

Desig: Engineer ID: 28AED062A867-48E3-4245-74688910223

Radio Tower Replacements MSHP Troop D and Service Center Springfield & Carthage, Missouri



OWNER: STATE OF MISSOURI
MICHAEL L. PARSON,
GOVERNOR

DEPARTMENT OF PUBLIC SAFETY
MISSOURI STATE HIGHWAY PATROL

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

ENGINEERING: Selective Site Consultants, LLC.
7171 West 95th St., Ste 600
Overland Park, KS 66212

DESIGNER: Evan Aubry
eaubry@ssc.us.com
(913) 438-7700

PROJECT NUMBER: R2001-01

CARTHAGE SITE NUMBER: 6015
CARTHAGE ASSET NUMBER: 8136015002

SPRINGFIELD SITE NUMBER: 6005
SPRINGFIELD FACILITY NUMBER: 8136005006

SHEET NUMBER

G-001

1 OF 41 SHEETS
DECEMBER 15, 2022

SITE 1 INFORMATION:

PROJECT SCOPE: RADIO TOWER REPLACEMENT
 NAME: TROOP D SERVICE CENTER
 ADDRESS: 5190 GRAND AVE
 CARTHAGE, MO
 64863
 COUNTY: JASPER
 LATITUDE: 37°05'52.45" N (NAD 83)
 LONGITUDE: 94°18'34.15" W (NAD 83)
 GROUND ELEV.: 1059.0' AMSL
 OVERALL HEIGHT: 330'-0" AGL
 TOWER HEIGHT: 320'-0" AGL
 TOWER TYPE: SELF SUPPORT TOWER

SITE 2 INFORMATION:

PROJECT SCOPE: RADIO TOWER REPLACEMENT
 NAME: TROOP D HEADQUARTERS
 ADDRESS: 3131 E KEARNEY ST
 SPRINGFIELD, MO
 64803
 COUNTY: GREENE
 LATITUDE: 37°14'23.55" N (NAD 83)
 LONGITUDE: 93°13'52.53" W (NAD 83)
 GROUND ELEV.: 1390.0' AMSL
 OVERALL HEIGHT: 326'-0" AGL
 TOWER HEIGHT: 320'-0" AGL
 TOWER TYPE: SELF SUPPORT TOWER

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STATE OF MISSOURI
 MICHAEL L. PARSON,
 GOVERNOR



OFFICE OF ADMINISTRATION
 DIVISION OF FACILITIES
 MANAGEMENT,
 DESIGN AND CONSTRUCTION

DEPARTMENT OF PUBLIC
 SAFETY, MISSOURI STATE
 HIGHWAY PATROL

MSHP TROOP D HQ & TROOP D
 SERVICE CENTER

RADIO TOWER
 REPLACEMENTS

3131 E. KEARNEY ST.,
 SPRINGFIELD, MO
 5190 GRAND AVN.,
 CARTHAGE, MO

PROJECT # R2001-01
 SITE NO(s) 6005 & 6015
 FACILITY NO(s):
 8136005006
 8136015002

REVISION: D
 DATE: 09/28/2022
 REVISION: B
 DATE: 09/17/2021
 REVISION: C
 DATE: 01/10/2022
 ISSUE DATE: /2022

CAD DWG FILE: R2001-01 Troop D_C-002.dwg
 DRAWN BY: EDA
 CHECKED BY: HEE
 DESIGNED BY: SSC

TITLE
 SHEET

SHEET NUMBER:
G-002

2 OF 41 SHEETS
 12/15/2022



MO STATE HWY PATROL CARTHAGE PART OF THE SW 1/4, SECTION 34, T28N, R31W, IN JASPER COUNTY, MISSOURI

PROPERTY DESCRIPTION: Parent Parcel as Provided
ALL THAT PARCEL OF LAND IN THE IN THE COUNTY OF JASPER AND STATE OF MISSOURI AS MORE FULLY DESCRIBED IN DEED BOOK 1186 PAGE 2214 AND PARCELS # 1186S000000000, BEING KNOWN AND RECORDED AS:
A. ALL OF THE SOUTH HALF OF THE SOUTH-WEST QUARTER OF SECTION 34, TOWNSHIP 28 NORTH, RANGE 31 WEST EXCEPT THE SOUTH 230 FEET THEREOF AND EXCEPT THE EAST 418 FEET OF SAID SOUTH HALF, AND EXCEPT THAT TAKEN FOR HIGHWAY RIGHT OF WAY, JASPER COUNTY, MISSOURI.
AND FURTHER GRANTS AN EASEMENT TO SAID PARTY OF THE SECOND PART FOR ROAD PURPOSES ON THE FOLLOWING DESCRIBED PROPERTY B. A SIXTYFOOT WIDE STRIP OF LAND BEING THE WEST ONEFOOT OF THE EAST 810 FEET OF THE SOUTH 230 FEET OF THE SOUTH HALF OF THE SOUTH-WEST QUARTER OF SECTION 34, TOWNSHIP 28 NORTH, RANGE 31 WEST, JASPER COUNTY, MISSOURI.

PARCEL NUMBER: 148634M000000000
BEING THE SAME PROPERTY ACQUIRED BY THE MISSOURI STATE HIGHWAY COMMISSION FOR THE USE OF THE MISSOURI STATE HIGHWAY PATROL BY DEED OF CITY OF CARTHAGE AND THE CARTHAGE HUMANE SOCIETY, DATED 01/21/1978 AND RECORDED 01/21/1978 IN BOOK / PAGE - 1186 / 2214

NOTE: The parent parcel graphically shown hereon, in full or in part, is the same as that described above.
Property information as shown hereon was provided by AWC Settlement Services, Order No. 50032255, effective 01-23-20

- Surveyor's Note:**
- SUBJECT TO ELECTRIC LINE EASEMENT/RIGHT OF WAY FROM FLORENCE FENMORE, DALE FENMORE AND FERN FENMORE TO THE EMPIRE DISTRICT ELECTRIC CO. RECORDED 7/11/1940 IN BOOK 445, PAGE 501, JASPER COUNTY RECORDS. (Shown in red/ink)
 - SUBJECT TO ELECTRIC LINE EASEMENT/RIGHT OF WAY FROM DALE FENMORE TO THE EMPIRE DISTRICT ELECTRIC CO. RECORDED 2/11/1946 IN BOOK 585, PAGE 10, JASPER COUNTY RECORDS. (Shown in red/ink)
 - SUBJECT TO RESERVATIONS IN FAVOR OF CARTHAGE HUMANE SOCIETY IN DEED FROM CARTHAGE SKEET WILB TO CITY OF CARTHAGE FOR THE USE AND BENEFIT OF MCCUNE-BROOKS HOSPITAL RECORDED 10/21/1955 IN BOOK 810, PAGE 143, JASPER COUNTY RECORDS. (Not the type to be associated heron)
 - SUBJECT TO RIGHT OF WAY IN FAVOR OF STATE OF MISSOURI THROUGH THE STATE HIGHWAY COMMISSION OF MISSOURI IN DEED RECORDED 1/30/1968, DOC # 551, JASPER COUNTY RECORDS. (Shown here on)
 - SUBJECT TO DEED FROM WESTERN OUTDOOR ADV. TO STATE OF MISSOURI FOR THE USE OF THE HIGHWAY COMMISSION OF MISSOURI FOR HIGHWAY PURPOSES RECORDED 2/21/1968, DOC # 1106, JASPER COUNTY RECORDS. (Provided document not legible)
 - SUBJECT TO DEED FROM DALE FENMORE AND ALTA FERN FENMORE TO STATE OF MISSOURI FOR THE USE OF THE HIGHWAY COMMISSION OF MISSOURI FOR HIGHWAY PURPOSES RECORDED 7/21/1968, DOC # 1067, JASPER COUNTY RECORDS. (Provided document not legible)
 - SUBJECT TO EASEMENT FOR HIGHWAY CONSTRUCTION BETWEEN THE EMPIRE DISTRICT ELECTRIC COMPANY AND STATE OF MISSOURI, BY AND THROUGH THE STATE HIGHWAY COMMISSION OF MISSOURI RECORDED 4/28/1968, DOC # 2040, JASPER COUNTY RECORDS. (Shown hereon)
 - SUBJECT TO POLE LINE PERMIT BY THE EMPIRE DISTRICT ELECTRIC COMPANY RECORDED 8/15/1968, DOC # 5092, JASPER COUNTY RECORDS. (Shown South of site, not shown hereon)
 - SUBJECT TO EASEMENT FROM CARTHAGE HUMANE SOCIETY TO EMPIRE DISTRICT ELECTRIC COMPANY RECORDED 11/8/1990 IN BOOK 1382, PAGE 1487, JASPER COUNTY RECORDS. (Shown hereon)
 - SUBJECT TO EASEMENT FROM THE STATE OF MISSOURI TO EMPIRE DISTRICT ELECTRIC COMPANY RECORDED 2/20/1996 IN BOOK 1496, PAGE 423, JASPER COUNTY RECORDS. (Shown hereon)
 - SUBJECT TO DEED FOR HIGHWAY PURPOSES FROM THE CITY OF CARTHAGE TO THE STATE OF MISSOURI BY AND THROUGH THE MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION RECORDED 8/21/1996 IN BOOK 1510, PAGE 1610, JASPER COUNTY RECORDS. (Shown hereon)
 - SUBJECT TO DEED FOR HIGHWAY PURPOSES FROM CARTHAGE HUMANE SOCIETY TO THE STATE OF MISSOURI BY AND THROUGH THE MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION RECORDED 8/21/1996 IN BOOK 1510, PAGE 1611, JASPER COUNTY RECORDS. (Shown hereon)
 - SUBJECT TO UTILITY EASEMENT AGREEMENT BETWEEN MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION AND THE EMPIRE DISTRICT ELECTRIC COMPANY RECORDED 8/17/2010 IN BOOK 2166, PAGE 727, JASPER COUNTY RECORDS. (Shown in red/ink)

Notes:
Benchmarks shown here on are referenced to Grid North of the Missouri State Plane Coordinate System of 1983 (NAD 83), (2011 ADJ), West Zone. Obtained by stropic GPS observations and River File submittals for NGS Opus solutions
Vertical Datum = NAVD83 using GSD0308

The purpose of this survey is to establish and describe a Lease Area and associated Easements. This is not a boundary survey of the Parent Parcel.
The utilities as shown on this drawing were developed from the information available (see #19 utility map, aboveground observations and/or surface markings placed on the ground by the utility company or a representative thereof). This company has made no attempt to locate or go below surface for locate utilities and does not extend or modify a warranty or warranty as to the exact location of or complete inventory of utilities in this area. It shall be the contractor's responsibility to verify the location and depth of all utilities (whether shown or not) prior to excavation or construction work to prevent soil utilities from damage

PROPERTY DESCRIPTION: LEASE AREA (AS SURVEYED)
A 43 foot by 57 foot Lease Area, situated in the Southwest Quarter of Section 34, Township 28 North, Range 31 West, in Jasper County, Missouri, more particularly described as follows:

COMMENCING at the South West Corner of land described and shown on Survey in Survey Book 3, Page 82, thence along the South line thereof North 90°00'00" East, a distance of 78.04 feet, thence leaving said South line, South 02°07'08" West, a distance of 252.79 feet to the POINT OF BEGINNING, thence South 87°52'52" East, a distance of 57.00 feet, thence South 02°07'08" West, a distance of 43.00 feet, thence North 87°52'52" West, a distance of 57.00 feet, thence North 02°07'08" East, a distance of 43.00 feet to the POINT OF BEGINNING, thence South 87°52'52" East, a distance of 57.00 feet, thence South 02°07'08" West, a distance of 43.00 feet, thence North 87°52'52" West, a distance of 57.00 feet, thence North 02°07'08" East, a distance of 43.00 feet to the POINT OF BEGINNING, thence South 87°52'52" East, a distance of 57.00 feet, thence South 02°07'08" West, a distance of 43.00 feet, thence North 87°52'52" West, a distance of 57.00 feet, thence North 02°07'08" East, a distance of 43.00 feet to the POINT OF BEGINNING, thence South 87°52'52" East, a distance of 57.00 feet, thence South 02°07'08" West, a distance of 43.00 feet, thence North 87°52'52" West, a distance of 57.00 feet, thence North 02°07'08" East, a distance of 43.00 feet to the POINT OF BEGINNING.

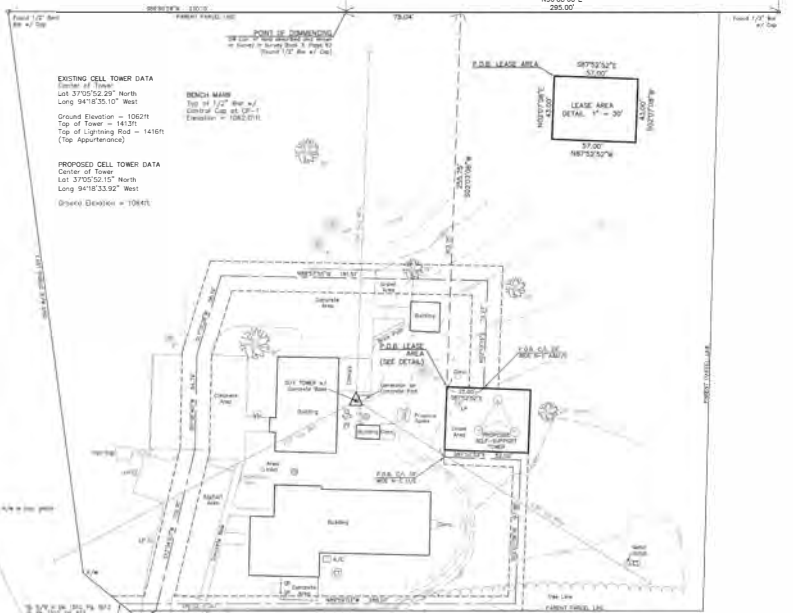
PROPERTY DESCRIPTION: NON-EXCLUSIVE ACCESS/UTILITY EASEMENT (AS SURVEYED)
A 20 foot wide Access/Utility Easement, situated in the Southwest Quarter of Section 34, Township 28 North, Range 31 West, in Jasper County, Missouri, lying 15.00 feet on each side of the following described centerline:

COMMENCING at the Southwest Corner of land described and shown on Survey in Survey Book 3, Page 82, thence along the South line thereof, North 90°00'00" East, a distance of 78.04 feet, thence leaving said South line, South 02°07'08" West, a distance of 252.79 feet to the POINT OF BEGINNING, thence South 87°52'52" East, a distance of 57.00 feet, thence South 02°07'08" West, a distance of 43.00 feet, thence North 87°52'52" West, a distance of 57.00 feet, thence North 02°07'08" East, a distance of 43.00 feet to the POINT OF BEGINNING, thence South 87°52'52" East, a distance of 57.00 feet, thence South 02°07'08" West, a distance of 43.00 feet, thence North 87°52'52" West, a distance of 57.00 feet, thence North 02°07'08" East, a distance of 43.00 feet to the POINT OF BEGINNING, thence South 87°52'52" East, a distance of 57.00 feet, thence South 02°07'08" West, a distance of 43.00 feet, thence North 87°52'52" West, a distance of 57.00 feet, thence North 02°07'08" East, a distance of 43.00 feet to the POINT OF BEGINNING.

PROPERTY DESCRIPTION: NON-EXCLUSIVE UTILITY EASEMENT (AS SURVEYED)
A 10 foot wide Utility Easement, situated in the Southwest Quarter of Section 34, Township 28 North, Range 31 West, in Jasper County, Missouri, lying 5.00 feet on each side of the following described centerline:

COMMENCING at the Southwest Corner of land described and shown on Survey in Survey Book 3, Page 82, thence along the South line thereof, North 90°00'00" East, a distance of 78.04 feet, thence leaving said South line, South 02°07'08" West, a distance of 252.79 feet to the POINT OF BEGINNING, thence South 87°52'52" East, a distance of 57.00 feet, thence South 02°07'08" West, a distance of 43.00 feet, thence North 87°52'52" West, a distance of 57.00 feet, thence North 02°07'08" East, a distance of 43.00 feet to the POINT OF BEGINNING, thence South 87°52'52" East, a distance of 57.00 feet, thence South 02°07'08" West, a distance of 43.00 feet, thence North 87°52'52" West, a distance of 57.00 feet, thence North 02°07'08" East, a distance of 43.00 feet to the POINT OF BEGINNING.

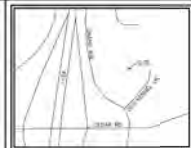
Certificate of Authority
Number = 30020285M



LEGEND	PROPERTY LEGEND
<ul style="list-style-type: none"> LIGHT PIPES SEWERAGE MAINS WATER MAINS UTILITY SHAFT MANHOLE WELL BORN CEILING JOIST HOLE TRUSS HOLE MANHOLE/STREETS UTILITY TOWER TRUSS (DUAL) TRUSS (SINGLE) TRUSS LINE TRUSS BRIDGE/RAIL CONCRETE PAV. 	<ul style="list-style-type: none"> PROPERTY OF 3RD PARTY SHADY GRASS ROAD OR WAY TERMINAL POINT OF BEGINNING POINT OF TERMINATION ASSOCIATED EASEMENT UTILITY EASEMENT NON-EXCLUSIVE BORDER/LEAS

CERTIFICATION
I HEREBY CERTIFY THAT A SURVEY WAS MADE BY ME, OR UNDER MY DIRECT SUPERVISION, ON THE GROUND OF THE LEASE AREA, AND ASSOCIATED EASEMENT PREMISES HEREON DESCRIBED, AND THE RESULTS OF SAID SURVEY ARE REPRESENTED HEREON TO THE BEST OF MY PROFESSIONAL KNOWLEDGE AND BELIEF

BY: SCOTT A. L. LOVELESS
DATE: 06-14-2022 ACCESS LAYOUT AND DESCRIPTIONS



SSC
101 N. 208 Street, Suite 200
Columbia, MO 65201
Phone: 417-241-7700
Fax: 417-241-7710

LA LOVELACE & ASSOCIATES
Land Surveying & Land Planning
Professional Surveyors
1210 N. 1st Street, Suite 1000, Columbia, MO 65201
Phone: 646-347-0997 Fax: 646-347-0970

SURVEY COORDINATED BY:	LOVELACE AND ASSOCIATES, LLC
SURVEY PROVIDED BY:	LOVELACE AND ASSOCIATES, LLC
SURVEY PROVIDED FOR:	STATE OF MISSOURI

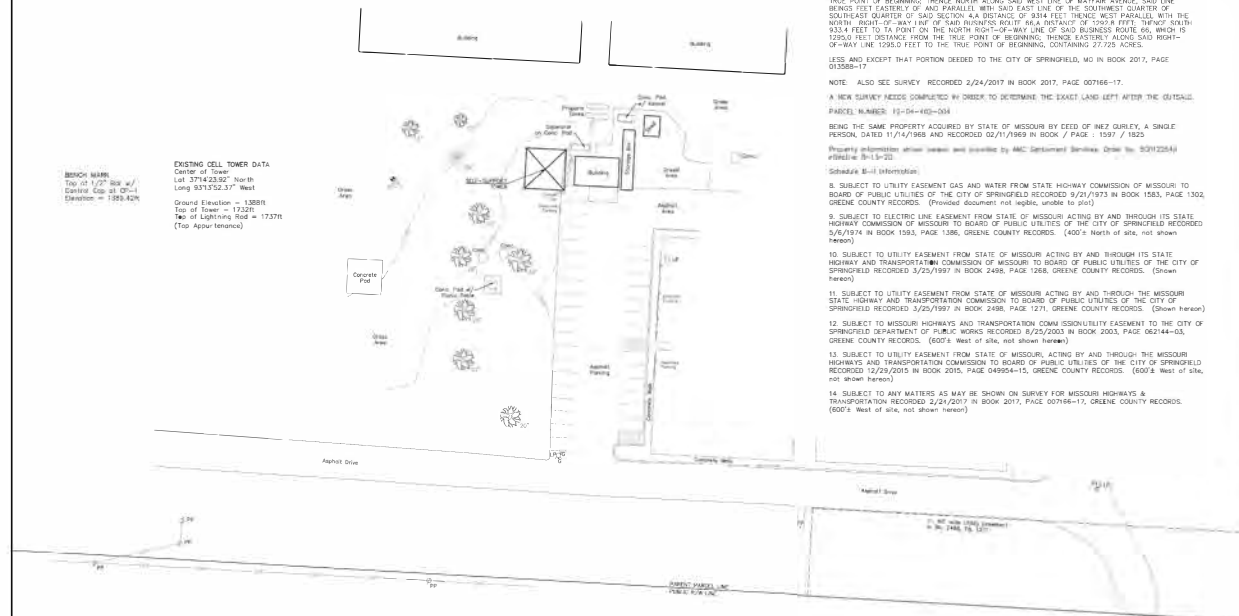


FLOOD NOTE:
According to my investigation of documents, there are NO RECORDS OF THE FLOOD INSURANCE RATE MAP for Jasper County, Missouri, dated 1/1/2005. So, the exact location of a Flood Zone "X" in "Area Affected" to be shown, the U.S. Army, cannot be determined.



NEW JOB NUMBER	5190 GRAND AVENUE
SITE NAME	CARTHAGE
SITE LOCATION	5190 GRAND AVENUE, CARTHAGE, MO 63803
LA PROJECT NO.	20129
DRAWN BY: A.C.T.	
CHECKED BY: J.B.L.	
DATE: 07-27-20	
FIELDWORK DATE: 07-23-20	
SHEET NUMBER	1 OF 1

MO STATE HIGHWAY PATROL SPRINGFIELD
PART OF THE SE 1/4, FRACTIONAL SECTION 4, T29N, R21W,
IN GREENE COUNTY, MISSOURI



BENCHMARK
Top of 1/2" dia. w/1
diameter cap at 0'-11"
Elevation = 1281.42ft

EXISTING CELL TOWER DATA
Center of Tower
Lat: 37°44'23.57" North
Long: 93°17'52.37" West
Ground Elevation = 1388ft
Top of Tower = 1732ft
Top of Lightning Rod = 1737ft
(Top Above Ground)

Notes:
Bearings shown herein are referenced to Grid North of the Missouri State Plane Coordinate System of 1983 (NAD 83), (2011 AD, 1) Central Zone. Obtained by static GPS observations and RINEX file submitted for NGS ODP processing.
Vertical Datum = NAVD83 using GCG0208
The accuracy of this survey is to establish and describe a Use Area and associated Easements. This is not a boundary survey of the Parcel owner.
The utilities as shown on this drawing were determined from the information available (existing utility maps, observational observations and/or surface markings) located on the ground by the utility company or a representative thereof. The company has made no attempt to relocate or go below surface to locate utilities and does not warrant as to the accuracy of the utility as to the exact location of or any other utility of this or any other area. It shall be the contractor's responsibility to verify the location and depth of all utilities (whether shown or not) prior to excavation or construction and to protect such utilities from damage.

LEGEND

BOUNDARY	---
UTILITY EASEMENT	---
DOA	---
UTILITY POST	---
FLAP POLE	---
MARKER (DIN, SPRING, ETC.)	---
TRIP (S&K)	---
DEWASH (S&K)	---
DOA	---
UNDEVELOPED ROAD LINE	---
OPEN UNDEVELOPED ROAD	---
DECK MARK	---
CONTROL POINT	---

PROPERTY DESCRIPTION: Parcel Parcel as Provided
ALL THAT PARCEL OF LAND IN THE COUNTY OF GREENE AND STATE OF MISSOURI AS MORE FULLY DESCRIBED IN DEED BOOK 1987 PAGE 1823 AND PARCEL # 13-04-402-004, BEING KNOWN AND DESIGNATED AS:

BEGINNING AT THE SOUTHWEST CORNER OF THE SOUTHWEST QUARTER OF THE SOUTHWEST QUARTER OF SECTION 4, TOWNSHIP 29 NORTH, RANGE 21 WEST THENCE NORTH ALONG THE EAST LINE OF SAID SOUTHWEST QUARTER OF SOUTHWEST QUARTER TO THE POINT OF INTERSECTION OF SAID QUARTER SECTION LINE WITH THE NORTH RIGHT-OF-WAY LINE OF BUSINESS ROUTE 66 (CONVEYED ROUTE 66) THENCE EASTERLY ALONG SAID NORTH RIGHT-OF-WAY LINE 5 FEET TO THE WEST LINE OF MAYFAIR AVENUE, THE TRUE POINT OF BEGINNING, THENCE NORTH ALONG SAID WEST LINE OF MAYFAIR AVENUE, SAID LINE BEINGS FEET EASTERLY OF AND PARALLEL WITH SAID EAST LINE OF THE SOUTHWEST QUARTER OF SOUTHWEST QUARTER OF SAID SECTION 4 A DISTANCE OF 334 FEET THENCE WEST PARALLEL WITH THE NORTH RIGHT-OF-WAY LINE OF SAID BUSINESS ROUTE 66 A DISTANCE OF 1392 A FEET THENCE NORTH 23.4 FEET TO A POINT ON THE NORTH RIGHT-OF-WAY LINE OF SAID BUSINESS ROUTE 66, WHICH IS 1250.5 FEET DISTANCE FROM THE TRUE POINT OF BEGINNING, THENCE EASTERLY ALONG SAID NORTH-OF-WAY LINE 1250.5 FEET TO THE TRUE POINT OF BEGINNING, CONTAINING 27.75 ACRES.

LESS AND EXCEPT THAT PORTION DEEDED TO THE CITY OF SPRINGFIELD, MO IN BOOK 2017, PAGE 01558-17
NOTE: ALSO SEE SURVEY RECORDED 2/24/2017 IN BOOK 2017, PAGE 00766-17.
A NEW SURVEY NEEDS COMPUTED BY ORDER TO DETERMINE THE EXACT LAND LEFT AFTER THE OUTSIDE PARCEL NUMBER: 13-04-402-004
BEING THE SAME PROPERTY ACQUIRED BY STATE OF MISSOURI BY EED OF INEZ OURLAY, A SINGLE PERSON, DATED 11/14/1968 AND RECORDED 02/11/1969 IN BOOK / PAGE 1597 / 1825

- Property information obtained and recorded by M&C Surveying Services, Order No. S0122241 #19876-11-17-21
Schedule B-1 (Mortgage)
- SUBJECT TO UTILITY EASEMENT GAS AND WATER FROM STATE HIGHWAY COMMISSION OF MISSOURI TO BOARD OF PUBLIC UTILITIES OF THE CITY OF SPRINGFIELD RECORDED 9/21/1973 IN BOOK 1383, PAGE 1302, GREENE COUNTY RECORDS. (Provided document not legible, unable to plot)
 - SUBJECT TO ELECTRIC LINE EASEMENT FROM STATE OF MISSOURI ACTING BY AND THROUGH ITS STATE HIGHWAY COMMISSION OF MISSOURI TO BOARD OF PUBLIC UTILITIES OF THE CITY OF SPRINGFIELD RECORDED 5/6/1974 IN BOOK 1383, PAGE 1306, GREENE COUNTY RECORDS. (400'± North of site, not shown hereon)
 - SUBJECT TO UTILITY EASEMENT FROM STATE OF MISSOURI ACTING BY AND THROUGH ITS STATE HIGHWAY AND TRANSPORTATION COMMISSION OF MISSOURI TO BOARD OF PUBLIC UTILITIES OF THE CITY OF SPRINGFIELD RECORDED 3/23/1993 IN BOOK 2488, PAGE 1268, GREENE COUNTY RECORDS. (Drawn hereon)
 - SUBJECT TO UTILITY EASEMENT FROM STATE OF MISSOURI ACTING BY AND THROUGH THE MISSOURI STATE HIGHWAY AND TRANSPORTATION COMMISSION TO BOARD OF PUBLIC UTILITIES OF THE CITY OF SPRINGFIELD RECORDED 3/25/1997 IN BOOK 2488, PAGE 1271, GREENE COUNTY RECORDS. (Drawn hereon)
 - SUBJECT TO MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION UTILITY EASEMENT TO THE CITY OF SPRINGFIELD DEPARTMENT OF PUBLIC WORKS RECORDED 8/25/2003 IN BOOK 2003, PAGE 062144-03, GREENE COUNTY RECORDS. (600'± West of site, not shown hereon)
 - SUBJECT TO UTILITY EASEMENT FROM STATE OF MISSOURI, ACTING BY AND THROUGH THE MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION TO BOARD OF PUBLIC UTILITIES OF THE CITY OF SPRINGFIELD RECORDED 12/25/2015 IN BOOK 2015, PAGE 049594-15, GREENE COUNTY RECORDS. (600'± West of site, not shown hereon)
 - SUBJECT TO ANY MATTERS AS MAY BE SHOWN ON SURVEY FOR MISSOURI HIGHWAYS AND TRANSPORTATION RECORDED 2/24/2017 IN BOOK 2017, PAGE 00766-17, GREENE COUNTY RECORDS. (600'± West of site, not shown hereon)

PRELIMINARY

DATE: 09/28/2022
DATE: 09/17/2021
DATE: 01/07/2022
ISSUE DATE: 12/15/2022

LA PROJECT NO. 2012B

DRAWN BY: A.C.T.
CHECKED BY: J.B.L.
DATE: 07-24-20
FIELDWORK DATE: 07-23-20

SHEET NUMBER
1 OF 1

Certificate of Authority
Missouri - 2020204538

STATE OF MISSOURI
MICHAEL L. PARSON,
GOVERNOR



OFFICE OF
ADMINISTRATION DIVISION OF
FACILITIES
MANAGEMENT,
DESIGN AND CONSTRUCTION

DEPARTMENT OF PUBLIC
SAFETY, MISSOURI STATE
HIGHWAY PATROL

MSPH TROOP D HQ & TROOP D
SERVICE CENTER

RADIO TOWER
REPLACEMENTS
3131 E. KEARNEY, SPRINGFIELD,
MO

PROJECT # R2001-01
SITE NO: 6005
ASSETT NO: 8136005006

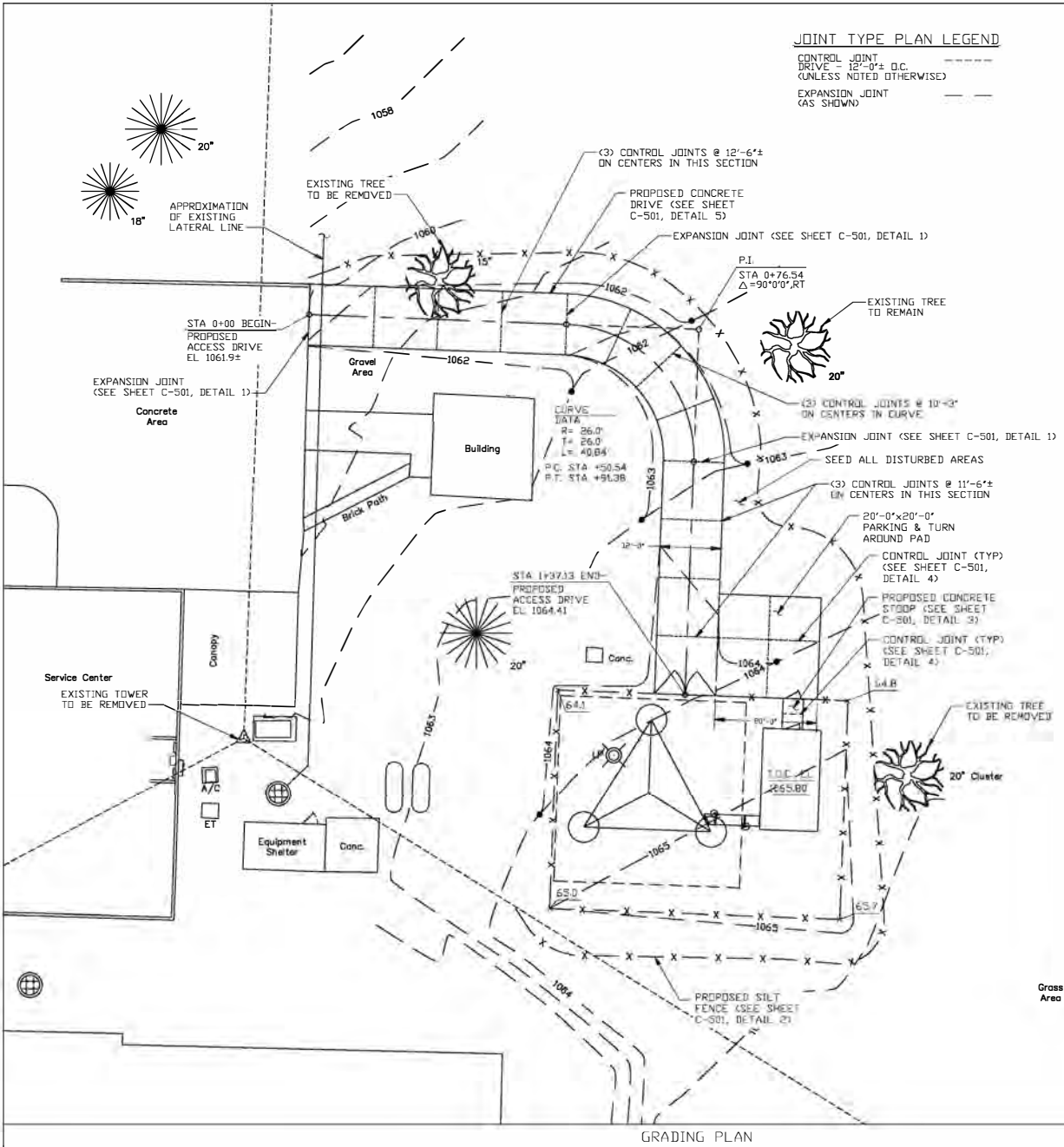
REVISION D
DATE: 09/28/2022
REVISION E
DATE: 09/17/2021
REVISION C
DATE: 01/07/2022
ISSUE DATE: 12/15/2022

CAD DWG FILE: R2001-01_Troop D C-102.dwg
DRAWN BY: HDA
CHECKED BY: HDA
DESIGNED BY: SSC

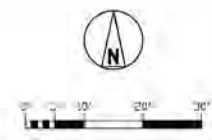
SHEET TITLE:
SPRINGFIELD
SURVEY

SHEET NUMBER:
C-102

4 OF 41 SHEETS



GRADING PLAN



STATE OF MISSOURI
MICHAEL L. PARSON,
GOVERNOR



OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES
MANAGEMENT,
DESIGN AND CONSTRUCTION

DEPARTMENT OF PUBLIC
SAFETY, MISSOURI STATE
HIGHWAY PATROL

MSHP TROOP D HQ & TROOP D
SERVICE CENTER

RADIO TOWER REPLACEMENTS
3131 E. KEARNEY, CARTHAGE,
MO

PROJECT # R2001-01
SITE NO: 6015
FACILITY NO: 8136015500

REVISION: D	DATE: 09/28/2022
REVISION: B	DATE: 09/17/2021
REVISION: C	DATE: 01/10/2022
ISSUE DATE:	01/10/2022

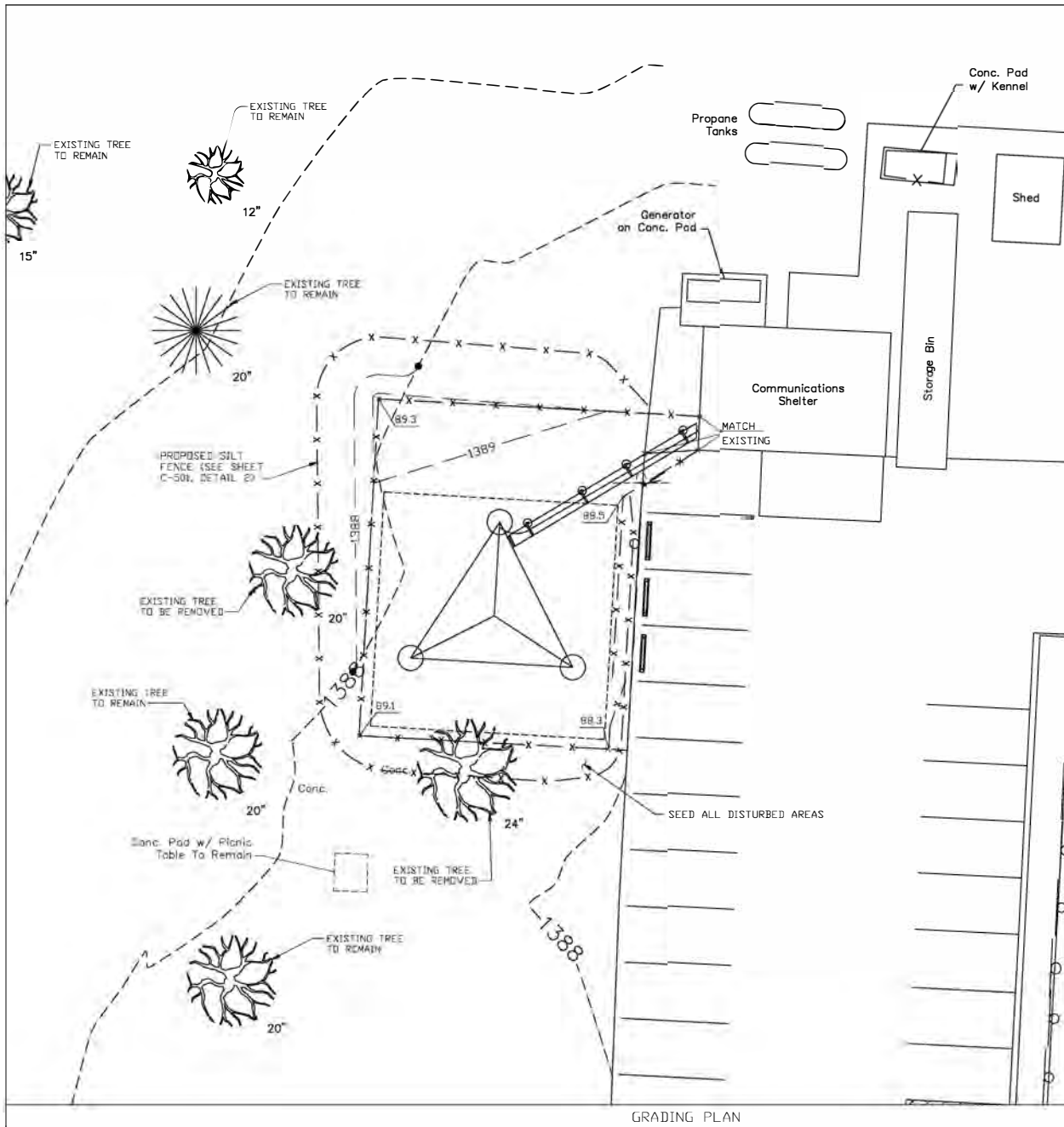
CAD DWG FILE: R2001-01 Troop D C-103.dwg
DRAWN BY: EDA
CHECKED BY: HSE
DESIGNED BY: SSC

SHEET TITLE:
CARTHAGE
GRADING
PLAN

SHEET NUMBER:
C-103

5 OF 41 SHEETS

SCALE: 1/10 (24"x36")
SCALE: 1/20 (12"x18")



GRADING PLAN

GRADING NOTES:

1. SEE R2001-01 PROJECT MANUAL FOR OVERALL REQUIREMENT.
2. RELEVANT TECHNICAL SPECIFICATIONS PERTINENT TO THIS DRAWING
- A. DIVISION 31 - EARTHWORK
- B. DIVISION 32 - PLANTING
3. ADDITIONAL NOTES:
 - A. CLEAR AND GRUB THE AREA WITHIN THE LIMITS OF THE SITE. REMOVE TREE AND STUMPS NO LESS THAN 12" BELOW GRADE. RAKE, DISC, OR PLOW THE AREA TO THE DEPTH NO LESS THAN 6".
 - B. ADDITIONAL CLEAR AND GRUB MAY BE REQUIRED IN AREAS OF PROPOSED POWER AND FIBER UTILITY ROUTES.

LENGEND:

- EXISTING CONTOURS
- PROPOSED CONTOURS



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SERVICE CENTER

RADIO TOWER
REPLACEMENTS

3131 E. KEARNEY ST.
SPRINGFIELD, MO

PROJECT # R2001-01
SITE NO: 6005
ASSET NO: 8136005006

REVISION: D
DATE: 09/28/2022
REVISION: B
DATE: 09/17/2021
REVISION: C
DATE: 01/10/2022
ISSUE DATE: 12/15/2022

CAD DWG FILE: R2001-01 Troop D C-104.dwg
DRAWN BY: EDA
CHECKED BY: HEE
DESIGNED BY: SSC

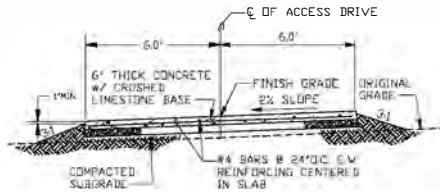
SHEET TITLE:
SPRINGFIELD
GRADING
PLAN

SHEET NUMBER:

C-104

6 OF 41 SHEETS

1/8" = 1'-0" (22"x34")
1/16" = 1'-0" (11"x17")

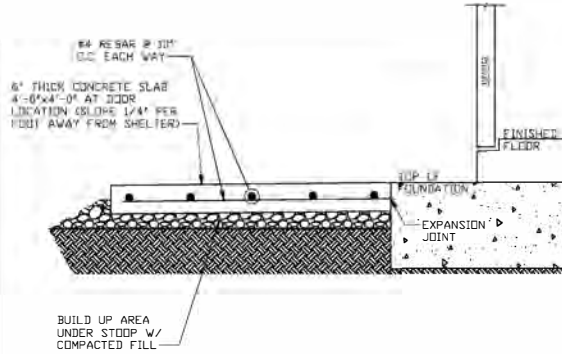


NOTES:

- SEE R2001-01 PROJECT MANUAL FOR OVERALL REQUIREMENTS.
- RELEVANT TECHNICAL SPECIFICATIONS PERTINENT TO THIS DRAWING:
A. DIVISION 31 - EARTHWORK
B. DIVISION 3 - CONCRETE

CONCRETE DRIVE DETAIL

5

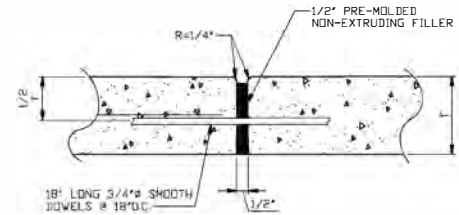


NOTES:

- PROVIDE EXPANSION JOINT MATERIAL BETWEEN STOOP & SHELTER FOUNDATION.
- SEE R2001-01 PROJECT MANUAL FOR OVERALL REQUIREMENTS.
- RELEVANT TECHNICAL SPECIFICATIONS PERTINENT TO THIS DRAWING:
A. DIVISION 31 - EARTHWORK
B. DIVISION 3 - CONCRETE

DETAIL NOT USED

3

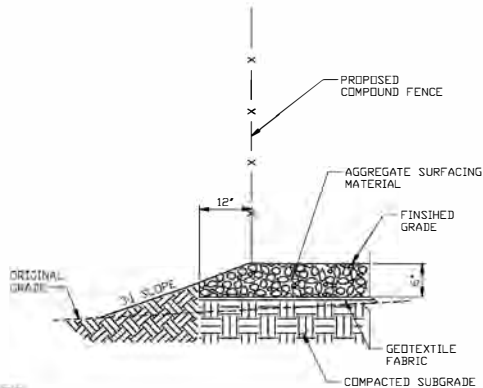


NOTES:

- SEE R2001-01 PROJECT MANUAL FOR OVERALL REQUIREMENTS.
- RELEVANT TECHNICAL SPECIFICATIONS PERTINENT TO THIS DRAWING:
A. DIVISION 3 - CONCRETE

EXPANSION JOINT FOR DRIVE

1

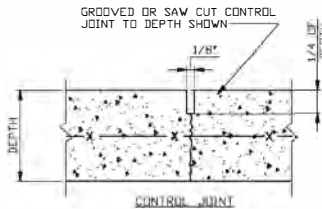


NOTES:

- SEE R2001-01 PROJECT MANUAL FOR OVERALL REQUIREMENTS.
- RELEVANT TECHNICAL SPECIFICATIONS PERTINENT TO THIS DRAWING:
A. DIVISION 31 - EARTHWORK

AGGREGATE DETAIL

6

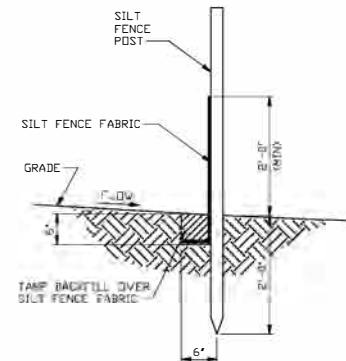


NOTES:

- SEE R2001-01 PROJECT MANUAL FOR OVERALL REQUIREMENTS.
- RELEVANT TECHNICAL SPECIFICATIONS PERTINENT TO THIS DRAWING:
A. DIVISION 3 - CONCRETE
- ADDITIONAL NOTES:
A. CONTROL JOINTS (SEE SHEET C-103 FOR ADDITIONAL DETAILS)

CONTROL JOINT

4



NOTES:

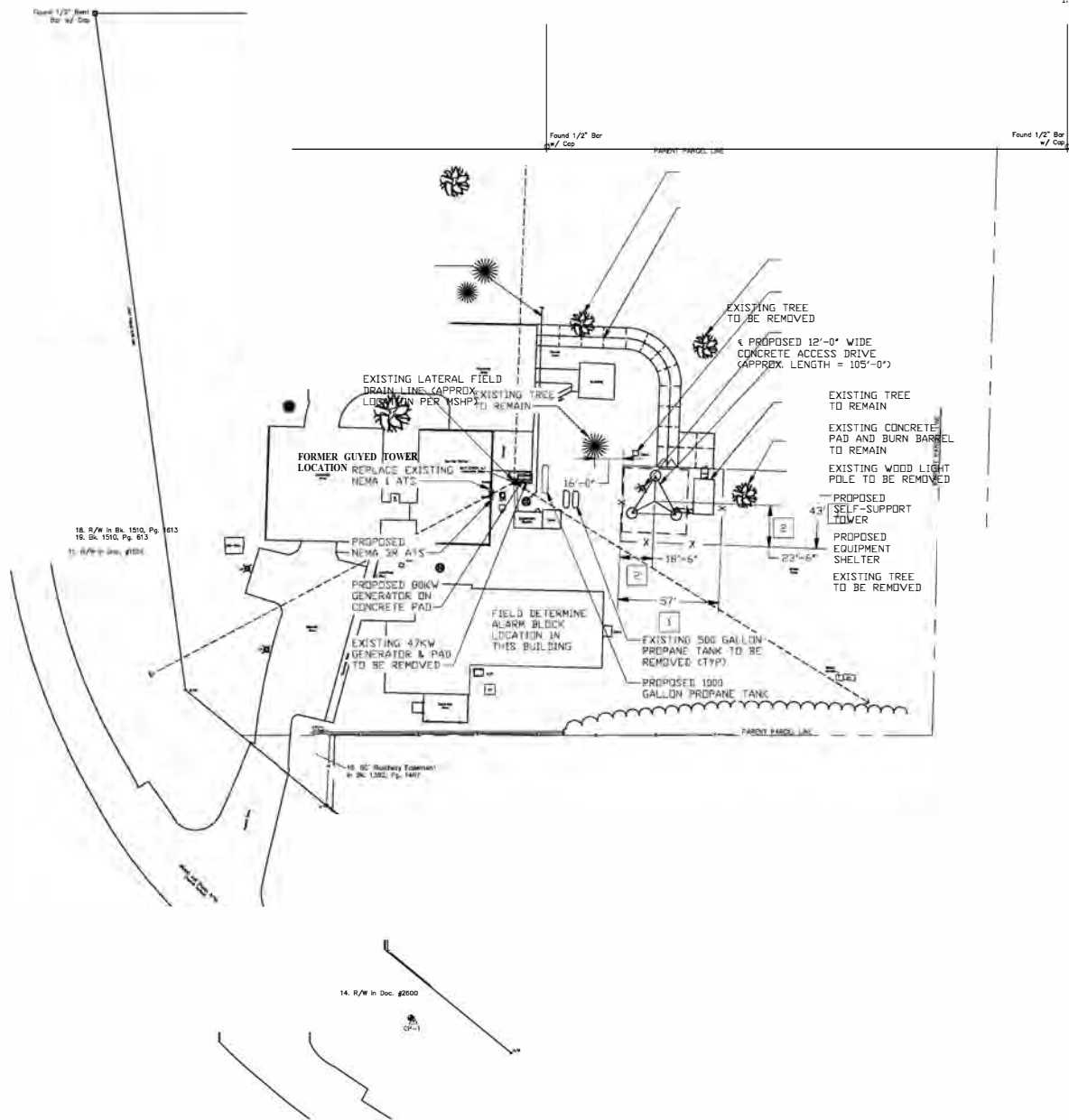
- SEE R2001-01 PROJECT MANUAL FOR OVERALL REQUIREMENTS.
- RELEVANT TECHNICAL SPECIFICATIONS PERTINENT TO THIS DRAWING:
A. DIVISION 31 - EARTHWORK

SILT FENCE DETAIL

2

NOTES:

1. SEE R2001-01 PROJECT MANUAL FOR OVERALL REQUIREMENTS.



OVERALL SITE PLAN

KEYED NOTES:

- 1 PROPOSED FENCE BOUNDARY
- 2 CENTER TO TOWER



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SAFETY, MISSOURI STATE
HIGHWAY PATROL

MSHP TROOP D HQ & TROOP D
SERVICE CENTER

RADIO TOWER REPLACEMENTS
5190 GRAND AVN., CARTHAGE,
MO

PROJECT # R2001-01

SITE NO. 6015
ASSET NO: 8136015002

REVISION A	DATE: 09/28/2022
REVISION B	DATE: 09/17/2021
REVISION C	DATE: 01/10/2022
ISSUE DATE:	12/15/2022

CAD DWG FILE: R2001-01 Troop D A-101.dwg
DRAWN BY: EDA
CHECKED BY: SSC

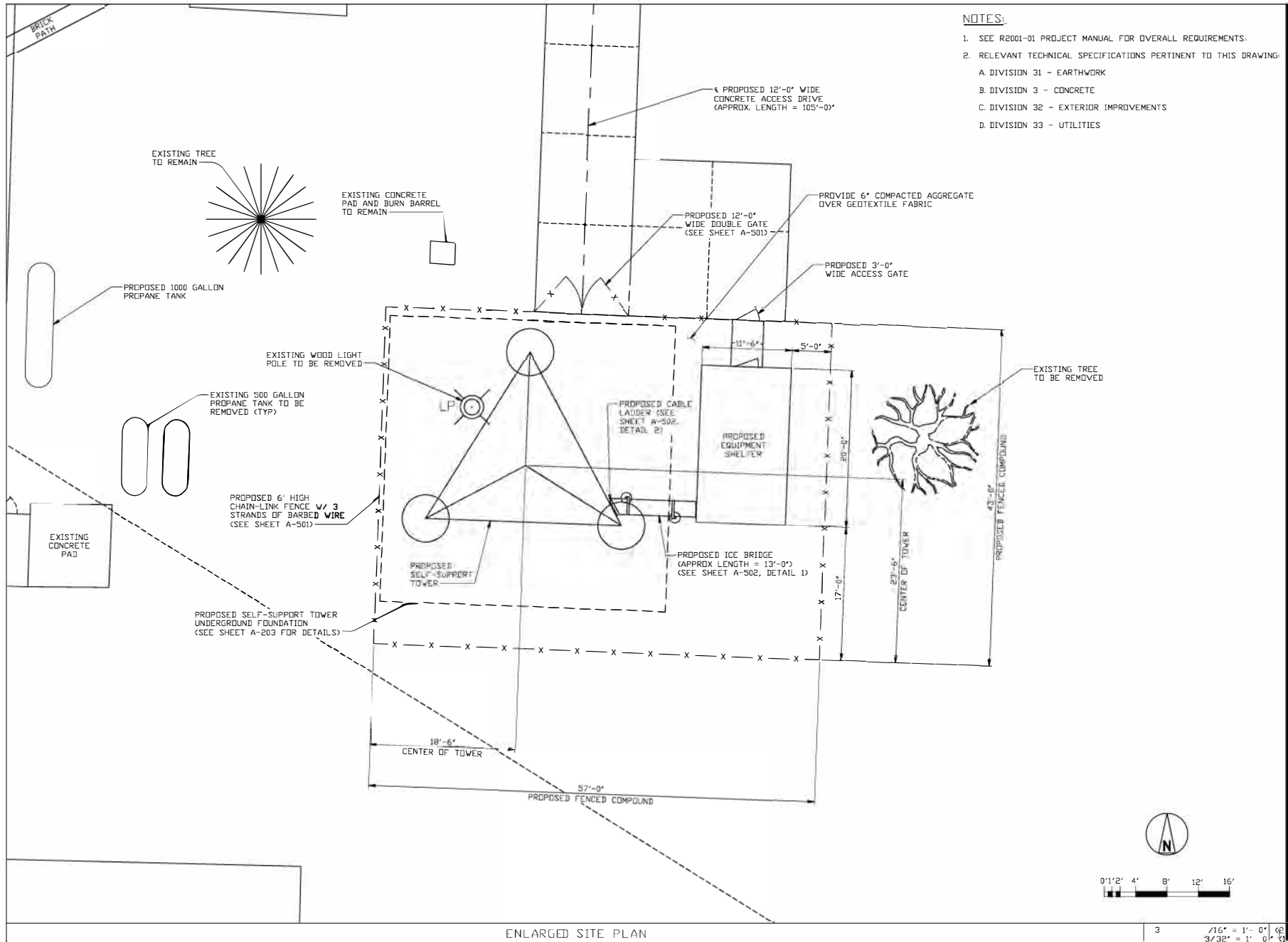
SHEET TITLE:
**CARTHAGE
OVERALL
SITE PLAN**

SHEET NUMBER:

A-101

8 of 41 SHEETS

SCALE: 1:30 (2" x 34")
SCALE: 1:60 (1" x 17")



- NOTES:**
- SEE R2001-01 PROJECT MANUAL FOR OVERALL REQUIREMENTS.
 - RELEVANT TECHNICAL SPECIFICATIONS PERTINENT TO THIS DRAWING:
 - A. DIVISION 31 - EARTHWORK
 - B. DIVISION 3 - CONCRETE
 - C. DIVISION 32 - EXTERIOR IMPROVEMENTS
 - D. DIVISION 33 - UTILITIES

STATE OF MISSOURI
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HIGHWAY PATROL

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SERVICE CENTER

RADIO TOWER
REPLACEMENTS

5190 GRAND AVN., CARTIAGE,
MO

PROJECT # R2001-01
SITE NO: 6015
ASSET NO: 8136015002

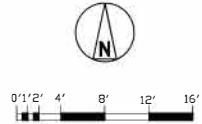
REVISION: D	DATE: 09/28/2022
REVISION: B	DATE: 09/17/2021
REVISION: C	DATE: 01/10/2022
ISSUE DATE:	12/2022

CAD DWG FILE: R2001-01 Troop D A-102.dwg
DRAWN BY: EDA
CHECKED BY: HEE
DESIGNED BY: SSC

CARTHAGE
ENLARGED
SITE PLAN

SHEET NUMBER:

A-102



ENLARGED SITE PLAN



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SERVICE CENTER

RADIO TOWER
REPLACEMENTS
5190 GRAND AVN., CARTHAGE,
MO

PROJECT # R2001-01

SITE NO: 6015
ASSET NO: 8136015002

REVISION: D
DATE: 09/28/2022
REVISION: B
DATE: 09/17/2021
REVISION: C
DATE: 01/10/2022
ISSUE DATE: 12/15/2022

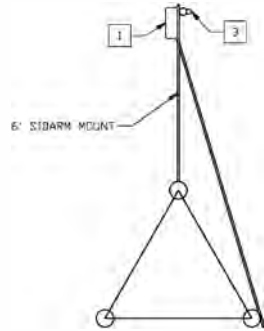
CAD DWG FILE: R2001-01 Troop D A-103.dwg
DRAWN BY: EDA
CHECKED BY: HFE
DESIGNED BY: SSC

SHEET TITLE:
CARTHAGE
ANTENNA
PLANS (1 OF 2)

SHEET NUMBER:

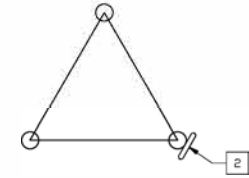
A-103

10 OF 41 SHEETS



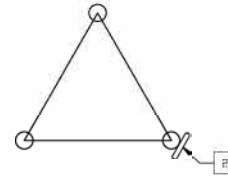
ANTENNA PLAN @ 320'

4



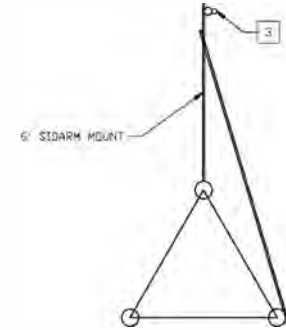
ANTENNA PLAN @ 309'

1



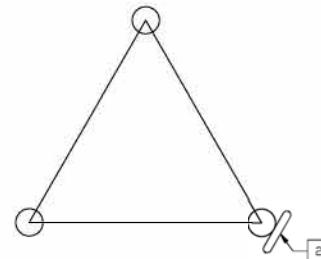
ANTENNA PLAN @ 293'

5



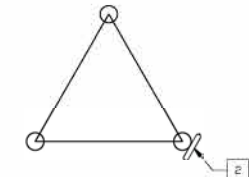
ANTENNA PLAN @ 290'

2



ANTENNA PLAN @ 277'

6



ANTENNA PLAN @ 261'

3

NOTES:

1. SEE R2001-01 PROJECT MANUAL FOR OVERALL REQUIREMENTS.
2. RELEVANT TECHNICAL SPECIFICATIONS PERTINENT TO THIS DRAWING:
A. DIVISION 33 - UTILITIES



EQUIPMENT LEGEND:

- | | |
|---|----------------|
| 1 | TMA |
| 2 | DIPOLE ANTENNA |
| 3 | OMNI ANTENNA |

ANTENNA NOTES

7



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HIGHWAY PATROL

MSHP TROOP D HQ & TROOP D
SERVICE CENTER

RADIO TOWER
REPLACEMENTS
5190 GRAND AVN., CARTHAGE,
MO

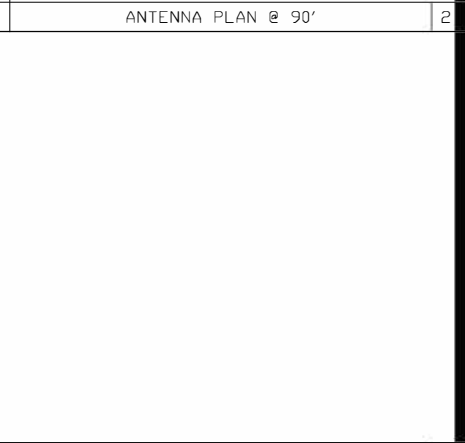
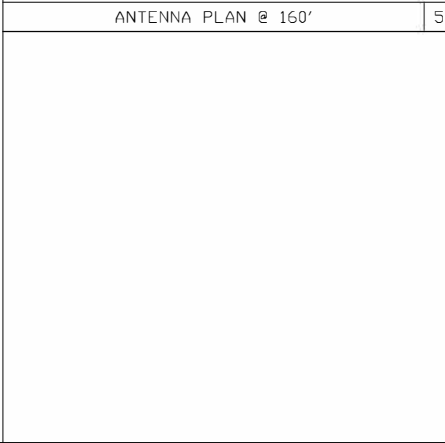
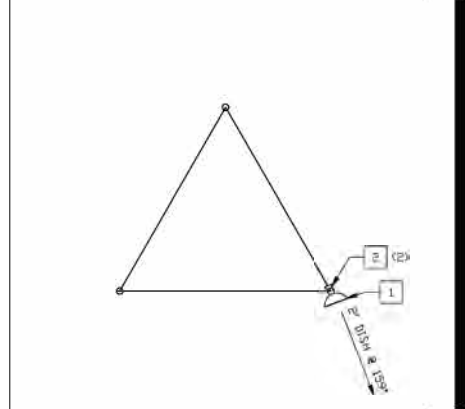
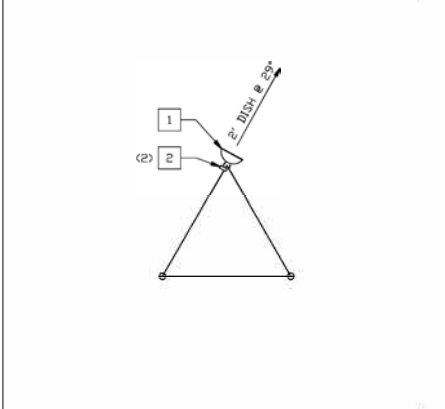
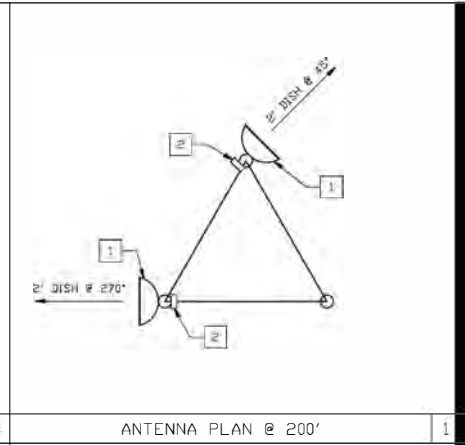
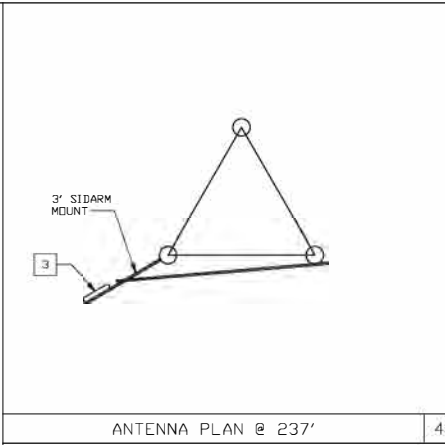
PROJECT # R2001-01
SITE NO: 6015
ASSET NO: 8136015002

REVISION: D
DATE: 09/28/2022
REVISION: B
DATE: 09/17/2021
REVISION: C
DATE: 01/10/2022
ISSUE DATE: 12/15/2022

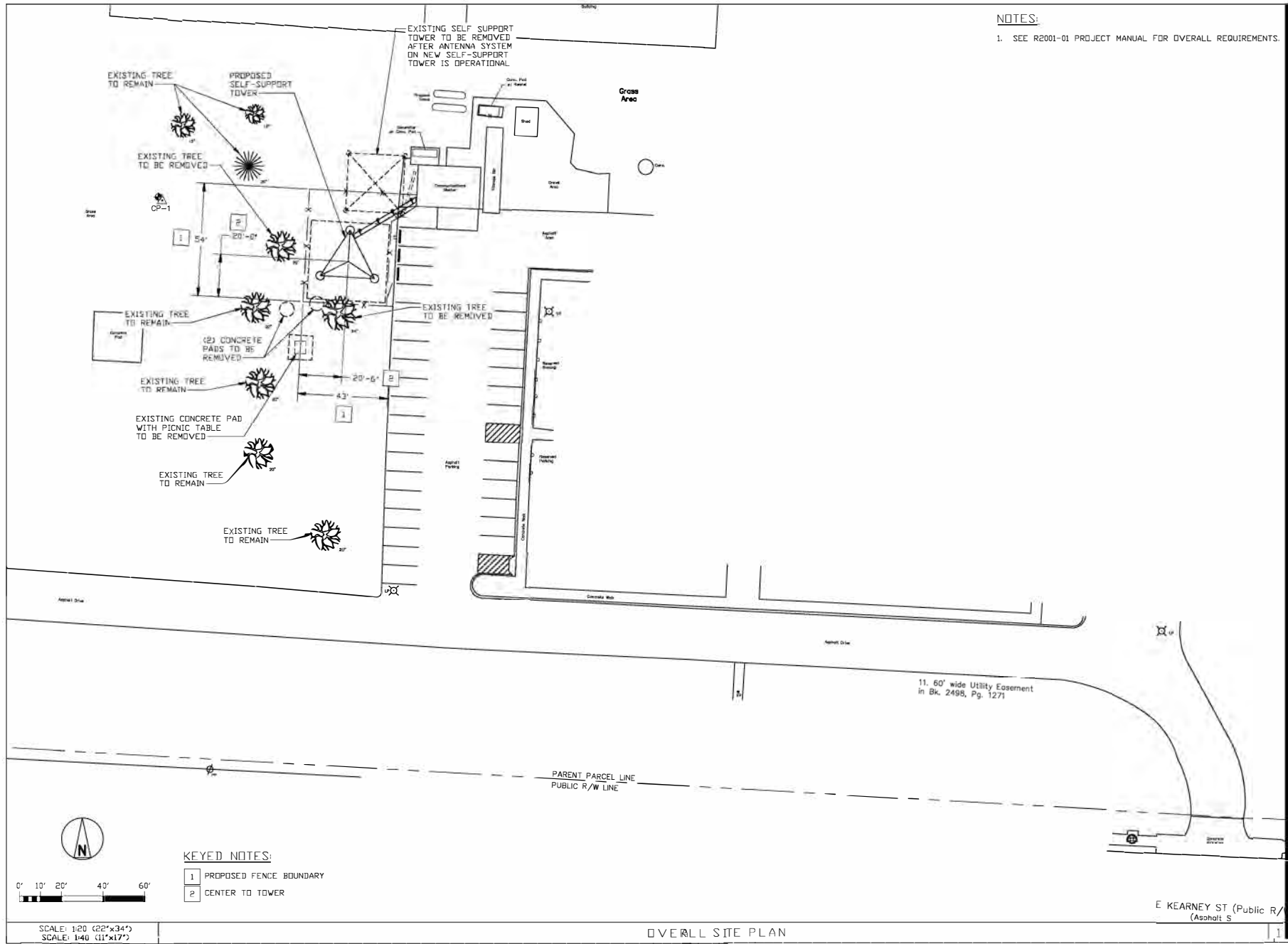
CAD DWG FILE: R2001-01 Troop D_A-104.dwg
DRAWN BY: EDA
CHECKED BY: HFE
DESIGNED BY: SSC

SHEET TITLE:
CARTHAGE
ANTENNA
PLANS (2 OF 2)

SHEET NUMBER:
A-104



NOTES:
1. SEE R2001-01 PROJECT MANUAL FOR OVERALL REQUIREMENTS.
2. RELEVANT TECHNICAL SPECIFICATIONS PERTINENT TO THIS DRAWING:
A DIVISION 33 - UTILITIES



NOTES:
 1. SEE R2001-01 PROJECT MANUAL FOR OVERALL REQUIREMENTS.

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 DEPARTMENT OF PUBLIC
 SAFETY, MISSOURI STATE
 HIGHWAY PATROL

MSHP TROOP D HQ & TROOP D
 SERVICE CENTER
 RADIO TOWER REPLACEMENTS
 3131 E. KEARNEY, SPRINGFIELD,
 MO
 PROJECT # R2001-01
 SITE NO. 6005
 ASSET NO. 8136005006

REVISION D DATE: 09/28/2022
 REVISION B DATE: 09/17/2021
 REVISION C DATE: 01/10/2022
 ISSUE DATE: 12/15/2022

CAD DWG FILE: R2001-01 Troop D A-105.dwg
 DRAWN BY: EDA
 CHECKED BY: SSC

SHEET TITLE:
 SPRINGFIELD
 OVERALL
 SITE PLAN

SHEET NUMBER:
A-105

KEYED NOTES:
 1 PROPOSED FENCE BOUNDARY
 2 CENTER TO TOWER

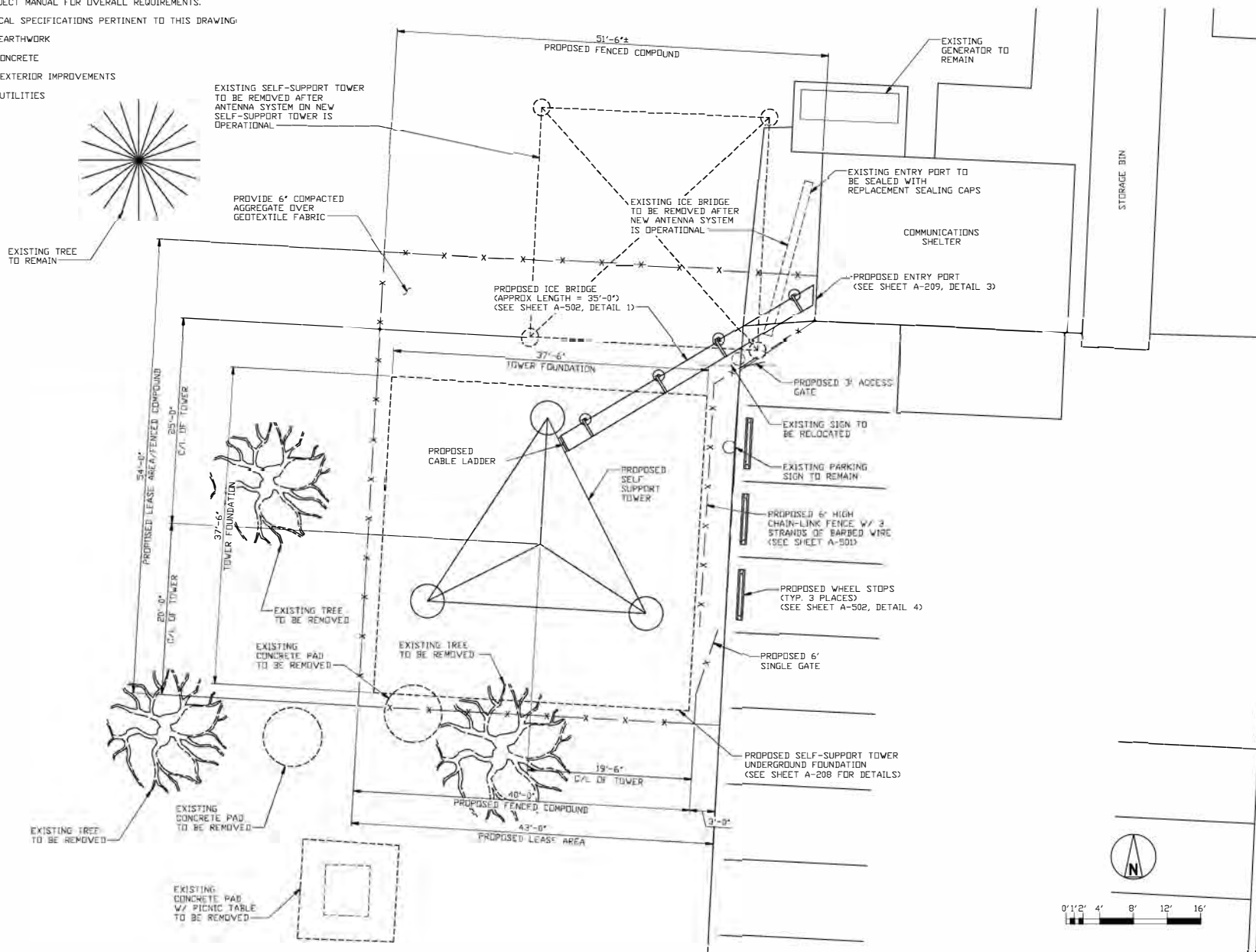
SCALE: 1/20 (22"x34")
 SCALE: 1/40 (11"x17")

OVERALL SITE PLAN

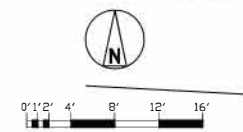
E KEARNEY ST (Public R/
 Asphalt S

NOTES:

- 1. SEE R2001-01 PROJECT MANUAL FOR OVERALL REQUIREMENTS.
- 2. RELEVANT TECHNICAL SPECIFICATIONS PERTINENT TO THIS DRAWING:
 - A. DIVISION 31 - EARTHWORK
 - B. DIVISION 3 - CONCRETE
 - C. DIVISION 32 - EXTERIOR IMPROVEMENTS
 - D. DIVISION 33 - UTILITIES



ENLARGED SITE PLAN



3/16" = 1'-0" (22"x34")
 3/32" = 1'-0" (11"x17")

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MSHP TROOP D HQ & TROOP D
 SERVICE CENTER

RADIO TOWER
 REPLACEMENTS
 3131 E. KEARNEY ST.,
 SPRINGFIELD, MO

PROJECT # R2001-01
 SITE NO: 6005
 ASSET NO: 8136005006

REVISION D	DATE: 09/28/2022
REVISION B	DATE: 09/17/2021
REVISION C	DATE: 01/10/2022
ISSUE DATE:	12/15/2022

CAD DWG FILE: R2001-01 Troop D A-106.dwg
 DRAWN BY: EDA
 CHECKED BY: SSC

SHEET TITLE:
 SPRINGFIELD
 ENLARGED
 SITE PLAN

SHEET NUMBER:
A-106

13 OF 41 SHEETS



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SERVICE CENTER

RADIO TOWER
REPLACEMENTS
3131 E. KEARNEY,
SPRINGFIELD, MO

PROJECT # R2001-01

SITE NO: 6005
ASSET NO: 8136005006

REVISION: D
DATE: 09/28/2022
REVISION: B
DATE: 09/17/2021
REVISION: C
DATE: 01/10/2022
ISSUE DATE: 12/15/2022

CAD DWG FILE: R2001-01 Troop D A-107.dwg
DRAWN BY: EDA
CHECKED BY: HBE
DESIGNED BY: SSC

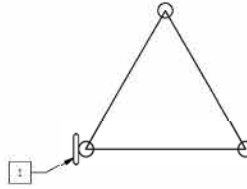
SHEET TITLE:
SPRINGFIELD
ANTENNA

PLANS (1 OF 2)

SHEET NUMBER:

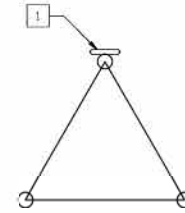
A-107

14 OF 41 SHEETS



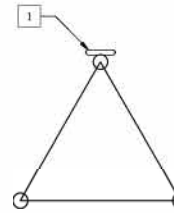
ANTENNA PLAN @ 320'

4



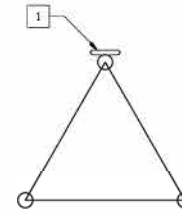
ANTENNA PLAN @ 317'

1



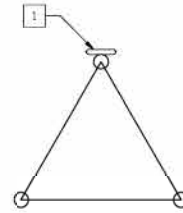
ANTENNA PLAN @ 301'

5



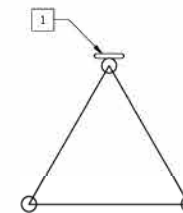
ANTENNA PLAN @ 285'

2



ANTENNA PLAN @ 269'

6



ANTENNA PLAN @ 250'

3



EQUIPMENT LEGEND:

- | | |
|---|----------------------|
| 1 | DIPLOLE ANTENNA |
| 2 | OMNI ANTENNA |
| 3 | SOLID DISH W/ RADOME |
| 4 | DDU |

NOTES:

- SEE R2001-01 PROJECT MANUAL FOR OVERALL REQUIREMENTS.
- RELEVANT TECHNICAL SPECIFICATIONS PERTINENT TO THIS DRAWING:
A DIVISION 33 - UTILITIES

ANTENNA NOTES

7



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DEPARTMENT OF PUBLIC
SAFETY, MISSOURI STATE
HIGHWAY PATROL

MSHP TROOP D HQ & TROOP D
SERVICE CENTER

RADIO TOWER
REPLACEMENTS
3131 E. KEARNEY,
SPRINGFIELD, MO

PROJECT # R2001-01

SITE NO: 6005
ASSET NO: 8136005006

REVISION: D
DATE: 09/28/2022
REVISION: B
DATE: 09/17/2021
REVISION: C
DATE: 01/10/2022
ISSUE DATE: 12/15/2022

CAD DWG FILE: R2001-01 Troop D A-108.dwg
DRAWN BY: EDA
CHECKED BY: HEE
DESIGNED BY: SSC

SHEET TITLE:
SPRINGFIELD
ANTENNA
PLANS (2 of 2)

SHEET NUMBER:

A-108

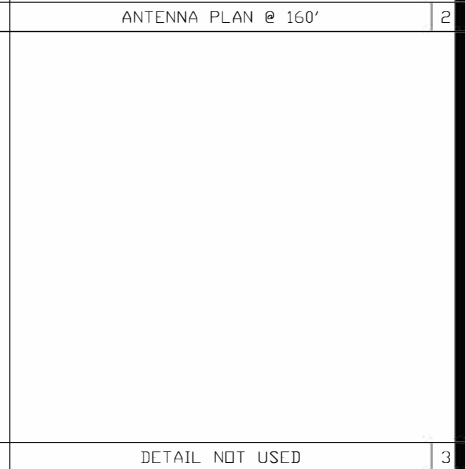
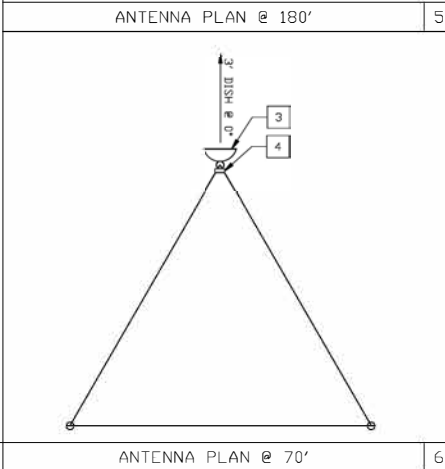
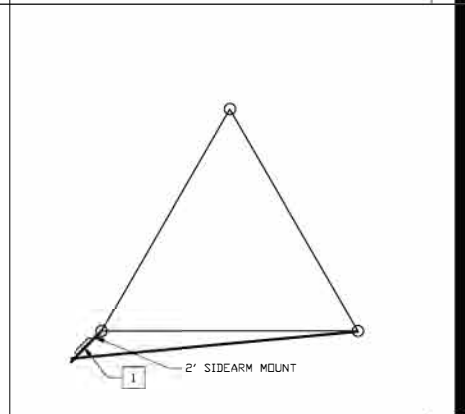
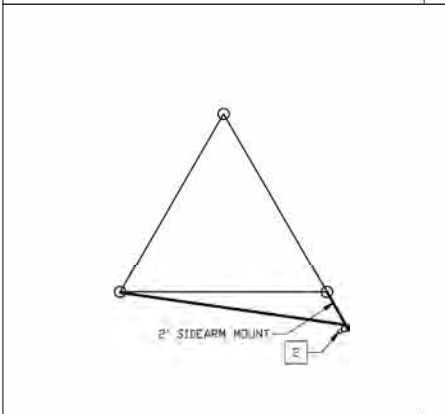
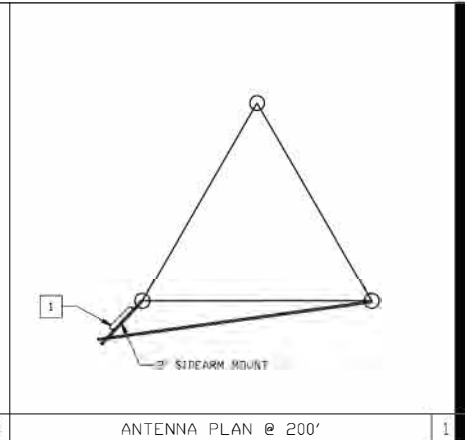
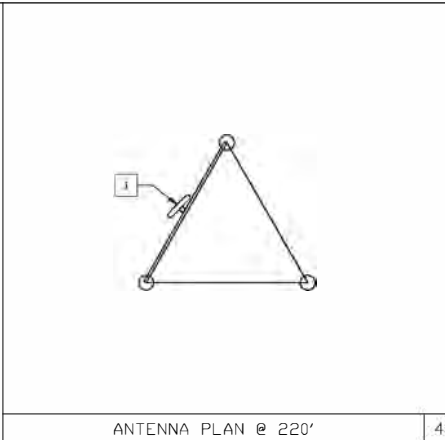
15 OF 41 SHEETS

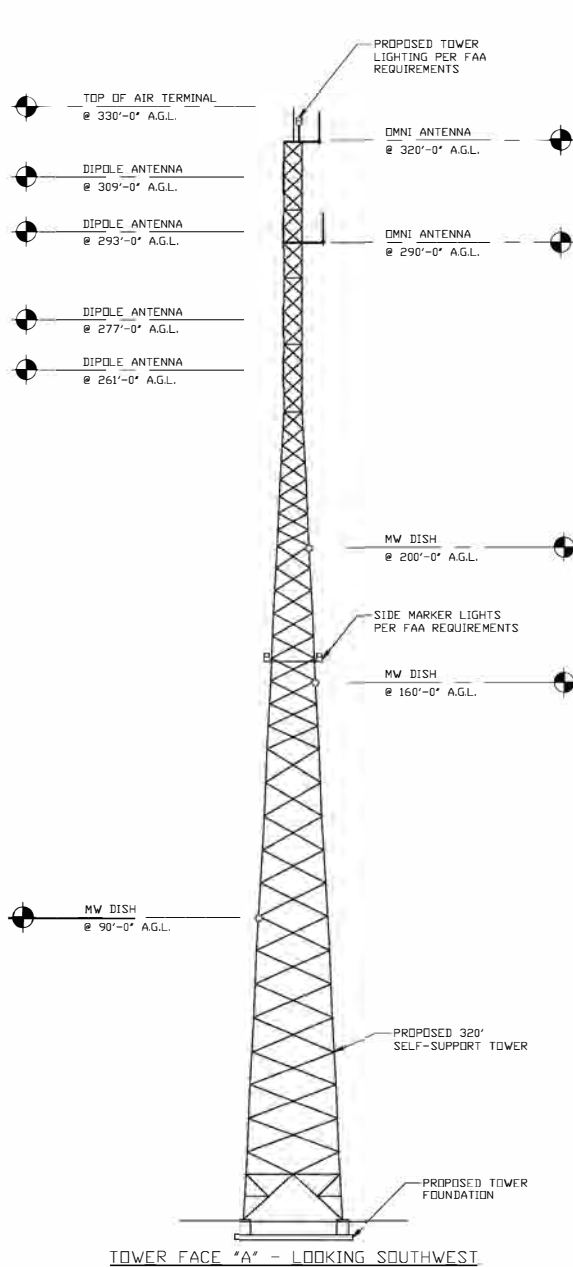
NOTES:

- SEE R2001-01 PROJECT MANUAL FOR OVERALL REQUIREMENTS.
- RELEVANT TECHNICAL SPECIFICATIONS PERTINENT TO THIS DRAWING:
A DIVISION 33 - UTILITIES

EQUIPMENT LEGEND:	
1	DIPOLE ANTENNA
2	OMNI ANTENNA
3	SOLID DISH W/ RADOME
4	DDU

ANTENNA NOTES





TOWER FACE 'A' - LOOKING SOUTHWEST

ANTENNA LOADING KEY								
ANTENNA MODEL #	QTY.	ANTENNA CL	LINE SIZE	AZIMUTH	EQUIPMENT	ANTENNA SIZE	ANTENNA MOUNT	PROPOSED OR FUTURE LOADING
CC807-08	1	BASE @ 320'-0"	(1) 7/8"	N. LEG	(1) TMA, (1) 1/2"	N/A	6' SIDEARM	PROPOSED
531-70HDB	1	309'-0"	(1) 7/8"	S.E. LEG	-	N/A	-	PROPOSED
531-70HDB	1	293'-0"	(1) 7/8"	S.E. LEG	-	N/A	-	PROPOSED
CC807-08	1	BASE @ 290'-0"	(1) 7/8"	N. LEG	-	N/A	6' SIDEARM	PROPOSED
531-70HDB	1	277'-0"	(1) 7/8"	S.E. LEG	-	N/A	-	PROPOSED
531-70HDB	1	261'-0"	(1) 7/8"	S.E. LEG	-	N/A	-	PROPOSED
874F-70TM	1	237'-0"	(1) 7/8"	S.W. LEG	-	N/A	3' SIDEARM	PROPOSED

MICROWAVE LOADING KEY								
MICROWAVE MODEL #	QTY.	MW CL	LINE SIZE	AZIMUTH	EQUIPMENT	MW SIZE	MW MOUNT	PROPOSED OR FUTURE LOADING
2' SOLID DISH V/ RADDOME	2	200'-0"	(2) CAT 5	45.00°, 270.00°	(1) ODU EA, (2) TOTAL	2' DIA.	(2) 4-1/2" O.D. DISH MOUNT	PROPOSED
2' SOLID DISH V/ RADDOME	1	160'-0"	(2) 7/8"	29.00°	(2) ODU, (2) 7/8"	2' DIA.	4-1/2" O.D. DISH MOUNT	PROPOSED
2' SOLID DISH V/ RADDOME	1	90'-0"	(2) 7/8"	159.00°	(2) ODU, (2) 7/8"	2' DIA.	4-1/2" O.D. DISH MOUNT	PROPOSED

- NOTES:**
- SEE R2001-01 PROJECT MANUAL FOR OVERALL REQUIREMENTS.
 - RELEVANT TECHNICAL SPECIFICATIONS PERTINENT TO THIS DRAWING.
- A DIVISION 33 - UTILITIES

STATE OF MISSOURI
MICHAEL L. PARSON,
GOVERNOR



OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES
MANAGEMENT,
DESIGN AND CONSTRUCTION

DEPARTMENT OF PUBLIC
SAFETY, MISSOURI STATE
HIGHWAY PATROL

MSHP TROOP D HQ & TROOP D
SERVICE CENTER

RADIO TOWER
REPLACEMENTS
5190 GRAND AVN., CARTHAGE,
MO

PROJECT # R2001-01
SITE NO: 6015
ASSET NO: 8136015002

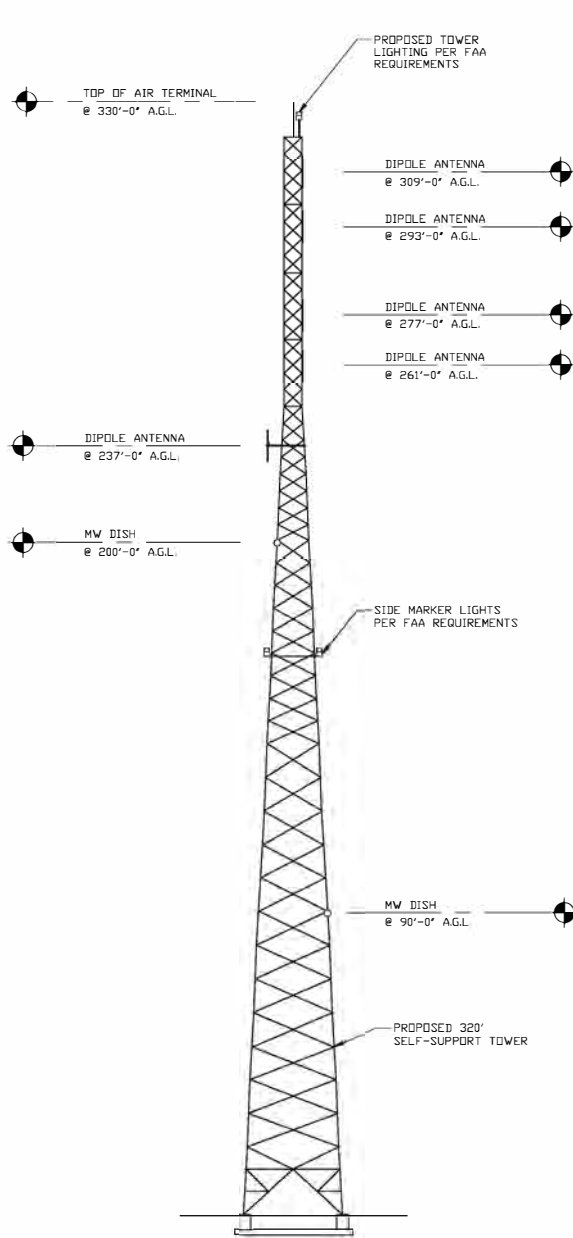
REVISION: D
DATE: 09/28/2022
REVISION: B
DATE: 09/17/2021
REVISION: C
DATE: 01/10/2022
ISSUE DATE: 12/15/2022

CAD DWG FILE: R2001-01 Troop D A-201.dwg
DRAWN BY: EDA
CHECKED BY: HEE
DESIGNED BY: SSC

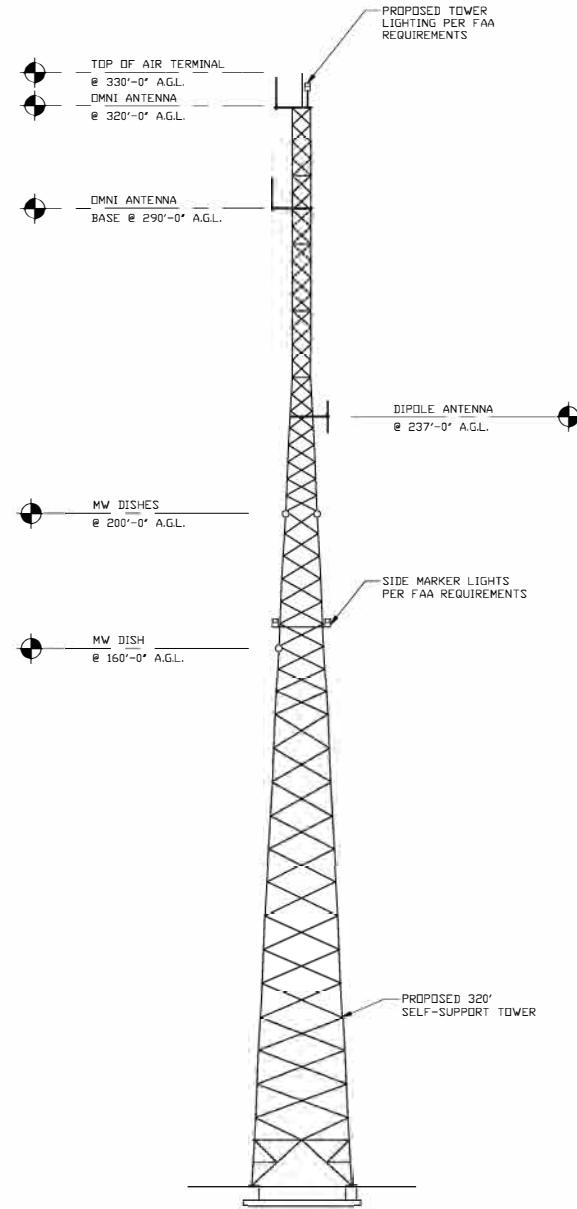
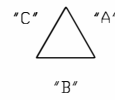
SHEET TITLE:
CARTHAGE
TOWER
ELEVATIONS (1 OF 2)

SHEET NUMBER:

A-201



TOWER FACE "B" - LOOKING NORTH



TOWER FACE "C" - LOOKING SOUTHEAST

TOWER ELEVATION

STATE OF MISSOURI
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HIGHWAY PATROL

MSHP TROOP D HQ & TROOP
D SERVICE CENTER

RADIO TOWER
REPLACEMENTS
5190 GRAND AVN.,
CARTHAGE, MO
PROJECT # R2001-01

SITE NO: 6015
ASSET NO: 8136015002

REVISION D	DATE: 09/28/2022
REVISION B	DATE: 09/17/2021
REVISION C	DATE: 01/10/2022
ISSUE DATE:	12/15/2022

CAD DWG FILE: R2001-01 Troop D A-202.dwg
DRAWN BY: EDA
CHECKED BY: HSE
DESIGNED BY: SSC

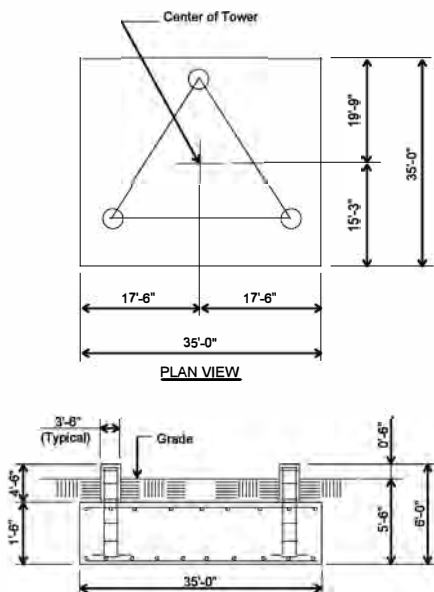
SHEET TITLE:
CARTHAGE
TOWER
ELEVATIONS (2 OF 2)

SHEET NUMBER:

A-202

17 OF 41 SHEETS

Site: Carthage, MO
SABRE (BASIS OF DESIGN) 320 ft. Model S3TL Series HD1 SeW Supporting Tower



ELEVATION VIEW
 (72.9 cu. yds.)
 (1 REQD.; NOT TO SCALE)

CAUTION: Center of tower is
 not in center of slab.

- Notes:**
- 1) Concrete shall have a minimum 28-day compressive strength of 4,500 psi, in accordance with ACI 318-14.
 - 2) Rebar to conform to ASTM specification A615 Grade 60.
 - 3) All rebar to have a minimum of 3" concrete cover.
 - 4) All exposed concrete comers to be chamfered 3/4".
 - 5) The foundation design is based on the geotechnical report by Terracon Project No: B3205016, Date: 10/14/2020 (See "Shallow Foundations" section, page 7)
 - 6) See the geotechnical report (Appendix 2) for compaction requirements, if specified.
 - 7) 4' of soil cover is required over the entire area of the foundation slab.
 - 8) The bottom anchor bolt template shall be positioned as closely as possible to the bottom of the anchor bolts.

Rebar Schedule per Mat and per Pier	
Pier	(20) #7 vertical rebar w/ hooks at bottom w/ #4 rebar ties, two (2) within top 5" of pier then 4" C/C
Mat	(65) #9 horizontal rebar evenly spaced each way top and bottom. (260 total)
Anchor Bolts per Leg	
	(6) 1.25" dia. x 63" F1554-105 on a 12.75" B.C. w/ 8" max. projection above concrete.

3RD PARTY INSPECTION NOTE:

SSC TO COORDINATE WITH TERRACON CONSULTANTS INC. TO PROVIDE SPECIAL TESTING SUCH AS CHANGES IN FOUNDATION DESIGN AS A RESULT OF GEOTECH INSPECTION, CONCRETE INSPECTION, COMPACTION INSPECTION, ETC.

CONTACT: PHONE: 417-429-4550 EMAIL: matt.jung@terracon.com
 MATT JUNG



OFFICE OF ADMINISTRATION
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DEPARTMENT OF PUBLIC
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MSPH TROOP D HQ & TROOP
 D SERVICE CENTER

RADIO TOWER
 REPLACEMENTS
 5190 GRAND AVN.,
 CARTHAGE, MO

PROJECT # R2001-01
 SITE NO: 6015
 ASSET NO: 8136015002

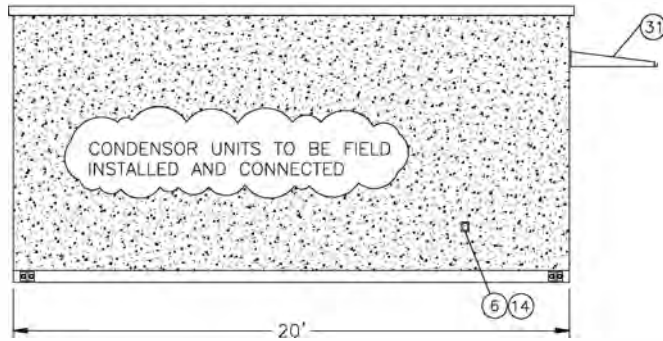
REVISION: D
 DATE: 09/28/2022
 REVISION: B
 DATE: 09/17/2021
 REVISION: C
 DATE: 01/10/2022
 ISSUE DATE: 12/15/2022

CAD DWG FILE: R2001-01_Troop D_A-203.dwg
 DRAWN BY: EDA
 CHECKED BY: HEE
 DESIGNED BY: SSC

SHEET TITLE:
**CARTHAGE
 TOWER FOUNDATION**

SHEET NUMBER:
A-203

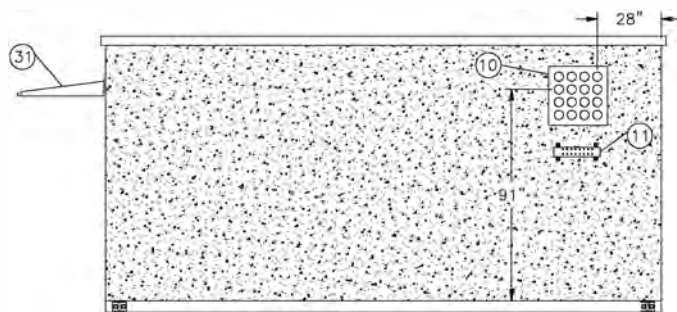
ROOF EDGE TO BE COATED WITH MASTER PROTECT P100 PRIMER AND ONE COAT OF MASTER PROTECT EL 750AA FINE GRIT COATING AND TOP COATED WITH MASTER PROTECT EL750AA COLOR #2054 (OR EQUIVALENT)



WALL A

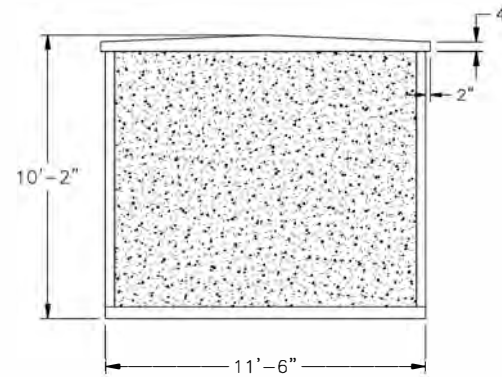
DOORS, FLOOR & WALL STEEL TO BE PRIMED WITH DIAMOND VOGEL #VT-600 AND TOP COATED WITH DIAMOND VOGEL FLEET ACRYLIC #IC-1533 (401-V2-9632 BBS TAN) (OR EQUIVALENT)

INSTALL 1-COAT OF BASF MASTERPROTECT P100 PRIMER AND TWO COATS OF MASTERPROTECT EL 750AA ELASTOMERIC WATERPROOF COATING (PASTEL WHITE) (OR EQUIVALENT)



WALL C

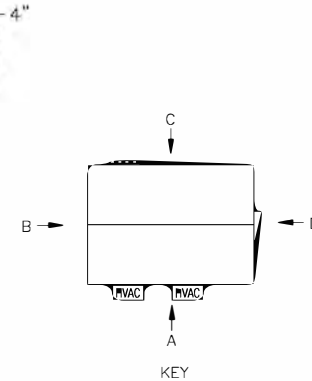
GREE COMFORT OUTDOOR MINISPLIT UNIT: 3VIR18HP230V1AD (OR EQUIVALENT)



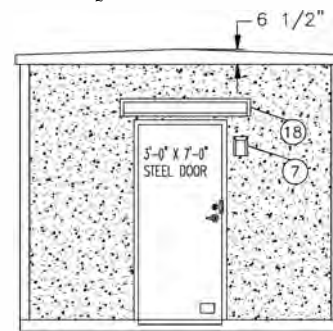
WALL B

BUILDING EXTERIOR FACE TO BE LIGHTWEIGHT EXPOSED AGGREGATE WITH DAYTON SUPERIOR SEALER #202621 BROWN (OR EQUIVALENT)

ALL JOINTS AND CONDUIT PENETRATIONS TO BE SEALED WITH MASTER SEAL NP-1 POLYURETHANE CAULKING (REDWOOD TAN) (OR EQUIVALENT)



KEY



WALL D

Ⓢ REFER TO LATEST SHELTER MANUFACTURER DRAWINGS



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HIGHWAY PATROL

MSHP TROOP D HQ & TROOP D
SERVICE CENTER

RADIO TOWER
REPLACEMENTS
5190 GRAND AVN., CARTHAGE,
MO

PROJECT # R2001-01

SITE NO: 6015
ASSET NO: 8136015002

REVISION: D
DATE: 09/28/2022
REVISION: B
DATE: 09/17/2021
REVISION: C
DATE: 01/10/2022
ISSUE DATE: 12/15/2022

CAD DWG FILE: R2001-01 Troop D A-204.dwg
DRAWN BY: EDA
CHECKED BY: HSC
DESIGNED BY: SSC

SHEET TITLE:
CARTHAGE
SHELTER EXTERIOR
ELEVATIONS

SHEET NUMBER:

A-204

19 OF 41 SHEETS



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MANAGEMENT,
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SAFETY, MISSOURI STATE
HIGHWAY PATROL

MSHP TROOP D HQ & TROOP D
SERVICE CENTER
RADIO TOWER REPLACEMENTS
5190 GRAND AVN., CARTHAGE,
MO

PROJECT# R2001-01

SITE NO: 6015
ASSET NO: 8136015002

REVISION: D
DATE: 09/28/2022
REVISION: B
DATE: 09/17/2021
REVISION: C
DATE: 07/10/2022
ISSUE DATE: 12/15/2022

CAD DWG FILE: R2001-01 Troop D A-205.dwg

DRAWN BY: EDA
CHECKED BY: HEE

DESIGNED BY: SSC
SHEET TITLE:

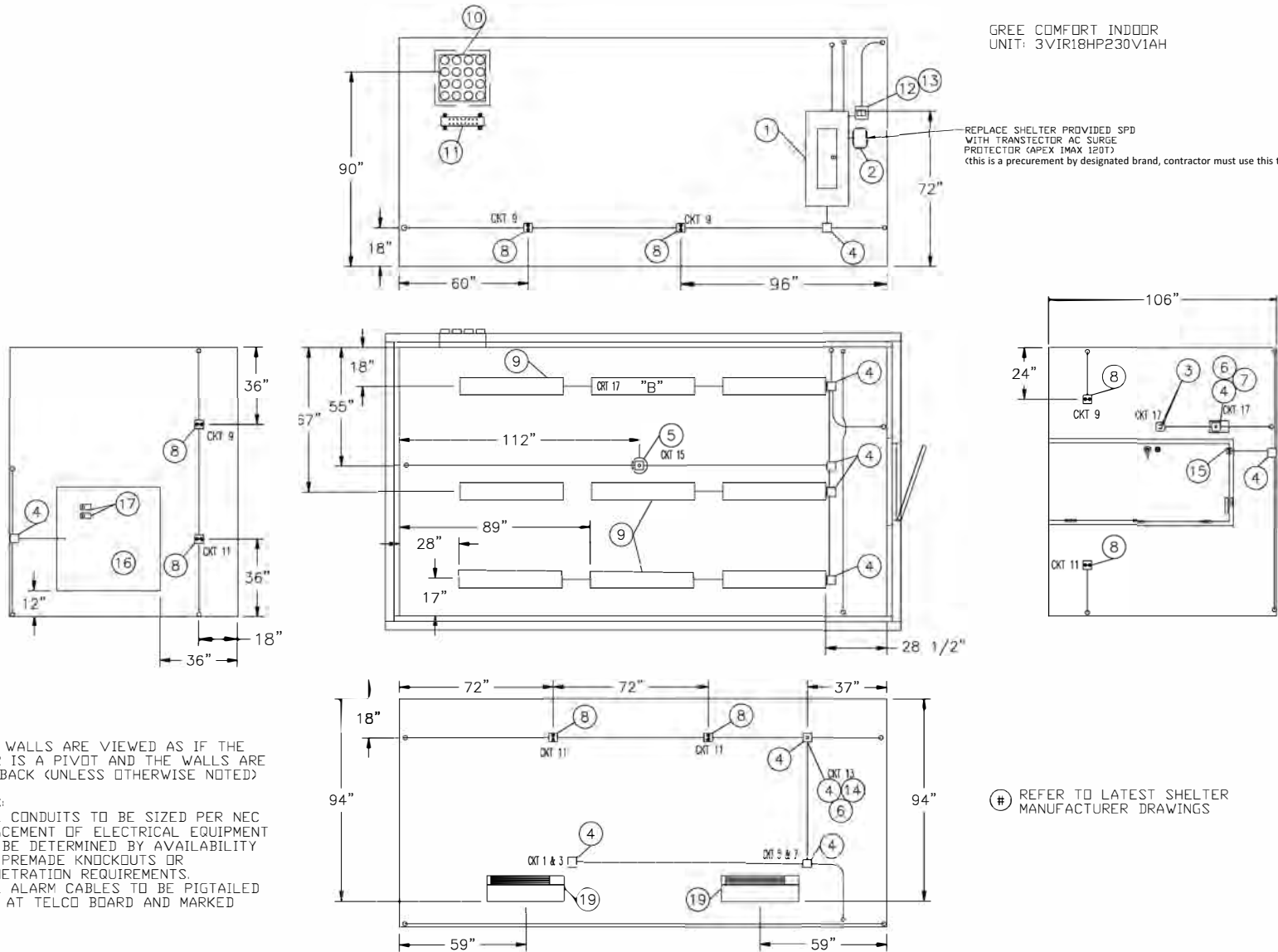
CARTHAGE
SHELTER INTERIOR
ELEVATIONS

SHEET NUMBER:

A-205

GREE COMFORT INDDOR
UNIT: 3VIR18HP230V1AH

REPLACE SHELTER PROVIDED SPD
WITH TRANSECTOR AC SURGE
PROTECTOR (APEX IMAX 1E01)
(this is a precurement by designated brand, contractor must use this transector brand)

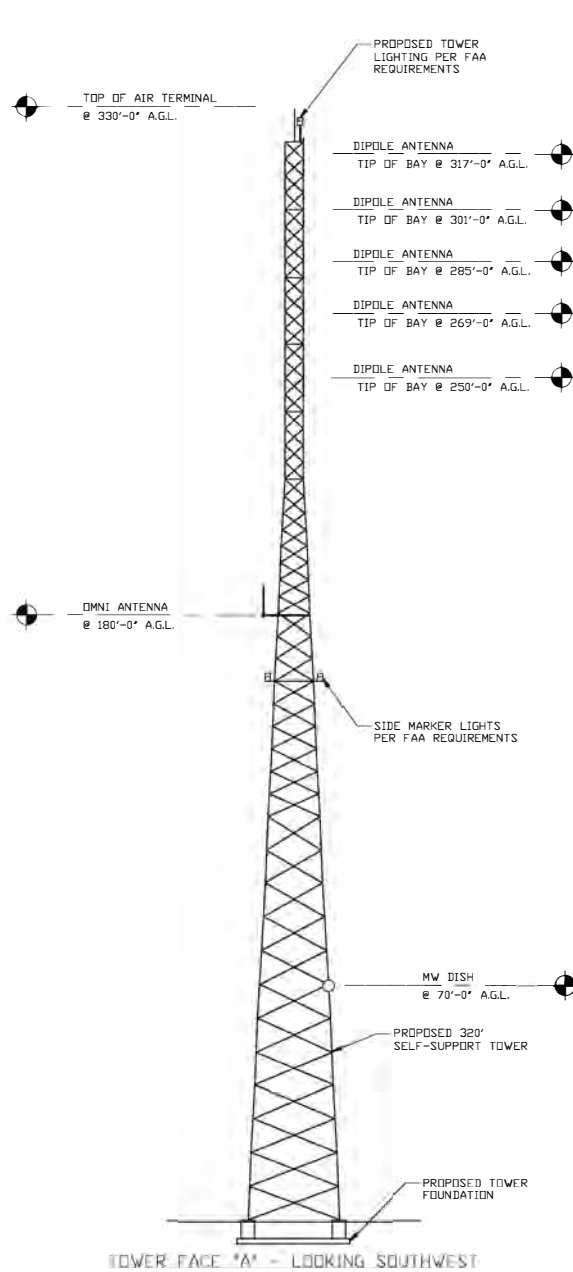


NOTE: WALLS ARE VIEWED AS IF THE FLOOR IS A PIVOT AND THE WALLS ARE LAID BACK (UNLESS OTHERWISE NOTED)

NOTES:

1. ALL CONDUITS TO BE SIZED PER NEC
2. PLACEMENT OF ELECTRICAL EQUIPMENT TO BE DETERMINED BY AVAILABILITY OF PREMADE KNOCKOUTS OR PENETRATION REQUIREMENTS.
3. ALL ALARM CABLES TO BE PIGTAILED 30" AT TELCO BOARD AND MARKED

Ⓢ REFER TO LATEST SHELTER MANUFACTURER DRAWINGS



ANTENNA LOADING KEY								
ANTENNA MODEL #	QTY.	ANTENNA LOCATION	LINE SIZE	AZIMUTH	EQUIPMENT	ANTENNA SIZE	ANTENNA MOUNT	PROPOSED OR FUTURE LOADING
774-70TM-1/4	1	BASE @ 320'-0"	(1) 7/8"	270°	-	N/A	DB5012	PROPOSED
531-70 HDB-DIN	1	TIP OF BAY @ 317'-0"	(1) 7/8"	0°	-	N/A	(2) CLAMP017S	PROPOSED
531-70 HDB-DIN	1	TIP OF BAY @ 301'-0"	(1) 7/8"	0°	-	N/A	(2) CLAMP017S	PROPOSED
531-70 HDB-DIN	1	TIP OF BAY @ 285'-0"	(1) 7/8"	0°	-	N/A	(2) CLAMP017S	PROPOSED
531-70 HDB-DIN	1	TIP OF BAY @ 269'-0"	(1) 7/8"	0°	-	N/A	(2) CLAMP017S	PROPOSED
531-70 HDB-DIN	1	TIP OF BAY @ 250'-0"	(1) 7/8"	0°	-	N/A	N/A	PROPOSED
874F-70TM-1/4	1	@ 220'-0"	(1) 7/8"	220°	-	N/A	152-85 Or P-100 SIDE MOUNT	PROPOSED
874F-70TM-1/4	1	@ 200'-0"	(1) 7/8"	225°	-	N/A	152-85 Or P-100 SIDE MOUNT	PROPOSED
DB589-Y	1	@ 180'-0"	(1) 7/8"	SOUTH LEG	-	N/A	P-100 SIDE MOUNT	PROPOSED
874F-70TM-1/4	1	@ 160'-0"	(1) 7/8"	225°	-	N/A	152-85 Or P-100 SIDE MOUNT	PROPOSED

MICROWAVE LOADING KEY								
MICROWAVE MODEL #	QTY.	MW CL	LINE SIZE	AZIMUTH	EQUIPMENT	MW SIZE	MW MOUNT	PROPOSED OR FUTURE LOADING
3' SOLID DISH W/ RADOME	1	70'-0"	(1) 7/8"	0.00°	(1) ODU, (1) 7/8"	3' DIA.	4-1/2" O.D. DISH MOUNT	PROPOSED

NOTES:

- SEE R2001-01 PROJECT MANUAL FOR OVERALL REQUIREMENTS.
- RELEVANT TECHNICAL SPECIFICATIONS PERTINENT TO THIS DRAWING:
A. DIVISION 33 - UTILITIES

STATE OF MISSOURI
MICHAEL L. PARSON,
GOVERNOR



OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES
MANAGEMENT,
DESIGN AND CONSTRUCTION

DEPARTMENT OF PUBLIC
SAFETY, MISSOURI STATE
HIGHWAY PATROL

MSHP TROOP D HQ & TROOP D
SERVICE CENTER

RADIO TOWER
REPLACEMENTS
3131 E. KEARNEY,
SPRINGFIELD, MO
PROJECT# R2001-01

SITE NO: 6005
ASSET NO: 8136006006

REVISION: D
DATE: 09/28/2022
REVISION: B
DATE: 09/17/2021
REVISION: C
DATE: 01/10/2022
ISSUE DATE: 12/15/2022

CAD DWG FILE: R2001-01 Troop D A-206.dwg
DRAWN BY: EDA
CHECKED BY: HSE
DESIGNED BY: SSC

SHEET TITLE:
SPRINGFIELD
TOWER
ELEVATIONS (1 OF 2)

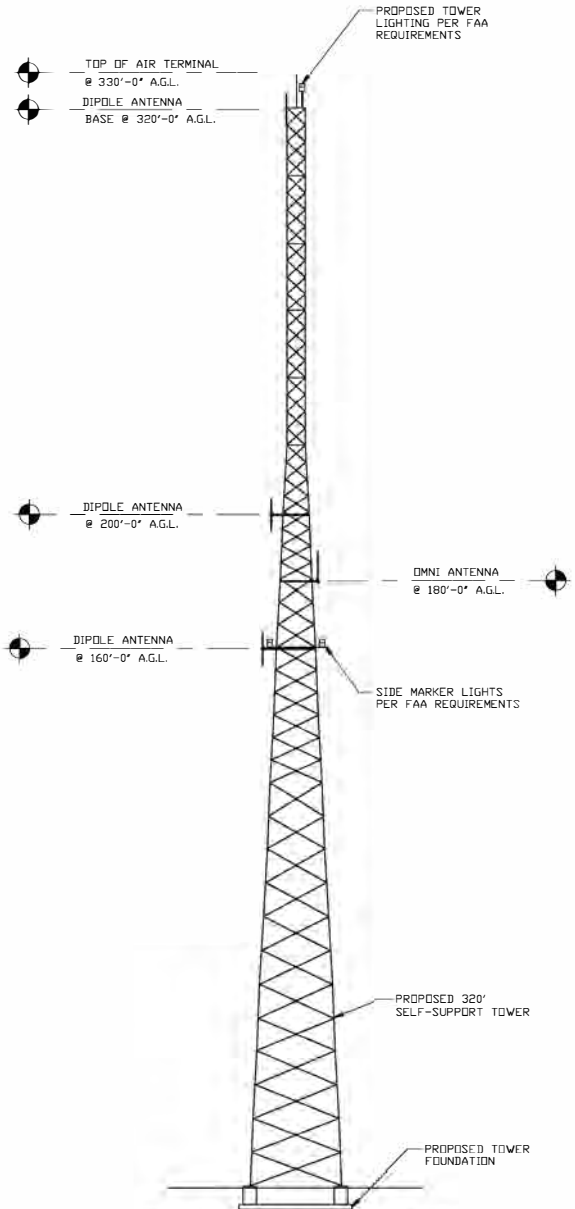
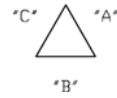
SHEET NUMBER:

A-206

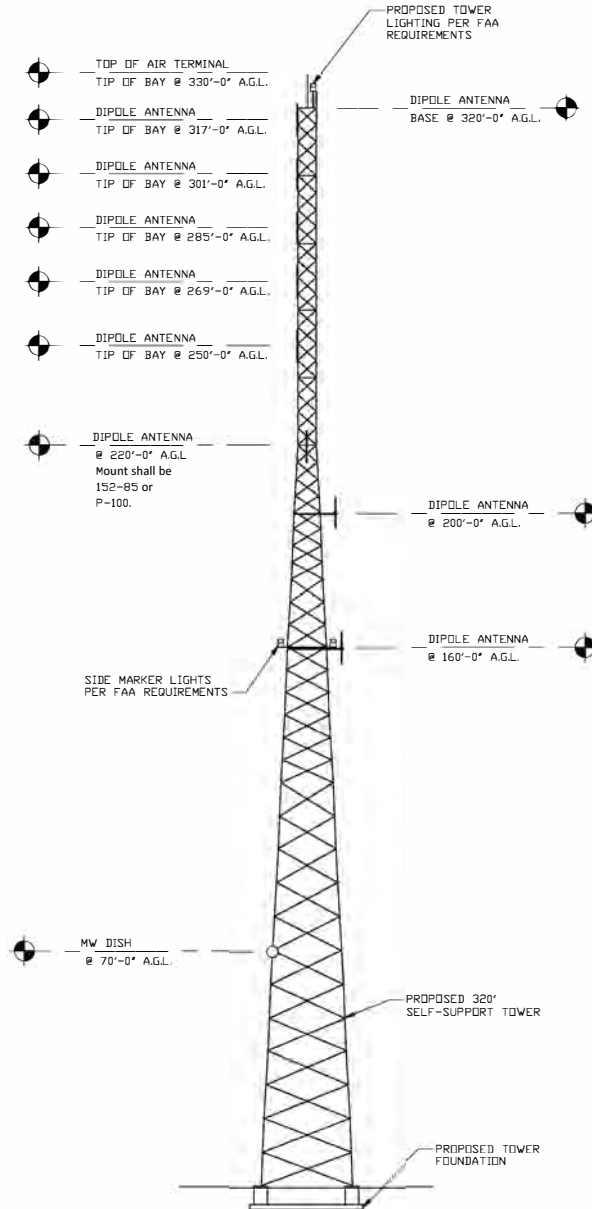
21 OF 41 SHEETS

TOWER FACE 'A' - LOOKING SW

TOWER ELEVATION



TOWER FACE "B" - LOOKING NORTH



TOWER FACE "C" - LOOKING SOUTHEAST

TOWER ELEVATION

STATE OF MISSOURI
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DEPARTMENT OF PUBLIC
SAFETY, MISSOURI STATE
HIGHWAY PATROL

MSHP TROOP D HQ & TROOP
D SERVICE CENTER

RADIO TOWER
REPLACEMENTS
3131 E. KEARNEYST.,
SPRINGFIELD, MO

PROJECT # R2001-01

SITE NO: 6005
ASSET NO: 8136005006

REVISION: D
DATE: 09/28/2022
REVISION: B
DATE: 09/17/2021
REVISION: C
DATE: 01/10/2022
ISSUE DATE: 12/15/2022

CAD DWG FILE: R2001-01 Troop D A-207.dwg
DRAWN BY: EDA
CHECKED BY: HEE
DESIGNED BY: SSC

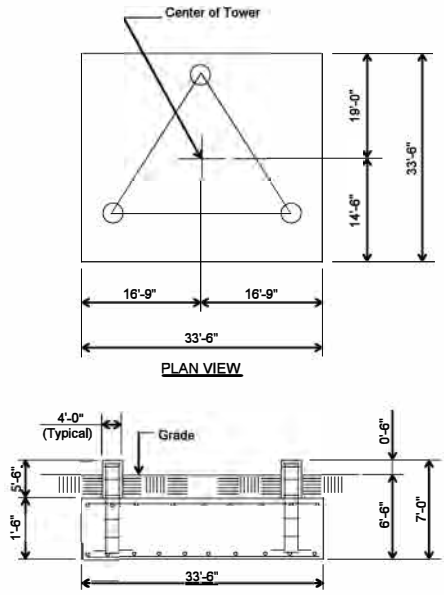
SHEET TITLE:
SPRINGFIELD
TOWER
ELEVATIONS (2 OF 2)

SHEET NUMBER:

A-207

22 OF 41 SHEETS

SABRE (BASIS OF DESIGN) SITE-SPRINGFIELD 320 ft. Model S3TL Series HD1 Self Supporting Tower



ELEVATION VIEW
(70.0 cu. yds.)
(1 REQD.; NOT TO SCALE)

CAUTION: Center of tower is not in center of slab.

- Notes:**
- 1) Concrete shall have a minimum 28-day compressive strength of 4,500 psi, in accordance with ACI 318-14.
 - 2) Rebar to conform to ASTM specification A615 Grade 60.
 - 3) All rebar to have a minimum of 3" concrete cover.
 - 4) All exposed concrete corners to be chamfered 3/4".
 - 5) The foundation design is based on the geotechnical report (APP 5) by Terracon Project No: B5205063, Date: 10/19/2020 (See "Shallow Foundations" section, page 8)
 - 6) See the geotechnical report for compaction requirements, if specified.
 - 7) 5' of soil cover is required over the entire area of the foundation slab.
 - 8) The bottom anchor bolt template shall be positioned as closely as possible to the bottom of the anchor bolts.

Rebar Schedule per Mat and per Pier	
Pier	(22) #7 vertical rebar w/ hooks at bottom w/ #4 rebar ties, two (2) within top 5" of pier then 4" C/C
Mat	(63) #9 horizontal rebar evenly spaced each way top and bottom. (252 total)
Anchor Bolts per Leg	
	(6) 1.5" dia. x 78" F1554-105 on a 13.25" B.C. w/ 9.5" max. projection above concrete.

3RD PARTY INSPECTION NOTE:
SSC TO COORDINATE WITH TERRACON CONSULTANTS INC. TO PROVIDE SPECIAL TESTING SUCH AS CHANGES IN FOUNDATION DESIGN AS A RESULT OF GEOTECH INSPECTION, CONCRETE INSPECTION, COMPACTION INSPECTION, ETC.
CONTACT: MATT JUNG
PHONE: 417-429-4550
EMAIL: matt.jung@terracon.com

STATE OF MISSOURI
MICHAEL L. PARSON,
GOVERNOR



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DIVISION OF FACILITIES
MANAGEMENT,
DESIGN AND CONSTRUCTION
DEPARTMENT OF PUBLIC
SAFETY, MISSOURI STATE
HIGHWAY PATROL

MSHP TROOP D HQ & TROOP D
SERVICE CENTER
RADIO TOWER REPLACEMENTS
3131 E. KEARNERYST.,
SPRINGFIELD, MO
PROJECT # R2001-01

SITE NO: 6005
ASSETT NO: 8136005006

REVISION: D
DATE: 09/28/2022
REVISION: B
DATE: 09/17/2021
REVISION: C
DATE: 01/10/2022
ISSUE DATE: 12/15/2022

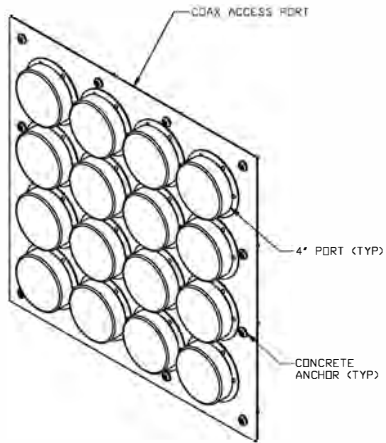
CAD DWG FILE: R2001-01_Troop D_A-208.dwg
DRAWN BY: EDA
CHECKED BY: HFE
DESIGNED BY: SSC

SHEET TITLE:
SPRINGFIELD
TOWER FOUNDATION
DESIGN

SHEET NUMBER:

A-208

23 OF 41 SHEETS



NOTES:

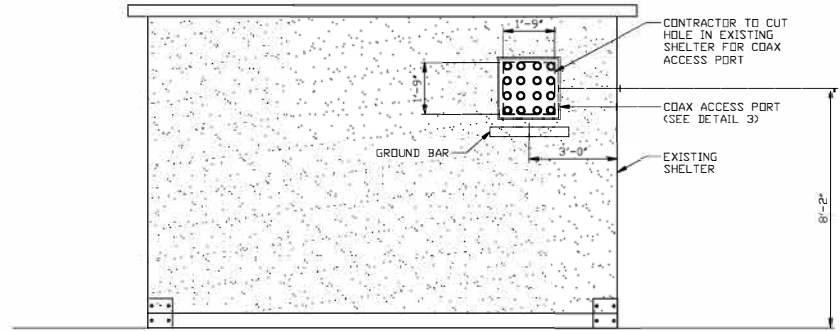
1. SEAL UNUSED PORTS WITH REPLACEMENT SEALING CAPS

FEE DLINE ENTRY PORT DETAIL

3

NOTES:

1. SEE R2001-01 PROJECT MANUAL FOR OVERALL REQUIREMENTS.
2. RELEVANT TECHNICAL SPECIFICATIONS PERTINENT TO THIS DRAWING:
A. DIVISION 33 - UTILITIES



SHELTER ELEVATION B

1

DETAIL NOT USED

4

DETAIL NOT USED

STATE OF MISSOURI
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MISSOURI STATE
HIGHWAY PATROL

MSHP TROOP D HQ &
TROOP D SERVICE CENTER
RAD IO TOWER
REPLACEMENTS

3131 E. KEARNEY ST.,
SPRINGFIELD, MO

PROJECT # R2001-01
SITE NO: 6005
ASSET NO. 8136005006

REVISION: D
DATE: 09/28/2022
REVISION: B
DATE: 09/17/2021
REVISION: C
DATE: 07/10/2022
ISSUE DATE: 12/15/2022

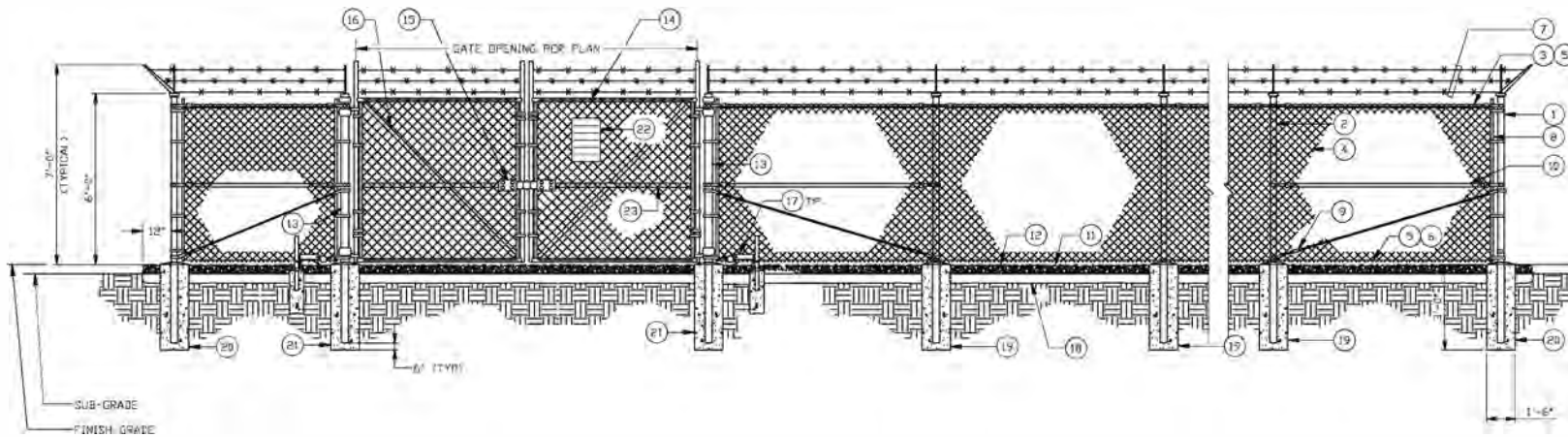
CAD DWG FILE: R2001-01 Troop D A-209.dwg
DRAWN BY: EDA
CHECKED BY: HEE
DESIGNED BY: SSC

SHEET TITLE:
SPRINGFIELD
SHELTER
ELEVATIONS

SHEET NUMBER:

A-209

24 OF 41 SHEETS



REFERENCE NOTES:

- ① CORNER, END OR PULL POST
- ② LINE POSTS
- ③ TOP RAIL & BRACE RAIL
- ④ FABRIC
- ⑤ TIE WIRE
- ⑥ TENSION WIRE
- ⑦ BARBED WIRE
- ⑧ STRETCHER BAR
- ⑨ DIAGONAL ROD WITH GALVANIZED STEEL TURNBUCKLE OR DIAGONAL THREADED ROD
- ⑩ FENCE CORNER POST BRACE: EACH CORNER EACH WAY
- ⑪ TOUCHING GRADE
- ⑫ FINISH GRADE SHALL BE UNIFORM AND LEVEL
- ⑬ GATE POST
- ⑭ GATE FRAME

- ⑮ LOCKING DEVICE PROVIDED AND INSTALLED BY TOWER OWNER
- ⑯ GATE DIAGONAL GALVANIZED STEEL PIPE.
- ⑰ DUCK BILL OPEN GATE HOLDER. VERIFY LOCATION IN FIELD PRIOR TO INSTALLATION.
- ⑱ GEOTEXTILE FABRIC
- ⑲ LINE POST CONCRETE FOUNDATION (SEE SHEET A-502, DETAIL 3)
- ⑳ CORNER POST CONCRETE FOUNDATION (SEE SHEET A-502, DETAIL 3)
- ㉑ GATE POST CONCRETE FOUNDATION (SEE SHEET A-502, DETAIL 3)
- ㉒ 18' x 24' SITE OWNER SIGN FURNISHED AND INSTALLED BY TOWER OWNER
- ㉓ GATE FRAME BRACE

NOTES:

1. SEE R2001-01 PROJECT MANUAL FOR OVERALL REQUIREMENTS.
2. RELEVANT TECHNICAL SPECIFICATIONS PERTINENT TO THIS DRAWING:
 - A. DIVISION 32 - EXTERIOR IMPROVEMENTS
3. ADDITIONAL NOTES:
 - A. USE GALVANIZED HDG-RING WIRE TO MOUNT ALL SIGNS.

STATE OF MISSOURI
MICHAEL L. PARSON,
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OFFICE OF
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DEPARTMENT OF PUBLIC
SAFETY, MISSOURI STATE
HIGHWAY PATROL

MSHP TROOP D HQ & TROOP D
SERVICE CENTER

RADIO TOWER REPLACEMENTS
5190 GRAND AVN., CARIBAGE,
MO

3131 E. KEARNEY ST.,
SPRINGFIELD, MO

PROJECT # R2001-01
SITE NO(S) 6015 & 6005
ASSET NO(S): 8136015002
& 8136005006

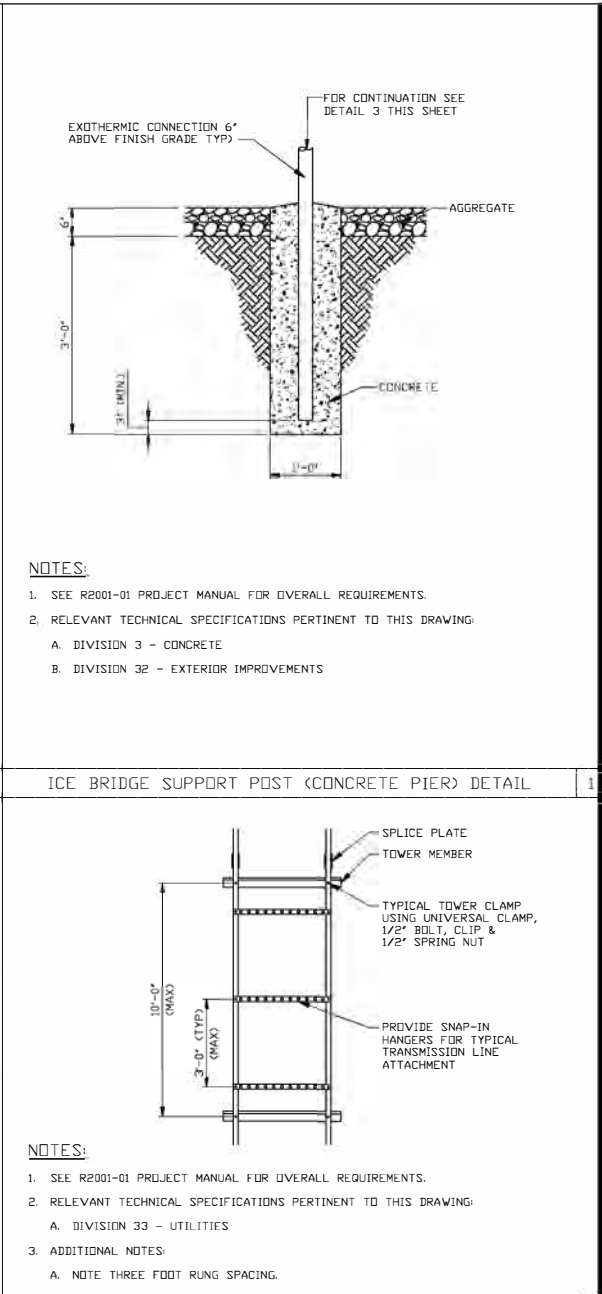
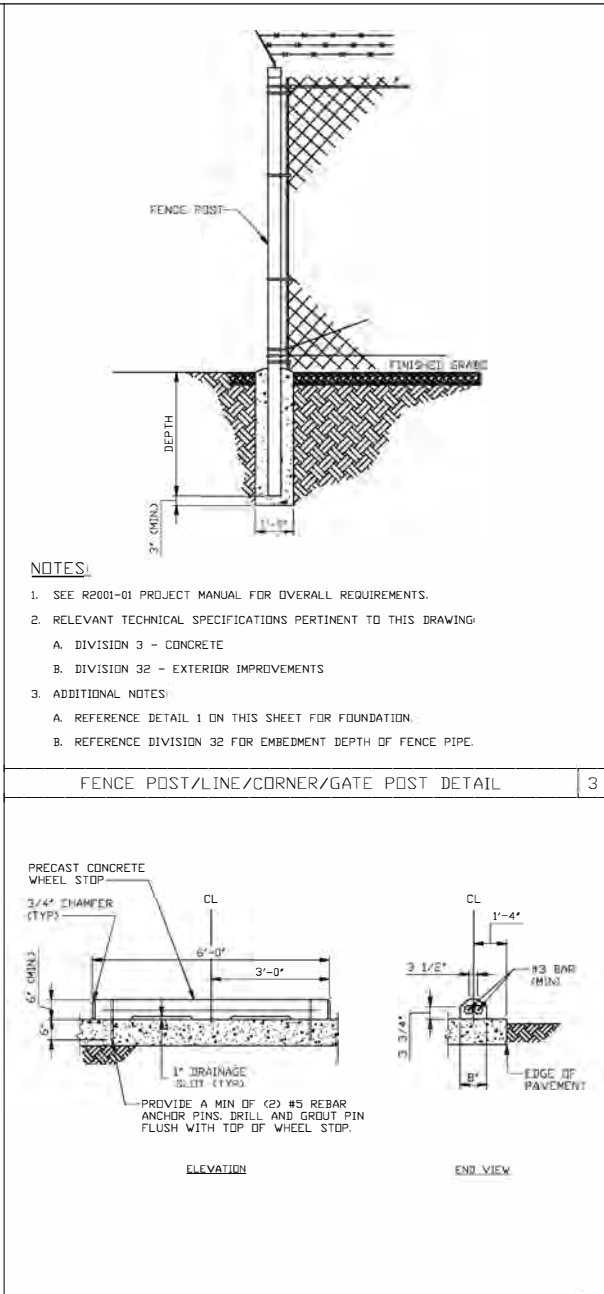
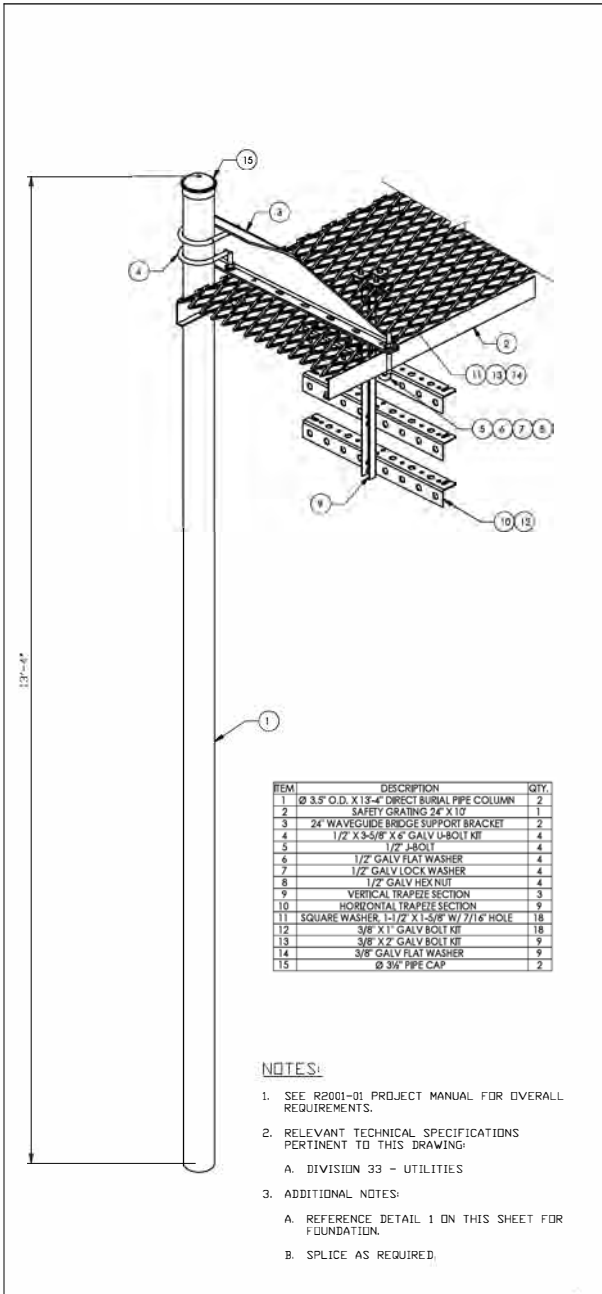
REVISION: D
DATE: 09/28/2022
REVISION: B
DATE: 09/17/2021
REVISION: C

DATE: 01jio20zi
ISSUE DATE: 12/15/22

CAD DWG FILE: R2001-01 Troop D A-501.dwg
DRAWN BY: JDA
CHECKED BY: HES
DESIGNED BY: SSC

SHEET TITLE:
FENCE
DETAILS

SHEET NUMBER:
A-501



ICE BRIDGE SUPPORT POST DETAIL 5

WHEEL STOP DETAIL 4

ICE BRIDGE SUPPORT POST (CONCRETE PIER) DETAIL 1



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HIGHWAY PATROL

MSHP TROOP D & TROOP D
TOWER REPLACEMENTS

CARTHAGE, MO
SPRINGFIELD, MO

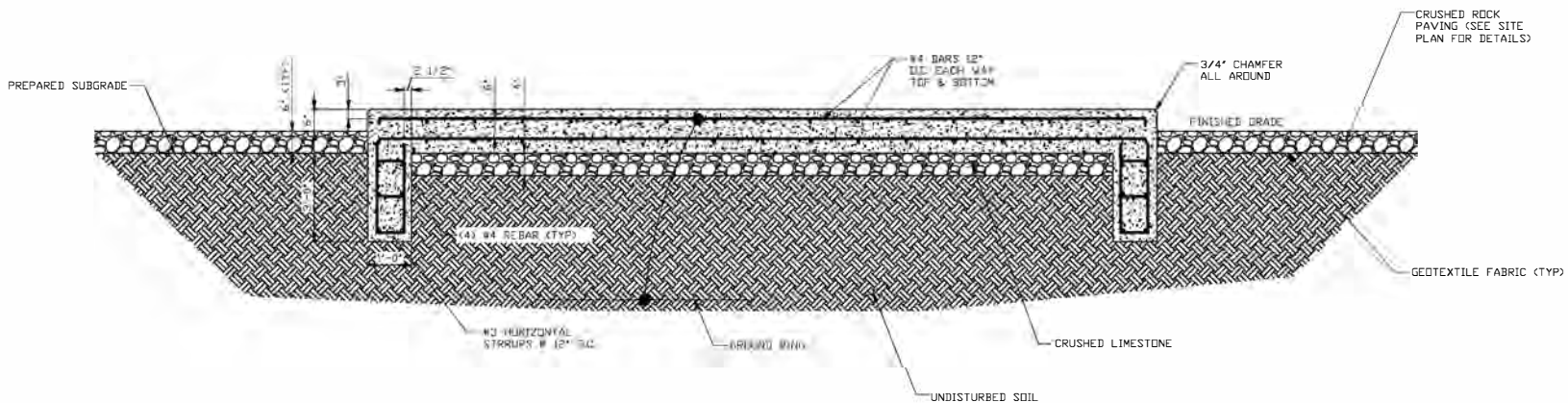
PROJECT # R2001-01
SITE NO(s): 6015 & 6005
ASSET NO(s):
8136015002 & 8136005002

REVISION: D
DATE: 09/28/2022
REVISION: B
DATE: 09/17/2021
REVISION: C
DATE: 01/10/2022
ISSUE DATE: 12/15/2022

CAD DWG FILE: R2001-01 Troop D A-502.dwg
DRAWN BY: EDA
CHECKED BY: HBC
DESIGNED BY: SSC

SHEET TITLE:
CONSTRUCTION
DETAILS

SHEET NUMBER:
A-502



NOTES:

1. SEE R2001-01 PROJECT MANUAL FOR OVERALL REQUIREMENTS
2. RELEVANT TECHNICAL SPECIFICATIONS PERTINENT TO THIS DRAWING:
 - A. DIVISION 31 - EARTHWORK
 - B. DIVISION 3 - CONCRETE
 - C. DIVISION 33 - UTILITIES

SHELTER FOUNDATION DETAIL

STATE OF MISSOURI
MICHAEL L. PARSON,
GOVERNOR



OFFICE OF
ADMINISTRATION DIVISION
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MANAGEMENT,
DESIGN AND CONSTRUCTION

DEPARTMENT OF PUBLIC
SAFETY, MISSOURI STATE
HIGHWAY PATROL

MSHP TROOP D HQ & TROOP D
SERVICE CENTER

RADIO TOWER
REPLACEMENTS
5190 GRAND AVN.,
CARTHAGE, MO

PROJECT# R2001-01
SITE NO: 6015
ASSET NO:
8136015002

REVISION: D
DATE: 09/28/2022
REVISION: B
DATE: 09/17/2021
REVISION: C
DATE: 01/10/2022
ISSUE DATE: 12/15/2022

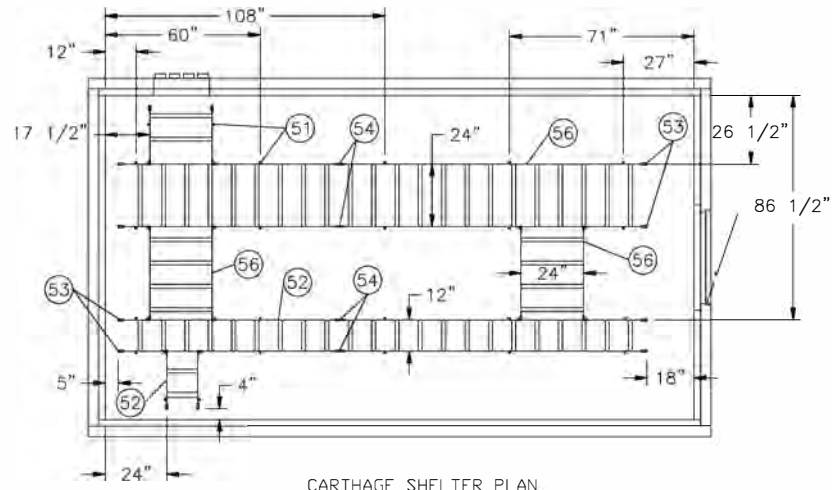
CAD DWG FILE: R2001-01 Troop D A-503.dwg
DRAWN BY: EDA
CHECKED BY: SSC
DESIGNED BY: SSC

SHEET TITLE:
CARTHAGE SHELTER
FOUNDATION
DETAILS

SHEET NUMBER:

A-503

27 OF 41 SHEETS

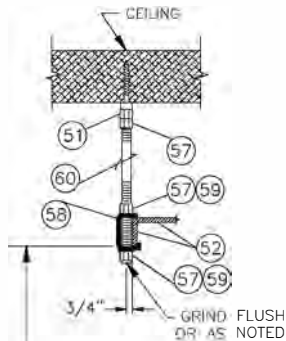


CARTHAGE SHELTER PLAN.

Ⓢ REFER TO LATEST SHELTER MANUFACTURER DRAWINGS

ITEM LIST-CABLE LADDER/CABLE RACKS

NO.	QTY	U/M	DESCRIPTION
51	24	EA	POWERS WOOD VERTICAL HANGER CATALOG #7164 5/16" x 2 1/2" SCREW THREAD WITH 1/2"-13NC
52	19	LF	12" WIDE X 1 1/2" CABLE LADDER
53	12	EA	NEOPRENE END CAPS FOR 1 1/2" CABLE LADDER B-LINE SB21B
54	2	SET	RUNWAY SPLICE KITS
55	6	SETS	90° JUNCTION CONNECTORS
56	25	LF	24" WIDE X 1 1/2" CABLE LADDER
57	72	EA	1/2" HEX NUT
58	24	EA	B-LINE SLOTTED RUNWAY SUPPORT #SB157ABZ
59	48	EA	1/2" LOCK WASHER
60	36	LF	1/2" THREADED ROD 18" LONG
61		KITS	RUNWAY HOLD DOWN CLAMP #SB2114ATG
62			
63			
64			
65			
66			
67			
68			
69			
70			



BOTTOM OF LADDER IS 88" ABOVE FINISHED FLOOR

CABLE LADDER DETAIL

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SERVICE CENTER

RADIO TOWER REPLACEMENTS
5190 GRAND AVN., CARTHAGE, MO

PROJECT # R2001-01

SITE NO: 6015
ASSET NO: 8136015002

REVISION: D
DATE: 09/28/2022
REVISION: E
DATE: 09/17/2021
REVISION: C
DATE: 01/10/2022
ISSUE DATE: 12/15/2022

CAD DWG FILE: R2001-01 Troop D A-504.dwg

DRAWN BY: EDA

CHECKED BY: HEE

DESIGNED BY: SSC

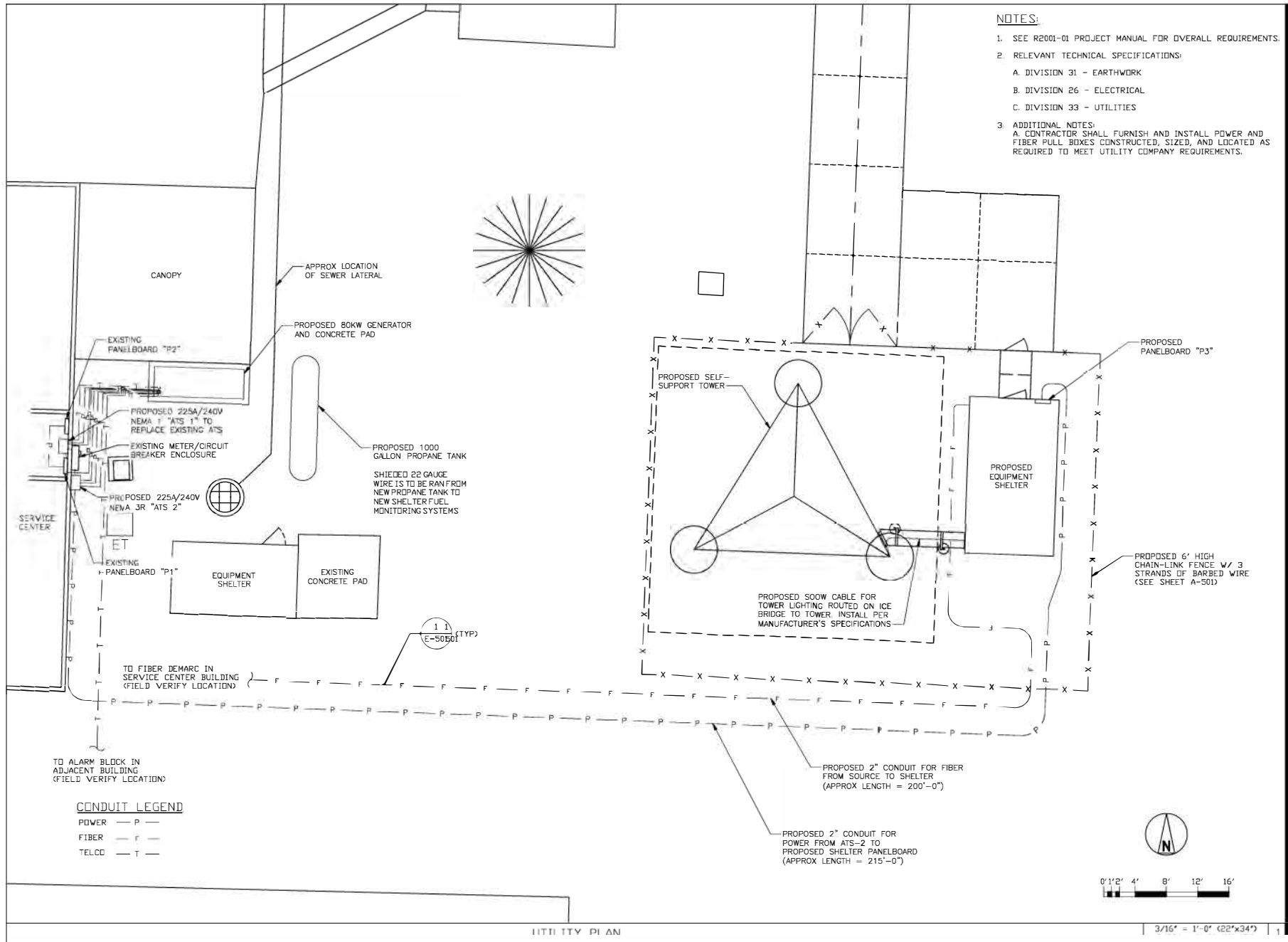
SHEET TITLE:

CARTHAGE
SHELTER LAYOUT
& DETAILS

SHEET NUMBER:

A-504

28 OF 41 SHEETS



STATE OF MISSOURI
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SERVICE CENTER

RADIO TOWER
REPLACEMENTS

5190 GRAND AVN., CARTHAGE,
MO

PROJECT # R2001-01
SITE NO: 6015
ASSET NO: 8136015002

REVISION: D

DATE: 09/28/2022
REVISION: B
DATE: 09/17/2021
REVISION: C
DATE: 01/10/2022
ISSUE DATE: 12/15/2022

CAD DWG FILE: R2001-01 Troop D E-101.dwg
DRAWN BY: EDA
CHECKED BY: HSE
DESIGNED BY: SSC

SHEET TITLE:
CARTHAGE
UTILITY
PLAN

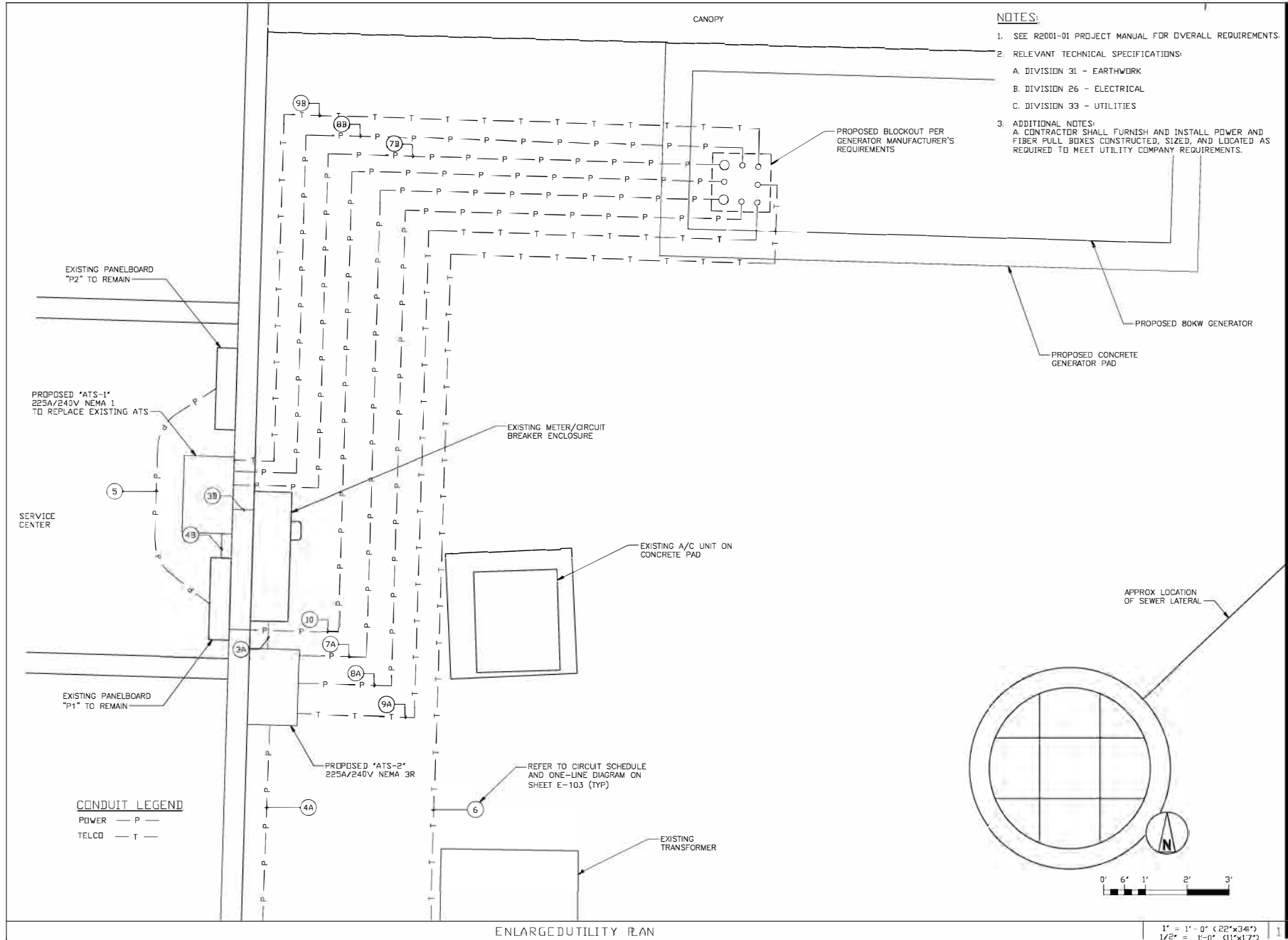
SHEET NUMBER:

E-101

29 OF 41 SHEETS

UTILITY PLAN





NOTES:

1. SEE R2001-01 PROJECT MANUAL FOR OVERALL REQUIREMENTS.
2. RELEVANT TECHNICAL SPECIFICATIONS:
 - A. DIVISION 31 - EARTHWORK
 - B. DIVISION 26 - ELECTRICAL
 - C. DIVISION 33 - UTILITIES
3. ADDITIONAL NOTES:
 - A. CONTRACTOR SHALL FURNISH AND INSTALL POWER AND FIBER PULL BOXES CONSTRUCTED, SIZED, AND LOCATED AS REQUIRED TO MEET UTILITY COMPANY REQUIREMENTS.

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HIGHWAY PATROL

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SERVICE CENTER

RADIO TOWER
REPLACEMENTS
5190 GRAND AVN.,
CARTHAGE, MO

PROJECT # R2001-01
SITE NO: 6015
ASSET NO: 8136015002

REVISION D	DATE: 09/28/2022
REVISION B	DATE: 09/17/2021
REVISION C	DATE: 01/10/2022
ISSUE DATE:	12/15/2022

CAD DWG FILE: R2001-01 Troop D F-102.dwg
DRAWN BY: EDA
CHECKED BY: HSE
DESIGNED BY: SSC

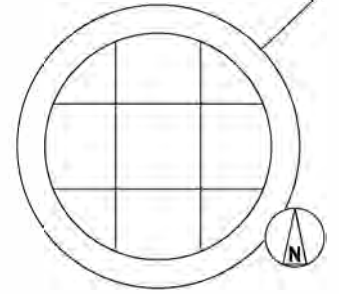
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**CARTHAGE
ENLARGED
UTILITY PLAN**

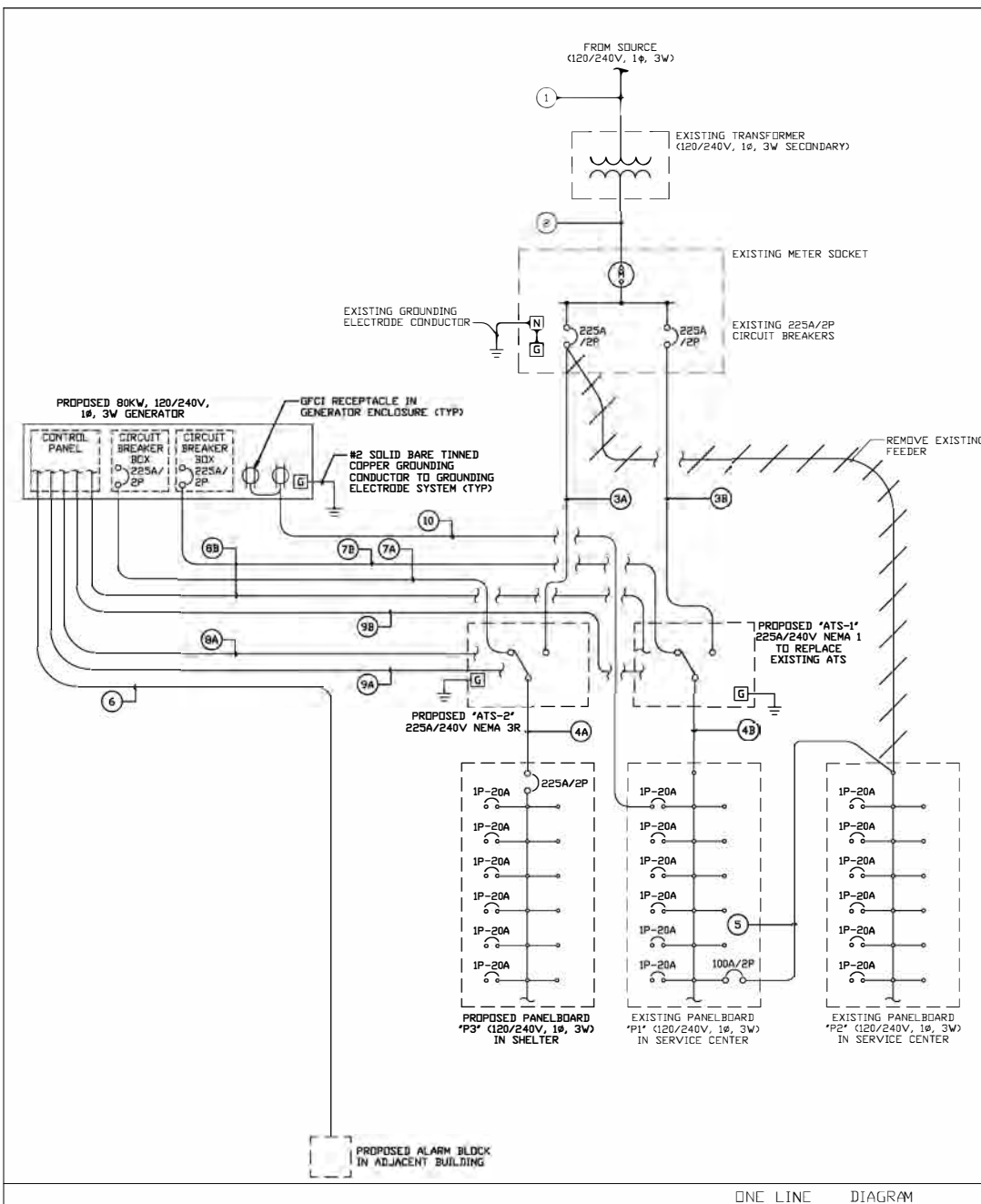
SHEET NUMBER:

E-102

30 OF 41 SHEETS

1" = 1'-0" (20"x34")
1/2" = 1'-0" (11"x17")





CARTHAGE ELECTRICAL SCHEDULE:

NO.	FROM	TO	CONFIGURATION	FUNCTION
1	SOURCE	TRANSFORMER	EXISTING	NORMAL POWER FEEDER TO TRANSFORMER
2	TRANSFORMER	METER/CIRCUIT BREAKER ENCLOSURE	EXISTING	NORMAL POWER FEEDER TO METER SOCKET
3A	METER/CIRCUIT BREAKER ENCLOSURE	NEMA 3R AUTOMATIC TRANSFER SWITCH 'ATS-2'	3#4/0, 1#4G, 2" C	NORMAL POWER FEEDER TO ATS
3B	METER/CIRCUIT BREAKER ENCLOSURE	NEMA 1 AUTOMATIC TRANSFER SWITCH 'ATS-1'	3#4/0, 1#4G, 2" C	NORMAL POWER FEEDER TO ATS
4A	'ATS-2'	'P3' PANELBOARD	3#4/0, 1#4G, 2" C	POWER FEEDER FROM ATS TO PANELBOARD
4B	'ATS-1'	'P1' PANELBOARD	3#4/0, 1#4G, 2" C	POWER FEEDER FROM ATS TO PANELBOARD
5	'P1' PANELBOARD	'P2' PANELBOARD	3#3, 1#8G, 1-1/4" C	POWER FEEDER FROM PANELBOARD TO PANELBOARD
6	GENERATOR	ALARM BLOCK	#22 UTP, 1" C (CABLE QUANTITY TBD)	GENERATOR STATUS AND ALARM REMOTE INDICATION
7A	GENERATOR	'ATS-2'	3#4/0, 1#4G, 2" C	EMERGENCY POWER FEEDER TO ATS
7B	GENERATOR	'ATS-1'	3#4/0, 1#4G, 2" C	EMERGENCY POWER FEEDER TO ATS
8A	'ATS-2'	GENERATOR	2#14	GENERATOR START CIRCUIT
8B	'ATS-1'	GENERATOR	2#14	GENERATOR START CIRCUIT
9A	'ATS-2'	ALARM BLOCK (VIA GENERATOR)	#22 UTP, 1" C (CABLE QUANTITY TBD)	LDCCP, ATS STATUS AND ALARM REMOTE INDICATION
9B	'ATS-1'	ALARM BLOCK (VIA GENERATOR)	#22 UTP, 1" C (CABLE QUANTITY TBD)	LDCCP, ATS STATUS AND ALARM REMOTE INDICATION
10	'P1' PANELBOARD	GFCI RECEPTACLES IN GENERATOR	2#12, 1#12G, 3/4" C	BATTERY CHARGER, BLOCK HEATER CIRCUIT

LEGEND:
 ——— EXISTING CONDUITS/EQUIPMENT
 ——— PROPOSED CONDUITS/EQUIPMENT

ONE LINE DIAGRAM

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 SAFETY, MISSOURI STATE
 HIGHWAY PATROL

MSHP TROOP D HQ & TROOP D
 SERVICE CENTER

RADIO TOWER REPLACEMENTS
 5190 GRAND AVN., CARTHAGE,
 MO

PROJECT # R2001-01

SITE NO: 6015
 ASSETT NO: 8136015002

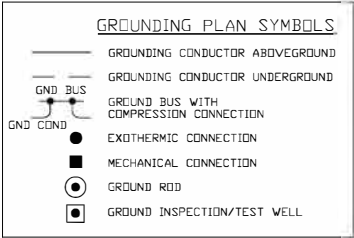
REVISION: D DATE: 09/28/2022
 REVISION: B DATE: 09/17/2021
 REVISION: C DATE: 01/10/2022
 ISSUE DATE: 12/15/2022

CAD DWG FILE: R2001-01 Troop D F-103.dwg
 DRAWN BY: EDA
 CHECKED BY: HSE
 DESIGNED BY: SSC

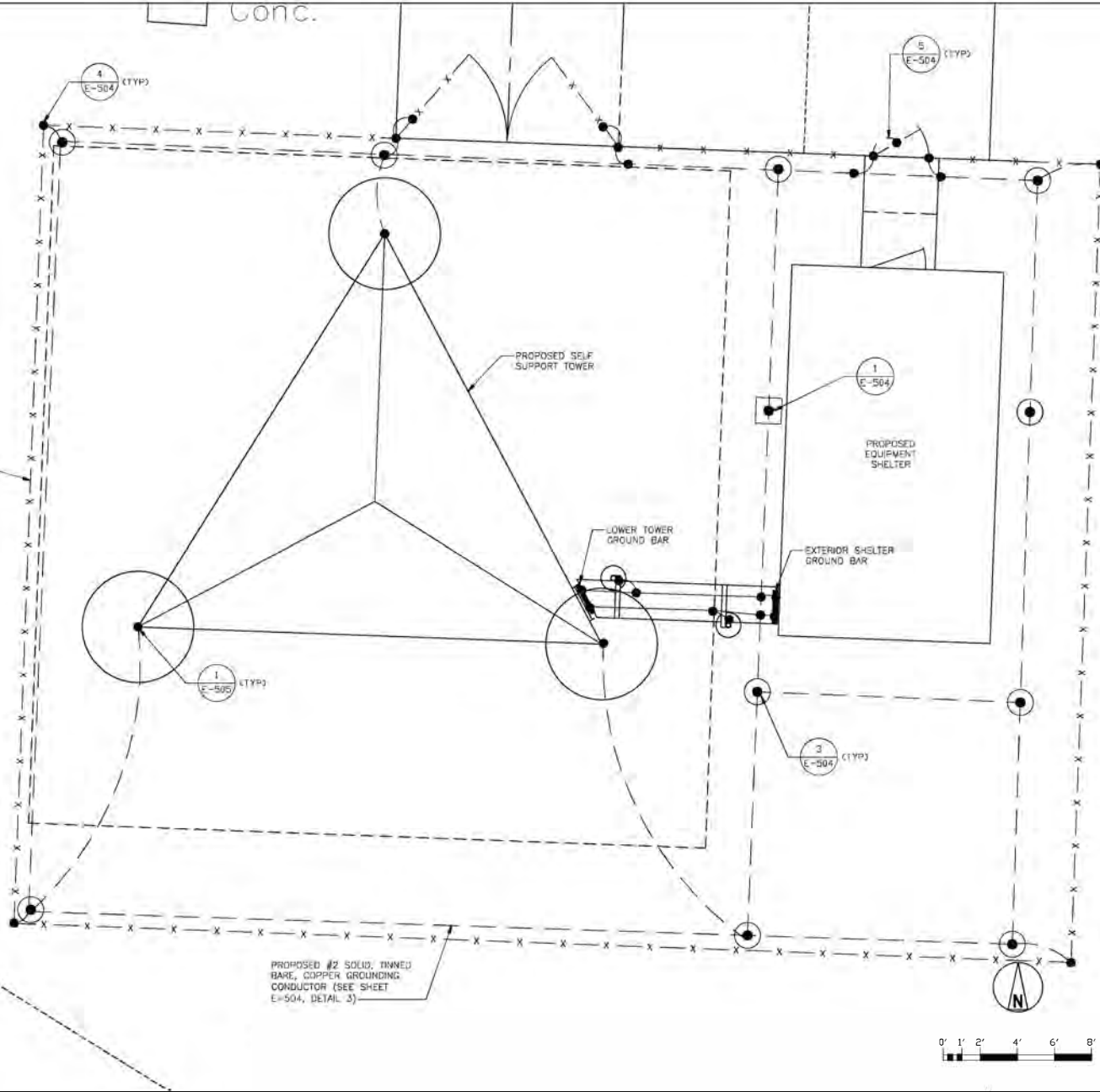
SHEET TITLE:
 CARTHAGE
 ONE-LINE
 DIAGRAM

SHEET NUMBER:

E-103



PROPOSED 6' HIGH CHAIN-LINK FENCE W/ 3 STRANDS OF BARBED WIRE (SEE SHEET A-501)



PROPOSED #2 SOLID, TINNED BARE, COPPER GROUNDING CONDUCTOR (SEE SHEET E-504, DETAIL 3)

NOTES:

1. SEE R2001-01 PROJECT MANUAL FOR OVERALL REQUIREMENTS.
2. RELEVANT TECHNICAL SPECIFICATIONS:
 - A. DIVISION 31 - EARTHWORK
 - B. DIVISION 26 - ELECTRICAL
 - C. DIVISION 33 - UTILITIES

GROUNDING PLAN

3/8" = 1'-0" (22' x 34")
3/16" = 1'-0" (11' x 17")

STATE OF MISSOURI
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HIGHWAY PATROL

MSHP TROOP D HQ & TROOP D
SERVICE CENTER

RADIO TOWER
REPLACEMENTS
5190 GRAND AVN., CARTHAGE,
MO

PROJECT # R2001-01
SITE NO. 6015
ASSETT NO. 8136015002

REVISION: D
DATE: 09/28/2022
REVISION: B
DATE: 09/17/2021
REVISION: C
DATE: 01/10/2022
ISSUE DATE: 12/15/2022

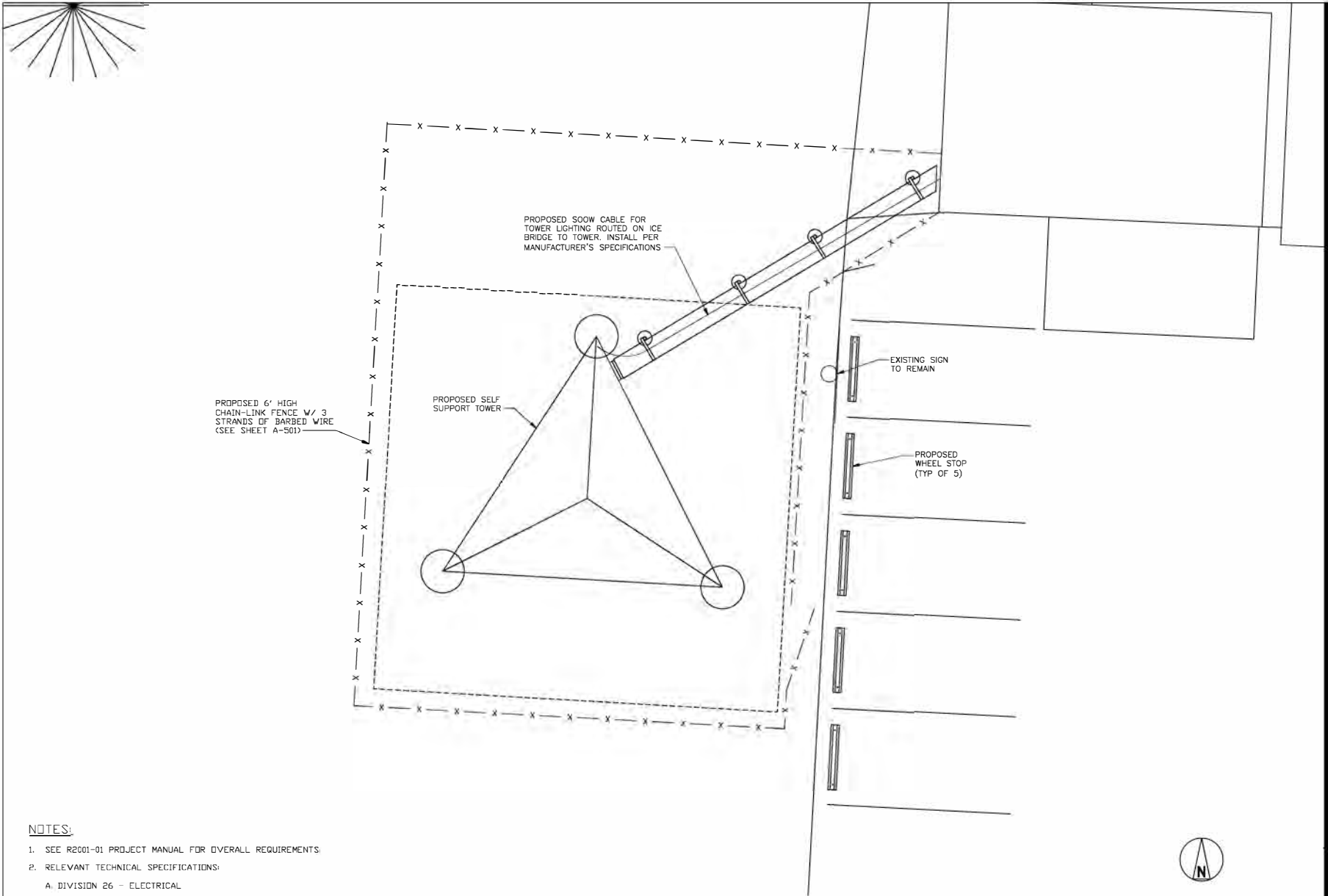
CAD DWG FILE: R2001-01 Troop D E-104.dwg
DRAWN BY: EDA
CHECKED BY: HSE
DESIGNED BY: SSC

SHEET TITLE:
CARTHAGE
GROUNDING
PLAN

SHEET NUMBER:

E-104

32 OF 41 SHEETS



PROPOSED 6' HIGH CHAIN-LINK FENCE W/ 3 STRANDS OF BARBED WIRE (SEE SHEET A-501)

PROPOSED 600V CABLE FOR TOWER LIGHTING ROUTED ON ICE BRIDGE TO TOWER, INSTALL PER MANUFACTURER'S SPECIFICATIONS

PROPOSED SELF SUPPORT TOWER

EXISTING SIGN TO REMAIN

PROPOSED WHEEL STOP (TYP OF 5)

NOTES:

1. SEE R2001-01 PROJECT MANUAL FOR OVERALL REQUIREMENTS.
2. RELEVANT TECHNICAL SPECIFICATIONS:
 - A. DIVISION 26 - ELECTRICAL
 - B. DIVISION 33 - UTILITIES

STATE OF MISSOURI
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GOVERNOR



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DEPARTMENT OF PUBLIC
SAFETY, MISSOURI STATE
HIGHWAY PATROL

MSHP TROOP D HQ & TROOP D
SERVICE CENTER

RADIO TOWER
REPLACEMENTS
3131 E. KEARNEY ST.,
SPRINGFIELD, MO

PROJECT # R2001-01
SITE NO. 6005
ASSET NO. 8136005006

REVISION: D	DATE: 09/28/2022
REVISION: B	DATE: 09/17/2021
REVISION: C	DATE: 01/10/2022
ISSUE DATE:	12/15/2022

CAD DWG FILE: R2001-01 Troop D F-105.dwg
DRAWN BY: EDA
CHECKED BY: HSE
DESIGNED BY: SSC

SHEET TITLE:
**SPRINGFIELD
UTILITY
PLAN**

SHEET NUMBER:

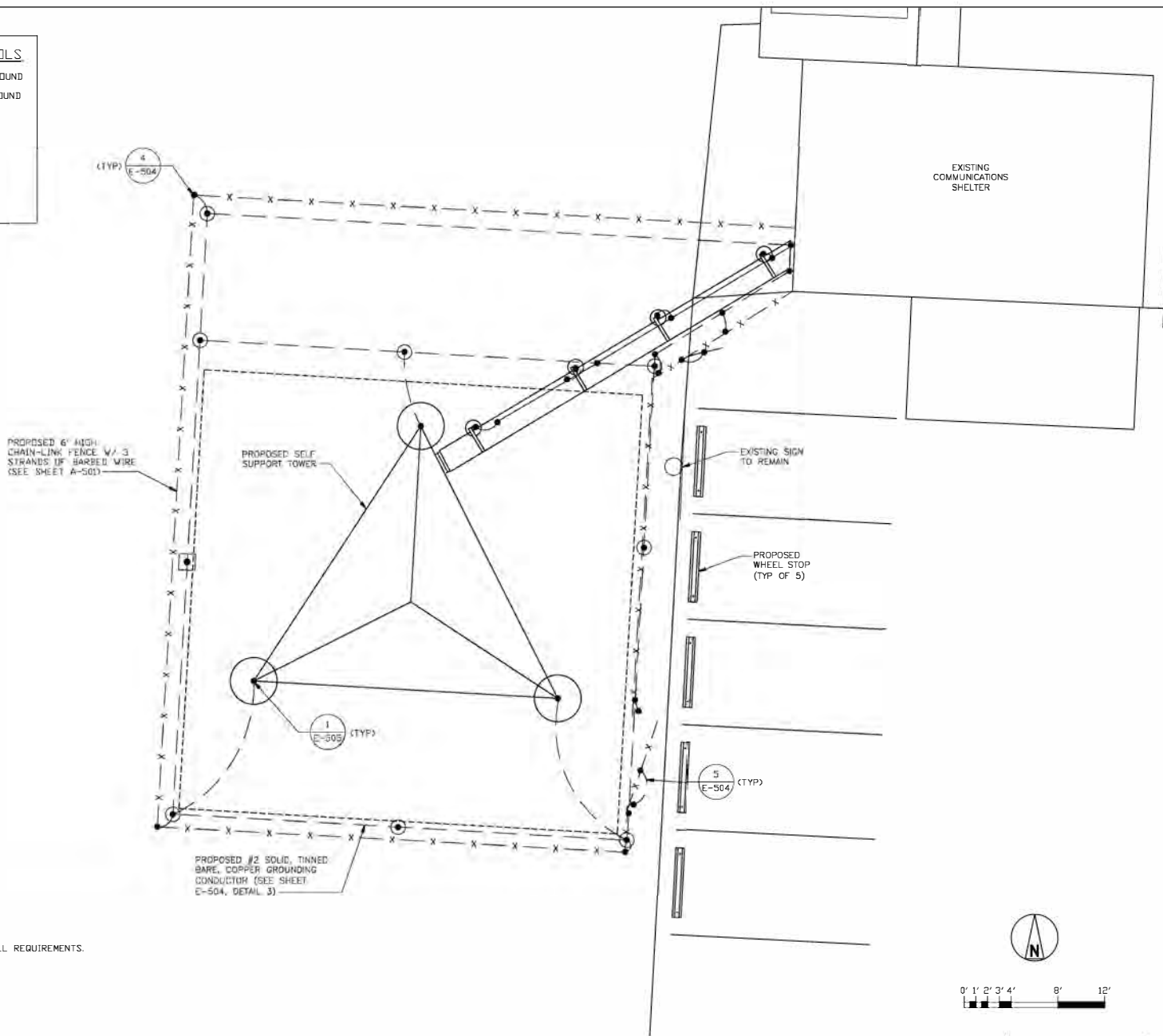
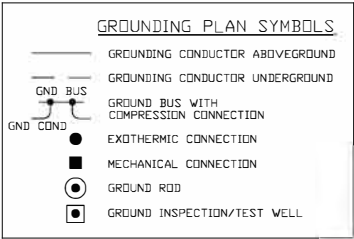
E-105

33 OF 41 SHEETS

UTILITY PLAN



3/16" = 1'-0" (22"x34")
3/32" = 1'-0" (11"x17")



PROPOSED 6' HIGH CHAIN-LINK FENCE W/ 3 STRANDS OF BARBED WIRE (SEE SHEET A-501)

PROPOSED SELF-SUPPORT TOWER

EXISTING SIGN TO REMAIN

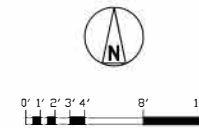
PROPOSED WHEEL STOP (TYP OF 5)

PROPOSED #2 SOLID, TINNED BARE, COPPER GROUNDING CONDUCTOR (SEE SHEET E-504, DETAIL 3)

NOTES:

1. SEE R2001-01 PROJECT MANUAL FOR OVERALL REQUIREMENTS.
2. RELEVANT TECHNICAL SPECIFICATIONS:
 - A. DIVISION 26 - ELECTRICAL
 - B. DIVISION 31 - EARTHWORK

GROUNDING PLAN



1/4" = 1'-0" (22"x34")
 1/8" = 1'-0" (41"x17")

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 HIGHWAY PATROL

MSHP TROOP D HQ & TROOP D
 SERVICE CENTER

RADIO TOWER
 REPLACEMENTS
 3131 E. KEARNEY ST.,
 SPRINGFIELD, MO

PROJECT # R2001-01
 SITE NO: 6005
 ASSET NO: 8136005006

REVISION: D
 DATE: 09/28/2022
 REVISION: B
 DATE: 09/17/2021
 REVISION: C
 DATE: 01/10/2022
 ISSUE DATE: 12/15/2022

CAD DWG FILE: R2001-01 Troop D E-106.dwg
 DRAWN BY: EDA
 CHECKED BY: HEC
 DESIGNED BY: SSC

SHEET TITLE:
 SPRINGFIELD
 GROUNDING
 PLAN

SHEET NUMBER:

E-106

34 OF 41 SHEETS



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MSHP TROOP D HQ &
TROOP D SERVICE
CENTER
RADIO TOWER
REPLACEMENTS

CARTHAGE, MO
SPRINGFIELD, MO

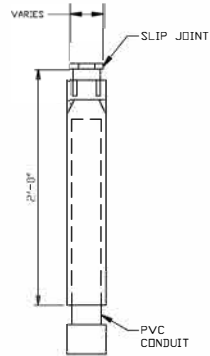
PROJECT # R2001-01
SITE NO(s): 6005 & 6015
ASSET NO(s): 8136015002
& 8136005006

REVISION: D
DATE: 09/28/2022
REVISION: B
DATE: 09/17/2021
REVISION: C
DATE: 01/10/2022
ISSUE DATE: 12/15/2022

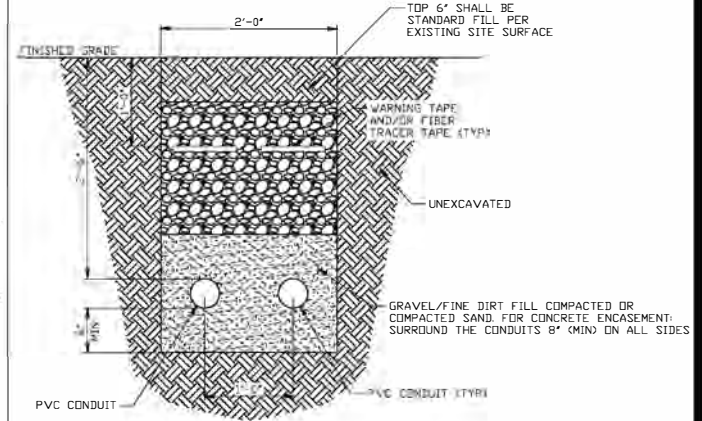
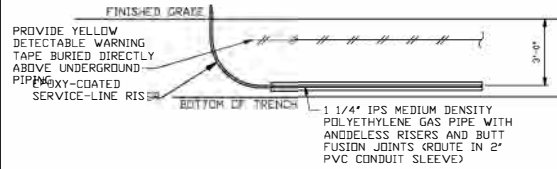
CAD DWG FILE: R2001-01 Troop D E-501.dwg
DRAWN BY: EDA
CHECKED BY: HBC
DESIGNED BY: SSC

SHEET TITLE:
UTILITY
DETAILS

SHEET NUMBER:
E-501



SIZE	STD. CTN. QTY.	TRAVEL LENGTH
1/2"	20	4'
3/4"	15	4'
1"	10	4'
1 1/4"	5	4'
1 1/2"	5	4'
2"	15	8'
2 1/2"	10	8'
3"	10	8'
3 1/2"	5	8'
4"	5	8'
5"	1	8'
6"	1	8'



NOTES:

- SEE R2001-01 PROJECT MANUAL FOR OVERALL REQUIREMENTS.
- RELEVANT TECHNICAL SPECIFICATIONS PERTINENT TO THIS DRAWING:
 - A. DIVISION 31 - EARTHWORK
 - B. DIVISION 26 - ELECTRICAL
 - C. DIVISION 33 - UTILITIES

NOTES:

- SEE R2001-01 PROJECT MANUAL FOR OVERALL REQUIREMENTS.
- RELEVANT TECHNICAL SPECIFICATIONS PERTINENT TO THIS DRAWING:
 - A. DIVISION 26 - ELECTRICAL

SLIP JOINT DETAIL

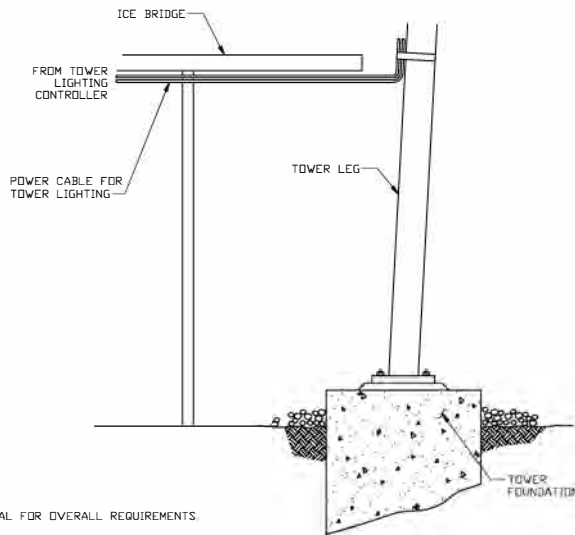
5

UNDERGROUND GAS PIPING DETAIL L

3

CONDUIT TRENCH DETAIL

1



NOTES:

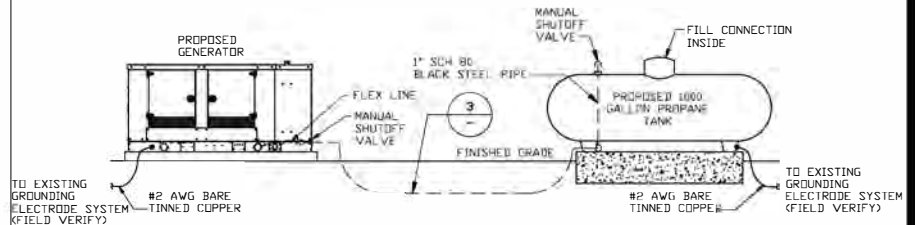
- SEE R2001-01 PROJECT MANUAL FOR OVERALL REQUIREMENTS.
- RELEVANT TECHNICAL SPECIFICATIONS PERTINENT TO THIS DRAWING:
 - A. DIVISION 26 - ELECTRICAL
 - B. DIVISION 33 - UTILITIES

TOWER LIGHTING CONDUIT DETAIL

4

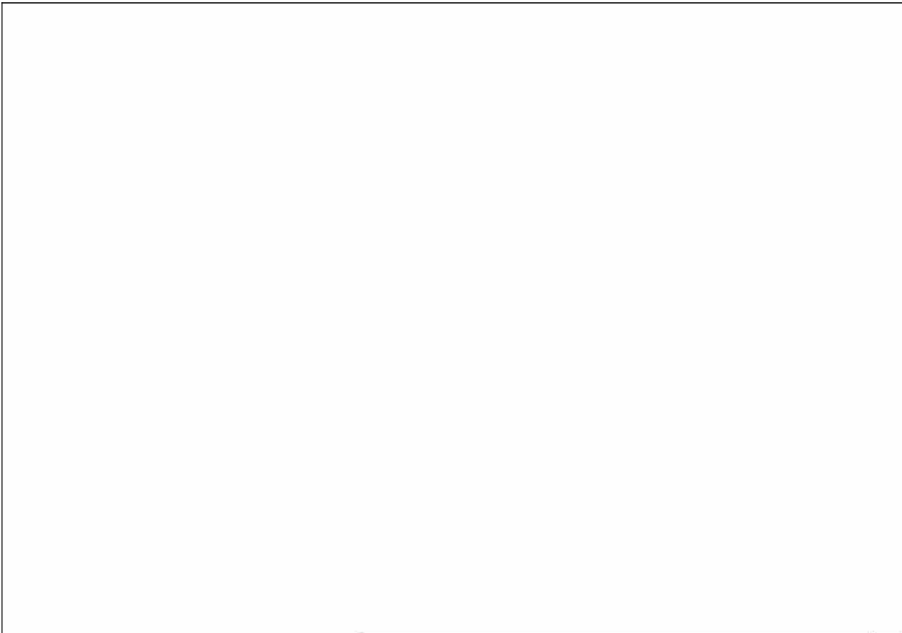
NOTES:

- FURNISH AND INSTALL ALL ITEMS IN ACCORDANCE WITH NFPA 58 AND LOCAL REGULATIONS.
- MAINTAIN A MINIMUM 10 FOOT CLEARANCE BETWEEN STORAGE TANK FILL CONNECTION AND ANY SOURCE OF IGNITION OR PROPERTY LINE.
- COAT ALL EXTERIOR SURFACES OF BLACK STEEL PIPE WITH A BITUMASTIC MATERIAL IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.



PIPING SCHEDULE

2



DETAIL NOT USED

3



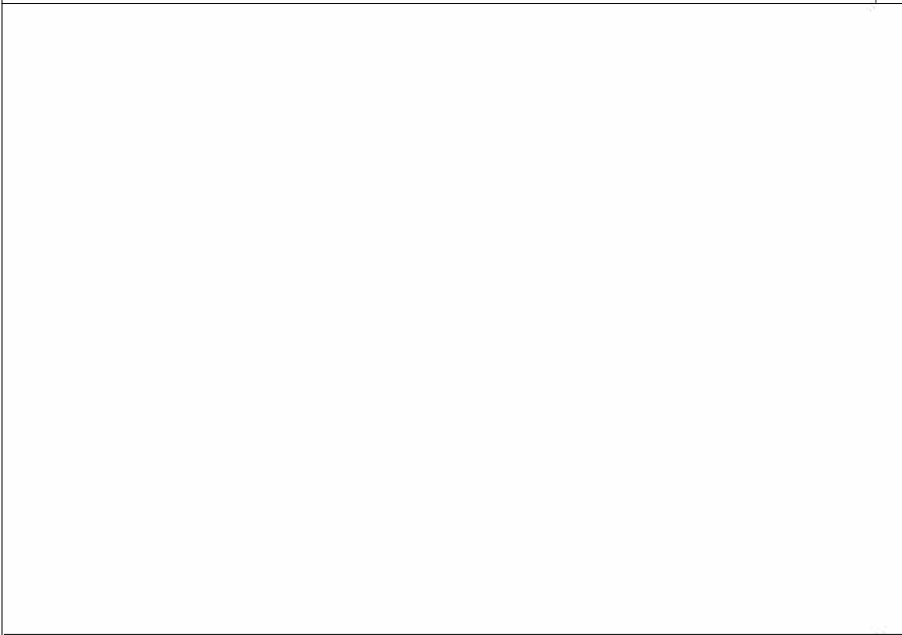
NEMA 1 ATS SPECIFICATIONS:

DIMENSIONS: 48"Hx22"Wx14.3"D
WEIGHT: 115 LBS
VOLTAGE: 120/240
AMPERAGE: 225

TYPICAL FOR NEMA 1
AND 3R CABINETS.

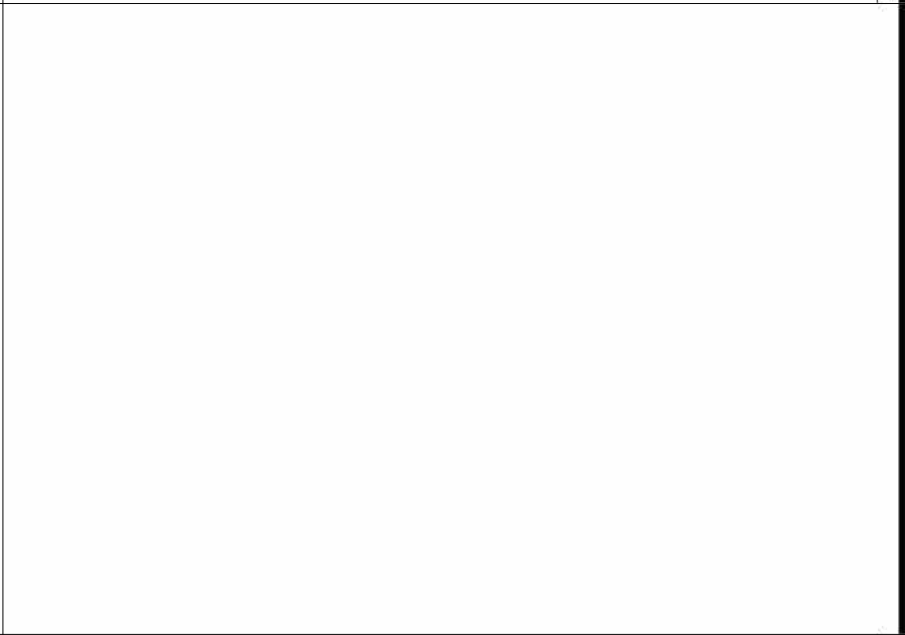
AUTOMATIC TRANSFER SWITCH

1



DETAIL NOT USED

4



DETAIL NOT USED

2

STATE OF MISSOURI
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HIGHWAY PATROL

MSHP TROOP D HQ & TROOP D
SERVICE CENTER

RADIO TOWER
REPLACEMENTS
5190 GRAND AVN.,
CARTHAGE, MO

PROJECT # R2001-01
SITE NO: 6015
ASSET NO: 8136015002

REVISION: A _____
DATE: 09/28/2022 _____
REVISION: B _____
DATE: 09/17/2021 _____
REVISION: C _____
DATE: 01/10/2022 _____
ISSUE DATE: 12/15/2022

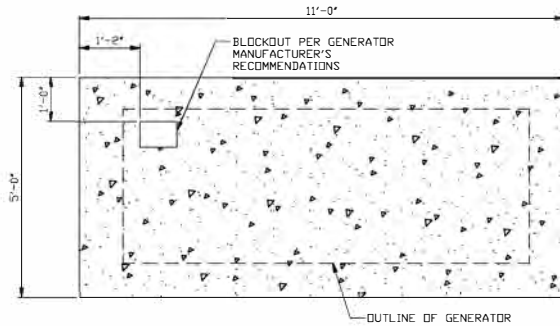
DRAWN BY: EDA _____
CHECKED BY: HSE _____
DESIGNED BY: SSC _____

SHEET TITLE:
ATS
DETAILS

SHEET NUMBER:
E-502

36 OF 41 SHEETS

NOTE:
SEE ELECTRICAL PLAN (SHEET E-102) FOR GENERATOR LAYOUT/ORIENTATION.



GENERATOR SPECIFICATIONS:
FUEL TYPE: PROPANE
GEN SIZE (kW): 80
INDOOR/OUTDOOR: OUTDOOR
DIMENSIONS: 110.2"L x 44.1"W x 57.8"H

FOUNDATION PLAN AND GENERAL NOTES

3

GENERATOR INFORMATION

1



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MISSOURI STATE
HIGHWAY PATROL

MSHP TROOP D HQ &
TROOP D SERVICE
CENTER

RADIO TOWER
REPLACEMENTS
5190 GRAND AVN.,
CARTHAGE, MO

PROJECT # R2001-01
SITE NO: 6015
ASSET NO: 8136015002

REVISION: D
DATE: 09/28/2022
REVISION: B
DATE: 09/17/2021
REVISION: C
DATE: 01/10/2022
ISSUE DATE: 12/15/2022

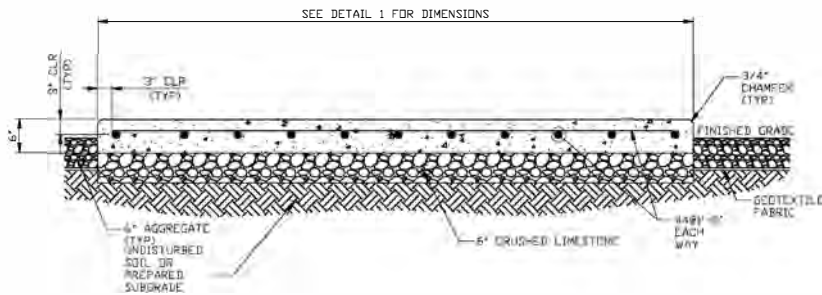
CAD DWG FILE: R2001-01 Troop D E-503.dwg
DRAWN BY: EDA
CHECKED BY: HEC
DESIGNED BY: SSC

SHEET TITLE:
CARTHAGE
GENERATOR
DETAILS

SHEET NUMBER:

E-503

37 OF 41 SHEETS

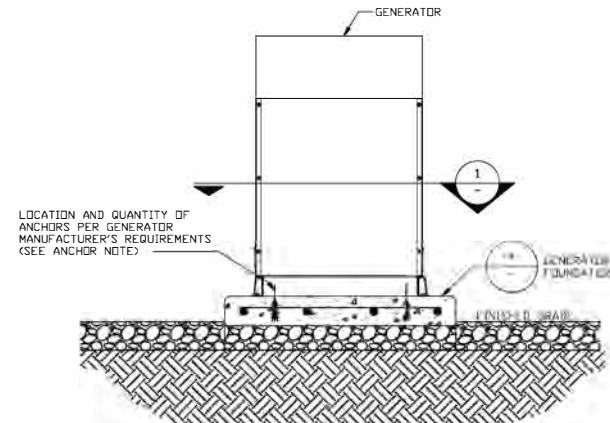


- NOTES:**
- SEE R2001-01 PROJECT MANUAL FOR OVERALL REQUIREMENTS.
 - RELEVANT TECHNICAL SPECIFICATIONS PERTINENT TO THIS DRAWING:
 - A. DIVISION 31 - EARTHWORK
 - B. DIVISION 3 - CONCRETE

GENERATOR FOUNDATION

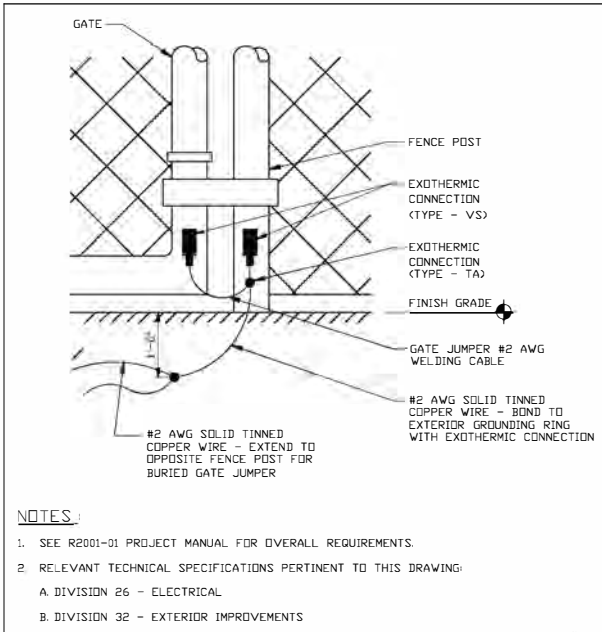
4

ANCHOR NOTE:
ANCHOR GENERATOR BASE WITH 5/8" HILTI HAS SUPER RODS USING HIT-HY 200 ADHESIVE (EMBEDMENT = 3 1/8") (INSTALL PER MANUFACTURER'S RECOMMENDATIONS)

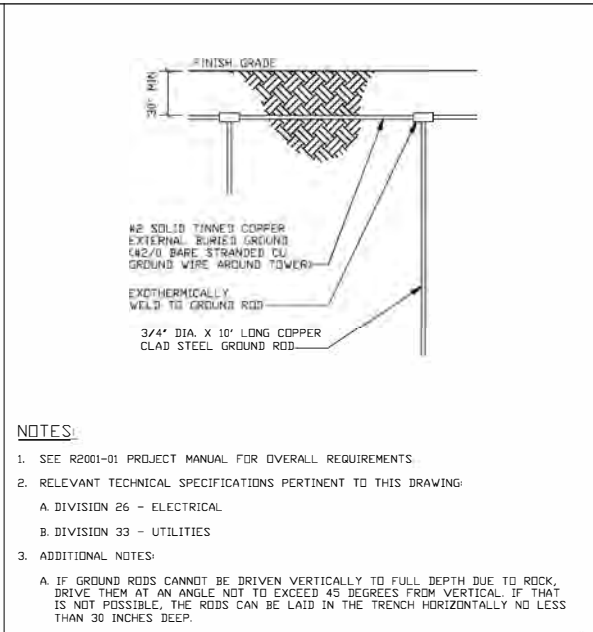


GENERATOR ANCHORS

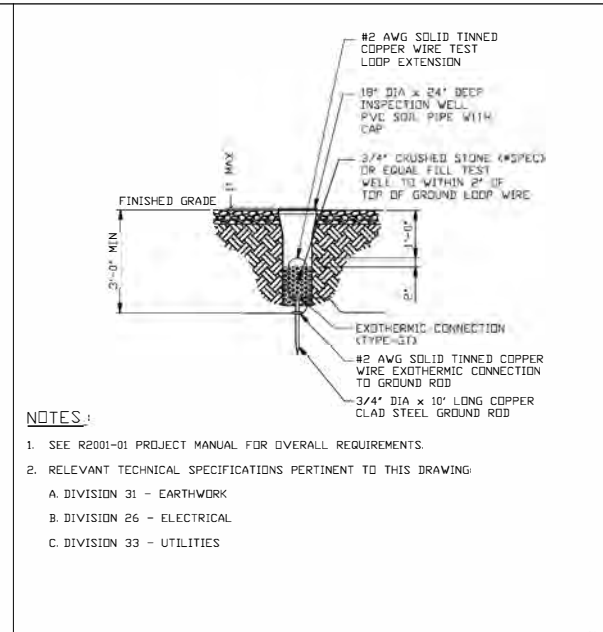
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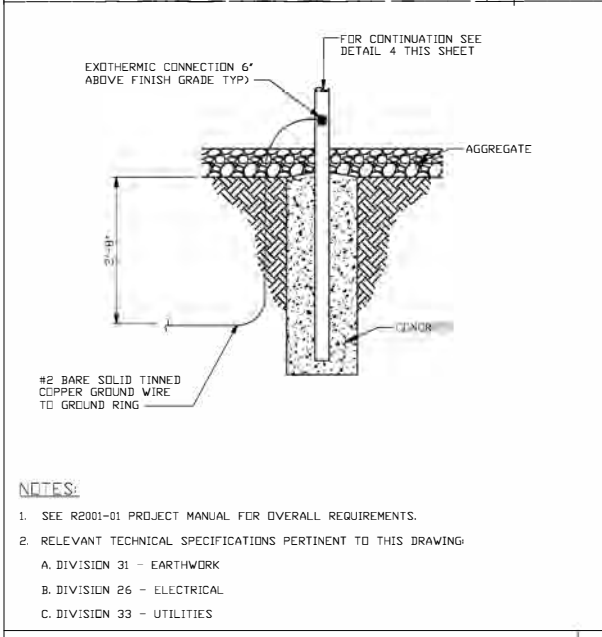
SWN GATE GROUNDING DETAIL (TYP) 5



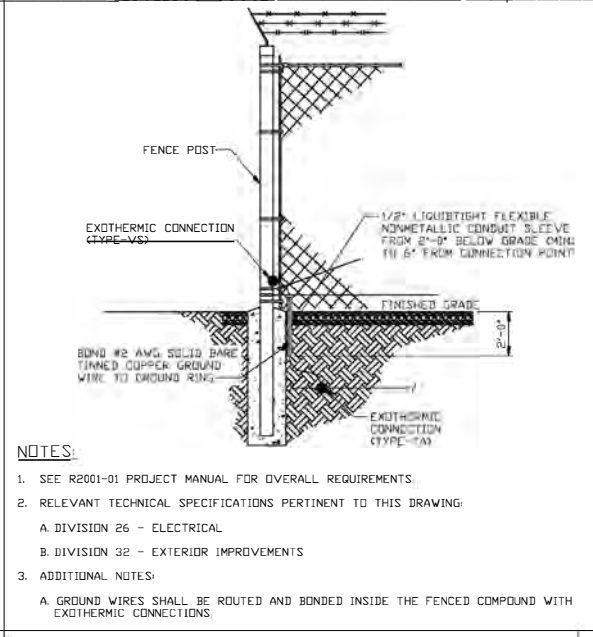
GROUND ROD DETAIL 3



IN SECTION E'S WELL 1



ICE BRD & SUPPORT POST GROUNDING DETAIL (TYP) 6



FENCE GROUNDING DETAIL 4

DETAIL NOT USED 2

- NOTES:**
- SEE R2001-01 PROJECT MANUAL FOR OVERALL REQUIREMENTS.
 - RELEVANT TECHNICAL SPECIFICATIONS PERTINENT TO THIS DRAWING:
 - A. DIVISION 26 - ELECTRICAL
 - B. DIVISION 32 - EXTERIOR IMPROVEMENTS

- NOTES:**
- SEE R2001-01 PROJECT MANUAL FOR OVERALL REQUIREMENTS.
 - RELEVANT TECHNICAL SPECIFICATIONS PERTINENT TO THIS DRAWING:
 - A. DIVISION 26 - ELECTRICAL
 - B. DIVISION 33 - UTILITIES
 - ADDITIONAL NOTES:
 - A. IF GROUND RODS CANNOT BE DRIVEN VERTICALLY TO FULL DEPTH DUE TO ROCK, DRIVE THEM AT AN ANGLE NOT TO EXCEED 45 DEGREES FROM VERTICAL. IF THAT IS NOT POSSIBLE, THE RODS CAN BE LAID IN THE TRENCH HORIZONTALLY NO LESS THAN 30 INCHES DEEP.

- NOTES:**
- SEE R2001-01 PROJECT MANUAL FOR OVERALL REQUIREMENTS.
 - RELEVANT TECHNICAL SPECIFICATIONS PERTINENT TO THIS DRAWING:
 - A. DIVISION 31 - EARTHWORK
 - B. DIVISION 26 - ELECTRICAL
 - C. DIVISION 33 - UTILITIES



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CARTHAGE, MO
SPRINGFIELD, MO

PROJECT # R2001-01
SITE NO(s): 6015 & 6005
ASSET NO(s): 8136015002
& 8136005006

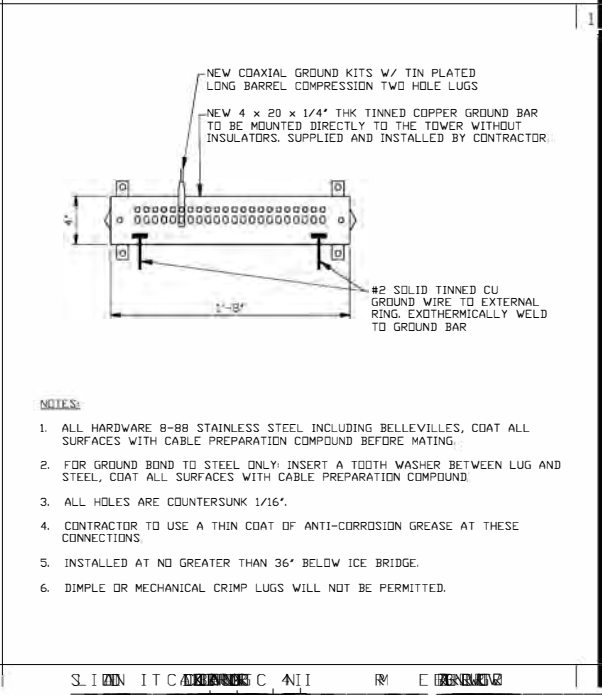
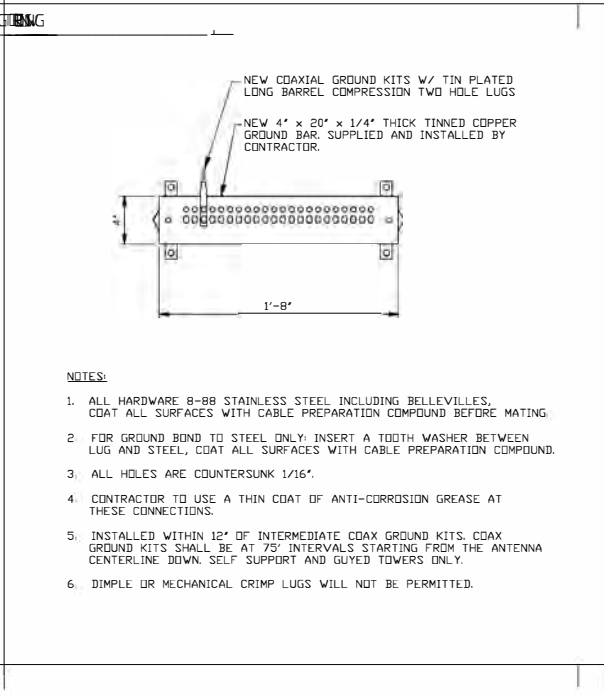
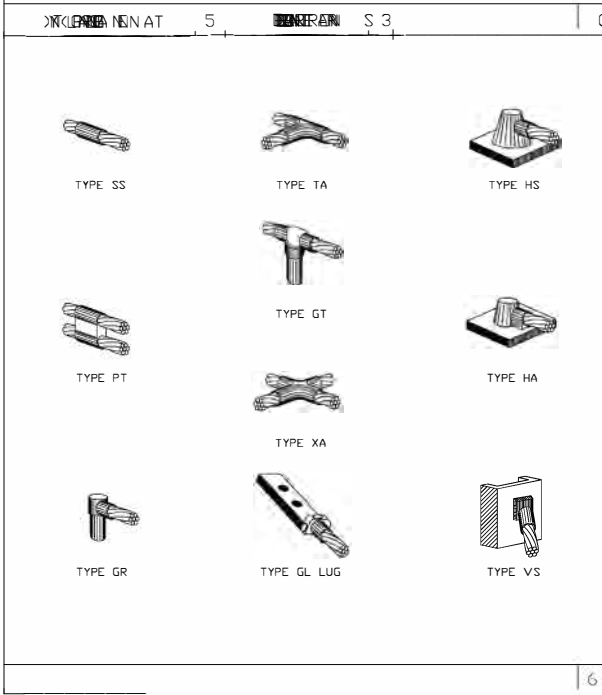
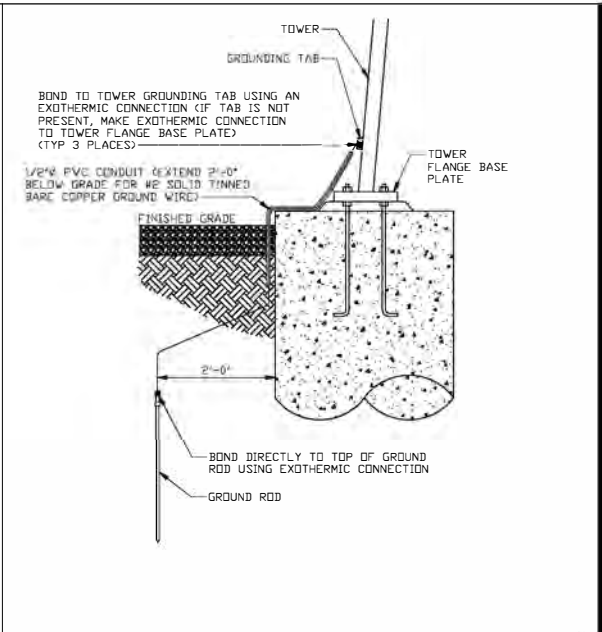
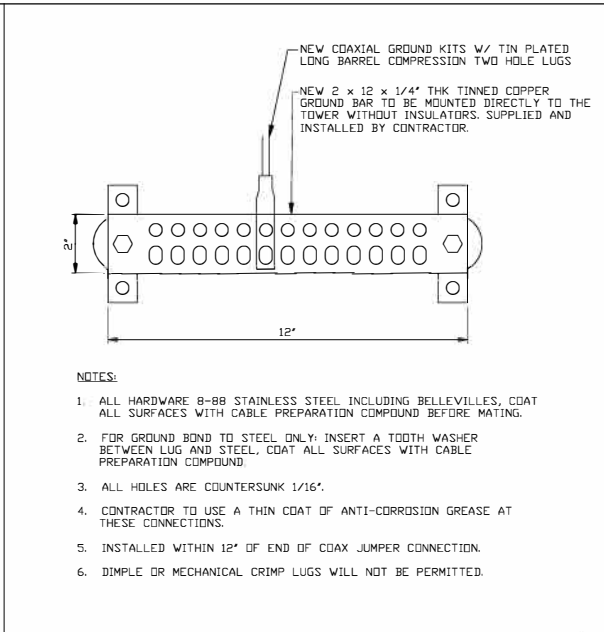
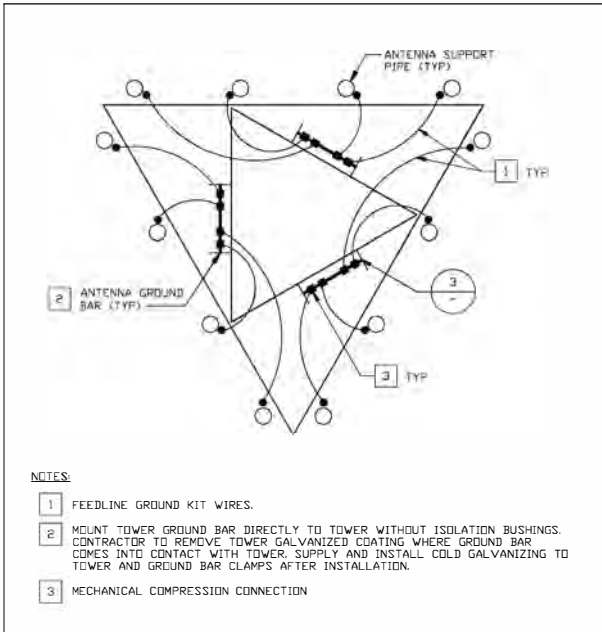
REVISION D	DATE: 09/28/2022
REVISION B	DATE: 09/17/2021
REVISION C	DATE: 07/10/2022
DATE: 12/15/2022	

CAD DWG FILE: R2001-01 Troop D E-504.dwg
DRAWN BY: EDA
CHECKED BY: HSE
DESIGNED BY: SSC

SHEET TITLE:
**GROUNDING
DETAILS
(1 OF 2)**

SHEET NUMBER:

E-504
38 OF 41 SHEETS



STATE OF MISSOURI
MICHAEL L. PARSON,
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CENTER
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REPLACEMENTS

CARTHAGE, MO
SPRINGFIELD, MO

SITE NO(s): 6015 & 6005
ASSET NO(s): 8136015002
& 8136005006
PROJECT # R2001-01

REVISION: D DATE: 09/28/2022
REVISION: E DATE: 09/17/2021
REVISION: C DATE: 01/10/2022
ISSUE DATE: 12/15/2022

CAD DWG FILE: R2001-01 Troop D E-505.dwg
DRAWN BY: EDA
CHECKED BY: HSE
DESIGNED BY: SSC

SHEET TITLE:
GROUNDING
DETAILS
(2 OF 2)

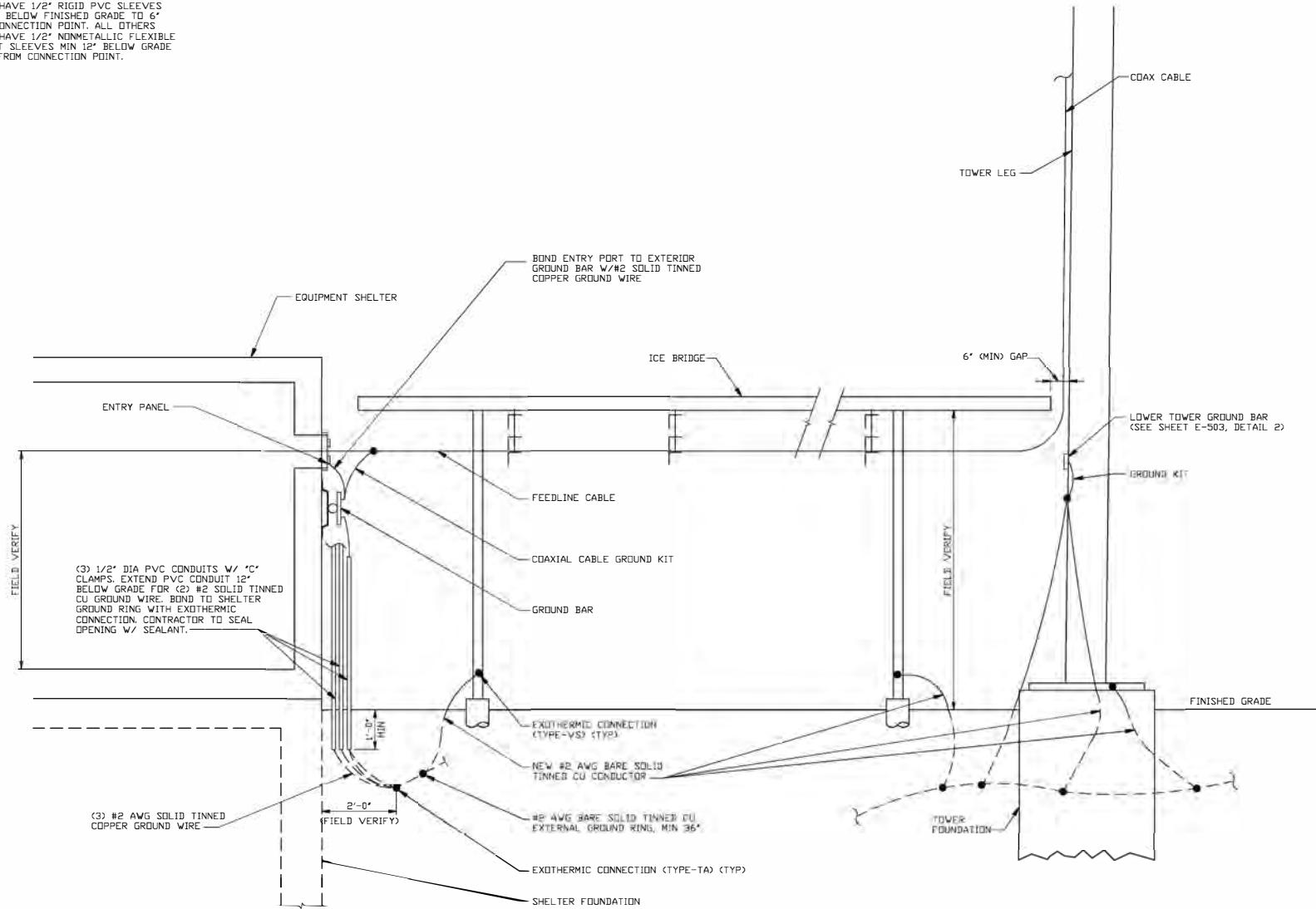
SHEET NUMBER:

E-505

2 39 OF 41 SHEETS

NOTE:

- GROUND LEADS ENTERING THE SHELTER SHALL HAVE 1/2" RIGID PVC SLEEVES 12" MIN BELOW FINISHED GRADE TO 6" FROM CONNECTION POINT. ALL OTHERS SHALL HAVE 1/2" NONMETALLIC FLEXIBLE CONDUIT SLEEVES MIN 12" BELOW GRADE TO 6" FROM CONNECTION POINT.



GROUNDING RISER DIAGRAM



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PROJECT # R2001-01
SITE NO(s): 6015 & 6005
ASSET NO(s): 8136015006
& 8136005006

REVISION: D
DATE: 09/28/2022
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ISSUE DATE: 12/15/2022

CAD DWG FILE: R2001-01 Troop D E-506.dwg
DRAWN BY: EDA
CHECKED BY: HSE
DESIGNED BY: SSC

SHEET TITLE:

TYPICAL
GROUNDING
RISER DIAGRAM

SHEET NUMBER:

E-506

40 OF 41 SHEETS



① P3 225A, PANELBOARD 120/240VAC, 1Ø, 3W, 60Hz

LOAD	BREAKER			225 AMP MAIN BREAKER			BREAKER				LOAD		
	POLES	WIRE SIZE	TRIP	VOLT			TRIP	WIRE SIZE	POLES	VOLT			
				A	B	C						A	B
HVAC SPLIT SYSTEM 1	2	12	20			1	2			30	10	2	SURGE ARRESTOR, APEX IMAX SPD MODEL 1101-808 (PBD-BRAND)
		12	20			3	4			30	10		
HVAC SPLIT SYSTEM 2	2	12	20			5	6			30	10		
		12	20			7	8			20	12	1	SPARE
DUPLEX RECEPTACLES	1	12	20			9	10			20	12	1	SPARE
DUPLEX RECEPTACLES	1	12	20			11	12			20	12	1	SPARE
GFI RECEPTACLE	1	12	20			13	14			20	12	1	SPARE
SMOKE DETECTOR	1	12	20			15	16						
INT/EXT LIGHTS	1	12	20			17	18						
						19	20						
						21	22						
						23	24						
						25	26						
						27	28						
						29	30						
						31	32						
						33	34						
						35	36						
						37	38						
						39	40						
						41	42						
VA PER PHASE						VA PER PHASE							
										TOTAL VOLT AMPERES			
										TOTAL AMPS PER PHASE			
										AMPS x 125%			
										x 110% FOR MAIN			

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REVISION: C
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ISSUE DATE: 01/10/2022

CAD DWG FILE: R2001-01 Troop D E-601.dwg
DRAWN BY: EDA
CHECKED BY: HSE
DESIGNED BY: SSC

SHEET TITLE:
CARTHAGE
SHELTER PANEL
SCHEDULE

SHEET NUMBER:

E-601
41 OF 41 SHEETS