

INSTALL GROUND MOUNTED SOLAR PANEL ARRAY & LED LIGHTING FMS BUILDING- READINESS CENTER FESTUS, MISSOURI

OWNER: STATE OF MISSOURI
MICHAEL L. PARSON,
GOVERNOR

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

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

DESIGNER: ETEGRA

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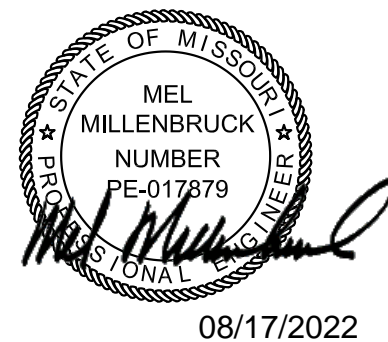


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1 VICINITY MAP
NTS



DRAWING ABBREVIATIONS

A -----
A LABEL CLASS A DOOR
A/C AIR CONDITION
A/C UNIT AIR CONDITIONING UNIT
A/E ARCHITECT/ENGINEER
AB BOLT
ACC ACCESSIBLE
ACS AUTOMATIC CONTROL SYSTEM
ACS DR ACCESS DOOR
ACS PNL ACCESS PANEL
ACT ACOUSTICAL CEILING TILE
ADA AMERICANS WITH DISABILITIES ACT
ADMIN ADMINISTRATION
AFC ABOVE FINISHED COUNTER
AFF ABOVE FINISHED FLOOR
AFG ABOVE FINISHED GRADE
AFS ABOVE FINISHED SLAB
AGGR AGGREGATE
AHU AIR HANDLING UNIT
AIB AIR INFILTRATION BARRIER
ALT ALTERNATE
ALUM ALUMINUM
ANOD ANODIZE
APC ACOUSTICAL PANEL CEILING
APPROX APPROXIMATE
AR AS REQUIRED
ARCH ARCHITECT
ASC ABOVE SUSPENDED CEILING
ASSY ASSEMBLY
ATC ACOUSTICAL TILE CEILING
AVG AVERAGE
AW ARCHITECTURAL WOODWORK
AWT ACOUSTICAL WALL TREATMENT

B -----
B LABEL CLASS B DOOR
BALC BALCONY
BB BASEBOARD
BC BOOKCASE
BD BOARD
BDRY BOUNDARY
BFF BFF FINISH FLOOR
BHMA BUILDER'S HARDWARE
BHMA MANUFACTURER'S ASSOCIATION
BLDG BUILDING
BLKG BLOCKING
BLT IN BULL IN
BN BULLNOSE
BOS BOTTOM OF STEEL
BOT BOTTOM
BP BUILDING PAPER
BRKT BRACKET
BSMT BASEMENT
BTWN BETWEEN
BUR BUILT-UP ROOFING

C -----
C CONC CAST CONCRETE
C LABEL CLASS C DOOR
CAB CABINET
CATW CATWALK
CAV CAVITY
CBG CEMENTITIOUS (BACKER) BOARD
CD CONSTRUCTION DOCUMENTS
CDW CHILLED DRINKING WATER
CEM PLAS CEMENT PLASTER
CER CERAMIC
CF CONTRACTOR FURNISHED
CF/CI CONTRACTOR FURNISHED/CONTRACTOR INSTALLED
CFE CONTRACTOR FURNISHED EQUIPMENT
CFLG COUNTERFLASHING
CFM CUBIC FEET PER MINUTE
CFMF COLD-FORMED METAL FRAMING
CFS CUBIC FEET PER SECOND
CG GYPSUM BOARD
CI CAST IRON
CIP CAST-IN-PLACE
CJ CONTROL JOINT
CL CENTER LINE
CLG CLG
CLG DIFF CEILING DIFFUSER
CLG HT CEILING HEIGHT
CLL COLUMN LINE
CLO CLOSET
CLR COLOR
CLRM CLASSROOM
CMU CONCRETE MASONRY UNIT
CND CONDENSATE
CDR CARD READER
CO CLEANOUT
COL COLUMN
COMM COMMUNICATION
CONC CONCRETE
CONC FLR CONCRETE FLOOR
CONF CONFERENCE
CONT CONTINUE
COORD COORDINATE
CORR CORRIDOR
CP CONCRETE PIPE
CPT CARPET
CR CONTROL ROOM
CS CAST STONE
CSWK CASEWORK
CT CERAMIC TILE
CTB CERAMIC TILE BASE
CTF CERAMIC TILE FLOOR
CTR CENTER
CU FT CUBIC FEET
CW CASEMENT WINDOW

D -----
D DEPTH
D LABEL CLASS D DOOR
DBL DOUBLE
DEMO DEMOLITION
DEPT DEPARTMENT
DET DETAIL
DIA DIAMETER
DIR DIRECTION
DIST DISTANCE
DOC DOCUMENT
DR DOOR
DS DOWNSPOUT

E -----
E LABEL CLASS E DOOR
EA EACH
EF EACH FACE
EIFS EXTERIOR INSULATION
EJ AND FINISH SYSTEM
ES EXPANSION JOINT
EL EACH SIDE
EL ELEVATION
ELEV ELEVATOR
ENTR ENTRANCE
EPS EXPANDED POLYSTYRENE
EQ BOARD (INSULATION)
EQ EQUAL
EWC ELECTRIC WATER COOLER
EXP EXPOSED
EXT EXTERIOR
EXT EXTINGUISHER
EXT GR EXTERIOR GRADE

F -----
FA FIRE ALARM
FAAP FIRE ALARM ANNUNCIATOR PANEL
FAS BD FASCIA BOARD
FC BRK FACE BRICK
FOO FLOOR CLEANOUT
FD FLOOR DRAIN
FDTN FOUNDATION
FE FIRE EXTINGUISHER
FEC FIRE EXTINGUISHER CABINET
FED FEDERAL
FF FINISH FACE
FF EL FINISH FLOOR ELEVATION
FF INSUL FOIL BACKED INSULATION
FGL FIBERGLASS
FH FIRE HOSE
FHP FULL HEIGHT PARTITION
FIN FINISH
FIN BS FINISH BOTH SIDES
FIN FLR FINISH FLOOR
FIN GR FINISH GRADE
FIXT FIXTURE
FLDG FOLDING
FLEX FLEXIBLE
FLG FLOORING
FLMT FLUSH MOUNT
FLR FLOOR
FM FACTORY MUTUAL
FOC FACE OF CONCRETE
FOM FACE OF MASONRY
FR FIRE RESISTANT
FRG FIBER REINFORCED GYPSUM
FRMG FRAMING
FRP FIBERGLASS REINFORCED PLASTIC
FRTW FIRE RETARDANT TREATED WOOD
FS FEDERAL SPECIFICATION
FSTNR FASTENER
FT FEET
FTG FOOTING
FWC FABRIC WALLCOVERING

G -----
G NATURAL GAS
G GALV GALVANIZED
GB GRAB BAR
GFCI GOVERNMENT FURNISHED
GFI CONTRACTOR INSTALLED
GFGI GOVERNMENT FURNISHED
GFRG GOVERNMENT INSTALLED
GLZ GLAZING
GR FL GROUND FLOOR
GUT GUTTER
GYP BD GYPSUM BOARD
GYP PLAS GYPSUM PLASTER

H -----
HB HOSE BIBB
HDPE HIGH DENSITY POLYETHYLENE
HDW HARDWARE
HDWD HARDWOOD
HEPA HIGH EFFICIENCY PARTICULATE AIR (FILTER)
HM HOLLOW METAL
HMD HOLLOW METAL DOOR
HORIZ HORIZONTAL
HT HEIGHT
HYDR HYDRAULIC

I -----
IBC INTERNATIONAL BUILDING CODE
INSUL INSULATION
INT INTERIOR
ILO IN LIEU OF

J -----
J JANITOR
K -----
KPD KEYPAD
KIT KITCHEN
KPL KICKPLATE

L -----
LAM LAMINATE
LAV LAVATORY
LBR LUMBER
LBS POUND
LDG LANDING
LF LINEAR FEET (FOOT)
LIB LIBRARY
LIN LINEAR
LKR LOCKER
LOC LOCATION
LGT LIGHT
LVDR LOUVER DOOR
LVR LOUVER

M -----
MACH RM MACHINE ROOM
MATL MATERIAL
MAX MAXIMUM
MC MOISTURE CONTENT
MD METAL DECK
MECH MECHANICAL
MECH RM MECHANICAL ROOM
MEMB MEMBRANE
MF MILL FINISH
MFR MANUFACTURER
MID MIDDLE
MIL STD MILITARY STANDARD
MIN MINIMUM, MINUTE
MIRR MIRROR
MISC MISCELLANEOUS
MOLDG MOLDING (MOLDING)
MO MASONRY OPENING
MOD MODIFY
MB MOISTURE BARRIER
MTG MOUNTING
MTL METAL
MVL MOVABLE
MWP MEMBRANE WATERPROOFING

N -----
N NORTH
NA NOT APPLICABLE
NFFPA NATIONAL FIRE PROTECTION ASSOCIATION
NIC NOT IN CONTRACT
NO NO
NOM NOMINAL
NP NO PAINT
NRC NOISE REDUCTION

O -----
OA OVERALL
OC ON CENTER
OD OUTSIDE DIAMETER
OFD OVERFLOW DRAIN
OFF OFFICE
OGL OBSOLETE GLASS
OPH OPPOSITE HAND
OPNG OPENING
OPP OPPOSITE
OPQ OPEN JOINT
OWSJ OPEN WEB STEEL JOIST
OPR OPERABLE
ORD OVERFLOW ROOF DRAIN
ORIG ORIGINAL

P -----
PA PUBLIC ADDRESS
PAR PARAPET
PAT PATTERN
PB PULL BOX
PBD PARTICLEBOARD
PCC PRECAST CONCRETE
PCF POUNDS PER CUBIC FOOT
PCT PERCENT
PERF PERFORATED
PERIM PERIMETER
PH PHASE
PIL PILASTER
PL PROPERTY LINE
PL GL PLATE GLASS
PLM PLAM LAMINATE
PLAS PLASTER
PLBG PLUMBING
PLG PILING
PLYWD PLYWOOD
PNL PANEL
PP PL PUSH/PULL PLATE
PR PAIR
PRCST PRECAST
PRKG PARKING
PRKS PRESTRESSED CONCRETE
PS CONC POUNDS PER SQUARE FOOT
PSF POUNDS PER SQUARE INCH
PSI PRESSURE TREATED
PTD PAPER TOWEL DISPENSER
PTDR PAPER TOWEL DISPENSER AND RECEPTACLE
PTN PARTITION
PWR POWER

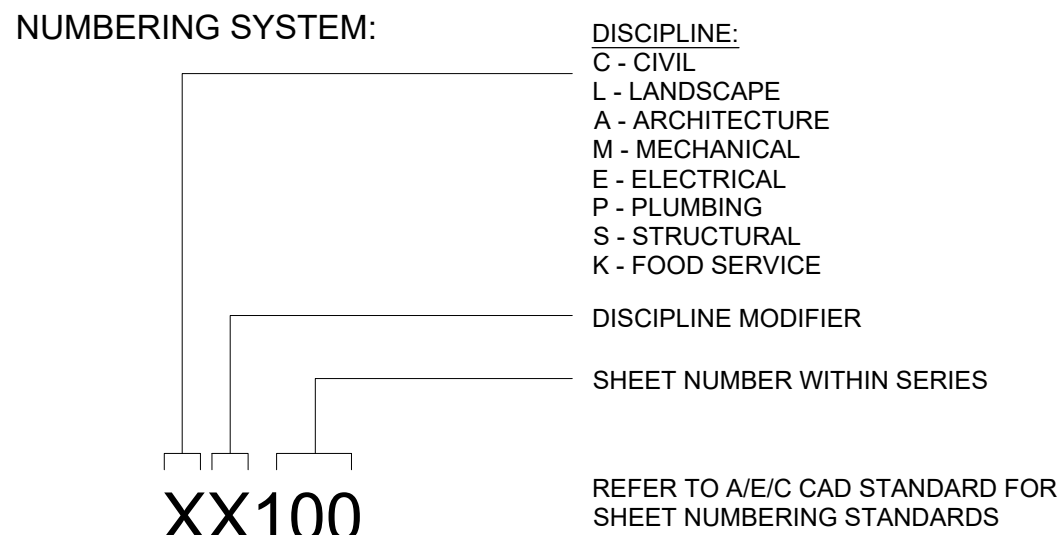
Q -----
QT QUARRY TILE
QTY QUANTITY

R -----
RB RESILIENT BASE
RBM REINFORCED BRICK MASONRY
RBR RUBBER
RC REINFORCED CONCRETE
RCP REFLECTED CEILING PLAN
RD ROOF DRAIN
RDS INS RIGID INSULATION, SOLID
REC RECESSED
REC ROOM RECREATION ROOM
REF REFERENCE
REM REMOVABLE
REP REPAIR
REPL REPLACE
REQ REQUIRE
REQD REQUIRED
RESIL RESILIENT
REST RESTROOM
RF RESILIENT FLOORING
RFG ROOFING
RH ROOF HATCH
RHR RIGHT HAND REVERSE
RL ROOF LEADER
RLG RAILING
RM ROOM
RO ROUGH OPENING
RSD ROLLING STEEL DOOR
RV ROOF VENT
RVL REVEAL

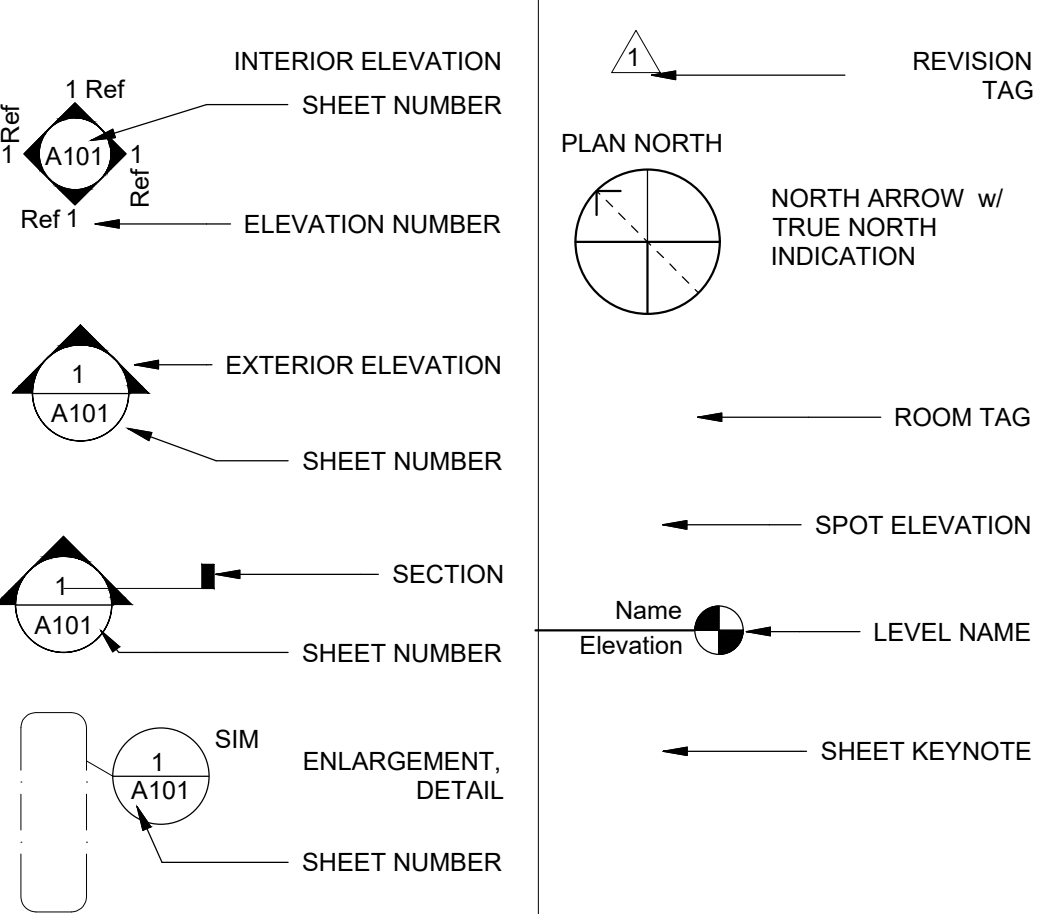
S -----
SB SPLASH BLOCK
SB SCHEDULE
SD SMOKE DETECTOR
SF SQUARE FOOT (FEET)
SFTWD SOFTWOOD
SGI SINGLE
SHT MTL SHEET METAL (FLASHING)
FLASH SHEATHING
SHTHG SHELVING
MFR SIMILAR
SIM SCORED JOINT
SKLT SKYLIGHT
SLNT SEALANT
SMK SMOKE
SMLS SEAMLESS
SP EL SPOT ELEVATION
SPEC SPECIFICATION
SQ SQUARE
SQ IN SQUARE INCH
SQ YD SQUARE YARD
SST STAINLESS STEEL
ST STAIRS
STD STANDARD
STL JST STEEL JOIST
STL RF DK STEEL ROOF DECK
STOR STORAGE
STR STRINGERS
STRB/HRN STROBE/HORN
SUB FL SUBFLOOR
TOS SHEET VINYL
SW SIDEWALK

T -----
T TREAD
TS TUB/SHOWER
TC TERRA COTTA
TD TRENCH DRAIN
TEL TELEPHONE
TEMP TEMPORARY
TER TERRAZZO
TFF TOP OF FINISH FLOOR
THK THICKNESS
TK BD TACKBOARD
TMPD GL TEMPERED GLASS
TN TRUE NORTH
TOF TOP OF FOOTING
TOM TOP OF MASONRY
TOP TOP OF PARAPET
TOPO TOPOGRAPHY
TOS TOP OF SLAB
TRANS TRANSOM
TRTD TREATED
TV TELEVISION

INDEX OF DRAWINGS



ANNOTATION CALLOUTS/DRAWING SYMBOLS



BUILDING SUMMARY

BUILDING CODE
INTERNATIONAL BUILDING CODE 2012 WITH APPENDICES B, E, I, AND K
INTERNATIONAL EXISTING BUILDING CODE 2012

GAS CODE
INTERNATIONAL FUEL GAS CODE 2012

PLUMBING CODE
INTERNATIONAL PLUMBING CODE 2012

ELECTRICAL CODE
2011 NATIONAL ELECTRICAL CODE

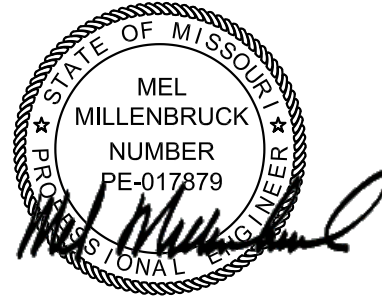
MECHANICAL CODE
INTERNATIONAL MECHANICAL CODE 2012

FIRE CODE
INTERNATIONAL FIRE CODE 2012

GENERAL NOTES

1. THE CONTRACTOR SHALL VISIT THE SITE AND BE KNOWLEDGEABLE OF CONDITIONS THEREON, AND SHALL INVESTIGATE, VERIFY AND BE RESPONSIBLE FOR ALL CONDITIONS OF THE PROJECT, AND SHALL NOTIFY THE OWNER OF ANY CONDITIONS REQUIRING MODIFICATION BEFORE PROCEEDING WITH THE WORK.
2. THE CONTRACTOR SHALL THOROUGHLY REVIEW THE CONTRACT DOCUMENTS PRIOR TO CONSTRUCTION AND AS AMENDMENTS MAY BE MADE AS CONSTRUCTION PROCEEDS, AND SHALL NOTIFY THE OWNER OF ANY DISCREPANCIES, CONFLICTS, INCONSISTENCIES, ERRORS OR OMISSIONS THAT MAY BE DISCOVERED. IN SUCH CASES THE CONTRACTOR IS TO OBTAIN CLARIFICATION OR VERIFICATION OF INTENT PRIOR TO PROCEEDING WITH THE WORK.
3. THE WORK IS TO BE PERFORMED IN CONFORMANCE WITH APPLICABLE WRITTEN CODES, ORDINANCES, LAWS, RULES, REGULATIONS AND REQUIREMENTS OF AUTHORITIES HAVING JURISDICTION. IF THE CONTRACTOR PERFORMS OR PROCEEDS IN A MANNER CONTRARY TO ANY SUCH REQUIREMENTS THE CONTRACTOR ASSUMES FULL RESPONSIBILITY THEREFORE AND SHALL BEAR COSTS RESULTING FROM NONCOMPLIANCE OR VIOLATION, INCLUDING COSTS ASSOCIATED WITH REPAIRING, REPLACING OR OTHERWISE BRINGING THE WORK INTO CONFORMANCE. THE CONTRACTOR IS TO BRING TO THE OWNER'S ATTENTION ANY CONDITIONS REPRESENTED IN THE CONTRACT DOCUMENTS THAT ARE NOT IN CONFORMANCE WITH APPLICABLE REQUIREMENTS.
4. THE CONTRACTOR IS TO MAINTAIN ON SITE A COPY OF THE APPLICABLE EDITION OF THE UL FIRE RESISTANCE DIRECTORY AND OTHER FIRE RESISTIVE STANDARDS REFERENCED IN THE CONTRACT DOCUMENTS FOR USE BY INSPECTORS AT TIMES OF INSPECTION.
5. CONTRACT DOCUMENTS SHALL NOT BE REPRODUCED AS THE BASIS FOR REQUIRED SUBMITTALS UNLESS PRIOR WRITTEN PERMISSION HAS BEEN OBTAINED FROM THE ARCHITECT. SUBMITTALS CONTAINING CONTRACT DOCUMENTS OR PORTIONS OF CONTRACT DOCUMENTS WILL BE REJECTED AND RETURNED TO THE CONTRACTOR WITHOUT ACTION OR COMMENT, AND ARE NOT TO BE USED FOR PROCUREMENT, FABRICATION OR INSTALLATION OF ANY WORK IN THE PROJECT.
6. WHERE WORK OR EQUIPMENT IS INDICATED AS 'NOT IN CONTRACT (NIC)' IN THE DOCUMENTS, SUCH WORK OR EQUIPMENT SHALL BE PROVIDED OUTSIDE THE CONTRACT SCOPE REPRESENTED IN THESE DOCUMENTS. THE CONTRACTOR SHALL COORDINATE HIS WORK WITH NIC ITEMS AND COOPERATE TO AFFECT THE IMPLEMENTATION OF SUCH WORK OR INSTALLATION.
7. DETAILS NOT SHOWN ARE TO BE SIMILAR IN CHARACTER TO THOSE DRAWN. WHERE SPECIFIC DIMENSIONS, DETAILS OR DESIGN INTENT CANNOT BE DETERMINED THE CONTRACTOR IS TO OBTAIN CLARIFICATION FROM THE OWNER BEFORE PROCEEDING WITH THE WORK.
8. "ALIGN" AS USED IN THESE DOCUMENTS SHALL SUPERSEDE ANY DIMENSIONAL INFORMATION INDICATED IF DISCREPANCIES OCCUR, NOTIFY OWNER IMMEDIATELY.
9. "CLEAR" AS USED IN THESE DOCUMENTS SHALL MEAN THAT THE CONDITION IS NOT ADJUSTABLE WITHOUT THE APPROVAL OF THE ARCHITECT. CLEAR DIMENSIONS ARE TYPICALLY TO FINISH FACE.
10. "MAXIMUM" OR "MAX" AS USED IN THESE DOCUMENTS SHALL MEAN THE CONDITION IS SLIGHTLY ADJUSTABLE BUT MAY NOT VARY TO A DIMENSION OR QUANTITY GREATER THAN THAT SHOWN WITHOUT APPROVAL OF THE ARCHITECT.
11. "MINIMUM" OR "MIN" AS USED IN THESE DOCUMENTS SHALL MEAN THE CONDITION IS SLIGHTLY ADJUSTABLE BUT MAY NOT VARY TO A DIMENSION OR QUANTITY LESS THAN THAT SHOWN WITHOUT APPROVAL OF THE ARCHITECT.
12. "TYPICAL" OR "TYP" AS USED IN THESE DOCUMENTS SHALL MEAN THE CONDITION OR DIMENSION IS THE SAME OR REPRESENTATIVE FOR SIMILAR CONDITIONS THROUGHOUT.
13. "+/-" AS USED IN THESE DOCUMENTS SHALL MEAN THE DIMENSION OR QUANTITY IS SLIGHTLY ADJUSTABLE TO ACCOMMODATE ACTUAL CONDITIONS.
14. CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS SHOWN ON THE DRAWINGS AT THE JOB SITE AND SHALL NOTIFY THE OWNER OF ANY OMISSIONS, DISCREPANCIES, AND/OR CONFLICTS BEFORE PROCEEDING WITH THE JOB.
15. DO NOT SCALE DRAWINGS. DIMENSIONS GOVERN. LARGE SCALE DETAILS GOVERN OVER SMALL SCALE.

STATE OF MISSOURI
MICHAEL L. PARSON,
GOVERNOR



08/17/2022

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OFFICE OF
ADMINISTRATION
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MANAGEMENT, DESIGN
AND CONSTRUCTION

DEPARTMENT OF
PUBLIC SAFETY MISSOURI
ARMY NATIONAL GUARD

INSTALL GROUND MOUNTED
SOLAR PANEL ARRAY & LED
LIGHTING FMS BUILDING -
READINESS CENTER

2740 HIGHWAY P
FESTUS, MO 63028

PROJECT # T2029-01

ASSET # 8136302002

REVISION: _____
DATE: _____
REVISION: _____
DATE: _____
REVISION: _____
DATE: _____

ISSUE DATE: 08/17/2022

CAD DWG FILE: G-002.DWG
DRAWN BY: B. BONEBRAKE
CHECKED BY: B. HESTERBERG
DESIGNED BY: J. RIDGE

SHEET TITLE:

GENERAL NOTES
AND
ABBREVIATIONS

SHEET NUMBER:

G-002

2 OF 17 SHEETS
08/17/2022

GENERAL CIVIL NOTES

1. CONTRACTOR TO COORDINATE WORK ACTIVITIES, INCLUDING ACCESS, WITH THE CONTRACTING OFFICER'S TECHNICAL REPRESENTATIVE (COTR). ALL UTILITIES TO THE EXISTING BUILDING MUST REMAIN IN SERVICE DURING CONSTRUCTION. ANY TEMPORARY SERVICE INTERRUPTION FOR NEW CONNECTIONS MUST BE COORDINATED WITH THE COTR.
2. CONTRACTOR SHALL VISIT PROJECT SITE TO FAMILIARIZE THEMSELVES WITH THE SCOPE OF WORK, AND TO FIELD VERIFY THE EXISTING CONDITIONS PRIOR TO BIDDING. ANY AMBIGUOUS ITEMS OR DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE COTR IN WRITING PRIOR TO SUBMITTING PROPOSAL.
3. THE CONTRACTOR IS TO COMPLY WITH ALL FEDERAL, STATE, AND LOCAL CODE REQUIREMENTS.
4. DO NOT SCALE DRAWINGS. IF DIMENSIONS ARE IN QUESTION, OBTAIN CLARIFICATIONS FROM THE COTR BEFORE CONTINUING WORK.
5. NOTIFY THE COTR OF ANY VARIATION REQUIRED IN THE DIMENSIONS NOTED FOR INSTALLATION OF EQUIPMENT BEFORE CONTINUING WORK.
6. VERIFY DIMENSIONS BEFORE ORDERING MATERIALS AND PROCEEDING WITH WORK.
7. CONTRACTOR IS RESPONSIBLE FOR CONDITION OF ALL COMPLETED CONTRACTUAL WORK UNTIL FINAL ACCEPTANCE OF PROJECT AND CONTRACTOR WARRANTY IS IMPLEMENTED.
8. EQUIPMENT AND MATERIAL NOT IN USE SHALL BE LOCATED OUTSIDE OF THE CONSTRUCTION AREA.
9. THE CONTRACTOR SHALL PROTECT ALL ADJACENT PROPERTY AND EXISTING AND NEW IMPROVEMENTS, AND SHALL PROVIDE POSITIVE CONTROL OF EARTH SPILLAGE, CONSTRUCTION WATER, AND RUNOFF WATER FROM THE SITE.
10. THE CONTRACTOR SHALL COMPLY WITH ALL LOCAL, STATE, AND FEDERAL REGULATIONS RELATED TO THE SAFETY OF PERSONNEL AND THE PUBLIC ON THE JOB SITE, INCLUDING APPLICABLE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) REGULATIONS, AS WELL AS USACE EM 385-1-1.
11. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SITE SECURITY AT THE SITE DURING CONSTRUCTION. TEMPORARY FENCING SHALL BE PLACED AT THE CONTRACTOR'S DISCRETION WITHIN THE OVERALL PROJECT LIMITS.
12. DURING THE COURSE OF ALL WORK ON THE PROJECT, THE CONTRACTOR SHALL ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR ALL JOB SITE CONDITIONS INCLUDING THE SAFETY OF ALL PERSONS AND SECURITY OF ALL PROPERTY. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES AND FOR COORDINATING ALL PORTIONS OF THE WORK UNDER THIS CONTRACT.
13. IF UNANTICIPATED CONDITIONS ARE ENCOUNTERED DURING THE COURSE OF CONSTRUCTION, THE CONTRACTOR SHALL IMMEDIATELY BRING THE CONDITION TO THE ATTENTION OF THE COTR.
14. A COPY OF THESE CONTRACT DRAWINGS SHALL BE KEPT IN AN EASILY ACCESSIBLE LOCATION ON THE PROJECT SITE AT ALL TIMES DURING THE DURATION OF THE PROJECT.
15. THE CONTRACTOR SHALL PERFORM EXCAVATION IN A SAFE CONDITION. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR SHORING, SHEETING, OR OTHER PROTECTIVE MEASURES.

UTILITY NOTES

1. LOCATIONS OF UNDERGROUND UTILITIES ARE FROM BEST INFORMATION AVAILABLE AT THE TIME THESE PLANS WERE PREPARED, AND NO UNDERGROUND UTILITIES WERE FOUND. THE GOVERNMENT DOES NOT WARRANT THE ACCURACY OF THE INFORMATION PROVIDED. ANY DEVIATION SHALL BE CALLED TO THE ATTENTION OF THE COTR PRIOR TO PROCEEDING WITH WORK IN THE AREA OF FOUND UTILITIES OR DEVIATIONS.
2. NO EXISTING UTILITIES WERE FOUND DURING SITE INVESTIGATION AND TOPOGRAPHIC SURVEY, NO EXISTING UTILITIES ARE SHOWN ON THE PLANS. CONTRACTOR TO BE FULLY RESPONSIBLE FOR DAMAGES WHICH MIGHT OCCUR BY FAILURE TO EXACTLY LOCATE AND PRESERVE EXISTING UTILITIES AND/OR STRUCTURES.
3. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO HAVE ALL UTILITIES LOCATED AND MARKED PRIOR TO THE START OF CONSTRUCTION. ANY FOUND UTILITIES SHALL BE BROUGHT TO THE ATTENTION OF THE COTR FOR DIRECTION PRIOR TO PROCEEDING WITH CONSTRUCTION IN THE AREA OF SAID UTILITIES.
4. PUBLIC AND PRIVATE UTILITY LINES AND CUSTOMER SERVICE LINES MAY EXIST THAT ARE NOT SHOWN ON THE CONSTRUCTION DRAWINGS. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO LOCATE, MAINTAIN, AND PROTECT THE INTEGRITY OF THESE LINES. HAND EXCAVATION MAY BE REQUIRED.
5. CONTRACTOR SHALL COORDINATE WITH THE APPROPRIATE UTILITY COMPANY TO RELOCATE OR DIVERT ANY UTILITY IN CONFLICT WITH PROPOSED CONSTRUCTION SO AS TO NOT DISRUPT ITS SERVICE. CONTRACTOR SHALL RESTORE, RELOCATE, OR DIVERT UTILITY TO ITS ORIGINAL CONDITION AND LOCATION WHEN APPLICABLE UPON COMPLETION OF CONSTRUCTION. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO MAKE ALL UTILITY ADJUSTMENTS AND ACQUIRE ALL REQUIRED PERMITS FOR RELOCATION.
6. THE VERIFIED LOCATIONS OF ALL UTILITIES SHALL BE DEPICTED ON THE WORKING RECORD DRAWINGS AND FINAL AS-BUILT DRAWINGS, INCLUDING ABANDONED UTILITIES THAT SHALL BE MARKED AS SUCH.

GENERAL CONSTRUCTION ACTIVITY NOTES

1. THE EXISTING FACILITIES ARE TO REMAIN IN FULL, UNINTERRUPTED OPERATION 7 DAYS A WEEK, 24 HOURS A DAY, DURING CONSTRUCTION.
2. CONTRACTOR SHALL MAINTAIN ACCESS TO THE EXISTING FACILITIES FOR EMPLOYEES AT ALL TIMES. ANY CHANGE IN THE NORMAL ACCESS ROUTES TO THE BUILDING MUST BE APPROVED BY THE COTR.
3. NO OPEN TRENCHES SHALL BE LEFT OPEN OVERNIGHT. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO COVER ALL OPEN TRENCHES WHEN WORK IS NOT OCCURRING IN THOSE LOCATIONS. ADDITIONALLY, LOCAL TRAFFIC WILL BE TRAVERSING THE CONSTRUCTION SITE. EACH OPEN AND/OR COVERED TRENCH WILL BE MARKED ACCORDINGLY FOR SAFETY CONCERNS OF BOTH THE GENERAL PUBLIC AND THE CONTRACTOR'S WORK FORCE.

DRAINAGE NOTES

1. CONTRACTOR SHALL PROVIDE POSITIVE DRAINAGE SO AS TO PREVENT PONDING AND STANDING WATER AS A FINAL CONDITION.

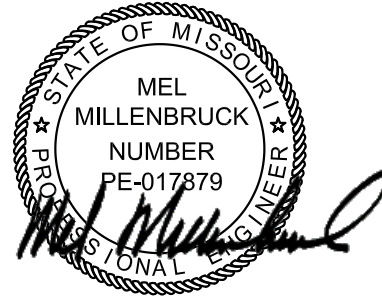
DEMOLITION NOTES

1. PRIOR TO ANY DEMOLITION, COORDINATE AND SCHEDULE WORK WITH THE COTR.
2. THE PROPOSED PERIMETER CHAIN-LINK FENCE AND GATE MUST BE INSTALLED PRIOR TO THE DEMOLITION OF THE EXISTING FENCE AS SHOWN ON SHEETS CD100 AND CS100.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE THAT MAY OCCUR TO ITEMS OR AREAS NOT IN THIS CONTRACT AND SHALL REPLACE OR REPAIR, AT NO COST TO THE OWNER, ANY DAMAGE THAT MAY OCCUR WHILE IN PERFORMANCE OF THIS WORK.
4. ALL DEMOLITION WASTE MUST BE HANDLED TO MEET THE MISSOURI NATIONAL GUARD AND MISSOURI ENVIRONMENTAL STANDARDS FOR MATERIAL DISPOSAL.

SWPPP NOTES

1. IMPLEMENT STORM WATER POLLUTION PREVENTION PLANS (SWPPP) AS SHOWN ON SHEETS CD100 AND C-501, AND PROJECT SPECIFICATIONS. PRIOR TO CONSTRUCTION, IMPLEMENT BEST MANAGEMENT PRACTICES (BMPs) DESCRIBED IN THE SWPPP TO REDUCE EROSION AND PREVENT SEDIMENT FROM LEAVING THE SITE. SEE SECTION 01560 - ENVIRONMENTAL REQUIREMENTS.
2. THE CONTRACTOR SHALL ENSURE THAT BMPs ARE IN PLACE PRIOR TO AND DURING THE DEMOLITION OF EXISTING UTILITIES AND PAVEMENT, AND CONSTRUCTION OF PROPOSED FACILITY, UTILITIES, AND PAVEMENT.
3. THE CONTRACTOR SHALL MAINTAIN ONE SWPPP REPORT AND PLANS FOR CONSTRUCTION OF THE PROJECT PRIOR TO THE START OF AND THROUGHOUT CONSTRUCTION. IT IS THE CONTRACTORS RESPONSIBILITY TO MAINTAIN ALL INSTALLED BMPs UNTIL THE PROJECT HAS BEEN COMPLETED AND ACCEPTED BY THE COTR.
4. THE COTR RESERVES THE RIGHT TO REQUIRE THE CONTRACTOR TO MODIFY OR REVISE THE SWPPP, BASED ON THEIR CONSTRUCTION MEANS AND METHODS, TO ENSURE THAT ALL APPLICABLE BMPs TO PREVENT OFF-SITE MIGRATION OF POLLUTANTS, INCLUDING SOILS, ARE ADDRESSED; OR, THE COTR DETERMINES THAT THE STORM WATER POLLUTION PREVENTION REQUIREMENTS ARE NOT BEING MET.
5. REMOVE ANY AND ALL ACCUMULATED SEDIMENT FROM THE STORM WATER SYSTEM.
6. FEMA BASE FLOOD ELEVATION (BFE) SOURCE: FLOOD INSURANCE RATE MAP JEFFERSON COUNTY, MISSOURI COMMUNITY NUMBER 290808, PANEL 0354F MAP NUMBER 29099C0354F REVISED JUNE 20, 2019.

STATE OF MISSOURI
MICHAEL L. PARSON,
GOVERNOR



08/17/2022

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INSTALL GROUND MOUNTED
SOLAR PANEL ARRAY & LED
LIGHTING FMS BUILDING -
READINESS CENTER

2740 HIGHWAY P
FESTUS, MO 63028

PROJECT # T2029-01

ASSET # 8136302002

REVISION: _____
DATE: _____
REVISION: _____
DATE: _____
REVISION: _____
DATE: _____

ISSUE DATE: 08/17/2022

CAD DWG FILE: C-001 SOLAR.DWG
DRAWN BY: J. LAUGHNER
CHECKED BY: B. PRESTON
DESIGNED BY: J. LAUGHNER

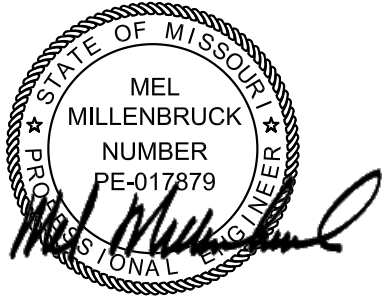
SHEET TITLE:

CIVIL GENERAL
NOTES

SHEET NUMBER:

C-001

3 OF 17 SHEETS
08/17/2022



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PROJECT # T2029-01

ASSET # 8136302002

REVISION: _____
DATE: _____
REVISION: _____
DATE: _____
REVISION: _____
DATE: _____

ISSUE DATE: 08/17/2022

CAD DWG FILE: C-002 SOLAR.DWG
DRAWN BY: J. LAUGHNER
CHECKED BY: B. PRESTON
DESIGNED BY: J. LAUGHNER

SHEET TITLE:

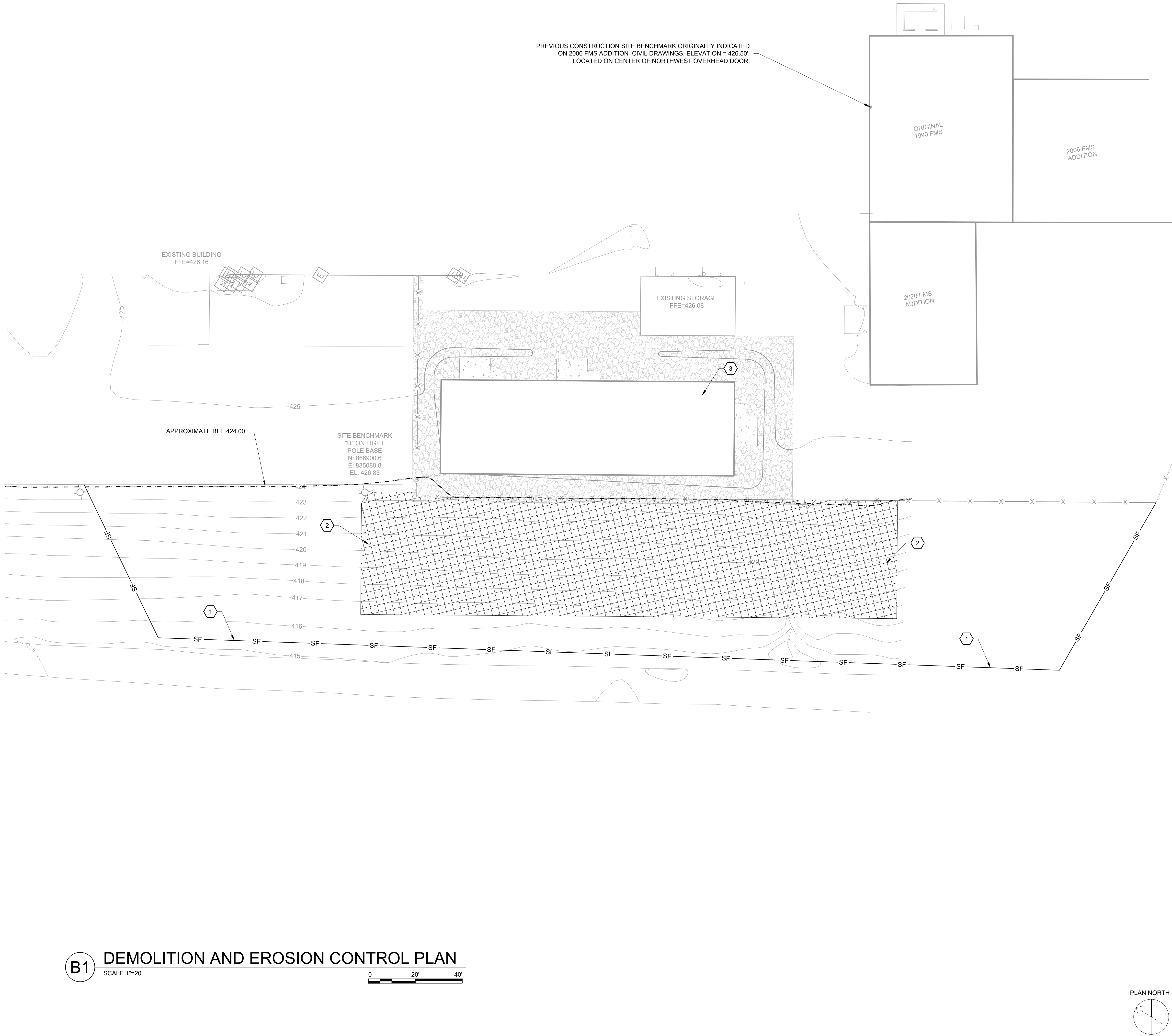
CIVIL SYMBOLS
AND
ABBREVIATIONS

SHEET NUMBER:

C-002

4 OF 17 SHEETS
08/17/2022

STANDARD CIVIL SYMBOLS AND ABBREVIATIONS					
ABBREVIATIONS		EXISTING		PROPOSED	
ABBREVIATION	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
BOT	BOTTOM		BENCHMARK AND/OR CONTROL POINT (AS NEEDED)		ASPHALT ROADWAY
BFE	BASE FLOOD ELEVATION		BOLLARD		CONCRETE PAVEMENT
CL	CONSTRUCTION LIMITS		BOREHOLE		GRAVEL SIDEWALK
CMP	CORRUGATED METAL PIPE		FIRE HYDRANT		SPOT ELEVATION
COL	COLUMN		GRATE INLET		STRUCTURE TO BE DEMOLISHED
CONC	CONCRETE		GUY WIRE		UTILITY LINE OR FENCE TO BE DEMOLISHED/ABANDONED
COR	CONTRACTING OFFICER'S REPRESENTATIVE		LIGHT POLE		SANITARY SEWER MANHOLE
			POWER POLE		SANITARY SEWER LINE
DIA	DIAMETER		SANITARY MANHOLE		WATER LINE
DWL	DOWEL		SIGN		STORM DRAIN LINE
DWG(S)	DRAWINGS		AIR CONDITIONER		UNDERGROUND COMMUNICATIONS LINE
EW	EACH WAY		ELECTRIC METER		COMMUNICATION PULL BOX
EL	ELEVATION		GAS MARKER		WATER LINE VALVE
ELEC	ELECTRICAL		GAS METER		SECURITY FENCE
EP	EDGE OF PAVEMENT		GAS VALVE		GAS VALVE
EQN	EQUATION		GAS VAULT		DRAINAGE SWALE
EXIST	EXISTING		IRRIGATION VALVE		CONSTRUCTION LIMIT
EXP	EXPANSION		SPOT ELEVATION		REDUCER
FF	FINISH FLOOR		MAILBOX		TAPPING SLEEVE
FH	FIRE HYDRANT		DECIDUOUS TREE		BOLLARD
FL	FLOWLINE		ASPHALT AREA		ILLUMINATION POLE
GALV	GALVANIZED		CONCRETE AREA		DRAINAGE FLOW ARROW
GV	GATE VALVE		GRAVEL AREA		CENTER LINE
G	GUTTER		WATER METER		
			WOOD POST		
			SANITARY CLEANOUT		
			SANITARY MANHOLE		
			STORM MANHOLE		
			TRAFFIC SIGNAL BOX		
			TELEPHONE CABINET		
			TELEPHONE RISER		
			WATER VALVE		
			SPRINKLER CONTROL VALVE		
			WATER METER		
			TELEVISION CABLE BOX		
			ELECTRICAL CABINET		
			ELECTRICAL SWITCH		
			GAS LINE		
			SANITARY SEWER LINE		
			STORM SEWER LINE		
			OVERHEAD POWER LINE		
			SECURITY FENCE		
			UNDERGROUND ELECTRIC		
			COMMUNICATIONS LINE		
			WATER LINE		
			FIRE LINE		



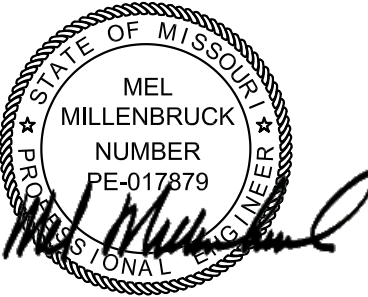
GENERAL SHEET NOTES

1. COORDINATE DEMOLITION WITH PROPOSED SITE LAYOUT AND DIMENSION CONTROL SHOWN ON SHEET CS100.

SHEET KEYNOTES

1. APPROXIMATE LIMITS OF PROPOSED SILT FENCE
2. 6" CLEAR AND GRUB, AREA SHOWN BY CROSS-HATCH, COORDINATE LIMITS WITH PROPOSED AGGREGATE GROUND COVER LIMITS SHOWN ON SHEET CS100.
3. NEW STORAGE FACILITY CONSTRUCTED UNDER SEPARATE PROJECT, SHOWN HERE FOR REFERENCE.

STATE OF MISSOURI
MICHAEL L. PARSON,
GOVERNOR



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2740 HIGHWAY P
FESTUS, MO 63028

PROJECT # T2029-01

ASSET # 8136302002

REVISION: _____
DATE: _____
REVISION: _____
DATE: _____
REVISION: _____
DATE: _____

ISSUE DATE: 08/17/2022

CAD DWG FILE: CD100 SOLAR.DWG
DRAWN BY: J. LAUGHNER
CHECKED BY: B. PRESTON
DESIGNED BY: J. LAUGHNER

SHEET TITLE:

DEMOLITION AND
EROSION CONTROL
PLAN

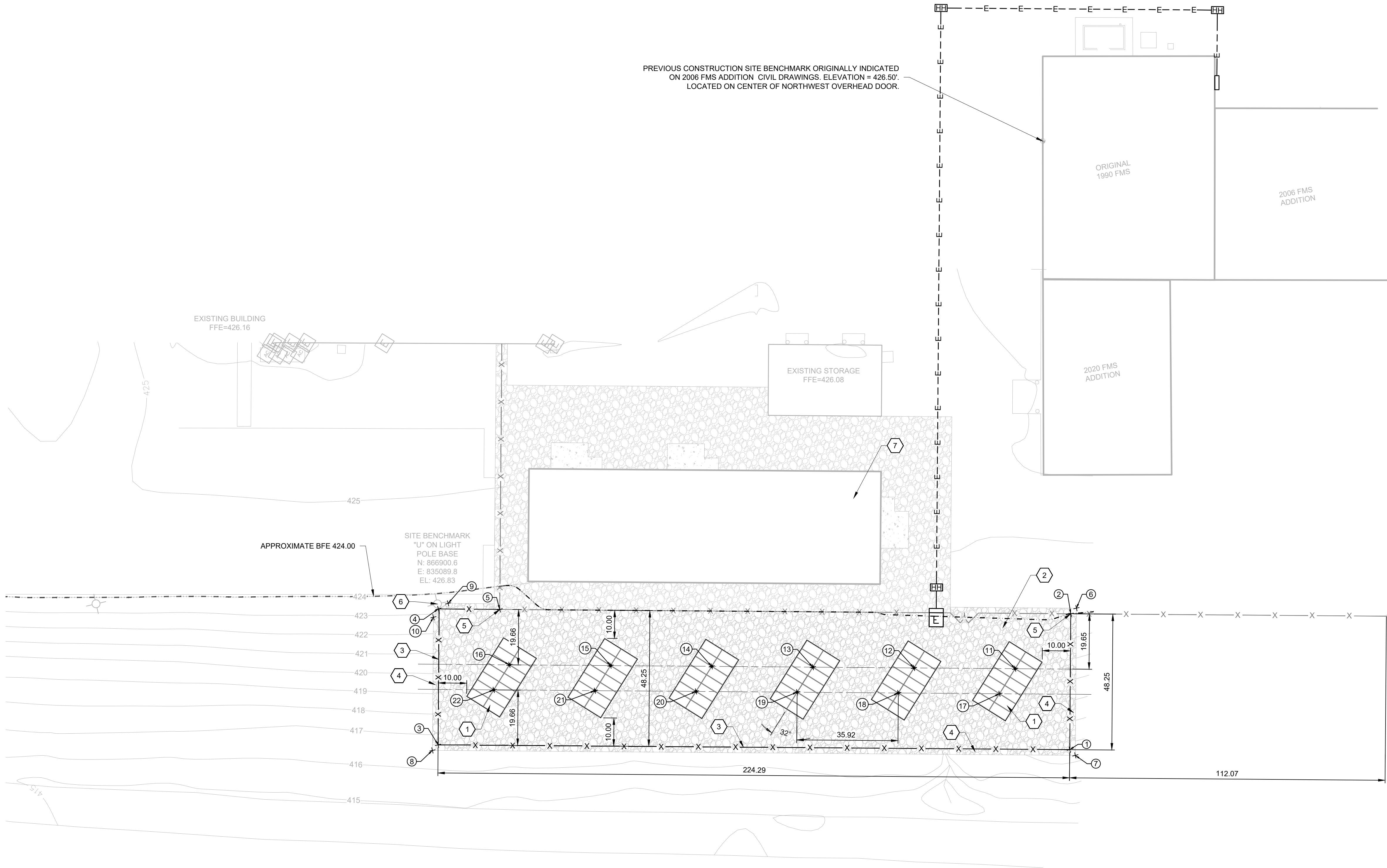
SHEET NUMBER:

CD100

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08/17/2022

B1 DEMOLITION AND EROSION CONTROL PLAN
SCALE 1"=20'

0 20' 40'



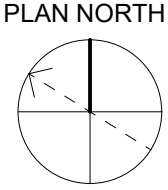
GENERAL SHEET NOTES

- 1. REFER TO SHEET C-500 FOR MISC CIVIL DETAILS
- 2. REFERENCE AND COORDINATE WITH ELECTRICAL AND STRUCTURAL PLANS AND DETAILS FOR SOLAR ARRAYS AND ASSOCIATED STRUCTURES AND FOUNDATIONS.
- 3. REFER TO STRUCTURAL SHEET S000 FOR FOUNDATION DETAILS.

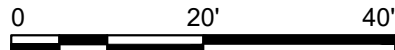
SHEET KEYNOTES

- 1. PROPOSED SOLAR ARRAY(TYP.): COORDINATE WITH ELECTRICAL PLANS AND DETAILS.
- 2. PROPOSED AGGREGATE GROUND COVER, SEE DETAIL 1 ON SHEET C-500
- 3. PROPOSED CHAIN-LINK FENCE, SEE DETAIL 4 ON SHEET C-500.
- 4. 2' MOW STRIP
- 5. PROPOSED CHAIN-LINK FENCE CONNECTION TO EXISTING FENCE.
- 6. EXISTING LIGHT POLE SHALL BE PROTECTED AND REMAIN OPERATIONAL THROUGHOUT DEMOLITION AND CONSTRUCTION. CONTRACTOR IS RESPONSIBLE FOR TAKING ALL NECESSARY PRECAUTIONS TO MAINTAIN THE INTEGRITY OF THE LIGHT POLE.
- 7. NEW STORAGE FACILITY CONSTRUCTED UNDER SEPARATE PROJECT, SHOWN HERE FOR REFERENCE.

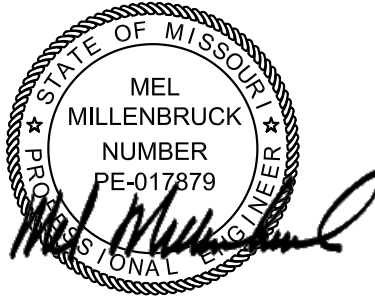
○ CONTROL POINTS TABLE			
POINT #	DESCRIPTION	NORTHING	EASTING
1	FENCE CORNER	866683.03	835164.08
2	FENCE INTERSECTION	866708.28	835205.20
3	FENCE CORNER	866874.14	835046.69
4	FENCE CORNER	866899.65	835087.65
5	FENCE INTERSECTION	866881.06	835099.07
6	AGGREGATE CORNER	866707.63	835207.95
7	AGGREGATE CORNER	866680.28	835163.43
8	AGGREGATE CORNER	866874.80	835043.94
9	AGGREGATE CORNER	866897.74	835091.17
10	AGGREGATE CORNER	866899.55	835084.24
11	ARRAY FOUNDATION	866714.69	835178.19
12	ARRAY FOUNDATION	866745.30	835159.40
13	ARRAY FOUNDATION	866775.90	835140.60
14	ARRAY FOUNDATION	866806.50	835121.80
15	ARRAY FOUNDATION	866837.11	835103.00
16	ARRAY FOUNDATION	866867.71	835084.20
17	ARRAY FOUNDATION	866714.70	835167.69
18	ARRAY FOUNDATION	866745.31	835148.90
19	ARRAY FOUNDATION	866775.91	835130.10
20	ARRAY FOUNDATION	866806.52	835111.30
21	ARRAY FOUNDATION	866837.12	835092.50
22	ARRAY FOUNDATION	866867.72	835073.70



B1 SITE AND DIMENSION CONTROL PLAN
SCALE 1"=20'



STATE OF MISSOURI
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2740 HIGHWAY P
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PROJECT # T2029-01

ASSET # 8136302002

REVISION: _____
DATE: _____
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DATE: _____
REVISION: _____
DATE: _____

ISSUE DATE: 08/17/2022

CAD DWG FILE:CS100 SOLAR.DWG
DRAWN BY: J. LAUGHNER
CHECKED BY: B. PRESTON
DESIGNED BY: J. LAUGHNER

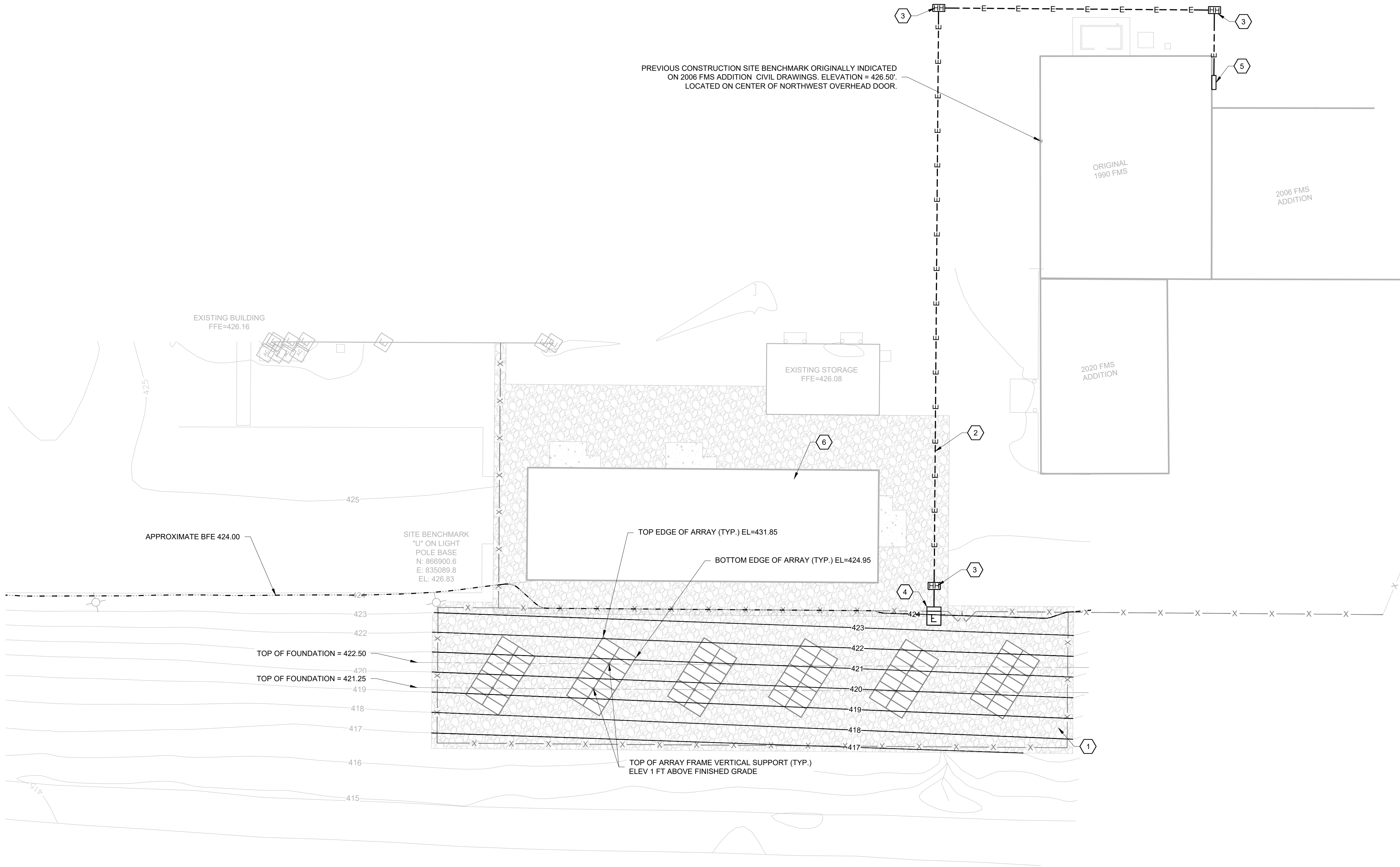
SHEET TITLE:

SITE AND
DIMENSION
CONTROL PLAN

SHEET NUMBER:

CS100

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08/17/2022



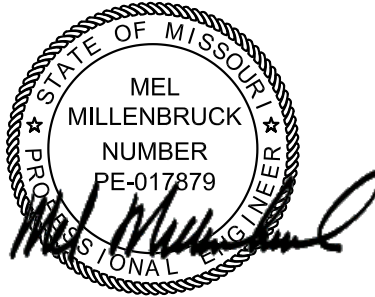
GENERAL SHEET NOTES

- SOLAR ARRAY ELEVATION INFORMATION IS BASED ON A 30° TILT FROM HORIZONTAL. REFERENCE AND COORDINATE WITH ELECTRICAL AND STRUCTURAL PLANS AND DETAILS.
- SEE SHEET C-500 FOR CIVIL DETAILS

SHEET KEYNOTES

- CONTRACTOR TO MATCH EXISTING GRADE ON THE PERIMETER OF PROPOSED ARRAY FIELD, AS SHOWN BY PROPOSED CONTOURS.
- PROPOSED UNDERGROUND ELECTRICAL LINES FROM CONTROLS TO SOLAR ARRAY FIELD.
- PROPOSED ELECTRICAL HANDHOLE, COORDINATE WITH ELECTRICAL PLANS FOR DETAIL.
- PROPOSED SHUT-OFF SWITCH AND OTHER ELECTRICAL EQUIPMENT. COORDINATE WITH ELECTRICAL PLANS AND DETAILS.
- PROPOSED CONNECTION TO EXISTING BUILDING. COORDINATE EXACT LOCATION AND EQUIPMENT WITH ELECTRICAL PLANS.
- NEW STORAGE FACILITY CONSTRUCTED UNDER SEPARATE PROJECT, SHOWN HERE FOR REFERENCE.

STATE OF MISSOURI
MICHAEL L. PARSON,
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08/17/2022

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FESTUS, MO 63028

PROJECT # T2029-01

ASSET # 8136302002

REVISION: _____
DATE: _____
REVISION: _____
DATE: _____
REVISION: _____
DATE: _____

ISSUE DATE: 08/17/2022

CAD DWG FILE: CG100 SOLAR.DWG
DRAWN BY: J. LAUGHNER
CHECKED BY: B. PRESTON
DESIGNED BY: J. LAUGHNER

SHEET TITLE:
GRADING AND
UTILITY PLAN

SHEET NUMBER:

CG100

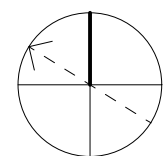
7 OF 17 SHEETS
08/17/2022

B1 GRADING AND UTILITY PLAN

SCALE 1"=20'

0 20' 40'

PLAN NORTH



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ASSET # 8136302002

CAD DWG FILE: C-500 SOLAR.DWG
DRAWN BY: J. LAUGHNER
CHECKED BY: B. PRESTON
DESIGNED BY: J. LAUGHNER

SHEET NUMBER:

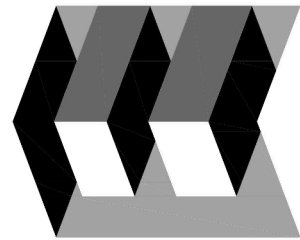
8 OF 17 SHEETS
08/17/2022





PROFESSIONAL SEAL

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REVISION: _____
DATE: _____

ISSUE DATE: 08/17/2022

CAD DWG FILE:
DRAWN BY: WALLEW
CHECKED BY: KATGOL
DESIGNED BY: NOALAM

SHEET TITLE:

STRUCTURAL
GENERAL NOTES
AND DETAIL

SHEET NUMBER:

S-000

9 OF 17 SHEETS
08/17/2022

DESIGN CRITERIA AND LOADS

- STRUCTURE HAS BEEN DESIGNED TO COMPLY WITH:
IBC 2015
ASCE/SEI 7-16
ACI 318-14
- RISK CATEGORY I
- SEISMIC:
SEISMIC DESIGN CATEGORY D
IMPORTANCE FACTOR 1.0
SOIL CLASSIFICATION PER GEOTECHNICAL REPORT
S_s 0.493 g
S₁ 0.187 g
S_{as} 0.462 g
S_{u1} 0.256 g
SEISMIC FORCE RESISTING SYSTEM ORDINARY STEEL MOMENT FRAME
R 1.25
C_s 1.25
Q_s 1.25
ANALYSIS PROCEDURE EQUIVALENT LATERAL FORCE
ASSUMED WEIGHT OF SOLAR PANEL 10 PSF
BASE SHEAR, STRENGTH LEVEL $V = C_s \times W = 0.444 \times 3.44 = 1.53$ KIPS, EAST-WEST
 $V = C_s \times W = 0.44 \times 3.44 = 1.53$ KIPS, NORTH-SOUTH
- WIND:
BASIC WIND SPEED 115 MPH
IMPORTANCE FACTOR 1.0
EXPOSURE CLASS C
MWFRS DESIGN PRESSURE 27 PSF
C&C DESIGN PRESSURE PER APPLICABLE BUILDING CODE

GENERAL

- NEITHER THE PROFESSIONAL ACTIVITIES OF THE ENGINEER, NOR THE PRESENCE OF THE ENGINEER OR THEIR EMPLOYEES AND SUBCONSULTANTS AT THE CONSTRUCTION SITE, SHALL RELIEVE THE CONTRACTOR AND ANY OTHER ENTITY OF THEIR OBLIGATIONS, DUTIES AND RESPONSIBILITIES INCLUDING BUT NOT LIMITED TO, CONSTRUCTION MEANS, METHODS, SEQUENCE, TECHNIQUES OR PROCEDURES NECESSARY FOR PERFORMING, SUPERINTENDING OR COORDINATING ALL PORTIONS OF THE CONSTRUCTION WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS AND ANY HEALTH OR SAFETY PRECAUTIONS REQUIRED BY ANY REGULATORY AGENCIES. THE ENGINEER AND THEIR PERSONNEL HAVE NO AUTHORITY TO EXERCISE ANY CONTROL OVER ANY CONSTRUCTION CONTRACTOR OR OTHER ENTITY OR THEIR EMPLOYEES IN CONNECTION WITH THEIR WORK OR ANY HEALTH OR SAFETY PRECAUTIONS. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR THE JOBSITE SAFETY. THE ENGINEER AND THE ENGINEER'S CONSULTANTS SHALL BE MADE ADDITIONAL INSUREDS UNDER THE CONTRACTOR'S GENERAL LIABILITY INSURANCE POLICY.
- ALL DRAWINGS ARE CONSIDERED TO BE A PART OF THE CONTRACT DOCUMENTS. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR THE REVIEW AND COORDINATION OF ALL DRAWINGS PRIOR TO THE START OF CONSTRUCTION. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT PRIOR TO THE START OF CONSTRUCTION SO A CLARIFICATION CAN BE ISSUED. ANY WORK PERFORMED IN CONFLICT WITH THE CONTRACT DOCUMENTS OR ANY CODE REQUIREMENTS SHALL BE CORRECTED BY THE CONTRACTOR AT THEIR OWN EXPENSE AND AT NO EXPENSE TO THE OWNER OR ARCHITECT.
- ALL DIMENSIONS AND SITE CONDITIONS SHALL BE VERIFIED BY THE CONTRACTOR AT THE JOBSITE PRIOR TO CONSTRUCTION, START OF SHOP DRAWINGS, START OF CONSTRUCTION, AND/OR FABRICATION OF MATERIALS. IF DISCREPANCIES ARE ENCOUNTERED, OR CONDITIONS DEVELOP THAT ARE NOT COVERED BY THE CONTRACT DOCUMENTS, THE ARCHITECT SHALL BE NOTIFIED FOR CLARIFICATION.
- STRUCTURAL DRAWINGS INCLUDE DESIGN REQUIREMENTS AND DIMENSIONS FOR STRUCTURAL INTEGRITY BUT DO NOT SHOW ALL DETAIL DIMENSIONS TO FIT INTRICATE ARCHITECTURAL AND MECHANICAL DETAILS. CONTRACTOR SHALL SO CONSTRUCT THE WORK SO IT WILL CONFORM TO THE CLEARANCES REQUIRED BY ARCHITECTURAL, MECHANICAL AND ELECTRICAL DESIGN.
- DO NOT SCALE DRAWINGS. PRINTED DIMENSIONS HAVE PRECEDENCE OVER SCALED DRAWINGS AND LARGE-SCALE OVER SMALL-SCALE DRAWINGS. CONTRACTOR TO DETERMINE FINAL DIMENSION WITH ARCHITECT.
- THE CONTRACT DOCUMENTS REPRESENT THE FINISHED STRUCTURE. THEY DO NOT INDICATE THE METHOD OF CONSTRUCTION. THE CONTRACTOR SHALL PROVIDE ALL MEASURES NECESSARY TO PROTECT THE STRUCTURE AND SAFETY OF WORKMEN DURING CONSTRUCTION. SUCH MEASURES SHALL INCLUDE, BUT NOT BE LIMITED TO, BRACING AND SHORING FOR LOADS DUE TO CONSTRUCTION EQUIPMENT, ETC. OBSERVATION VISITS TO THE SITE BY THE ARCHITECT OR STRUCTURAL ENGINEER SHALL NOT INCLUDE INSPECTION OR APPROVAL OF THE ABOVE ITEMS AND DOES NOT IN ANY WAY RELIEVE THE CONTRACTOR OF THEIR RESPONSIBILITIES FOR THE ABOVE.
- ESTABLISH AND VERIFY ALL OPENINGS AND INSERTS FOR MECHANICAL, ELECTRICAL AND PLUMBING WITH APPROPRIATE TRADE CONTRACTORS. OPENING SIZES AND LOCATIONS SHOWN FOR DUCTS, PIPE, INSERTS AND OTHER PENETRATIONS WHEN SHOWN ARE FOR GENERAL INFORMATION ONLY AND SHALL BE VERIFIED PRIOR TO FORMING.
- NO HOLES, NOTCHES, BLOCKOUTS, ETC. ARE ALLOWED IN STRUCTURAL ELEMENTS UNLESS SPECIFICALLY DETAILED ON THE STRUCTURAL DRAWINGS OR APPROVED BY THE STRUCTURAL ENGINEER.
- BEFORE SUBMITTING A PROPOSAL FOR THIS WORK, EACH BIDDER SHALL VISIT THE PREMISES AND BECOME FULLY ACQUAINTED WITH THE EXISTING CONDITIONS. TEMPORARY CONSTRUCTION REQUIRED, QUANTITIES AND TYPE OF EQUIPMENT, ETC. THE BID SHALL INCLUDE ALL SUMS REQUIRED TO DO THE WORK WITHIN THE EXISTING CONDITIONS.
- SHOP DRAWINGS SHALL BE REVIEWED AND COORDINATED PRIOR TO SUBMITTING TO THE ARCHITECT. EACH SHOP DRAWING SUBMITTED SHALL BE STAMPED INDICATING REVIEW BY THE CONSTRUCTION MANAGER/GENERAL CONTRACTOR AND REVIEW BY THE ARCHITECT SHALL NOT BEGIN UNTIL THIS IS COMPLETE. WORK SHALL NOT BEGIN WITHOUT REVIEW BY THE ARCHITECT/STRUCTURAL ENGINEER.
- SHOP DRAWINGS SHALL BE REVIEWED BY THE ARCHITECT/STRUCTURAL ENGINEER FOR GENERAL CONFORMANCE WITH DESIGN CONCEPT ONLY. NOTATIONS MADE BY THE ARCHITECT/STRUCTURAL ENGINEER ON THE SHOP DRAWINGS DO NOT RELIEVE THE CONTRACTOR FROM COMPLYING WITH THE REQUIREMENTS OF THE DRAWINGS.

EARTHWORK

- FOUNDATION DESIGN IS BASED ON THE GEOTECHNICAL REPORT DATED OCTOBER 20, 2020 BY GEOTECHNOLOGY INC. REPORT IS ON FILE WITH THE ARCHITECT.
- SOIL PROPERTIES PER THE GEOTECHNICAL REPORT:
ALLOWABLE NET SOIL BEARING PRESSURE:
FOOTINGS 2000 PSF
SOIL BEARING 2' - 6" BELOW EXISTING GRADE
FROST DEPTH 2' - 6"
PASSIVE PRESSURE 225 PSF/FT OF DEPTH
COEFFICIENT OF FRICTION 0.4
- CONTRACTOR SHALL PROVIDE FOR DE-WATERING OF EXCAVATIONS FROM SURFACE WATER, GROUND WATER OR SEEPAGE. DETAILS OF GROUND WATER INFORMATION CAN BE OBTAINED FROM THE ABOVE MENTIONED GEOTECHNICAL REPORT. IF GROUND WATER SHOULD OCCUR DURING EXCAVATION, SPECIAL PROCEDURES SHALL BE IMPLEMENTED AS RECOMMENDED BY THE GEOTECHNICAL ENGINEER OF RECORD.
- CONTRACTOR SHALL INVESTIGATE SITE DURING CLEARING AND EARTHWORK OPERATIONS FOR FILL MATERIAL OR BURIED STRUCTURES SUCH AS CESSPOOLS, CISTERNS AND FOUNDATIONS. IF ANY SUCH MATERIAL OR STRUCTURES ARE FOUND, ARCHITECT SHALL BE NOTIFIED IMMEDIATELY. ALL ABANDONED FOOTINGS, UTILITIES AND OTHER STRUCTURES THAT INTERFERE WITH NEW CONSTRUCTION SHALL BE REMOVED.

- ALL FOOTINGS SHALL BE PLACED ONTO FIRM UNDISTURBED SOIL OR CONTROLLED COMPACTED FILL, REMOVING ANY EXISTING FILL OR UNSUITABLE SOILS AS RECOMMENDED BY THE GEOTECHNICAL REPORT. EXCAVATIONS FOR FOOTINGS SHALL BE INSPECTED AND APPROVED BY THE INSPECTION AGENCY PRIOR TO PLACING CONCRETE. CONTRACTOR SHALL NOTIFY INSPECTION AGENCY WHEN EXCAVATION IS READY FOR TESTING. INSPECTION AGENCY TO SUBMIT LETTER OF COMPLIANCE TO THE OWNER.
- ALL SITE WORK SHALL BE PERFORMED UNDER THE INSPECTION OF THE SPECIAL INSPECTION AGENCY. VARIATIONS IN SITE CONDITIONS AND THE GEOTECHNICAL REPORT SHALL BE REPORTED TO THE ARCHITECT/STRUCTURAL ENGINEER FOR CLARIFICATIONS PRIOR TO PROCEEDING.

REINFORCING STEEL

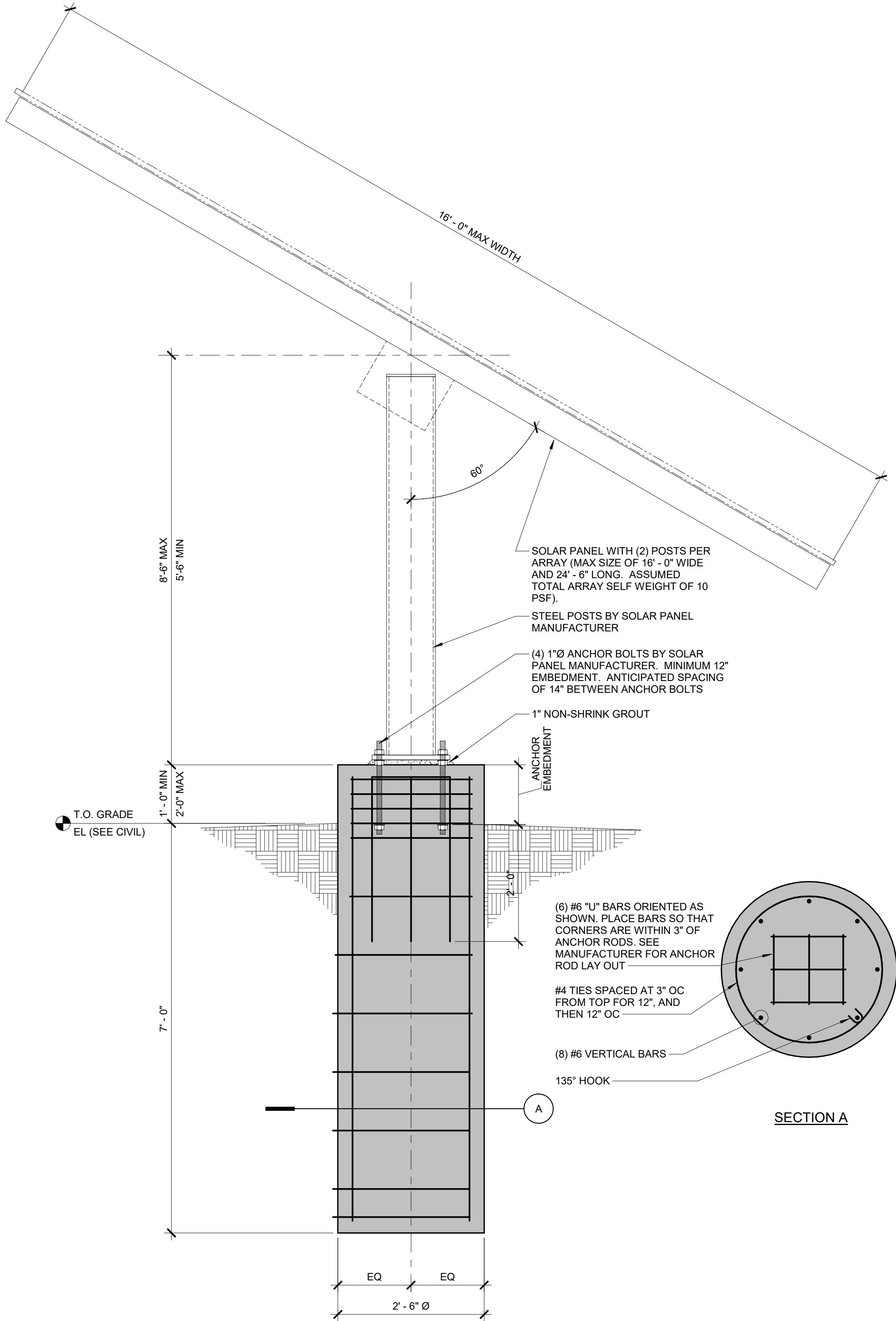
- ALL REINFORCING STEEL SHALL BE DETAILED AND PLACED IN CONFORMANCE WITH THE AMERICAN CONCRETE INSTITUTE "ACI DETAILING MANUAL" (SP-066) EXCEPT AS OTHERWISE SHOWN, NOTED OR SPECIFIED.
- CONCRETE REINFORCING STEEL SHALL BE HIGH STRENGTH NEW BILLET STEEL CONFORMING TO THE FOLLOWING STANDARDS:
DEFORMED BARS ASTM A615, GR60 Fy = 60 KSI
- MINIMUM CONCRETE COVER SHALL BE PROVIDED AS FOLLOWS TO THE OUTERMOST REINFORCING BARS:
CAST AGAINST AND PERMANENTLY IN CONTACT WITH GROUND 3"
EXPOSED TO WEATHER OR IN CONTACT WITH GROUND 2"
#6 BARS OR LARGER
#5 BARS OR SMALLER 1 1/2"
- PROVIDE ADEQUATE TIES FOR ALL REINFORCING BARS AND STIRRUPS IN CONCRETE SLABS AND BEAMS. ANCHOR BOLTS, DOWELS, REINFORCING STEEL, INSERTS, ETC. SHALL BE SECURELY TIED IN PLACE PRIOR TO POURING CONCRETE. CONCRETE BLOCKS SHALL ONLY BE USED TO SUPPORT REINFORCING OFF GRADE.
- SUPPORTS FOR REINFORCEMENT SHALL HAVE CLASS 2 PROTECTION AS DEFINED IN THE CRSI MANUAL OF STANDARD PRACTICE, UNO.
- CUTTING OF REINFORCING WHICH CONFLICTS WITH EMBEDDED OBJECTS IS NOT ACCEPTABLE.
- REINFORCING BARS SHALL BE BENT COLD, AND NO METHOD OF FABRICATION SHALL BE USED WHICH WOULD BE INJURIOUS TO THE MATERIAL. HEATING OF BARS FOR BENDING IS NOT PERMITTED.
- FIELD WELDING OR BENDING OF REINFORCING IS NOT PERMITTED EXCEPT AS INDICATED ON THE DRAWINGS OR AS APPROVED BY THE STRUCTURAL ENGINEER.
- SUBMIT SHOP DRAWINGS FOR FABRICATION AND PLACEMENT OF REINFORCING STEEL. INCLUDE SCHEDULES AND DIAGRAMS OF BENT BARS AND SHOW ARRANGEMENT OF REINFORCEMENT. STRUCTURAL ENGINEER'S REVIEW WILL BE FOR COMPLIANCE WITH DESIGN REQUIREMENTS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING DIMENSIONS AND QUANTITIES.

CAST-IN-PLACE CONCRETE

- ALL CONCRETE WORK SHALL CONFORM TO THE AMERICAN CONCRETE INSTITUTE PUBLICATIONS: ACI 117, ACI 301, ACI 305.1, ACI 306.1, ACI 308.1, ACI 318 AND SP-066, UNO.
- CONCRETE MATERIALS SHALL CONFORM TO:
CEMENT ASTM C150, TYPE I OR II
FLY ASH ASTM C618, TYPE C OR F
FINE AND COARSE AGGREGATE ASTM C33
WATER POTABLE
AIR-ENTRAINING ADMIXTURE ASTM C260
WATER-REDUCING ADMIXTURE ASTM C494
- CONCRETE STRENGTHS SHALL CONFORM TO:

INTENDED USE	28-DAY STRENGTH (PSI)	MAX W/C RATIO	A/E	SLUMP
FOUNDATIONS	4000	0.45	5-8%	1"-4"

- DRYPACK SHALL BE 1-3-1/2 PORTLAND CEMENT TO SAND WITH A MINIMUM 28-DAY STRENGTH OF 7000 PSI.
- GROUT SHALL BE 1:3:2 PORTLAND CEMENT TO SAND TO PEA GRAVEL WITH A MINIMUM 28-DAY STRENGTH OF 7000 PSI.
- CROSS REFERENCE ARCHITECTURAL AND STRUCTURAL DRAWINGS TO ASSURE PROPER DIMENSIONS AND PLACEMENT OF ALL ANCHOR BOLTS, INSERTS, NOTCHES, AND PIERS.
- ALL FOOTINGS SHALL BE CENTERED UNDER COLUMNS.
- PROVIDE SLEEVES FOR PLUMBING AND ELECTRICAL PENETRATIONS THROUGH CONCRETE BEFORE PLACING. SECURE SUCH SLEEVES TO PREVENT MOVEMENT DURING PLACING OPERATIONS. REFER TO MECHANICAL AND ELECTRICAL DRAWINGS FOR LOCATIONS OF PENETRATIONS.
- CORE DRILLING CONCRETE IS NOT PERMITTED UNLESS NOTED OTHERWISE OR APPROVED IN WRITING BY THE ARCHITECT. NOTIFY THE ARCHITECT IN ADVANCE OF CONDITIONS NOT SHOWN ON THE DRAWINGS.
- CONFIRM WITH ARCHITECT THAT MATERIALS TO BE EMBEDDED ARE SUITABLE FOR EMBEDMENT IN CONCRETE.
- THE OUTSIDE DIAMETER OF EMBEDDED CONDUIT OR PIPE SHALL NOT EXCEED 1/3 OF THE STRUCTURAL SLAB THICKNESS, INCLUDING AT CROSS-OVERS, AND SHALL BE PLACED BETWEEN THE TOP AND BOTTOM REINFORCING WITH A MINIMUM 3" CLEAR COVER. CONDUIT OR PIPE RUNNING PARALLEL TO EACH OTHER SHALL BE SPACED AT LEAST 8" APART AND NO MORE THAN 2 RUNS STACKED VERTICALLY IN THE SLAB. CONDUIT OR PIPE SHALL NOT BE EMBEDDED IN SLAB THICKNESSES LESS THAN 6 INCHES.
- DO NOT PLACE PIPES, DUCTS, REGLETS OR CHASES IN STRUCTURAL CONCRETE WITHOUT APPROVAL OF THE STRUCTURAL ENGINEER THROUGH THE ARCHITECT.
- NO ALUMINUM SHALL BE ALLOWED IN THE CONCRETE WORK UNLESS COATED TO PREVENT ALUMINUM-CONCRETE REACTION.
- PROJECTING CORNERS, SHALL BE FORMED WITH A 3/4 INCH CHAMFER, UNLESS NOTED OTHERWISE ON ARCHITECTURAL DRAWINGS.
- INTERNALLY VIBRATE ALL CAST-IN-PLACE CONCRETE.
- CONCRETE SHALL NOT BE PERMITTED TO DROP MORE THAN 5 FEET.
- NOTIFY THE ARCHITECT/STRUCTURAL ENGINEER 48 HOURS MINIMUM PRIOR TO ALL POURS.
- NO CONCRETE SHALL BE PLACED ONTO OR AGAINST SUBGRADES CONTAINING FREE WATER, FROST, ICE OR SNOW.
- THE CONCRETE CONTRACTOR SHALL FURNISH MIX DESIGN SHOP DRAWINGS FOR REVIEW.

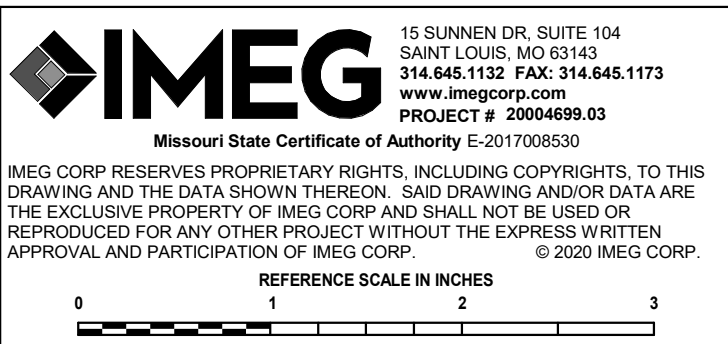


NOTE:

- NOTIFY STRUCTURAL ENGINEER IF FINAL SOLAR PANEL INFORMATION VARIES FROM INFORMATION SHOWN ON DETAIL.
- REFER TO CIVIL DRAWINGS FOR LOCATIONS OF SOLAR PANELS AND LAYOUT OF SUPPORT POSTS.

1 SOLAR PANEL FOUNDATION

3/4" = 1'-0"





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INSTALL GROUND MOUNTED
SOLAR PANEL ARRAY & LED
LIGHTING FMS BUILDING -
READINESS CENTER

2740 HIGHWAY P
FESTUS, MO 63028

PROJECT # T2029-01

ASSET # 8136302002

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CAD DWG FILE: E-001.DWG
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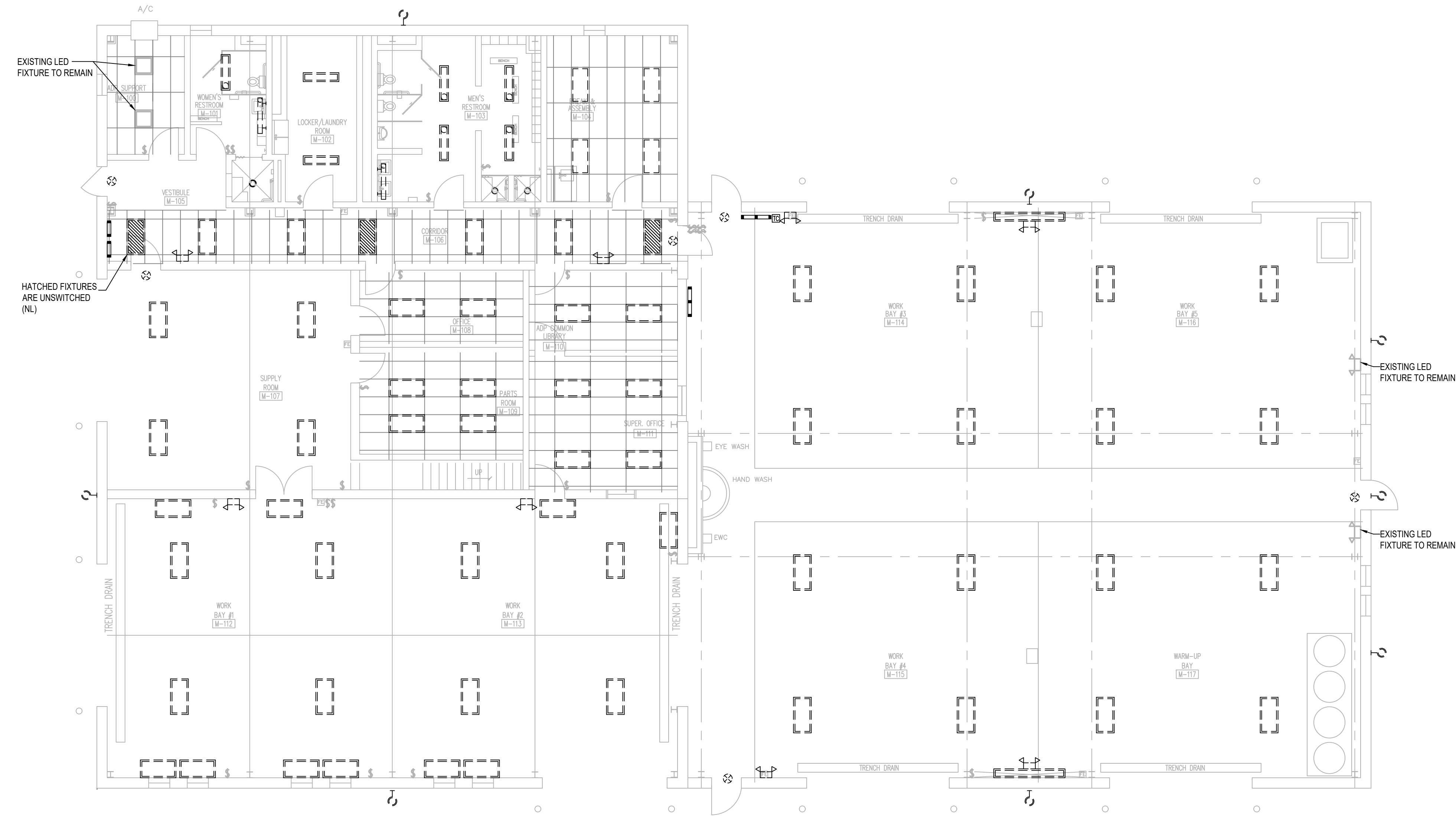
ELECTRICAL
SYMBOLS
ABBREVIATIONS
AND NOTES

SHEET NUMBER:

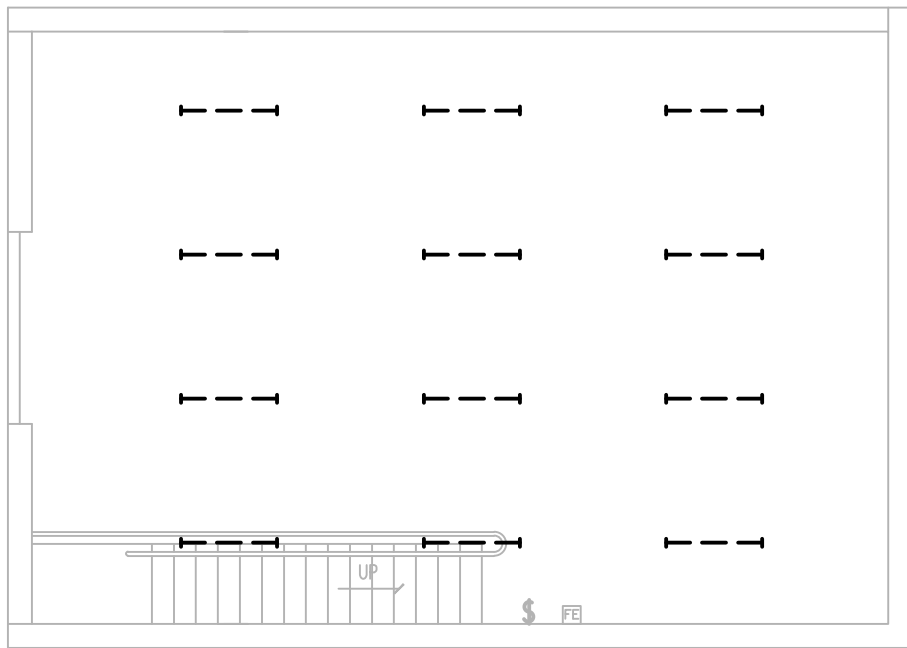
E-001

ELECTRICAL SYMBOLS				ABBREVIATIONS		GENERAL NOTES
LIGHTING		POWER		ONE-LINE DIAGRAM		
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	
	LIGHT FIXTURE - 2x4 LED SURFACE MOUNT		CONDUIT ROUTING ABOVE GRADE		MECHANICAL EQUIPMENT TAG	A-AMP
	LIGHT FIXTURE - 2x4 LED RECESSED		CONDUIT ROUTING BELOW GRADE (DIRECT BURIED)		DELTA CONNECTION	AC
	LIGHT FIXTURE - 2x2 LED SURFACE MOUNT		UNDERGROUND DIRECT BURY		TRANSFORMER ONE-LINE DIAGRAM	AFF
	LIGHT FIXTURE - 2x2 LED RECESSED		CLOCK HANGER RECEPTACLE		WYE CONNECTION	AFG
	LIGHT FIXTURE - 1X4 LED SURFACE MOUNT		DUPLEX RECEPTACLE FLOOR MOUNTED		EARTH GROUND	AL
	LIGHT FIXTURE - 1X4 LED RECESSED		DUPLEX RECEPTACLE WALL MOUNTED @ 18" A.F.F.		FUSE NUMBER = FUSE RATING	AIC
	LIGHT FIXTURE - 1X8 LED SURFACE MOUNT		DUPLEX RECEPTACLE ON EMERGENCY POWER WALL MOUNTED @ 18" A.F.F.		NORMALLY CLOSED RELAY CONTACT	AT
	LIGHT FIXTURE - 1X8 LED RECESSED		DUPLEX RECEPTACLE WITH GROUND FAULT CIRCUIT INTERRUPTER WALL MOUNTED @ 18" A.F.F.		NORMALLY OPEN RELAY CONTACT	ATS
	LIGHT FIXTURE - LED, PENDANT		QUADRAPLEX RECEPTACLE WALL MOUNTED @ 18" A.F.F.		CIRCUIT BREAKER	AWG
	LIGHT FIXTURE - LED, CAN SURFACE MOUNT		QUADRAPLEX RECEPTACLE FLOOR MOUNTED		BATTERY	AUX
	LIGHT FIXTURE - CAN, RECESSED		EXPLOSION-PROOF SINGLE RECEPTACLE WALL MOUNTED @ 24"A.F.F.		CAPACITOR	BAS
	WALL/CEILING MOUNT SINGLE/DOUBLE FACE EXIT LIGHT		SPECIAL PURPOSE RECEPTACLE WALL MOUNTED @ 18" A.F.F.		LIGHTNING ARRESTOR	BLDG
	SINGLE LAMP EMERGENCY LIGHT		SWITCHED DUPLEX RECEPTACLE WALL MOUNTED @ 18" A.F.F.		INVERTER	C
	MULTI LAMP EMERGENCY LIGHT		ARC FAULT RECEPTACLE WALL MOUNTED @ 18" AFF		SURGE VOLTAGE PROTECTOR	CB
	WALL/CEILING MOUNT SINGLE/DOUBLE FACE EXIT LIGHT LETTER DENOTES TYPE		DUPLEX RECEPTACLE W/ (2) USB CHARGING PORTS SURFACE MOUNTED @ 18" AFF FLOORBOX		UNINTERRUPTABLE POWER SUPPLY	CKIT
	STREET LIGHT WITH BRACKET		USB		CONTROL POWER TRANSFORMER # INDICATES RATIO	CL
	LIGHTING POST - TWO ARMS, TWO HEADS		CEILING MOUNTED PULL SWITCH		ELECTRICAL METER	CONT
	LIGHT POST WITHOUT ARM		TRANSFORMER		PHOTOVOLTAIC MODULE (SOLAR PANEL), ROOF MOUNTED	COR
	EXTERIOR BUILDING LIGHTING		UNDERFLOOR DUCT			CPT
	SWITCH - SINGLE POLE WALL MOUNTED @ 48" A.F.F.		JUNCTION BOX			CT
	SWITCH - DOUBLE POLE WALL MOUNTED @ 48" A.F.F.		CABLE TRAY			CU
	SWITCH - THREE WAY WALL MOUNTED @ 48" A.F.F.					DEMO
	SWITCH - FOUR WAY WALL MOUNTED @ 48" A.F.F.		HANDHOLE			DET
	SWITCH - KEY OPERATED WALL MOUNTED @ 48" A.F.F.		PULL BOX			DIM
	SWITCH - LOW VOLTAGE MASTER WALL MOUNTED @ 48" A.F.F.		WIREWAY			DISC
	SWITCH WITH OCCUPANCY SENSOR WALL MOUNTED @ 48" A.F.F.		BUSWAY			DWG
	SWITCH - TIMER OPERATED WALL MOUNTED @ 48" A.F.F.		METER			E
	SWITCH WITH VACANCY SENSOR WALL MOUNTED @ 48" A.F.F.		SUBSTATION			ECB
	SWITCH WITH PILOT LIGHT WALL MOUNTED @ 48" A.F.F.		GENERATOR			ELEC
	SWITCH - DIMMER WALL MOUNTED @ 48" A.F.F.		SINGLE OR THREE PHASE MOTOR			ENCL
	OCCUPANCY SENSOR - CEILING MOUNTED		NON-FUSED DISCONNECT SWITCH			EQUIP
	DAYLIGHT SENSOR - CEILING MOUNTED		FUSED DISCONNECT SWITCH			EWIC
	PHOTO CELL SENSOR		COMBINATION STARTER WITH DISCONNECT SWITCH WALL MOUNTED @ 48" A.F.F.			EXIST
LIGHT FIXTURE DESIGNATION			STARTER/MOTOR CONTROLLER WALL MOUNTED @ 48" A.F.F.			EXT
			PUSH BUTTON WALL MOUNTED @ 48" A.F.F.			FAAP
			DISTRIBUTION PANEL - SURFACE MOUNTED			FACP
			DISTRIBUTION PANEL - FLUSH MOUNTED RP = RECEPTACLE PANEL PP = GENERAL POWER PANEL (MECH LOADS) LP = LIGHTING PANEL TP = TELECOMMUNICATIONS POWER UP = UPS BACKED PANEL			FIG
			DATA ROUGH-IN, PROVIDE 2-GANG BOX AT 24" AFF WITH 1" CONDUIT WITH PULLWIRE ROUTED TO TELECOMMUNICATIONS CABINET. BACKBOX SHALL BE PROVIDED WITH THREADED ENTRIES FOR NPT-THREADED CONDUIT AND FITTINGS			FIN
						FLEX

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1 DEMOLITION LIGHTING PLAN
SCALE: 1/8"=1'-0"



2 MEZZANINE DEMOLITION PLAN
SCALE: 1/8"=1'-0"

GENERAL SHEET NOTES

- EXISTING LIGHT FIXTURES TO BE REPLACED-IN-PLACE. MAINTAIN EXISTING LIGHTING CONTROLS AND CIRCUITRY FOR REUSE.
- SCREENED DEVICES ARE EXISTING TO REMAIN. DARK, DASHED DEVICES ARE TO BE DEMOLISHED.

STATE OF MISSOURI
MICHAEL L. PARSON,
GOVERNOR



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INSTALL GROUND MOUNTED
SOLAR PANEL ARRAY & LED
LIGHTING FMS BUILDING -
READINESS CENTER

2740 HIGHWAY P
FESTUS, MO 63028

PROJECT # T2029-01

ASSET # 8136302002

REVISION: _____
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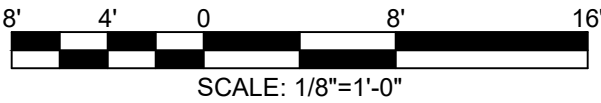
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DRAWN BY: DFP
CHECKED BY: JCF
DESIGNED BY: JAC

SHEET TITLE:
DEMOLITION
LIGHTING
REFLECTED
CEILING PLAN

SHEET NUMBER:

ED101

11 OF 17 SHEETS
08/17/2022





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SHEET NUMBER:

E-101

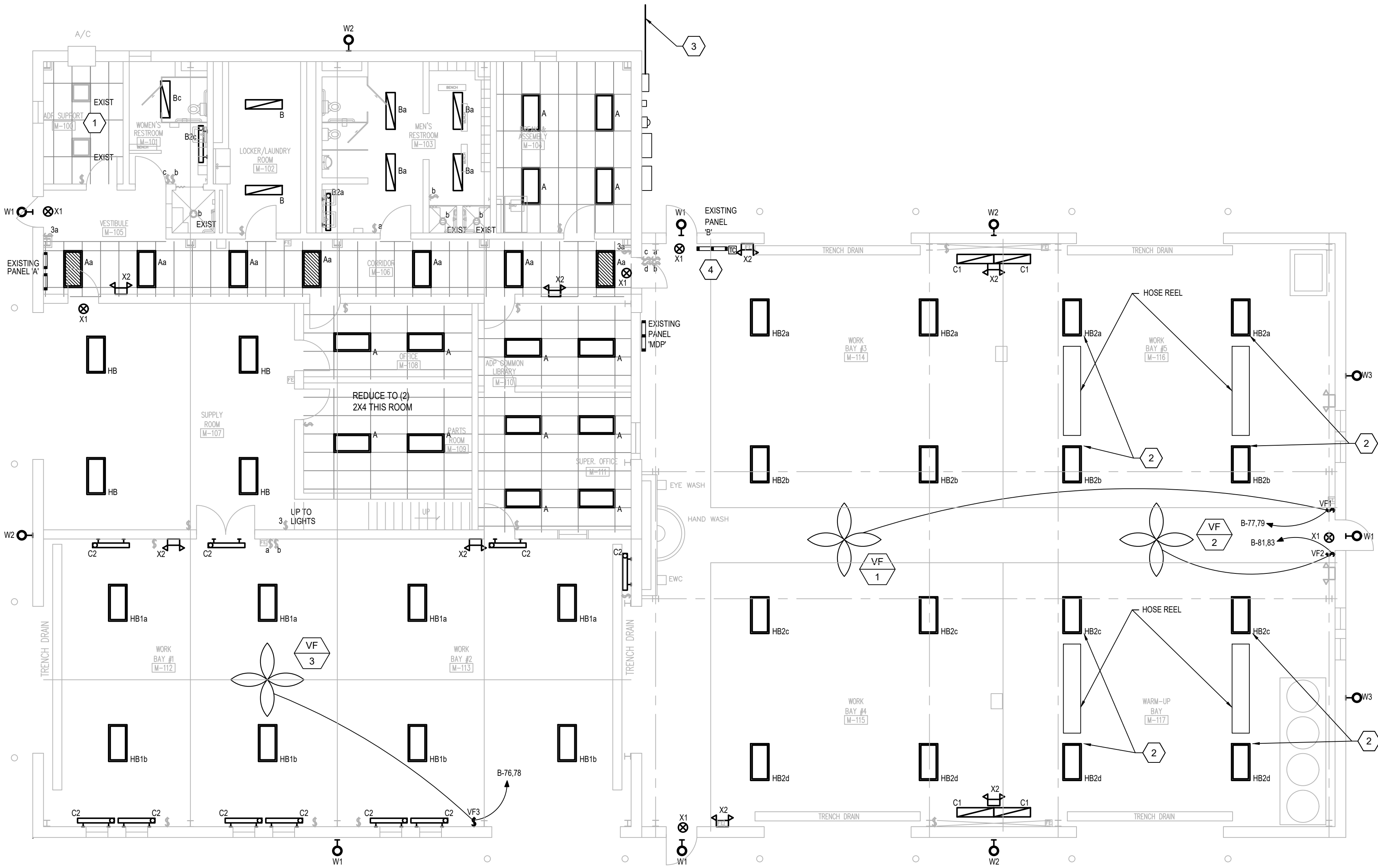
12 OF 17 SHEETS
08/17/2022

GENERAL SHEET NOTES

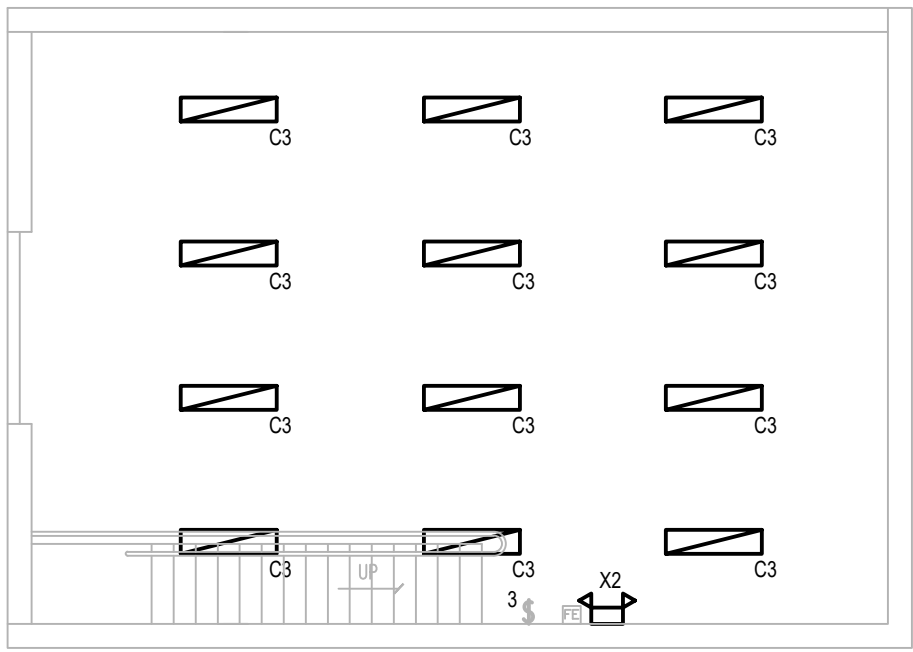
- EXISTING LIGHT FIXTURES TO BE REPLACED-IN-PLACE. REUSE EXISTING CIRCUITRY.
- NEW FIXTURES SHOW DARK, EXISTING FIXTURES ARE SCREENED.
- LIGHTING AUTOMATIC CONTROLS ALL NEW LIGHTS SHALL CONTAIN INTEGRAL OCCUPANCY SENSOR. LIGHTING IN VEHICLE MAINTENANCE BAYS SHALL HAVE NO AUTOMATIC CONTROL DUE TO SAFETY OF MECHANIC.
- SEE EQUIPMENT SCHEDULE ON E-601 FOR CONNECTION INFORMATION TO VENTILATION FANS (VF).

SHEET KEYNOTES

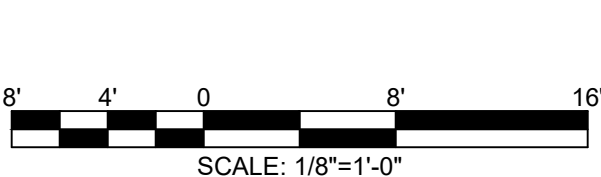
- EXISTING LED FIXTURES AND LIGHTING CONTROLS TO REMAIN.
- MOUNT SUSPENDED LIGHT FIXTURES ABOVE HOSE REELS TO PREVENT INTERFERENCE.
- SEE SHEET E-102 FOR CONTINUATION OF UNDERGROUND FEED FROM SOLAR ARRAY.
- CIRCUIT 76 THROUGH 83 ARE SPARE 20A/1P CIRCUIT BREAKERS IN PANEL B. PROVIDE NEW 2-POLE CIRCUIT BREAKERS FOR NEW VENTILATION FANS. UPDATE PANEL DIRECTORY.

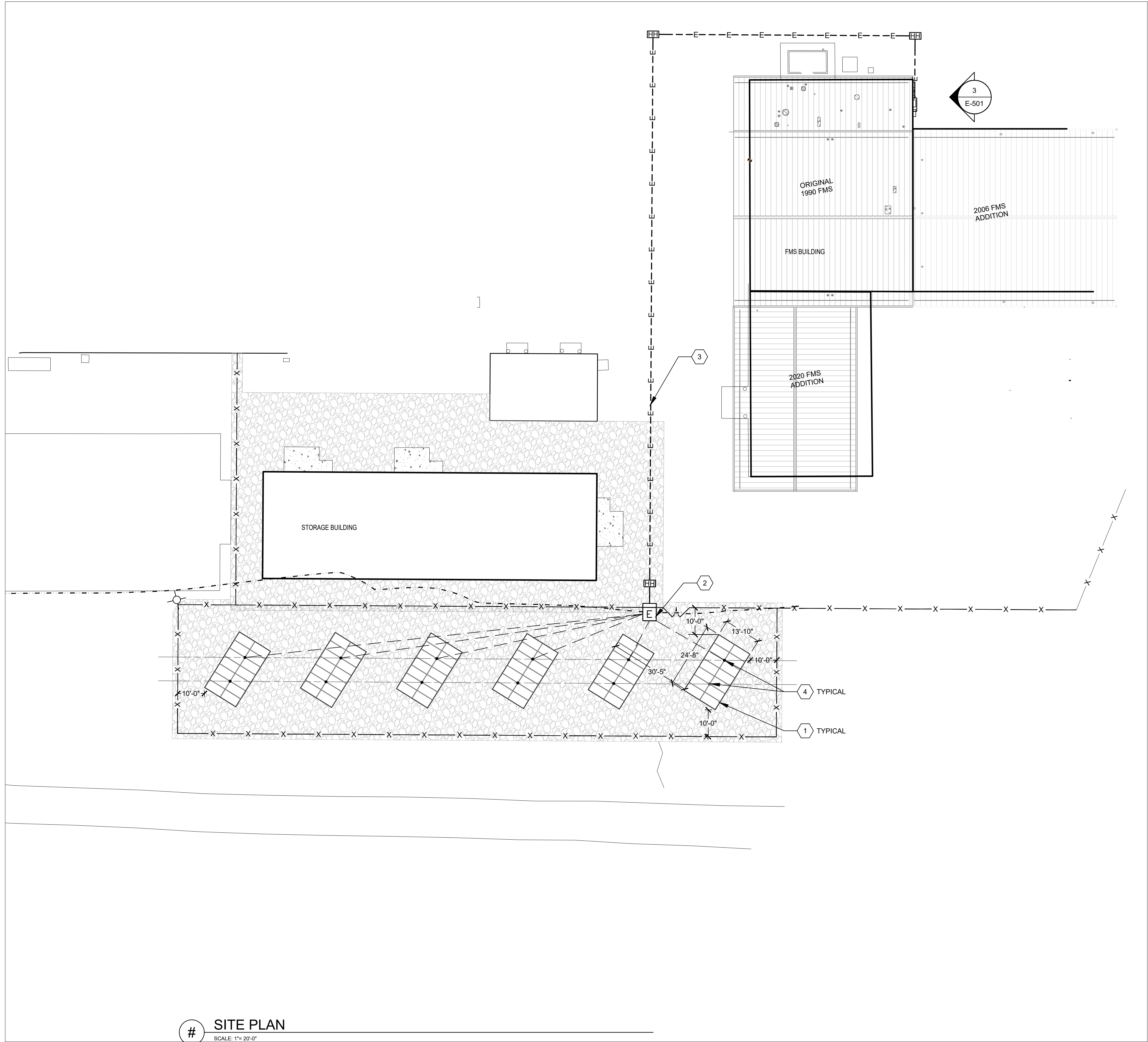


1 LIGHTING RENOVATION PLAN
SCALE: 1/8"= 1'-0"



2 MEZZANINE LIGHTING RENOVATION PLAN
SCALE: 1/8"= 1'-0"





SITE PLAN
SCALE: 1"=20'-0"

GENERAL SHEET NOTES

1. PROVIDE HANDHOLES PER DETAIL 6 ON SHEET E-501.

SHEET KEYNOTES

1. PROVIDE 2X7 PORTRAIT SOLAR ARRAY. SEE DETAIL 4 ON E-501. MOUNT SOLAR RACK TO BASE. SEE STRUCTURAL DRAWINGS.
2. PROVIDE EXTERIOR FRAME MOUNTED INVERTERS, PANEL, AND DISCONNECT INSIDE SECURE FENCE. SEE DETAIL 5 ON SHEET E-501.
3. DIRECT BURY CONDUIT. SEE DETAIL 7 ON SHEET E-501.
4. SUPPORT PIER FOR SOLAR ARRAY. SEE STRUCTURAL DRAWINGS.

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DRAWN BY: DFP
CHECKED BY: JCF
DESIGNED BY: JAC

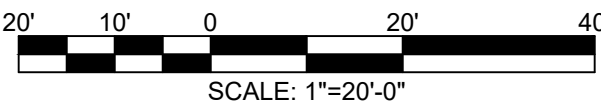
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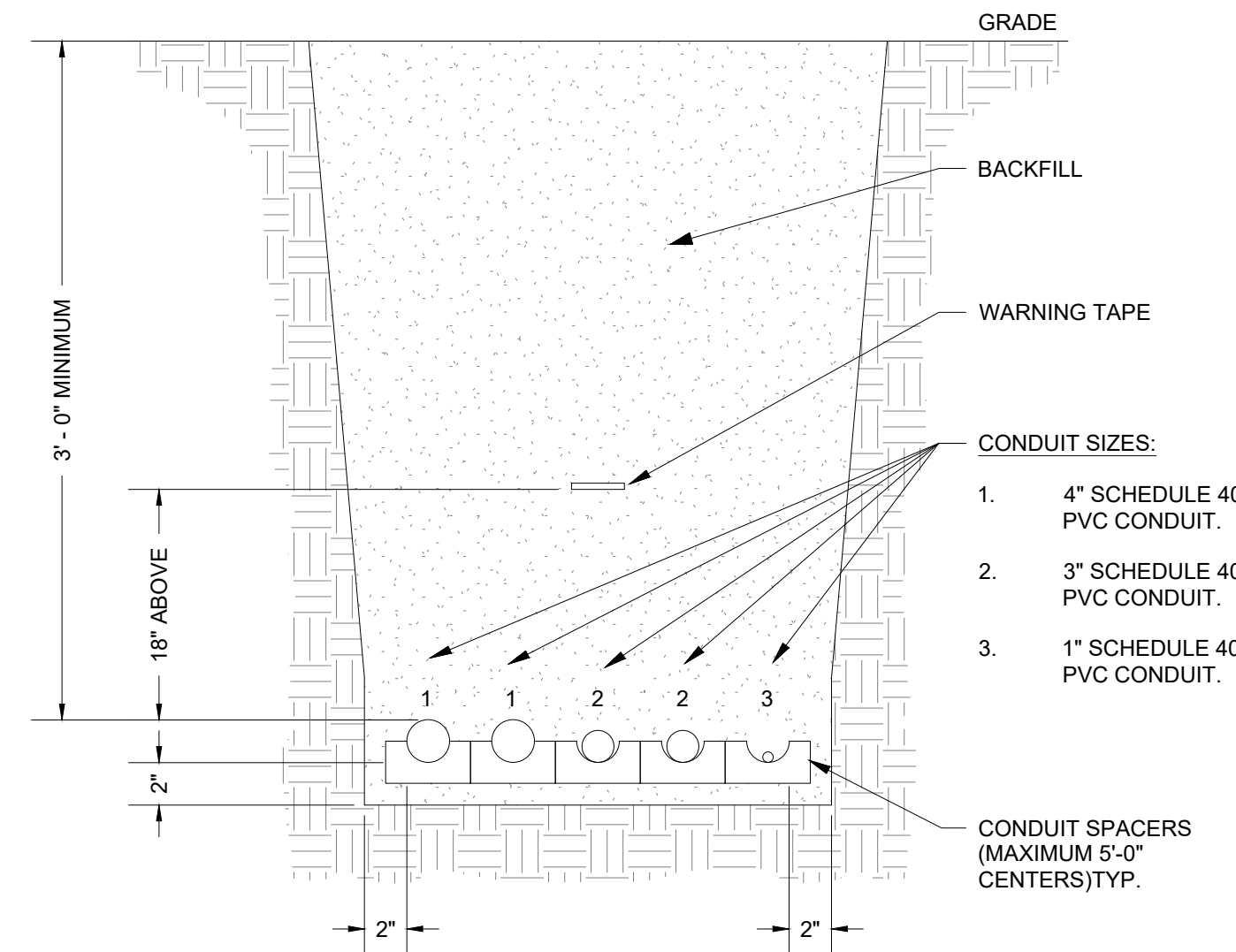
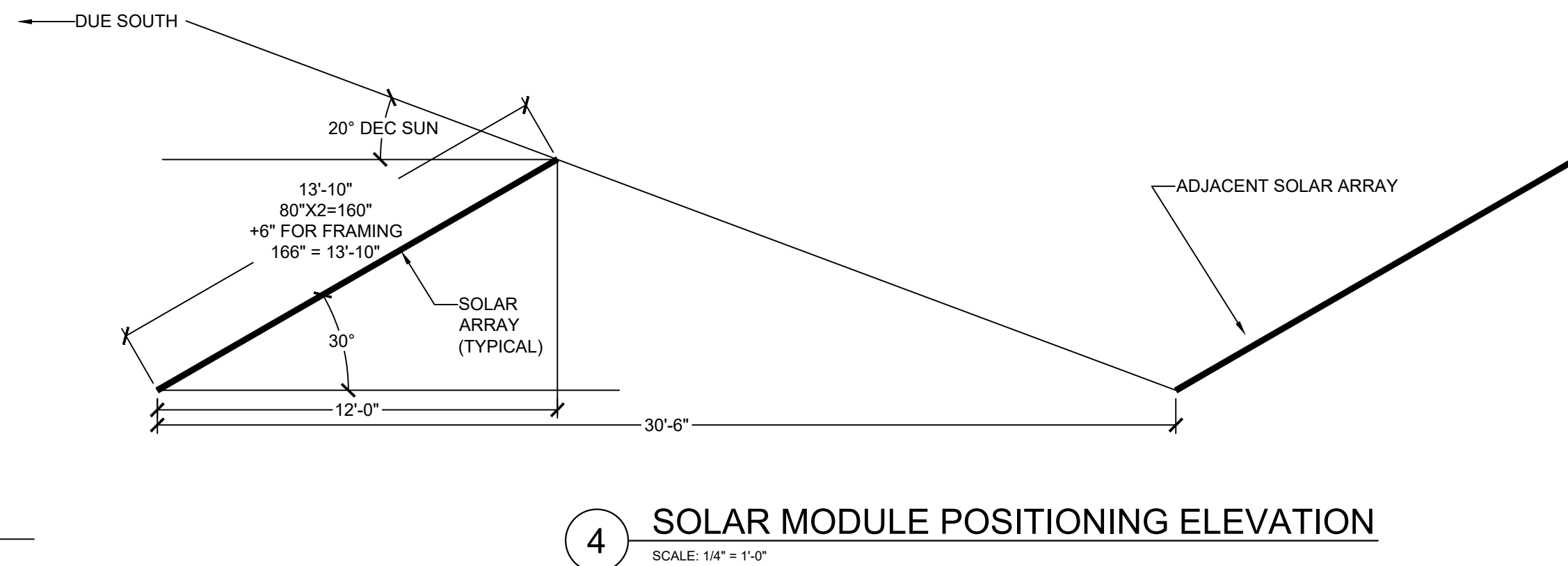
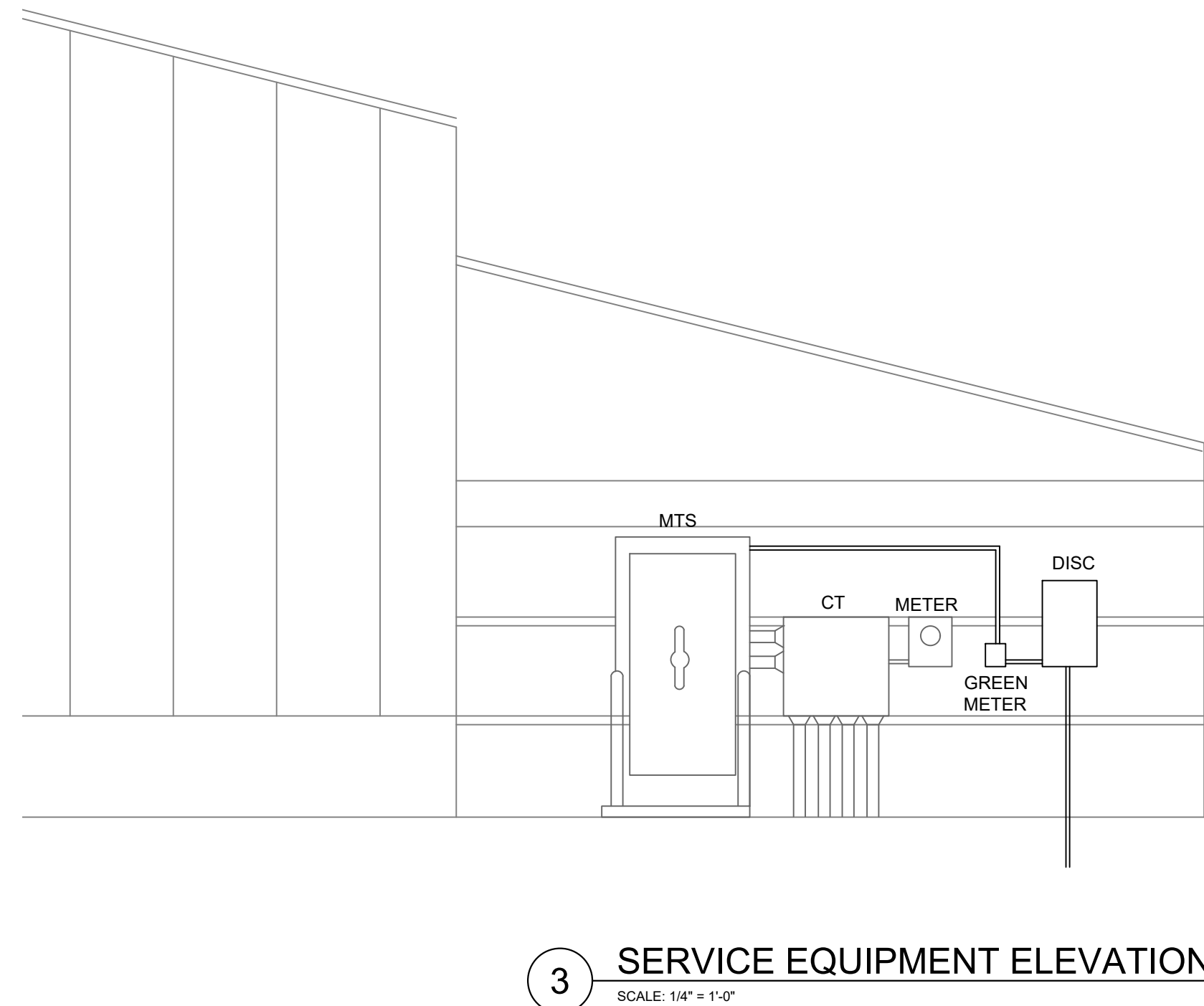
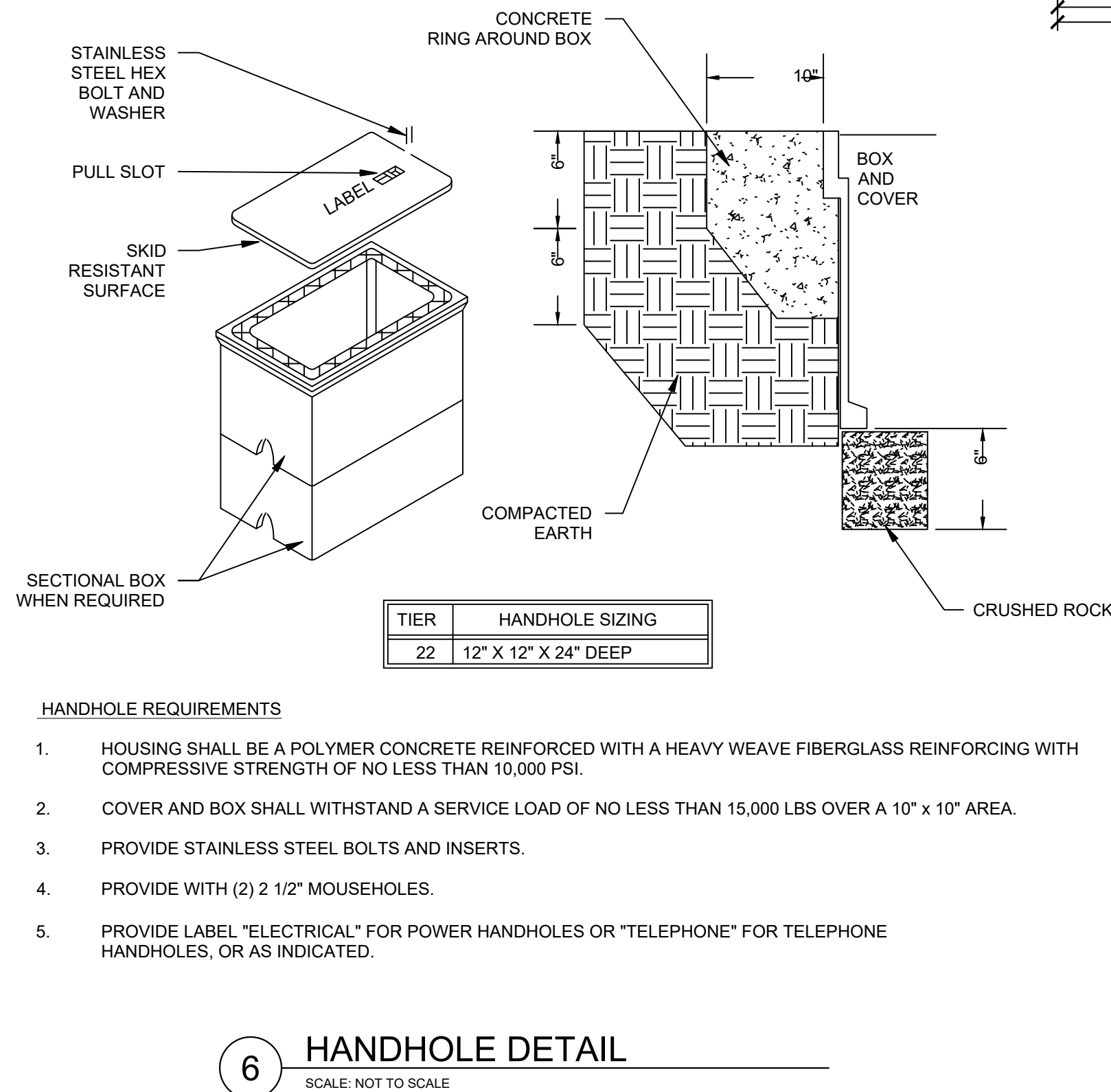
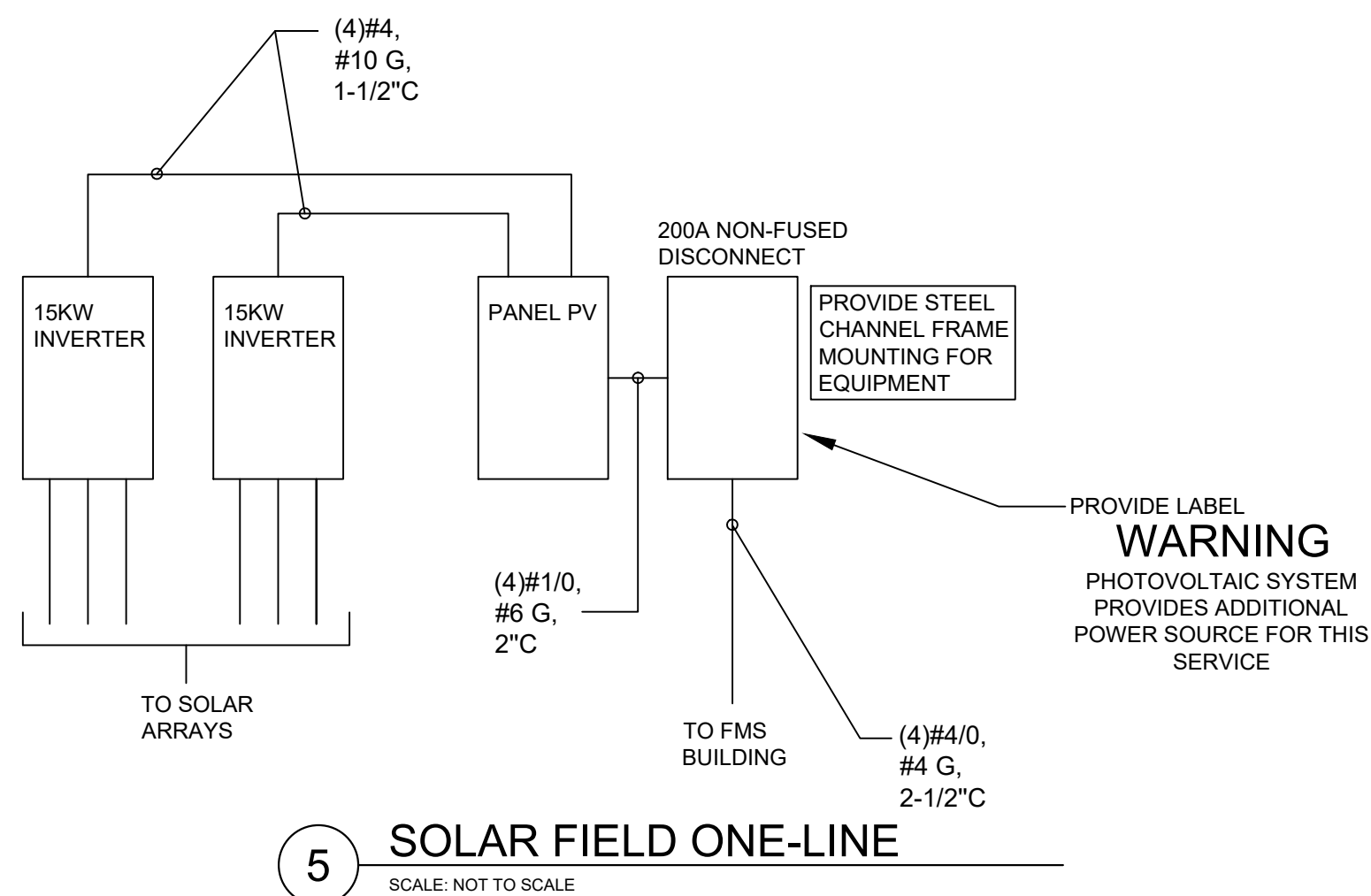
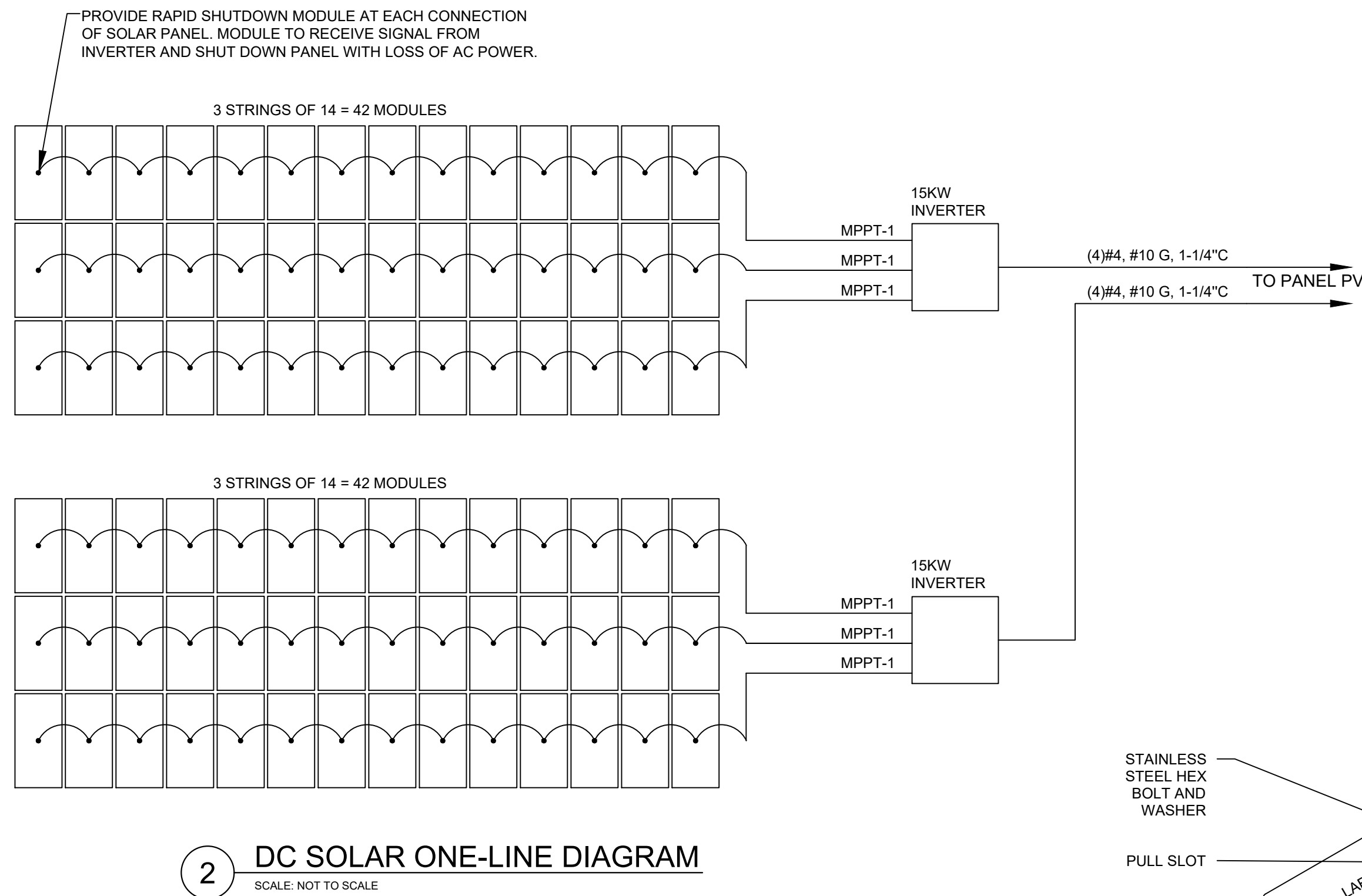
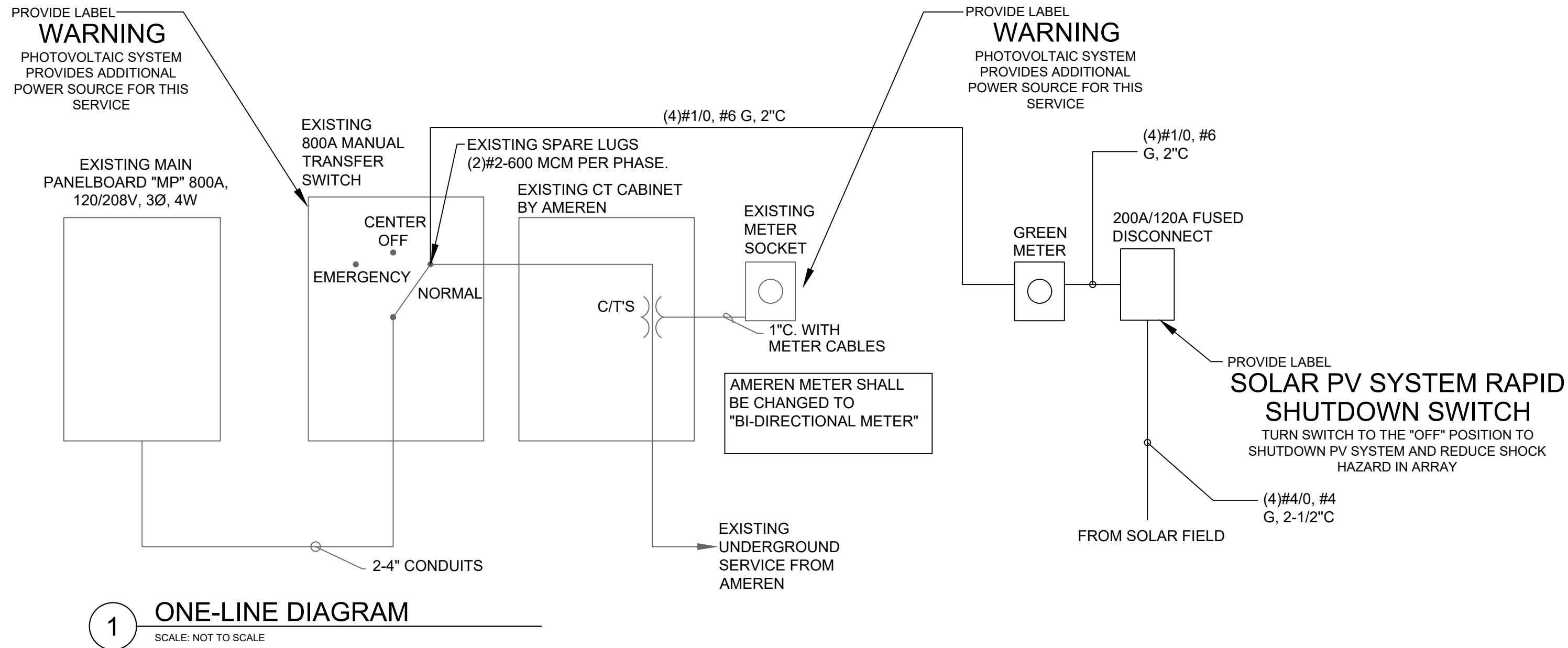
ROOF SOLAR
PANEL PLAN

SHEET NUMBER:

E-102

13 OF 17 SHEETS
08/17/2022





EQUIPMENT SCHEDULE														
EQUIPMENT INFORMATION FROM SCHEDULE					DISCONNECT				ELECTRICAL					
PLAN MARK	EQUIPMENT SERVED	LOAD	UNITS - HP KW MCA	VOLT/ PHASE	PROVIDED BY/ INSTALLED BY	TYPE	ENCLOSURE	RATING	CALCULATED LOAD	PANEL	MCA	MOCP	FEEDER	REMARKS
VF 1	VENTILATION FAN	1	HP	208/1	MC/EC	-	-	-	2,288VA	B	11.0A	15A	(2)#12, #12 G, 3/4" C	PROVIDE NEW 15A/2P CIRCUIT BREAKER IN EXISTING PANEL B.
VF 2	VENTILATION FAN	1	HP	208/1	MC/EC	-	-	-	2,288VA	B	11.0A	15A	(2)#12, #12 G, 3/4" C	PROVIDE NEW 15A/2P CIRCUIT BREAKER IN EXISTING PANEL B.
VF 3	VENTILATION FAN	1	HP	208/1	MC/EC	-	-	-	2,288VA	B	11.0A	15A	(2)#12, #12 G, 3/4" C	PROVIDE NEW 15A/2P CIRCUIT BREAKER IN EXISTING PANEL B.
ELECTRICAL INFORMATION MCA - MINIMUM CIRCUIT AMPS MCA=125% OF FULL LOAD AMPS (FLA) FOR MOTORS (HP) MOCP - MAXIMUM OVER CURRENT PROTECTION					DISCONNECT TYPE REC - RECEPTACLE PWCP - PRE-WIRED CONTROL PANEL VFD - VARIABLE FREQUENCY DRIVE WITH DISCONNECT				DISCONNECT TYPE NF - NON-FUSED F - FUSED MRS - MOTOR RATED SWITCH SHT - SHUNT TRIP				CONTRACTORS EC - ELECTRICAL CONTRACTOR MC - MECHANICAL CONTRACTOR PC - PLUMBING CONTRACTOR KC - KITCHEN CONTRACTOR	

NOTES:
A. LOAD REPRESENTS POWER PROVIDED BY PHOTOVOLTAIC SYSTEM
B. NEMA 3R



08/17/2022

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DEPARTMENT OF
PUBLIC SAFETY MISSOURI
ARMY NATIONAL GUARD

INSTALL GROUND MOUNTED
SOLAR PANEL ARRAY & LED
LIGHTING FMS BUILDING -
READINESS CENTER

2740 HIGHWAY P
FESTUS, MO 63028

PROJECT # T2029-01

ASSET # 8136302002

REVISION: _____
DATE: _____
REVISION: _____
DATE: _____
REVISION: _____
DATE: _____

ISSUE DATE: 08/17/2022

CAD DWG FILE: M-001.DWG
DRAWN BY: A. PLATTS
CHECKED BY: D. PETERS
DESIGNED BY: R. HALTEMAN

SHEET TITLE:

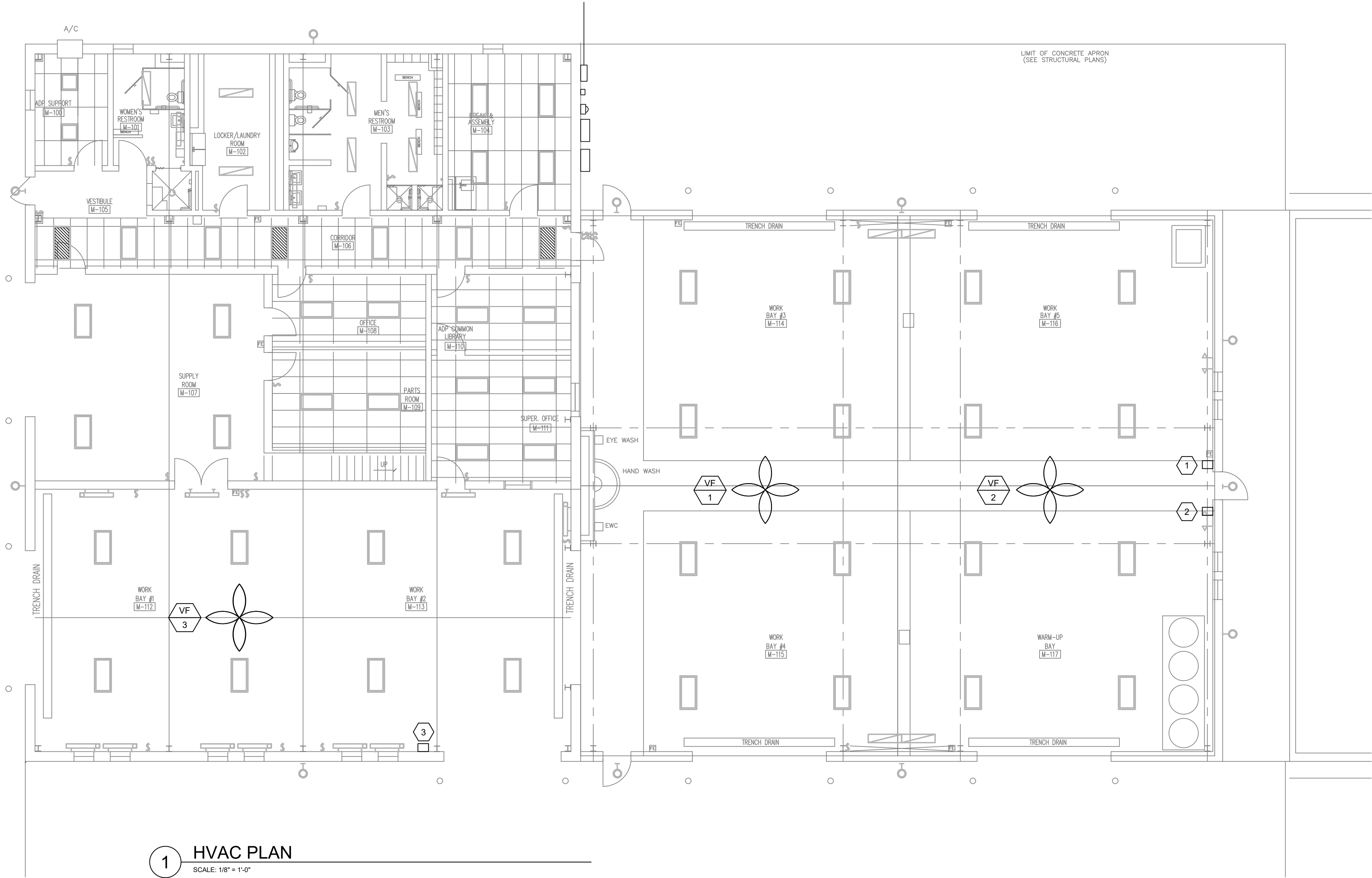
HVAC SYMBOLS &
ABBREVIATIONS

SHEET NUMBER:

M-001

MECHANICAL SYMBOLS				ABBREVIATIONS				GENERAL NOTES	
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	A	AMPS	VFD	VARIABLE FREQUENCY DRIVE		
	CHILLED WATER SUPPLY		GATE VALVE W/OUTSIDE SCREW & YOKE	ACU	AIR CONDITIONING UNIT	W	WATTS		
	CHILLED WATER RETURN		CHECK VALVE	AFF	ABOVE FINISHED FLOOR	WB	WET BULB	1. THESE PLANS ARE DIAGRAMMATIC IN NATURE. THE EXACT LOCATION OF DUCTWORK AND EQUIPMENT MAY DEVIATE FROM THE LOCATION INDICATED ON THESE DRAWINGS. ALL FITTINGS, OFFSETS, ETC. IN PIPING ARE NOT NECESSARILY INDICATED. NOTIFY ENGINEER AND OWNER OF ANY DISCREPANCIES PRIOR TO START OF WORK.	
	HEATING HOT WATER SUPPLY		BUTTERFLY VALVE	AHU	AIR HANDLING UNIT	WG	WATER GAUGE		
	HEATING HOT WATER RETURN		GLOBE VALVE	BDD	BACKDRAFT DAMPER	WSHP	WATER SOURCE HEAT PUMP	2. IF THE CONTRACTOR DOES NOT CLEARLY UNDERSTAND THESE PLANS, OR IS UNSURE OF THEIR MEANING, THEY SHOULD OBTAIN THE ENGINEER'S WRITTEN EXPLANATION AND INTERPRETATION PRIOR TO SUBMITTING HIS BID. SINCE THE CONTRACTOR WILL BE HELD RIGIDLY TO THE INTERPRETATION OF THE ENGINEER.	
	REFRIGERANT LIQUID LINE		BALL VALVE	BTUH	BRITISH THERMAL UNIT PER HOUR	WWHP	WATER-TO-WATER HEAT PUMP		
	REFRIGERANT SUCTION LINE		BALANCING VALVE	BV	BALL VALVE			3. INSTALL ALL THERMOSTATS AT 48" AFF. UNLESS NOTED OTHERWISE, PROVIDE LOCKING COVER FOR ANY THERMOSTAT LOCATED IN PUBLIC AREAS. PROVIDE INSULATED SUB-BASE FOR THERMOSTATS LOCATED ON EXTERIOR WALLS. COORDINATE LOCATIONS WITH OTHER DEVICES, WALL SWITCHES, RECEPTACLES, ETC.	
	REFRIGERANT HOT GAS LINE		PRESSURE REDUCING VALVE	°C	CELSIUS				
	CONDENSER WATER SUPPLY		STRAINER	CD	CONDENSATE DRAIN			4. EXPOSED DUCTWORK, AIR DEVICES, AND EQUIPMENT SHALL BE FIELD PAINTED WITH COLOR APPROVED BY ARCHITECT AND OWNER.	
	CONDENSER WATER RETURN		GAS COCK	CF	CUBIC FEET				
	CONDENSATE DRAIN LINE		UNION	CFH	CUBIC FEET PER HOUR			5. PROVIDE ALL NECESSARY OFFSETS IN DUCTWORK TO AVOID STRUCTURE.	
	HIGH PRESSURE STEAM (>60 PSIG)		THERMOSTAT	CFM	CUBIC FEET PER MINUTE				
	MEDIUM PRESSURE STEAM (15 PSIG - 60 PSIG)		NIGHT SETBACK THERMOSTAT	CLG	CEILING			6. RENDER ANY PASSAGE OF DUCTWORK OR PIPING THROUGH THE OUTSIDE WALLS AND ROOF PERMANENTLY WATERTIGHT.	
	LOW PRESSURE STEAM (<15 PSIG)		TEMPERATURE SENSOR	CONC	CONCRETE				
	HIGH PRESSURE CONDENSATE		HUMIDISTAT	CR	CONDENSER WATER RETURN			7. LOCATE MECHANICAL EQUIPMENT SO AS TO PROVIDE ADEQUATE MAINTENANCE ACCESS SPACE.	
	MEDIUM PRESSURE CONDENSATE		HUMIDITY SENSOR	CRAC	COMPUTER ROOM AIR CONDITIONER				
	LOW PRESSURE CONDENSATE		PRESSURE SENSOR	CS	CONDENSER WATER SUPPLY			8. ALL WORK SHALL BE INSTALLED IN A NEAT AND WORKMANLIKE MANNER AND IN ACCORDANCE WITH CURRENT ACCEPTABLE INDUSTRY STANDARDS AND APPLICABLE CODES, ORDINANCES AND REGULATIONS.	
	BOILER FEED WATER		EMERGENCY SHUTDOWN SWITCH	CU	CONDENSING UNIT				
	BOILER BLOW OFF		CO2 SENSOR	CUH	CABINET UNIT HEATER			9. COORDINATE WITH OTHER TRADES FOR THE LOCATION OF ALL PIPING, DUCTWORK AND EQUIPMENT TO AVOID INTERFERENCES.	
	AIR DEVICE DESIGNATION CFM NECK SIZE		SMOKE DETECTOR	CV	CHECK VALVE				
	MECHANICAL EQUIPMENT ABBREVIATION MECHANICAL EQUIPMENT DESIGNATION		BUILDING AUTOMATION SYSTEM CONTROL PANEL	CWR	CHILLED WATER RETURN			10. COORDINATE THE LOCATION OF AIR DEVICES TO AVOID INTERFERENCE WITH LIGHT FIXTURES, SPRINKLER HEADS AND ALL OTHER CEILING MOUNTED DEVICES.	
	DROP IN DUCTWORK		ECCENTRIC REDUCER, WATER	D	DIAMETER				
	RISE IN DUCTWORK		CONCENTRIC REDUCER	DA	DAMPER ACTUATOR			11. FLEXIBLE AIR DUCTS SHALL BE LIMITED IN LENGTH TO 6 FEET.	
	MANUAL BALANCING DAMPER		DIRECTION OF FLOW	DB	DRY BULB				
	MOTORIZED DAMPER		SLOPE DOWN	DIFF	DIFFUSER			12. ALL DUCTWORK SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE CURRENT SMACNA STANDARDS.	
	STATIC PRESSURE SENSOR		ANCHOR	DN	DOWN				
	FIRE DAMPER		EXPANSION JOINT	DP	DEW POINT			13. RECTANGULAR DUCT SIZES NOTED IN THE DRAWINGS ARE SHEET METAL DIMENSIONS.	
	FIRE/SMOKE DAMPER		CONNECT TO EXISTING	DPR	DAMPER				
	SMOKE DAMPER		INLINE PUMP	EAT	ENTERING AIR TEMPERATURE			14. PROVIDE MBD'S IN ALL DUCT RUNOUTS AND TAKE-OFFS. ALL MBD'S SHALL BE ACCESSIBLE.	
	2-WAY VALVE (PNEUMATIC)		BASE MOUNTED PUMP	EF	EXHAUST FAN				
	3-WAY VALVE (PNEUMATIC)		PRESSURE GAUGE	ELEC	ELECTRIC			15. PROVIDE ALL REQUIRED ACCESS PANELS/DOORS TO BE ABLE TO OPERATE, ADJUST OR REPAIR ALL EQUIPMENT, MOTORS OR DEVICES THAT RESIDE IN PERMANENT CONCEALED LOCATIONS. ACCESS PANEL/DOOR SHALL BE CONSTRUCTED OF MATERIALS AND FINISHES THAT MAINTAIN RATINGS OF CONSTRUCTION BARRIERS IN WHERE THEY RESIDE.	
	2-WAY VALVE (ELECTRIC)		THERMOMETER	ESP	EXTERNAL STATIC PRESSURE				
	3-WAY VALVE (ELECTRIC)		THERMOMETER WELL	EW	ENTERING WATER TEMPERATURE				
	TAP RELIEF VALVE		STEAM TRAP	EXH	EXHAUST				
	HOSE END VALVE		INTERNALLY LINED DUCT WORK	EXIST	EXISTING				
	GATE VALVE		SUPPLY DIFFUSER	°F	FAHRENHEIT				
			RETURN GRILLE	F	FURNACE				
			EXHAUST GRILLE	FCU	FAN COIL UNIT				
			DUCT/SURFACE MOUNTED GRILLE	FD	FIRE DAMPER				
			FLOW SWITCH	FT	FEET PER MINUTE				
			VIBRATION ISOLATOR	FTR	FLUE THRU ROOF				
			MANUAL AIR VENT	FSD	FIRE/SMOKE DAMPER				
			AUTOMATIC AIR VENT	GPH	GALLONS PER HOUR				
				GPM	GALLONS PER MINUTE				
				H	HOOD				
				HD	HEAD				
				HORIZ	HORIZONTAL				
				HP	HEAT PUMP				
				HS	HUMIDITY SENSOR				
				HWR	HEATING HOT WATER RETURN				
				HWS	HEATING HOT WATER SUPPLY				
				HVLS	HIGH VELOCITY LOW SPEED				
				HZ	HERTZ				
				ID	INSIDE DIAMETER				
				IN	INCHES				
				KW	KILOWATTS				
				KWH	KILOWATT HOURS				
				L	LOUVER				
				LAT	LEAVING AIR TEMPERATURE				
				LBS	POUNDS				
				LWT	LEAVING WATER TEMPERATURE				
				M	MOTORIZED DAMPER				
				MAU	MAKE-UP AIR UNIT				
				MAV	MANUAL AIR VENT				
				MAX	MAXIMUM				
				MBD	MANUAL BALANCING DAMPER				
				MBH	1,000 BTU PER HOUR				
				MHP	MOTOR HORSE POWER				
				MIN	MINIMUM				
				NC	NORMALLY CLOSED				
				NG	NATURAL GAS				
				NIC	NOT IN CONTRACT				
				NO	NORMALLY OPEN				
				OA	OUTSIDE AIR				
				OC	ON CENTER				
				OD	OUTSIDE DIAMETER				
				P	PUMP				
				PD	PRESSURE DROP				
				PH	PHASE				
				PRESS	PRESSURE				
				PSI	POUNDS PER SQUARE INCH				
				RA	RETURN AIR				
				RF	RETURN FAN				
				RH	RELATIVE HUMIDITY				
				RPM	REVOLUTIONS PER MINUTE				
				RTU	ROOF TOP UNIT				
				SA	SUPPLY AIR				
				SD	SMOKE DAMPER				
				SF	SQUARE FEET				
				SF	SUPPLY FAN				
				SMD	SMOKE DETECTOR				
				SS	STAINLESS STEEL				
				STM	STEAM				
				THERM	100,000 BTUH. (COOLING)				
				TON	12,000 BTU PER HOUR				
				TSP	TOTAL STATIC PRESSURE				
				TYP	TYPICAL				
				UH	UNIT HEATER				
				V	VOLTS				
				VAV	VARIABLE AIR VOLUME				
				VEL	VELOCITY				
				VERT	VERTICAL				

HVLS FAN SCHEDULE (VF)							
PLAN MARK	MANUFACTURER	MODEL NO.	MHP	BLADE DIAMETER (FT)	WEIGHT (LBS)	VOLT/PH/HZ	NOTES
VF-1	BIG ASS FAN	BASIC 6	1.0	8.0	124	208/1/60	1,2,3
VF-2	BIG ASS FAN	BASIC 6	1.0	8.0	124	208/1/60	1,2,3
VF-3	BIG ASS FAN	BASIC 6	1.0	8.0	124	208/1/60	1,2,3
NOTES: 1. FACTORY MOUNTING AND BRACING KIT 2. ABB ACH550 VSD WALL MOUNTED CONTROLLER WITH DIRECTIONAL CONTROL 3. MANUFACTURER SHOWN IS INDICATED AS BASIS OF DESIGN. REFER TO SPECIFICATIONS FOR APPROVED MANUFACTURERS.							



GENERAL SHEET NOTES

1. COORDINATE EXACT FAN LOCATION WITH EXISTING STRUCTURE, CONDUITS, LIGHTING AND HOSE REELS.

SHEET KEYNOTES

1. CONTROL SWITCH FOR VF-1.
2. CONTROL SWITCH FOR VF-2.
3. CONTROL SWITCH FOR VF-3

STATE OF MISSOURI
MICHAEL L. PARSON,
GOVERNOR



08/17/2022

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2740 HIGHWAY P
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PROJECT # T2029-01

ASSET # 8136302002

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CAD DWG FILE: M-101.DWG
DRAWN BY: A. PLATTIS
CHECKED BY: D. PETERS
DESIGNED BY: R. HALTEMAN

SHEET TITLE:
HVAC PLAN

SHEET NUMBER:

M-101

17 OF 17 SHEETS
08/17/2022

