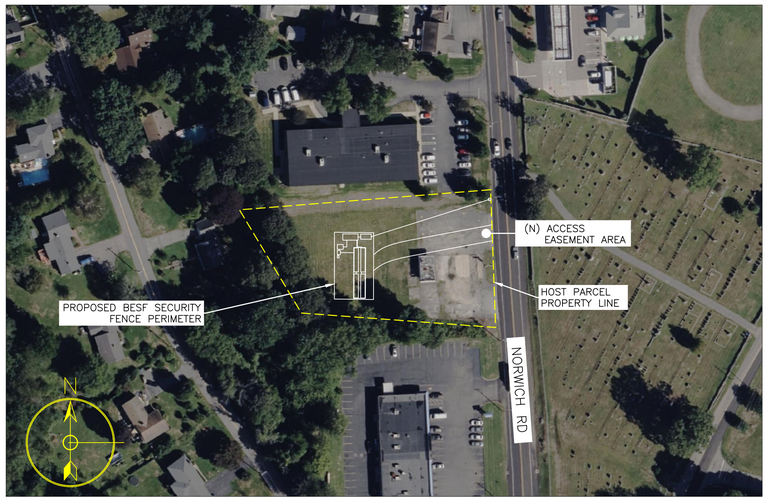
Q CELLS – 40 NORWICH RD
40 NORWICH RD, WATERFORD CT 06375
4,000KW/11,008KWH BESS

SITE MAP



SYSTEM SPECIFICATION

BESS POWER CONVERTER SYSTEM (PCS)

SUNGROW SC4000UD–MV–US
[BESS CONVERTER + MV XFMR]

MAX POWER 4000KVA @ 45°C

TOTAL NUMBER OF CONVERTERS–#1

BESS CONTAINER

SUNGROW BATTERY CONTAINERS
ST2752UX–US
LIQUID COOLING ENERGY STORAGE
CAPACITY = 2752KWH

TOTAL NUMBER OF CONTAINERS–#4

APPLICABLE CODES:
1. 2020 NATIONAL ELECTRIC CODE (NEC)
2. 2021 INTERNATIONAL BUILDING CODE (IBC)
3. 2021 IFC W/ CT 2022 AMMENDMENTS
4. NFPA 855 (2020)
5. NFPA 110 (2019)
6. NFPA 111 (2019)
7. 2023 NESC

TEMPERATURE CONSIDERATIONS	
STC TEMPERATURE [°C]	25
ASHRAE 2% HIGH AMBIENT TEMPERATURE [°C]	27
ASHRAE EXTREME MIN. LOW AMBIENT TEMPERATURE [°C]	–14

DRAWING INDEX

PROJECT TEAM

ELECTRICAL EOR:
HENRY HOLBROOK HYDE III
HYDE RENEWABLES, INC.
4735 WALNUT STREET, SUITE #110
BOULDER, CO 80301
WWW.HYDERENEWABLES.COM
P: (720) 900–1009

SCOPE OF WORK

INSTALLATION OF A NEW 4000KW BATTERY STORAGE SYSTEM AND ASSOCIATED EQUIPMENT.

HYDE RENEWABLES
ADVANCED ENGINEERING SOLUTIONS

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Completely Clean Energy

THESE DRAWINGS AND SPECIFICATIONS HAVE BEEN PREPARED BY HYDE RENEWABLES, INC. FOR THEIR EXCLUSIVE USE IN ACCORD WITH TITLE 20 SEC. 20–300–10 OF THE CONNECTICUT ADMINISTRATIVE CODE.

STATE OF CONNECTICUT
HENRY HOLBROOK HYDE III
No. 32042
LICENSED
PROFESSIONAL ENGINEER

SCALE: AS NOTED
(PRINT ON 36"X24")

BY	REV	ISSUE	DATE
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RK	Q	AHJ COMMENTS	03/11/24
RK	P	GROUNDING XFMR	02/08/24
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Q CELLS – 40 NORWICH RD

40 NORWICH RD,
WATERFORD CT 06375

SHEET TITLE
TITLE PAGE

DRAWN BY	SHEET #
TV	E.000
DATE: 05/11/2023	
CHECKED BY: TRIPP HYDE	

CONSTRUCTION NOTES

1. DISRUPTION OF ANY BUILDING SYSTEMS, INCLUDING POWER, TELEPHONE, HVAC, ETC., MUST BE COORDINATED AND APPROVED.
2. ALL ENERGY STORAGE COMPONENTS AND ELECTRICAL EQUIPMENT MUST BE ANCHORED AND SEISMICALLY BRACED PER APPLICABLE CODES.
3. PROJECT SITE MUST BE MAINTAINED IN A CLEAN AND ORDERLY FASHION. ALL TRASH AND DEBRIS MUST BE COLLECTED AND REMOVED ON A DAILY BASIS. ALL MUD AND DEBRIS MUST BE KEPT OUT OF PUBLIC RIGHT-OF-WAYS.
4. CONSTRUCTION MATERIALS ON SITE MUST BE PROPERLY STACKED AND PROTECTED IN A SAFE MANNER AS TO PREVENT DAMAGE AND DETERIORATION UNTIL USE.
5. PROVIDE BARRIERS TO PREVENT UNAUTHORIZED ENTRY INTO CONSTRUCTION AREAS WHILE MAINTAINING SITE ACCESS TO EMPLOYEES.
6. ALL FINISHES AND CONSTRUCTION MUST BE PROTECTED BY THE CONTRACTOR FROM POTENTIAL DAMAGE CAUSED BY CONSTRUCTION ACTIVITY. DAMAGE TO FINISHES OR CONSTRUCTION MUST BE REPAIRED OR REPLACED (OWNER'S DECISION) BY THE CONTRACTOR WITH IDENTICAL MATERIAL AND/OR FINISHES. CONTRACTOR MUST MAKE AND MAINTAIN A PHOTOGRAPHIC RECORD NOTEBOOK DATED/INDEXED PHOTOS.
7. ALL TRENCHES AND EXCAVATIONS MUST BE CONSTRUCTED IN STRICT COMPLIANCE WITH THE APPLICABLE SECTIONS OF STATE AND FEDERAL O.S.H.A. REQUIREMENTS AND OTHER APPLICABLE SAFETY ORDINANCES. CONTRACTOR MUST BEAR FULL RESPONSIBILITY FOR TRENCH SHORING DESIGN AND INSTALLATION.
8. PROTECTIVE BARRICADES, FENCING, HANDRAILS, AND BRIDGES, TOGETHER WITH WARNING AND GUIDANCE DEVICES AND SIGNS, MUST BE UTILIZED SO THAT PASSAGEWAY FOR PEDESTRIANS, ESPECIALLY DISABLED PERSONS, IS SAFE AND WELL DEFINED.
9. WALKWAYS IN CONSTRUCTION AREAS MUST BE MAINTAINED AT LEAST 4 FEET IN WIDTH OR EQUAL TO SIDEWALK/ENTRY WAY WIDTH, WHICHEVER IS GREATER, UNLESS EXPRESSLY PERMITTED OTHERWISE BY THE CUSTOMER IN WRITING; AND MUST BE FREE OF ABRUPT CHANGES IN THE GRADE. THESE WALKWAYS MUST BE CLEARLY MARKED AND PROVIDE SAFE PASSAGE FOR PEDESTRIANS. OBSTRUCTIONS WITHIN THE WALKWAYS MUST BE ILLUMINATED DURING HOURS OF DARKNESS. MINIMUM VERTICAL CLEARANCE TO ANY OBSTRUCTION WITHIN THE WALKWAY MUST BE 6'-8'.
10. WHERE WALKWAYS, PATHWAYS, OR ACCESS WAYS ARE CLOSED BY THE WORK, AN ADA COMPLIANT, OR ALTERNATE WALKWAY MUST BE PROVIDED, PREFERABLY WITHIN THE IMMEDIATE LOCATION OF THE PATHWAY OR ACCESS WAY TO BE CLOSED. WHERE IT IS NECESSARY TO DIVERT PEDESTRIANS INTO MAJOR DETOUR AND/OR INTO A PARKING LANE OR TRAFFIC AREA, AT NO TIME SHOULD PEDESTRIANS BE DIVERTED INTO A PORTION OF A STREET USED FOR VEHICULAR TRAFFIC. ANY DEVIATION FROM THE ABOVE MUST HAVE PRIOR APPROVAL OF THE CUSTOMER.
11. AT LOCATIONS WHERE ADJACENT ALTERNATE WALKWAYS CANNOT BE PROVIDED, ADA COMPLIANT DETOURS WILL BE CLEARLY PLANNED, MARKED, AND CONSTRUCTED. APPROPRIATE SIGNS AND BARRICADES MUST BE INSTALLED AT THE LIMITS OF CONSTRUCTION AND IN ADVANCE OF THE CLOSURE (OR DETOUR) IN ORDER TO DIVERT PEDESTRIANS TO THE APPROPRIATE WALKWAY OR DETOUR
12. ASPHALT AND CONCRETE BARRIERS: ALL ASPHALT TRAFFIC IS RATED. ALL ASPHALT REPAIRS MUST BE REPAIRED TO MATCH ADJACENT BASE COURSE, BINDER COURSE, AND WEARING COURSES. CONTRACTOR MUST COVER ASPHALT TRENCHES WITH HOT MIX ASPHALT, ROLL FOR COMPACTION, AND COVER THE WIDTH OF THE TRENCH WITH A SLURRY SEAL AFTER THE CURE PERIOD. CONCRETE MUST BE REPLACED "JOINT-TO-JOINT" WHEN DISTURBED DURING CONSTRUCTION.
13. UNDERGROUND BUILDUP IN FIRE LANES WILL MEET EXISTING FIRE LANE SPECS AND ROADWAYS WILL MEET EXISTING ROADWAY SPECS. CONTRACTOR MUST SUBMIT CUT SHEETS FOR THESE REPAIRS.
14. ENSURE THAT ALL REMAINING ACTIVE AND NEW DRAINAGE AND UTILITY LINES ARE PROTECTED AND UNDAMAGED FROM TRENCHING AND FOOTING EXCAVATIONS FOR NEW FOOTINGS, PARTICULARLY FOR NEW FENCING AND WALLS.
15. DELIVERIES MUST BE KEPT AWAY FROM EMPLOYEES BY SEPARATING THE DELIVERY AREA OR ESCORTING THE DELIVERIES WHILE ON SITE.
16. ALL SIGNAGE REMOVED DURING THE COURSE OF CONSTRUCTION MUST BE RELOCATED OR REPLACED.
17. ALL LANDSCAPING DAMAGED DURING THE COURSE OF CONSTRUCTION MUST BE REPAIRED BACK TO ITS ORIGINAL CONDITION.
18. ALL EXTERIOR STEEL MUST BE CORROSION RESISTANT, HOT DIPPED GALVANIZED OR GALVANIZED WITH COATED FINISH.
19. CONTRACTOR SHALL ADHERE TO 2002 CONNECTICUT GUIDELINE FOR EROSION AND SEDIMENT CONTROL, AS AMENDED.

WIRING AND WIRING METHODS

1. ALL GROUNDED CONDUCTORS MUST BE COLOR-CODED IN COMPLIANCE WITH NEC ARTICLE 200.6.
2. ALL DC EQUIPMENT AND COMPONENTS MUST BE LISTED FOR USE AT 1000VDC UON.
3. ALL CONDUCTORS IN VERTICAL RACEWAYS MUST COMPLY WITH NEC ARTICLE 300.19(A), 300.19(B), 376.30(B), AND TABLE 300.19(A).
4. ALL CONNECTIONS AND CONNECTORS MUST BE TORQUED PER DEVICE LISTING OR MANUFACTURER'S RECOMMENDATIONS.
5. WIRE NUTS MUST NOT BE USED ON ENERGY STORAGE CONDUCTORS. SPLICES AND CONNECTORS MUST BE INSULATED BY APPROVED MEANS. UL LISTED ELECTRICAL TAPE ALONE IS NOT SUITABLE AS THE ONLY INSULATION MEANS.
6. ENERGY STORAGE OUTPUT CIRCUITS, AND INVERTER OUTPUT CIRCUITS MUST BE PROTECTED IN ACCORDANCE WITH NEC ARTICLE 240.
7. PROTECTIVE BUSHINGS MUST BE USED FOR ALL CONDUIT CONNECTIONS.

WIRING AND BONDING METHODS

1. GROUND AND BOND ALL EQUIPMENT, SUPPORTING STRUCTURES, MOUNTS, RACEWAYS, PANELBOARDS, SWITCHBOARDS, ETC., IN ACCORDANCE WITH NEC ARTICLE 250 AND 690.43.
2. THE EQUIPMENT GROUNDING CONNECTION TO ANY MODULE OR COMPONENT OF THIS STORAGE SYSTEM MUST BE ARRANGED SUCH THAT REMOVAL FROM THE SYSTEM DOES NOT INTERRUPT THE GROUND FAULT PATH OF ANY COMPONENT WITHIN THE SYSTEM.
3. ALL GROUNDING AND BONDING EQUIPMENT MUST BE LISTED AND USED IN ACCORDANCE WITH ITS LISTING.

INVERTER NOTES

1. INVERTER MUST HAVE GROUND FAULT DETECTION NOTIFICATION AND INTERRUPTION FOR DC CIRCUITS SUPPLYING POWER TO IT PER NEC 690.41(B).
2. THE INVERTERS MUST AUTOMATICALLY DE-ENERGIZE THEIR OUTPUT TO THE CONNECTED ELECTRICAL SYSTEM UPON LOSS OF VOLTAGE IN THAT SYSTEM, AND MUST REMAIN IN THAT STATE UNTIL THE VOLTAGE HAS BEEN RESTORED IN COMPLIANCE WITH NEC ARTICLE 705.40.
3. ALL SOLAR AND STORAGE INVERTERS MUST BE UL-LISTED OR MUST OBTAIN UL FIELD CERTIFICATION.

EQUIPMENT NOTES

1. ALL EQUIPMENT MUST BE LISTED/LABELED BY A NATIONALLY RECOGNIZED TESTING LABORATORY.
2. ALL DEVICES AND EQUIPMENT INSTALLED OUTDOORS OR EXPOSED TO THE WEATHER MUST BE OF WEATHERPROOF CONSTRUCTION AND RATED FOR UV EXPOSURE.
3. ALL FIELD-INSTALLED JUNCTION, PULL, AND OUTLET BOXES LOCATED BEHIND MODULES MUST BE ACCESSIBLE DIRECTLY OR BY DISPLACEMENT OF THE MODULE(S) SECURED BY REMOVABLE FASTENERS.
4. PROVIDE "WARNING: POTENTIAL ARC FLASH HAZARD" LABEL FOR ALL SWITCHBOARDS, PANELBOARDS, METER SOCKET ENCLOSURES, AND MOTOR CONTROL CENTERS PER NEC ARTICLE 110.16. "FLASH PROTECTION" APPLIES TO DESIGNATED SCOPE OF WORK ONLY.

EQUIPMENT PADS AND CONDUIT ROUTING

1. CONDUIT ROUTING IS DIAGRAMMATIC IN NATURE. EXACT ROUTING AND LOCATIONS WILL BE COORDINATED IN FIELD.
2. FOR EXPANSION COUPLING REFER NEC 300.7(B)

CODES

1. ALL COMPONENTS MUST BE DESIGNED, MANUFACTURED, AND TESTED IN ACCORDANCE WITH THE LATEST APPLICABLE STANDARDS OF NEMA, ANSI, NEC, AND UL.
2. SPECIFIC REQUIREMENTS FOR INDIVIDUAL COMPONENTS OF ANY POWER SYSTEMS INCLUDE BUT ARE NOT LIMITED TO THE GUIDELINES SHOWN HEREIN.
3. THE WORK ON THE PROJECT MUST BE DESIGNED AND INSTALLED IN ACCORDANCE WITH BASED ON THE NATIONAL ELECTRIC CODE AND WITH THE LATEST EDITION OF ALL APPLICABLE CODES, STANDARDS, AND RECOMMENDATIONS OF THE FOLLOWING AGENCIES:

* ANSI – AMERICAN NATIONAL STANDARDS INSTITUTE
* ASCE – AMERICAN SOCIETY OF CIVIL ENGINEERS
* ADA – AMERICAN DISABILITIES ACT
* ASME – AMERICAN SOCIETY OF MECHANICAL ENGINEERS
* ASTM – AMERICAN SOCIETY FOR TESTING AND MATERIALS
* CBMA – CERTIFIED BALLAST MANUFACTURERS ASSOCIATION
* EIA – ELECTRONIC INDUSTRIES ASSOCIATION
* ETL – ELECTRICAL TESTING LABORATORIES
* IBC – INTERNATIONAL BUILDING CODE
* IEEE – INSTITUTE OF ELECTRICAL AND ELECTRONIC ENGINEERS
* IESNA – ILLUMINATION ENGINEERING SOCIETY OF NORTH AMERICA
* ICEA – INSULATED CABLE ENGINEERS ASSOCIATION
* IAEI – INTERNATIONAL ASSOCIATION OF ELECTRICAL INSPECTORS
* IPCEA – INSULATED POWER CABLE ENGINEERS ASSOCIATION
* IPMVP – INTERNATIONAL PERFORMANCE MEASUREMENTS AND VERIFICATION PROTOCOL
* NFPA – NATIONAL FIRE PROTECTION ASSOCIATION
* NEMA – NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION
* NESC – NATIONAL ELECTRICAL SAFETY CODE
* NETA – NATIONAL ELECTRICAL TESTING ASSOCIATION
* NEC – NATIONAL ELECTRICAL CODE
* NECA – NATIONAL ELECTRIC CONTRACTORS ASSOCIATION
* OSHA – OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION
* UL – UNDERWRITERS LABORATORY

INSPECTIONS

ALL INDEPENDENT TESTING AND INSPECTIONS WILL BE COORDINATED BY THE CUSTOMER.

ABBREVIATIONS

AFF – ABOVE FINISH FLOOR
AL – ALUMINUM CONDUCTOR OR BUS
AWG – AMERICAN WIRE GAUGE
ATS – AUTOMATIC TRANSFER SWITCH
C – CONDUIT
CO – CONDUIT ONLY
COMM – COMMUNICATIONS CIRCUIT OR CONDUIT AS NOTED
COU – CONDITIONS OF USE
CPY – CANOPY
CU – COPPER CONDUCTOR OR BUS
DAS – DATA ACQUISITION SYSTEM
DC – DIRECT CURRENT
(E) – EXISTING
EGC – EQUIPMENT GROUND CONDUCTOR
EMT – ELECTRICAL METALLIC TUBING
EQ – EQUAL
ESS – ENERGY STORAGE SYSTEM
EVC – ELECTRIC VEHICLE CHARGER
FBO – FURNISHED BY OTHERS
FIBO – FURNISHED AND INSTALLED BY OTHERS
GEC – GROUND ELECTRODE CONDUCTOR
GND – GROUND
IBO – INSTALLED BY OTHERS
IG – ISOLATED GROUND CONDUCTOR
ISC – SHORT CIRCUIT CURRENT
KVA – KILOVOLT-AMPERES
KW – KILOWATTS
MCA – MINIMUM CIRCUIT AMPERES
MLO – MAIN LUGS ONLY
MT – MONITORING
(N) – NEW
NIC – NOT IN CONTRACT
NIS – NOT IN SCALE
NTS – NOT TO SCALE
NEC – NATIONAL ELECTRICAL CODE
NS – NO SCALE
NL – NIGHT LIGHT, TIME CLOCK, OR PHOTOCELL CONTROLLED LUMINAIRE
OCP – OVERCURRENT PROTECTION
OAE – OR APPROVED EQUIVALENT
PV – PHOTOVOLTAIC
PMRS – PERFORMANCE MONITORING AND REPORTING
POCC – POINT OF COMMON COUPLING
POT – PATH OF TRAVEL
(R) – REMOVE
(RL) – RELOCATE, RELOCATED
SLD – SINGLE LINE DIAGRAM
SSBJ – SUPPLY SIDE BONDING JUMPER
STC – STANDARD TEST CONDITIONS
TYP – TYPICAL
UON – UNLESS OTHERWISE NOTED
VD – VOLTAGE DROP
VOC – OPEN CIRCUIT VOLTAGE
W – WALL MOUNTED
WP – EQUIPMENT OF WEATHERPROOF CONSTRUCTION OR DESIGN
XFMR – TRANSFORMER

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RK	R	AHJ COMMENTS	03/21/24
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BY	REV	ISSUE	DATE

FIRM NAME AND ADDRESS

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PROJECT NAME AND ADDRESS

Q CELLS – 40 NORWICH RD

40 NORWICH RD,
WATERFORD CT 06375

SHEET TITLE
GENERAL

DRAWN BY TV	SHEET # E.001
DATE 05/11/2023	
CHECKED BY TRIPP HYDE	

SINGLE LINE DIAGRAM

- AC — AC CABLE
- DC — DC CABLE
- GND — GROUND CABLE
- UGE — UNDERGROUND ELECTRIC LINE
- CONDUIT CAP
- CONTINUATION
- FO — FIBER OPTIC CABLE
- N / G — "N" INDICATES NEUTRAL BUS; "G" INDICATES GROUND BUS
- G — GENERATOR
- 400A 3P3N — AUTOMATIC TRANSFER SWITCH 400A, 3-POLE, SOLID NEUTRAL
- 400A 4P — AUTOMATIC TRANSFER SWITCH WITH ISOLATION BYPASS, 400A, 4-POLE
- PANEL HA / SEC 2 / 225A MCB — PANELBOARD "HA" (2 SECTIONS) 225A MAIN CIRCUIT BREAKER
- PANEL LA / 225A MLO — PANELBOARD "LA" 225A MAIN LUGS ONLY
- TRANSFORMER VOLTAGE AND RATING AS NOTED
- NEUTRAL GROUNDING RESISTOR
- EARTH GROUND
- COPPER CLAD GROUND ROD
- C / T — CABLE TAP BOX
- INVERTER/RECTIFIER
- DC-DC CONVERTER
- BATTERY
- Y: ZMR X2-X4 — CURRENT TRANSFORMER "Y" = PRIMARY CURRENT; "Z" = SECONDARY CURRENT; X2=X4 = TAP SETTING
- (3) PT 4:1 — POTENTIAL TRANSFORMER "(2)" INDICATES QUANTITY; "4:1" INDICATES RATIO
- Y: ZMR X2-X4 — GROUND FAULT CURRENT XFMR
- M — "M" = METER; "T" = TEMP PROBE; "ST" = SHUNT TRIP

SINGLE LINE DIAGRAM

- MOTOR START WITH OPTIONAL HOA AND OVERLOAD
- V — VARIABLE FREQUENCY DRIVE
- 100AF 100AT 10KAIC — FIXED-MOUNT ENCLOSED CIRCUIT BREAKER, AIC AS NOTED
- 100AF 100AT — FIXED-MOUNT CIRCUIT BREAKER "F" = FRAME RATING; "T" = TRIP RATING
- 100AS — DISCONNECT SWITCH "S" = SWITCH RATING
- 100AS 100AF — FUSED DISCONNECT SWITCH CLASS L OR R FUSES AS NOTED "S" SWITCH, "F" FUSE RATINGS
- (3) 800AF 600AT LSIG — DRAWOUT CB - LOW VOLTAGE INSULATED CASE OR AIR TYPE LSIG = ELECTRONIC TRIP DEVICE "L" = LONG TIME TRIP; "S" = SHORT TIME TRIP; "I" = INSTANTANEOUS TRIP; "G" = GROUND FAULT
- 100A — DRAWOUT FUSE LOW VOLTAGE INSULATED CASE OR AIR TYPE
- 52 2000AF 1600AT — DRAWOUT CIRCUIT BREAKER - MED VOLTAGE VACUUM OR ARC RESISTANT TYPE "F" FRAME, "T" TRIP RATING
- TAP CONNECTORS
- CABLE LIMITERS
- MEDIUM VOLTAGE LOAD/DEAD-BREAK ELBOW OR STRESS CONE
- SURGE ARRESTOR AIR GAP
- SURGE ARRESTOR MOV
- THERMAL OVERLOAD
- GROUNDED BAR WITH EARTH CONNECTION

ANNOTATION SYMBOLS

- X — NOTE REFERENCE SYMBOL
- X — REVISION REFERENCE SYMBOL
- RELOCATE EXISTING DEVICE
- A X — LIGHT FIXTURE TAG "A" TYPE, "X" QUANTITY

PHASE	240/120V, 1ϕ	240/120V, 3ϕ, HIGH-LEG	208/120V, 3ϕ	480/277V, 3ϕ
A	BLACK	BLACK	BLACK	BROWN
B	RED	RED	RED	PURPLE
C	N/A	ORANGE	BLUE	YELLOW
NEUTRAL	WHITE	WHITE	WHITE	WHITE
GROUND	GREEN	GREEN	GREEN	GREEN

PHASE	DC (600V)	DC (1000V)	DC (1500V)	DC (2000V)
POSITIVE	RED	RED	RED	RED
NEGATIVE	BLACK	BLACK	BLACK	BLACK
GROUND	GREEN	GREEN	GREEN	GREEN

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LEGEND

DRAWN BY	SHEET #
TV	E.002
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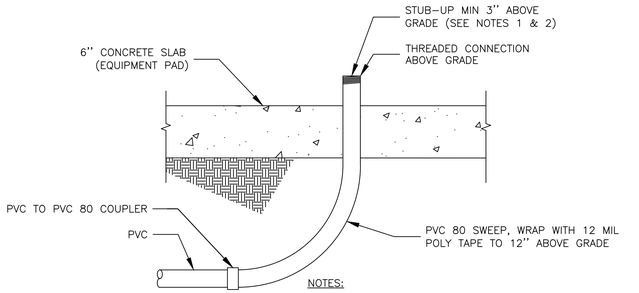

A EQUIPMENT PAD STUB UP DETAIL
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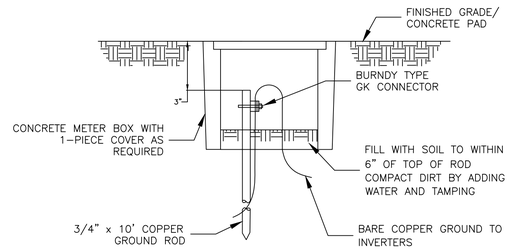

B TYPICAL GROUND WELL DETAIL
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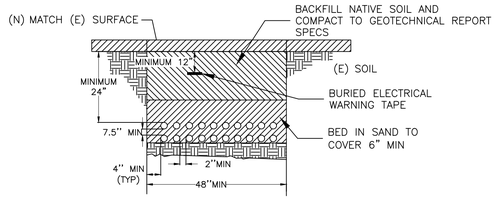

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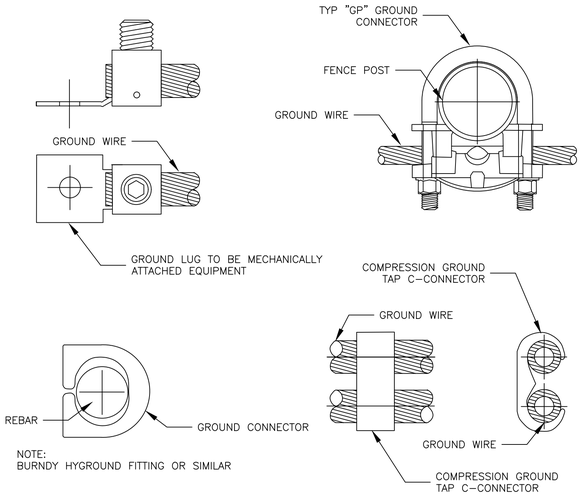

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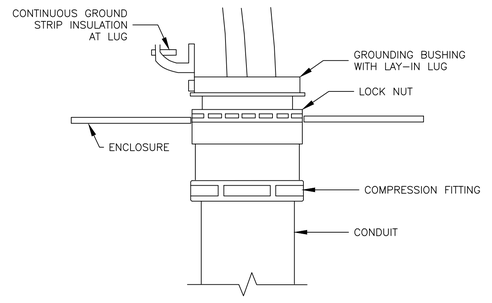

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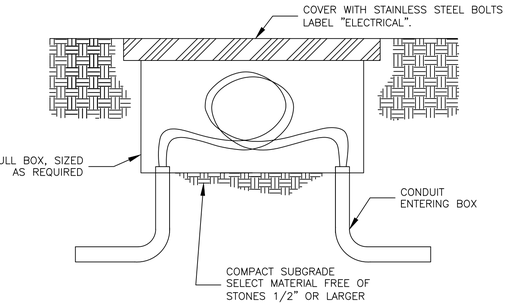

F UNDERGROUND PULLBOX SECTION DETAIL
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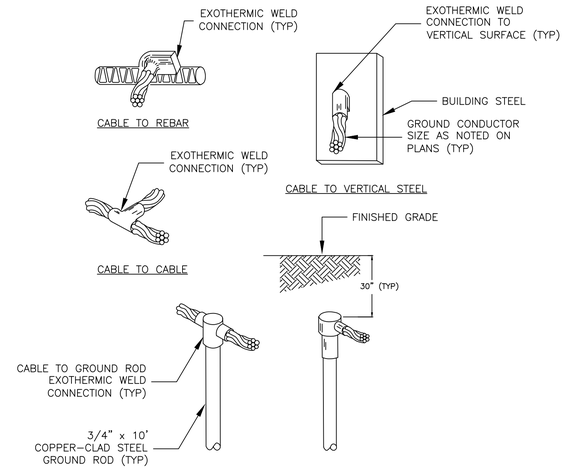
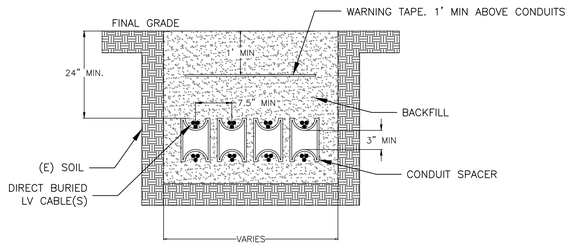
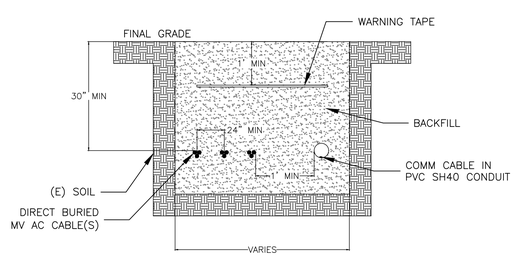


G GROUNDING CONNECTION DETAILS
SCALE: N.T.S



H TWO LAYER DIRECT BURIED LV CABLES
SCALE: N.T.S



I MV CABLES WITH COMM CABLES TRENCH DETAIL
SCALE: N.T.S

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RK	P	GROUNDING XFMR	02/08/24
RK	O	REDLINES	02/06/24
RK	N	REDLINES	02/05/24
BY	REV	ISSUE	DATE

FIRM NAME AND ADDRESS
HYDE RENEWABLES, INC
4735 WALNUT ST, SUITE #110
BOULDER, CO 80301

INFO@HYDERENEWABLES.COM
720–900–1009
WWW.HYDERENEWABLES.COM

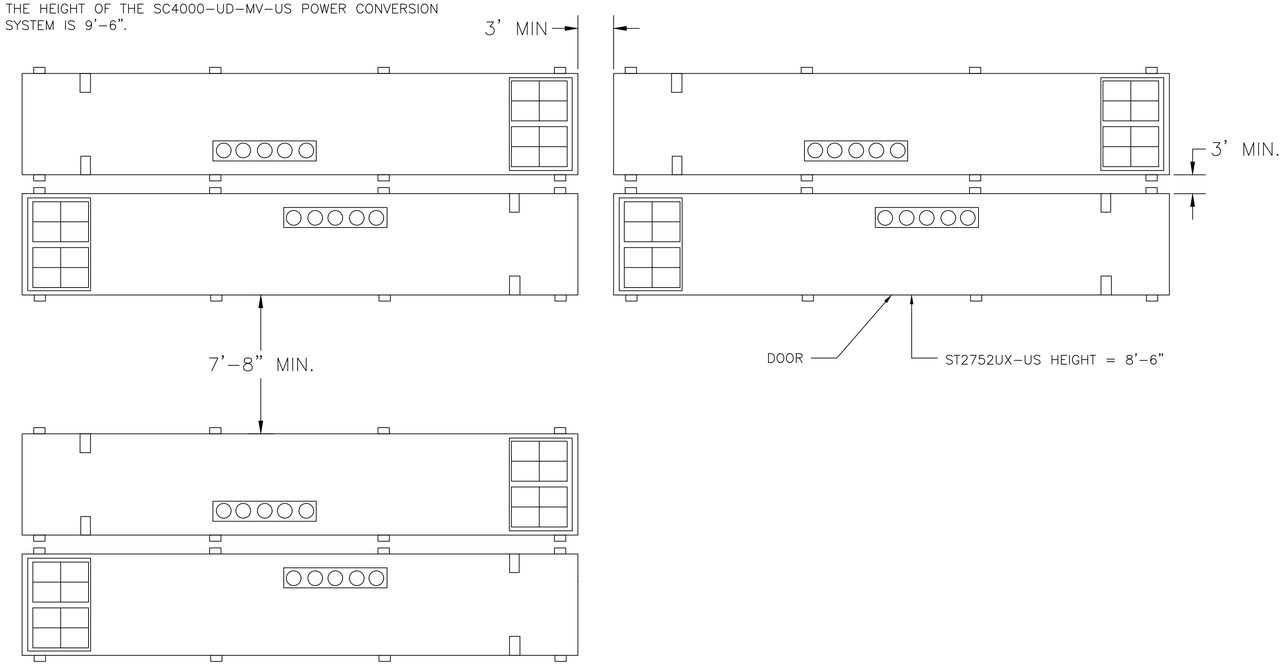
PROJECT NAME AND ADDRESS
Q CELLS – 40 NORWICH RD

40 NORWICH RD,
WATERFORD CT 06375

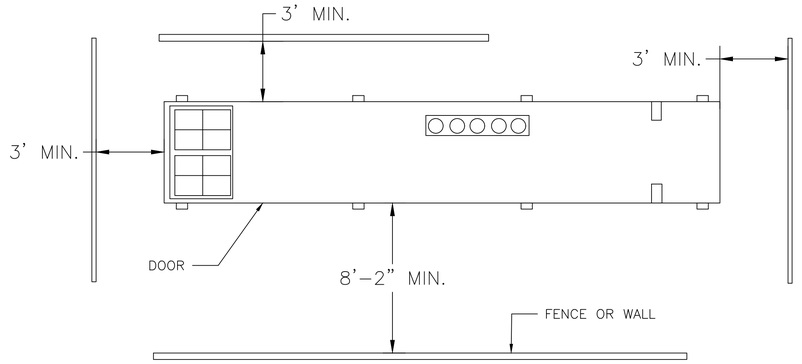
SHEET TITLE
DETAILS 01

DRAWN BY TV	SHEET # E.010
DATE 05/11/2023	
CHECKED BY TRIPP HYDE	

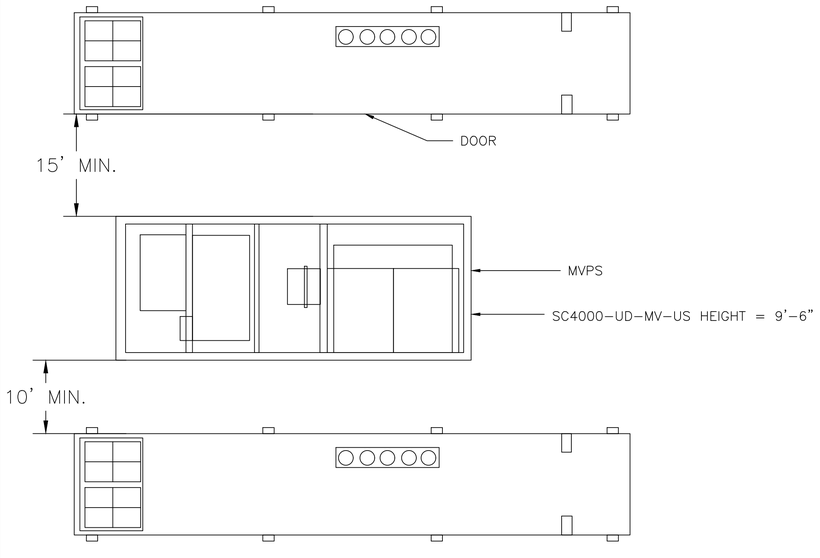
NOTE:
REFER TO MANUFACTURER'S LAYOUT GUIDE FOR MORE DETAILS.
THE HEIGHT OF THE ST2752UX-US BESS SYSTEM IS 8'-6".
THE HEIGHT OF THE SC4000-UD-MV-US POWER CONVERSION SYSTEM IS 9'-6".



A BESS MINIMUM CLEARANCE DETAIL (BESS TO BESS)
SCALE: N.T.S



B BESS MINIMUM CLEARANCE DETAIL (BESS TO WALL OR FENCE)
SCALE: N.T.S



C BESS MINIMUM CLEARANCE DETAIL (BESS TO MVPS)
SCALE: N.T.S

HYDE RENEWABLES
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STATE OF CONNECTICUT
HENRY HOLBROOK HYDE III
No. 32042
LICENSED
PROFESSIONAL ENGINEER

SCALE: AS NOTED
(PRINT ON 36"X24")

BY	REV	ISSUE	DATE
RK	R	AHJ COMMENTS	03/21/24
RK	Q	AHJ COMMENTS	03/11/24
RK	P	GROUNDING XFMR	02/08/24
RK	O	REDLINES	02/06/24
RK	N	REDLINES	02/05/24

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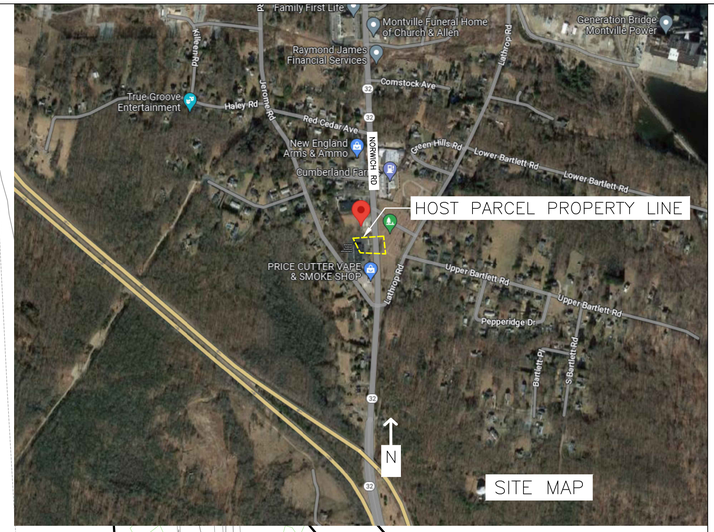
PROJECT NAME AND ADDRESS
Q CELLS - 40 NORWICH RD

40 NORWICH RD,
WATERFORD CT 06375

SHEET TITLE
DETAILS 02

DRAWN BY	SHEET #
TV	E.011
DATE 05/11/2023	
CHECKED BY TRIPP HYDE	



TOWN OF MONTVILLE BOUNDARY WITHIN 2500 FEET OF (N) BESS FACILITY

BUILDING

(E) UTILITY POLE (POINT OF INTERCONNECTION)

(N) AC-01A

(N) PROPOSED BESF SECURITY FENCE PERIMETER

(N) 'MVPS' 4000KW PCS

(N) 'DISC1' UTILITY DISCONNECT SWITCH

(N) 'SWBD1' AC MV SWITCHBOARD

(N) AC-01B

(N) AC-02

(N) 'TF2' XFMR

(N) 'DISC2'

(N) DC-01

(N) AC-03

(N) 'PNL1' AUX PANEL

(N) MT-02

(N) COMMS

(N) MT-01

TREE LINE

(N) INSTALL LANDSCAPE SCREENING ON ALL SIDES
MIN HEIGHT 6' AT PLANTING
10' AWAY FROM BESS EQUIPMENT
GREEN GIANT ARBORVITAE RECOMMENDED

(N) 'BESS1'-'BESS4'
(4) 2752KWH BESS CONTAINERS

TREE LIMBS WITHIN 10FT OF BESS SITE FENCE LINE WILL BE TRIMMED

(N) GREEN, PRIVACY SLATS INSTALLED, CHAIN LINK FENCE

(E) SIDEWALK

(N) CONCRETE PAD

(E) BLDG 404

(E) OVERHEAD WIRES

(E) SIDEWALK

(N) ACCESS EASEMENT AREA

161'-4"

74'-2"

30'-8"

20'-8"

OHE

UGE

NORWICH RD

40 NORWICH ROAD: TOWN OF WATERFORD ZONING DESIGNATION: GENERAL COMMERCIAL DISTRICT (C-G)

HOST PARCEL PROPERTY BOUNDARY

N

SITE PLAN
SCALE: 1/16"=1'

0 16 32 64

GENERAL NOTES:

1. INSTALL LANDSCAPE SCREENING ON ALL SIDES OF THE BESS AT A MINIMUM HEIGHT OF 6FT AT PLANTING. THE CITY OF WATERFORD RECOMMENDS USING GREEN GIANT ARBORVITAE

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Q CELLS - 40 NORWICH RD

40 NORWICH RD,
WATERFORD CT 06375

SHEET TITLE

SITE PLAN

DRAWN BY	SHEET #
TV	E.100
DATE 05/11/2023	
CHECKED BY TRIPP HYDE	

HOST PARCEL PROPERTY BOUNDARY

(E) UTILITY POLE (POINT OF INTERCONNECTION)

(E) OVERHEAD WIRES

(N) PROPOSED BESF SECURITY FENCE PERIMETER

36'-10"

3' TYP.

8' TYP.

17'-4"

30'-8"

(N) GREEN, PRIVACY SLATS INSTALLED, CHAIN LINK FENCE

3' CLEARANCE

64'

(N) 'BESS1'–'BESS4'
(4) 2752KWH BESS CONTAINERS

5'-8"

3' CLEARANCE

14'-4"

(N) ACCESS EASEMENT AREA

20'-8"

(E) BLDG 404

(N) INSTALL LANDSCAPE SCREENING ON ALL SIDES
MIN HEIGHT 6' AT PLANTING
10' AWAY FROM BESS EQUIPMENT
GREEN GIANT ARBORVITAE RECOMMENDED

TREE LIMBS WITHIN 10FT OF BESS SITE FENCE LINE WILL BE TRIMMED

N

FIRE AND SAFETY
SCALE: 1/8"=1'

0 16 32 64

FIRE AND SAFETY

E.110

GENERAL NOTES:

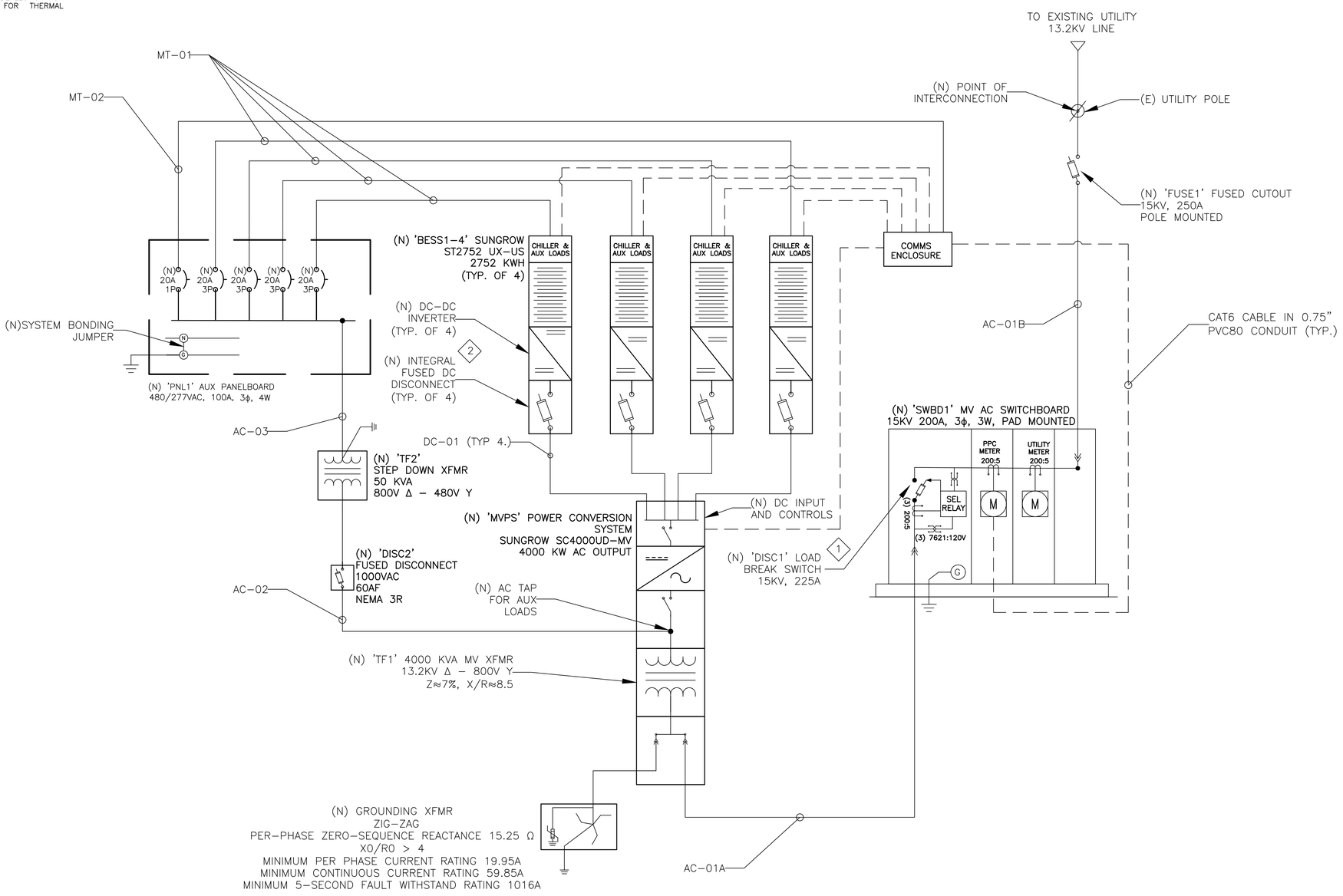
1. ALL EQUIPMENT MUST BE UL LISTED BY A RECOGNIZED BY NRTL
2. ALL EQUIPMENT WIRING AND GROUNDING SHALL CONFORM TO THE MANUFACTURER'S RECOMMENDED PRACTICES. REFER TO THE INSTALLATION AND USER MANUALS FOR GUIDANCE.
3. EXPOSED NON-CURRENT CARRYING METAL PARTS OF MODULE FRAMES, EQUIPMENT, AND ENCLOSURES SHALL BE GROUNDED IN ACCORDANCE WITH NEC 250.134 AND 250.136. CONTRACTOR TO REFER TO MANUFACTURES INSTALLATION MANUAL FOR APPROVED METHOD OF GROUNDING.
4. ALL EXPOSED RACEWAY OPENINGS SHALL BE SEALED USING A SUITABLE METHOD TO PREVENT ENTRY OF INSECTS.
5. NEW OCPD SHALL HAVE THE SAME INTERRUPTING CURRENT RATING(KAIC) AS THE RATING OF THE PANELBOARD OR SWITCHBOARD IN WHICH THEY ARE LOCATED.
6. THE UTILITY COMPANY MUST BE NOTIFIED PRIOR TO USE.
7. HYDE RENEWABLES IS NOT RESPONSIBLE FOR ENGINEERING ON EXISTING CIRCUITS
8. BONDING SHALL BE PROVIDED WHERE NECESSARY TO ENSURE ELECTRICAL CONTINUITY AND CAPACITY TO CONDUCT SAFETY.
9. SYSTEM INCLUDING CONDUIT AND CONDUCTORS SHALL BE INSTALLED IN A NEAT AND A WORKMANLIKE MANNER IN ACCORDANCE WITH NEC 110.12.
10. ALL ELECTRICAL EQUIPMENT EXPOSED RACEWAYS, CONDUCTORS, AND CONNECTIONS SHALL BE MECHANICALLY SECURED VIA HARDWARE RATED FOR OUTDOOR AND UV LIGHT EXPOSURE AND WITH A DESIGN LIFE GREATER THAN ANTICIPATED LIFE EXPECTANCY OF THE SYSTEM.
11. RACEWAY SHALL BE PROVIDED WITH EXPANSION, EXPANSION DEFLECTION OR DEFLECTION FITTINGS WHERE NECESSARY TO COMPENSATE FOR THERMAL EXPANSION, DEFLECTION AND CONTRACTION AS PER NEC 300.7(B)
12. ALL PARALLEL CONDUCTORS MUST BE COLOR CODED.

CONDUCTOR ID			CONDUIT & CONDUCTOR NOTES																												
FROM	TO	ID	CONDUIT						PHASE CONDUCTORS						NEUTRAL CONDUCTOR							GROUND CONDUCTOR									LENGTH (FT)
BESS	MVPS	DC-01	4	-	3"	INCHES	PVC 40 HDPE		2	-	#600KCMIL	PV WIRE	CU 2000V		0	-							1	-	#2AWG	THWN-2	CU 600V		EGC		10
MVPS	SWB1	AC-01A	DIRECT BURY						3	-	#2/0AWG	MV-105	AL 15KV		0	-							1	-	#4AWG	THWN-2			EGC		10
SWB1	POI	AC-01B	DIRECT BURY						3	-	#2/0AWG	MV-105	AL 15KV		0	-							1	-	#4AWG	THWN-2			EGC		200
MVPS	TF2	AC-02	1	-	1"	INCHES	PVC 40 HDPE		3	-	#4AWG	PV WIRE	CU 1000/2000V		0	-							1	-	#4AWG	THWN-2			EGC		20
TF2	PNL1	AC-03	1	-	1.25"	INCHES	PVC 40 HDPE		3	-	#3AWG	THWN-2	CU 600V		1	-	#3AWG	THWN-2	CU 600V	NEUTRAL			1	-	#8AWG	THWN-2	CU 600V		EGC		5
PNL1	BESS	MT-01	1	-	0.75"	INCHES	PVC 40 HDPE		3	-	#12AWG	THWN-2	CU 600V		1	-	#12AWG	THWN-2	CU 600V	NEUTRAL			1	-	#10AWG	THWN-2	CU 600V		EGC		100
PNL1	COMMS	MT-02	1	-	0.75"	INCHES	PVC 40 HDPE		2	-	#12AWG	THWN-2	CU 600V		1	-	#12AWG	THWN-2	CU 600V	NEUTRAL			1	-	#10AWG	THWN-2	CU 600V		EGC		100

SHEET NOTES:

1. THE UTILITY ISOLATION DEVICE SHALL BE GANGED, MANUALLY-OPERATED & LOCKABLE WITH VISIBLE BLADE SEPARATION, PERMANENT SIGNAGE INDICATING THE OPEN & CLOSED POSITION, AND BE ACCESSIBLE TO UTILITY PERSONNEL 24 HOURS A DAY PER UTILITY REQUIREMENTS.

2. (4) DC FUSES PER BESS CONTAINER, AND (4) DC-01 CABLES PER BESS CONTAINER USED IN THE BESS CONFIGURATION.



HYDE RENEWABLES
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THESE DRAWINGS AND SPECIFICATIONS HAVE BEEN PREPARED BY HYDE RENEWABLES, INC. FOR THEIR EXCLUSIVE USE IN ACCORD WITH TITLE 20 SEC. 20-300-10 OF THE CONNECTICUT ADMINISTRATIVE CODE.

STATE OF CONNECTICUT
HENRY HOLBROOK HYDE III
No. 32042
LICENSED
PROFESSIONAL ENGINEER

SCALE: AS NOTED
(PRINT ON 36"X24")

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RK	Q	AHJ COMMENTS	03/11/24
RK	P	GROUNDING XFMR	02/08/24
RK	O	REDLINES	02/06/24
RK	N	REDLINES	02/05/24
BY	REV	ISSUE	DATE

FIRM NAME AND ADDRESS

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4735 WALNUT ST, SUITE #110
BOULDER, CO 80301

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720-900-1009
WWW.HYDERENEWABLES.COM

PROJECT NAME AND ADDRESS

Q CELLS - 40 NORWICH RD

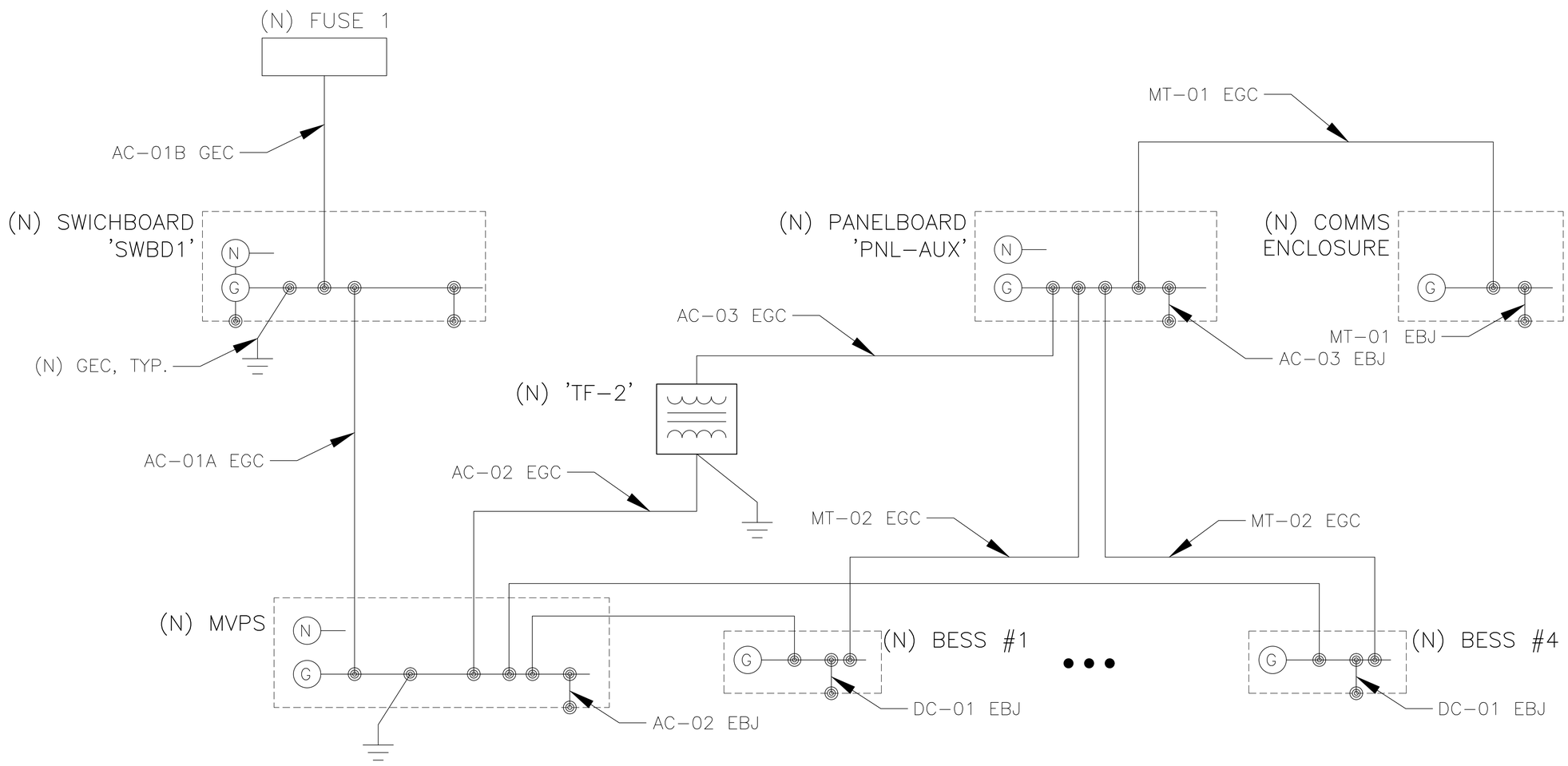
40 NORWICH RD,
WATERFORD CT 06375

SHEET TITLE
SLD

DRAWN BY TV	SHEET # E.200
DATE 05/11/2023	
CHECKED BY TRIPP HYDE	

GENERAL NOTES:

1. SEE SINGLE LINE FOR ADDITIONAL INFORMATION ON E.200 GROUND WIRE TO BE PROTECTED FROM PHYSICAL DAMAGE, PER NEC 250.120(C)
2. GROUNDING EARTH RESISTANCE SHALL NOT EXCEED 25 OHMS. IF A SINGLE ROD, PIPE OR PLATE HAS AN EARTH RESISTANCE IN EXCESS OF 25 OHMS, SUPPLEMENTAL GROUNDING ELECTRODES SHALL BE ADDED AT 6 FEET MAXIMUM INTERVALS TO ACHIEVE EARTH RESISTANCE LESS THAN 25 OHMS.
3. EQUIPMENT BONDING JUMPERS TO BE CU OR OF EQUIV. TYPE LISTED IN NEC 250.102
4. GROUNDING CONDUCTORS NOT ROUTED IN RACEWAYS MIN. #6AWG CU.



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PROJECT NAME AND ADDRESS

Q CELLS - 40 NORWICH RD

40 NORWICH RD,
WATERFORD CT 06375

SHEET TITLE
GND

DRAWN BY	SHEET #
TV	E.210
DATE 05/11/2023	
CHECKED BY TRIPP HYDE	

CONDUITS				
#	SIZE	TYPE	CONDUIT FILL [%]	CONDUCTOR ID
6	3"	PVC 40 HDPE	38.39	DC-01
1	2"	PVC 40 HDPE	22.73	AC-01A
1	2"	PVC 40 HDPE	22.73	AC-01B
1	1.5"	PVC 40 HDPE	22.00	AC-02
1	1.25"	PVC 40 HDPE	29.25	AC-03
1	0.75"	PVC 40 HDPE	14.37	MT-01
1	0.75"	PVC 40 HDPE	15.94	MT-02

CONDUCTORS							AMPACITY CHECK						
FROM	TO	CONDUCTOR ID	# OF PHASES	NEUTRAL	OPERATING VOLTAGE [V]	CONTINUOUS LOAD [A]	125% CONTINUOUS LOAD [A]	OCPD RATING [A]	TEMP DERATE	BUNDLE DERATE	90°C AMPACITY [A]	90°C AMP. DERATED FOR C.O.U. [A]	75°C AMPACITY [A]
BESS	SC4000	DC-01	1-PHASE	NO NEUTRAL	1500	320	400.0	420	1	1	475	1900	1680
SC4000	SWB1	AC-01A	3-PHASE	NO NEUTRAL	13200	175	218.8	225	1	1	230	230	225
SWB1	POI	AC-01B	3-PHASE	MIN. SIZE	13200	175	218.8	225	1	1	230	230	225
TF1	TF2	AC-02	3-PHASE	MIN. SIZE	800	40	50.0	50	1	1	95	95	85
TF2	PNL1	AC-03	3-PHASE	FULL SIZE	480	60	75.0	80	1	1	115	115	100
PNL1	BESS	MT-01	3-PHASE	FULL SIZE	480	20	25.0	25	1	1	30	30	25
PNL1	GELI	MT-02	3-PHASE	FULL SIZE	277	20	25.0	25	1	1	30	30	25

CONDUCTOR SPECS															
CONDUCTOR ID	PHASE CONDUCTORS				PARALLEL CONDUCTORS	NEUTRAL CONDUCTOR				GROUND CONDUCTOR					LENGTH (FT)
DC-01	2	#600KCMIL	PV WIRE	CU 2000V	4					1	#2AWG	PV WIRE	CU 600V	EGC	50
AC-01A	3	#2/0AWG	MV-105	AL 15KV	1					1	#4AWG	MV-105		EGC	10
AC-01B	3	#2/0AWG	MV-105	AL 15KV	1					1	#4AWG	MV-105		EGC	200
AC-02	3	#4AWG	PV WIRE	CU 1000/2000V	1					1	#10AWG	PV WIRE	CU 600V	EGC	20
AC-03	3	#3AWG	THWN-2	CU 600V	1	1	#3AWG	THWN-2	CU 600V	1	#8AWG	THWN-2	CU 600V	EGC	5
MT-01	3	#12AWG	THWN-2	CU 600V	1	1	#12AWG	THWN-2	CU 600V	1	#10AWG	THWN-2	CU 600V	EGC	100
MT-02	3	#12AWG	THWN-2	CU 600V	1		#12AWG	THWN-2	CU 600V	2	#10AWG	THWN-2	CU 600V	EGC	100

AC VOLTAGE DROP AND SHORT CIRCUIT ANALYSIS		
FROM	TO	V-DROP [%]
TF1	TF2	0.48
TF2	PNL1	0.06
	TOTAL	0.54

TEMPERATURE CONSIDERATIONS	
STC TEMPERATURE [°C]	25.00
ASHRAE 2% HIGH AMBIENT TEMPERATURE [°C]	27.00
ASHRAE EXTREME MIN. LOW AMBIENT TEMPERATURE [°C]	-14.00
TEMPERATURE DIFFERENCE LOW TEMP [°C]	39.00
TEMPERATURE DIFFERENCE HIGH TEMP [°C]	2.00

AFC CALCULATION					
CONDUCTOR ID	VOLTAGE (V)	LENGTH	RESISTANCE	STARTING POINT AFC	END POINT AFC
TF-1	480	-	7%	1469.00	15265.92
AC-02	480	20	0.000245 (OHM/1000FT)	15265.92	14655.59
TF-2	480	-	3.50%	14655.59	2252.89
AC-03	480	5	0.000308 (OHM/1000FT)	2252.89	2188.03

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PROJECT NAME AND ADDRESS
Q CELLS - 40 NORWICH RD

40 NORWICH RD,
WATERFORD CT 06375

SHEET TITLE
CALCS

DRAWN BY	SHEET #
TV	E.220
DATE: 05/11/2023	
CHECKED BY: TRIPP HYDE	

LABELS AND WARNINGS:

NOTE:
THE WARNING SIGN(S) OR LABEL(S) SHALL COMPLY WITH NEC ARTICLE 110.21(B). PLAQUES WILL HAVE LETTER ENGRAVED ON A METAL OR PLASTIC PLAQUE. PLAQUES SHALL HAVE A RED BACKGROUND WITH ENGRAVED LETTERING. ATTACH PLAQUE USING OUTDOOR RATED ADHESIVE OR WITH RIVETS OR SCREWS WHILE MAINTAINING ENCLOSURE RATING. THE LABEL SHALL BE PERMANENTLY AFFIXED TO THE EQUIPMENT OR WIRING METHOD AND SHALL NOT BE HAND WRITTEN. THE LABEL SHALL BE OF SUFFICIENT DURABILITY TO WITHSTAND THE ENVIRONMENT INVOLVED UNLESS OTHERWISE SPECIFIED ALL LETTERING HEIGHT FOR LABELS AND WARNING SHALL BE 1/4". FONT TYPE TO BE AERIAL NARROW. PLAQUES CONTAINING THE WORD 'WARNING' LETTERING HEIGHT WILL BE 3/4" AERIAL BOLD.

SCHEDULE OF LABELS	
SIGN ID	PLACEMENT LOCATION(S)
L01	DISCONNECT(S), DISTRIBUTION PANEL(S), JUNCTION BOX(ES), COMBINER BOX(ES), SWITCHBOARD(S), MAIN SERVICE
L02	EXPOSED RACEWAYS, CABLE TRAYS, AND OTHER WIRING METHODS
L03	MAIN SERVICE DISCONNECT
L04	MAIN SERVICE DISCONNECT
L05	MAIN SERVICE BESS / PV DISCONNECTS
L06	AC DISCONNECT
L07	MAIN SERVICE DISCONNECT
L08	MAIN SERVICE DISCONNECT
L09	AC DISCONNECT

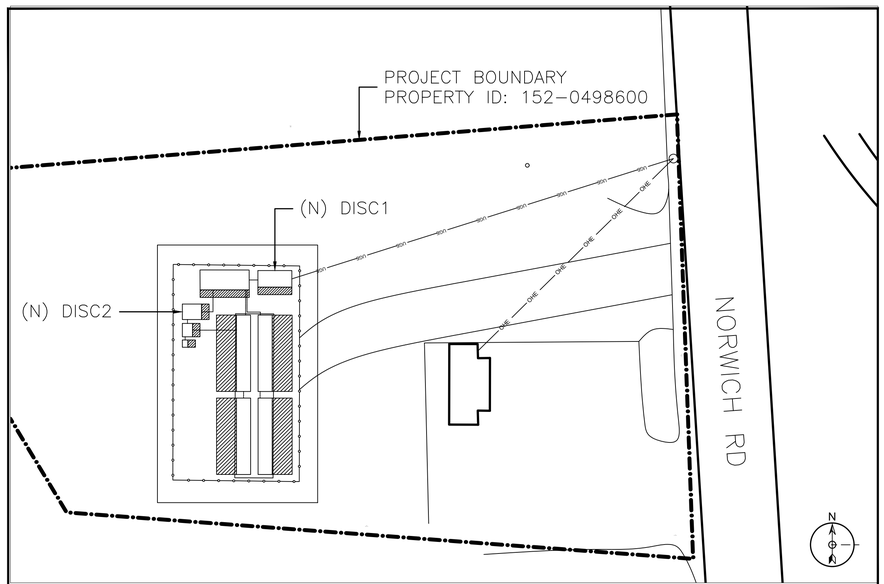
LABELING REQUIREMENTS

1. SIGNS MUST BE WEATHER RESISTANT AND IN ACCORDANCE WITH UL 969. MARKINGS MUST HAVE ALL CAPTALIZED LETERS WITH AN ARIAL OR SIMILAR FONT, NON-BOLD.

2. REFER TO TABLE FOR SIGNAGE LOCATIONS.

3. ALL LABELS 6" X 4" UNLESS OTHERWISE NOTED

4. ALL SIGNAGE TO BE FURNISHED AND INSTALLED BY CONTRACTOR



CAUTION: POWER TO THIS BUILDING IS ALSO SUPPLIED FROM THE FOLLOWING SOURCES WITH DISCONNECTS LOCATED AS SHOWN

SIGN L07 – LABEL REQUIRED PER CEC690.56(B) AND 705.10
NOTE: MAPS SHALL BE LOCATED AT THE MAIN SERVICE. MAPS LOCATED OUTDOORS SHALL BE ENGRAVED LETTERS ON A METAL OR PLASTIC PLAQUE. MAPS LOCATED INDOORS MAY BE LAMINATED PRINTS. MAPS SHALL HAVE A RED BACKGROUND WITH THE WHITE LETTERING AND ATTACHED USING A SUITABLE ADHESIVE OR WITH RIVETS OR SCREWS WHILE MAINTAINING ENCLOSURE RATING

WARNING

ELECTRIC SHOCK HAZARD

DO NOT TOUCH TERMINALS. TERMINALS ON BOTH THE LINE AND LOAD SIDES MAY BE ENERGIZED IN THE OPEN POSITION

SIGN L01 – REQ'D PER NEC 690.13(B)
APPLY TO: DISCONNECT(S), DISTRIBUTION PANEL(S), JUNCTION BOX(ES), COMBINER BOX(ES), SWITCHBOARD(S), MAIN SERVICE

WARNING

DO NOT DISCONNECT UNDER LOAD

SIGN L02 – LABEL REQUIRED PER NEC 690.15(C)
APPLY TO: CABLES, ISOLATING DEVICES PER NEC 690.33, FUSE HOLDER

WARNING

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

SIGN L03 – LABEL REQUIRED PER NEC 705.12(B)(2)(3)(C)
APPLY TO: MAIN SERVICE

WARNING

ARC FLASH HAZARD

APPROPRIATE PPE REQUIRED

FAILURE TO COMPLY MAY RESULT IN INJURY OR DEATH

REFER TO NFPA 70E

SIGN L04 – REQ'D BY NEC 110.16
APPLY TO: MAIN SERVICE

WARNING

POWER SOURCE OUTPUT CONNECTION

DO NOT RELOCATE THIS OVERCURRENT DEVICE

SIGN L05 – LABEL REQUIRED PER NEC 705.12(B)(2)(3)(B)
APPLY TO: MAIN SERVICE

WARNING

ENERGY STORAGE SYSTEM DISCONNECT

SIGN L06 – LABEL REQUIRED PER NEC 706.15(C)
APPLY TO: BESS AC DISCONNECT

WARNING

NUMBER OF POWER SOURCES: 2
2ND SOURCE IS BESS

AN ADDITIONAL POWER SOURCE IS PRESENT IN THIS EQUIPMENT:
SEE "LOCATION OF FACILITY'S POWER SYSTEMS DISCONNECTING MEANS" FOR LOCATION OF POWER SOURCE.
TURN OFF DISCONNECT PRIOR TO SERVICING THIS EQUIPMENT

SIGN L08 – LABEL REQUIRED PER NEC 690.54
PLACED ADJACENT TO MAIN SERVICE DISCONNECT

WARNING

ARC FLASH AND SHOCK HAZARD
APPROPRIATE PPE REQUIRED

FLASH PROTECTION	SHOCK PROTECTION
INCIDENT ENERGY AT: 18" MIN. ARC RATING : 8.96CAL/CM^2 ARC FLASH BOUNDARY: 69" HAZARD RISK CATEGORY: 1 GLOVE CLASS: 1	SHOCK RISK WHEN COVER IS REMOVED: 15KVAC LIMITED APPROACH BOUNDARY: 42" RESTRICTED APPROACH BOUNDARY: 12"

PPE:
1. SHIRT & PANTS OR COVERALL NONMELTING (ASTM F1506) OR UNTREATED FIBER
2. HARD HAT
3. SAFETY GLASSES
4. HEARING PROTECTION

EQUIPMENT ID:
DISC1

SIGN L09 - LABEL REQUIRED PER NEC 110.16
APPLY TO: BESS AC DISCONNECT SWITCH

SIGNAGE 01

SC4000UD-MV-US

Power Conversion System
Optimized for ST2236 / 2752UX-US

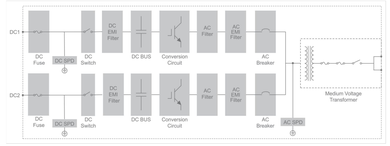
HIGH YIELD
- Advanced three-level technology, max. efficiency 99%
- Effective forced air cooling, no derating up to 45 °C (113 °F)
- Wide DC voltage operation window, full power operation at 1500 V

SMART O&M
- Modular design, easy for maintenance
- High protection degree, easy for outdoor installation
- Optional C5 anti-corrosion degree, adjust to applications close to the sea

FLEXIBLE APPLICATION
- Bidirectional power conversion system with full four-quadrant operation
- Compatible with high voltage battery system, low system cost
- Battery charge & dis-charge management and black start function integrated

GRID SUPPORT
- Compliant with UL 1741, IEEE 1547, UL 1741 SA, Rule 21 and HECO 14H
- Fast active/reactive power response
- L/HVRT, L/HFRT, soft start/stop, specified power factor control and reactive power support

CIRCUIT DIAGRAM



SUNGROW
Clean power for all

Type Designation	SC4000UD-MV-US
DC side	
Max. DC voltage	1500V
Min. DC voltage	1150V
DC voltage range	1150 ~ 1500V
Max. DC current	1775A*2
No. of DC inputs	2
AC side (Grid)	
AC output power	4000kVA @ 45℃ (113℉)
Converter port max. AC output current	1443A*2
Converter port nominal AC voltage	800V
Converter port AC voltage range	704 ~ 880V
Nominal grid frequency / Grid frequency range	60Hz / 55~65Hz
Harmonic (THD)	< 3% (at nominal power)
Power factor at nominal power / Adjustable power factor	> 0.99 / 1 leading ~ 1 lagging
Adjustable reactive power range	-100% ~ 100%
Feed-in phases / AC connection	3 / 3
AC side (Off-Grid)	
Inverter port nominal AC voltage	800V
Inverter port AC voltage range	704 ~ 880V
AC voltage distortion	< 3% (Linear load)
DC voltage component	< 0.5% Un (Linear balance load)
Unbalance load Capacity	100%
Nominal frequency / Frequency range	60Hz / 55~65Hz
Efficiency	
Converter max. efficiency	99%
Transformer	
Transformer rated power	4000kVA
Transformer max. power	4000kVA
LV / MV voltage	0.8kV / 34.5kV
Transformer vector	Dyl or Dy11
Transformer cooling type	ONAN (Optional: KNAN)
Oil type	Mineral oil (PCB free) or degradable oil on request
Protection	
DC input protection	Load break switch + fuse
Converter output protection	Circuit breaker
AC output protection	Load break switch + fuse
Surge protection	DC Type II / AC Type II
Grid monitoring / Ground fault monitoring	Yes / Yes
Insulation monitoring	Yes
Overheat protection	Yes
General Data	
Dimensions (W*H*D)	6058*2896*2438mm 238.5"*114.0"*96.0"
Weight	17000kg 37479 lbs
Degree of protection	TYPE 3R
Operating ambient temperature range	-35 ~ 60℃ (> 45℃ derating) -31 ~ 140℉ (> 113℉ derating)
Allowable relative humidity range	0 ~ 100%
Cooling method	Temperature controlled forced air cooling
Max. operating altitude	1000m (standard) / > 1000m (optional) 3280.8 ft (standard) / > 3280.8 ft (optional)
Display	LED, WEB HMI
Communication	RS485, CAN, Ethernet
Compliance	UL 1741, UL 1741 SA, IEEE 1547, Rule 21, HECO 14H, CSA C22.2 No.107.1-16
Grid support	L/HVRT, FRT, active & reactive power control and power ramp rate control, Volt-var, Volt-watt, Frequency-watt

ST2752UX-US

Liquid Cooling Energy Storage System

LOW COSTS
- Highly integrated ESS for easy transportation and O&M
- All pre-assembled, no battery module handling on site
- 8 hour installation to commission, drop on a pad and make electrical connections

SAFE AND RELIABLE
- Integrated DC/DC converters actively limit fault current
- DC electric circuit safety management includes fast breaking and anti-arc protection
- Multi level battery protection layers formed by discreet standalone systems offer impeccable safety

EFFICIENT AND FLEXIBLE
- Intelligent liquid cooling ensures higher efficiency and longer battery cycle life
- Modular design supports parallel connection and easy system expansion
- IP54 outdoor cabinet and optional C5 anti-corrosion

SMART AND ROBUST
- Fast state monitoring and faults record enables pre-alarm and faults location
- Integrated battery performance monitoring and logging

SUNGROW
Clean power for all

Type designation	ST2752UX-US
Battery Data	
Cell type	LFP
Battery capacity (BOL)	2752 kWh
Battery voltage range	1036.8 ~ 1401.6 V
General Data	
Dimensions of battery unit (W * H * D)	9340*2600*1730 mm
Weight of battery unit	26,400 kg
Degree of protection	IP 54 / Type 3R
Operating temperature range	-30 to 50 °C (> 45 °C derating)
Relative humidity	0 ~ 95 % (non-condensing)
Max. working altitude	3000 m
Cooling concept of battery chamber	Liquid cooling
Fire safety standard / Optional	Fused sprinkler heads, NFPA 69 explosion prevention and ventillation IDLH gases
Communication interfaces	RS485, Ethernet
Communication protocols	Modbus RTU, Modbus TCP
Compliance	UL9540, UL9540A / NFPA 855
2 HOURS APPLICATION-ST11000kWh-5000kW-MV-2h-US	
BOL kWh (DC)	11,008 kWh
ST2752UX Quantity	4
PCS Model	SC5000UD-MV-US
4 HOURS APPLICATION-ST22015kWh-5000kW-MV-4h-US	
BOL kWh (DC)	22,016 kWh
ST2752UX Quantity	8
PCS Model	SC5000UD-MV-US
Grid Connection Data	
Max.THD of current	< 3 % (at nominal power)
DC component	< 0.5 % (at nominal power)
Power factor	> 0.99 (at nominal power)
Adjustable power factor	1.0 leading ~ 1.0 lagging
Nominal grid frequency	60 Hz
Grid frequency range	55 ~ 65 Hz
Transformer	
Transformer rated power	5,000 kVA
LV / MV voltage	0.9 kV / 34.5 kV
Transformer cooling type	ONAN (Oil Natural Air Natural)
Oil type	Mineral oil (PCB free) or degradable oil on request

SPEC 6355
September, 2016

Uniblend® PVC High Speed

EPR/Copper Tape Shield/PVC, Medium-Voltage Power, Shielded
15 kV, UL Type MV-105, 133% Ins. Level, 220 Mils

ULTRA LOW FRICTION VLF TECHNOLOGY

Product Construction:

Conductor:
- 2 AWG thru 1000 kcmil annealed bare copper compact Class B strand

Extruded Strand Shield (ESS):
- Extruded thermoset semi-conducting stress-control layer over conductor

Insulation:
- Lead-free Ethylene Propylene Rubber (EPR) insulation, contrasting in color to the black semi-conducting shield layers

Extruded Insulation Shield (EIS):
- Thermoset semi-conducting polymeric layer free stripping from insulation

Metallic Shield:
- 5 mil annealed copper tape with an overlap of 25%

Jacket:
- Low-friction, lead-free, flame-retardant, moisture- and sunlight-resistant Polyvnyl Chloride (PVC)

Options:
- STRANDFILL® – blocked conductor. Tested in accordance with ICEA T-31-610

Applications:
- Superior performance in petrochemical plants, pulp and paper mills, sewage and water treatment plants, environmental protection systems, railroads, mines, utility power generating stations, steel mills, textile plants and other industrial three-phase applications

Applications (cont'd.):
- For use in wet or dry locations when installed in accordance with NEC
- For use in aerial, conduit, open tray and underground duct installations
- For use in direct burial if installed in a system with a ground conductor that is in close proximity, and conforms with NEC 250.4(A)(5)

Features:
- Rated at 105°C
- High Speed low friction technology for easy cable pulling
- Excellent heat, moisture and sunlight resistance
- Excellent flame resistance
- Outstanding corona resistance
- Flexibility for easy handling
- High dielectric strength
- Low moisture absorption
- Electrical stability under stress
- Low dielectric loss
- Chemical-resistant
- Meets cold bend test at -35°C
- 105°C rating for continuous operation
- 140°C rating for emergency overload conditions
- 250°C rating for short circuit conditions

Compliances:
- National Electrical Code (NEC)
- UL 1072
- ICEA S-93-639/NEMA WC74
- ICEA S-97-682
- AEIC CS8
- UL listed as Type MV-105 for use in accordance with NEC, UL File # E90501
- UL 1685 (Sizes 1/0 AWG and larger) UL Flame Exposure Test
- Sizes 1/0 AWG and larger are listed and marked "Sunlight-Resistant FOR CT USE" in accordance with NEC
- IEEE 1202 (70,000 BTU/hr)/CSA FT4
- EPA 40 CFR, Part 261 for leachable lead content per TCLP method
- OSHA Acceptable
- RoHS Compliant

Packaging:
- Material cut to length and shipped on non-returnable wood reels. Lengths in excess of 10,000 lbs. are provided on returnable steel reels that require a deposit
- Extra charges apply for cuts less than 1000 ft., lagging, pulling eyes, paralleling and triplexing

CATALOG NUMBER	COND. SIZE (AWG/ kcmil)	NOMINAL CONDUCTOR DIAMETER	INSULATION DIAMETER		NOMINAL JACKET THICKNESS	NOMINAL CABLE				COPPER WEIGHT	AMPACITY						CONDUIT SIZING (4) (INCHES)
						DIAMETER		WEIGHT			CONDUIT IN AIR (1)		UNDERGROUND DUCT (2)		TRAY (3)		
		INCHES	MIN.	MAX.	INCHES	INCHES	mm	LBS/1000 FT	kg/km	LBS/1000 FT	kg/km	90°C	105°C	90°C	105°C	90°C	105°C	
15 kV¹, UL TYPE MV-105, 133% INS. LEVEL, 220 MILS																		
17031.130205	2	0.27	0.710	0.800	0.080	2.03	0.99	25.14	658	979	276	411	150	165	155	165	-	-	3
17031.130105*	1	0.31	0.745	0.830	0.080	2.03	1.02	25.91	733	1090	332	484	170	190	175	185	-	-	3.5
17031.135105	1/0	0.34	0.780	0.865	0.080	2.03	1.06	26.92	825	1228	403	600	195	215	200	215	195	220	3.5
17031.135205	2/0	0.38	0.820	0.905	0.080	2.03	1.10	27.94	938	1396	492	732	225	255	230	245	225	250	3.5
17031.135305*	3/0	0.43	0.865	0.955	0.080	2.03	1.14	28.95	1078	1604	603	897	260	290	260	275	260	290	3.5
17031.135405	4/0	0.48	0.920	1.005	0.080	2.03	1.21	30.73	1261	1876	743	1105	295	330	295	315	300	335	4
17031.136005	250	0.53	0.970	1.060	0.080	2.03	1.25	31.75	1407	2093	866	1289	330	365	325	345	335	370	4
17031.136205	350	0.62	1.070	1.155	0.080	2.03	1.35	34.29	1783	2653	1184	1761	395	440	390	415	415	460	5
17031.136505	500	0.74	1.190	1.275	0.080	2.03	1.47	37.34	2331	3468	1657	2466	480	535	465	500	515	575	5
17031.137005	750	0.91	1.370	1.460	0.080	2.03	1.65	41.91	3234	4812	2445	3638	585	655	565	610	665	745	6
17031.137505	1000	1.06	1.520	1.610	0.110	2.79	1.86	47.24	4219	6278	3228	4803	675	755	640	690	795	890	6

Dimensions and weights are nominal. Subject to industry tolerances.
* Non-stock item; minimum runs apply. Please consult Customer Service for price and delivery.
(1) Ampacities are in accordance with Table 310.60(C)(73) of the NEC for triplexed or three single conductor copper cables in isolated conduit in air based on a conductor temperature of 90°C (194°F) or 105°C (221°F), temperature denoted in column header, and an ambient air temperature of 40°C (104°F).
(2) Ampacities are in accordance with Table 310.60(C)(77) of the NEC for triplexed or three single conductor copper cables in underground ducts (three conductors per duct), based on a conductor temperature of 90°C (194 °F) or 105°C (221°F), temperature denoted in column header, and an ambient earth temperature of 20°C (68°F), electrical duct arrangement per Figure 310.60 Detail 1, 100% load factor, and earth thermal resistance (rho) of 90.
(3) Ampacities are based on single conductor Type MV-105 sizes #1/0 AWG and larger in an uncovered tray in accordance with Section 392.80(B)(2) of the NEC at an ambient air temperature of 40°C (104°F) the ampacities are based on 75% of the values per Table 310.60(C)(68), operating temperature denoted in column header. For cable trays with unventilated covers for more than 6 feet, the ampacities shall not exceed 70% of the values per Table 310.60(C)(68).
(4) Based on nominal cable diameters, three single cables in the duct (PVC Schedule 40) with no ground wire and a maximum of 40% fill. Jam ratio has been considered but should be checked for individual installations.
¹ 100% insulation level is available upon request.
Note: a) Sizes smaller than 1/0 AWG do not include "FOR CT USE".
b) The NESC Lightning bolt symbol is on all Uniblend® constructions.

General Cable
Phone: 888-593-3355
www.generalcable.com

RoHS Compliant Directive 2011/65/EU

UL LISTED

HYDE RENEWABLES
ADVANCED ENGINEERING SOLUTIONS

qcells
Completely Clean Energy

THESE DRAWINGS AND SPECIFICATIONS HAVE BEEN PREPARED BY HYDE RENEWABLES, INC. FOR THEIR EXCLUSIVE USE IN ACCORD WITH TITLE 20 SEC. 20-300-10 OF THE CONNECTICUT ADMINISTRATIVE CODE.

STATE OF CONNECTICUT
HENRY HOLBROOK HYDE
No. 32042
LICENSED
PROFESSIONAL ENGINEER

SCALE: AS NOTED
(PRINT ON 36"X24")

RK	R	AHJ COMMENTS	03/21/24
RK	Q	AHJ COMMENTS	03/11/24
RK	P	GROUNDING XFMR	02/08/24
RK	O	REDLINES	02/06/24
RK	N	REDLINES	02/05/24
BY	REV	ISSUE	DATE

FIRM NAME AND ADDRESS
HYDE RENEWABLES, INC
4735 WALNUT ST, SUITE #110
BOULDER, CO 80301

INFO@HYDERENEWABLES.COM
720-900-1009
WWW.HYDERENEWABLES.COM

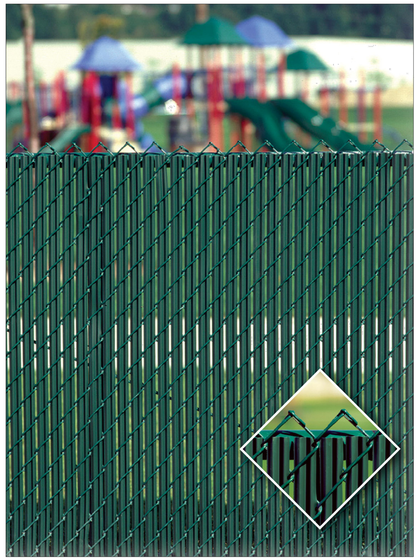
PROJECT NAME AND ADDRESS
Q CELLS – 40 NORWICH RD

40 NORWICH RD,
WATERFORD CT 06375

SHEET TITLE
SPECS 01

DRAWN BY TV	SHEET # E.400
DATE 05/11/2023	
CHECKED BY TRIPP HYDE	

LITELINK®



The LiteLink® Slat is one of the most economical chain-link enhancement products available in the market today.

Manufactured using the same durable outdoor plastic as our standard tubular fence slats, this single wall "M" shaped slat will give you the visual screening and color enhancement you desire at a very affordable price. LiteLink also uses our innovative Bottom Locking system for fast and easy installation.

Design
Compact and lightweight, LiteLink's unique shape enables the slat to self stack. It comes in a box (2" x 5" x slat length) making it easy to ship and efficient to store.

Standard Heights
4, 5, 6, 7, 8, 10 and 12 feet. Special heights available upon request.

Slat Length
3½" shorter than the overall height of fence.

Bottom Locking Channel
10 feet provided in each bag.

Wind Load & Privacy Factor
Approximately 75%.

SLAT PROFILE:

Colors*

White | Green | Brown | Black | Beige | Gray | Redwood | Royal Blue | Light Blue

* Exact representation of slat colors in printing is difficult. Please refer to actual color samples for final matching.
Covered by one or more of the following patents: US Patent 6,068,243 / 5,165,664 / 5,234,199

Made in the USA

www.PrivacySlatKing.com | (800) 878-7829 | Sales@PrivacySlatKing.com

PRODUCT SPECIFICATIONS

Slat Type	Slat Width	Mesh Size	Wire Gauge	Slats Per Bag	Approx. Coverage Per Box
LiteLink®	1¼"	2", 2¼" or 2⅜"	9, 11 or 11½	82	10 linear feet

Materials
The LiteLink product is extruded from High Density Polyethylene (HDPE), color pigments and ultra violet (UV) inhibitors, specifically designed to retard the harmful effects of the sun and lengthen the life of the product.

Durability
Pexco PDS® HDPE Fence Products are resistant to: severe weather conditions, salt water, sand, road dirt, most acids, alcohol, alkaline, ammonia, petroleum distillates, and common environmental pollutants.

Maintenance
Pressure cleaning of surface contaminants is quickly accomplished with plain water.

Wind Load Disclaimer
Pexco will not be responsible for damage due to wind load conditions resulting from insufficient structural support.

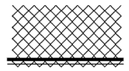
Limited Warranty
LiteLink carries a 7-year, pro-rata warranty against breakage under normal conditions. Write Pexco for full warranty information.

HDPE Technical Properties

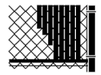
Property	Value
Melt Idex	(.35) Optimum extrusion processing conditions for Fence Slats
Density	(.945) Polyethylene ranges anywhere from .914 to .960 in density
Minimum Temp.	(-70°) Under no stress, HDPE remains flexible at this temperature
Maximum Temp.	(180°) Under no stress, HDPE will not distort at this temperature
Tensile Strength	(3,700 psi) HDPE will not distort at lesser loads or impacts

Installation Instructions

Step 1
Insert rail horizontally in first full diamond at bottom of fence with open side facing up.



Step 2
Insert vertical slats with interlocking tab downward. Slat engages and interlocks with bottom rail.



Step 3
Push the vertical slat into the horizontal channel to lock-in place.

www.PrivacySlatKing.com | (800) 878-7829 | Sales@PrivacySlatKing.com

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qcells
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STATE OF CONNECTICUT
HENRY HOLBROOK HYDE III
No. 32042
LICENSED
PROFESSIONAL ENGINEER

SCALE: AS NOTED
(PRINT ON 36"X24")

BY	REV	ISSUE	DATE
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4735 WALNUT ST, SUITE #110
BOULDER, CO 80301

INFO@HYDERENEWABLES.COM
720-900-1009
WWW.HYDERENEWABLES.COM

PROJECT NAME AND ADDRESS
Q CELLS - 40 NORWICH RD

40 NORWICH RD,
WATERFORD CT 06375

SHEET TITLE
SPECS 02

DRAWN BY: TV
DATE: 05/11/2023
CHECKED BY: TRIPP HYDE
SHEET #: E.401

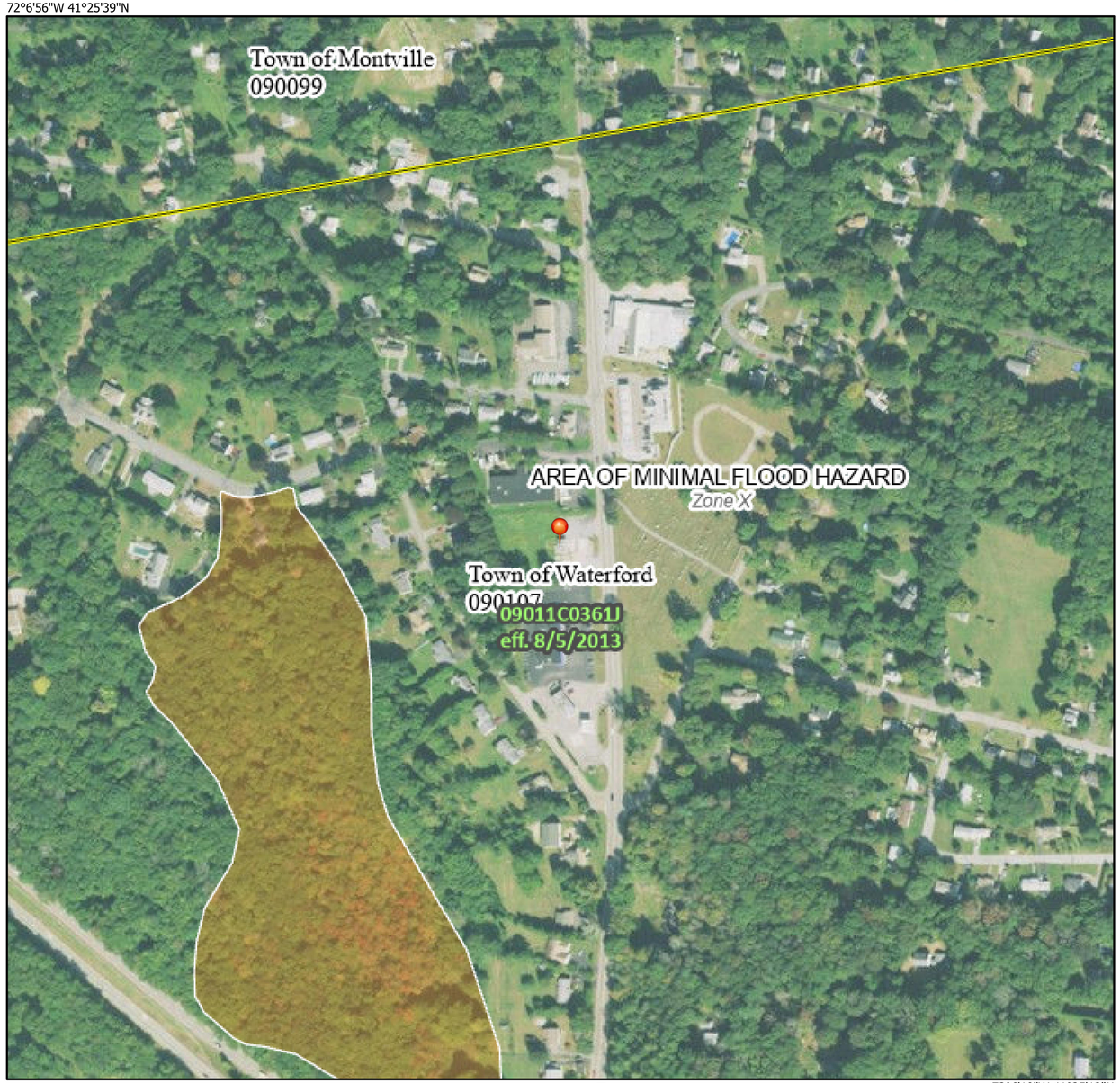
ABUTTERS MAP

ABUTTERS LIST		
BUSINESS NAME	PROPERTY ADDRESS	PARCEL ID
MONTVILLE FOUR LLC	40 NORWICH ROAD	498600
ANASTASIOU PAUL AND WILLIAM	30 NORWICH ROAD	498500
WATERFORD UNION	27 NORWICH ROAD	498400
UNITED CEREBAL PALSY ASSOCIATION	42 NORWICH ROAD	499804
CALEB, RYAN	17 MAPLE ROAD	399300

SITE VICINITY MAP

National Flood Hazard Layer FIRMette

72°6'56"W 41°25'39"N



0 250 500 1,000 1,500 2,000 Feet

1:6,000

72°6'19"W 41°25'12"N

Basemap Imagery Source: USGS National Map 2023

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS
- NO SCREEN — Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- 20.2 / 17.5 — Cross Sections with 1% Annual Chance Water Surface Elevation
- Coastal Transect
- 513 — Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

N

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 7/21/2023 at 3:15 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

ENVIRONMENTAL
RESOURCES 02

NOTES TO USERS

This map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. The **community map repository** should be consulted for possible updated or additional flood hazard information.

To obtain more detailed information in areas where **Base Flood Elevations** (BFEs) and/or **floodways** have been determined, users are encouraged to consult the Flood Profiles and Floodway Data and/or Summary of Stillwater Elevations tables contained within the Flood Insurance Study (FIS) Report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole-foot elevations. These BFEs are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS Report should be utilized in conjunction with the FIRM for purposes of construction and/or floodplain management.

Coastal Base Flood Elevations shown on this map apply only landward of 0.0' North American Vertical Datum of 1988 (NAVD 88). Users of this FIRM should be aware that coastal flood elevations are also provided in the Summary of Stillwater Elevations table in the Flood Insurance Study Report for this jurisdiction. Elevations shown in the Summary of Stillwater Elevations table should be used for construction and/or floodplain management purposes when they are higher than the elevations shown on this FIRM.

Boundaries of the **floodways** were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the Flood Insurance Study Report for this jurisdiction.

Certain areas not in Special Flood Hazard Areas may be protected by **flood control structures**. Refer to Section 2.4 "Flood Protection Measures" of the Flood Insurance Study Report for information on flood control structures for this jurisdiction.

The **projection** used in the preparation of this map was Connecticut State Plane Zone (FIPS zone 0600). The **horizontal datum** was NAD 83, GRS 1980 spheroid. Differences in datum, spheroid, projection or UTM zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this FIRM.

Flood elevations on this map are referenced to the North American Vertical Datum of 1988. These flood elevations must be compared to structure and ground elevations referenced to the same **vertical datum**. For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, visit the National Geodetic Survey website at http://www.ngs.noaa.gov or contact the National Geodetic Survey at the following address:

NGS Information Services
NOAA, N/NGS12
National Geodetic Survey
SSMC-3, #9202
1315 East-West Highway
Silver Spring, Maryland 20910-3282
(301) 713-3242

To obtain current elevation, description, and/or location information for **bench marks** shown on this map, please contact the Information Services Branch of the National Geodetic Survey at **(301) 713- 3242**, or visit its website at http://www.ngs.noaa.gov.

Base map information shown on FIRM panels produced for this coastal study revision was derived from digital orthophotography. Base map files were provided in digital form by the Connecticut Department of Environmental Protection. Ortho imagery was produced at a scale of 1:12,000. Aerial photography is dated 2000, 2004 and 2005. The projection used in the preparation of this map was Connecticut State Plane zone (FIPSZONE0600). The horizontal datum was NAD83, GRS1980 spheroid.

The AE Zone category has been divided by a **Limit of Moderate Wave Action (LIMWA)**. The LIMWA represents the approximate landward limit of the 1.5 foot breaking wave. The effects of wave hazards between the VE Zone and the LIMWA (or between the shoreline and the LIMWA for areas where VE Zones are not identified) will be similar to, but less severe than those in the VE Zone.

The **profile baselines** depicted on this map represent the hydraulic modeling baselines that match the flood profiles in the FIS report. As a result of improved topographic data, the **profile baseline**, in some cases, may deviate significantly from the channel centerline or appear outside the SFHA.

Based on updated topographic information, this map reflects more detailed and up-to-date **stream channel configurations and floodplain delineations** than those shown on the previous FIRM for this jurisdiction. As a result, the Flood Profiles and Floodway Data tables for multiple streams in the Flood Insurance Study Report (which contains authoritative hydraulic data) may reflect stream channel distances that differ from what is shown on the map. Also, the road to floodplain relationships for unrevised streams may differ from what is shown on previous maps.

Corporate limits shown on this map are based on the best data available at the time of publication. Because changes due to annexations or de-annexations may have occurred after this map was published, map users should contact appropriate community officials to verify current corporate limit locations.

Please refer to the separately printed **Map Index** for an overview map of the county showing the layout of map panels; community map repository addresses; and a Listing of Communities table containing National Flood Insurance Program dates for each community as well as a listing of the panels on which each community is located.

For information on available products associated with this FIRM visit the **Map Service Center (MSC)** website at http://msc.fema.gov. Available products may include previously issued Letters of Map Change, a Flood Insurance Study Report, and/or digital versions of this map. Many of these products can be ordered or obtained directly from the MSC website.

If you have **questions about this map,** how to order products, or the National Flood Insurance Program in general, please call the **FEMA Map Information eXchange (FMIX)** at **1-877-FEMA-MAP** (1-877-336-2627) or visit the FEMA website at http://www.fema.gov/business/nfip.

Only coastal structures that are certified to provide protection from the 1 percent annual chance flood are shown on this panel. However, all structures taken into consideration for the purpose of coastal flood hazard analysis and mapping are present in the FIRM database in S_Gen_Struct.

LEGEND

SPECIAL FLOOD HAZARD AREAS (SFHAs) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V, and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

ZONE A No Base Flood Elevations determined.

ZONE AE Base Flood Elevations determined.

ZONE AH Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.

ZONE AO Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.

ZONE AR Special Flood Hazard Areas formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.

ZONE A99 Area to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.

ZONE V Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.

ZONE VE Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

ZONE X Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

ZONE X Areas determined to be outside the 0.2% annual chance floodplain.

ZONE D Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

- 1% Annual Chance Floodplain Boundary
- 0.2% Annual Chance Floodplain Boundary
- Floodway boundary
- Zone D boundary
- CBRS and OPA boundary
- Boundary dividing Special Flood Hazard Area Zones and boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths, or flood velocities.
- Limit of Moderate Wave Action
- Limit of Moderate Wave Action coincident with Zone Break
- 513* (EL 987) Base Flood Elevation line and value; elevation in feet*

*Referenced to the North American Vertical Datum of 1988

- Cross section line
- Transect line
- Culvert
- Bridge
- 45° 02' 08", 93° 02' 12" Geographic coordinates referenced to the North American Datum of 1983 (NAD 83) Western Hemisphere
- 3100000 FT 5000-foot ticks: Connecticut State Plane zone (FIPS zone 0600), Lambert Conformal Conic projection
- 4°89'000mN 1000-meter Universal Transverse Mercator grid values, zone 18N
- DX5510 Bench mark (see explanation in Notes to Users section of this FIRM panel)

MAP REPOSITORIES
Refer to Map Repositories list on Map Index

EFFECTIVE DATE OF COUNTYWIDE FLOOD INSURANCE RATE MAP
July 18, 2011

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL
August 5, 2013 - to change Base Flood Elevations and Special Flood Hazard Areas, to change zone designations, to update the effects of wave action, to update corporate limits, to add roads and road names and to modify Coastal Barrier Resources System units.

For community map revision history prior to countywide mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

MAP SCALE 1" = 500'

250 0 500 1000 FEET

150 0 150 300 METERS

NFIP NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0361J

FIRM

FLOOD INSURANCE RATE MAP

NEW LONDON COUNTY, CONNECTICUT (ALL JURISDICTIONS)

PANEL 361 OF 554
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
LEDYARD, TOWN OF	090157	0361	J
MONTVILLE, TOWN OF	090099	0361	J
WATERFORD, TOWN OF	090107	0361	J

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER 09011C0361J

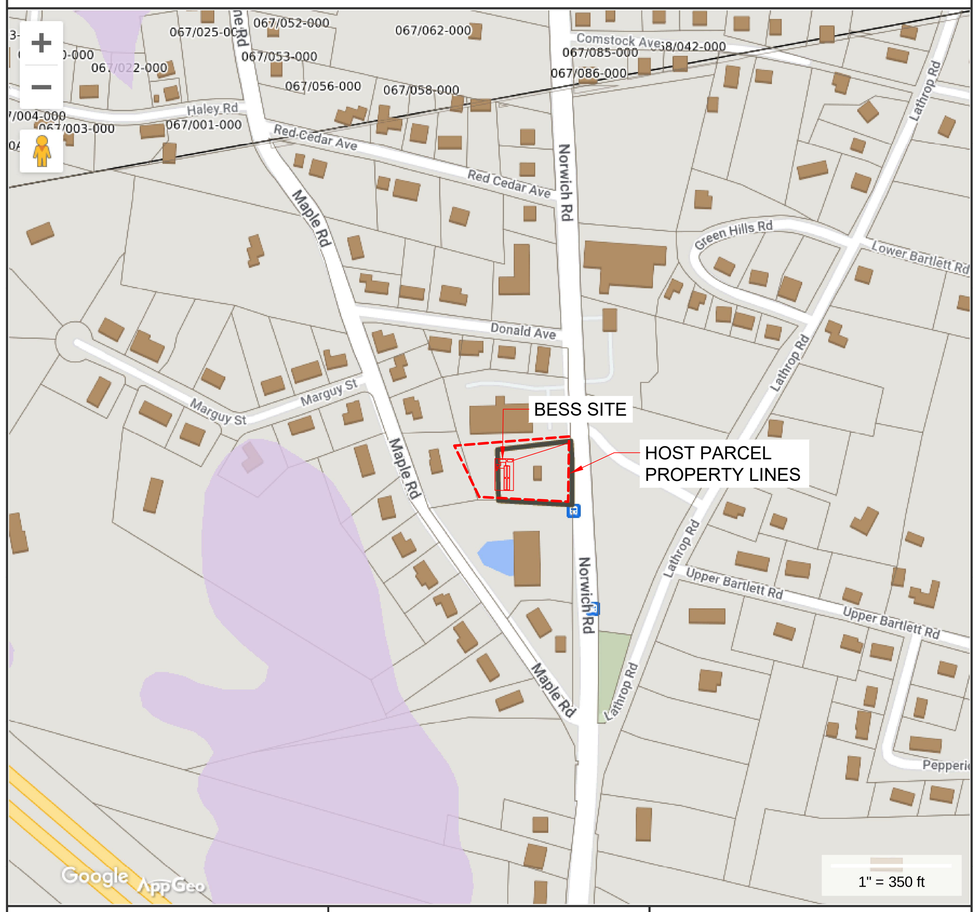
MAP REVISED AUGUST 5, 2013

Federal Emergency Management Agency

ENVIRONMENTAL RESOURCES 03

SCCOG January 18, 2024

STATE WETLANDS



Property Information

Property ID	152-3-5430
Location	40 NORWICH ROAD
Owner	MONTVILLE FOUR LLC

SCCOG

MAP FOR REFERENCE ONLY
NOT A LEGAL DOCUMENT

SCCOG makes no claims and no warranties, expressed or implied, concerning the validity or accuracy of the GIS data presented on this map.

Geometry updated 05/31/2017
Data updated 09/21/2023

Print map scale is approximate. Critical layout or measurement activities should not be done using this resource.

Map Theme Legends

State Wetlands

- Poorly Drained and Very Poorly Drained Soils
- Alluvial and Floodplain Soils

CT DEEP

ENVIRONMENTAL
RESOURCES 04

Natural Diversity Data Base Areas

WATERFORD, CT

December 2023

State and Federal Listed Species

Critical Habitat

Town Boundary

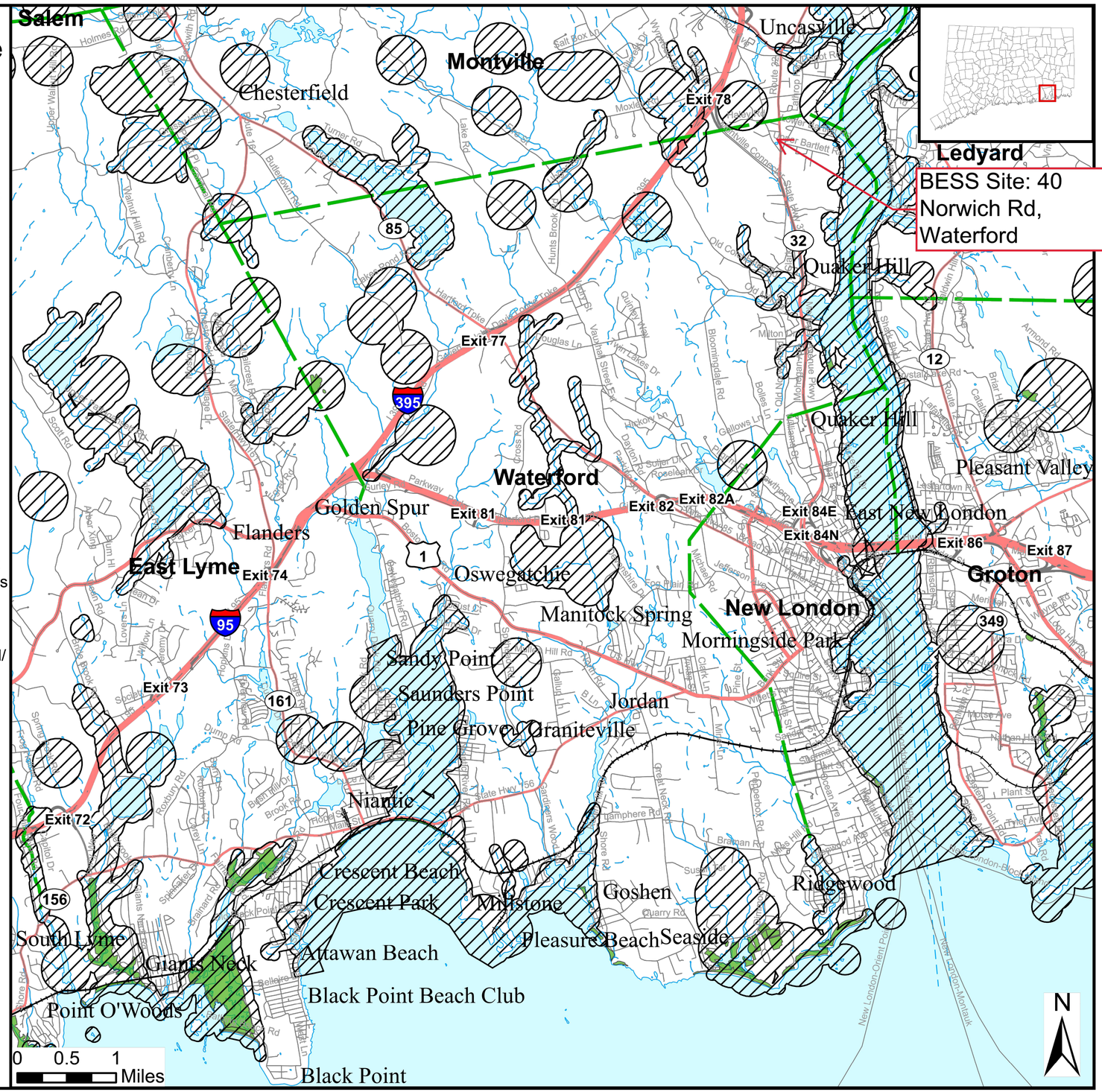
NOTE: This map shows known locations of State and Federal Listed Species and Critical Habitats. Information on listed species is collected and compiled by the Natural Diversity Data Base (NDDB) from a variety of data sources . Exact locations of species have been buffered to produce the generalized locations.

This map is intended for use as a preliminary screening tool for conducting a Natural Diversity Data Base Review Request. To use the map, locate the project boundaries and any additional affected areas If the project is within a hatched area there may be a potential conflict with a listed species. For more information, use DEEP ezFile https://filings.deep.ct.gov/DEEPPortal/ to submit a Request for Natural Diversity Data Base State Listed Species Review or Site Assessment. More detailed instructions are provided along with the request form on our website. https://portal.ct.gov/deep-nddbrequest

Use the CTECO Interactive Map Viewers at http://cteco.uconn.edu to more precisely search for and locate a site and to view aerial imagery with NDDB Areas.

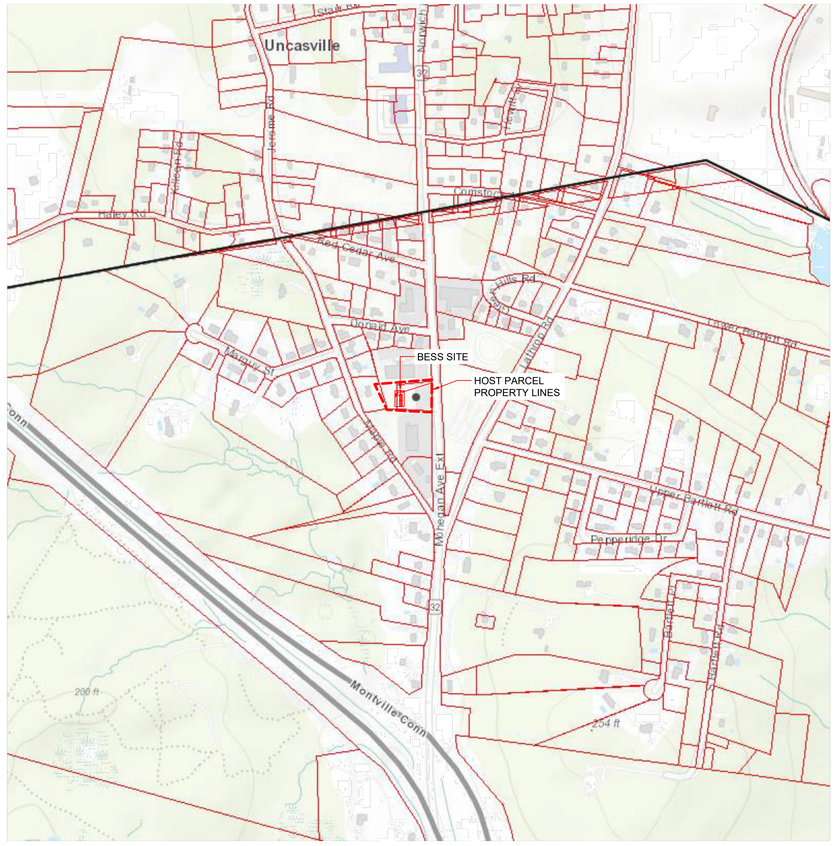
QUESTIONS: Department of Energy and Environmental Protection (DEEP)
79 Elm St, Hartford, CT 06106
email: deep.nddbrequest@ct.gov
Phone: (860) 424-3011

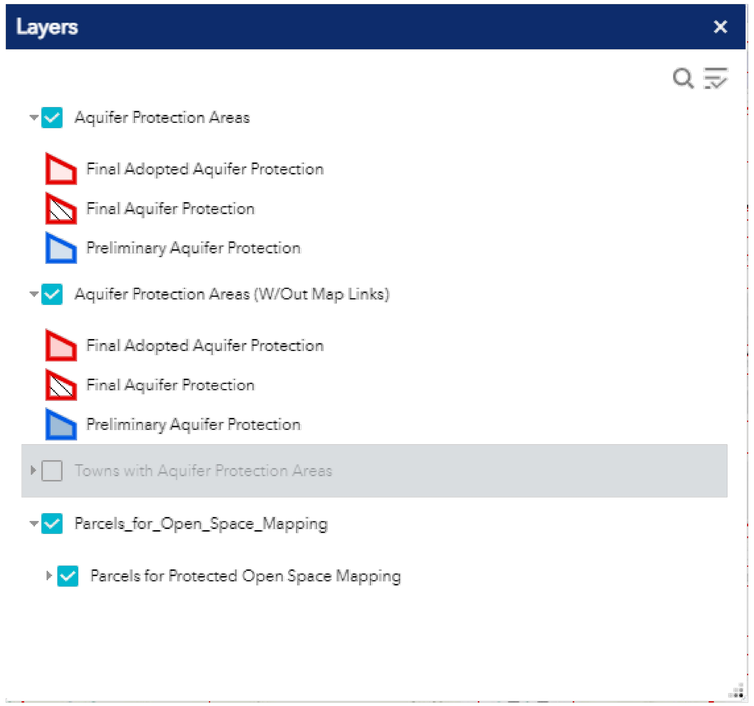
Connecticut
Department of Energy & Environmental Protection



ENVIRONMENTAL RESOURCES 05

DEEP AQUIFER PROTECTION AREAS

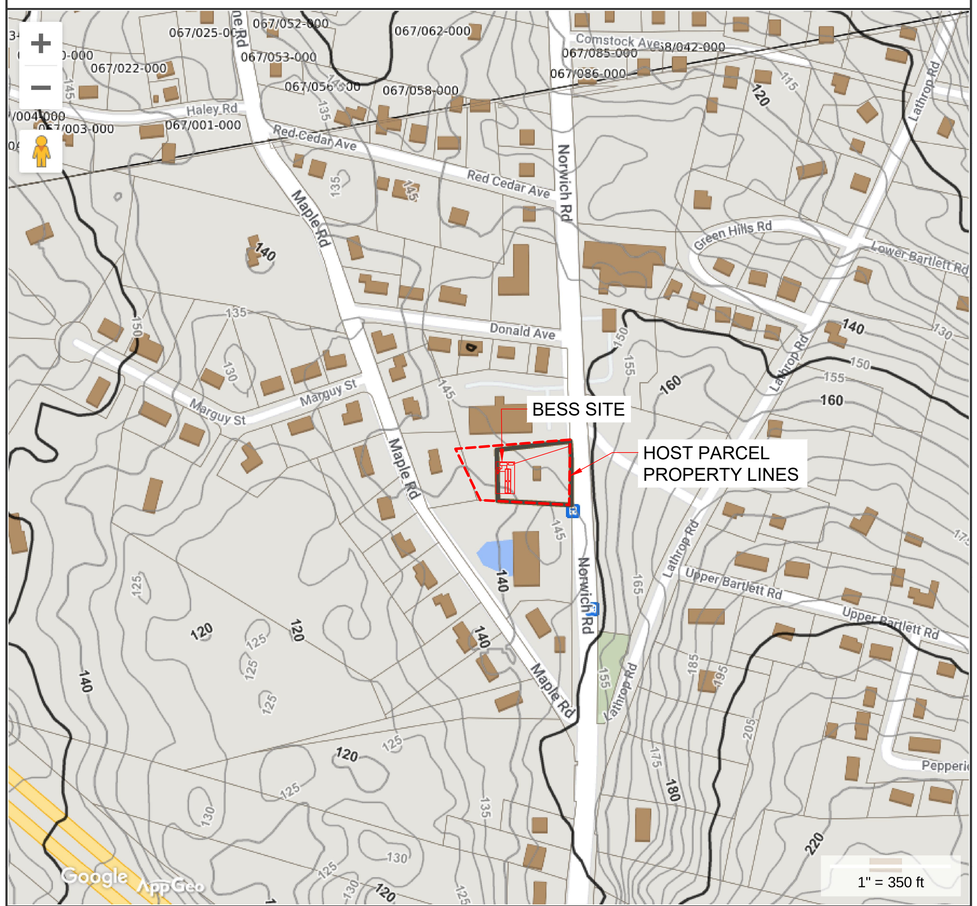




ENVIRONMENTAL
RESOURCES 06

SCCOG January 18, 2024

USGC



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Geometry updated 05/31/2017
Data updated 09/21/2023

Print map scale is approximate. Critical layout or measurement activities should not be done using this resource.

Map Theme Legends

Topography

Major Contours
Minor Contours

ENVIRONMENTAL
RESOURCES 07