

PHOTOVOLTAIC SYSTEM FOR CHILMARK LANDFILL

TABOR HOUSE RD, CHILMARK MA 02535

Chilmark
Assessors Parcel
13 - 34

MIDDLE LINE ROAD

PV SYSTEM 1:
99.408 kWdc - 95 kWac

INVERTER(S) MOUNTED ON NORTH
SIDE OF PV ARRAY TABLE (TYP)

TYPICAL INTER-ROW
GAP SPACING

TYPICAL INTER-ROW
ON-CENTER SPACING

TRUE
NORTH

TYPICAL ARRAY
EDGE ALIGNMENT

ROW 1

ROW 2

ROW 3

ROW 4

ROW 5

ROW 6

ROW 7 INVERTERS

ROW 7

POSITION THIS PV ARRAY
TABLE TO ALIGN INVERTERS
W/ CABLE TRAY ROUTE

CABLE TRAY, SIZE H4"xW6" (TYP OF ALL)
ROUTED AMONG INVERTERS IN FIELD

AC COMBINER, MAIN DAS
ENCLOSURE & WEATHER STATION

AC CONDUIT ROUTED TO RISER
POLE, SUPPORT @ 10" O.C.

GUY-WIRE & GROUND ANCHOR (~15')

CUSTOMER-OWNED RISER POLE W/
100 kVA POLE-MOUNT TRANSFORMER
UTILITY REQ'D AC DISCONNECT
MOUNTED ON SIDE @ GROUND LEVEL

RE-ROUTE ACCESS ROAD ON
EAST SIDE OF RISER POLE

BENCHMARK

OVERHEAD MEDIUM VOLTAGE CABLE,
ROUTE AS REQ'D. FLAG PATH AND MAINTAIN
1' SETBACK FROM PROPERTY LINE

PROPERTY LINE (TYP)

Chilmark
Assessors Parcel
13 - 27

CUSTOMER-OWNED POLES AS REQ'D TO
SUPPORT OVERHEAD WIRING @ MAX 150 FT O.C
FLAG PATH AND MAINTAIN 1' SETBACK
FROM PROPERTY LINE

PROPOSED CUSTOMER-OWNED
POLE W/ FUSED CUTOUT

PROPOSED UTILITY-OWNED PRIMARY
METERING POLE W/ FUSED CUTOUT
POINT OF COMMON COUPLING

GUY-WIRE & GROUND ANCHOR (~15')

PROPERTY LINE (TYP)

EXISTING UTILITY
SERVICE POLES

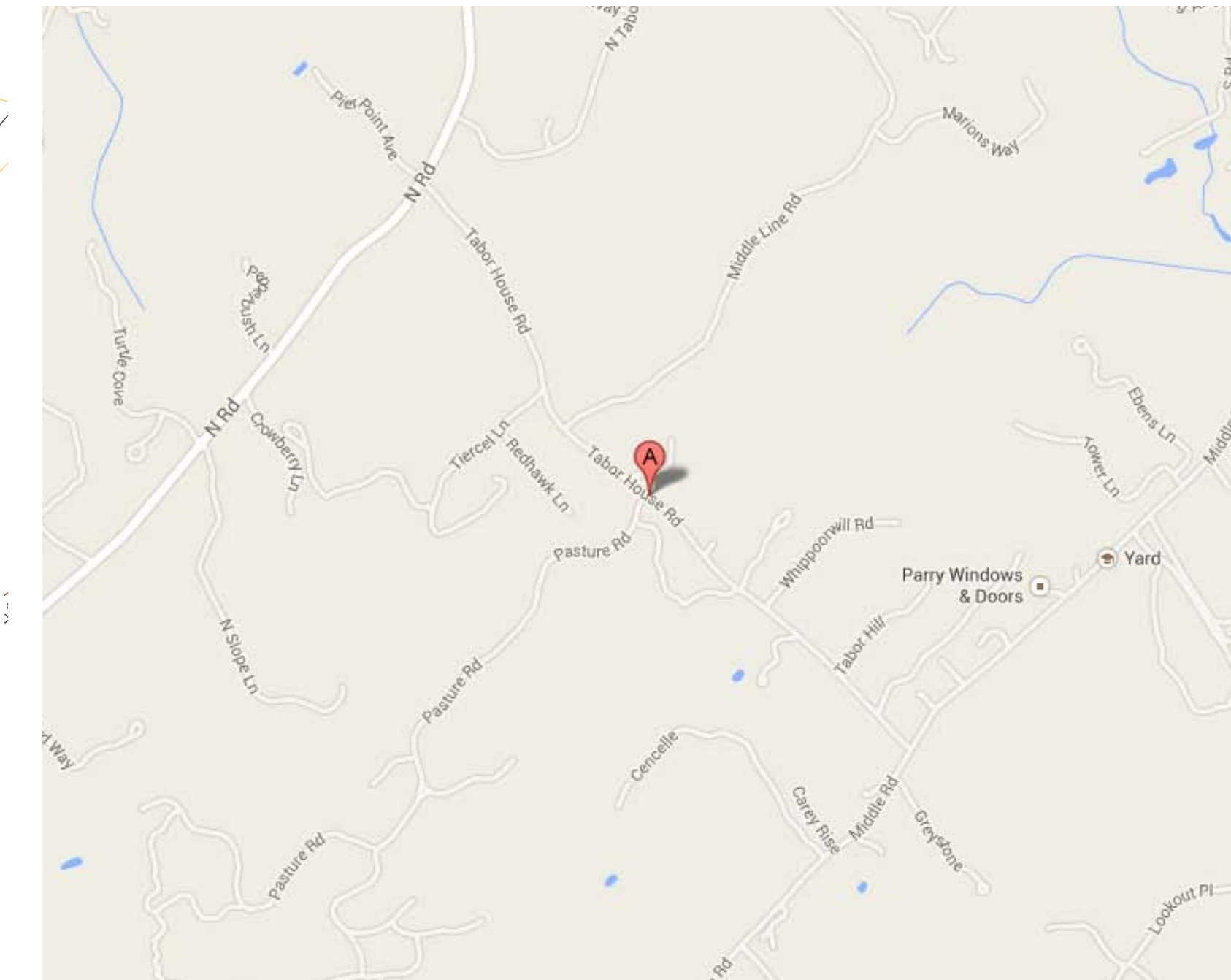
EXISTING UTILITY FEEDER
ALONG TABOR HOUSE RD

Chilmark
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3 - 29

TABOR HOUSE
ROAD

1 99.408 kW DC (95 kW AC) PV ARRAY WITH 528/ 327W MODULES AT FIXED 25° TILT

0 20' 40' 80'

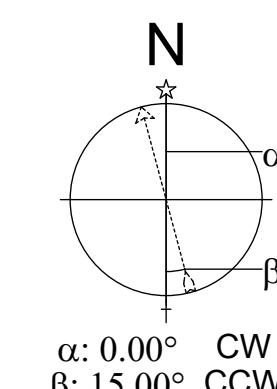


2 LOCUS MAP 0 1000' 2000'



3 SIMILAR BALLASTED GROUND MOUNT PV ARRAY

25° FIXED TILT PV ARRAY AZIMUTH: 0.00° E OF TRUE S		
MODULES	DC POWER	AC POWER
304/ 327W	99.408 kWdc	95 kWac



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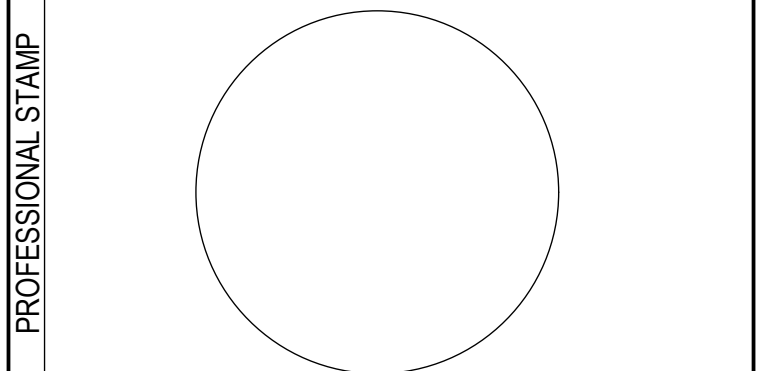
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WILL RESIDE. CERTIFICATION OR VALIDATION TO BE INCLUDED AS PART OF
THE SUBMITTALS FOR PERMITTING OF THE OVERALL PROJECT.

CHILMARK LANDFILL

PERMIT & INTERCONNECTION

Wednesday, January 22, 2014



MARK	DATE	DESCRIPTION

NAME	SOUTH MOUNTAIN COMPANY
STREET	15 RED ARROW RD
CITY/ST/ZIP	WEST TISBURY, MA 02575
NOTES	

NAME	CHILMARK LANDFILL GROUND-MOUNT
STREET	TABOR HOUSE RD
CITY/ST/ZIP	CHILMARK, MA 02535
NOTES	

FILE NAME	2013-0122 SouthMTN-Chilmark GroundMT - 95 kWac.ppt
SCALE	AS NOTED

DRAWN BY	CH	DATE DRAFTED: 1/22/2014
CHECKED BY	RE	SHEET SIZE: ARCH D

DRAWING NO.	PV001
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DRAWING TITLE	PV SITE PLAN
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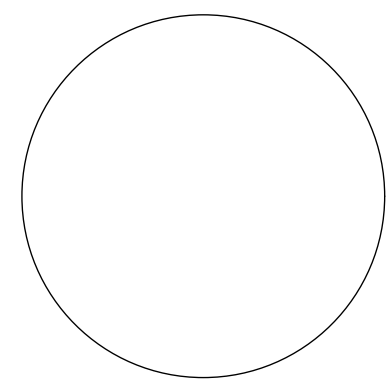
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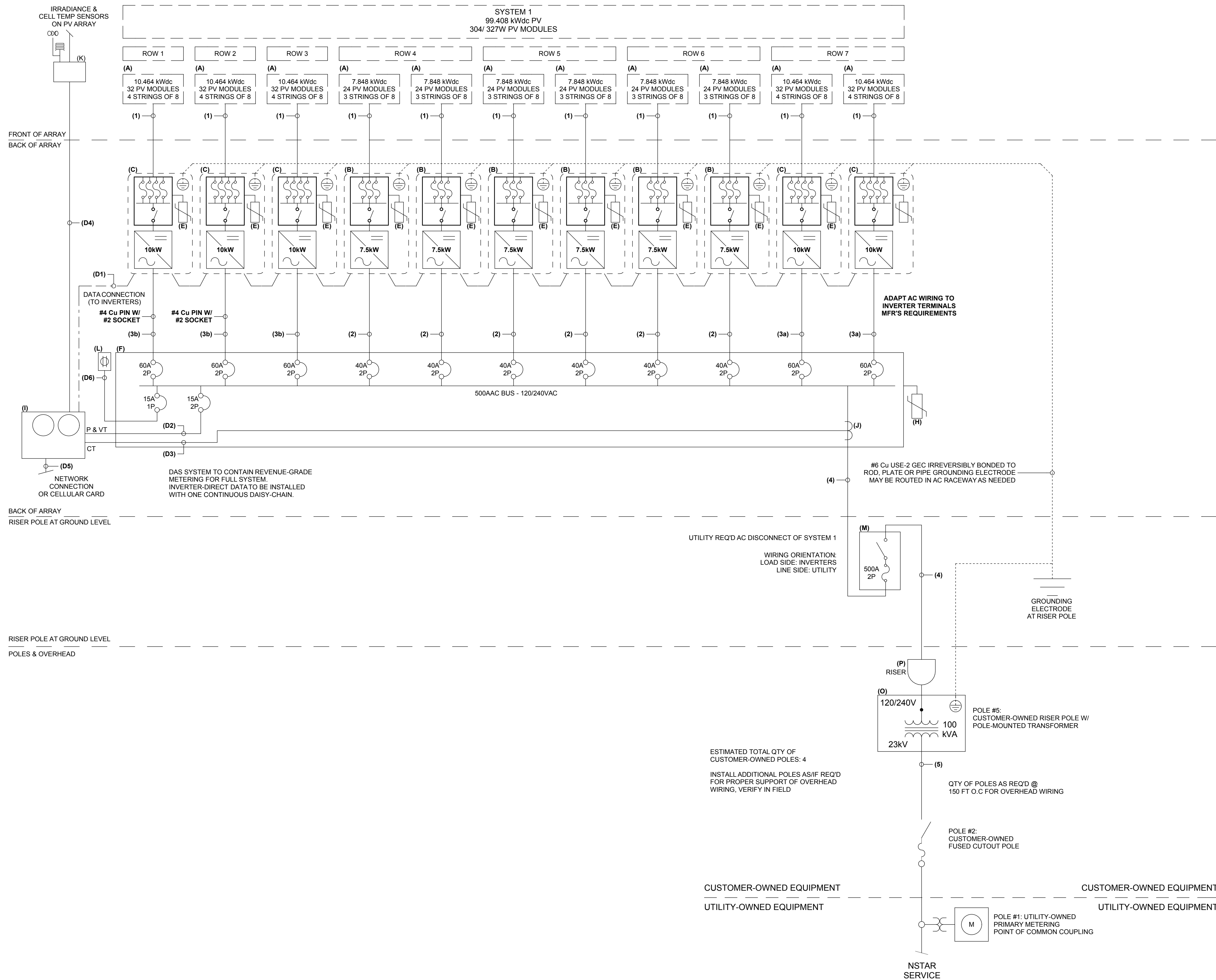
CONTRACTOR	NAME	SOUTH MOUNTAIN COMPANY
	STREET	15 RED ARROW RD
	CITY/ST/ZIP	WEST TISBURY, MA 02575
	NOTES	

SITE	NAME	CHILMARK LANDFILL GROUND-MOUNT
	STREET	TABOR HOUSE RD
	CITY/ST/ZIP	CHILMARK, MA 02535
	NOTES	

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	SCALE	AS NOTED
	DRAWN BY	CH
	CHECKED BY	RE
	DATE DRAFTED:	1/22/2014
	SHEET SIZE:	ARCH D

PV601

SINGLE LINE



SITE CONDITIONS	CHILMARK, MA
LOCATION:	27 °C
MAX AVG TEMP:	-17 °C
MIN EXPECTED TEMP:	
PV ARRAY CONFIGURATION	SUNPOWER SPR-E20-327-COM
MODULE MFR AND MODEL:	304
MODULE QTY:	8
MODULES PER SOURCE CIRCUIT:	66
TOTAL SOURCE CIRCUITS:	
PV MODULE OUTPUT*	
Voc:	64.9 Vdc
Voc Temp Coeff:	-0.27 %/°C
Voc (Temp Adjusted):	72.1 Vdc
Isc:	6.46 Adc
Vmp:	54.7 Vdc
Imp:	5.98 Adc
8 MODULE PV SOURCE CIRCUIT OUTPUT*	
Voc:	519.2 Vdc
Voc (Temp Adjusted):	577.1 Vdc
Isc:	6.46 Adc
Vmp:	437.6 Vdc
Imp:	5.98 Adc
INVERTER OUTPUT (SUNPOWER 7501-F1)	
Max Rated Power	7.5 kWac
Operating Voltage (Line-to-Line):	240 Vac SPLIT PHASE
Max Current:	31.25 Aac
Output Frequency	60 Hz
INVERTER OUTPUT (SUNPOWER 10001-F1)	
Max Rated Power	10 kWac
Operating Voltage (Line-to-Line):	240 Vac SPLIT PHASE
Max Current:	41.7 Aac
Output Frequency	60 Hz
*BASED ON MODULE PERFORMANCE AT STANDARD TEST CONDITIONS (STC)	

ID	AMPERAGE	FUNCTION	EST. LENGTH	# OF WIRES	WIRE SIZE & SET QTY	VOLTAGE DROP	GROUND SIZE	CONDUIT SIZE
(1)	6.46 Adc	FIELD WIRE	130 FT.	VARIES	#10 Cu USE-2 OR PV WIRE	0.45%	#6 Cu USE-2	N/A
(2)	31.25 Aac	7.5 kW INV	80 FT.	3+G+GEC	#6 AL SE TYPE R (6-6-6-6)	1.68%	#6 AL SE-R	CABLE TRAY
(3a)	41.7 Aac	10 kW INV	80 FT.	3+G+GEC	#4 AL SE TYPE R (4-4-4-6)	1.41%	#6 AL SE-R	CABLE TRAY
(3b)	41.7 Aac	10 kW LONG	140 FT.	3+G+GEC	#2 AL SE TYPE R (2-2-2-6)	1.55%	#4 AL SE-R	CABLE TRAY
(4)	395.8 Aac	SYS 1 MAIN	150 FT.	6+2G+GEC	400 kcmil AL THWN-2 (2 SETS)	0.79%	#1 Cu THWN-2	2 QTY 3" RMC
(5)	5 Aac	MV TOTAL	700 FT.	1* NEUTRAL	#1/0 AL - AAAC TREE WIRE	0.05%	N/A	N/A OVERHEAD

ALL DC CURRENTS ARE SHORT CIRCUIT VALUES
ALL AC CURRENTS ARE NOMINAL PER-PHASE VALUES
VOLTAGE DROP CALCULATIONS ARE BASED ON THE LONGEST WIRE RUN
* WIRE AMPACITY IS BASED ON NUMBER OF WIRES PER CONDUIT AND TEMPERATURE DERATE.
IF CONDUITS ARE INSTALLED DIFFERENTLY THAN SHOWN ABOVE, WIRE SIZES MAY BE AFFECTED
* ALL CONDUCTORS ARE COPPER 90° C RATED
* DUAL RATED (THHN/THWN-2) CONDUCTORS ARE FAVORABLE

ID	CABLE TYPE	EST. LENGTH	FUNCTION
(D1)	TBD	500 FT	DATA CONNECTION TO INVERTERS
(D2)	#14 AWG THWN-2	5 FT	VOLTAGE TAPS, & DAS POWER
(D3)	CT FACTORY WIRE	5 FT	CURRENT TRANSDUCCERS (CTs)
(D4)	TBD	150 FT	WEATHER STATION
(D5)	CAT-5E, SHIELDED	TBD	NETWORK CONNECTION
(D6)	#14 AWG THWN-2	TBD	CONVENIENCE OUTLET

ID	DESCRIPTION	QTY
(A)	SUNPOWER 327W PV MODULE	304
(B)	SUNPOWER 7501-F1, 7.5kW INVERTER, 240VAC SPLIT PHASE, INTEGRATED DC ARC-FAULT PROTECTION	6
(C)	SUNPOWER 10001-F1, 10.0kW INVERTER, 240VAC SPLIT PHASE, INTEGRATED DC ARC-FAULT PROTECTION	5
(D)	DC LIGHTNING ARRESTOR	11
(E)	MIN 500AAC COMBINING PANELBOARD, MLO, NEMA3R, 120/240 VAC - 2 LIVE BUSES	1
(F)	240VAC TRANSIENT VOLTAGE SURGE SUPPRESSOR (TVSS)	1
(G)	DATA ACQUISITION SYSTEM ENCLOSURE W/ (2) REVENUE GRADE kWh METERS	1
(H)	CURRENT TRANSFORMERS (CTs) FOR CUSTOMER-OWNED PRODUCTION METERING, SIZE & AMP AS REQ'D	2
(I)	WEATHER STATION W/ SENSORS FOR IRRADIANCE, MODULE TEMP, AMBIENT TEMP & WIND SPEED	1
(J)	OUTDOOR RATED GFCI CONVENIENCE OUTLET	1
(K)	UTILITY REQ'D AC DISCONNECT: 500A FUSED, NEMA 3R, 240VAC 2-P, 3-W SAFTEY SWITCH	1
(L)	100 kVA SINGLE PHASE TRANSFORMER, 120/240 VAC SECONDARY, 23 kV PRIMARY	1
(M)	CUSTOMER-OWNED RISER POLE W/ FUSED CUTOUT	1

NOTES
(1) THE PV ARRAY IS NEGATIVELY GROUNDED PER INVERTER CONFIGURATION. INVERTERS TO HAVE INTEGRATED AFCI.
(2) CONDUIT TYPES (WHERE REQ'D):
- RMC WHEN OUTSIDE
- PVC SCH40 WHEN UNDERGROUND W/ RMC SWEEPS & RMC FOR ANY PART ABOVE GROUND
(3) WIRING TO BE COLOR CODED PER ALL NEC REQUIREMENTS
(4) NEUTRAL AND GROUNDING CONDUCTORS ARE TO REMAIN INSULATED, EXCEPT WHERE OTHERWISE INDICATED
(5) ALL EQUIPMENT TO BE LABELED PER NEC REQUIREMENTS
(6) SYSTEM TO BE INSTALLED WITH ADEQUATE AC AND DC TRANSIENT VOLTAGE SURGE SUPPRESSION

SYSTEM DESIGN IS FOR REFERENCE ONLY. NOT FOR CONSTRUCTION.