

CONSTRUCT SOLAR ARRAY MACON FIELD MAINTENANCE SHOP MACON, MISSOURI

SHEET INDEX

SHEET	NAME	DATE
G-001	COVER SHEET	01/14/2020
A-101	ARCHITECTURAL SITE PLAN & DETAILS	01/14/2020
E-100	ELECTRICAL SITE PLAN	01/14/2020
E-200	ELECTRICAL ROOF PLAN	01/14/2020
E-300	ELECTRICAL ONE-LINE AND DETAILS	01/14/2020

CASCO + R|S

12 SUNNEN DR. SUITE 100
ST. LOUIS, MO 63143
ARCHITECTS / ENGINEERS
314-821-1100

CASCO DIVERSIFIED CORPORATION
STATE OF MISSOURI
CERTIFICATE OF AUTHORITY #000329
CERTIFICATE OF AUTHORITY #000613

APPLICABLE CODES

2018 INTERNATIONAL BUILDING CODE
2017 NATIONAL ELECTRICAL CODE

OWNER: STATE OF MISSOURI
MICHAEL L. PARSON,
GOVERNOR

DEPARTMENT OF PUBLIC SAFETY
OFFICE OF THE ADJUTANT GENERAL
MISSOURI NATIONAL GUARD
FACILITIES DIVISION

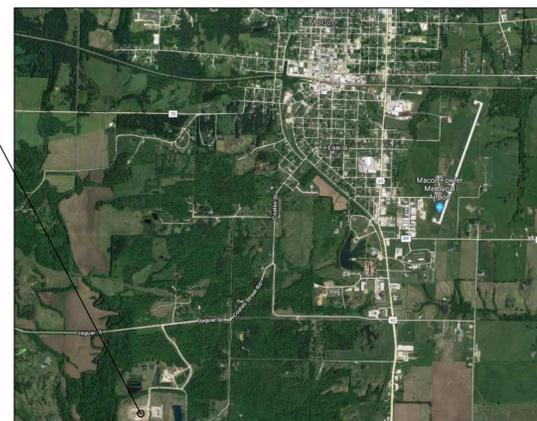
DESIGNER: CASCO DIVERSIFIED CORPORATION

PROJECT NUMBER: T1929-01

PROJECT MANAGEMENT: OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES MANAGEMENT,
DESIGN AND CONSTRUCTION

SITE NUMBER: 6319
ASSET NUMBER: 8136319014

AREA OF WORK
MACON FIELD MAINTENANCE SHOP
29614 JAGUAR STREET
MACON, MO 63552



VICINITY MAP

SHEET NUMBER:

G-001

1 OF 5 SHEETS
JANUARY 14, 2020



MICHAEL S. SUNDERMEYER
LICENSE NO. A-2014028855
EXP. 12/31/2020

CASCO + R5
12 Summit Drive, Suite 100, St. Louis, MO 63143 T: 314.821.1100

OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES
MANAGEMENT,
DESIGN AND CONSTRUCTION

MISSOURI
NATIONAL GUARD

CONSTRUCT SOLAR ARRAY

MACON FIELD
MAINTENANCE SHOP
29614 JAGUAR STREET
MACON, MO 63552

PROJECT # T1929-01
SITE # 6319
ASSET # 8136319014

REVISION: _____
DATE: _____
REVISION: _____
DATE: _____
REVISION: _____
DATE: _____
ISSUE DATE: 01/14/2020

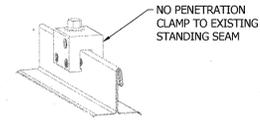
CAD DWG FILE: T1929-01
DRAWN BY: ALH
CHECKED BY: MSS
DESIGNED BY: MSS

SHEET TITLE:
**ARCHITECTURAL
SITE PLAN &
DETAILS**

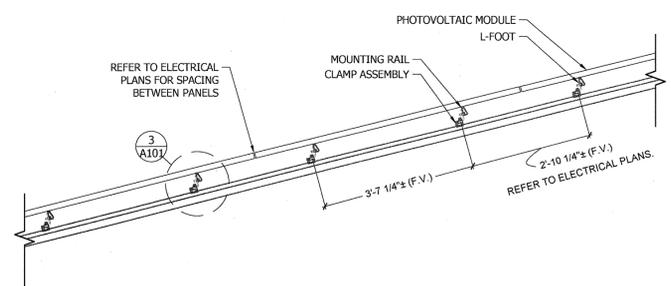
SHEET NUMBER:

A-101

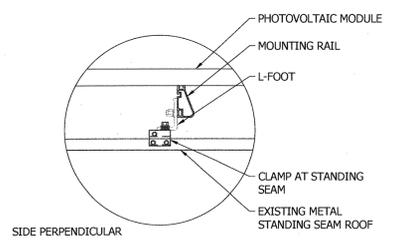
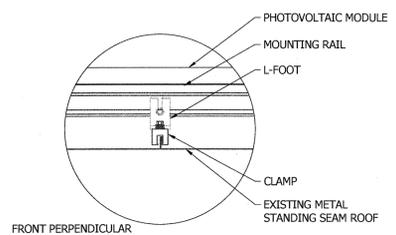
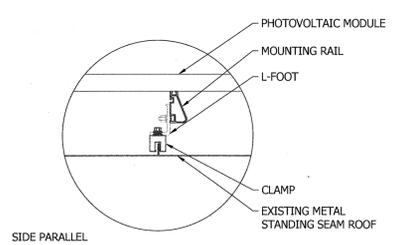
2 OF 5 SHEETS
01/14/2020



1 CONNECTION AT ROOF
SCALE: 1 1/2" = 1'-0"



2 SIDE ELEVATION
SCALE: 1/2" = 1'-0"



3 CONNECTION DETAILS
SCALE: 1 1/2" = 1'-0"

SYMBOLS LEGEND

	DETAIL CALLOUT
	FIELD VERIFY

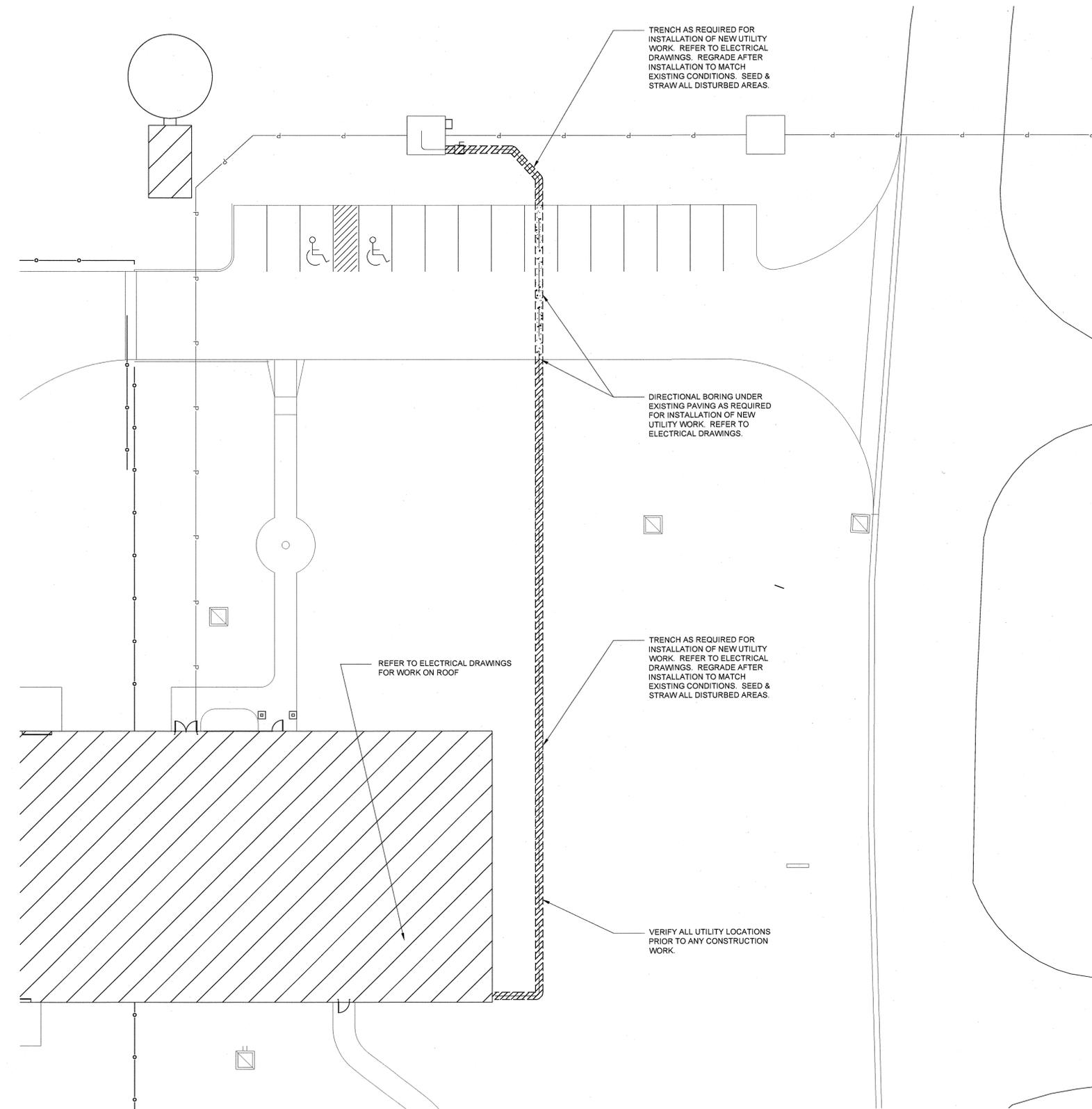
BASIS OF DESIGN

PHOTOVOLTAIC MODULE
REFER TO ELECTRICAL PLANS. ATTACH TO MOUNTING RAIL AT FACTORY-DETERMINED MOUNTING HOLE LOCATIONS AT PERIMETER PER MANUFACTURER'S RECOMMENDATIONS.

MOUNTING RAIL
XR10 MOUNTING RAIL BY IRONRIDGE. COLOR TO BE CLEAR ANODIZED. MOUNT WITH L-FOOT TO CLAMP ASSEMBLY PER MANUFACTURER'S RECOMMENDATIONS.

L-FOOT
SLOTTED L-FEET ACCESSORY BY IRONRIDGE. COLOR TO BE CLEAR ANODIZED.

CLAMP ASSEMBLY
S-5-E CLAMP BY S-5. ATTACH TO EXISTING STANDING SEAM METAL ROOF PER MANUFACTURER'S RECOMMENDATIONS.



4 ARCHITECTURAL SITE PLAN
SCALE: 1/16" = 1'-0"





HARRY J. AUMAN
 EXP. DATE: 12/31/20
 LIC. # E16827

CASCO + R5
 12 SUNNEN DR. SUITE 100
 ST. LOUIS, MO 63143
 ARCHITECTS / ENGINEERS

CASCO DIVERSIFIED CORPORATION
 MISSOURI CERTIFICATE OF
 AUTHORITY #000613

OFFICE OF ADMINISTRATION
 DIVISION OF FACILITIES
 MANAGEMENT,
 DESIGN AND CONSTRUCTION

MISSOURI
 NATIONAL GUARD

CONSTRUCT SOLAR ARRAY

MACON FIELD
 MAINTENANCE SHOP
 29614 JAGUAR STREET
 MACON, MO 63552

PROJECT # T-1929-01
 SITE # 6319
 ASSET # 8136319014

REVISION: _____
 DATE: _____
 REVISION: _____
 DATE: _____
 REVISION: _____
 DATE: _____
 ISSUE DATE: 01/14/2020

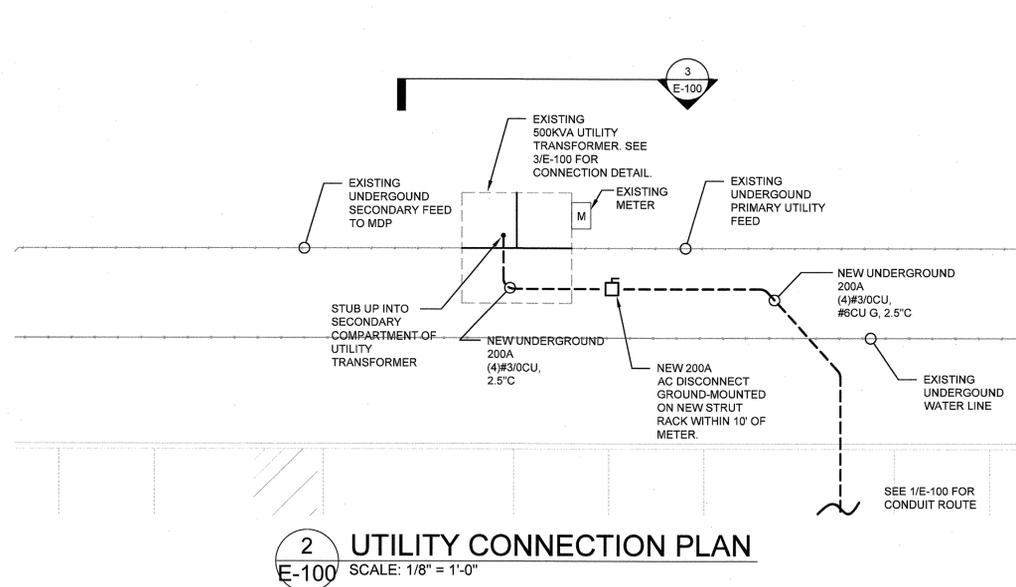
CAD DWG FILE: T-1929-01
 DRAWN BY: SAT
 CHECKED BY: HJA
 DESIGNED BY: SAT

SHEET TITLE:
**ELECTRICAL
 SITE PLAN**

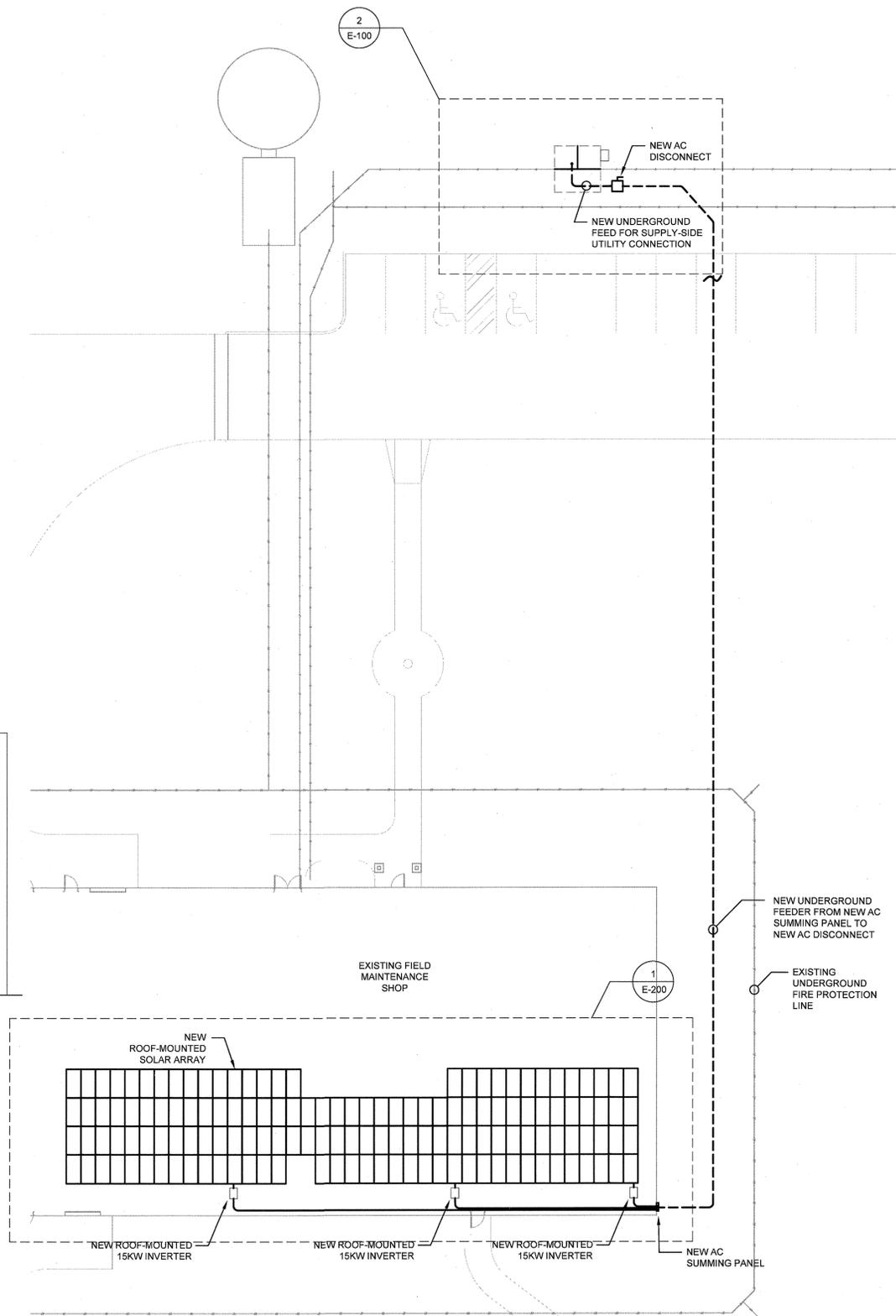
SHEET NUMBER:

E-100

3 OF 5 SHEETS
 01/14/2020



2 UTILITY CONNECTION PLAN
 SCALE: 1/8" = 1'-0"



1 ELECTRICAL SITE PLAN
 SCALE: 1/16" = 1'-0"



UTILITY TRANSFORMER DETAIL GENERAL NOTES:

A POINT OF CONNECTION FOR INTERCONNECTED POWER SOURCE IS SUPPLY SIDE ALLOWED PER 2017 NEC 705.12 (A).

UTILITY TRANSFORMER DETAIL KEYED NOTES:

- EXISTING X1 PHASE BUS BAR CONTAINING SPARE CONDUCTOR CLAMPS WITH ASTRA AP 500.5 C/T. CONNECT PHASE A 3/0 CU CONDUCTOR FROM NEW 200A FUSED DISCONNECT TO BE INSTALLED BESIDE UTILITY TRANSFORMER.
- EXISTING X2 PHASE BUS BAR CONTAINING SPARE CONDUCTOR CLAMPS WITH ASTRA AP 500.5 C/T. CONNECT PHASE B 3/0 CU CONDUCTOR FROM NEW 200A FUSED DISCONNECT TO BE INSTALLED BESIDE UTILITY TRANSFORMER.
- EXISTING X3 PHASE BUS BAR CONTAINING SPARE CONDUCTOR CLAMPS WITH ASTRA AP 500.5 C/T. CONNECT PHASE C 3/0 CU CONDUCTOR FROM NEW 200A FUSED DISCONNECT TO BE INSTALLED BESIDE UTILITY TRANSFORMER.
- CONNECT NEW 3/0 CU NEUTRAL CONDUCTOR FROM NEW AC DISCONNECT.
- NEW UNDERGROUND CONDUIT FROM NEW 200A FUSED DISCONNECT. COORDINATE CONDUIT STUB UP LOCATION WITHIN THE UTILITY TRANSFORMER SECONDARY COMPARTMENT AND UNDERGROUND CONDUIT ROUTING WITH MACON ELECTRIC COOPERATIVE PRIOR TO BEGINNING WORK.
- BURY CONDUIT IN ACCORDANCE WITH SECTION 300.5 OF THE 2017 NEC. VERIFY UNDERGROUND ROUTE IS CLEAR OF OBSTRUCTIONS PRIOR TO WORK.
- LOCATE FUSED DISCONNECT WITHIN 10' OF UTILITY METER PER 2017 NEC 705.31.
- NO WORK TO BE DONE ON HIGH VOLTAGE PRIMARY SIDE OF TRANSFORMER.
- POINT OF CONNECTION FOR INTERCONNECTED POWER SOURCE IS SUPPLY SIDE PER 2017 NEC 705.12(A).
- MOUNT NEW FUSED DISCONNECT AT 48" ABOVE GROUND LEVEL TO CENTER.

UTILITY CONTACT:

MACON ELECTRIC COOPERATIVE
 MICHAEL LUCAS
 (680)-591-5390
 P.O. Box 157
 31571 Business Hwy 36 East
 Macon, MO 63552

3 UTILITY CONNECTION DETAIL
 SCALE: NTS

ALTERNATE #1

- A. ALTERNATE #1: CONTRACTOR SHALL PROVIDE A MAINTENANCE AGREEMENT FOR YEARS 2 - 5 FOLLOWING SUBSTANTIAL COMPLETION FOR THE FOLLOWING SERVICES:
- MAINTENANCE AND SERVICE TO THE SOLAR MODULES, CABLING, MOUNTING DEVICES, INVERTERS, AND ALL OTHER EQUIPMENT ASSOCIATED WITH THIS PROJECT.
 - THE MAINTENANCE AGREEMENT SHALL INCLUDE ANY SERVICING AND CLEANING RECOMMENDED BY THE MANUFACTURERS AND DIAGNOSTIC EVALUATION OF THE EQUIPMENT.
 - EQUIPMENT THAT IS NOT OPERATING PROPERLY SHALL BE SERVICED UNDER THIS MAINTENANCE AGREEMENT AND RESTORED TO WORKING CONDITION WITHOUT COST TO OWNER.



HARR / J. AUMAN
EXP. DATE: 12/31/20
LIC. # E16827

CASCO + R5

12 SUNNEN DR. SUITE 100
ST. LOUIS, MO 63143
ARCHITECTS / ENGINEERS

CASCO DIVULGIFIED CORPORATION
MISSOURI CERTIFICATE OF
AUTHORITY #000613

OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES
MANAGEMENT,
DESIGN AND CONSTRUCTION

MISSOURI
NATIONAL GUARD

CONSTRUCT SOLAR ARRAY

MACON FIELD
MAINTENANCE SHOP
29614 JAGUAR STREET
MACON, MO 63552

PROJECT # T-1929-01
SITE # 6319
ASSET # 8136319014

REVISION: _____
DATE: _____
REVISION: _____
DATE: _____
REVISION: _____
DATE: _____
ISSUE DATE: 01/14/2020

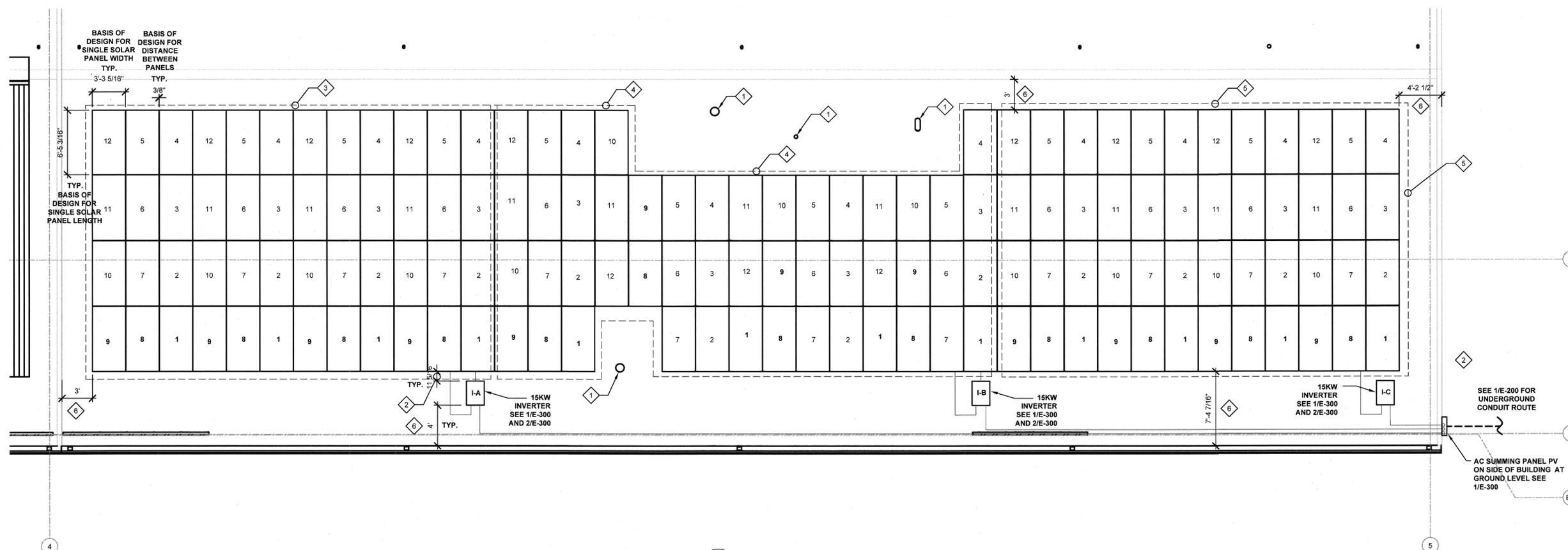
CAD DWG FILE: T-1929-01
DRAWN BY: SAT
CHECKED BY: HJA
DESIGNED BY: SAT

SHEET TITLE:
**ELECTRICAL
ROOF PLAN**

SHEET NUMBER:

E-200

4 OF 5 SHEETS
01/14/2020



1 ROOF PLAN
E-200 SCALE: 1/4" = 1'-0"

- ROOF PLAN KEYED NOTES**
- EXISTING TO REMAIN MECHANICAL/PLUMBING ROOF PENETRATION.
 - INVERTERS SHALL BE LOCATED WITHIN (1) FOOT OF SOLAR ARRAY PER 2017 NEC 690.12 RAPID SHUTDOWN REQUIREMENTS.
 - FOUR (4) STRINGS OF 12 SOLAR MODULES CONNECTED IN SERIES CONNECTED TO INPUT OF I-A INVERTER.
 - FOUR (4) STRINGS OF 12 SOLAR MODULES CONNECTED IN SERIES CONNECTED TO INPUT OF I-B INVERTER.
 - FOUR (4) STRINGS OF 12 SOLAR MODULES CONNECTED IN SERIES CONNECTED TO INPUT OF I-C INVERTER.
 - DIMENSIONS FROM PHOTOVOLTAIC ARRAY TO EDGE OF ROOF ARE FOR REFERENCE ONLY. ARRAY TO BE INSTALLED SO AS TO MAXIMIZE THESE DISTANCES. VERIFY INSTALLATION LAYOUT WITH AHJ PRIOR TO PERFORMING WORK.

- ROOF PLAN GENERAL NOTES**
- DESIGN IS DIAGRAMMATIC BASED ON CALCULATIONS REPRESENTED ON SHEET E-200. ACTUAL QUANTITY OF MODULES AND INVERTERS TO PROVIDE A 50KW PV SYSTEM SHALL BE AT THE DISCRETION OF THE PV CONTRACTOR.
 - POINT OF CONNECTION FOR INTERCONNECTED POWER SOURCE IS A SUPPLY SIDE CONNECTION ALLOWED PER NEC 705.12 (A).
 - DIMENSIONS OF SOLAR ARRAY FROM EDGES OF ROOF ARE BASED OFF OF BASIS OF DESIGN SOLAR MODULES AND RACKING SYSTEM.

