Cable Schedule							
Circuit Id	Voltage Rating	Conductor Quantity, Size and Material	Wire Type	Quantity of Conduits	Size of Conduits	Conduit Type	Notes
A	25kV	(3) #4/0 AWG AL, (1) #4/0 AWG AL N	Covered ACSR	-	-	-	MV Overhead
B	25kV	(3) 350 KCMIL AL Jacketed Concentric Neutral	MV-105	1	5"	PVC	MV Underground TR-XLP/133%
C	25kV	(1) #1/0 AWG Jacketed Concentric Neutral	MV-105	1	5"	PVC	MV Underground TR-XLP/133%
D	480V	Busbar Connection	-	-	-	-	Megapack Output
E	-	(1) CAT6 or (1) Fiber Optic	-	1	1"	PVC	Communications

Table V: Voltage ride-through requirements for certified inverter abnormal operating performance-Category III

Voltage Range (p.u.)	Operating Mode/ Response	Comparison to IEEE Std. 1547-2018 for Category III
V > 1.20	Cease to Energize	Identical
1.10 < V ≤ 1.20	Momentary Cessation	Identical
0.88 ≤ V ≤ 1.10	Continuous Operation	Identical
0.5 ≤ V < 0.88	Mandatory Operation	Identical
V < 0.50	Momentary Cessation	Identical

Table II: Frequency ride-through requirements for DER of abnormal operating performance-Category I, Category II, and Category III

Frequency Range (Hz)	Operating Mode	Comparison to IEEE Std. 1547-2018 for Category I, II, III
f > 62.0	No ride-through requirements apply to this range	Identical
61.2 < f ≤ 61.8	Mandatory Operation	Identical
58.8 ≤ f ≤ 61.2	Continuous Operation	Identical
57.0 ≤ f < 58.8	Mandatory Operation	Identical
f < 57.0	No ride-through requirements apply to this range	Identical

Inverter Protection Settings					
Inverter Protective Function	Enabled	Pickup	Unit	Total Clearing Time Cyc. (Seconds)	Description
27-1	Y	50%	V (L-L)	66 (1.1)	Under Voltage
27-2	Y	88%	V (L-L)	180 (3)	
27-3	N	-	-	-	
59-1	Y	110%	V (L-L)	120 (2)	Over Voltage
59-2	Y	120%	V (L-L)	9.6 (0.16)	
59-I	Y	140%	V (L-L)	80 (1.33)	
81U-1	Y	56.5	Hz	9.6 (0.16)	Under Frequency
81U-2	Y	58.5	Hz	18000 (300)	
81O-1	Y	61.2	Hz	18000 (300)	Over Frequency
81O-2	Y	62	Hz	9.6 (0.16)	
Block Close	N	-	-	-	-
Block Close	N	-	-	-	-
Block Close	N	-	-	-	-
Block Close	N	-	-	-	-
Voltage setting values are L-L					
Settings are based on IEEE-1547 and utility requirements					

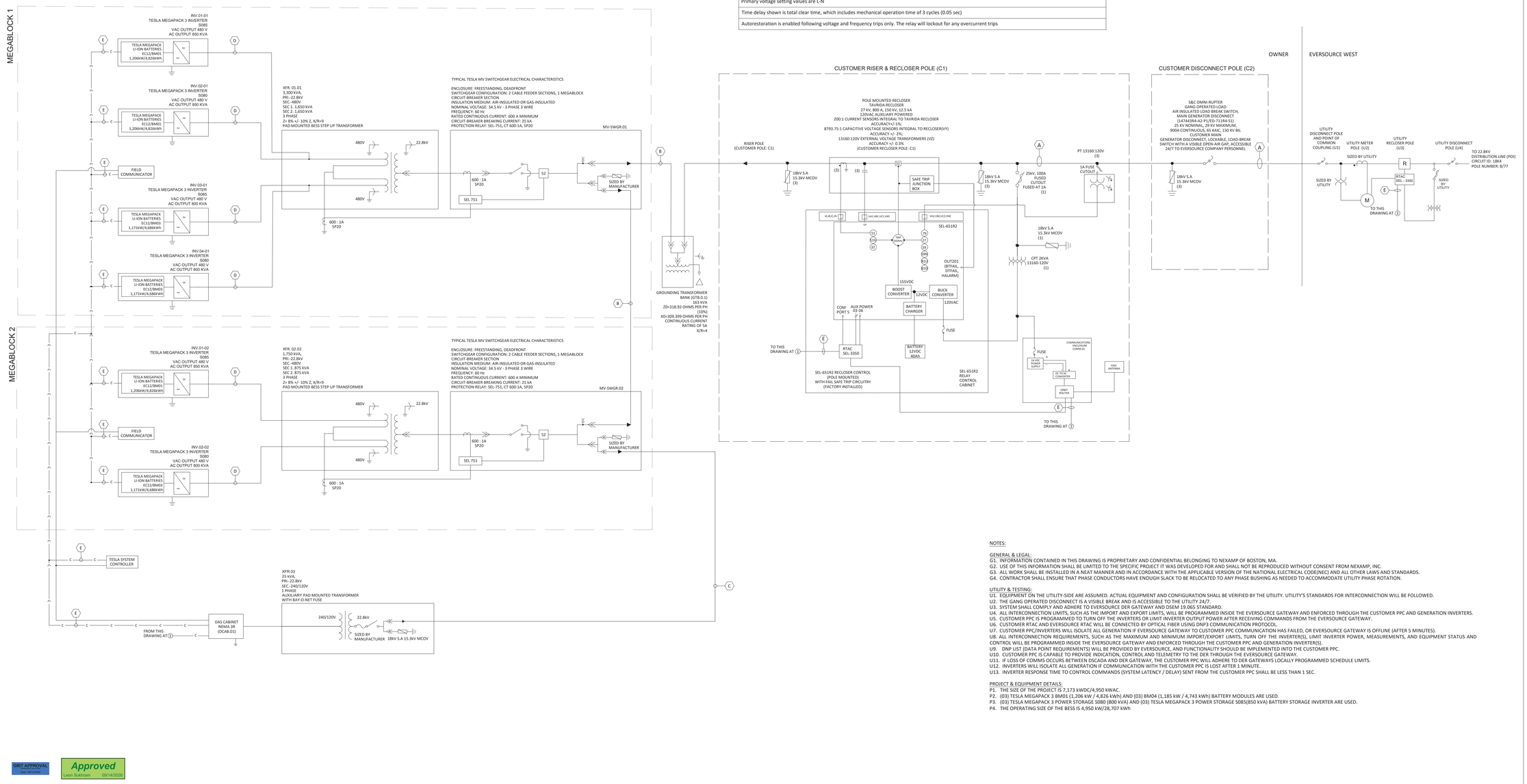
Relay Protection Settings							
Relay Protective Functions	Trip Output	Enabled (Relay Designation)	Voltage Settings (Sec.) Pri (P.U.)	Frequency Setting (Hz)	Total Clearing Time Cyc. (Sec.)	Current Setting Sec (PRI)	Relay Setting Time Cyc. (Seconds)
27P1 - Fast Undervoltage	X	Y (Relay.01)	(60) 6581.8 (0.5)	-	66 (1.1)	-	-
27P2 - Undervoltage	X	Y (Relay.01)	(105.6) 11584 (0.88)	-	180 (3)	-	-
27P3 - Undervoltage	-	N	-	-	-	-	-
59P1 - Overvoltage	X	Y (Relay.01)	(132) 14479.9 (1.1)	-	120 (2)	-	-
59P2 - Fast Overvoltage	X	Y (Relay.01)	(144) 15796.3 (1.2)	-	9.6 (0.16)	-	-
59N - Neutral Voltage Displacement	X	Y (Relay.01)	(12) 1316.4 (0.1)	-	80 (1.33)	-	-
81UP1 - Underfrequency	X	Y (Relay.01)	-	56.5	9.6 (0.16)	-	-
81UP2 - Underfrequency	X	Y (Relay.01)	-	58.5	18000 (300)	-	-
81OP1 - Overfrequency	X	Y (Relay.01)	-	61.2	18000 (300)	-	-
81OP2 - Overfrequency	X	Y (Relay.01)	-	62	9.6 (0.16)	-	-
51 - Overcurrent	X	Y (Relay.01)	-	-	CURVE: U4 TD: 2.0	0.78 (156.7A)	-
50 - Instantaneous Overcurrent	-	N	-	-		-	-
67 - Directional Overcurrent	-	N	-	-	-	-	-
50G - Instantaneous Ground Overcurrent	-	N	-	-		-	-
51G - Ground Overcurrent	X	Y (Relay.01)	-	-	CURVE: U4 TD: 1.0	0.26 (52.2A)	-
Block Close	-	Y (Relay.01)	(114) 12505.4 (0.95) ≤ V ≤ (126) 13821.8 (1.05)	59.5 ≤ f ≤ 60.5	18000 (300)	-	-
32F - Directional Power	X	Y (Relay.01)	5197500 W	-	120 (2)	-	-
32R - Reverse Power	X	Y (Relay.01)	5197500 W	-	120 (2)	-	-
Relay Fail Alarm	X	Y (Relay.01)	-	-	3 (0.05)	-	-
Primary voltage setting values are L-N							
Time delay shown is total clear time, which includes mechanical operation time of 3 cycles (0.05 sec)							
Autorestoration is enabled following voltage and frequency trips only. The relay will lockout for any overcurrent trips							

LINE DIAGRAM SYMBOL LEGEND

KWH METER
KW INVERTER
DC/DC CONVERTER
POTENTIAL TRANSFORMER
CURRENT TRANSFORMER
POWER TRANSFORMER
CABLE TERMINATION
SEPARABLE CONNECTOR
SURGE ARRESTER
FUSE
FRAME TRIP CIRCUIT BREAKER
FUSED CUT OUT
GANG OPERATED DISCONNECT
FUSED DISCONNECT
SOLID BLADE DISCONNECTS
NORMALLY CLOSED CONTACT
NORMALLY OPEN CONTACT
CAPACITIVE DIVIDER VOLTAGE SENSING ELEMENT
SHUNT TRIP

LINE DIAGRAM LINE STYLE LEGEND

COMMUNICATION CABLE
NOT IN SERVICE



NOTES:

GENERAL & LEGAL:
G1. INFORMATION CONTAINED IN THIS DRAWING IS PROPRIETARY AND CONFIDENTIAL BELONGING TO NEXAMP OF BOSTON, MA.
G2. USE OF THIS INFORMATION SHALL BE LIMITED TO THE SPECIFIC PROJECT IT WAS DEVELOPED FOR AND SHALL NOT BE REPRODUCED WITHOUT CONSENT FROM NEXAMP, INC.
G3. ALL WORK SHALL BE INSTALLED IN A NEAT MANNER AND IN ACCORDANCE WITH THE APPLICABLE VERSION OF THE NATIONAL ELECTRICAL CODE(NEC) AND ALL OTHER LAWS AND STANDARDS.
G4. CONTRACTOR SHALL ENSURE THAT PHASE CONDUCTORS HAVE ENOUGH SLACK TO BE RELOCATED TO ANY PHASE BUSHING AS NEEDED TO ACCOMMODATE UTILITY PHASE ROTATION.

UTILITY & TESTING:
U1. EQUIPMENT ON THE UTILITY-SIDE ARE ASSUMED. ACTUAL EQUIPMENT AND CONFIGURATION SHALL BE VERIFIED BY THE UTILITY. UTILITY'S STANDARDS FOR INTERCONNECTION WILL BE FOLLOWED.
U2. THE GANG OPERATED DISCONNECT IS A VISIBLE BREAK AND IS ACCESSIBLE TO THE UTILITY 24/7.
U3. SYSTEM SHALL COMPLY AND ADHERE TO EVERSOURCE DER GATEWAY AND DSEM 19.065 STANDARD.
U4. ALL INTERCONNECTION LIMITS, SUCH AS THE IMPORT AND EXPORT LIMITS, WILL BE PROGRAMMED INSIDE THE EVERSOURCE GATEWAY AND ENFORCED THROUGH THE CUSTOMER PPC AND GENERATION INVERTERS.
U5. CUSTOMER PPC IS PROGRAMMED TO TURN OFF THE INVERTERS OR LIMIT INVERTER OUTPUT POWER AFTER RECEIVING COMMANDS FROM THE EVERSOURCE GATEWAY.
U6. CUSTOMER RTAC AND EVERSOURCE RTAC WILL BE CONNECTED BY OPTICAL FIBER USING DNP3 COMMUNICATION PROTOCOL.
U7. CUSTOMER PPC/INVERTERS WILL ISOLATE ALL GENERATION IF EVERSOURCE GATEWAY TO CUSTOMER PPC COMMUNICATION HAS FAILED, OR EVERSOURCE GATEWAY IS OFFLINE (AFTER 5 MINUTES).
U8. ALL INTERCONNECTION REQUIREMENTS, SUCH AS THE MAXIMUM AND MINIMUM IMPORT/EXPORT LIMITS, TURN OFF THE INVERTER(S), LIMIT INVERTER POWER, MEASUREMENTS, AND EQUIPMENT STATUS AND CONTROL WILL BE PROGRAMMED INSIDE THE EVERSOURCE GATEWAY AND ENFORCED THROUGH THE CUSTOMER PPC AND GENERATION INVERTER(S).
U9. DNP LIST (DATA POINT REQUIREMENTS) WILL BE PROVIDED BY EVERSOURCE, AND FUNCTIONALITY SHOULD BE IMPLEMENTED INTO THE CUSTOMER PPC.
U10. CUSTOMER PPC IS CAPABLE TO PROVIDE INDICATION, CONTROL AND TELEMETRY TO THE DER THROUGH THE EVERSOURCE GATEWAY.
U11. IF LOSS OF COMMS OCCURS BETWEEN DSCADA AND DER GATEWAY, THE CUSTOMER PPC WILL ADHERE TO DER GATEWAYS LOCALLY PROGRAMMED SCHEDULE LIMITS.
U12. INVERTERS WILL ISOLATE ALL GENERATION IF COMMUNICATION WITH THE CUSTOMER PPC IS LOST AFTER 1 MINUTE.
U13. INVERTER RESPONSE TIME TO CONTROL COMMANDS (SYSTEM LATENCY / DELAY) SENT FROM THE CUSTOMER PPC SHALL BE LESS THAN 1 SEC.

PROJECT & EQUIPMENT DETAILS:
P1. THE SIZE OF THE PROJECT IS 7,173 kWDC/4,950 kWAC.
P2. (03) TESLA MEGAPACK 3 BM01 (1,206 kW / 4,826 kWh) AND (03) BM04 (1,185 kW / 4,743 kWh) BATTERY MODULES ARE USED.
P3. (03) TESLA MEGAPACK 3 POWER STORAGE S080 (800 kVA) AND (03) TESLA MEGAPACK 3 POWER STORAGE S085(850 kVA) BATTERY STORAGE INVERTER ARE USED.
P4. THE OPERATING SIZE OF THE BESS IS 4,950 kW/28,707 kWh

GRIT APPROVAL Ready for Review

Approved Leon Bukmann 09/14/2026

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Rev	Issued For	Date	Init
A	UIA	01/07/2025	BT
B	UIA	01/16/2025	BT
C	UIA	09/11/2025	MU
D	UIA	11/12/2025	UQ
E	UIA	09/14/2026	BT

P.E. seal/Consultant:

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COMMONWEALTH OF MASSACHUSETTS ALLISON D. KIMBALL No. 49605 PROFESSIONAL ENGINEER

Allison D. Kimball
PROFESSIONAL ENGINEER
SEE LICENSE ABOVE

Project:

202866 - Mill Brook Storage DG

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42.5208488, -72.916578

Drawing Title:

AC Single Line Diagram

Drawn by: Bakhtzawar.T Scale: N.T.S

Dwg No:	Size: D	Sheet Rev:
E-601		E

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