



APPLICANT SITE NAME:
LEE'S SUMMIT FIRE
STATION

APPLICANT SITE NUMBER:
A5C0028A

DRAWING DESCRIPTION:
FINAL CD

APPROVAL SIGNATURE BLOCK
The following parties have reviewed these documents:

| | | |
|------------------------------|--|-------|
| Site Acquisition Specialist: | Approved: <input type="checkbox"/> Rejected: <input type="checkbox"/> | Date: |
| RF Engineer: | Approved: <input type="checkbox"/> Rejected: <input type="checkbox"/> | Date: |
| Construction Manager: | Approved: <input type="checkbox"/> Rejected: <input type="checkbox"/> | Date: |
| Operations: | Approved: <input type="checkbox"/> Rejected: <input type="checkbox"/> | Date: |
| Project Manager: | Approved: <input type="checkbox"/> Rejected: <input type="checkbox"/> | Date: |

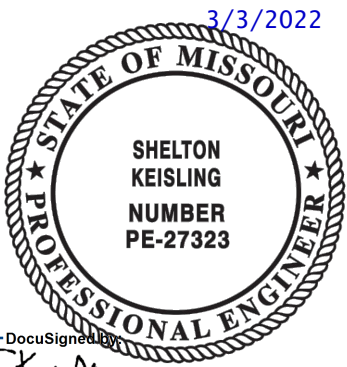


APPLICANT SITE NAME:
LEE'S SUMMIT
FIRE STATION

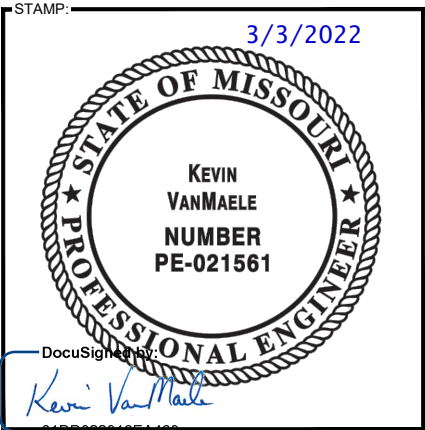
APPLICANT SITE NUMBER:
A5C0028A

T-MOBILE PROJECT TYPE:
FOA FOR C-BAND
DOD

DRAWING DESCRIPTION:
FINAL CD



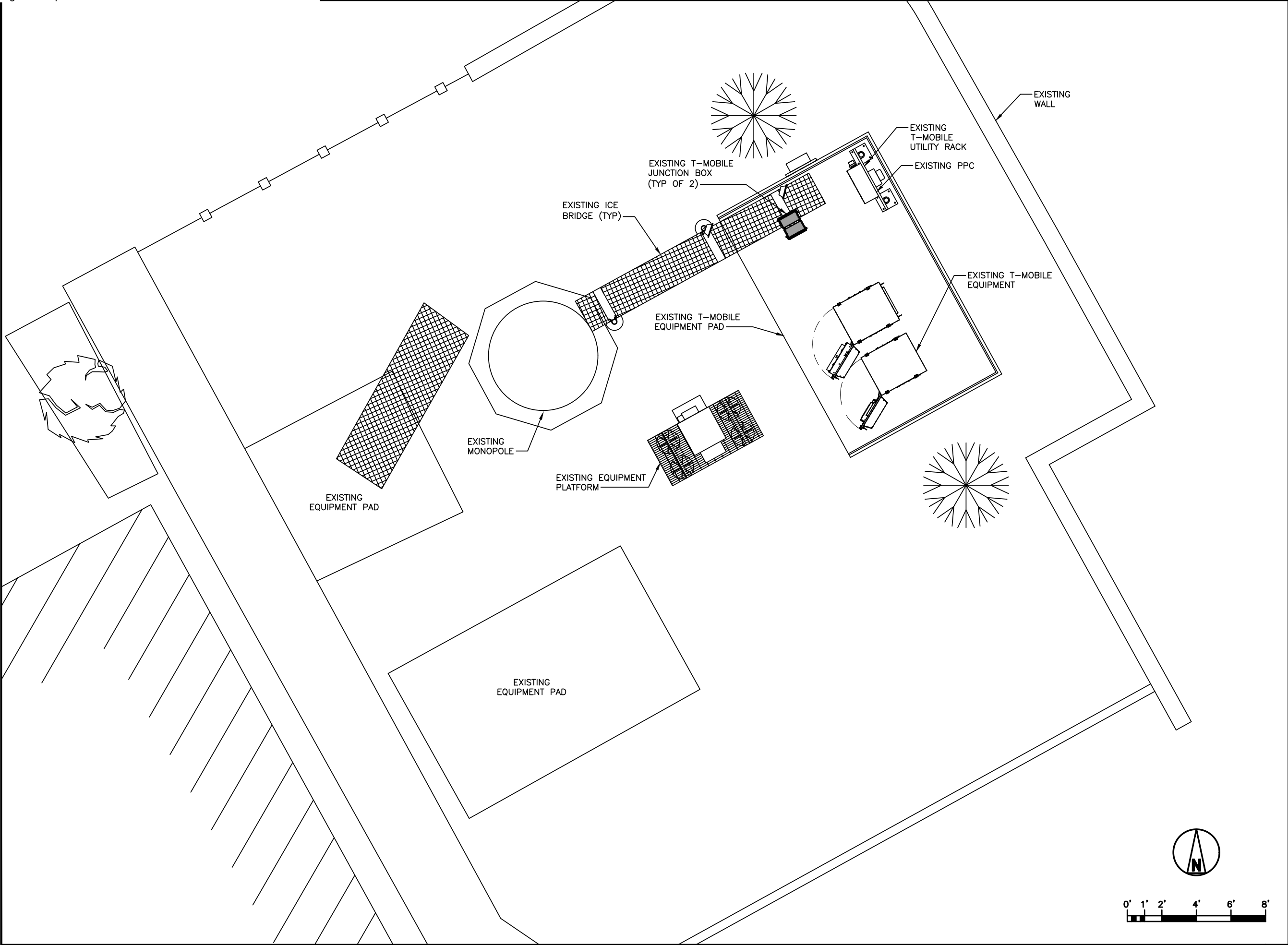
DocuSigned By:
Shelton Keisling
EF94D8A5B80B407...



DocuSigned By:
Kevin VanMaele

| ENGINEERING LICENSE: | | | |
|--|---------------|-------------|---|
| STATE OF MISSOURI | | | |
| STATE CERTIFICATE OF AUTHORIZATION # EF-2791 | | | |
| ENGINEER: | PE#: | DISCIPLINE: | |
| KMV KEVIN M. VANMAELE | PE-021561 | CIVIL | C |
| REJ ROBERT E. JENSEN | PE-028974 | CIVIL | C |
| CG CHRISTOPHER GIANNOTTI | PE-2020038653 | CIVIL | C |
| SDK SHELTON D. KEISLING | PE-27323 | ELECTRICAL | E |
| TMS TERRANCE M. SUPER | PE-18521 | ELECTRICAL | E |

| AERIAL MAP | | SITE INFORMATION | PROJECT INFORMATION | DRAWING INDEX | | | |
|-----------------------|--|---------------------------|---|---------------------------------|------------------|---------------------------------|-----|
| | | <u>SITE ADDRESS:</u> | 209 S.E. DOUGLAS ST LEE'S SUMMIT, MO 64063 | <u>PROJECT:</u> | <u>SHEET NO.</u> | <u>DISC.</u> | |
| | | <u>COUNTY:</u> | JACKSON | <u>FOA FOR C-BAND DOD</u> | T-1.0 | C/E | |
| | | <u>PROPERTY OWNER:</u> | CITY OF LEE'S SUMMIT 220 GREEN ST LEE'S SUMMIT, MO 64063 | <u>RFDS CONFIGURATION:</u> | | | |
| | | <u>TOWER INFORMATION:</u> | LATITUDE: 38.913922° N (NAD 83) LONGITUDE: 94.376416° W (NAD 83) GROUND ELEV: 1,029' AMSL TOWER HEIGHT: 180'-0" AGL TOWER TYPE: MONOPOLE APPLICANT CL: 159'-0" AGL | <u>56791EZ_SR_DOD</u> | A-1.0 | OVERALL SITE PLAN | C |
| | | <u>APPLICANT:</u> | T-MOBILE 12980 S. FOSTER ST, STE 200 OVERLAND PARK, KS 66213 | <u>RFDS DATE:</u> | A-2.0 | TOWER ELEVATION & ANTENNA PLANS | C |
| | | | | <u>11/23/21</u> | A-3.0 | ANTENNA CONFIGURATION KEY | C |
| | | | | <u>STRUCTURAL COMPANY:</u> | A-4.0 | NSN CONFIGURATION DIAGRAM | C |
| | | | | <u>SSC INC</u> | A-5.0 | ANTENNA ONE-LINE DIAGRAM | C |
| | | | | <u>STRUCTURAL REPORT #:</u> | A-6.0 | EQUIPMENT DETAILS | C/E |
| | | | | <u>MO-0552-E</u> | SP-1.0 | SPECIFICATIONS (1 OF 3) | C |
| | | | | <u>STRUCTURAL DATE:</u> | SP-2.0 | SPECIFICATIONS (2 OF 3) | E |
| | | | | <u>02/09/22</u> | SP-2.1 | SPECIFICATIONS (3 OF 3) | E |
| | | | | <u>MOUNT ANALYSIS COMPANY:</u> | | | |
| | | | | <u>SSC INC</u> | | | |
| | | | | <u>MOUNT ANALYSIS REPORT #:</u> | | | |
| | | | | <u>MO-0552-E</u> | | | |
| | | | | <u>MOUNT ANALYSIS DATE:</u> | | | |
| | | | | <u>02/09/22</u> | | | |
| SITE LOCATION QR CODE | | JURISDICTION COMPLIANCE | | | | | |
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| CONSULTING TEAM | | | | | | | |
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OVERALL SITE PLAN

STAMP: 3/3/2022

STATE OF MISSOURI

KEVIN VANMAELE

NUMBER PE-021561

PROFESSIONAL ENGINEER

DocuSign Envelope ID: B9208269-686E-43D9-8ECF-8B9408300FFF

Kevin VanMaele

ENGINEERING LICENSE:

STATE OF MISSOURI

STATE CERTIFICATE OF AUTHORIZATION # EF-2791

| | | |
|--------------------------|---------------|--------------|
| ENGINEER: | PE#: | DISCIPLINE: |
| KMV KEVIN M. VANMAELE | PE-021561 | CIVIL C |
| REJ ROBERT E. JENSEN | PE-028974 | CIVIL C |
| CG CHRISTOPHER GIANNOTTI | PE-2020038653 | CIVIL C |
| SDK SHELTON D. KEISLING | PE-27323 | ELECTRICAL E |
| TMS TERRANCE M. SUPER | PE-18521 | ELECTRICAL E |



PLANS PREPARED FOR:

T-Mobile

PLANS PREPARED BY:

SSC

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SUBMITTALS:

| DESCRIPTION | DATE | BY | REV |
|-------------------------|----------|-----|-----|
| ISSUED FOR REVIEW | 02/03/22 | FAC | A |
| ISSUED FOR CONSTRUCTION | 03/03/22 | FAC | 0 |
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APPLICANT SITE NAME:

LEE'S SUMMIT FIRE STATION

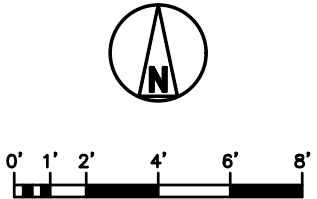
APPLICANT SITE NUMBER:

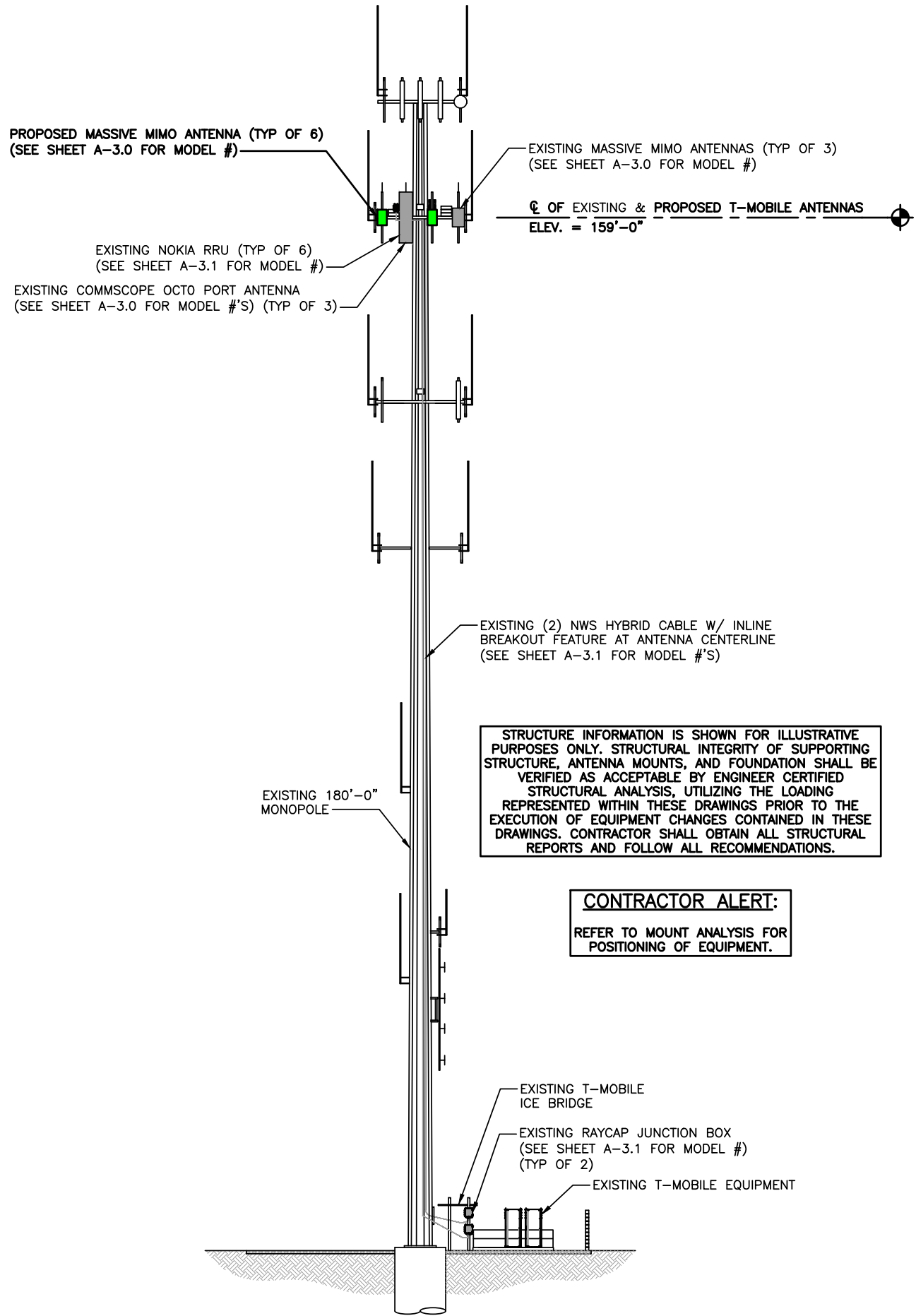
A5C0028A

SITE ADDRESS:

209 S.E. DOUGLAS ST
LEE'S SUMMIT, MO 64063

| | |
|--------------------|----------|
| SHEET DESCRIPTION: | SHEET #: |
| OVERALL SITE PLAN | A-1.0 |



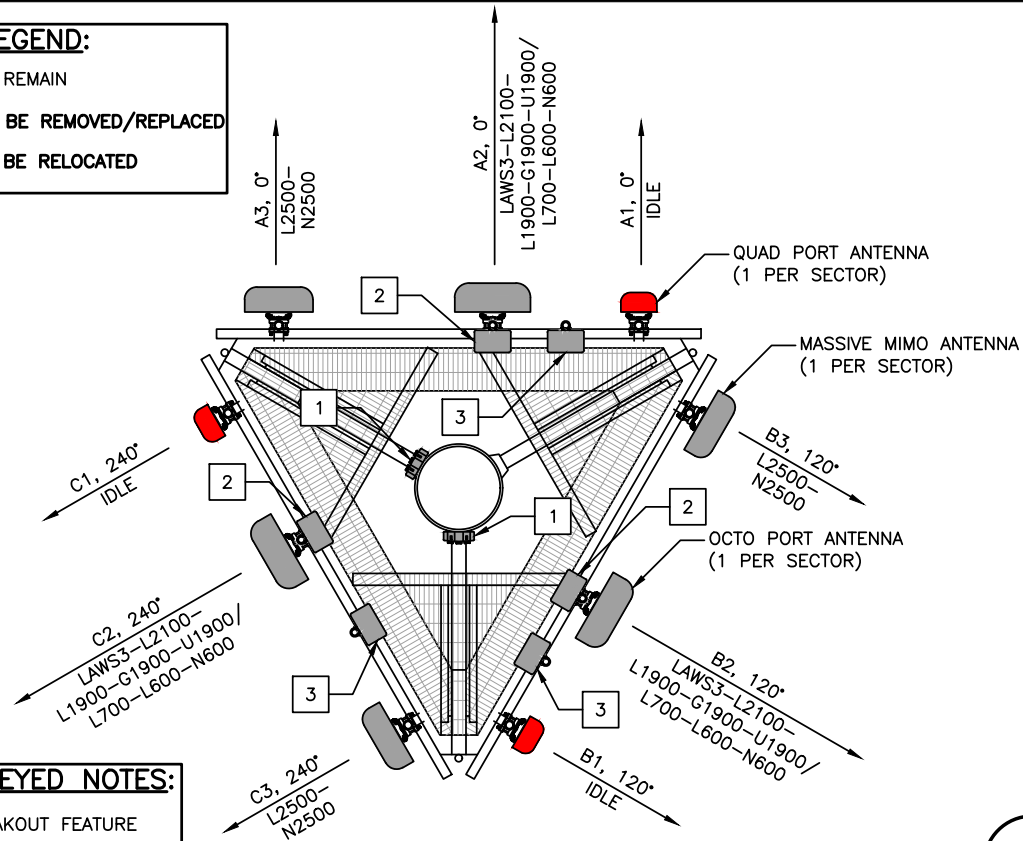


TOWER ELEVATION

3

EQUIPMENT LEGEND:

- EXISTING TO REMAIN
- EXISTING TO BE REMOVED/REPLACED
- EXISTING TO BE RELOCATED

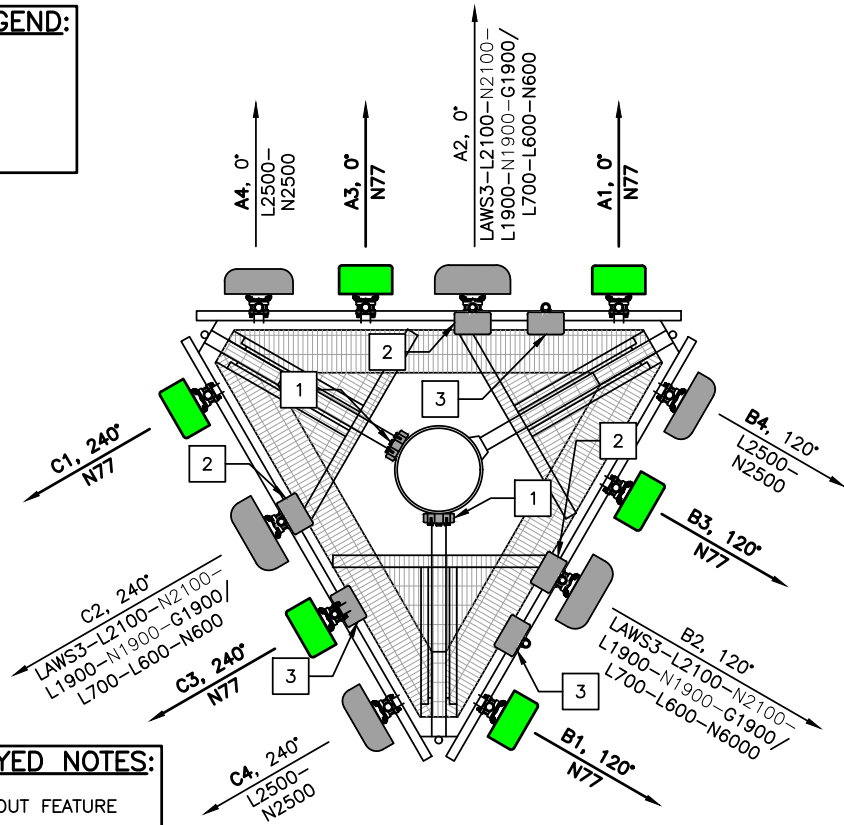


EXISTING ANTENNA PLAN

1

EQUIPMENT LEGEND:

- EXISTING
- PROPOSED
- RELOCATED



PROPOSED ANTENNA PLAN

2

STAMP: 3/3/2022

KEVIN VANMAELE
NUMBER PE-021561
PROFESSIONAL ENGINEER

DocuSign Envelope ID: 31D8888E-4E1A-4182-80D8-80D8888E1A82

ENGINEERING LICENSE:
STATE OF MISSOURI
STATE CERTIFICATE OF AUTHORIZATION # EF-2791
ENGINEER: PE#: DISCIPLINE:
KMJ KEVIN M. VANMAELE PE-021561 CIVIL C
REJ ROBERT E. JENSEN PE-028974 CIVIL C
CG CHRISTOPHER GIANNOTTI PE-2020038653 CIVIL C
SDK SHELTON D. KEISLING PE-27323 ELECTRICAL E
TMS TERRANCE M. SUPER PE-18521 ELECTRICAL E

PLANS PREPARED FOR:

T-Mobile

PLANS PREPARED BY:

SSC

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APPLICANT SITE NAME:

LEE'S SUMMIT FIRE STATION

APPLICANT SITE NUMBER:

A5C0028A

SITE ADDRESS:

209 S.E. DOUGLAS ST
LEE'S SUMMIT, MO 64063

SHEET DESCRIPTION:

TOWER
ELEVATION &
ANTENNA PLANS

SHEET #:

A-2.0

| ANTENNA KEY | | | | | | | | | | | |
|-------------|--|------------|----------------|----------------|---------|---------------------|---------------------|---------------|---|----------------|-----------------------------|
| STATUS | ANTENNA NUMBER | BEAM WIDTH | ANTENNA VENDOR | MODEL # | AZIMUTH | ELECTRICAL DOWNTILT | MECHANICAL DOWNTILT | ANTENNA Ɔ AGL | TECH | COAXIAL FEEDER | HYBRID FEEDER |
| | | | | | | | | | | (QTY) SIZE | QUANTITY |
| EXISTING | A4 L2500– N2500 | 65° | NOKIA | AEHC | 0° | REFER TO RFDS | 0° | 159°–0° | L2500 N2500 | – | (1) HCS 2.0 HYBRID CABLE |
| PROPOSED | A3 N77 | 65° | NOKIA | AEQU | 0° | REFER TO RFDS | 0° | 159°–0° | N77 | – | |
| EXISTING | A2 LAWS3– L2100– N2100– L1900– N1900– G1900– U1900/ L700– L600– N600 | 65° | COMMSCOPE | FFVW–65C–R3–V1 | 0° | REFER TO RFDS | 0° | 159°–0° | LAWS3 L2100 N2100 L1900 N1900 G1900 U1900 | – | (1) HCS 2.0 HYBRID CABLE |
| | | | | | | | | | – | | |
| | | | | | | | | | L700 L600 N600 | – | |
| | | | | | | | | | – | | |
| PROPOSED | A1 N77 | 65° | NOKIA | AEQK | 0° | REFER TO RFDS | 0° | 159°–0° | N77 | – | SHARED WITH A2 |
| EXISTING | B4 L2500– N2500 | 65° | NOKIA | AEHC | 120° | REFER TO RFDS | 0° | 159°–0° | L2500 N2500 | – | SHARED WITH A2 |
| PROPOSED | B3 N77 | 65° | NOKIA | AEQK | 120° | REFER TO RFDS | 0° | 159°–0° | N77 | – | |
| EXISTING | B2 LAWS3– L2100– N2100– L1900– N1900– G1900– U1900/ L700– L600– N600 | 65° | COMMSCOPE | FFVW–65C–R3–V1 | 120° | REFER TO RFDS | 0° | 159°–0° | LAWS3 L2100 N2100 L1900 N1900 G1900 U1900 | – | SHARED WITH A1 |
| | | | | | | | | | – | | |
| | | | | | | | | | L700 L600 N600 | – | |
| | | | | | | | | | – | | |
| PROPOSED | B1 N77 | 65° | NOKIA | AEQU | 120° | REFER TO RFDS | 0° | 159°–0° | N77 | – | SHARED WITH A2 |
| EXISTING | C4 L2500– N2500 | 65° | NOKIA | AEHC | 240° | REFER TO RFDS | 0° | 159°–0° | L2500 N2500 | – | SHARED WITH A2 |
| PROPOSED | C3 N77 | 65° | NOKIA | AEQK | 240° | REFER TO RFDS | 0° | 159°–0° | N77 | – | |
| EXISTING | C2 LAWS3– L2100– N2100– L1900– N1900– G1900– U1900/ L700– L600– N600 | 65° | COMMSCOPE | FFVW–65C–R3–V1 | 240° | REFER TO RFDS | 0° | 159°–0° | LAWS3 L2100 N2100 L1900 N1900 G1900 U1900 | – | SHARED WITH A1 |
| | | | | | | | | | – | | |
| | | | | | | | | | L700 L600 N600 | – | |
| | | | | | | | | | – | | |
| PROPOSED | C1 N77 | 65° | NOKIA | AEQU | 240° | REFER TO RFDS | 0° | 159°–0° | N77 | – | SHARED WITH A2 |

ANTENNA NOTES:

1. ANTENNA CONTRACTOR SHALL INSURE THAT ALL ANTENNA MOUNTING PIPES ARE PLUMB.

2. FEEDLINE LENGTHS INDICATED ARE APPROXIMATE.

3. REFER TO NATIONAL AND REGIONAL PUBLICATIONS FOR COLOR CODE STANDARDS.

4. MULTI PORT ANTENNAS: TERMINATE UNUSED ANTENNA PORTS WITH CONNECTOR CAP & WEATHERPROOF THOROUGHLY.

5. CONTRACTOR MUST FOLLOW ALL MANUFACTURERS' RECOMMENDATIONS REGARDING THE INSTALLATION OF FEEDLINES, CONNECTORS, AND ANTENNAS.
6. MINIMUM BEND RADIUS PER MANUFACTURER’S RECOMMENDATIONS.

7. CONTRACTOR SHALL RECORD THE SERIAL #, SECTOR, AND POSITION OF EACH ACTUATOR INSTALLED AT THE ANTENNAS AND PROVIDE THE INFORMATION TO T–MOBILE.

8. WEATHERPROOF ALL ANTENNA CONNECTORS WITH SELF AMALGAMATING TAPE.

9. ANTENNA CONTRACTOR SHALL PERFORM A "TAPE DROP" MEASUREMENT TO CONFIRM/ VALIDATE ANTENNA CENTERLINE (ACL) HEIGHT. CONTRACTOR SHALL SUBMIT A COMPLETED HEIGHT VERIFICATION FORM TO THE CONSTRUCTION MANAGER.

| EQUIPMENT KEY – EQUIPMENT PAD | | | | | | |
|----------------------------------|--------|--------------------|------------------|--|------|----------|
| LOCATION | VENDOR | EQUIPMENT | MODEL NO. | TECH | QTY. | STATUS |
| HPL3 CABINET | NOKIA | SYSTEM MODULE | AMIA | L2500 LAWS3 L2100 L1900 L700 L600 | 1 | EXISTING |
| | | COMMON MODULE | ASIB | L2500 | 1 | EXISTING |
| | | COMMON MODULE | ASIB | LAWS3 L2100 L1900 L700 L600 | 1 | EXISTING |
| | | CAPACITY MODULE | ABIC | L2500 | 3 | EXISTING |
| | | CAPACITY MODULE | ABIA | LAWS3 L2100 L1900 | 2 | EXISTING |
| | | CAPACITY MODULE | ABIA | L700 L600 | 1 | EXISTING |
| HPL3 CABINET | NOKIA | SYSTEM MODULE | AMIA | N2500 N2100 N1900 N600 | 1 | EXISTING |
| | | COMMON MODULE | ASIL | N2500 N2100 N1900 N600 N77 | 1 | PROPOSED |
| | | CAPACITY MODULE | ABIO | N2500 | 1 | PROPOSED |
| | | CAPACITY MODULE | ABIO | N600 N2100 N1900 | 1 | PROPOSED |
| HPL3 CABINET | NOKIA | SYSTEM MODULE | FSMF | G1900 U1900 | 1 | EXISTING |
| MOUNTED TO ICE BRIDGE POST | RAYCAP | JUNCTION BOX | RTMDC–5634–PF–48 | L2500 N2500 N77 | 1 | EXISTING |
| MOUNTED TO ICE BRIDGE POST | RAYCAP | JUNCTION BOX | RTMDC–5634–PF–48 | LAWS3 L2100 N2100 L1900 G1900 U1900 L700 L600 N600 | 1 | EXISTING |

| EQUIPMENT KEY – SECTOR | | | | | | |
|------------------------|--------|-----------|-----------|---|------|----------|
| LOCATION | VENDOR | EQUIPMENT | MODEL NO. | TECH | QTY. | STATUS |
| 1 PER SECTOR | NOKIA | RRU | AHFIG | LAWS3 L2100 N2100 L1900 N1900 G1900 U1900 | 3 | EXISTING |
| 1 PER SECTOR | NOKIA | RRU | AHLOA | L700 L600 N600 | 3 | EXISTING |

| EQUIPMENT KEY – FEEDLINES | | | | | | |
|---------------------------|--------|-------------------------|-----------------|------|---------|----------|
| LOCATION | VENDOR | EQUIPMENT | MODEL NO. | QTY. | LENGTH | STATUS |
| MULTI SECTOR | NWS | HCS 2.0 HYBRID CABLE | HT–HCS2–HC6–200 | 2 | 200’–0” | EXISTING |

CONTRACTOR ALERT:
REFER TO MOUNT ANALYSIS FOR
POSITIONING OF EQUIPMENT.

STAMP:

3/3/2022

STATE OF MISSOURI

KEVIN
VANMAELE
NUMBER
PE-021561

PROFESSIONAL ENGINEER

DocuSign Envelope ID: 81D9333C-1E1A-4182-80D9-300000000000

ENGINEERING LICENSE:
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STATE CERTIFICATE OF AUTHORIZATION # EF-2791
ENGINEER: PE#: DISCIPLINE:
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TMS TERRANCE M. SUPER PE-18521 ELECTRICAL E

PLANS PREPARED FOR:

T-Mobile

PLANS PREPARED BY:

SSC

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| ISSUED FOR REVIEW | 02/03/22 | FAC | A |
| ISSUED FOR CONSTRUCTION | 03/03/22 | FAC | 0 |
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APPLICANT SITE NAME:

LEE'S SUMMIT FIRE STATION

APPLICANT SITE NUMBER:

A5C0028A

SITE ADDRESS:

209 S.E. DOUGLAS ST
LEE'S SUMMIT, MO 64063

SHEET DESCRIPTION:

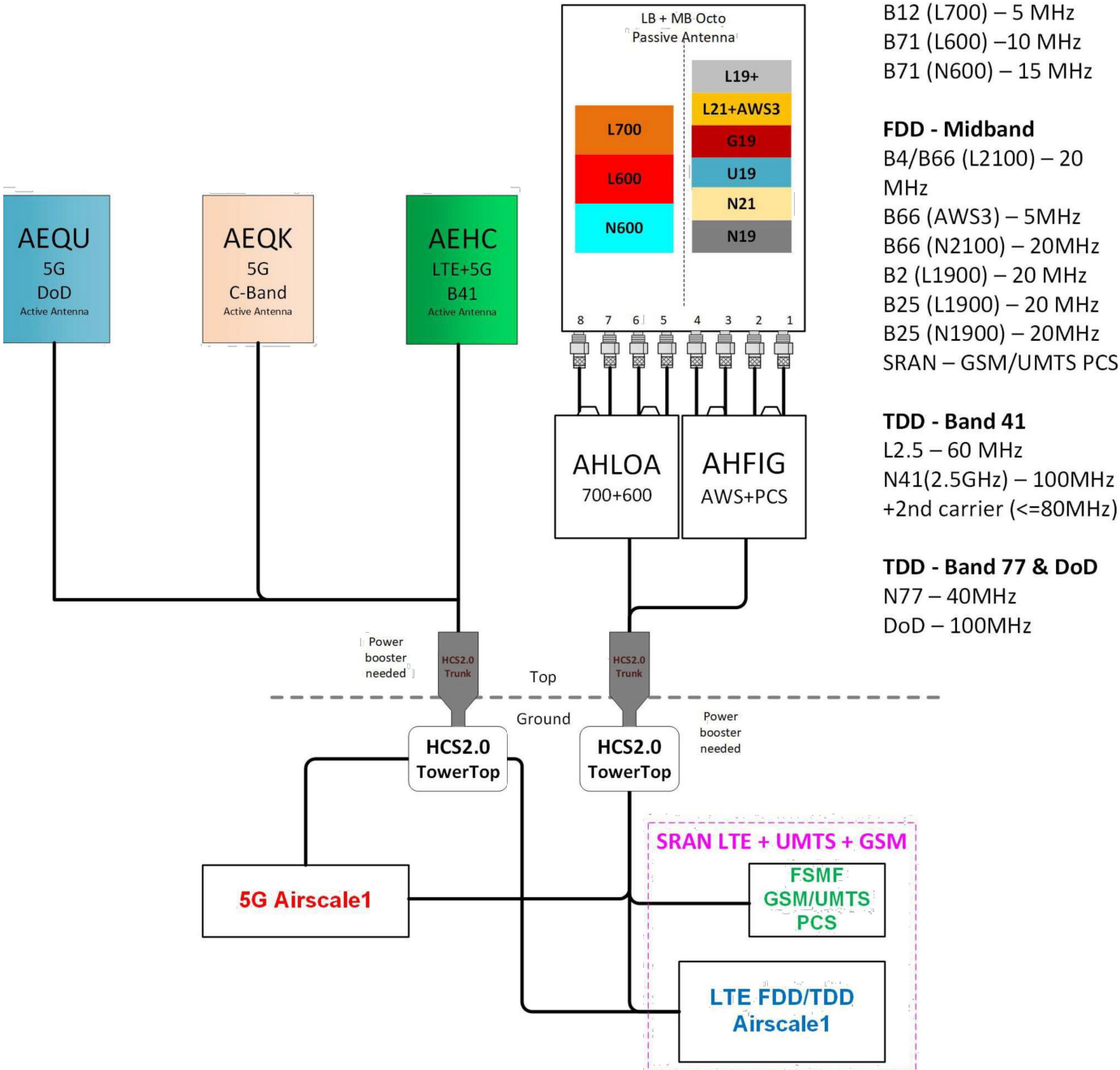
ANTENNA
CONFIGURATION
KEY

SHEET #:

A-3.0

Configuration 56791EZ_SR_DoD

* For 5G and LTE Airscale BB dimensioning refer to Fiber Port matrices.
(Alpha, Beta & Gamma)



NOTE:
DETAIL PROVIDED BY APPLICANT & REPRODUCED ON THIS SHEET AS REQUESTED BY APPLICANT.

STAMP:

3/3/2022

STATE OF MISSOURI

KEVIN VANMAELE

NUMBER PE-021561

PROFESSIONAL ENGINEER

DocuSign Envelope ID: 81DD989818E54482

ENGINEERING LICENSE:

STATE OF MISSOURI

STATE CERTIFICATE OF AUTHORIZATION # EF-2791

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APPLICANT SITE NUMBER:

A5C0028A

SITE ADDRESS:

209 S.E. DOUGLAS ST
LEE'S SUMMIT, MO 64063

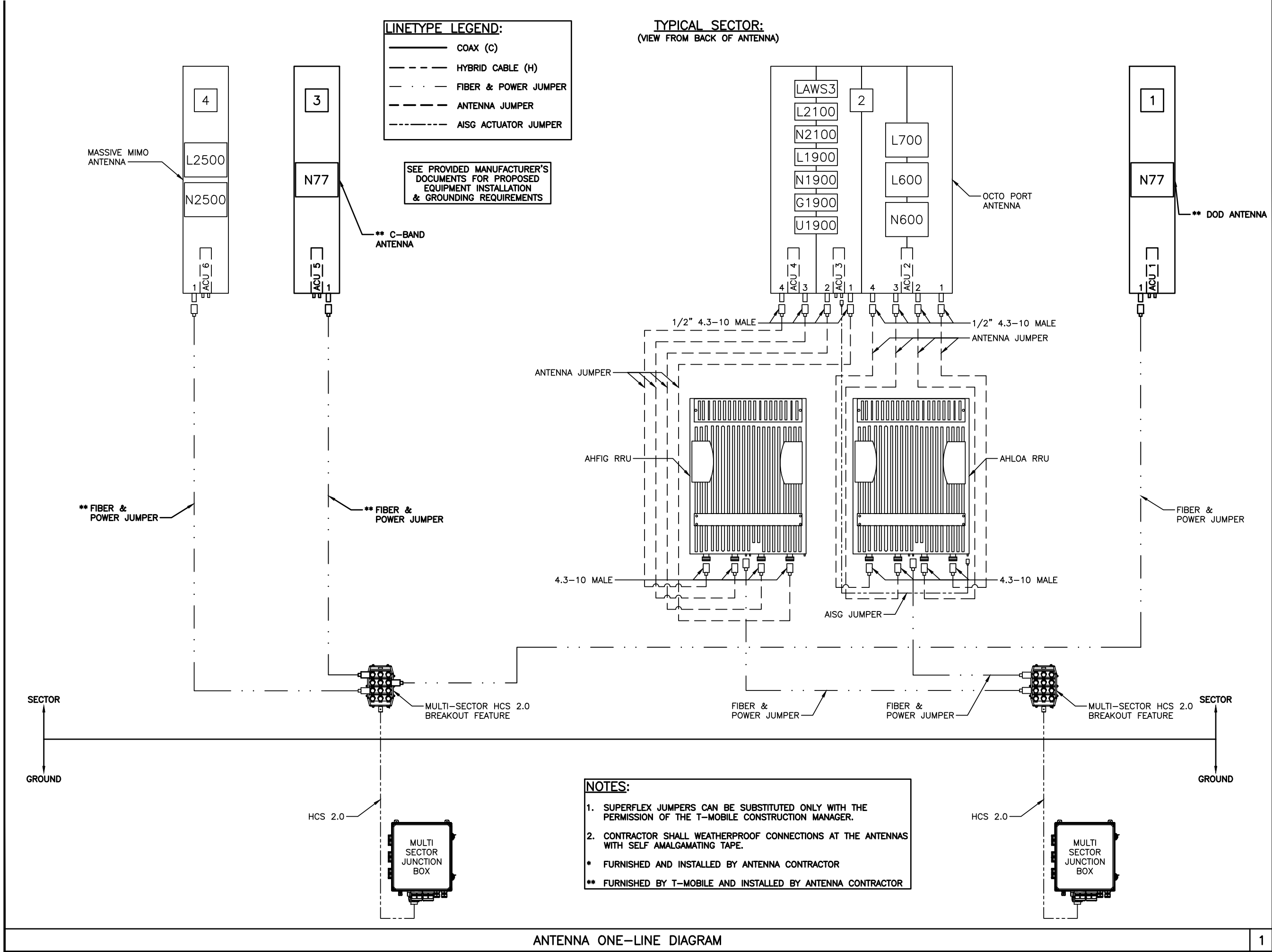
SHEET DESCRIPTION:

NSN CONFIGURATION DIAGRAM

SHEET #:

A-4.0

1



STAMP: 3/3/2022

KEVIN VANMAELE
NUMBER PE-021561
PROFESSIONAL ENGINEER

DocuSign Envelope ID: 31D88831-CE-4102

ENGINEERING LICENSE:
STATE OF MISSOURI
STATE CERTIFICATE OF AUTHORIZATION # EF-2791
ENGINEER: KMV KEVIN M. VANMAELE PE# PE-021561 DISCIPLINE: CIVIL C
REJ ROBERT E. JENSEN PE# PE-028974 DISCIPLINE: CIVIL C
CG CHRISTOPHER GIANNOTTI PE# PE-2020038653 DISCIPLINE: CIVIL C
SDK SHELTON D. KEISLING PE# PE-27323 DISCIPLINE: ELECTRICAL E
TMS TERRANCE M. SUPER PE# PE-18521 DISCIPLINE: ELECTRICAL E

PLANS PREPARED FOR:

T-Mobile

PLANS PREPARED BY:

SSC

DRAWING NOTICE:
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SUBMITTALS:

| DESCRIPTION | DATE | BY | REV |
|-------------------------|----------|-----|-----|
| ISSUED FOR REVIEW | 02/03/22 | FAC | A |
| ISSUED FOR CONSTRUCTION | 03/03/22 | FAC | 0 |
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APPLICANT SITE NAME:

LEE'S SUMMIT FIRE STATION

APPLICANT SITE NUMBER:

A5C0028A

SITE ADDRESS:

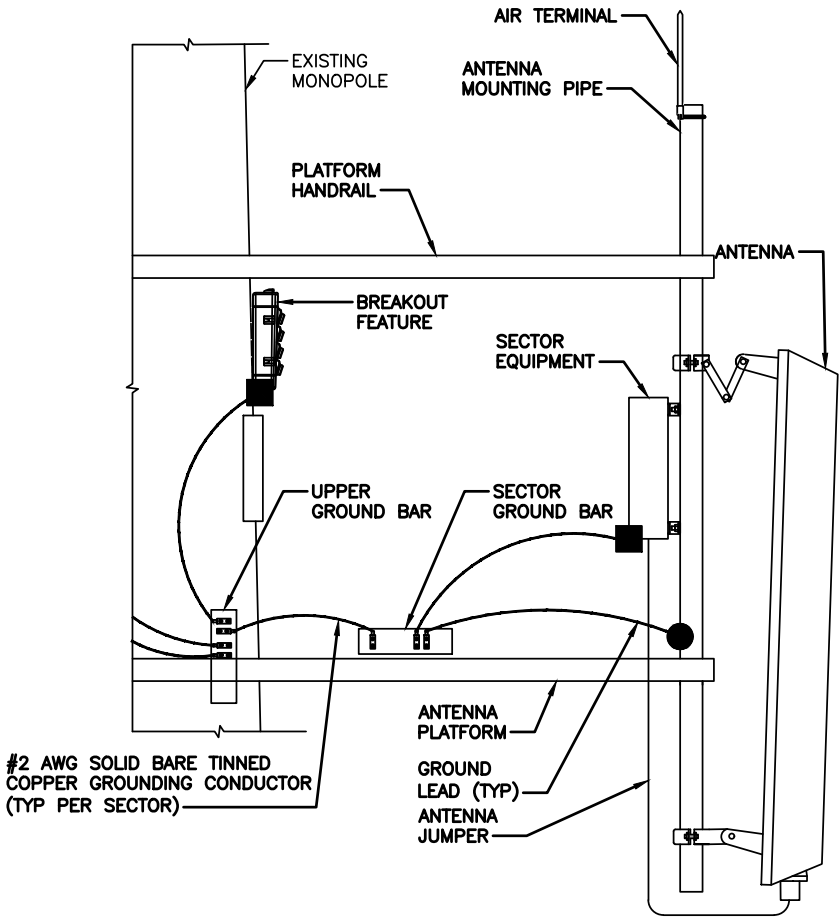
209 S.E. DOUGLAS ST
LEE'S SUMMIT, MO 64063

SHEET DESCRIPTION:

ANTENNA ONE-LINE DIAGRAM

SHEET #:

A-5.0



SECTOR GROUNDING DETAIL

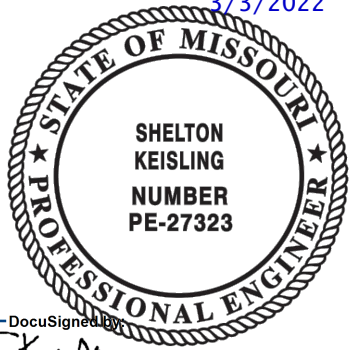
1

2'-0" LONG x 1/2"Ø COPPER
AIR TERMINAL (TYP PER ANTENNA)

ANTENNA MOUNTING PIPE

AIR TERMINAL MOUNTING
BRACKET (HARGER PART#
CPRB 2.5/3AT12)

ANTENNA



DocuSigned By:
Shelton Keisling
EF94D8A5B80B407...

AIR TERMINAL MOUNTING

2



SPECIFICATIONS:

VENDOR: NOKIA
MODEL #: AEQU
DIMENSIONS (HxWxD): 29.53" x 17.72" x 9.45"
WEIGHT: 99.2 lbs
CONNECTORS: LMI / HDMI

MASSIVE MIMO ANTENNA DETAIL

4

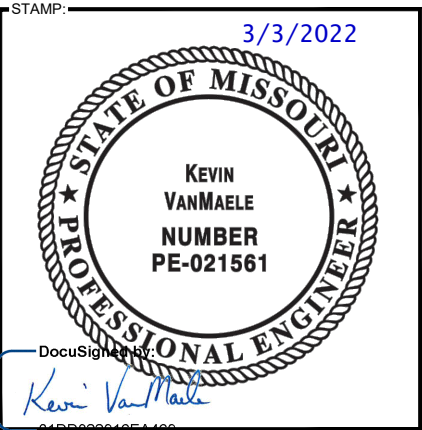


SPECIFICATIONS:

VENDOR: NOKIA
MODEL #: AEQK
DIMENSIONS (HxWxD): 29.53" x 17.72" x 9.53"
WEIGHT: 99.2 lbs
CONNECTORS: LMI / HDMI

MASSIVE MIMO ANTENNA DETAIL

3



DocuSigned By:
Kevin VanMaele
81DD922810E14102...

| ENGINEERING LICENSE: | | | |
|--|---------------|-------------|---|
| STATE OF MISSOURI | | | |
| STATE CERTIFICATE OF AUTHORIZATION # EF-2791 | | | |
| ENGINEER: | PE#: | DISCIPLINE: | |
| KMV KEVIN M. VANMAELE | PE-021561 | CIVIL | C |
| REJ ROBERT E. JENSEN | PE-028974 | CIVIL | C |
| CG CHRISTOPHER GIANNOTTI | PE-2020038653 | CIVIL | C |
| SDK SHELTON D. KEISLING | PE-27323 | ELECTRICAL | E |
| TMS TERRANCE M. SUPER | PE-18521 | ELECTRICAL | E |

PLANS PREPARED FOR:



PLANS PREPARED BY:



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| ISSUED FOR CONSTRUCTION | | 03/03/22 | FAC | 0 |
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APPLICANT SITE NAME:

LEE'S SUMMIT FIRE STATION

APPLICANT SITE NUMBER:

A5C0028A

SITE ADDRESS:

209 S.E. DOUGLAS ST
LEE'S SUMMIT, MO 64063

SHEET DESCRIPTION:

EQUIPMENT
DETAILS

SHEET #:

A-6.0

GENERAL REQUIREMENTS

PART 1: GENERAL

1.1 INTENT:

- A. THESE SPECIFICATIONS AND CONSTRUCTION DRAWINGS DESCRIBE THE WORK TO BE DONE AND THE MATERIALS TO BE FURNISHED FOR CONSTRUCTION. PLANS ARE NOT TO BE SCALED.
- B. THE DRAWINGS AND SPECIFICATIONS ARE INTENDED TO BE FULLY EXPLANATORY AND SUPPLEMENTARY, HOWEVER, SHOULD ANYTHING BE SHOWN, INDICATED OR SPECIFIED ON ONE AND NOT THE OTHER, IT SHALL BE DONE THE SAME AS IF SHOWN, INDICATED OR SPECIFIED IN BOTH.
- C. THE INTENTION OF DOCUMENTS IS TO INCLUDE ALL LABOR AND MATERIALS REASONABLY NECESSARY FOR THE PROPER EXECUTION AND COMPLETION OF THE WORK AS STIPULATED IN THE CONTRACT.
- D. CONFLICTS: THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFICATION OF ALL MEASUREMENTS AT THE SITE BEFORE ORDERING MATERIALS OR DOING ANY WORK. NO COMPENSATION SHALL BE ALLOWED DUE TO DIFFERENCES BETWEEN ACTUAL DIMENSIONS AND THOSE ON THE DOCUMENTS. ANY DISCREPANCY SHALL BE REPORTED TO THE OWNER OR THEIR AGENT FOR CONSIDERATION.

1.2 LICENSING REQUIREMENTS:

- A. THE CONTRACTOR IS RESPONSIBLE FOR PROCUREMENT AND MAINTAINING ALL APPLICABLE LICENSES AND BONDS.

1.3 STORAGE:

- A. ALL MATERIALS MUST BE STORED IN A LEVEL AND DRY FASHION THAT DOES NOT OBSTRUCT THE FLOW OF OTHER WORK. ANY STORAGE METHOD MUST MEET ALL RECOMMENDATIONS OF THE ASSOCIATED MANUFACTURER.

1.4 CLEAN UP:

- A. THE CONTRACTOR SHALL KEEP THE SITE FREE FROM ACCUMULATION OF WASTE MATERIALS OR RUBBISH AT ALL TIMES.

1.5 QUALITY ASSURANCE:

- A. ALL WORK SHALL BE IN ACCORDANCE WITH APPLICABLE LOCAL, STATE, AND FEDERAL REGULATIONS.

PART 2: PRODUCTS – NOT APPLICABLE TO THIS SECTION

PART 3: EXECUTION – NOT APPLICABLE TO THIS SECTION

END OF SECTION

COMMUNICATIONS/ANTENNA’S

PART 1: GENERAL

1.1 WORK INCLUDED:

- A. ANTENNA AND FEEDLINE CABLES ARE FURNISHED BY OWNER UNDER SEPARATE CONTRACT. THE CONTRACTOR SHALL ASSIST ANTENNA INSTALLATION CONTRACTOR IN TERMS OF COORDINATION AND SITE ACCESS. ERECTION SUBCONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF PERSONNEL AND PROPERTY FROM HAZARDOUS EXPOSURE TO OVERHEAD DANGER.
- B. INSTALL ANTENNAS AS INDICATED ON DRAWINGS AND OWNER SPECIFICATIONS.
- C. INSTALL GALVANIZED STEEL ANTENNA MOUNTS AS INDICATED ON DRAWINGS.
- D. INSTALL FURNISHED GALVANIZED STEEL WAVEGUIDE LADDER AS INDICATED ON DRAWINGS.
- E. THE CONTRACTOR SHALL PROVIDE FREQUENCY DOMAIN REFLECTOMETER (FDR) TEST RESULTS TO THE CONSTRUCTION MANAGER AND OWNER WITHIN ONE WEEK OF COMPLETION.
- F. INSTALL FEEDLINE CABLES AND TERMINATORS BETWEEN ANTENNAS AND EQUIPMENT PER MANUFACTURER’S RECOMMENDATIONS. WEATHERPROOF ALL CONNECTORS BETWEEN THE ANTENNA AND EQUIPMENT PER MANUFACTURER’S REQUIREMENTS. TERMINATE ALL FEEDLINE CABLE THREE (3) FEET IN EXCESS OF ENTRY PORT LOCATION UNLESS OTHERWISE STATED.
- G. ANTENNA AND FEEDLINE CABLE GROUNDING:
 - 1. ALL FEEDLINE CABLE GROUNDING CONNECTIONS ARE TO BE WEATHER SEALED WITH ANDREW CONNECTOR/SPLICE WEATHERPROOFING KITS OR APPROVED EQUAL.
 - 2. ALL FEEDLINE CABLE GROUNDING KITS ARE TO BE INSTALLED ON STRAIGHT RUNS OF FEEDLINE CABLE (NOT WITHIN BENDS)

1.2 RELATED WORK:

- A. FURNISH THE FOLLOWING WORK AS SPECIFIED UNDER CONSTRUCTION DOCUMENTS, BUT COORDINATE WITH OTHER TRADES PRIOR TO BID:
 - 1. FLASHING OF OPENING INTO OUTSIDE WALLS.
 - 2. SEAL AND CAULK ALL OPENINGS.
 - 3. PAINTING.
 - 4. CUTTING AND PATCHING.

1.3 REQUIREMENTS OF REGULATOR AGENCIES:

- A. FURNISH UL LISTED EQUIPMENT WHERE SUCH LABEL IS AVAILABLE, INSTALL IN CONFORMANCE WITH UL STANDARDS WHERE APPLICABLE.
- B. INSTALL ANTENNA, ANTENNA CABLES, AND GROUNDING SYSTEM IN ACCORDANCE WITH DRAWINGS AND SPECIFICATIONS IN EFFECT AT PROJECT LOCATION AND RECOMMENDATIONS OF STATE AND LOCAL BUILDING CODES, AND ANY SPECIAL CODES HAVING JURISDICTION OVER SPECIFIC PORTIONS OF WORK. THIS INCLUDES BUT IS NOT LIMITED TO THE FOLLOWING:
 - 1. TIA–222 (TELECOMMUNICATIONS INDUSTRY ASSOCIATION) – STRUCTURAL STANDARDS FOR STEEL ANTENNA TOWERS AND ANTENNA SUPPORTING STRUCTURES.
 - 2. FAA (FEDERAL AVIATION ADMINISTRATION ADVISORY) – CIRCULAR AC 70/7460–1K, OBSTRUCTION MARKING AND LIGHTING.
 - 3. FCC (FEDERAL COMMUNICATIONS COMMISSION) – RULES AND REGULATIONS OBSTRUCTION MARKING AND LIGHTING SPECIFICATIONS FOR ANTENNA STRUCTURES AND HIGH INTENSITY OBSTRUCTION LIGHTING SPECIFICATIONS FOR ANTENNA STRUCTURES.
 - 4. AISC (AMERICAN INSTITUTE OF STEEL CONSTRUCTION) – SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A325 OR A490 BOLTS.
 - 5. NEC (NATIONAL ELECTRICAL CODE) – FOR TOWER LIGHTING KITS.
 - 6. UL (UNDERWRITERS LABORATORIES) – APPROVED ELECTRICAL PRODUCTS.
 - 7. IN ALL CASES, THE FAA RULES AND THE FCC RULES ARE APPLICABLE AND IN THE EVENT OF CONFLICT, SUPERSEDE ANY OTHER STANDARDS OR SPECIFICATIONS.
 - 8. LIFE SAFETY CODE NFPA, LATEST EDITION.

PART 2: PRODUCTS – NOT APPLICABLE TO THIS SECTION

PART 3: EXECUTION – NOT APPLICABLE TO THIS SECTION

END OF SECTION

STAMP:

3/3/2022

STATE OF MISSOURI

KEVIN VANMAELE

NUMBER PE-021561

PROFESSIONAL ENGINEER

DocuSign Envelope ID: 81DD9228-18E4-4182

ENGINEERING LICENSE:

STATE OF MISSOURI

STATE CERTIFICATE OF AUTHORIZATION # EF-2791

ENGINEER: PE#: DISCIPLINE:

KMV KEVIN M. VANMAELE PE-021561 CIVIL C

REJ ROBERT E. JENSEN PE-028974 CIVIL C

CG CHRISTOPHER GIANNOTTI PE-2020038653 CIVIL C

SDK SHELTON D. KEISLING PE-27323 ELECTRICAL E

TMS TERRANCE M. SUPER PE-18521 ELECTRICAL E

PLANS PREPARED FOR:

T-Mobile

PLANS PREPARED BY:

SSC

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APPLICANT SITE NAME:

LEE'S SUMMIT FIRE STATION

APPLICANT SITE NUMBER:

A5C0028A

SITE ADDRESS:

209 S.E. DOUGLAS ST
LEE'S SUMMIT, MO 64063

SHEET DESCRIPTION:

SPECIFICATIONS
(1 OF 3)

SHEET #:

SP-1.0

ELECTRICAL

PART 1: GENERAL

1.1 GENERAL CONDITIONS:

- A. THE CONTRACTOR SHALL INSPECT THE SITE WHERE THIS WORK IS TO BE PERFORMED AND FULLY FAMILIARIZE HIMSELF WITH ALL CONDITIONS RELATED TO THIS PROJECT.
- B. THE CONTRACTOR SHALL OBTAIN AND PAY FOR ALL PERMITS AND LICENSES AND SHALL MAKE ALL DEPOSITS AND PAY ALL FEES REQUIRED FOR THE PERFORMANCE OF WORK UNDER THIS SECTION.
- C. DRAWINGS SHOW THE GENERAL ARRANGEMENT OF ALL SYSTEMS AND COMPONENTS COVERED UNDER THIS SECTION. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS. DRAWINGS SHALL NOT BE SCALED TO DETERMINE DIMENSIONS.

1.2 LAWS, REGULATIONS, ORDINANCES, STATUTES AND CODES:

- A. ALL WORK SHALL BE INSTALLED IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE, AND ALL APPLICABLE LOCAL LAWS, REGULATIONS, ORDINANCES, STATUTES AND CODES.

1.3 REFERENCES:

- A. THE PUBLICATIONS LISTED BELOW FORM PART OF THIS SPECIFICATION. EACH PUBLICATION SHALL BE THE LATEST REVISION AND ADDENDUM IN EFFECT ON THE DATE THIS SPECIFICATION IS ISSUED FOR CONSTRUCTION UNLESS NOTED OTHERWISE. EXCEPT AS MODIFIED BY THE REQUIREMENTS SPECIFIED HEREIN OR THE DETAILS OF THE DRAWINGS, WORK INCLUDED IN THIS SPECIFICATION SHALL CONFORM TO THE APPLICABLE PROVISIONS OF THESE PUBLICATIONS.
 - 1. NEC (NATIONAL ELECTRICAL CODE)
 - 2. ANSI/IEEE (AMERICAN NATIONAL STANDARDS INSTITUTE)
 - 3. IEEE (INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS)
 - 4. ASTM (AMERICAN SOCIETY FOR TESTING AND MATERIALS)
 - 5. ICEA (INSULATED CABLE ENGINEERS ASSOCIATION)
 - 6. NEMA (NATIONAL ELECTRICAL MANUFACTURER’S ASSOCIATION)
 - 7. NFPA (NATIONAL FIRE PROTECTION ASSOCIATION)
 - 8. OSHA (OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION)
 - 9. UL (UNDERWRITERS LABORATORIES, INC.)

1.4 SCOPE OF WORK:

- A. WORK UNDER THIS SECTION SHALL CONSIST OF FURNISHING ALL LABOR, MATERIAL AND ASSOCIATED SERVICES REQUIRED TO COMPLETELY CONSTRUCT AND LEAVE READY FOR OPERATION SYSTEMS AS SHOWN ON THE DRAWINGS AND HEREIN DESCRIBED.
- B. ALL ELECTRICAL EQUIPMENT UNDER THIS CONTRACT SHALL BE PROPERLY TESTED, ADJUSTED, AND ALIGNED BY THE CONTRACTOR.
- C. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL EXCAVATING, DRAINING, TRENCHES, BACKFILLING, AND REMOVAL OF EXCESS DIRT.
- D. THE CONTRACTOR SHALL FURNISH TO THE OWNER, CERTIFICATES OF FINAL INSPECTION AND APPROVAL FROM THE INSPECTION AUTHORITIES HAVING JURISDICTION.

PART 2: PRODUCTS

2.1 GENERAL:

- A. ALL ITEMS OF MATERIALS AND EQUIPMENT SHALL BE NEW, FREE FROM DEFECTS AND OF THE BEST QUALITY NORMALLY USED FOR THE PURPOSE IN GOOD COMMERCIAL PRACTICE.
- B. ALL MATERIALS AND EQUIPMENT SHALL BE ACCEPTABLE TO THE AUTHORITY HAVING JURISDICTION AS SUITABLE FOR THE USE INTENDED.
- C. ALL EQUIPMENT SHALL BEAR THE UNDERWRITERS LABORATORIES LABEL OF APPROVAL, AND SHALL CONFORM TO REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE.
- D. ALL OVERCURRENT DEVICES SHALL HAVE AN INTERRUPTING RATING EQUAL TO OR GREATER THAN THE SHORT CIRCUIT CURRENT TO WHICH THEY ARE SUBJECTED, 10,000 AIC MINIMUM. VERIFY AVAILABLE SHORT CIRCUIT CURRENT DOES NOT EXCEED THE RATING OF ELECTRICAL EQUIPMENT.

2.2 MATERIALS AND EQUIPMENT:

- A. CONDUIT:
 - 1. RIGID GALVANIZED STEEL CONDUIT (RGS) SHALL BE HOT–DIP GALVANIZED INSIDE AND OUTSIDE INCLUDING ENDS AND THREADS AND ENAMELED OR LACQUERED INSIDE IN ADDITION TO GALVANIZING.
 - 2. FLEXIBLE METAL CONDUIT SHALL BE GALVANIZED, ZINC–COATED STEEL, PVC COATED FOR OUTDOOR APPLICATIONS.
 - 3. CONDUIT CLAMPS, STRAPS AND SUPPORTS SHALL BE STEEL OR MALLEABLE IRON. ALL FITTINGS SHALL BE COMPRESSION TYPE AND WATERTIGHT.
 - 4. NON–METALLIC CONDUIT AND FITTINGS SHALL BE SCHEDULE 40 PVC, HEAVY–WALL RIGID WITH SOLVENT–CEMENT–TYPE JOINTS AS RECOMMENDED BY THE MANUFACTURER.
- B. WIRE AND CABLE:
 - 1. WIRE AND CABLE SHALL BE FLAME–RETARDANT, MOISTURE AND HEAT RESISTANT THERMOPLASTIC, SINGLE CONDUCTOR, COPPER, TYPE THHN/THWN–2, 600 VOLT, SIZES AS INDICATED, #12 AWG MINIMUM.
 - 2. #10 AWG AND SMALLER CONDUCTORS SHALL BE SOLID AND #8 AWG AND LARGER CONDUCTORS SHALL BE STRANDED.
 - 3. SOLDERLESS, PRESSURE–TYPE CONNECTORS CONSTRUCTED OF HIGH–STRENGTH, NON–CORRODIBLE, TIN–PLATED COPPER DESIGNED TO FURNISH HIGH–PULLOUT STRENGTH AND HIGH CONDUCTIVITY JOINTS SHALL BE USED.
 - 4. SUPPORT GRIPS SHALL BE SINGLE WEAVE, CLOSED MESH, HIGH–GRADE, NON–MAGNETIC, TIN–COATED BRONZE CAPABLE OF SUPPORTING TEN TIMES THE CABLE DEAD WEIGHT, HUBBELL KELLEMS OR APPROVED EQUAL.
- C. DISCONNECT SWITCHES:
 - 1. DISCONNECT SWITCHES SHALL BE HEAVY DUTY, DEAD–FRONT, QUICK–MAKE, QUICK–BREAK, EXTERNALLY OPERABLE, HANDLE LOCKABLE AND INTERLOCKED WITH COVER IN CLOSED POSITION, RATING AS INDICATED, UL LABELED FURNISHED IN NEMA 3R ENCLOSURE, SQUARE D CLASS 3110 OR APPROVED EQUAL.
- D. SYSTEM GROUNDING:
 - 1. GROUNDING CONDUCTOR SHALL BE SOLID TINNED BARE COPPER, SIZE AS INDICATED, EXCEPT ABOVE GROUND GROUNDING CONDUCTORS SHALL BE STRANDED INSULATED.
 - 2. GROUND BUSSES SHALL BE GALVANIZED STEEL BARS OF RECTANGULAR CROSS SECTION.
 - 3. CONNECTORS SHALL BE HIGH–CONDUCTIVITY, HEAVY DUTY, LISTED AND LABELED AS GROUNDING CONNECTORS FOR THE MATERIALS USED. USE TWO–HOLE COMPRESSION LUGS WITH HEAT SHRINK FOR MECHANICAL CONNECTIONS.
 - 4. EXOTHERMIC WELDED CONNECTIONS SHALL BE PROVIDED IN KIT FORM AND SELECTED FOR THE SPECIFIC TYPES, SIZES, AND COMBINATIONS OF CONDUCTORS AND OTHER ITEMS TO BE CONNECTED.
 - 5. GROUND RODS SHALL BE COPPER–CLAD STEEL WITH HIGH–STRENGTH STEEL CORE AND ELECTROLYTIC–GRADE COPPER OUTER SHEATH, MOLTEN WELDED TO CORE, 3/4" x 10'–0".
- E. OTHER MATERIALS:
 - 1. THE CONTRACTOR SHALL PROVIDE OTHER MATERIALS, THOUGH NOT SPECIFICALLY DESCRIBED, WHICH ARE REQUIRED FOR A COMPLETELY OPERATIONAL SYSTEM AND PROPER INSTALLATION OF THE WORK.

STAMP:

3/3/2022

STATE OF MISSOURI

SHELTON KEISLING

NUMBER PE-27323

PROFESSIONAL ENGINEER

DocuSigned by:
S. Keisling

ENGINEERING LICENSE:

STATE OF MISSOURI

STATE CERTIFICATE OF AUTHORIZATION # EF-2791

ENGINEER: PE#: DISCIPLINE:

KMV KEVIN M. VANMAELE PE-021561 CIVIL C

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TMS TERRANCE M. SUPER PE-18521 ELECTRICAL E

PLANS PREPARED FOR:



PLANS PREPARED BY:



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LEE'S SUMMIT FIRE STATION

APPLICANT SITE NUMBER:

A5C0028A

SITE ADDRESS:

209 S.E. DOUGLAS ST
LEE'S SUMMIT, MO 64063

SHEET DESCRIPTION:

SPECIFICATIONS
(2 OF 3)

SHEET #:

SP-2.0

PART 3: EXECUTION

3.1 GENERAL:

- A. ALL MATERIALS AND EQUIPMENT SHALL BE INSTALLED IN STRICT ACCORDANCE WITH THE MANUFACTURER’S RECOMMENDATIONS.
- B. EQUIPMENT SHALL BE TIGHTLY COVERED AND PROTECTED AGAINST DIRT OR WATER, AND AGAINST CHEMICAL OR MECHANICAL INJURY DURING INSTALLATION AND CONSTRUCTION PERIODS.

3.2 LABOR AND WORKMANSHIP:

- A. ALL LABOR FOR THE INSTALLATION OF MATERIALS AND EQUIPMENT FURNISHED FOR THE ELECTRICAL SYSTEM SHALL BE DONE BY EXPERIENCED MECHANICS OF THE PROPER TRADES.
- B. ALL ELECTRICAL EQUIPMENT FURNISHED SHALL BE ADJUSTED, ALIGNED AND TESTED BY THE CONTRACTOR AS REQUIRED TO PRODUCE THE INTENDED PERFORMANCE.
- C. UPON COMPLETION OF THE WORK, THE CONTRACTOR SHALL THOROUGHLY CLEAN ALL EXPOSED EQUIPMENT, REMOVE ALL LABELS AND ANY DEBRIS, CRATING OR CARTONS AND LEAVE THE INSTALLATION FINISHED AND READY FOR OPERATION.

3.3 COORDINATION:

- A. THE CONTRACTOR SHALL COORDINATE THE INSTALLATION OF ELECTRICAL ITEMS WITH THE OWNER–FURNISHED EQUIPMENT DELIVERY SCHEDULE TO PREVENT UNNECESSARY DELAYS IN THE TOTAL WORK.

3.4 INSTALLATION:

- A. CONDUIT:
1. ALL ELECTRICAL WIRING SHALL BE INSTALLED IN CONDUIT AS HEREIN SPECIFIED. NO CONDUIT OR TUBING OF LESS THAN 3/4” NOMINAL SIZE SHALL BE USED.
2. PROVIDE RGS CONDUIT FOR ALL EXPOSED, EXTERIOR CONDUIT.
3. PROVIDE SCHEDULE 40 PVC OR RGS CONDUIT BELOW GRADE, 1” MINIMUM, UNLESS NOTED OTHERWISE. ALL 90 DEGREE BENDS TO ABOVE GRADE SHALL BE RGS. MINIMUM BURIAL DEPTH SHALL BE 24” CLEAR TO TOP OF CONDUIT, UNLESS NOTED OTHERWISE.
4. USE GALVANIZED FLEXIBLE STEEL CONDUIT WHERE DIRECT CONNECTION IS NOT DESIRABLE FOR REASONS OF EQUIPMENT MOVEMENT, VIBRATION, OR FOR EASE OF MAINTENANCE. USE LIQUIDTIGHT, PVC COATED FLEXIBLE METAL CONDUIT FOR OUTDOOR APPLICATIONS.
5. INSTALL GALVANIZED FLEXIBLE STEEL CONDUIT AT ALL POINTS OF CONNECTION TO EQUIPMENT MOUNTED ON SUPPORTS TO ALLOW FOR EXPANSION AND CONTRACTION.
6. A RUN OF CONDUIT BETWEEN BOXES OR FITTINGS SHALL NOT CONTAIN MORE THAN THE EQUIVALENT OF FOUR QUARTER–BENDS INCLUDING THOSE BENDS LOCATED IMMEDIATELY AT THE BOX OR FITTING. THE RADIUS OF BENDS SHALL NEVER BE SHORTER THAN THAT OF THE CORRESPONDING TRADE ELBOW.
7. WHERE CONDUIT HAS TO BE CUT IN THE FIELD, IT SHALL BE CUT SQUARE WITH A PIPE CUTTER USING CUTTING KNIVES.
8. ALL CONDUITS SHALL BE SWABBED CLEAN BY PULLING AN APPROPRIATE SIZE MANDREL THROUGH THE CONDUIT BEFORE INSTALLATION OF WIRE OR CABLE. CLEAR ALL BLOCKAGES AND REMOVE BURRS, DIRT, AND DEBRIS.
9. INSTALL PULL STRINGS IN ALL EMPTY CONDUITS. IDENTIFY PULL STRINGS AT EACH END WITH ITS DESTINATION.
10. PROVIDE INSULATED GROUNDING BUSHINGS FOR ALL CONDUITS STUBBED INTO EQUIPMENT ENCLOSURES OR STUBBED OUT FOR FUTURE USE BY OTHERS.
11. CONTRACTOR IS RESPONSIBLE FOR PROTECTING ALL CONDUITS DURING CONSTRUCTION. TEMPORARY OPENINGS IN THE CONDUIT SYSTEM SHALL BE PLUGGED OR CAPPED TO PREVENT ENTRANCE OF MOISTURE OR FOREIGN MATTER. CONTRACTOR SHALL REPLACE ANY CONDUITS CONTAINING FOREIGN MATERIALS THAT CANNOT BE REMOVED.
12. INSTALL 2” ORANGE DETECTABLE TAPE 12” ABOVE ALL UNDERGROUND CONDUIT AND WIRE.
13. CONDUITS SHALL BE INSTALLED IN SUCH A MANNER AS TO INSURE AGAINST COLLECTION OF TRAPPED CONDENSATION.
- B. WIRE AND CABLE:
1. ALL POWER WIRING SHALL BE COLOR CODED AS FOLLOWS:

| | | | |
|-------------|----------|-----------|-----------|
| DESCRIPTION | 120/240V | 208Y/120V | 480Y/277V |
| PHASE A | BLACK | BLACK | BROWN |
| PHASE B | RED | RED | ORANGE |
| PHASE C | | BLUE | YELLOW |
| NEUTRAL | WHITE | WHITE | GRAY |
| GROUND | GREEN | GREEN | GREEN |

2. SPLICES SHALL BE MADE ONLY AT OUTLETS, JUNCTION BOXES, OR ACCESSIBLE RACEWAYS WITH PRESSURE–TYPE CONNECTORS.
3. PULLING LUBRICANTS SHALL BE SOAPSTONE POWDER, POWDERED TALC, OR A COMMERCIAL PULLING COMPOUND. NO SOAP SUDS, SOAP FLAKES, OIL, OR GREASE SHALL BE USED, AS THESE MAY BE HARMFUL TO CABLE INSULATION. CONTRACTOR SHALL USE NYLON OR HEMP ROPE FOR PULLING CABLE TO AVOID SCORING THE CONDUIT.
4. CABLES SHALL BE NEATLY TRAINED, WITHOUT INTERLACING, AND BE OF SUFFICIENT LENGTH IN ALL BOXES, EQUIPMENT, ETC. TO PERMIT MAKING A NEAT ARRANGEMENT. CABLES SHALL BE SECURED IN A MANNER TO AVOID TENSION ON CONDUCTORS OR TERMINALS, AND SHALL BE PROTECTED FROM MECHANICAL INJURY AND FROM MOISTURE. SHARP BENDS OVER CONDUIT BUSHINGS ARE PROHIBITED. DAMAGED CABLES SHALL BE REMOVED AND REPLACED AT THE CONTRACTOR’S EXPENSE.

C. DISCONNECT SWITCHES:

1. INSTALL DISCONNECT SWITCHES LEVEL AND PLUMB. CONNECT TO WIRING SYSTEM AND GROUND AS INDICATED.

D. GROUNDING:

1. ALL METALLIC PARTS OF ELECTRICAL EQUIPMENT WHICH DO NOT CARRY CURRENT SHALL BE GROUNDED IN ACCORDANCE WITH THE REQUIREMENTS OF ARTICLE 250 OF THE NATIONAL ELECTRICAL CODE.
2. PROVIDE ELECTRICAL GROUNDING AND BONDING SYSTEMS INDICATED WITH ASSEMBLY OF MATERIALS, INCLUDING GROUNDING ELECTRODES, BONDING JUMPERS AND ADDITIONAL ACCESSORIES AS REQUIRED FOR A COMPLETE INSTALLATION.
3. ROUTE GROUNDING CONNECTIONS AND CONDUCTORS TO GROUND IN THE SHORTEST AND STRAIGHTEST PATHS POSSIBLE TO MINIMIZE TRANSIENT VOLTAGE RISES.
4. TIGHTEN GROUNDING AND BONDING CONNECTORS, INCLUDING SCREWS AND BOLTS, IN ACCORDANCE WITH MANUFACTURER’S PUBLISHED TORQUE TIGHTENING VALUES FOR CONNECTORS AND BOLTS. WHERE MANUFACTURER’S TORQUING REQUIREMENTS ARE NOT AVAILABLE, TIGHTEN CONNECTIONS TO COMPLY WITH TIGHTENING TORQUE VALUES SPECIFIED IN UL 486A TO ASSURE PERMANENT AND EFFECTIVE GROUNDING.
5. ALL UNDERGROUND GROUNDING CONNECTIONS SHALL BE MADE BY THE EXOTHERMIC WELD PROCESS AND INSTALLED IN ACCORDANCE WITH THE MANUFACTURER’S INSTRUCTIONS.
6. ALL GROUND CONNECTIONS SHALL BE INSPECTED FOR TIGHTNESS. EXOTHERMIC–WELDED CONNECTIONS SHALL BE APPROVED BY THE CONSTRUCTION INSPECTOR BEFORE BEING PERMANENTLY CONCEALED.
7. APPLY CORROSION–RESISTANT FINISH TO FIELD CONNECTIONS, AND PLACES WHERE FACTORY APPLIED PROTECTIVE COATINGS HAVE BEEN DESTROYED. USE COPPER–BASED “NO–OX” OR APPROVED EQUAL.
8. A SEPARATE, CONTINUOUS, INSULATED EQUIPMENT GROUNDING CONDUCTOR SHALL BE INSTALLED IN ALL FEEDER AND BRANCH CIRCUITS
9. BOND ALL INSULATED GROUNDING BUSHINGS WITH A BARE #6 AWG GROUNDING CONDUCTOR TO A GROUND BUS OR GROUNDING LUG IN ENCLOSURE.
10. DIRECT BURIED GROUND CONDUCTORS SHALL BE INSTALLED AT A NOMINAL DEPTH OF 30” BELOW GRADE, UNLESS NOTED OTHERWISE.
11. ALL GROUNDING CONDUCTORS EMBEDDED IN OR PENETRATING CONCRETE SHALL BE INSULATED OR INSTALLED IN PVC CONDUIT.
12. INSTALL ELECTROLYTIC GROUNDING SYSTEM IN STRICT ACCORDANCE WITH MANUFACTURER’S INSTRUCTIONS. REMOVE SEALING TAPE FROM LEACHING AND BREATHER HOLES. INSTALL PROTECTIVE BOX FLUSH WITH GRADE.
13. DRIVE GROUND RODS UNTIL TOPS ARE 30” BELOW FINAL GRADE.
14. GROUNDING CONDUCTOR TO EQUIPMENT GROUND LUGS:
- a. BOLTED TO EQUIPMENT HOUSING WITH STAINLESS STEEL BOLTS AND LOCK WASHERS.
- b. ALL EQUIPMENT TO BE GROUNDED SHALL BE FREE OF PAINT OR ANY OTHER MATERIAL COVERING BARE METAL AT THE POINT OF CONNECTION.

3.5 ACCEPTANCE TESTING:

- A. PROVIDE PERSONNEL AND EQUIPMENT, MAKE REQUIRED TESTS, AND SUBMIT TEST REPORTS UPON COMPLETION OF TESTS.
- B. WHEN MATERIAL AND/OR WORKMANSHIP IS FOUND NOT TO COMPLY WITH THE SPECIFIED REQUIREMENTS, THE NONCOMPLYING ITEMS SHALL BE REMOVED FROM THE JOBSITE AND REPLACED WITH ITEMS COMPLYING WITH THE SPECIFIED REQUIREMENTS PROMPTLY AFTER RECEIPT OF NOTICE OF SUCH NON–COMPLIANCE.

C. TEST PROCEDURES:

1. ALL FEEDERS SHALL HAVE THEIR INSULATION TESTED AFTER INSTALLATION, BUT BEFORE CONNECTION TO DEVICES. THE CONDUCTORS SHALL TEST FREE FROM SHORT CIRCUITS AND GROUNDS. TESTING SHALL BE FOR ONE MINUTE USING 1000V DC. INVESTIGATE ANY VALUES LESS THAN 50 MEGAOHMS.
2. PRIOR TO ENERGIZING CIRCUITRY, TEST WIRING DEVICES FOR ELECTRICAL CONTINUITY AND PROPER POLARITY CONNECTIONS.
3. MEASURE AND RECORD VOLTAGES BETWEEN PHASES AND BETWEEN PHASE WIRES AND NEUTRALS. SUBMIT A REPORT OF MAXIMUM AND MINIMUM VOLTAGES.
4. PERFORM GROUND TEST TO MEASURE GROUND RESISTANCE OF GROUNDING SYSTEM USING THE IEEE STANDARD 3–POINT “FALL–OF–POTENTIAL” METHOD. PROVIDE PLOTTED TEST VALUES & LOCATION SKETCH. NOTIFY THE ENGINEER IMMEDIATELY IF MEASURED VALUE IS OVER 5 OHMS.

END OF SECTION

END OF SPECIFICATION

STAMP:

3/3/2022

STATE OF MISSOURI

SHELTON KEISLING

NUMBER PE-27323

PROFESSIONAL ENGINEER

DocuSigned by:
Skiesling

ENGINEERING LICENSE:

STATE OF MISSOURI

STATE CERTIFICATE OF AUTHORIZATION # EF-2791

ENGINEER: PE#: DISCIPLINE:

KMV KEVIN M. VANMAELE PE-021561 CIVIL C

REJ ROBERT E. JENSEN PE-028974 CIVIL C

CG CHRISTOPHER GIANNOTTI PE-2020038653 CIVIL C

SDK SHELTON D. KEISLING PE-27323 ELECTRICAL E

TMS TERRANCE M. SUPER PE-18521 ELECTRICAL E

PLANS PREPARED FOR:



PLANS PREPARED BY:



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SUBMITTALS:

| DESCRIPTION | DATE | BY | REV |
|-------------------------|----------|-----|-----|
| ISSUED FOR REVIEW | 02/03/22 | FAC | A |
| ISSUED FOR CONSTRUCTION | 03/03/22 | FAC | 0 |
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| | | | |
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APPLICANT SITE NAME:

LEE'S SUMMIT FIRE STATION

APPLICANT SITE NUMBER:

A5C0028A

SITE ADDRESS:

209 S.E. DOUGLAS ST
LEE'S SUMMIT, MO 64063

SHEET DESCRIPTION:

SPECIFICATIONS
(3 OF 3)

SHEET #:

SP-2.1