GENERAL SITE - KOMU TV STATION TRANSMITTER BUILDING

FOR THE CURATORS OF THE UNIVERSITY OF MISSOURI
PROJECT NO. CP 190063

LOCATION MAP

NOT TO SCALE

PROJECT BENCHMARK:

TBM #1 – CHISELED SQUARE IN NORTH WEST CORNER OF THE NORTH AUTOMATIC WATERING PAD. LOCATED SOUTH OF OUR PROPOSED LOCATION. ELEVATION = 844.75

FLOOD PLAIN STATEMENT:

THIS TRACT IS NOT LOCATED WITHIN A SPECIAL FLOOD HAZARD AREA SUBJECT TO SEC 29-2.3(D)(4)(I) OF THE CODE OF ORDINANCES AND AS SHOWN ON THE FEMA F.I.R.M. PANEL #29019C0295E, DATED APRIL 19, 2017.

UTILITY COMPANIES:

LOCATES:
MISSOURI ONE CALL INC.
1022 B NORTHEAST DRIVE
JEFFERSON CITY, MO 65109
1-800-344-7483

TELEPHONE:
CENTURYLINK
625 CHERRY STREET
COLUMBIA, MO 65205
573-886-3700

NATURAL GAS:
AMEREN MISSOURI
2001 MAGUIRE BLVD.
COLUMBIA, MO 65201
573-876-3030

CABLE TELEVISION:
CHARTER COMMUNICATIONS
1510 CHARTER BOONE
INDUSTRIAL BOULEVARD
COLUMBIA, MO 65202
573-875-8875

WATER/ELECTRIC:
CITY OF COLUMBIA
P.O. BOX 6015
WATER & LIGHT DEPARTMENT
COLUMBIA, MO 65205
573-874-7325

SANITARY SEWER:
CITY OF COLUMBIA
P.O. BOX 6015
UTILITIES DEPARTMENT
COLUMBIA, MO 65205
573-874-7250

ELECTRIC:
BOONE ELECTRIC COOPERATIVE
1413 RANGE LINE STREET
COLUMBIA, MO 65201
573-449-4181

GENERAL NOTES:

CONTRACTOR WILL BE RESPONSIBLE FOR PLACEMENT AND MAINTENANCE OF TRAFFIC CONTROL DEVICES NECESSARY TO COMPLETE THEIR PORTION OF WORK. THE DEVICES AND METHODS EMPLOYED WILL COMPLY WITH THE CURRENT VERSION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

EXISTING UTILITIES SHOWN FOR REFERENCE ONLY. CONTRACTOR SHALL COORDINATE LOCATES (HORIZONTAL AND VERTICAL) PRIOR TO ANY EXCAVATION.

ALL EXCAVATION TO BE IN ACCORDANCE WITH SECTIONS 319.010–319.050, REVISED STATUTES OF THE STATE OF MISSOURI. SUCH COMPLIANCE SHALL NOT, HOWEVER, EXCUSE ANY PERSON MAKING ANY EXCAVATION FROM DOING SO IN A CAREFUL AND PRUDENT MANNER, NOR SHALL IT EXCUSE SUCH PERSON FROM LIABILITY FOR ANY DAMAGE OR INJURY TO UNDERGROUND UTILITIES RESULTING FROM THE EXCAVATION.

IT IS THE INTENT OF THESE PLANS TO COMPLY WITH THE REQUIREMENTS OF THE MoDNR CLEAN WATER COMMISSION.

RESTROOM FACILITIES TO BE PROVIDED BY CONTRACTOR. LOCATION TO BE COORDINATED WITH OWNER.

REFER TO STORMWATER POLLUTION PREVENTION PLAN (SWPPP) FOR NARRATIVE REPORT AND BMP DESCRIPTIONS AND DETAILS.

LAND DISTURBANCE SITES SHOULD BE INSPECTED ON A REGULAR SCHEDULE AND WITHIN A REASONABLE TIME PERIOD (NOT TO EXCEED 48 HOURS) FOLLOWING HEAVY RAINS. REGULARLY SCHEDULED INSPECTIONS SHALL BE AT A MINIMUM OF ONCE PER WEEK. ANY DEFICIENCIES SHALL BE NOTED IN A WEEKLY REPORT OF THE INSPECTION AND CORRECTED WITHIN SEVEN CALENDAR DAYS OF THE REPORT. CONTRACTORS ARE REQUIRED TO SUBMIT TO CITY INSPECTION STAFF COPIES OF THEIR INSPECTION REPORTS REQUIRED BY THE STORMWATER POLLUTION PREVENTION PLAN (SWPPP) ON A MONTHLY BASIS.

SPECIAL INSPECTIONS:

THE FOLLOWING ITEMS REQUIRE SPECIAL INSPECTION IN ACCORDANCE WITH CHAPTER 17 OF THE INTERNATIONAL BUILDING CODE.

a. PLACING OF CONCRETE AND REINFORCING STEEL (CONTINUOUS OF CONCRETE SAMPLING/PERIODIC OF REINFORCING)
b. BOLTS & ANCHORS EMBEDDED IN CONCRETE (PERIODIC)
c. POST INSTALLED ANCHORS IN CONCRETE (CONTINUOUS)
d. IN-SITU SOILS, EXCAVATIONS, FILLING & COMPACTION (PERIODIC)

THE CONTRACTOR SHALL REQUEST SPECIAL INSPECTION OF THE ITEMS LISTED ABOVE PRIOR TO THOSE ITEMS BECOMING INACCESSIBLE AND UNOBSERVABLE DUE TO PROGRESSION OF THE WORK.

DESIGN SPECIFICATIONS

2018 INTERNATIONAL BUILDING CODE.

SHEET INDEX:

SHT #	DESCRIPTION	100% CD SET 08/19/2021	100% CD SET 09/08/2021	BID SET 10/12/2021			
CE 0	COVER SHEET	X	X	X			
CE 1	OVERALL SITE	X	X	X			
CE 2	SITE PLAN SHEET	X	X	X			
CE 3	GRADING AND EROSION CONTROL SHEET	X	X	X			
CE 4	FENCING DETAILS	X	X	X			
S100	FOUNDATION PLAN & DETAILS	X	X	X			
MEP1	ELECTRICAL COVER SHEET	X	X	X			
MEP2	SITE UTILITIES PLAN	X	X	X			
E101	POWER & LIGHTING PLANS - KOMU	X	X	X			
E102	POWER AND LIGHTING PLANS - KBIA	X	X	X			
E501	ELECTRICAL DETAILS	X	X	X			
E601	ELECTRICAL SCHEDULES	X	X	X			
E602	ELECTRICAL SCHEDULES	X	X	X			

LEGEND OF SYMBOLS:

- EXISTING CURB
- PROPOSED CURB
- RIP RAP
- EXISTING STRUCTURE
- EXISTING TREELINE
- PROPOSED TREELINE
- EDGE OF WATERWAY
- EXISTING WATERLINE
- PROPOSED WATERLINE
- EXISTING GAS LINE
- PROPOSED GAS LINE
- EXISTING UNDERGROUND TELEPHONE
- EXISTING UNDERGROUND CABLE TELEVISION
- EXISTING HIGH VOLTAGE ELECTRIC
- EXISTING OVERHEAD ELECTRIC
- EXISTING UNDERGROUND ELECTRIC
- EXISTING OVERHEAD ELEC. & TV
- EXISTING OVERHEAD ELEC., TV & TELE.
- EXISTING SANITARY SEWER
- PROPOSED SANITARY SEWER
- EXISTING MINOR CONTOUR
- EXISTING MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- PROPOSED MAJOR CONTOUR
- 100 YEAR FLOOD PLAIN
- FLOODWAY
- ORDINARY HIGH WATER MARK
- STREAM SIDE BUFFER
- OUTER STREAM BUFFER

- FF=XXX.X — FINISH FLOOR OF STRUCTURE
- XXX.XX TC — PROPOSED TOP OF CURB ELEVATION
- XXX.XX TP — PROPOSED TOP OF PAVEMENT ELEVATION
- XXX.XX FG — PROPOSED FINISH GRADE ELEVATION
- XXX.XX TW — PROPOSED TOP OF WALL
- XX — LOT NUMBER
- X — STORM SEWER STRUCTURE LABEL
- X — SANITARY SEWER STRUCTURE LABEL
- H.P. — HIGH POINT
- L.P. — LOW POINT
- EXISTING SIGNS
- EXISTING POWER POLE
- EXISTING GAS VALVE
- EXISTING WATER VALVE
- EXISTING GAS METER
- EXISTING WATER METER
- EXISTING FIRE HYDRANT
- MANHOLE
- EXISTING SANITARY SEWER LATERAL
- PROPOSED SANITARY SEWER LATERAL
- PROPOSED TRACER WIRE TEST STATION BOX
- AC — EXISTING AIR CONDITIONER
- EXISTING TELEPHONE PEDESTAL
- ET — EXISTING ELECTRICAL TRANSFORMER
- E — EXISTING ELECTRIC METER
- EXISTING LIGHT POLE
- EXISTING GUY WIRE

I HEREBY CERTIFY THESE DRAWINGS AND/OR SPECIFICATIONS HAVE BEEN PREPARED BY ME, OR UNDER MY SUPERVISION. I FURTHER CERTIFY THAT TO THE BEST OF MY KNOWLEDGE THESE DRAWINGS AND/OR SPECIFICATIONS ARE AS REQUIRED BY AND IN COMPLIANCE WITH THE BUILDING CODES OF THE UNIVERSITY OF MISSOURI.

_____ SIGNATURE

REVISIONS:

NO.	DATE
100% CD SET	08/19/2021
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BID SET	10/12/2021

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY

STATE OF MISSOURI
NATHAN THOMAS ECKHOFF
NUMBER PE-2003014960
PROFESSIONAL ENGINEER

NATHAN THOMAS ECKHOFF
MO LICENSE: 2003014960

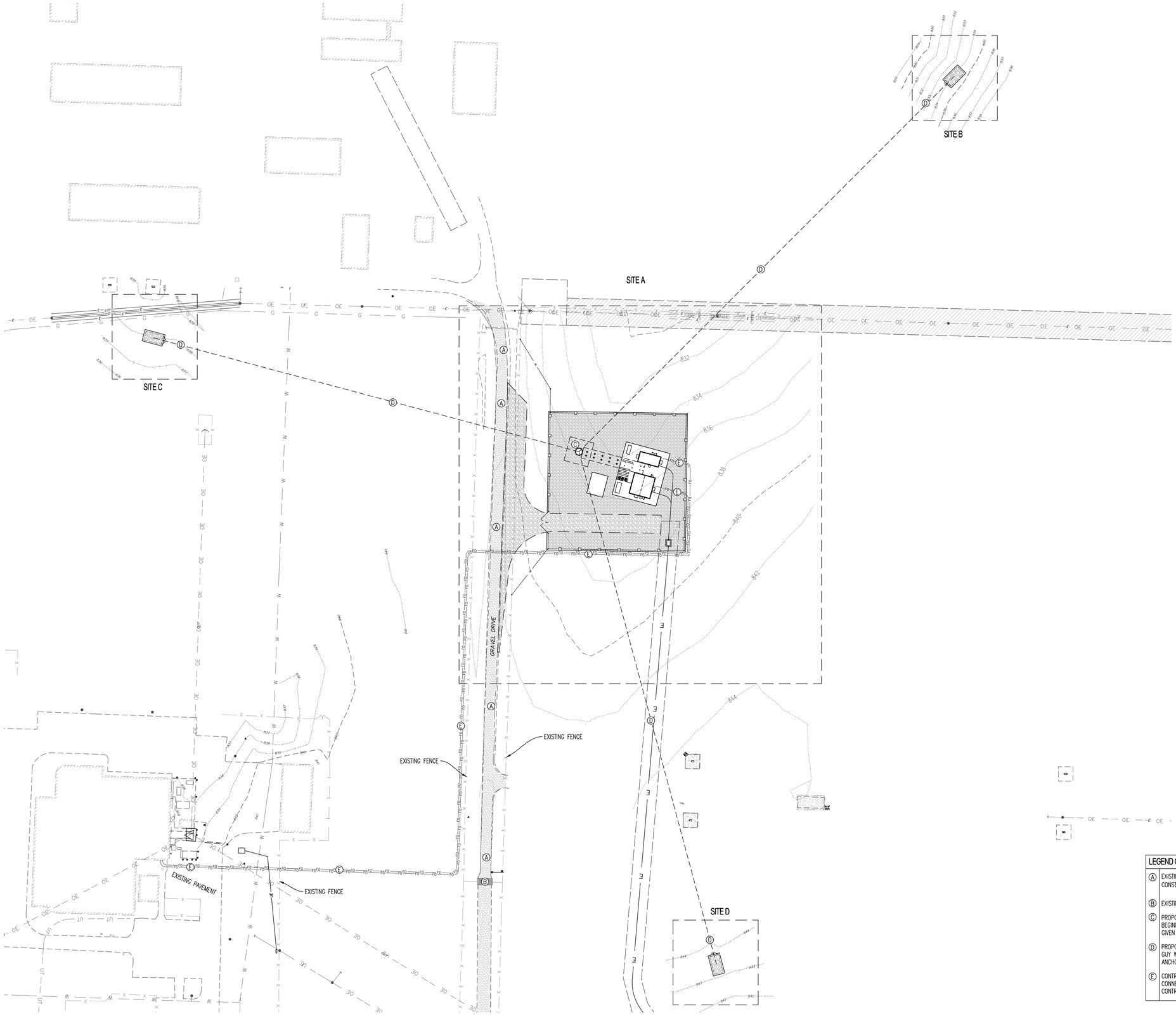
PREPARED BY:
CROCKETT ENGINEERING CONSULTANTS
1000 W. Nifong Blvd., Bldg 1
Columbia, Missouri 65203
(573) 447-0292
www.crockettengineering.com
Crockett Engineering Consultants, LLC
Missouri Certificate of Authority
2006015301

OWNER:
THE CURATORS OF THE
UNIVERSITY OF MISSOURI

GENERAL SITE - KOMU TV STATION TRANSMITTER BUILDING
PROJECT: CP190063
SECTION 3, TOWNSHIP 47 NORTH, RANGE 12 WEST
COLUMBIA, BOONE COUNTY, MISSOURI

DRAWING INCLUDES:
COVER SHEET

DESIGNED: NTE
DRAWN: JAA
PROJECT NO.: 200499
SHEET: CE 0



LEGEND OF LABELS

(A)	EXISTING GRAVEL DRIVE. ACCESS TO BE TO BE MAINTAINED AT ALL TIMES. IF ANY DAMAGE IS CAUSED DURING CONSTRUCTION, CONTRACTOR TO RESTORE/REPAIR DRIVE TO EXISTING CONDITION PRIOR TO CONSTRUCTION.
(B)	EXISTING CATTLE GUARD TO BE PROTECTED DURING CONSTRUCTION.
(C)	PROPOSED TOWER AND BASE. TO BE INSTALLED BY OTHERS (TOWER CONTRACTOR) PRIOR TO CONSTRUCTION BEGINNING. ADDITIONAL EQUIPMENT MAY STILL BE INSTALLED ON TOWER BY OTHERS AFTER NOTICE TO PROCEED IS GIVEN FOR THE WORK SHOWN ON THESE CONTRACT DOCUMENTS.
(D)	PROPOSED TOWER GUY WIRES AND ANCHORS TO BE INSTALLED BY OTHERS (TOWER CONTRACTOR). FENCING AROUND GUY WIRE ANCHORS TO BE INSTALLED AS SHOWN ON THESE CONTRACT DOCUMENTS. REFER TO SITE PLAN FOR ANCHOR ON SHEET CE 2.
(E)	CONTRACTOR TO INSTALL 2-2" PVC CONDUITS W/ PULL STRING TO EXISTING BUILDING FOR FUTURE FIBER CONNECTION. CONTRACTOR TO COORDINATE EXACT LOCATION OF TERMINATION AT EXISTING BUILDING WITH OWNER. CONTRACTOR TO REPAIR/PATCH ANY EXISTING FENCING AND PAVEMENT DISTURBED FOR INSTALLATION.

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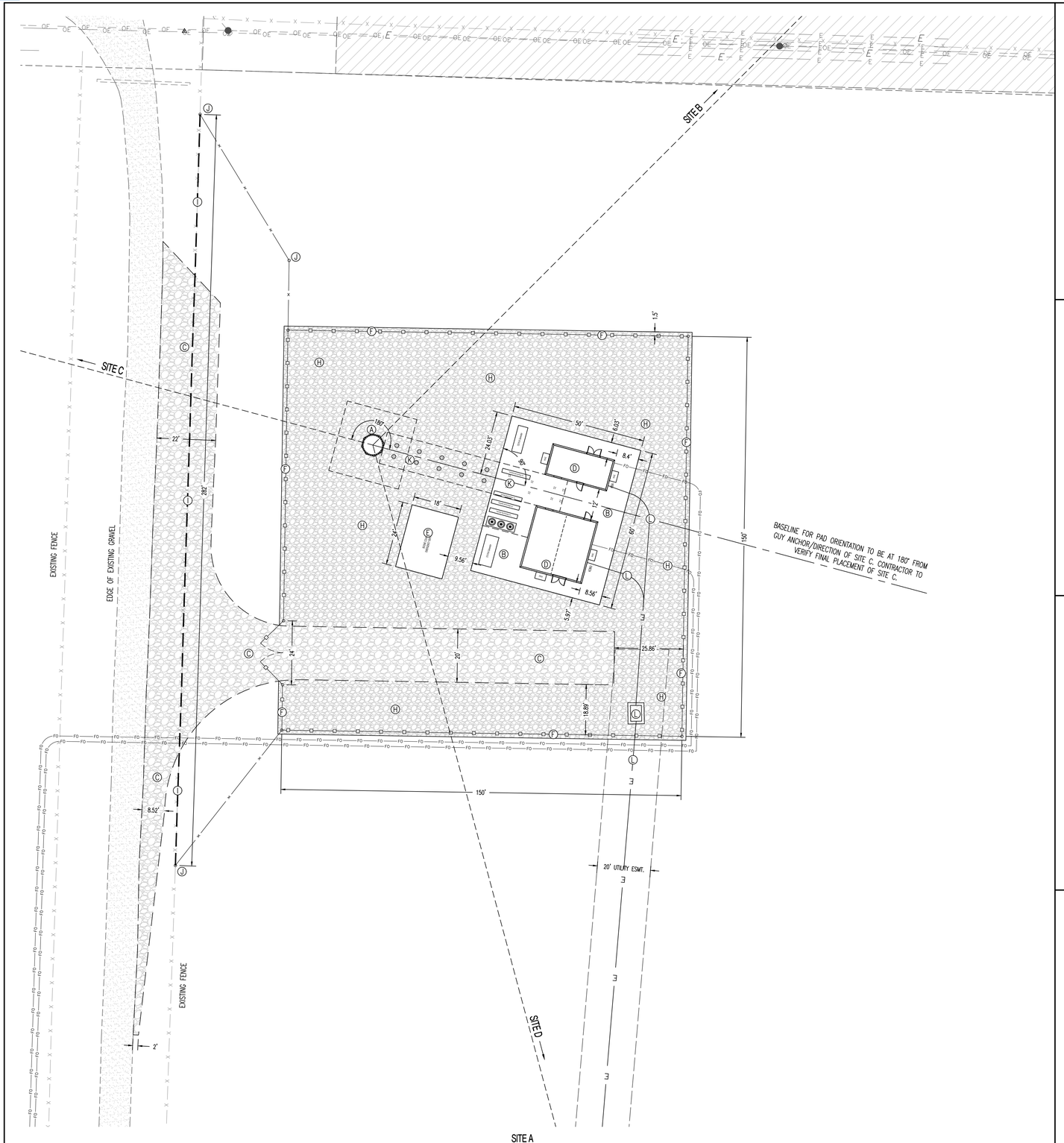
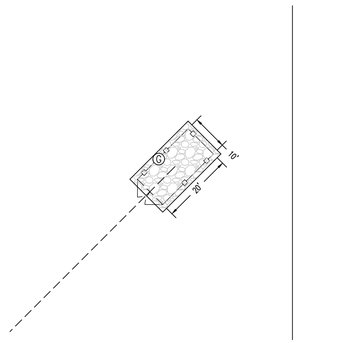
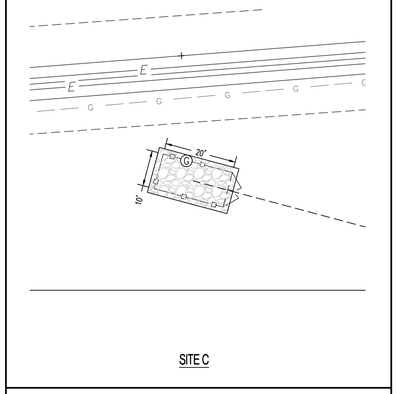
PROJECT: CP190063
SECTION 3, TOWNSHIP 47 NORTH, RANGE 12 WEST
COLUMBIA, BOONE COUNTY, MISSOURI

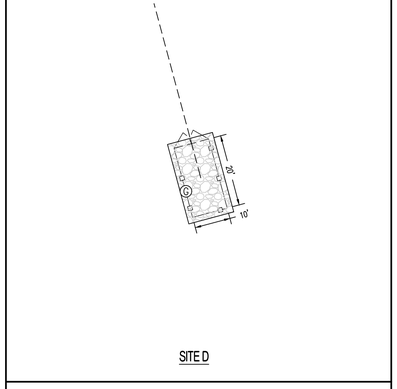
DRAWING INCLUDES:
OVERALL SITE

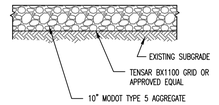
DESIGNED:	NTE
DRAWN:	JAA
PROJECT NO.:	200499
SHEET:	CE 1



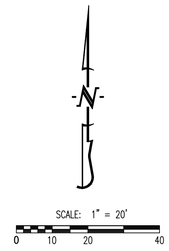








GRAVEL PAVEMENT CROSS SECTION



LEGEND OF LABELS

(A)	PROPOSED TOWER AND BASE. TO BE INSTALLED BY OTHERS (TOWER CONTRACTOR) PRIOR TO CONSTRUCTION BEGINNING. ADDITIONAL EQUIPMENT MAY STILL BE INSTALLED ON TOWER BY OTHERS AFTER NOTICE TO PROCEED IS GIVEN FOR THE WORK SHOWN ON THESE CONTRACT DOCUMENTS.
(B)	TRANSMITTER/GENERATOR PAD. REFER TO GRADING PLAN FOR ELEVATIONS ON CE 3 AND STRUCTURAL PLANS S X FOR DETAILS.
(C)	GRAVEL DRIVE TO BE CONSTRUCTED BY OTHERS (TOWER CONTRACTOR) AS SHOWN AND PER CROSS SECTION ON THIS SHEET. MINOR REPAIR TO DRIVE SHOULD BE ANTICIPATED BY CONTRACTOR AT COMPLETION OF PROJECT.
(D)	TRANSMITTER BUILDING. TO BE SUPPLIED BY OWNER AND INSTALLED BY CONTRACTOR.
(E)	FUTURE BOONE COUNTY EMERGENCY SERVICES PAD BY OTHERS. REFER TO GRADING PLAN FOR ELEVATIONS ON CE 3.
(F)	INSTALL 8' TALL CHAINLINK FENCE WITH 3 STRAND BARB WIRE TOP. INSTALL GATE AS SHOWN. REFER TO DETAIL ON CE 4.
(G)	INSTALL 8' TALL CHAINLINK FENCE WITHOUT TOP BARB WIRE AROUND GUY ANCHORS. INSTALL GATE AS SHOWN. REFER TO DETAIL ON CE 4.
(H)	INSTALL 4" THICK MODOT TYPE 5 AGGREGATE BASE ON TOP OF WEEDMAT (DEWITT PRO WEED BARRIER OR APPROVED EQUAL). ROCK AND WEED MAT TO EXTEND 1.5' BEYOND EDGE OF FENCE ENCLOSURE.
(I)	EXISTING FENCE TO REMOVED AS SHOWN. EXISTING WIRE TO BE ROLLED UP AND REUSED.
(J)	INSTALL NEW 4" TALL CORNER POST. MATERIAL TO MATCH CHAINLINK FENCE AND TO BE INSTALLED PER DETAILS ON CE 4. EXISTING WIRE TO BE ATTACHED TO NEW POST.
(K)	TOWER CONDUIT BRIDGE/PIERS. TO BE CONSTRUCTED BY OTHERS.
(L)	TRANSFORMER PAD AND UNDERGROUND ELECTRIC TO BE INSTALLED BY OTHERS.

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STATE OF MISSOURI
NATHAN THOMAS ECKHOFF
NUMBER PE-2003014960
PROFESSIONAL ENGINEER

NATHAN THOMAS ECKHOFF
MO LICENSE: 2003014960

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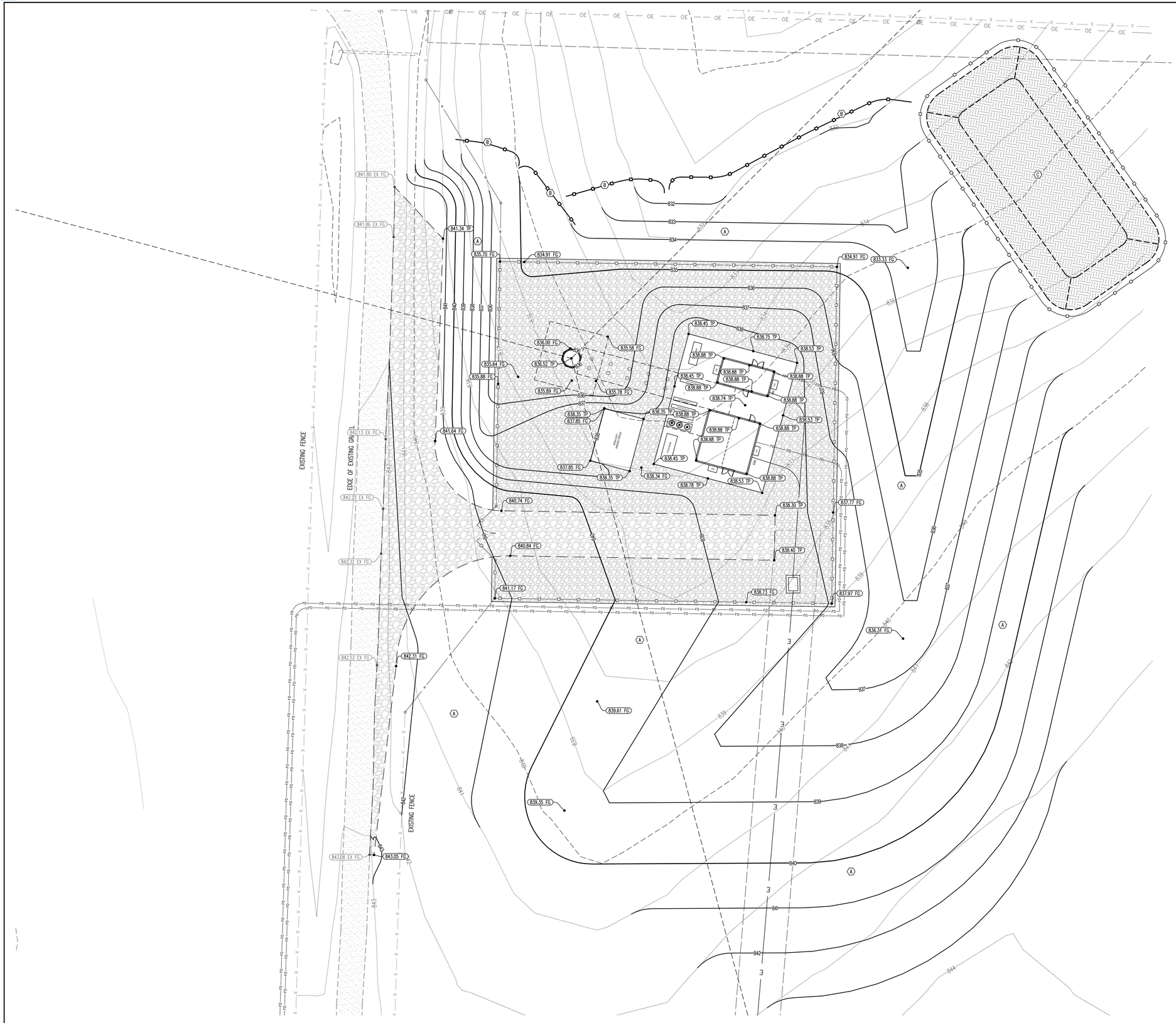
GENERAL SITE - KOMU TV STATION TRANSMITTER BUILDING

PROJECT: CP190063
SECTION 3, TOWNSHIP 47 NORTH, RANGE 12 WEST
COLUMBIA, BOONE COUNTY, MISSOURI

DRAWING INCLUDES:
SITE PLAN SHEET

DESIGNED:	NTE
DRAWN:	JAA
PROJECT NO.:	200499
SHEET:	CE 2



GENERAL EROSION CONTROL NOTES:

1. THE CONTRACTOR SHALL PROVIDE FOR CONTROL OF SURFACE EROSION AND SEDIMENT DEPOSITION DURING ALL PHASES OF CONSTRUCTION AND UNTIL THE OWNER ACCEPTS THE WORK AS SUBSTANTIALLY COMPLETE.
2. CONTRACTOR IS RESPONSIBLE FOR KEEPING ALL ROADWAYS AND SIDEWALKS ADJACENT TO THE CONSTRUCTION SITE FREE OF DIRT AND DEBRIS RESULTING FROM ACTIVITIES RELATED TO THE CONSTRUCTION OF THIS PROJECT.
3. CONTRACTOR SHALL KEEP THE ENTIRE PROJECT SITE FREE OF DEBRIS AND TRASH AT ALL TIMES. CONTRACTOR SHALL EXECUTE WORK USING METHODS THAT MINIMIZE EXCESSIVE NOISE OR DUST EMISSIONS. CONTRACTOR SHALL PROVIDE METHODS, MEANS AND FACILITIES TO PREVENT CONTAMINATION OF SOIL OR WATER FROM DISCHARGE OF REGULATED MATERIALS (I.E., DIESEL FUEL) USED DURING CONSTRUCTION.
4. CONTRACTOR MUST INSTALL AND MAINTAIN THE EROSION CONTROL MEASURES SHOWN ON THIS PLAN. IF THE ENGINEER, OWNER'S REPRESENTATIVE, DETERMINES THAT THE INSTALLATION OF THE MAINTENANCE IS INADEQUATE, THE CONTRACTOR MUST IMMEDIATELY CORRECT AT THEIR EXPENSE. IF IT IS DETERMINED THAT ADDITIONAL EROSION CONTROL MEASURES ARE NEEDED THE CONTRACTOR WILL BE DIRECTED TO INSTALL AND MAINTAIN THOSE MEASURES.
5. THE CONTRACTOR SHALL INSPECT THE LAND DISTURBANCE SITE AT LEAST ONCE EVERY SEVEN (7) DAYS AND WITHIN TWENTY-FOUR (24) HOURS FOLLOWING EACH RAINFALL EVENT OF 1/2" OR MORE WITHIN ANY TWENTY-FOUR (24) HOUR PERIOD. THE CONTRACTOR SHALL ALSO INSPECT AND ASSURE THAT ALL SEDIMENT CONTROL DEVICES ARE IN WORKING CONDITION PRIOR TO ANY FORECASTED RAINFALL.
6. THE CONTRACTOR SHALL REMOVE SEDIMENT FROM THE FLOW AREAS AND MAKE ALL NECESSARY REPAIRS TO MAINTAIN THE INTEGRITY OF THE SEDIMENT CONTROL MEASURES, SEDIMENT SHALL BE REMOVED ONCE IT REACHED ½ THE INSTALLED HEIGHT OF MEASURE.
7. SOME OF THE EROSION AND SEDIMENT CONTROL MEASURES, WILL REQUIRE THE CONTRACTOR TO INSTALL, REMOVE, AND REINSTALL THE MEASURES AS CONSTRUCTION PROCEEDS. THE PHASING OF THIS WORK IS DEPENDENT ENTIRELY ON THE CONTRACTOR'S SCHEDULE, AND IS NOT SPECIFIED HEREIN. HOWEVER, THE CONTRACTOR SHALL COORDINATE THESE ACTIONS WITH THE ENGINEER AT THE TIME'S ADJUSTMENTS ARE NEEDED.
8. CONTRACTOR SHALL DIRECT CONCRETE TRUCKS TO WASHOUT AT PLANT.

N

SCALE: 1" = 20'
0 10 20 40

LEGEND OF LABELS

(A)	FINE GRADE AS SHOWN BY PROPOSED CONTOURS. PLACE MINIMUM OF 6" TOP SOIL. SEED AND MULCH ALL DISTURBED AREAS.
(B)	INSTALL SILT FENCE AS SHOWN.
(C)	TOP SOIL STORAGE.

LEGEND OF SYMBOLS:

XXX	EXISTING MINOR CONTOUR
XXX	EXISTING MAJOR CONTOUR
XXX	PROPOSED MINOR CONTOUR
XXX	PROPOSED MAJOR CONTOUR
FF=XXXX	FINISHED FLOOR OF STRUCTURE
XXX.XX TC	PROPOSED TOP OF CURB ELEVATION TC = (TP+6") UNLESS NOTED OTHERWISE
XXX.XX TP	PROPOSED TOP OF PAVEMENT ELEVATION
XXX.XX FG	PROPOSED FINISH GRADE ELEVATION
XXX.XX FF	PROPOSED FINISH FLOOR AT DOOR
XXX.XX TW	PROPOSED FINISH GRADE AT TOP OF WALL
XXX.XX EX FG	EXISTING FINISH GRADE ELEVATION

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STATE OF MISSOURI
NATHAN THOMAS ECKHOFF
NUMBER PE-2009014960
PROFESSIONAL ENGINEER

NATHAN THOMAS ECKHOFF
MO LICENSE: 2009014960

PREPARED BY:
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OWNER:
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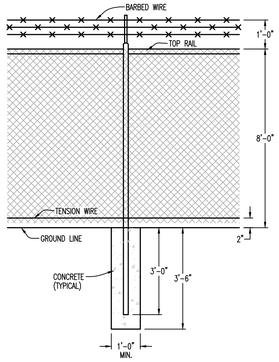
GENERAL SITE - KOMU TV

PROJECT: CPI90063
SECTION 3, TOWNSHIP 47 NORTH, RANGE 12 WEST
COLUMBIA, BOONE COUNTY, MISSOURI

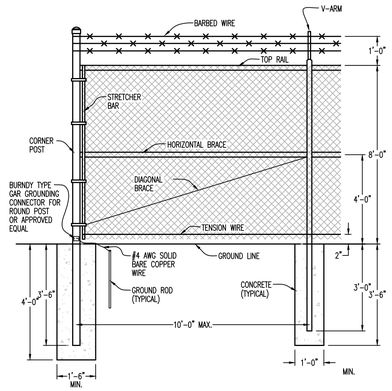
DRAWING INCLUDES:

GRADING AND EROSION CONTROL SHEET

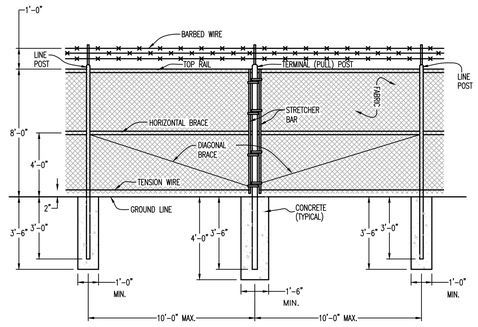
DESIGNED:	NTE
DRAWN:	JAA
PROJECT NO.:	200499
SHEET:	CE 3



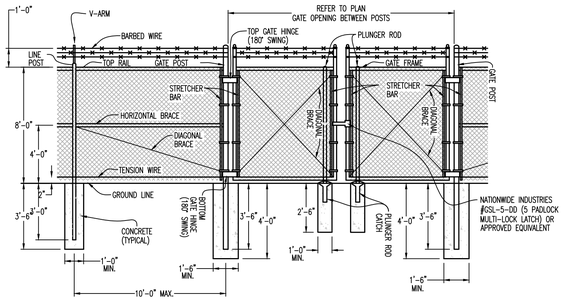
STANDARD LINE POST



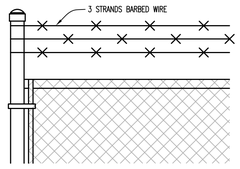
STANDARD CORNER



STANDARD PULL POST



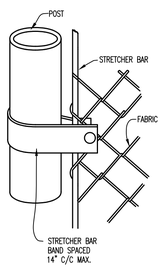
STANDARD PULL GATE



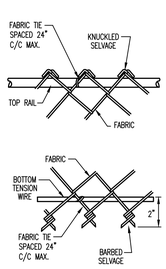
BARBED WIRE – 3 STRANDS, 12 1/2 GAUGE WIRE WITH 14 GAUGE 4 POINT BARBS SPACED APPROXIMATELY 6 INCHES APART. ALL WIRE SHALL BE ALUMINUM COATED WITH A MINIMUM COATING OF 0.25 OUNCES PER SQUARE FOOT OF SURFACE AREA.

BARBED WIRE SHALL BE DIRECTLY ATTACHED TO EACH CORNER AND GATE POST. BARBED WIRE SHALL BE ATTACHED TO EACH LINE POST AND PULL POST WITH A SUPPORTING ARM. SUPPORTING ARM SHALL SLOPE TO THE OUTSIDE OF THE FENCE AT A 45° ANGLE.

BARBED WIRE



METHOD OF FASTENING STRETCHER BAR TO POST



METHOD OF TYING FABRIC TO TENSION WIRES

FASTENING & TYING

8.0 FENCING

8.1 GENERAL

A GALVANIZED CHAIN-LINK FENCE SURROUNDING THE PUMP STATION SITE SHALL BE PROVIDED AS SPECIFIED HEREIN AND AS SHOWN ON THE STANDARD DETAILS. THE FENCE SHALL BE 8 FEET HIGH (MINIMUM) WITH A 12-FOOT WIDE DOUBLE-LEAF GATE.

FENCING SHALL BE LOCATED SO THAT:

8.2 MATERIAL SPECIFICATIONS

A. CHAIN LINK FABRIC

1. CHAIN-LINK FABRIC SHALL BE A 2-INCH MESH WOVEN FROM NO. 9 GAUGE ALUMINUM-COATED STEEL OR ALUMINUM-ZINC ALLOY-COATED STEEL CONFORMING TO ASTM A491 OR A783. THE FABRIC SHALL HAVE A HEIGHT OF 72 INCHES, 20-1/2 DIAMOND COUNT, WITH THE BOTTOM SELVAGE TWISTED AND THE TOP SELVAGE KNUCKLED. ALUMINUM-COATED STEEL FABRIC SHALL BE GIVEN A CLEAR ORGANIC COATING AFTER FABRICATION. ALUMINUM-ZINC ALLOY COATING ON THE STEEL FABRIC SHALL BE NOT LESS THAN 0.47 OUNCE PER SQUARE FOOT OF UNCOATED WIRE SURFACE.

B. FENCE FRAMEWORK

1. GENERAL: GALVANIZED STEEL, ASTM F1083 OR ASTM A123, WITH NOT LESS THAN 1.8 OUNCES OF ZINC PER SQUARE FOOT OF SURFACE, OR STEEL CONFORMING TO ASTM A569 EXTERNALLY TRIPLE-COATED WITH HOT-DIP GALVANIZING AT 1.0 OUNCE PER SQUARE FOOT, CHROMATIC CONVERSION COATING AND CLEAR ACRYLIC POLYURETHANE AND COATED INTERNALLY WITH ZINC-RICH COATING.

2. FITTINGS AND ACCESSORIES: UNLESS OTHERWISE NOTED, ALL FENCE FITTINGS AND ACCESSORIES SHALL BE GALVANIZED ACCORDING TO ASTM A153, WITH ZINC WEIGHTS PER TABLE I.

3. GATE POSTS: 4.0 INCHES O.D. AT 9.11 POUNDS PER FOOT.

4. END, CORNER, ANGLE OR PULL POST: 2.375 INCHES O.D. AT 3.65 POUNDS PER FOOT.

5. LINE POST AND GATE FRAME: 1.9 INCHES O.D. AT 2.72 POUNDS PER FOOT.

6. TOP RAIL: 1.66 INCHES O.D. AT 2.27 POUNDS PER FOOT.

7. BRACES:

(A) HORIZONTAL BRACE: 1.66 INCHES O.D. AT 2.27 POUNDS PER FOOT.

(B) DIAGONAL BRACE: 3/8-INCH DIAMETER ROD EQUIPPED WITH ADJUSTABLE TIGHTENER.

C. FASTENERS

THE CHAIN-LINK FABRIC SHALL BE SECURELY FASTENED TO ALL TERMINAL POSTS BY A 1/4" X 3/4" TENSION BARS WITH HEAVY 11-GAUGE PRESSED STEEL BANDS AT 14-INCH MAXIMUM SPACING, TO LINE POSTS WITH 9-GAUGE WIRE CLIPS AT 14-INCH MAXIMUM SPACING, TO THE TOP RAIL WITH 9-GAUGE TIE WIRES AT 24-INCH MAXIMUM SPACING AND TO THE BOTTOM TENSION WIRE USING 11-GAUGE GALVANIZED HOG RINGS AT A 24-INCH MAXIMUM SPACING.

D. BARBED WIRE AND SUPPORTING ARMS

1. BARBED WIRE: BARBED WIRE SHALL CONSIST OF 2 STRANDS OF 2-WIRE ALUMINUM-COATED STEEL CONFORMING TO ASTM A585-81, TYPE I (WITH BARBS SPACED ON 5-INCH CENTERS).

2. SUPPORTING ARMS:

(A) ONE SUPPORTING ARM SHALL BE PLACED ON EACH LINE AND PULL POST.

(B) SINGLE ARM AT 45 DEGREES WITH VERTICAL, SLOPING TO OUTSIDE OF FENCE.

(C) INTEGRAL WITH POST TOP AND DESIGNED AS A WEATHER-TIGHT CLOSURE CAP.

(D) CONSTRUCTED FOR ATTACHING 2 ROWS OF BARBED WIRE TO EACH ARM.

(E) DESIGNED FOR 200 POUND MINIMUM PULL-DOWN LOAD.

(F) MALLEABLE IRON OR PRESSED STEEL

E. BOTTOM TENSION WIRE:

THE BOTTOM TENSION WIRE SHALL BE A NO. 7 GAUGE ALUMINUM-COATED STEEL CONFORMING TO ASTM A824, TYPE I. THE TENSION WIRE SHALL BE PLACED AT THE BOTTOM OF THE CHAIN-LINK FABRIC AND STRETCHED TIGHT WITH GALVANIZED TURNBUCKLES.

F. POST TOPS:

THE POST TOPS SHALL BE DESIGNED AS A WEATHER-TIGHT CLOSURE CAP FOR THE TUBULAR POSTS.

G. GATES:

1. FRAMING:

(A) FRAMES SHALL BE ASSEMBLED BY WELDING OR WATERTIGHT GALVANIZED STEEL RIGID FITTINGS.

(B) PROVIDE WITH THE SAME CHAIN-LINK FABRIC AS FOR FENCE. INSTALL FABRIC WITH STRETCHER BARS AT VERTICAL AND TOP AND BOTTOM EDGES.

(C) PROVIDE A DIAGONAL BRACE ON EACH GATE LEAF TO ENSURE FRAME RIGIDITY WITHOUT SAG OR TWIST.

2. HARDWARE:

(A) HINGES OF PRESSED OR FORGED STEEL, OR MALLEABLE IRON, NONLIFT-OFF TYPE, OFFSET TO PERMIT 180 DEGREE GATE OPENING, 3 PER LEAF.

(B) PLUNGER-BAR TYPE LATCH WITH FLUSH-TYPE GATE STOP SHALL BE PROVIDED. LATCH BAR SHALL EXTEND TO FULL GATE HEIGHT AND BE DESIGNED TO EASILY ENGAGE GATE STOP.

(C) LOCKING DEVICE AND PADLOCK EYES SHALL BE AN INTEGRAL PART OF THE LATCH.

(D) AN AUTOMATICALLY ENGAGING GATE KEEPER SHALL BE PROVIDED FOR EACH GATE LEAF WHICH SHALL SECURE THE FREE END OF THE GATE IN THE OPEN POSITION.

H. PROTECTIVE ELECTRICAL GROUND

CONTINUOUS FENCE SHALL BE GROUNDED AT EACH CORNER POST AND AT INTERVALS NOT EXCEEDING 500 FEET, AS PER THE STANDARD DETAILS.

8.3 INSTALLATION

A. FENCE

1. FOLLOW GENERAL CONTOUR OF GROUND AND PROPERLY ALIGN.

2. POSTS

(A) SET IN CONCRETE BASES AS INDICATED ON STANDARD DETAILS.

(B) TEMPORARILY BRACE UNTIL CONCRETE BASE HAS SET.

(C) INSTALL PLUMB AND IN STRAIGHT ALIGNMENT.

(D) INSTALL PULL POSTS EVERY 300 FEET IF NO CORNER POSTS ARE ENCOUNTERED IN THAT DISTANCE.

(E) INSTALL PULL POSTS AT CHANGES IN DIRECTION OF 30 DEGREES OR MORE.

(F) INSTALL CORNER POSTS AT CHANGES IN DIRECTION OF 30 DEGREES OR MORE.

(G) INSTALL PULL POSTS AT ALL ABRUPT CHANGES IN GRADE.

3. POST BRACING:

(A) INSTALL BRACES FOR EACH END, PULL AND GATE POST AND EACH SIDE OF EACH CORNER POST.

(B) INSTALL AFTER CONCRETE HAS SET.

(C) INSTALL SO POSTS ARE PLUMB AND IN STRAIGHT ALIGNMENT WITH DIAGONAL BRACE IS UNDER TENSION.

4. TENSION WIRE:

(A) WEAVE THROUGH THE FABRIC AND TIE TO EACH POST WITH A MINIMUM 9-GAUGE GALVANIZED WIRE.

5. CHAIN-LINK FABRIC:

(A) STRETCH TAUT WITH EQUAL TENSION AND EACH SIDE OF POSTS.

6. STRETCHER BARS:

(A) INSTALL AT EACH PULL, END AND GATE POST AND ON EACH SIDE OF CORNER POSTS.

7. BARBED WIRE:

(A) ATTACH 2 ROWS TO EACH BARBED WIRE SUPPORTING ARM. PULL WIRE TAUT AND FASTEN SECURELY TO EACH ARM.

(B) INSTALL 2 ROWS ABOVE THE FABRIC AND ON EXTENDED GATE AND MEMBERS OF SWING GATES.

8. FASTENERS:

(A) INSTALL NUTS FOR TENSION BANDS AND HARDWARE BOLTS ON INSIDE FACE OF THE FENCE AND PEEN ENDS OF BOLTS OR SCORE THREADS TO PREVENT REMOVAL OF NUTS.

B. GATES

1. INSTALL PLUMB AND LEVEL.

2. INSTALL ALL HARDWARE, FRAMING, SUPPORTS, AND APPURTENANCES AS REQUIRED FOR GATE.

3. INSTALL KEEPERS, GROUND-SET ITEMS, AND FLUSH PLATE IN CONCRETE FOR ANCHORAGE AS SHOWN ON STANDARD DETAILS.

4. ADJUST AND LUBRICATE AS NECESSARY FOR SMOOTH OPERATION.

C. REPAIRING DAMAGED COATINGS

1. ALL DAMAGED COATINGS SHALL BE REPAIRED IN THE SHOP OR FIELD BY RE-COATING WITH COMPATIBLE AND SIMILAR COATING AS PER MANUFACTURER'S RECOMMENDATIONS.

FENCING & SIGNAGE SPECIFICATIONS

REVISIONS:

NO.	DATE
100% CD SET	08/19/2021
100% CD SET	09/08/2021
BID SET	10/12/2021

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY

STATE OF MISSOURI
NATHAN THOMAS ECKHOFF
NUMBER PE-2003014960
PROFESSIONAL ENGINEER

NATHAN THOMAS ECKHOFF
MO LICENSE: 2003014960

PREPARED BY:
CROCKETT ENGINEERING CONSULTANTS
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Columbia, Missouri 65203
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www.crockettengineering.com
Crockett Engineering Consultants, LLC
Missouri Certificate of Authority
#2006013901

OWNER:
THE CURATORS OF THE
UNIVERSITY OF MISSOURI

GENERAL SITE - KOMU TV STATION TRANSMITTER BUILDING

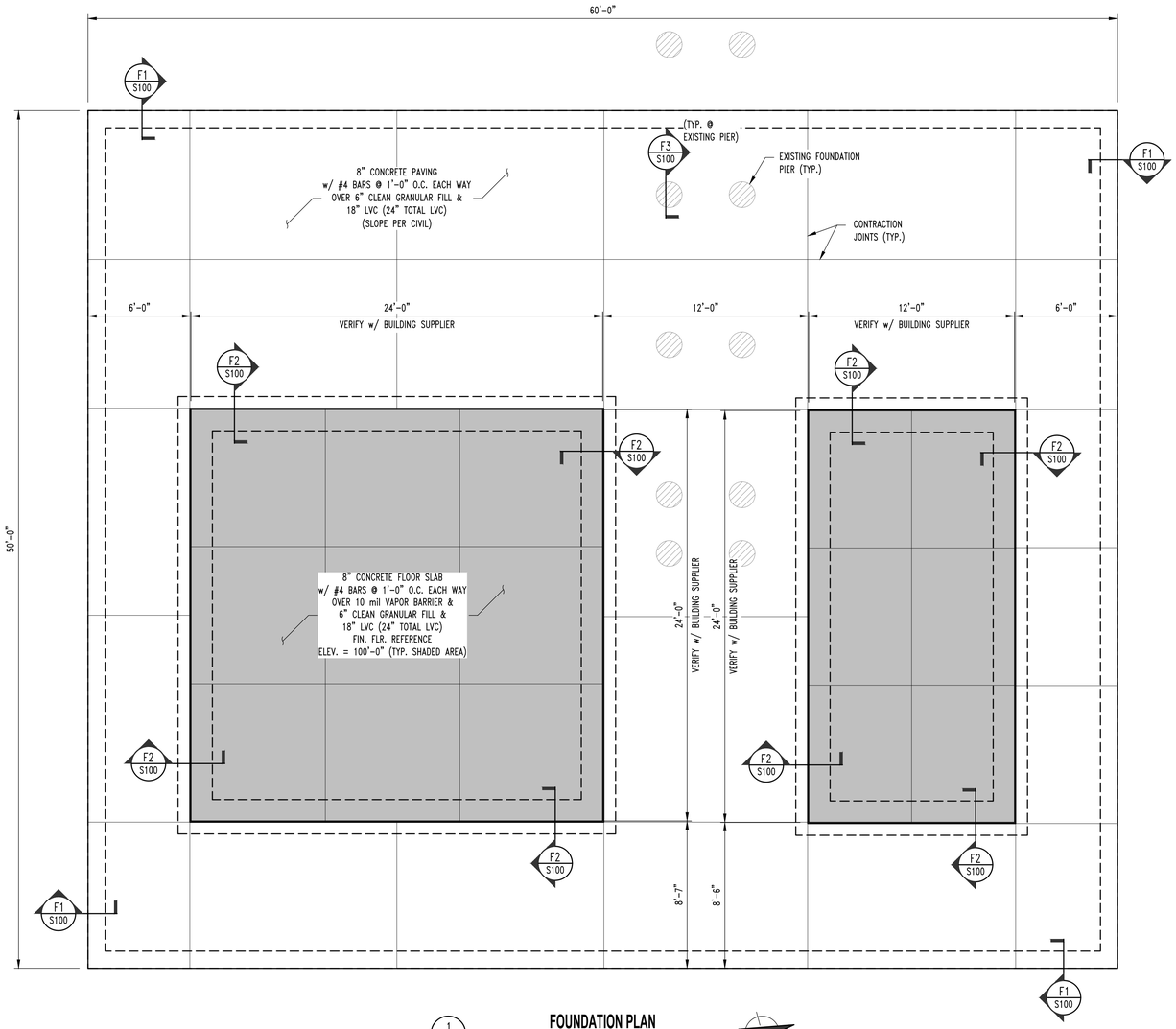
PROJECT: CP190063
SECTION 3, TOWNSHIP 47 NORTH, RANGE 12 WEST
COLUMBIA, BOONE COUNTY, MISSOURI

DRAWING INCLUDES:
FENCING DETAILS

DESIGNED:	NTE
DRAWN:	JAA
PROJECT NO.:	200499

SHEET:
CE 4

NOTE:
ALL DIMENSIONS ARE FROM FACE OF FOUNDATION WALL OR FRAMING;
EDGE OF SLAB OR TRUSS/RAFTER; OR CENTERLINE
OF COLUMN, BEAM, OR JOIST UNLESS NOTED OTHERWISE.



1 S100 **FOUNDATION PLAN**
SCALE: 1/4" = 1'-0"

GENERAL NOTES

ELEVATION DATUM
SEE ARCHITECTURAL DRAWINGS OR SITE PLAN FOR FINISH FLOOR ELEVATIONS

DESIGN SPECIFICATIONS
2018 INTERNATIONAL BUILDING CODE

EARTHWORK
EARTHWORK OPERATIONS SHALL BE PERFORMED UNDER THE DIRECTION OF A PROFESSIONAL TESTING AGENCY TO ASSURE COMPLIANCE WITH THE RECOMMENDATIONS OF THE SOILS REPORT.

CONCRETE

CONCRETE WORK SHALL CONFORM TO ALL REQUIREMENTS OF THE CURRENT ACI 301, SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS, ACI 318 BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE, ACI 305 SPECIFICATIONS FOR HOT WATER CONCRETE, AND ACI 306 SPECIFICATIONS FOR COLD WEATHER CONCRETE, WITH THE FOLLOWING ADDITIONAL REQUIREMENTS:

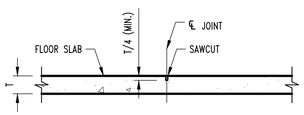
1. CONCRETE SHALL DEVELOP THE FOLLOWING 28-DAY MINIMUM COMPRESSIVE STRENGTH:
   FOUNDATIONS – 3,000 PSI
   CAST-IN-PLACE WALLS – 3,500 PSI
   FLOOR SLAB – 4,000 PSI
   EXTERIOR SLABS, WALLS AND CURBS – 4,000 PSI
2. ALL FOOTINGS SHALL BEAR ON UNDISTURBED SOIL OR ENGINEERED FILL.
3. CHLORIDE- BASED ADMIXTURES ARE PROHIBITED IN ALL REINFORCED CONCRETE.
4. REINFORCING STEEL SHALL CONFORM TO ASTM A615, A616, OR A617, GRADE 60.
5. ALL CONTINUOUS REINFORCING STEEL THAT MEETS AT A CORNER SHALL BE TIED TOGETHER WITH A CORNER BAR THAT HAS SUFFICIENT LAP DISTANCE IN EACH DIRECTION
6. CONTINUOUS REINFORCING BARS LAP LENGTH SHALL BE A MINIMUM OF 48 BAR DIAMETERS UNLESS NOTED OTHERWISE
7. CONCRETE SLUMP SHALL BE A MAXIMUM OF 4" +/- 1" (ASTM C- 143) AS DELIVERED IN THE FIELD. CONTRACTOR MAY USE CHEMICAL ADMIXTURES TO ATTAIN A MAXIMUM SLUMP OF 8" FOR WORKABILITY. NO WATER MAY BE ADDED TO THE CONCRETE MIX ON SITE UNLESS WATER IS WITHHELD AT THE BATCHING FACILITY. IF WATER IS WITHHELD AT THE BATCHING FACILITY IT SHOULD BE REFLECTED ON THE LOAD TICKET. THE TOTAL AMOUNT OF WATER IN THE MIX SHALL NOT EXCEED WHAT IS NOTED ON THE APPROVED MIXED. THIS SHALL BE NOTED IN THE SPECIAL INSPECTOR'S RECORDS.
8. CONCRETE EXPOSED TO WEATHER, VEHICLES, AND/OR DEICING CHEMICALS SHALL BE AIR-ENTRAINED WITH 6% (+/-) 1.5% ENTRAINED AIR BY VOLUME AT POINT OF DISCHARGE. DO NOT ALLOW AIR CONTENT OF TROWELED FINISHED FLOORS TO EXCEED 3%.
9. SUBMIT CONCRETE MIX PROPORTIONS PRIOR TO START OF WORK. DO NOT BEGIN CONCRETE PRODUCTION UNTIL MIXES HAVE BEEN REVIEWED AND ARE ACCEPTABLE TO THE ENGINEER.
10. READY MIX CONCRETE SHALL COMPLY WITH REQUIREMENTS OF ASTM C94.
11. CONCRETE WORK EXECUTION
    A. CONSTRUCT FORMS TO CORRECT SIZE, SHAPE, ALIGNMENT, ELEVATION AND POSITION; AND TO SUPPORT VERTICAL AND LATERAL LOADS.
    B. POSITION, SUPPORT, AND SECURE REINFORCEMENT AGAINST DISPLACEMENT. MINIMUM CONCRETE COVER FOR REINFORCEMENT SHALL BE, UNLESS NOTED OTHERWISE ON THE DRAWINGS:
       CAST AGAINST AND EXPOSED TO EARTH.....3 INCHES
       EXPOSED TO EARTH OR WEATHER.....2 INCHES
       NOT EXPOSED TO WEATHER OR
       IN CONTACT WITH EARTH.....1 ½ INCHES
    C. PROVIDE CONTROL JOINTS IN SLABS-ON-GRADE AT NOT GREATER THAN 15 FEET ON CENTER IN EACH DIRECTION. SAW CUT CONTROL JOINTS MINIMUM ¼ OF SLAB DEPTH, AS SOON AFTER SLAB FINISHING WITHOUT DISLODGING AGGREGATE.
    D. STEEL TROWEL FINISH ALL INTERIOR CONCRETE SLABS, BROOM FINISH ALL EXTERIOR CONCRETE SLABS.
    E. CURE ALL CONCRETE IN COMPLIANCE WITH ACI 301, USING A LIQUID TYPE MEMBRANE, NON-RESIDUAL, CURING COMPOUND COMPLYING WITH ASTM C309. ASSURE COMPATIBILITY WITH FINISH FLOOR COVERING.

SPECIAL INSPECTIONS

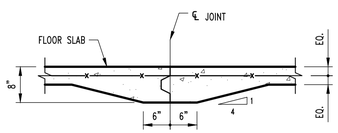
THE FOLLOWING ITEMS REQUIRE SPECIAL INSPECTION IN ACCORDANCE WITH CHAPTER 17 OF THE INTERNATIONAL BUILDING CODE.

a. CONCRETE GROUT DESIGN MIX (PERIODIC)
b. PLACING OF CONCRETE AND REINFORCING STEEL (CONTINUOUS OF CONCRETE SAMPLING / PERIODIC OF REINFORCING)
c. IN-SITU SOILS, EXCAVATIONS, FILLING & COMPACTION (PERIODIC)

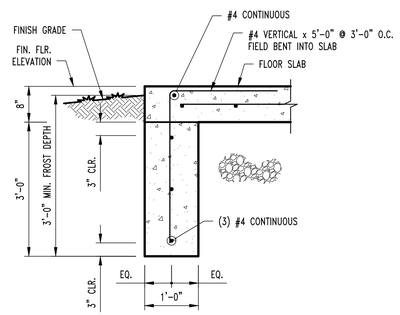
THE CONTRACTOR SHALL REQUEST SPECIAL INSPECTION OF THE ITEMS LISTED ABOVE PRIOR TO THOSE ITEMS BECOMING INACCESSIBLE AND UNOBSERVABLE DUE TO PROGRESSION OF THE WORK.



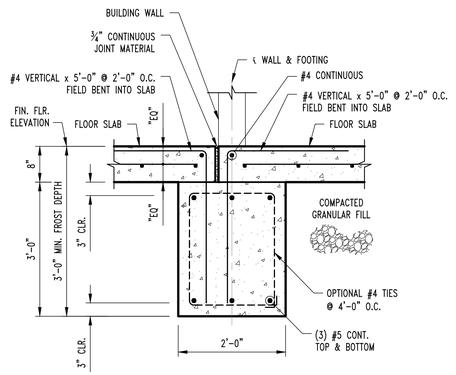
CONTRACTION JOINT



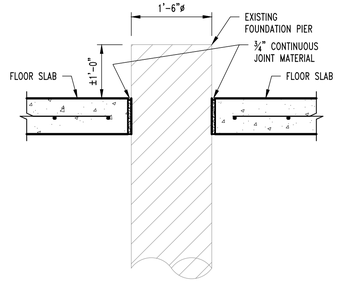
CONSTRUCTION JOINT



F1 S100 **FOOTING SECTION**
SCALE: 3/4" = 1'-0"



F2 S100 **FOOTING SECTION**
SCALE: 3/4" = 1'-0"



F3 S100 **FOOTING SECTION @ EXISTING PIER**
SCALE: 3/4" = 1'-0"

REVISIONS:

No.	Date
100% CD REVIEW	08/19/2021
100% CD REVIEW	09/08/2021
BID SET	10/12/2021

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY

STATE OF MISSOURI
GREGORY L. LINNEMAN
NUMBER PE-2005001013

GREGORY L. LINNEMAN - PE
MO LICENSE - 2005001013

STRUCTURAL ENGINEER:
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ENGINEERING CONSULTANTS
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Crockett Engineering Consultants, LLC
Missouri Certificate of Authority
#2006015501

CLIENT:
THE CURATORS OF THE
UNIVERSITY OF MISSOURI

GENERAL SITE - KOMU TV STATION TRANSMITTER BUILDING

PROJECT: CP190063
SECTION 3, TOWNSHIP 47 NORTH, RANGE 12 WEST
COLUMBIA, BOONE COUNTY, MISSOURI

DRAWING INCLUDES:
FOUNDATION
PLAN & DETAILS

DESIGNED:	GLL
DRAWN:	RCA
PROJECT NO.:	200499

SHEET:
S100

Electrical Design Drawings for

General Site - KOMU TV Station Transmitter Building

PROJECT: CP190063
5550 Old 63 South
Columbia, Boone County, MO 65201

GENERAL MEP SPECIFICATIONS

1. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO REVIEW AND UNDERSTAND ALL DRAWINGS AND SPECIFICATIONS IN THE CONTRACT DOCUMENTS. EACH CONTRACTOR IS RESPONSIBLE FOR ALL WORK ASSOCIATED WITH HIS TRADE REGARDLESS OF WHERE THE WORK IS DEPICTED IN THE DRAWINGS OR SPECIFICATIONS.
2. THE LAYOUT OF SYSTEMS SHOWN ON PLANS ARE APPROXIMATE AND WILL NEED TO BE COORDINATED IN FIELD. THE CONTRACTOR SHALL INCLUDE THIS COORDINATION IN HIS SCOPE AND INCLUDE ALL COSTS OF MODIFYING THE LAYOUT AS REQUIRED IN HIS BID.
3. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING ALL NECESSARY PARTS AND LABOR TO PRODUCE A COMPLETE AND FULLY OPERATIONAL SYSTEM UNLESS STATED OTHERWISE ON PLANS.
4. ALL MATERIALS TO BE NEW, FIRST CLASS, AND INSTALLED PER MANUFACTURE'S PUBLISHED INSTRUCTIONS.
5. ALL WORK SHALL BE PERFORMED IN COMPLIANCE WITH LOCALLY ADOPTED CODES AND ORDINANCES.
6. CONTRACTOR IS RESPONSIBLE FOR TO COORDINATE EQUIPMENT LOCATIONS AND SYSTEM ROUTING WITH OTHER TRADES PRIOR TO INSTALLATION.
7. CONTRACTOR TO GUARANTEE ALL MATERIALS AND WORKMANSHIP FOR A PERIOD OF ONE YEAR FROM THE DATE THE PROJECT IS TURN OVER TO THE OWNER, UNLESS NOTED OTHERWISE.
8. CONTRACTOR IS TO INCLUDE IN HIS SCOPE THE COST OF ALL PERMITS, INSPECTIONS, METERING, AND TAPS ASSOCIATED WITH HIS WORK.
9. CONTRACTOR IS RESPONSIBLE FOR ALL EXCAVATION, CUTTING, CORING, PATCHING, AND BACKFILL REQUIRED TO COMPLETE HIS WORK, UNLESS NOTED OTHERWISE.
10. THESE PLANS ARE NOT TO BE SCALED. SEE ARCHITECTURAL PLANS FOR DIMENSIONS. WHERE THERE IS A CONFLICT BETWEEN ARCHITECTURAL DIMENSIONS AND MEP DIMENSION, ARCHITECTURAL SHALL GOVERN.
11. SEE DISCIPLINE SHEETS FOR ADDITIONAL DISCIPLINE SPECIFIC SPECIFICATIONS.

REFERENCED CODES IN EFFECT

2018 INTERNATIONAL FIRE CODE

2017 NATIONAL ELECTRIC CODE

2016 NFPA 110 STANDARD FOR EMERGENCY & STANDBY POWER SYSTEMS

SHEET INDEX

SHEET #	SHEET NAME
MEP1	ELECTRICAL COVER SHEET
MEP2	SITE UTILITIES PLAN
E101	POWER & LIGHTING PLANS - KOMU
E102	POWER & LIGHTING PLANS - KBIA
E501	ELECTRICAL DETAILS
E601	ELECTRICAL SCHEDULES
E602	ELECTRICAL SCHEDULES

James Watson, P.E. October 12, 2021
PE-2015017071
MO Certificate of Authority # 2018029680

J-SQUARED ENGINEERING
2401 Bernadette Drive, Suite 201
Columbia, Missouri 65203
573 - 234 - 4492 phone
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J2 PROJECT No:	J20315
J2 DESIGN:	JAP

ISSUE TITLE	DATE
100% CD REVIEW	08 - 19 - 2021
100% CD REVIEW	09 - 08 - 2021
BID SET	10 - 12 - 2021

Electrical Design Drawings for
General Site - KOMU TV Station Transmitter Bldg
PROJECT: CP190063
5550 Old 63 South
Columbia, Boone County, MO 65201

SHEET TITLE

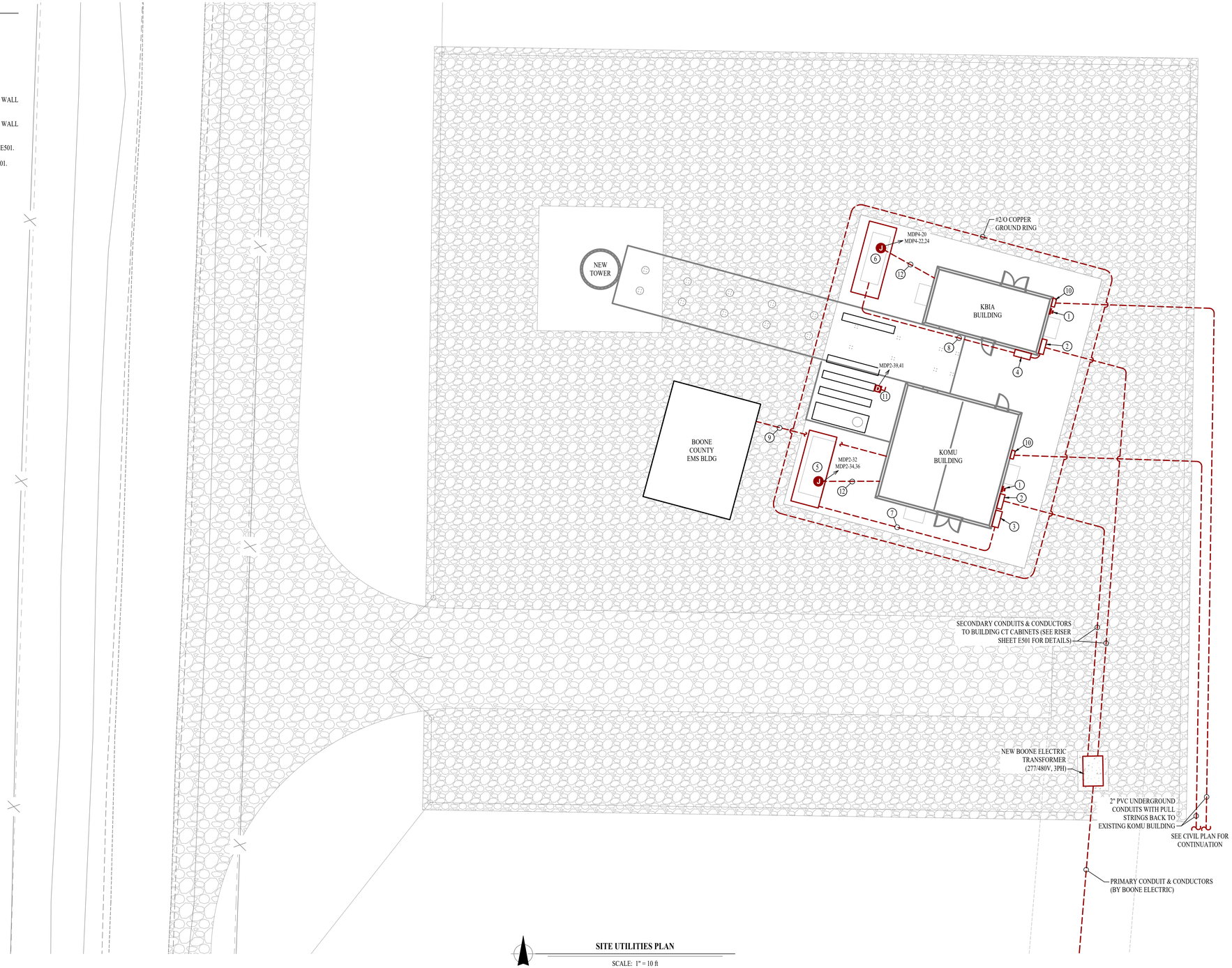
ELECTRICAL COVER SHEET

SHEET NUMBER

MEP1

KEY NOTES:

1. NEW CT METER BASE APPROVED BY BOONE ELECTRIC.
2. NEW 42x42x14 CT CABINET APPROVED BY BOONE ELECTRIC.
3. NEW 600 AMP, 277/480 V, 3 PH, SERVICE RATED, NEMA 3R, LOCKABLE TRANSFER SWITCH WITH SWITCHED NEUTRAL.
4. NEW 400 AMP, 277/480 V, 3 PH, SERVICE RATED, NEMA 3R, LOCKABLE TRANSFER SWITCH WITH SWITCH NEUTRAL.
5. NEW 315 KVA, 277/480 V, 3PH DIESEL GENERATOR WITH 48 HOUR FULL LOAD RUNTIME DOUBLE WALL BELLY TANK IN TYPE II WEATHERPROOF SOUND ENCLOSURE.
6. NEW 125 KVA, 277/480 V, 3PH DIESEL GENERATOR WITH 48 HOUR FULL LOAD RUNTIME DOUBLE WALL BELLY TANK IN TYPE II WEATHERPROOF SOUND ENCLOSURE.
7. (2) 4" UNDERGROUND PVC CONDUITS WITH CONDUCTORS. SEE KOMU POWER RISER ON SHEET E501.
8. (1) 4" UNDERGROUND PVC CONDUIT WITH CONDUCTORS. SEE KBIA POWER RISER ON SHEET E501.
9. (1) 1½" UNDERGROUND PVC CONDUIT WITH PULL STRING FOR FUTURE BOONE COUNTY EMS BUILDING.
10. DATA DEMARK BOX SUPPLIED BY MU.
11. DRY COOLER - VERIFY EXACT LOCATION WITH EQUIPMENT INSTALLER.
12. (1) 1" UNDERGROUND PVC CONDUIT



SITE UTILITIES PLAN

SCALE: 1" = 10 ft

STATE OF MISSOURI
JAMES P. WATSON
NUMBER PE-2015017071
PROFESSIONAL ENGINEER

James Watson, P.E. October 12, 2021
PE-2015017071
MO Certificate of Authority # 2018029680

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J2 PROJECT No:	J20315
J2 DESIGN:	JAP

ISSUE TITLE	DATE
100% CD REVIEW	08 - 19 - 2021
100% CD REVIEW	09 - 08 - 2021
BID SET	10 - 12 - 2021

Electrical Design Drawings for

General Site - KOMU TV Station Transmitter Bldg

PROJECT: CP190063
5550 Old 63 South
Columbia, Boone County, MO 65201

SHEET TITLE

SITE UTILITIES PLAN

SHEET NUMBER

MEP2

POWER PLAN SYMBOL LEGEND

- CIRCUIT WIRING
- PX-XX — CIRCUIT TAG
- J — JUNCTION BOX
- XX +42 — RECEPTACLE
  - INDICATES MOUNTING HEIGHT TO BOTTOM OF BOX (STANDARD @ 18" AFF UNLESS NOTED OTHERWISE)
  - "WP" = WEATHERPROOF OUTDOOR RECEPTACLE
  - "AW" = ABOVE WINDOW RECEPTACLE
  - "AC" = ABOVE CEILING RECEPTACLE
  - "EX" = EXISTING RECEPTACLE TO REMAIN
- GFCI DUPLEX CONVENIENCE RECEPTACLE
- 208V RECEPTACLE
- QUADPLEX CONVENIENCE RECEPTACLE
- U — USB OUTLET
- DATA / PHONE JACK
  BOX WITH 1" CONDUIT & PULL STRING) UP TO CEILING SPACE (STANDARD @ 18" AFF UNLESS NOTED OTHERWISE)
- AP — WIRELESS ACCESS POINT, CEILING MOUNTED
- FLOOR RECEPTACLE
- FLOOR DATA
- D — DISCONNECT
- FD — FUSED DISCONNECT
- FS — FUSED SWITCH
- SD — STARTER / DISCONNECT
- TIE INTO EXISTING

LIGHTING PLAN SYMBOL LEGEND

- X1 / EM / NL
  - "X1" INDICATES FIXTURE TYPE (REFER TO SCHEDULE)
  - LIGHTING FIXTURE
  - "EM" INDICATES EMERGENCY BATTERY BACKUP
  - "NL" INDICATES UN-SWITCHED NIGHT LIGHT
- EXIT LIGHT
  - INDICATES REQUIRED REMOTE HEAD
- EMERGENCY EGRESS LIGHT
- S X — SWITCH (WALL MOUNTED)
  - SWITCH TYPE:
    - 3 = 3-WAY
    - 4 = 4-WAY
    - O = OCCUPANCY SENSOR
    - V = VACANCY SENSOR
    - M = MOMENTARY SWITCH
    - SS = SCENE SWITCH
- D X — DIMMER SWITCH (WALL MOUNTED)
  - SWITCH TYPE:
    - SEE "SWITCH (WALL MOUNTED)" FOR TYPE DESIGNATIONS
- (S) X — SWITCH (CEILING MOUNTED)
  - SWITCH TYPE:
    - SEE "SWITCH (WALL MOUNTED)" FOR TYPE DESIGNATIONS
- PP — POWER PACK

POWER & LIGHTING GENERAL NOTES:

1. SEE SHEET E501 FOR ADDITIONAL ELECTRICAL NOTES, DETAILS, & SCHEDULES.
2. ELECTRICIAN TO PROVIDE IN BID 80 HOURS OF LABOR FOR PULLING & TERMINATING TRANSMITTER CONTRACTOR'S WIRING.
3. CONTRACTOR TO CONNECT TOWER LIGHTING (RUN & INSTALLED BY OTHERS) TO PANEL 'MDP2'.

POWER & LIGHTING PLAN KEY NOTES:

(1) 20 AMP 120V TWISTLOCK PLUG AT CEILING FOR RACK-MOUNTED POWER STRIPS
MDP2-2 TO RACK OUTLET 1-1
MDP2-4 TO RACK OUTLET 1-2
MDP2-8 TO RACK OUTLET 2-2
MDP2-10 TO RACK OUTLET 3-1

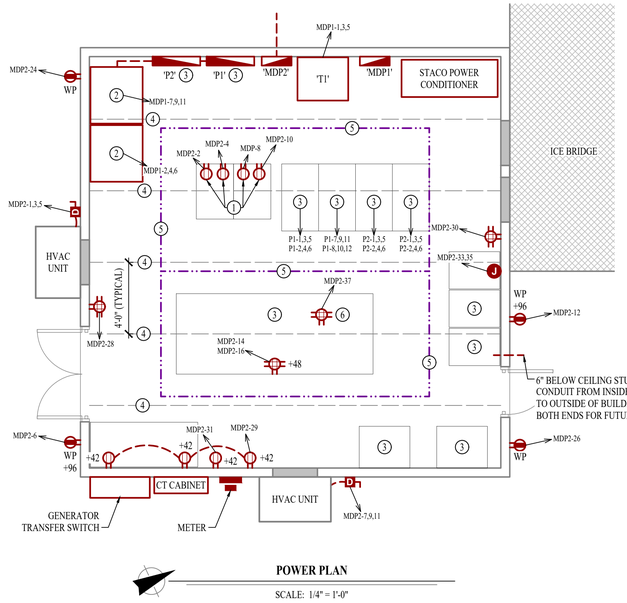
(2) CONNECT TO OWNER PROVIDED STEP-DOWN TRANSFORMER.

(3) TERMINATE WIRE PROVIDED & INSTALLED BY TRANSMITTER CONTRACTOR.

(4) 1⅝" x 1⅝" UNISTRUT CHANNEL (PROVIDED & INSTALLED BY BUILDING SUPPLIER).

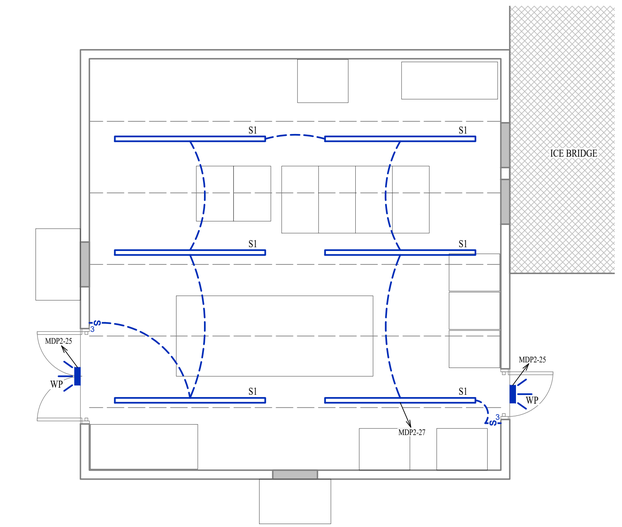
(5) 2" WIDE x 0.02" THICK COPPER GROUND STRAP MOUNTED TO FLOOR FOR GROUNDING ALL EQUIPMENT & EQUIPMENT RACKS IN BUILDING. ELECTRICIAN TO PROVIDE & INSTALL BONDING JUMPER FROM EQUIPMENT & EQUIPMENT RACKS BACK TO GROUNDING STRAP.

(6) QUAD RECEPTACLE MOUNTED ON FLOOR.



POWER PLAN

SCALE: 1/4" = 1'-0"



LIGHTING PLAN

SCALE: 1/4" = 1'-0"

STATE OF MISSOURI
JAMES P. WATSON
NUMBER PE-2015017071
PROFESSIONAL ENGINEER

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J2 PROJECT No: J20315

J2 DESIGN: JAP

ISSUE TITLE	DATE
100% CD REVIEW	08 - 19 - 2021
100% CD REVIEW	09 - 08 - 2021
BID SET	10 - 12 - 2021

Electrical Design Drawings for

General Site - KOMU TV Station Transmitter Bldg

PROJECT: CP190063
5550 Old 63 South
Columbia, Boone County, MO 65201

SHEET TITLE

POWER & LIGHTING PLANS - KOMU

SHEET NUMBER

E101

POWER & LIGHTING GENERAL NOTES:

1. SEE SHEET E501 FOR ADDITIONAL ELECTRICAL NOTES, DETAILS, & SCHEDULES.
2. ELECTRICIAN TO PROVIDE IN BID 40 HOURS OF LABOR FOR PULLING & TERMINATING TRANSMITTER CONTRACTOR'S WIRING.

POWER & LIGHTING PLAN KEY NOTES:

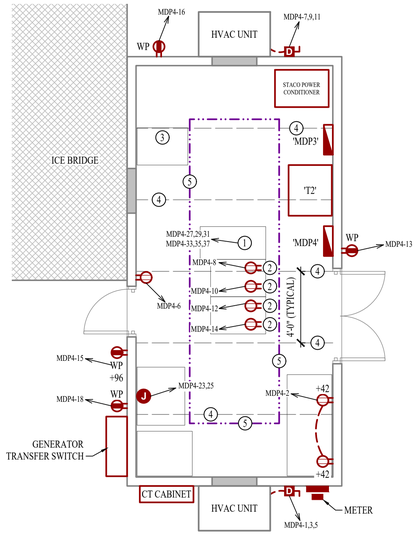
(1) CONNECT TO OWNER PROVIDED EQUIPMENT.

(2) 20 AMP 120V TWISTLOCK PLUG AT CEILING FOR CONNECTION OF RACK-MOUNTED POWER STRIPS

(3) TERMINATE WIRE PROVIDED & INSTALLED BY TRANSMITTER CONTRACTOR.

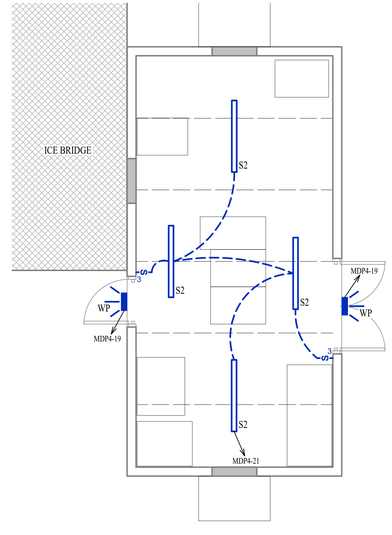
(4) 1⅝" x 1⅝" UNISTRUT CHANNEL (PROVIDED & INSTALLED BY BUILDING SUPPLIER).

(5) 2" WIDE x 0.02" THICK COPPER GROUND STRAP MOUNTED TO FLOOR FOR GROUNDING ALL EQUIPMENT & EQUIPMENT RACKS IN BUILDING. ELECTRICIAN TO PROVIDE & INSTALL BONDING JUMPER FROM EQUIPMENT & EQUIPMENT RACKS BACK TO GROUNDING STRAP.



POWER PLAN

SCALE: 1/4" = 1'-0"



LIGHTING PLAN

SCALE: 1/4" = 1'-0"

STATE OF MISSOURI
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J2 PROJECT No:	J20315
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Electrical Design Drawings for

General Site - KOMU TV Station Transmitter Bldg

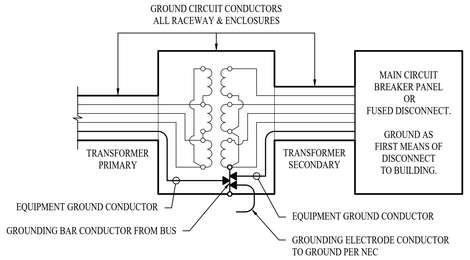
PROJECT: CP190063
5550 Old 63 South
Columbia, Boone County, MO 65201

SHEET TITLE

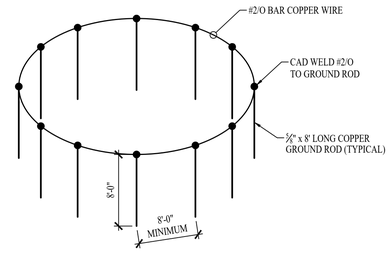
POWER & LIGHTING PLANS - KBIA

SHEET NUMBER

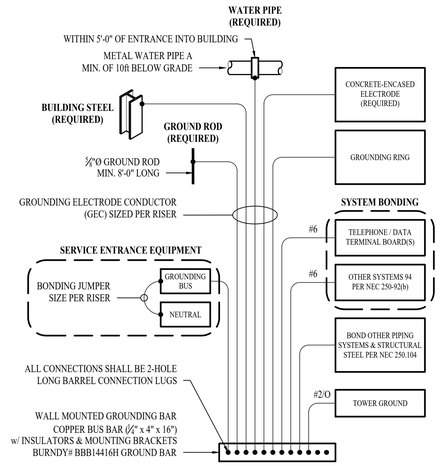
E102



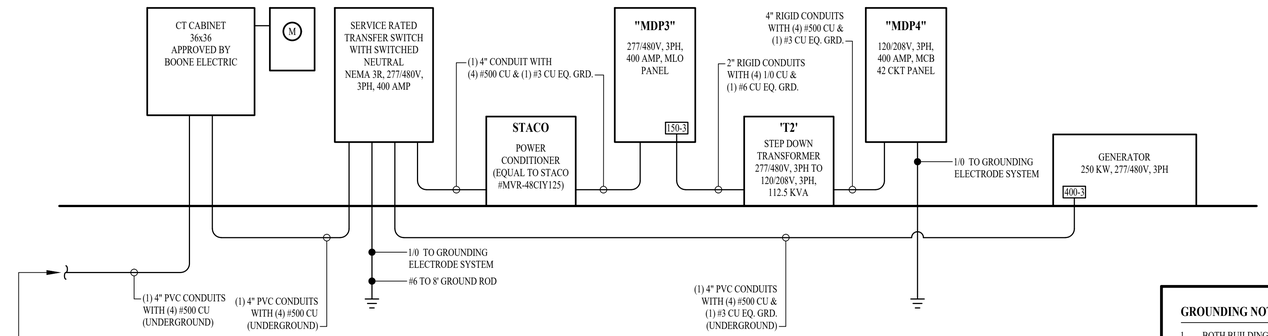
DRY TYPE TRANSFORMER (600V OR LESS) GROUNDING DETAIL



GROUND RING DETAIL



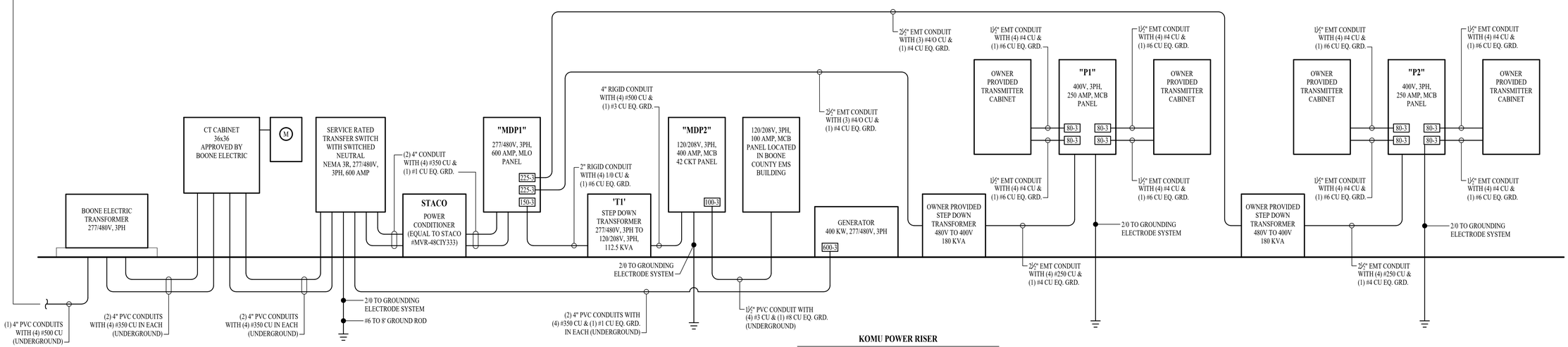
TYPICAL GROUNDING & BONDING DETAIL



KBIA POWER RISER

GROUNDING NOTE:

1. BOTH BUILDINGS' GROUNDING SYSTEMS MUST BE TIED TO TOWER GROUND WITH #2/O COPPER.



KOMU POWER RISER

STATE OF MISSOURI
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J2 PROJECT No:	J20315
J2 DESIGN:	JAP

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Electrical Design Drawings for

General Site - KOMU TV Station Transmitter Bldg

PROJECT: CP190063
5550 Old 63 South
Columbia, Boone County, MO 65201

SHEET TITLE

ELECTRICAL DETAILS

SHEET NUMBER

E501

PANEL 'MDP1' SCHEDULE

VOLTAGE	PANEL SIZE	MOUNTING	AIC RATING		
277/480V	600A MLO	SURFACE	SEE PRELIMINARY ARC FLASH STUDY	PHASE "A" LOAD	359.7
				PHASE "B" LOAD	376.9
NEMA RATING: 1				PHASE "C" LOAD	387.7

CIRCUIT NUMBER	DESCRIPTION	BREAKER SIZE	AMPS	PHASE	AMPS	BREAKER SIZE	DESCRIPTION	CIRCUIT NUMBER
1	Step Down Transformer	150-3	67.1	A	146.3	225-3	Transmitter controller / step down	2
3	-	-	84.3	B	146.3	-	-	4
5	-	-	95.1	C	146.3	-	-	6
7	Transmitter controller / step down	225-3	146.3	A			Blank	8
9	-	-	146.3	B			Blank	10
11	-	-	146.3	C			Blank	12
13	Spare	20-1		A			Blank	14
15	Spare	20-1		B			Blank	16
17	Spare	20-1		C			Blank	18
19	Spare	20-1		A			Blank	20
21	Spare	20-1		B			Blank	22
23	Spare	20-1		C			Blank	24
25	Spare	20-1		A			Blank	26
27	Blank			B			Blank	28
29	Blank			C			Blank	30
31	Blank			A			Blank	32
33	Blank			B			Blank	34
35	Blank			C			Blank	36
37	Blank			A			Blank	38
39	Blank			B			Blank	40
41	Blank			C			Blank	42

NOTES:

A: PANEL SHALL BE EQUAL TO SQUARE D MODEL "I-LINE"

B: ELECTRICIAN SHALL VERIFY BREAKER WITH EQUIPMENT PRIOR TO PURCHASE & INSTALL.

C: AFTER COMPLETION OF WORK, ELECTRICAN SHALL PROVIDE A TYPE WRITTEN PANEL DIRECTORY IN NEW PANEL.

PANEL 'MDP2' SCHEDULE

VOLTAGE	PANEL SIZE	MOUNTING	AIC RATING		
120/208V	400A MCB	SURFACE	SEE PRELIMINARY ARC FLASH STUDY	PHASE "A" LOAD	154.8
				PHASE "B" LOAD	194.6
NEMA RATING: 1				PHASE "C" LOAD	219.5

CIRCUIT NUMBER	DESCRIPTION	BREAKER SIZE	AMPS	PHASE	AMPS	BREAKER SIZE	DESCRIPTION	CIRCUIT NUMBER
1	Bard unit	35-3	27	A	16	20-1	Interior equipment rack outlets	2
3	-	-	27	B	16	20-1	Interior equipment rack outlets	4
5	-	-	27	C	16	20-1	Cameras	6
7	Bard unit	35-3	27	A	16	20-1	Interior equipment rack outlets	8
9	-	-	27	B	16	20-1	Interior equipment rack outlets	10
11	-	-	27	C	16	20-1	Cameras	12
13	Future 'Boone County EMS Building	100-3	33	A	8.3	20-1	RF System	14
15	-	-	33	B	1.1	20-1	RF System	16
17	-	-	33	C		20-1	Spare	18
19	Tower lighting	20-3	5.5	A		20-1	Spare	20
21	-	-	5.5	B		20-1	Spare	22
23	-	-	5.5	C	15	20-1	Exterior outlet	24
25	Exterior lighting	20-1	1	A	15	20-1	Exterior outlet	26
27	Interior lighting	20-1	5	B	15	20-1	Interior outlets	28
29	Interior outlets	20-1	16	C	15	20-1	Interior outlets	30
31	Fiber Rack	20-1	1.5	A	1.5	20-1	Generator Battery Charger	32
33	Pump Load	25-2	18	B	15	30-2	Generator Block Heater	34
35	-	-	18	C	15	-	-	36
37	Floor-mounted Quad Outlet	20-1	3	A		20-1	Spare	38
39	Dry Cooler	20-2	16	B		20-1	Spare	40
41	-	-	16	C		20-1	Spare	42

NOTES:

A: PANEL SHALL BE EQUAL TO SQUARE D MODEL "NQ"

B: ELECTRICIAN SHALL VERIFY BREAKER WITH EQUIPMENT PRIOR TO PURCHASE & INSTALL.

C: AFTER COMPLETION OF WORK, ELECTRICAN SHALL PROVIDE A TYPE WRITTEN PANEL DIRECTORY IN NEW PANEL.

PANEL 'MDP3' SCHEDULE

VOLTAGE	PANEL SIZE	MOUNTING	AIC RATING		
277/480V	400A MLO	SURFACE	SEE PRELIMINARY ARC FLASH STUDY	PHASE "A" LOAD	122.4
				PHASE "B" LOAD	108.5
NEMA RATING: 1				PHASE "C" LOAD	115.0

CIRCUIT NUMBER	DESCRIPTION	BREAKER SIZE	AMPS	PHASE	AMPS	BREAKER SIZE	DESCRIPTION	CIRCUIT NUMBER
1	Stepdown Transformer	90-3	122.4	A			Blank	2
3	-	-	108.5	B			Blank	4
5	-	-	115.0	C			Blank	6
7	Spare	20-1		A			Blank	8
9	Spare	20-1		B			Blank	10
11	Spare	20-1		C			Blank	12
13	Spare	20-1		A			Blank	14
15	Spare	20-1		B			Blank	16
17	Spare	20-1		C			Blank	18
19	Spare	20-1		A			Blank	20
21	Spare	20-1		B			Blank	22
23	Spare	20-1		C			Blank	24
25	Spare	20-1		A			Blank	26
27	Spare	20-1		B			Blank	28
29	Spare	20-1		C			Blank	30
31	Blank			A			Blank	32
33	Blank			B			Blank	34
35	Blank			C			Blank	36
37	Blank			A			Blank	38
39	Blank			B			Blank	40
41	Blank			C			Blank	42

NOTES:

A: PANEL SHALL BE EQUAL TO SQUARE D MODEL "NF"

B: ELECTRICIAN SHALL VERIFY BREAKER WITH EQUIPMENT PRIOR TO PURCHASE & INSTALL.

C: AFTER COMPLETION OF WORK, ELECTRICAN SHALL PROVIDE A TYPE WRITTEN PANEL DIRECTORY IN NEW PANEL.

PANEL MDP4 SCHEDULE

VOLTAGE	PANEL SIZE	MOUNTING	AIC RATING		
120/208V	400A MCB	SURFACE	SEE PRELIMINARY ARC FLASH STUDY	PHASE "A" LOAD	282.5
				PHASE "B" LOAD	250.5
NEMA RATING: 1				PHASE "C" LOAD	265.5

CIRCUIT NUMBER	DESCRIPTION	BREAKER SIZE	AMPS	PHASE	AMPS	BREAKER SIZE	DESCRIPTION	CIRCUIT NUMBER
1	Bard unit	20-3	15	A	15	20-1	Interior outlets	2
3	-	-	15	B		20-1	Spare	4
5	-	-	15	C	15	20-1	Interior outlets	6
7	Bard unit	20-3	15	A	16	20-1	Interior Equipment Rack Outlets	8
9	-	-	15	B	16	20-1	Interior Equipment Rack Outlets	10
11	-	-	15	C	16	20-1	Interior Equipment Rack Outlets	12
13	Exterior outlet	20-1	15	A	16	20-1	Future Interior Equipment Rack Outlets	14
15	Cameras	20-1	16	B	1.5	20-1	Exterior Outlet	16
17	Spare	20-1		C	1.5	20-1	Exterior Outlet	18
19	Exterior lighting	20-1	1	A	1.5	20-1	Generator Battery Charger	20
21	Interior lighting	20-1	2	B	15	30-2	Generator Block Heater	22
23	Dummy Load	25-2	18	C	15	-	-	24
25	-	-	18	A		20-1	Spare	26
27	Transmitter	100-3	85	B		20-1	Spare	28
29	-	-	85	C		20-1	Spare	30
31	-	-	85	A		20-1	Spare	32
33	Transmitter	100-3	85	B			Blank	34
35	-	-	85	C			Blank	36
37	-	-	85	A			Blank	38
39	Spare	20-1		B			Blank	40
41	Spare	20-1		C			Blank	42

NOTES:

A: PANEL SHALL BE EQUAL TO SQUARE D MODEL "QO"

B: ELECTRICIAN SHALL VERIFY BREAKER WITH EQUIPMENT PRIOR TO PURCHASE & INSTALL.

C: AFTER COMPLETION OF WORK, ELECTRICAN SHALL PROVIDE A TYPE WRITTEN PANEL DIRECTORY IN NEW PANEL.

STATE OF MISSOURI
JAMES P. WATSON
NUMBER PE-2015017071
PROFESSIONAL ENGINEER

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J2 PROJECT No: J20315

J2 DESIGN: JAP

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Electrical Design Drawings for

General Site - KOMU TV Station Transmitter Bldg

PROJECT: CP190063
5550 Old 63 South
Columbia, Boone County, MO 65201

SHEET TITLE

ELECTRICAL SCHEDULES

SHEET NUMBER

E601

PANEL 'P1' SCHEDULE

VOLTAGE		PANEL SIZE		MOUNTING		AIC RATING		
400V		250 MCB		SURFACE		SEE PRELIMINARY ARC FLASH STUDY	PHASE "A" LOAD	176.0
NEMA RATING: 1							PHASE "B" LOAD	176.0
							PHASE "C" LOAD	176.0

CIRCUIT NUMBER	DESCRIPTION	BREAKER SIZE	AMPS	PHASE	AMPS	BREAKER SIZE	DESCRIPTION	CIRCUIT NUMBER
1	Transmitter Cabinet	80-3	44	A	44	80-3	Transmitter Cabinet	2
3	-	-	44	B	44	-	-	4
5	-	-	44	C	44	-	-	6
7	Transmitter Cabinet	80-3	44	A	44	80-3	Transmitter Cabinet	8
9	-	-	44	B	44	-	-	10
11	-	-	44	C	44	-	-	12
13	Spare Space			A			Spare Space	14
15	-			B			-	16
17	-			C			-	18
19				A				20

NOTES:

A: PANEL SHALL BE EQUAL TO SQUARE D MODEL "I-LINE"

B: ELECTRICIAN SHALL VERIFY BREAKER WITH EQUIPMENT PRIOR TO PURCHASE & INSTALL.

C: AFTER COMPLETION OF WORK, ELECTRICAN SHALL PROVIDE A TYPE WRITTEN PANEL DIRECTORY IN NEW PANEL.

PANEL 'P2' SCHEDULE

VOLTAGE		PANEL SIZE		MOUNTING		AIC RATING		
400V		250 MCB		SURFACE		SEE PRELIMINARY ARC FLASH STUDY	PHASE "A" LOAD	176.0
NEMA RATING: 1							PHASE "B" LOAD	176.0
							PHASE "C" LOAD	176.0

CIRCUIT NUMBER	DESCRIPTION	BREAKER SIZE	AMPS	PHASE	AMPS	BREAKER SIZE	DESCRIPTION	CIRCUIT NUMBER
1	Transmitter Cabinet	80-3	44	A	44	80-3	Transmitter Cabinet	2
3	-	-	44	B	44	-	-	4
5	-	-	44	C	44	-	-	6
7	Transmitter Cabinet	80-3	44	A	44	80-3	Transmitter Cabinet	8
9	-	-	44	B	44	-	-	10
11	-	-	44	C	44	-	-	12
13	Spare Space			A			Spare Space	14
15	-			B			-	16
17	-			C			-	18
19				A				20

NOTES:

A: PANEL SHALL BE EQUAL TO SQUARE D MODEL "I-LINE"

B: ELECTRICIAN SHALL VERIFY BREAKER WITH EQUIPMENT PRIOR TO PURCHASE & INSTALL.

C: AFTER COMPLETION OF WORK, ELECTRICAN SHALL PROVIDE A TYPE WRITTEN PANEL DIRECTORY IN NEW PANEL.

LIGHT FIXTURE SCHEDULE

TAG	MANUFACTURER (OR EQUAL)	MODEL NUMBER (OR EQUAL)	DESCRIPTION	MOUNTING	LUMEN OUTPUT	CCT (°K)	CRI	VOLTS	WATTS	NOTES
S1	METALUX	8TSNLED-LD5-81SL-LW-UNV-L835-CD1	LENSED 8' LED STRIP	CEILING	8428	3500	80	120	69	
S2	METALUX	4SNLED-LD5-56SL-LW-UNV-L835-CD1	LENSED 4' LED STRIP	CEILING	5678	3500	80	120	52	
WP	LUMARK	XTOR8B-W-MS-L20	LED WALL PACK	WALL	8373	4000	70	120	81	

NOTES:

1. VERIFY LIGHT FIXTURE FINISHES WITH OWNER / ARCHITECT PRIOR TO INSTALLATION

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SHEET TITLE

ELECTRICAL SCHEDULES

SHEET NUMBER

E602