Bloomenergy

October 11, 2019

Melanie Bachman, Esq.
Executive Director
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051

RE: Petition No. 1278, Petition of Bloom Energy Corporation, as an Agent for Medtronic, Inc., for Approval of a Modification to the Approved Fuel Cell Facility at the Medtronic Campus, North Haven, Connecticut

Dear Attorney Bachman:

We are submitting an original and fifteen (15) copies of the above-captioned Petition for Amendment.

In the Petition, Bloom Energy Corporation ("Bloom") requests the Connecticut Siting Council approve a modification of the existing Facility at the Medtronic Campus in North Haven, Connecticut. The proposed modification consists of the construction and operation of two new 2000-kilowatt fuel cells and associated equipment. Electricity generated by the Facility will benefit Medtronic's operations, and any excess electricity will be exported to the electric grid. The existing Facility is fueled natural gas, and the modifications also will be.

Should you have any questions, concerns, or require additional information, please contact me at (860) 839-8373.

Sincerely,
Bloom Energy

Justin Adams
justin.adams@bloomenergy.com
(860) 839-8373

Enclosure

Bloomenergy

STATE OF CONNECTICUT
CONNECTICUT SITING COUNCIL

PETITION OF BLOOM ENERGY CORPORATION, AS AN AGENT FOR MEDTRONIC, INC., FOR APPROVAL OF A MODIFICATION TO THE APPROVED FUEL CELL FACILITY AT THE MEDTRONIC CAMPUS, NORTH HAVEN, CT	)	PETITION NO. 1278
	)	
	)	
	)	
	)	
	)	OCTOBER 11, 2019

PETITION OF BLOOM ENERGY CORPORATION, AS AN AGENT FOR MEDTRONIC, INC., FOR AMENDMENT

Bloom Energy Corporation ("Bloom") hereby requests an amendment to the Declaratory Ruling in Petition No. 1278, issued by the Connecticut Siting Council ("Council"). The amendment is requested to approve the construction, maintenance and operation of two additional energy server installations on the Medtronic Campus, which consists of several properties along McDermott Road, Quinnipiac Avenue and Middletown Avenue in North Haven, Connecticut (the "Site"). As described below and in the accompanying exhibits, the proposed additions will not increase the adverse environmental effect of the Facility.

I. BACKGROUND

On February 16, 2017, the Council ruled that the construction, maintenance and operation of two fuel cell facilities totaling 500 kilowatts proposed by Bloom, to be located at 195 McDermott Road and 20 Middletown Avenue within the Site (the "Facility"), would not have a substantial environmental effect and, pursuant to Connecticut General Statutes ("C.G.S.") § 16-50k, would not require a Certificate of Environmental Compatibility and Public Need.

Construction of the Facility was completed in December 2017.

II. PROPOSAL

After consultation and based on performance of the existing Facility, Bloom and Medtronic have determined that it would be beneficial to increase the fuel cell capacity at the Site in order to advance Medtronic's sustainability goals and improve reliability of electrical systems and equipment. As a result, Bloom is proposing to modify the Facility by undertaking an initial fuel cell installation at 86 Middletown Road and a second fuel cell installation at 195 McDermott Road ("Phase II"). Each of the new installations will provide 2000 kilowatts (kW) (net) of power.

The existing energy servers approved in Petition No. 1278 will remain in place and function in conjunction with the proposed Phase II modifications.

The existing Facility contributes to meeting the State's Renewable Portfolio Standard as a zero emission Class I renewable energy source.[1] It is a "customer-side distributed resources" Facility, as defined in C.G.S. § 16-1(a)(40). The proposed Phase II will increase the generation capacity of the Facility, and conforms to the State's policy of developing and utilizing renewable energy resources "to the maximum practicable extent."

III. COMMUNICATIONS

Correspondence and other communication regarding this petition should be directed to the following parties:

[1] Bloom's Energy Server qualifies as a Class I renewable energy source fuel cell as defined in Conn. Gen. Stat. §16-1(a)(20)(A). Decision, Docket No. 12-02-09, September 12, 2012.

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IV. DISCUSSION

A. Project Description

Bloom is proposing the installation of two new fuel cells at the Site, bringing the total number of fuel cells in the Facility to four.

The first new fuel cell will be the second fuel cell installation at 195 McDermott Road ("Loc 1"). Loc 1 will be located behind the building, to the south of the existing Facility, and will be interconnected to an existing electrical connection within an external enclosure. The Energy Servers and associated equipment will be installed on a new asphalt surface within a previously cleared area.

The second will be an installation at 86 Middletown Avenue ("Loc 2). It will be located in the rear parking lot of that building, near the northern property boundary. Loc 2 will be interconnected to an electrical switchboard within a nearby existing electrical utility building.

Additional site details are shown on Exhibit 2.

Each of the installations has been sized to handle the average daily baseload at each interconnection location. Exhibit 3. Electricity generated by the expanded Facility will be consumed primarily at the Site, and any excess electricity will be exported to the grid.

B. The Facility

Each of the Phase II fuel cell installations will consist of seven (7) Bloom solid oxide fuel cell Energy Servers, four (4) 300 kW ES5-YA8AAN model, one (1) 300 kW ES5-YA1AAN model, one (1) 250 kW ES5-EACAAN model and one (1) 250 kW ES5-EA2AAN model, and associated equipment. The associated equipment includes water deionizers, telemetry cabinets, disconnect switches and utility cabinets. The Facility is enclosed, factory-assembled and tested prior to installation on the Site. See Exhibit 3 for Bloom Energy Server Product Datasheets.

The operational life of the Facility is for the life of the 10-year contract and the solid oxide media in the fuel cells are exchanged at roughly five-year intervals. The Facility, the connections, and associated equipment will be installed in compliance with applicable building, plumbing, electrical, and fire codes. At the conclusion of the 10-year contract, Medtronic may renew the contract, return the Facility at no cost, or buy the Facility at a fair market value. If the Facility is to be removed at the end of the contract or if there is a default in the contract, the Energy Servers, associated equipment and components will be dismantled and removed and the site will be restored as nearly as practicable to its effective original condition.

The Phase II Facility will be capable of producing a total of 4000 kW of continuous, reliable electric power. The Facility will interconnect to the Site's distribution system and operate in parallel with the grid to provide the Site's electrical requirements. Any electricity generated in excess of the Site's requirement will be exported to the grid in accordance with the United Illuminating ("UI") interconnection technical requirements. This installation will not have an uninterruptible power module ("UPM") and thus will not have any means to output power in a grid independent capacity at any time. The grid-parallel output will interconnect with the utility power system at the switchboard within the existing building.

Each Energy Server is equipped with a UL-1741 listed inverter set that complies with IEEE-1547 standards for interconnection of inverter-based distributed generation. It is UL Recognized under UL Category QIKH2 and UL File Number E310552. The interconnection application for the Phase II Facility has been submitted to UI. The impact study agreement and cost determination are pending. Phase II will be fueled by natural gas supplied by Southern Connecticut Gas, as is the existing Facility.

The Facility will have extensive hardware, software and operator safety control systems, designed in accordance with American National Standards Institute and Canadian Standards Association for Stationary Fuel Cell Power Systems ("ANSI/CSA"). It is Listed by UL as a "Stationary Fuel Cell Power System" to ANSI/CSA FC1-2014 under UL Category IRGZ and UL File Number MH45102. The Facility would be controlled remotely and have internal sensors that continuously monitor system operation. If safety circuits detect a condition outside normal operating parameters, the fuel supply is stopped and individual system components are automatically shut down. A Bloom Energy Remote Monitoring Control Center (RMCC) operator can also remotely initiate any emergency sequence. An emergency stop alarm initiates an automatic shutdown sequence that puts the system into "safe mode" and causes it to stop exporting power. Bloom operators can assess different situations and take the necessary actions to mitigate impacts on the fuel cells during maintenance work, shutdowns or outages and enable them to come back online smoothly and efficiently when the disruption is completed. In addition, Medtronic personnel are provided with an Emergency Response Plan. Exhibit 4.

The Facility will be installed in accordance with NFPA 853[2]. This standard provides fire prevention and fire protection requirements for safeguarding life and physical property associated with buildings or facilities that employ stationary fuel cell systems of all sizes. The risk of fire related to the operation of the Facility is therefore very low. Furthermore, in the Facility, natural gas is not burned; it is used in a chemical reaction to generate electricity. The natural gas is digested almost immediately upon entering the unit and is no longer combustible. As stated above, any variation in heat outside of the operational parameters will trigger an automatic shutdown of the energy server. Before commissioning, the fuel lines (pipe) are cleaned in accordance with Conn. Gen. Stat. Section 16-50ii[3].

C. Existing Environment

i. The Site

The Site consists of six parcels located along Middletown Avenue, Quinnipiac Avenue and McDermott Road in the southern portion of North Haven. The properties are zoned Light Industrial (IL-30). Surrounding properties to the north, south and east are a mix of commercial and industrial uses. I-91 borders the Site to the west, with industrial development beyond.

ii. Wildlife and Habitat

A review of the publicly available Natural Diversity Database (NDDB) June 2019 data and a previously issued NDDB determination indicated the presence of box turtle, a State Special Concern species. Bloom filed a Request for Natural Diversity Data base (NDDB) State Listed Species Review on October 4, 2019, which is pending. Bloom will adhere to recommended protection strategies which may be required. *See* Exhibit 6.

[2] Standard for the Installation of Stationary Fuel Cell Power Systems, 2015 Edition
[3] Public Act 11-101, An Act Adopting Certain Safety Recommendations of the Thomas Commission,

iii. Wetlands and Watercourse

There are no identified wetlands or watercourses within the proposed location of the Facility. The Little River runs to the north of Site 2; however, Site 2 is located within a paved trailer storage yard and no additional clearing is required for development of Site 2. *See* Exhibit 7. As described herein, appropriate erosion and sedimentation control measures will be employed.

iv. Cultural Resources

The Facility is proposed in a previously disturbed area and the construction and operation of the Facility will therefore not have a substantial adverse effect on cultural (archaeological and historical) resources.

v. Flood Zones and Aquifer Protection Area

A review of the flood hazard mapping data from Federal Emergency Management Agency's ("FEMA") National Flood Insurance Program ("NFIP") has shown the Facility would be located within Zone X, an area of Minimal Flood Hazard. *See* Exhibit 8.

The Site was also reviewed for proximity to Aquifer Protection Areas. According to GIS data provided by CTDEEP, the closest Aquifer Protection Area is located approximately 5.25 miles to the northwest of the proposed Facility.

D. Environmental Effects and Mitigation

i. Natural Gas Desulfurization Process

The first step in the production of electricity in a Bloom Energy server is desulfurization – the removal of the sulfur compounds that have been added to the natural gas as an odorant by the natural gas suppliers. This step occurs in the desulfurization unit ("Desulf Unit"), a canister that contains a filter made for this purpose. Sulfur is not "produced" in this process, but is

separated from the natural gas in which it was contained. In this process, trace levels of sulfur oxides and other naturally occurring elements may also absorb to the filter.

The desulfurization process takes place entirely within the Desulf Unit. Because they are built to hold natural gas, their structural integrity is essential. That integrity is assured by around the clock monitoring of the Energy Servers to detect any leak. Were there a leak, the Server (including the desulfurization operation) would shut down automatically. The structural integrity and leak prevention continue after the desulfurization canisters are removed from service. At that point, the entry and exit points for the natural gas automatically seal shut. The desulfurization canister remains sealed and is not opened at the Site, or anywhere in the State of Connecticut. No gaseous substances are released or vented at any point during the desulfurization process.

The Desulf Unit contains a composite copper catalyst that includes copper. This catalyst removes non-hazardous sulfur odorants from the natural gas feedstock. The sulfur, if not removed, would rapidly and irreversibly damage the fuel cells, bringing the production of electricity to a halt. Although the Desulf Unit is not intended to capture benzene or any other hazardous material, a small amount of benzene adheres to the adsorbent in the Unit.

The Desulf Units are periodically removed from service and replaced with Units containing fresh composite copper catalyst. Upon disconnection, the Desulf Unit automatically seals shut—to assure there is no release of natural gas. The Desulf Units are certified by the U.S. Department of Transportation (DOT) as meeting the hazardous waste shipment standards of the United Nations, DOT, IATA, ICAO and IMO Hazardous Materials Distribution and Packaging requirements.

The spent units are transported to ShoreMet, L.L.C. (ShoreMet) in Indiana, a facility where they are opened, the contents are removed and copper is used as an ingredient in various products. The Desulf Units are then cleaned, refilled, and sent back to the field for reuse.

The Indiana Department of Environmental Management (IDEM) reviewed ShoreMet's management of Bloom's spent desulfurization units. IDEM issued a letter concluding that the spent desulfurization units sent to ShoreMet are excluded from hazardous waste requirements because the contents (i.e., spent media) are used to make copper products (Code of Federal Regulation, title 40, section 261.2(e)(1)(i)). The US Environmental Protection reviewed IDEM's findings and agreed. The California Department of Toxic Substances Control (DTSC) reviewed these decisions and concluded that the Desulf Units are excluded recyclable material (ERM) under California Health and Safety Code, section 25143.2, subsection (b). There are a number of conditions that apply to this exemption; Bloom satisfies those conditions.

ii. Water, Heat and Air Emissions

The construction and operation of the Facility will comply with DEEP's air and water quality standards and will not have a substantial adverse environmental effect.

With respect to water discharges, the Facility is designed to operate without water discharge under normal operating conditions. There are no connections or discharge points to the proposed Facility. Additionally, the Facility would use no water during normal operation beyond a 376-gallon injection at start-up.

Heat generated by the proposed Facility is used internally to increase the electrical efficiency of the fuel cell system. As a result, there is no useful waste heat generated by the fuel cell. The minimal amount of thermal load present at the Site would preclude the efficient deployment of a combined heat and power application.

Conn. Agencies Regs. § 22a-174-42, which governs air emissions from new distributed generators, exempts fuel cells from air permitting requirements. Accordingly, no permits, registrations, or applications are required based on the actual emissions from the Facility[4]. Even though the fuel cell systems are exempt from the emissions requirements, Bloom Energy fuel cells do meet the emissions standards of Section 22a-174-42. Per Section 22a-174-42(e)(1)(A) a certification by the California Air Resources Board (CARB) pursuant to Title 17, sections 94200 through 94214 of the California Code of Regulations meets the requirements of Conn. Agencies Regs. § 22a-174-42. The Bloom Energy fuel cells are certified under the CARB distributed generation program. A current list of certified applications is provided on the CARB's distributed generation certification website (http://www.arb.ca.gov/energy/dg/eo/eo-current.htm).

The Facility will also meet state criteria thresholds for all greenhouse gases defined in Section 22a-174-1(49). Table 1 lists thresholds set by the Low and Zero Emissions Renewable Energy Credit (LREC/ZREC) program[5], and compares them to emissions generated from the proposed Facility. By virtue of the non-combustion process the Bloom Energy fuel cells virtually eliminate NOx, SOx, CO, VOCs and particulate matter emissions from the energy production process. Similarly, there are no CH_4, SF_6, HFC or PFC emissions. The CH_4 is broken down in the reforming process. Reforming is the type of process where if you have sufficient catalyst, the reaction can go all the way to completion. That is the case for the Bloom Energy Server. The fuel is reformed in the hot box – with a significant excess catalyst for reaction.

[4] See Conn. Agencies Regs. §§ 22a-174-42(b) and (e).
[5] Sec. 16-244t

Table 1: Connecticut Thresholds for Greenhouse Gases

Emission Type	Bloom Output	LREC allowance
Nitrous Oxides (NOx)	<0.01 lbs/MWh	0.07 lbs/MWh
Carbon Monoxide (CO)	<0.05 lbs/MWh	0.10 lbs/MWh
Sulfur Oxides (SOx)	Negligible	Not Listed
Volatile Organic Compounds (VOCs)	<0.02 lbs/MWh	0.02 lbs/MWh
Carbon Dioxide (CO2)[6]	679-833 lbs/MWh	Not Listed

The proposed Facility will ultimately displace less efficient fossil fueled marginal generation on the ISO New England system. Based upon US Environmental Protection Agency (EPA) "eGrid" data, the proposed facility is expected to reduce carbon emissions by more than 25% while essentially eliminating local air pollutants like NOx, SOx, and particulate matter.

iii. Sound Levels

The nearest parcel boundary to Loc 1 is with an industrial property located to the north of the host property and defined as a Class C noise zone[7]. The results of the sound model predicting noise levels at the property boundary located approximately 334 feet to the north are provided as Exhibit 9. The nearest parcel boundary to Loc 2 is with an industrial property approximately 42 feet to the north and defined as a Class C noise zone. The results of the sound model predicting noise levels at that property boundary are also included in Exhibit 9. The proposed Facility would be defined as "Scenario 2" in the model. Scenario 2 models noise for a Bloom Energy Server installed with no structures behind it to reflect sound from either side. The results of the Scenario 2 sound model at 334 feet and 42 feet are 35.3 and 53.3 dBa, respectively, which are in compliance with noise criteria set forth in Connecticut regulations for the Control of

[6] Carbon Dioxide is measured at Bloom's stated lifetime efficiency level of 53-60%
[7] Conn. Agencies Regs. Sec. 22a-69-2.3. Noise zone standards

Noise[8]. The Town of North Haven's noise ordinance exempts construction activities during daytime hours.

iv. Visual Effects

The visual effect of the Facility will be minimal. Given the overall scale and level of development of the Site, the incremental effect of the Facility is minimal. In general, any off-site visibility would be obstructed by structures within the heavily developed area or by vegetation at the perimeter of the Site. The addition of the Facility is consistent with the existing development on the property.

E. Project Construction and Maintenance

Bloom anticipates construction to start in the second quarter of 2020 with 12-14 weeks of total construction time (4 weeks of site prep, 4 weeks of installation, and 4 weeks of commissioning).

During construction, appropriate erosion and sedimentation (E&S) controls will be installed and areas of disturbance will be promptly stabilized in order to minimize the potential for soil erosion and the flow of sediments off site. Temporary E&S control measures will be maintained and inspected throughout construction to ensure their integrity and effectiveness. The temporary E&S control measures will remain in place until the work is complete and all disturbed areas have been stabilized. No effects to drainage patterns or stormwater discharges are anticipated. Due to the limited disturbance required for the Facility's installation, no construction-related storm water permits will be required.

[8] Conn. Agencies Regs. Sec. 22a-69-3.5. Noise zone standards

Soils that are generated during construction activities would not be stored or stockpiled inside of wetlands or adjacent to a watercourse, and appropriate E&S control measures would be employed and maintained for any temporary soil stockpiles. Any excavated soils compatible for reuse will be used as backfill in proximity to the same excavation area from where it originated. Any excess excavated soils not suitable for reuse would be trucked off-site and managed in accordance with applicable regulations. Rock, concrete and other debris would be removed and trucked off-site.

Areas affected by construction would be re-graded as practical and stabilized using revegetation or other measures before removing temporary E&S controls. Construction-related impacts will therefore be minimal.

II. COMMUNITY OUTREACH

Bloom has provided notice of this petition via certificate of mailing to abutting property owners and appropriate municipal officials and governmental agencies to whom notice is required to be given pursuant to Conn. Agencies Regs. § 16-50j-40(a)[9]. A copy of the notice letter, a service list and documentation of mailing are provided in Exhibit 10 and the corresponding abutters map is provided as Exhibit 11.

A representative of Bloom contacted Mr. Alan Fredricksen, Land Use Administrator for the Town of North Haven, and provided preliminary plans for review. *See* Exhibit 12. No

[9] Conn. Agencies Regs. § 16-50j-40(a) requires that "[p]rior to submitting a petition for a declaratory ruling to the Council, the petitioner shall, where applicable, provide notice to each person other than the petitioner appearing of record as an owner of property which abuts the proposed primary or alternative sites of the proposed facility, each person appearing of record as an owner of the property or properties on which the primary or alternative proposed facility is to be located, and the appropriate municipal officials and government agencies [listed in Section 16-50*l* of the Connecticut General Statutes]."

response has been received to date. It should be noted that treatment of the Medtronic Campus as a whole rather than individual parcels is consistent with the Town's approach to the property.

V. CONCLUSION

As detailed herein, Bloom submits that there will be no substantial environmental effect from the construction, operation and maintenance of the proposed Phase II addition to the existing fuel cell Facility at the Site in North Haven. Bloom therefore respectfully requests that the Council approve the proposed modification to the Facility and amend its Declaratory Ruling in Petition No. 1278.

Respectfully submitted,
Bloom Energy Corporation

By:_____

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EXHIBITS

Exhibit 1A: Site Location Map

Exhibit 1B: Site Schematic

Exhibit 2: Site and Permit Plans

Exhibit 3: Bloom Energy Server System Background Documentation

Exhibit 4: Emergency Response Plan

Exhibit 5: Photos of the Proposed Location

Exhibit 6: DEEP Coastal Boundary, Natural Diversity Data Base (NDDB), Critical Habitats

Exhibit 7: DEEP Wetlands and Watercourse Map

Exhibit 8: FEMA Map

Exhibit 9: Sound Model

Exhibit 10: Notice Pursuant to Conn. Agencies Regs. § 16-50j-40(a)

Exhibit 11: Abutters Map

Exhibit 12: Municipal Consultation

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Exhibit 1A

C:\Users\Erin\Dropbox (APT GIS)\APT GIS Team Folder\Projects\Bloom Energy\Medtronic_NorthHaven_CT507470\mxd\NorthHaven_Exhibit 1A Site Location Map.mxd

Legend

- Site
- Municipal Boundary

Exhibit 1A
Site Location Map

Proposed Bloom Energy Facility
Medtronic Campus
North Haven, CT

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ALL-POINTS TECHNOLOGY CORPORATION

Map Notes:
Base Map Source: USGS 7.5 Minute Topographic Quadrangle Maps: New Haven (1984) and Branford (1984), CT
Map Scale: 1:12,000
Map Date: October 2019

1,000 500 0 1,000 Feet

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Exhibit 1B

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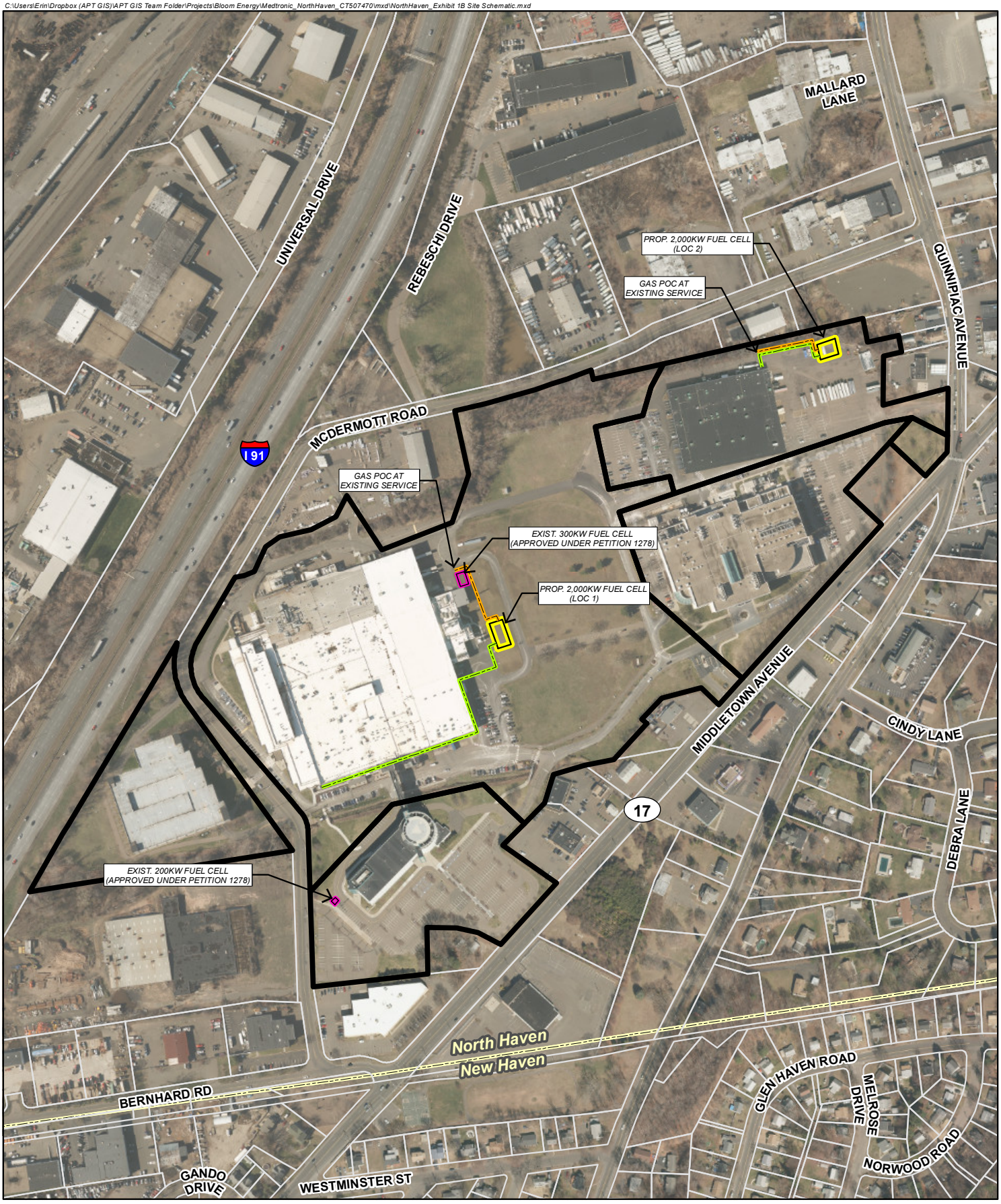

Legend

- Site
- Approximate Assessor Parcel Boundary (CTDEEP)
- Municipal Boundary
- Existing Fuel Cell Area (Approved)
- New Equipment Area
- New Underground Utility Trench
- New Underground Gas

N W E S

400 200 0 400 Feet

Exhibit 1B
Site Schematic

Proposed Bloom Energy Facility
Medtronic Campus
North Haven, CT

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ALL-POINTS TECHNOLOGY CORPORATION

Map Notes:
Base Map Source: 2016 Aerial Photograph (CTECO)
Map Scale: 1 inch = 400 feet
Map Date: October 2019

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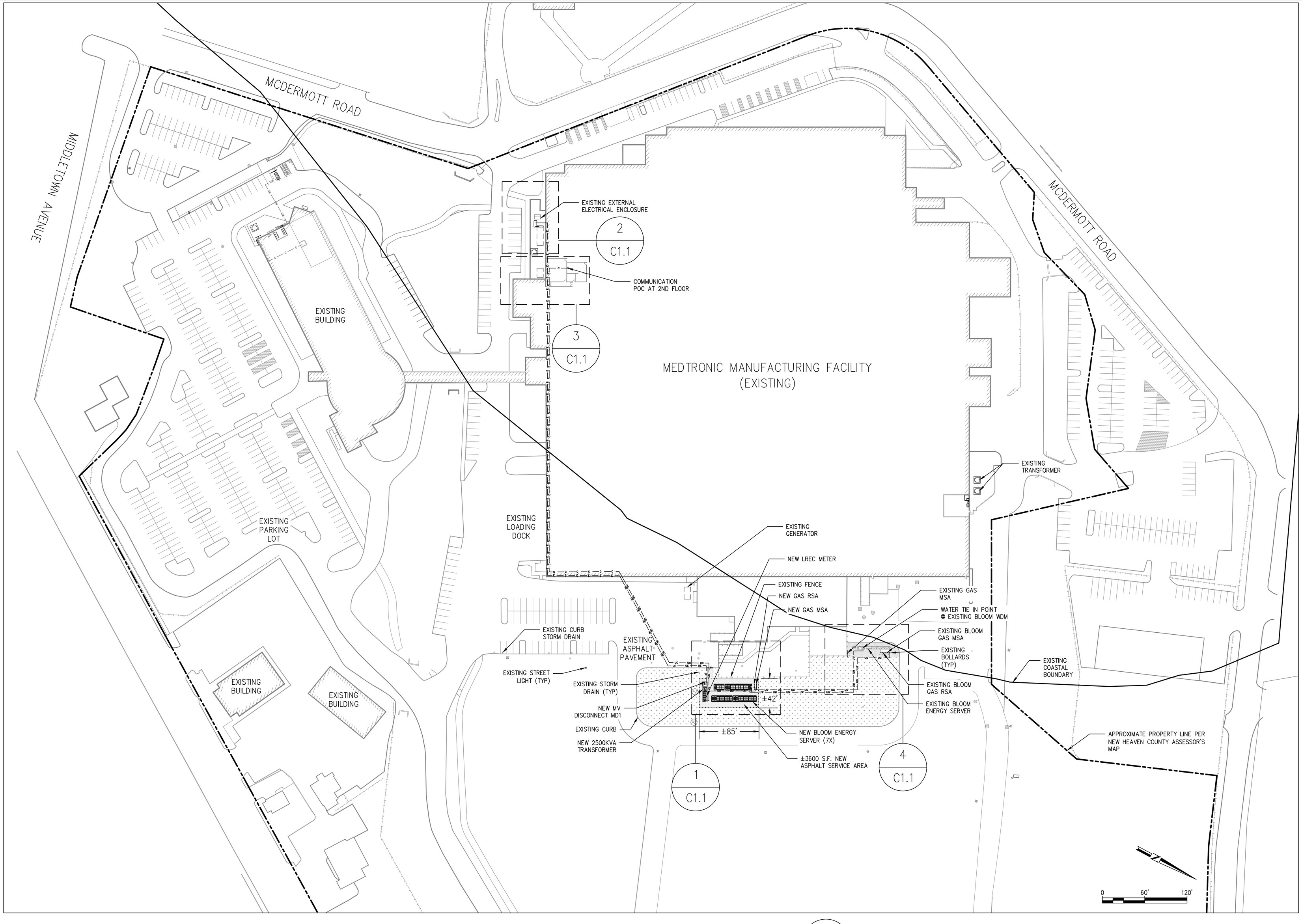
Exhibit 2



OVERALL SITE PLAN

SCALE: 1" = 60'

1
G1.1

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4353 N 1ST STREET
SAN JOSE, CA 95134

CUSTOMER SITE

MEDTRONIC, INC.
195 MCDERMOTT RD
NORTH HAVEN, CT 06473

Medtronic

REVISION HISTORY		
REV	REVISION ISSUE	DATE
–	INITIAL RELEASE	09/16/2019

DESIGNED BY MICHAEL MAK	REVIEWED BY
DRAWN BY KEERTHANA	APPROVED BY

SHEET TITLE

OVERALL SITE PLAN

DRAWING NUMBER

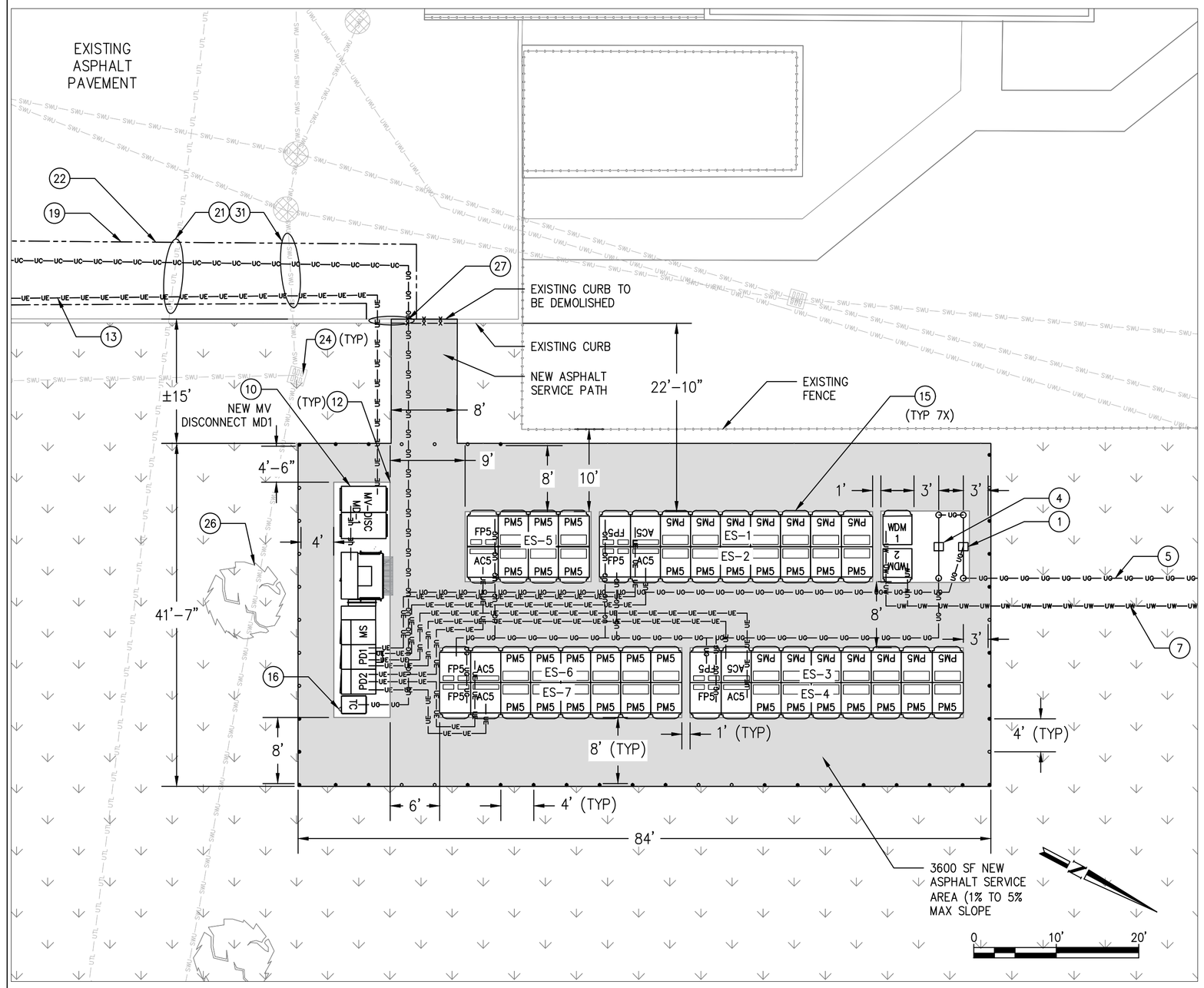
G1.1

BLOOM DOCUMENT

DOC–1011815

THIS DRAWING IS 24" X 36" AT FULL SIZE

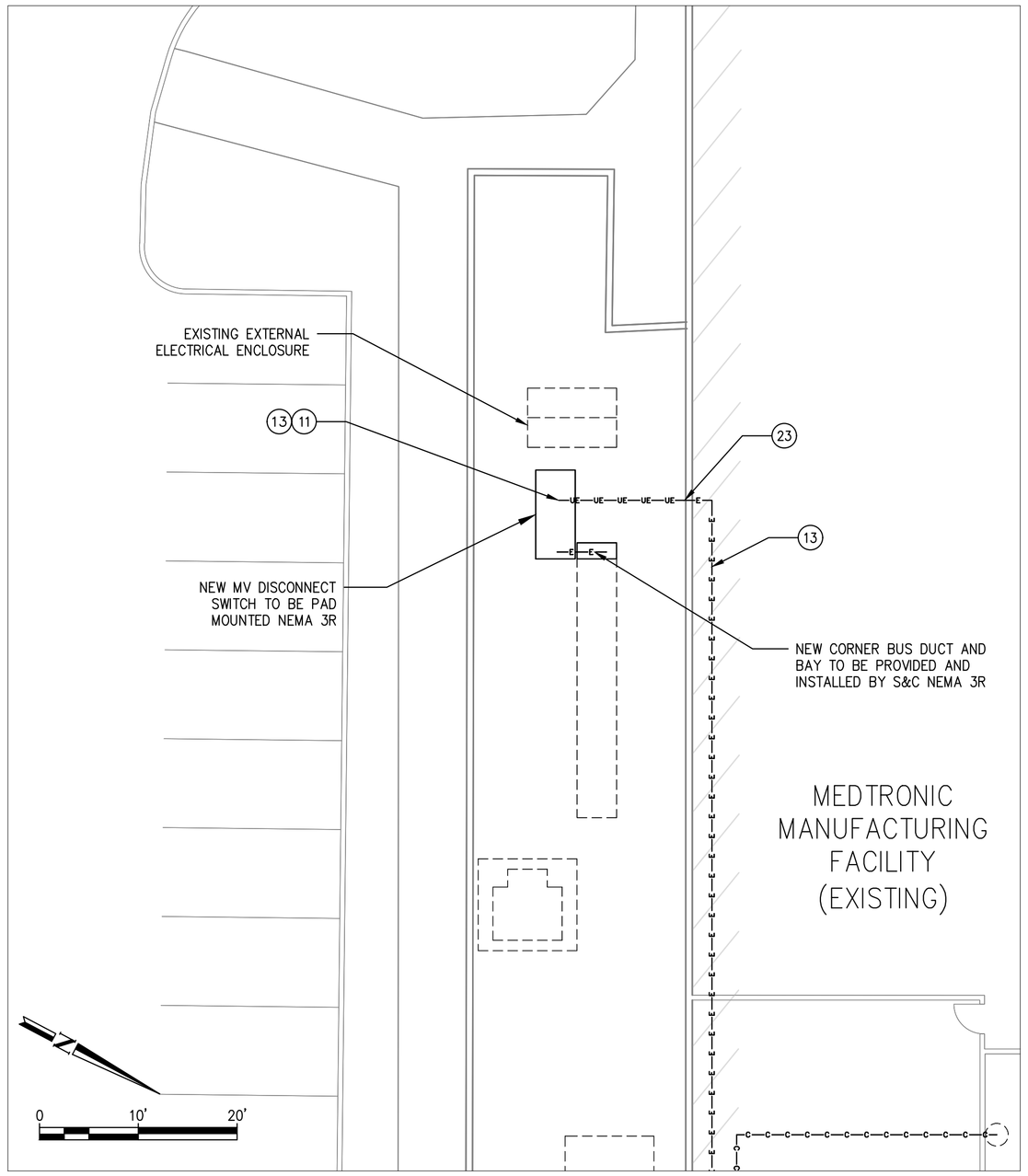
SITE ID: MDC002.C | SHEET 01 OF 03



DETAILED SITE PLAN

SCALE: 1" = 10'

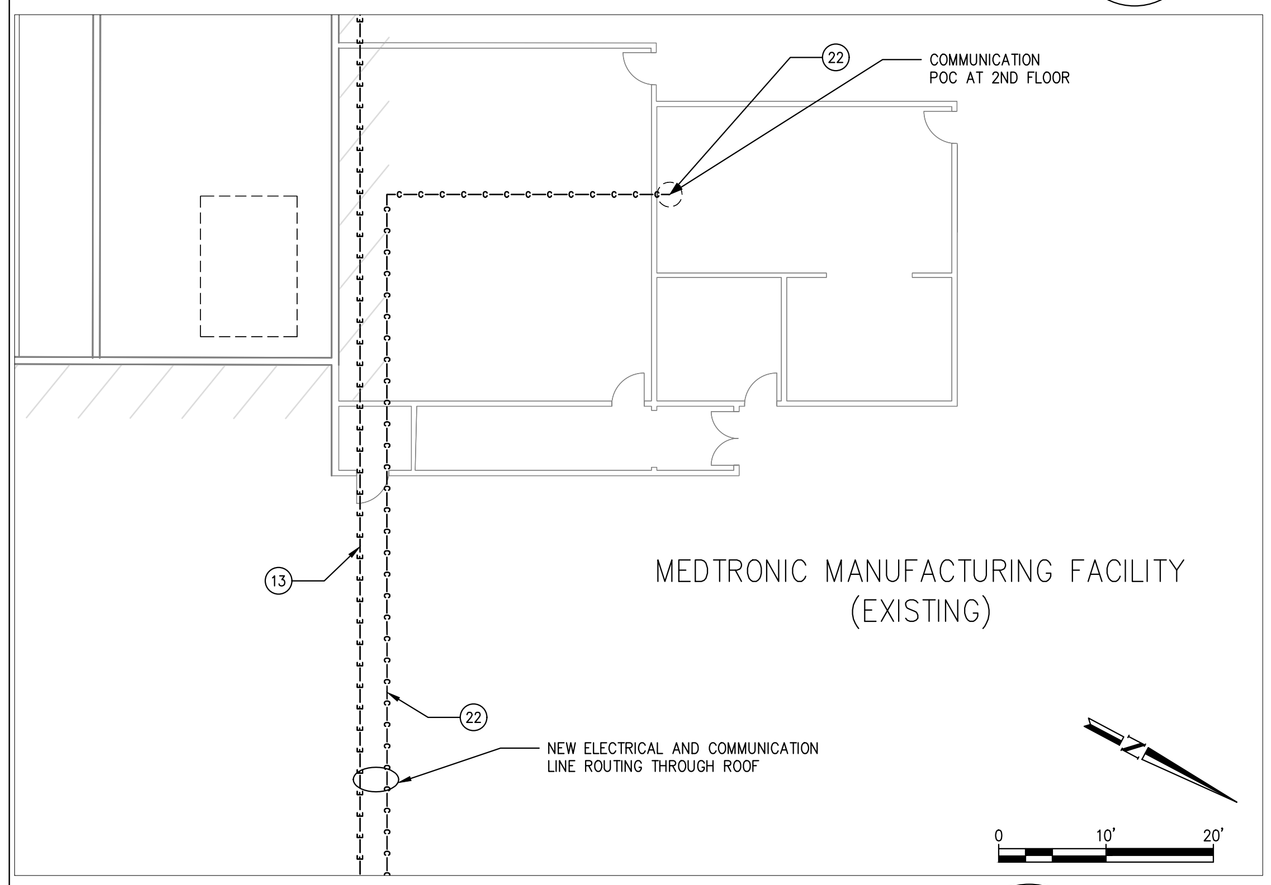
1 / C1.1



DETAILED SITE PLAN

SCALE: 1" = 10'

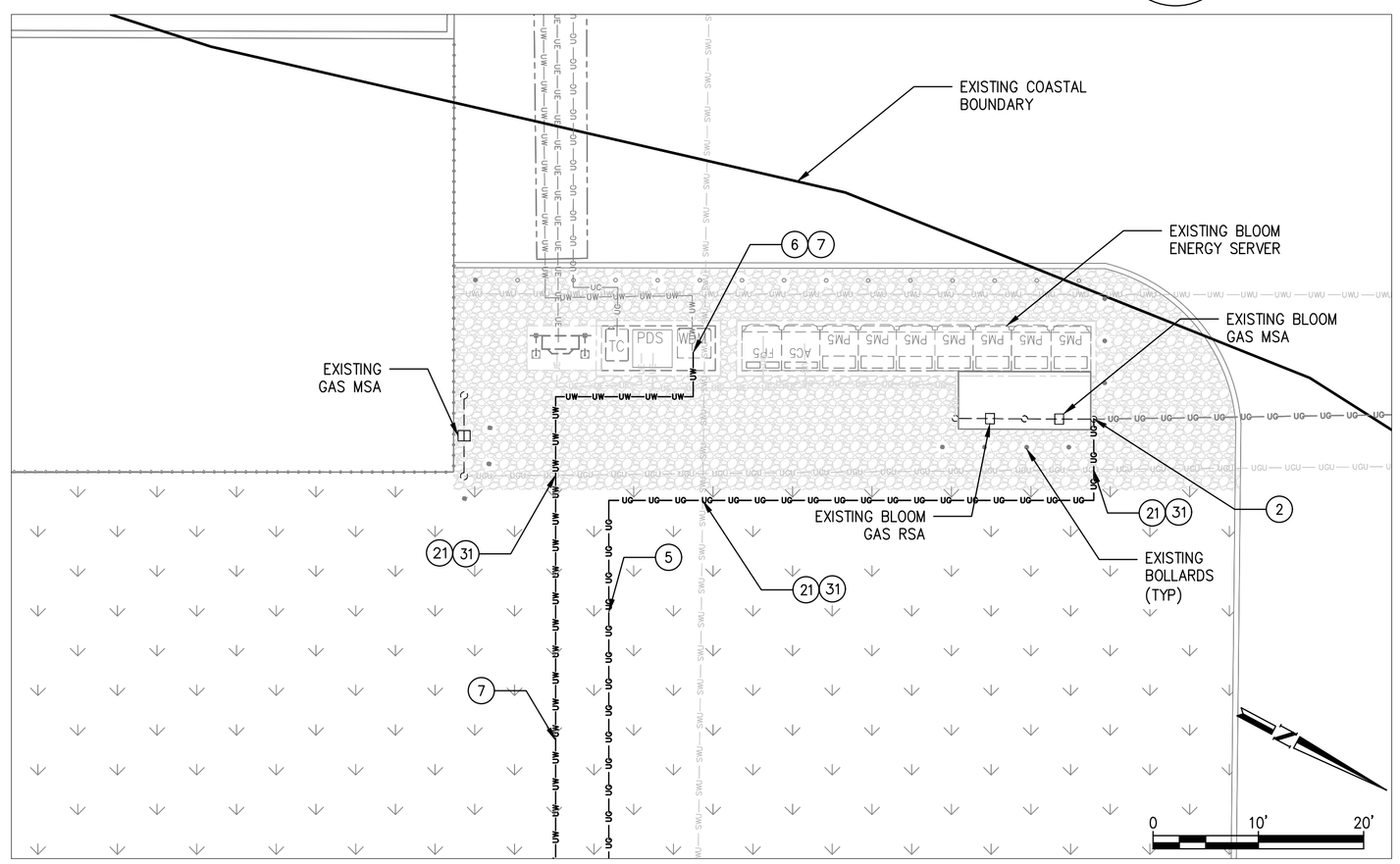
2 / C1.1



DETAILED SITE PLAN

SCALE: 1" = 10'

3 / C1.1



DETAILED SITE PLAN

SCALE: 1" = 10'

4 / C1.1

GENERAL NOTES

1. CLEAN AND PRIME ALL NEW WIRE MOUNTED PIPING AND CONDUIT. PIPING AND CONDUIT SHALL BE PAINTED WITH EXTERIOR GRADE PAINT TO MATCH EXISTING.
2. CONDUITS AND PIPES MOUNTED TO BUILDING WALL SHALL BE SUPPORTED AS PER LOCAL CODE, RUN AT HEIGHT ABOVE DOORWAYS, AND STAND OFF WALL TO AVOID EXISTING CONDUITS AND PIPES.
3. SLOPE LINES SHOWN ARE APPROXIMATE AND INTENDED TO SHOW THE GENERAL DIRECTION OF WATER RUN OFF; SLOPE LINES ARE DRAWN PER VISUAL SURVEY OF SURROUNDING AREA.
4. SEE BLOOM ENERGY PRODUCT INSTALLATION DRAWINGS FOR UTILITY CONNECTIONS TO ANCILLARY EQUIPMENT AND ENERGY SERVER.

REFERENCE SHEET NOTES

1. NEW UTILITY PROVIDED AND INSTALLED GAS METER & REGULATOR ASSEMBLY WITH SHUT-OFF VALVE. CONTRACTOR SHALL PROVIDE PAD PER DETAILS IF REQUIRED BY UTILITY COMPANY. COORDINATE ALL CONNECTIONS WITH GAS UTILITY.
2. NEW UNDERGROUND GAS SERVICE TAP BY UTILITY COMPANY. COORDINATE WITH GAS UTILITY. CONTRACTOR SHALL PERFORM COMPACTION AND MATCH EXISTING SURFACE AND GRADE. CONTRACTOR SHALL COORDINATE GAS PIPE SIZING AND INSTALLATION REQUIREMENTS WITH UTILITY.
4. NEW PRIVATE GAS REGULATOR SET ASSEMBLY FOR BLOOM ENERGY SERVER WITH SHUT-OFF VALVE. REFER TO GAS RISER DETAIL FOR ADDITIONAL REQUIREMENTS.
5. NEW GAS PIPE SHALL BE FURNISHED AND INSTALLED BY THE CONTRACTOR. REFER TO GAS RISER DETAIL FOR ADDITONAL REQUIREMENTS.
6. TAP EXISTING WATER LINE AT NEAREST ACCESSIBLE LOCATION IN BUILDING AS SHOWN WITH A LOCAL SHUT-OFF VALVE. REFER TO DOMESTIC WATER CONNECTION DETAIL FOR ADDITIONAL REQUIREMENTS.
7. NEW WATER PIPE SHALL BE FURNISHED AND INSTALLED BY THE CONTRACTOR. REFER TO WATER RISER DETAIL FOR ADDITIONAL REQUIREMENTS.
10. NEW BLOOM ENERGY FURNISHED, CONTRACTOR INSTALLED, DISCONNECT SWITCH. PAD MOUNT PER MANUFACTURER AND UTILITY SPECIFICATIONS.
11. CONTRACTOR SHALL TERMINATE ELECTRIC FEEDER AS SHOWN. REFER TO ELECTRICAL SINGLE LINE DIAGRAM FOR ADDITIONAL REQUIREMENTS.
12. CONTRACTOR SHALL PROVIDE TWO GROUNDING RODS TO BE PLACED 6' APART MINIMUM. REFER TO ELECTRICAL SINGLE LINE DIAGRAM FOR ADDITIONAL REQUIREMENTS.
13. NEW ELECTRICAL FEEDER SHALL BE FURNISHED AND INSTALLED BY THE CONTRACTOR. REFER TO ELECTRICAL SINGLE LINE DIAGRAM FOR ADDITIONAL REQUIREMENTS.
15. NEW BLOOM ENERGY SERVER. REFER TO BLOOM ENERGY STANDARD INSTALLATION DRAWING SET FOR ADDITIONAL BLOOM ENERGY SERVER DETAILS.
16. FACTORY WIRED BLOOM ENERGY SERVER EMERGENCY POWER-OFF SWITCH (EPO).
17. CONTRACTOR SHALL CORE CONDUIT AND/OR PIPE THROUGH WALL. SCAN WALL PRIOR TO CORING TO AVOID COLLATERAL DAMAGE TO EXISTING PLUMBING AND WIRING. REFER TO WALL PENETRATION DETAIL FOR ADDITIONAL REQUIREMENTS.
19. CONTRACTOR SHALL PROVIDE SAWCUT TRENCH FOR UNDERGROUND UTILITIES IN THIS LOCATION AND HAND DIG TRENCHES WHERE THEY CROSS EXISTING UTILITIES. REFER TO UNDERGROUND/TRENCH CONDUIT AND PIPING DETAIL FOR ADDITIONAL REQUIREMENTS.
21. PROTECT EXISTING UNDERGROUND UTILITY LINES FROM DAMAGE WHEN CROSSING WITH NEW UNDERGROUND UTILITIES. CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIR OR REPLACEMENT OF ANY DAMAGED LINES.
22. CONTRACTOR SHALL PROVIDE NEW CONDUIT AND CABLE FROM NEW UTILITY GAS MSA TO CUSTOMER MPOE FOR UTILITY BILLING. REFER TO BLOOM ENERGY PRODUCT INSTALLATION DRAWINGS FOR CONNECTION REQUIREMENTS.
23. CONTRACTOR SHALL TRANSITION ALL ABOVEGROUND NEW LINES TO UNDERGROUND TOWARD ANCILLARY EQUIPMENT. ABOVE GROUND UTILITIES SHALL BE PROTECTED AS NECESSARY, THEN ROUTED UNDERGROUND TO EQUIPMENT STUB-UP LOCATIONS PER MECHANICAL DETAIL.
24. PROVIDE "DANDY SACK" OR EQUAL WITH OUTFLOW PORTS AT STORM DRAIN INLET. REFER TO EROSION CONTROL DETAIL FOR ADDITIONAL REQUIREMENTS.
26. CONTRACTOR SHALL TRIM EXISTING TREES FOR 10'-0" CLEARANCE TO BLOOM ENERGY SERVER TOP VENTS AND 6'-0" CLEARANCE TO ALL OTHER SURFACES OF ENERGY SERVER WHERE REQUIRED.
27. CONTRACTOR SHALL UNDER-CUT EXISTING CURB FOR TRENCHING UTILITY LINES AND BACKFILL WITH CONCRETE SLURRY. IF CURB IS DAMAGED, REPAIR TO MATCH EXISTING.
31. THE LOCATION OF EXISTING UTILITIES IS SHOWN FOR THE CONTRACTOR'S REFERENCE. EXACT LOCATION, DEPTH AND SIZE OF ALL EXISTING UTILITIES IS NOT KNOWN. CONTRACTOR SHALL ASSUME RESPONSIBILITY FOR ALL EXISTING UTILITIES NOT SHOWN ON THESE DRAWINGS

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REV	REVISION ISSUE	DATE
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DESIGNED BY MICHAEL MAK	REVIEWED BY
DRAWN BY KEERTHANA	APPROVED BY

SHEET TITLE

DETAILED SITE PLAN

DRAWING NUMBER

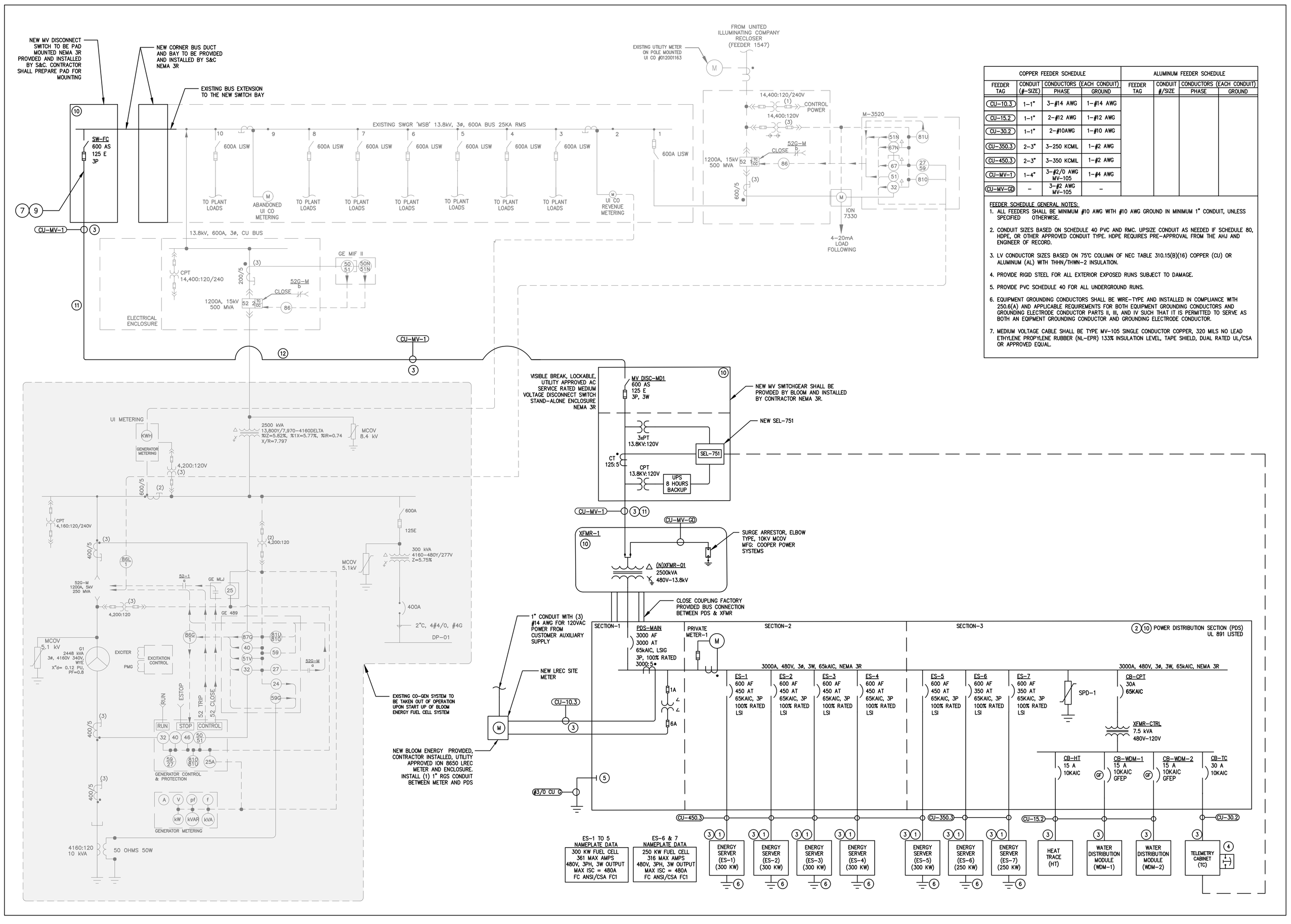
C1.1

BLOOM DOCUMENT

DOC-1011815

THIS DRAWING IS 24" X 36" AT FULL SIZE

SITE ID: MDC002.C | SHEET 02 OF 03



SINGLE LINE DIAGRAM

SCALE: NTS

1 / E3.1

COPPER FEEDER SCHEDULE				ALUMINUM FEEDER SCHEDULE			
FEEDER TAG	CONDUIT (#-SIZE)	CONDUCTORS (EACH CONDUIT) PHASE	GROUND	FEEDER TAG	CONDUIT #/SIZE	CONDUCTORS (EACH CONDUIT) PHASE	GROUND
CU-10.3	1-1"	3-#14 AWG	1-#14 AWG				
CU-15.2	1-1"	2-#12 AWG	1-#12 AWG				
CU-30.2	1-1"	2-#10AWG	1-#10 AWG				
CU-350.3	2-3"	3-250 KCMIL	1-#2 AWG				
CU-450.3	2-3"	3-350 KCMIL	1-#2 AWG				
CU-MV-1	1-4"	3-#2/0 AWG MV-105	1-#4 AWG				
CU-MV-GD	–	3-#2 AWG MV-105	–				

FEEDER SCHEDULE GENERAL NOTES:

1. ALL FEEDERS SHALL BE MINIMUM #10 AWG WITH #10 AWG GROUND IN MINIMUM 1" CONDUIT, UNLESS SPECIFIED OTHERWISE.
2. CONDUIT SIZES BASED ON SCHEDULE 40 PVC AND RMC. UPSIZE CONDUIT AS NEEDED IF SCHEDULE 80, HDPE, OR OTHER APPROVED CONDUIT TYPE. HDPE REQUIRES PRE-APPROVAL FROM THE AHJ AND ENGINEER OF RECORD.
3. LV CONDUCTOR SIZES BASED ON 75°C COLUMN OF NEC TABLE 310.15(B)(16) COPPER (CU) OR ALUMINUM (AL) WITH THHN/THWN-2 INSULATION.
4. PROVIDE RIGID STEEL FOR ALL EXTERIOR EXPOSED RUNS SUBJECT TO DAMAGE.
5. PROVIDE PVC SCHEDULE 40 FOR ALL UNDERGROUND RUNS.
6. EQUIPMENT GROUNDING CONDUCTORS SHALL BE WIRE-TYPE AND INSTALLED IN COMPLIANCE WITH 250.6(A) AND APPLICABLE REQUIREMENTS FOR BOTH EQUIPMENT GROUNDING CONDUCTORS AND GROUNDING ELECTRODE CONDUCTOR PARTS II, III, AND IV SUCH THAT IT IS PERMITTED TO SERVE AS BOTH AN EQUIPMENT GROUNDING CONDUCTOR AND GROUNDING ELECTRODE CONDUCTOR.
7. MEDIUM VOLTAGE CABLE SHALL BE TYPE MV-105 SINGLE CONDUCTOR COPPER, 320 MILS NO LEAD ETHYLENE PROPYLENE RUBBER (NL-EPR) 133% INSULATION LEVEL, TAPE SHIELD, DUAL RATED UL/CSA OR APPROVED EQUAL.

GENERAL NOTES

1. FEEDER SHALL NOT BE ROUTED THROUGH THE UTILITY PULL OR UTILITY METER SECTIONS. FEEDER SHALL NOT BE ROUTED THROUGH ANY OTHER SECTION THAN THAT IN WHICH IT TERMINATES UNLESS BARRIERS ARE PROVIDED PER NEC 408.3.
2. THE ENERGY SERVER INVERTER OUTPUT CHARACTERISTICS SHALL BE IN ACCORDANCE WITH NEC 705.14.
3. INTERCONNECTIONS SHALL BE IN ACCORDANCE WITH NEC 705.10.
4. THE ENERGY SERVER OUTPUT IS EQUIPPED WITH UTILITY-INTERACTIVE INVERTERS RECOGNIZED BY UL TO UL1741 AND IEEE 1547 AND COMPLIES WITH NEC 692.62. INVERTER SETTINGS PER THE PROVIDED TABLE BELOW.
5. THE ENERGY SERVER IS NOT A SEPERATELY DERIVED SYSTEM PER NEC 250.30 [ART. 100]

REFERENCE SHEET NOTES

1. ALL CONNECTIONS FROM FUEL CELLS TO INVERTER ARE FACTORY WIRED AND ALL MAINTENANCE CABINETS ARE ACTIVELY PRESSURIZED; THEREFORE, NO CLASS 1, DIVISION 2 WIRING IS REQUIRED.
2. ALL COMPONENTS SHOWN IN THIS BOUNDARY SHALL BE UL LISTED TOGETHER AS A SINGLE, COMPLETE, ALL INCLUSIVE UNIT. ALL ELECTRICAL CONDUIT/CABLE CONNECTIONS WITHIN THIS BOUNDARY SHALL BE FACTORY INSTALLED WITH SOME FINAL CONNECTIONS TO BE COMPLETED BY THE CONTRACTOR IN THE FIELD. REFER TO BLOOM INSTALLATION MANUAL FOR ALL FINAL TERMINATION POINTS.
3. CONTRACTOR SHALL PROVIDE CONDUIT AND CONDUCTORS AS INDICATED. SELECTION OF CONDUIT TYPE SHALL BE PER NEC REQUIREMENTS. REFER TO BLOOM INSTALLATION MANUAL FOR ALL FINAL TERMINATION POINTS AT BLOOM ENERGY FURNISH EQUIPMENT.
4. MANUFACTURER INSTALLED, PRE-WIRED EPO BUTTON LOCATED IN READILY ACCESSIBLE LOCATION AT ENERGY SERVER PLATFORM AND CONNECTED TO TELEMETRY CABINET TERMINAL STRIP.
5. CONTRACTOR SHALL PROVIDE NEW GROUND CONDUCTOR FROM THE ELECTRICAL EQUIPMENT TO THE UFER GROUND ROD IN THE CONCRETE PAD.
6. CONTRACTOR SHALL PROVIDE (1) #1/0 AWG CU FROM ENERGY SERVER GROUND TO UFER GROUND IN ENERGY SERVER PAD, TYP.
7. CONTRACTOR SHALL PROVIDE AND/ OR UTILIZE EXISTING SPARE LUGS FOR POINT OF CONNECTION AT EXISTING SWITCHBOARD AND TERMINATE GROUND CONDUCTOR TO THE GROUND BUS.
9. THE UTILITY-INTERACTIVE INVERTER POINT OF CONNECTION SHALL BE IN ACCORDANCE WITH NEC 705.12
10. NEW EQUIPMENT SHALL BE FURNISHED BY BLOOM ENERGY AND INSTALLED BY CONTRACTOR.
11. EQUIPMENT GROUND CONDUCTOR (EGC) TO BE TERMINATED AT THE GROUND BAR AT EACH SWITCHGEAR.
12. PRIOR TO BIDDING, CONTRACTOR TO DETERMINE THE REQUIRED NUMBER OF PULL BOXES BASED ON A PRE-APPROVED MV CONDUIT ROUTING.

TABLE-1

MANUFACTURER SUPPLIED INVERTER SETTINGS

FUNCTION	DESCRIPTION	PICKUP(%)	TRIP TIME	OPERATING MODE
27-1	UNDER VOLTAGE (LV2)	< 50%	1.1 SECONDS	MC
27-2	UNDER VOLTAGE (LV1)	50% – 88%	2 SECONDS	MO
59-1	OVER VOLTAGE (OV1)	> 110%	2 SECONDS	MC
59-2	OVER VOLTAGE (OV2)	> 120%	10 CYCLES	NA
81U-2	UNDER FREQUENCY (UF2)	< 56.5 HZ	10 CYCLES	NA
81U-1	UNDER FREQUENCY (UF1)	56.5-58.5 HZ	300 SECONDS	MO
81O-1	OVER FREQUENCY (OF1)	61.2-62 HZ	300 SECONDS	MO
81O-2	OVER FREQUENCY (OF2)	≥62 HZ	10 CYCLES	NA
79	RECONNECT TIMER		5 MINUTES	

TABLE-2

SEL-751A RELAY SETTINGS

FUNCTION	DESCRIPTION	PICKUP(%)	TRIP TIME
27-1	UNDER VOLTAGE (LV2)	< 50%	1.1 SECONDS (66 CYCLES)
27-2	UNDER VOLTAGE (LV1)	50% – 88%	2 SECONDS (120 CYCLES)
59-1	OVER VOLTAGE (OV1)	> 110%	2 SECONDS (120 CYCLES)
59-2	OVER VOLTAGE (OV2)	> 120%	0.16 SECONDS (10 CYCLES)
81U-2	UNDER FREQUENCY (UF2)	< 56.5 HZ	0.16 SECONDS (10 CYCLES)
81U-1	UNDER FREQUENCY (UF1)	56.5-58.5 HZ	300 SECONDS (18,000 CYCLES)
81O-1	OVER FREQUENCY (OF1)	61.2-62 HZ	300 SECONDS (18,000 CYCLES)
81O-2	OVER FREQUENCY (OF2)	≥62 HZ	0.16 SECONDS (10 CYCLES)
79	RECONNECT TIMER		5 MINUTES (18,000 CYCLES)

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DESIGNED BY	REVIEWED BY
DRAWN BY KEERTHANA	APPROVED BY

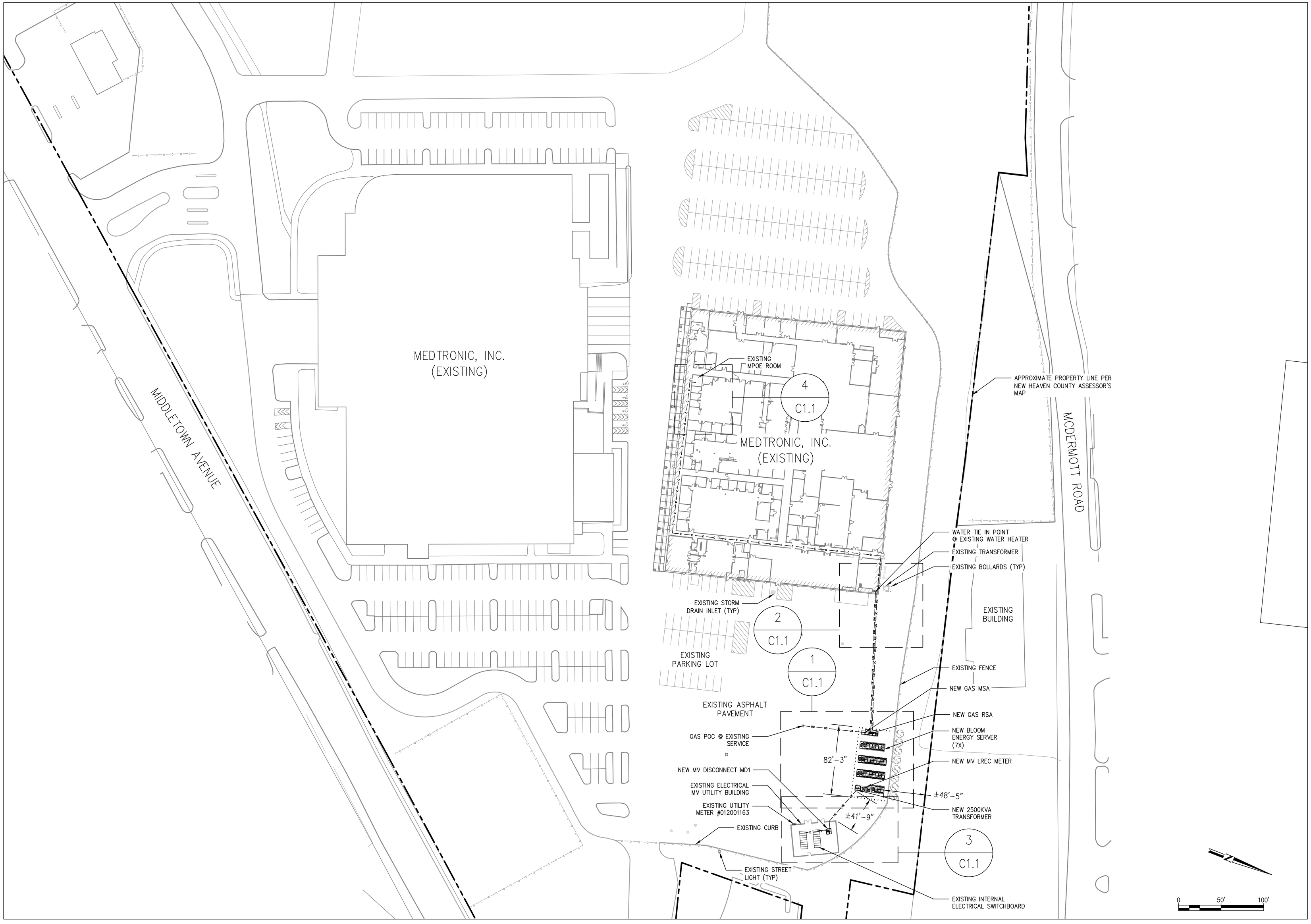
SHEET TITLE: ELECTRICAL SINGLE LINE DIAGRAM

DRAWING NUMBER: E3.1

BLOOM DOCUMENT: DOC-1011815

THIS DRAWING IS 24" X 36" AT FULL SIZE

SITE ID: MDC002.C | SHEET 03 OF 03



OVERALL SITE PLAN

SCALE: 1" = 50'

1
G1.1

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SHEET TITLE

OVERALL
SITE PLAN

DRAWING NUMBER

G1.1

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DOC–1011816

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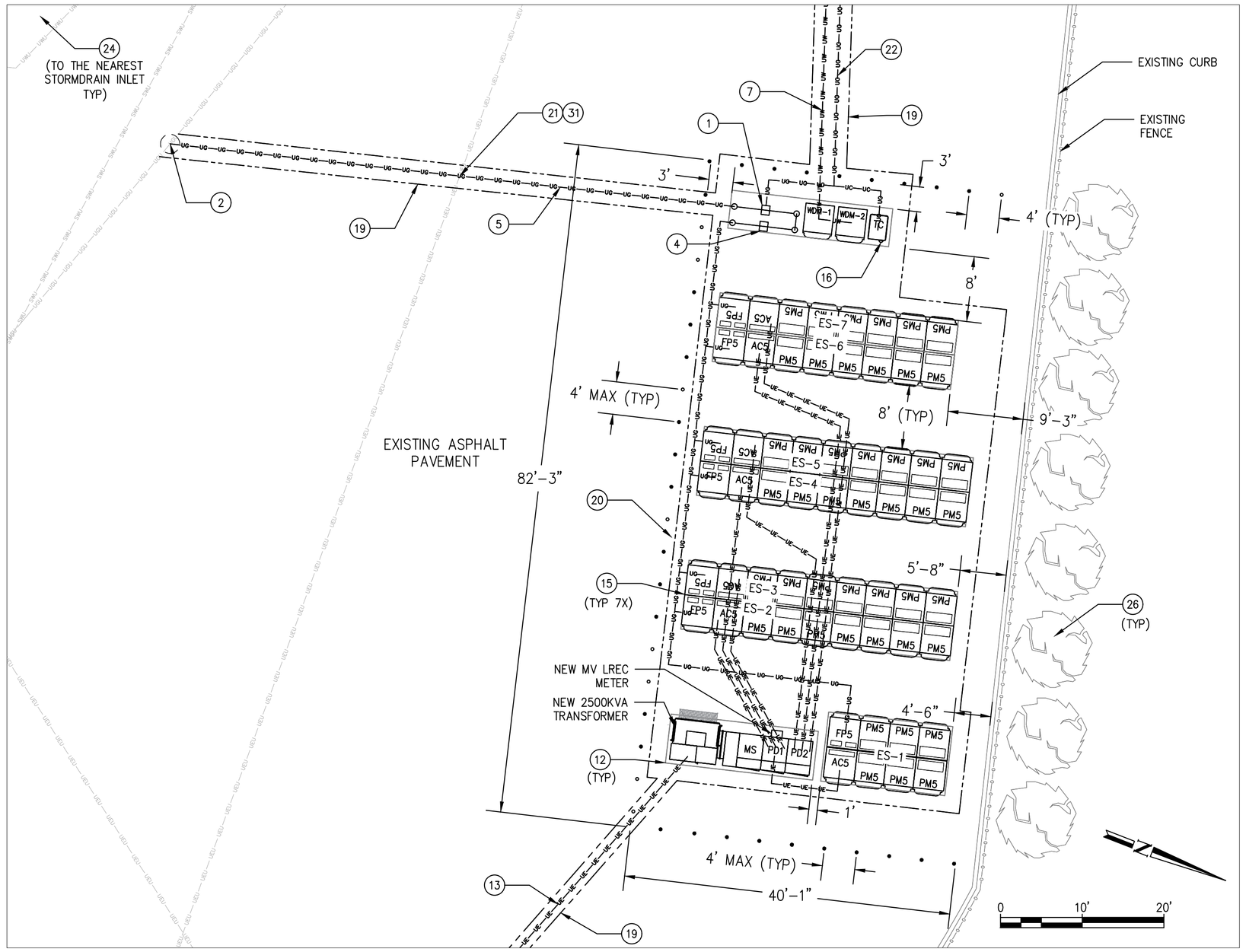
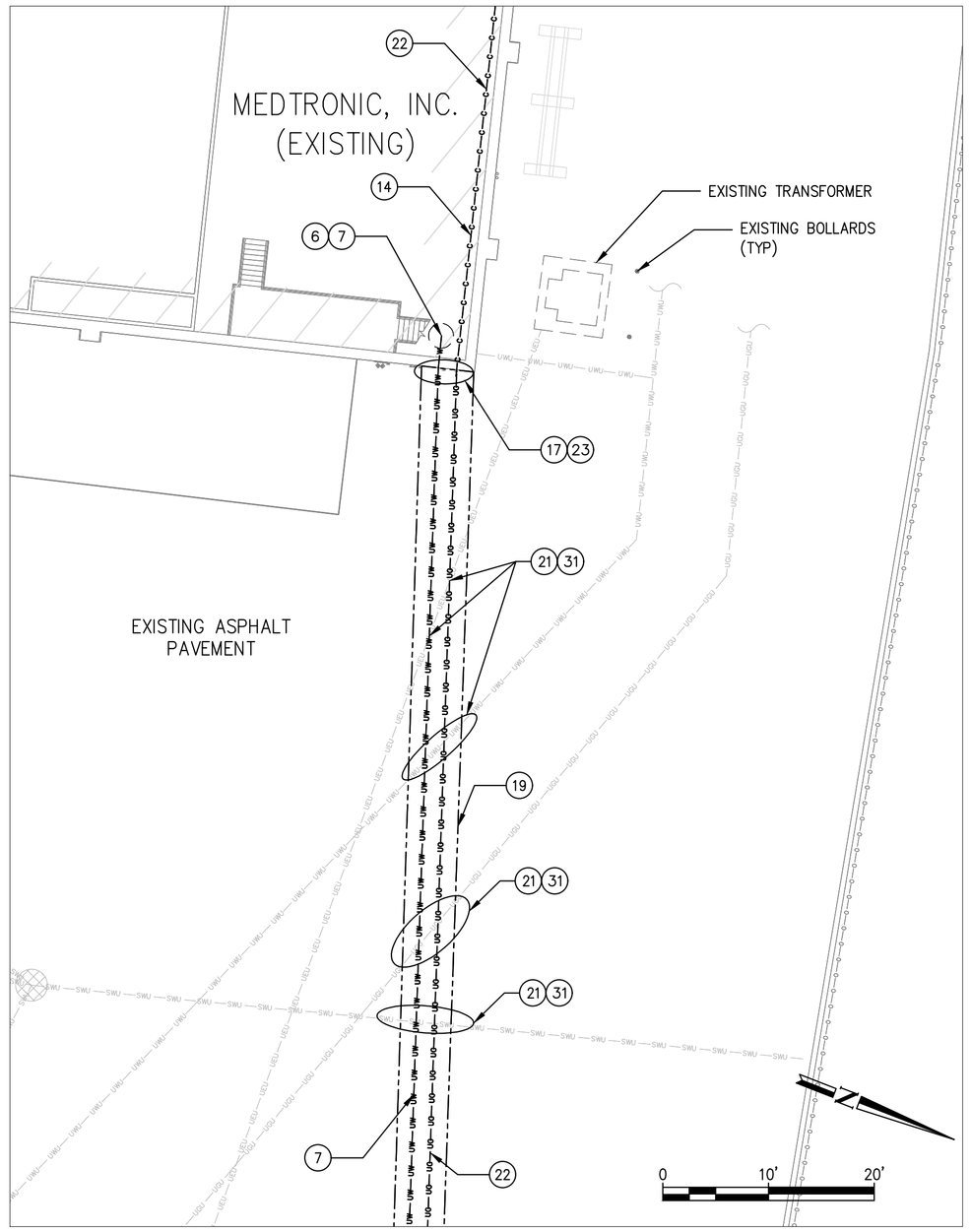


DETAILED SITE PLAN

SCALE: 1" = 10'

1 / C1.1



DETAILED SITE PLAN

SCALE: 1" = 10'

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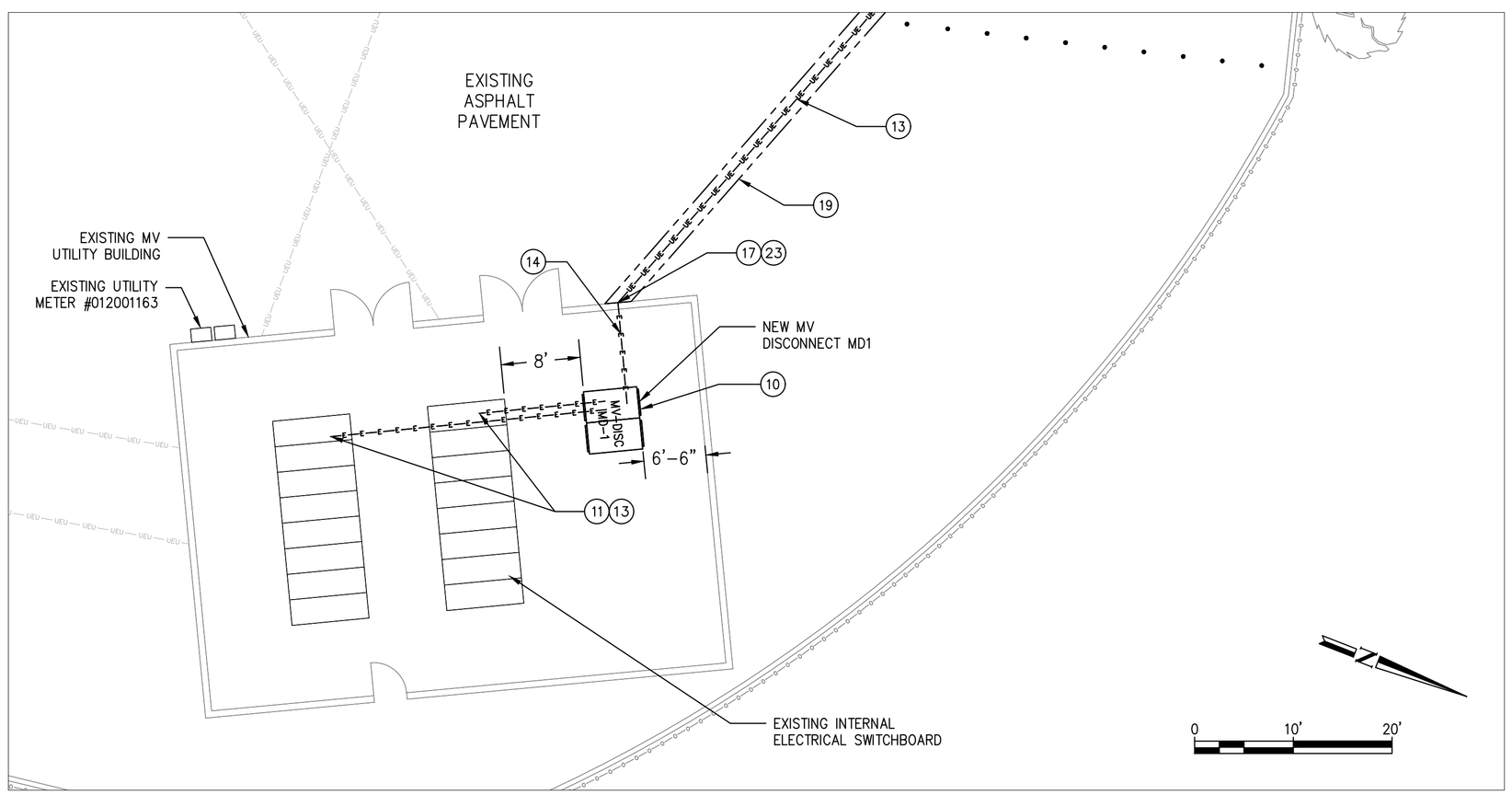
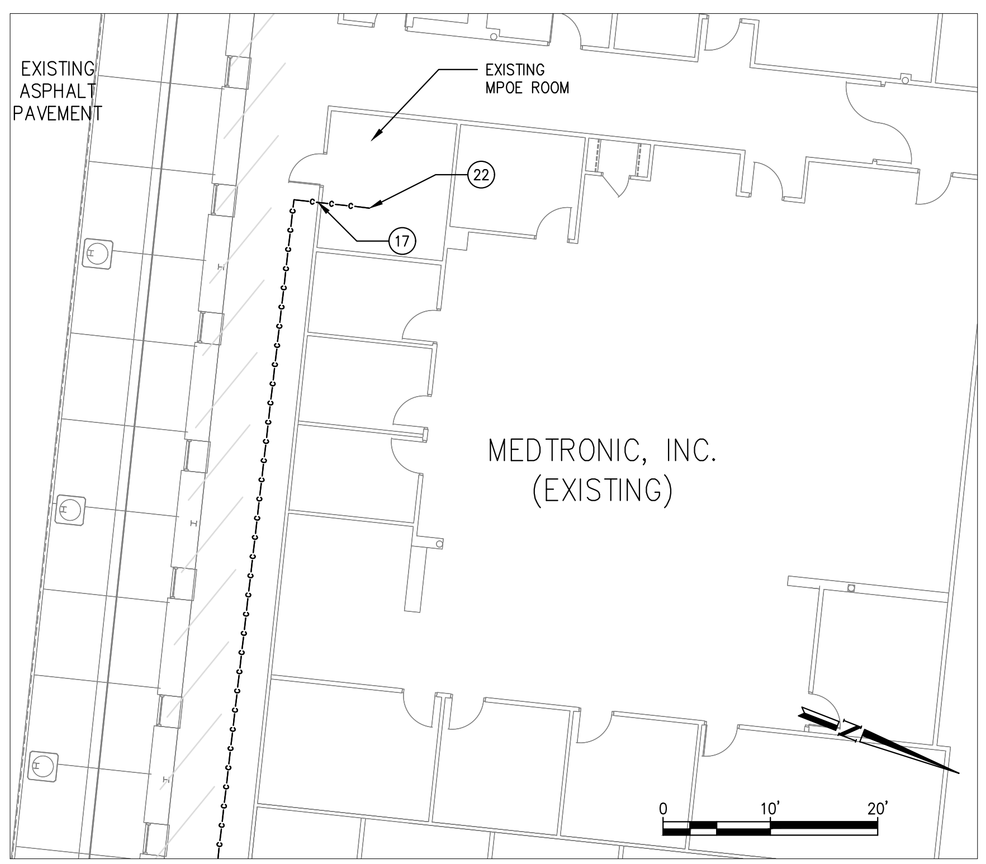


DETAILED SITE PLAN

SCALE: 1" = 10'

3 / C1.1



DETAILED SITE PLAN

SCALE: 1" = 10'

4 / C1.1

GENERAL NOTES

1. CLEAN AND PRIME ALL NEW WIRE MOUNTED PIPING AND CONDUIT. PIPING AND CONDUIT SHALL BE PAINTED WITH EXTERIOR GRADE PAINT TO MATCH EXISTING.
2. CONDUITS AND PIPES MOUNTED TO BUILDING WALL SHALL BE SUPPORTED AS PER LOCAL CODE, RUN AT HEIGHT ABOVE DOORWAYS, AND STAND OFF WALL TO AVOID EXISTING CONDUITS AND PIPES.
3. SLOPE LINES SHOWN ARE APPROXIMATE AND INTENDED TO SHOW THE GENERAL DIRECTION OF WATER RUN OFF; SLOPE LINES ARE DRAWN PER VISUAL SURVEY OF SURROUNDING AREA.
4. SEE BLOOM ENERGY PRODUCT INSTALLATION DRAWINGS FOR UTILITY CONNECTIONS TO ANCILLARY EQUIPMENT AND ENERGY SERVER
5. ALL ABOVE FROST LINE SECTIONS OF WATER PIPES SHALL HAVE POWERED HEAT TRACE AND INSULATION, CONTRACTOR TO ENSURE UNDERGROUND WATER PIPE DEPTHS ARE BELOW FROST LINE.

REFERENCE SHEET NOTES

(1) NEW UTILITY PROVIDED AND INSTALLED GAS METER & REGULATOR ASSEMBLY WITH SHUT-OFF VALVE. CONTRACTOR SHALL PROVIDE PAD PER DETAILS IF REQUIRED BY UTILITY COMPANY. COORDINATE ALL CONNECTIONS WITH GAS UTILITY.

(2) NEW UNDERGROUND GAS SERVICE TAP BY UTILITY COMPANY. COORDINATE WITH GAS UTILITY. CONTRACTOR SHALL PERFORM COMPACTION AND MATCH EXISTING SURFACE AND GRADE. CONTRACTOR SHALL COORDINATE GAS PIPE SIZING AND INSTALLATION REQUIREMENTS WITH UTILITY.

(4) NEW PRIVATE GAS REGULATOR SET ASSEMBLY FOR BLOOM ENERGY SERVER WITH SHUT-OFF VALVE. REFER TO GAS RISER DETAIL FOR ADDITIONAL REQUIREMENTS.

(5) NEW GAS PIPE SHALL BE FURNISHED AND INSTALLED BY THE CONTRACTOR. REFER TO GAS RISER DETAIL FOR ADDITIONAL REQUIREMENTS.

(6) TAP EXISTING WATER LINE AT NEAREST ACCESSIBLE LOCATION IN BUILDING AS SHOWN WITH A LOCAL SHUT-OFF VALVE. REFER TO DOMESTIC WATER CONNECTION DETAIL FOR ADDITIONAL REQUIREMENTS.

(7) NEW WATER PIPE SHALL BE FURNISHED AND INSTALLED BY THE CONTRACTOR. REFER TO WATER RISER DETAIL FOR ADDITIONAL REQUIREMENTS.

(10) NEW BLOOM ENERGY FURNISHED, CONTRACTOR INSTALLED, DISCONNECT SWITCH. PAD MOUNT PER MANUFACTURER AND UTILITY SPECIFICATIONS.

(11) CONTRACTOR SHALL TERMINATE ELECTRIC FEEDER AS SHOWN. REFER TO ELECTRICAL SINGLE LINE DIAGRAM FOR ADDITIONAL REQUIREMENTS.

(12) CONTRACTOR SHALL PROVIDE TWO GROUNDING RODS TO BE PLACED 6' APART MINIMUM. REFER TO ELECTRICAL SINGLE LINE DIAGRAM FOR ADDITIONAL REQUIREMENTS.

(13) NEW ELECTRICAL FEEDER SHALL BE FURNISHED AND INSTALLED BY THE CONTRACTOR. REFER TO ELECTRICAL SINGLE LINE DIAGRAM FOR ADDITIONAL REQUIREMENTS.

(15) NEW BLOOM ENERGY SERVER. REFER TO BLOOM ENERGY STANDARD INSTALLATION DRAWING SET FOR ADDITIONAL BLOOM ENERGY SERVER DETAILS.

(14) MOUNT NEW CONDUIT/PIPE TO EXTERIOR WALL/CEILING. COORDINATE EXACT ROUTING WITH CUSTOMER REPRESENTATIVE IN THE FIELD. REFER TO WALL/CEILING MOUNTING DETAIL FOR ADDITIONAL REQUIREMENTS.

(16) FACTORY WIRED BLOOM ENERGY SERVER EMERGENCY POWER-OFF SWITCH (EPO).

(17) CONTRACTOR SHALL CORE CONDUIT AND/OR PIPE THROUGH WALL. SCAN WALL PRIOR TO CORING TO AVOID COLLATERAL DAMAGE TO EXISTING PLUMBING AND WIRING. REFER TO WALL PENETRATION DETAIL FOR ADDITIONAL REQUIREMENTS.

(19) CONTRACTOR SHALL PROVIDE SAWCUT TRENCH FOR UNDERGROUND UTILITIES IN THIS LOCATION AND HAND DIG TRENCHES WHERE THEY CROSS EXISTING UTILITIES. REFER TO UNDERGROUND/TRENCH CONDUIT AND PIPING DETAIL FOR ADDITIONAL REQUIREMENTS.

(20) CONTRACTOR SHALL SAWCUT TO ALLOW FOR EXCAVATION UNDER ENERGY SERVER AND ANCILLARY PAD LOCATIONS. REFER TO PAD DETAIL FOR ADDITIONAL EXCAVATION AND BACKFILL REQUIREMENTS.

(21) PROTECT EXISTING UNDERGROUND UTILITY LINES FROM DAMAGE WHEN CROSSING WITH NEW UNDERGROUND UTILITIES. CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIR OR REPLACEMENT OF ANY DAMAGED LINES.

(22) CONTRACTOR SHALL PROVIDE NEW CONDUIT AND CABLE FROM NEW UTILITY GAS MSA TO CUSTOMER MPOE FOR UTILITY BILLING. REFER TO BLOOM ENERGY PRODUCT INSTALLATION DRAWINGS FOR CONNECTION REQUIREMENTS.

(23) CONTRACTOR SHALL TRANSITION ALL ABOVEGROUND NEW LINES TO UNDERGROUND TOWARD ANCILLARY EQUIPMENT. ABOVE GROUND UTILITIES SHALL BE PROTECTED AS NECESSARY, THEN ROUTED UNDERGROUND TO EQUIPMENT STUB-UP LOCATIONS PER MECHANICAL DETAIL.

(24) PROVIDE "DANDY SACK" OR EQUAL WITH OUTFLOW PORTS AT STORM DRAIN INLET. REFER TO EROSION CONTROL DETAIL FOR ADDITIONAL REQUIREMENTS.

(26) CONTRACTOR SHALL TRIM EXISTING TREES FOR 10'-0" CLEARANCE TO BLOOM ENERGY SERVER TOP VENTS AND 6'-0" CLEARANCE TO ALL OTHER SURFACES OF ENERGY SERVER.

(31) THE LOCATION OF EXISTING UTILITIES IS SHOWN FOR THE CONTRACTOR'S REFERENCE. EXACT LOCATION, DEPTH AND SIZE OF ALL EXISTING UTILITIES IS NOT KNOWN. CONTRACTOR SHALL ASSUME RESPONSIBILITY FOR ALL EXISTING UTILITIES NOT SHOWN ON THESE DRAWINGS.

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THIS DRAWING IS 24" X 36" AT FULL SIZE

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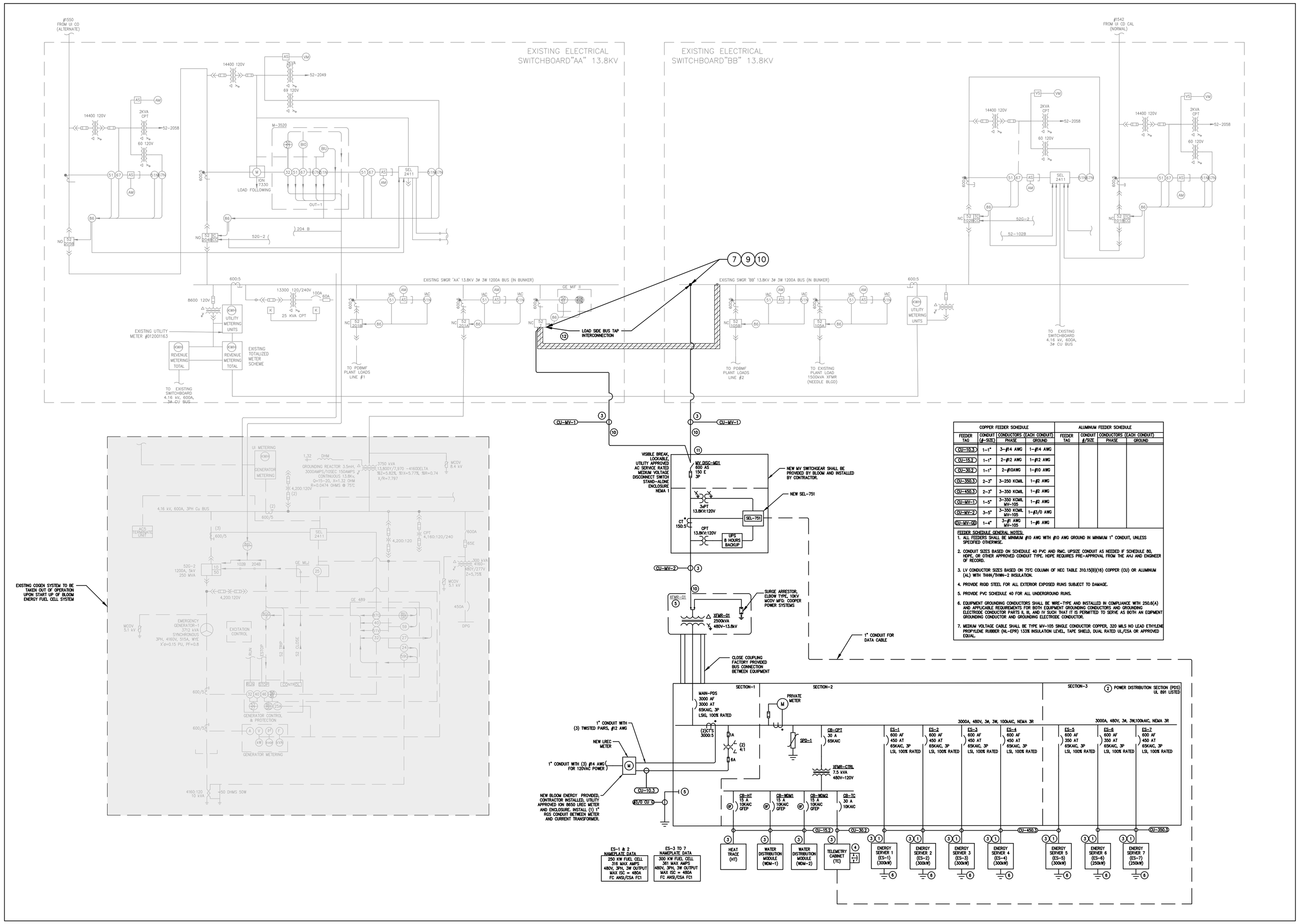

COPPER FEEDER SCHEDULE				ALUMINUM FEEDER SCHEDULE			
FEEDER TAG	CONDUIT (#-SIZE)	CONDUCTORS (EACH CONDUIT) PHASE	GROUND	FEEDER TAG	CONDUIT #/SIZE	CONDUCTORS (EACH CONDUIT) PHASE	GROUND
CU-1G.3	1-1"	3-#14 AWG	1-#14 AWG				
CU-1S.3	1-1"	2-#12 AWG	1-#12 AWG				
CU-1G.2	1-1"	2-#10AWG	1-#10 AWG				
CU-350.3	2-3"	3-350 KCMIL	1-#2 AWG				
CU-450.3	2-3"	3-350 KCMIL	1-#2 AWG				
CU-MV-1	1-5"	3-350 KCMIL MV-105	1-#2 AWG				
CU-MV-2	3-5"	3-350 KCMIL MV-105	1-#3/0 AWG				
CU-MV-GD	1-4"	3-#1 AWG MV-105	1-#6 AWG				

FEEDER SCHEDULE GENERAL NOTES:
1. ALL FEEDERS SHALL BE MINIMUM #10 AWG WITH #10 AWG GROUND IN MINIMUM 1" CONDUIT, UNLESS SPECIFIED OTHERWISE.
2. CONDUIT SIZES BASED ON SCHEDULE 40 PVC AND RNC UPSIZE CONDUIT AS NEEDED IF SCHEDULE 80, HDPE, OR OTHER APPROVED CONDUIT TYPE, HDPE REQUIRES PRE-APPROVAL FROM THE AHJ AND ENGINEER OF RECORD.
3. LV CONDUCTOR SIZES BASED ON 75°C COLUMN OF NEC TABLE 310.15(B)(16) COPPER (CU) OR ALUMINUM (AL) WITH THWN/THWN-2 INSULATION.
4. PROVIDE RIGID STEEL FOR ALL EXTERIOR EXPOSED RUNS SUBJECT TO DAMAGE.
5. PROVIDE PVC SCHEDULE 40 FOR ALL UNDERGROUND RUNS.
6. EQUIPMENT GROUNDING CONDUCTORS SHALL BE WIRE-TYPE AND INSTALLED IN COMPLIANCE WITH 250.6(A) AND APPLICABLE REQUIREMENTS FOR BOTH EQUIPMENT GROUNDING CONDUCTORS AND GROUNDING ELECTRODE CONDUCTOR PARTS II, III, AND IV SUCH THAT IT IS PERMITTED TO SERVE AS BOTH AN EQUIPMENT GROUNDING CONDUCTOR AND GROUNDING ELECTRODE CONDUCTOR.
7. MEDIUM VOLTAGE CABLE SHALL BE TYPE MV-105 SINGLE CONDUCTOR COPPER, 320 MILS NO LEAD ETHYLENE PROPYLENE RUBBER (NL-EPR) 133% INSULATION LEVEL, TAPE SHIELD, DUAL RATED UL/CSA OR APPROVED EQUAL.

SINGLE LINE DIAGRAM

SCALE: NTS

1
E3.1

GENERAL NOTES

1. FEEDER SHALL NOT BE ROUTED THROUGH THE UTILITY PULL OR UTILITY METER SECTIONS. FEEDER SHALL NOT BE ROUTED THROUGH ANY OTHER SECTION THAN THAT IN WHICH IT TERMINATES UNLESS BARRIERS ARE PROVIDED PER NEC 408.3.
2. THE ENERGY SERVER INVERTER OUTPUT CHARACTERISTICS SHALL BE IN ACCORDANCE WITH NEC 705.14.
3. INTERCONNECTIONS SHALL BE IN ACCORDANCE WITH NEC 705.10.
4. THE ENERGY SERVER OUTPUT IS EQUIPPED WITH UTILITY-INTERACTIVE INVERTERS RECOGNIZED BY UL TO UL1741 AND IEEE 1547 AND COMPLIES WITH NEC 692.62. INVERTER SETTINGS PER THE PROVIDED TABLE BELOW.
5. THE ENERGY SERVER IS NOT A SEPERATELY DERIVED SYSTEM PER NEC 250.30 [ART. 100]

REFERENCE SHEET NOTES

1. ALL CONNECTIONS FROM FUEL CELLS TO INVERTER ARE FACTORY WIRED AND ALL MAINTENANCE CABINETS ARE ACTIVELY PRESSURIZED; THEREFORE, NO CLASS 1, DIVISION 2 WIRING IS REQUIRED.
2. ALL COMPONENTS SHOWN IN THIS BOUNDARY SHALL BE UL LISTED TOGETHER AS A SINGLE, COMPLETE, ALL INCLUSIVE UNIT. ALL ELECTRICAL CONDUIT/CABLE CONNECTIONS WITHIN THIS BOUNDARY SHALL BE FACTORY INSTALLED WITH SOME FINAL CONNECTIONS TO BE COMPLETED BY THE CONTRACTOR IN THE FIELD. REFER TO BLOOM INSTALLATION MANUAL FOR ALL FINAL TERMINATION POINTS.
3. CONTRACTOR SHALL PROVIDE CONDUIT AND CONDUCTORS AS INDICATED. SELECTION OF CONDUIT TYPE SHALL BE PER NEC REQUIREMENTS. REFER TO BLOOM INSTALLATION MANUAL FOR ALL FINAL TERMINATION POINTS AT BLOOM ENERGY FURNISH EQUIPMENT.
4. MANUFACTURER INSTALLED, PRE-WIRED EPO BUTTON LOCATED IN READILY ACCESSIBLE LOCATION AT ENERGY SERVER PLATFORM AND CONNECTED TO TELEMETRY CABINET TERMINAL STRIP.
6. CONTRACTOR SHALL PROVIDE (1) #1/0 AWG CU FROM ENERGY SERVER GROUND TO UFER GROUND IN ENERGY SERVER PAD, TYP.
7. CONTRACTOR SHALL PROVIDE AND/ OR UTILIZE EXISTING SPARE LUGS FOR POINT OF CONNECTION AT EXISTING SWITCHBOARD AND TERMINATE GROUND CONDUCTOR TO THE GROUND BUS.
9. THE UTILITY-INTERACTIVE INVERTER POINT OF CONNECTION SHALL BE IN ACCORDANCE WITH NEC 705.12
10. EQUIPMENT GROUND CONDUCTOR (EGC) TO BE TERMINATED AT THE GROUND BAR AT EACH SWITCHGEAR.
11. MD1 LUGS TO BE RATED FOR MIN. 1200A, 15kV, AND BE SUITABLE FOR TERMINATION OF MIN. OF 6 #500 KCMIL CABLES TO ALLOW FOR LOOPPING OF THE CABLES ENTERING FROM MV SWITCHGEAR.
12. THE EXISTING TIE IN CABLES TO BE REMOVED AND NEW TIE IN CABLES (ROUTED VIA NEW DISC-MD-1 LINE SIDE LUGS) TO BE INSTALLED.

TABLE-1

MANUFACTURER SUPPLIED INVERTER SETTINGS

FUNCTION	DESCRIPTION	PICKUP(%)	TRIP TIME	OPERATING MODE
27-1	UNDER VOLTAGE (LV2)	< 50%	1.1 SECONDS	MC
27-2	UNDER VOLTAGE (LV1)	50% - 88%	2 SECONDS	MO
59-1	OVER VOLTAGE (OV1)	> 110%	2 SECONDS	MC
59-2	OVER VOLTAGE (OV2)	> 120%	10 CYCLES	NA
81U-2	UNDER FREQUENCY (UF2)	< 56.5 HZ	10 CYCLES	NA
81U-1	UNDER FREQUENCY (UF1)	56.5-58.5 HZ	300 SECONDS	MO
81O-1	OVER FREQUENCY (OF1)	61.2-62 HZ	300 SECONDS	MO
81O-2	OVER FREQUENCY (OF2)	≥62 HZ	10 CYCLES	NA
79	RECONNECT TIMER		5 MINUTES	

TABLE-2

SEL-751A RELAY SETTINGS

FUNCTION	DESCRIPTION	PICKUP(%)	TRIP TIME
27-1	UNDER VOLTAGE (LV2)	< 50%	1.1 SECONDS (66 CYCLES)
27-2	UNDER VOLTAGE (LV1)	50% - 88%	2 SECONDS (120 CYCLES)
59-1	OVER VOLTAGE (OV1)	> 110%	2 SECONDS (120 CYCLES)
59-2	OVER VOLTAGE (OV2)	> 120%	0.16 SECONDS (10 CYCLES)
81U-2	UNDER FREQUENCY (UF2)	< 56.5 HZ	0.16 SECONDS (10 CYCLES)
81U-1	UNDER FREQUENCY (UF1)	56.5-58.5 HZ	300 SECONDS (18,000 CYCLES)
81O-1	OVER FREQUENCY (OF1)	61.2-62 HZ	300 SECONDS (18,000 CYCLES)
81O-2	OVER FREQUENCY (OF2)	≥62 HZ	0.16 SECONDS (10 CYCLES)
79	RECONNECT TIMER		5 MINUTES (18,000 CYCLES)

Bloomenergy
4353 N 1ST STREET
SAN JOSE, CA 95134

CUSTOMER SITE
MEDTRONIC, INC.
86 QUINNIPIAC AVE
NORTH HAVEN, CT 06473

Medtronic

REVISION HISTORY		
REV	REVISION ISSUE	DATE
-	INITIAL RELEASE	09/16/2019

DESIGNED BY RICHARD BAYRA	REVIEWED BY
DRAWN BY KEERTHANA	APPROVED BY

SHEET TITLE
ELECTRICAL
SINGLE LINE
DIAGRAM

DRAWING NUMBER
E3.1

BLOOM DOCUMENT
DOC-1011816

THIS DRAWING IS 24" X 36" AT FULL SIZE

SITE ID: MDC002.D | SHEET 03 OF 03

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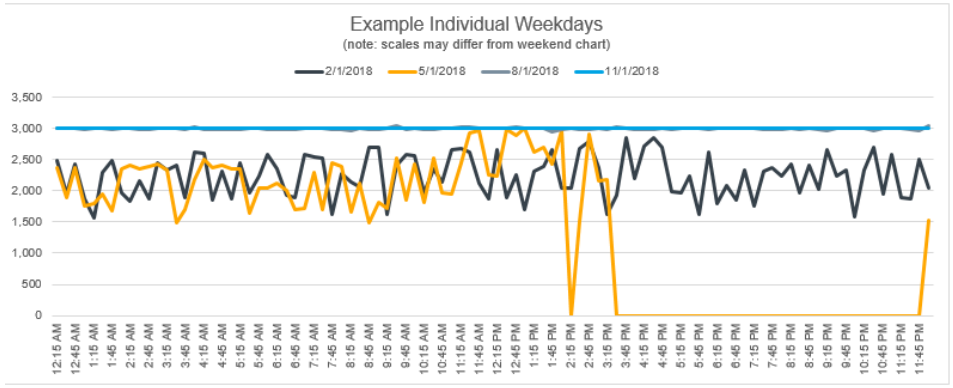
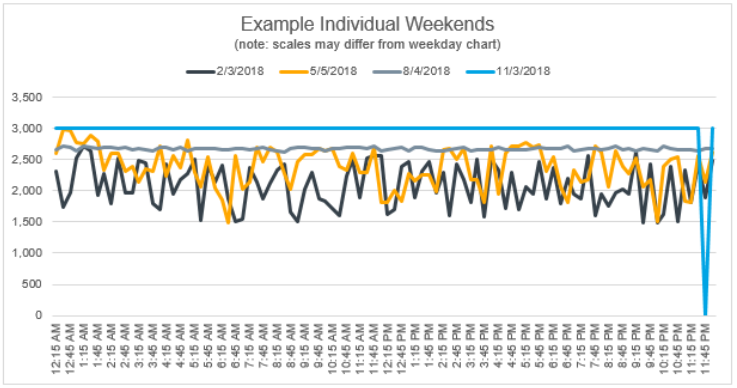
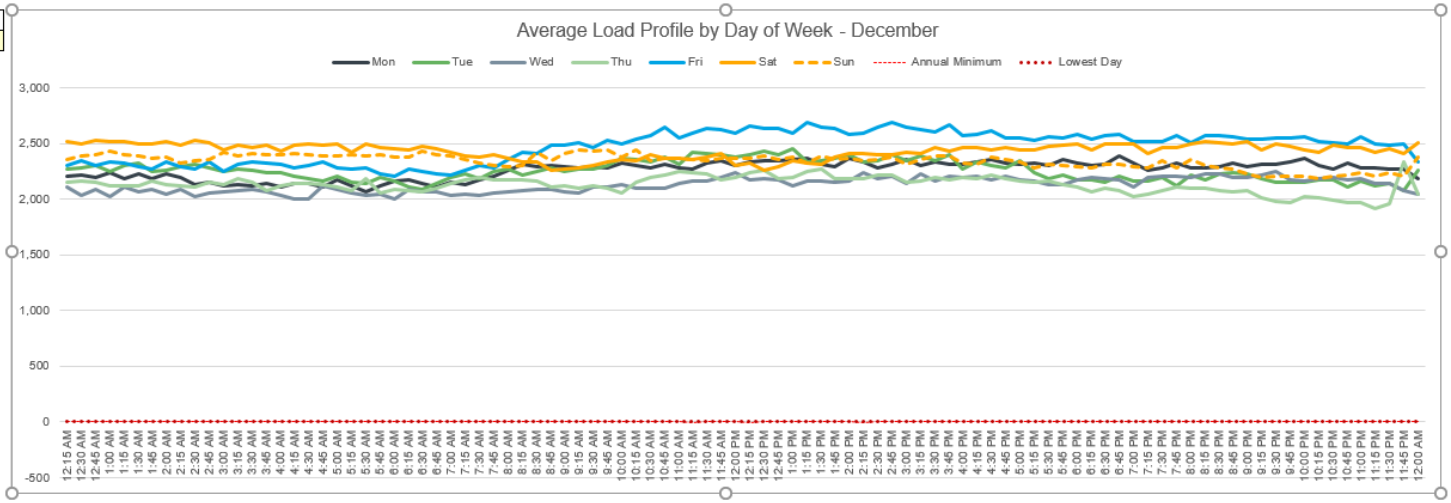
Exhibit 3

Interconnect #2



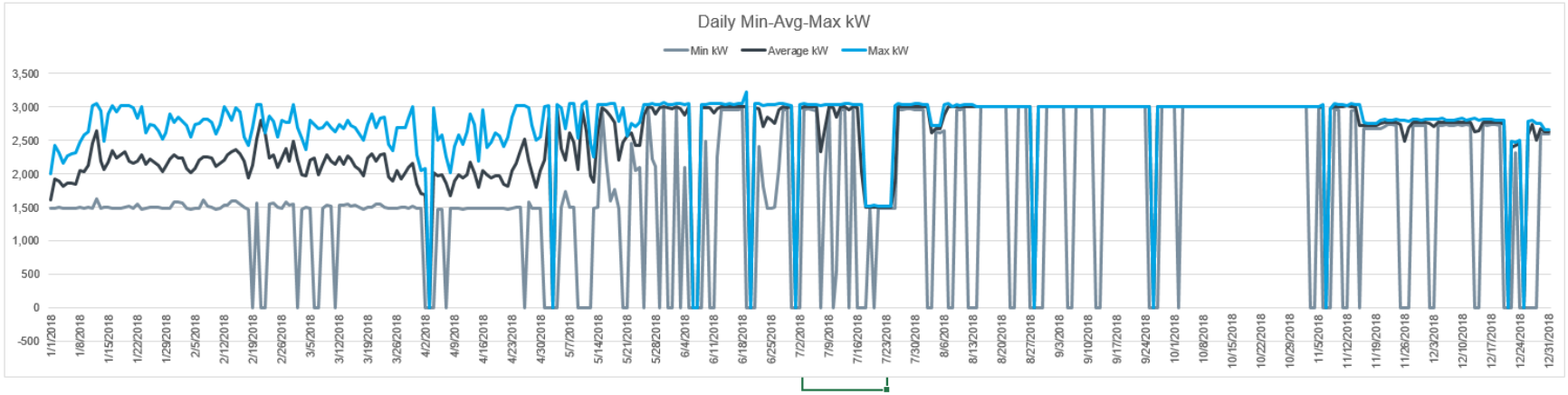


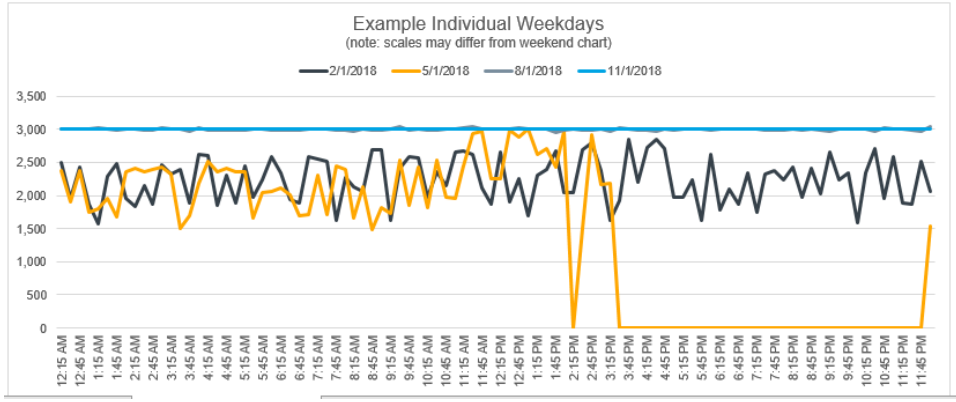
Day of Week Chart Month (0 = All)
0

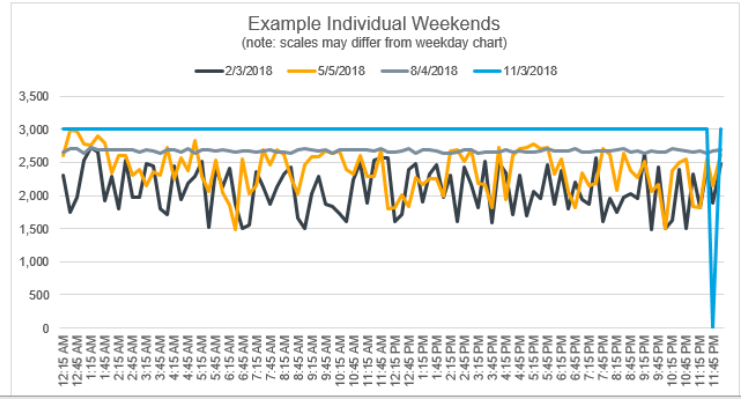


Interval Data – Note: Loads shown are in excess of existing cogen

INTERCONNECT # 1







Interval Data – Note: Loads shown are in excess of existing cogen

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PRODUCT DATASHEET

Energy Server™ 5

Always On, Clean Energy
Using Patented Solid Oxide
Fuel Cell Technology

The Energy Server 5 provides combustion-free electric power with these benefits

Clean

Our systems produce near zero criteria pollutants (NOx, SOx, and particulate matter) and far fewer carbon emissions than legacy technologies.

Reliable

Bloom Energy Servers are designed around a modular architecture of simple repeating elements. This enables us to generate power 24 x 7 x 365 and can be configured to eliminate the need for traditional backup power equipment.

Resilient

Our system operates at very high availability due to its fault-tolerant design and use of the robust natural gas pipeline system. Bloom Energy Servers have survived extreme weather events and other incidences and have continued providing power to our customers.

Simple Installation and Maintenance

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Bloom Energy
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www.bloomenergy.com

Energy Server 5	Technical Highlights (ES5-EA2AAN)
Outputs	
Nameplate power output (net AC)	250 kW
Load output (net AC)	250 kW
Electrical connection	480V, 3-phase, 60 Hz
Inputs	
Fuels	Natural gas, directed biogas
Input fuel pressure	10-18 psig (15 psig nominal)
Water	None during normal operation
Efficiency	
Cumulative electrical efficiency (LHV net AC)[1]	65-53%
Heat rate (HHV)	5,811-7,127 Btu/kWh
Emissions[2]	
NOx	0.0017 lbs/MWh
SOx	Negligible
CO	0.034 lbs/MWh
VOCs	0.0159 lbs/MWh
CO_2 @ stated efficiency	679-833 lbs/MWh on natural gas; carbon neutral on directed biogas
Physical Attributes and Environment	
Weight	13.6 tons
Dimensions (variable layouts)	14'4" x 8'8" x 6'9" or 28'8" x 4'4" x 7'2"
Temperature range	-20° to 45° C
Humidity	0% - 100%
Seismic vibration	IBC site class D
Location	Outdoor
Noise	< 70 dBA @ 6 feet
Codes and Standards	
Complies with Rule 21 interconnection and IEEE1547 standards	
Exempt from CA Air District permitting; meets stringent CARB 2007 emissions standards	
An Energy Server is a Stationary Fuel Cell Power System. It is Listed by Underwriters Laboratories, Inc. (UL) as a 'Stationary Fuel Cell Power System' to ANSI/CSA FC1-2014 under UL Category IRGZ and UL File Number MH45102.	
Additional Notes	
Access to a secure website to monitor system performance & environmental benefits	
Remotely managed and monitored by Bloom Energy	
Capable of emergency stop based on input from the site	

[1] 65% LHV efficiency verified by ASME PTC 50 Fuel Cell Power Systems Performance Test
[2] NOx and CO measured per CARB Method 100, VOCs measured as hexane by SCAQMD Method 25.3

About Bloom Energy

Bloom Energy's mission is to make reliable, clean energy affordable for everyone in the world. The company's product, the Bloom Energy Server, delivers highly reliable and resilient, Always On electric power that is clean and sustainable. Bloom's customers include twenty-five of the Fortune 100 companies and leaders in cloud services and data centers, healthcare, retail, financial services, utilities and many other industries.

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Energy Server 5	Technical Highlights (ES5-EACAAN)
Outputs	
Nameplate power output (net AC)	250 kW
Load output (net AC)	250 kW
Electrical connection	480V, 3-phase, 60 Hz
Inputs	
Fuels	Natural gas, directed biogas
Input fuel pressure	10-18 psig (15 psig nominal)
Water	None during normal operation
Efficiency	
Cumulative electrical efficiency (LHV net AC)[1]	65-53%
Heat rate (HHV)	5,811-7,127 Btu/kWh
Emissions[2]	
NOx	0.0017 lbs/MWh
SOx	Negligible
CO	0.034 lbs/MWh
VOCs	0.0159 lbs/MWh
CO_2 @ stated efficiency	679-833 lbs/MWh on natural gas; carbon neutral on directed biogas
Physical Attributes and Environment	
Weight	12.2 tons
Dimensions (variable layouts)	14'4" x 8'8" x 6'9" or 25'1" x 4'4" x 7'2"
Temperature range	-20° to 45° C
Humidity	0% - 100%
Seismic vibration	IBC site class D
Location	Outdoor
Noise	< 70 dBA @ 6 feet
Codes and Standards	
Complies with Rule 21 interconnection and IEEE1547 standards	
Exempt from CA Air District permitting; meets stringent CARB 2007 emissions standards	
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Energy Server 5	Technical Highlights (ES5-YA1AAN)
Outputs	
Nameplate power output (net AC)	300 kW
Load output (net AC)	300 kW
Electrical connection	480V, 3-phase, 60 Hz
Inputs	
Fuels	Natural gas, directed biogas
Input fuel pressure	10-18 psig (15 psig nominal)
Water	None during normal operation
Efficiency	
Cumulative electrical efficiency (LHV net AC)[1]	65-53%
Heat rate (HHV)	5,811-7,127 Btu/kWh
Emissions[2]	
NOx	0.0017 lbs/MWh
SOx	Negligible
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VOCs	0.0159 lbs/MWh
CO_2 @ stated efficiency	679-833 lbs/MWh on natural gas; carbon neutral on directed biogas
Physical Attributes and Environment	
Weight	13.6 tons
Dimensions (variable layouts)	14'4" x 8'8" x 6'9" or 28'8" x 4'4" x 7'2"
Temperature range	-20° to 45° C
Humidity	0% - 100%
Seismic vibration	IBC site class D
Location	Outdoor
Noise	< 70 dBA @ 6 feet
Codes and Standards	
Complies with Rule 21 interconnection and IEEE1547 standards	
Exempt from CA Air District permitting; meets stringent CARB 2007 emissions standards	
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Fuel Cell Technology

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Energy Server 5	Technical Highlights (ES5-YA8AAN)
Outputs	
Nameplate power output (net AC)	300 kW
Load output (net AC)	300 kW
Electrical connection	480V, 3-phase, 60 Hz
Inputs	
Fuels	Natural gas, directed biogas
Input fuel pressure	10-18 psig (15 psig nominal)
Water	None during normal operation
Efficiency	
Cumulative electrical efficiency (LHV net AC)[1]	65-53%
Heat rate (HHV)	5,811-7,127 Btu/kWh
Emissions[2]	
NOx	0.0017 lbs/MWh
SOx	Negligible
CO	0.034 lbs/MWh
VOCs	0.0159 lbs/MWh
CO_2 @ stated efficiency	679-833 lbs/MWh on natural gas; carbon neutral on directed biogas
Physical Attributes and Environment	
Weight	15.8 tons
Dimensions (variable layouts)	17'11" x 8'8" x 6'9" or 32'3" x 4'4" x 7'2"
Temperature range	-20° to 45° C
Humidity	0% - 100%
Seismic vibration	IBC site class D
Location	Outdoor
Noise	< 70 dBA @ 6 feet
Codes and Standards	
Complies with Rule 21 interconnection and IEEE1547 standards	
Exempt from CA Air District permitting; meets stringent CARB 2007 emissions standards	
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Exhibit 4

Fire Prevention and Emergency Planning – Grid Parallel

Bloom Energy Corporation, 1299 Orleans Drive, Sunnyvale, CA 94089 USA

Table of Contents

1. FIRE PREVENTION AND EMERGENCY PLANNING OVERVIEW

The following document is provided only as a guide to assist you in complying with national and local codes and requirements, as well as to provide other helpful information. It is not intended to supersede the requirements of any standard. You should review the standards for particular requirements that are applicable to your individual situation, and make adjustments to this program that are specific to your company. You will need to add information relevant to your facility in order to develop an effective, comprehensive program.

2. FUEL CELL SYSTEM INSTALLATION SAFETY FEATURES

The fuel cell system has redundant safety features and in-system checks to ensure that the system will not harm certified technicians or bystanders near the unit. While the actual fuel cells operate at high temperatures, these components do not move, and are contained within many layers of insulation. During normal operation, the unit is cool to the touch and operates quietly.

The fuel cell system is controlled electronically and has internal sensors that continuously measure system operation. If safety circuits detect a condition outside normal operating parameters, the fuel supply is stopped and individual system components are automatically shut down. A Bloom Energy Remote Monitoring and Control Center (RMCC) operator can also remotely initiate any emergency sequence. An Emergency Stop alarm condition initiates an automatic shutdown sequence that puts the fuel cell system into —safe modell and causes it to stop exporting power. If you have questions about any of these safety features, please contact Bloom Energy.

If you have to shut down your fuel cell system right away—for example, in case of a building fire or electrical hazard—three shutoff controls are installed at your facility external to the system. The locations of these three controls should be known to your facilities manager before operation, and should be noted on your facility diagram that you created with your Bloom Energy account manager. The three shutoffs are the **EPO button**, the **electrical disconnect**, and the **natural gas shutoff valve**.

- An **Emergency Power Off (EPO) Button** cuts all power to all systems and stops them from exporting power to your building. All natural gas flow is also stopped within the systems. (The EPO button is on the front/side of the EDM, if an EDM is installed.) Lift the protective cover and break the glass seal that covers the button with the attached hammer. After the glass seal is broken, the shutdown sequence will automatically begin.

Figure 1: Emergency Power Off Button

- An **electrical disconnect** manually disconnects systems from the grid if needed. Pressing the EPO button should already stop any power transmission, but it does not hurt the systems to also open this disconnect if you believe it is needed. The location of this disconnect will vary, however it is typically located near the point of interconnection where the wires from the fuel cell installation meet the facility's electrical framework. This may be inside your facility's electrical room, or if the fuel cell installation is near the electrical room, it may be found within the switchgear that Bloom Energy installs. This location of this disconnect is shown on the Site Map (see below) and is labeled "(name of electrical utility) Lockable Visible Generator Disconnect Switch".


Figure 2: Electrical Disconnect

- A **manual natural gas valve** shuts down all natural gas to the system. If the valve operator is perpendicular to the pipe, the valve is shut. If it is parallel with the pipe, the valve is open.

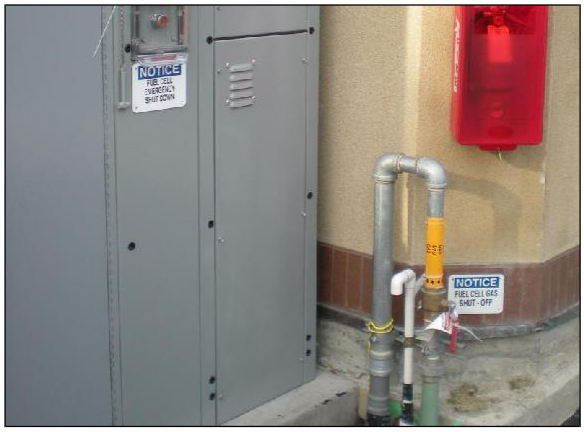

Figure 3: Manual Natural Gas Valve

Site map:

- An overhead site map showing the location of all safety features will be posted throughout the fuel cell installation
- Electronic copies are available to you for use in your site planning

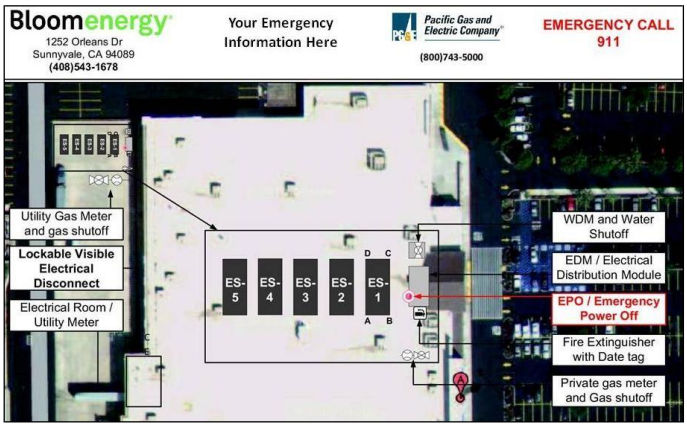

Figure 4: Sample Site Map

Manual controls:

- Clearly marked emergency stop button labeled —Fuel Cell Emergency Shut Downll located at site
- Two manual fuel shutoff valves outside the system, and two isolation valves inside the system

Fire hazard mitigation:

- System is plumbed directly to utility-provided natural gas
- If system input gas pressure is compromised, a pressure switch triggers an emergency system shutdown and fuel input is isolated
- System does not use fuel compressors or pumps
- System has virtually no stored fuel (internal capacity is < 5 scf)

Electrical hazard and mitigation:

- System operates at 480V
- Signs inside the system warn of the risk of electric shock
- System has backfeed protection
- System inverter prevents grid backfeed during a power outage

Mechanical hazard and mitigation:

- Finger/hand guard protection is provided on all fans
- All moving parts are located behind secured doors

Material hazard mitigation:

- Desulfurizer bed (to remove fuel impurities) are fully enclosed
- Maintained and serviced by licensed vendors

3. EMERGENCY NOTIFICATION PROCEDURES

Life-Threatening Emergencies

To report life-threatening emergencies, immediately call:

Fire:	**911**
Ambulance:	**911**
Police:	**911**

Conditions that require automatic emergency notification include:

- Unconscious Victim
- Seizure
- Major Trauma
- Chest Pains
- Difficulty Breathing
- Flames

Non-Life-Threatening Emergencies

For non-life-threatening emergencies, report the incident to the local safety control center.

When you report an emergency, give the following information:

- Exact nature of the emergency (describe as clearly and accurately as possible).
- Exact location (i.e., address, building, floor, area, department, etc.).
- Telephone number from which you are calling.
- Your full name.
- ***Do not hang up***, as additional information may be needed.

To assist in any subsequent investigation or determination of corrective actions, it is recommended to record the following items as close to the incident time as possible:

- Summary of any violation

- Identification of responsible parties
- Identification of victims and witnesses
- Description of evidence
- Description of general conditions
- Description of any vehicles involved
- Narratives from witnesses
- Any photographs

4. FIRE OR SMOKE PROCEDURES

This section describes the procedures involving a fire or smoke. A major fire is one that requires the use of more than one fire extinguisher or takes more than one minute to extinguish.

If you discover a fire or smoke:

1. Activate the nearest fire alarm if not activated already.
2. Activate the fuel cell Emergency Stop if possible.
3. Shut off the fuel cell installation natural gas line if possible.
4. If the fire is small and does not pose an immediate risk to personal safety, you may attempt to extinguish it with a portable fire extinguisher **only if trained to do so.**
5. Avoid using water on electrical fires.
6. Report every fire, regardless of size, immediately. Smoke or the smell of smoke should be reported.
   - From a safe location dial **911**.
   - Report the incident to the local security safety center.

5. MEDICAL EMERGENCY PROCEDURES

This section describes the necessary procedures for injuries or illnesses that may occur under extreme conditions.

A serious injury can be life-threatening and will require immediate medical attention. Injuries can include head injuries, spine injuries, broken bones, heart attack, stroke, loss of consciousness, excessive bleeding, chemical exposure, etc.

A non-serious injury is not immediately life-threatening but may still require the attention of a medical doctor. These can include headaches, nausea, itching, cuts, burns, etc.

Life-Threatening Medical Emergency

1. Remain calm.
2. Immediately dial 911.
3. Report the incident to local security safety center.
4. Do not move the victim unless it is absolutely necessary.
5. Call out for personnel trained in first aid and/or CPR which may include Building Evacuation or Emergency Response team members.

6. Ask someone to bring the area first aid kit and Automated External Defibrillator.
7. Assist if capable or asked to do so.

Non-Life-Threatening Medical Emergency

1. Remain calm.
2. Report the incident to the local security safety center.
3. Do not move the victim unless it is absolutely necessary.
4. Call out for personnel trained in first aid.
5. Ask someone to bring the area first aid kit.
6. If the victim requires further medical attention, then direct them to the nearest approved medical clinic or hospital – Contact Security or Human Resources for assistance if needed.
7. The injured employee's supervisor/manager is responsible for ensuring injury forms are properly filled out. Complete the forms within 24 hours of incident and submit to the injury reporting system for follow-up. Follow company protocols.

6. MATERIALS RELEASE PROCEDURES

The fuel cell system does not pose a hazard to health or environment. However, some internal materials when released, may pose a irritation risk to people and a possible risk of fire if not properly handled. This section was designed to address potential material release events:

In case of a material release that poses a direct threat to health, safety, or the environment:

1. Report the incident to local safety/security office.
2. If extremely life-threatening immediately dial **911** followed with a call to Security.
3. Contain the spill.
4. Evacuate the area or building if the material release is determined to be life-threatening.

In the event of an unknown indoor smell or odor, report the incident to authorities responsible for HAZMAT and spills.

7. NATURAL DISASTERS AND SEVERE WEATHER

7.1 Earthquake

This section provides information and procedures for earthquake emergencies.

The fuel cell system is designed to automatically shut off if the natural gas supply is compromised.

The natural gas supply line has an external, manual shut-off valve that should be activated if it is safe to do so. This valve will be labeled, "Notice – Fuel Cell Gas Shut

Off". The natural gas line will be labeled with the word "gas" on a yellow background with an arrow pointing in the direction of flow.

The nearby Emergency Stop can be activated to stop the flow of fuel and power to/from the fuel cell system.

A Bloom Energy Field Engineer will validate site safety and system operation during/after severe weather as necessary.

7.2 Flood

The fuel cell system support pad is designed to divert water flow. However, if flooding conditions exist, or threaten to exist due to heavy rainfall, creek bank overflows, or pipe breakage, then immediately report the incident to the local safety/security office.

Do not use the fuel cell power system if any part has been under water. If it is safe to reach the Emergency Power Off button for the site without entering the water, stop all systems until a Bloom Energy representative can assess the site.

Precautions to follow after a flood:

- Stay out of flooded areas. Flooded areas remain unsafe. Entering a flooded area places you at risk.
- Notify Bloom Energy. A Bloom Energy Field Engineer will validate site safety and system operation during/after severe weather as necessary

8. UTILITY OUTAGE

The fuel cell system is operated in "Grid-Parallel" mode. If utility provided power is lost for any reason, the fuel cell system will go "off-line". The fuel cell system will remain in stand-by mode until it automatically senses the utility grid has been restored. If utility gas is shut down, the fuel cell system will begin to shut down completely.

The Bloom Energy Remote Monitoring Control Centers monitor the fuel cells 24 hours per day and will be alerted to utility grid interruptions via its controls software. A Field Service Engineer will be dispatched to restart the fuel cell system if necessary. Customer personnel should NOT attempt to start up or operate the fuel cell system.

Before a Planned Outage

- Notify the Bloom Energy Remote Monitoring Control Center at 1-408-543-1678 at least 24 hours before planned outage.
- Bloom Energy Remote Monitoring Engineers will reduce power generated by the fuel cell system and take the fuel cell off-line.
- Abrupt fuel cell system shutdowns may cause significant system damage.

During a Utility Power Loss

- The fuel cell system will automatically go off-line.
- The Bloom Energy Remote Monitoring Control Centers will monitor the fuel cell system.
- Bloom Energy Field Service will be dispatched to start up the fuel cell system as necessary.
- If the fuel cell system has been automatically shut down and utility power is restored, there will be no impact to building power delivery: primary power will come from the utility rather than the fuel cells.

9. GOOD HOUSEKEEPING AND MAINTENANCE

9.1 Good Housekeeping

Although extremely unlikely, to minimize the risk of fire and any incidents, Facility Managers should take the following precautions around the fuel cell installation:

- What to do if you smell gas:
  - Do not try to light any appliance
  - Do not touch any electrical switch; do not use any phone in the area
  - Leave the area immediately
  - Immediately call your gas supplier. Follow the gas supplier's instructions.
  - If you cannot reach your gas supplier, call the fire department

- Notify Bloom Energy Remote Monitoring Control Center at 1-408-543-1678 of any condition that would impair the safety of the fuel cell installation so that mitigation measures could be determined and placed into effect.
- Prohibit smoking within the area of the fuel cell installation. Bloom Energy will furnish No Smoking signs for the area.
- Ensure only Bloom Energy Service Providers are permitted access inside the system.
- Keep the area around the fuel cell installation clear for ten feet in all directions, for safety and ease of maintenance.
- Keep the area around the fuel cell power system clear and free of combustible materials, gasoline, and other flammable vapors and liquids.
- Shut the system down and call Bloom Energy immediately if you suspect a fuel line rupture.
- **Never enclose an operating system** in a tarp, tent, shed, or other structure that would allow air to become trapped. This system runs on natural gas, and produces trace amounts of CO and CO2. The amounts of these gases are safe for normal outdoor operation but could gather in an enclosed place.
- Do not block or obstruct air openings on the fuel cell power system. This system requires air flow in order to operate.

- Do not use this fuel cell power system if any part has been under water. Immediately call qualified service personnel to inspect the fuel cell power system and to replace any functional part which has been under water.
- Please contact Bloom Energy at 408-543-1678 with as much advance notice as possible if you plan, detect, or suspect a prolonged Internet outage.
- The Bloom Energy Field Service team will periodically clean the equipment; do not spray with pressurized hoses.

9.2 Maintenance

Your site has specific Field Service personnel assigned to it for both routine maintenance and troubleshooting. Your site project manager will introduce you to the designated Bloom Energy Field Service team assigned to your site prior to operation.

Bloom Energy Field Service personnel are trained in state Safety Law. They are trained in all the procedures required for the fuel cell installation, and their toolkit includes all the safety equipment required to work around the fuel components and high voltage in our system (480VAC).

Bloom Energy also requires its employees to follow all necessary safety precautions, including:

- Every time a Field Service technician arrives at a site for the first time and opens a service panel, the technician will use a leak detector to determine whether there is any gas buildup in the system and determine that it is safe to work on it.
- Whenever a Field Service technician is removing and replacing a component on a fuel or exhaust line, the technician must keep a CO detector nearby to make sure that no CO is present in the line even after the system has been shut down.

The Field Service team expects to conduct quarterly and yearly preventative maintenance for certain types of consumable or cleanable components such as replacement of air filters, water filters, and desulfurizer beds. Other maintenance will be performed as required. During such times, inspections for any hazards will be conducted including quarterly fire extinguisher inspection (if applicable).

10. TRAINING

Prior to system startup, a Bloom Energy representative will provide training on the fuel cell installation to include the location and operation of safety features as well as actions to take during emergencies. We desire this training to provide lasting value and are more than happy to work with you to customize the experience to suit your needs.

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Exhibit 5

195 McDermott Road

Image 1 – Front of Fuel Cell Install Area

Image 2 – Back of Fuel Cell Install Area

Image 3 – Left of Fuel Cell Install Area

Image 4 – Right of Fuel Cell Install Area

86 Middletown Avenue

Image 1 – Front of Fuel Cell Install Area

Image 2 – Back of Fuel Cell Install Area

Image 3 – Left of Fuel Cell Install Area

Image 4 – Right of Fuel Cell Install Area

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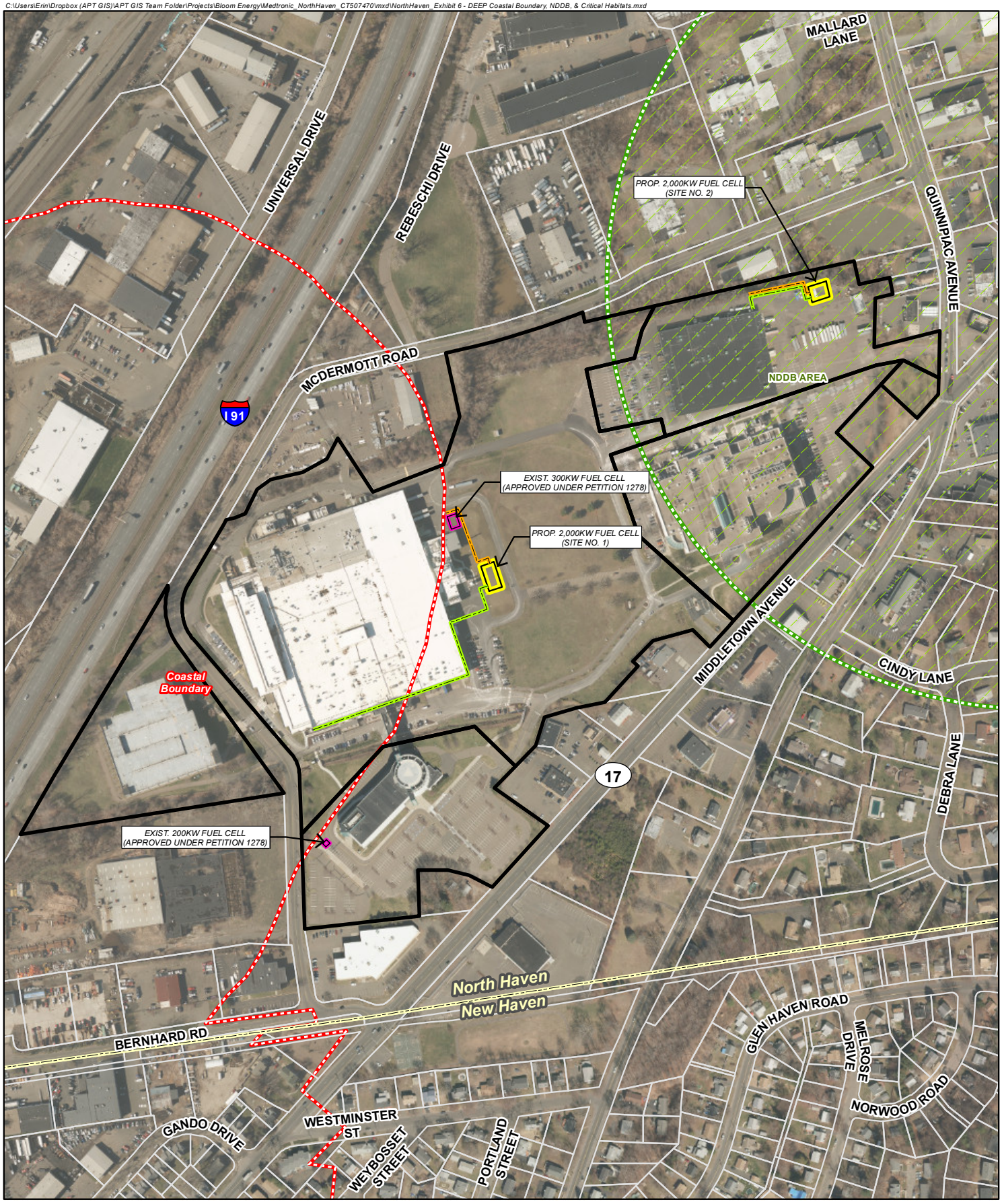
Exhibit 6



Legend

- Site
- Approximate Assessor Parcel Boundary (CTDEEP)
- Municipal Boundary
- Coastal Boundary (CTDEEP)
- CTDEEP Critical Habitat (none in mapped extent)
- NDDB Area (June 2019)
- ExistingFuelCellArea (Approved)
- New Equipment Area
- New Underground Utility Trench
- New Underground Gas

N W E S

400 200 0 400 Feet

Map Notes:
Base Map Source: 2016 Aerial Photograph (CTECO)
Map Scale: 1 inch = 400 feet
Map Date: October 2019

Exhibit 6
CTDEEP Coastal Boundary, NDDB, & Critical Habitats

Proposed Bloom Energy Facility
Medtronic Campus
North Haven, CT

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ALL-POINTS TECHNOLOGY CORPORATION

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Exhibit 7

C:\Users\Erin\Dropbox (APT GIS)\APT GIS Team Folder\Projects\Bloom Energy\Medtronic_NorthHaven_CT507470\mxd\NorthHaven_Exhibit 7 - DEEP wetland and watercourses.mxd

Legend

- Subject_Properties
- Approximate Assessor Parcel Boundary (CTDEEP)
- Municipal Boundary
- CTDEEP Watercourse
- CTDEEP Waterbody
- CTDEEP Wetlands
- Existing Fuel Cell Area (Approved)
- New Equipment Area
- New Underground Utility Trench
- New Underground Gas

N, W, E, S

400 200 0 400 Feet

Map Notes:
Base Map Source: 2016 Aerial Photograph (CTECO)
Map Scale: 1 inch = 417 feet
Map Date: October 2019

Exhibit 7
CTDEEP Wetland and Watercourses

Proposed Bloom Energy Facility
Medtronic Campus
North Haven, CT

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ALL-POINTS TECHNOLOGY CORPORATION

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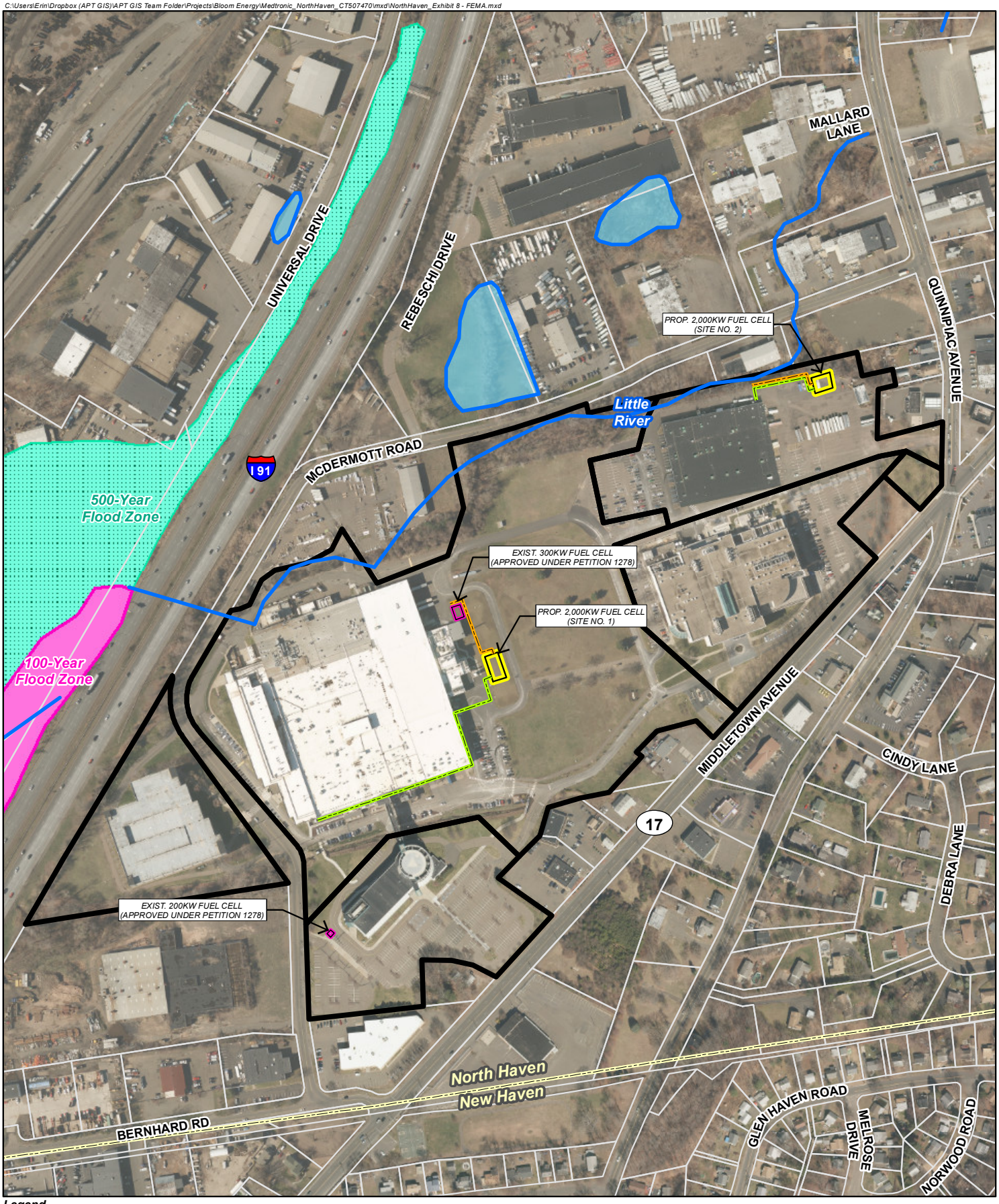
Exhibit 8

C:\Users\Erin\Dropbox (APT GIS)\APT GIS Team Folder\Projects\Bloom Energy\Medtronic_NorthHaven_CT507470\mxd\NorthHaven_Exhibit 8 - FEMA.mxd



Legend

- Site
- Approximate Assessor Parcel Boundary (CTDEEP)
- Municipal Boundary
- Existing Fuel Cell Area (Approved)
- New Equipment Area
- New Underground Utility Trench
- New Underground Gas
- CTDEEP Watercourse
- CTDEEP Waterbody

FEMA Flood Zones (FEMA NFHL)

- 100-Year Flood Zone
- 500-Year Flood Zone
- Floodway

400 200 0 400 Feet

Map Notes:
Base Map Source: 2016 Aerial Photograph (CTECO)
Map Scale: 1 inch = 400 feet
Map Date: October 2019

Exhibit 8
FEMA Flood Zones

Proposed Bloom Energy Facility
Medtronic Campus
North Haven, CT

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ALL-POINTS TECHNOLOGY CORPORATION

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Exhibit 9

Calculation of **Yuma** Sound Pressure Based On Distance

By Bob Hintz 1/16

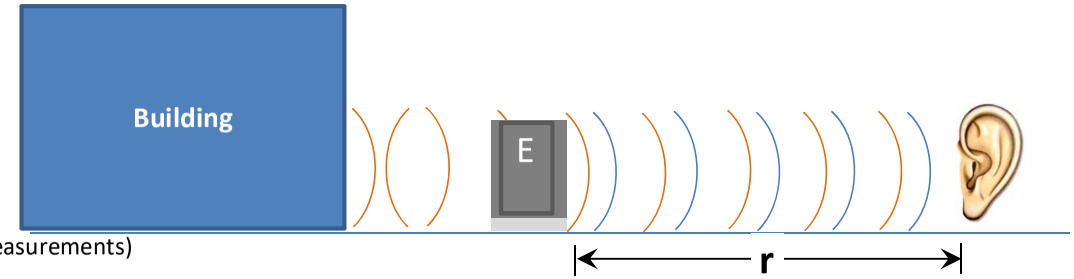
All calculations are based on the following formula for sound pressure level (L_p):

$$L_p = L_W - |10 \cdot \log\left(\frac{Q}{4\pi \cdot r^2}\right)|$$

Sound power value (L_W) attained from V1 Yuma linear in DE reported on Feb. 4, 2015 by Mei Wu.

Scenario 1

ES is installed close to a building or tall wall so noise from the ES is reflected off of the structure and added to the noise from the other side of the ES making it sound louder than normal. This is represented by a directivity factor Q = 4

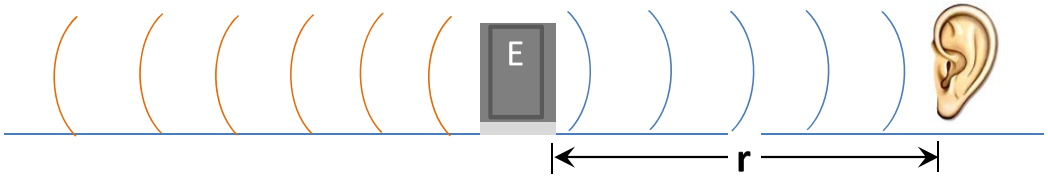


L_p =	**56.3** dB	
Where:		
L_W =	86.4 dB	ES sound power (Calc. from measurements)
Q =	4	Directivity factor
r =	42 Feet	**Enter value here for both Scenarios**

Input verious values for r to approximate the percieved sound pressure at that distance from the ES door

Scenario 2

ES is installed with no structures behind it to reflect sound from either side. This is represented by a directivity factor Q = 2



L_p =	**53.3** dB	
Where:		
L_W =	86.4 dB	ES sound power (Calc.)
Q =	2	Directivity factor
r =	42 Feet	

Input verious values for r to approximate the percieved sound pressure at that distance from the ES door

Calculation of **Yuma** Sound Pressure Based On Distance

By Bob Hintz 1/16

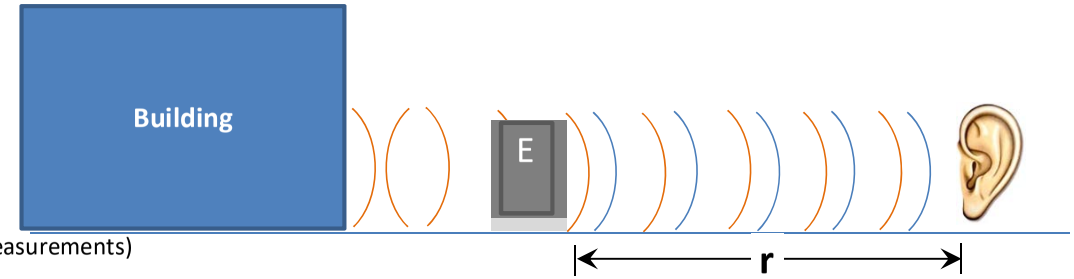
All calculations are based on the following formula for sound pressure level (L_p):

$$L_p = L_W - |10 \cdot \log\left(\frac{Q}{4\pi \cdot r^2}\right)|$$

Sound power value (L_W) attained from V1 Yuma linear in DE reported on Feb. 4, 2015 by Mei Wu.

Scenario 1

ES is installed close to a building or tall wall so noise from the ES is reflected off of the structure and added to the noise from the other side of the ES making it sound louder than normal. This is represented by a directivity factor Q = 4



L_p =	**38.3** dB	

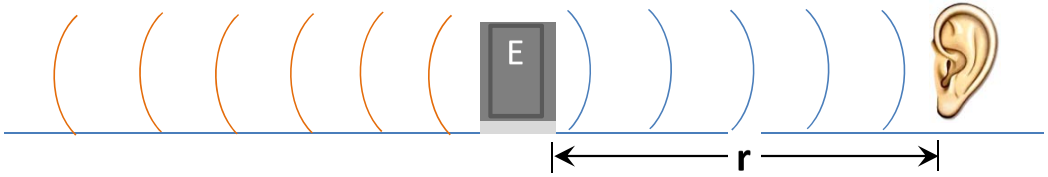
Where:

L_W =	86.4 dB	ES sound power (Calc. from measurements)
Q =	4	Directivity factor
r =	334 Feet	**Enter value here for both Scenarios**

Input verious values for r to approximate the percieved sound pressure at that distance from the ES door

Scenario 2

ES is installed with no structures behind it to reflect sound from either side. This is represented by a directivity factor Q = 2



L_p =	**35.3** dB	

Where:

L_W =	86.4 dB	ES sound power (Calc.)
Q =	2	Directivity factor
r =	334 Feet	

Input verious values for r to approximate the percieved sound pressure at that distance from the ES door

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Exhibit 10

Notice and Service List Pursuant to Conn. Agencies Regs. § 16-50j-40(a)

Municipal and Elected Officials

Last Name	First Name	Title	Address	City	State	Postal Code
Freda	Michael	First Selectman, Town of North Haven	18 Church Street	North Haven	CT	06473
Fredrickson	Alan	Land Use Administrator	18 Church Street	North Haven	CT	06473
		Chairperson, Planning & Zoning Commission	18 Church Street	North Haven	CT	06473
		Chairperson, Inland Wetlands Commission	18 Church Street	North Haven	CT	06473
Davis	Hugh	Chair, Conservation Commission	18 Church Street	North Haven	CT	06473
Harp	Toni	Mayor, City of New Haven	165 Church Street	New Haven	CT	06510
Woods	Aicha	Executive Director, City Plan	165 Church Street	New Haven	CT	06510
		City Plan Commission	165 Church Street	New Haven	CT	06510
		Inland Wetlands Commission	165 Church Street	New Haven	CT	06510
Maturo Jr.	Joseph	Mayor, Town of East Haven	250 Main Street	East Haven	CT	06512
Soto	Christopher	Planning & Zoning Enforcement Officer	250 Main Street, Lower Level	East Haven	CT	06512
		Planning & Zoning Commission	250 Main Street, Lower Level	East Haven	CT	06512
Blumenthal	Richard	U.S. Senator	702 Hart Senate Office Building	Washington	DC	20510
Murphy	Chris	U.S. Senator	B40A Dirksen Senate Office Building	Washington	DC	20510
DeLauro	Rosa	U.S. Representative	2413 Rayburn House Office Building	Washington	DC	20515
Fasano	Leonard A	State Senator, 34th District	Legislative Office Building, Room 3400	Hartford	CT	06106-1591
Yaccarino	Dave W	State Representative, 87th District	Legislative Office Building, 300 Capitol Ave., Room 4200	Hartford	CT	06106-1591
Tong	William	Connecticut Attorney General	55 Elm Street	Hartford	CT	06106

Dykes	Katie	Commissioner, Department of Energy and Environmental Protection	79 Elm Street	Hartford	CT	06106-5127
Paslick Gillett	Marissa	Chairman, Public Utilities Regulatory Authority	10 Franklin Square	New Britain	CT	06051
Coleman-Mitchell	Renée D.	Commissioner, Department of Public Health	410 Capitol Avenue	Hartford	CT	06134
Merrow	Susan D.	Chair, Council on Environmental Quality	79 Elm Street	Hartford	CT	06106
Hurlburt	Bryan P.	Commissioner, Department of Agriculture	450 Columbus Blvd., Suite 701	Hartford	CT	06103
McCaw	Melissa	Secretary, Office of Policy and Management	450 Capitol Avenue	Hartford	CT	06106
Giulietti	Joseph	Commissioner, Department of Transportation	2800 Berlin Turnpike	Newington	CT	06111
Lehman	David	Commissioner, Department of Economic and Community Development	450 Columbus Boulevard	Hartford	CT	06103
Rush-Kittle	Regina	Deputy Commissioner, Division of Emergency Management and Homeland Security (DEMHS)	1111 Country Club Road	Middletown	CT	06457
Seagull	Michelle H.	Commissioner, Department of Consumer Protection	450 Columbus Boulevard, Suite 901	Hartford	CT	06103
Geballe	Josh	Commissioner, Department of Administrative Services	450 Columbus Boulevard	Hartford	CT	06103
Westby	Kurt	Commissioner, Department of Labor	200 Folly Brook Boulevard	Wethersfield	CT	06109
		South Central Regional Council of Governments	127 Washington Avenue, 4th Floor West	North Haven	CT	06473

Abutter Properties

Map ID Map/Lot	Site Address (North Haven)	Owner Name	Street	City	State	Zip
6/36	171 McDermott Road	A & V Realty LLC	44 Hermitage Ln	North Haven	CT	06473
6/6	78 Rebeschi Drive	Andrew T. Dixon	P O Box 1307	Green Farms	CT	06838
6/8	100 McDermott Road	Ryder Truck Rental Inc. #0444	c/o Property Tax Dept 3B, P O Box 025719	Miami	FL	33102-5719
6/35	57 McDermott Road	Shoreline Acquisitions LLC	112 Washington Ave, Ste-2	North Haven	CT	06473
6/34	39 McDermott Road	Gerald M. Pagano	250 S Ocean Blvd, Apt 267	Delray Beach	FL	33483
6/33	81 McDermott Road	McDermott Road LLC	39 Sugar Hill Rd	North Haven	CT	06473
6/32	96 Quinnipiac Avenue	Khamphanh & Thone Khamphouy	96 Quinnipiac Ave	North Haven	CT	06473
6/31	92 Quinnipiac Avenue	Siphone & Mee Ounsaen	92 Quinnipiac Ave	North Haven	CT	06473
6/30	88 Quinnipiac Ave	Sampati LLC	88 Quinnipiac Ave	North Haven	CT	06473
6/19	102 Middletown Avenue	Middletown 102 LLC	66 Kings Hwy	North Haven	CT	06473
7/29	85 Middletown Avenue	Rite North Haven LLC	4045 Sheridan Ave #221	Miami Beach	FL	33140
6/25	83 Middletown Avenue	83 Middletown Ave LLC	35 Scenic Ct	Cheshire	CT	06410
6/27	82 Middletown Avenue	A & V Realty LLC	44 Hermitage Lane	North Haven	CT	06473
6/24	60 Quinnipiac Avenue	Edward P Murphy	60 Quinnipiac Ave	North Haven	CT	06473
6/23	59 Middletown Avenue	Shree Mohan LLC	59 Middletown Ave	North Haven	CT	06473
3/14	55 Middletown Avenue	Granite Property Holdings LLC	55 Middletown Ave, Ste 1	North Haven	CT	06473
3/49	51 Middletown Avenue	Lightsout LLC	51 Middletown Ave	North Haven	CT	06473
3/13	50 Middletown Avenue	50 Middletown Avenue Assoc LLC	2 Carolyn Ct	North Haven	CT	06473
3/12	40 Middletown Avenue	Ngau Ngo & Tieng Taing	40 Middletown Ave	North Haven	CT	06473
3/11	34 Middletown Avenue	Nicks Char-Pit Inc.	22 Middletown Ave	North Haven	CT	06473
3/57	22 Middletown Avenue	22 Middletown Avenue Assoc LLC	11 St John St, Unit A-4	North Haven	CT	06473

3/50	19 Middletown Avenue	Papa Associates M-Q, LLC	11 St John St, Unit A-4	North Haven	CT	06473
3/51	15 Middletown Avenue	Fifteen Middletown Ave Corp	1-71 North Ave East	Elizabeth	NJ	07201
3/9	18 Middletown Avenue	Sharon M. Palmieri	18 Middletown Ave	North Haven	CT	06473
3/8	10 Middletown Avenue	C D R F T LLC	P O Box 733	Stigler	OK	74462
3/4	10 Bernhard Road	V B H LLC	10 Bernhard Rd	North Haven	CT	06473
2/9	250 McDermott Road	MVL Properties LLC	30 Bernhard Rd	North Haven	CT	06473
3/5	222 McDermott Road	Haven West LLC	30 Bernhard Rd	North Haven	CT	06473
2/2	260 Universal Drive	Metal Management CT Inc	234 Universal Dr	North Haven	CT	06473
6/1	250 Universal Drive	Metal Management CT Inc	234 Universal Dr	North Haven	CT	06473

Bloomenergy

VIA CERTIFICATE OF MAILING

October 2, 2019

RE: Application of Bloom Energy for the location and construct1ion of fourteen (14) new ES-5 Bloom Energy Server solid oxide fuel cells to provide 4000 Kilowatts of Customer-Side Distributed Resource at the Medtronic Campus, North Haven, Connecticut

Dear Ladies and Gentlemen:

Pursuant to Section §16-50j-40 of the Connecticut Siting Council's (the "Council") regulations, we are notifying you that Bloom Energy intends to file with the Council, on or about October 7, 2019, a petition for an amendment to the declaratory ruling that previously approved two fuel cell installations at the Medtronic Campus in North Haven. The petition will request the Council's approval of the location and construction of two additional fuel cell installations consisting of seven (7) energy servers each and associated equipment. Together, they will provide an additional 4000 Kilowatts to the associated Medtronic buildings at 195 McDermott Road and 86 Quinnipiac Avenue.

The purpose of the proposed Facility is to continue to replace the average baseload of Medtronic's operations at that location with a renewable energy source[1] and improve reliability of electrical systems and equipment. Electricity generated by the Facility will be consumed primarily at the Site, and any excess electricity will be exported to the electric grid. The Facility will be fueled by natural gas.

Keeping the lines of communication open is an important part of our work in your community. If you have questions about this work, please contact the undersigned or the Council.

Respectfully,

Justin Adams
justin.adams@bloomenergy.com

Be

[1]Connecticut General Statutes §16-1(a)(26)(A) identifies fuel cells as a "Class I renewable energy source"

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	Postmaster, per *(name of receiving employee)*		

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1.	Honorable Richard Blumenthal Senator 702 Hart Senate Office Building Washington, DC 20510				
2.	Hon. Chris Murphy Senator 840A Dirksen Senate Office Building Washington, DC 20510				
3.	Hon. Rosa DeLauro U.S. Representative 2413 Rayburn Office Building Washington, D.C 20515				
4.	Hon. William Tong Attorney General 55 Elm St. Hartford, CT 06106				
5.	Katie Dykes, Commissioner Dept. of Energy & Environmental Protection 79 Elm St. Hartford, CT 06106-5127				
6.	Marissa Paslick Gillett, Chairman Public Utilities Regulatory Authority 10 Franklin Square New Britain, CT 06051				

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1.	Renee D. Coleman-Mitchell, Commissioner Department of Public Health 410 Capitol Ave. Hartford, CT 06134				
2.	Susan D. Merrow, Chair Council on Environmental Quality 79 Elm St. Hartford, CT 06106				
3.	Bryan P. Hurlburt, Commissioner Department of Agriculture 450 Columbus Blvd., Suite 701 Hartford, CT 06103				
4.	Melissa McCaw, Secretary Office of Policy and Management 450 Capitol Ave. Hartford, CT 06106				
5.	Joseph Guilietti, Commissioner Department of Transportation 2800 Berlin Turnpike Newington, CT 06111				
6.	David Lehman, Commissioner Dept. of Economic and Community Development 450 Columbus Blvd Hartford, CT 06103				

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	Postmaster, per *(name of receiving employee)*		

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1.	Regina Rush-Kittle, Deputy Commissioner Div. of Emergency Mgmt and Homeland Security 1111 Country Club Rd. Middletown, CT 06457				
2.	Michelle H. Seagull, Commissioner Department of Consumer Protection 450 Columbus Blvd., Suite 901 Hartford, CT 06103				
3.	Josh Geballe, Commissioner Department of Administrative Services 450 Columbus Blvd. Hartford, CT 06103				
4.	Kurt Westby, Commissioner Department of Labor 200 Folly Brook Blvd. Wethersfield, CT 06109				
5.	Honorable Michael Freda, First Selectman Town of North Haven 18 Church St North Haven, CT 06473				
6.	Alan Fredrickson, Land Use Administrator Town of North Haven 18 Church St North Haven, CT 06473				

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1.	Inland Wetlands Commission 165 Church St New Haven, CT 06510				
2.	Honorable Joseph Maturo, Jr. Mayor, Town of East Haven 250 Main St East Haven, CT 06512				
3.	Christopher Soto Planning & Zoning Enforcement Officer 250 Main St East Haven, CT 06512				
4.	Planning & Zoning Commission 250 Main St East Haven, CT 06512				
5.	Leonard A Fasano Senator, 34th District Legislative Office Building, Room 3400 Hartford, CT 06106-1591				
6.	South Central Regional Council of Governments 127 Washington Ave., 4th Floor East North Haven, CT 06473				

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	Postmaster, per *(name of receiving employee)*		

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1.	Dave W. Yaccarino Representative, 87th District Legislative Office Building, Room 4200 Hartford, CT 06106-1591				
2.	A & V Realty LLC 44 Hermitage Ln North Haven, CT 06473				
3.	Andrew T. Dixon PO Box 1307 Green Farms, CT 06838				
4.	Ryder Truck Rental Inc. #0444 c/o Property Tax Dept 3B PO Box 25719 Miami FL 33102-5719				
5.	Shoreline Acquisitions LLC 112 Washington Ave, Ste-2 North Haven, CT 06473				
6.	Gerald M. Pagano 250 S Ocean Blvd, Apt 267 Delray Beach, FL 33483				

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	Postmaster, per *(name of receiving employee)*		

USPS® Tracking Number / Firm-specific Identifier	Address	Postage	Fee	Special Handling	Parcel Airlift
1.	Chair, Planning & Zoning Commission 18 Church St North Haven, CT 06473				
2.	Chair, Inland Wetlands Commission 18 Church St North Haven, CT 06473				
3.	Hugh Davis, Chair Conservation Commission 18 Church St North Haven, CT 06473				
4.	Honorable Toni Harp Mayor, City of New Haven 165 Church St New Haven, CT 06510				
5.	Aicha Woods Executive Director, City Plan 165 Church St New Haven, CT 06510				
6.	City Plan Commission 165 Church St New Haven, CT 06510				

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USPS® Tracking Number / Firm-specific Identifier	Address (Name, Street, City, State, and ZIP Code™)	Postage	Fee	Special Handling	Parcel Airlift
1.	V B H LLC 10 Bernhard Rd North Haven, CT 06473				
2.	Metal Management CT Inc. 234 Universal Dr North Haven, CT 06473				
3.	50 Middletown Avenue Assoc LLC 2 Carolyn Ct North Haven, CT 06473				
4.	22 Middletown Avenue Assoc LLC 11 St John St., Unit A-4 North Haven, CT 06473				
5.	Sharon M. Palmieri 18 Middletown Ave North Haven, CT 06473				
6.	MVL Properties LLC 30 Bernhard Rd North Haven, CT 06473				

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1.	Edward P Murphy 60 Quinnipiac Ave North Haven, CT 06473				
2.	Shree Mohan LLC 59 Middletown Ave North Haven, CT 06473				
3.	Granite Property Holdings LLC 55 Middletown Ave, Ste 1 North Haven, CT 06473				
4.	Lightsout LLC 51 Middletown Ave North Haven, CT 06473				
5.	Nick's Char-Pit Inc. 22 Middletown Ave North Haven. CT 06473				
6.	Fifteen Middletown Ave Corp 1-71 North Ave East Elizabeth, NJ 07201				

See Reverse for Instructions

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USPS® Tracking Number Firm-specific Identifier	Address (Name, Street, City, State, and ZIP Code™)	Postage	Fee	Special Handling	Parcel Airlift
1.	Khamphanh & Thone Khamphouy 96 Quinnipiac Ave North Haven, CT 06473				
2.	Siphone & Mee Ounsaen 92 Quinnipiac Ave North Haven. CT 06473				
3.	Sampati LLC 88 Quinnipiac Ave North Haven, CT 06473				
4.	Middletown 102 LLC 66 Kings Hwy North Haven, CT 06473				
5.	Rite North Haven LLC 4045 Sheridan Ave #221 Miami Beach, FL 33140				
6.	83 Middletown Ave LLC 35 Scenic Ct Cheshire, CT 06410				

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USPS® Tracking Number Firm-specific Identifier	Address (Name, Street, City, State, and ZIP Code™)	Postage	Fee	Special Handling	Parcel Airlift
1.	Ngau Ngo & Tieng Taing 40 Middletown Ave North Haven, CT 06473				
2.	Papa Associates M-Q, LLC 11 St John St., Unit A-4 North Haven, CT 06473				
3.	C D R F T LLC PO Box 733 Stigler, OK 74462				
4.	Haven West LLC 30 Bernhard Rd North Haven, CT 06473				
5.					
6.					

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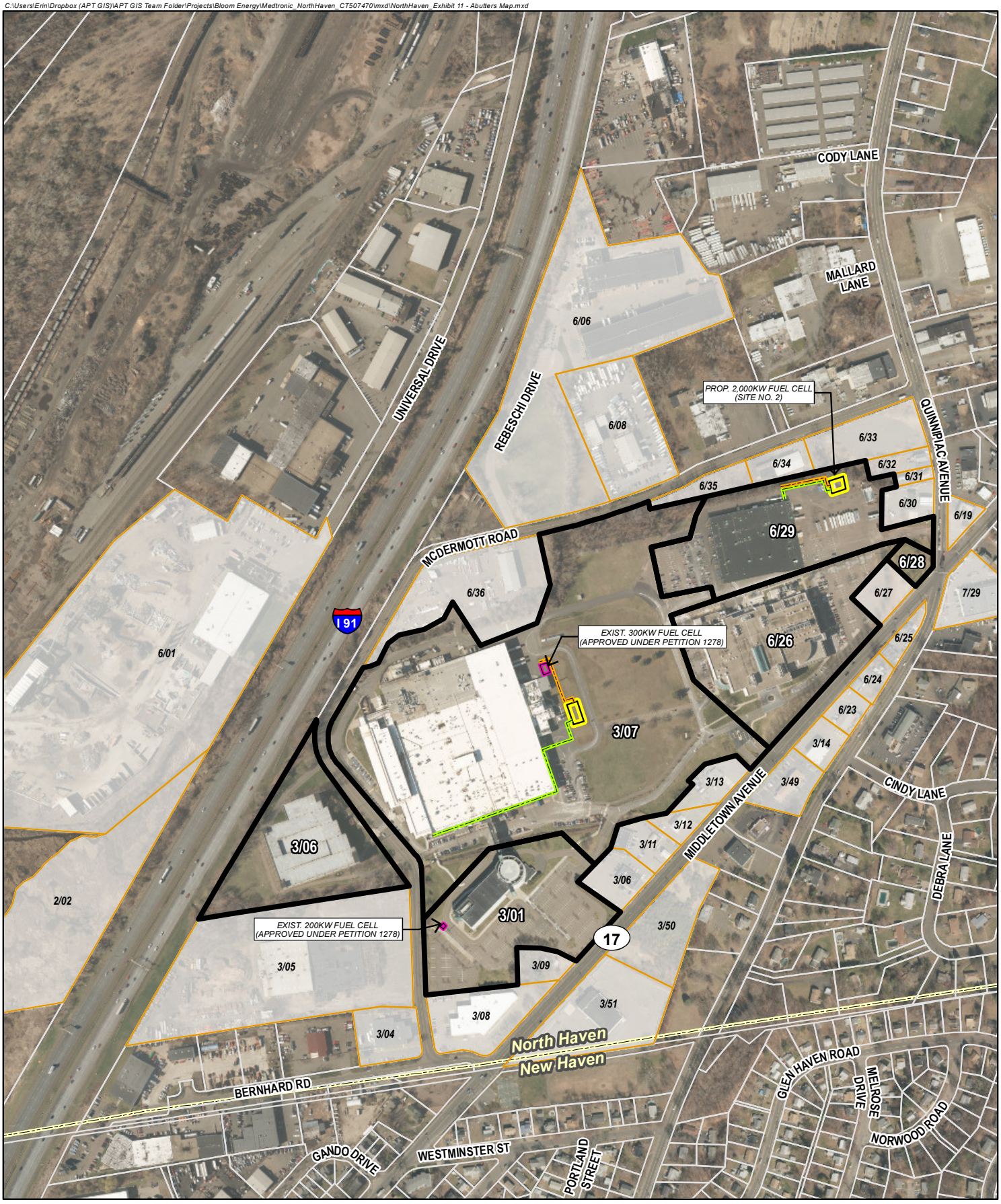
Exhibit 11



Legend

- Site
- Abutting Property
- Municipal Boundary
- Approximate Assessor Parcel Boundary (CTDEEP)
- Existing Fuel Cell Area (Approved)
- New Equipment Area
- New Underground Utility Trench
- New Underground Gas

N W E S

500 250 0 500 Feet

Exhibit 11
Abutters Map

Proposed Bloom Energy Facility
Medtronic Campus
North Haven, CT

Bloomenergy

ALL-POINTS TECHNOLOGY CORPORATION

Map Notes:
Base Map Source: 2016 Aerial Photograph (CTECO)
Map Scale: 1 inch = 500 feet
Map Date: October 2019

Bloomenergy®

Exhibit 12

Jennifer Young Gaudet

From: Bradley J. Parsons
Sent: Tuesday, October 8, 2019 10:57 AM
To: fredricksen.alan@northhaven-ct.gov
Cc: sadosky.lynn@northhaven-ct.gov; Jennifer Young Gaudet
Subject: Medtronic Campus - Proposed Phase II Bloom Energy Fuel Cell
Attachments: MDC002.C_Preliminary Drawing Set_20190917.pdf; MDC002.D_Preliminary Drawing Set_ 20190917.pdf

Dear Mr. Fredricken:

All-Points Technology is working with Bloom Energy on plans for a Phase II fuel cell installation at the Medtronic Campus. The first two fuel cells were approved by the Connecticut Siting Council under Petition No. 1278 on February 21, 2017. They were commissioned in December of 2017. Bloom will be submitting an amendment to Petition No. 1278 to the Connecticut Siting Council for approval within the next week or two. In preparation for the filing, we are seeking any comment you or other appropriate City staff may have on the proposed plans. Attached are preliminary plans depicting the proposed installation. One (1) Bloom energy server facility will be placed to the south of the existing facility servicing the manufacturing facility at 195 McDermott Road. One (1) Bloom energy server facility will be placed to the east of the existing office building near the existing external electrical switch board at 86 Quinnipiac Ave.

I am available to discuss the plans or answer any questions you may have. I can be reached by phone at the number below or by e-mail.

Thank you.

Bradley J. Parsons, PE, PMP
Manager Civil Engineering
All-Points Technology Corporation
3 Saddlebrook Drive
Killingworth, CT 06419
(O) 860.552.2046
(C) 203.814.6866