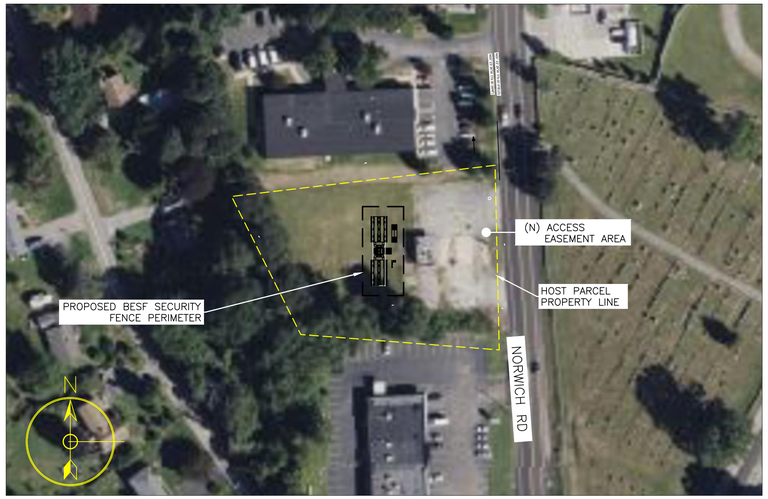
Q CELLS – 40 NORWICH RD
40 NORWICH RD, WATERFORD CT 06375
3916KW/15664KWH BESS

SITE MAP



SYSTEM SPECIFICATION

BESS	QTY	KW	KWH
TESLA MEGAPACK 2XL	4	979.0	3916.0
TOTAL	4	3916	15664

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 3916KW BATTERY STORAGE SYSTEM AND ASSOCIATED EQUIPMENT.

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 III · No. 32042 · LICENSED PROFESSIONAL ENGINEER

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

BY	REV	ISSUE	DATE
FK	T	REDLINES	09/12/24
RK	S	REDESIGN	06/06/24
RK	R	AHJ COMMENTS	03/21/24
RK	Q	AHJ COMMENTS	03/11/24
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INFO@HYDERENEWABLES.COM
720–900–1009
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PROJECT NAME AND ADDRESS

Q CELLS – 40 NORWICH RD

40 NORWICH RD,
WATERFORD CT 06375

SHEET TITLE
TITLE PAGE

DRAWN BY	SHEET #
TV	E000
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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Completely Clean Energy

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

SCALE: AS NOTED
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FK	T	REDLINES	09/12/24
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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
GENERAL

DRAWN BY TV	SHEET # E001
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 / 225A MCB / SEC 2 — 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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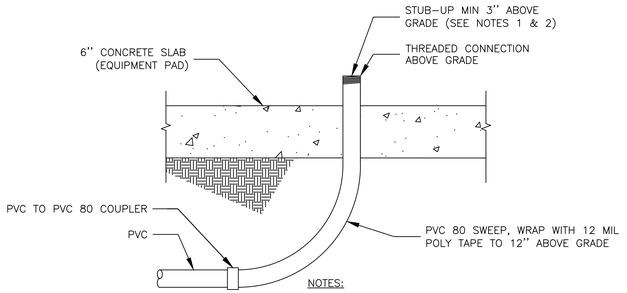
SHEET TITLE

LEGEND

DRAWN BY	SHEET #
TV	E002
DATE 05/11/2023	
CHECKED BY TRIPP HYDE	



A EQUIPMENT PAD STUB UP DETAIL
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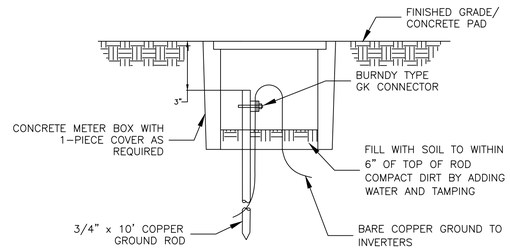

B TYPICAL GROUND WELL DETAIL
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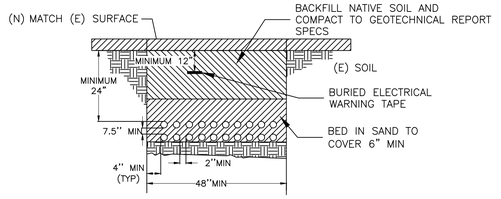

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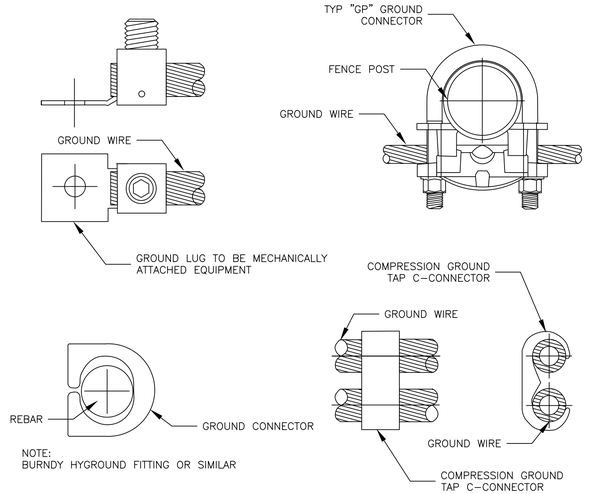

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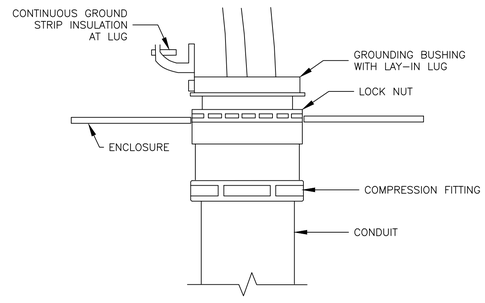

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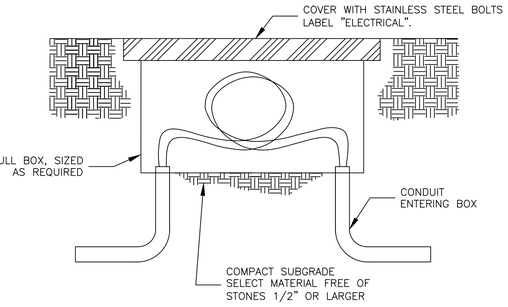

F UNDERGROUND PULLBOX SECTION DETAIL
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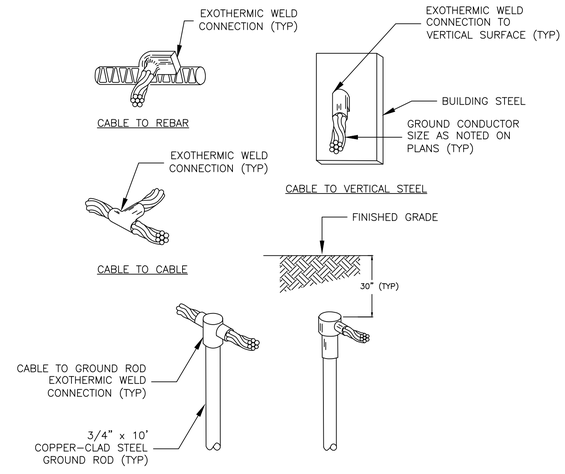

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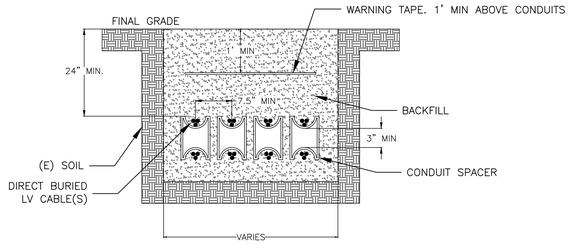
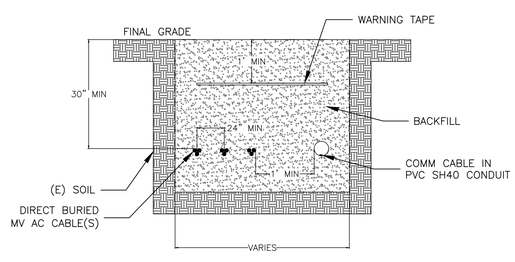
SCALE: N.T.S



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	N	REDLINES	02/05/24
BY	REV	ISSUE	DATE

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

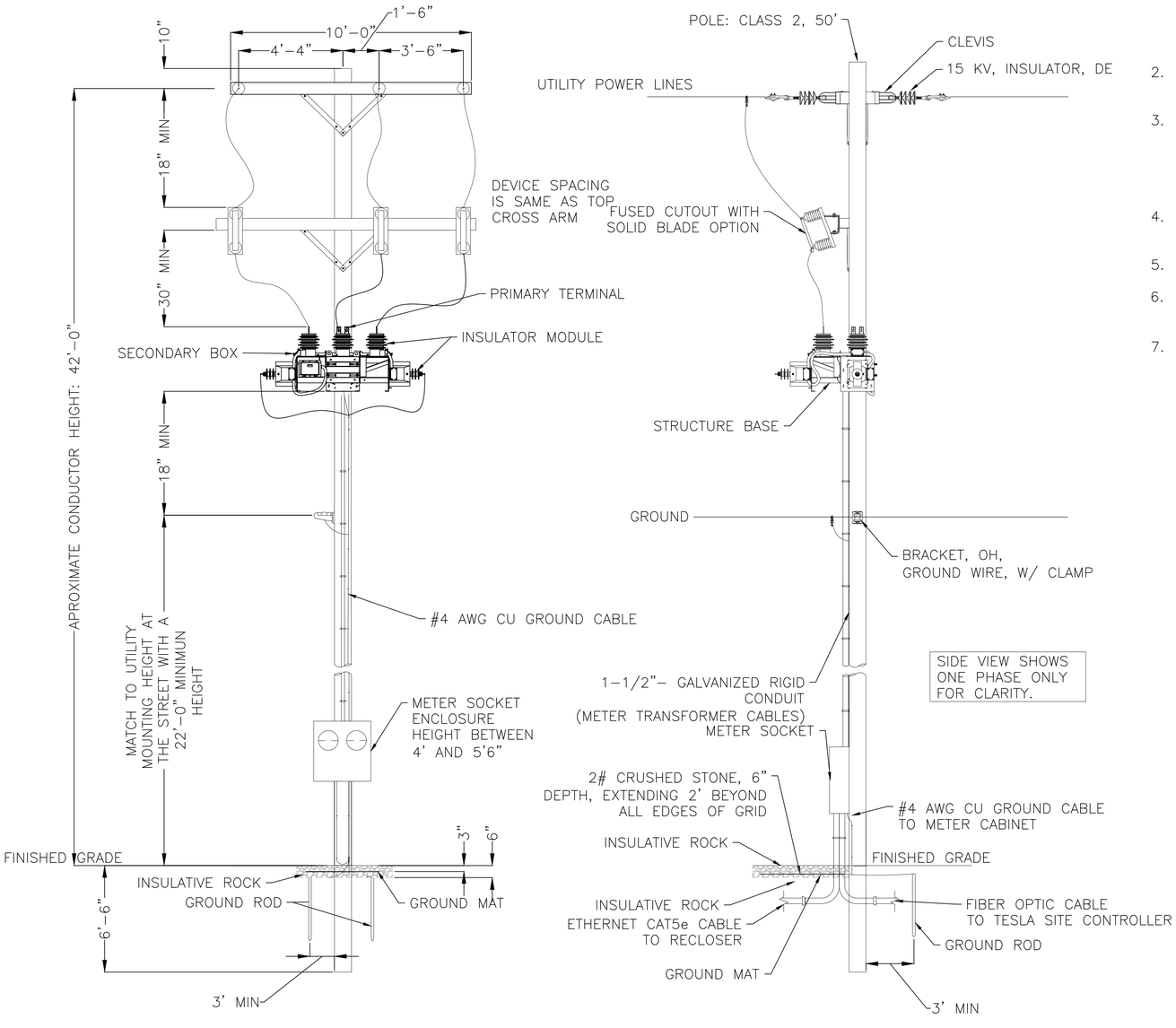
INFO@HYDERENEWABLES.COM
720–900–1009
WWW.HYDERENEWABLES.COM

PROJECT NAME AND ADDRESS
Q CELLS – 40 NORWICH RD

40 NORWICH RD,
WATERFORD CT 06375

SHEET TITLE
DETAILS 01

DRAWN BY TV	SHEET # E010
DATE 05/11/2023	
CHECKED BY TRIPP HYDE	



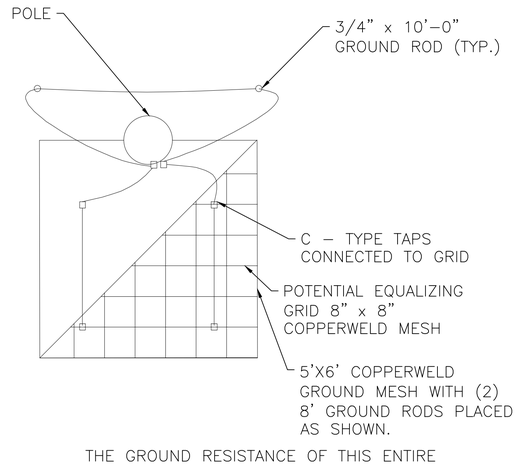
A

CUSTOMER METER WITH DISCONNECT POLE

SCALE: N.T.S

GENERAL NOTES

1. DETAILS SHOWN ARE PROVIDED FOR INFORMATION ONLY. EQUIPMENT CLEARANCES AND CONFIGURATION WILL VARY BASED ON EQUIPMENT SELECTION. FINAL DESIGN TO COMPLY WITH NATIONAL ELECTRIC CODE AND NATIONAL ELECTRIC SAFETY CODE. CLEARANCES ARE TO MEET NATIONAL ELECTRIC SAFETY CODE TABLE 232-1.
2. ALL CABLES AND EQUIPMENT INSTALLED ON POLE TO MEET RATINGS AS CALLED FOR ON 3-LINE DIAGRAM.
3. PROVIDE GROUND CONNECTION FOR POLE MOUNTED EQUIPMENT INCLUDING BUT NOT LIMITED TO: GROUP OPERTATED DISCONNECT SWITCH HARDWARE, METERING TRANSFORMER MOUNTING BRACKET, METER ENCLOSURE AND EXPOSED RIGID METALLIC CONDUITS.
4. RECLOSER TO BE PROVIDED WITH TRANSFORMER OPTION FOR SUPPLY OF 120V SINGLE PHASE POWER TO CONTROL BOX.
5. PROVIDE PULL CORDS IN ALL EMPTY CONDUITS.
6. PROVIDE SEPARATE GROUND CONNECTION FOR LIGHTNING ARRESTERS. #4 AWG CU.
7. PROVIDE EXPANSION JOINTS FOR ALL PVC CONDUITS PENETRATING GRADE.



THE GROUND RESISTANCE OF THIS ENTIRE INSTALLATION SHOULD BE BELOW 0.25 OHMS

B

GROUND MAT - TOP VIEW

SCALE: N.T.S

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

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

FK	T	REDLINES	09/12/24
RK	S	REDESIGN	06/06/24
RK	R	AHJ COMMENTS	03/21/24
RK	Q	AHJ COMMENTS	03/11/24
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PROJECT NAME AND ADDRESS

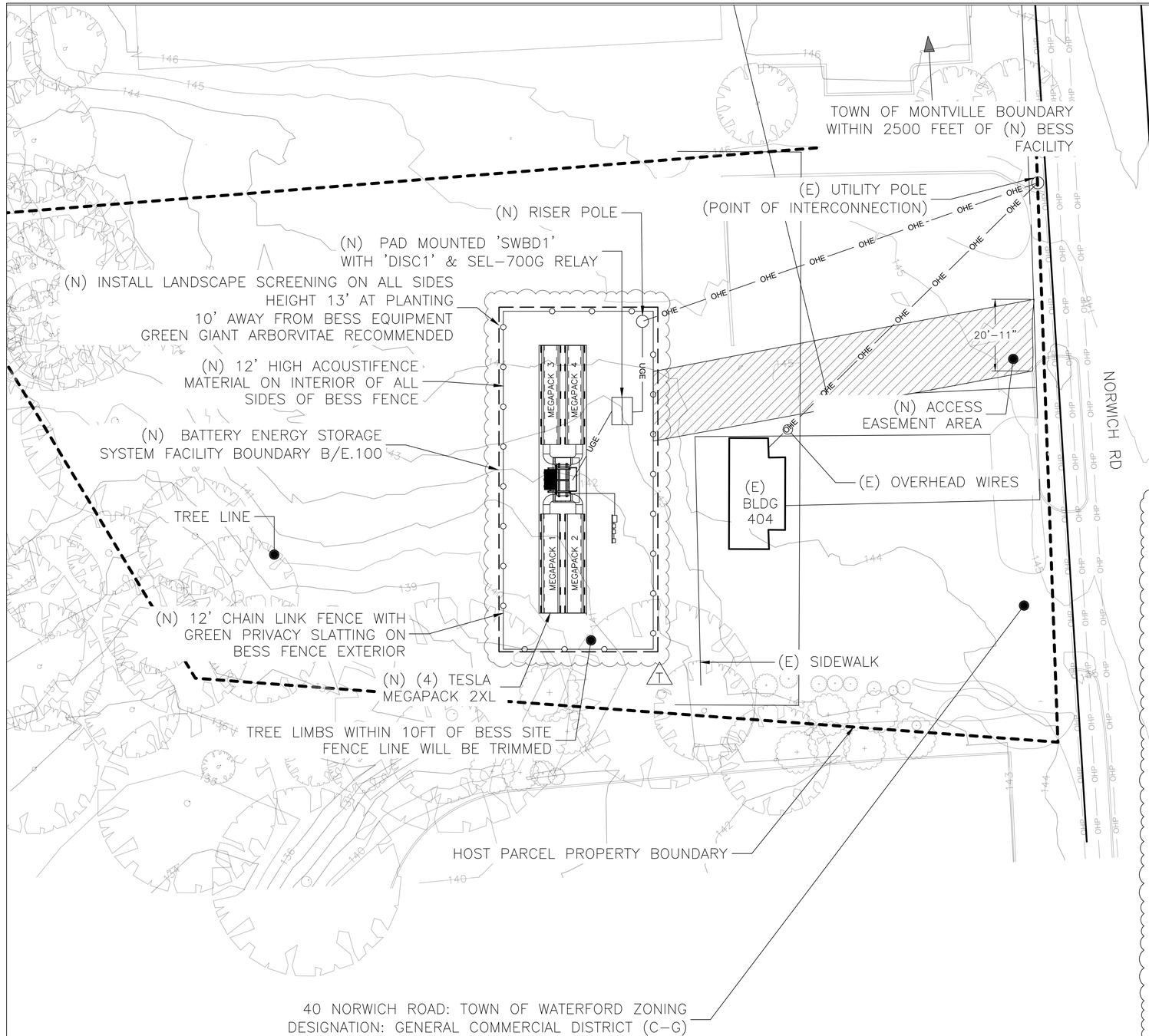
Q CELLS - 40 NORWICH RD

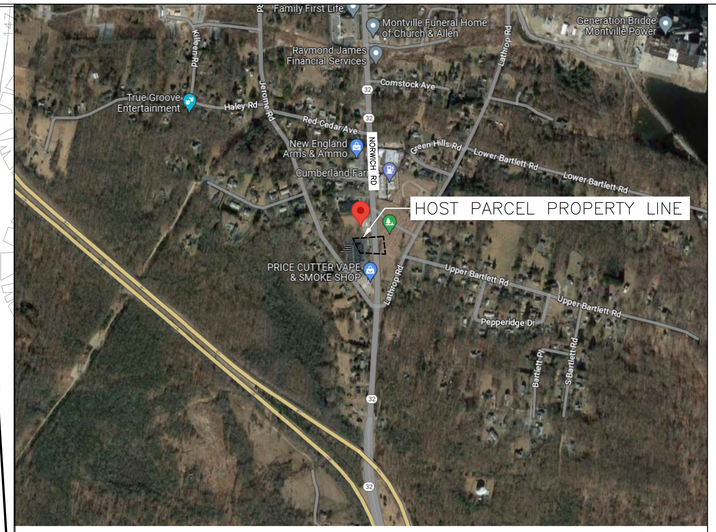
40 NORWICH RD,
WATERFORD CT 06375

SHEET TITLE
DETAILS 02

DRAWN BY TV	SHEET # E011
DATE 05/11/2023	
CHECKED BY TRIPP HYDE	

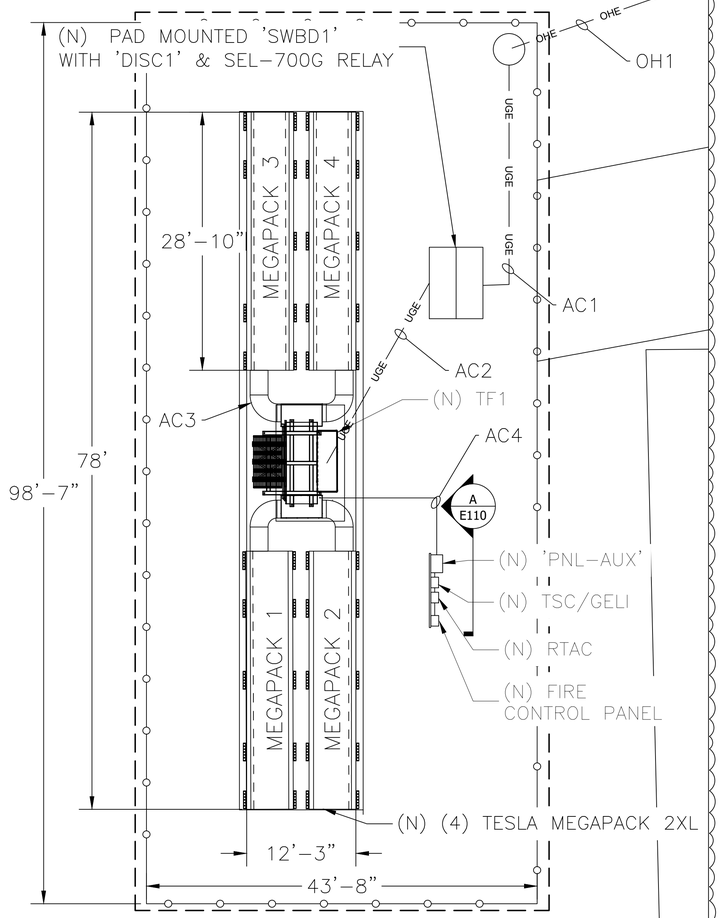
T





A SITE MAP
SCALE: NOT TO SCALE

N



B BESS AREA
SCALE: 1/8"=1'-0"

N

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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No. 32042
LICENSED
PROFESSIONAL ENGINEER

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(PRINT ON 36"X24")

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RK	O	REDLINES	02/06/24
RK	N	REDLINES	02/05/24
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

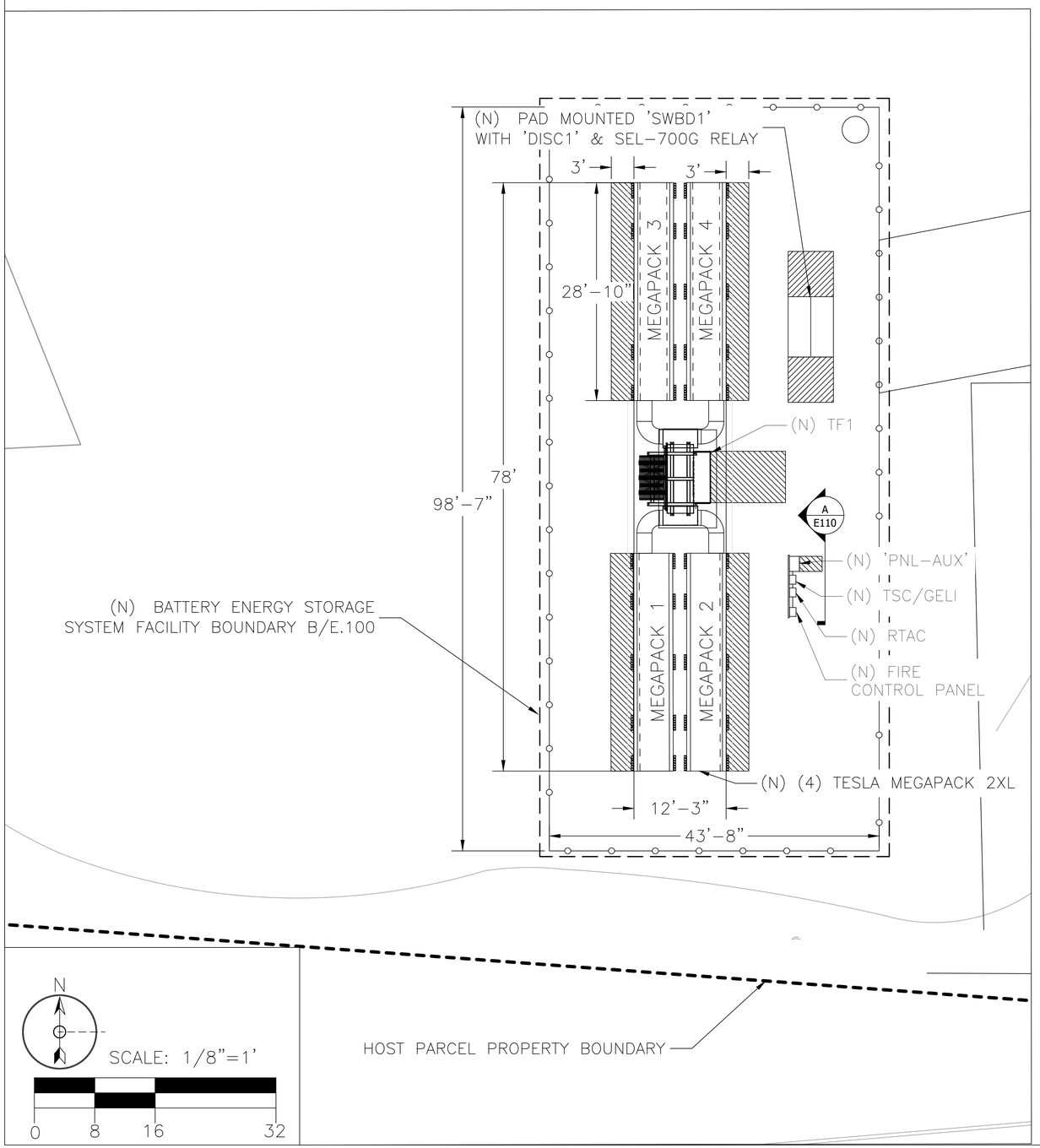
PROJECT NAME AND ADDRESS

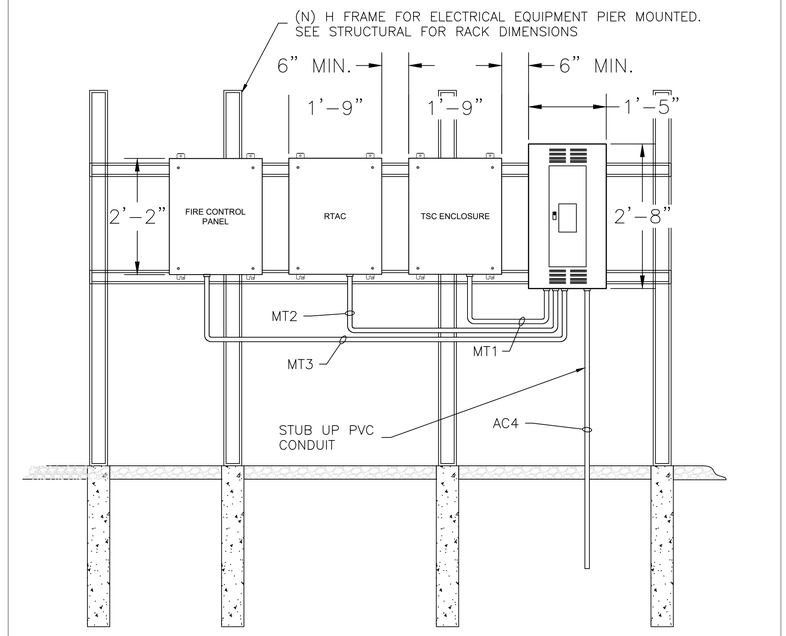
Q CELLS - 40 NORWICH RD

40 NORWICH RD,
WATERFORD CT 06375

SHEET TITLE
SITE PLAN

DRAWN BY TV	SHEET #
DATE 05/11/2023	E100
CHECKED BY TRIPP HYDE	





NOTES:
1) DISTRIBUTION PANEL SHALL BE INSTALLED PER NEC 404.8(A). WHICH STATES THAT CIRCUIT BREAKERS SHOULD BE INSTALLED SO THAT THE CENTER OF THE GRIP OF THE OPERATING HANDLE OF THE CIRCUIT BREAKER, WHEN IN THE HIGHEST POSITION WILL NOT BE MORE THAN 6'-7" ABOVE THE FLOOR

A EQUIPMENT RACK ELEVATION
SCALE: N.T.S

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WWW.HYDERENEWABLES.COM

PROJECT NAME AND ADDRESS
Q CELLS - 40 NORWICH RD

40 NORWICH RD,
WATERFORD CT 06375

SHEET TITLE
FIRE & SAFETY

DRAWN BY: TV	SHEET #: E110
DATE: 05/11/2023	
CHECKED BY: TRIPP HYDE	

LEGEND

BESS BOUNDARY

HOST PARCEL

INTERCONNECTION PATH

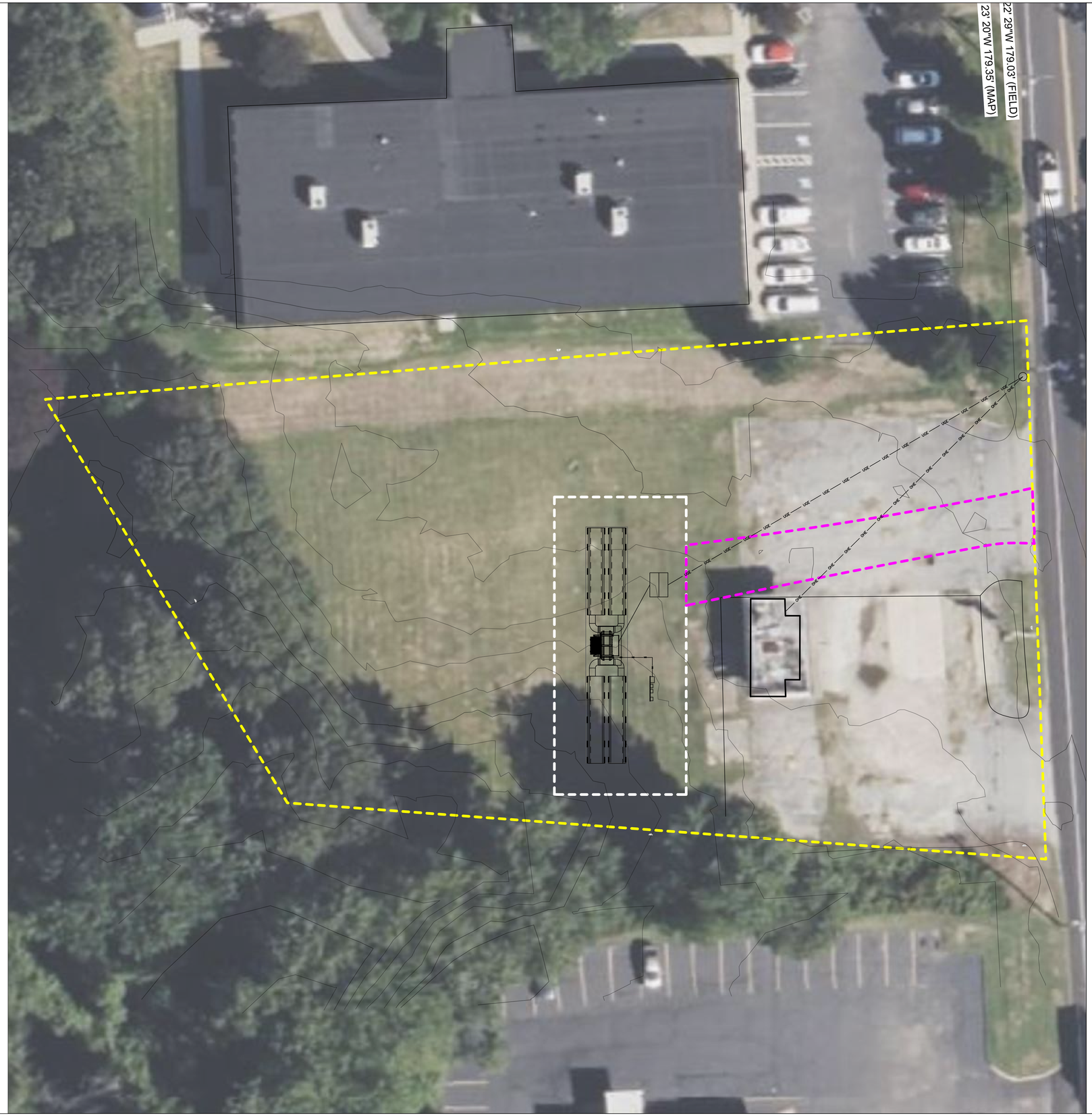
PROPOSED ACCESS PATHWAY

BESS EQUIPMENT

N

SITE PLAN
SCALE: 1/16"=1'

0 16 32 64



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STATE OF CONNECTICUT
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PROJECT NAME AND ADDRESS

Q CELLS – 40 NORWICH RD

40 NORWICH RD,
WATERFORD CT 06375

SHEET TITLE

SITE VICINITY PLAN

DRAWN BY	SHEET #
TV	E120
DATE: 05/11/2023	
CHECKED BY: TRIPP HYDE	

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.
13. BESS DEFAULT RAMP RATE @ 1000KW/MINUTE TO BE ENABLED.
14. THE PROJECT WILL BE OPERATING AT UNITY POWER FACTOR.
15. MAXIMUM EXPORT WILL BE 4000 KW AC.
16. INVERTER SETTING PER ISO-NE AND GENERATOR INTERCONNECTION GUIDELINES.
17. EVERSOURCE RESERVES THE RIGHT TO REQUIRE TIMELY ADJUSTMENTS TO THE PROJECT INVERTERS AND OR PROTECTIVE RELAY AND/OR POWER PLANT CONTROLLER SETTINGS TO EFFECT PROPER VOLTAGE REGULATION ON THE DISTRIBUTION SYSTEM.
18. AN RTAC DEVICE WILL BE USED TO IMPLEMENT THE BESS OPERATING SCHEDULE PROVIDED BY EVERSOURCE.

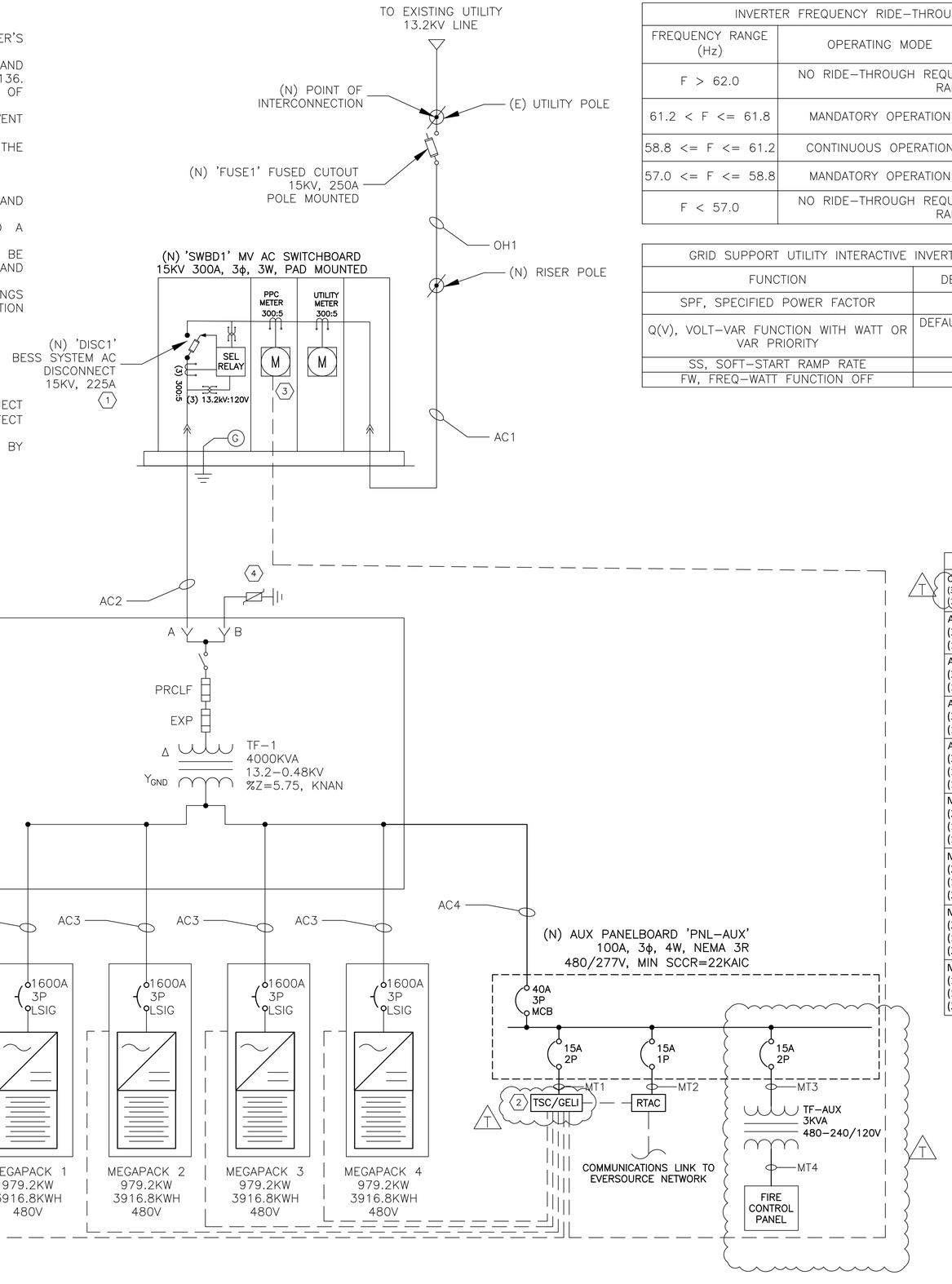
SHEET NOTES:

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. TESLA SITE CONTROLLER.
3. METER COMMUNICATES WITH TESLA SITE CONTROLLER.
4. SURGE ARRESTERS 15KV, 12.7MCOV

INVERTER VOLTAGE TRIP SETTINGS		
SHALL TRIP FUNCTION	REQUIRED SETTINGS	
	VOLTAGE (P.U. OF NOMINAL VOLTAGE)	CLEARING TIME(S)
OV2	1.20	0.16
OV1	1.10	2.0
UV1	0.88	2.0
UV2	0.50	1.1

INVERTER FREQUENCY TRIP SETTINGS		
SHALL TRIP FUNCTION	REQUIRED SETTINGS	
	FREQUENCY (Hz)	CLEARING TIME(S)
OF2	62.0	0.16
OF1	61.2	300.0
UF1	58.5	300.0
UF2	56.5	0.16

INVERTER VOLTAGE RIDE-THROUGH CAPABILITY AND OPERATIONAL REQUIREMENTS			
VOLTAGE RANGE (P.U.)	OPERATING MODE/RESPONSE	MINIMUM RIDE-THROUGH TIME(S) (DESIGN CRITERIA)	MAXIMUM RESPONSE TIME(S) (DESIGN CRITERIA)
V > 1.20	CEASE TO ENERGIZE	N/A	0.1600
1.175 < V <= 1.20	PERMISSIVE OPERATION	0.2000	N/A
1.15 < V <= 1.175	PERMISSIVE OPERATION	0.5000	N/A
1.10 < V <= 1.15	PERMISSIVE OPERATION	1	N/A
0.88 <= V <= 1.10	CONTINUOUS OPERATION	INFINITE	N/A
0.65 <= V < 0.88	MANDATORY OPERATION	LINEAR SLOPE OF 8.7s/1 P.U. VOLTAGE STARTING AT 3s @ 0.65 P.U.	N/A
0.45 <= V < 0.65	PERMISSIVE OPERATION	0.3200	N/A
0.30 <= V < 0.45	PERMISSIVE OPERATION	0.1600	N/A
V < 0.30	CEASE TO ENERGIZE	N/A	0.1600



INVERTER FREQUENCY RIDE-THROUGH CAPABILITY		
FREQUENCY RANGE (Hz)	OPERATING MODE	MINIMUM TIME(S) (DESIGN CRITERIA)
F > 62.0	NO RIDE-THROUGH REQUIREMENTS APPLY TO THIS RANGE	
61.2 < F <= 61.8	MANDATORY OPERATION	299
58.8 <= F <= 61.2	CONTINUOUS OPERATION	INFINTE
57.0 <= F <= 58.8	MANDATORY OPERATION	299
F < 57.0	NO RIDE-THROUGH REQUIREMENTS APPLY TO THIS RANGE	

GRID SUPPORT UTILITY INTERACTIVE INVERTER FUNCTION STATUS	
FUNCTION	DEFAULT ACTIVATION STATE
SPF, SPECIFIED POWER FACTOR	OFF
Q(V), VOLT-VAR FUNCTION WITH WATT OR VAR PRIORITY	DEFAULT VALUE: 2% OF MAXIMUM CURRENT OUTPUT PER SECOND
SS, SOFT-START RAMP RATE	ON
FW, FREQ-WATT FUNCTION OFF	OFF

CONDUCTOR TAG
OH1 - OVERHEAD EACH WITH: (3) #4/0AWG ϕ AL ACSR (1) #2AWG EGC THWN-2
AC1 - 2" PVC 40 HDPE WITH: (3) #4/0AWG ϕ AL MV-105 (1) #2AWG EGC THWN-2
AC2 - 2" PVC 40 HDPE WITH: (3) #4/0AWG ϕ AL MV-105 (1) #2AWG EGC THWN-2
AC3 - 3.5" PVC 40 HDPE WITH: (3) #600KCMIL ϕ AL PV WIRE (1) #4/0AWG EGC PV WIRE
AC4 - 1" PVC 40 HDPE WITH: (3) #8AWG ϕ CU THWN-2 (1) #8AWG N CU 600V (1) #10AWG EGC THWN-2
MT1 - 0.75" PVC 40 HDPE WITH: (2) #12AWG ϕ CU THWN-2 (1) #12AWG N CU 600V (1) #14AWG EGC THWN-2
MT2 - 0.75" PVC 40 HDPE WITH: (2) #12AWG ϕ CU THWN-2 (1) #12AWG N CU 600V (2) #14AWG EGC THWN-2
MT3 - 0.75" PVC 40 HDPE WITH: (2) #12AWG ϕ CU THWN-2 (1) #12AWG N CU 600V (2) #14AWG EGC THWN-2
MT4 - 0.75" PVC 40 HDPE WITH: (1) #12AWG ϕ CU THWN-2 (1) #12AWG N CU 600V (2) #14AWG EGC THWN-2

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SCALE: AS NOTED
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PROJECT NAME AND ADDRESS
Q CELLS - 40 NORWICH RD

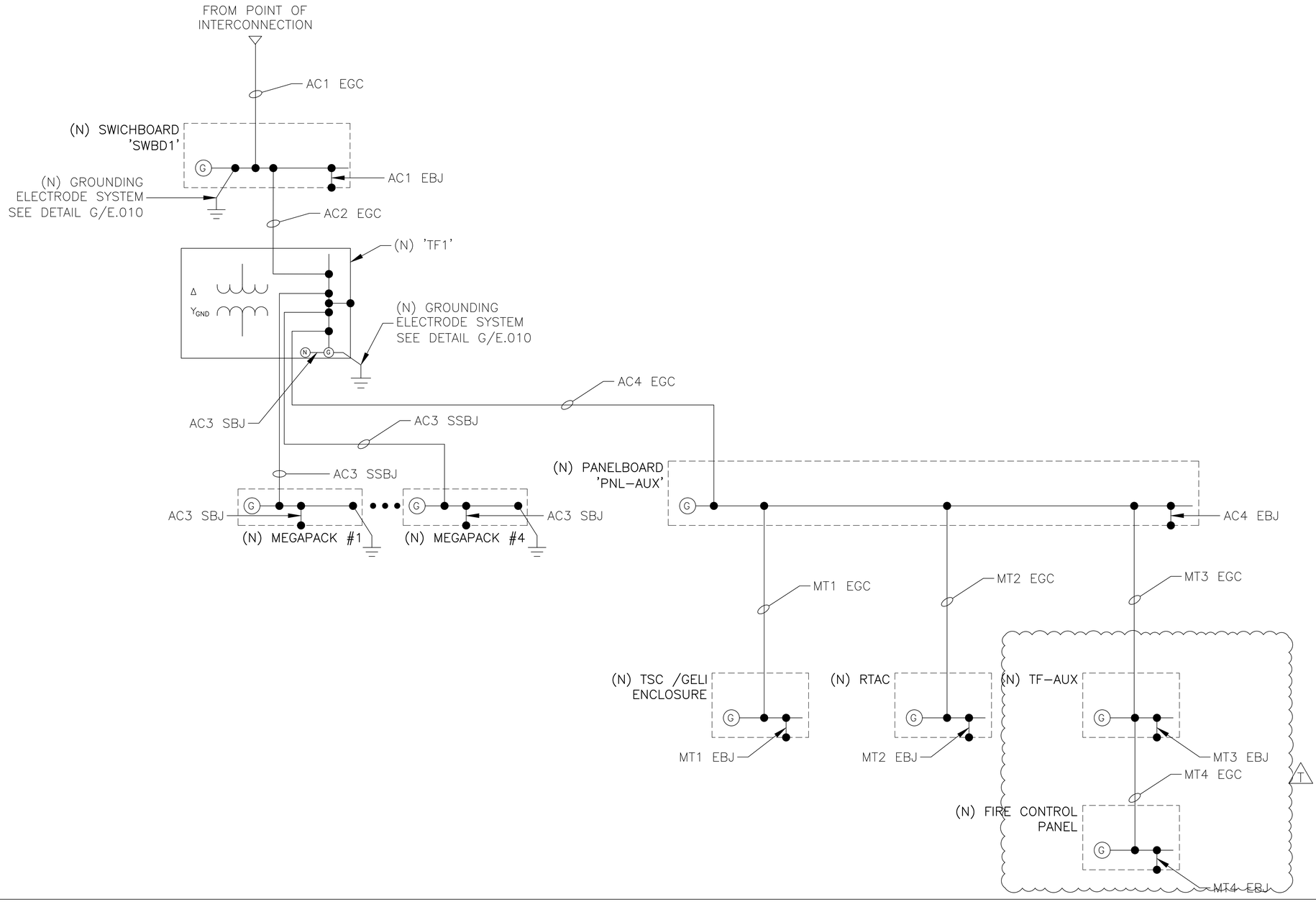
40 NORWICH RD,
WATERFORD CT 06375

SHEET TITLE
SINGLE LINE DIAGRAM

DRAWN BY	SHEET #
TV	E200
DATE: 05/11/2023	
CHECKED BY: TRIPP HYDE	

GENERAL NOTES:

1. SEE SINGLE LINE FOR ADDITIONAL INFORMATION ON E.200.
2. GROUND WIRE TO BE PROTECTED FROM PHYSICAL DAMAGE, PER NEC 250.120(C)
3. 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.
4. EQUIPMENT BONDING JUMPERS TO BE CU OR EQUIV. TYPE LISTED IN NEC 250.102.
5. GROUNDING CONDUCTORS NOT ROUTED IN RACEWAYS TO BE MIN. #6AWG CU.



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PROJECT NAME AND ADDRESS

Q CELLS – 40 NORWICH RD

40 NORWICH RD,
WATERFORD CT 06375

SHEET TITLE
GROUNDING DIAGRAM

DRAWN BY TV	SHEET # E210
DATE 05/11/2023	
CHECKED BY TRIPP HYDE	

CONDUITS				
#	SIZE	TYPE	CONDUIT FILL [%]	CONDUCTOR ID
OVERHEAD				OH1
1	2"	PVC 40 HDPE	22.73	AC1
1	2"	PVC 40 HDPE	22.73	AC2
CONDUITS				CONDUCTOR SPECS
#	SIZE	TYPE	CONDUIT FILL [%]	CONDUCTOR ID
1	3.5"	PVC 40 HDPE	30.07	AC3
1	1"	PVC 40 HDPE	20.31	AC4
1	0.75"	PVC 40 HDPE	9.65	MT1
1	0.75"	PVC 40 HDPE	11.61	MT2
1	0.75"	PVC 40 HDPE	11.61	MT3
1	0.75"	PVC 40 HDPE	9.06	MT4

MV 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	105°C AMPACITY [A]	105°C AMP. DERATED FOR C.O.U. [A]	90°C AMPACITY [A]
UTILITY	RISER POLE	OH1	3-PHASE	NO NEUTRAL	13200	175	218.8	NA	1	1	357	357	N/A
RISER POLE	SWB1	AC1	3-PHASE	NO NEUTRAL	13200	175	218.8	225	1	1	245	245	230
SWB1	TF-1	AC2	3-PHASE	MIN. SIZE	13200	175	218.8	225	1	1	245	245	230

MV 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]
TF-1	MEGAPACK 1-4	AC3	3-PHASE	MIN. SIZE	480	1200	1500.0	1600	1	1	385	1925	1700
TF-1	PNL-AUX	AC4	3-PHASE	FULL SIZE	480	36	45.0	45	1	0.8	55	44	50
PNL-AUX	TSC/GELI	MT1	1-PHASE	FULL SIZE	480	12	15.0	15	1	1	30	30	25
PNL-AUX	RTAC	MT2	1-PHASE	FULL SIZE	277	12	15.0	15	1	1	30	30	25
PNL-AUX	TF-AUX	MT3	1-PHASE	FULL SIZE	277	12	15.0	15	1	1	30	30	25
PNL-AUX	FIRE CONTROLPANEL	MT4	3-PHASE	FULL SIZE	120	12	15.0	15	1	1	30	30	25

CONDUCTOR SPECS															
CONDUCTOR ID	PHASE CONDUCTORS				PARALLEL CONDUCTORS	NEUTRAL CONDUCTOR				GROUND CONDUCTOR					LENGTH (FT)
OH1	3	#4/0AWG	ACSR	AL 15KV	1					1	#2AWG	THWN-2	AL 600V	EGC	200
AC1	3	#4/0AWG	MV-105	AL 15KV	1					1	#2AWG	THWN-2	AL 600V	EGC	200
AC2	3	#4/0AWG	MV-105	AL 15KV	1					1	#2AWG	THWN-2	AL 600V	EGC	20
CONDUCTOR SPECS															
CONDUCTOR ID	PHASE CONDUCTORS				PARALLEL CONDUCTORS	NEUTRAL CONDUCTOR				GROUND CONDUCTOR					LENGTH (FT)
AC3	3	#600KCMIL	THWN-2	AL 600V	5					1	#4/0AWG	THWN-2	CU 600V	EGC	20
AC4	3	#8AWG	THWN-2	CU 600V	1	1	#8AWG	THWN-2	CU 600V	1	#10AWG	THWN-2	CU 600V	EGC	5
MT1	2	#12AWG	THWN-2	CU 600V	1	1	#12AWG	THWN-2	CU 600V	1	#14AWG	THWN-2	CU 600V	EGC	100
MT2	2	#12AWG	THWN-2	CU 600V	1	1	#12AWG	THWN-2	CU 600V	2	#14AWG	THWN-2	CU 600V	EGC	100
MT3	2	#12AWG	THWN-2	CU 600V	1	1	#12AWG	THWN-2	CU 600V	2	#14AWG	THWN-2	CU 600V	EGC	100
MT4	1	#12AWG	THWN-2	CU 600V	1	1	#12AWG	THWN-2	CU 600V	2	#14AWG	THWN-2	CU 600V	EGC	100

AFC CALCULATION					
CONDUCTOR ID	VOLTAGE (V)	LENGTH	RESISTANCE	STARTING POINT AFC	END POINT AFC
TF-1	480	-	5.75%	1469.00	15265.92
AC2	480	20	0.000245 (OHM/1000FT)	15265.92	14655.59
TF-2	480	-	3.50%	14655.59	2252.89
AC3	480	20	0.000308 (OHM/1000FT)	2252.89	2188.03

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

AC VOLTAGE DROP							
CONDUCTOR	PHASE	LONGEST ONE WAY LENGTH	VOLTAGE (V)	RESISTANCE (OHM/FT)	V-DROP (V)	V-DROP (%)	SHORTEST ONE WAY LENGTH
AC2	3-phase	20	480	0.000245	2.29	0.48	20
AC3	3-phase	10	480	0.000308	0.27	0.06	10

HYDE RENEWABLES
ADVANCED ENGINEERING SOLUTIONS

qcells
Completely Clean Energy

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

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

BY	REV	ISSUE	DATE
FK	T	REDLINES	09/12/24
RK	S	REDESIGN	06/06/24
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

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
CALCS

DRAWN BY: TV
DATE: 05/11/2023
CHECKED BY: TRIPP HYDE
SHEET #: E220

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

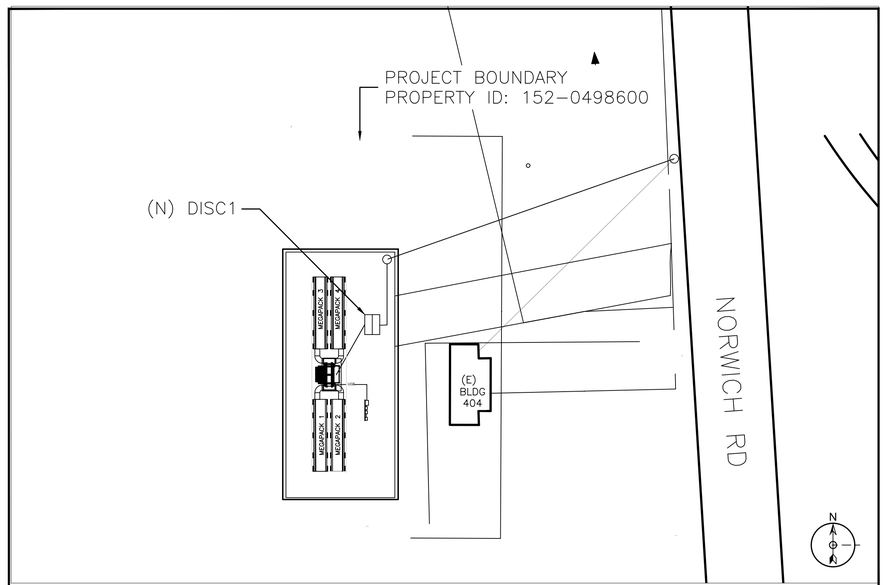
LABELING REQUIREMENTS

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



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

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PROJECT NAME AND ADDRESS

Q CELLS – 40 NORWICH RD

40 NORWICH RD,
WATERFORD CT 06375

SHEET TITLE

SIGNAGE 01

DRAWN BY	SHEET #
TV	E300
DATE 05/11/2023	
CHECKED BY TRIPP HYDE	

MEGAPACK 2 XL DATASHEET

TESLA.COM/MEGAPACK

Grid transformation for the world's largest energy projects
- Best-in-class energy density and round-trip efficiency
- Industry-leading power electronics and thermal system performance
- Rapid and cost-effective deployment with factory-assembled and pre-tested solution

Scaled and rigorously tested product safety and reliability
- Comprehensive in-house reliability testing by the leading experts in the industry
- Engineered for safety and performance at every level
- Continuous improvement based on large-scale operational experience

Designed with flexibility and configurability in mind
- Modular architecture that allows for a range of configurations across multiple applications
- Industry experts available to identify site-specific needs
- Integrated solution that allows for battery augmentation over time

POWER AND ENERGY

Megapack duration is configurable. Standard configurations are 2-Hour, 3-Hour, and 4-Hour durations. Nominal energy is specified at 25°C (77°F).

	AC Power per Megapack	Energy per Megapack
2-Hour	1927 kW	3854 kWh
3-Hour	1281.6 kW	3847.2 kWh
4-Hour	979 kW	3916 kWh

ELECTRICAL

Nominal AC Voltage	480 V AC 3-phase	
Nominal Frequency	50 or 60 Hz	
Inverter Power per Megapack[1]	2-Hour Max: 3-Hour Max: 4-Hour Max:	2400 kVA 1512 kVA 1512 kVA
Round-Trip Efficiency[2]	2-Hour: 3-Hour: 4-Hour:	92.0% 92.5% 93.5%

[1] Scalable from 400 kVA minimum in increments of 50 kVA
[2] Full-depth cycle including all power conversion and thermal system losses, at 25°C (77°F)

WARRANTY

Coverage	All-inclusive, equipment and energy retention
Term	15 years standard, extendable to 20 years

PART NUMBER

1848844-XX-Y Where X is a number between 0-9 and Y is a letter

MECHANICAL AND MOUNTING

Ingress Ratings	IP66/NEMA 3R (Main Enclosure) IP20 (Thermal System)
Enclosure Dimensions +/- 13 mm (½ in)	Width: 8800 mm (346 ½ in) Depth: 1650 mm (65 in) Height: 2785 mm (110 in)
Maximum Weight	38,100 kg (84,000 lb)
Operating Ambient Temperature	2-Hour/4-Hour: -30°C to 50°C (-22°F to 122°F) 3-Hour: -30°C to 40°C (-22°F to 104°F)

REGULATORY

System is compliant to grid codes and safety standards of all major markets.

System	NRTL listed to UL 1973, UL 9540, UL 9540A, UL 1741 SB, IEC 62619, IEEE 1547
Cells	NRTL listed to UL 1642

CONTROLS AND COMMUNICATIONS

Protocols	Modbus TCP / DNP3 / REST API
Core Control Modes	Direct Real Power Direct Reactive Power Frequency Support Virtual Inertia Ramp Rate Control Site Control Power Factor Control Voltage Control

MONITORING

Powerhub	Free-to-use cloud monitoring portal
Powerhub API	REST API providing event-based controls and site level monitoring

MEDIUM VOLTAGE CABLE

Aluminum Conductor 15KV, MV-105, 133%/100% EPR/PVC Copper Tape Shield

APPLICATION:

15KV Shielded MV-105 cable is primarily used for power circuits in commercial, industrial, refinery and petro-chemical plants; utility power generation and substations. The cable can be installed in wet or dry applications and is for use in aerial, conduit, open tray, and underground duct installations. It can be used in direct burial if installed with a ground conductor in close proximity. The cable is approved for temperature up to 105°C and voltages up to 15000 volts.

CONDUCTORS:

- Stranded 1350 series aluminum, compact Class B stranding per ASTM

CONDUCTOR SHIELD:

- Extruded thermoset semi-conducting stress-control layer over conductor

INSULATION:

- High dielectric strength lead-free EPR insulation, contrasting in color to the black semi-conducting shield layers

INSULATION SHIELD:

- Extruded thermoset semi-conducting polymeric layer free stripping from insulation

METALLIC SHIELD:

- Helically applied 5 mil annealed copper tape over the insulation shield with an overlap of 25%

JACKET:

- Black low-friction, lead-free, flame-retardant, moisture and sunlight resistant polyvinyl chloride (PVC) jacket tightly applied over the copper tape

STANDARDS:

- UL 1072
- UL Listed as Type MV-105 for use in accordance with NEC
- AEIC CS8
- ICEA S-93-639/NEMA WC74
- ICEA S-97-682
- IEEE 1202 Flame Test (70,000 BTU/hr)/CSA FT4
- EPA 40 CFR, Part 261 for leachable lead content per TCLP method
- OSHA Acceptable
- 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

Part Number	Conductor Size	Conductor Diameter	Insulation Thickness	Insulation Diameter	Jacket Thickness	Overall Diameter	Cable Weight	Ampacity					
								Conduit in Air*		Underground Duct**		Tray***	
	AWG/kcmil	inches	mils	inches	inches	inches	lbs/kft	90°C	105°C	90°C	105°C	90°C	105°C
2-0115KVALEPMV105	2	0.27	0.22	0.74	0.080	0.99	515	115	130	120	130	-	-
1/0-0115KVALEPMV105	1/0	0.34	0.22	0.81	0.080	1.06	598	150	170	155	165	150	170
2/0-0115KVALEPMV105	2/0	0.38	0.22	0.86	0.080	1.10	652	175	200	175	190	175	195

All values are nominal and subject to correction
** Ampacities are in accordance with Table 310.60(C)(74) of the NEC for triplexed or three single conductor aluminum 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).*
*** Ampacities are in accordance with Table 310.60(C)(78) of the NEC for triplexed or three single conductor aluminum 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.*
**** 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)(70), 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)(70).*

#2180-05

1-800-945-5542
www.PriorityWire.com

PRIORITY WIRE & CABLE, INC.

MEDIUM VOLTAGE CABLE

Aluminum Conductor 15KV, MV-105, 133%/100% EPR/PVC Copper Tape Shield

Part Number	Conductor Size	Conductor Diameter	Insulation Thickness	Insulation Diameter	Jacket Thickness	Overall Diameter	Cable Weight	Ampacity					
								Conduit in Air*		Underground Duct**		Tray***	
	AWG/kcmil	inches	mils	inches	inches	inches	lbs/kft	90°C	105°C	90°C	105°C	90°C	105°C
4/0-0115KVALEPMV105	4/0	0.48	0.22	0.96	0.080	1.21	807	230	260	230	245	235	265
250-0115KVALEPMV105	250	0.53	0.22	1.01	0.080	1.25	869	255	290	250	270	260	290
350-0115KVALEPMV105	350	0.62	0.22	1.11	0.080	1.35	1031	310	350	305	330	325	360
500-0115KVALEPMV105	500	0.74	0.22	1.23	0.080	1.47	1255	385	430	370	400	400	450
750-0115KVALEPMV105	750	0.91	0.22	1.41	0.080	1.65	1621	485	540	455	490	515	585
1000-0115KVSEPVC-AL	1000	1.06	0.22	1.57	0.110	1.86	2068	565	640	525	565	620	705

All values are nominal and subject to correction
** Ampacities are in accordance with Table 310.60(C)(74) of the NEC for triplexed or three single conductor aluminum 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).*
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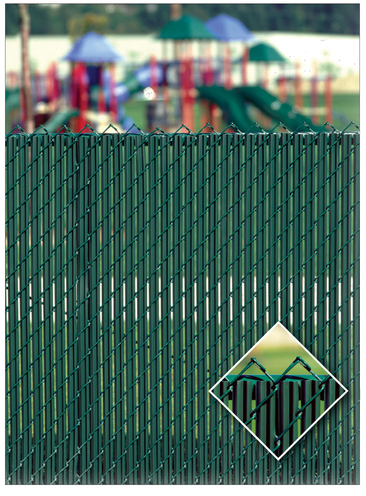
LITELINK®



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.

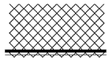
Limited Warranty
LiteLink carries a 7-year, pro-rata warranty against breakage under normal conditions. Write Pexco for full warranty information.

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.

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HYDE RENEWABLES
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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

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

FIRM NAME AND ADDRESS

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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 # E400
DATE 05/11/2023	
CHECKED BY TRIPP HYDE	

<GOVERNING CODE>
- INTERNATIONAL BUILDING CODE (IBC 2021)
- CALIFORNIA BUILDING CODE (CBC 2022)
- MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES (ASCE 7-16)
- AMERICAN CONCRETE INSTITUTE (ACI 318-19)

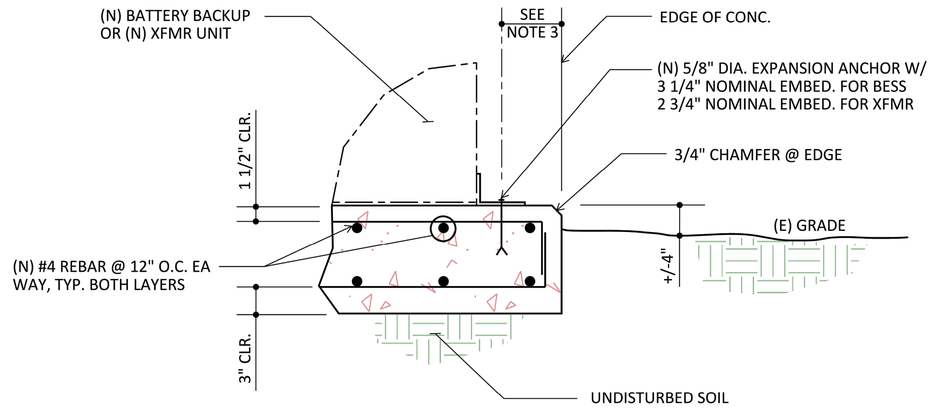
<STRUCTURAL SPECIFICATIONS>
1. CONCRETE & REINFORCING STEEL
   - CONCRETE PAD SHALL ACHIEVE MIN. 28-DAY COMPRESSIVE STRENGTH OF 2,500 psi
   - MAX WATER-CEMENT RATIO BY WEIGHT SHALL BE 0.45
   - MAINTAIN CONCRETE IN A MOIST CONDITION FOR A SUITABLE PERIOD AFTER PLACEMENT IN ACCORDANCE WITH ACI, CHAPTER 12
   - CEMENT SHALL BE TYPE II AND CONFORM TO ASTM C150, AGGREGATE SHALL CONFORM TO ASTM C33
   - REBAR SHALL BE GRADE 60 DEFORMED BARS
   - LAB SPLICES SHALL BE CLASS B. STANDARD HOOKS SHALL BE IN ACCORDANCE WITH ACI 318-19

2. EXPANSION ANCHORS
   - ADHESIVE ANCHOR SHALL BE 'HILTI KB-TZ2 STAINLESS' U.N.O.
   - INSTALLATION SHALL CONFORM TO ICC ESR-4266 AND MANUFACTURER'S RECOMMENDATIONS
   - SPECIAL INSPECTION IS REQ'D DURING INSTALLATION

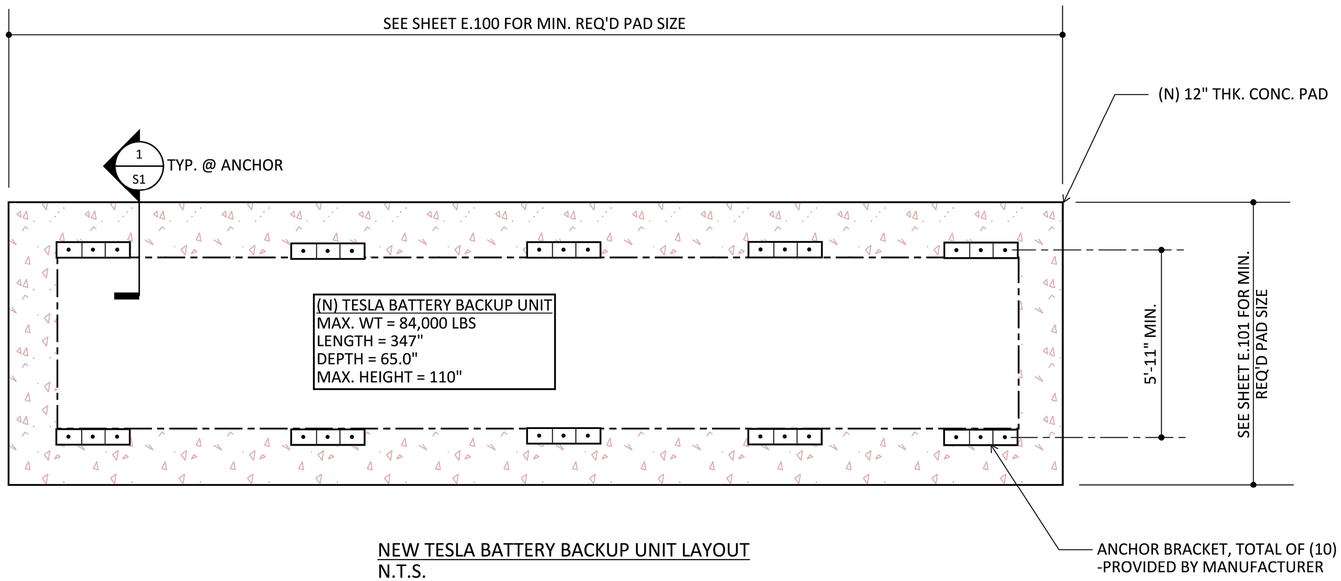
DESIGN INPUT
BASIC WIND SPEED = 126 mph
S_{DS} = 0.207g
I_p = 1.0
a_p = 1.0
R_p = 2.5

NOTES:
1. ANCHOR DISTANCE BETWEEN DIFFERENT BATTERY BACKUP UNITS SHALL BE MIN. OF 12" IN RADIUS.
2. FOR AN APPROPRIATE PAD SIZE OF A SINGLE BESS/XFMR UNIT, MULTIPLE NUMBER OF UNITS TO LENGTH AND/OR WIDTH OF THE PAD. FOR INSTANCE, LENGTH OF A PAD FOR (2) BATTERY BACK UP UNITS LAID OUT SIDE-BY-SIDE SHALL BE 2x MIN. REQUIRED PAD LENGTH.

NOTES:
1. NEED (1) ANCHOR PER (1) BRACKET.
2. USE WASHER AS NEEDED.
3. MIN. 4" EDGE DISTANCE OR MIN. 12" (RADIUS) ANCHOR SPACING.



1 / - SECTION
N.T.S.



NEW TESLA BATTERY BACKUP UNIT LAYOUT
N.T.S.

S1

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

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

FK	T	REDLINES	09/12/24
RK	S	REDESIGN	06/06/24
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
STRUCTURAL 01

DRAWN BY: TV	SHEET #: S000
DATE: 05/11/2023	
CHECKED BY: TRIPP HYDE	

NEW 4000 kVA TRANSFORMER UNIT LAYOUT
N.T.S.

S2

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HENRY HOLBROOK HYDE III
No. 32042
LICENSED
PROFESSIONAL ENGINEER

SCALE: AS NOTED
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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

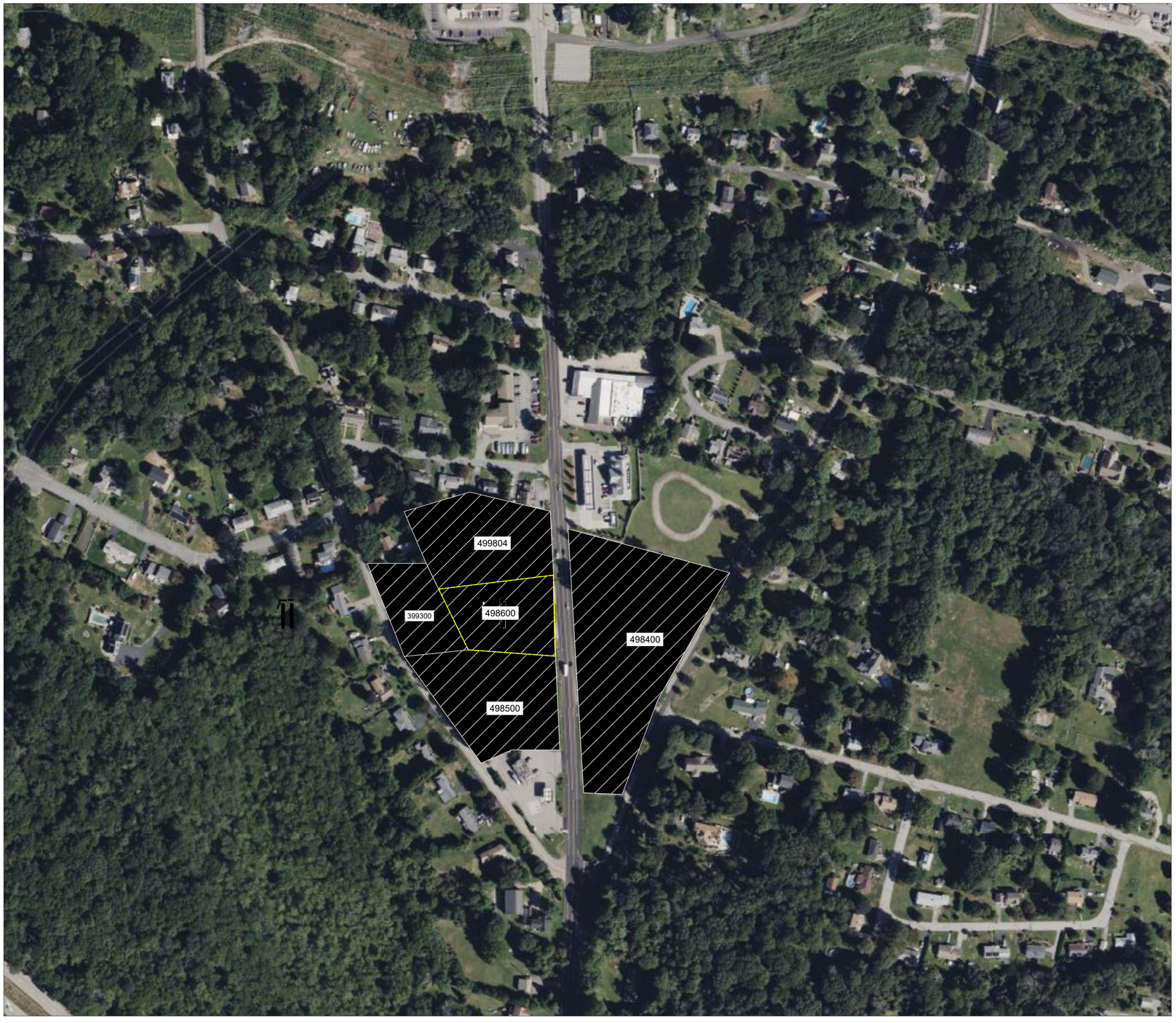
40 NORWICH RD,
WATERFORD CT 06375

SHEET TITLE
STRUCTURAL 02

DRAWN BY
TV
DATE
05/11/2023
CHECKED BY
TRIPP HYDE

SHEET #
S001

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

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RK	N	REDLINES	02/05/24
BY	REV	ISSUE	DATE

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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

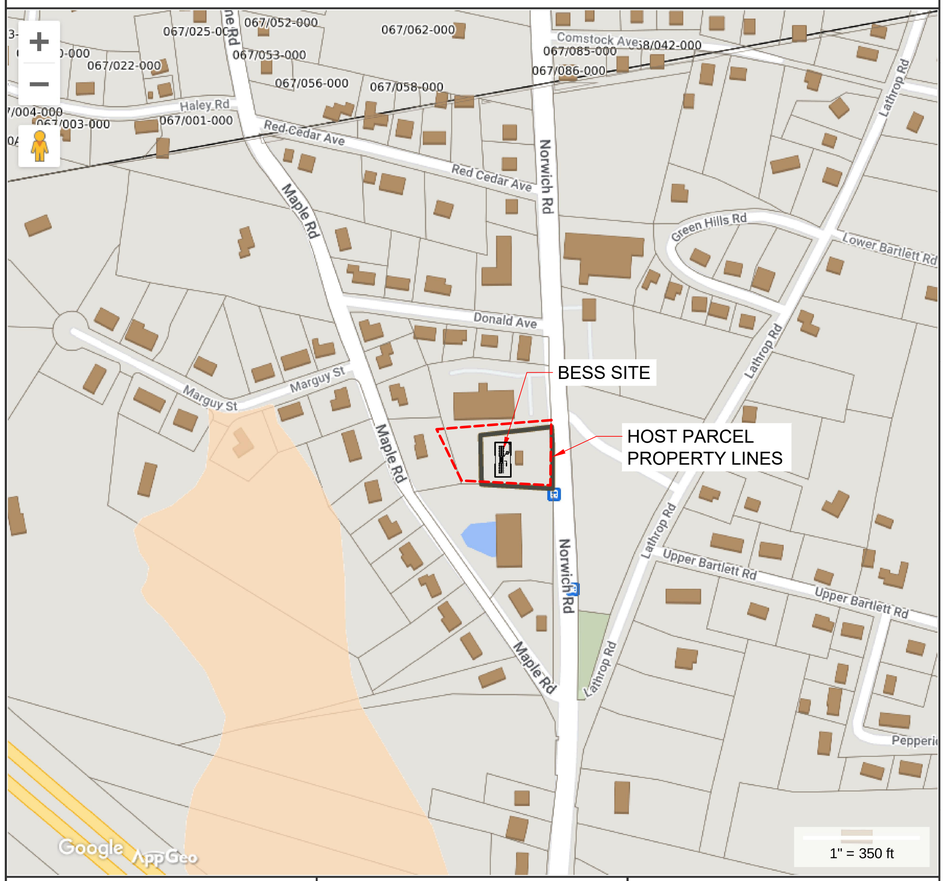
SHEET TITLE

SITE VICINITY MAP

DRAWN BY	SHEET #
TV	
DATE 05/11/2023	E500
CHECKED BY TRIPP HYDE	

SCCOG January 18, 2024

FEMA FLOOD ZONES



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

FEMA Flood Zones

- Cross-Sections
- Coastal Transects
- Limit of Moderate Wave Action
- Coastal Barrier Resources System Area
- Base Flood Elevations

Flood Hazard Zones

- 1% Annual Chance Flood Hazard
- Regulatory Floodway
- Special Floodway
- Area of Undetermined Flood Hazard
- 0.2% Annual Chance Flood Hazard
- Future Conditions 1% Annual Chance Flood
- Area with Reduced Risk Due to Levee

FEMA Map Service Center

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PROJECT NAME AND ADDRESS

Q CELLS – 40 NORWICH RD

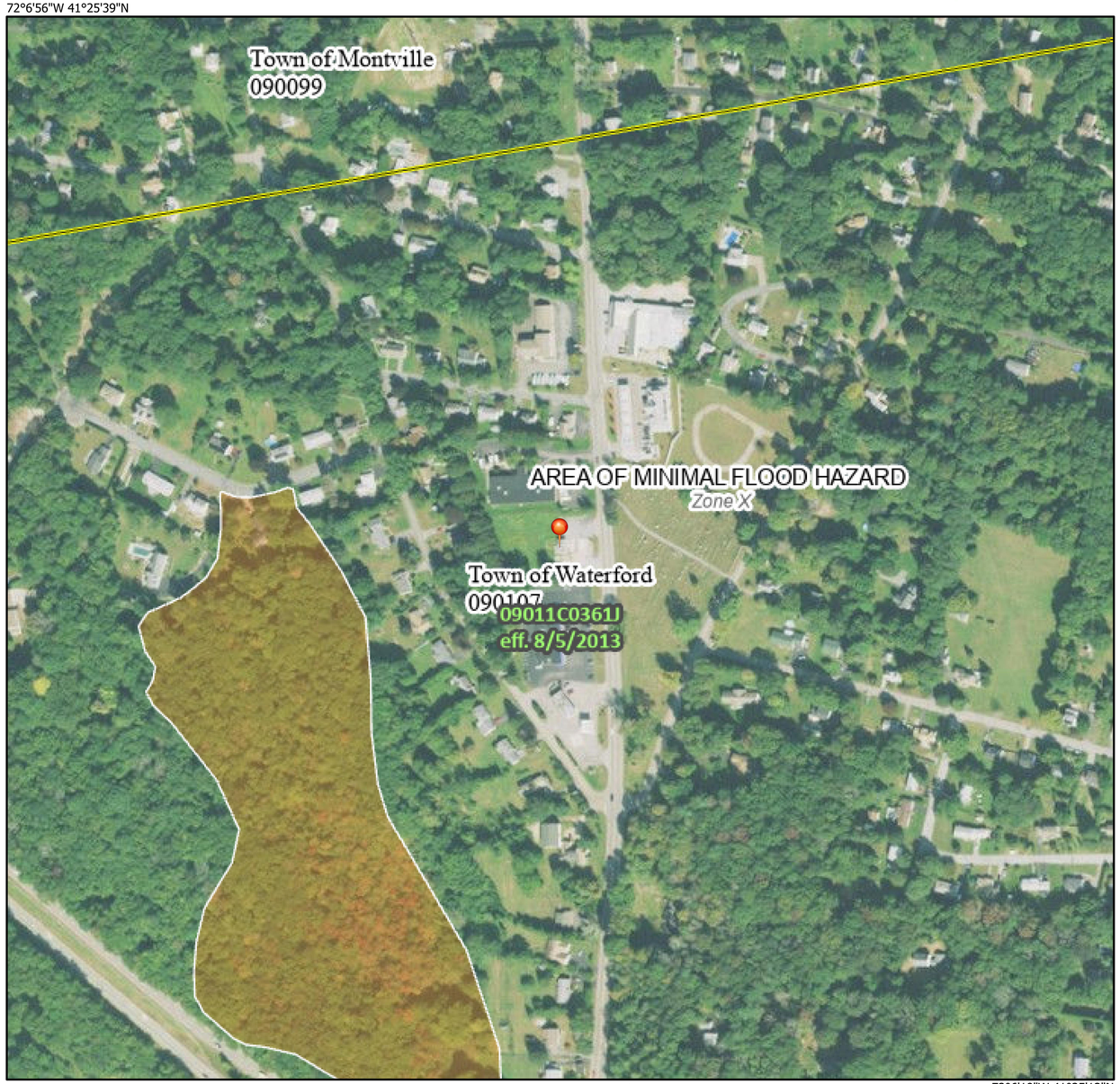
40 NORWICH RD,
WATERFORD CT 06375

SHEET TITLE

ENVIRONMENTAL RESOURCES 01

DRAWN BY	SHEET #
TV	E501
DATE: 05/11/2023	
CHECKED BY: TRIPP HYDE	

National Flood Hazard Layer FIRMette



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.

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FIRM NAME AND ADDRESS

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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

ENVIRONMENTAL RESOURCES 02

DRAWN BY: TV
DATE: 05/11/2023
CHECKED BY: TRIPP HYDE

SHEET #: E502

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.

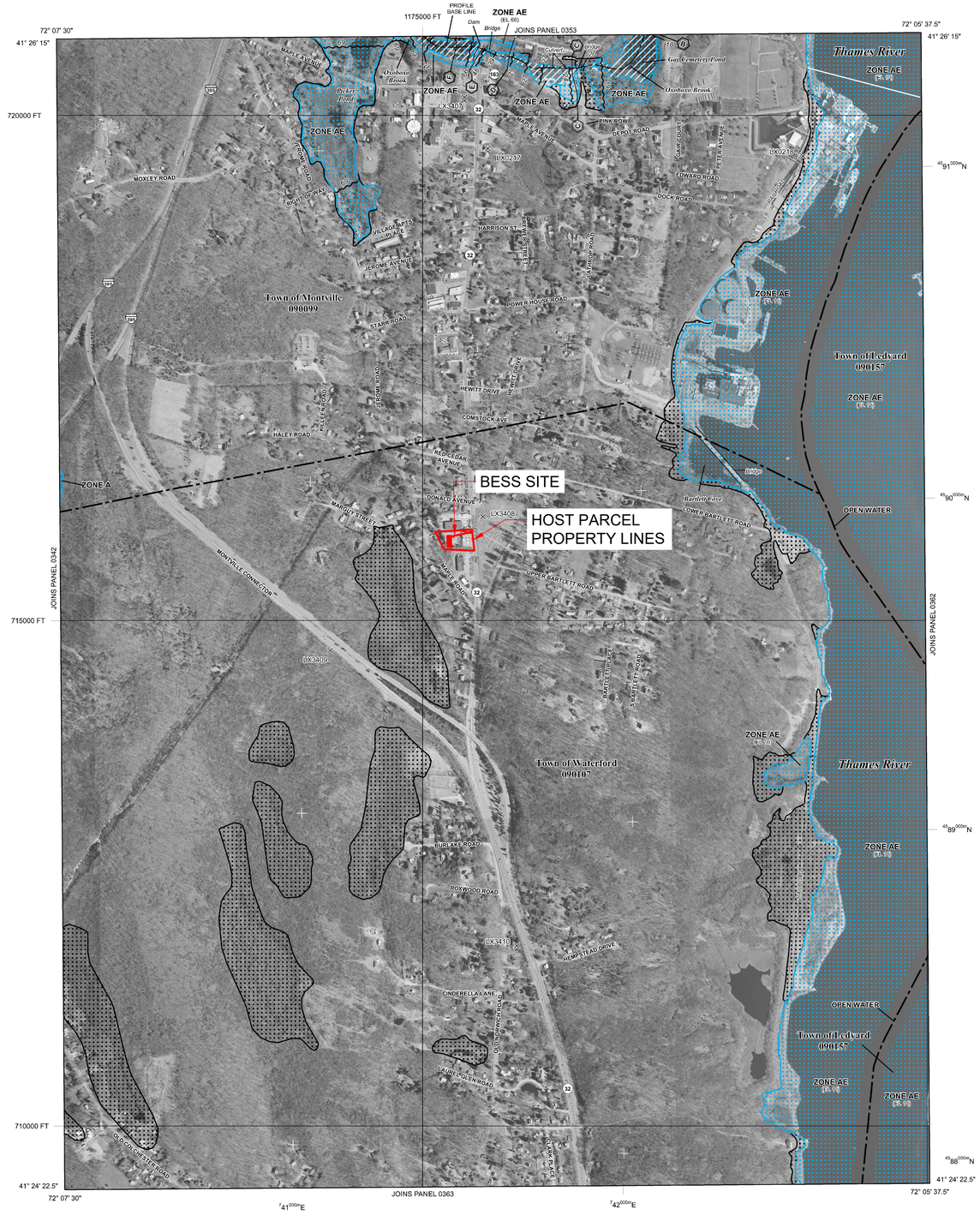
Corporate limits shown on this map are based on the best data available at the time of publication. Because changes due to annexations or de-annexations may have occurred after this map was published, map users should contact appropriate community officials to verify current corporate limit locations.

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 — Base Flood Elevation line and value; elevation in feet*
- (EL 987) — Base Flood Elevation value where uniform within zone; elevation in feet*

*Referenced to the North American Vertical Datum of 1988

- A — A — Cross section line
- 23 — 23 — 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
- $^{45}89^{000}$N — 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

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

SCALE: AS NOTED
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RK	N	REDLINES	02/05/24
BY	REV	ISSUE	DATE

FIRM NAME AND ADDRESS

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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

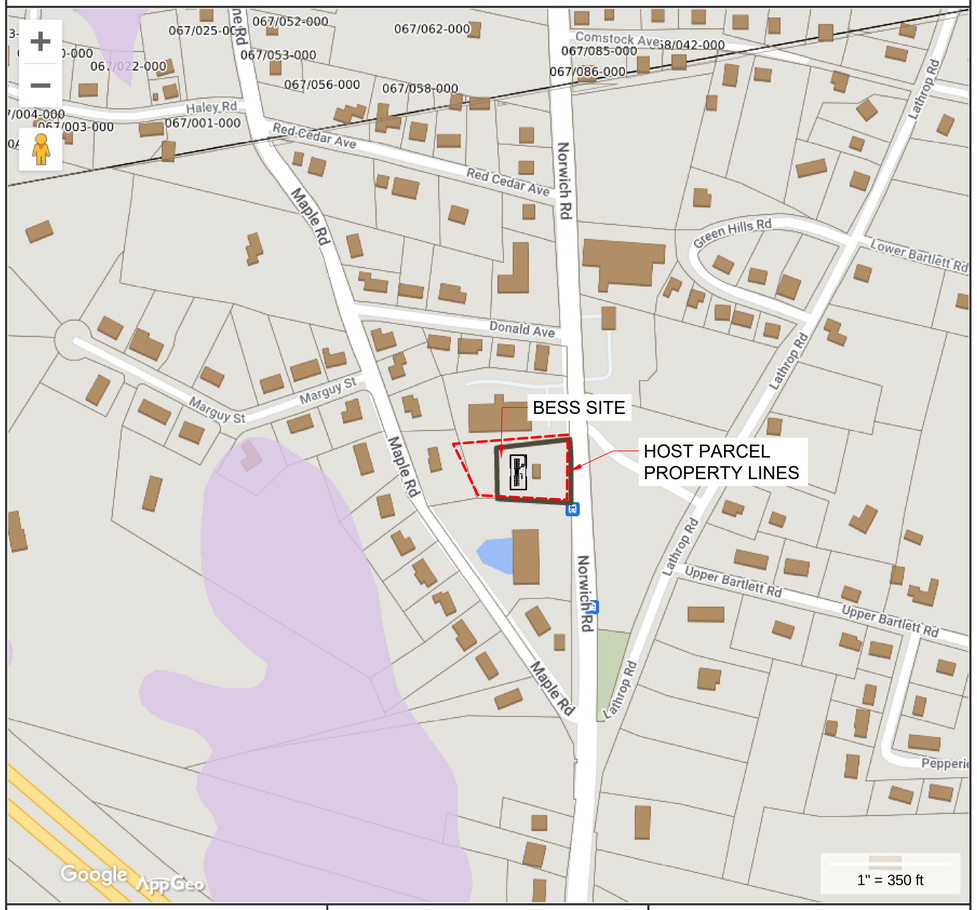
SHEET TITLE

ENVIRONMENTAL RESOURCES 03

DRAWN BY TV	SHEET # E503
DATE 05/11/2023	
CHECKED BY TRIPP HYDE	

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
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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

State Wetlands

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

CT DEEP

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Q CELLS – 40 NORWICH RD

40 NORWICH RD,
WATERFORD CT 06375

SHEET TITLE

ENVIRONMENTAL RESOURCES 04

DRAWN BY TV
DATE 05/11/2023
CHECKED BY TRIPP HYDE

SHEET # E504

Natural Diversity Data Base Areas

WATERFORD, CT

December 2023

State and Federal Listed Species

Critical Habitat

Town Boundary

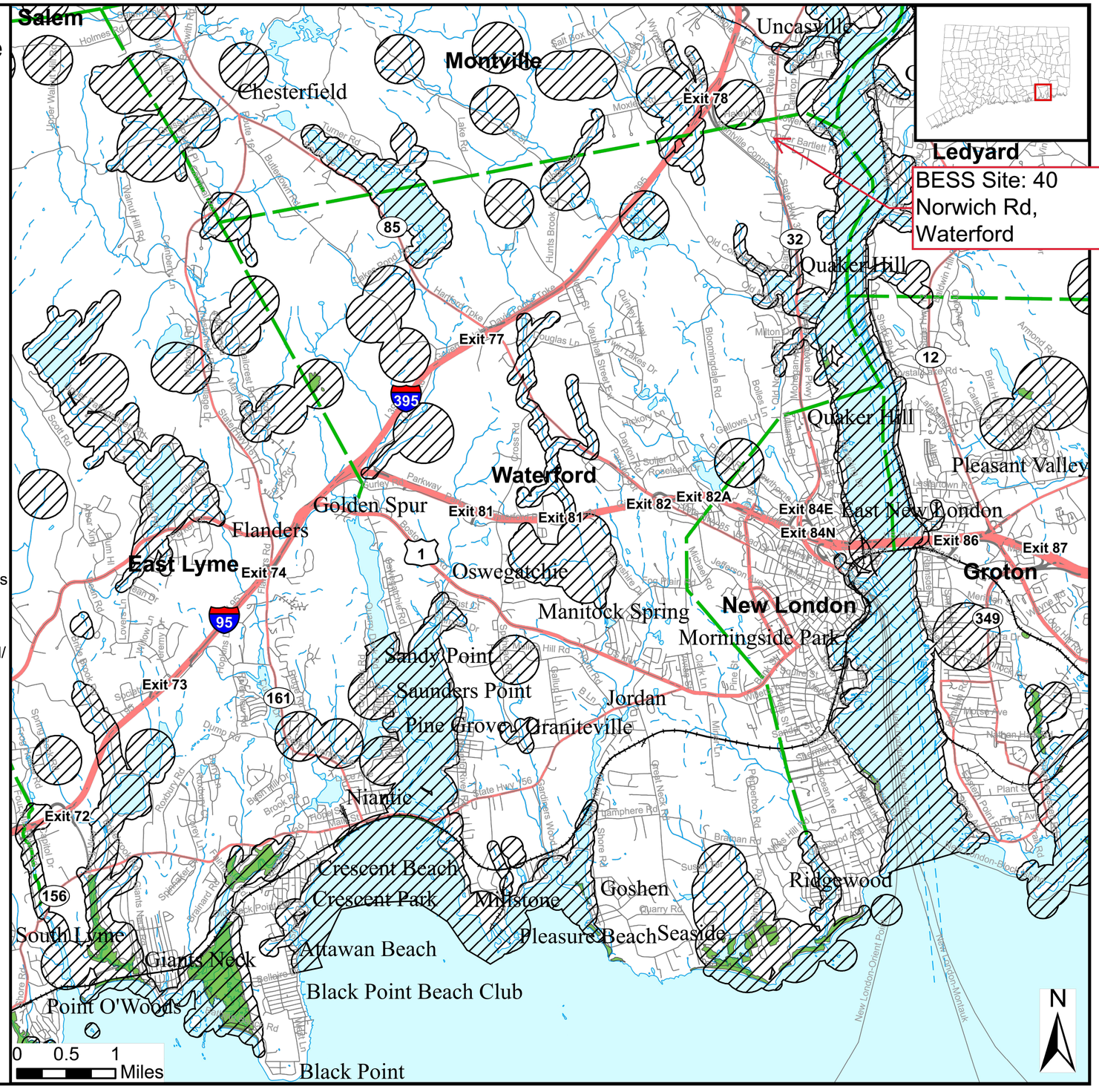
NOTE: This map shows known locations of State and Federal Listed Species and Critical Habitats. Information on listed species is collected and compiled by the Natural Diversity Data Base (NDDB) from a variety of data sources . Exact locations of species have been buffered to produce the generalized locations.

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



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

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

BY	REV	ISSUE	DATE
FK	T	REDLINES	09/12/24
RK	S	REDESIGN	06/06/24
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

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

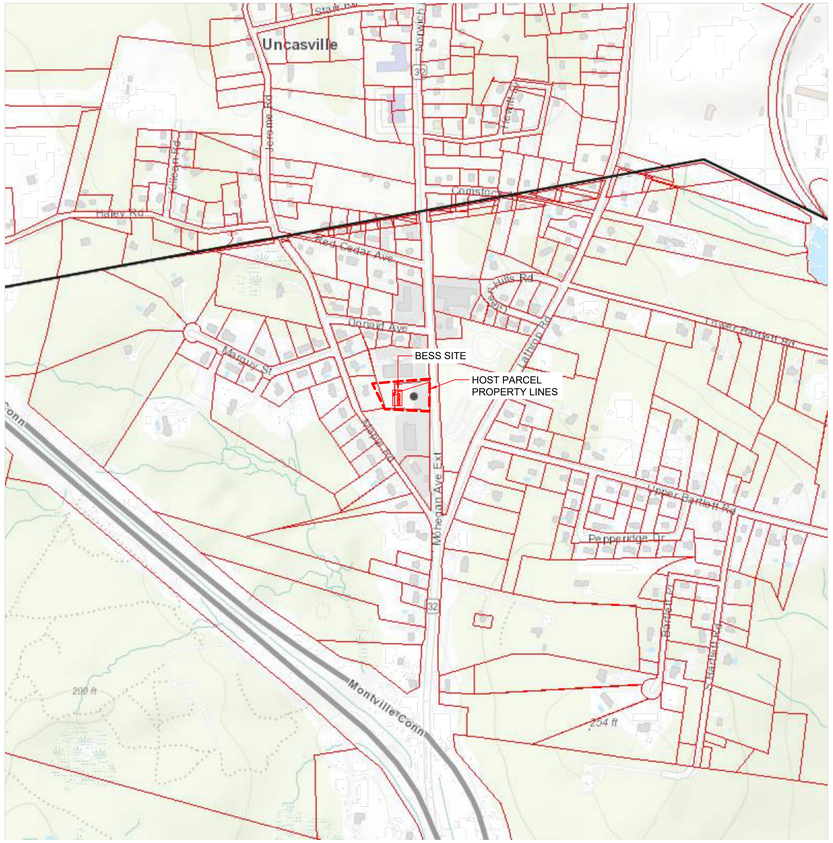
SHEET TITLE

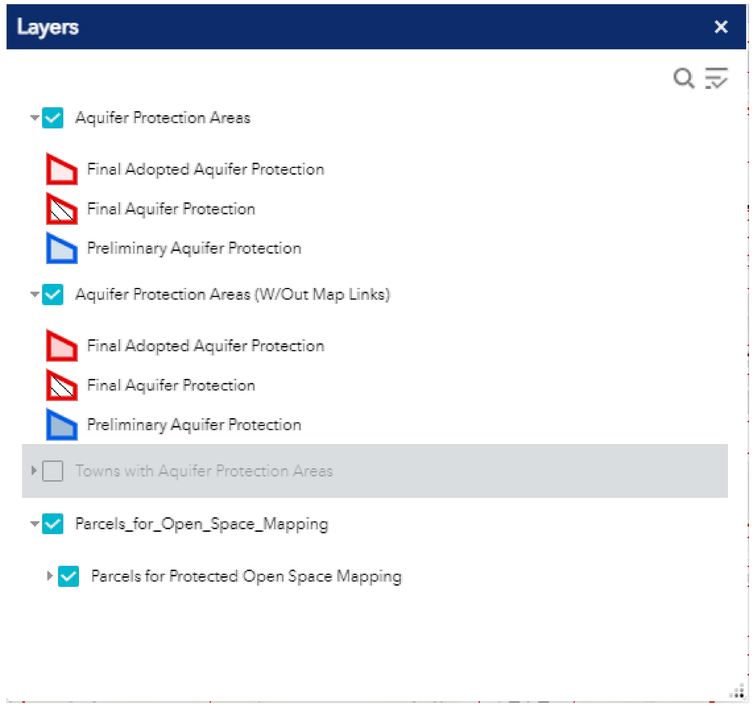
ENVIRONMENTAL RESOURCES 05

DRAWN BY TV
DATE 05/11/2023
CHECKED BY TRIPP HYDE

SHEET # E505

DEEP AQUIFER PROTECTION AREAS





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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

ENVIRONMENTAL RESOURCES 06

DRAWN BY
TV

DATE
05/11/2023

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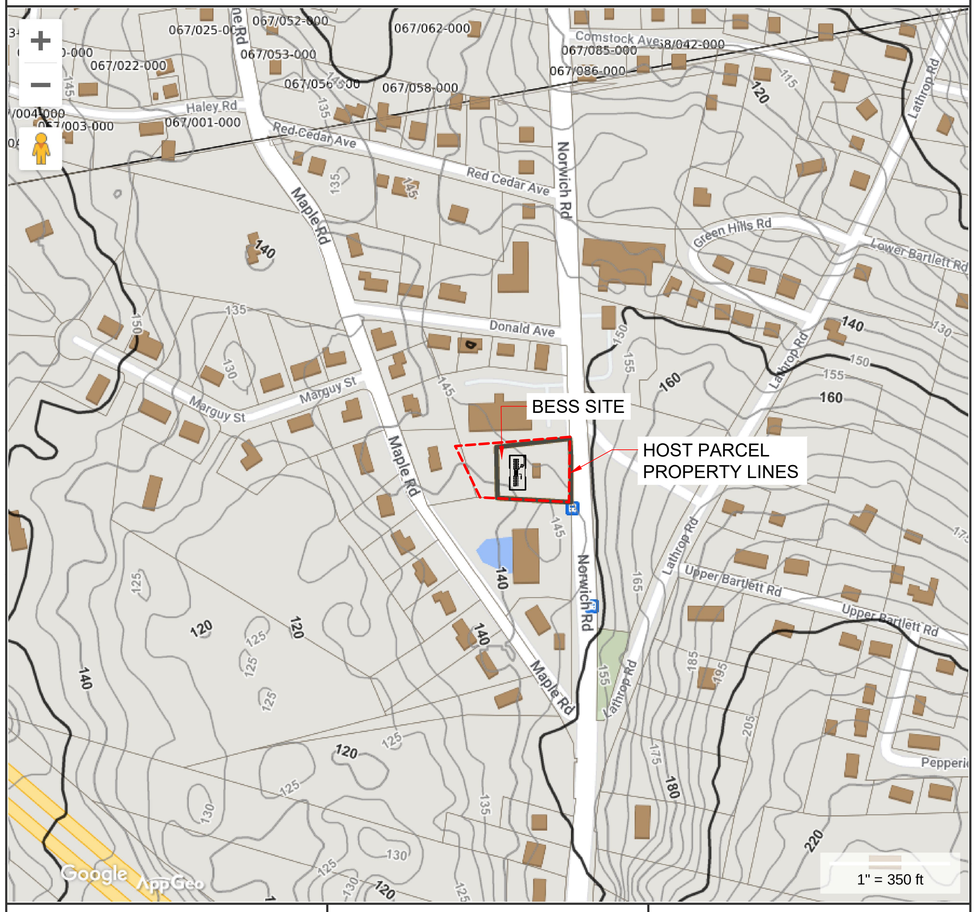
TRIPP HYDE

SHEET #
E506

SCCOG January 18, 2024

USGC



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

Topography

- Major Contours
- Minor Contours

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720-900-1009
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SHEET TITLE

ENVIRONMENTAL RESOURCES 07

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