


BUILDING CODES

- INTERNATIONAL BUILDING CODE -2012 EDITION
- INTERNATIONAL ENERGY CONSERVATION - 2012 EDITION
- INTERNATIONAL FIRE PREVENTION - 2012 EDITION
- INTERNATIONAL FUEL GAS CODE -2012 EDITION
- INTERNATIONAL MECHANICAL CODE -2012 EDITION
- INTERNATIONAL PLUMBING CODE -2012 EDITION
- INTERNATIONAL ELECTRICAL CODE -2014 EDITION

NOTICE TO CONTRACTOR: All construction must comply with current NC Building Codes and all applicable local ordinances and regulations.

APPROVED

02/10/2021



Harnett COUNTY
NORTH CAROLINA

For structural tower footing design, see "Tower and Foundation drawing" in attachments. File was locked and could not be combined.

HANDICAP REQUIREMENTS

FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION. HANDICAP ACCESS IS NOT REQUIRED


PLUMBING REQUIREMENTS

FACILITY HAS NO SANITARY OR POTABLE WATER.

VICINITY MAP



LOCATION MAP

RAWLAND CONSTRUCTION DRAWINGS

190'-0" MONOPOLE

SITE NAME
RED HILL CHURCH (14637878)

SITE ID
TI-OPP-16496


MARKET SITE NAME:
368-704

SITE COORDINATES
35° 19' 53.59", -78° 39' 34.58"
(35.331553, -78.659606)

SITE ADDRESS
161 RED HILL CHURCH ROAD
DUNN, NC 28334

FLOOD PLAIN NOTE

PER THE FEMA FLOODPLAIN MAPS, THE SITE IS LOCATED IN AN AREA DESIGNATED AS ZONE X (AREA OF MINIMAL FLOOD HAZARD). COMMUNITY PANEL NO.: 3720150600J DATED: 10/03/2006



PROJECT SUMMARY	
TYPE OF OCCUPANCY:	TELECOMMUNICATIONS
SITE TYPE:	RAWLAND
TOWER TYPE:	MONOPOLE
LATITUDE:	N 35° 19' 53.59"
LONGITUDE:	W -78° 39' 34.58"
JURISDICTION:	TOWN OF ERWIN
COUNTY:	HARNETT COUNTY
DEED BOOK & PAGE:	2102, PAGE 726
PARCEL ID:	1507-15-5729.000 1507-15-5409.000 1507-15-5219.000
ZONED:	M1 (INDUTRIAL), R10 (RESIDENTIAL) & B2 (HIGHWAY BUSINESS)

CONTACTS	
LAND OWNER:	WARREN REALTY, LLC 127 RED HILL CHURCH ROAD DUNN, NC 28334
TOWER OWNER:	TILLMAN INFRASTRUCTURE, LLC 20 MANSELL COURT, SUITE 375 ROSWELL, GA 30076
ENGINEER:	ALPINE ENGINEERING OF GEORGIA, PLLC 3876 DUNDEE DRIVE NE, ROSWELL, GA 30075 NC COA #P-1936
MUNICIPALITY:	TOWN OF ERWIN 100 WEST F STREET PO BOX 459 ERWIN, NC 28339
POWER COMPANY:	DUKE ENERGY PROCESS
TELCO COMPANY:	AT&T

SITE DIRECTIONS


FROM
20 MANSELL COURT, SUITE 375
ROSWELL, GA 30076

TAKE GA-400 S/US-19 S IN ROSWELL FROM WARSAW ROAD AND HOLCOMB BRIDGE ROAD 2.0 MI. FOLLOW NC-55 W/US-421 N TO ERWIN ACCESS ROAD IN DUKE 4.6 MI.

FOLLOW I-20 E AND I-95 N TO NC-55 W/US-421 N/ E CUMBERLAND STREET IN DUNN. TAKE EXIT 73 FROM I-95 N 414 MI. THE SITE IS ON THE LEFT.

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RF-4	RFDS (BY OTHERS)	1
RF-5	RFDS (BY OTHERS)	1
RF-6	RFDS (BY OTHERS)	1
RF-7	RFDS (BY OTHERS)	1
RF-8	RFDS (BY OTHERS)	1
RF-9	RFDS (BY OTHERS)	1
RF-10	RFDS (BY OTHERS)	1
RF-11	RFDS (BY OTHERS)	1
RF-12	RFDS (BY OTHERS)	1
RF-13	RFDS (BY OTHERS)	1
RF-14	RFDS (BY OTHERS)	1
T&F-1	TOWER AND FOUNDATION DESIGN (BY OTHERS)	--

PREPARED FOR:



A&E FIRM:



1875 OLD ALABAMA ROAD, SUITE 1008
ROSWELL, GA 30076
TEL: 678-990-2338 FAX: 678-990-2342

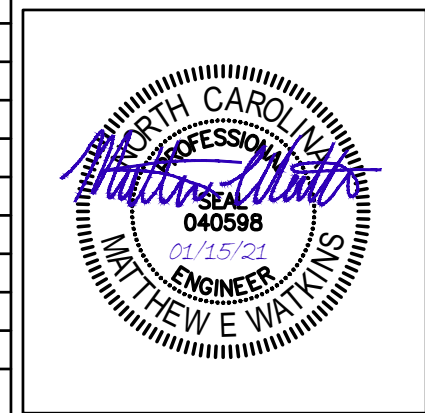
THE INFORMATION CONTAINED IN THIS SET OF DOCUMENTS IS PROPRIETARY BY NATURE. ANY USE OR DISCLOSURE OTHER THAN THAT WHICH RELATES TO THE CLIENT IS STRICTLY PROHIBITED.

PROJECT INFORMATION:

RED HILL CHURCH
14637878
TI-OPP-16496
368-704
161 RED HILL CHURCH ROAD
DUNN, NC 28334

DRAWN BY:	SJH
CHECKED BY:	KIA
APPROVED BY:	MEW

REVISIONS		
REV.	DATE	DESCRIPTION
0	11/16/20	ISSUED FOR CONSTRUCTION
1	01/15/21	REVISED E911 ADDRESS



SHEET TITLE:

COVER SHEET

SHEET #: **T1** REVISION: **1**

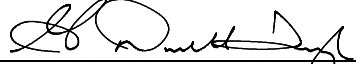
PARENT PARCEL

OWNER: WARREN REALTY, LLC
 SITE ADDRESS: 127 RED HILL CHURCH RD, DUNN, NC 28334
 PARCEL ID: 1507-15-5729.000 (LEASE AREA/ACCESS PARCEL), 1507-15-5409.000 (ACCESS PARCEL) & 1507-15-5219.000
 AREA: 6.47 ACRES ± (TOTAL PER TAX ASSESSOR)
 ZONED: M1 (INDUSTRIAL), R10 (RESIDENTIAL) & B2 (HIGHWAY BUSINESS)
 ALL ZONING INFORMATION SHOULD BE VERIFIED WITH THE PROPER ZONING OFFICIALS
 REFERENCE: DEED BOOK 2102 PAGE 726, PLAT BOOK 2005 PAGE 383 & PLAT BOOK 2020 PAGE 117

GPS NOTES

THE FOLLOWING GPS STATISTICS UPON WHICH THIS SURVEY IS BASED HAVE BEEN PRODUCED AT THE 95% CONFIDENCE LEVEL:
 POSITIONAL ACCURACY: 0.04 FEET (HORZ) 0.06 FEET (VERT)
 TYPE OF EQUIPMENT: GEOMAX ZENITH35 PRO BASE AND ROVER, DUAL FREQUENCY
 TYPE OF GPS FIELD PROCEDURE: REAL-TIME KINEMATIC NETWORKS
 DATES OF SURVEY: 06/01/2020
 DATUM / EPOCH: NAD_83(2011)EPOCH:2010.0000
 PUBLISHED / FIXED CONTROL USE: N/A
 GEOID MODEL: 18
 COMBINED GRID FACTOR(S): 0.99986952
 CONVERGENCE ANGLE: 00°11'48.32"
 BENCHMARKS USED: ADJUSTED NETWORK SOLUTION USING LEICA SMARTNET REFERENCE STATION NETWORK

SURVEYOR CERTIFICATION

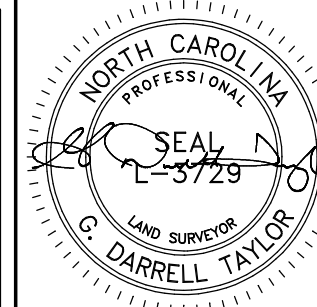
I HEREBY CERTIFY THAT THIS MAP IS CORRECT AND WAS DRAWN UNDER MY DIRECT SUPERVISION. ANY VISIBLE ENCROACHMENTS ARE SHOWN HEREON.

 DATE: 06/04/2020
 G. DARRELL TAYLOR, NORTH CAROLINA PROFESSIONAL LAND SURVEYOR #L-3729
 POINT TO POINT LAND SURVEYORS, INC.
 THIS MAP MAY NOT BE A CERTIFIED SURVEY AND HAS NOT BEEN REVIEWED BY A LOCAL GOVERNMENT AGENCY FOR COMPLIANCE WITH ANY APPLICABLE LAND DEVELOPMENT REGULATIONS AND HAS NOT BEEN REVIEWED FOR COMPLIANCE WITH RECORDING REQUIREMENTS FOR PLATS.



VICINITY MAP
NOT TO SCALE

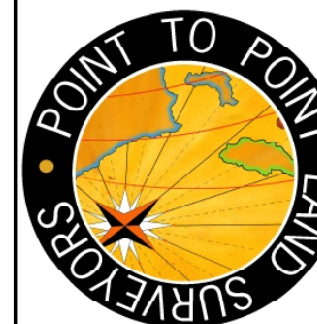
GENERAL NOTES

* THIS SPECIFIC PURPOSE SURVEY IS FOR THE LEASED PREMISES AND EASEMENTS ONLY. THIS SPECIFIC PURPOSE SURVEY WAS PREPARED FOR THE EXCLUSIVE USE OF TILLMAN INFRASTRUCTURE, LLC AND EXCLUSIVELY FOR THE TRANSFERAL OF THE LEASED PREMISES AND THE RIGHTS OF EASEMENT SHOWN HEREON AND SHALL NOT BE USED AS AN EXHIBIT OR EVIDENCE IN THE FEE SIMPLE TRANSFERAL OF THE PARENT PARCEL NOR ANY PORTION OR PORTIONS THEREOF. BOUNDARY INFORMATION SHOWN HEREON HAS BEEN COMPILED FROM TAX MAPS AND DEED DESCRIPTIONS ONLY. NO BOUNDARY SURVEY OF THE PARENT PARCEL WAS PERFORMED.
 THIS DRAWING DOES NOT REPRESENT A BOUNDARY SURVEY.
 EQUIPMENT USED FOR ANGULAR & LINEAR MEASUREMENTS: LEICA TPS 1200 ROBOTIC & GEOMAX ZENITH 35. (DATE OF LAST FIELD VISIT: 06/01/2020)
 THE 1' CONTOURS AND SPOT ELEVATIONS SHOWN ON THIS SPECIFIC PURPOSE SURVEY ARE ADJUSTED TO NAVD 88 DATUM (COMPUTED USING GEOID18) AND HAVE A VERTICAL ACCURACY OF ± 0.5'. CONTOURS OUTSIDE THE IMMEDIATE SITE AREA ARE APPROXIMATE.
 BEARINGS SHOWN ON THIS SPECIFIC PURPOSE SURVEY ARE BASED ON NC GRID NORTH (NAD 83).
 PER THE FEMA FLOODPLAIN MAPS, THE SITE IS LOCATED IN AN AREA DESIGNATED AS ZONE X (AREA OF MINIMAL FLOOD HAZARD). COMMUNITY PANEL NO. : 3720150600J DATED: 10/03/2006
 NO WETLAND AREAS HAVE BEEN INVESTIGATED BY THIS SPECIFIC PURPOSE SURVEY.
 ALL ZONING INFORMATION SHOULD BE VERIFIED WITH THE PROPER ZONING OFFICIALS.
 ANY UNDERGROUND UTILITIES SHOWN HAVE BEEN LOCATED FROM ABOVE GROUND FIELD SURVEY INFORMATION. THE SURVEYOR MAKES NO GUARANTEES THAT ANY UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN-SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THAT ANY UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE. THE SURVEYOR HAS NOT PHYSICALLY LOCATED ANY UNDERGROUND UTILITIES.



NO.	DATE	REVISION
1	06/04/2020	SITE NUMBER - JMF
2	6/30/2020	TITLE REVIEW - DMJ

* SPECIFIC PURPOSE SURVEY PREPARED BY:
POINT TO POINT LAND SURVEYORS
 Firm License Number: C-4145
 100 Governors Trace, Ste. 103
 Peachtree City, GA 30269
 (p) 678.565.4440 (f) 678.565.4497
 (w) p2pls.com



SPECIFIC PURPOSE SURVEY PREPARED FOR:



TILLMAN INFRASTRUCTURE, LLC
 152 W 57TH STREET, 27TH FLOOR
 NEW YORK, NY 10019

14637878

DUKE TOWNSHIP,
 HARNETT COUNTY,
 NORTH CAROLINA

DRAWN BY: EAL

SHEET:

CHECKED BY: JKL

1

APPROVED: D. MILLER

DATE: JUNE 3, 2020

P2P JOB #: 200978NC

OF 3



**Know what's below.
 Call before you dig.**

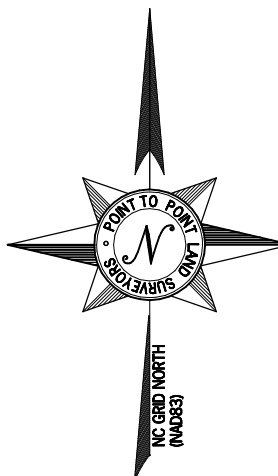
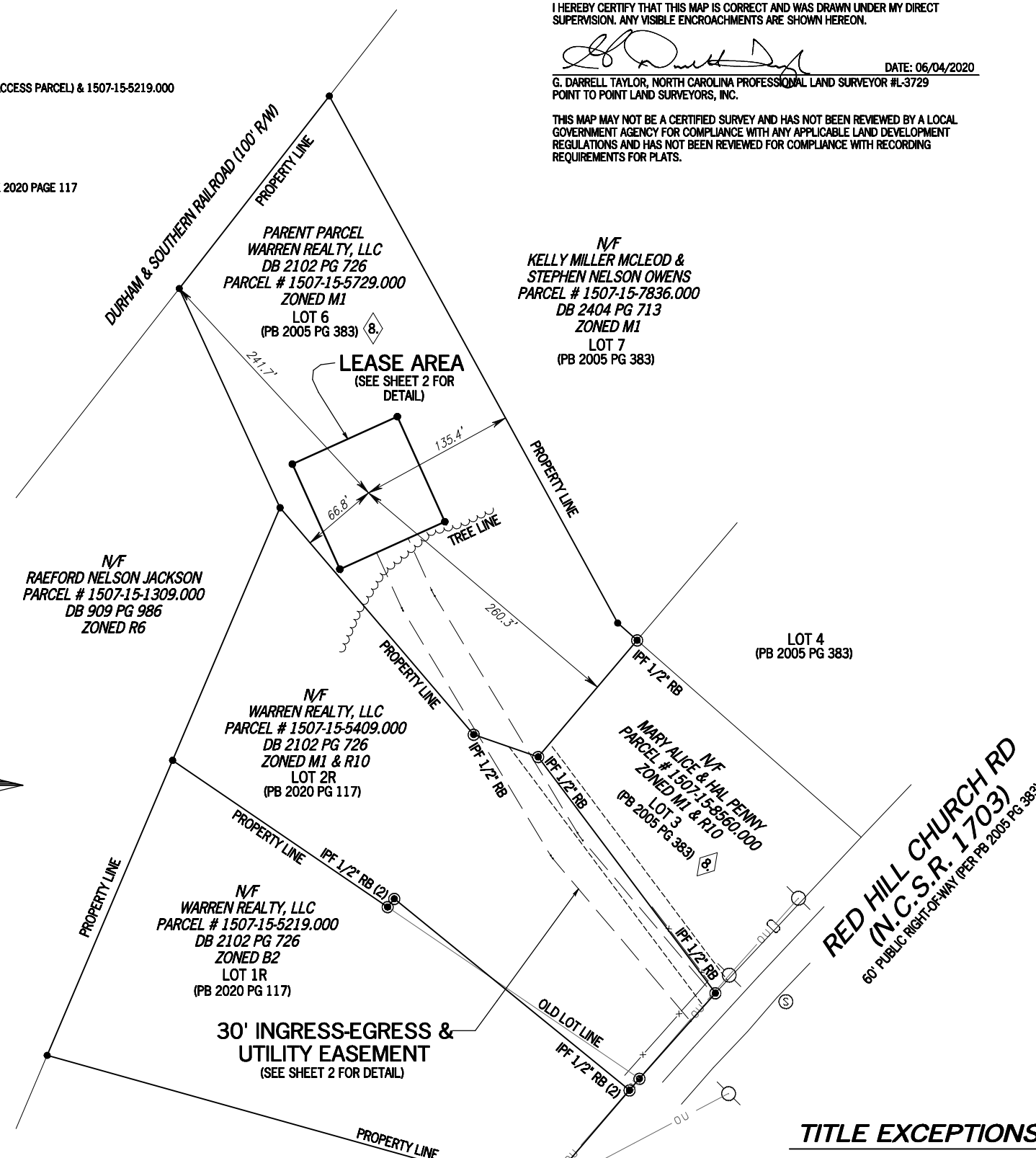
SURVEY NOT VALID WITHOUT SHEETS 2 & 3

TITLE EXCEPTIONS

THIS SURVEY WAS COMPLETED WITH THE AID OF TITLE WORK PREPARED BY FIRST AMERICAN TITLE INSURANCE COMPANY, COMMITMENT DATE OF JUNE 12, 2020 BEING COMMITMENT NO. TNC744754, FOR THE PARENT PARCEL, TO DETERMINE THE IMPACTS OF EXISTING TITLE EXCEPTIONS.

SCHEDULE B, PART 2

- ALL MATTERS RECITED ON PLAT RECORDED IN PLAT BOOK 2020, PAGE 117, PLAT BOOK 2005, PAGE 383 AND PLAT BOOK D, PAGE 92-B. (THIS ITEM IS APPLICABLE TO THE PARENT PARCEL AND THE APPLICABLE ITEM ARE SHOWN HEREON.)
- RELEASE AND RECONVEYANCE OF EASEMENT GRANTED TO MARY A. RALPH, DATED JULY 7, 2005 AND RECORDED ON JULY 8, 2005 IN BOOK 2102, PAGE 722. (THIS ITEM IS APPLICABLE TO THE PARENT PARCEL AND IS BLANKET IN NATURE.)
- DEED OF EASEMENT GRANTED TO WARREN REALTY LLC, DATED JULY 1, 2005 AND RECORDED ON JULY 8, 2005 IN BOOK 2102, PAGE 732. (THIS ITEM IS APPLICABLE TO THE PARENT PARCEL AND IS SHOWN HEREON.)



LEGEND

POB	POINT OF BEGINNING
POC	POINT OF COMMENCEMENT
IPS	IRON PIN SET
IFF	IRON PIN FOUND
RB	REBAR
CMF	CONCRETE MONUMENT FOUND
UP	UTILITY POLE
SSMH	SANITARY SEWER MANHOLE
SDMH	STORM DRAIN MANHOLE
EP	EDGE OF PAVEMENT
OU	OVERHEAD UTILITY
GW	GUY WIRE ANCHOR
TR	TRANSFORMER
WM	WATER METER
N/F	NOW OR FORMERLY

E:\Desktop\Point To Point\200978NC\Current_June32020\200978NC\T1-06P1-16496-200978NC.dwg

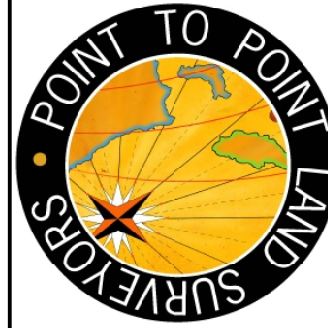


NO.	DATE	REVISION
1	06/04/2020	SITE NUMBER - JMF
2	6/30/2020	TITLE REVIEW - DMM

* SPECIFIC PURPOSE SURVEY PREPARED BY:

POINT TO POINT LAND SURVEYORS

Firm License Number: C-4145
 100 Governors Trace, Ste. 103
 Peachtree City, GA 30269
 (p) 678.565.4440 (f) 678.565.4497
 (w) p2pls.com



SPECIFIC PURPOSE SURVEY PREPARED FOR:



TILLMAN INFRASTRUCTURE, LLC
 152 W 57TH STREET, 27TH FLOOR
 NEW YORK, NY 10019

14637878

DUKE TOWNSHIP,
 HARNETT COUNTY,
 NORTH CAROLINA

DRAWN BY: EAL

CHECKED BY: JKL

APPROVED: D. MILLER

DATE: JUNE 3, 2020

P2P JOB #: 200978NC

SHEET:

2

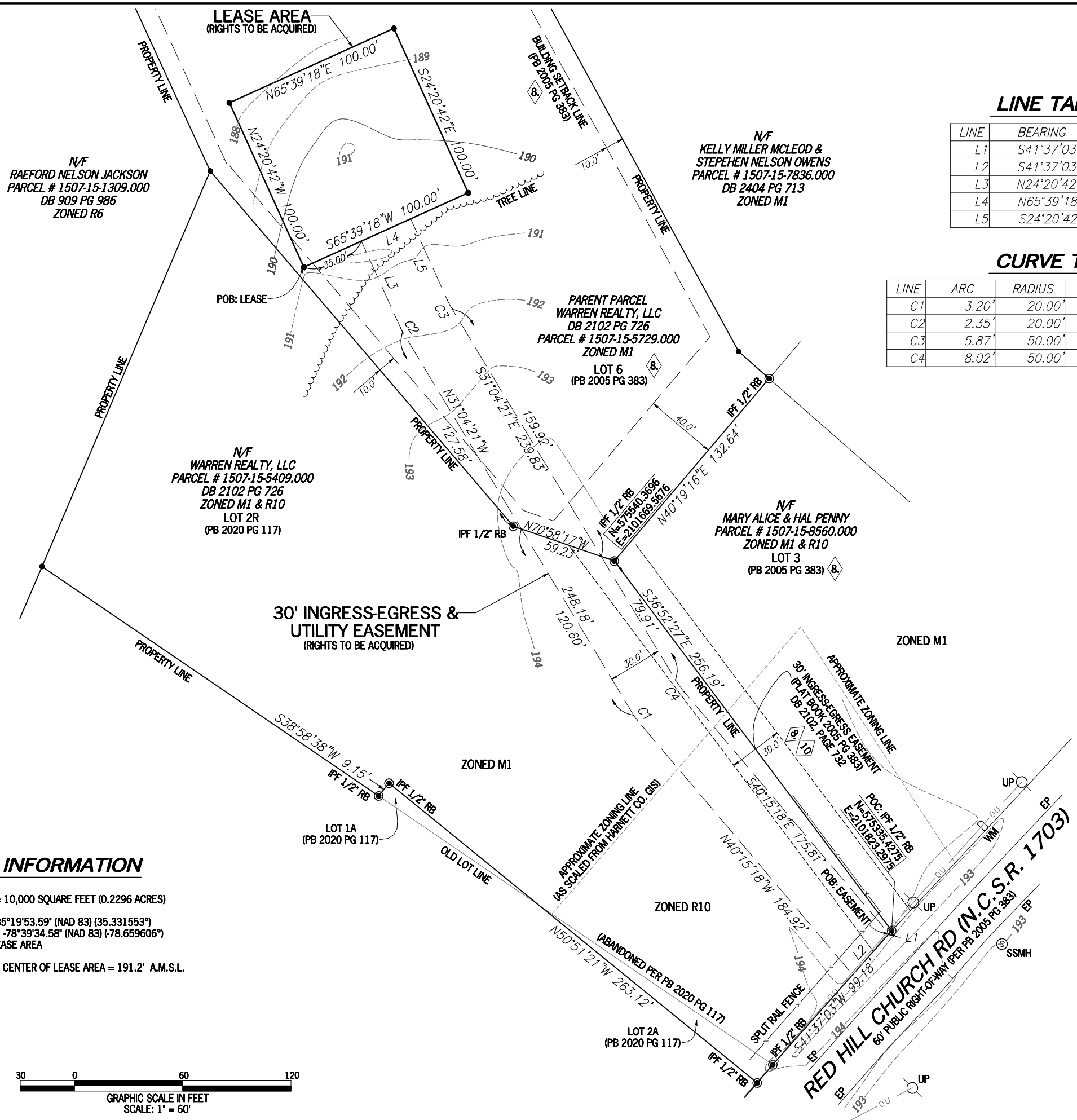
OF 3

LINE TABLE

LINE	BEARING	DISTANCE
L1	S41°37'03"W	2.23'
L2	S41°37'03"W	30.30'
L3	N24°20'42"W	52.79'
L4	N65°39'18"E	30.00'
L5	S24°20'42"E	49.27'

CURVE TABLE

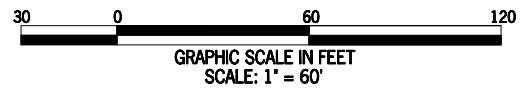
LINE	ARC	RADIUS	CHD. BRG.	CHD.
C1	3.20'	20.00'	N35°39'50"W	3.20'
C2	2.35'	20.00'	N27°42'32"W	2.35'
C3	5.87'	50.00'	S27°42'32"E	5.87'
C4	8.02'	50.00'	S35°39'50"E	8.01'



SITE INFORMATION

LEASE AREA = 10,000 SQUARE FEET (0.2296 ACRES)
 LATITUDE = 35°19'53.59" (NAD 83) (35.331553°)
 LONGITUDE = -78°39'34.58" (NAD 83) (-78.659606°)
 AT CENTER LEASE AREA
 ELEVATION AT CENTER OF LEASE AREA = 191.2' A.M.S.L.

- LEGEND**
- POB POINT OF BEGINNING
 - POC POINT OF COMMENCEMENT
 - IPS IRON PIN SET
 - IPF IRON PIN FOUND
 - RB REBAR
 - CMF CONCRETE MONUMENT FOUND
 - UP UTILITY POLE
 - SSMH SANITARY SEWER MANHOLE
 - SDMH STORM DRAIN MANHOLE
 - EP EDGE OF PAVEMENT
 - OU OVERHEAD UTILITY
 - GW GUY WIRE ANCHOR
 - TR TRANSFORMER
 - WM WATER METER
 - N/F NOW OR FORMERLY



SURVEY NOT VALID WITHOUT SHEETS 1 & 3

E:\workspace\Point to Point\200978NC\Drawings\200978NC.dwg

LEGAL DESCRIPTION SHEET

30' INGRESS-EGRESS & UTILITY EASEMENT

TOGETHER WITH A 30-FOOT WIDE INGRESS-EGRESS AND UTILITY EASEMENT, LYING AND BEING IN DUKE TOWNSHIP, HARNETT COUNTY, NORTH CAROLINA AND RUNNING THROUGH LOTS 2 AND 6 OF A RECOMBINATION MAP PREPARED FOR THOMAS G. RALPH, AS RECORDED IN PLAT BOOK 2005 PAGE 383, HARNETT COUNTY RECORDS AND BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

TO FIND THE POINT OF BEGINNING, COMMENCE AT A ½-INCH REBAR FOUND ON THE WESTERLY RIGHT-OF-WAY LIE OF RED HILL CHURCH ROAD (HAVING A 60-FOOT RIGHT-OF-WAY), SAID PIPE MARKING THE SOUTHEAST CORNER OF SAID LOT 2 AND HAVING A NORTH CAROLINA GRID NORTH, NAD83 VALUE OF N: 575335.4275 E: 2101823.2975, SAID REBAR BEING SOUTH 36°52' 27" EAST, 256.19 FEET FROM A ½-INCH REBAR FOUND AT THE NORTHWEST CORNER OF LOT 3 OF SAID RECOMBINATION MAP, HAVING A NORTH CAROLINA GRID NORTH, NAD83 VALUE OF N: 575540.3696 E: 2101669.5676; THENCE RUNNING ALONG SAID RIGHT-OF-WAY LINE, SOUTH 41°37'03" WEST, 2.23 FEET TO A POINT AND THE TRUE POINT OF BEGINNING; THENCE RUNNING, SOUTH 41°37'03" WEST, 30.30 FEET TO A POINT; THENCE LEAVING SAID RIGHT-OF-WAY LINE AND RUNNING, NORTH 40°15'18" WEST, 184.92 FEET TO A POINT; THENCE, 3.20 FEET ALONG THE ARC OF A CURVE TO THE RIGHT, HAVING A RADIUS OF 20.00 FEET AND BEING SCRIBED BY A CHORD BEARING, NORTH 35°39'50" WEST, 3.20 FEET TO A POINT; THENCE, NORTH 31°04'21" WEST, 248.18 FEET TO A POINT; THENCE, 2.35 FEET ALONG THE ARC OF A CURVE TO THE RIGHT, HAVING A RADIUS OF 20.00 FEET AND BEING SCRIBED BY A CHORD BEARING, NORTH 27°42'32" WEST, 2.35 FEET TO A POINT; THENCE, NORTH 24°20'42" WEST, 52.79 FEET TO A POINT ON THE LEASE AREA; THENCE RUNNING ALONG SAID LEASE AREA, NORTH 65°39'18" EAST, 30.00 FEET TO A POINT; THENCE LEAVING SAID LEASE AREA AND RUNNING, SOUTH 24°20'42" EAST, 49.27 FEET TO A POINT; THENCE, 5.87 FEET ALONG THE ARC OF A CURVE TO THE LEFT, HAVING A RADIUS OF 50.00 FEET AND BEING SCRIBED BY A CHORD BEARING, SOUTH 27°42'32" EAST, 5.87 FEET TO A POINT; THENCE, SOUTH 31°04'21" EAST, 239.83 FEET TO A POINT; THENCE, 8.02 FEET ALONG THE ARC OF A CURVE TO THE LEFT, HAVING A RADIUS OF 50.00 FEET AND BEING SCRIBED BY A CHORD BEARING, SOUTH 35°39'50" EAST, 8.01 FEET TO A POINT; THENCE, SOUTH 40°15'18" EAST, 175.81 FEET TO A POINT ON THE WESTERLY RIGHT-OF-WAY LINE OF RED HILL CHURCH ROAD AND THE POINT OF BEGINNING.

BEARINGS BASED ON NORTH CAROLINA GRID NORTH, NAD83.

SAID EASEMENT CONTAINS 0.3341 ACRES (14,554 SQUARE FEET), MORE OR LESS.

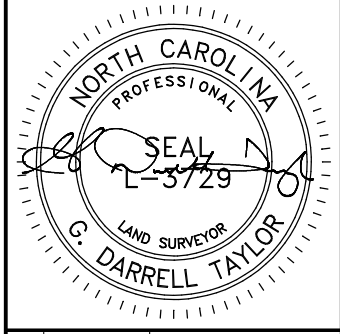
LEASE AREA

ALL THAT TRACT OR PARCEL OF LAND LYING AND BEING IN DUKE TOWNSHIP, HARNETT COUNTY, NORTH CAROLINA AND BEING A PORTION OF LOT 6 OF A RECOMBINATION MAP PREPARED FOR THOMAS G. RALPH, AS RECORDED IN PLAT BOOK 2005 PAGE 383, HARNETT COUNTY RECORDS AND BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

TO FIND THE POINT OF BEGINNING, COMMENCE AT A ½-INCH REBAR FOUND ON THE WESTERLY RIGHT-OF-WAY LIE OF RED HILL CHURCH ROAD (HAVING A 60-FOOT RIGHT-OF-WAY), SAID PIPE MARKING THE SOUTHEAST CORNER OF LOT 2 OF SAID RECOMBINATION MAP AND HAVING A NORTH CAROLINA GRID NORTH, NAD83 VALUE OF N: 575335.4275 E: 2101823.2975, SAID REBAR BEING SOUTH 36°52' 27" EAST, 256.19 FEET FROM A ½-INCH REBAR FOUND AT THE NORTHWEST CORNER OF LOT 3 OF SAID RECOMBINATION MAP, HAVING A NORTH CAROLINA GRID NORTH, NAD83 VALUE OF N: 575540.3696 E: 2101669.5676; THENCE RUNNING ALONG SAID RIGHT-OF-WAY LINE, SOUTH 41°37'03" WEST, 2.23 FEET TO A POINT; THENCE RUNNING, SOUTH 41°37'03" WEST, 30.30 FEET TO A POINT; THENCE LEAVING SAID RIGHT-OF-WAY LINE AND RUNNING, NORTH 40°15'18" WEST, 184.92 FEET TO A POINT; THENCE, 3.20 FEET ALONG THE ARC OF A CURVE TO THE RIGHT, HAVING A RADIUS OF 20.00 FEET AND BEING SCRIBED BY A CHORD BEARING, NORTH 35°39'50" WEST, 3.20 FEET TO A POINT; THENCE, NORTH 31°04'21" WEST, 248.18 FEET TO A POINT; THENCE, 2.35 FEET ALONG THE ARC OF A CURVE TO THE RIGHT, HAVING A RADIUS OF 20.00 FEET AND BEING SCRIBED BY A CHORD BEARING, NORTH 27°42'32" WEST, 2.35 FEET TO A POINT; THENCE, NORTH 24°20'42" WEST, 52.79 FEET TO A POINT ON THE LEASE AREA; THENCE RUNNING ALONG SAID LEASE AREA, SOUTH 65°39'18" WEST, 35.00 FEET TO A POINT AND THE TRUE POINT OF BEGINNING; THENCE RUNNING, NORTH 24°20'42" WEST, 100.00 FEET TO A POINT; THENCE, NORTH 65°39'18" EAST, 100.00 FEET TO A POINT; THENCE, SOUTH 24°20'42" EAST, 100.00 FEET TO A POINT; THENCE, SOUTH 65°39'18" WEST, 100.00 FEET TO A POINT AND THE POINT OF BEGINNING.

BEARINGS BASED ON NORTH CAROLINA GRID NORTH, NAD83.

SAID TRACT CONTAINS 0.2296 ACRES (10,000 SQUARE FEET), MORE OR LESS.



NO.	DATE	REVISION
1	06/04/2020	SITE NUMBER - JMF
2	6/30/2020	TITLE REVIEW - DMM

* SPECIFIC PURPOSE SURVEY PREPARED BY:

POINT TO POINT LAND SURVEYORS
 Firm License Number: C-4145
 100 Governors Trace, Ste. 103
 Peachtree City, GA 30269
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SPECIFIC PURPOSE SURVEY PREPARED FOR:



TILLMAN INFRASTRUCTURE, LLC
 152 W 57TH STREET, 27TH FLOOR
 NEW YORK, NY 10019

14637878

DUKE TOWNSHIP,
 HARNETT COUNTY,
 NORTH CAROLINA

DRAWN BY: EAL
 CHECKED BY: JKL
 APPROVED: D. MILLER
 DATE: JUNE 3, 2020
 P2P JOB #: 200978NC

SHEET:
3
 OF 3

ELECTRICAL INSTALLATION NOTES:

- ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS, NEC AND ALL APPLICABLE LOCAL CODES.
- CONDUIT ROUTINGS ARE SCHEMATIC. SUBCONTRACTOR SHALL INSTALL CONDUITS SO THAT ACCESS TO EQUIPMENT IS NOT BLOCKED.
- WIRING, RACEWAY AND SUPPORT METHODS AND MATERIALS SHALL COMPLY WITH THE REQUIREMENTS OF THE NEC.
- ALL CIRCUITS SHALL BE SEGREGATED AND MAINTAIN MINIMUM CABLE SEPARATION AS REQUIRED BY THE NEC.
- CABLES SHALL NOT BE ROUTED THROUGH LADDER-STYLE CABLE TRAY RUNGS.
- EACH END OF EVERY POWER, POWER PHASE CONDUCTOR (I.E. HOTS), GROUNDING AND T1 CONDUCTOR AND CABLE SHALL BE LABELED WITH COLOR-CODED INSULATION OR ELECTRICAL TAPE (3M BRAND, 1/2" PLASTIC ELECTRICAL TAPE WITH UV PROTECTION, OR EQUAL). THE IDENTIFICATION METHOD SHALL CONFORM WITH NEC AND OSHA.
- ALL ELECTRICAL COMPONENTS SHALL BE CLEARLY LABELED WITH PLASTIC TAPE PER COLOR SCHEDULE. ALL EQUIPMENT SHALL BE LABELED WITH THEIR VOLTAGE RATING, BRANCH CIRCUIT ID NUMBERS (I.E. PANEL BOARD AND CIRCUIT ID'S).
- PANEL BOARDS (ID NUMBERS) AND INTERNAL CIRCUIT BREAKERS (CIRCUIT ID NUMBERS) SHALL BE CLEARLY LABELED WITH PLASTIC LABELS.
- ALL TIE WRAPS SHALL BE CUT FLUSH WITH APPROVED CUTTING TOOL TO REMOVE SHARP EDGES.
- POWER, CONTROL AND EQUIPMENT GROUND WIRING IN TUBING OR CONDUIT SHALL BE SINGLE CONDUCTOR (#14 AWG OR LARGER), 600V, OIL RESISTANT THHN OR THWN-2, CLASS B STRANDED COPPER CABLE RATED FOR 90° C (WET & DRY) OPERATION LISTED OR LABELED FOR THE LOCATION AND RACEWAY SYSTEM USED UNLESS OTHERWISE SPECIFIED.
- SUPPLEMENTAL EQUIPMENT GROUND WIRING LOCATED INDOORS SHALL BE SINGLE CONDUCTOR (#6 AWG OR LARGER), 600V, OIL RESISTANT THHN OR THWN-2 GREEN INSULATION CLASS B STRANDED COPPER CABLE RATED FOR 90° C (WET & DRY) OPERATION LISTED OR LABELED FOR THE LOCATION AND RACEWAY SYSTEM UNLESS OTHERWISE SPECIFIED.
- POWER, CONTROL AND EQUIPMENT GROUND WIRING NOT IN TUBING OR CONDUIT SHALL BE MULTI-CONDUCTOR, TYPE TC CABLE (#14 AWG OR LARGER), 600V, OIL RESISTANT THHN OR THWN-2, CLASS B STRANDED COPPER CABLE RATED FOR 90° C (WET & DRY) OPERATION WITH OUTER JACKET LISTED OR LABELED FOR THE LOCATION AND RACEWAY SYSTEM USED UNLESS OTHERWISE SPECIFIED.
- ALL POWER AND GROUNDING CONNECTIONS SHALL BE CRIMP-STYLE, COMPRESSION WIRE LUGS AND WIRE NUTS BY THOMAS AND BETTS (OR EQUAL). LUGS AND WIRE NUTS SHALL BE RATED FOR OPERATION AT NO LESS THAN 75° C (90° C IF AVAILABLE).
- RACEWAY AND CABLE TRAY SHALL BE LISTED OR LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSII/IEEE AND NEC.
- ELECTRICAL METALLIC TUBING (EMT) OR RIGID NONMETALLIC CONDUIT (I.E. RIGID PVC SCHEDULE 40 OR RIGID PVC SCHEDULE 80 FOR LOCATIONS SUBJECT TO PHYSICAL DAMAGE) SHALL BE USED FOR EXPOSED INDOOR LOCATIONS.
- ELECTRICAL METALLIC TUBING (EMT), ELECTRICAL NONMETALLIC TUBING (ENT) OR RIGID NONMETALLIC CONDUIT (RIGID PVC, SCHEDULE 40) SHALL BE USED FOR CONCEALED INDOOR LOCATIONS.
- GALVANIZED STEEL INTERMEDIATE METALLIC CONDUIT (IMC) SHALL BE USED FOR OUTDOOR LOCATIONS ABOVE GRADE.
- RIGID NONMETALLIC CONDUIT (I.E. RIGID PVC SCHEDULE 40 OR RIGID PVC SCHEDULE 80) SHALL BE USED UNDERGROUND; DIRECT BURIED, IN AREAS OF OCCASIONAL LIGHT VEHICLE TRAFFIC OR ENCASED IN REINFORCED CONCRETE IN AREAS OF HEAVY VEHICLE TRAFFIC.
- LIQUID-TITE FLEXIBLE METALLIC CONDUIT (LIQUID-TITE FLEX) SHALL BE USED INDOORS AND OUTDOORS, WHERE VIBRATION OCCURS OR FLEXIBILITY IS NEEDED.
- CONDUIT AND TUBING FITTINGS SHALL BE THREADED OR COMPRESSION-TYPE AND APPROVED FOR THE LOCATION USED. SET SCREW FITTINGS ARE NOT ACCEPTABLE.
- CABINETS, BOXES AND WIRE WAYS SHALL BE LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSII/IEEE AND NEC.
- WIREWAYS SHALL BE EPOXY-COATED (GRAY) AND INCLUDE A HINGED COVER, DESIGNED TO SWING OPEN DOWNWARDS; SHALL BE PANDUIT TYPE E (OR EQUAL); AND RATED NEMA 1 (OR BETTER).

ELECTRICAL INSTALLATION NOTES CONTINUED:

- EQUIPMENT CABINETS, TERMINAL BOXES, JUNCTION BOXES AND PULL BOXES SHALL BE GALVANIZED OR EPOXY-COATED SHEET STEEL. SHALL MEET OR EXCEED UL 50 AND RATED NEMA 1 (OR BETTER) INDOORS OR NEMA 3 (OR BETTER) OUTDOORS.
- METAL RECEPTACLE, SWITCH AND DEVICE BOXES SHALL BE GALVANIZED, EPOXY-COATED OR NON-CORRODING; SHALL MEET OR EXCEED UL 514A AND NEMA OS 1; AND RATED NEMA 1 (OR BETTER) INDOORS OR WEATHER PROTECTED (WP OR BETTER) OUTDOORS.
- NONMETALLIC RECEPTACLE, SWITCH AND DEVICE BOXES SHALL MEET OR EXCEED NEMA OS 2; AND RATED NEMA 1 (OR BETTER) INDOORS OR WEATHER PROTECTED (WP OR BETTER) OUTDOORS.
- THE SUBCONTRACTOR SHALL NOTIFY AND OBTAIN NECESSARY AUTHORIZATION FROM THE CONTRACTOR BEFORE COMMENCING WORK ON THE AC POWER DISTRIBUTION PANELS.
- THE SUBCONTRACTOR SHALL PROVIDE NECESSARY TAGGING ON THE BREAKERS, CABLES AND DISTRIBUTION PANELS IN ACCORDANCE WITH THE APPLICABLE CODES AND STANDARDS TO SAFEGUARD AGAINST LIFE AND PROPERTY.
- INSTALL PLASTIC LABEL ON THE METER CENTER IDENTIFYING SPECIFIC CARRIER.

KEY NOTES: (SEE GROUNDING PLAN DIAGRAM - SHEET G1)

- TOWER GROUNDING:** EXTEND #2 SOLID TINNED CU WIRE FROM BURIED GROUND RING TO TOWER AND MAKE EXOTHERMIC CONNECTION.
- GROUND ROD:** COPPER CLAD STEEL, 3/4"Ø X TEN (10) FEET LONG.
- ICE BRIDGE SUPPORT POST GROUNDING:** EXTEND #2 TINNED CU WIRE FROM BURIED GROUND RING TO ALL ICE BRIDGE SUPPORT POST WITH CADWELD CONNECTION WELD.
- FENCE GROUNDING:** IF FENCE IS WITHIN 6' OF GROUNDING RING, EXTEND #2 TINNED CU WIRE FROM BURIED GROUND RING TO FENCE CORNER POSTS AND EXOTHERMICALLY WELDED. BOND INTERMEDIATE POST IF REQUIRED TO MAINTAIN 25' MAX. SPACING.
- TOWER GROUNDING BAR:** EXTEND #2 TINNED CU WIRE FROM BURIED GROUND RING UP TO THE TOWER GROUND BAR AND MAKE A MECHANICAL CONNECTION. SECURE GROUND BAR DIRECTLY TO TOWER WITH ISOLATOR KIT USING STAINLESS STEEL MOUNTING MATERIAL.
- MULTI TENANT UTILITY FRAME:** BOND METER, TELCO BOX AND FRAME POST TO COMPOUND GROUND RING WITH MECHANICAL CONNECTION AT CABINET AND EXOTHERMIC WELD AT GROUND RING.
- ANTENNA GROUND BAR:** MOUNT GROUND BAR DIRECTLY TO THE TOWER AT TOP OF COAX RUNS. SECURE TO TOWER WITH ISOLATOR KIT USING STAINLESS STEEL MOUNTING MATERIAL.
- FENCE/GATE:** BOND ALL FENCE POSTS AND GATES TO COMPOUND GROUND RING WITH EXOTHERMIC WELDS.
- EXTERIOR GFCI RECEPTACLE GROUNDING:** EXTEND #2 TINNED CU WIRE FROM BURIED GROUND RING TO THE EXTERIOR GFCI RECEPTACLE AND MAKE A MECHANICAL CONNECTION.

GREENFIELD GROUNDING NOTES:

- ALL GROUND ELECTRODE SYSTEMS (INCLUDING TELECOMMUNICATION, RADIO, LIGHTNING PROTECTION AND AC POWER GES'S) SHALL BE BONDED TOGETHER AT OR BELOW GRADE, BY TWO OR MORE COPPER BONDING CONDUCTORS IN ACCORDANCE WITH THE NEC.
- THE SUBCONTRACTOR SHALL PERFORM IEEE FALL-OF-POTENTIAL RESISTANCE TO EARTH TESTING (PER IEEE 11000 AND 81) FOR GROUND ELECTRODE SYSTEMS, THE SUBCONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEXT RESULT OF 5 OHMS OR LESS.
- THE SUBCONTRACTOR IS RESPONSIBLE FOR PROPERLY SEQUENCING GROUNDING AND UNDERGROUND CONDUIT INSTALLATION AS TO PREVENT ANY LOSS OF CONTINUITY IN THE GROUNDING SYSTEM OR DAMAGE TO THE CONDUIT AND PROVIDE TESTING RESULTS.
- METAL CONDUIT AND TRAY SHALL BE GROUNDED AND MADE ELECTRICALLY CONTINUOUS WITH LISTED BONDING FITTINGS OR BY BONDING ACROSS THE DISCONTINUITY WITH #6 AWG COPPER WIRE UL APPROVED GROUNDING TYPE CONDUIT CLAMPS.
- METAL RACEWAY SHALL NOT BE USED AS THE NEC REQUIRED EQUIPMENT GROUND CONDUCTOR. STRANDED COPPER CONDUCTORS WITH GREEN INSULATION, SIZED IN ACCORDANCE WITH THE NEC, SHALL BE FURNISHED AND INSTALLED WITH THE POWER CIRCUITS TO BTS EQUIPMENT.
- EACH BTS CABINET FRAME SHALL BE DIRECTLY CONNECTED TO THE MASTER GROUND BAR WITH GREEN INSULATED SUPPLEMENTAL EQUIPMENT GROUND WIRES, #6 AWG STRANDED COPPER OR LARGER FOR INDOOR BTS; 32 AWG SOLID TINNED COPPER FOR OUTDOOR BTS.

- ALL EXTERIOR GROUND CONDUCTORS BETWEEN EQUIPMENT/GROUND BARS AND THE GROUND RING SHALL BE #2 AWG SOLID TINNED COPPER UNLESS OTHERWISE INDICATED.
- ALUMINUM CONDUCTOR OR COPPER CLAD STEEL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS.
- USE OF 90° BENDS IN THE PROTECTION GROUNDING CONDUCTORS SHALL BE AVOIDED WHEN 45° BENDS CAN BE ADEQUATELY SUPPORTED.
- EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE.
- ALL GROUND CONNECTION ABOVE GRADE (INTERIOR AND EXTERIOR) SHALL BE FORMED USING HIGH PRESS CRIMPS.
- COMPRESSION GROUND CONNECTIONS MAY BE REPLACED BY EXOTHERMIC WELD CONNECTIONS.
- ICE BRIDGE BONDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED OR BOLTED TO THE BRIDGE AND THE TOWER GROUND BAR.
- APPROVED ANTIOXIDANT COATINGS (I.E. CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.
- ALL EXTERIOR GROUND CONNECTIONS SHALL BE COATED WITH A CORROSION RESISTANT MATERIAL.
- MISCELLANEOUS ELECTRICAL AND NON-ELECTRICAL METAL BOXES, FRAMES AND SUPPORTS SHALL BE BONDED TO THE GROUND RING, IN ACCORDANCE WITH THE NEC.
- BOND ALL METALLIC OBJECTS WITHIN 6 FT. OF MAIN GROUND WIRES WITH (1) #2 AWG TIN-PLATED COPPER GROUND CONDUCTOR.
- GROUND CONDUCTORS USED IN THE FACILITY GROUND AND LIGHTNING PROTECTION SYSTEMS SHALL NOT BE ROUTED THROUGH METALLIC OBJECTS THAT FORM A RING AROUND THE CONDUCTOR, SUCH AS METALLIC CONDUITS, METAL SUPPORT CLIPS OR SLEEVES THROUGH WALL OR FLOORS, WHEN IT IS REQUIRED TO BE HOUSED IN CONDUIT TO MEET CODE REQUIREMENTS OF LOCAL CONDITIONS, NON-METALIC MATERIAL SUCH AS PVC PLASTIC CONDUIT SHALL BE USED. WHERE USE OF METAL CONDUIT IS UNAVOIDABLE (E.G. NONMETALLIC CONDUIT PROHIBITED BY LOCAL CODE) THE GROUND CONDUCTOR SHALL BE BONDED TO EACH END OF THE METAL CONDUIT.

PREPARED FOR:



A&E FIRM:



1875 OLD ALABAMA ROAD, SUITE 1008
ROSWELL, GA 30076
TEL: 678-990-2338 FAX: 678-990-2342

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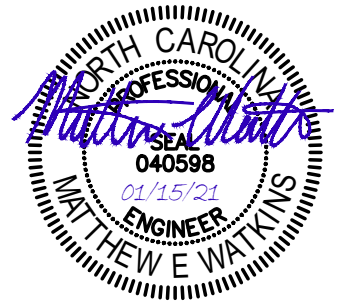
PROJECT INFORMATION:

RED HILL CHURCH
14637878
TI-OPP-16496
368-704
161 RED HILL CHURCH ROAD
DUNN, NC 28334

DRAWN BY:	SJH
CHECKED BY:	KIA
APPROVED BY:	MEW

REVISIONS

REV.	DATE	DESCRIPTION
0	11/16/20	ISSUED FOR CONSTRUCTION
1	01/15/21	REVISED E911 ADDRESS



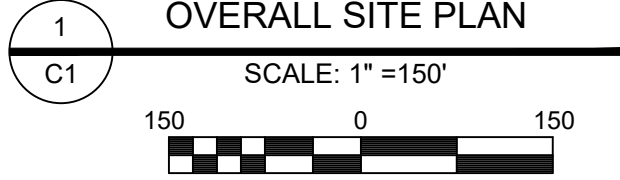
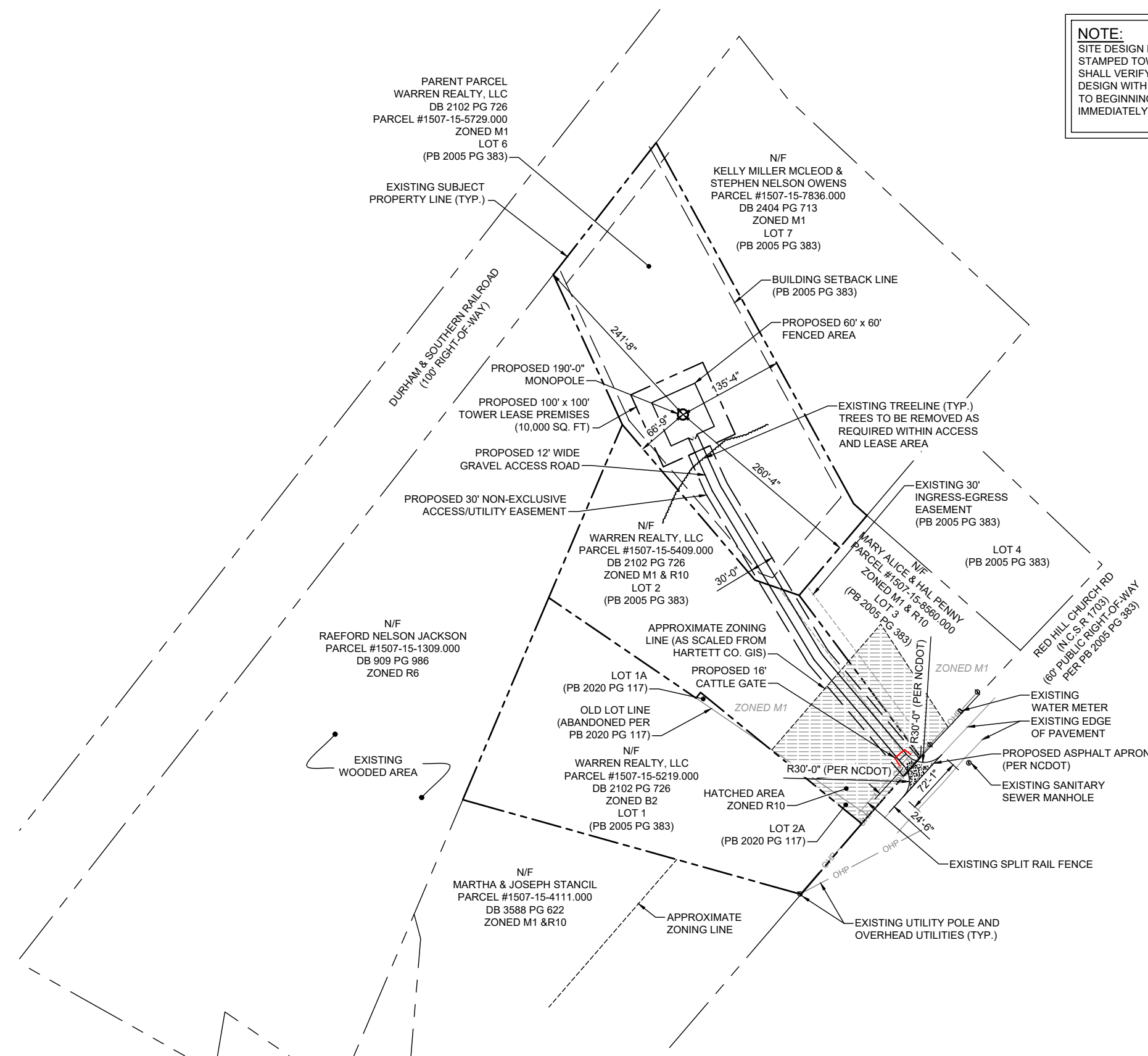
SHEET TITLE:
GENERAL NOTES

SHEET #: GN2	REVISION: 1
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TOWER SETBACKS TO PROPERTY LINES (FROM TOWER CENTER)	
NORTH	241'-8"
SOUTH	260'-4"
EAST	135'-4"
WEST	66'-9"



NOTE:
 SITE DESIGN HAS NOT BEEN COORDINATED WITH FINAL STAMPED TOWER FABRICATION DRAWINGS. CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND ANGLES ON THIS SITE DESIGN WITH FINAL STAMPED TOWER DRAWINGS PRIOR TO BEGINNING CONSTRUCTION. NOTIFY ENGINEER IMMEDIATELY IF ANY DISCREPANCIES ARE DISCOVERED.



SURVEY NOTE:
 1. TILLMAN INFRASTRUCTURE STAFF SHALL COORDINATE WITH THE PROPERTY OWNER TO OBTAIN THE PROPER EASEMENT AGREEMENTS TO CONSTRUCT AND MAINTAIN EQUIPMENT IN AND AROUND THE TOWER COMPOUND.
 2. PROPOSED COMPOUND LAYOUT BASED ON SURVEY PROVIDED BY POINT TO POINT LAND SURVEYORS DATED 06/30/2020 AND SITE VISIT ON 05/05/2020.

PREPARED FOR:

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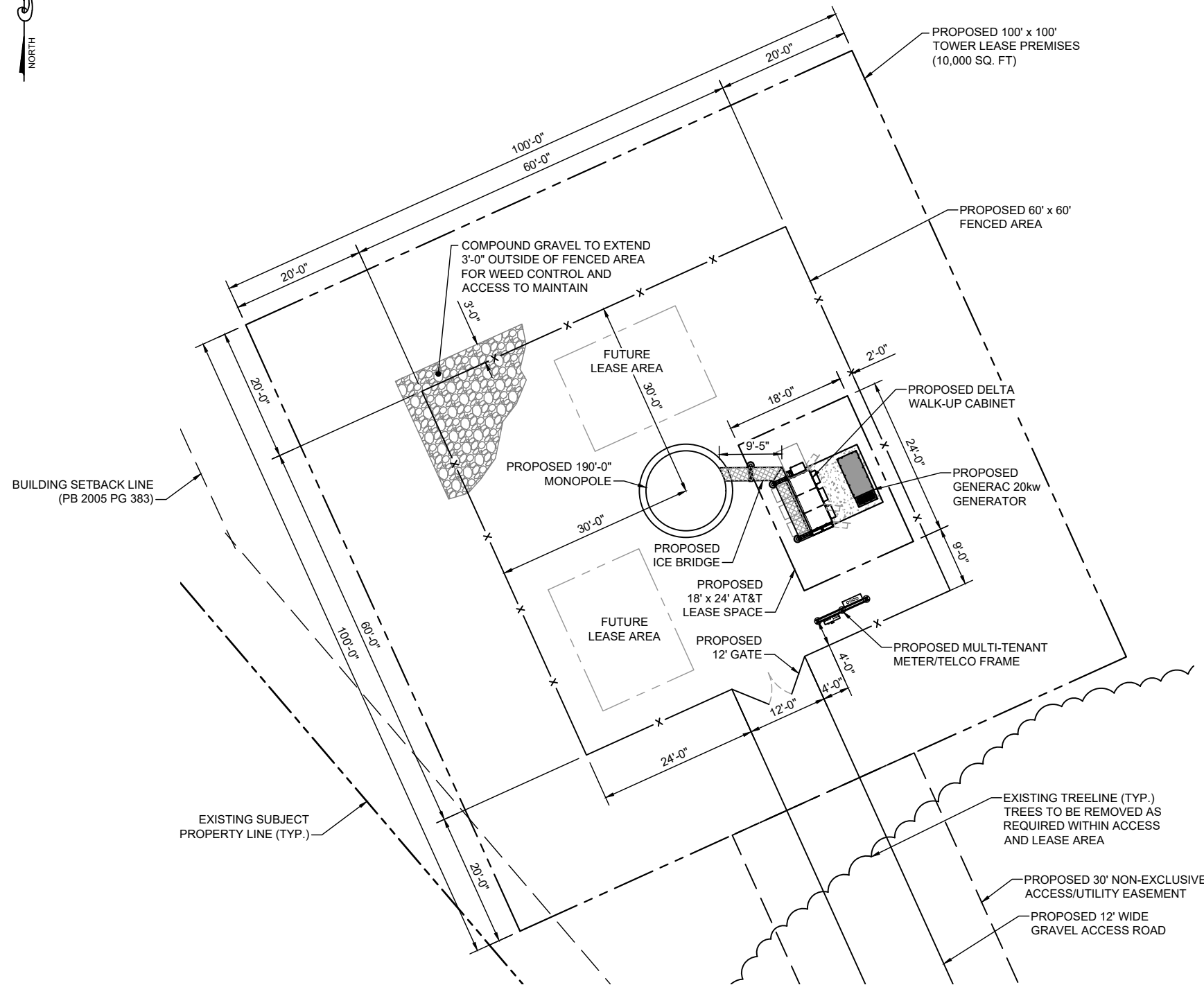
RED HILL CHURCH
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SHEET TITLE:
OVERALL SITE PLAN

SHEET #:	REVISION:
C1	1



FLOOD PLAIN NOTE
 PER THE FEMA FLOODPLAIN MAPS, THE SITE IS LOCATED IN AN AREA DESIGNATED AS ZONE X (AREA OF MINIMAL FLOOD HAZARD).
 COMMUNITY PANEL NO.: 3720150600J
 DATED: 10/03/2006



GENERAL NOTES:

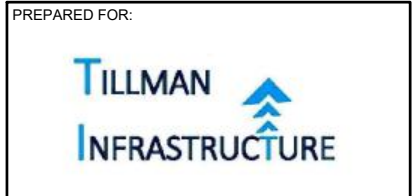
1. ALL MATERIALS AND WORKMANSHIP SHALL CONFORM TO THE DRAWINGS AND SPECIFICATIONS. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE LATEST EDITION OF THE STATE, LOCAL AND NATIONAL CODES, ORDINANCES AND OR REGULATIONS APPLICABLE TO THIS PROJECT.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING THE WORK OF ALL TRADES AND SHALL CHECK ALL DIMENSIONS. ALL DISCREPANCIES SHALL BE CALLED TO THE ATTENTION OF THE TILLMAN INFRASTRUCTURE CONSTRUCTION MANAGER AND/OR ENGINEER AND BE RESOLVED BEFORE PROCEEDING WITH WORK. WHERE THERE IS A CONFLICT BETWEEN DRAWING AND TILLMAN INFRASTRUCTURE SPECIFICATIONS, THE TILLMAN INFRASTRUCTURE CONSTRUCTION MANAGER SHOULD BE CONTACTED FOR CLARIFICATION.
3. ALL INFORMATION SHOWN ON THE DRAWINGS RELATIVE TO EXISTING CONDITIONS IS GIVEN AS THE BEST PRESENT KNOWLEDGE, BUT WITHOUT GUARANTEE OF ACCURACY. WHERE ACTUAL CONDITIONS CONFLICT WITH THE DRAWINGS, THEY SHALL BE REPORTED TO THE TILLMAN INFRASTRUCTURE CONSTRUCTION MANAGER AND/OR ENGINEER SO THAT PROPER REVISIONS MAY BE MADE. MODIFICATION OF DETAILS OF CONSTRUCTION SHALL NOT BE MADE WITHOUT WRITTEN APPROVAL OF THE CONSTRUCTION MANAGER AND/OR ENGINEER.
4. CONTRACTOR SHALL REVIEW AND BE FAMILIAR WITH SITE CONDITIONS AS SHOWN ON THE ATTACHED SITE PLAN AND/OR SURVEY DRAWINGS.
5. ALL FINISHED GRADES SHALL SLOPE MINIMUM 1/4 IN./FT. AWAY FROM EQUIPMENT IN ALL DIRECTIONS. CONTRACTOR SHALL SLOPE SWALES AS REQUIRED ALONG EXISTING TERRAIN TO DRAIN AWAY FROM COMPOUND AND ACCESS DRIVE.
6. THE PROPOSED TOWER AND TOWER FOUNDATIONS WERE DESIGNED BY OTHERS. TOWER INFORMATION PROVIDED ON THESE PLANS ARE PROVIDED FOR REFERENCE PURPOSES ONLY. TOWER DIMENSIONS SHOWN ON THIS PLAN ARE FOR TOWER CENTER LOCATION. DO NOT SCALE. NOTIFY ENGINEER OR TILLMAN INFRASTRUCTURE CONSTRUCTION MANAGER OF ANY CONFLICTS OR DISCREPANCIES.
7. THE CONTRACTOR SHALL PROVIDE ADEQUATE EXCAVATION SLOPING, SHORING, BRACING, AND GUYS IN ACCORDANCE WITH ALL NATIONAL, STATE, AND LOCAL SAFETY ORDINANCES.
8. UPON COMPLETION OF CONSTRUCTION, CONTRACTOR IS RESPONSIBLE FOR REPAIRING ANY DAMAGE CAUSED BY CONSTRUCTION ACTIVITIES TO THE EXISTING ACCESS ROAD AND COMPOUND GRAVEL AREAS. ANY NEW FILL MATERIALS SHALL BE COMPACTED.
9. THE CONTRACTOR IS HEREBY NOTIFIED THAT PRIOR TO COMMENCING CONSTRUCTION, HE IS RESPONSIBLE FOR CONTACTING THE UTILITY COMPANIES INVOLVED AND SHALL REQUEST A VERIFICATION AT THE CONSTRUCTION SITE OF THE LOCATIONS OF THEIR UNDERGROUND UTILITIES AND WHERE THEY MAY POSSIBLY CONFLICT WITH THE PLACEMENT OF IMPROVEMENTS AS SHOWN ON THESE PLANS. THE CONTRACTOR OR ANY SUBCONTRACTOR FOR THIS CONTRACT WILL BE REQUIRED TO NOTIFY "STATE 811" 48 HOURS IN ADVANCE OF PERFORMING ANY WORK. ANY UTILITIES DAMAGED BY CONSTRUCTION ACTIVITIES SHALL BE REPAIRED BY THE CONTRACTOR, AT NO EXPENSE TO THE OWNER.
10. CONTRACTOR TO PROVIDE DUMPSTER AND PORTABLE TOILET FACILITY DURING CONSTRUCTION.
11. CONTRACTOR TO PROVIDE STYMIE LOCK OR EQUIVALENT AS APPROVED BY TILLMAN INFRASTRUCTURE CONSTRUCTION MANAGER.

SURVEY NOTE:

1. TILLMAN INFRASTRUCTURE STAFF SHALL COORDINATE WITH THE PROPERTY OWNER TO OBTAIN THE PROPER EASEMENT AGREEMENTS TO CONSTRUCT AND MAINTAIN EQUIPMENT IN AND AROUND THE TOWER COMPOUND.
2. PROPOSED COMPOUND LAYOUT BASED ON SURVEY PROVIDED BY POINT TO POINT LAND SURVEYORS DATED 06/30/2020 AND SITE VISIT ON 05/05/20.

NOTES:

1. CONTRACTOR TO CLEAR AND GRUB EXISTING VEGETATION AND REMOVE TREES AS NEEDED WITHIN ACCESS ROAD AND TURNAROUND AREA.
2. CONTRACTOR TO VERIFY WITH TILLMAN CM IF THE EXTENT OF CLEARING AND GRUBBING AND THE TREE REMOVAL IS THE LEASE AREA, FENCED AREA OR A SPECIFIC DISTANCE BEYOND FENCED AREA.



A&E FIRM:
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PROJECT INFORMATION:
RED HILL CHURCH
 14637878
 TI-OPP-16496
 368-704
 161 RED HILL CHURCH ROAD
 DUNN, NC 28334

DRAWN BY:	SJH
CHECKED BY:	KIA
APPROVED BY:	MEW

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SHEET TITLE:
SITE PLAN

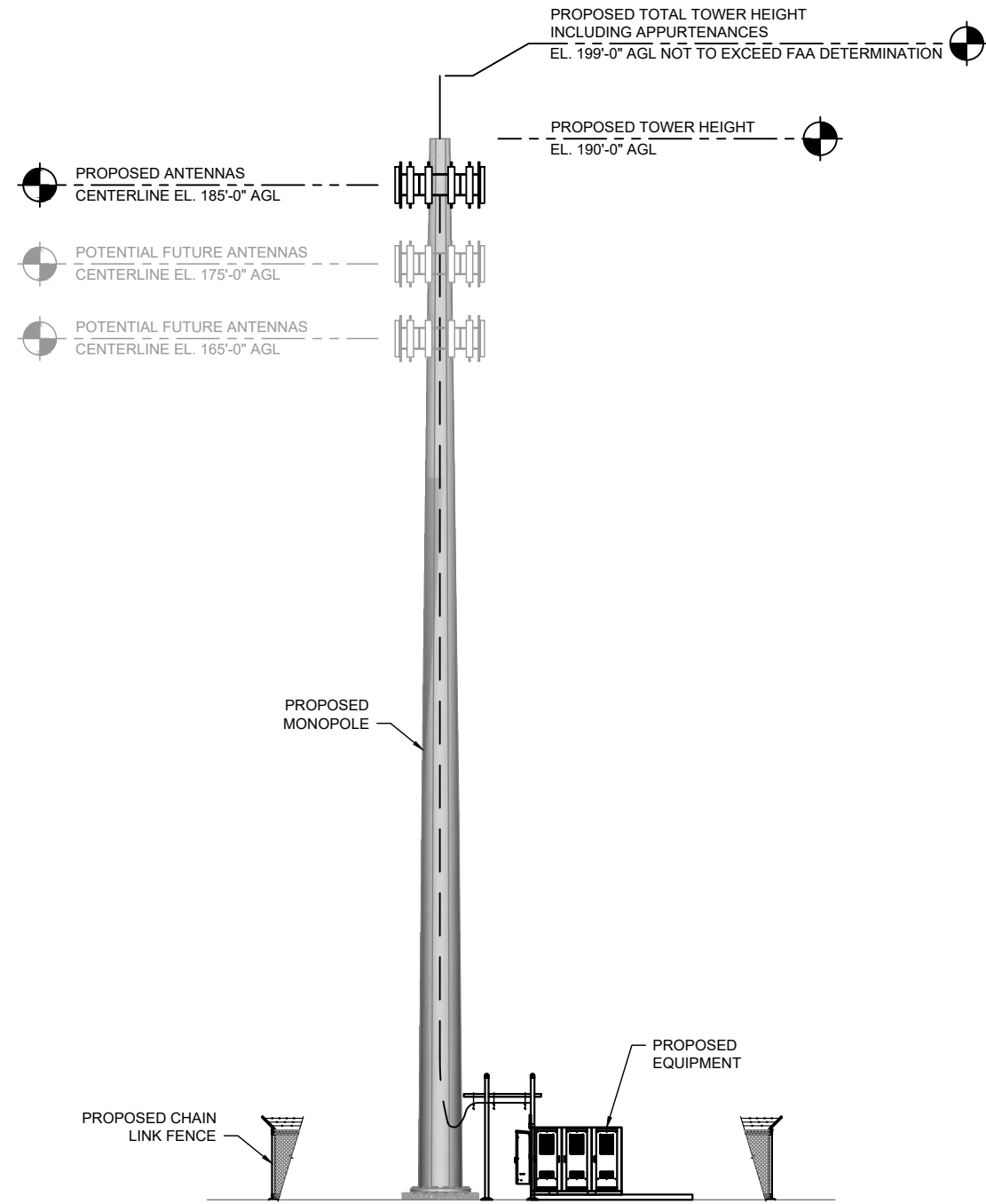
SHEET #: **C2** REVISION: **1**

NOTES:

1. CALCULATIONS FOR THE STRUCTURE AND THE ANTENNA MOUNTS WERE PREPARED BY OTHERS AND THOSE CALCULATIONS CERTIFY THE CAPACITY OF THE STRUCTURE TO SUPPORT THE NEW EQUIPMENT.
2. CABLES NOT SHOWN FOR CLARITY.

NOTE:

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1 TOWER ELEVATION
C3 NOT TO SCALE

PREPARED FOR:



A&E FIRM:



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ROSWELL, GA 30076
TEL: 678-990-2338 FAX: 678-990-2342

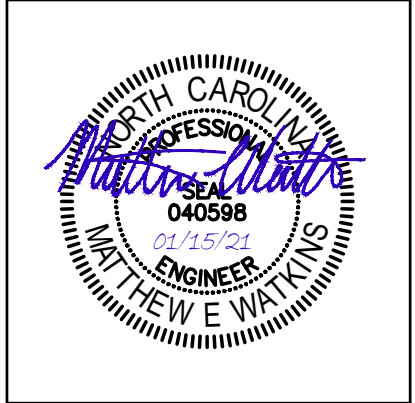
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RED HILL CHURCH
14637878
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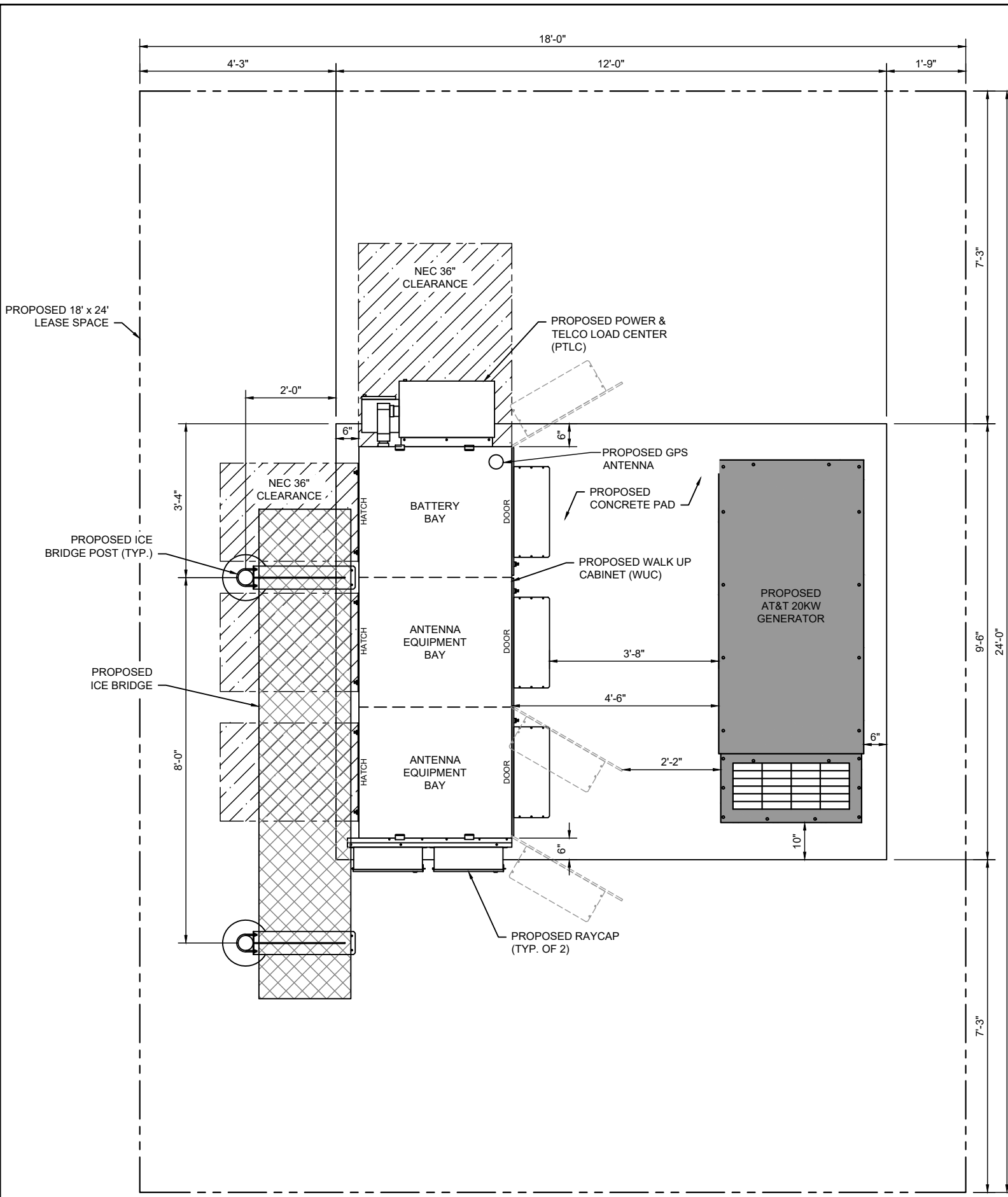
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APPROVED BY:	MEW

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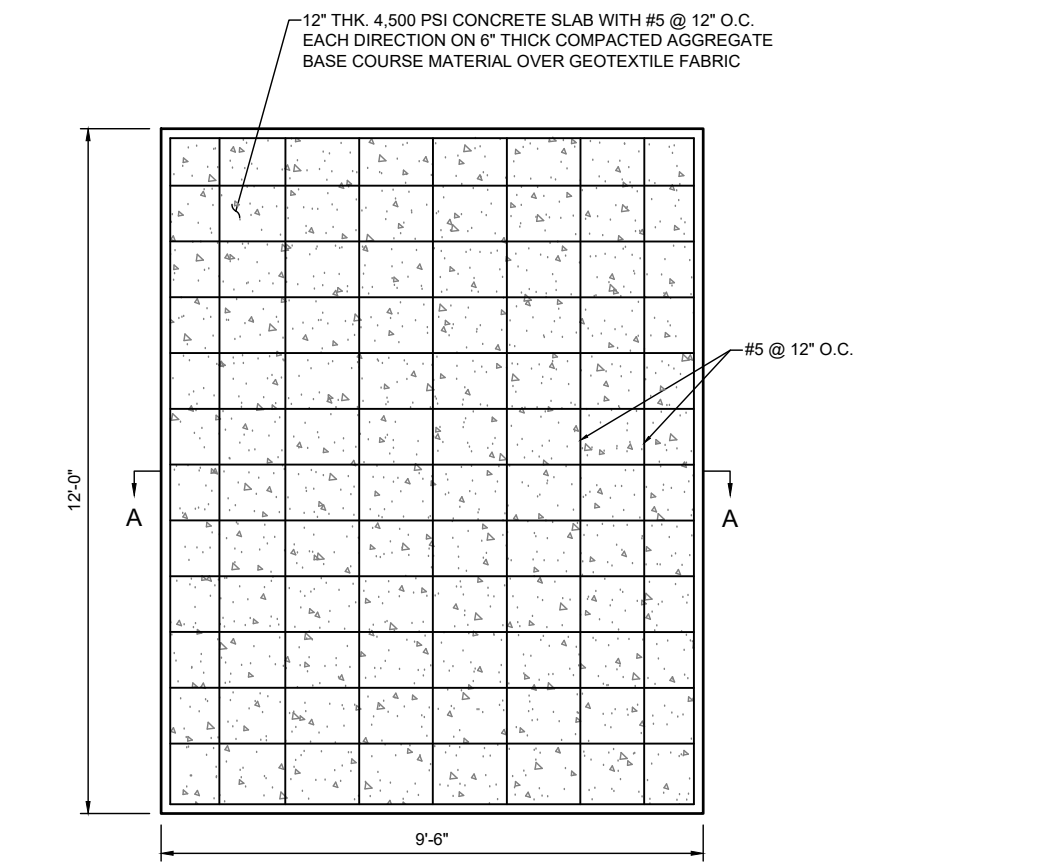


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TOWER ELEVATION

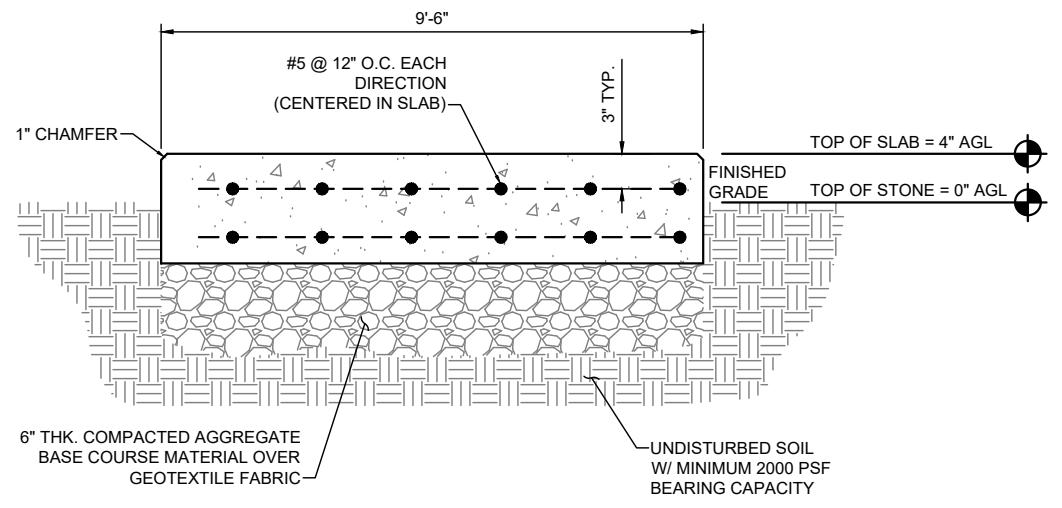
SHEET #: C3	REVISION: 1
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1
C4
EQUIPMENT CONCRETE PAD LAYOUT
 NOT TO SCALE



2
C4
CONCRETE PAD PLAN
 NOT TO SCALE



3
C4
EQUIPMENT PAD FOUNDATION SECTION A-A
 NOT TO SCALE

PREPARED FOR:
TILLMAN
INFRASTRUCTURE

A&E FIRM:
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NORTH CAROLINA
PROFESSIONAL ENGINEER
 SEAL
 040598
 01/15/21
ENGINEER
MATTHEW E WATKINS

SHEET TITLE:
EQUIPMENT LAYOUT AND DETAILS

SHEET #: C4	REVISION: 1
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PREPARED FOR:



A&E FIRM:



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ROSWELL, GA 30076
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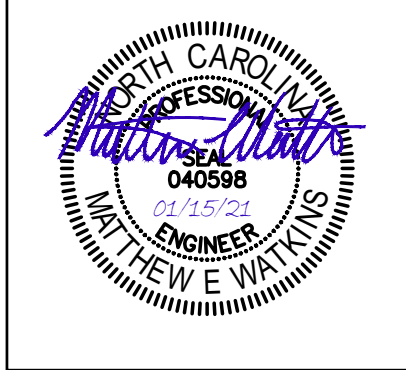
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14637878
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368-704
161 RED HILL CHURCH ROAD
DUNN, NC 28334

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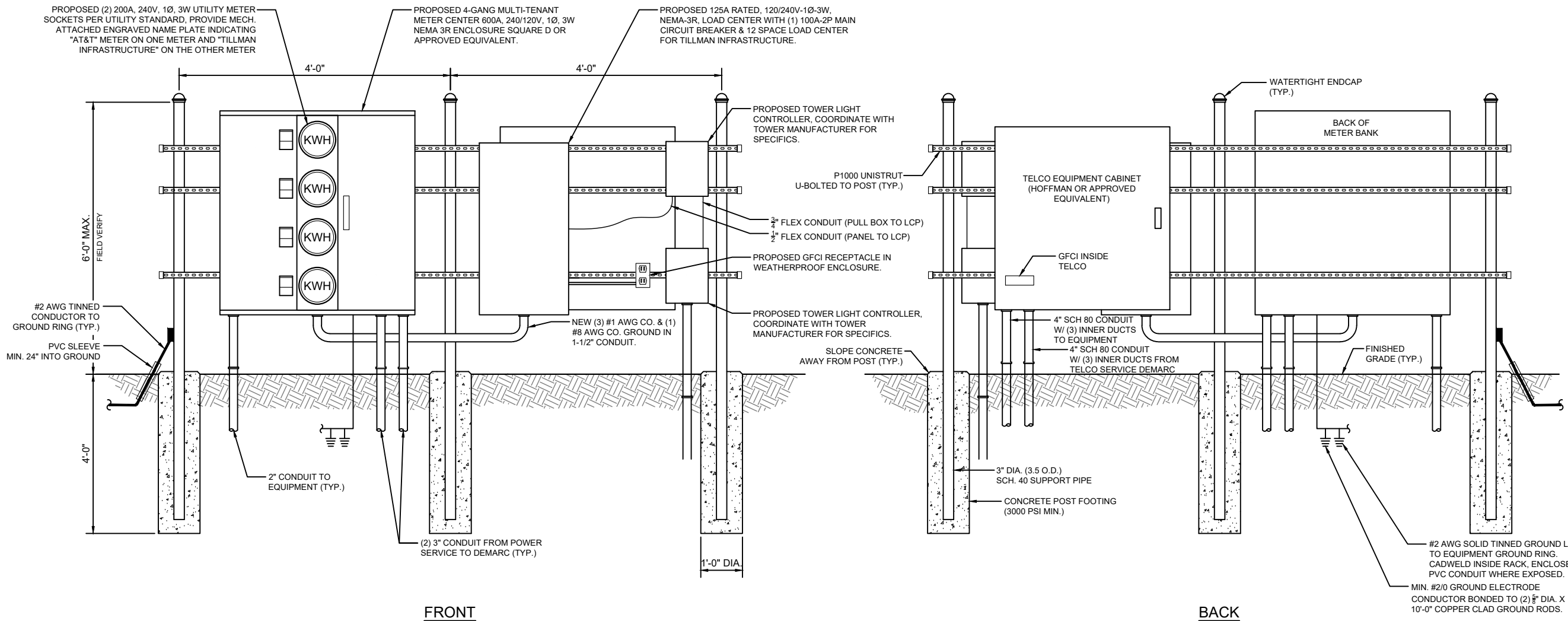
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SHEET TITLE:
UTILITY BACKBOARD H-FRAME

SHEET #: **C5** REVISION: **1**



FRONT

BACK

1 UTILITY BACKBOARD H- FRAME
C5 NOT TO SCALE

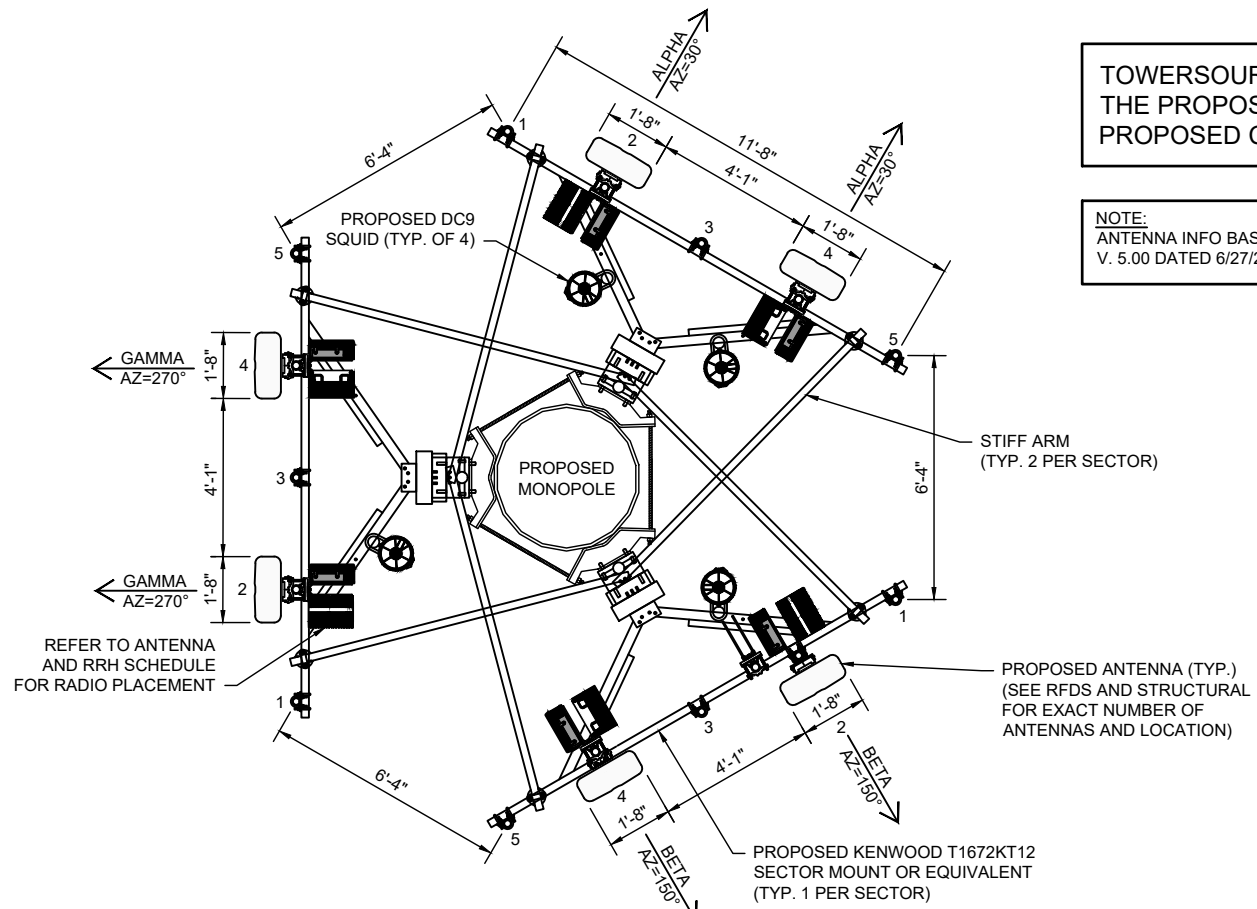
- ALL WORK SHALL CONFORM TO THE NATIONAL ELECTRICAL CODE, STATE BUILDING CODES AND THE LOCAL BUILDING CODES. ALL COMPONENTS SHALL BE U.L. LISTED.
- REFER TO SITE LAYOUT PLAN FOR THE EXACT LOCATION OF H-FRAME. INSTALL THE METER PEDESTAL NEAR THE PERIMETER OF THE FENCED COMPOUND WITH THE METERS FACING AS SHOWN.
- CONTRACTOR TO COORDINATE WITH LOCAL UTILITY COMPANY FOR METER.
- CONTRACTOR TO PROVIDE AND INSTALL METER SOCKET.
- CONTRACTOR TO LOCATE METER RACK TO ENSURE WORKING SPACES REQUIRED BY THE NEC (ART. 110.26), STATE, OR LOCAL CODES ARE MAINTAINED BETWEEN FRONT OF ENCLOSURES AND THE CHAIN LINK FENCE.
- SHOW LOCATION (INCLUDING DIMENSIONS) OF ALL CAPPED UNDERGROUND CONDUIT ON FINAL AS-BUILT DRAWINGS SUBMITTED TO OWNER.
- COORDINATE EXACT LOCATION OF UNDERGROUND FEEDERS AND CIRCUITRY WITH THE OWNER.
- CONTRACTOR SHALL COORDINATE WITH LOCAL ELECTRICAL AUTHORITY HAVING JURISDICTION (AHJ) AND OTHER TRADES TO DETERMINE "FROST" LINE, AND TYPES OF RACEWAYS REQUIRED FOR INSTALLATION.
- ALL CONDUITS ABOVE GROUND SHALL BE GALVANIZED CONDUIT.
- CONTRACTOR TO CONTACT LOCAL UTILITY PRIOR TO PURCHASING METER CENTER TO VERIFY ANY PARTICULAR REQUIREMENTS, SUCH AS LEVER BYPASS, ETC.
- ALL UNDERGROUND CONDUIT SHALL BE PVC SCHEDULE 40 UNLESS OTHERWISE INDICATED.
- THE CONTRACTOR SHALL COORDINATE WITH THE LOCAL UTILITY COMPANY FOR GROUND ROD REQUIREMENTS. IF REQUIRED, THE CONTRACTOR SHALL ORDER AND PAY FOR NECESSARY GROUND TESTS.
- SUPPORT POST AND UNISTRUT SHALL BE GALVANIZED. PIPE CLAMPS AND HARDWARE SHALL BE GALVANIZED OR STAINLESS STEEL.
- TELCO CABINET SHALL BE 48"x48" HOFFMAN OR EQUIVALENT. PROVIDE 3/4" PLYWOOD BACKBOARD INSIDE THE MULTI-TENANT TELCO CABINET.
- ADJUSTMENTS TO THE METER PEDESTAL DESIGN MAY BE REQUIRED DEPENDING ON THE EXACT METER PANEL INSTALLED. CONTRACTOR SHALL FIELD COORDINATE ADJUSTMENTS AND INFORM THE ENGINEER IF ANY UNUSUAL CONDITIONS ARE FOUND TO EXIST.
- REFER TO ONE-LINE DIAGRAM FOR CONDUIT SIZES.

TOWERSOURCE HAS NOT ANALYZED THE PROPOSED MOUNT FOR THE PROPOSED CONFIGURATION.

NOTE:
ANTENNA INFO BASED ON RFDS V. 5.00 DATED 6/27/2019.

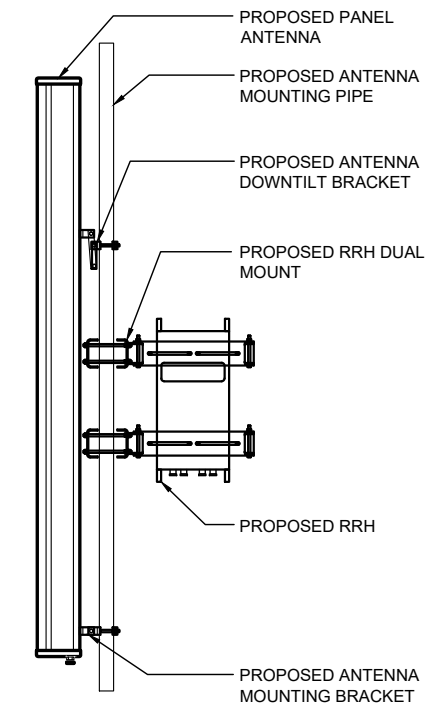
NOTE:
ALL INFORMATION ON THIS PAGE IS PROVIDED BY TILLMAN AND/OR OTHERS AND IS SHOWN FOR ILLUSTRATIVE PURPOSES ONLY. CONTRACTOR SHALL CONTACT THE TILLMAN CONSTRUCTION MANAGER PRIOR TO CONSTRUCTION FOR ALL DETAILED ANTENNA, MOUNT, AND COAX CABLE INFORMATION.

AN ANTENNA MOUNT ANALYSIS HAS NOT BEEN PERFORMED FOR THE PROPOSED ANTENNA MOUNTS. TOWERSOURCE ACCEPTS NO RESPONSIBILITY FOR THE ANTENNA MOUNTS TO SUPPORT THE PROPOSED LOADS OR THE PROPER INSTALLATION OF THE ANTENNA MOUNT. CONTRACTOR TO INSTALL MOUNT PER MANUFACTURER'S SPECIFICATIONS.



1 ANTENNA MOUNTING PLAN
SCALE: 1" = 5'-0"
C7

ANTENNA AND RRH SCHEDULE						CABLE COUNT	
SECTOR	ANTENNA MODEL	TECHNOLOGY	AZIMUTH	ANTENNA ϵ	RRH MODEL	QUANTITY	TRUNK CABLE TYPE
ALPHA	-	-	-	-	-	5	5 CONDUCTOR (3 PR) 3/4" DC CABLE
ALPHA	NNH4-65C-R6-V3	LTE 700/LTE 1900/ LTE AWS	30°	185±	4449 B5/B12, 4415 B25, 4426 B66	3	10 FIBER (18 PR) 10MM FIBER
ALPHA	-	-	-	-	-		
ALPHA	NNH4-65C-R6-V3	LTE 700/LTE WCS	30°	185±	4478 B14, 4415 B30		
ALPHA	-	-	-	-	-		
BETA	-	-	-	-	-		
BETA	NNH4-65C-R6-V3	LTE 700/LTE 1900/ LTE AWS	150°	185±	4449 B5/B12, 4415 B25, 4426 B66		
BETA	-	-	-	-	-		
BETA	NNH4-65C-R6-V3	LTE 700/LTE WCS	150°	185±	4478 B14, 4415 B30		
BETA	-	-	-	-	-		
GAMMA	-	-	-	-	-		
GAMMA	NNH4-65C-R6-V3	LTE 700/LTE 1900/ LTE AWS	270°	185±	4449 B5/B12, 4415 B25, 4426 B66		
GAMMA	-	-	-	-	-		
GAMMA	NNH4-65C-R6-V3	LTE 700/LTE WCS	270°	185±	4478 B14, 4415 B30		
GAMMA	-	-	-	-	-		



3 RRH MOUNTING DETAIL
SCALE: N.T.S.
C7

CONFIGURATION TO BE CONFIRMED BY OBTAINING THE LATEST RFDS FROM AT&T PRIOR TO BEGINNING CONSTRUCTION.

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PROJECT INFORMATION:
RED HILL CHURCH
14637878
TI-OPP-16496
368-704
161 RED HILL CHURCH ROAD
DUNN, NC 28334

DRAWN BY: SJH
CHECKED BY: KIA
APPROVED BY: MEW

REVISIONS		
REV.	DATE	DESCRIPTION
0	11/16/20	ISSUED FOR CONSTRUCTION
1	01/15/21	REVISED E911 ADDRESS

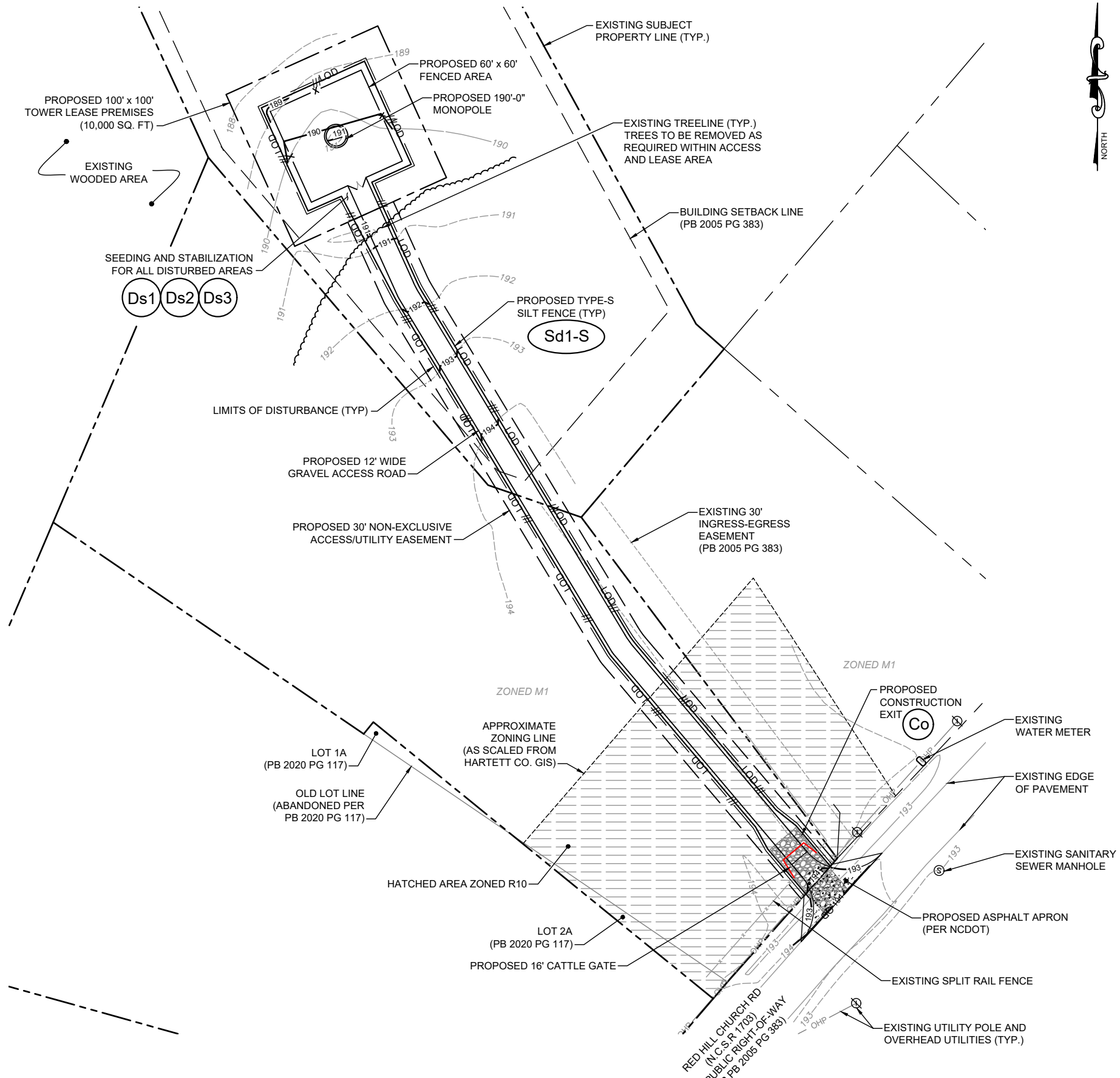
NORTH CAROLINA PROFESSIONAL ENGINEER
SEAL
040598
01/15/21
ENGINEER
MATTHEW E WATKINS

SHEET TITLE:
ANTENNA PLAN AND SCHEDULE

SHEET #: **C7** REVISION: **1**

NOTE:

CURRENT DESIGN ANTICIPATES APPROXIMATELY 1,5767± SQ. FT. (0.36 ACRES) OF CLEARING AND GRADING FOR THE PROPOSED PROJECT. IF ADDITIONAL CLEARING IS REQUIRED BEYOND WHAT IS SHOWN IN THE PLANS THE CONTRACTOR SHALL NOTIFY THE ENGINEER AND/OR CONSTRUCTION MANAGER. IF DURING THE BID WALK OR CONSTRUCTION IT IS DETERMINED THAT MORE THAN (1) ACRE OF LAND IS TO BE DISTURBED FOR CONSTRUCTION AN EROSION AND SEDIMENTATION CONTROL PLAN MUST BE FILED 30 DAYS PRIOR TO CONSTRUCTION.



LEGEND

- EXISTING CONTOURS ————
- PROPOSED CONTOURS ————
- SILT FENCE ————
- LIMITS OF DISTURBANCE ——— LOD ——— LOD ———
- TREE PROTECTION FENCE ——— TPF ———
- EXISTING SPOT ELEVATION x XXX
- PROPOSED SPOT ELEVATION ● XXX

1 GRADING & EROSION CONTROL PLAN
 SCALE: 1" = 70'-0"
 70 0 70

PREPARED FOR:
TILLMAN INFRASTRUCTURE

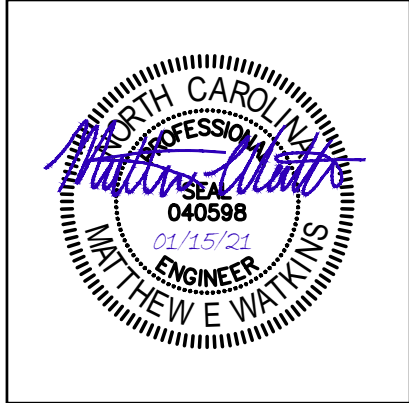
A&E FIRM:
towersource
 1875 OLD ALABAMA ROAD, SUITE 1008
 ROSWELL, GA 30076
 TEL: 678-990-2338 FAX: 678-990-2342

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PROJECT INFORMATION:
RED HILL CHURCH
 14637878
 TI-OPP-16496
 368-704
 161 RED HILL CHURCH ROAD
 DUNN, NC 28334

DRAWN BY: SJH
 CHECKED BY: KIA
 APPROVED BY: MEW

REVISIONS		
REV.	DATE	DESCRIPTION
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1	01/15/21	REVISED E911 ADDRESS



SHEET TITLE:
GRADING AND EROSION CONTROL PLAN

SHEET #: **C8** REVISION: **1**

EXCAVATION & GRADING NOTES:

- ALL EXCAVATIONS ON WHICH CONCRETE IS TO BE PLACED SHALL BE SUBSTANTIALLY HORIZONTAL ON UNDISTURBED AND UNFROZEN SOIL AND BE FREE FROM LOOSE MATERIAL AND EXCESS GROUNDWATER. DEWATERING FOR EXCESS GROUNDWATER SHALL BE PROVIDED IF REQUIRED.
- CONCRETE FOUNDATIONS SHALL NOT BE PLACED ON ORGANIC MATERIAL. IF SOUND SOIL IS NOT REACHED AT THE DESIGNATED EXCAVATION DEPTH, THE UNSATISFACTORY SOIL SHALL BE EXCAVATED TO ITS FULL DEPTH AND EITHER BE REPLACED WITH MECHANICALLY COMPACTED GRANULAR MATERIAL OR THE EXCAVATION BE FILLED WITH CONCRETE OF THE SAME QUALITY SPECIFIED FOR THE FOUNDATION.
- CRUSHED STONE MAY BE USED TO STABILIZE THE BOTTOM OF THE EXCAVATION. STONE, IF USED, SHALL NOT BE USED AS COMPILING CONCRETE THICKNESS.
- ALL EXCAVATIONS SHALL BE CLEAN OF UNSUITABLE MATERIAL SUCH AS VEGETATION, TRASH, DEBRIS AND SO FORTH BEFORE AND AFTER COMPLETION OF THE FOUNDATION AND OTHER CONSTRUCTION BELOW GRADE, AND BEFORE BACKFILLING.
- BACKFILLING SHALL:
-USE APPROVED MATERIALS CONSISTING OF EARTH, LOAM, SANDY CLAY, SAND AND GRAVEL, OR SOFT SHALE;
-BE FREE FROM CLODS OR STONES OVER 2-1/2" MAXIMUM DIMENSIONS
-BE PLACED IN 6" LAYERS AND COMPACTED TO 95% STANDARD PROCTOR EXCEPT IN GRASSED/LANDSCAPED AREAS, WHERE 90% STANDARD PROCTOR IS REQUIRED.
- FILL PREPARATION:
REMOVE ALL VEGETATION, TOPSOIL, DEBRIS, WET AND UNSATISFACTORY SOIL MATERIALS, OBSTRUCTIONS, AND DELETERIOUS MATERIALS FROM GROUND SURFACE PRIOR TO PLACING FILLS. PLOW, STRIP, OR BREAK UP SLOPED SURFACES STEEPER THAN 1 VERTICAL TO 4 HORIZONTAL SO FILL MATERIAL WILL BOND WITH EXISTING SURFACE. WHEN SUBGRADE OR EXISTING GROUND SURFACE TO RECEIVE FILL HAS A DENSITY LESS THAN THAT REQUIRED FOR FILL, BREAK UP GROUND SURFACE TO DEPTH REQUIRED, PULVERIZE, MOISTURE-CONDITION OR AERATE SOIL AND RECOMPACT TO REQUIRED DENSITY.
- PROTECT EXISTING GRAVEL SURFACING AND SUBGRADE IN AREAS WHERE EQUIPMENT LOADS WILL OPERATE. USE PLANKING OR OTHER SUITABLE MATERIALS DESIGNED TO SPREAD EQUIPMENT LOADS. REPAIR DAMAGE TO EXISTING GRAVEL SURFACING OR SUBGRADE WHERE SUCH DAMAGE IS DUE TO THE CONTRACTOR'S OPERATIONS. DAMAGED GRAVEL SURFACING SHALL BE RESTORED TO MATCH THE ADJACENT UNDAMAGED GRAVEL SURFACING AND SHALL BE OF THE SAME THICKNESS.
- REPLACE EXISTING GRAVEL SURFACING ON AREAS FROM WHICH GRAVEL SURFACING IS REMOVED DURING CONSTRUCTION OPERATIONS. GRAVEL SURFACING SHALL BE REPLACED TO MATCH EXISTING ADJACENT GRAVEL SURFACING AND SHALL BE OF THE SAME THICKNESS. SURFACES OF GRAVEL SURFACING SHALL BE FREE FROM CORRUGATIONS AND WAVES. EXISTING GRAVEL SURFACING MAY BE EXCAVATED SEPARATELY AND REUSED IF INJURIOUS AMOUNTS OF EARTH, ORGANIC MATTER, OR OTHER DELETERIOUS MATERIALS ARE REMOVED PRIOR TO REUSE. FURNISH ALL ADDITIONAL GRAVEL RESURFACING MATERIAL AS REQUIRED. BEFORE GRAVEL SURFACING IS REPLACED, SUBGRADE SHALL BE GRADED TO CONFORM TO REQUIRED SUBGRADE ELEVATIONS, AND LOOSE OR DISTURBED MATERIALS SHALL BE THOROUGHLY COMPACTED. DEPRESSIONS IN THE SUBGRADE SHALL BE FILLED AND COMPACTED WITH APPROVED SELECTED MATERIAL. GRAVEL SURFACING MATERIAL MAY BE USED FOR FILLING DEPRESSIONS IN THE SUBGRADE, SUBJECT TO ENGINEER'S APPROVAL.
- DAMAGE TO EXISTING STRUCTURES AND UTILITIES RESULTING FROM CONTRACTOR'S NEGLIGENCE SHALL BE REPAIRED / REPLACED TO OWNER'S SATISFACTION AT CONTRACTOR'S EXPENSE.
- CONTRACTOR SHALL COORDINATE THE CONSTRUCTION SCHEDULE WITH PROPERTY OWNER SO AS TO AVOID INTERRUPTIONS TO PROPERTY OWNER'S OPERATIONS.
- ENSURE POSITIVE DRAINAGE DURING AND AFTER COMPLETION OF CONSTRUCTION.
- ALL CUT AND FILL SLOPES SHALL BE 2 HORIZONTAL TO 1 VERTICAL MAXIMUM.
- REMOVE ALL ORGANICS, ROCKS GREATER THAN 3", UNUSED FILL AND OTHER DEBRIS TO AN AREA OFF SITE IN A LEGAL MANNER.
- CONTRACTOR SHALL ENSURE THAT SOILS ARE SUITABLE TO PREVENT SETTLING OF PLATFORM AND EQUIPMENT.

ACTIVITY SCHEDULE	
WORK DESCRIPTION	WORKING DAYS
INSTALLATION OF EROSION CONTROL MEASURES	1-2
CLEARING, GRUBBING, AND GRADING	3-5
MAINTAINING EROSION CONTROL MEASURES	6-8
TEMPORARY GRASSING	9-12
BUILDING CONSTRUCTION	13-19
FINAL LANDSCAPING, GRASSING	20-23
REMOVING EROSION CONTROL MEASURES	24-26

THE INSTALLATION OF EROSION CONTROL MEASURES AND PRACTICES SHALL TAKE PLACE PRIOR TO OR CONCURRENT WITH LAND DISTURBING ACTIVITIES.

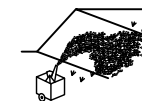
GENERAL NOTES:

- ALL MATERIALS AND WORKMANSHIP SHALL CONFORM TO THE DRAWINGS AND SPECIFICATIONS. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE LATEST EDITION OF THE STATE, LOCAL AND NATIONAL CODES, ORDINANCES AND OR REGULATIONS APPLICABLE TO THE PROJECT.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING THE WORK OF ALL TRADES AND SHALL CHECK ALL DIMENSIONS. ALL DISCREPANCIES SHALL BE CALLED TO THE ATTENTION OF THE TILLMAN CONSTRUCTION MANAGER AND/OR ENGINEER AND BE RESOLVED BEFORE PROCEEDING WITH WORK. WHERE THERE IS A CONFLICT BETWEEN DRAWING AND TILLMAN SPECIFICATIONS, THE TILLMAN INFRASTRUCTURE CONSTRUCTION MANAGER SHOULD BE CONTACTED FOR CLARIFICATION.
- ALL INFORMATION SHOWN ON THE DRAWINGS RELATIVE TO EXISTING CONDITIONS IS GIVEN AS THE BEST PRESENT KNOWLEDGE, BUT WITHOUT GUARANTEE OF ACCURACY. WHERE ACTUAL CONDITIONS CONFLICT WITH THE DRAWINGS, THEY SHALL BE REPORTED TO THE TILLMAN INFRASTRUCTURE CONSTRUCTION MANAGER AND/OR ENGINEER SO THAT PROPER REVISIONS MAY BE MADE. MODIFICATION OF DETAILS OF CONSTRUCTION SHALL NOT BE MADE WITHOUT WRITTEN APPROVAL OF THE CONSTRUCTION MANAGER AND/OR ENGINEER.
- CONTRACTOR SHALL REVIEW AND BE FAMILIAR WITH SITE CONDITIONS AS SHOWN ON THE ATTACHED SITE PLAN AND/OR SURVEY DRAWINGS.
- ALL FINISHED GRADES SHALL SLOPE MINIMUM 1/4 IN./FR. AWAY FROM EQUIPMENT IN ALL DIRECTIONS. CONTRACTOR SHALL SLOPE SWALES AS REQUIRED ALONG EXISTING TERRAIN TO DRAIN AWAY FROM COMPOUND AND ACCESS DRIVE.
- THE PROPOSED TOWER AND TOWER FOUNDATIONS WERE DESIGNED BY OTHERS. TOWER INFORMATION PROVIDED ON THESE PLANS ARE PROVIDED FOR REFERENCE PURPOSES ONLY. TOWER DIMENSIONS SHOWN THIS PLAN ARE FOR TOWER CENTER LOCATION, CAISSONS AND TOWER SHOWN ON THIS PLAN ARE ILLUSTRATIVE, SEE DESIGN DRAWINGS BY OTHERS. DO NOT SCALE. NOTIFY ENGINEER OR TILLMAN CONSTRUCTION MANAGER OF ANY CONFLICTS OR DISCREPANCIES. CONTRACTOR TO OBTAIN COPY OF TOWER DESIGN DRAWINGS FROM TILLMAN INFRASTRUCTURE CONSTRUCTION MANAGER TO CONFIRM COAX ROUTING AND ANTENNA MOUNT INFORMATION.
- THE CONTRACTOR SHALL PROVIDE ADEQUATE EXCAVATION SLOPING SHORING, BRACING, AND GUYS IN ACCORDANCE WITH ALL NATIONAL, STATE, AND LOCAL SAFETY ORDINATES.
- UPON COMPLETION OF CONSTRUCTION, CONTRACTOR IS RESPONSIBLE FOR REPAIRING ANY DAMAGE CAUSED BY CONSTRUCTION ACTIVITIES TO THE EXISTING ACCESS ROAD AND COMPOUND GRAVEL AREAS. ANY NEW FILL MATERIAL SHALL BE COMPACTED.
- THE CONTRACTOR IS HEREBY NOTIFIED THAT PRIOR COMMENCING CONSTRUCTION, HE/SHE IS RESPONSIBLE FOR CONTACTING THE UTILITY COMPANIES INVOLVED AND SHALL REQUEST A VERIFICATIONS AT THE CONSTRUCTION SITE OF THE LOCATIONS OF THEIR UNDERGROUND UTILITIES AND WHERE THEY MAY POSSIBLY CONFLICT WITH THE PLACEMENT OF IMPROVEMENTS AS SHOWN ON THESE PLANS. THE CONTRACTOR OR ANY SUBCONTRACTOR FOR THEIR CONTRACT WILL BE REQUIRED TO NOTIFY "STATE 811" IN ADVANCE OF PERFORMING ANY WORK. ANY UTILITIES DAMAGED BY CONSTRUCTION ACTIVITIES SHALL BE REPAIRED BY THE CONTRACTOR, AT NO EXPENSE TO THE OWNER.
- CONTRACTOR TO PROVIDE DUMPSTER AND PORTABLE TOILET FACILITY DURING CONSTRUCTION.
- CONTRACTOR TO PROVIDE STYMIE LOCK OR EQUIVALENT AS APPROVED BY TILLMAN INFRASTRUCTURE CONSTRUCTION MANAGER.



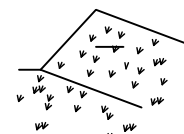
DISTURBED AREA STABILIZATION (WITH MULCHING ONLY)

Ds1
NO SCALE



DISTURBED AREA STABILIZATION (WITH TEMPORARY SEEDING)

Ds2
NO SCALE



DISTURBED AREA STABILIZATION (WITH PERMANENT VEGETATION)

Ds3
NO SCALE

GENERAL EROSION & SEDIMENT CONTROL NOTES:

- ADDITIONAL EROSION CONTROL MEASURES WILL BE EMPLOYED WHERE DETERMINED NECESSARY BY ACTUAL SITE CONDITIONS.
 - PRIOR TO COMMENCING LAND DISTURBANCE ACTIVITY, THE LIMITS OF LAND DISTURBANCE SHALL BE CLEARLY AND ACCURATELY DEMARCATED WITH STAKES, RIBBONS, OR OTHER APPROPRIATE MEANS.
 - THE CONSTRUCTION OF THE SITE WILL INITIATE WITH THE INSTALLATION OF EROSION CONTROL MEASURES SUFFICIENT TO CONTROL SEDIMENT DEPOSITS AND EROSION. CONTRACTOR SHALL CALL APPROPRIATE COUNTY FOR AN INSPECTION OF SOIL EROSION CONTROL MEASURES PRIOR TO BEGINNING GRADING ACTIVITY. ALL SEDIMENT CONTROL WILL BE MAINTAINED UNTIL ALL UPSTREAM GROUND WITHIN THE CONSTRUCTION AREA HAS BEEN COMPLETELY STABILIZED.
 - THE LOCATION OF SOME OF THE EROSION CONTROL DEVICES MAY HAVE TO BE ALTERED FROM THAT SHOWN ON THE PLANS IF DRAINAGE PATTERNS DURING CONSTRUCTION ARE DIFFERENT FROM THE FINAL PROPOSED DRAINAGE PATTERNS. ANY DIFFICULTY IN CONTROLLING EROSION DURING ANY PHASE OF CONSTRUCTION SHALL BE REPORTED TO THE ENGINEER IMMEDIATELY.
 - EROSION CONTROL MEASURES WILL BE MAINTAINED AT ALL TIMES IF FULL IMPLEMENTATION OF THE APPROVED PLAN DOES NOT PROVIDE FOR ELECTIVE EROSION CONTROL. ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE IMPLEMENTED TO CONTROL OR TREAT THE SEDIMENT SOURCE.
 - THE CONTRACTOR SHALL REMOVE ACCUMULATED SILT WHEN THE SILT IS WITHIN 12" OF THE TOP OF THE SILT FENCE.
 - FAILURE TO INSTALL, OPERATE OR MAINTAIN ALL EROSION CONTROL MEASURES WILL RESULT IN ALL CONSTRUCTION BEING STOPPED ON THE JOB SITE UNTIL SUCH MEASURES ARE CORRECTED.
 - SILT BARRIERS TO BE PLACED AT DOWNSTREAM TOE OF ALL CUT AND FILL SLOPES.
 - ANY DISTURBED AREA LEFT EXPOSED FOR A PERIOD GREATER THAN 7 DAYS SHALL BE STABILIZED WITH SEEDING.
 - SEEDING:
A. SEEDING WITH MULCH (CONVENTIONAL SEEDING ON SLOPES LESS THAN 3:1) (HYDRAULIC SEEDING EQUIPMENT ON SLOPES 3:1 AND STEEPER)

AGRICULTURAL LIMESTONE	4000 LBS./acre	
FERTILIZER, 5-10-15	1500 lbs./acre	
MULCH STRAW OR HAY	5000 lbs./arce	

SEED SPECIES	APPLICATION RATE/ACRE	PLANNING DATES
HULLED COMMON BERMUDA GRASS	10lbs.	3/1 - 6/15
FESCUE	50lbs.	9/1 - 10/31
FESCUE	50lbs.	11/1 -2/28
RYE GRASS	50lbs.	
HAY MULCH FOR TEMPORARY COVER	5000lbs.	6/15 -8/31
 - TOPDRESSING: APPLY WHEN PLANTS ARE 2 TO 4 INCHES TALL
FERTILIZER (AMMONIUM NITRATE 33.5%) 300 lbs./acre
 - SECOND-YEAR-FERTILIZER: (5-10-15 OR EQUIVALENT) 800 lbs./acre
- HYDRAULIC SEEDING EQUIPMENT WHEN HYDRAULIC SEEDING AND FERTILIZING EQUIPMENT IS USED, NO GRADING AND SHAPING OR SEEDBED PREPARATION WILL BE REQUIRED. THE FERTILIZER, SEED AND WOOD CELLULOSE FIBER MULCH WILL BE MIXED WITH WATER AND APPLIED IN A SLURRY. ALL SLURRY INGREDIENTS MUST BE COMBINED TO FORM A HOMOGENEOUS MIXTURE, AND SPREAD UNIFORMLY OVER THE AREA WITHIN ONE HOUR AFTER MIXTURE IS MADE. STRAW OR HAY MULCH AND ASPHALT EMULSION WILL BE APPLIED WITH BLOWER-TYPE MULCH SPREADING EQUIPMENT WITHIN 24 HOURS AFTER SEEDING, THE MULCH WILL BE SPREAD UNIFORMLY OVER THE AREA, LEAVING ABOUT 25 PERCENT OF THE GROUND SURFACE EXPOSED.
- CONVENTIONAL SEEDING EQUIPMENT GRADE, SHAPE AND SMOOTH WHERE NEEDED TO PROVIDE FOR SAFE EQUIPMENT OPERATION AT SEEDING TIME AND FOR MAINTENANCE PURPOSES. THE LIME AND FERTILIZER IN DRY FORM WILL BE SPREAD UNIFORMLY OVER THE AREA IMMEDIATELY BEFORE SEEDBED PREPARATION. A SEEDBED WILL BE PREPARED BY SCARIFYING TO A DEPTH OF 1 TO 4 INCHES AS DETERMINED ON SITE. THE SEEDBED MUST BE WELL PULVERIZED, SMOOTHED AND FIRMED. SEEDING WILL BE DONE WITH CULTIPACKER-SEEDER, DRILL, ROTARY SEEDER OR OTHER MECHANICAL OR HAND SEEDER. SEED WILL BE DISTRIBUTED UNIFORMLY OVER A FRESHLY PREPARED SEEDBED AND COVERED LIGHTLY. WITHIN 24 HOURS AFTER SEEDING, STRAW OR HAY MULCH WILL BE SPREAD UNIFORMLY OVER THE AREA, LEAVING ABOUT 25 PERCENT OF THE GROUND SURFACE EXPOSED. MULCH WILL BE SPREAD WITH BLOWER-TYPE MULCH EQUIPMENT OR BY HAND AND ANCHORED IMMEDIATELY AFTER IT IS SPREAD. A DISK HARROW WITH THE DISK SET STRAIGHT OR A SPECIAL PACKER DISK MAY BE USED TO PRESS THE MULCH INTO THE SOIL.
- CONTRACTOR SHALL REMOVE ALL EROSION & SEDIMENT CONTROL MEASURES AFTER COMPLETION OF CONSTRUCTION AND ESTABLISHMENT OF PERMANENT GROUND COVER.
 - THE ESCAPE OF SEDIMENT FROM THE SITE SHALL BE PREVENTED BY THE INSTALLATION OF EROSION CONTROL MEASURES AND PRACTICES PRIOR TO, OR CONCURRENT WITH, LAND-DISTURBING ACTIVITIES.
 - ALL CUT AND FILL SLOPES MUST BE SURFACED ROUGHENED AND VEGETATED WITHIN SEVEN (7) DAYS OF THEIR CONSTRUCTION.
 - ALL FILL SLOPES WILL HAVE SILT FENCE AT TOE OF SLOPES.
 - ALL SEDIMENT AND EROSION CONTROL MEASURES WILL BE CHECKED DAILY AND ANY DEFICIENCIES NOTED WILL BE CORRECTED BY THE END OF EACH DAY. ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES WILL BE INSTALLED IF DEEMED NECESSARY AFTER ON-SITE INSPECTION BY THE ISSUING AUTHORITY.
 - THE ONLY MATERIAL TO BE BURIED ON-SITE IS VEGETATIVE MATERIAL. CONSTRUCTION WASTE MAY NEITHER BE BURNED NOR BURIED AND MUST BE TAKEN TO A STATE APPROVED LANDFILL.
 - A 25' MIN UNDISTURBED VEGETATIVE BUFFER ADJACENT TO ALL RUNNING STREAMS AND CREEKS WILL BE LEFT AND MAINTAINED.

PREPARED FOR:



A&E FIRM:



1875 OLD ALABAMA ROAD, SUITE 1008
ROSWELL, GA 30076
TEL: 678-990-2338 FAX: 678-990-2342

THE INFORMATION CONTAINED IN THIS SET OF DOCUMENTS IS PROPRIETARY BY NATURE. ANY USE OR DISCLOSURE OTHER THAN THAT WHICH RELATES TO THE CLIENT IS STRICTLY PROHIBITED.

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14637878
TI-OPP-16496
368-704
161 RED HILL CHURCH ROAD
DUNN, NC 28334

DRAWN BY:	SJH
CHECKED BY:	KIA
APPROVED BY:	MEW

REVISIONS

REV.	DATE	DESCRIPTION
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1	01/15/21	REVISED E911 ADDRESS



SHEET TITLE:
GRADING AND EROSION CONTROL NOTES

SHEET #: C9	REVISION: 1
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PREPARED FOR:



A&E FIRM:



1875 OLD ALABAMA ROAD, SUITE 1008
ROSWELL, GA 30076
TEL: 678-990-2338 FAX: 678-990-2342

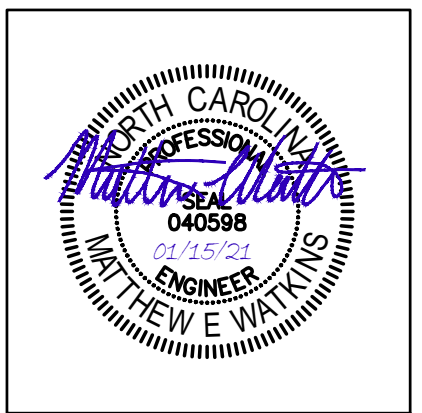
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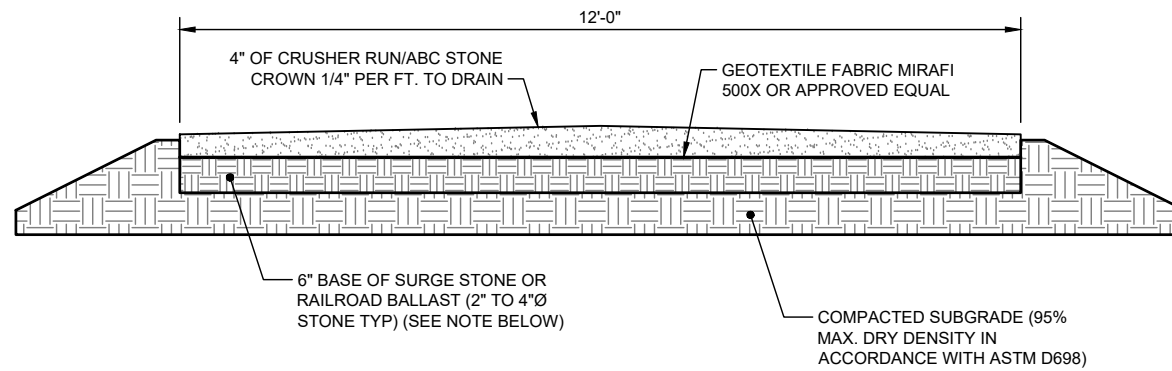
DRAWN BY:	SJH
CHECKED BY:	KIA
APPROVED BY:	MEW

REVISIONS		
REV.	DATE	DESCRIPTION
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1	01/15/21	REVISED E911 ADDRESS



SHEET TITLE:
ACCESS ROAD DETAIL

SHEET #: **C10A** REVISION: **1**



NOTE:

IF DETERMINED NECESSARY DURING GRADING AND CONSTRUCTION OF THE ACCESS ROAD BY THE TILLMAN INFRASTRUCTURE PROJECT MANAGER, THE CONTRACTOR SHALL INSTALL 6" BASE OF SURGE STONE OR RAILROAD BALLAST (2" TO 4"Ø STONE TYP.)

1 **ACCESS ROAD DETAIL**
C10A **NOT TO SCALE**



WHITE BACKGROUND, RED/BLACK LETTERING
 MOUNTING LOCATION: SHELTER OR TENANT IMPROVEMENT ROOM DOOR.
 IF OUTDOOR CABINET SITE PLACE ON END CABINET CLOSEST TO SITE ACCESS POINT.
 PLACE ON GENERATOR.
 QUANTITY: 1 TO 2

1 PROPERTY OF TILLMAN INFRASTRUCTURE
 C11 SCALE: N.T.S.

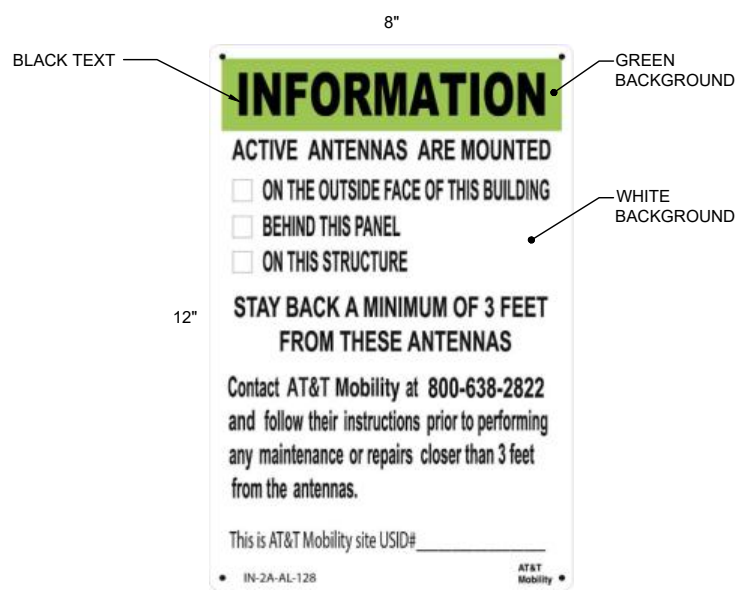
SIGNAGE NOTES:

- SIGNS SHALL BE FABRICATED FROM CORROSION RESISTANT PRESSED METAL & PAINTED WITH LONG LASTING UV RESISTANT COATING.
- SIGNS (EXCEPT WHERE NOTED OTHERWISE) SHALL BE MOUNTED TO THE TOWER, GATE & FENCE USING A MINIMUM OF 9 GAUGE ALUMINUM WIRE, HOG RINGS (FENCE) OR BRACKETS, WHERE NECESSARY. BRACKETS SHALL BE OF SIMILAR METAL AS THE STRUCTURE TO AVOID GALVANIC CORROSION.
- ADDITIONAL E911 ADDRESS & FCC REGISTRATION SIGNS SHALL BE MOUNTED AT EACH ACCESS ROAD GATE LEADING TO THE COMPOUND AS WELL AS THE COMPOUND GATE ITSELF.
- SIGNS NEED NOT BE PLACED IF ACCURATE AND APPROPRIATE SIGNAGE ALREADY EXISTS.



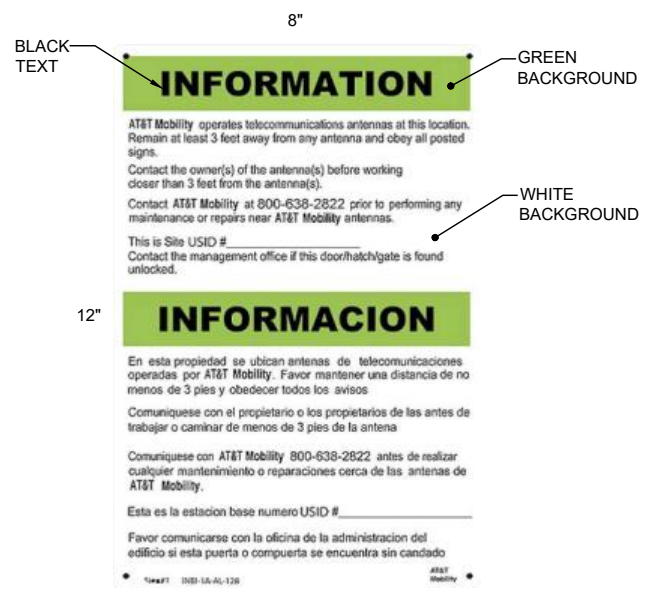
WHITE/GREEN BACKGROUND, WHITE/BLACK LETTERING
 MOUNTING LOCATION: GATE & BASE OF TOWER
 QUANTITY: 2

2 FCC REGISTRATION SIGN
 C11 SCALE: N.T.S.



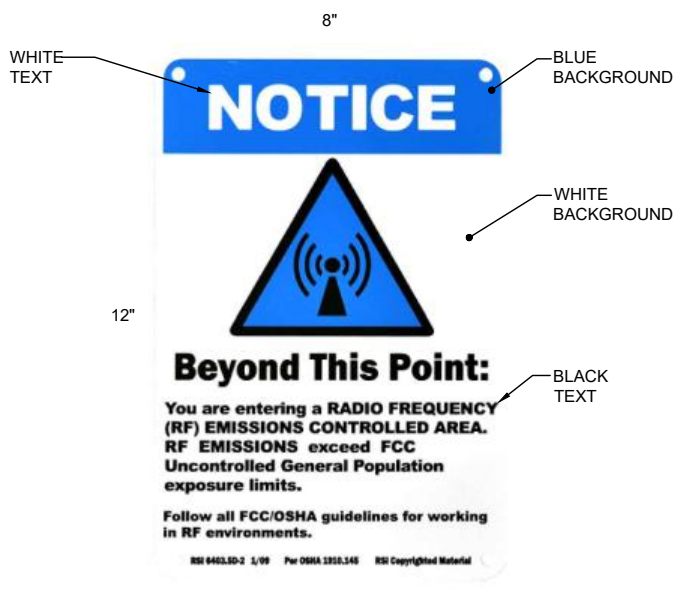
WHITE/GREEN BACKGROUND, WHITE/BLACK LETTERING
 MOUNTING LOCATION: GATE & BASE OF TOWER
 QUANTITY: 2

3 RF EXPOSURE INFORMATION SIGN
 C11 SCALE: N.T.S.



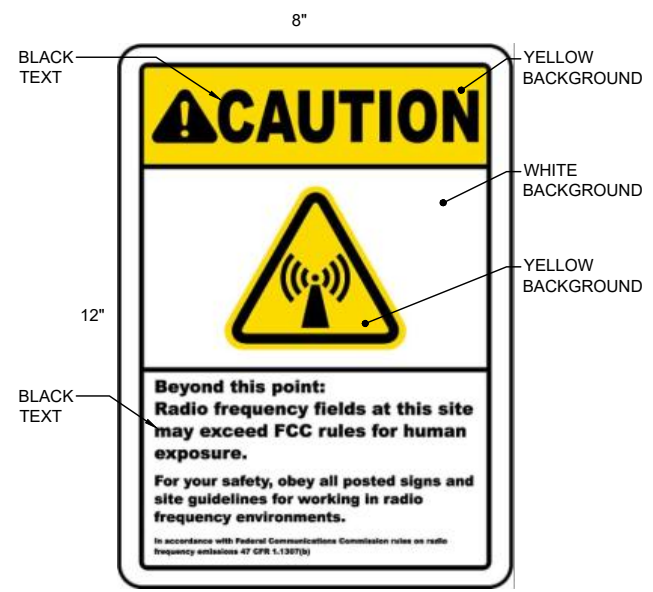
WHITE/GREEN BACKGROUND, WHITE/BLACK LETTERING
 MOUNTING LOCATION: GATE & BASE OF TOWER
 QUANTITY: 2

4 RX EXPOSURE INFORMATION SIGN
 C11 SCALE: N.T.S.



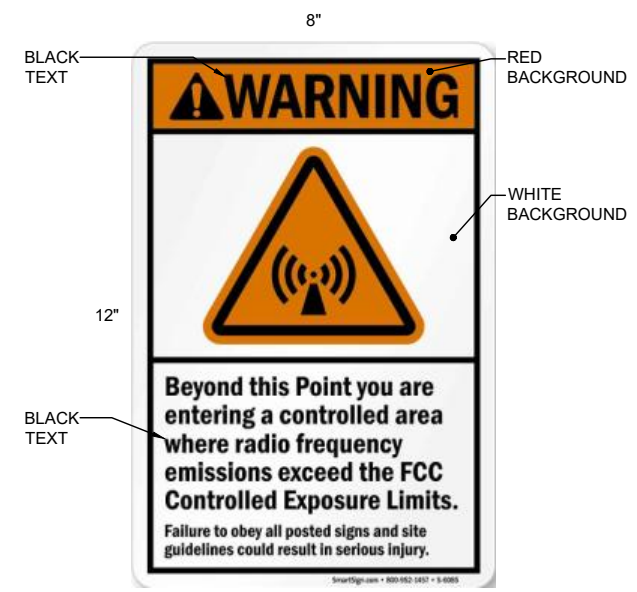
WHITE/BLUE BACKGROUND, WHITE/BLACK LETTERING
 MOUNTING LOCATION: GATE & BASE OF TOWER
 QUANTITY: 1

5 RX EXPOSURE NOTICE SIGN
 C11 SCALE: N.T.S.



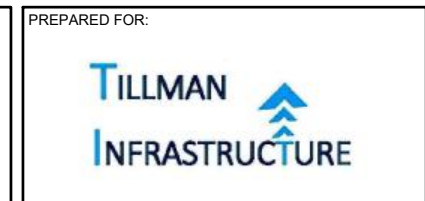
WHITE/YELLOW BACKGROUND, WHITE/BLACK LETTERING
 MOUNTING LOCATION: GATE & BASE OF TOWER
 QUANTITY: 1

6 RX EXPOSURE CAUTION SIGN
 C11 SCALE: N.T.S.



WHITE/ORANGE BACKGROUND, WHITE/BLACK LETTERING
 MOUNTING LOCATION: GATE & BASE OF TOWER
 QUANTITY: 1

7 RX EXPOSURE WARNING SIGN
 C11 SCALE: N.T.S.



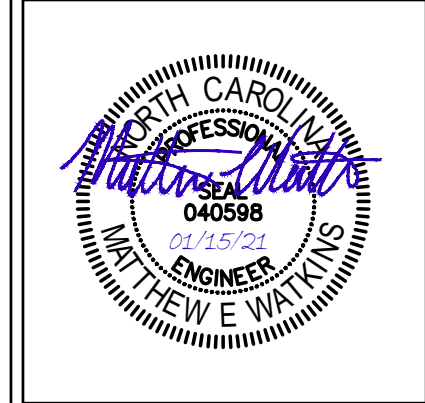
A&E FIRM:
towersource
 1875 OLD ALABAMA ROAD, SUITE 1008
 ROSWELL, GA 30076
 TEL: 678-990-2338 FAX: 678-990-2342

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PROJECT INFORMATION:
RED HILL CHURCH
 14637878
 TI-OPP-16496
 368-704
 161 RED HILL CHURCH ROAD
 DUNN, NC 28334

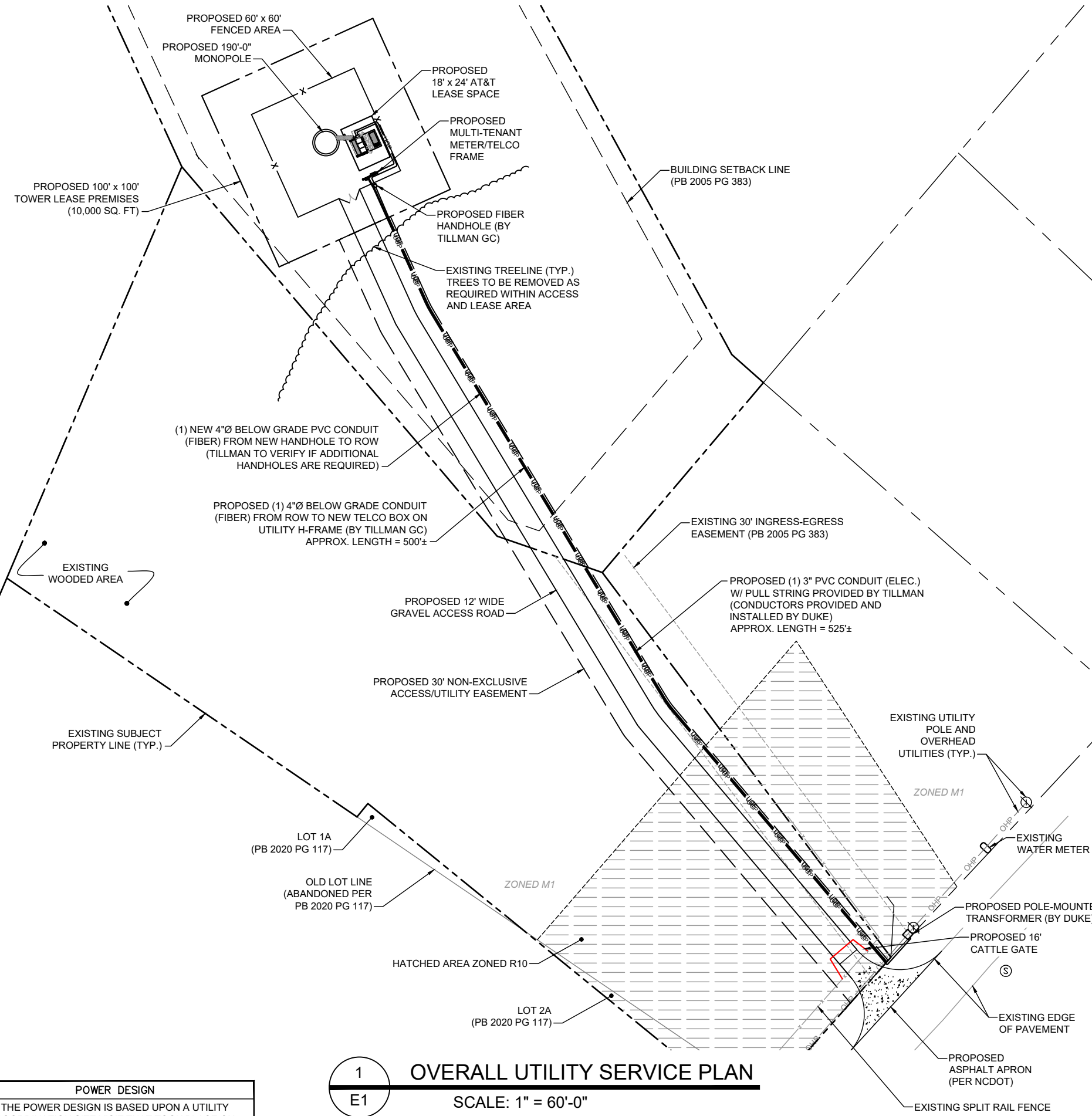
DRAWN BY:	SJH
CHECKED BY:	KIA
APPROVED BY:	MEW

REVISIONS		
REV.	DATE	DESCRIPTION
0	11/16/20	ISSUED FOR CONSTRUCTION
1	01/15/21	REVISED E911 ADDRESS



SHEET TITLE:
SITE SIGNAGE

SHEET #: **C11** REVISION: **1**



1
E1

OVERALL UTILITY SERVICE PLAN

SCALE: 1" = 60'-0"

POWER DESIGN

THE POWER DESIGN IS BASED UPON A UTILITY COORDINATION SITE VISIT THAT TOOK PLACE ON 05/05/20, PERFORMED BY KEVIN DYE AND APPROVED BY DUKE ENERGY PROCESS.

ELECTRICAL NOTES AND SPECIFICATIONS:

- ALL ELECTRICAL WORK SHALL COMPLY WITH NEC, STATE, AND LOCAL CODES.
- CONTRACTOR SHALL OBTAIN OWNER/TENANT SPECIFICATIONS AND REVIEW FOR ADDITIONAL DETAILS AND REQUIREMENTS THAT MAY NOT BE SHOWN IN THESE DRAWINGS. CONTRACTOR SHALL COMPLY WITH ANY ADDITIONAL OWNER/TENANT SPECIFICATIONS AND REQUIREMENTS.
- CONTRACTOR SHALL COORDINATE WITH THE ELECTRICAL UTILITY FOR THE EXACT TRANSFORMER LOCATION, METERING REQUIREMENTS, AND SERVICE ROUTING. CONTRACTOR SHALL COORDINATE WITH THE TELEPHONE UTILITY FOR THE EXACT TELEPHONE REQUIREMENTS AND SERVICE ROUTING.
- PRIOR TO PURCHASING EQUIPMENT, THE CONTRACTORS SHALL CONTACT THE ELECTRIC UTILITY AND LOCATION IN WRITING THE MAXIMUM AVAILABLE FAULT CURRENT AT THE UTILITY SERVICE POINT. PROVIDE MAX AFC SIGNAGE AS REQUIRED PER NEC 110.24. THE CONTRACTOR SHALL ENSURE ALL ELECTRICAL EQUIPMENT, CIRCUIT BREAKERS, DISCONNECTS, FUSES, AND PANEL BOARDS HAVE A FAULT CURRENT INTERRUPTING RATING GREATER THAN THE AVAILABLE FAULT CURRENT. IN NO CASE SHALL THE FAULT CURRENT INTERRUPTING RATING BE LESS THAN 10,000 AMPS.
- CONTRACTOR TO PROVIDE 2-200 LB TEST POLYETHYLENE PULL CORDS SECURELY FASTENED AT EACH END OF POWER AND TELCO CONDUIT. PROVIDE CAPS ON ENDS OF UNUSED CONDUIT.
- CONTRACTOR TO PROVIDE A REBAR MARKER WITH AT LEAST 2 FEET EXPOSED ABOVE GRADE AND PAINTED BRIGHT ORANGE TO INDICATE LOCATION OF CONDUIT CAPPED BELOW GRADE.
- PRIOR TO TRENCHING, CONTRACTOR SHALL LOCATE ALL EXISTING UNDERGROUND UTILITIES. CONTRACTOR SHALL REPAIR AT CONTRACTOR'S EXPENSE ANY DAMAGE TO EXISTING UTILITIES.
- CONTRACTOR TO VERIFY EXACT ROUTING OF POWER AND TELCO CONDUIT WITH LOCAL UTILITIES AND OWENR/TENANT. ENSURE ALL CONDUIT STUB-UPS ACCOMMODATE EQUIPMENT REQUIREMENTS.
- UNDERGROUND CONDUITS SHALL BE SCHEDULE 40 PVC UNLESS NOTED OTHERWISE. USE SCHEDULE 80 PVC UNDER ROADS. USE LONG-SWEP RIGID GALVANIZED STEEL (RGS) FOR ELBOWS. USE RGS FOR RISERS TO EQUIPMENT. MANUFACTURED BENDS SHALL HAVE A MINIMUM RADIUS OF 36" FOR CONDUIT.
- CONDUIT RUNS SHALL HAVE A CONTINUOUS SLOPE DOWNWARD AND AWAY FROM THE EQUIPMENT TO ALLOW WATER TO FLOW AWAY FROM THE EQUIPMENT AND SHELTER. EXCAVATE TRENCHES ALONG STRAIGHT LINES PRIOR TO INSTALLING CONDUIT TO ACCOMMODATE ADJUSTING THE ELEVATION, AS NEEDED.
- CONDUIT ENTERING EQUIPMENT SHALL BE SEALED WITH A SEALANT THAT IS IDENTIFIED FOR USE WITH THE CABLE. CONDUCTOR INSULATION, SHIELDING, ETC.
- THE OWNER SHALL FURNISH AND THE CONTRACTOR SHALL INSTALL ADDITIONAL SIGNAGE TO BE LOCATED AT THE COMPOUND FENCE. CONTRACTOR SHALL COORDINATE WITH OWNER/TENANT TILLMAN INFRASTRUCTURE CONSTRUCTION MANAGER FOR PLACEMENT OF SIGNAGE.
- UPON COMPLETION OF CONSTRUCTION, CONTRACTOR IS RESPONSIBLE FOR REPAIRING ANY DAMAGE CAUSED BY CONSTRUCTION ACTIVITIES TO THE LANDSCAPING AREA.
- IF GENERATOR/FUEL CELL IS INSTALLED, CONTRACTOR SHALL PROVIDE A LABEL TO READ: "OPENING THE DISCONNECT WILL CAUSE THE GENERATOR TO START. TO REMOVE POWER ENTIRELY FROM THE EQUIPMENT, THE GENERATOR MUST BE TURNED OFF AND THE GENERATOR BREAKER MUST BE OPENED."
- CONTRACTORS SHALL ENSURE A MINIMUM 3' CLEARANCE IN FRONT OF ELECTRICAL PANELS PER NEC.
- ALL ELECTRICAL MATERIALS, DEVICES, APPLIANCES AND EQUIPMENT SHALL BE LABEL LISTED BY AN APPROVED THIRD PARTY TESTING AGENCY.
- FLEX CONDUIT RUNS NOT TO EXCEED 36" WITHOUT PRIOR TMO APPROVAL.

CONDUIT ROUTING NOTE:

- CONTRACTOR TO PROVIDE PULL BOXES AS NEEDED TO ENSURE NO GREATER THAN 360 DEGREES OF BENDS BETWEEN PULL POINTS IN CONDUIT RUNS.
- CONTRACTOR COORDINATE WITH LOCAL UTILITY COMPANY FOR SERVICE TO THIS POINT.
- ALL CONDUIT TO BE RUN WITHIN 2' UTILITY BUFFER AS SHOWN ON CIVIL PLANS. CONDUIT SHOWN OUTSIDE OF 2' UTILITY BUFFER FOR CLARITY PURPOSES ONLY.

PREPARED FOR:

A&E FIRM:

1875 OLD ALABAMA ROAD, SUITE 1008
ROSWELL, GA 30076
TEL: 678-990-2338 FAX: 678-990-2342

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14637878
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368-704
161 RED HILL CHURCH ROAD
DUNN, NC 28334

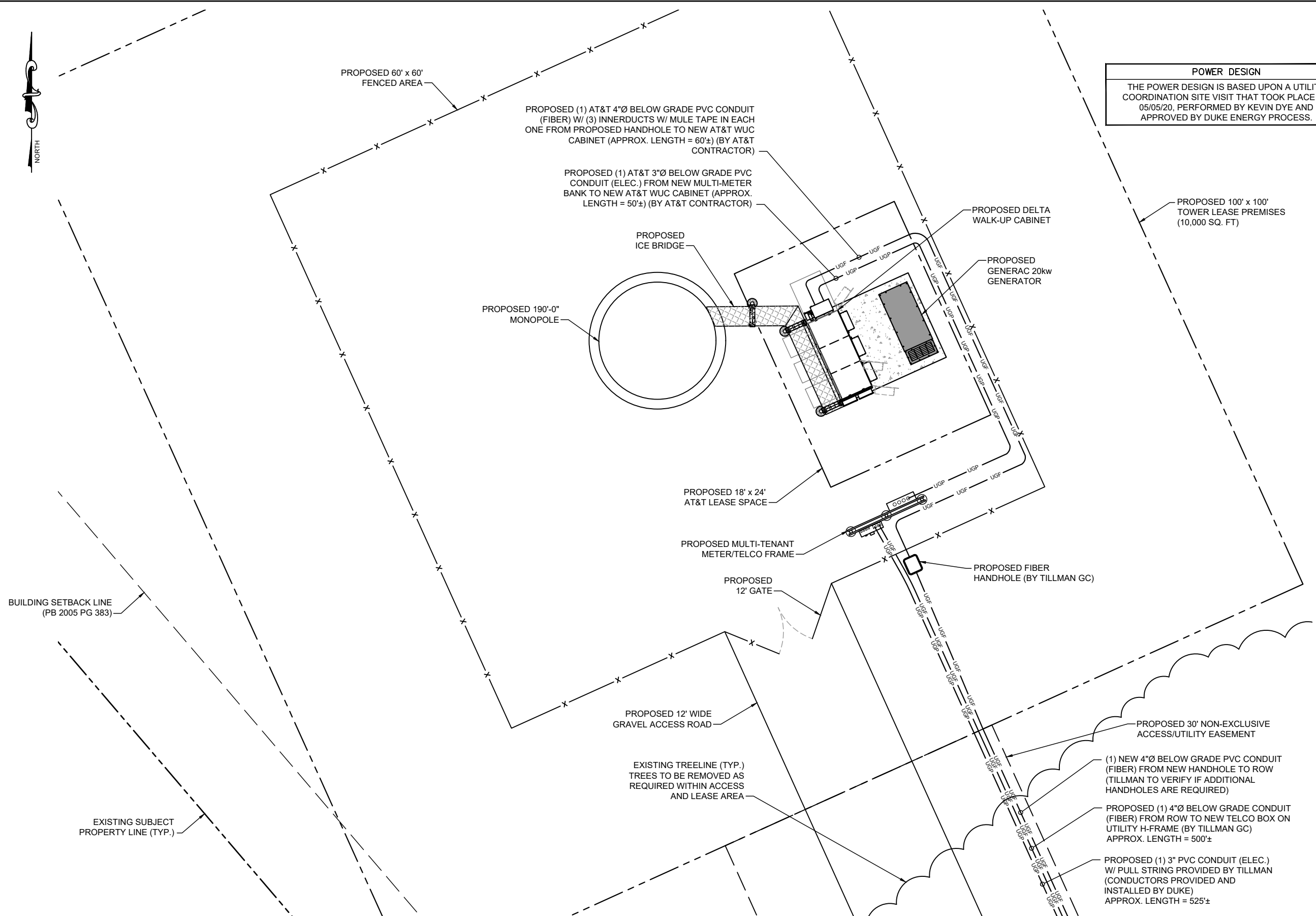
DRAWN BY:	SJH
CHECKED BY:	KIA
APPROVED BY:	MEW

REVISIONS

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1	01/15/21	REVISED E911 ADDRESS

SHEET TITLE:
OVERALL UTILITY SERVICE PLAN

SHEET #:	REVISION:
E1	1



POWER DESIGN

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PREPARED FOR:

A&E FIRM:

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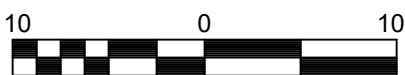
RED HILL CHURCH
14637878
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DRAWN BY:	SJH
CHECKED BY:	KIA
APPROVED BY:	MEW

REVISIONS

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1	01/15/21	REVISED E911 ADDRESS

1 ENLARGED UTILITY SERVICE PLAN
E2 SCALE: 1" = 10'-0"

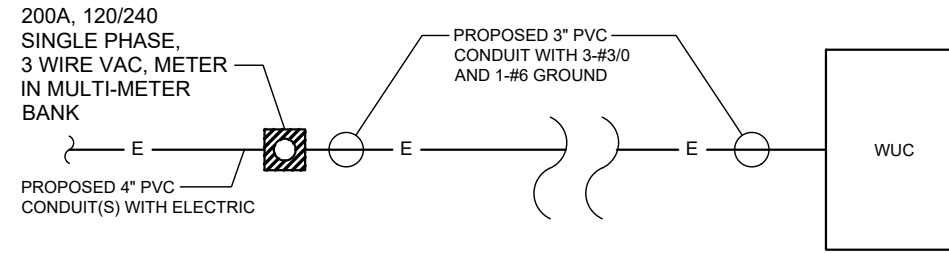


SHEET TITLE:
ENLARGED UTILITY SERVICE PLAN

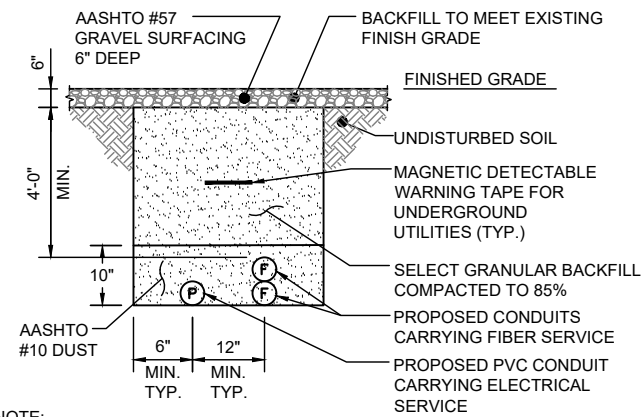
SHEET #:	REVISION:
E2	1

ELECTRICAL NOTES

- SUBMITTAL OF BID INDICATES THAT THE CONTRACTOR IS COGNIZANT OF ALL JOB SITE CONDITIONS AND WORK TO BE PERFORMED UNDER THIS CONTRACT.
- CONTRACTOR SHALL PERFORM ALL VERIFICATIONS, OBSERVATION TESTS, AND EXAMINATION WORK PRIOR TO ORDERING OF ANY EQUIPMENT AND THE ACTUAL CONSTRUCTION. CONTRACTOR SHALL ISSUE A WRITTEN NOTICE OF ALL FINDINGS TO THE PROJECT MANAGER LISTING ALL MALFUNCTIONS, FAULTY EQUIPMENT AND DISCREPANCIES.
- VERIFY HEIGHTS WITH PROJECT MANAGER PRIOR TO INSTALLATION.
- THESE PLANS ARE DIAGRAMMATIC ONLY. FOLLOW AS CLOSELY AS POSSIBLE.
- CONTRACTOR SHALL COORDINATE ALL WORK BETWEEN TRADES AND ALL OTHER SCHEDULING AND PROVISIONARY CIRCUMSTANCES SURROUNDING THE PROJECT.
- CONTRACTOR SHALL PROVIDE ALL LABOR, MATERIALS, INSURANCE, EQUIPMENT, INSTALLATION CONSTRUCTION TOOLS, TRANSPORTATION, ETC., FOR COMPLETE AND FUNCTIONALLY OPERATING SYSTEMS ENERGIZED AND READY FOR USE THROUGHOUT AS INDICATED ON DRAWINGS, AS SPECIFIED HEREIN AND/OR AS OTHERWISE REQUIRED.
- ALL MATERIALS AND EQUIPMENT SHALL BE NEW AND IN PERFECT CONDITION WHEN INSTALLED AND SHALL BE OF THE BEST GRADE AND OF THE SAME MANUFACTURER THROUGHOUT FOR EACH CLASS OR GROUP OF EQUIPMENT. ELECTRICAL MATERIALS SHALL BE LISTED AND APPROVED BY UNDERWRITER'S LABORATORIES AND SHALL BEAR THE INSPECTION LABEL "J" WHERE SUBJECT TO SUCH APPROVAL. MATERIALS SHALL MEET WITH APPROVAL OF ALL GOVERNING BODIES HAVING JURISDICTION OVER THE CONSTRUCTION. MATERIALS SHALL BE MANUFACTURED IN ACCORDANCE WITH ALL CURRENT APPLICABLE STANDARDS ESTABLISHED BY ANSI, NEMA AND NBFU. ALL MATERIALS AND EQUIPMENT SHALL BE APPROVED FOR THEIR INTENDED USE AND LOCATION.
- ALL WORK SHALL COMPLY WITH ALL APPLICABLE GOVERNING STATE, COUNTY AND CITY CODES AND OSHA, NFPA, NEC & ASHRAE REQUIREMENTS.
- ENTIRE JOB SHALL BE GUARANTEED FOR A PERIOD OF ONE (1) YEAR AFTER THE DATE OF JOB ACCEPTANCE. ALL WORK, MATERIAL AND EQUIPMENT FOUND TO BE FAULTY DURING THAT PERIOD SHALL BE CORRECTED AT ONCE, UPON WRITTEN NOTIFICATION, AT THE EXPENSE OF THE CONTRACTOR.
- PROPERLY SEAL ALL PENETRATIONS. PROVIDE UL LISTED FIRE-STOPS WHERE PENETRATIONS ARE MADE THROUGH FIRE-RATED ASSEMBLIES. WATER-TIGHT USING SILICONE SEALANT.
- DELIVER ALL BROCHURES, OPERATING MANUALS, CATALOGS AND SHOP DRAWINGS TO THE PROJECT MANAGER AT JOB COMPLETION. PROVIDE MAINTENANCE MANUALS FOR MECHANICAL EQUIPMENT. AFFIX MAINTENANCE LABELS TO MECHANICAL EQUIPMENT.
- ALL CONDUCTORS SHALL BE COPPER. MINIMUM CONDUCTOR SIZE SHALL BE #12 AWG., UNLESS OTHERWISE NOTED. CONDUCTORS SHALL BE TYPE THHW, RATED IN ACCORDANCE WITH NEC 110-14(C).
- ALL CIRCUIT BREAKERS, FUSES AND ELECTRICAL EQUIPMENT SHALL HAVE AN INTERRUPTING RATING NOT LESS THE MAXIMUM INTERRUPTING CURRENT TO WHICH THEY MAY BE SUBJECTED.
- THE ENTIRE ELECTRICAL INSTALLATION SHALL BE GROUNDED IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE; ARTICLES 250 & 810 AND THE UTILITY COMPANY STANDARDS.
- CONDUIT:
 - RIGID CONDUIT SHALL BE U.L. LABEL GALVANIZED ZINC COATED WITH ZINC INTERIOR AND SHALL BE USED WHEN INSTALLED IN OR UNDER CONCRETE SLABS, IN CONTACT WITH THE EARTH, UNDER PUBLIC ROADWAYS, IN MASONRY WALLS OR EXPOSED ON BUILDING EXTERIOR. RIGID CONDUIT IN CONTACT WITH EARTH SHALL BE 1/2 LAPPED WRAPPED WITH HUNTS WRAP PROCESS NO. 3.
 - ELECTRICAL METALLIC TUBING SHALL HAVE U.L. LABEL, FITTINGS SHALL BE GLAND RING COMPRESSION TYPE. EMT SHALL BE USED ONLY FOR INTERIOR RUNS.
 - LIQUID-TIGHT FLEXIBLE METAL CONDUIT SHALL BE U.L. LISTED AND SHALL BE USED AT FINAL CONNECTIONS TO MECHANICAL EQUIPMENT & RECTIFIERS AND WHERE PERMITTED BY CODE. ALL CONDUIT IN EXCESS OF SIX FEET IN LENGTH SHALL CONTAIN A FULL-SIZE GROUND CONDUCTOR.
 - CONDUIT RUNS SHALL BE SURFACE MOUNTED ON CEILINGS OR WALLS UNLESS NOTED OTHERWISE. ALL CONDUIT SHALL RUN PARALLEL OR PERPENDICULAR TO WALLS, FLOOR, CEILING, OR BEAMS. VERIFY EXACT ROUTING OF ALL EXPOSED CONDUIT WITH THE PROJECT MANAGER PRIOR TO INSTALLING.
 - PVC CONDUIT MAY BE PROVIDED ONLY WHERE SHOWN, OR IN UNDERGROUND INSTALLATIONS. PROVIDE UV-RESISTANT CONDUIT WHERE EXPOSED TO THE ATMOSPHERE. PROVIDE GROUND CONDUCTOR IN ALL PVC RUNS; EXCEPT WHERE PERMITTED BY CODE TO OMIT.
- ALL ELECTRICAL EQUIPMENT SHALL BE LABELED WITH PERMANENT ENGRAVED PLASTIC LABELS. BACKGROUND SHALL BE BLACK WITH WHITE LETTERS; EXCEPT AS REQUIRED BY CODE TO FOLLOW A DIFFERENT SCHEME.
- UPON COMPLETION OF WORK, CONDUCT CONTINUITY, SHORT CIRCUIT, AND FALL OF POTENTIAL GROUNDING TESTS FOR APPROVAL. SUBMIT TEST REPORTS TO PROJECT MANAGER. GROUNDING SYSTEM RESISTANCE SHALL NOT EXCEED 5 OHMS. IF THE RESISTANCE VALUE IS EXCEEDED, NOTIFY THE PROJECT MANAGER FOR FURTHER INSTRUCTION ON METHODS FOR REDUCING THE RESISTANCE VALUE.
- CLEAN PREMISES OF ALL DEBRIS RESULTING FROM WORK AND LEAVE WORK IN A COMPLETE AND UNDAMAGED CONDITION. LEGALLY DISPOSE OF ALL REMOVED, UNUSED AND EXCESS MATERIAL GENERATED BY THE WORK OF THIS CONTRACT. DELIVER ITEMS INDICATED ON THE DRAWINGS TO THE OWNER IN GOOD CONDITION. OBTAIN SIGNED RECEIPT UPON DELIVERY.
- COORDINATE WITH UTILITY COMPANY FOR CONNECTION OF TEMPORARY AND PERMANENT POWER TO THE SITE. THE TEMPORARY POWER AND ALL HOOKUP COSTS SHALL BE PAID BY THE CONTRACTOR.
- VERIFY ALL EXISTING CIRCUITRY PRIOR TO REMOVAL AND NEW WORK. MAINTAIN POWER TO ALL OTHER AREAS & CIRCUITS NOT SCHEDULED FOR REMOVAL.
- RED LINED AS-BUILT PLANS SHALL BE PROVIDED TO THE CONSTRUCTION MANAGER.



1 POWER DIAGRAM
E3 SCALE: N.T.S.

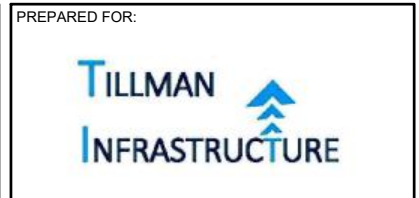


NOTE:
EXCAVATE EXISTING SUBGRADE AS REQUIRED TO INSTALL CONDUITS IN ACCORDANCE WITH OSHA AND ALL APPLICABLE CODES.

2 TYPICAL TRENCH DETAIL
E3 SCALE: N.T.S.

INTEGRATED LOAD CENTER																							
LOAD			LOAD PER PHASE (VA)								LOAD PER PHASE (VA)								LOAD				
DESCRIPTION	QTY.	UNIT V.A.	PHASE		WIRE COLOR	LOADS CONTINUOUS	LOADS NON-CONTINUOUS	LOADS SUB-PANEL	WIRE SIZE	GROUNDING WIRE SIZE	TRIP	TRIP	GROUNDING WIRE SIZE	WIRE SIZE	LOADS SUB-PANEL	LOADS NON-CONTINUOUS	LOADS CONTINUOUS	PHASE		UNIT V.A.	QTY.	DESCRIPTION	
			A	B														A	B				
RECTIFIER #1	1	1400	1400		BLK	X			8	(10)	40	40	(10)	8			X	BLK	1400		1400	1	RECTIFIER #5
	1	1400		1400	RED												X	RED		1400	1400	1	
RECTIFIER #2	1	1400	1400		BLK	X			8	(10)	40	40	(10)	8			X	BLK	1400		1400	1	RECTIFIER #6
	1	1400		1400	RED												X	RED		1400	1400	1	
RECTIFIER #3	1	1400	1400		BLK	X			8	(10)	40	40	(10)	8			X	BLK	1400		1400	1	RECTIFIER #7
	1	1400		1400	RED												X	RED		1400	1400	1	
RECTIFIER #4	1	1400	1400		BLK	X			8	(10)	40	40	(10)	8			X	BLK	1400		1400	1	RECTIFIER #8
	1	1400		1400	RED												X	RED		1400	1400	1	
GFCI RECEPTACLES	2	180	360		BLK	X			12	(12)	20							BLK					
OPTIONAL FIBER BOX RECEPTACLE	1	180		180	RED	X			12	12	20							RED					
BATTERY CHARGER/BLOCK HEATER (IF REQUIRED)	1	240	480		BLK	X			12	12	20							BLK					
					RED													RED					
OIL HEATER (IF REQUIRED)	1	180	180		BLK	X			12	12	20							BLK					
SUBTOTAL CONTINUOUS			6,380	7,280													5,600	5,600	SUBTOTAL CONTINUOUS	TOTAL KVA CONTINUOUS x 1.25	31.075		
SUBTOTAL NON-CONTINUOUS			-	-													-	-	SUBTOTAL NON-CONTINUOUS	TOTAL KVA NON-CONTINUOUS	-		
SUBTOTAL SUB-PANEL			-	-													-	-	SUBTOTAL SUB-PANEL	TOTAL KVA SUB-PANEL	-		
PANEL DESIGNATION: ELECTRICAL PANEL (ITEM 2)																						TOTAL KVA	31.075
MAIN LUGS: N/A		MAIN BREAKER: 200 AMP														BRANCH BREAKER TYPE: SIEMENS - BL		TOTAL KVA	31.075				
VOLTAGE: 120/240		CYCLE: 60		PHASE: 1		WIRES: 3		MAIN COPPER BUS: 200 AMPS		NEUTRAL: 200 AMPS						TOTAL AMPS	129.48						

3 PANEL SCHEDULE
E3 SCALE: N.T.S.



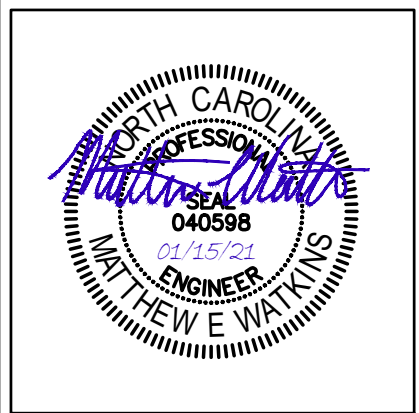
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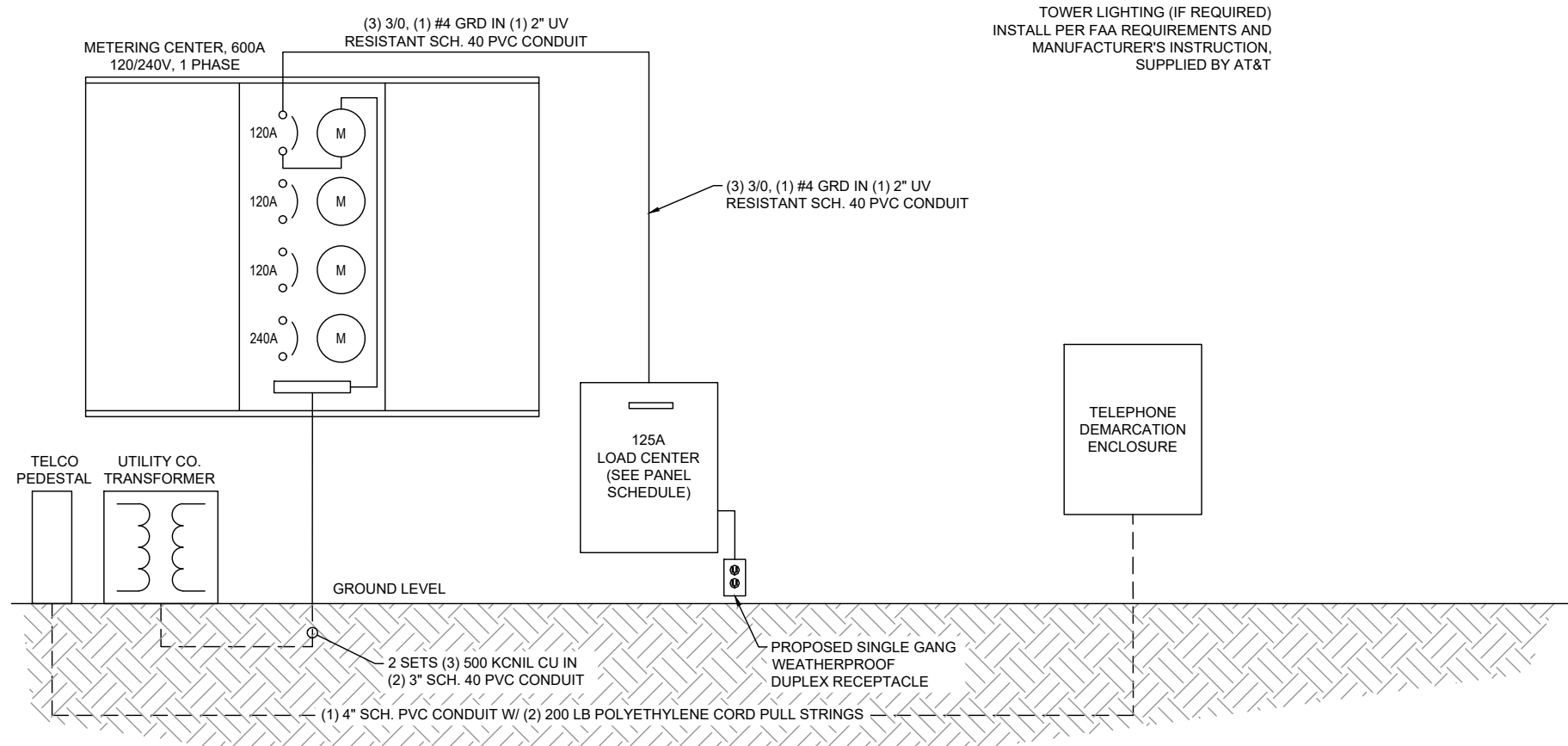
DRAWN BY: SJH
CHECKED BY: KIA
APPROVED BY: MEW

REVISIONS		
REV.	DATE	DESCRIPTION
0	11/16/20	ISSUED FOR CONSTRUCTION
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SHEET TITLE:
ELECTRICAL PANEL SCHEDULE, DIAGRAM, AND NOTES

SHEET #: **E3** REVISION: **1**



1 ELECTRICAL SINGLE-LINE DIAGRAM
E4 SCALE: N.T.S.

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PREPARED FOR:
TILLMAN
INFRASTRUCTURE

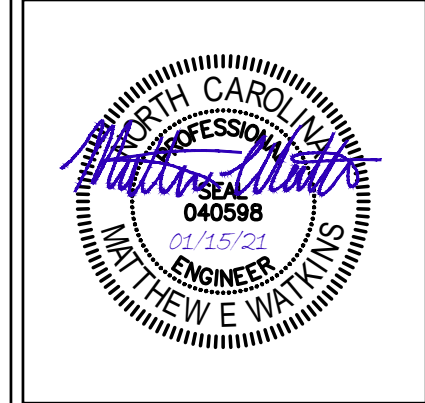
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SHEET TITLE:
ELECTRICAL SINGLE-LINE
DIAGRAM

SHEET #: **E4** REVISION: **1**

SD020 | 2.2L | 20 kW
INDUSTRIAL DIESEL GENERATOR SET
 EPA Certified Stationary Emergency



Standby Power Rating
 20 kW, 25 kVA, 60 Hz

Prime Power Rating*
 18 kW, 23 kVA, 60 Hz

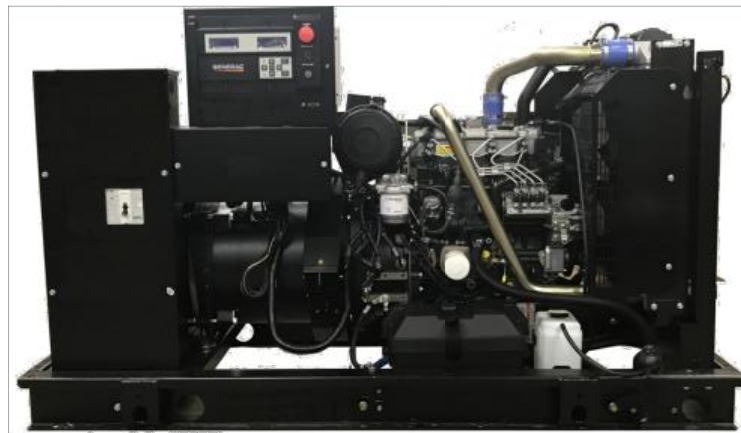


Image used for illustration purposes only



*EPA Certified Prime ratings are not available in the US or its Territories

Codes and Standards

Not all codes and standards apply to all configurations. Contact factory for details.

- UL2200, UL508, UL489, UL142
- CSA C22.2
- BS5514 and DIN 6271
- SAE J1349
- NFPA 37, 70, 99, 110
- NEC700, 701, 702, 708
- ISO 3046, 7637, 8528, 9001
- NEMA ICS10, MG1, 250, ICS6, AB1
- ANSI C62.41

Powering Ahead

For over 50 years, Generac has provided innovative design and superior manufacturing.

Generac ensures superior quality by designing and manufacturing most of its generator components, including alternators, enclosures and base tanks, control systems and communications software.

Generac gensets utilize a wide variety of options, configurations and arrangements, allowing us to meet the standby power needs of practically every application.

Generac searched globally to ensure the most reliable engines power our generators. We choose only engines that have already been proven in heavy-duty industrial applications under adverse conditions.

Generac is committed to ensuring our customers' service support continues after their generator purchase.

SD020 | 2.2L | 20 kW
INDUSTRIAL DIESEL GENERATOR SET
 EPA Certified Stationary Emergency



STANDARD FEATURES

ENGINE SYSTEM

- Oil Drain Extension
- Air Cleaner
- Fan Guard
- Stainless Steel Flexible Exhaust Connection
- Factory Filled Oil and Coolant
- Radiator Duct Adapter (Open Set Only)
- Critical Silencer (Enclosed Unit Only)
- Engine Coolant Heater

Fuel System

- Fuel Lockoff Solenoid
- Primary Fuel Filter

Cooling System

- Closed Coolant Recovery System
- UV/Ozone Resistant Hoses
- Factory-Installed Radiator
- Radiator Drain Extension
- 50/50 Ethylene Glycol Antifreeze

Electrical System

- Battery Charging Alternator
- Battery Cables
- Battery Tray
- Rubber-Booted Engine Electrical Connections
- Solenoid Activated Starter Motor

ALTERNATOR SYSTEM

- UL2200 GENprotect™
- Class H Insulation Material
- 2/3 Pitch
- Skewed Stator
- Brushless Excitation
- Sealed Bearing
- Rotor Dynamically Spin Balanced
- Amortisseur Winding (3-Phase Only)
- Full Load Capacity Alternator
- Protective Thermal Switch

GENERATOR SET

- Internal Genset Vibration Isolation
- Separation of Circuits - High/Low Voltage
- Separation of Circuits - Multiple Breakers
- Wrapped Exhaust Piping
- Standard Factory Testing
- 2 Year Limited Warranty (Standby Rated Units)
- 1 Year Limited Warranty (Prime Rated Units)
- Silencer Mounted in the Discharge Hood (Enclosed Unit Only)

ENCLOSURE (If Selected)

- Rust-Proof Fasteners with Nylon Washers to Protect Finish
- High Performance Sound-Absorbing Material (Sound Attenuation Enclosures)
- Gasketed Doors
- Stamped Air-Intake Louvers
- Upward Facing Discharge Hoods (Radiator and Exhaust)
- Stainless Steel Lift Off Door Hinges
- Stainless Steel Lockable Handles
- RhinoCoat™ - Textured Polyester Powder Coat Paint

FUEL TANKS (If Selected)

- UL 142/ULC S601
- Double Wall
- Normal and Emergency Vents
- Sloped Top
- Sloped Bottom
- Factory Pressure Tested
- Rupture Basin Alarm
- Fuel Level
- Check Valve In Supply and Return Lines
- RhinoCoat™ - Textured Polyester Powder Coat Paint
- Stainless Steel Hardware

CONTROL SYSTEM



Digital H Control Panel- Dual 4x20 Display

Program Functions

- Programmable Crank Limiter
- 7-Day Programmable Exerciser
- Special Applications Programmable Logic Controller
- RS-232/485 Communications
- All Phase Sensing Digital Voltage Regulator
- 2-Wire Start Capability
- Date/Time Fault History (Event Log)
- Isochronous Governor Control
- Waterproof/Sealed Connectors

- Audible Alarms and Shutdowns
- Not in Auto (Flashing Light)
- Auto/Off/Manual Switch
- E-Stop (Red Mushroom-Type)
- NFPA110 Level I and II (Programmable)
- Customizable Alarms, Warnings, and Events
- Modbus® Protocol
- Predictive Maintenance Algorithm
- Sealed Boards
- Password Parameter Adjustment Protection
- Single Point Ground
- 16 Channel Remote Trending
- 0.2 msec High Speed Remote Trending
- Alarm Information Automatically Annunciated on the Display

Full System Status Display

- Power Output (kW)
- Power Factor
- kW Hours, Total, and Last Run
- Real/Reactive/Apparent Power
- All Phase AC Voltage
- All Phase Currents

- Oil Pressure
- Coolant Temperature
- Coolant Level
- Engine Speed
- Battery Voltage
- Frequency

Alarms and Warnings

- Oil Pressure
- Coolant Temperature
- Coolant Level
- Engine Overspeed
- Battery Voltage
- Alarms and Warnings Time and Date Stamped
- Snap Shots of Key Operation Parameters During Alarms and Warnings
- Alarms and Warnings Spelled Out (No Alarm Codes)

PREPARED FOR:



A&E FIRM:



1875 OLD ALABAMA ROAD, SUITE 1008
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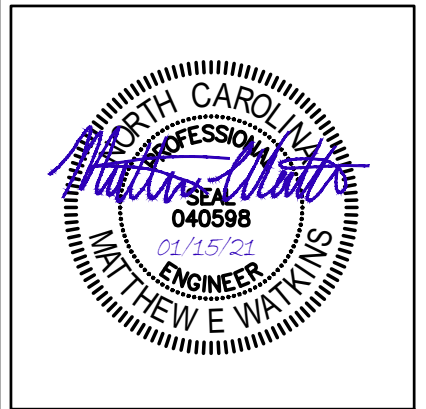
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PROJECT INFORMATION:

RED HILL CHURCH
 14637878
 TI-OPP-16496
 368-704
 161 RED HILL CHURCH ROAD
 DUNN, NC 28334

DRAWN BY:	SJH
CHECKED BY:	KIA
APPROVED BY:	MEW

REVISIONS		
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SHEET TITLE:
 GENERATOR SPECIFICATIONS
 (BY OTHERS)

SHEET #:	REVISION:
E5	1

SPEC SHEET
1 of 6

SPEC SHEET
2 of 6

SD020 | 2.2L | 20 kW
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CONFIGURABLE OPTIONS

ENGINE SYSTEM

- Oil Heater
- Critical Silencer (Open Set Only)
- Radiator Stone Guard
- Level 1 Fan and Belt Guards (Open Set Only)

FUEL SYSTEM

- NPT Flexible Fuel Line

ELECTRICAL SYSTEM

- 10A UL Listed Battery Charger
- Battery Warmer

ALTERNATOR SYSTEM

- Alternator Upsizing
- Anti-Condensation Heater
- Tropical Coating
- Permanent Magnet Excitation

GENERATOR SET

- Extended Factory Testing
- 8 Position Load Center
- Pad Vibration Isolation

ENGINEERED OPTIONS

ENGINE SYSTEM

- Coolant Heater Isolation Ball Valves
- Fluid Containment Pan

CONTROL SYSTEM

- Spare Inputs (x4) / Outputs (x4)
- Battery Disconnect Switch

CIRCUIT BREAKER OPTIONS

- Main Line Circuit Breaker
- 2nd Main Line Circuit Breaker
- Shunt Trip and Auxiliary Contact
- Electronic Trip Breakers

ENCLOSURE

- Weather Protected Enclosure
- Level 1 Sound Attenuation
- Level 2 Sound Attenuation
- Level 2 Sound Attenuation with Motorized Dampers
- Steel Enclosure
- Aluminum Enclosure
- Up to 200 MPH Wind Load Rating (Contact Factory for Availability)
- AC/DC Enclosure Lighting Kit
- Door Alarm Switch
- Enclosure Heater
- Damper Alarm Contacts

WARRANTY (Standby Gensets Only)

- 2 Year Extended Limited Warranty
- 5 Year Limited Warranty
- 5 Year Extended Limited Warranty
- 7 Year Extended Limited Warranty
- 10 Year Extended Limited Warranty

CONTROL SYSTEM

- NFPA 110 Compliant 21-Light Remote Annunciator
- Remote Relay Assembly (8 or 16)
- Oil Temperature Indication and Alarm
- Remote E-Stop (Break Glass-Type, Surface Mount)
- Remote E-Stop (Red Mushroom-Type, Surface Mount)
- Remote E-Stop (Red Mushroom-Type, Flush Mount)
- 100 dB Alarm Horn
- Ground Fault Annunciation
- 120V GFCI and 240V Outlets
- Remote Communication - Modem
- 10A Engine Run Relay

FUEL TANKS (Size On Last Page)

- 8 in (203.2 mm) Fill Extension
- 13 in (330.2 mm) Fill Extension
- 19 in (482.6 mm) Fill Extension
- Overfill Protection Valve
- 5 Gallon Spill Box Return Hose
- 5 Gallon Spill Box
- Tank Risers
- Fuel Level Switch and Alarm
- 12" Vent System
- Fire Rated Stainless Steel Fuel Hose

ALTERNATOR SYSTEM

- 3rd Breaker System

GENERATOR SET

- Special Testing

FUEL TANKS

- UL2085 Tank
- Stainless Steel Tanks
- Special Fuel Tanks
- Vent Extensions

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APPLICATION AND ENGINEERING DATA

ENGINE SPECIFICATIONS

General

Make	Perkins
EPA Emissions Compliance	Stationary Emergency
EPA Emissions Reference	See Emission Data Sheet
Cylinder #	4
Type	In-Line
Displacement - in ³ (L)	135 (2.22)
Bore - in (mm)	3.3 (84)
Stroke - in (mm)	3.9 (100)
Compression Ratio	23.3:1
Intake Air Method	Turbocharged
Cylinder Head	Cast Iron
Piston Type	Aluminum
Crankshaft Type	Forged Steel

Engine Governing

Governor	Electronic Isochronous
Frequency Regulation (Steady State)	±0.5%

Lubrication System

Oil Pump Type	Gear
Oil Filter Type	Full-Flow Cartridge
Crankcase Capacity - qt (L)	9.3 (10.6)

Cooling System

Cooling System Type	Closed Recovery
Water Pump Type	Pre-Lubed, Self Sealing
Fan Type	Pusher
Fan Speed - RPM	1,980
Fan Diameter - in (mm)	18 (457.2)

Fuel System

Fuel Type	Ultra Low Sulfur Diesel Fuel
Fuel Specifications	ASTM
Fuel Filtering (Microns)	5
Fuel Inject Pump	Distribution Injection Pump
Fuel Pump Type	Engine Driven Gear
Injector Type	Mechanical
Fuel Supply Line - in (mm)	0.31 (7.94) ID
Fuel Return Line - in (mm)	0.19 (4.76) ID

Engine Electrical System

System Voltage	12 VDC
Battery Charger Alternator	Standard
Battery Size	See Battery Index 0161970SBY
Battery Voltage	12 VDC
Ground Polarity	Negative

ALTERNATOR SPECIFICATIONS

Standard Model	K0025124Y21
Poles	4
Field Type	Revolving
Insulation Class - Rotor	H
Insulation Class - Stator	H
Total Harmonic Distortion	<5%
Telephone Interference Factor (TIF)	<50

Standard Excitation	Brushless
Bearings	Single Sealed
Coupling	Direct via Flexible Disc
Load Capacity - Standby	100%
Prototype Short Circuit Test	Yes
Voltage Regulator Type	Digital
Number of Sensed Phases	All
Regulation Accuracy (Steady State)	±0.25%

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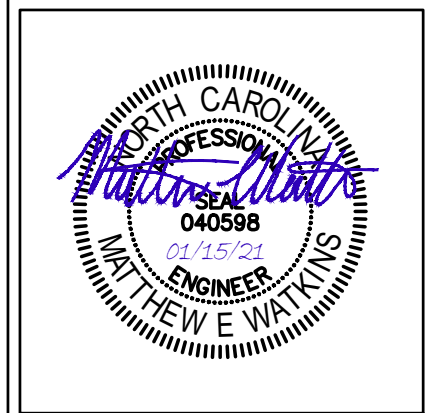
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SPEC SHEET

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OPERATING DATA

POWER RATINGS

		Standby
Single-Phase 120/240 VAC @1.0pf	20 kW	Amps: 83
Three-Phase 120/208 VAC @0.8pf	20 kW	Amps: 69
Three-Phase 120/240 VAC @0.8pf	20 kW	Amps: 60
Three-Phase 277/480 VAC @0.8pf	20 kW	Amps: 30
Three-Phase 346/600 VAC @0.8pf	20 kW	Amps: 24

MOTOR STARTING CAPABILITIES (skVA)

skVA vs. Voltage Dip			
277/480 VAC	30%	208/240 VAC	30%
K0025124Y21	38	K0025124Y21	28
K0035124Y21	61	K0035124Y21	46
K0040124Y21	76	K0040124Y21	58

FUEL CONSUMPTION RATES*

Fuel Pump Lift- ft (m)	Diesel - gph (Lph)	
	Percent Load	Standby
3 (1)	25%	0.8 (3.0)
	50%	1.06 (4.0)
	75%	1.38 (5.2)
	100%	1.68 (6.4)
* Fuel supply installation must accommodate fuel consumption rates at 100% load.		

Total Fuel Pump Flow (Combustion + Return) - gph (Lph)
16.6 (63)

COOLING

		Standby
Coolant Flow	gpm (Lpm)	48.9 (56.2)
Coolant System Capacity	gal (L)	2.5 (9.5)
Heat Rejection to Coolant	BTU/hr (kW)	83,610 (25)
Inlet Air	scfm (m³/min)	2,800 (79)
Maximum Operating Ambient Temperature	°F (°C)	122 (50)
Maximum Operating Ambient Temperature (Before Derate)	See Bulletin No. 0199280SSD	
Maximum Radiator Backpressure	in H ₂ O (kPa)	0.5 (0.12)

COMBUSTION AIR REQUIREMENTS

	Standby
Flow at Rated Power scfm (m³/min)	87.9 (2.49)

ENGINE

		Standby
Rated Engine Speed	RPM	1,800
Horsepower at Rated kW**	hp	49
Piston Speed	ft/min (m/min)	1,181 (360)
BMEP	psi (kPa)	103.9 (716.4)

EXHAUST

		Standby
Exhaust Flow (Rated Output)	scfm (m³/min)	245 (6.9)
Max. Allowable Backpressure (Post Turbocharger)	inHg (kPa)	1.5 (5.1)
Exhaust Temp (Rated Output)	°F (°C)	625 (329.4)

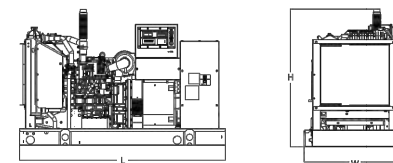
** Refer to "Emissions Data Sheet" for maximum bHP for EPA and SCAQMD permitting purposes.

Deration - Operational characteristics consider maximum ambient conditions. Derate factors may apply under atypical site conditions. Please contact a Generac Power Systems Industrial Dealer for additional details. All performance ratings in accordance with ISO3046, BS5514, ISO8528, and DIN6271 standards.
 Standby - See Bulletin 0187500SSB
 Prime - See Bulletin 0187510SSB

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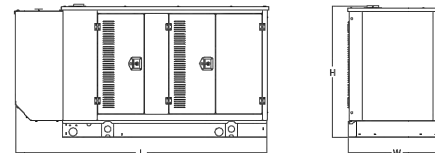


DIMENSIONS AND WEIGHTS*



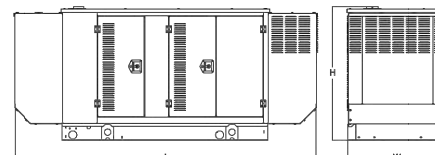
OPEN SET (Includes Exhaust Flex)

Run Time - Hours	Usable Capacity - Gal (L)	L x W x H - in (mm)	Weight - lbs (kg)	
			Steel	Aluminum
No Tank	-	76.0 (1,930) x 37.4 (950) x 44.8 (1,138)	1,544 (701)	
32	54 (204)	76.0 (1,930) x 37.4 (950) x 57.8 (1,468)	1,181 (919)	
78	132 (501)	76.0 (1,930) x 37.4 (950) x 69.8 (1,773)	2,254 (1,023)	
113	190 (719)	106.0 (2,692) x 37.4 (950) x 73.8 (1,874)	2,468 (1,121)	
125	211 (799)	76.0 (1,930) x 37.4 (950) x 81.8 (2,078)	2,463 (1,118)	
178	300 (1,136)	92.9 (2,360) x 37.4 (950) x 85.3 (2,167)	2,526 (1,146)	



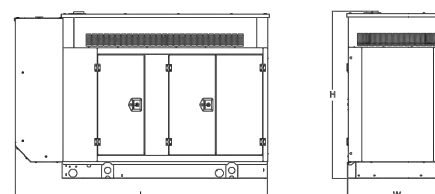
WEATHER PROTECTED ENCLOSURE

Run Time - Hours	Usable Capacity - Gal (L)	L x W x H - in (mm)	Weight - lbs (kg) Enclosure Only	
			Steel	Aluminum
No Tank	-	94.8 (2,409) x 38.0 (965) x 49.5 (1,258)	1,916 (870)	1,785 (811)
32	54 (204)	94.8 (2,409) x 38.0 (965) x 62.5 (1,588)	1,350 (1,088)	1,291 (1,029)
78	132 (501)	94.8 (2,409) x 38.0 (965) x 74.5 (1,893)	2,826 (1,192)	2,495 (1,133)
113	190 (719)	106.0 (2,692) x 38.0 (965) x 78.5 (1,994)	2,840 (1,290)	2,709 (1,231)
125	211 (799)	94.8 (2,409) x 38.0 (965) x 86.5 (2,198)	2,835 (1,287)	2,704 (1,228)
178	300 (1,136)	94.8 (2,409) x 38.0 (965) x 90.0 (2,287)	2,898 (1,315)	2,767 (1,256)



LEVEL 1 ACOUSTIC ENCLOSURE

Run Time - Hours	Usable Capacity - Gal (L)	L x W x H - in (mm)	Weight - lbs (kg) Enclosure Only	
			Steel	Aluminum
No Tank	-	112.5 (2,857) x 38.0 (965) x 49.5 (1,258)	2,049 (931)	1,882 (855)
32	54 (204)	112.5 (2,857) x 38.0 (965) x 62.5 (1,588)	1,411 (1,149)	1,335 (1,073)
78	132 (501)	112.5 (2,857) x 38.0 (965) x 74.5 (1,893)	2,759 (1,253)	2,592 (1,177)
113	190 (719)	112.5 (2,857) x 38.0 (965) x 78.5 (1,994)	2,973 (1,351)	2,806 (1,275)
125	211 (799)	112.5 (2,857) x 38.0 (965) x 86.5 (2,198)	2,968 (1,348)	2,801 (1,272)
178	300 (1,136)	112.5 (2,857) x 38.0 (965) x 90.0 (2,287)	3,031 (1,376)	2,864 (1,300)



LEVEL 2 ACOUSTIC ENCLOSURE

Run Time - Hours	Usable Capacity - Gal (L)	L x W x H - in (mm)	Weight - lbs (kg) Enclosure Only	
			Steel	Aluminum
No Tank	-	94.8 (2,409) x 38.0 (965) x 61.1 (1,551)	2,054 (933)	1,885 (856)
32	54 (204)	94.8 (2,409) x 38.0 (965) x 74.1 (1,881)	1,413 (1,151)	1,336 (1,074)
78	132 (501)	94.8 (2,409) x 38.0 (965) x 86.1 (2,186)	2,764 (1,255)	2,595 (1,178)
113	190 (719)	106.0 (2,692) x 38.0 (965) x 90.1 (2,287)	2,978 (1,353)	2,809 (1,276)
125	211 (799)	94.8 (2,409) x 38.0 (965) x 98.1 (2,491)	2,973 (1,350)	2,804 (1,273)
178	300 (1,136)	94.8 (2,409) x 38.0 (965) x 101.6 (2,580)	3,036 (1,378)	2,867 (1,301)

* All measurements are approximate and for estimation purposes only. Specification characteristics may change without notice. Please contact a Generac Power Systems Industrial Dealer for detailed installation drawings.

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Part No. 10000024870
 Rev. A 04/02/19

SPEC SHEET

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SPEC SHEET

6 of 6

PREPARED FOR:



A&E FIRM:



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 ROSWELL, GA 30076
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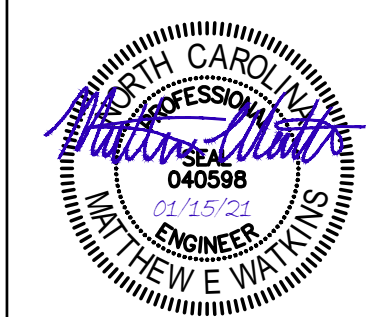
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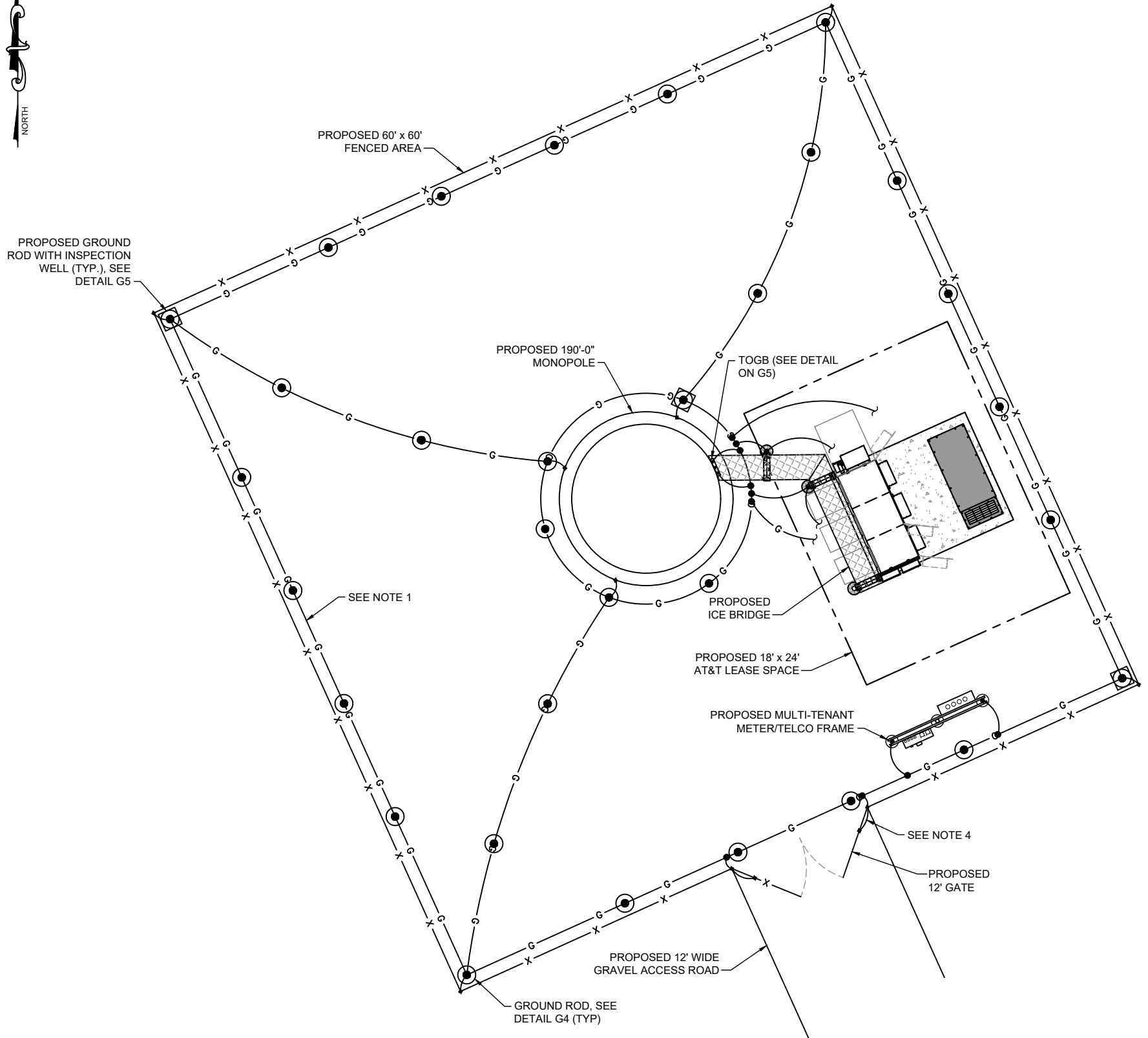
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E7	1



1
G1

GROUNDING PLAN

SCALE: 1" = 10'-0"

GROUNDING NOTES AND SPECIFICATIONS:

1. THE GROUND RING SHALL CONSIST OF 2 AWG TINNED SOLID BARE COPPER CONDUCTOR, UNLESS NOTED OTHERWISE, BURIED AT 24" BELOW FINISHED GRADE (OR 6" BELOW FROSTLINE). ALL CONNECTIONS SHALL BE MADE USING AN EXOTHERMIC WELD, UNLESS NOTED OTHERWISE.
2. GROUND CONDUCTOR BEND RADIUS SHALL NOT BE LESS THAN 12"
3. GROUND RODS SHOULD BE SPACED 2X HEIGHT APART AROUND COMPOUND GROUND RING. (EX. 10' ROD SHOULD BE SPACED 20' APART). MINIMUM SPACING BETWEEN GROUND RODS IS 10' UNLESS NOTED OTHERWISE.
4. GATES SHALL BE BONDED TO GATE POSTS USING FLEXIBLE JUMPER STRAP (BELDEN 8662 FLAT BRAID TINNED COPPER OR EQUAL) WITH EXOTHERMIC WELDS.
5. ALL GROUNDING/BONDING CONDUCTORS LOCATED ABOVE FINISHED GRADE SHALL BE RUN IN 1/2" FLEX CONDUIT.
6. CONTRACTOR SHALL NOTIFY THE OWNER/TENANT TILLMAN INFRASTRUCTURE CONSTRUCTION MANAGER TO INSPECT THE GROUNDING SYSTEM PRIOR TO BACKFILLING.

LEGEND:

- GROUND ROD EXOTHERMICALLY WELDED TO GROUND RING
- GROUND RING
- GROUND ROD INSPECTION WELL
- EXOTHERMIC WELD TYPE CONNECTION
- PARALLEL CADWELD
- MECHANICAL CONNECTION

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G1

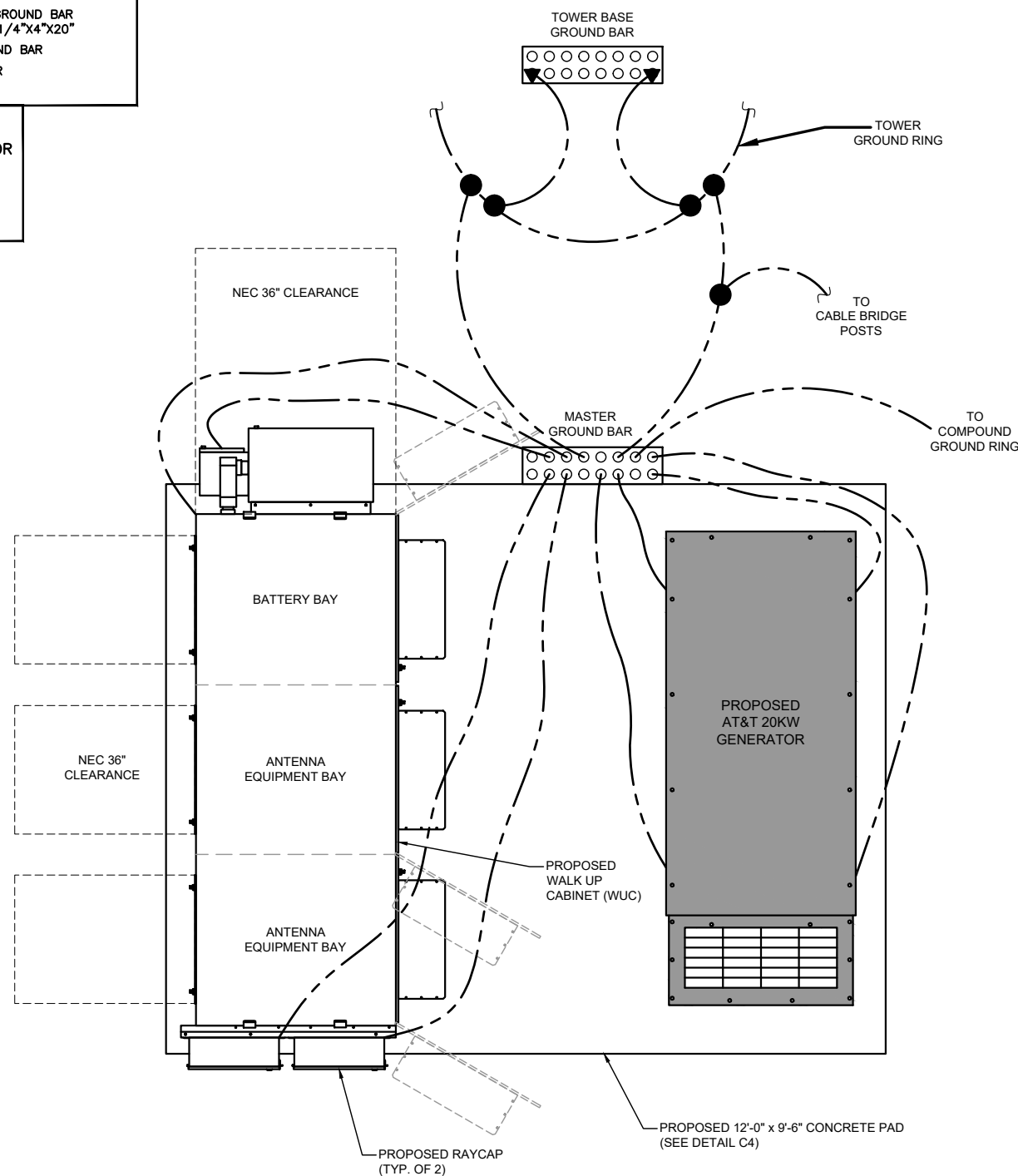
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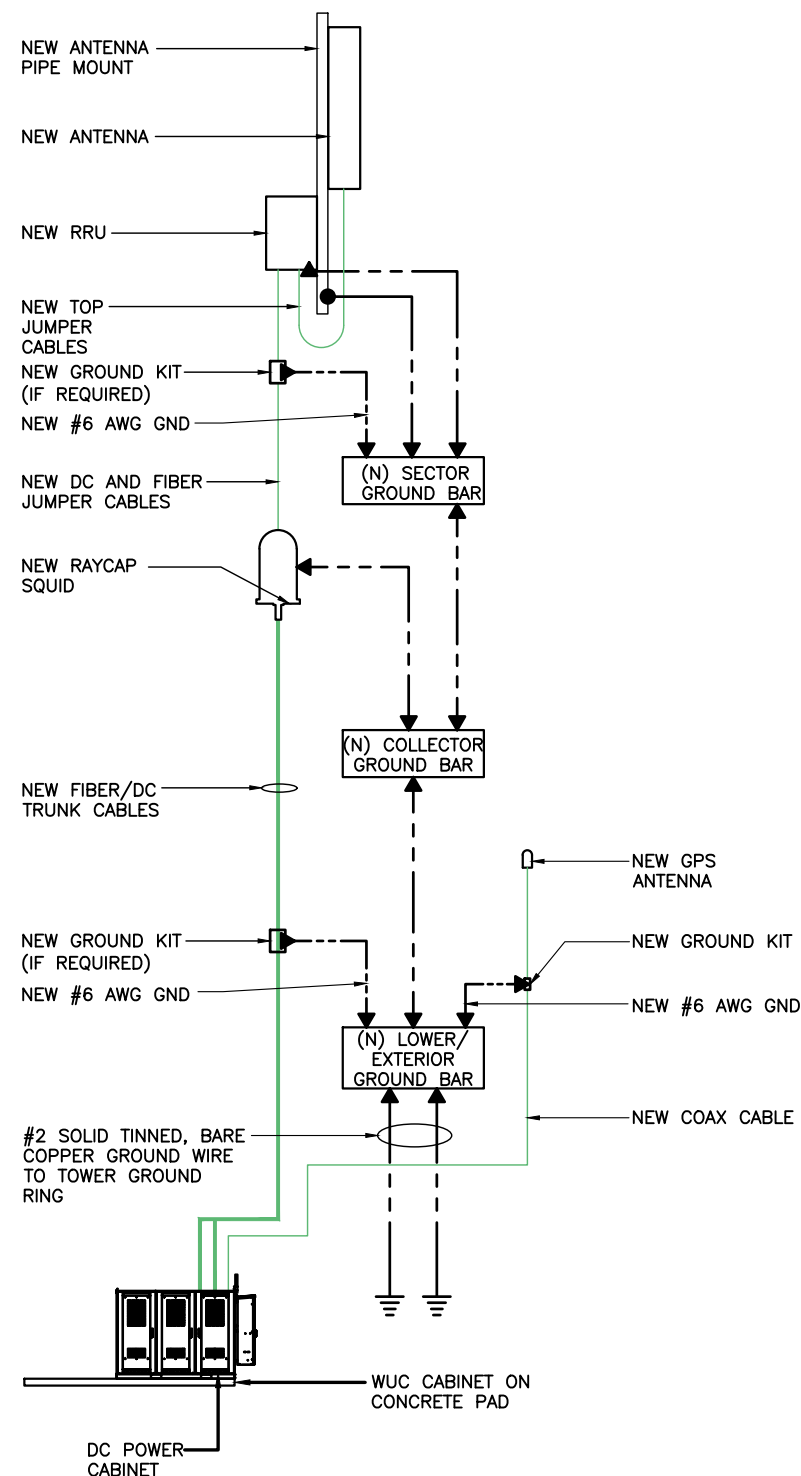
GROUNDING LEGEND

- EXOTHERMIC WELD CONNECTION
- ▲ COMPRESSION FITTING CONNECTION
- 5/8"X10' COPPER-CLAD STEEL GROUND ROD
- ⊙ 5/8"X10' COPPER-CLAD STEEL GROUND ROD WITH INSPECTION WELL
- - - PROPOSED GROUND WIRING
- EXISTING GROUND WIRING
- ▬ TINNED COPPER GROUND BAR 1/4"X4"X12" OR 1/4"X4"X20"
- CGB COLLECTOR GROUND BAR
- MGB MAIN GROUND BAR

NOTES:
 1. SEE COMPOUND PLAN FOR EQUIPMENT ORIENTATION
 2. HELICAL PIERS DO NOT REQUIRE GROUND RINGS



1 **EQUIPMENT GROUNDING PLAN**
 G2 NOT TO SCALE



NOTE:
 1. (1) ANTENNA/RRU/ RAYCAP SHOWN FOR CLARITY. GROUNDING IS TYPICAL FOR EACH ADDITIONAL
 2. ADDITIONAL CABLE GROUND KIT REQUIRED AT MIDPOINT FOR CABLE LENGTHS GREATER THAN 200 FT.

LEGEND:
 ● EXOTHERMIC CONNECTION
 ▲ MECHANICAL CONNECTION
 ○ GROUND KIT
 #2 GREEN STRANDED INSULATED COPPER GND WIRE (SUNLIGHT RESISTANT) U.N.O.

2 **TYPICAL RISER DIAGRAM**
 G2 NOT TO SCALE

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 DUNN, NC 28334

DRAWN BY:	SJH
CHECKED BY:	KIA
APPROVED BY:	MEW

REVISIONS		
REV.	DATE	DESCRIPTION
0	11/16/20	ISSUED FOR CONSTRUCTION
1	01/15/21	REVISED E911 ADDRESS

SHEET TITLE:
EQUIPMENT GROUNDING PLAN AND RISER DIAGRAM

SHEET #: **G2** REVISION: **1**

PREPARED FOR:



A&E FIRM:



1875 OLD ALABAMA ROAD, SUITE 1008
ROSWELL, GA 30076
TEL: 678-990-2338 FAX: 678-990-2342

THE INFORMATION CONTAINED IN THIS SET OF DOCUMENTS IS PROPRIETARY BY NATURE. ANY USE OR DISCLOSURE OTHER THAN THAT WHICH RELATES TO THE CLIENT IS STRICTLY PROHIBITED.

PROJECT INFORMATION:

RED HILL CHURCH
14637878
TI-OPP-16496
368-704
161 RED HILL CHURCH ROAD
DUNN, NC 28334

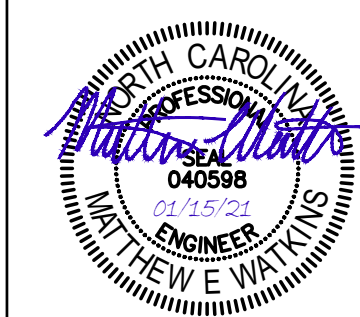
DRAWN BY: SJH

CHECKED BY: KIA

APPROVED BY: MEW

REVISIONS

REV.	DATE	DESCRIPTION
0	11/16/20	ISSUED FOR CONSTRUCTION
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SHEET TITLE:

FENCE GROUNDING DETAILS

SHEET #:

G3

REVISION:

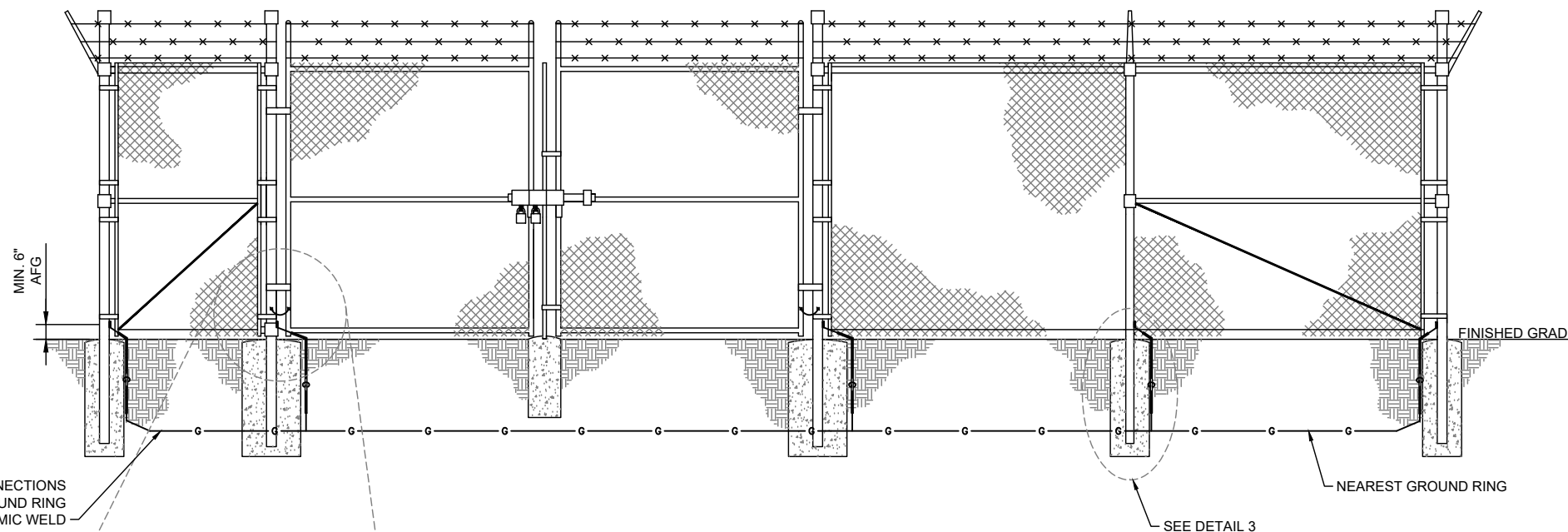
1

GUY ANCHOR CONNECTION NOTES:

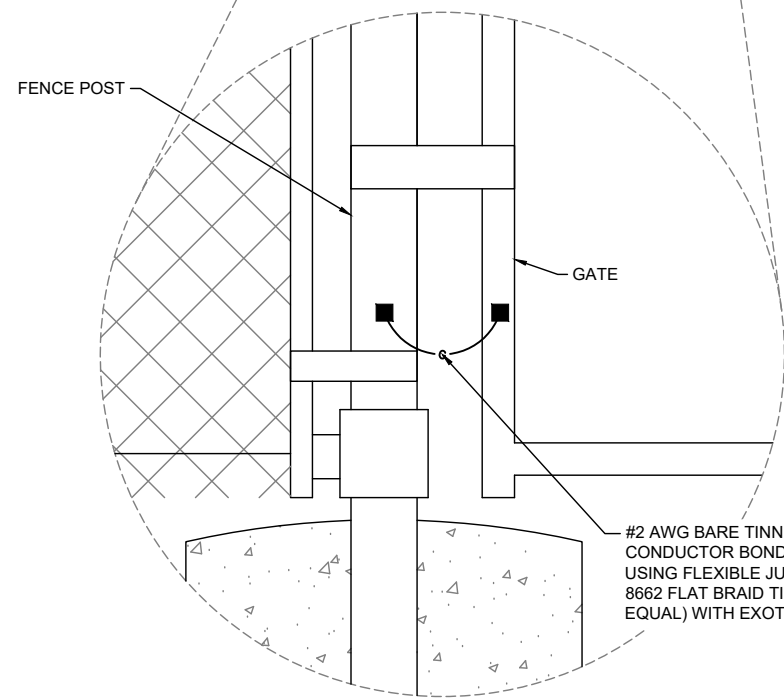
1. THE USE OF WIRE ROPE CLIPS AS DEAD END SLEEVES IS PROHIBITED.
2. THE PREFERRED SAFETY LOOP IS A FIGURE 8 CONFIGURATION. IN SOME CASES A SINGLE LOOP MAY BE REQUIRED AND IS PERMITTED WITH CROWN CASTLE APPROVAL.
3. THE TURNBUCKLE SAFETY LOOP SHALL BE ROUTED THROUGH THE THIMBLES AS SHOWN. THE SAFETY WIRE ROPE MAY BE ROUTED THROUGH A TURNBUCKLE EYE/JAW IF IT IS THE PATH OF LEAST RESISTANCE AS LONG AS THE CONDITION DECREASES THE RISK OF DAMAGING THE PRE-FORM OR OTHER GUY ASSEMBLY HARDWARE.
4. THE TAG END OF GUY WIRES SHALL NOT TOUCH THE GROUND.
5. DEAD END SLEEVES SHALL BE INSTALLED SO FULLY EVEN WITH THE SHORT TAIL SIDE OF THE PRE-FORM.
6. ALL EXISTING SCREW TYPE SHACKLES AT THE FAN PLATE SHALL HAVE MOUSING INSTALLED AS PART OF THE MODIFICATION.

FAN PLATE DIMENSION NOTES:

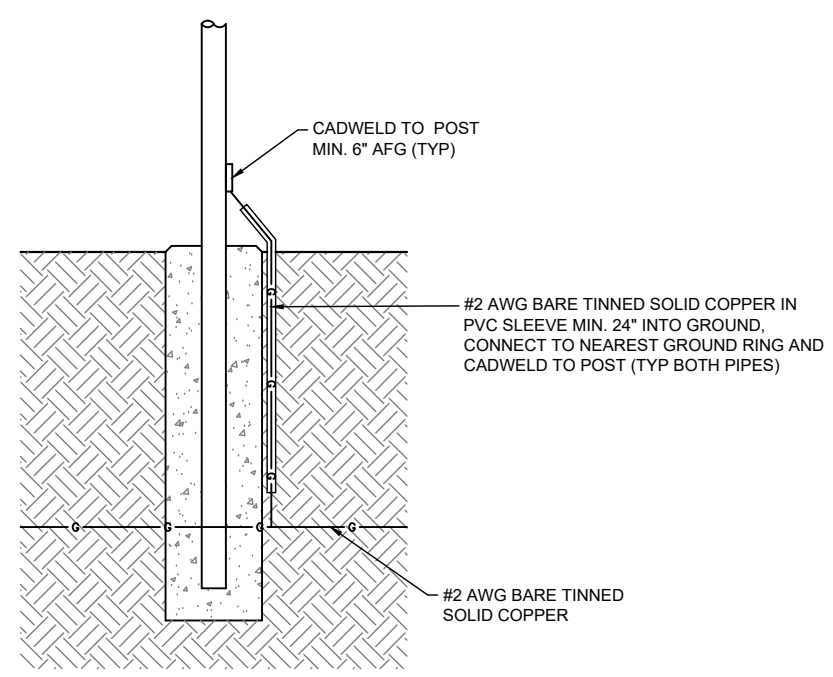
1. CONTRACTOR TO OBTAIN DURING PRE-SITE CONSTRUCTION WALK AND SUBMIT TO THE EOR THE FOLLOWING DIMENSIONS: A, B, C, D, E AND F. PRIOR TO INSTALLATION OF THE NEW HARDWARE.
2. NOTE: THERE ARE (5) HOLES IN EXISTING FAN INNER PLATE, NUMBER HOLE 1 THROUGH 5 STARTING AT BOTTOM AND (5) HOLES IN EXISTING FAN OUTER PLATE, NUMBER HOLES 1 THROUGH 5 STARTING AT BOTTOM END.



1 FENCE GROUNDING DETAIL
G3 NOT TO SCALE



2 GATE GROUNDING DETAIL
G3 NOT TO SCALE



3 POST GROUNDING DETAIL
G3 NOT TO SCALE

GROUNDING NOTES:

- GROUNDING SHALL COMPLY WITH ARTICLE 250 OF THE NATIONAL ELECTRICAL CODE.
- ALL GROUNDING DEVICES SHALL BE U.L. APPROVED OR LISTED FOR THEIR INTENDED USE.
- ALL WIRES SHALL BE AWG THHN/THWN COPPER UNLESS NOTED OTHERWISE.
- GROUNDING CONNECTIONS TO GROUND RODS, GROUND RING WIRE, TOWER BASE AND FENCE POSTS SHALL BE EXOTHERMIC ("CADWELDS") UNLESS NOTED OTHERWISE. CLEAN SURFACES TO SHINY METAL. WHERE GROUND WIRES ARE CADWELDED TO GALVANIZED SURFACES, SPRAY CADWELD WITH GALVANIZING PAINT.
- GROUNDING CONNECTIONS TO GROUND BARS ARE TO BE TWO-HOLE BRASS MECHANICAL CONNECTORS WITH STAINLESS STEEL HARDWARE (INCLUDING SCREW SET) CLEAN GROUND BAR TO SHINY METAL. AFTER MECHANICAL CONNECTION, TREAT WITH PROTECTIVE ANTIOXIDANT COATING.
- GROUND COAXIAL CABLE SHIELDS AT BOTH ENDS WITH MANUFACTURER'S GROUNDING KITS.
- ROUTE GROUNDING CONDUCTORS THE SHORTEST AND STRAIGHTEST PATH POSSIBLE. BEND GROUNDING LEADS WITH A MINIMUM 12" RADIUS.
- INSTALL #2 AWG GREEN-INSULATED STRANDED WIRE FOR ABOVE GRADE GROUNDING AND #2 BARE TINNED COPPER WIRE FOR BELOW GRADE GROUNDING UNLESS OTHERWISE NOTED.
- REFER TO GROUNDING PLAN FOR GROUND BAR LOCATIONS. GROUNDING CONNECTIONS SHALL BE EXOTHERMIC TYPE ("CADWELDS") TO ANTENNA MOUNTS AND GROUND RING. REMAINING GROUNDING CONNECTIONS SHALL BE COMPRESSION FITTINGS. CONNECTIONS TO GROUND BARS SHALL BE MADE WITH TWO-HOLE LUGS.
- THE GROUND ELECTRODE SYSTEM SHALL CONSIST OF DRIVEN GROUND RODS POSITION ACCORDING TO GROUNDING PLAN. THE GROUND RODS SHALL BE 5/8"x10'-0" COPPER CLAD STEEL INTERCONNECTED WITH #2 BARE TINNED COPPER WIRE BURIED 36" BELOW GRADE. BURY GROUND RODS A MAXIMUM OF 15' APART, AND A MINIMUM OF 8' APART.
- IF ROCK IS ENCOUNTERED GROUND RODS SHALL BE PLACED AT AN OBLIQUE ANGLE NOT TO EXCEED 45°.
- EXOTHERMIC WELDS SHALL BE MADE IN ACCORDANCE WITH ERICO PRODUCTS BULLETIN A-AT.
- CONSTRUCTION OF GROUND RING AND CONNECTIONS TO EXISTING GROUND RING SYSTEM SHALL BE DOCUMENTED WITH PHOTOGRAPHS PRIOR TO BACKFILLING SITE. PROVIDE PHOTOS TO THE CARRIER CONSTRUCTION MANAGER.
- ALL GROUND LEADS EXCEPT THOSE TO THE EQUIPMENT ARE TO BE #2 BARE TINNED COPPER WIRE. ALL EXTERIOR GROUND BARS TINNED COPPER.
- PRIOR TO INSTALLING LUGS ON GROUND WIRES, APPLY THOMAS & BETTS KOPR-SHIELD (TM OF JET LUBE INC.). PRIOR TO BOLTING GROUND WIRE LUGS TO GROUND BARS, APPLY KOPR-SHIELD OR EQUAL.
- ENGAGE AN INDEPENDENT ELECTRICAL TESTING FIRM TO TEST AND VERIFY THAT IMPEDANCE DOES NOT EXCEED FIVE OHMS TO GROUND BY MEANS OF "FALL OF POTENTIAL TEST". TEST SHALL BE WITNESSED BY A CARRIER REPRESENTATIVE, AND RECORDED ON THE "GROUND RESISTANCE TEST" FORM.
- WHERE BARE COPPER GROUND WIRES ARE ROUTED FROM ANY CONNECTION ABOVE GRADE TO GROUND RING, INSTALL WIRE IN 3/4" PVC SLEEVE, FROM 1' BELOW GRADE AND SEAL TOP WITH SILICONE MATERIAL.
- PREPARE ALL BONDING SURFACES FOR GROUNDING CONNECTIONS BY REMOVING ALL PAINT AND CORROSION DOWN TO SHINY METAL. FOLLOWING CONNECTION, APPLY APPROPRIATE ANTI-OXIDIZATION PAINT.
- ANY SITE WHERE THE EQUIPMENT (BTS, CABLE BRIDGE, PPC, GENERATOR, ETC.) IS LOCATED WITHIN 6 FEET OF METAL FENCING, THE GROUND RING SHALL BE BONDED TO THE NEAREST FENCE POST USING (3) RUNS OF #2 BARE TINNED COPPER WIRE.

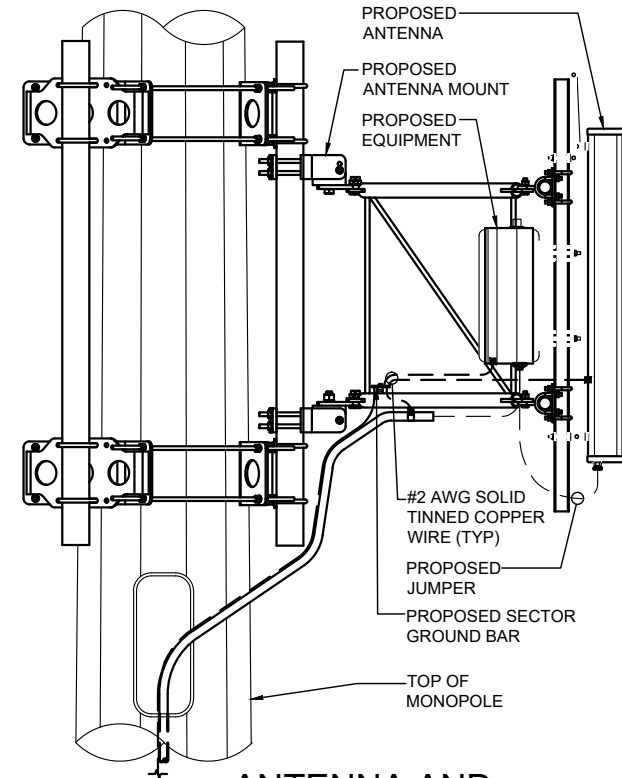
CABLE COLOR CODING NOTES:

- SECTOR ORIENTATION/AZIMUTH WILL VARY FROM REGION AND IS SITE SPECIFIC. REFER TO RF REPORT FOR EACH SITE TO DETERMINE THE ANTENNA LOCATION AND FUNCTION OF EACH TOWER SECTOR FACE. THE ANTENNA SYSTEM CABLES SHALL BE LABELED WITH VINYL TAPE EXCEPT IN LOCATIONS WHERE ENVIRONMENTAL CONDITIONS CAUSE PHYSICAL DAMAGE, THEN PHYSICAL TAGS ARE PREFERRED.
- THE STANDARD IS BASED ON EIGHT COLORED TAPES - RED, BLUE, GREEN, YELLOW, ORANGE, BROWN, WHITE & VIOLET. THESE TAPES MUST BE 3/4" WIDE & UV RESISTANT SUCH AS SCOTCH 35 VINYL ELECTRICAL COLOR CODING TAPE AND SHOULD BE READILY AVAILABLE TO THE ELECTRICIAN OR SUBCONTRACTOR ON SITE.
- USING COLOR BANDS ON THE CABLES, MARK ALL RF CABLES BY SECTOR AND NUMBER AS SHOWN ON "CABLE MARKING COLOR CONVENTION TABLE".
- WHEN AN EXISTING COAXIAL LINE THAT IS INTENDED TO BE A SHARED LINE BETWEEN GSM/3G AND IS-136 TDMA IS ENCOUNTERED, THE SUBCONTRACTOR SHALL REMOVE THE EXISTING COLOR CODING SCHEME AND REPLACE IT WITH THE COLOR CODING AND TAGGING STANDARD THAT IS OUTLINED IN THE CURRENT VERSION OF ND-00027. IN THE ABSENCE OF AN EXISTING COLOR CODING TAGGING SCHEME, OR WHEN INSTALLING PROPOSED COAXIAL CABLES, THIS GUIDELINE SHALL BE IMPLEMENTED AT THAT SITE REGARDLESS OF TECHNOLOGY.
- ALL COLOR CODE TAPE SHALL BE 3M-35 AND SHALL BE A MINIMUM OR (3) WRAPS OF TAPE AND SHALL BE NEATLY TRIMMED AND SMOOTHED OUT SO AS TO AVOID UNRAVELING.
- ALL COLOR BANDS INSTALLED AT THE TOP OF TOWER SHALL BE A MINIMUM OF 3" WIDE AND SHALL HAVE A MINIMUM OF 3/4" OF SPACE IN BETWEEN EACH COLOR.
- ALL COLOR CODES SHALL BE INSTALLED AS TO ALIGN NEATLY WITH ONE ANOTHER FROM SIDE TO SIDE.
- IF EXISTING CABLES AT THE SITE ALREADY HAVE A COLOR CODING SCHEME AND THEY ARE NOT INTENDED TO BE REUSE OR SHARED WITH THE GSM TECHNOLOGY, THE EXISTING COLOR CODING SCHEME SHALL REMAIN UNTOUCHED.

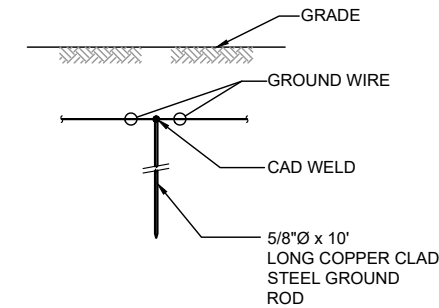
CABLE MARKING TAGS:

WHEN USING THE ALTERNATIVE LABELING METHOD, EACH RF CABLE SHALL BE IDENTIFIED WITH A METAL ID TAG MADE OF STAINLESS STEEL OR BRASS. THE TAG SHALL BE 1-1/2" IN DIAMETER WITH 1/4" STAMPED LETTERS AND NUMBERS INDICATING THE SECTOR, ANTENNA POSITION AND CABLE NUMBER. ID MARKING LOCATIONS SHOULD BE AS PER "CABLE MARKING LOCATIONS TABLE". THE TAG SHOULD BE ATTACHED WITH CORROSION PROOF WIRE AROUND THE CABLE AT THE SAME LOCATION AS DEFINED ABOVE. THE TAG SHOULD BE LABELED AS SHOWN ON THE "GSM AND UMTS LINE TAG" DETAIL.

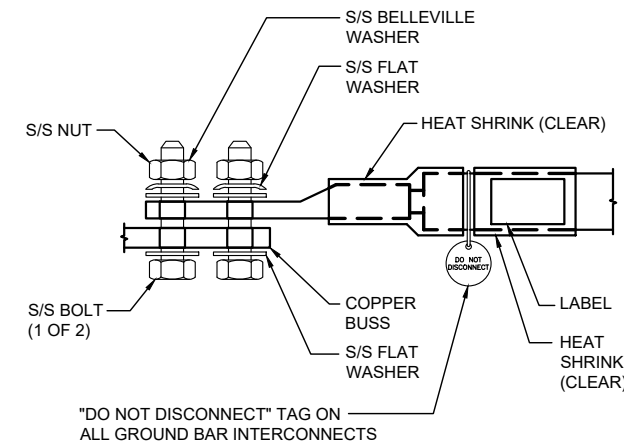
CABLE MARKING LOCATIONS TABLE	
NO.	LOCATIONS
1	EACH JUMPER SHALL BE COLOR CODED WITH (1) SET OF 3" WIDE BANDS.
2	EACH MAIN COAX SHALL BE COLOR CODED WITH (1) SET OF 3" WIDE BANDS AT THE TOP JUMPER CONNECTION AND WITH (1) SET OF 3/4" WIDE COLOR BANDS PRIOR TO ENTERING THE BTS OR SHELTER.
3	CABLE ENTRY PORT ON THE INTERIOR OF SHELTER.
4	ALL BOTTOM JUMPERS SHALL BE COLOR CODED WITH (1) SET OF 3/4" WIDE BANDS ON EACH END OF THE BOTTOM JUMPER.
5	ALL BOTTOM JUMPERS SHALL BE COLOR CODED WITH (1) SET OF 3/4" WIDE BANDS ON EACH END OF THE BOTTOM JUMPER.



2
G4
SCALE: N.T.S.



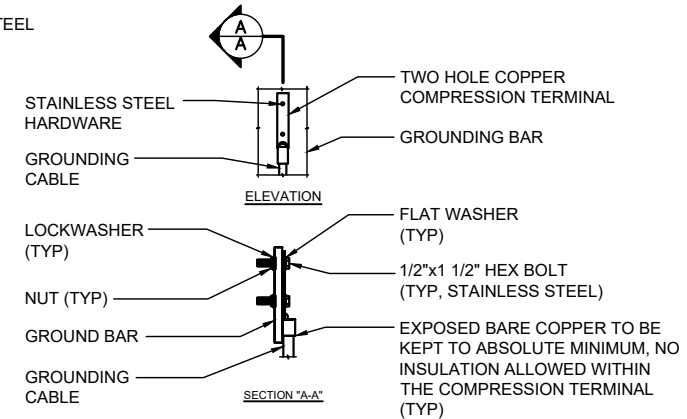
4
G4
SCALE: N.T.S.



NOTES:

- ALL HARDWARE 18-8 STAINLESS STEEL INCLUDING BELLEVILLES. COAT ALL SURFACES WITH ANTI-OXIDATION COMPOUND BEFORE MATING.
- FOR GROUND BOND TO STEEL ONLY: INSERT A DRAGON TOOTH WASHER BETWEEN LUG AND STEEL, COAT ALL SURFACES WITH ANTI-OXIDATION COMPOUND.
- COAT ALL BARRELS WITH ANTI-OXIDATION COMPOUND BEFORE CRIMPING.

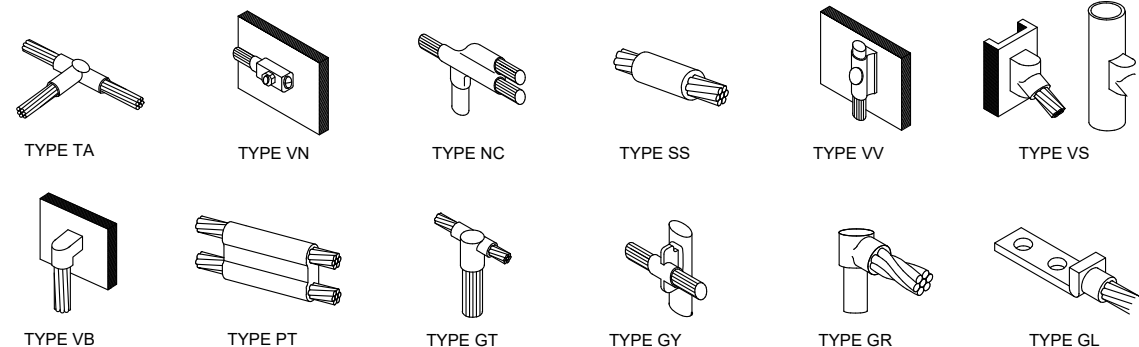
5
G4
SCALE: N.T.S.



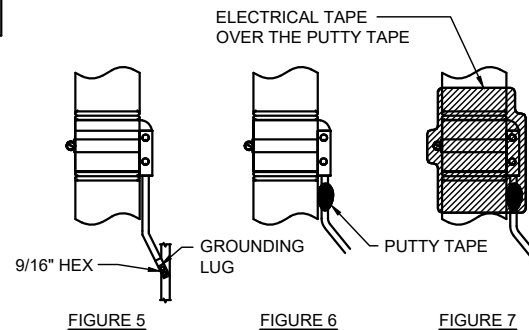
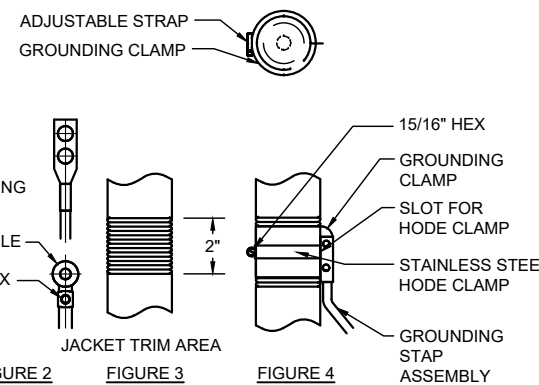
NOTE:

- "DOUBLING UP" OR "STACKING" OF CONNECTIONS IS NOT PERMITTED.
- OXIDE INHIBITING COMPOUND TO BE USED AT ALL LOCATIONS.

6
G4
SCALE: N.T.S.



1
G4
SCALE: N.T.S.



3
G4
SCALE: N.T.S.

GROUNDING STRAP WEATHERPROOFING DETAILS
SCALE: N.T.S.

PREPARED FOR:



A&E FIRM:



1875 OLD ALABAMA ROAD, SUITE 1008
ROSWELL, GA 30076
TEL: 678-990-2338 FAX: 678-990-2342

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PROJECT INFORMATION:

RED HILL CHURCH
14637878
TI-OPP-16496
368-704
161 RED HILL CHURCH ROAD
DUNN, NC 28334

DRAWN BY: SJH
CHECKED BY: KIA
APPROVED BY: MEW

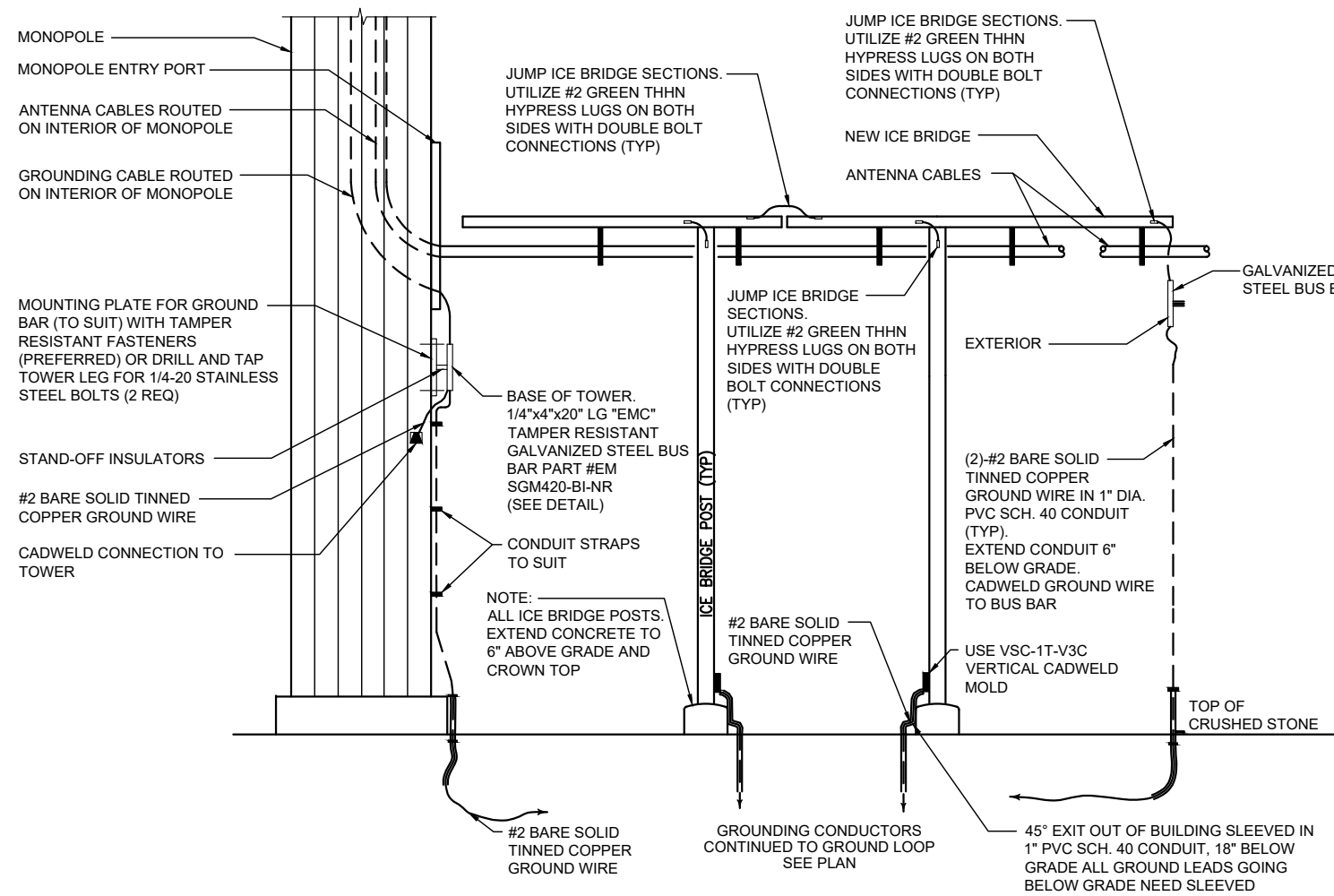
REVISIONS

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0	11/16/20	ISSUED FOR CONSTRUCTION
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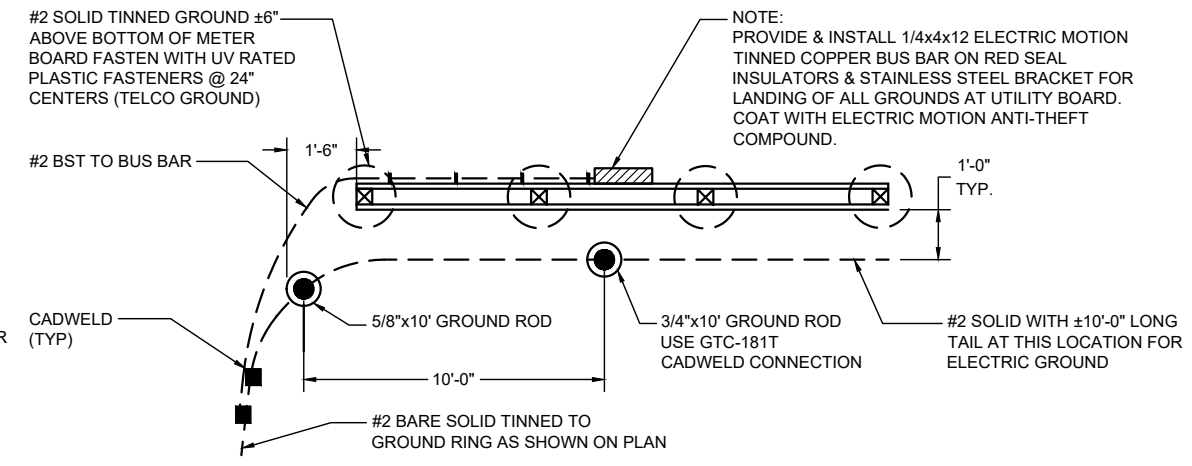


SHEET TITLE:
GROUNDING DETAILS AND NOTES

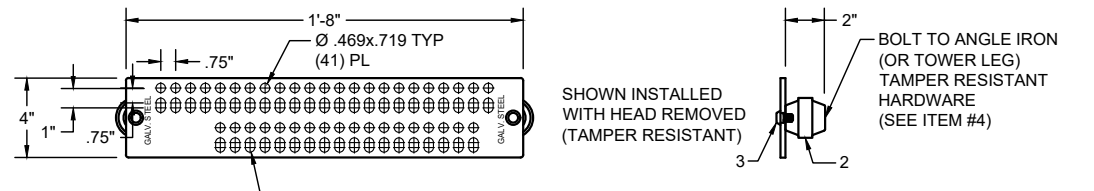
SHEET #: **G4** REVISION: **1**



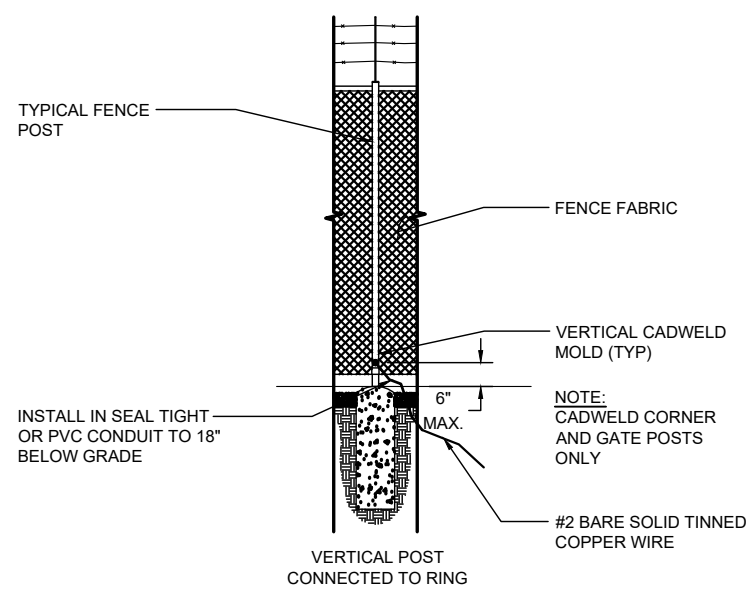
1
G5
GROUNDING AT ICE BRIDGE
SCALE: N.T.S.



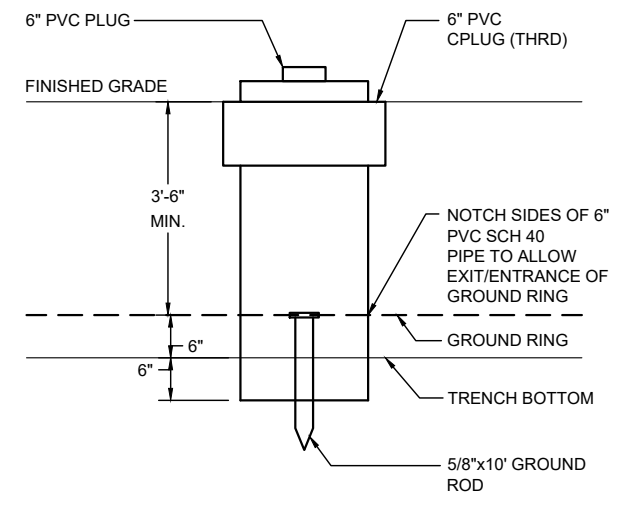
2
G5
METER BOARD UTILITY GROUNDING DETAIL
SCALE: N.T.S.



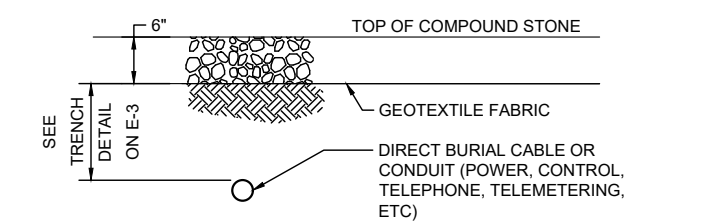
3
G5
TOWER BUS BAR DETAIL
SCALE: N.T.S.



4
G5
TYPICAL FENCE POST GROUNDING
SCALE: N.T.S.



5
G5
INSPECTION WELL DETAIL
SCALE: N.T.S.



INSTALLATION

1. THE TAPE SHALL BE MAGNETIC DETECTABLE MARKER LAID DIRECTLY ABOVE THE CABLE OR CONDUIT UNDER RIGID TYPE AND OIL MAT PAVEMENTS, AND DIRECTLY ON TOP OF THE COMPACTED EARTH SUBGRADE IMMEDIATELY BEFORE RESTORING THE PAVEMENT.
2. IN OPEN AREAS, THE TAPE SHALL BE LAID DURING THE BACKFILLING OPERATION ON SMOOTH, COMPACTED BACKFILL AT A DISTANCE OF 8" BELOW THE SURFACE OF THE AREA.
3. THE ENDS OF THE TAPE SHALL BE LAPPED APPROXIMATELY SIX (6) INCHES.
4. TAPE SHALL BE THE COLOR AS INDICATED AND HAVE THE FOLLOWING MARKINGS:

RED	CAUTION	CAUTION	CAUTION
	BURIED ELECTRIC LINE BELOW		
ORANGE	CAUTION	CAUTION	CAUTION
	BURIED TELEPHONE LINE BELOW		

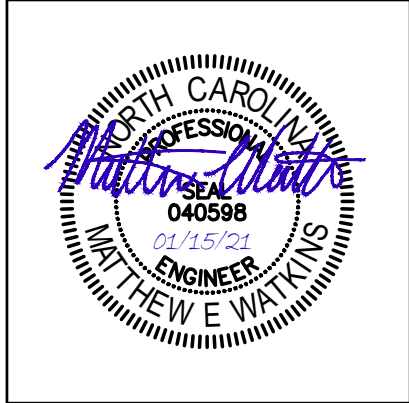
6
G5
STANDARD MARKER TAPE DETAIL
SCALE: N.T.S.

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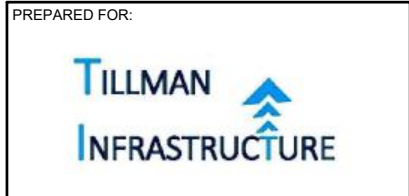
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1	01/15/21	REVISED E911 ADDRESS



SHEET TITLE:
GROUNDING DETAILS

SHEET #: **G5** REVISION: **1**



A&E FIRM:
 towersource
 1875 OLD ALABAMA ROAD, SUITE 1008
 ROSWELL, GA 30076
 TEL: 678-990-2338 FAX: 678-990-2342

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FOR INFORMATION PURPOSES ONLY

SHEET TITLE:
RFDS (BY OTHERS)

SHEET #: **RF-1** REVISION: **1**

Section 1 - RFDS GENERAL INFORMATION

RFDS NAME:	368-704	DATE:	02/05/2019	RF DESIGN ENG:	SHOHEL CHOWDHURY	RF PERF ENG:		RFDS PROGRAM TYPE:	2019 New Site	
ISSUE:	700_C (5 MHz), 700_UPPER D (10 MHz), WCS_A+B (10 MHz), AWS1_3 A+C+J (25 MHz), PCS_B4+B5+E+F (20MHz)	Approved? (Y/N):	Yes	RF DESIGN PHONE:		RF PERF PHONE:		RFDS TECHNOLOGY:	LTE 5C	
REVISION:		RF MANAGER:	JONES, JERRY O	RF DESIGN EMAIL:	sc3730@att.com	RF PERF EMAIL:		STATE/STATUS:	Final/Approved	
INITIATIVE /PROJECT:	BBU Configuration: xxxxx / 2x8630 / xxxxx + IDLE, Two High Temp Rated SFP3 for B14 4478 Radio , Two SFP7 for 4449 Radio, Two SFP7 for 4426 B66 Radio, Two SFP7 for 4415 B25 Radio				RFDS VERSION:	5.00	RFDS ID:	2997286		
					GSM FREQUENCY:		Created By:	au84f	Updated By:	sc3730
					UMTS FREQUENCY:		Date Created:	4/1/2019 4:20:06 PM	Date Updated:	6/27/2019 10:13:40 AM
					LTE FREQUENCY:					
					5G FREQUENCY:					
					I-PLAN JOB # 1:	SER-RCAR-14-02319	IPLAN PRD GRP SUB GRP #1:	New Site LTE Only 1C		
					I-PLAN JOB # 2:	SER-RVWN-19-00582	IPLAN PRD GRP SUB GRP #2:	LTE Next Carrier LTE 2C		
					I-PLAN JOB # 3:	SER-RVWN-19-00585	IPLAN PRD GRP SUB GRP #3:	LTE Next Carrier LTE 5C		
					I-PLAN JOB # 4:	SER-RVWN-19-00584	IPLAN PRD GRP SUB GRP #4:	LTE Next Carrier LTE 4C		
					I-PLAN JOB # 5:	SER-RVWN-19-00583	IPLAN PRD GRP SUB GRP #5:	LTE Next Carrier LTE 3C		
					I-PLAN JOB # 6:		IPLAN PRD GRP SUB GRP #6:			
					I-PLAN JOB # 7:		IPLAN PRD GRP SUB GRP #7:			
					I-PLAN JOB # 8:		IPLAN PRD GRP SUB GRP #8:			

Section 2 - LOCATION INFORMATION

USID:	256958	FA LOCATION CODE:	14637878	LOCATION NAME:	WARREN REALY	ORACLE PTN # 1:	2301A0JNCJ	PACE JOB # 1:	MRCAR035466
REGION:	SOUTHEAST	MARKET CLUSTER:	NORTH CAROLINA/SOUTH CAROLINA	MARKET:	RALEIGH	ORACLE PTN # 2:	2301A0NBQA	PACE JOB # 2:	MRCAR040997
ADDRESS:	127 RED HILL CHURCH ROAD	CITY:	DUNN	STATE:	NC	ORACLE PTN # 3:	2301A0NBPH	PACE JOB # 3:	MRCAR041010
ZIP CODE:	28334	COUNTY:	HARNETT	LONG (DEC. DEG.):	-78.8596194	ORACLE PTN # 4:	2301A0NBQR	PACE JOB # 4:	MRCAR041001
LATITUDE (D-M-S):	35d 19m53.58s	LONGITUDE (D-M-S):	-78d -39m-34.62964s	LAT (DEC. DEG.):	35.3315600	ORACLE PTN # 5:	2301A0NBQJ	PACE JOB # 5:	MRCAR041005
DIRECTIONS, ACCESS AND EQUIPMENT LOCATION:	DEPART FROM 2000 CROSS BEAM ROAD. TURN LEFT ONTO BEAM ROAD. TURN LEFT ONTO YORKMONT ROAD. TURN RIGHT ONTO WEST BLVD. TURN LEFT ONTO BILLY GRAHAM PKWY. TURN RIGHT TO MERGE ONTO I-85 N TOWARD CONCORD. MERGE ONTO I-85 AND GO 86.3 MILES. KEEP LEFT AT FORK TO STAY ON I-85 N, FOLLOW SIGNS FOR ROUTE 85 NUS-421 S/I-40 E/DURHAM/SANFORD/I-73 NUS-421N/I-40 W/WINSTON SALEM. TAKE EXIT 126A-126B TO MERGE ONTO US 421 S TOWARD SANFORD. TAKE EXIT 143A TO STAY ON US-421 S TOWARD LILLINGTON. MERGE ONTO US 421 S. TURN LEFT ONTO S MAIN STREET. TURN RIGHT ONTO US 421 S. TURN LEFT ONTO RED HILL CHURCH ROAD. DESTINATION WILL BE ON THE LEFT.					ORACLE PTN # 6:		PACE JOB # 6:	
						ORACLE PTN # 7:		PACE JOB # 7:	
						ORACLE PTN # 8:		PACE JOB # 8:	
						BORDER CELL WITH CONTOUR COORD:		SEARCH RING NAME:	368-704
						AM STUDY REQ'D (Y/N):	No	SEARCH RING ID:	368-704
						FREQ COORD:		BTA:	
						OPS DISTRICT:	RALEIGH	LAC(GSM):	
						OPS ZONE:	SE_NC_RALEIGH_S_CS	LAC(UMTS):	
						RF DISTRICT:	Raleigh	BSC(GSM):	
						RF ZONE:	1	RNC(UMTS):	
						PARENT NAME(GSM):		MME POOL ID(LTE):	FF10
						PARENT NAME(UMTS):			

Section 3 - LICENSE COVERAGE/FILING INFORMATION

CGSA - NO FILING TRIGGERED (Yes/No):	No	CGSA LOSS:		PCS REDUCED - UPS ZIP:	
CGSA - MINOR FILING NEEDED (Yes/No):	No	CGSA EXT AGMT NEEDED:		PCS POPS REDUCED:	
CGSA - MAJOR FILING NEEDED (Yes/No):	Yes	CGSA SCORECARD UPDATED:		CGSA CALL SIGNS:	

Section 4 - TOWER/REGULATORY INFORMATION

STRUCTURE AT&T OWNED?:	No	GROUND ELEVATION (ft):		STRUCTURE TYPE:	MONOPOLE	MARKET LOCATION 700 MHz Band:	
ADDITIONAL REGULATORY?:	Yes	HEIGHT OVERALL (ft):		FCC ASR NUMBER:	TBD	MARKET LOCATION 850 MHz Band:	
SUB-LEASE RIGHTS?:	Yes	STRUCTURE HEIGHT (ft):	199.00			MARKET LOCATION 1900 MHz Band:	
LIGHTING TYPE:	NOT REQUIRED					MARKET LOCATION AWS Band:	
						MARKET LOCATION WCS Band:	
						MARKET LOCATION Future Band:	

(FOR INFORMATION PURPOSES ONLY)

PREPARED FOR:



A&E FIRM:



1875 OLD ALABAMA ROAD, SUITE 1008
ROSWELL, GA 30076
TEL: 678-990-2338 FAX: 678-990-2342

THE INFORMATION CONTAINED IN THIS SET OF DOCUMENTS IS PROPRIETARY BY NATURE. ANY USE OR DISCLOSURE OTHER THAN THAT WHICH RELATES TO THE CLIENT IS STRICTLY PROHIBITED.

PROJECT INFORMATION:

RED HILL CHURCH
14637878
TI-OPP-16496
368-704
161 RED HILL CHURCH ROAD
DUNN, NC 28334

DRAWN BY:	SJH
CHECKED BY:	KIA
APPROVED BY:	MEW

REVISIONS		
REV.	DATE	DESCRIPTION
0	11/16/20	ISSUED FOR CONSTRUCTION
1	01/15/21	REVISED E911 ADDRESS

FOR INFORMATION PURPOSES ONLY

SHEET TITLE:
RFDS (BY OTHERS)

SHEET #: **RF-2** REVISION: **1**

Section 5 - E-911 INFORMATION - existing

	PSAP NAME:	PSAP ID:	E911 PHASE:	MPC SVC PROVIDER:	LMU REQUIRED:	ESRN:	DATE LIVE PH1:	DATE LIVE PH2:		
SECTOR A	E-911									
SECTOR B										
SECTOR C										
SECTOR D										
SECTOR E										
SECTOR F										
OMNI										

Section 5 - E-911 INFORMATION - final

	PSAP NAME:	PSAP ID:	E911 PHASE:	MPC SVC PROVIDER:	LMU REQUIRED:	ESRN:	DATE LIVE PH1:	DATE LIVE PH2:		
SECTOR A	E-911									
SECTOR B										
SECTOR C										
SECTOR D										
SECTOR E										
SECTOR F										
OMNI										

Section 6 - RBS GENERAL INFORMATION - existing

	LTE 1ST RBS	LTE 2ND RBS								
RBS ID:										
CTS COMMON ID:										
CELL ID / BCF:										
BTA/TID:										
4-9 DIGIT SITE ID:										
COW OR TOY?:										
CELL SITE TYPE:										
SITE TYPE:										
BTS LOCATION ID:										
BASE STATION TYPE:										
EQUIPMENT NAME:										
DISASTER PRIORITY:										

Section 6 - RBS GENERAL INFORMATION - final

	LTE 1ST RBS	LTE 2ND RBS								
RBS ID:	690775	690776								
CTS COMMON ID:	ECL09040R	ECL02040								
CELL ID / BCF:	ECL09040R	ECL02040								
BTA/TID:	368L	368L								
4-9 DIGIT SITE ID:	0904	0704								
COW OR TOY?:	No	No								
CELL SITE TYPE:	SECTORIZED	SECTORIZED								
SITE TYPE:	MACRO-CONVENTIONAL	MACRO-CONVENTIONAL								
BTS LOCATION ID:	GROUND	GROUND								
BASE STATION TYPE:	BASE	BASE								
EQUIPMENT NAME:	368-704 NSB	368-704 NSB								
DISASTER PRIORITY:	1	1								

(FOR INFORMATION PURPOSES ONLY)

PREPARED FOR:



A&E FIRM:



1875 OLD ALABAMA ROAD, SUITE 1008
 ROSWELL, GA 30076
 TEL: 678-990-2338 FAX: 678-990-2342

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PROJECT INFORMATION:

RED HILL CHURCH
14637878
TI-OPP-16496
368-704
 161 RED HILL CHURCH ROAD
 DUNN, NC 28334

DRAWN BY:	SJH
CHECKED BY:	KIA
APPROVED BY:	MEW

REVISIONS

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0	11/16/20	ISSUED FOR CONSTRUCTION
1	01/15/21	REVISED E911 ADDRESS

FOR INFORMATION PURPOSES ONLY

SHEET TITLE:
 RFDS (BY OTHERS)

SHEET #: **RF-3** REVISION: **1**

Section 7 - RBS SPECIFIC INFORMATION - existing

	LTE 1ST RBS	LTE 2ND RBS																		
RAC:																				
EQUIPMENT VENDOR:																				
EQUIPMENT TYPE:																				
BASEBAND CONFIGURATION:																				
LOCATION:																				
CABINET LOCATION:																				
MARKET STATE CODE:																				
AGPS:																				
NODE B NUMBER:																				

Section 7 - RBS SPECIFIC INFORMATION - final

	LTE 1ST RBS	LTE 2ND RBS																		
RAC:																				
EQUIPMENT VENDOR:	ERICSSON	ERICSSON																		
EQUIPMENT TYPE:	6601 INDOOR MU	6601 INDOOR MU																		
BASEBAND CONFIGURATION:		xxxxx / 2x6630 / xxxxx + IDLe																		
LOCATION:																				
CABINET LOCATION:																				
MARKET STATE CODE:	EC	EC																		
AGPS:	Yes	Yes																		
NODE B NUMBER:	9040	2040																		

Section 8 - RBS/SECTOR ASSOCIATION - existing

	LTE 1ST RBS	LTE 2ND RBS																		
CTS Common ID																				
Soft Sector IDs																				

Section 8 - RBS/SECTOR ASSOCIATION - final

	LTE 1ST RBS	LTE 2ND RBS																		
CTS Common ID	ECL09040R	ECL02040																		
Soft Sector IDs	ECL09040_7A_1	ECL02040_2A_1																		
	ECL09040_7A_2_F	ECL02040_2A_2																		
	ECL09040_7B_1	ECL02040_2A_3																		
	ECL09040_7B_2_F	ECL02040_2B_1																		
	ECL09040_7C_1	ECL02040_2B_2																		
	ECL09040_7C_2_F	ECL02040_2B_3																		
		ECL02040_2C_1																		
		ECL02040_2C_2																		
		ECL02040_2C_3																		
		ECL02040_3A_1																		
		ECL02040_3B_1																		
		ECL02040_3C_1																		
		ECL02040_9A_1																		
		ECL02040_9B_1																		
		ECL02040_9C_1																		

(FOR INFORMATION PURPOSES ONLY)

PREPARED FOR:



A&E FIRM:



1875 OLD ALABAMA ROAD, SUITE 1008
 ROSWELL, GA 30076
 TEL: 678-990-2338 FAX: 678-990-2342

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PROJECT INFORMATION:

RED HILL CHURCH
14637878
TI-OPP-16496
368-704
 161 RED HILL CHURCH ROAD
 DUNN, NC 28334

DRAWN BY:	SJH
CHECKED BY:	KIA
APPROVED BY:	MEW

REVISIONS

REV.	DATE	DESCRIPTION
0	11/16/20	ISSUED FOR CONSTRUCTION
1	01/15/21	REVISED E911 ADDRESS

FOR INFORMATION PURPOSES ONLY

SHEET TITLE:
 RFDS (BY OTHERS)

SHEET #: RF-4	REVISION: 1
-------------------------	-----------------------

Section 9 - SOFT SECTOR ID - existing

	LTE 1ST 700	LTE 1ST 1900	LTE 1ST AWS	LTE 1ST WCS	LTE 2ND 700	LTE 2ND AWS	LTE 3RD AWS													
USEID (excluding Hard Sector)																				
SECTOR A SOFT SECTOR ID																				
SECTOR B																				
SECTOR C																				
SECTOR D																				
SECTOR E																				
SECTOR F																				
OMNI																				

Section 9 - SOFT SECTOR ID - final

	LTE 1ST 700	LTE 1ST 1900	LTE 1ST AWS	LTE 1ST WCS	LTE 2ND 700	LTE 2ND AWS	LTE 3RD AWS													
USEID (excluding Hard Sector)																				
SECTOR A SOFT SECTOR ID	ECL09040_7A_1	ECL02040_9A_1	ECL02040_2A_1	ECL02040_3A_1	ECL09040_7A_2_F	ECL02040_2A_2	ECL02040_2A_3													
SECTOR B	ECL09040_7B_1	ECL02040_9B_1	ECL02040_2B_1	ECL02040_3B_1	ECL09040_7B_2_F	ECL02040_2B_2	ECL02040_2B_3													
SECTOR C	ECL09040_7C_1	ECL02040_9C_1	ECL02040_2C_1	ECL02040_3C_1	ECL09040_7C_2_F	ECL02040_2C_2	ECL02040_2C_3													
SECTOR D																				
SECTOR E																				
SECTOR F																				
OMNI																				

Section 9 - Cell Number - existing

	LTE 1ST 700	LTE 1ST 1900	LTE 1ST AWS	LTE 1ST WCS	LTE 2ND 700	LTE 2ND AWS	LTE 3RD AWS													
USEID (excluding Hard Sector)																				
SECTOR A CELL NUMBER																				
SECTOR B																				
SECTOR C																				
SECTOR D																				
SECTOR E																				
SECTOR F																				
OMNI																				

Section 9 - Cell Number - final

	LTE 1ST 700	LTE 1ST 1900	LTE 1ST AWS	LTE 1ST WCS	LTE 2ND 700	LTE 2ND AWS	LTE 3RD AWS													
USEID (excluding Hard Sector)																				
SECTOR A CELL NUMBER	15	8	22	149	172	179	193													
SECTOR B	16	9	23	150	173	180	194													
SECTOR C	17	10	24	151	174	181	195													
SECTOR D																				
SECTOR E																				
SECTOR F																				
OMNI																				

(FOR INFORMATION PURPOSES ONLY)

Section 16A - PLANNED/PROPOSED TOWER CONFIGURATION - SECTOR A (OR OMNI)

ANTENNA POSITION is LEFT to RIGHT from BACK OF ANTENNA (unless otherwise specified)	ANTENNA POSITION 1	ANTENNA POSITION 2	ANTENNA POSITION 3	ANTENNA POSITION 4	ANTENNA POSITION 5	ANTENNA POSITION 6	ANTENNA POSITION 7
Existing Antenna?							
ANTENNA MAKE - MODEL		NNH4-65C-R6-V3		NNH4-65C-R6-V3			
ANTENNA VENDOR		Andrew(Commscope)		Andrew(Commscope)			
ANTENNA SIZE (H x W x D)							
ANTENNA WEIGHT							
AZIMUTH		30		30			
MAGNETIC DECLINATION							
RADIATION CENTER (feet)		185		185			
ANTENNA TIP HEIGHT							
MECHANICAL DOWNTILT		0		0			
FEEDER AMOUNT							
VERTICAL SEPARATION from ANTENNA ABOVE (TIP to TIP)							
VERTICAL SEPARATION from ANTENNA BELOW (TIP to TIP)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to LEFT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to RIGHT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from ANOTHER ANTENNA (which antenna # / # of inches)				36			
Antenna RET Motor (QTY/MODEL)							
SURGE ARRESTOR (QTY/MODEL)							
DIPLEXER (QTY/MODEL)							
DUPLEXER (QTY/MODEL)							
Antenna RET CONTROL UNIT (QTY/MODEL)							
DC BLOCK (QTY/MODEL)							
TMA/LNA (QTY/MODEL)							
CURRENT INJECTORS FOR TMA (QTY/MODEL)							
PDU FOR TMA (QTY/MODEL)							
FILTER (QTY/MODEL)							
SQUID (QTY/MODEL)							
FIBER TRUNK (QTY/MODEL)							
DC TRUNK (QTY/MODEL)							
REPEATER (QTY/MODEL)							
RRH - 700 band (QTY/MODEL)		1	4449 B5/B12	1	4478 B14		
RRH - 850 band (QTY/MODEL)							
RRH - 1900 band (QTY/MODEL)		1	4415 B25				
RRH - AWS band (QTY/MODEL)		1	4426 B66				
RRH - WCS band (QTY/MODEL)				1	4415 B30		
Additional RRH #1 - any band (QTY/MODEL)							
Additional RRH #2 - any band (QTY/MODEL)							
Additional Component 1 (QTY/MODEL)							
Additional Component 2 (QTY/MODEL)							
Additional Component 3 (QTY/MODEL)							
Local Market Note 1							
Local Market Note 2							
Local Market Note 3							

PORT SPECIFIC FIELDS	PORT NUMBER	USEID (CSSng)	USEID (Atoll)	ATOLL TXID	ATOLL CELL ID	TX/RX ?	TECHNOLOGY/FREQUENCY	ANTENNA ATOLL	ANTENNA GAIN	ELECTRICAL AZIMUTH	ELECTRICAL TILT	RRH LOCATION (Top/Bottom/Integrated/None)	FEEDERS TYPE	FEEDER LENGTH (feet)	RX/IT KIT MODULE?	TRIPLEXER or LLC (QTY)	TRIPLEXER or LLC (MODEL)	SCPA/MCPA MODULE?	HATCHPLATE POWER (Watts)	ERP (Watts)	Antenna RET Name	CABLE NUMBER	CABLE ID (CSSNG)	
ANTENNA POSITION 2	PORT 1			ECL09040_7A_1			LTE 700	NNH4-65C-R6-V3_725MHz_02DT	15.79		2	TOP	FIBER											
	PORT 5			ECL02040_9A_1			LTE 1900	NNH4-65C-R6-V3_1950MHz_02DT	15.79		2	TOP	FIBER											
	PORT 9			ECL02040_2A_1, ECL02040_2A_2, ECL02040_2A_3			LTE AWS	NNH4-65C-R6-V3_2130MHz_02DT	15.79		2	TOP	FIBER											
ANTENNA POSITION 4	PORT 1			ECL09040_7A_2_F			LTE 700	NNH4-65C-R6-V3_766MHz_02DT	15.79		2	TOP	FIBER											
	PORT 5			ECL02040_3A_1			LTE WCS	NNH4-65C-R6-V3_2350MHz_02DT	15.79		2	TOP	FIBER											

(FOR INFORMATION PURPOSES ONLY)

PREPARED FOR:



A&E FIRM:



1875 OLD ALABAMA ROAD, SUITE 1008
ROSWELL, GA 30076
TEL: 678-990-2338 FAX: 678-990-2342

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PROJECT INFORMATION:

RED HILL CHURCH
14637878
TI-OPP-16496
368-704
161 RED HILL CHURCH ROAD
DUNN, NC 28334

DRAWN BY:	SJH
CHECKED BY:	KIA
APPROVED BY:	MEW

REVISIONS

REV.	DATE	DESCRIPTION
0	11/16/20	ISSUED FOR CONSTRUCTION
1	01/15/21	REVISED E911 ADDRESS

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SHEET TITLE:
RFDS (BY OTHERS)

SHEET #: **RF-6** REVISION: **1**

PREPARED FOR:



A&E FIRM:



1875 OLD ALABAMA ROAD, SUITE 1008
ROSWELL, GA 30076
TEL: 678-990-2338 FAX: 678-990-2342

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PROJECT INFORMATION:

RED HILL CHURCH
14637878
TI-OPP-16496
368-704
161 RED HILL CHURCH ROAD
DUNN, NC 28334

DRAWN BY:	SJH
CHECKED BY:	KIA
APPROVED BY:	MEW

REVISIONS

REV.	DATE	DESCRIPTION
0	11/16/20	ISSUED FOR CONSTRUCTION
1	01/15/21	REVISED E911 ADDRESS

FOR INFORMATION PURPOSES ONLY

SHEET TITLE:
RFDS (BY OTHERS)

SHEET #: RF-7	REVISION: 1
-------------------------	-----------------------

Section 16B - PLANNED/PROPOSED TOWER CONFIGURATION - SECTOR B

ANTENNA POSITION is LEFT to RIGHT from BACK OF ANTENNA (unless otherwise specified)	ANTENNA POSITION 1	ANTENNA POSITION 2	ANTENNA POSITION 3	ANTENNA POSITION 4	ANTENNA POSITION 5	ANTENNA POSITION 6	ANTENNA POSITION 7
Existing Antenna?							
ANTENNA MAKE - MODEL		NNH4-65C-R6-V3		NNH4-65C-R6-V3			
ANTENNA VENDOR		Andrew(Commscope)		Andrew(Commscope)			
ANTENNA SIZE (H x W x D)							
ANTENNA WEIGHT							
AZIMUTH		150		150			
MAGNETIC DECLINATION							
RADIATION CENTER (feet)		185		185			
ANTENNA TIP HEIGHT							
MECHANICAL DOWNTILT		0		0			
FEEDER AMOUNT							
VERTICAL SEPARATION from ANTENNA ABOVE (TIP to TIP)							
VERTICAL SEPARATION from ANTENNA BELOW (TIP to TIP)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to LEFT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to RIGHT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from ANOTHER ANTENNA (which antenna # / # of inches)				36			
Antenna RET Motor (QTY/MODEL)							
SURGE ARRESTOR (QTY/MODEL)							
DIPLEXER (QTY/MODEL)							
DUPLEXER (QTY/MODEL)							
Antenna RET CONTROL UNIT (QTY/MODEL)							
DC BLOCK (QTY/MODEL)							
TMA/LNA (QTY/MODEL)							
CURRENT INJECTORS FOR TMA (QTY/MODEL)							
PDU FOR TMA (QTY/MODEL)							
FILTER (QTY/MODEL)							
SQUID (QTY/MODEL)							
FIBER TRUNK (QTY/MODEL)							
DC TRUNK (QTY/MODEL)							
REPEATER (QTY/MODEL)							
RRH - 700 band (QTY/MODEL)		1	4449 B5/B12		1	4478 B14	
RRH - 850 band (QTY/MODEL)							
RRH - 1900 band (QTY/MODEL)		1	4415 B25				
RRH - AWS band (QTY/MODEL)		1	4426 B66				
RRH - WCS band (QTY/MODEL)					1	4415 B30	
Additional RRH #1 - any band (QTY/MODEL)							
Additional RRH #2 - any band (QTY/MODEL)							
Additional Component 1 (QTY/MODEL)							
Additional Component 2 (QTY/MODEL)							
Additional Component 3 (QTY/MODEL)							
Local Market Note 1							
Local Market Note 2							
Local Market Note 3							

PORT SPECIFIC FIELDS	PORT NUMBER	USEID (CSSng)	USEID (Atoll)	ATOLL TXID	ATOLL CELL ID	TX/RX ?	TECHNOLOGY/FREQUENCY	ANTENNA ATOLL	ANTENNA GAIN	ELECTRICAL AZIMUTH	ELECTRICAL TILT	RRH LOCATION (Top/Bottom/Integrated/None)	FEEDERS TYPE	FEEDER LENGTH (feet)	RX/IT KIT MODULE?	TRIPLEXER or LLC (QTY)	TRIPLEXER or LLC (MODEL)	SCPA/MCPA MODULE?	HATCHPLATE POWER (Watts)	ERP (Watts)	Antenna RET Name	CABLE NUMBER	CABLE ID (CSSNG)	
ANTENNA POSITION 2	PORT 1			ECL09040_7B_1			LTE 700	NNH4-65C-R6-V3_725MHz_02DT	15.79		2	TOP	FIBER											
	PORT 5			ECL02040_9B_1			LTE 1900	NNH4-65C-R6-V3_1950MHz_02DT	15.79		2	TOP	FIBER											
	PORT 9			ECL02040_2B_1, ECL02040_2B_2, ECL02040_2B_3			LTE AWS	NNH4-65C-R6-V3_2130MHz_02DT	15.79		2	TOP	FIBER											
ANTENNA POSITION 4	PORT 1			ECL09040_7B_2_F			LTE 700	NNH4-65C-R6-V3_766MHz_02DT	15.79		2	TOP	FIBER											
	PORT 5			ECL02040_3B_1			LTE WCS	NNH4-65C-R6-V3_2350MHz_02DT	15.79		2	TOP	FIBER											

(FOR INFORMATION PURPOSES ONLY)

Section 16C - PLANNED/PROPOSED TOWER CONFIGURATION - SECTOR C

ANTENNA POSITION is LEFT to RIGHT from BACK OF ANTENNA (unless otherwise specified)	ANTENNA POSITION 1	ANTENNA POSITION 2	ANTENNA POSITION 3	ANTENNA POSITION 4	ANTENNA POSITION 5	ANTENNA POSITION 6	ANTENNA POSITION 7
Existing Antenna?							
ANTENNA MAKE - MODEL		NNH4-65C-R6-V3		NNH4-65C-R6-V3			
ANTENNA VENDOR		Andrew(Commscope)		Andrew(Commscope)			
ANTENNA SIZE (H x W x D)							
ANTENNA WEIGHT							
AZIMUTH		270		270			
MAGNETIC DECLINATION							
RADIATION CENTER (feet)		185		185			
ANTENNA TIP HEIGHT							
MECHANICAL DOWNTILT		0		0			
FEEDER AMOUNT							
VERTICAL SEPARATION from ANTENNA ABOVE (TIP to TIP)							
VERTICAL SEPARATION from ANTENNA BELOW (TIP to TIP)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to LEFT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to RIGHT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from ANOTHER ANTENNA (which antenna # / # of inches)				36			
Antenna RET Motor (QTY/MODEL)							
SURGE ARRESTOR (QTY/MODEL)							
DIPLEXER (QTY/MODEL)							
DUPLEXER (QTY/MODEL)							
Antenna RET CONTROL UNIT (QTY/MODEL)							
DC BLOCK (QTY/MODEL)							
TMA/LNA (QTY/MODEL)							
CURRENT INJECTORS FOR TMA (QTY/MODEL)							
PDU FOR TMA (QTY/MODEL)							
FILTER (QTY/MODEL)							
SQUID (QTY/MODEL)							
FIBER TRUNK (QTY/MODEL)							
DC TRUNK (QTY/MODEL)							
REPEATER (QTY/MODEL)							
RRH - 700 band (QTY/MODEL)		1	4449 B5/B12	1	4478 B14		
RRH - 850 band (QTY/MODEL)							
RRH - 1900 band (QTY/MODEL)		1	4415 B25				
RRH - AWS band (QTY/MODEL)		1	4428 B66				
RRH - WCS band (QTY/MODEL)				1	4415 B30		
Additional RRH #1 - any band (QTY/MODEL)							
Additional RRH #2 - any band (QTY/MODEL)							
Additional Component 1 (QTY/MODEL)							
Additional Component 2 (QTY/MODEL)							
Additional Component 3 (QTY/MODEL)							
Local Market Note 1							
Local Market Note 2							
Local Market Note 3							

PORT SPECIFIC FIELDS	PORT NUMBER	USEID (CSSng)	USEID (Atoll)	ATOLL TXID	ATOLL CELL ID	TX/RX ?	TECHNOLOGY/FREQUENCY	ANTENNA ATOLL	ANTENNA GAIN	ELECTRICAL AZIMUTH	ELECTRICAL TILT	RRH LOCATION (Top/Bottom/Integrated/None)	FEEDERS TYPE	FEEDER LENGTH (feet)	RX/IT KIT MODULE?	TRIPLEXER or LLC (QTY)	TRIPLEXER or LLC (MODEL)	SCP/MCPA MODULE?	HATCHPLATE POWER (Watts)	ERP (Watts)	Antenna RET Name	CABLE NUMBER	CABLE ID (CSSNG)	
ANTENNA POSITION 2	PORT 1			ECL09040_7C_1			LTE 700	NNH4-65C-R6-V3_725MHz_02DT	15.79		2	TOP	FIBER											
	PORT 5			ECL02040_9C_1			LTE 1900	NNH4-65C-R6-V3_1950MHz_02DT	15.79		2	TOP	FIBER											
	PORT 9			ECL02040_2C_1, ECL02040_2C_2, ECL02040_2C_3			LTE AWS	NNH4-65C-R6-V3_2130MHz_02DT	15.79		2	TOP	FIBER											
ANTENNA POSITION 4	PORT 1			ECL09040_7C_2_F			LTE 700	NNH4-65C-R6-V3_766MHz_02DT	15.79		2	TOP	FIBER											
	PORT 5			ECL02040_3C_1			LTE WCS	NNH4-65C-R6-V3_2350MHz_02DT	15.79		2	TOP	FIBER											

(FOR INFORMATION PURPOSES ONLY)

PREPARED FOR:



A&E FIRM:



1875 OLD ALABAMA ROAD, SUITE 1008
ROSWELL, GA 30076
TEL: 678-990-2338 FAX: 678-990-2342

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PROJECT INFORMATION:

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14637878
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368-704
161 RED HILL CHURCH ROAD
DUNN, NC 28334

DRAWN BY:	SJH
CHECKED BY:	KIA
APPROVED BY:	MEW

REVISIONS

REV.	DATE	DESCRIPTION
0	11/16/20	ISSUED FOR CONSTRUCTION
1	01/15/21	REVISED E911 ADDRESS

FOR INFORMATION PURPOSES ONLY

SHEET TITLE:
RFDS (BY OTHERS)

SHEET #: **RF-8** REVISION: **1**

PREPARED FOR:



A&E FIRM:



1875 OLD ALABAMA ROAD, SUITE 1008
ROSWELL, GA 30076
TEL: 678-990-2338 FAX: 678-990-2342

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161 RED HILL CHURCH ROAD
DUNN, NC 28334

DRAWN BY:	SJH
CHECKED BY:	KIA
APPROVED BY:	MEW

REVISIONS

REV.	DATE	DESCRIPTION
0	11/16/20	ISSUED FOR CONSTRUCTION
1	01/15/21	REVISED E911 ADDRESS

FOR INFORMATION PURPOSES ONLY

SHEET TITLE:
RFDS (BY OTHERS)

SHEET #: **RF-9** REVISION: **1**

Section 17A - FINAL TOWER CONFIGURATION - SECTOR A (OR OMNI)

ANTENNA POSITION is LEFT to RIGHT from BACK OF ANTENNA (unless otherwise specified)	ANTENNA POSITION 1	ANTENNA POSITION 2	ANTENNA POSITION 3	ANTENNA POSITION 4	ANTENNA POSITION 5	ANTENNA POSITION 6	ANTENNA POSITION 7
ANTENNA MAKE - MODEL		NNH4-65C-R6-V3		NNH4-65C-R6-V3			
ANTENNA VENDOR		Ace		Ace			
ANTENNA SIZE (H x W x D)							
ANTENNA WEIGHT							
AZIMUTH		30		30			
MAGNETIC DECLINATION							
RADIATION CENTER (feet)		185		185			
ANTENNA TIP HEIGHT							
MECHANICAL DOWNTILT		0		0			
FEEDER AMOUNT							
VERTICAL SEPARATION from ANTENNA ABOVE (TIP to TIP)							
VERTICAL SEPARATION from ANTENNA BELOW (TIP to TIP)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to LEFT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to RIGHT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from ANOTHER ANTENNA (which antenna # / # of inches)				36			
Antenna RET Motor (QTY/MODEL)							
SURGE ARRESTOR (QTY/MODEL)							
DIPLEXER (QTY/MODEL)							
DUPLEXER (QTY/MODEL)							
Antenna RET CONTROL UNIT (QTY/MODEL)							
DC BLOCK (QTY/MODEL)							
TMA/LNA (QTY/MODEL)							
CURRENT INJECTORS FOR TMA (QTY/MODEL)							
PDU FOR TMA (QTY/MODEL)							
FILTER (QTY/MODEL)							
SQUID (QTY/MODEL)							
FIBER TRUNK (QTY/MODEL)							
DC TRUNK (QTY/MODEL)							
REPEATER (QTY/MODEL)							
RRH - 700 band (QTY/MODEL)		1	4449 B5/B12	1	4478 B14		
RRH - 850 band (QTY/MODEL)							
RRH - 1900 band (QTY/MODEL)		1	4415 B25				
RRH - AWS band (QTY/MODEL)		1	4426 B66				
RRH - WCS band (QTY/MODEL)				1	4415 B30		
Additional RRH #1 - any band (QTY/MODEL)							
Additional RRH #2 - any band (QTY/MODEL)							
Additional Component 1 (QTY/MODEL)							
Additional Component 2 (QTY/MODEL)							
Additional Component 3 (QTY/MODEL)							
Local Market Note 1							
Local Market Note 2							
Local Market Note 3							

PORT SPECIFIC FIELDS	PORT NUMBER	USEID (CSSng)	USEID (Atoll)	ATOLL TXID	ATOLL CELL ID	TX/RX ?	TECHNOLOGY/FREQUENCY	ANTENNA ATOLL	ANTENNA GAIN	ELECTRICAL AZIMUTH	ELECTRICAL TILT	RRH LOCATION (Top/Bottom/Integrated/None)	FEEDERS TYPE	FEEDER LENGTH (feet)	RXAIT KIT MODULE?	TRIPLEXER or LLC (QTY)	TRIPLEXER or LLC (MODEL)	SCP/MCPA MODULE?	HATCHPLATE POWER (Watts)	ERP (Watts)	Antenna RET Name	CABLE NUMBER	CABLE ID (CSSNG)	
ANTENNA POSITION 2	PORT 1	256958.A.700.4G.1		ECL09040_7A_1			LTE 700	NNH4-65C-R6-V3_725MHz_02DT	15.79		2	TOP	FIBER											
	PORT 5	256958.A.1900.4G.1		ECL02040_9A_1			LTE 1900	NNH4-65C-R6-V3_1950MHz_02DT	15.79		2	TOP	FIBER											
	PORT 9	256958.A.AWS.4G.1,256958.A.AWS.4G.2,256958.A.AWS.4G.3		ECL02040_2A_1, ECL02040_2A_2, ECL02040_2A_3			LTE AWS	NNH4-65C-R6-V3_2130MHz_02DT	15.79		2	TOP	FIBER											
ANTENNA POSITION 4	PORT 1	256958.A.700.4G.2		ECL09040_7A_2_F			LTE 700	NNH4-65C-R6-V3_786MHz_02DT	15.79		2	TOP	FIBER											
	PORT 5	256958.A.WCS.4G.1		ECL02040_3A_1			LTE WCS	NNH4-65C-R6-V3_2350MHz_02DT	15.79		2	TOP	FIBER											

(FOR INFORMATION PURPOSES ONLY)

Section 17B - FINAL TOWER CONFIGURATION - SECTOR B

ANTENNA POSITION is LEFT to RIGHT from BACK OF ANTENNA (unless otherwise specified)	ANTENNA POSITION 1	ANTENNA POSITION 2	ANTENNA POSITION 3	ANTENNA POSITION 4	ANTENNA POSITION 5	ANTENNA POSITION 6	ANTENNA POSITION 7
ANTENNA MAKE - MODEL		NNH4-65C-R6-V3		NNH4-65C-R6-V3			
ANTENNA VENDOR		Acc		Acc			
ANTENNA SIZE (H x W x D)							
ANTENNA WEIGHT							
AZIMUTH		150		150			
MAGNETIC DECLINATION							
RADIATION CENTER (feet)		185		185			
ANTENNA TIP HEIGHT							
MECHANICAL DOWNTILT		0		0			
FEEDER AMOUNT							
VERTICAL SEPARATION from ANTENNA ABOVE (TIP to TIP)							
VERTICAL SEPARATION from ANTENNA BELOW (TIP to TIP)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to LEFT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to RIGHT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from ANOTHER ANTENNA (which antenna # / # of inches)				36			
Antenna RET Motor (QTY/MODEL)							
SURGE ARRESTOR (QTY/MODEL)							
DIPLEXER (QTY/MODEL)							
DUPLER (QTY/MODEL)							
Antenna RET CONTROL UNIT (QTY/MODEL)							
DC BLOCK (QTY/MODEL)							
TMA/LNA (QTY/MODEL)							
CURRENT INJECTORS FOR TMA (QTY/MODEL)							
PDU FOR TMA (QTY/MODEL)							
FILTER (QTY/MODEL)							
SQUID (QTY/MODEL)							
FIBER TRUNK (QTY/MODEL)							
DC TRUNK (QTY/MODEL)							
REPEATER (QTY/MODEL)							
RRH - 700 band (QTY/MODEL)		1	4449 B5/B12	1	4478 B14		
RRH - 850 band (QTY/MODEL)							
RRH - 1900 band (QTY/MODEL)		1	4415 B25				
RRH - AWS band (QTY/MODEL)		1	4426 B68				
RRH - WCS band (QTY/MODEL)				1	4415 B30		
Additional RRH #1 - any band (QTY/MODEL)							
Additional RRH #2 - any band (QTY/MODEL)							
Additional Component 1 (QTY/MODEL)							
Additional Component 2 (QTY/MODEL)							
Additional Component 3 (QTY/MODEL)							
Local Market Note 1							
Local Market Note 2							
Local Market Note 3							

PORT SPECIFIC FIELDS	PORT NUMBER	USEID (CSSng)	USEID (Atoll)	ATOLL TXID	ATOLL CELL ID	TX/RX ?	TECHNOLOGY/FREQUENCY	ANTENNA ATOLL	ANTENNA GAIN	ELECTRICAL AZIMUTH	ELECTRICAL TILT	RRH LOCATION (Top/Bottom/Integrated/None)	FEEDERS TYPE	FEEDER LENGTH (feet)	RX/IT KIT MODULE?	TRIPLEXER or LLC (QTY)	TRIPLEXER or LLC (MODEL)	SCPA/MCPA MODULE?	HATCHPLATE POWER (Watts)	ERP (Watts)	Antenna RET Name	CABLE NUMBER	CABLE ID (CSSNG)	
ANTENNA POSITION 2	PORT 1	256958.B.700.4G.1		ECL09040_7B_1			LTE 700	NNH4-65C-R6-V3_725MHz_02DT	15.79		2	TOP	FIBER											
	PORT 5	256958.B.1900.4G.1		ECL02040_9B_1			LTE 1900	NNH4-65C-R6-V3_1950MHz_02DT	15.79		2	TOP	FIBER											
	PORT 9	256958.B.AWS.4G.1,256958.B.AWS.4G.2,256958.B.AWS.4G.3		ECL02040_2B_1, ECL02040_2B_2, ECL02040_2B_3			LTE AWS	NNH4-65C-R6-V3_2130MHz_02DT	15.79		2	TOP	FIBER											
ANTENNA POSITION 4	PORT 1	256958.B.700.4G.2		ECL09040_7B_2_F			LTE 700	NNH4-65C-R6-V3_768MHz_02DT	15.79		2	TOP	FIBER											
	PORT 5	256958.B.WCS.4G.1		ECL02040_3B_1			LTE WCS	NNH4-65C-R6-V3_2350MHz_02DT	15.79		2	TOP	FIBER											

(FOR INFORMATION PURPOSES ONLY)

PREPARED FOR:



A&E FIRM:



1875 OLD ALABAMA ROAD, SUITE 1008
ROSWELL, GA 30076
TEL: 678-990-2338 FAX: 678-990-2342

THE INFORMATION CONTAINED IN THIS SET OF DOCUMENTS IS PROPRIETARY BY NATURE. ANY USE OR DISCLOSURE OTHER THAN THAT WHICH RELATES TO THE CLIENT IS STRICTLY PROHIBITED.

PROJECT INFORMATION:

RED HILL CHURCH
14637878
TI-OPP-16496
368-704
161 RED HILL CHURCH ROAD
DUNN, NC 28334

DRAWN BY:	SJH
CHECKED BY:	KIA
APPROVED BY:	MEW

REVISIONS

REV.	DATE	DESCRIPTION
0	11/16/20	ISSUED FOR CONSTRUCTION
1	01/15/21	REVISED E911 ADDRESS

FOR INFORMATION PURPOSES ONLY

SHEET TITLE:
RFDS (BY OTHERS)

SHEET #: **RF-10** REVISION: **1**

PREPARED FOR:



A&E FIRM:



1875 OLD ALABAMA ROAD, SUITE 1008
ROSWELL, GA 30076
TEL: 678-990-2338 FAX: 678-990-2342

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PROJECT INFORMATION:

RED HILL CHURCH
14637878
TI-OPP-16496
368-704
161 RED HILL CHURCH ROAD
DUNN, NC 28334

DRAWN BY:	SJH
CHECKED BY:	KIA
APPROVED BY:	MEW

REVISIONS

REV.	DATE	DESCRIPTION
0	11/16/20	ISSUED FOR CONSTRUCTION
1	01/15/21	REVISED E911 ADDRESS

FOR INFORMATION PURPOSES ONLY

SHEET TITLE:
RFDS (BY OTHERS)

SHEET #: **RF-11** REVISION: **1**

Section 17C - FINAL TOWER CONFIGURATION - SECTOR C

ANTENNA POSITION is LEFT to RIGHT from BACK OF ANTENNA (unless otherwise specified)	ANTENNA POSITION 1	ANTENNA POSITION 2	ANTENNA POSITION 3	ANTENNA POSITION 4	ANTENNA POSITION 5	ANTENNA POSITION 6	ANTENNA POSITION 7
ANTENNA MAKE - MODEL		NNH4-65C-R6-V3		NNH4-65C-R6-V3			
ANTENNA VENDOR		Ace		Ace			
ANTENNA SIZE (H x W x D)							
ANTENNA WEIGHT							
AZIMUTH		270		270			
MAGNETIC DECLINATION							
RADIATION CENTER (feet)		185		185			
ANTENNA TIP HEIGHT							
MECHANICAL DOWNTILT		0		0			
FEEDER AMOUNT							
VERTICAL SEPARATION from ANTENNA ABOVE (TIP to TIP)							
VERTICAL SEPARATION from ANTENNA BELOW (TIP to TIP)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to LEFT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to RIGHT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from ANOTHER ANTENNA (which antenna # / # of inches)				36			
Antenna RET Motor (QTY/MODEL)							
SURGE ARRESTOR (QTY/MODEL)							
DIPLEXER (QTY/MODEL)							
DUPLEXER (QTY/MODEL)							
Antenna RET CONTROL UNIT (QTY/MODEL)							
DC BLOCK (QTY/MODEL)							
TMA/LNA (QTY/MODEL)							
CURRENT INJECTORS FOR TMA (QTY/MODEL)							
PDU FOR TMA (QTY/MODEL)							
FILTER (QTY/MODEL)							
SQUID (QTY/MODEL)							
FIBER TRUNK (QTY/MODEL)							
DC TRUNK (QTY/MODEL)							
REPEATER (QTY/MODEL)							
RRH - 700 band (QTY/MODEL)		1	4449 B5/B12	1	4478 B14		
RRH - 850 band (QTY/MODEL)							
RRH - 1900 band (QTY/MODEL)		1	4415 B25				
RRH - AWS band (QTY/MODEL)		1	4426 B68				
RRH - WCS band (QTY/MODEL)				1	4415 B30		
Additional RRH #1 - any band (QTY/MODEL)							
Additional RRH #2 - any band (QTY/MODEL)							
Additional Component 1 (QTY/MODEL)							
Additional Component 2 (QTY/MODEL)							
Additional Component 3 (QTY/MODEL)							
Local Market Note 1							
Local Market Note 2							
Local Market Note 3							

PORT SPECIFIC FIELDS	PORT NUMBER	USEID (CSSng)	USEID (Atoll)	ATOLL TXID	ATOLL CELL ID	TX/RX ?	TECHNOLOGY/FREQUENCY	ANTENNA ATOLL	ANTENNA GAIN	ELECTRICAL AZIMUTH	ELECTRICAL TILT	RRH LOCATION (Top/Bottom/Integrated/None)	FEEDERS TYPE	FEEDER LENGTH (feet)	RX/IT KIT MODULE?	TRIPLEXER or LLC (QTY)	TRIPLEXER or LLC (MODEL)	SCP/MCPA MODULE?	HATCHPLATE POWER (Watts)	ERP (Watts)	Antenna RET Name	CABLE NUMBER	CABLE ID (CSSNG)	
ANTENNA POSITION 2	PORT 1	256958.C.700.4G.1		ECL09040_7C_1			LTE 700	NNH4-65C-R6-V3_725MHz_02DT	15.79		2	TOP	FIBER											
	PORT 5	256958.C.1900.4G.1		ECL02040_9C_1			LTE 1900	NNH4-65C-R6-V3_1950MHz_02DT	15.79		2	TOP	FIBER											
	PORT 9	256958.C.AWS.4G.1,256958.C.AWS.4G.2,256958.C.AWS.4G.3		ECL02040_2C_1, ECL02040_2C_2, ECL02040_2C_3			LTE AWS	NNH4-65C-R6-V3_2130MHz_02DT	15.79		2	TOP	FIBER											
ANTENNA POSITION 4	PORT 1	256958.C.700.4G.2		ECL09040_7C_2_F			LTE 700	NNH4-65C-R6-V3_768MHz_02DT	15.79		2	TOP	FIBER											
	PORT 5	256958.C.WCS.4G.1		ECL02040_3C_1			LTE WCS	NNH4-65C-R6-V3_2350MHz_02DT	15.79		2	TOP	FIBER											

(FOR INFORMATION PURPOSES ONLY)

Diagram - Sector A Diagram File Name - 368-704_ALPHA_BETA_GAMMA_12Port_700-B17-4449_PCS-4415_AWS-4426_12Port_700-B14-4T4R-Top_WCS-4415-B30.vsd

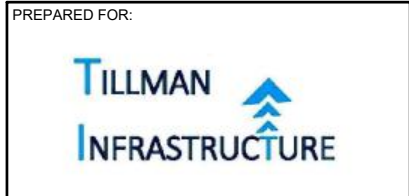
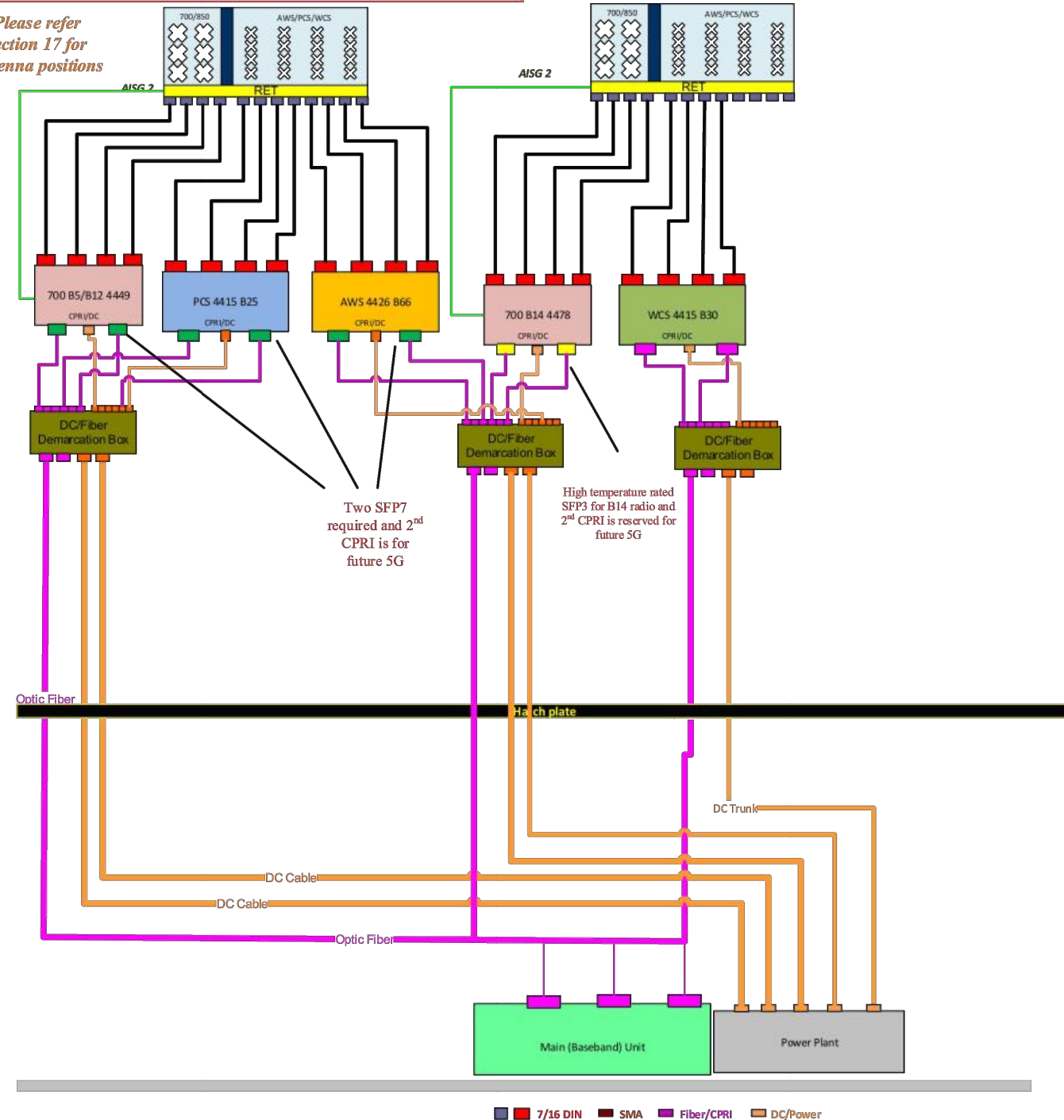
Atoll Site Name - 368-704 Location Name - WARREN REALY Market - RALEIGH Market Cluster - NORTH CAROLINA/SOUTH CAROLINA

Comm

Alpha/Beta/Gamma Sector

Important Note:
For detailed radio to antenna wiring refer to the latest 4TAR Antenna/Radio Port Connections Field Notice (RF-HW-2016-234) and the 4T Wiring Playbook.

Please refer section 17 for Antenna positions



A&E FIRM:
towersource
1875 OLD ALABAMA ROAD, SUITE 1008
ROSWELL, GA 30076
TEL: 678-990-2338 FAX: 678-990-2342

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PROJECT INFORMATION:
RED HILL CHURCH
14637878
TI-OPP-16496
368-704
161 RED HILL CHURCH ROAD
DUNN, NC 28334

DRAWN BY:	SJH
CHECKED BY:	KIA
APPROVED BY:	MEW

REVISIONS		
REV.	DATE	DESCRIPTION
0	11/16/20	ISSUED FOR CONSTRUCTION
1	01/15/21	REVISED E911 ADDRESS

FOR INFORMATION PURPOSES ONLY

SHEET TITLE:
RFDS (BY OTHERS)

SHEET #: **RF-12** REVISION: **1**

(FOR INFORMATION PURPOSES ONLY)

PREPARED FOR:



A&E FIRM:



1875 OLD ALABAMA ROAD, SUITE 1008
ROSWELL, GA 30076
TEL: 678-990-2338 FAX: 678-990-2342

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PROJECT INFORMATION:

RED HILL CHURCH
14637878
TI-OPP-16496
368-704
161 RED HILL CHURCH ROAD
DUNN, NC 28334

DRAWN BY:	SJH
CHECKED BY:	KIA
APPROVED BY:	MEW

REVISIONS		
REV.	DATE	DESCRIPTION
0	11/16/20	ISSUED FOR CONSTRUCTION
1	01/15/21	REVISED E911 ADDRESS

FOR INFORMATION PURPOSES ONLY

SHEET TITLE:
RFDS (BY OTHERS)

SHEET #: **RF-13** REVISION: **1**

NOTES			
Date Time (Eastern)	Version	ATTUID	Note
4/9/2019 11:24:02 AM	2.00	sc3730	RFDS VERSION incremented.
4/18/2019 3:53:09 PM	3.00	sc3730	RFDS VERSION incremented.
5/6/2019 1:06:31 PM	4.00	au844f	RFDS VERSION incremented.
6/27/2019 10:12:57 AM	5.00	sc3730	RFDS VERSION incremented.

(FOR INFORMATION PURPOSES ONLY)

WORKFLOW SUMMARY						
Date	FROM State / Status	FROM ATTU#	TC State / Status	TO ATTU#	Operation	Comments
04/02/2019	Preliminary In Progress	au844f	Preliminary Submitted for Approval	SH0548	Promote	SER-RCAR-14-02319 FAILURE 04/02/2019 12:04:39 PM SER-RVWN-19-00582 MRCAR040997 SUCCESS 04/02/2019 12:04:39 PM SER-RVWN-19-00583 MRCAR041005 SUCCESS 04/02/2019 12:04:39 PM SER-RVWN-19-00584 MRCAR041001 SUCCESS 04/02/2019 12:04:39 PM SER-RVWN-19-00585 MRCAR041010 SUCCESS 04/02/2019 12:04:39 PM
04/04/2019	Preliminary Submitted for Approval	SH0548	Preliminary Approved	JS993Q	Promote	
04/09/2019	Preliminary Approved	JS993Q	Preliminary Modification Recommended	SC3730	Demote	Existing Equipment Configurations 1, Page 1, Section 2 - Location Info: Ops District; Ops Zone; RF District; RF Zone
04/09/2019	Preliminary Modification Recommended	SC3730	Preliminary In Progress	SC3730	Accept	
04/09/2019	Preliminary In Progress	SC3730	Preliminary Submitted for Approval	SH0548	Promote	Please promote to Mastec.
04/11/2019	Preliminary Submitted for Approval	SH0548	Preliminary Approved	JS993Q	Promote	
04/12/2019	Preliminary Approved	JS993Q	Final RF Approval	SC3730	Promote	Approved Promote to next level
04/12/2019	Final RF Approval	SC3730	Final Approved	JS993Q	Promote	Promoted to actualize SS020
04/18/2019	Final Approved	JS993Q	Final Modification Recommended	SC3730	Demote	Other:Child project are now available in our pace, please add onto RFDS
04/18/2019	Final Modification Recommended	SC3730	Final RF Approval	SC3730	Accept	
04/18/2019	Final RF Approval	SC3730	Final Approved	JS993Q	Promote	PTN/FACE# is added for child jobs
05/06/2019	Final Approved	JS993Q	Final Modification Recommended	SC3730	Demote	OTHER-ERROR -USEID : 245775.A.700.4G.1, 245775.A.1900.4G.1, 245775.A.AWS.4G.1, 245775.A.AWS.4G.2, 245775.A.AWS.4G.3, 245775.A.700.4G.2, 245775.A.WCS.4G.1, 245775.B.700.4G.1, 245775.B.1900.4G.1, 245775.B.AWS.4G.1, 245775.B.AWS.4G.2, 245775.B.AWS.4G.3,
05/06/2019	Final Modification Recommended	SC3730	Final RF Approval	SC3730	Accept	245775.B.700.4G.2, 245775.B.WCS.4G.1, 245775.C.700.4G.1, 245775.C.1900.4G.1, 245775.C.AWS.4G.1, 245775.C.AWS.4G.2, 245775.C.AWS.4G.3, 245775.C.700.4G.2, 245775.C.WCS.4G.1] does not belong to USID : 258958
05/06/2019	Final RF Approval	SC3730	Final Approved	JS993Q	Promote	The error is fixed
05/07/2019	Final Approved	JS993Q	As Built In Progress	JS993Q	Promote	Approved Promote to next level
06/27/2019	As Built In Progress	JS993Q	Final Modification Recommended	SC3730	Demote	Existing Equipment Configuration:Please update coordinates 35 19 53.58,-78 39 34.63
06/27/2019	Final Modification Recommended	SC3730	Final RF Approval	SC3730	Accept	
06/27/2019	Final RF Approval	SC3730	Final Approved	JS993Q	Promote	AF Coordinates are updated.

(FOR INFORMATION PURPOSES ONLY)

PREPARED FOR:



A&E FIRM:



1875 OLD ALABAMA ROAD, SUITE 1008
ROSWELL, GA 30076
TEL: 678-990-2338 FAX: 678-990-2342

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PROJECT INFORMATION:

RED HILL CHURCH
14637878
TI-OPP-16496
368-704
161 RED HILL CHURCH ROAD
DUNN, NC 28334

DRAWN BY:	SJH
CHECKED BY:	KIA
APPROVED BY:	MEW

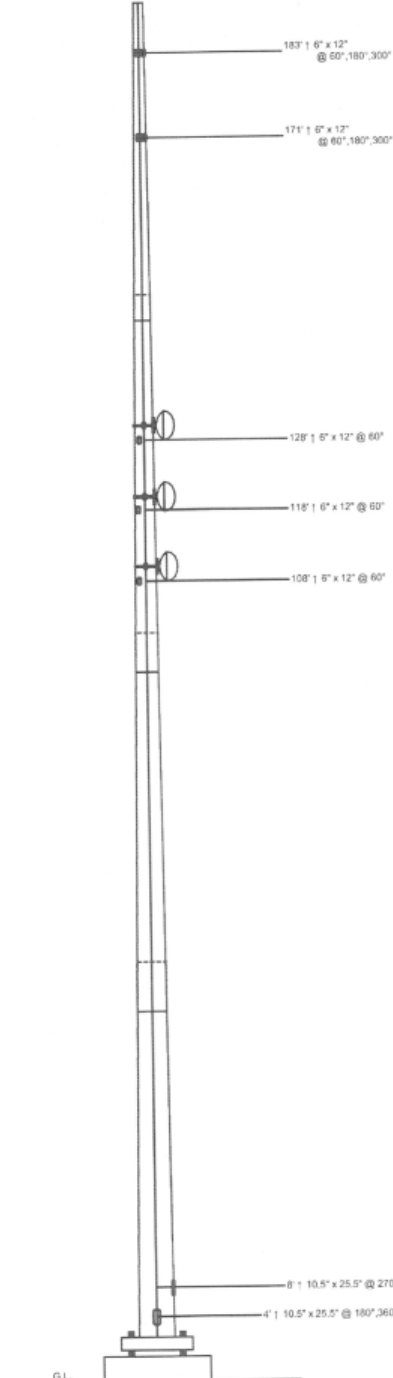
REVISIONS		
REV.	DATE	DESCRIPTION
0	11/16/20	ISSUED FOR CONSTRUCTION
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FOR INFORMATION PURPOSES ONLY

SHEET TITLE:
RFDS (BY OTHERS)

SHEET #: **RF-14** REVISION: **1**

Length (ft)	55'-3"	53'-6"	18	46'-0"
Number Of Sides	4	4	4	4
Thickness (in)	7/16"	5/8"	3/8"	5/16"
Lap Splice (ft)	7'-0"	5'-8"	3'-0"	15'
Top Diameter (in)	47.66"	36.92"	25.81"	27.24"
Bottom Diameter (in)	60.96"	50.28"	39.04"	36.00"
Taper (in/ft)		0.2488		
Grade		A572-45		
Weight (lbs)	16168	11563	7434	3600
Overall Steel Height (ft)		118		



Designed Appurtenance Loading

Elev	Description	Tx-Line
185	(1) 278 sq. ft. EPA 8000# (no ice)	(9) 1 1/4"
173	(1) 208 sq. ft. EPA 4000# (no ice)	(9) 1 1/4"
130	(1) Dish Mount (Monopole Only) - Pipe Mount (up to 6' Dish)	
130	(1) 4' Solid Dish w/ Radome	(1) 1 1/4"
120	(1) Dish Mount (Monopole Only) - Pipe Mount (up to 6' Dish)	
120	(1) 4' Solid Dish w/ Radome	(1) 1 1/4"
110	(1) Dish Mount (Monopole Only) - Pipe Mount (up to 6' Dish)	
110	(1) 4' Solid Dish w/ Radome	(1) 1 1/4"

Design Criteria - ANSI/TIA-222-G

ASCE 7-16 Ultimate Wind Speed (No Ice)	119 mph
Wind Speed (Ice)	30 mph
Design Ice Thickness	1.50 in
Structure Class	II
Risk Category	II
Exposure Category	C
Topographic Category	1

Load Case Reactions

Description	Axial (kips)	Shear (kips)	Moment (ft-k)	Deflection (ft)	Sway (deg)
3s Gusted Wind	56.77	43.64	6480.73	20.75	13.69
3s Gusted Wind 0.9 Dead	42.68	43.58	6352.88	20.22	13.3
3s Gusted Wind&Ice	90.32	5.97	989.12	3.48	2.28
Service Loads	47.39	10.36	1542.62	5.15	3.33

Base Plate Dimensions

Shape	Diameter	Thickness	Bolt Circle	Bolt Qty	Bolt Diameter
Round	73.75"	2.25"	68"	20	2.25"

Anchor Bolt Dimensions

Length	Diameter	Hole Diameter	Weight	Type	Finish
84"	2.25"	2.625"	2422	A615-75	Galv

Material List

Display	Value
A	3' - 9"

- ### Notes
- 1) Antenna Feed Lines Run Inside Pole
 - 2) All dimensions are above ground level, unless otherwise specified.
 - 3) Weights shown are estimates. Final weights may vary.
 - 4) Full Height Step Bolts
 - 5) This tower design and, if applicable, the foundation design(s) shown on the following page(s) also meet or exceed the requirements of the 2015 International Building Code.
 - 6) Tower Rating: 99.1%

Sabre Industries
7101 Southbridge Drive
P.O. Box 658
Sioux City, IA 51102-0658
Phone: (712) 258-6690
Fax: (712) 219-4814

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Job: 21-1791-TJH

Customer: TILLMAN INFRASTRUCTURE, LLC

Site Name: TI-OPP-16496/RED HILL CHURCH, NC

Description: 190' Monopole

Date: 8/24/2020 By: DO

(FOR INFORMATION PURPOSES ONLY)

PREPARED FOR:

A&E FIRM:

1875 OLD ALABAMA ROAD, SUITE 1008
ROSWELL, GA 30076
TEL: 678-990-2338 FAX: 678-990-2342

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PROJECT INFORMATION:

RED HILL CHURCH
14637878
TI-OPP-16496
368-704
161 RED HILL CHURCH ROAD
DUNN, NC 28334

DRAWN BY:	SJH
CHECKED BY:	KIA
APPROVED BY:	MEW

REVISIONS

REV.	DATE	DESCRIPTION
0	11/16/20	ISSUED FOR CONSTRUCTION
1	01/15/21	REVISED E911 ADDRESS

FOR INFORMATION PURPOSES ONLY

SHEET TITLE:
TOWER AND FOUNDATION DESIGN (BY OTHERS)

SHEET #:	T&F-1	REVISION:	1
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