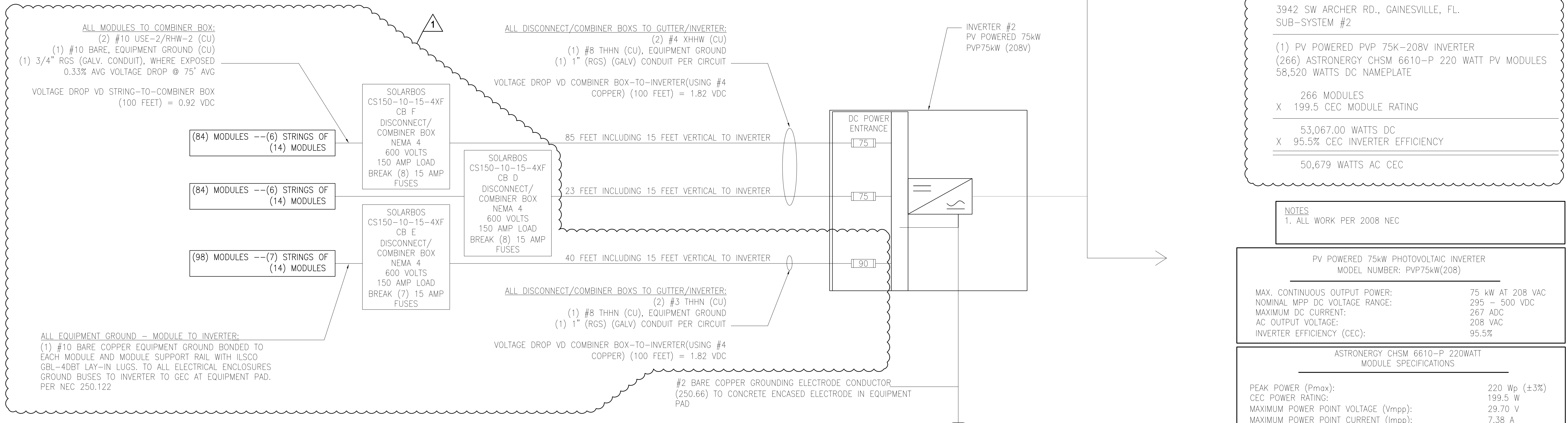
3942 SW ARCHER RD., GAINESVILLE, FL.
 SUB-SYSTEM #1

(1) PV POWERED PVP 75K-208V INVERTER
 (252) ASTRONERGY CHSM 6610-P 220 WATT PV MODULES
 55,440 WATTS DC NAMEPLATE

252 MODULES
 X 199.5 CEC MODULE RATING

50,274.00 WATTS DC
 X 95.5% CEC INVERTER EFFICIENCY

48,012 WATTS AC CEC



3942 SW ARCHER RD., GAINESVILLE, FL.
 SUB-SYSTEM #2

(1) PV POWERED PVP 75K-208V INVERTER
 (266) ASTRONERGY CHSM 6610-P 220 WATT PV MODULES
 58,520 WATTS DC NAMEPLATE

266 MODULES
 X 199.5 CEC MODULE RATING

53,067.00 WATTS DC
 X 95.5% CEC INVERTER EFFICIENCY

50,679 WATTS AC CEC

NOTES
 1. ALL WORK PER 2008 NEC

PV POWERED 75kW PHOTOVOLTAIC INVERTER MODEL NUMBER: PVP75kW(208)	
MAX. CONTINUOUS OUTPUT POWER:	75 kW AT 208 VAC
NOMINAL MPP DC VOLTAGE RANGE:	295 - 500 VDC
MAXIMUM DC CURRENT:	267 ADC
AC OUTPUT VOLTAGE:	208 VAC
INVERTER EFFICIENCY (CEC):	95.5%

ASTRONERGY CHSM 6610-P 220WATT MODULE SPECIFICATIONS	
PEAK POWER (Pmax):	220 Wp (±3%)
CEC POWER RATING:	199.5 W
MAXIMUM POWER POINT VOLTAGE (Vmpp):	29.70 V
MAXIMUM POWER POINT CURRENT (Imp):	7.38 A
OPEN CIRCUIT VOLTAGE (Voc):	36.77 V
SHORT CIRCUIT CURRENT (Isc):	8.12 A
TEMPERATURE COEFFICIENT: Voc (%Voc/°C) =	-0.341%/°C

MAXIMUM VOLTAGE CALCULATIONS -
 ASTROENRGT CHSM 6610-P Voc TEMPERATURE CORRECTION FACTOR: -0.35%/°C

MIN. RECORDED TEMP IN GAINESVILLE, FL IS -12°C.
 ARRAY Voc= 14 * 36.77 V = 514.78 VOLTS
 INCREASE IN Voc DUE TO LOW TEMP. PER MODULE = [(25-(-12)) * (0.0035) * 36.77] = 4.76 VOLTS

MAX. Voc PER CIRCUIT = 514.78 + [4.76 * 14] = 581.4 VOLTS

SCALE	AS NOTED	DESIGNED BY L. K. HENDERSON	DRAWN BY B. HARRIS	CHECKED BY T. BELSER	DATE	SEAL	REVISIONS	DATE	BY
DC SINGLE LINE DIAGRAM					GED ARCHER II SOLAR PANEL ARRAY 3942 SW ARCHER ROAD GAINESVILLE, ALACHUA COUNTY, FLORIDA				
NOTES					DATE 2-28-11				
PROJECT NO.					SUBMITTAL				
SHEET NUMBER					BUILDING PERMIT				
E-4					SHEET NUMBER				