EV CHARGING STATION INSTALLATION

1735 NORTH BISHOP AVE
ROLLA, MO 65401

SCOPE OF WORK

INSTALL (2) DCFC, NEW ELECTRICAL POLE, UTILITY TRANFORMER & ELECTRICAL EQUIPMENTS.

APPLICABLE CODES

WORK PERFORMED UNDER THIS CONTRACT SHALL, AT A MINIMUM, BE IN CONFORMANCE WITH APPLICABLE NATIONAL, STATE AND LOCAL CODES HAVING JURISDICTION. EQUIPMENT FURNISHED AND ASSOCIATED INSTALLATION WORK PERFORMED UNDER THIS CONTRACT SHALL BE IN STRICT COMPLIANCE WITH CURRENT APPLICABLE CODES ADOPTED BY THE LOCAL AHJ, INCLUDING ANY AMENDMENTS AND STANDARDS AS SET FORTH BY THE FOLLOWING:

- 2018 INTERNATIONAL BUILDING CODE (IBC)
- 2015 INTERNATIONAL EXISTING BUILDING CODE (IEBC)
- 2009 INTERNATIONAL ENERGY CONSERVATION CODE (IECC)
- NATIONAL ELECTRICAL CODE 2017 (NEC)

WHERE THE CONTRACT DOCUMENTS EXCEED THE REQUIREMENTS OF THE REFERENCED CODES, STANDARDS, ETC., THE CONTRACT DOCUMENTS SHALL TAKE PRECEDENCE. WHERE CONFLICTS BETWEEN VARIOUS CODES, ORDINANCES, RULES, AND REGULATIONS EXIST, COMPLY WITH THE MOST STRINGENT. PROMPTLY BRING ALL CONFLICTS OBSERVED BETWEEN CODES, ORDINANCES, RULES, REGULATIONS, REFERENCED STANDARDS, AND THESE DOCUMENTS TO THE ATTENTION OF THE ENGINEER FOR FINAL RESOLUTION. CONTRACTOR WILL BE HELD RESPONSIBLE FOR ANY VIOLATION OF THE LAW.

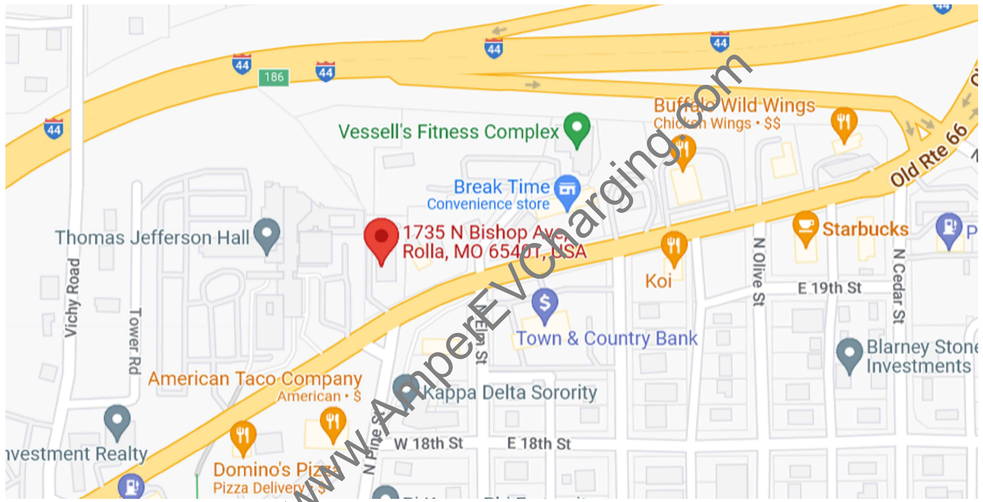
UNDERGROUND UTILITIES

811 Know what's below. CALL before you dig. DIG ALERT

CALL AT LEAST TWO WORKING DAYS BEFORE YOU DIG

EXISTING UNDERGROUND FACILITIES ARE SHOWN ON THESE PLANS FROM RECORD INFORMATION AND ARE INFORMATION ONLY. OTHER UNDERGROUND FACILITIES NOT SHOWN ON THE PLANS MAY EXIST. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING ALL EXISTING UNDERGROUND FACILITIES PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL NOTIFY A ONE-CALL SERVICE CENTER, TOLL FREE AT 811, NO LESS TWO DAYS PRIOR TO ANY EXCAVATION.

VICINITY MAP



SATELLITE VIEW

SHEET INDEX

DRAWING SUBMITTALS STATUS

		ISSUED FOR APPROVAL 01/31/23
EV01	COVER SHEET	●
EV02	NOTES, LEGEND & SYMBOLS	●
EV03	ELECTRICAL SITE LAYOUT	●
EV04	SINGLE LINE DIAGRAM & LOAD CALCULATION	●
EV05	INSTALLATION DETAILS SHEET 1	●
EV06	INSTALLATION DETAILS SHEET 2	●
EV07	INSTALLATION DETAILS SHEET 3	●
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EV09	DATA SHEETS	●

LEGEND	
UPDATED DRAWING ISSUE	●
UNCHANGED	○
DRAWING REMOVED FROM SUBMITTAL	X

PROFESSIONAL ENGINEERING:

DURAK EVRIM ERCAN P.E.
ENGINEERING | CONSULTING | ESTIMATING
201-920-2899 info@AmperEngineering.com

SEAL & SIGNATURE:

STATE OF MISSOURI
DURAK EVRIM ERCAN
NUMBER PE-2019023460
01/30/2023
PROFESSION ENGINEER

REV.	DATE	DESCRIPTION
0	01/31/2023	ISSUED FOR APPROVAL

CLIENT:
EV CHARGETEC
ADDRESS:
185 INDUSTRIAL PKWY,
BRANCHBURG, NJ 08876
PHONE:
908-801-6890

PROJECT:
EVCS INSTALLATION
ADDRESS:
1735 NORTH BISHOP AVE
ROLLA, MO 65401

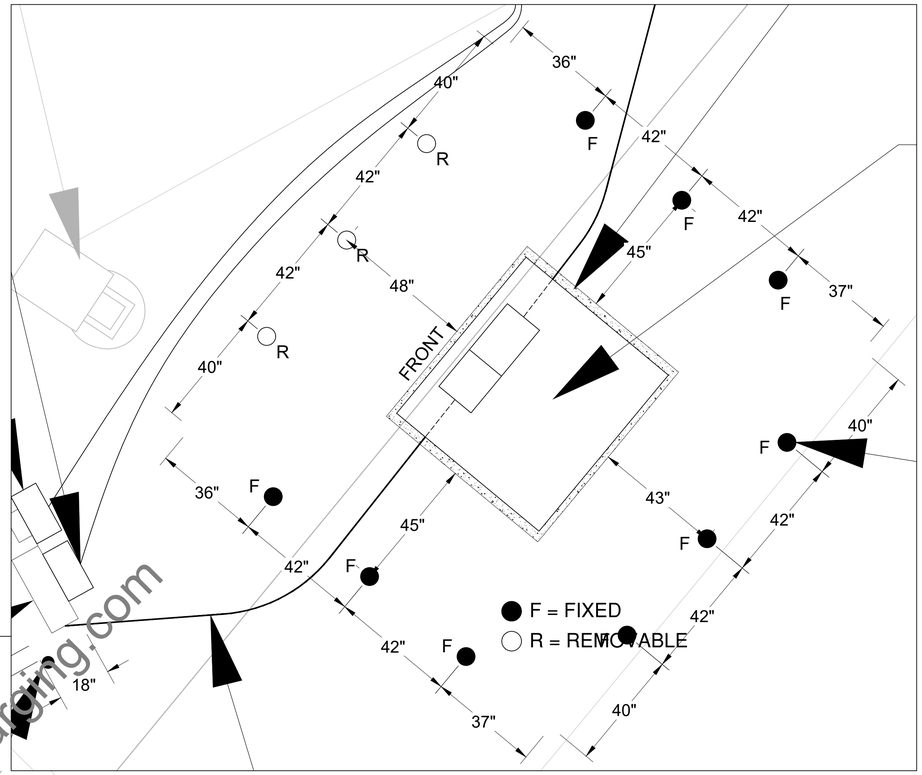
AMPER PROJECT NUMBER: 1626

SHEET SIZE:	DRAWN BY:
24X36	IB
DESIGNED BY:	CHECKED BY:
AC	DEE

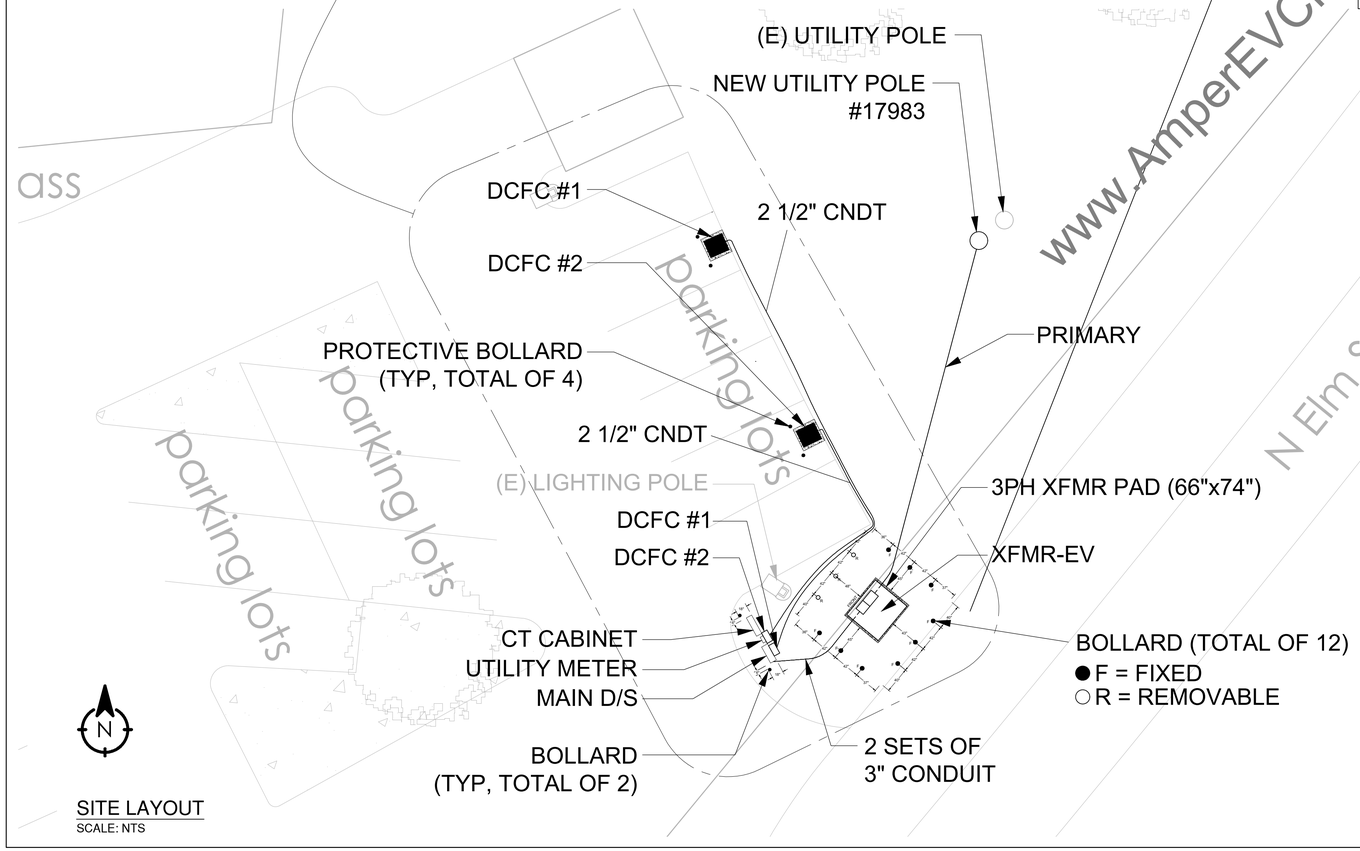
SHEET TITLE:
COVER SHEET

SHEET NO:
EV01

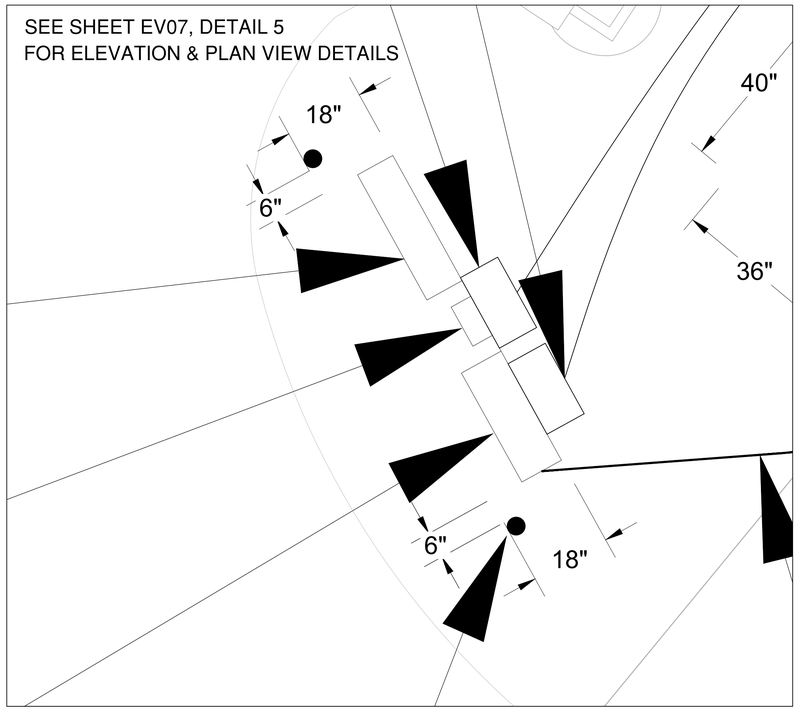
STREET VIEW



XFMR PAD ENLARGED VIEW
SCALE: 1/2" = 1'-0"



SITE LAYOUT
SCALE: NTS



ELECTRICAL EQUIPMENT ENLARGED VIEW
SCALE: 3/4" = 1'-0"

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SITE LAYOUT

SHEET NO:
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ELECTRICAL LOAD CALCULATION

A) BASED ON THE PRODUCT SPECIFICATION (SEE SHEET EV09 DETAIL 3):

INPUT VOLTAGE : 480VAC (3P+N+PE)
FLA/BREAKER RATING : 160A / 200A
POWER FACTOR : >0.98
POWER : 120KW

B) CALCULATING TOTAL MAXIMUM DEMAND (KVA):

i. DCFC #1 = 120KW x P.F
DEMAND LOAD (KVA) = 120 x 0.98 = 117.6KVA x 125% = 147KVA

ii. DCFC #2 = 120KW x P.F
DEMAND LOAD (KVA) = 120 x 0.98 = 117.6KVA x 125% = 147KVA

iii. DCFC #3 (FUTURE LOAD) = 120 x 0.98 = 117.6KVA x 125% 147KVA

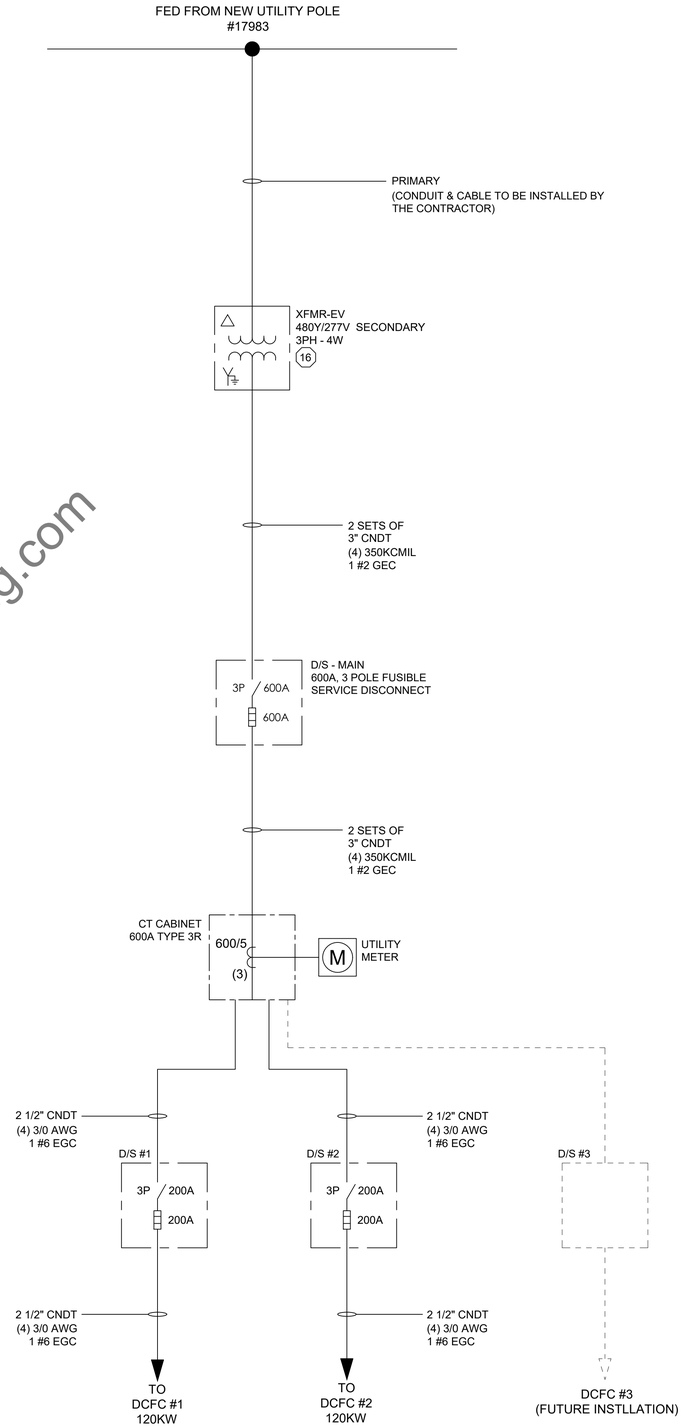
TOTAL MAXIMUM DEMAND LOAD (KVA) = 147 x 3 = 441KVA

C) CALCULATING TOTAL MAXIMUM DEMAND LOAD (AMP):
I = 441 / (1.732*0.48)
I = 530A

MINIMUM SERVICE SIZE : 600A

KEY NOTES:

1. ALL ELECTRICAL WORK AND RELATED ACTIVITIES PERFORMED ON-SITE SHALL BE DONE IN ACCORDANCE WITH NATIONAL ELECTRIC CODE (NEC) STANDARDS BEING ENFORCED BY ALL APPLICABLE JURISDICTIONAL REQUIREMENTS AT THE TIME OF CONSTRUCTION.
2. UTILITY EQUIPMENT INSTALLATIONS AND PREP WORK SHALL BE COORDINATED WITH THE APPROPRIATE UTILITY ENGINEER AT TIME OF PRECONSTRUCTION MEETING TO ENSURE ACCURACY OF INSTALLATIONS.
3. CONDUIT PATHS ARE REPRESENTATIVE ONLY. EXACT CONDUIT PLACEMENT TO BE DETERMINED ON SITE BASED ON FIELD CONDITIONS.
4. A NATIONALLY RECOGNIZED TESTING LABORATORY SHALL LIST ALL EQUIPMENT IN COMPLIANCE WITH NEC ARTICLE 110.3
5. ALL EXTERIOR EQUIPMENT SHALL BE RAIN TIGHT AND APPROVED FOR USE IN WET CONDITIONS.
6. ALL CONDUCTORS TO BE THHN COPPER
7. ALL CONDUCTORS AND CABLES SHALL BE PROVIDED WITH STRAIN RELIEF UPON ENTRY INTO ENCLOSURES
8. EACH UNGROUNDED CONDUCTOR SHALL BE IDENTIFIED BY PHASE AND SYSTEM PER NEC 210.5
9. ALL METALLIC COMPONENTS SHALL BE GROUNDED VIA ELECTRIC GROUNDING CONDUCTORS.
10. ALL UNDERGROUND CONDUIT TO BE UL RATED, MINIMUM 24" DEEP.
11. WIRING FOR ELECTRICAL VEHICLE CHARGING STATIONS TO BE INSTALLED PER MANUFACTURER'S DIRECTIONS AND SPECIFICATIONS.
12. CONTRACTOR TO ENSURE THAT ALL FEEDERS, CONDUITS, CONDUCTORS, OCPD, TRANSFORMERS, ELECTRICAL PANELS AND OTHER ELECTRICAL EQUIPMENT IS SIZED TO COMPLY WITH CURRENT NEC AND LOCAL AHJ CODES.
13. CONTRACTOR IS RESPONSIBLE TO VERIFY DESIGN, ENGINEERING ASSUMPTIONS AND EXISTING FIELD CONDITIONS. REPORT ANY INSUFFICIENCIES TO ENGINEER OF RECORD PRIOR TO ANY WORK BEING PERFORMED.
14. ELECTRICAL EQUIPEMENT PROVIDING POWER TO DCFC MUST BE IN COMPLIANCE WITH NEC 625.43, READILY ACCESSIBLE LOCATION. THE DISCONNECTING MEANS SHALL BE LOCKABLE OPEN IN ACCORDANCE WITH 110.25.
15. GROUNDING INSTALLATION AS PER NEC ART. 250.
16. CONTRACTOR TO VERIFY XFMR-EV PHASE VECTORS, CONNECTION AND SECONDARY VOLTAGE PRIOR TO CONSTRUCTION.



SINGLE LINE DIAGRAM

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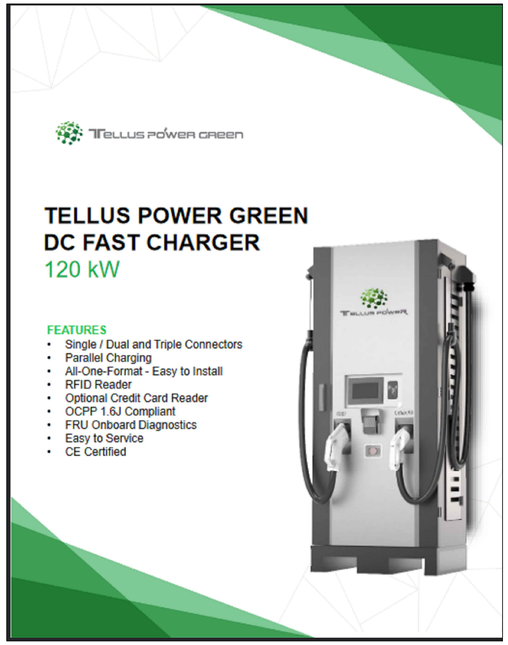
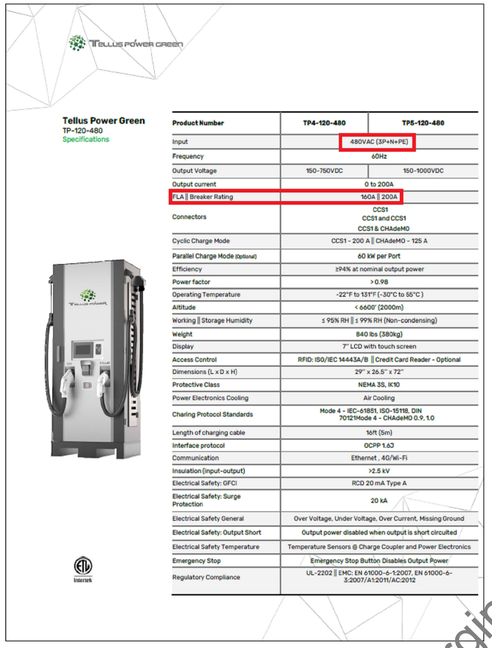
SINGLE LINE DIAGRAM & LOAD CALCULATION

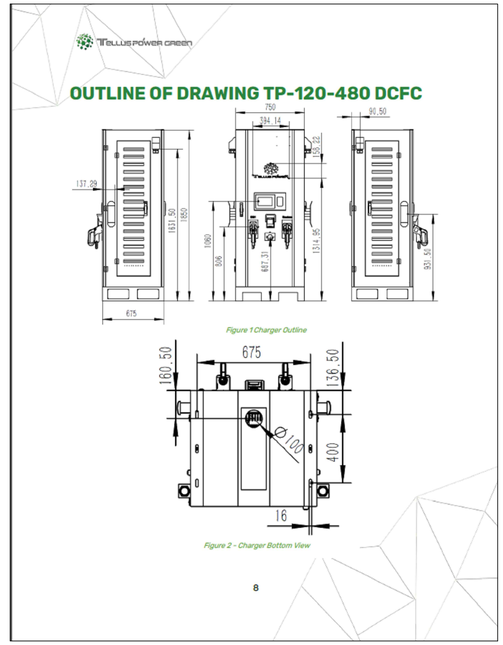
SHEET NO:
EV04



1 DCFC OVERVIEW
SCALE: NTS



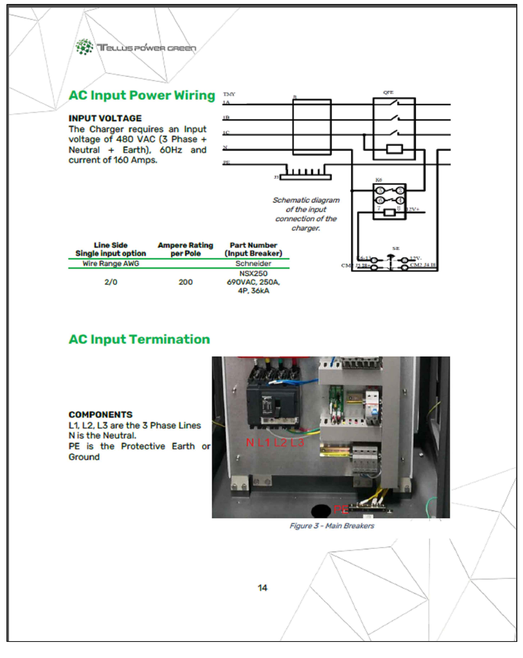
2 PRODUCT SPECIFICATION
SCALE: NTS



3 DCFC DIMENSIONS
SCALE: NTS

4 600A FUSIBLE DISCONNECT
SCALE: NTS

5 200A FUSIBLE DISCONNECT
SCALE: NTS



6 DCFC WIRING & TERMINATION
SCALE: NTS

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DATA SHEETS

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EV09