



STATE OF CONNECTICUT
CONNECTICUT SITING COUNCIL

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VIA ELECTRONIC MAIL

February 21, 2023

Walter Bonola
Installation Project Manager
Doosan Fuel Cell America, Inc.
101 East River Drive
East Hartford, CT 06108
walter.bonola@doosan.com

RE: **PETITION NO. 1554** - HyAxiom, Inc. petition for a declaratory ruling, pursuant to Connecticut General Statutes §4-176 and §16-50k, for the proposed construction, maintenance and operation of a customer-side 1.84-megawatt fuel cell facility and associated equipment to be located near East Hall at the University of Hartford campus located at 200 Bloomfield Avenue, West Hartford (Parcel No. 2024) and 202 Bloomfield Avenue, Hartford (Parcel No. 102001001), Connecticut.

Dear Walter Bonola:

The Connecticut Siting Council (Council) requests your responses to the enclosed questions no later than March 7, 2023. Please submit an original and 15 copies to the Council's office and an electronic copy to siting.council@ct.gov. In accordance with the State Solid Waste Management Plan and in accordance with Section 16-50j-12 of the Regulations of Connecticut State Agencies, the Council requests all filings be submitted on recyclable paper, primarily regular weight white office paper. Please avoid using heavy stock paper, colored paper, and metal or plastic binders and separators. Fewer copies of bulk material may be provided as appropriate.

Please be advised that the original and 15 copies are required to be submitted to the Council's office on or before the March 7, 2023 deadline.

Copies of your responses are required to be provided to all parties and intervenors listed in the service list, which can be found on the Council's website under the "Pending Matters" link.

Any request for an extension of time to submit responses to interrogatories shall be submitted to the Council in writing pursuant to §16-50j-22a of the Regulations of Connecticut State Agencies.

Sincerely,

A handwritten signature in cursive script, appearing to read "Melanie Bachman".

Melanie Bachman
Executive Director

MB/MP

Petition No. 1554
HyAxiom, Inc.
200 Bloomfield Avenue, West Hartford; and
202 Bloomfield Avenue, Hartford, Connecticut
Interrogatories

Notice

1. Referencing page 13 of the Petition, Section IX, when did HyAxiom, Inc. (HyAxiom) share plans for the project with what local officials?
- R1 HyAxiom has shared the drawings for this project administratively with Wetlands and zoning officials for the City of Hartford in 2021/2022. Plans were also made public during the easement negotiations between CNG and the City of Hartford.
2. Has the City of Hartford (City), Town of West Hartford (Town) and/or any abutters provided comments to HyAxiom since the Petition filing? If so, please summarize the comments and how these comments were addressed.
- R2 HyAxiom has received no responses to the notification letter sent to abutters and officials. University of Hartford has also sent abutters letters independent of those required by the petition and has not received any responses either.

Project Development

3. Is the project, or any portion of the project, proposed to be undertaken by state departments, institutions or agencies, or to be funded in whole or in part by the state through any contract or grant?
- R3 The University has not received any funding from any State agency or department for the fuel cell project. There is however an LREC in place which is administered by Eversource.
4. Provide a map of the host property including the location of the proposed facility and the nearest municipal boundary.
- R4 Reference Attachment #1
5. Provide an electronic copy of Drawings GA1.0, GA1.1 and E1.0.
- R5 See attachments #2, 2a, 2b

Proposed Site

6. What is the distance and direction of the nearest off-campus residence from the proposed fuel cell facility?
- R6 The nearest off campus residence is 207 Bloomfield Ave. Approx. 1500 LF to the West of the facility. (referenced in Attachment #1)
7. What is the distance and direction of the nearest on-campus building from the proposed fuel cell facility? What is that building used for?

- R7 East Hall which contains classrooms is the closest building to the facility some 121' to the West.
8. How many acres is the parcel that would host the fuel cell facility?
- R8 The campus at 200 Bloomfield Ave spans some 350 acres.
9. Referencing page 2 of the Petition, Section II, HyAxiom notes that the proposed fence would be 6 feet tall. Drawing GA1.0 depicts an 8-foot tall fence. Explain.
- R9 The 6 foot fence reference was a typographical error. The proposed fence will by 8 foot high black vinyl coated chain link with privacy slats.
10. Referencing Drawing GA1.0, would the 9-foot wide ramp also be made of concrete to match the concrete pad?
- R10 All of the proposed pavement for the project will be concrete including the ramp. Any disturbed asphalt will be patched around the perimeter of the FC facility.

Energy Output

11. Could the facility continue operating during a power outage and provide seamless uninterruptable power?
- R11 As presently designed the facility will not provide back up power to the University. There are two 3 Megawatt generators already installed to provide back up power.
12. Would the proposed fuel cell provide baseload or backup power (or both) for University of Hartford? What percentage of the campus' electrical load would the proposed fuel cell facility provide?
- R12 The fuel cell facility will be connected in parallel with the grid. The facility will provide Approx. 60% of the total electrical load for the University.

Site Components/ Interconnection

13. Is the project interconnection required to be reviewed by ISO-NE?
- R13 Yes. The interconnection is presently being studied by Eversource for ISO-NE.
14. What percentage, if any, of the building or campus thermal load would be served by waste heat from the fuel cell facility? If none, would outdoor cooling modules be required to neutralize any waste heat?
- R14 As presently designed waste heat from the facility will not be utilized but the facility could be retrofitted to utilize up to 5mmbtu/hr. of waste heat in the future.
15. Referencing Drawing GA1.0 of the Petition, left side, where would the proposed water and electrical connection trenches extend to? Provide Drawing GA1.1 to fully depict the utility connection routes.
- R15 The make up water line is proposed to be connected inside East Hall at the North East corner of the building. The electric trench follows the stair/sidewalk up the grade to the UHart switch gear in the substation. Reference Attachment #2a for sheet GA1.1.

16. Referencing Petition, page 1, would any modifications to University of Hartford's substation be required to interconnect the fuel cell facility? Explain. What are the line voltages of the substation and the proposed fuel cell interconnection?

R16 A new medium voltage circuit breaker will be installed in the University's existing switch gear and will serve as the electrical point of connection at 4800 volts. The two HelCo feeders to the substation are 25kv.

Public Safety

17. Does the Petitioner intend to provide the Fuel Cell Emergency Response Guide above-referenced document to local emergency responders and provide on-site training, if requested?

R17 HyAxiom routinely invites all local first responders to a training session on site. Because the university property spans both Hartford and West Hartford both Municipalities will be invited along with the University Security force and Facility management personnel.

18. Which National Fire Protection Association (NFPA) or other codes and standards apply to fuel cell construction, installation and/or modifications?

R18 HyAxiom Purecell Model 400 fuel cells are manufactured under CSA certification and are installed in accordance with NFPA 853, local and state building codes and the IBC.

19. Would the facility be remotely monitored on a 24/7 basis, and could the facility be shut down remotely in the event of an emergency?

R19 Yes. The entire HYAxiom fleet is monitored 24/7 and can be fully remotely operated including shutdowns and startups.

Environmental

20. Referencing Petition, page 12, and regarding flood elevation at the proposed facility location:
a) The 100-year flood elevation (i.e. base flood elevation) is 37 feet. Does the 40 feet represent the approximate elevation of the top of concrete for the fuel cells and equipment?

R20a Yes. All equipment will bear at or above elevation 40'.0".

b) What is the 500-year flood elevation?

R20b 38.0' NGVD (based on Connecticut River Flood Elevation, Flood of 1936)

c) What is the additional cost to install the facility one foot above the 500 year flood elevation?

R20c The present design already exceeds the 500 year flood stage by 2'.

21. Would erosion and sedimentation controls be installed consistent with the *2002 Connecticut Guidelines for Erosion and Sediment Control*?

R21 Yes. Although the total disturbed area will be less than one acre all prudent measures to prevent Siltation will be implemented and maintained until the site is stabilized.

22. Would construction of the proposed facility involve disturbance of one or more total acres of land area? Estimate the total disturbance area in square feet.

R22 No. The total area of disturbance will be approximately 12,000 sf.

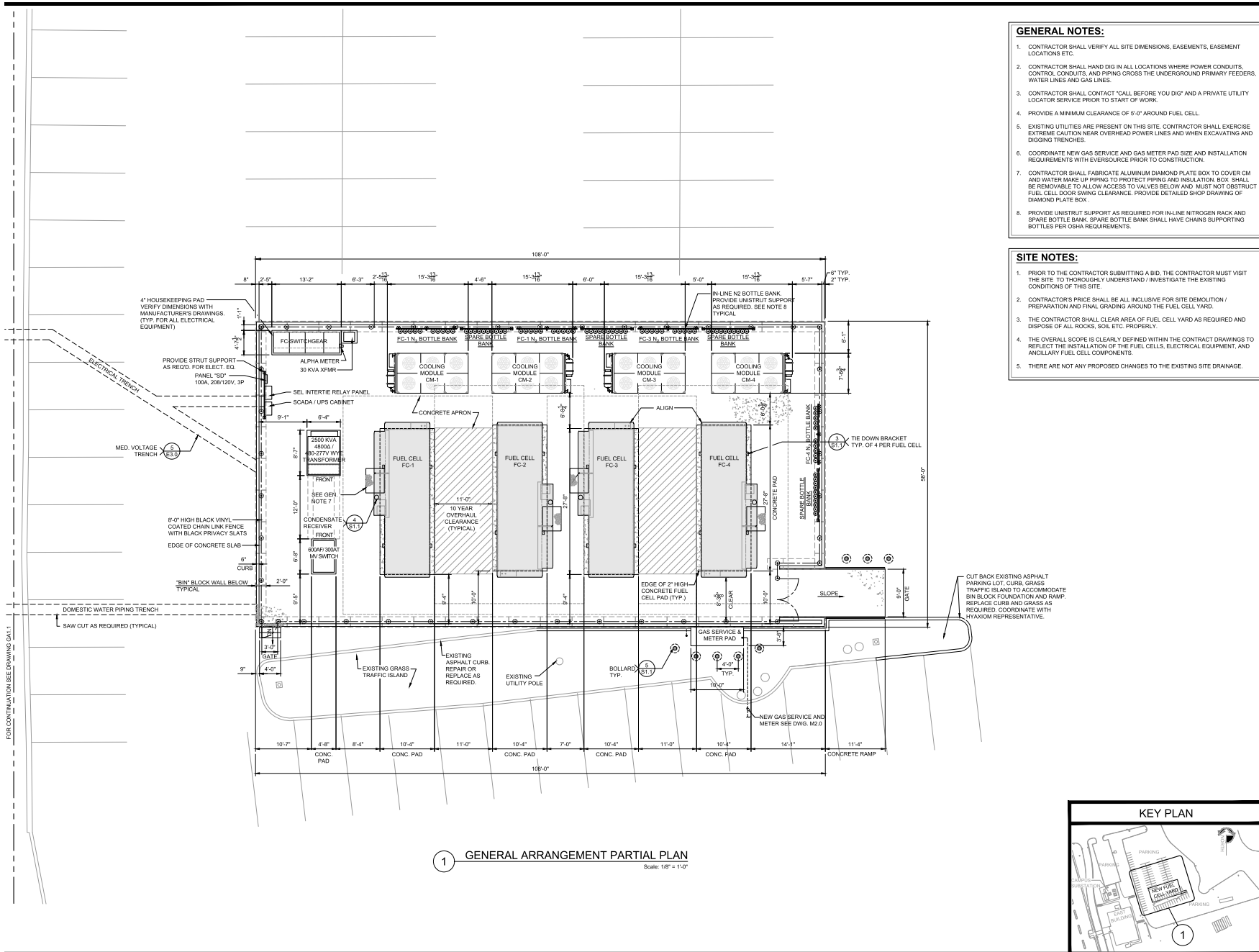
23. Referencing Petition, Attachment #18, during overhaul of the desulfurizer, how is it removed, transported, stored and disposed? Are any components reused for other products or purposes?

R23 The desulphurization vessel is sealed and mechanically removed from the fuel cell. Clean Harbors transports the vessel for recycling and disposal and the vessel is recycled as scrap metal.

Attachment #1



Attachment 2



Rev.	Date	Description
C	10/06/22	REVISED FOR CONSTRUCTION
B	06/06/22	ISSUED FOR CONSTRUCTION
A	07/07/22	PRELIMINARY ISSUE

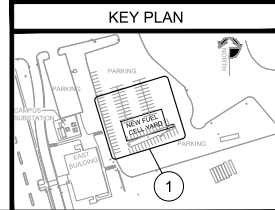


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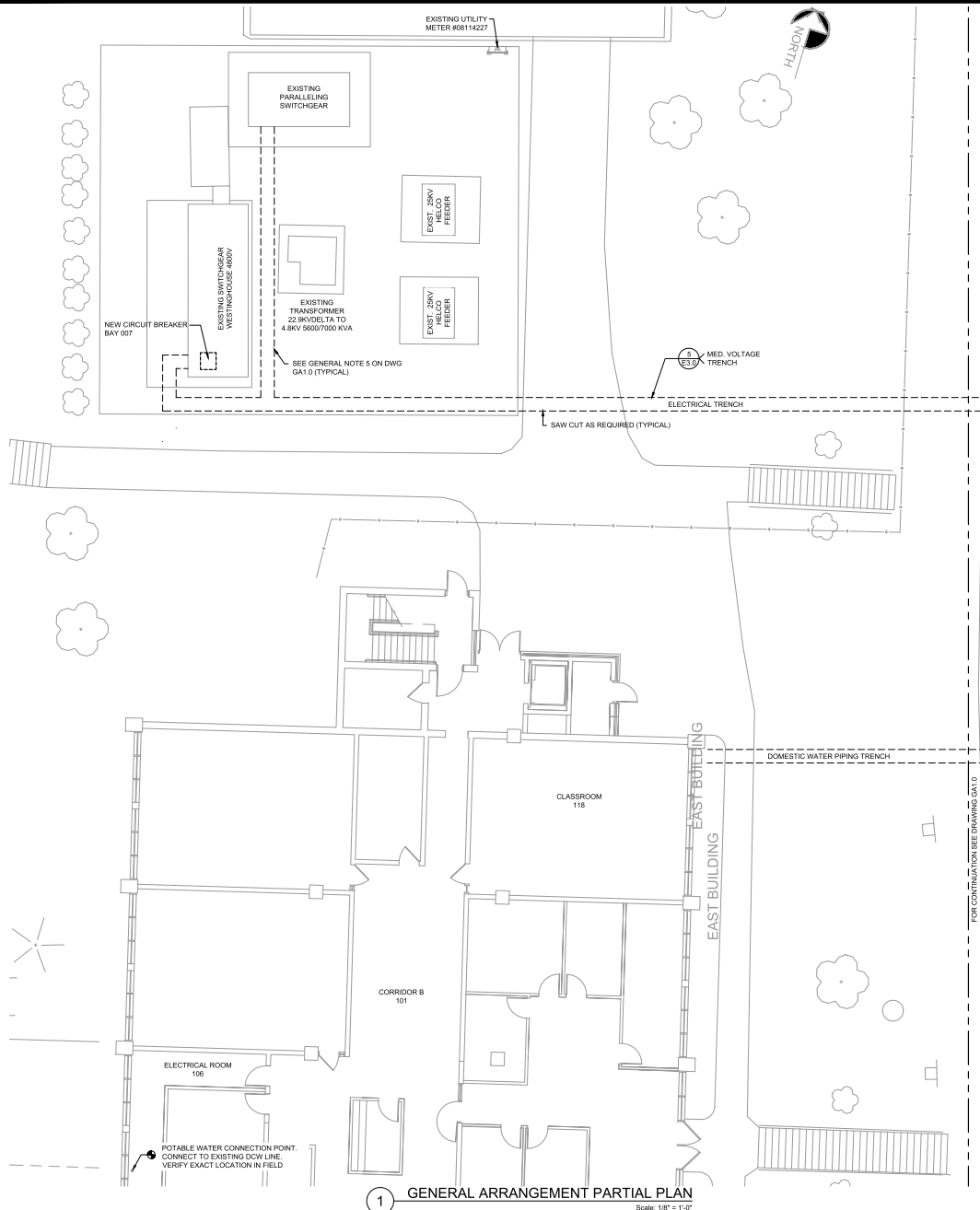
UNIVERSITY OF HARTFORD
200 BLOOMFIELD AVE, WEST HARTFORD CT
FUEL CELL INSTALLATION
GENERAL ARRANGEMENT

Project No.:	Drawn By:
Date:	Design By:
Scale:	Check By:

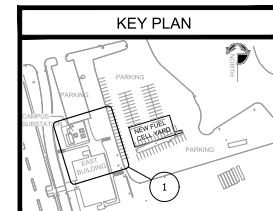
Drawing No.: **GA1.0**



Attachment 2a



1 GENERAL ARRANGEMENT PARTIAL PLAN
Scale: 1/8" = 1'-0"



Rev.	Date	Description
C	10/06/22	PREPARED FOR CONSTRUCTION
B	08/08/22	ISSUED FOR CONSTRUCTION
A	07/07/22	PRELIMINARY ISSUE



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UNIVERSITY OF HARTFORD
200 BLOOMFIELD AVE, WEST HARTFORD CT
FUEL CELL INSTALLATION
GENERAL ARRANGEMENT

Project No.:	Drawn By: KFH
Date: 07/08/22	Design By: DSF
Scale: N.T.S.	Check By: DSF

Drawing No.:
GA1.1

Attachment 2b

GENERAL NOTES

1. PROVIDE SIGNAGE AS REQUIRED BY CODE AND AS INDICATED ON DWG E2.0.
2. CONSULT DOOSAN MODEL 400 INSTALLATION DESIGN GUIDE (FUEL CELL POWER PLANT) AND STANDARD INSTALLATION DRAWINGS FOR TECHNICAL REFERENCE.

TABLE A - SEL547 RELAY
IEEE1547 / UL 1741SA GRID PROTECTION PARAMETER SETTINGS
 THE REQUIRED GRID PROTECTION FUNCTIONS AND SETTINGS PER UL1741SA/IEEE1547 RESIDE IN THE INTERNAL SEL547 RELAY WITH SETTING NAMES AS SHOWN BELOW.

SETTING NAME	DESCRIPTION	GROUP 1 - "SUPPORT" 60 HZ SETTING 480V 1x RATIO 2.31 : 1	VOLTAGE P.U.	ANALOG DEVICE NUMBER
27P1P	UNDER VOLTAGE LEVEL 88%(V)	106	0.88	27
27P2P	MID UNDER VOLTAGE	106	0.88	
27P3P	UNDER VOLTAGE LEVEL 50% (V)	60	0.50	27
58P1P	OVER VOLTAGE LEVEL 110% (V)	132	1.1	58
58P2P	OVER VOLTAGE LEVEL 120% (V)	144	1.2	58
81D1P	FAST UNDER FREQUENCY LEVEL (Hz)	55.5		#10
81D2P	SLOW UNDER FREQUENCY LEVEL (Hz)	55.5		#10
81D3P	SLOW OVER FREQUENCY LEVEL (Hz)	61.2		#10
81D4P	FAST OVER FREQUENCY LEVEL (Hz)	62		#10
SV1PU	RECONNECTION TIME DELAY (CYCLES)	18,000		
SV2PU	FAST OVER FREQUENCY CLEARING TIME (CYCLES)	"5"		
SV3PU	SLOW OVER FREQUENCY CLEARING TIME (CYCLES)	18,000		
SV4PU	FAST UNDER FREQUENCY CLEARING TIME (CYCLES)	18,000		
SV5PU	FAST UNDER FREQUENCY CLEARING TIME (CYCLES)	"5"		
SV6PU	OVER VOLTAGE 120% CLEARING TIME (CYCLES)	"5"		
SV7PU	OVER VOLTAGE 110% CLEARING TIME (CYCLES)	120		
SV8PU	UNDER VOLTAGE 88% CLEARING TIME (CYCLES)	120		
SV9PU	MID UNDER VOLTAGE 88% CLEARING TIME (CYCLES)	120		
SV10PU	UNDER VOLTAGE 50% CLEARING TIME (CYCLES)	66		
SV12PU	DELAY BETWEEN GRID OK STATUS AND BREAKER OPENING (CYCLES)	0		

* NOTE 1: THE ACTUAL (TOTAL) PROTECTION CLEARING TIME EQUALS THE SUM OF THE PARAMETER CLEARING TIME SETTING IN THE TABLE PLUS 5 CYCLE BREAKER'S TRIPPING TIME. FOR EXAMPLE ACTUAL (TOTAL) FAST OVER CURRENT CLEARING TIME EQUALS PARAMETER SV6PU 5 CYCLES SETTING PLUS THE 5 CYCLE BREAKER CLEARING TIME FOR A TOTAL CLEARING TIME OF 10 CYCLES (0.18 SEC).
 NOTE 2: GROUP 1 SETTINGS ARE FOR THE UL1741SA "GRID SUPPORT" AND GROUP 2 SETTINGS ARE FOR IEEE1547-2003 NON-SA SETTINGS - USE GROUP 1 FOR UL1741SA SITES.
 NOTE 3: FOR DOOSAN ON-SITE PERSON - GROUP 1 OR GROUP 2 IS SET BY GROUP 9 PARAMETER "INVERTER MODE".
 GROUP 1 = GRID SUPPORT (INVERTER MODE = 0 = FALSE) - UL1741SA

GROUNDING MODES:

1. THE FUEL CELL GROUND LUG INSIDE DISCONNECT SWITCH MD-1 SHALL BE CONNECTED TO AN EXTERNAL #10 COPPER EQUIPMENT GROUNDING CONDUCTOR FROM MAIN SWITCHBOARD'S GROUNDING CONDUCTOR PER NEC ART 692.44. IN ORDER TO PROVIDE THE REQUIRED SINGLE POINT GROUND PER NEC ART 250.24.8.D.
2. NOTE THAT THE FUEL CELL GROUND LUG INSIDE MD-1 IS BONDED TO ALL METALLIC NON-CURRENT CARRYING METAL PARTS BOTH INSIDE THE FUEL CELL AND ALSO AT EXTERNAL FUEL CELL ASSEMBLIES SUCH AS THE COOLING MODULE. SO ALL FUEL CELL PARTS ARE CONNECTED TO THE EQUIPMENT GROUNDING CONDUCTOR AS REQUIRED BY ART. 250.110.

CERTIFICATION:

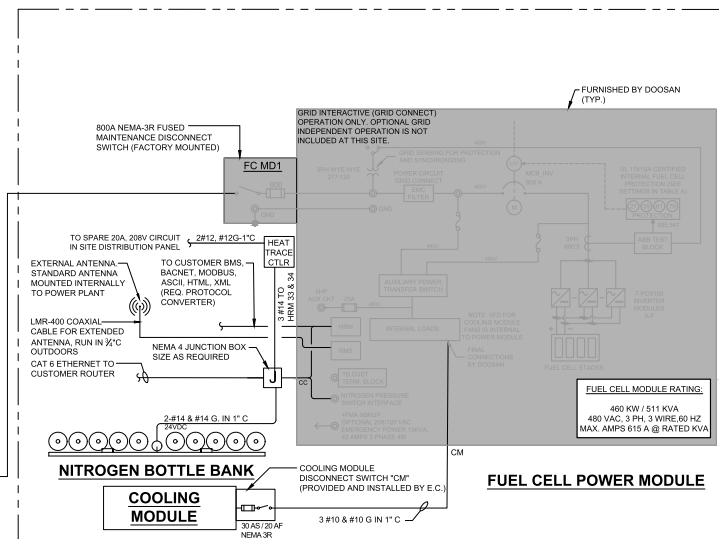
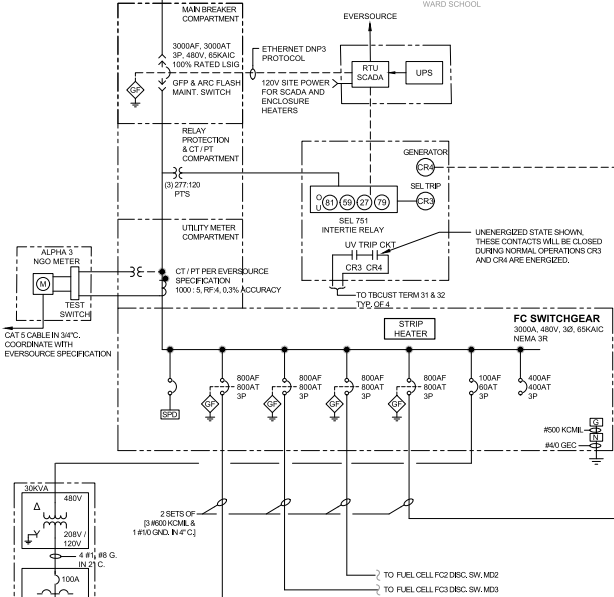
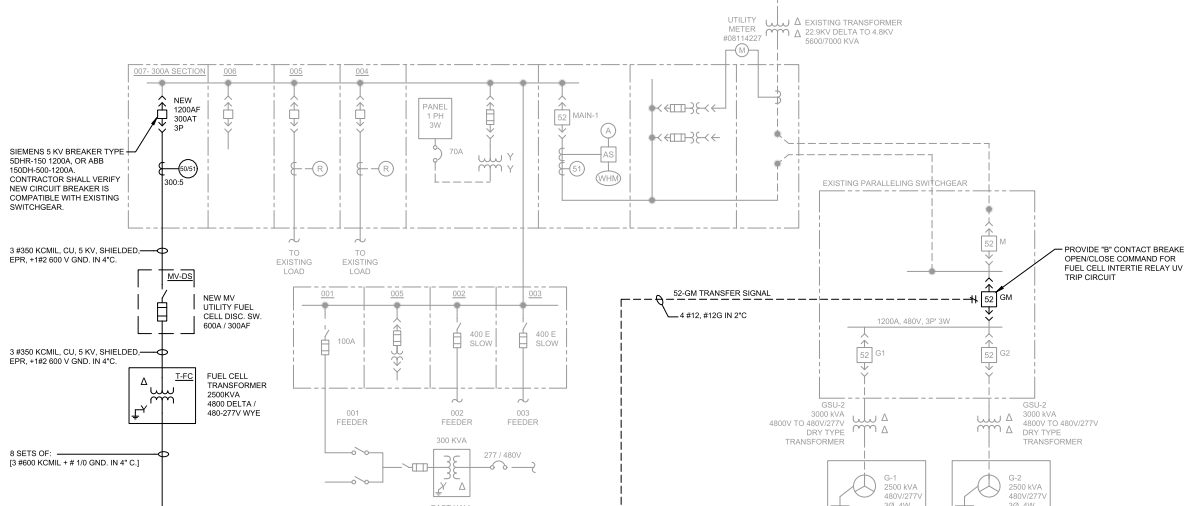
- POWER PLANT IS CERTIFIED TO: ANSICSA AMERICA FC 1 - 2014 (FORMALLY ANSI Z37.1) "AMERICAN NATIONAL STANDARD FOR STATIONARY FUEL CELL POWER SYSTEM INCLUDING:
- A. UL1741SA "INVERTERS, CONVERTERS, CONTROLLERS AND INTERCONNECTION SYSTEM EQUIPMENT FOR USE WITH DISTRIBUTED ENERGY RESOURCES".
 - B. IEEE 1547 "STANDARD FOR INTERCONNECTING DISTRIBUTED RESOURCES WITH ELECTRIC POWER SYSTEMS".
 - C. NFPA TO NATIONAL ELECTRIC CODE (FOR INTERFACES TO CUSTOMER WIRING AND WIRING BETWEEN MODULES).

POWER PLANT SPECIFICATIONS

RATED POWER OUTPUT	460 kW / 511 kVA
OUTPUT TYPE	480VAC, 60 HZ, 3 PHASE, 3 WIRE
RATED OUTPUT CURRENT	615 AMPS AT RATED KVA

LEGEND

- LIGHT INDICATES EXISTING
- BOLD INDICATES NEW
- GC GRID CONNECT
- GI GRID INDEPENDENT



TYPICAL FOR (4) FOUR MODEL 400 PureCell SYSTEM POWER PLANTS

<p>ICDS Innovative Construction & Design Solutions, LLC</p>	<p>UNIVERSITY OF HARTFORD 200 BLOOMFIELD AVE, WEST HARTFORD CT FUEL CELL INSTALLATION</p>
<p>10 White Wood Lane N. Branford, CT 06471 Phone: (203) 458-8506 Fax: (203) 458-8507</p>	<p>ELECTRICAL ONE-LINE DIAGRAM</p>
<p>Project No.: _____ Date: 07/08/22 Scale: N.T.S. Drawing No.: _____</p>	<p>Drawn By: KFH Design By: DSF Check By: DSF</p>
E1.0	