BUILDING CODES

- INTERNATIONAL BUILDING CODE -2012 EDITION
- INTERNATIONAL ENERGY CONSERVATION - 2012 EDITION
- INTERNATIONAL FIRE PREVENTION - 2012 EDITION
- INTERNTATIONAL 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 is subject to field inspection and verification.
APPROVED
Limited building only review
Permit holder responsible for full compliance with the code
04/14/2021
Harnett COUNTY NORTH CAROLINA

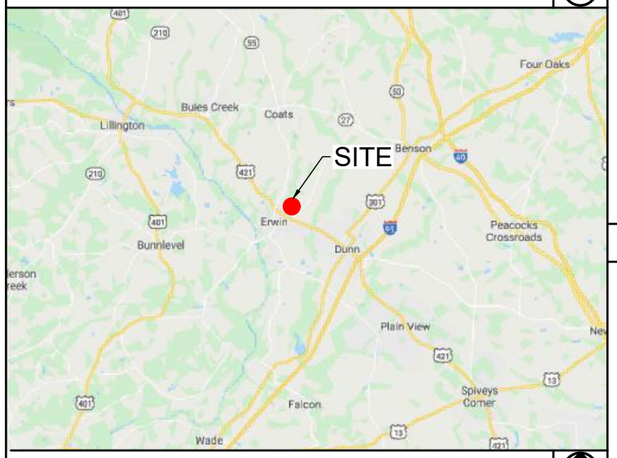
HANDICAP REQUIREMENTS

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

TILLMAN INFRASTRUCTURE

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

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

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 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.

FOLLOW NC-55 W/US-421 N TO ERWIN ACCESS ROAD IN DUKE — 4.6 MI.

THE SITE IS ON THE LEFT.

DRAWING INDEX

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C4	EQUIPMENT LAYOUT AND DETAILS	1
C5	UTILITY BACKBOARD H-FRAME	1
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C7	ANTENNA PLAN AND SCHEDULE	1
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RF-1	RFDS (BY OTHERS)	1
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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:
TILLMAN INFRASTRUCTURE

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

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 SEAL 040598 ENGINEER MATTHEW E WATKINS
01/15/21

SHEET TITLE:
COVER SHEET

SHEET #:	REVISION:
T1	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)

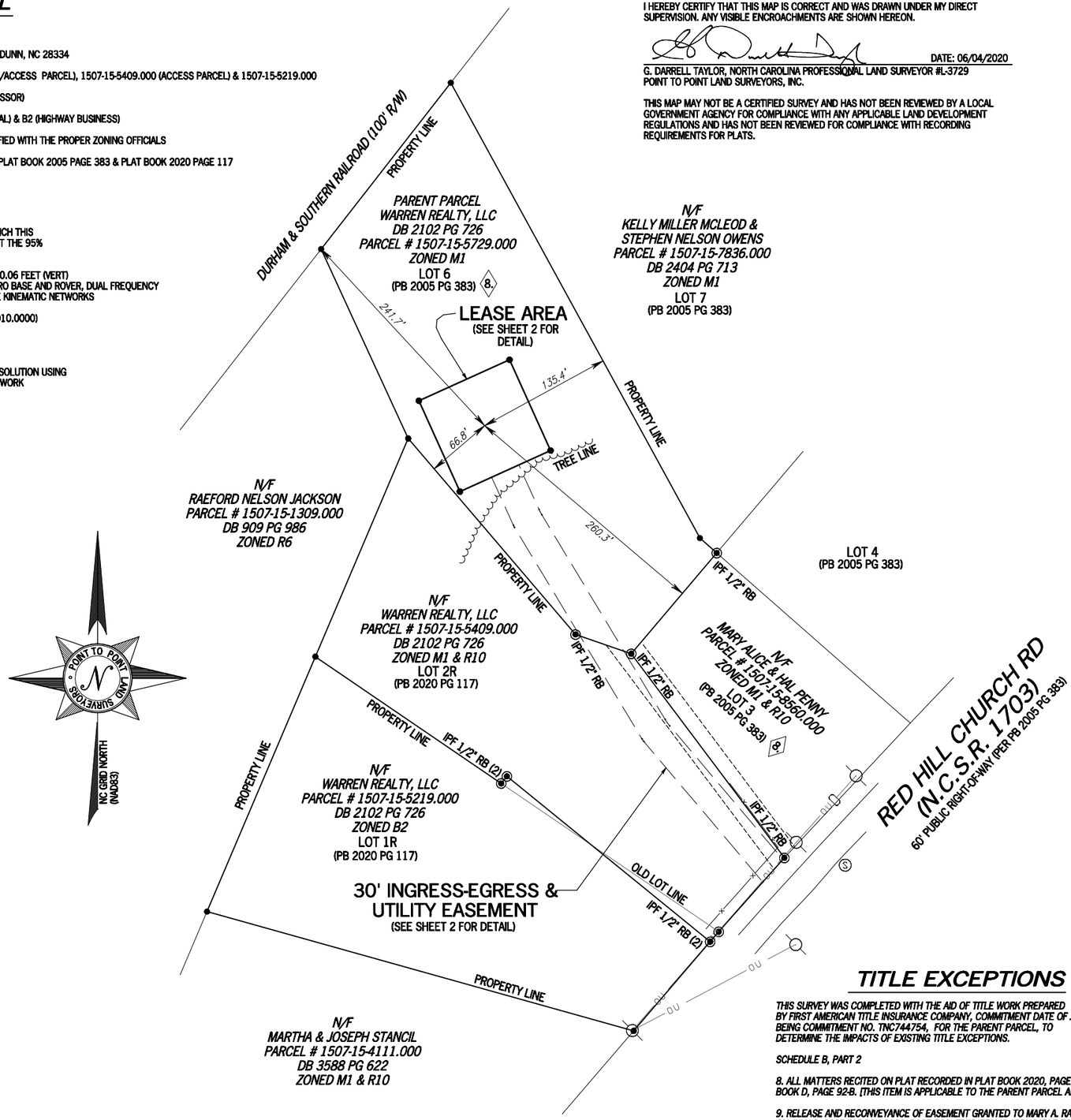
ALL ZONING INFORMATION SHOULD BE VERIFIED WITH THE PROPER ZONING OFFICIALS

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 TRANSFERRAL 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 TRANSFERRAL 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.

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

8. 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.]

9. 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.]

10. 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.]

SURVEY NOT VALID WITHOUT SHEETS 2 & 3

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

Know what's below. Call before you dig.

NORTH CAROLINA PROFESSIONAL SEAL L-3729 LAND SURVEYOR G. DARRELL TAYLOR

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

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

14637878

DUKE TOWNSHIP,
HARNETT COUNTY,
NORTH CAROLINA

DRAWN BY: EAL	SHEET: 1
CHECKED BY: JKL	
APPROVED: D. MILLER	
DATE: JUNE 3, 2020	
P2P JOB #: 200978NC	OF 3

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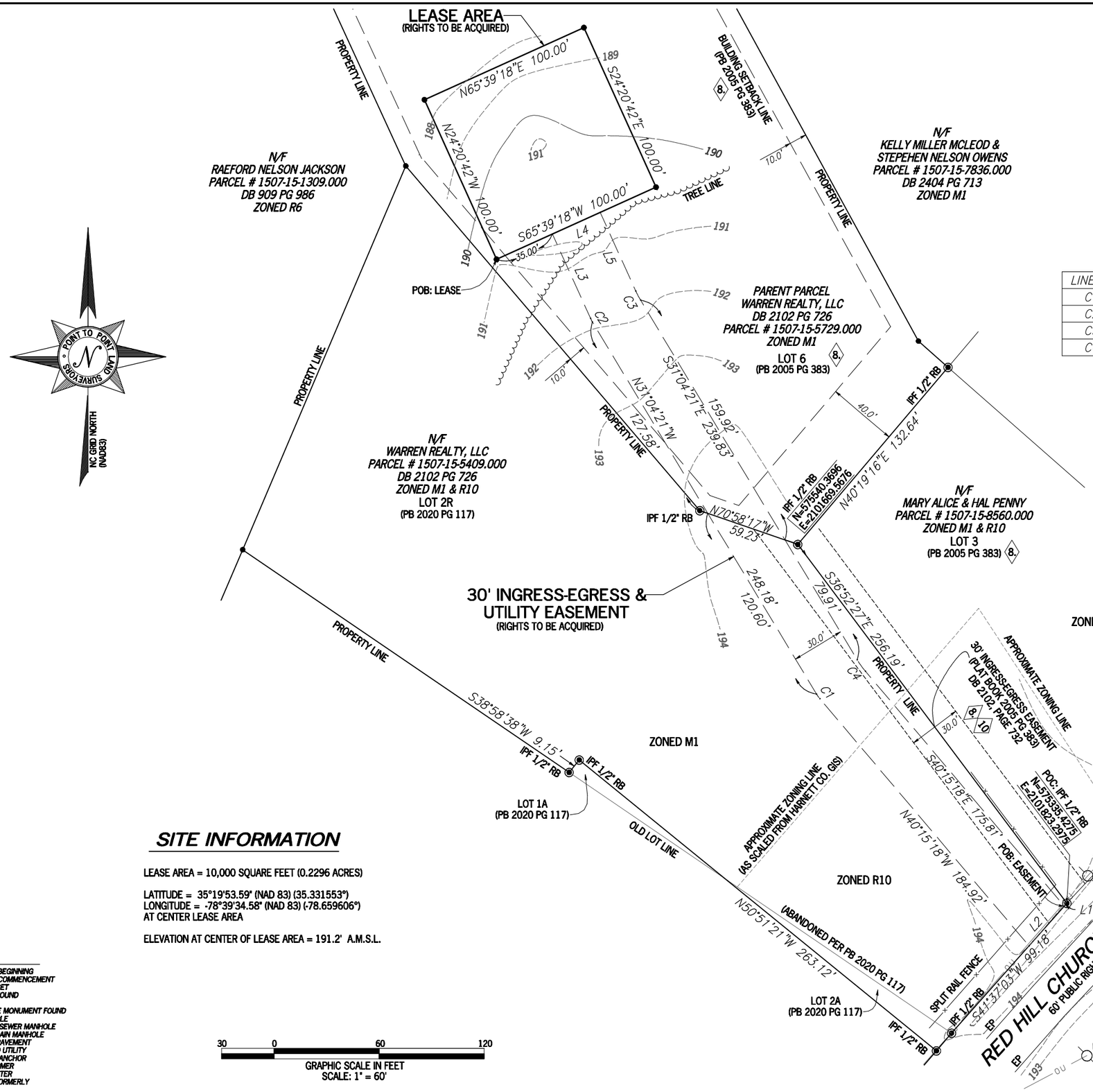

LINE TABLE

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

30 0 60 120
GRAPHIC SCALE IN FEET
SCALE: 1" = 60'

SURVEY NOT VALID WITHOUT SHEETS 1 & 3

NORTH CAROLINA PROFESSIONAL SEAL L-3729 LAND SURVEYOR G. DARRELL TAYLOR

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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(w) p2pls.com

SPECIFIC PURPOSE SURVEY PREPARED FOR:

TILLMAN INFRASTRUCTURE

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

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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.

SURVEY NOT VALID WITHOUT SHEETS 1 & 2

NORTH CAROLINA PROFESSIONAL SEAL L-3729 LAND SURVEYOR G. DARRELL TAYLOR

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

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

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SITE WORK GENERAL NOTES:

1. THE CONTRACTOR SHALL CONTACT UTILITY LOCATING SERVICES PRIOR TO THE START OF CONSTRUCTION. CONTRACTOR IS TO POT HOLE UTILITY LOCATES POST MARKING TO VERIFY UTILITY LOCATES ARE CORRECT.
2. ALL EXISTING ACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES WHERE ENCOUNTERED IN THE WORK, SHALL BE PROTECTED AT ALL TIMES AND WHERE REQUIRED FOR THE PROPER EXECUTION OF THE WORK, SHALL BE PROTECTED AT ALL TIMES AND WHERE REQUIRED FOR THE PROPER EXECUTION OF THE WORK, SHALL BE RELOCATED AS DIRECTED BY CONTRACTOR. EXTREME CAUTION SHOULD BE USED BY THE CONTRACTOR/SUBCONTRACTOR WHEN EXCAVATING OR DRILLING PIERS AROUND OR NEAR UTILITIES.
3. ALL SITE WORK SHALL BE AS INDICATED ON THE DRAWINGS AND PROJECT SPECIFICATIONS.
4. IF NECESSARY, RUBBISH, STUMPS, DEBRIS, STICKS, STONES AND OTHER REFUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF LEGALLY.
5. ALL EXISTING INACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES, WHICH INTERFERE WITH THE EXECUTION OF THE WORK, SHALL BE REMOVED AND/OR CAPPED, PLUGGED OR OTHERWISE DISCONTINUED AT POINTS WHICH WILL NOT INTERFERE WITH THE EXECUTION OF THE WORK, SUBJECT TO THE APPROVAL OF THE CONTRACTOR, OWNER AND/OR LOCAL UTILITIES.
6. THE OWNER SHALL PROVIDE SITE SIGNAGE IN ACCORDANCE WITH THE TECHNICAL SPECIFICATION FOR SITE SIGNAGE (TO BE INSTALLED BY CONTRACTOR).
7. THE SITE SHALL BE GRADED TO CAUSE SURFACE WATER TO FLOW AWAY FROM THE BTS EQUIPMENT AND TOWER AREAS.
8. NO FILL OR EMBANKMENT MATERIAL SHALL BE PLACED ON FROZEN GROUND. FROZEN MATERIALS, SNOW OR ICE SHALL NOT BE PLACED IN ANY FILL OR EMBANKMENT.
9. THE SUB GRADE SHALL BE COMPACTED AND BROUGHT TO A SMOOTH UNIFORM GRADE PRIOR TO FINISHED SURFACE APPLICATION.
10. THE AREAS OF THE OWNERS PROPERTY DISTURBED BY THE WORK AND NOT COVERED BY THE TOWER, EQUIPMENT OR DRIVEWAY, SHALL BE GRADED TO A UNIFORM SLOPE, AND STABILIZED TO PREVENT EROSION AS SPECIFIED ON THE PROJECT SPECIFICATIONS.
11. CONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES, IF REQUIRED DURING CONSTRUCTION , SHALL BE IN CONFORMANCE WITH THE LOCAL GUIDELINES FOR EROSION AND SEDIMENT CONTROL.
12. CONTRACTOR SHALL NOT INSTALL EQUIPMENT THAT WILL IMPEDE DOOR OR ACCESS PANELS.

STRUCTURAL STEEL NOTES:

1. ALL STEEL WORK SHALL BE PAINTED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS AND IN ACCORDANCE WITH ASTM A36 UNLESS NOTED OTHERWISE.
2. ALL WELDING SHALL BE PERFORMED USING E70XX ELECTRODES AND WELDING SHALL CONFORM TO AISC. WHERE FILLET WELD SIZES ARE NOT SHOWN, PROVIDE THE MINIMUM SIZE PER TABLE J2.4 IN THE AISC "MANUAL OF STEEL CONSTRUCTION". PAINTED SURFACES SHALL BE TOUCHED UP.
3. BOLTED CONNECTIONS SHALL BE ASTM A325 BEARING TYPE (3/4"Ø) CONNECTIONS AND SHALL HAVE MINIMUM OF TWO BOLTS UNLESS NOTED OTHERWISE.
4. NON-STRUCTURAL CONNECTIONS FOR STEEL GRATING MAY USE 5/8"Ø ASTM A307 BOLTS UNLESS NOTED OTHERWISE.
5. INSTALLATION OF CONCRETE EXPANSION/WEDGE ANCHOR, SHALL BE PER MANUFACTURER'S RECOMMENDED PROCEDURE. THE ANCHOR BOLT, DOWEL OR ROD SHALL CONFORM TO MANUFACTURER'S RECOMMENDATION FOR EMBEDMENT DEPTH OR AS SHOWN ON THE DRAWINGS. NO REBAR SHALL BE CUT WITHOUT PRIOR CONTRACTOR APPROVAL WHEN DRILLING HOLES IN CONCRETE. SPECIAL INSPECTIONS, REQUIRED BY GOVERNING CODES SHALL BE PERFORMED IN ORDER TO MAINTAIN MANUFACTURER'S MAXIMUM ALLOWABLE LOADS.

CONCRETE AND REINFORCING STEEL NOTES:

1. ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH THE ACI 301, ACI 318, ACI 336, ASTM A184, ASTM A185 AND THE DESIGN AND CONSTRUCTION SPECIFICATION FOR CAST-IN-PLACE CONCRETE.
2. ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3000 PSI AT 28 DAYS, UNLESS NOTED OTHERWISE. SLAB FOUNDATION DESIGN ASSUMING ALLOWABLE SOIL BEARING PRESSURE OF 2000 PSF
3. REINFORCING STEEL SHALL CONFORM TO ASTM A615, GRADE 60, DEFORMED UNLESS NOTED OTHERWISE. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A185 WELDED STEEL WIRE FABRIC UNLESS NOTED OTHERWISE. SPLICES SHALL BE CLASS "B" AND ALL HOOKS SHALL BE STANDARD, U.N.O.
4. THE FOLLOWING MINIMUM CONCRETE COVER SHALL BE PROVIDED FOR REINFORCING STEEL UNLESS SHOWN OTHERWISE ON DRAWINGS:

4.1.	CONCRETE CAST AGAINST EARTH	3 IN.
4.2.	CONCRETE EXPOSED TO EARTH OR WEATHER OR NOT CAST AGAINST THE GROUND:	
4.2.1.	#6 AND LARGER	2 IN.
4.2.2.	#5 AND SMALLER & WWF	1 1/2 IN
4.3.	CONCRETE NOT EXPOSED TO EARTH OR WEATHER OR NOT CAST AGAINST THE GROUND:	
4.3.1.	SLAB AND WALLS	3/4 IN.
4.3.2.	BEAMS AND COLUMNS	1 1/2 IN.

5. A CHAMFER 3/4" SHALL BE PROVIDED AT ALL EXPOSED EDGES OF CONCRETE, UND. IN ACCORDANCE WITH ACI 301 SECTION 4.2.4

MASONRY NOTES:

1. HOLLOW CONCRETE MASONRY UNITS SHALL MEET A.S.T.M. SPECIFICATION C90, GRADE N. TYPE 1. THE SPECIFIED DESIGN COMPRESSIVE STRENGTH OF CONCRETE MASONRY (F'm) SHALL BE 1500 PSI.
2. MORTAR SHALL MEET THE PROPERTY SPECIFICATION OF A.S.T.M. C270 TYP. "S" MORTAR AND SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 2000 PSI.
3. GROUT SHALL MEET A.S.T.M. SPECIFICATION C475 AND HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 2000 PSI.
4. CONCRETE MASONRY SHALL BE LAID IN RUNNING (COMMON) BOND.
5. WALL SHALL RECEIVE TEMPORARY BRACING, TEMPORARY BRACING SHALL NOT BE REMOVED UNTIL GROUT IS FULL CURED.

GENERAL NOTES:

1. FOR THE PURPOSE OF CONSTRUCTION DRAWINGS, THE FOLLOWING DEFINITIONS SHALL APPLY:

CONTRACTOR -	GENERAL CONTRACTOR
SUBCONTRACTOR -	SUBCONTRACTOR HIRED BY GENERAL CONTRACTOR.
OWNER -	TILLMAN INFRASTRUCTURE
OEM -	ORIGINAL EQUIPMENT MANUFACTURER

2. PRIOR TO THE SUBMISSION OF BID, THE CONTRACTOR SHALL VISIT THE SITE TO FAMILIARIZE THEMSELVES WITH THE EXISTING CONDITIONS AND TO CONFIRM THAT THE WORK CAN BE ACCOMPLISHED AS SHOWN ON THE CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF THE OWNER.
3. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS AND ORDINANCES. CONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
4. DRAWINGS PROVIDED WERE DESIGNED AND SCALED TO 11x17 FORMAT.
5. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
6. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
7. IF THE SPECIFIED EQUIPMENT CAN NOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY THE OWNER.
8. CONTRACTOR SHALL DETERMINE ACTUAL ROUTING OF CONDUIT, POWER AND TELCO CABLES, GROUNDING CABLES AS SHOWN ON THE POWER, GROUNDING AND TELCO PLAN DRAWINGS.
9. THE CONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE TO THE SATISFACTION OF THE OWNER.
10. CONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE FACILITY.
11. CONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION.
12. CONSTRUCTION SHALL COMPLY WITH TILLMAN INFRASTRUCTURE MASTER SPECIFICATIONS AND THESE DRAWINGS; WHERE A CONFLICT EXISTS IT IS THE CONTRACTORS RESPONSIBILITY TO NOTIFY THE OWNER.
13. NOTHING CONTAINED IN THESE DRAWINGS SHALL CREATE ANY CONTRACTUAL RELATIONSHIP BETWEEN ANY SUBCONTRACTOR(S) AND TILLMAN INFRASTRUCTURE.
14. CONTRACTOR SHALL HOLD HARMLESS TILLMAN INFRASTRUCTURE AND ITS REPRESENTATIVES FROM ALL SUITS, ACTIONS, OR CLAIMS OF ANY KIND BROUGHT ABOUT AS A RESULT OF ANY INJURIES OR DAMAGES SUSTAINED BY PERSON(S) OR PROPERTY DURING THE CONSTRUCTION OF THIS PROJECT.
15. CONTRACTOR SHALL BE RESPONSIBLE FOR INITIATING, MAINTAINING AND SUPERVISING ALL SAFETY PRECAUTIONS AND PROGRAMS FOR ANY AND ALL PERSONS, INCLUDING SUBCONTRACTORS, ON SITE AS REQUIRED BY CURRENT OSHA STANDARDS; INCLUDING BUT NOT LIMITED TO:

A. PERSONAL PROTECTIVE & LIFE SAVING EQUIPMENT
B. SIGNS, SIGNALS, AND BARRICADES
C. TOOLS - HAND AND POWER
D. ELECTRICAL
E. FALL PROTECTION
F. EXCAVATIONS
G. CONCRETE AND MASONRY CONSTRUCTION
H. STEEL ERECTION
I. POWER TRANSMISSION AND DISTRIBUTION
J. CRANES AND DERRICKS IN CONSTRUCTION.

ABBREVIATIONS

AGL	ABOVE GRADE LEVEL
BTS	BASE TRANSCEIVER STATION
(E)	EXISTING
MIN.	MINIMUM
NTS	NOT TO SCALE
REF	REFERENCE
RF	RADIO FREQUENCY
TBD	TO BE DETERMINED
TBR	TO BE RESOLVED
TYP	TYPICAL
REQ.	REQUIRED
EGR	EQUIPMENT GROUND RING
AWG	AMERICAN WIRE GAUGE
MGB	MASTER GROUND BUSS
EG	EQUIPMENT GROUND
BCW	BARE COPPER WIRE
SIAD	SMART INTEGRATED ACCESS DEVICE
GEN	GENERATOR
IGR	INTERIOR GROUND RING (HALO)
RBS	RADIO BASE STATION
U.N.O.	UNLESS NOTED OTHERWISE

SYMBOLS

S/G	SOLID GROUND BUSS BAR
S/N	SOLID NEUTRAL BUSS BAR
	SUPPLEMENTAL GROUND CONDUCTOR
	2-POLE THERMAL-MAGNETIC CIRCUIT BREAKER
	SINGLE-POLE THERMAL-MAGNETIC CIRCUIT BREAKER
	CHEMICAL GROUND ROD
	DISCONNECT SWITCH
M	METER
	EXOTHERMIC WELD (CADWELD) (UNLESS NOTED OTHERWISE)
	MECHANICAL WELD
	3/4"Ø x 10'-0" COPPER CLAD STEEL GROUND ROD
	3/4"Ø x 10'-0" COPPER CLAD STEEL GROUND ROD w/ INSPECTION SLEEVE
—G—	GROUNDING WIRE

PREPARED FOR:

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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 SEAL 040598 ENGINEER MATTHEW E WATKINS 01/15/21

SHEET TITLE:

GENERAL NOTES

SHEET #:	REVISION:
GN1	1

ELECTRICAL INSTALLATION NOTES:

1. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS, NEC AND ALL APPLICABLE LOCAL CODES.
2. CONDUIT ROUTINGS ARE SCHEMATIC. SUBCONTRACTOR SHALL INSTALL CONDUITS SO THAT ACCESS TO EQUIPMENT IS NOT BLOCKED.
3. WIRING, RACEWAY AND SUPPORT METHODS AND MATERIALS SHALL COMPLY WITH THE REQUIREMENTS OF THE NEC.
4. ALL CIRCUITS SHALL BE SEGREGATED AND MAINTAIN MINIMUM CABLE SEPARATION AS REQUIRED BY THE NEC.
5. CABLES SHALL NOT BE ROUTED THROUGH LADDER-STYLE CABLE TRAY RUNGS.
6. 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.
7. 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).
8. PANEL BOARDS (ID NUMBERS) AND INTERNAL CIRCUIT BREAKERS (CIRCUIT ID NUMBERS) SHALL BE CLEARLY LABELED WITH PLASTIC LABELS.
9. ALL TIE WRAPS SHALL BE CUT FLUSH WITH APPROVED CUTTING TOOL TO REMOVE SHARP EDGES.
10. 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.
11. 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.
12. 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.
13. 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).
14. RACEWAY AND CABLE TRAY SHALL BE LISTED OR LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE AND NEC.
15. 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.
16. ELECTRICAL METALLIC TUBING (EMT), ELECTRICAL NONMETALLIC TUBING (ENT) OR RIGID NONMETALLIC CONDUIT (RIGID PVC, SCHEDULE 40) SHALL BE USED FOR CONCEALED INDOOR LOCATIONS.
17. GALVANIZED STEEL INTERMEDIATE METALLIC CONDUIT (IMC) SHALL BE USED FOR OUTDOOR LOCATIONS ABOVE GRADE.
18. 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.
19. LIQUID-TITE FLEXIBLE METALLIC CONDUIT (LIQUID-TITE FLEX) SHALL BE USED INDOORS AND OUTDOORS, WHERE VIBRATION OCCURS OR FLEXIBILITY IS NEEDED.
20. CONDUIT AND TUBING FITTINGS SHALL BE THREADED OR COMPRESSION-TYPE AND APPROVED FOR THE LOCATION USED. SET SCREW FITTINGS ARE NOT ACCEPTABLE.
21. CABINETS, BOXES AND WIRE WAYS SHALL BE LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE AND NEC.
22. 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:

23. 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.
24. METAL RECEPTACLE, SWITCH AND DEVICE BOXES SHALL BE GALVANIZED, EOPOXY-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.
25. 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.
26. THE SUBCONTRACTOR SHALL NOTIFY AND OBTAIN NECESSARY AUTHORIZATION FROM THE CONTRACTOR BEFORE COMMENCING WORK ON THE AC POWER DISTRIBUTION PANELS.
27. 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.
28. INSTALL PLASTIC LABEL ON THE METER CENTER IDENTIFYING SPECIFIC CARRIER.

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

1. TOWER GROUNDING: EXTEND #2 SOLID TINNED CU WIRE FROM BURIED GROUND RING TO TOWER AND MAKE EXOTHERMIC CONNECTION.
2. GROUND ROD: COPPER CLAD STEEL , 3/4"Ø X TEN (10) FEET LONG.
3. ICE BRIDGE SUPPORT POST GROUNDING: EXTEND #2 TINNED CU WIRE FROM BURIED GROUND RING TO ALL ICE BRIDGE SUPPORT POST WITH CADWELD CONNECTION WELD.
4. 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.
5. 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.
6. 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.
7. 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.
8. FENCE/GATE: BOND ALL FENCE POSTS AND GATES TO COMPOUND GROUND RING WITH EXOTHERMIC WELDS.
9. 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:

1. 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.
2. 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.
3. 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.
4. 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.
5. 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.
6. 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.
7. ALL EXTERIOR GROUND CONDUCTORS BETWEEN EQUIMENT/GROUND BARS AND THE GROUND RING SHALL BE #2 AWG SOLID TINNED COPPER UNLESS OTHERWISE INDICATED.
8. ALUMINUM CONDUCTOR OR COPPER CLAD STEEL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS.
9. USE OF 90° BENDS IN THE PROTECTION GROUNDING CONDUCTORS SHALL BE AVOIDED WHEN 45° BENDS CAN BE ADEQUATELY SUPPORTED.
10. EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE.
11. ALL GROUND CONNECTION ABOVE GRADE (INTERIOR AND EXTERIOR) SHALL BE FORMED USING HIGH PRESS CRIMPS.
12. COMPRESSION GROUND CONNECTIONS MAY BE REPLACED BY EXOTHERMIC WELD CONNECTIONS.
13. ICE BRIDGE BONDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED OR BOLTED TO THE BRIDGE AND THE TOWER GROUND BAR.
14. APPROVED ANTIOXIDANT COATINGS (I.E. CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.
15. ALL EXTERIOR GROUND CONNECTIONS SHALL BE COATED WITH A CORROSION RESISTANT MATERIAL.
16. MISCELLANEOUS ELECTRICAL AND NON-ELECTRICAL METAL BOXES, FRAMES AND SUPPORTS SHALL BE BONDED TO THE GROUND RING, IN ACCORDANCE WITH THE NEC.
17. BOND ALL METALLIC OBJECTS WITHIN 6 FT. OF MAIN GROUND WIRES WITH (1) #2 AWG TIN-PLATED COPPER GROUND CONDUCTOR.
18. 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.

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TILLMAN INFRASTRUCTURE

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

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

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

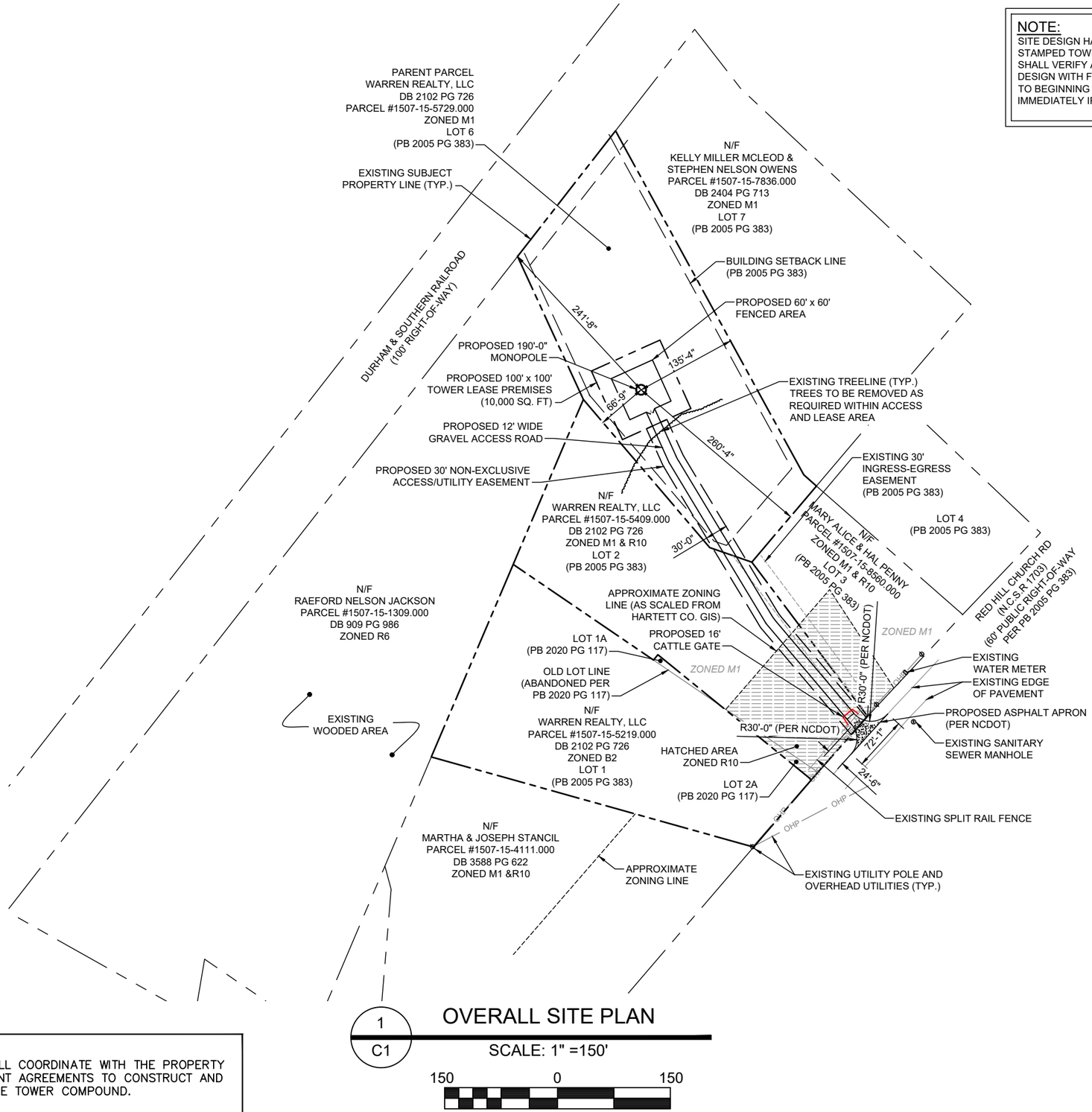
SHEET TITLE:

GENERAL NOTES

SHEET #:	REVISION:
GN2	1

TOWER SETBACKS TO PROPERTY LINES (FROM TOWER CENTER)	
NORTH	241'-8"
SOUTH	260'-4"
EAST	135'-4"
WEST	66'-9"

NORTH



1
C1

OVERALL SITE PLAN

SCALE: 1" =150'

150 0 150

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.

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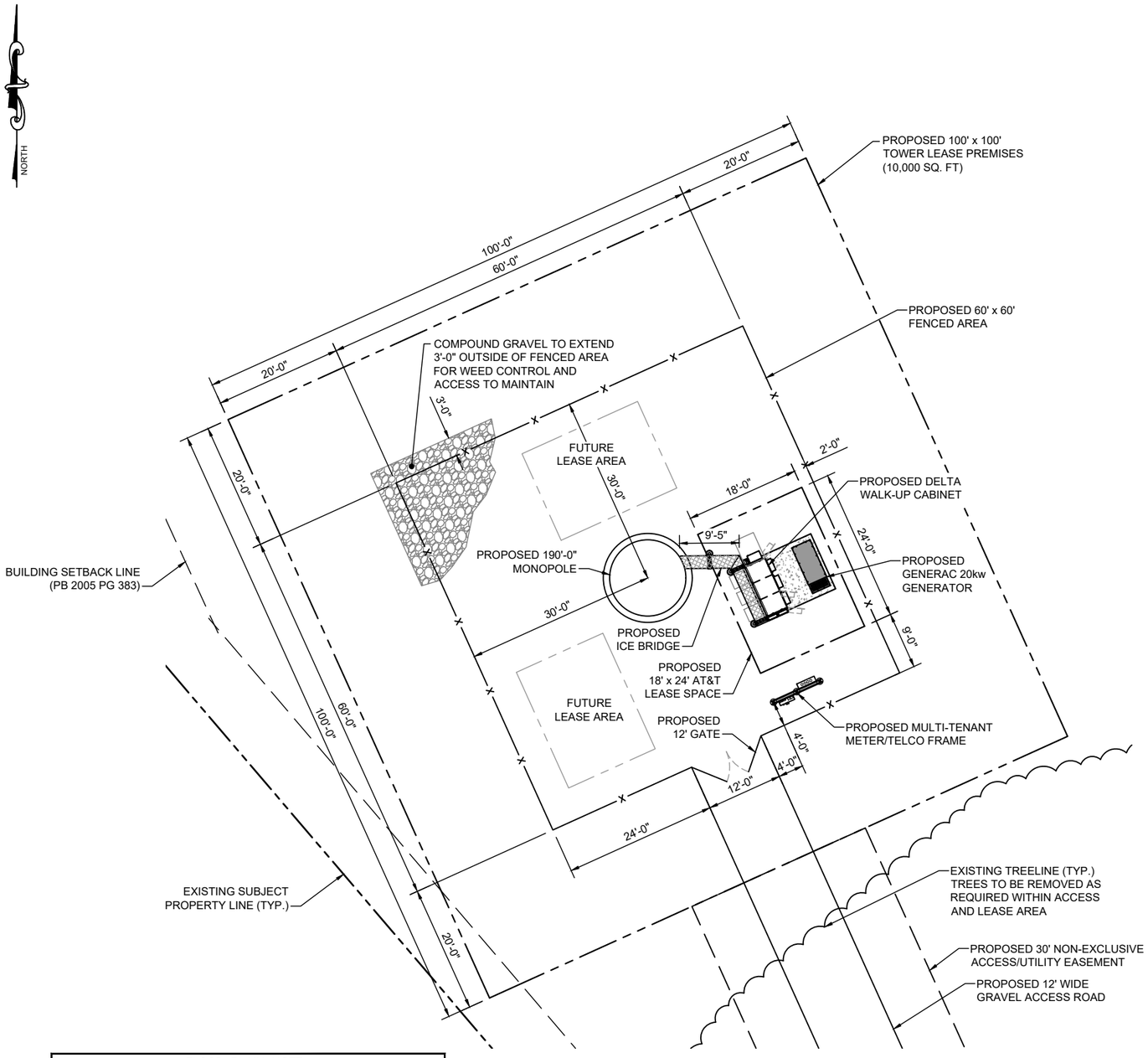
NORTH CAROLINA
PROFESSIONAL
SEAL
040598
01/15/21
ENGINEER
MATTHEW E WATKINS

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

1 / C2 SITE PLAN

SCALE: 1" =20'-0"

20 0 20

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.

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

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 SEAL 040598 ENGINEER
MATTHEW E WATKINS
01/15/21

SHEET TITLE:

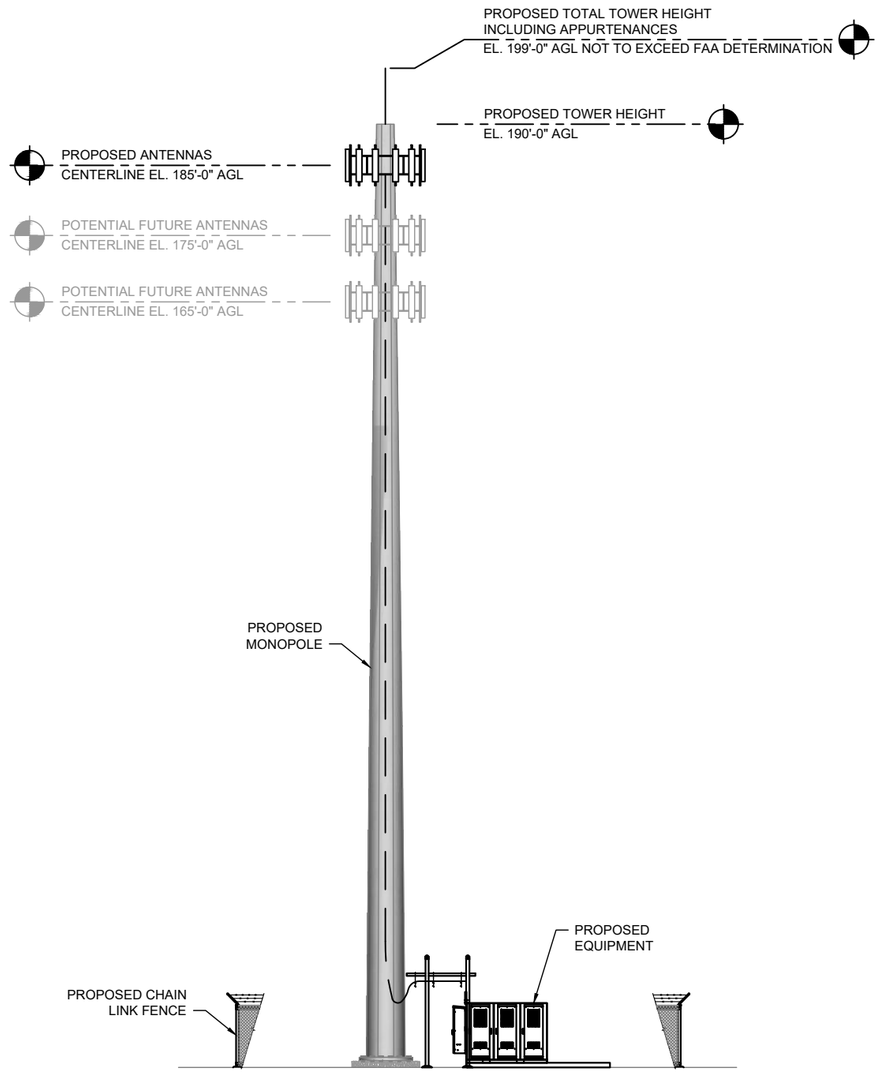
SITE PLAN

SHEET #:	REVISION:
C2	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:
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.



1 / C3 TOWER ELEVATION
NOT TO SCALE

PREPARED FOR:
TILLMAN INFRASTRUCTURE

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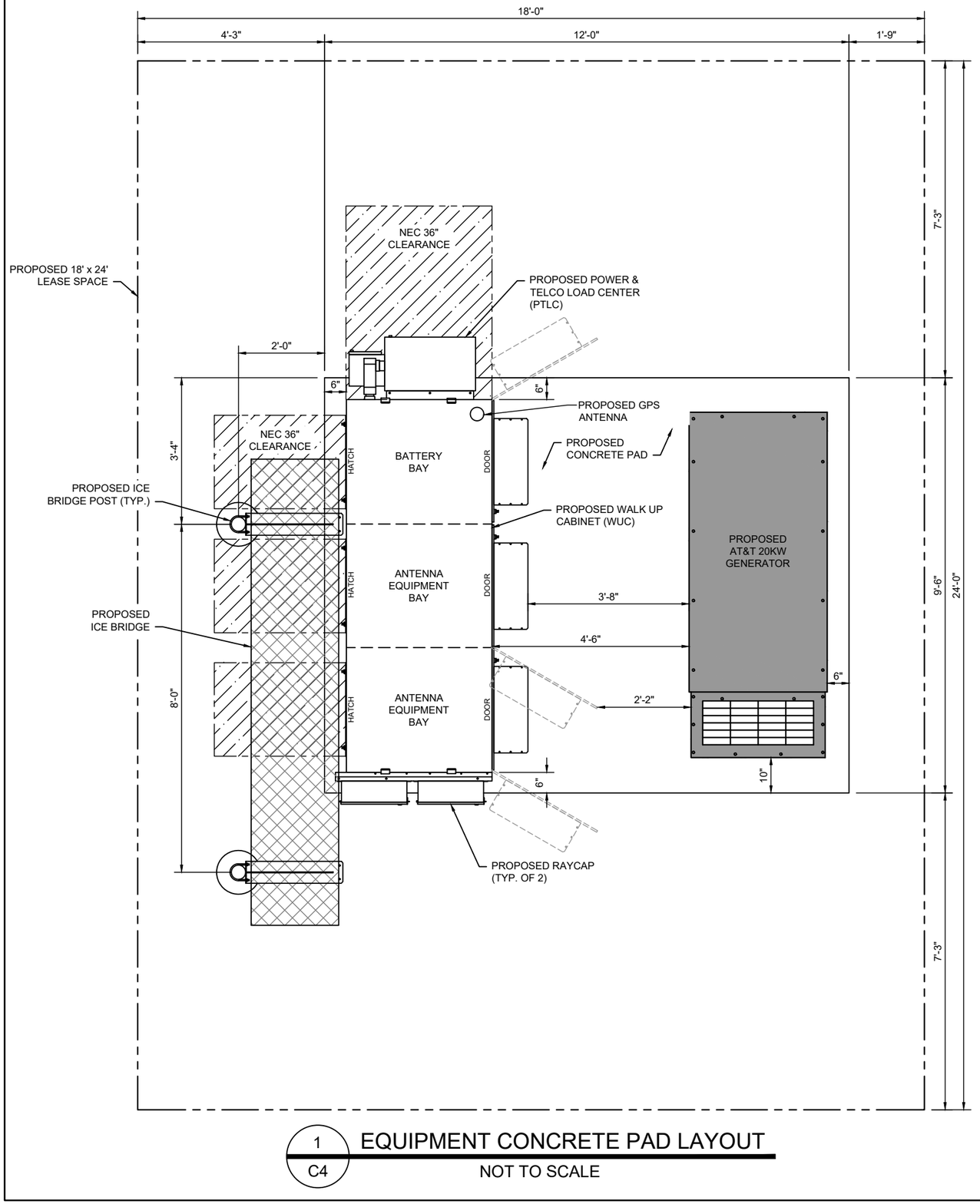
01/15/21

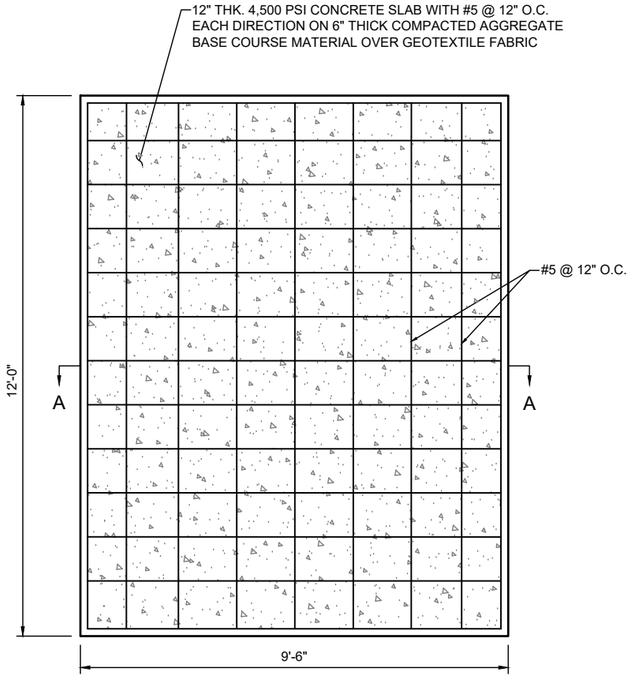
SHEET TITLE:
TOWER ELEVATION

SHEET #: C3
REVISION: 1



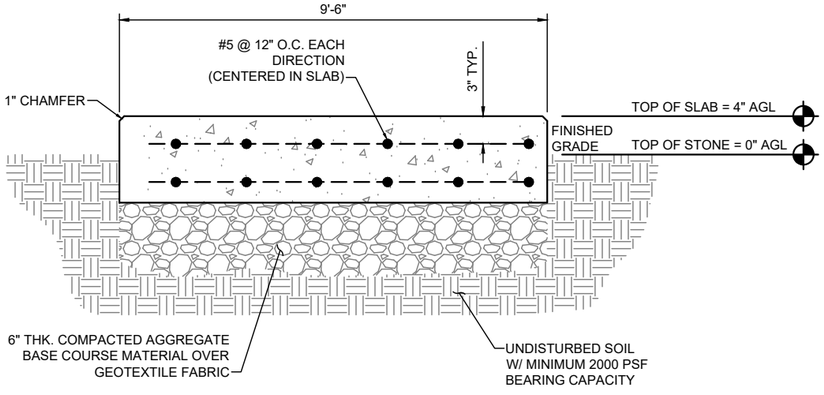
1 C4 **EQUIPMENT CONCRETE PAD LAYOUT**

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:

towersource

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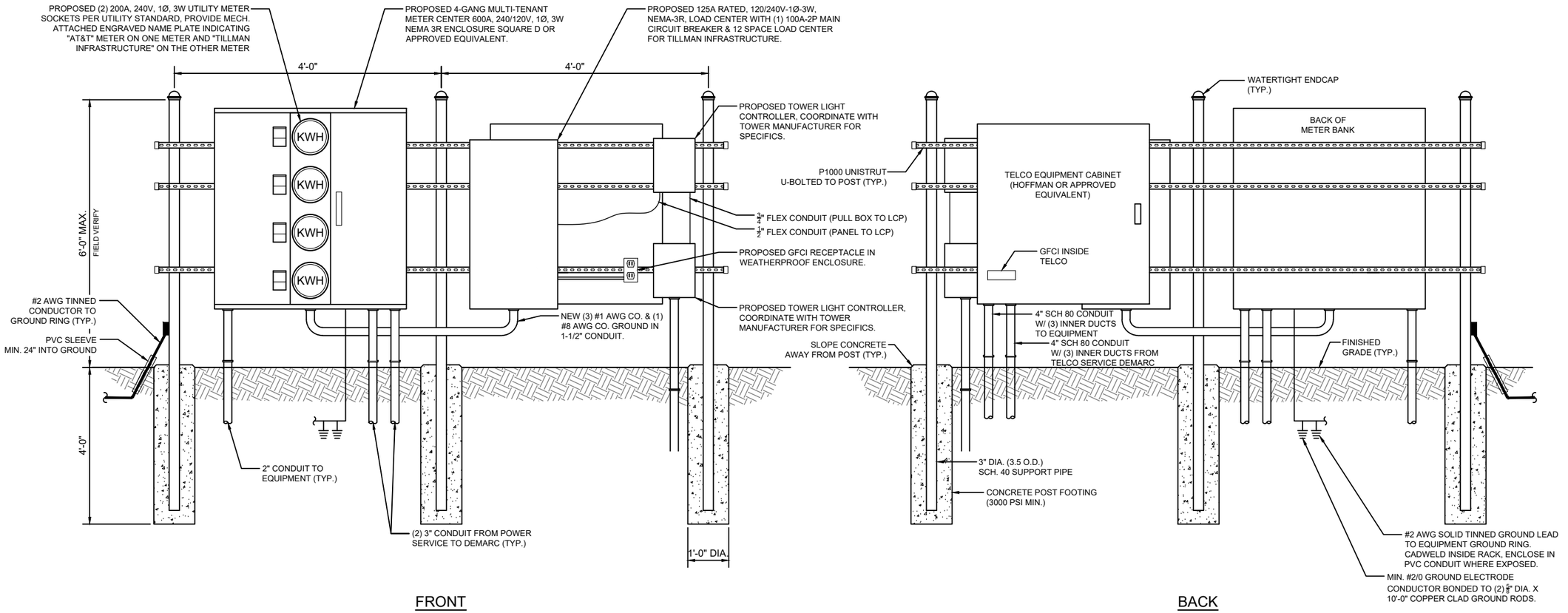
01/15/21

SHEET TITLE:

EQUIPMENT LAYOUT
AND DETAILS

SHEET #: C4

REVISION: 1



1 / C5 UTILITY BACKBOARD H- FRAME

NOT TO SCALE

1. ALL WORK SHALL CONFORM TO THE NATIONAL ELECTRICAL CODE, STATE BUILDING CODES AND THE LOCAL BUILDING CODES. ALL COMPONENTS SHALL BE U.L. LISTED.
2. 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.
3. CONTRACTOR TO COORDINATE WITH LOCAL UTILITY COMPANY FOR METER.
4. CONTRACTOR TO PROVIDE AND INSTALL METER SOCKET.
5. 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.
6. SHOW LOCATION (INCLUDING DIMENSIONS) OF ALL CAPPED UNDERGROUND CONDUIT ON FINAL AS-BUILT DRAWINGS SUBMITTED TO OWNER.
7. COORDINATE EXACT LOCATION OF UNDERGROUND FEEDERS AND CIRCUITRY WITH THE OWNER.
8. CONTRACTOR SHALL COORDINATE WITH LOCAL ELECTRICAL AUTHORITY HAVING JURISDICTION (AHJ) AND OTHER TRADES TO DETERMINE "FROST" LINE, AND TYPES OF RACEWAYS REQUIRED FOR INSTALLATION.
9. ALL CONDUITS ABOVE GROUND SHALL BE GALVANIZED CONDUIT.
10. CONTRACTOR TO CONTACT LOCAL UTILITY PRIOR TO PURCHASING METER CENTER TO VERIFY ANY PARTICULAR REQUIREMENTS, SUCH AS LEVER BYPASS, ETC.
11. ALL UNDERGROUND CONDUIT SHALL BE PVC SCHEDULE 40 UNLESS OTHERWISE INDICATED.
12. 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.
13. SUPPORT POST AND UNISTRUT SHALL BE GALVANIZED. PIPE CLAMPS AND HARDWARE SHALL BE GALVANIZED OR STAINLESS STEEL.
14. TELCO CABINET SHALL BE 48"x48" HOFFMAN OR EQUIVALENT. PROVIDE 3/4" PLYWOOD BACKBOARD INSIDE THE MULTI-TENANT TELCO CABINET.
15. 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.
16. REFER TO ONE-LINE DIAGRAM FOR CONDUIT SIZES.

PREPARED FOR:

TILLMAN INFRASTRUCTURE

A&E FIRM:

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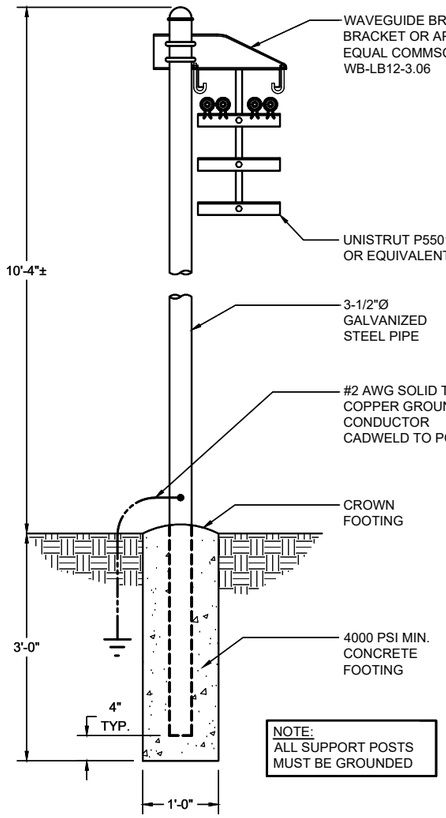
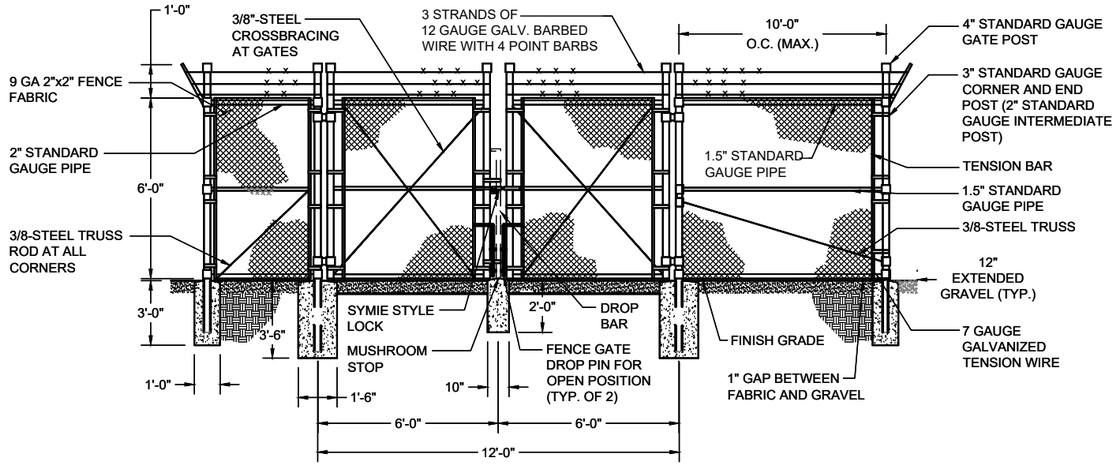
SHEET TITLE:
UTILITY BACKBOARD H-FRAME

SHEET #:	REVISION:
C5	1



1 C6 CABLE BRIDGE DETAIL

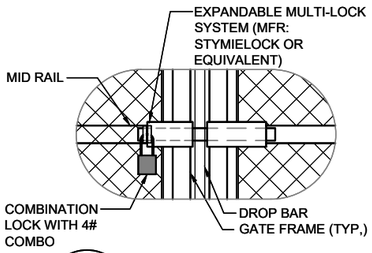
NOT TO SCALE



NOTE:
IF APPLICABLE, MATCH EXISTING CONDITIONS AS PRACTICAL

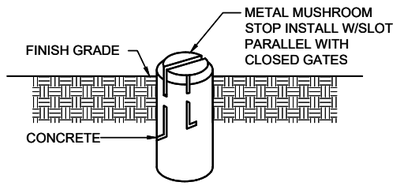
3 C6 TYPICAL FENCE AND GATE DETAIL

NOT TO SCALE



2 C6 LOCK DETAIL

NOT TO SCALE



4 C6 MUSHROOM STOP DETAIL

NOT TO SCALE

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SHEET TITLE:

CONSTRUCTION DETAILS

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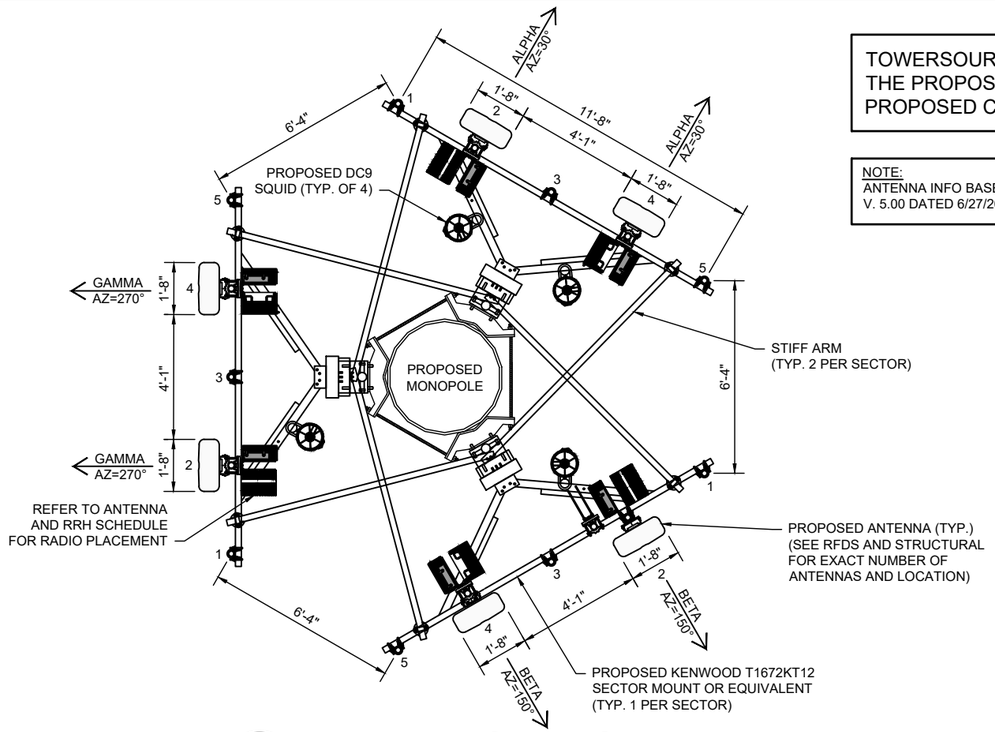
C6	1



1 / C7 ANTENNA MOUNTING PLAN

SCALE: 1" = 5'-0"

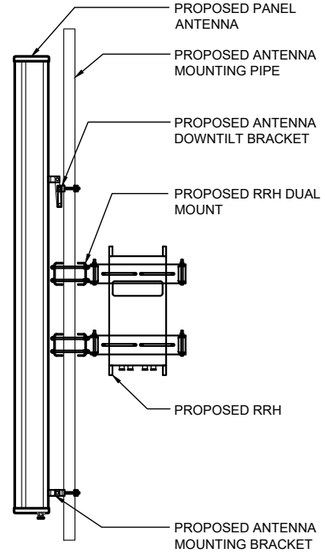
TOWERSOURCE HAS NOT ANALYZED THE PROPOSED MOUNT FOR THE PROPOSED CONFIGURATION.

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.

ANTENNA AND RRH SCHEDULE						CABLE COUNT	
SECTOR	ANTENNA MODEL	TECHNOLOGY	AZIMUTH	ANTENNA ℄	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 / C7 RRH MOUNTING DETAIL

SCALE: N.T.S.

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

PREPARED FOR:
TILLMAN INFRASTRUCTURE

A&E FIRM:
towersource
1875 OLD ALABAMA ROAD, SUITE 1008
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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

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

SHEET TITLE:
ANTENNA PLAN AND SCHEDULE

SHEET #: C7

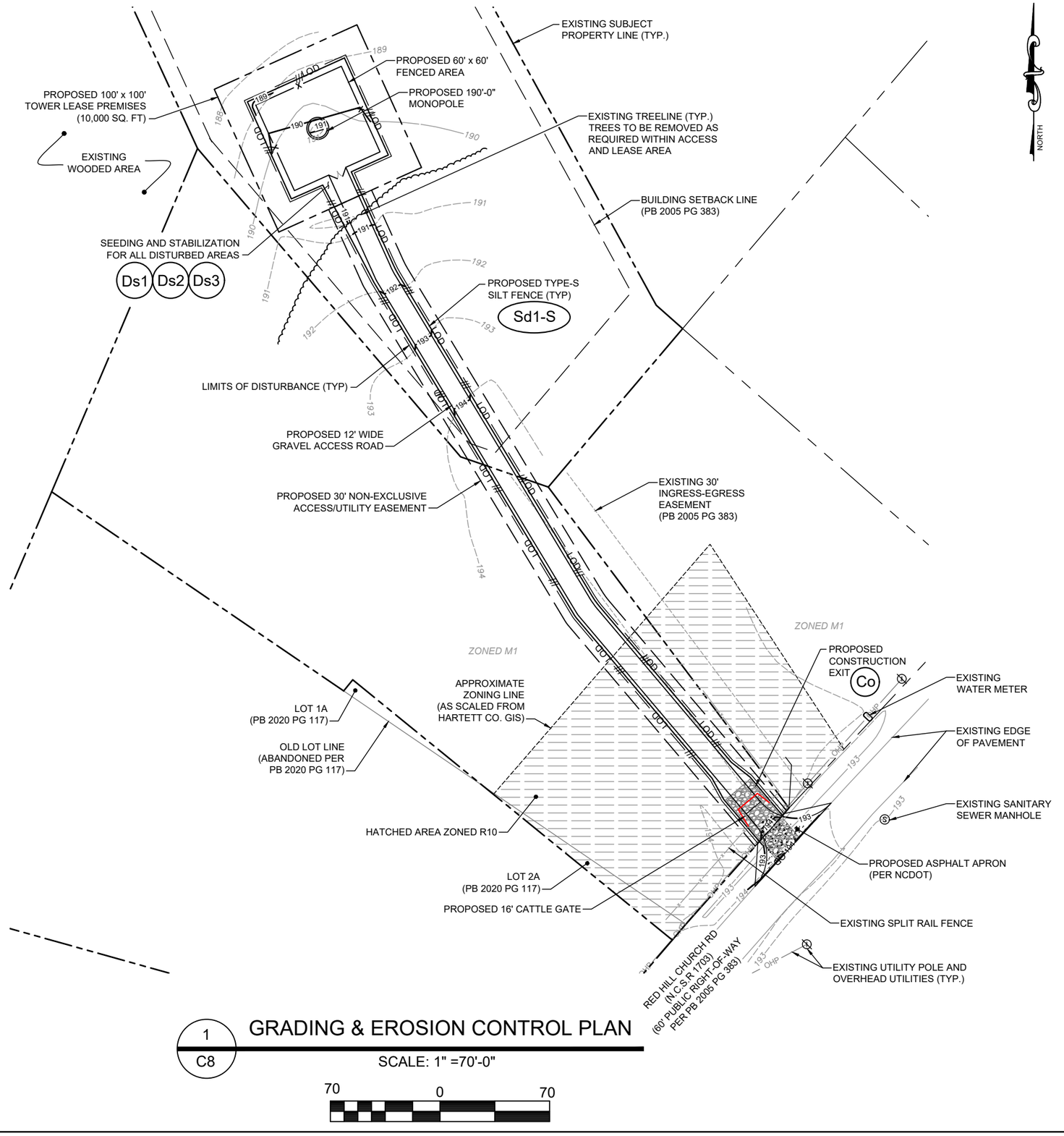
REVISION: 1

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
C8

GRADING & EROSION CONTROL PLAN

SCALE: 1" =70'-0"

70 0 70

PREPARED FOR:

TILLMAN INFRASTRUCTURE

A&E FIRM:

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DUNN, NC 28334

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

SHEET TITLE:

GRADING AND EROSION CONTROL PLAN

SHEET #:	REVISION:
C8	1

EXCAVATION & GRADING NOTES:

1. 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.

2. 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.

3. CRUSHED STONE MAY BE USED TO STABILIZE THE BOTTOM OF THE EXCAVATION. STONE, IF USED, SHALL NOT BE USED AS COMPILING CONCRETE THICKNESS.

4. 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.

5. 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.

6. 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.

7. 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.

8. 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.

9. DAMAGE TO EXISTING STRUCTURES AND UTILITIES RESULTING FROM CONTRACTOR'S NEGLIGENCE SHALL BE REPAIRED / REPLACED TO OWNER'S SATISFACTION AT CONTRACTOR'S EXPENSE.

10. CONTRACTOR SHALL COORDINATE THE CONSTRUCTION SCHEDULE WITH PROPERTY OWNER SO AS TO AVOID INTERRUPTIONS TO PROPERTY OWNER'S OPERATIONS.

11. ENSURE POSITIVE DRAINAGE DURING AND AFTER COMPLETION OF CONSTRUCTION.

12. ALL CUT AND FILL SLOPES SHALL BE 2 HORIZONTAL TO 1 VERTICAL MAXIMUM.

13. REMOVE ALL ORGANICS, ROCKS GREATER THAN 3", UNUSED FILL AND OTHER DEBRIS TO AN AREA OFF SITE IN A LEGAL MANNER.

14. 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:

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 THE 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 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.

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./FR. 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 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.

7. THE CONTRACTOR SHALL PROVIDE ADEQUATE EXCAVATION SLOPING SHORING , BRAVING, AND GUYS IN ACCORDANCE WITH ALL NATIONAL, STATE, AND LOCAL SAFETY ORDINATES.

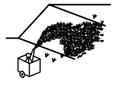
8. UPON COMPLETION OF CONSTRUCTION, CONTRACTOR IS RESPONSIBLE FOR REPAIRING ANY DAMAGE CAUSED BY CONSTRUCTION ACTIVITIES TO THE EXISTING ACCESS ROAD AND COMPOUND GRAVEL AREAS. ANY NEW FILL MATERIAL SHALL BE COMPACTED.

9. 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.

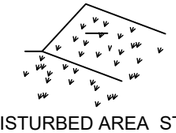
10. CONTRACTOR TO PROVIDE DUMPSTER AND PORTABLE TOILET FACILITY DURING CONSTRUCTION.

11. CONTRACTOR TO PROVIDE STYMIE LOCK OR EQUIVALENT AS APPROVED BY TILLMAN INFRASTRUCTURE CONSTRUCTION MANAGER.

Ds1 DISTURBED AREA STABILIZATION (WITH MULCHING ONLY)
NO SCALE



Ds2 DISTURBED AREA STABILIZATION (WITH TEMPORARY SEEDING)
NO SCALE



Ds3 DISTURBED AREA STABILIZATION (WITH PERMANENT VEGETATION)
NO SCALE

GENERAL EROSION & SEDIMENT CONTROL NOTES:

1. ADDITIONAL EROSION CONTROL MEASURES WILL BE EMPLOYED WHERE DETERMINED NECESSARY BY ACTUAL SITE CONDITIONS.

2. PRIOR TO COMMENCING LAND DISTURBANCE ACTIVITY, THE LIMITS OF LAND DISTURBANCE SHALL BE CLEARLY AND ACCURATELY DEMARCATED WITH STAKES, RIBBONS, OR OTHER APPROPRIATE MEANS.

3. 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.

4. 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.

5. 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.

6. THE CONTRACTOR SHALL REMOVE ACCUMULATED SILT WHEN THE SILT IS WITHIN 12" OF THE TOP OF THE SILT FENCE.

7. 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.

8. SILT BARRIERS TO BE PLACED AT DOWNSTREAM TOE OF ALL CUT AND FILL SLOPES.

9. ANY DISTURBED AREA LEFT EXPOSED FOR A PERIOD GREATER THAN 7 DAYS SHALL BE STABILIZED WITH SEEDING.

10. 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 RYE GRASS	50lbs. 50lbs.	11/1 -2/28
HAY MULCH FOR TEMPORARY COVER	5000lbs.	6/15 -8/31

    B. TOPDRESSING: APPLY WHEN PLANTS ARE 2 TO 4 INCHES TALL
    FERTILIZER (AMMONIUM NITRATE 33.5%) 300 lbs./acre

    C. 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.

11. CONTRACTOR SHALL REMOVE ALL EROSION & SEDIMENT CONTROL MEASURES AFTER COMPLETION OF CONSTRUCTION AND ESTABLISHMENT OF PERMANENT GROUND COVER.

12. 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.

13. ALL CUT AND FILL SLOPES MUST BE SURFACED ROUGHENED AND VEGETATED WITHIN SEVEN (7) DAYS OF THEIR CONSTRUCTION.

14. ALL FILL SLOPES WILL HAVE SILT FENCE AT TOE OF SLOPES.

15. 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.

16. 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.

17. A 25' MIN UNDISTURBED VEGETATIVE BUFFER ADJACENT TO ALL RUNNING STREAMS AND CREEKS WILL BE LEFT AND MAINTAINED.

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

PROJECT INFORMATION:

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

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

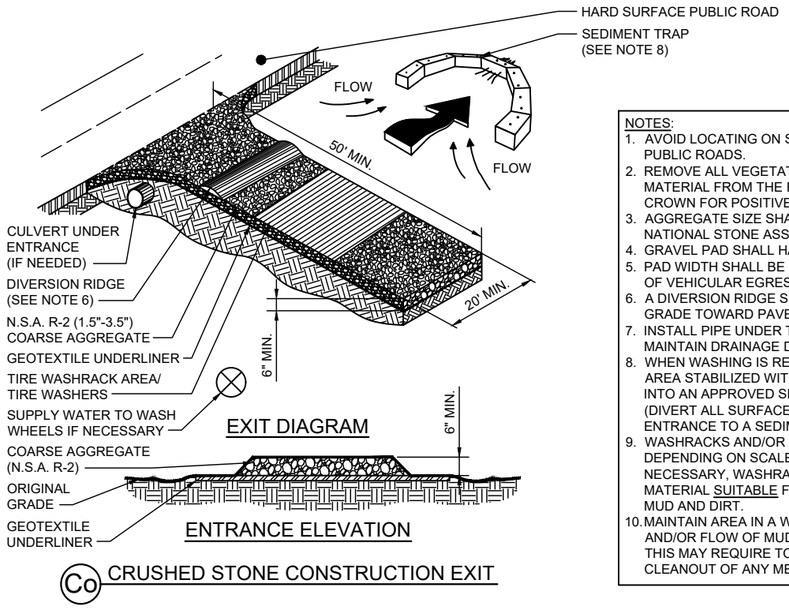
REVISIONS

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

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

SHEET TITLE:
GRADING AND EROSION CONTROL NOTES

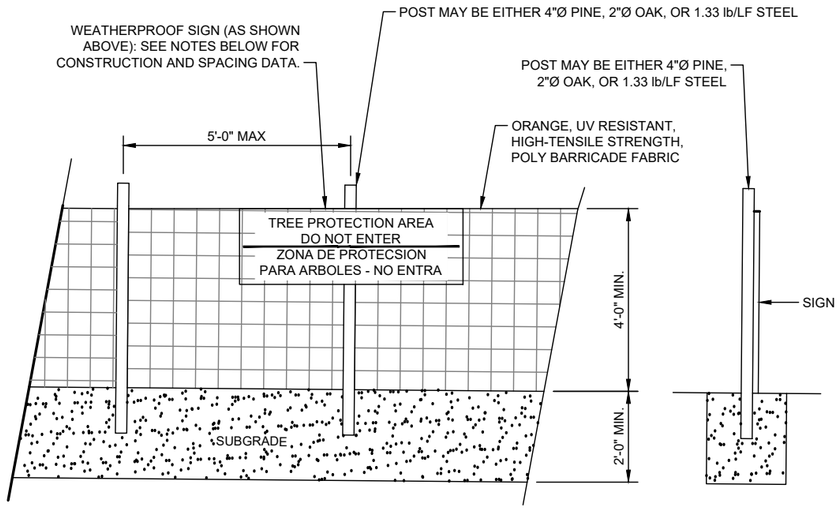
SHEET #:	REVISION:
C9	1



Co CRUSHED STONE CONSTRUCTION EXIT

NOTES:
1. AVOID LOCATING ON STEEP SLOPES OR AT CURVES ON PUBLIC ROADS.
2. REMOVE ALL VEGETATION AND OTHER UNSUITABLE MATERIAL FROM THE FOUNDATION AREA, GRADE, AND CROWN FOR POSITIVE DRAINAGE.
3. AGGREGATE SIZE SHALL BE IN ACCORDANCE WITH NATIONAL STONE ASSOCIATION R-2 (1.5"-3.5" STONE).
4. GRAVEL PAD SHALL HAVE A MINIMUM THICKNESS OF 6".
5. PAD WIDTH SHALL BE EQUAL FULL WIDTH AT ALL POINTS OF VEHICULAR EGRESS, BUT NO LESS THAN 20'.
6. A DIVERSION RIDGE SHOULD BE CONSTRUCTED WHEN GRADE TOWARD PAVED AREA IS GREATER THAN 2%..
7. INSTALL PIPE UNDER THE ENTRANCE IF NEEDED TO MAINTAIN DRAINAGE DITCHES.
8. WHEN WASHING IS REQUIRED, IT SHOULD BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE THAT DRAINS INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN (DIVERT ALL SURFACE RUNOFF AND DRAINAGE FROM THE ENTRANCE TO A SEDIMENT CONTROL DEVICE).
9. WASHRACKS AND/OR TIRE WASHERS MAY BE REQUIRED DEPENDING ON SCALE AND CIRCUMSTANCE. IF NECESSARY, WASHRACK DESIGN MAY CONSIST OF ANY MATERIAL SUITABLE FOR TRUCK TRAFFIC THAT REMOVE MUD AND DIRT.
10. MAINTAIN AREA IN A WAY THAT PREVENTS TRACKING AND/OR FLOW OF MUD ONTO PUBLIC RIGHTS-OF-WAYS. THIS MAY REQUIRE TOP DRESSING, REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT.

1 C10 CONSTRUCTION EXIT
NOT TO SCALE



NOTE:

INSTALL TREE PROTECTION FENCE AND SIGNAGE PRIOR TO CALLING FOR SITE INSPECTION. MAINTAIN TREE PROTECTION FENCE THROUGHOUT DURATION OF PROJECT. ADDITIONAL SIGNS MAY BE REQUIRED BASED ON ACTUAL FIELD CONDITIONS.

2 C10 TREE PROTECTION FENCE
NOT TO SCALE

SEEDING SCHEDULE FOR WINTER / SPRING CONSTRUCTION ACTIVITIES

SEEDING MIXTURE

SPECIES	RATE (LB/ACRE)
RYE (GRAIN)	120
ANNUAL LESPEDEZA (KOBE IN PIEDMONT AND COASTAL PLAIN, KOREAN IN MOUNTAINS)	50

OMIT ANNUAL LESPEDEZA WHEN DURATION OF TEMPORARY COVER IS NOT TO EXTEND BEYOND JUNE.

SEEDING DATES

MOUNTAINS -- ABOVE 2500 FT:	FEB 15 - MAY 15
BELOW 2500 FT.:	FEB. 1 - MAY 1
PIEDMONT --	JAN. 1 - MAY 1
COASTAL PLAIN --	DEC. 1 - APR. 15

SOIL AMENDMENTS
FOLLOW RECOMMENDATIONS OF SOIL TESTS OR APPLY 2,000 LB/ACRE GROUND AGRICULTURAL LIMESTONE AND 750 LB/ACRE 10-10-10 FERTILIZER.

MULCH
APPLY 4,000 LB/ACRE STRAW. ANCHOR STRAW BY TACKING WITH ASPHALT, NETTING, OR A MULCH ANCHORING TOOL. A DISK WITH BLADES SET NEARLY STRAIGHT CAN BE USED AS A MULCH ANCHORING TOOL.

MAINTENANCE
REFERTILIZE IF GROWTH IS NOT FULLY ADEQUATE. RESEED, REFERTILIZE AND MULCH IMMEDIATELY FOLLOWING EROSION OR OTHER DAMAGE.

SEEDING SCHEDULE FOR SUMMER CONSTRUCTION ACTIVITIES

SEEDING MIXTURE

SPECIES	RATE (LB/ACRE)
COMMON BERMUDAGRASS	40-80 (1-2 LB/1,000 SQ. FT.)

SEEDING DATES

COASTAL PLAIN --	APR. 1 - JULY
PIEDMONT --	APR. 15 - JUNE 30

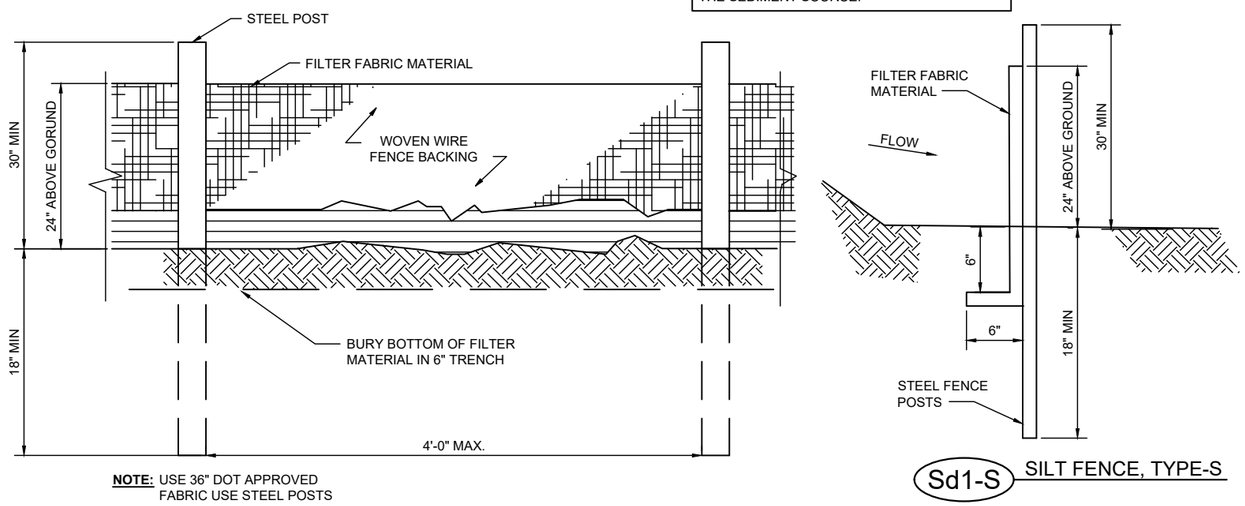
SOIL AMENDMENTS
APPLY LIME AND FERTILIZER ACCORDING TO SOIL TESTS, OR APPLY 3,000 LB/ACRE GROUND AGRICULTURAL LIMESTONE AND 500 LB/ACRE 10-10-10 FERTILIZER.

MULCH
USE JUTE, EXCELSIOR MATTING, OR OTHER EFFECTIVE CHANNEL LINING MATERIAL TO COVER THE BOTTOM OF CHANNELS AND DITCHES. THE LINING SHOULD EXTEND ABOVE THE HIGHEST CALCULATED DEPTH OF FLOW. ON CHANNEL SIDE SLOPES ABOVE THIS HEIGHT, AND IN DRAINAGES NOT REQUIRING TEMPORARY LINING, APPLY 4,000 LB/ACRE GRAIN STRAW AND ANCHOR STRAW BY STAPLING NETTING OVER THE TOP.

MAINTENANCE
A MINIMUM OF 3 WEEKS IS REQUIRED FOR ESTABLISHMENT. INSPECT AND REPAIR MULCH FREQUENTLY. REFERTILIZE THE FOLLOWING APR. WITH 50 LB/ACRE NITROGEN.

CONTRACTOR SHALL BE RESPONSIBLE FOR CONSTRUCTION AND MAINTENANCE OF EROSION AND SEDIMENTATION CONTROLS DURING CONSTRUCTION. INSTALL SILT FENCE AS SHOWN HERE ADDITIONALLY REQUIRED FOR PROTECTION OF ADJACENT PROPERTIES, ROADWAYS, AND WATERWAYS.

EROSION CONTROL MEASURES WILL BE MAINTAINED AT ALL TIMES. IF FULL IMPLEMENTATION OF THE APPROVED PLAN DOES NOT PROVIDE FOR EFFECTIVE EROSION CONTROL, ADDITIONAL EROSION CONTROL AND SEDIMENT CONTROL MEASURES SHALL BE IMPLEMENTED TO CONTROL OR TREAT THE SEDIMENT SOURCE.



NOTE: USE 36" DOT APPROVED FABRIC USE STEEL POSTS

Sd1-S SILT FENCE, TYPE-S

3 C10 SEDIMENT FENCE (SILT FENCE)
NOT TO SCALE

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

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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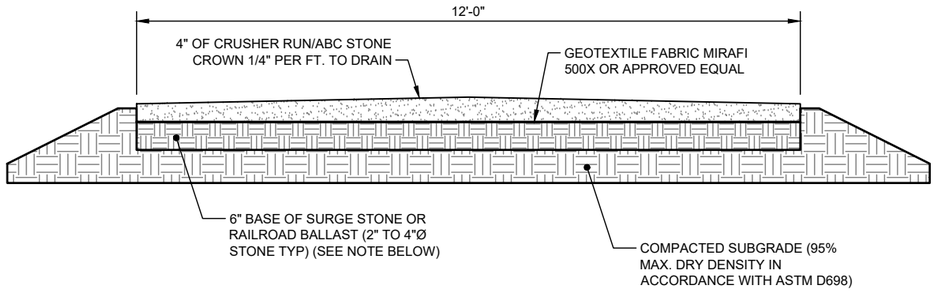
1	01/15/21	REVISED E911 ADDRESS

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

SHEET TITLE:
EROSION CONTROL DETAILS

SHEET #: C10
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
C10A

ACCESS ROAD DETAIL

NOT TO SCALE

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

SHEET TITLE:

ACCESS ROAD DETAIL

SHEET #: C10A

REVISION: 1

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 C11 PROPERTY OF TILLMAN INFRASTRUCTURE

SCALE: N.T.S.

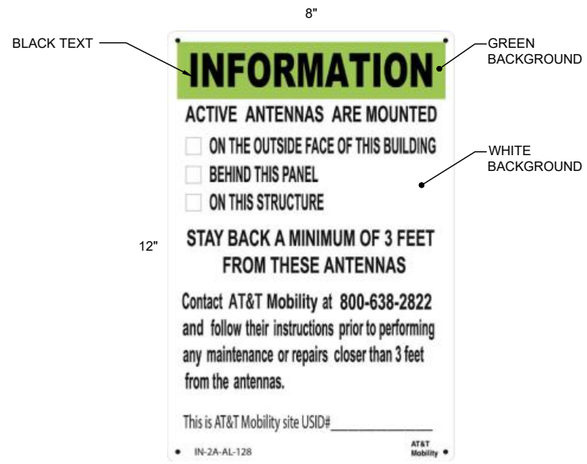
SIGNAGE NOTES:

1. SIGNS SHALL BE FABRICATED FROM CORROSION RESISTANT PRESSED METAL & PAINTED WITH LONG LASTING UV RESISTANT COATING.
2. 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.
3. 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.
4. 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 C11 FCC REGISTRATION SIGN

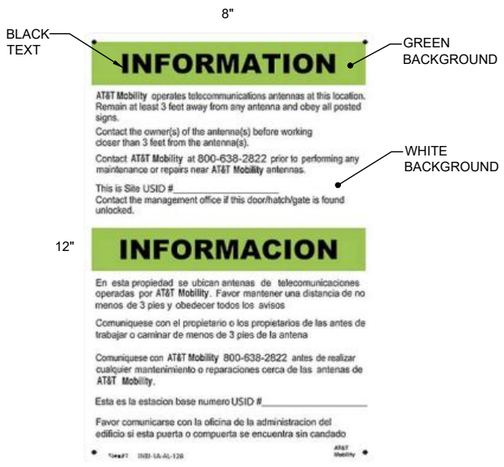
SCALE: N.T.S.



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

3 C11 RF EXPOSURE INFORMATION SIGN

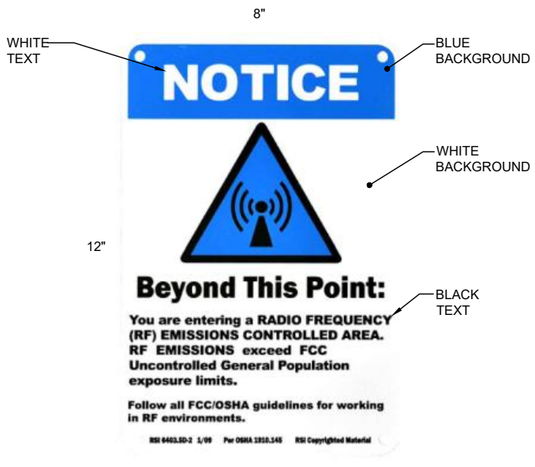
SCALE: N.T.S.



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

4 C11 RX EXPOSURE INFORMATION SIGN

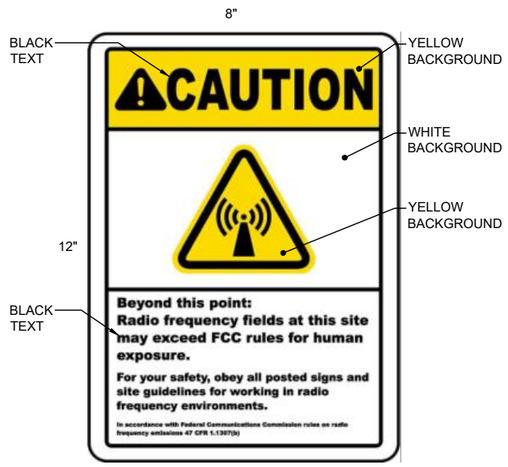
SCALE: N.T.S.



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

5 C11 RX EXPOSURE NOTICE SIGN

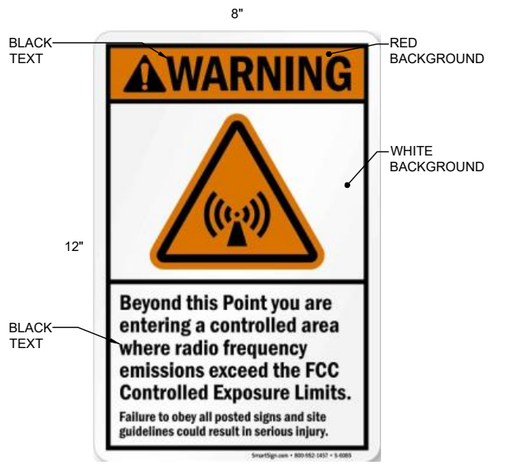
SCALE: N.T.S.



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

6 C11 RX EXPOSURE CAUTION SIGN

SCALE: N.T.S.



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

7 C11 RX EXPOSURE WARNING SIGN

SCALE: N.T.S.

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

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

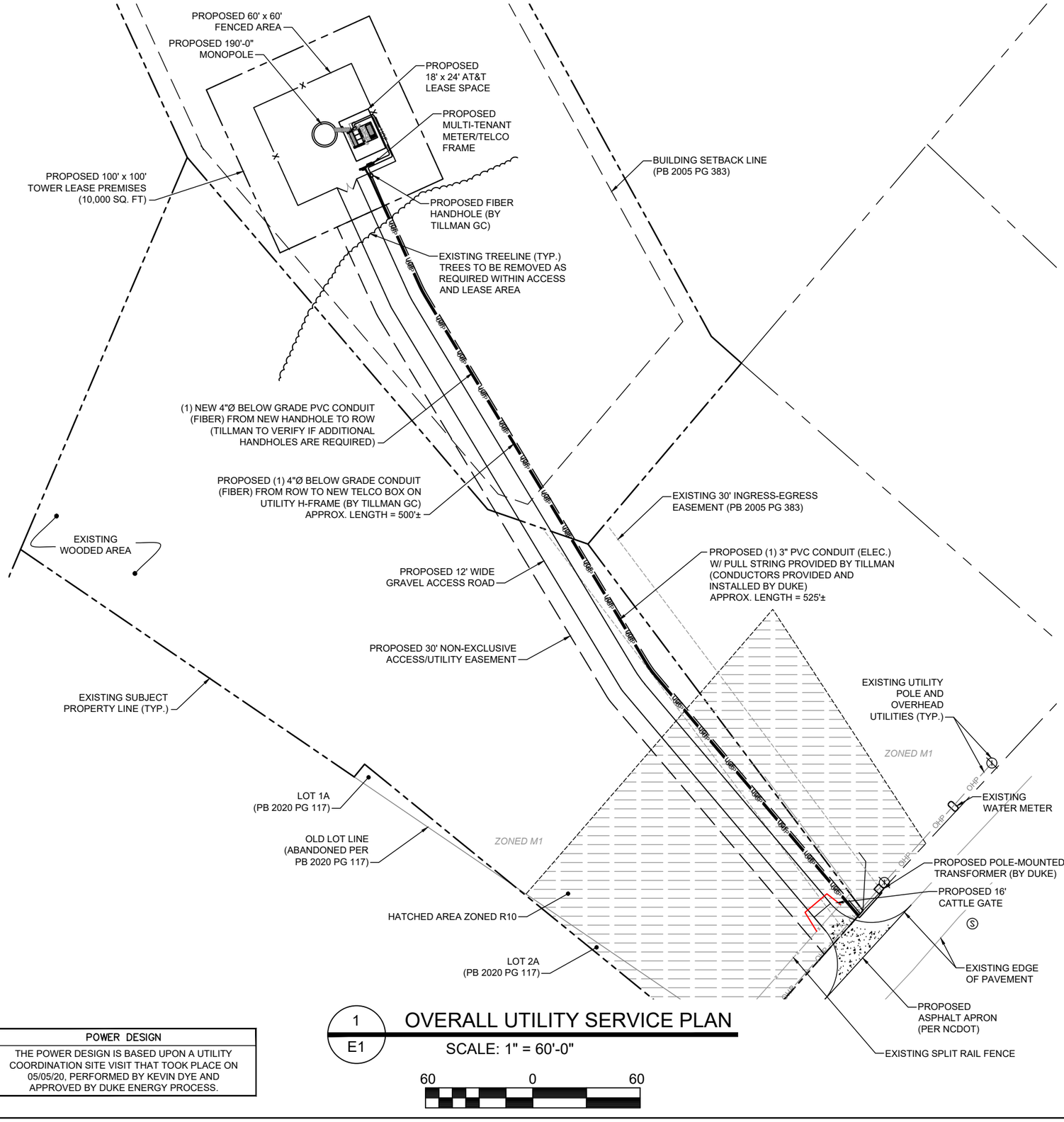
REVISIONS

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

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

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:

1. ALL ELECTRICAL WORK SHALL COMPLY WITH NEC, STATE, AND LOCAL CODES.
2. 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.
3. 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.
4. 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.
5. 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.
6. 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.
7. PRIOR TO TRENCHING, CONTRACTOR SHALL LOCATE ALL EXISTING UNDERGROUND UTILITIES. CONTRACTOR SHALL REPAIR AT CONTRACTOR'S EXPENSE ANY DAMAGE TO EXISTING UTILITIES.
8. CONTRACTOR TO VERIFY EXACT ROUTING OF POWER AND TELCO CONDUIT WITH LOCAL UTILITIES AND OWENR/TENANT. ENSURE ALL CONDUIT STUB-UPS ACCOMMODATE EQUIPMENT REQUIREMENTS.
9. 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.
10. 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.
11. CONDUIT ENTERING EQUIPMENT SHALL BE SEALED WITH A SEALANT THAT IS IDENTIFIED FOR USE WITH THE CABLE. CONDUCTOR INSULATION, SHIELDING, ETC.
12. 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.
13. UPON COMPLETION OF CONSTRUCTION, CONTRACTOR IS RESPONSIBLE FOR REPAIRING ANY DAMAGE CAUSED BY CONSTRUCTION ACTIVITIES TO THE LANDSCAPING AREA.
14. 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."
15. CONTRACTORS SHALL ENSURE A MINIMUM 3' CLEARANCE IN FRONT OF ELECTRICAL PANELS PER NEC.
16. ALL ELECTRICAL MATERIALS, DEVISES, APPLIANCES AND EQUIPMENT SHALL BE LABEL LISTED BY AN APPROVED THIRD PARTY TESTING AGENCY.
17. FLEX CONDUIT RUNS NOT TO EXCEED 36" WITHOUT PRIOR TMO APPROVAL.

CONDUIT ROUTING NOTE:

1. CONTRACTOR TO PROVIDE PULL BOXES AS NEEDED TO ENSURE NO GREATER THAN 360 DEGREES OF BENDS BETWEEN PULL POINTS IN CONDUIT RUNS.
2. CONTRACTOR COORDINATE WITH LOCAL UTILITY COMPANY FOR SERVICE TO THIS POINT.
3. 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:

TILLMAN INFRASTRUCTURE

A&E FIRM:

towersource

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

PROJECT INFORMATION:

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DUNN, NC 28334

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

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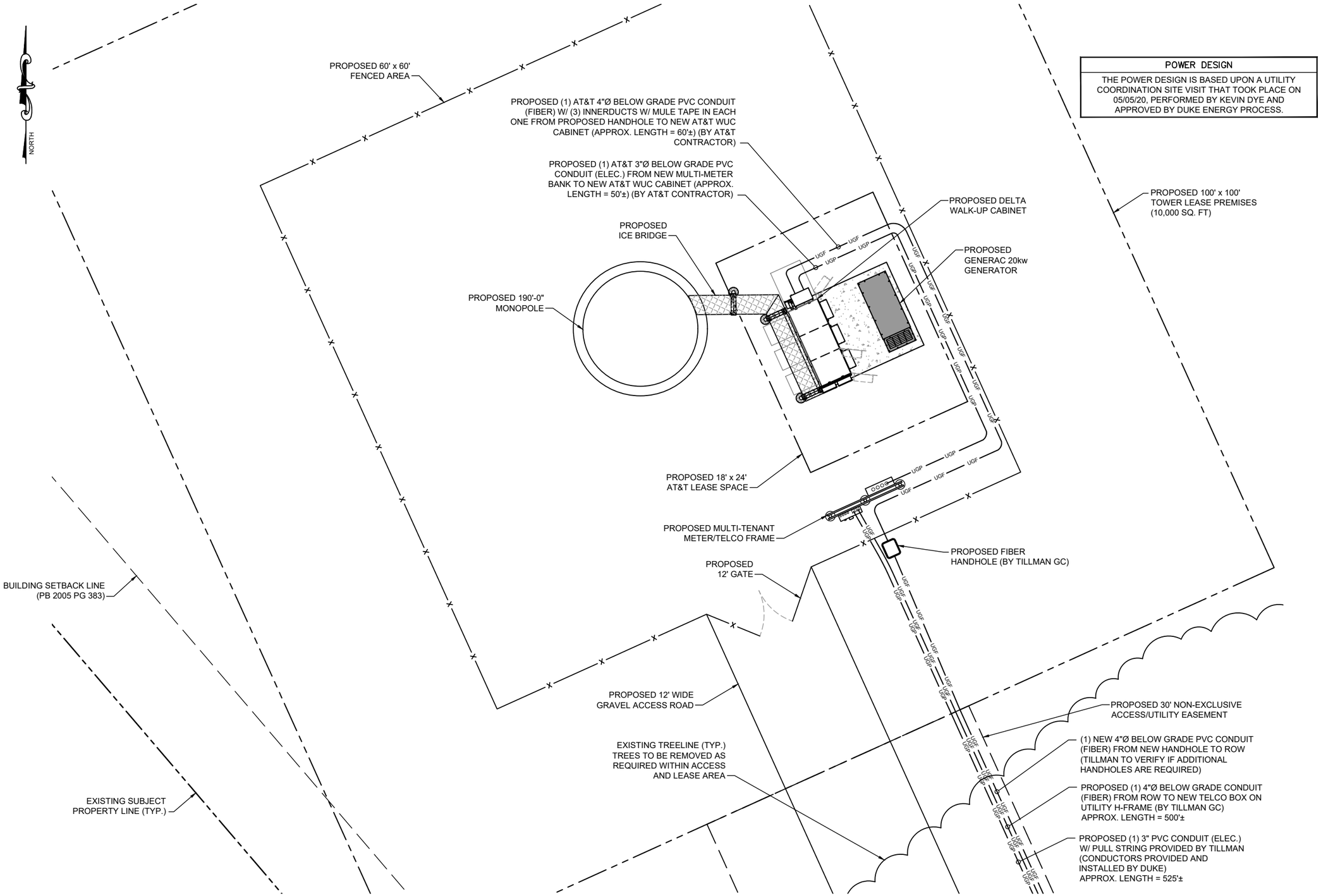
NORTH CAROLINA PROFESSIONAL SEAL 040598 ENGINEER MATTHEW E WATKINS 01/15/21

SHEET TITLE:
OVERALL UTILITY SERVICE PLAN

SHEET #:	REVISION:
E1	1



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.

1 / E2 ENLARGED UTILITY SERVICE PLAN

SCALE: 1" = 10'-0"

10 0 10

PREPARED FOR:

TILLMAN INFRASTRUCTURE

A&E FIRM:

towersource

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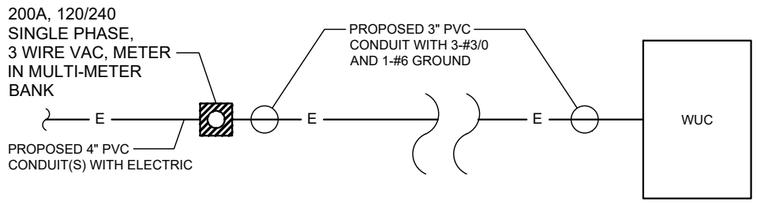
NORTH CAROLINA PROFESSIONAL SEAL 040598 ENGINEER MATTHEW E WATKINS
01/15/21

SHEET TITLE:
ENLARGED UTILITY SERVICE PLAN

SHEET #:	REVISION:
E2	1

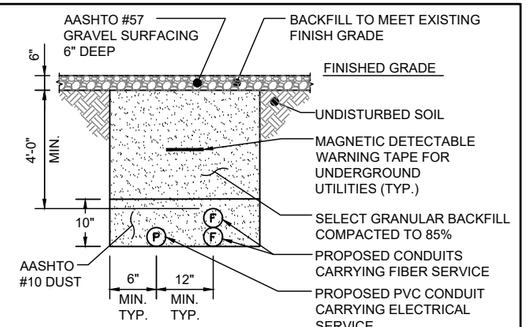
ELECTRICAL NOTES

1. SUBMITTAL OF BID INDICATES THAT THE CONTRACTOR IS COGNIZANT OF ALL JOB SITE CONDITIONS AND WORK TO BE PERFORMED UNDER THIS CONTRACT.
2. 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.
3. VERIFY HEIGHTS WITH PROJECT MANAGER PRIOR TO INSTALLATION.
4. THESE PLANS ARE DIAGRAMMATIC ONLY, FOLLOW AS CLOSELY AS POSSIBLE.
5. CONTRACTOR SHALL COORDINATE ALL WORK BETWEEN TRADES AND ALL OTHER SCHEDULING AND PROVISIONARY CIRCUMSTANCES SURROUNDING THE PROJECT.
6. 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.
7. 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.
8. ALL WORK SHALL COMPLY WITH ALL APPLICABLE GOVERNING STATE, COUNTY AND CITY CODES AND OSHA, NFPA, NEC & ASHRAE REQUIREMENTS.
9. 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.
10. PROPERLY SEAL ALL PENETRATIONS. PROVIDE UL LISTED FIRE-STOPS WHERE PENETRATIONS ARE MADE THROUGH FIRE-RATED ASSEMBLIES. WATER-TIGHT USING SILICONE SEALANT.
11. 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.
12. 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).
13. ALL CIRCUIT BREAKERS, FUSES AND ELECTRICAL EQUIPMENT SHALL HAVE AN INTERRUPTING RATING NOT LESS THE MAXIMUM INTERRUPTING CURRENT TO WHICH THEY MAY BE SUBJECTED.
14. THE ENTIRE ELECTRICAL INSTALLATION SHALL BE GROUNDED IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE; ARTICLES 250 & 810 AND THE UTILITY COMPANY STANDARDS.
15. CONDUIT:
    A. 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.
    B. ELECTRICAL METALLIC TUBING SHALL HAVE U.L. LABEL, FITTINGS SHALL BE GLAND RING COMPRESSION TYPE. EMT SHALL BE USED ONLY FOR INTERIOR RUNS.
    C. 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.
    D. 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.
    E. 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.
17. 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.
18. 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.
19. 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.
20. 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.
21. VERIFY ALL EXISTING CIRCUITRY PRIOR TO REMOVAL AND NEW WORK. MAINTAIN POWER TO ALL OTHER AREAS & CIRCUITS NOT SCHEDULED FOR REMOVAL.
22. RED LINED AS-BUILT PLANS SHALL BE PROVIDED TO THE CONSTRUCTION MANAGER.



1 / E3 POWER DIAGRAM

SCALE: N.T.S.



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

2 / E3 TYPICAL TRENCH DETAIL

SCALE: N.T.S.

INTEGRATED LOAD CENTER

LOAD DESCRIPTION	QTY.	UNIT V.A.	LOAD PER PHASE (VA) A	LOAD PER PHASE (VA) B	WIRE COLOR	LOADS CONTINUOUS	LOADS NON-CONTINUOUS	LOADS SUB-PANEL	WIRE SIZE	GROUNDING WIRE SIZE	TRIP												
1 RECTIFIER #1	1	1400	1400		BLK	X			8	(10)	40	40	(10)	8			X	BLK	1400		1400	1	RECTIFIER #5 2
3	1	1400		1400	RED													RED		1400	1400	1	4
5 RECTIFIER #2	1	1400	1400		BLK	X			8	(10)	40	40	(10)	8			X	BLK	1400		1400	1	RECTIFIER #6 6
7	1	1400		1400	RED													RED		1400	1400	1	8
9 RECTIFIER #3	1	1400	1400		BLK	X			8	(10)	40	40	(10)	8			X	BLK	1400		1400	1	RECTIFIER #7 10
12	1	1400		1400	RED													RED		1400	1400	1	12
13 RECTIFIER #4	1	1400	1400		BLK	X			8	(10)	40	40	(10)	8			X	BLK	1400		1400	1	RECTIFIER #8 14
15	1	1400		1400	RED													RED		1400	1400	1	16
17					BLK													BLK					18
19					RED	X			12	12	20							RED					20
21 GFCI RECEPTACLES	2	180	360		BLK	X			12	(12)	20							BLK					22
23 OPTIONAL FIBER BOX RECEPTACLE	1	180		180	RED	X			12	12	20							RED					24
25 BATTERY CHARGER/BLOCK HEATER (IF REQIRED)	1	240	480		BLK	X			12	12	20							BLK					26
27					RED													RED					28
29 OIL HEATER (IF REQUIRED)	1	180	180		BLK	X			12	12	20							BLK					30
		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	–
																						TOTAL KVA	31.075
																						TOTAL AMPS	129.48

PANEL DESIGNATION: ELECTRICAL PANEL (ITEM 2)

MAIN LUGS: N/A | MAIN BREAKER: 200 AMP | BRANCH BREAKER TYPE: SIEMENS – BL

VOLTAGE: 120/240 | CYCLE: 60 | PHASE: 1 | WIRES: 3 | MAIN COPPER BUS: 200 AMPS | NEUTRAL: 200 AMPS

3 / E3 PANEL SCHEDULE

SCALE: N.T.S.

PREPARED FOR:
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A&E FIRM:
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APPROVED BY:	MEW

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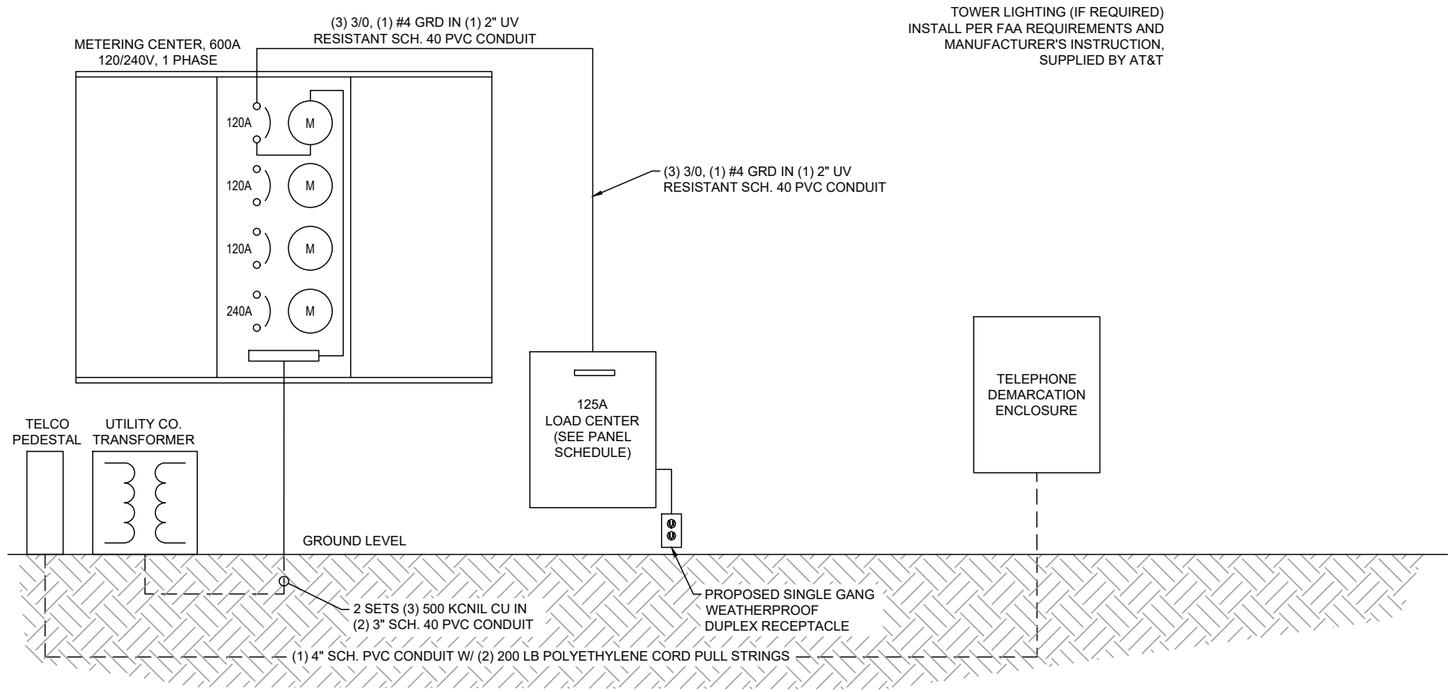
NORTH CAROLINA PROFESSIONAL SEAL 040598 01/15/21 ENGINEER MATTHEW E WATKINS

SHEET TITLE:
ELECTRICAL PANEL SCHEDULE, DIAGRAM, AND NOTES

SHEET #:	REVISION:
E3	1



1
E4

ELECTRICAL SINGLE-LINE DIAGRAM

SCALE: N.T.S.

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PREPARED FOR:

TILLMAN INFRASTRUCTURE

A&E FIRM:

towersource

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

SHEET TITLE:
ELECTRICAL SINGLE-LINE DIAGRAM

SHEET #:	REVISION:
E4	1

SD020 | 2.2L | 20 kW

INDUSTRIAL DIESEL GENERATOR SET

EPA Certified Stationary Emergency

GENERAC | INDUSTRIAL POWER

Standby Power Rating
20 kW, 25 kVA, 60 Hz

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

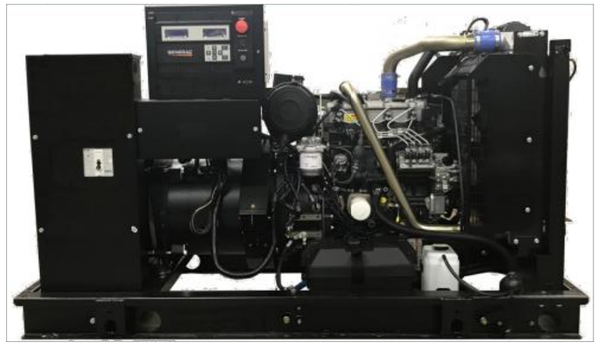

Image used for illustration purposes only

ISO 9001:2008

USA ENGINEERED & BUILT* *Assembled in the USA using domestic and foreign parts

*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.

SPEC SHEET

SD020 | 2.2L | 20 kW

INDUSTRIAL DIESEL GENERATOR SET

EPA Certified Stationary Emergency

GENERAC | INDUSTRIAL POWER

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)

SPEC SHEET

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

PROJECT INFORMATION:

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

SHEET TITLE:

GENERATOR SPECIFICATIONS (BY OTHERS)

SHEET #:	REVISION:
E5	1

SD020 | 2.2L | 20 kW

INDUSTRIAL DIESEL GENERATOR SET

EPA Certified Stationary Emergency

GENERAC | INDUSTRIAL POWER

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

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

ENGINEERED OPTIONS

ENGINE SYSTEM

- Coolant Heater Isolation Ball Valves
- Fluid Containment Pan

CONTROL SYSTEM

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

ALTERNATOR SYSTEM

- 3rd Breaker System

GENERATOR SET

- Special Testing

FUEL TANKS

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

SPEC SHEET

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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%

SPEC SHEET

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SHEET #:	REVISION:
E6	1

SD020 | 2.2L | 20 kW

INDUSTRIAL DIESEL GENERATOR SET

EPA Certified Stationary Emergency

GENERAC | INDUSTRIAL POWER

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)
3 (1)
Total Fuel Pump Flow (Combustion + Return) - gph (Lph)
16.6 (63)

Diesel - gph (Lph)

Percent Load	Standby
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.

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 (m^3/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_2O (kPa)	0.5 (0.12)

COMBUSTION AIR REQUIREMENTS

	Standby
Flow at Rated Power scfm (m^3/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 (m^3/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

SPEC SHEET

SD020 | 2.2L | 20 kW

INDUSTRIAL DIESEL GENERATOR SET

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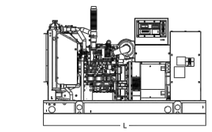
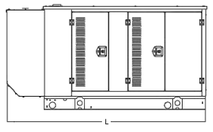
GENERAC | INDUSTRIAL POWER

DIMENSIONS AND WEIGHTS*



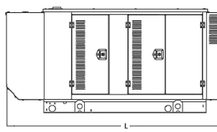
OPEN SET (Includes Exhaust Flex)

Run Time - Hours	Usable Capacity - Gal (L)	L x W x H - in (mm)	Weight - lbs (kg) Steel
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)



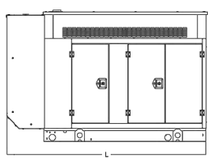
WEATHER PROTECTED ENCLOSURE

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)	2,626 (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.

SPEC SHEET

Generac Power Systems, Inc. | P.O. Box 8 | Waukesha, WI 53189

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

PREPARED FOR:

TILLMAN INFRASTRUCTURE

A&E FIRM:

towersource

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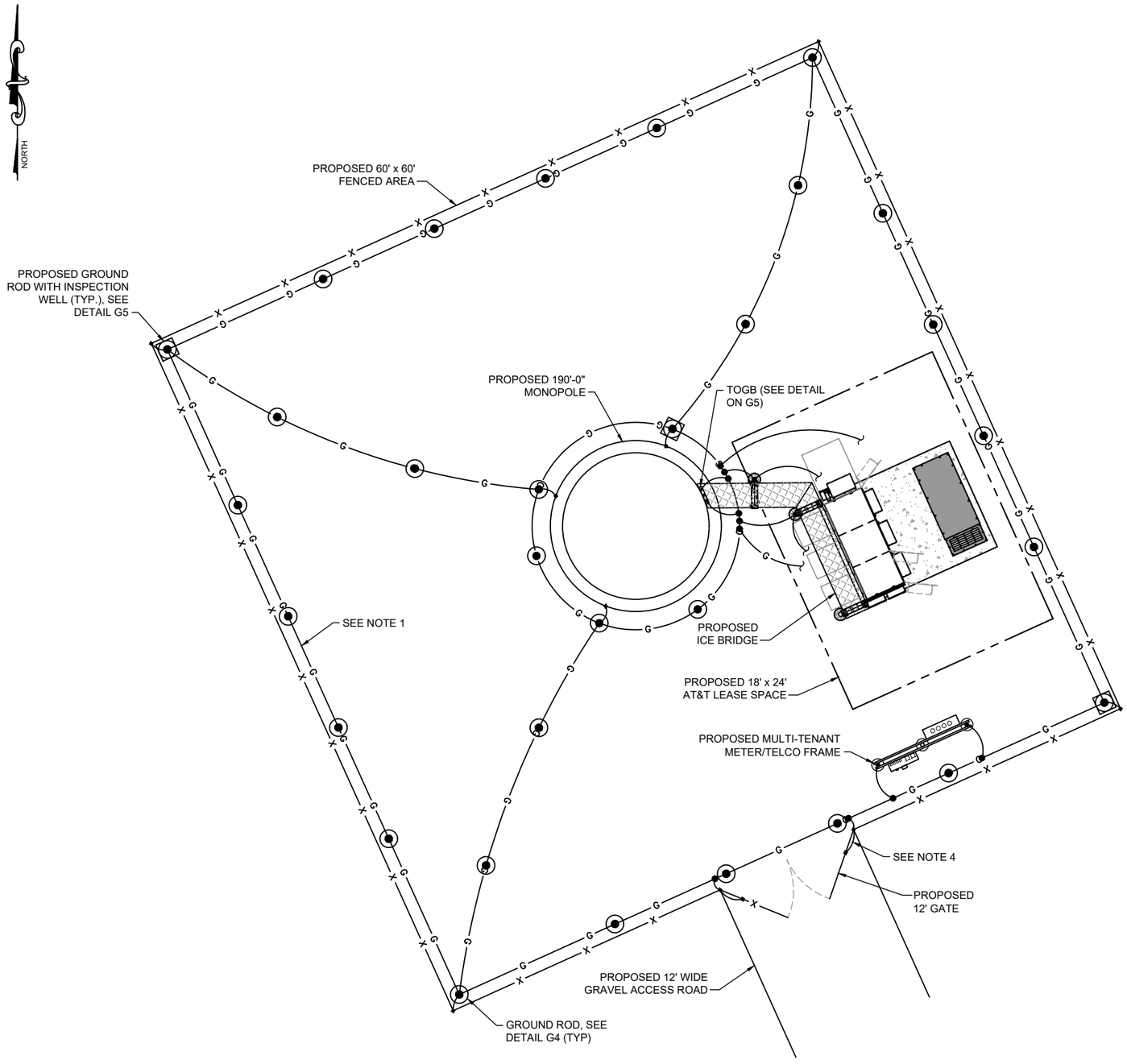
SHEET TITLE:

GENERATOR SPECIFICATIONS (BY OTHERS)

SHEET #:	REVISION:
E7	1



1 / G1 GROUNDING PLAN

SCALE: 1" = 10'-0"

10 0 10

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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SHEET TITLE:

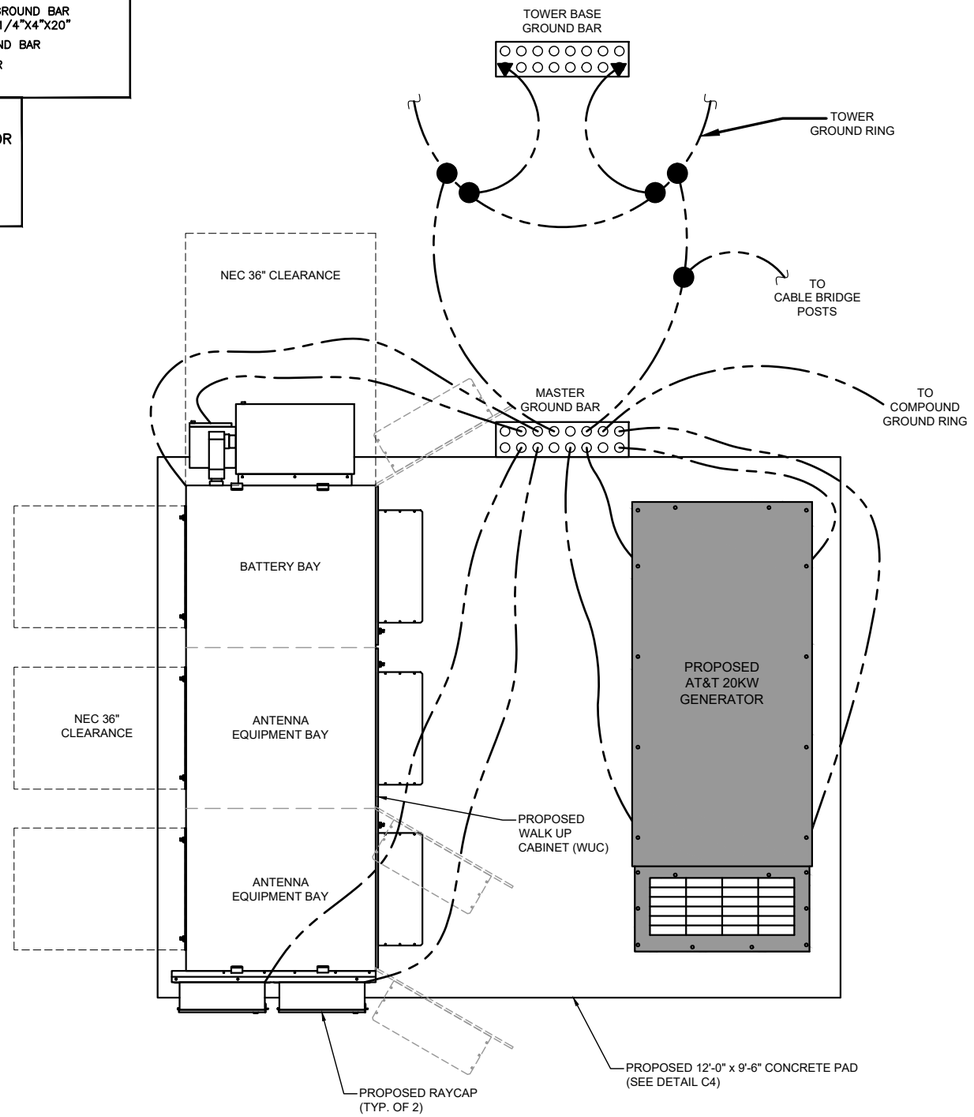
GROUNDING PLAN

SHEET #:	REVISION:
G1	1

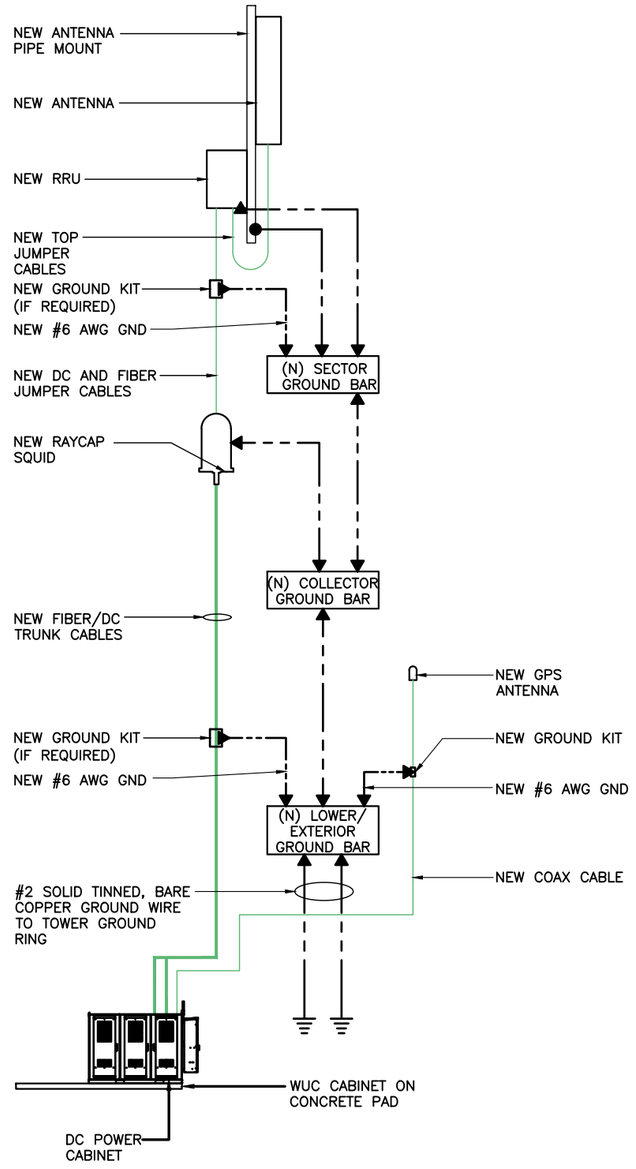
GROUNDING LEGEND

●	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 / G2 EQUIPMENT GROUNDING PLAN
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 / G2 TYPICAL RISER DIAGRAM
NOT TO SCALE

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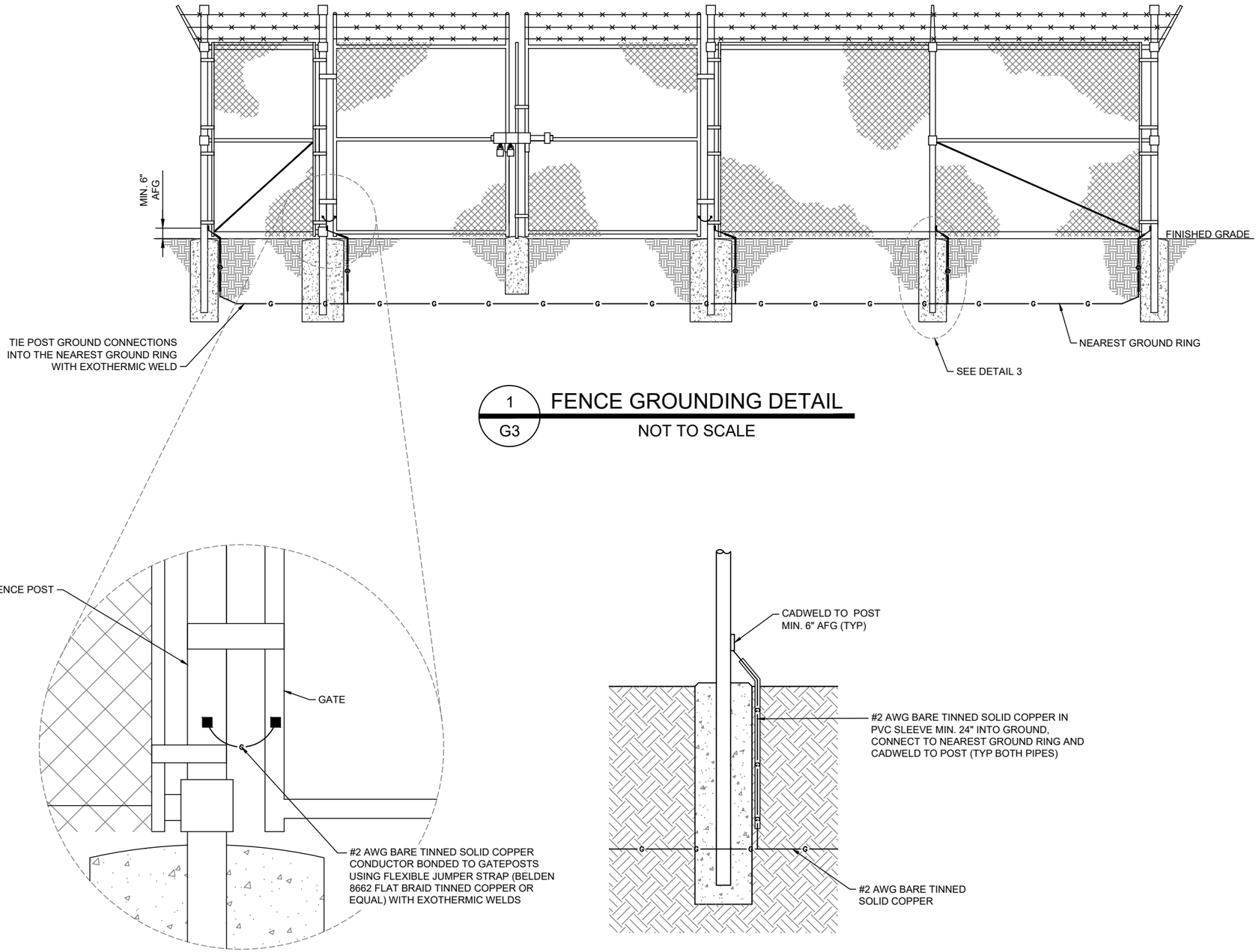
SHEET TITLE:
EQUIPMENT GROUNDING PLAN AND RISER DIAGRAM

SHEET #:	REVISION:
G2	1



1 / G3 FENCE GROUNDING DETAIL
NOT TO SCALE

2 / G3 GATE GROUNDING DETAIL
NOT TO SCALE

3 / G3 POST GROUNDING DETAIL
NOT TO SCALE

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.

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

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 SEAL 040598 ENGINEER MATTHEW E WATKINS
01/15/21

SHEET TITLE:
FENCE GROUNDING DETAILS

SHEET #:	REVISION:
G3	1

GROUNDING NOTES:

1. GROUNDING SHALL COMPLY WITH ARTICLE 250 OF THE NATIONAL ELECTRICAL CODE.
2. ALL GROUNDING DEVICES SHALL BE U.L. APPROVED OR LISTED FOR THEIR INTENDED USE.
3. ALL WIRES SHALL BE AWG THHN/THWN COPPER UNLESS NOTED OTHERWISE.
4. 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.
5. 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.
6. GROUND COAXIAL CABLE SHIELDS AT BOTH ENDS WITH MANUFACTURER'S GROUNDING KITS.
7. ROUTE GROUNDING CONDUCTORS THE SHORTEST AND STRAIGHTEST PATH POSSIBLE. BEND GROUNDING LEADS WITH A MINIMUM 12" RADIUS.
8. INSTALL #2 AWG GREEN-INSULATED STRANDED WIRE FOR ABOVE GRADE GROUNDING AND #2 BARE TINNED COPPER WIRE FOR BELOW GRADE GROUNDING UNLESS OTHERWISE NOTED.
9. 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.
10. 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.
11. IF ROCK IS ENCOUNTERED GROUND RODS SHALL BE PLACED AT AN OBLIQUE ANGLE NOT TO EXCEED 45°.
12. EXOTHERMIC WELDS SHALL BE MADE IN ACCORDANCE WITH ERICO PRODUCTS BULLETIN A-AT.
13. 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.
14. ALL GROUND LEADS EXCEPT THOSE TO THE EQUIPMENT ARE TO BE #2 BARE TINNED COPPER WIRE. ALL EXTERIOR GROUND BARS TINNED COPPER.
15. 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.
16. 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.
17. 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.
18. PREPARE ALL BONDING SURFACES FOR GROUNDING CONNECTIONS BY REMOVING ALL PAINT AND CORROSION DOWN TO SHINY METAL. FOLLOWING CONNECTION, APPLY APPROPRIATE ANTI-OXIDIZATION PAINT.
19. 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.

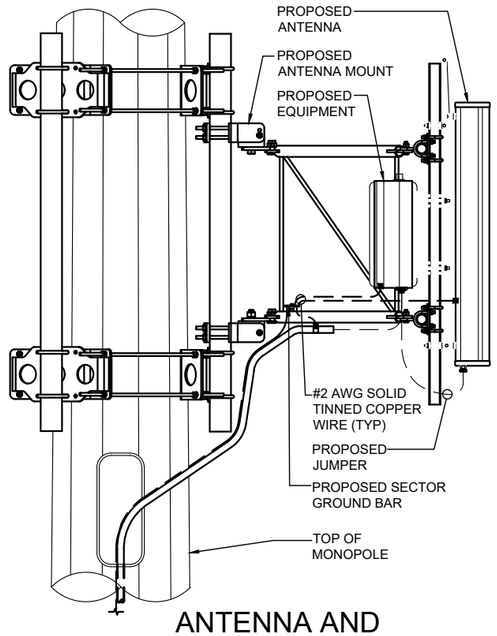
CABLE COLOR CODING NOTES:

1. 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.
2. THE ANTENNA SYSTEM CABLES SHALL BE LABELED WITH VINYL TAPE EXCEPT IN LOCATIONS WHERE ENVIRONMENTAL CONDITIONS CAUSE PHYSICAL DAMAGE, THEN PHYSICAL TAGS ARE PREFERRED.
3. 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.
4. USING COLOR BANDS ON THE CABLES, MARK ALL RF CABLES BY SECTOR AND NUMBER AS SHOWN ON "CABLE MARKING COLOR CONVENTION TABLE".
5. 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.
6. 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.
7. 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.
8. ALL COLOR CODES SHALL BE INSTALLED AS TO ALIGN NEATLY WITH ONE ANOTHER FROM SIDE TO SIDE.
9. IF EXISTING CABLES AT THE SITE ALREADY HAVE A COLOR CODING SCHEME AND THEY ARE NOT INTENDED TO BE REUSED 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 INDICATION 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.

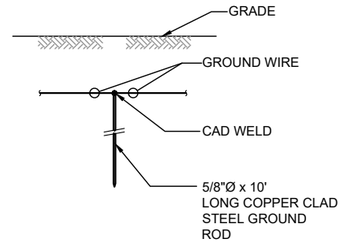
CABLE MARKING LOCATIONS TABLE	
NO.	LOCATIONS
1	EACH JUMPER SHALL BE COLOR CODED WITH (1) SET OF 3" WIDE BANDS.
2	EACH MAIN COAX SHALL BE COLOR CODED WITH (1) SET OF 3" WIDE BANDS AT THE TOP JUMPER CONNECTION AND WITH (1) SET OF 3/4" WIDE COLOR BANDS PRIOR TO ENTERING THE BTS OR SHELTER.
3	CABLE ENTRY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



ANTENNA AND CABLE GROUNDING

2 / G4

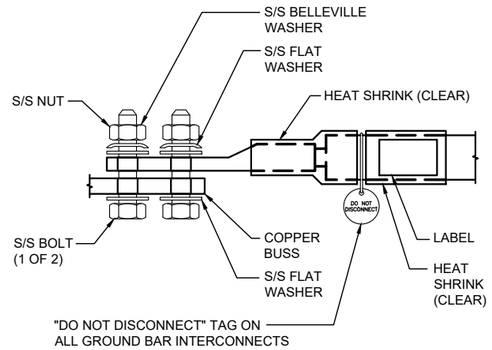
SCALE: N.T.S.



GROUNDING ROD DETAIL

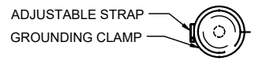
4 / G4

SCALE: N.T.S.



NOTES:

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



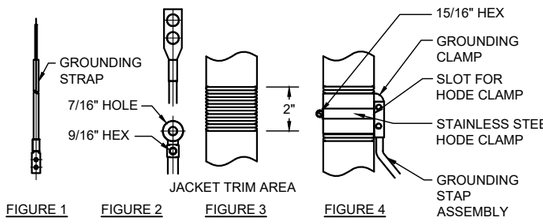


FIGURE 1 FIGURE 2 FIGURE 3 FIGURE 4

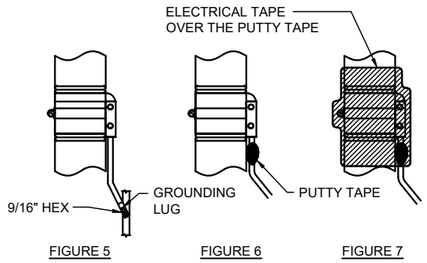
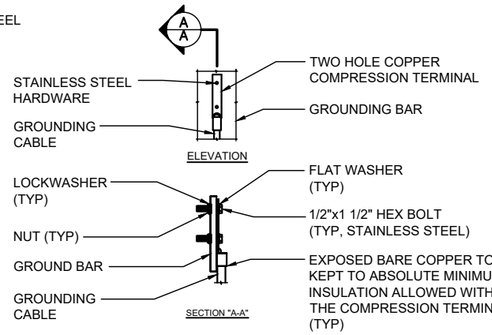


FIGURE 5 FIGURE 6 FIGURE 7

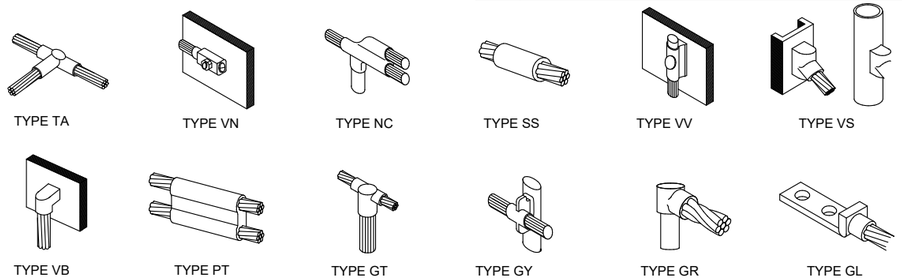
GENERAL LUG DETAIL

5 / G4

SCALE: N.T.S.



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



CADWELD GROUNDING CONNECTION DETAILS

1 / G4

SCALE: N.T.S.

GROUNDING STRAP WEATHERPROOFING DETAILS

3 / G4

SCALE: N.T.S.

TYPICAL GROUND BAR CONNECTION DETAIL

6 / G4

SCALE: N.T.S.

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

PROJECT INFORMATION:

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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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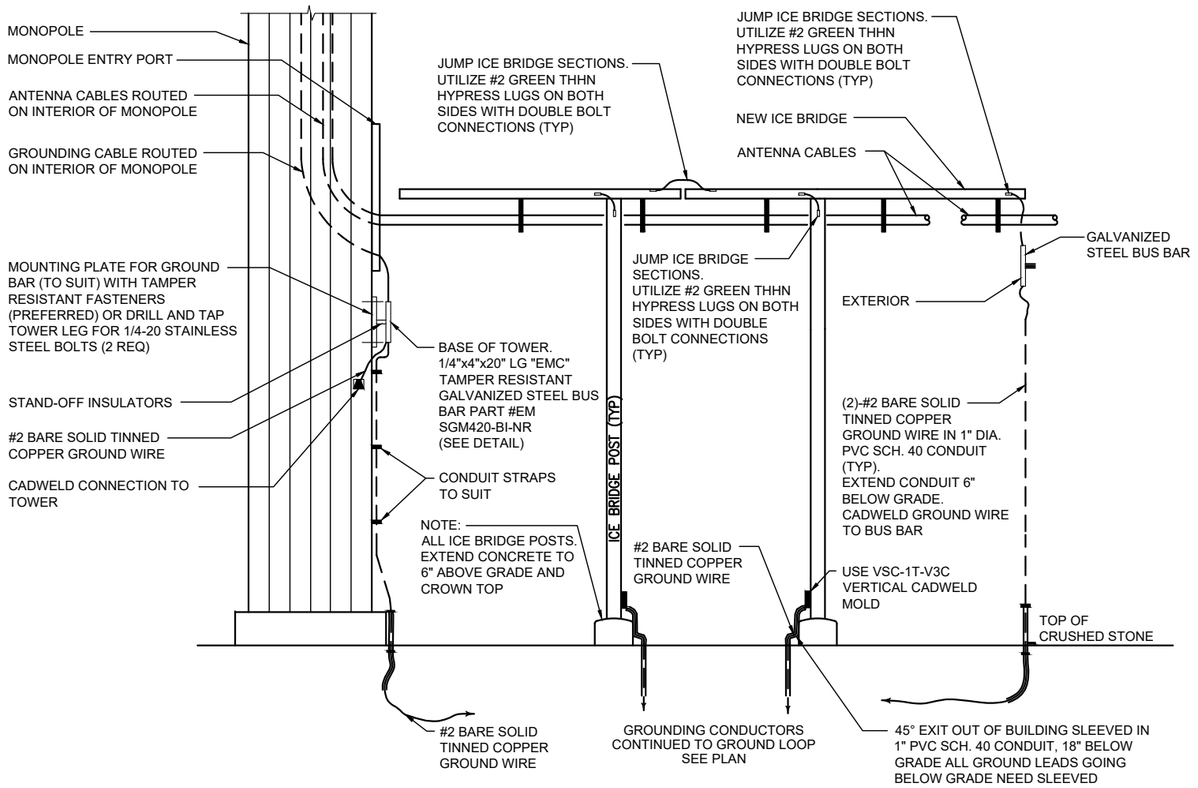
1	01/15/21	REVISED E911 ADDRESS

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

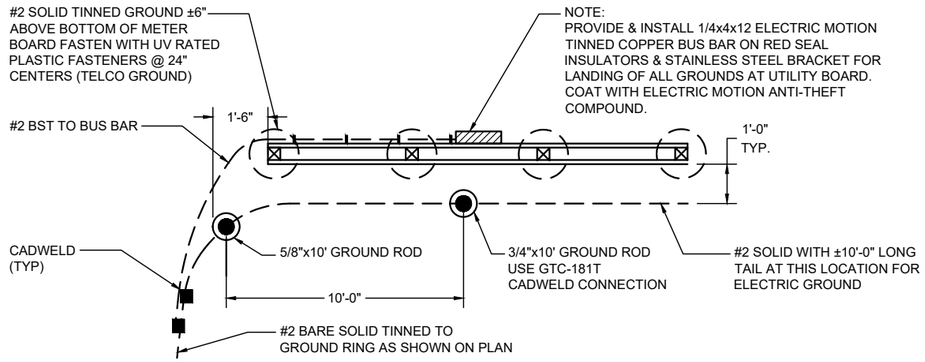
SHEET TITLE:
GROUNDING DETAILS AND NOTES

SHEET #:	REVISION:
G4	1



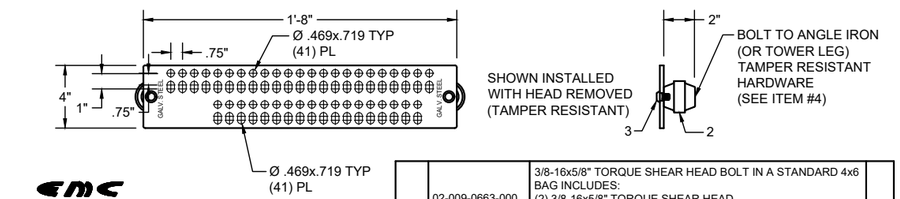
1 G5 GROUNDING AT ICE BRIDGE

SCALE: N.T.S.



2 G5 METER BOARD UTILITY GROUNDING DETAIL

SCALE: N.T.S.



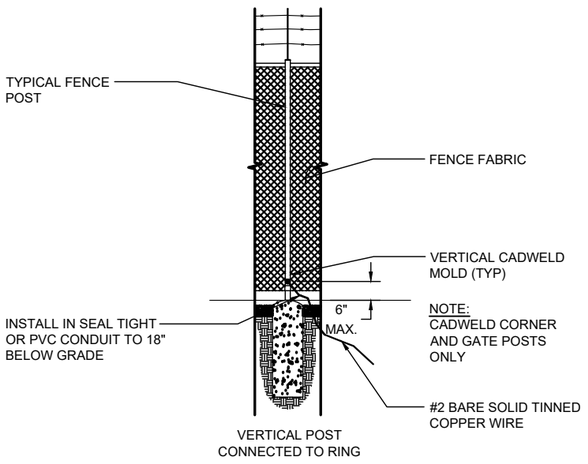
EMC
ELECTRIC MOTION CO., INC.
110 GROPPO DR./ BOX 626
WINSTED, CT 06098
PART #EM SGM420-BI-NR

INCLUDE (2) EXTRA TAMPER RESISTANT IN BAG (AS SHOWN)

ITEM	PART NO.	DESCRIPTION	REQ
4	02-009-0663-000 (SUB ASSEMBLY)	3/8-16x5/8" TORQUE SHEAR HEAD BOLT IN A STANDARD 4x6 BAG INCLUDES: (2) 3/8-16x5/8" TORQUE SHEAR HEAD BOLT (NON-REMOVABLE) WITH VIBRSEAL; STAINLESS STEEL (303) P/N 02-009-0603-000 (1) STANDARD 4"x6" BAG (P/N 03-009-0209-00)	1
3	02-009-0633-000	3/8-16x5/8" TORQUE SHEAR HEAD BOLT (NON-REMOVABLE) WITH VIBRSEAL; STAINLESS STEEL (303)	2
2	03-009-0118-000	2"x2" INSULATOR; FIBERGLASS	2
1	02-009-0672-000	20" GROUND BAR; STEEL; GALVANIZED	1

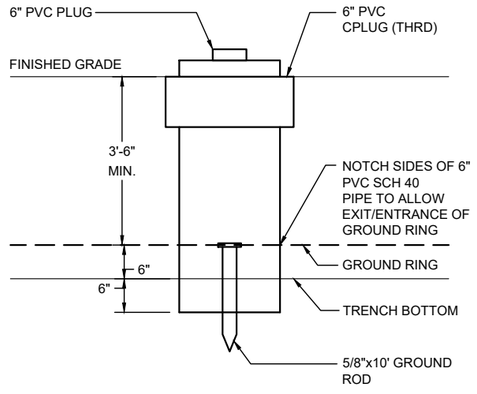
3 G5 TOWER BUS BAR DETAIL

SCALE: N.T.S.



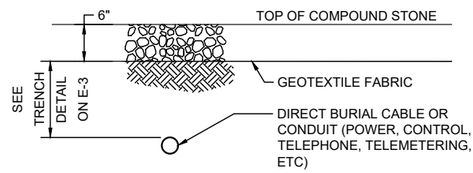
4 G5 TYPICAL FENCE POST GROUNDING

SCALE: N.T.S.



5 G5 INSPECTION WELL DETAIL

SCALE: N.T.S.



INSTALLATION

1. THE TAPE SHALL BE MAGNETIC DETECTABLE MARKERLAID 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 BURIED ELECTRIC LINE BELOW	CAUTION	CAUTION
ORANGE	CAUTION BURIED TELEPHONE LINE BELOW	CAUTION	CAUTION

6 G5 STANDARD MARKER TAPE DETAIL

SCALE: N.T.S.

PREPARED FOR:

TILLMAN INFRASTRUCTURE

A&E FIRM:

towersource

1875 OLD ALABAMA ROAD, SUITE 1008
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1	01/15/21	REVISED E911 ADDRESS

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

SHEET TITLE:

GROUNDING DETAILS

SHEET #:	REVISION:
G5	1

Section 1 - RFDS GENERAL INFORMATION

RFDS NAME:	368-704	DATE:	02/05/2019	RF DESIGN ENG:	SHOHEL CHOWDHURY
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:	
REVISION:		RF MANAGER:	JONES, JERRY O	RF DESIGN EMAIL:	sc3730@att.com
INITIATIVE /PROJECT:	BBU Configuration: xxxxx / 2x6630 / 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				

RF PERF ENG:		RFDS PROGRAM TYPE:	2019 New Site		
RF PERF PHONE:		RFDS TECHNOLOGY:	LTE 5C		
RF PERF EMAIL:		STATE/STATUS:	Final/Approved		
RFDS VERSION:	5.00	RFDS ID:	2997286		
GSM FREQUENCY:		Created By:	au844f	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
REGION:	SOUTHEAST	MARKET CLUSTER:	NORTH CAROLINA/SOUTH CAROLINA	MARKET:	RALEIGH
ADDRESS:	127 RED HILL CHURCH ROAD	CITY:	DUNN	STATE:	NC
ZIP CODE:	28334	COUNTY:	HARNETT	LONG (DEC. DEG.):	-78.6596194
LATITUDE (D-M-S):	35d 19m53.58s	LONGITUDE (D-M-S):	-78d -39m-34.62984s	LAT (DEC. DEG.):	35.3315500
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 N/US-421 S/I-40 E/DURHAM/SANFORD/I-73 N/US-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 # 1:	2301A0JNCJ	PACE JOB # 1:	MRCAR035466		
ORACLE PTN # 2:	2301A0NBQA	PACE JOB # 2:	MRCAR040997		
ORACLE PTN # 3:	2301A0NBPH	PACE JOB # 3:	MRCAR041010		
ORACLE PTN # 4:	2301A0NBQR	PACE JOB # 4:	MRCAR041001		
ORACLE PTN # 5:	2301A0NBQJ	PACE JOB # 5:	MRCAR041005		
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:		MSA / RSA:	
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
ADDITIONAL REGULATORY?:	Yes	HEIGHT OVERALL (ft):		FCC ASR NUMBER:	TBD
SUB-LEASE RIGHTS?:	Yes	STRUCTURE HEIGHT (ft):	199.00		
LIGHTING TYPE:	NOT REQUIRED				

MARKET LOCATION 700 MHz Band:			
MARKET LOCATION 850 MHz Band:			
MARKET LOCATION 1900 MHz Band:			
MARKET LOCATION AWS Band:			
MARKET LOCATION WCS Band:			
MARKET LOCATION Future Band:			

(FOR INFORMATION PURPOSES ONLY)

PREPARED FOR:

TILLMAN INFRASTRUCTURE

A&E FIRM:

towersource

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CHECKED BY:	KIA
APPROVED BY:	MEW

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1	01/15/21	REVISED E911 ADDRESS

FOR INFORMATION PURPOSES ONLY

SHEET TITLE:
RFDS (BY OTHERS)

SHEET #:	REVISION:
RF-1	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										

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A&E FIRM:

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

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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RFDS (BY OTHERS)

SHEET #: RF-2

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																				

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A&E FIRM:

towersource

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368-704
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DUNN, NC 28334

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RFDS (BY OTHERS)

SHEET #:	REVISION:
RF-3	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																									

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TILLMAN INFRASTRUCTURE

A&E FIRM:

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PROJECT INFORMATION:

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368-704
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DUNN, NC 28334

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APPROVED BY:	MEW

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RFDS (BY OTHERS)

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RF-4	1

Section 10 - CID/SAC - existing

		LTE 1ST 700	LTE 1ST 1900	LTE 1ST AWS	LTE 1ST WCS	LTE 2ND 700	LTE 2ND AWS	LTE 3RD AWS																			
SECTOR A	CID/SAC																										
SECTOR B																											
SECTOR C																											
SECTOR D																											
SECTOR E																											
SECTOR F																											
OMNI																											

Section 10 - CID/SAC - final

		LTE 1ST 700	LTE 1ST 1900	LTE 1ST AWS	LTE 1ST WCS	LTE 2ND 700	LTE 2ND AWS	LTE 3RD AWS																			
SECTOR A	CID/SAC																										
SECTOR B																											
SECTOR C																											
SECTOR D																											
SECTOR E																											
SECTOR F																											
OMNI																											

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RFDS (BY OTHERS)

SHEET #:	REVISION:
RF-5	1

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 TMAS (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)	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										

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PREPARED FOR:

TILLMAN INFRASTRUCTURE

A&E FIRM:

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1875 OLD ALABAMA ROAD, SUITE 1008
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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:

RFDS (BY OTHERS)

SHEET #:	REVISION:
RF-6	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 TMAS (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)	RXA/T 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-	15.79		2	TOP	FIBER										
								V3_766MHz_02DT															
	PORT 5			ECL02040_3B_1			LTE WCS	NNH4-65C-R6-V3_2350MHz_02DT	15.79		2	TOP	FIBER										

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A&E FIRM:

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PROJECT INFORMATION:

RED HILL CHURCH
14637878
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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:

RFDS (BY OTHERS)

SHEET #:	REVISION:
RF-7	1

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 TMAS (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 (AtoII)	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)	SCPA/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-	15.79		2	TOP	FIBER										
								V3_766MHz_02DT															
	PORT 5			ECL02040_3C_1			LTE WCS	NNH4-65C-R6-V3_2350MHz_02DT	15.79		2	TOP	FIBER										

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

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 #:	REVISION:
RF-8	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 TMAS (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)	SCPA/MCPA MODULE?	HATCH/PLATE 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_766MHz_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)

PREPARED FOR:

TILLMAN INFRASTRUCTURE

A&E FIRM:

towersource

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

REVISIONS

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FOR INFORMATION PURPOSES ONLY

SHEET TITLE:

RFDS (BY OTHERS)

SHEET #:	REVISION:
RF-9	1

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			Ace				Ace							
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 TMAS (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)	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_766MHz_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										

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TILLMAN INFRASTRUCTURE

A&E FIRM:

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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

FOR INFORMATION PURPOSES ONLY

SHEET TITLE:

RFDS (BY OTHERS)

SHEET #: RF-10

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 TMAS (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)	SCPA/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_766MHz_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										

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TILLMAN INFRASTRUCTURE

A&E FIRM:

towersource

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PROJECT INFORMATION:

RED HILL CHURCH
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368-704
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DRAWN BY:	SJH
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REVISIONS

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1	01/15/21	REVISED E911 ADDRESS

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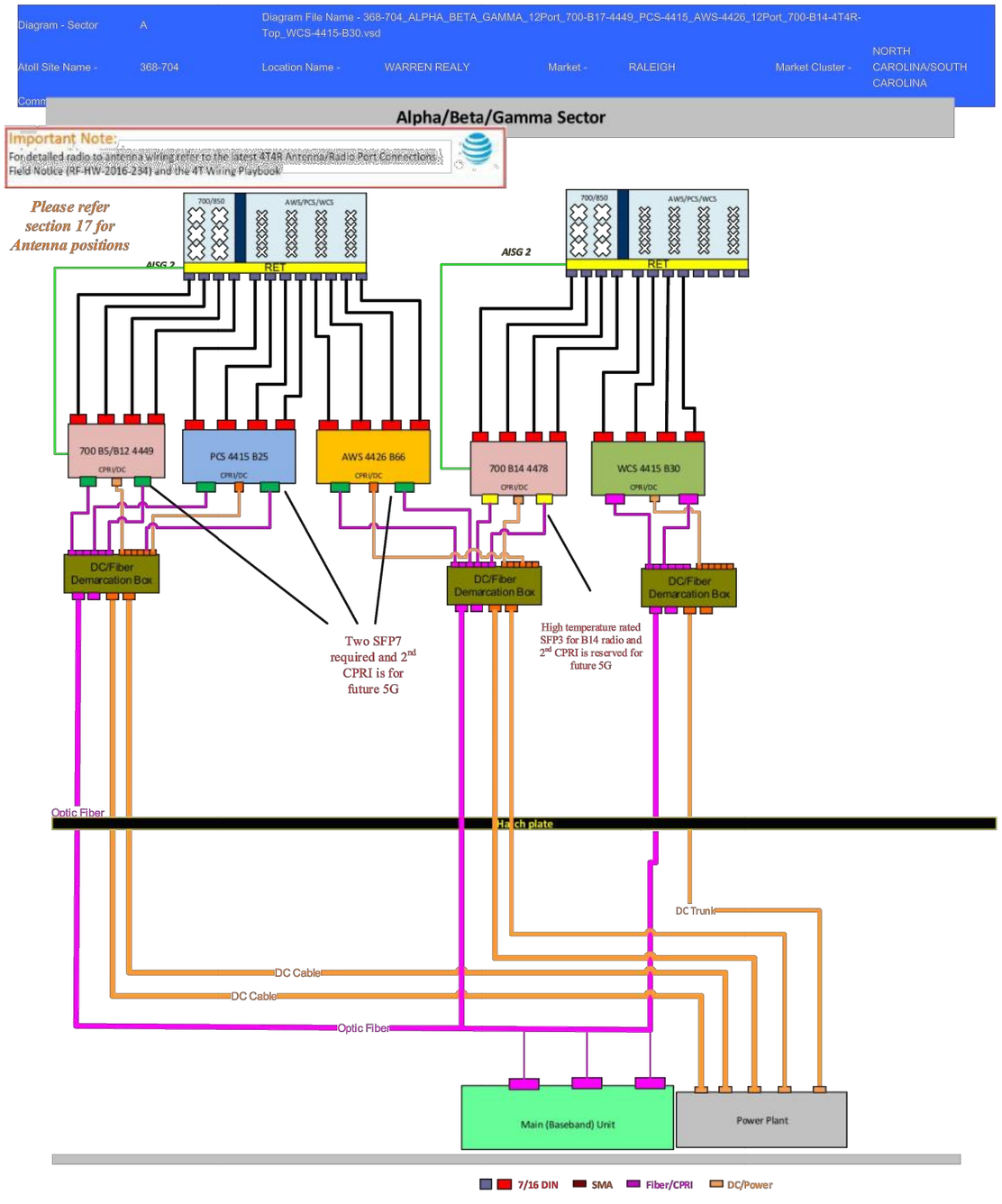
SHEET TITLE:

RFDS (BY OTHERS)

SHEET #:	REVISION:
RF-11	1



(FOR INFORMATION PURPOSES ONLY)

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FOR INFORMATION PURPOSES ONLY

SHEET TITLE:

RFDS (BY OTHERS)

SHEET #: RF-12

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)

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TILLMAN INFRASTRUCTURE

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DUNN, NC 28334

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SHEET TITLE:

RFDS (BY OTHERS)

SHEET #:	REVISION:
RF-13	1

WORKFLOW SUMMARY							
Date	FROM State / Status	FROM ATTUID	TO State / Status	TO ATTUID	Operation	Comments	PACE Status
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 Configurations1.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.	SER-RCAR-14-02319 FAILURE 04/09/2019 11:29:03 AM SER-RVWN-19-00582 FAILURE 04/09/2019 11:29:03 AM SER-RVWN-19-00583 FAILURE 04/09/2019 11:29:03 AM SER-RVWN-19-00584 FAILURE 04/09/2019 11:29:03 AM SER-RVWN-19-00585 FAILURE 04/09/2019 11:29:03 AM
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	SER-RCAR-14-02319 FAILURE 04/12/2019 5:26:13 PM SER-RVWN-19-00582 FAILURE 04/12/2019 5:26:13 PM SER-RVWN-19-00583 FAILURE 04/12/2019 5:26:13 PM SER-RVWN-19-00584 FAILURE 04/12/2019 5:26:13 PM SER-RVWN-19-00585 FAILURE 04/12/2019 5:26:13 PM
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/PACE# is added for child jobs	SER-RCAR-14-02319 FAILURE 04/18/2019 3:54:52 PM SER-RVWN-19-00582 FAILURE 04/18/2019 3:54:52 PM SER-RVWN-19-00585 FAILURE 04/18/2019 3:54:52 PM SER-RVWN-19-00584 FAILURE 04/18/2019 3:54:52 PM SER-RVWN-19-00583 FAILURE 04/18/2019 3:54:52 PM
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, 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 : 256958	
05/06/2019	Final Modification Recommended	SC3730	Final RF Approval	SC3730	Accept		
05/06/2019	Final RF Approval	SC3730	Final Approved	JS993Q	Promote	The error is fixed	SER-RCAR-14-02319 FAILURE 05/06/2019 5:08:29 PM SER-RVWN-19-00582 FAILURE 05/06/2019 5:08:29 PM SER-RVWN-19-00585 FAILURE 05/06/2019 5:08:29 PM SER-RVWN-19-00584 FAILURE 05/06/2019 5:08:29 PM SER-RVWN-19-00583 FAILURE 05/06/2019 5:08:29 PM
05/07/2019	Final Approved	JS993Q	As Built In Progress	JS993Q	Promote	Approved Promote to next level	SER-RCAR-14-02319 FAILURE 05/07/2019 7:22:57 AM SER-RVWN-19-00582 FAILURE 05/07/2019 7:22:57 AM SER-RVWN-19-00585 FAILURE 05/07/2019 7:22:57 AM SER-RVWN-19-00584 FAILURE 05/07/2019 7:22:57 AM SER-RVWN-19-00583 FAILURE 05/07/2019 7:22:57 AM
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.	SER-RCAR-14-02319 FAILURE 06/27/2019 10:14:55 AM SER-RVWN-19-00582 FAILURE 06/27/2019 10:14:55 AM SER-RVWN-19-00585 FAILURE 06/27/2019 10:14:55 AM SER-RVWN-19-00584 FAILURE 06/27/2019 10:14:55 AM SER-RVWN-19-00583 FAILURE 06/27/2019 10:14:55 AM

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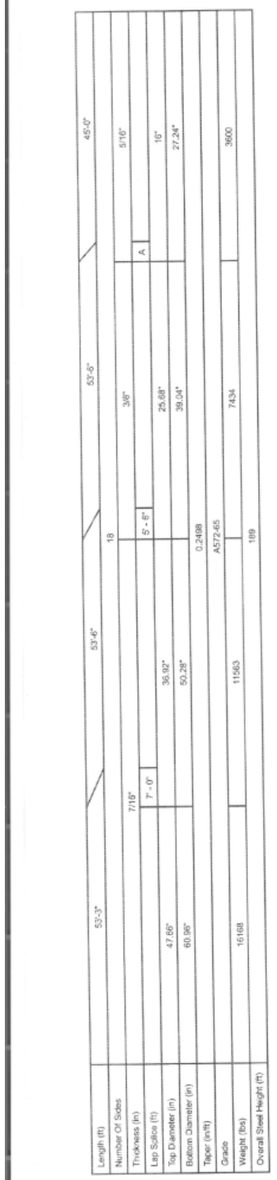
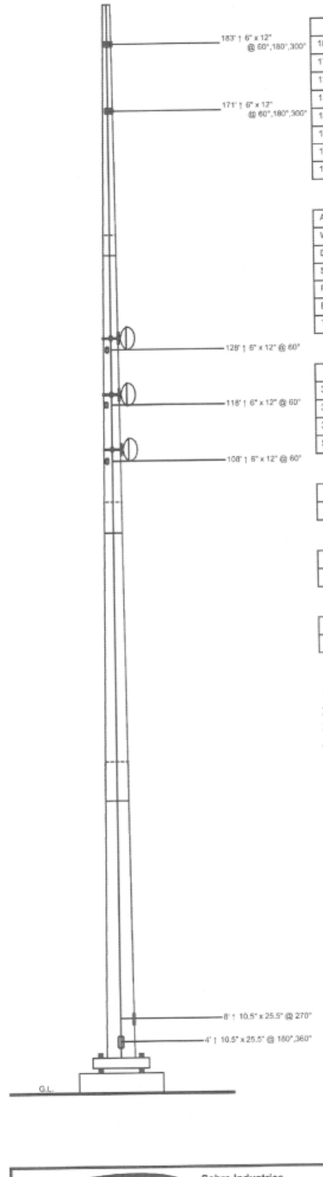
RFDS (BY OTHERS)

SHEET #:	REVISION:
RF-14	1





Designed Appurtenance Loading

Elev	Description	Tx-Line
185	(1) 278 sq. ft. EPA 6000# (no ice)	(9) 1 1/4"
173	(1) 206 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
INNOVATION DELIVERED

Sabre Industries
7101 Southbridge Drive
P.O. Box 658
Sioux City, IA 51102-0658
Phone: (712) 258-6660
Fax: (712) 279-0814

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:

TILLMAN INFRASTRUCTURE

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

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 #:	REVISION:
T&F-1	1