



8921 RESEARCH DRIVE
CHARLOTTE, NC 28262

REVELS_RD

SITE ADDRESS

6492 CHRISTIAN LIGHT ROAD
FUQUAY VARINA, NC 27526
HARNETT COUNTY
LATITUDE: 35° 31' 18.34" N
LONGITUDE: 79° 51' 36.21" W
TAX/PIN #: 08-0644---0010
ZONING: RA-30

NOTE:
SITE IS LOCATED WITHIN FEMA FLOOD MAP
AREA 3720064400J DATED 10/03/2006
WITHIN FLOOD ZONE X.

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HARNETT COUNTY PLANNING SERVICES
108 E FRONT ST.
LILLINGTON, NC 27546
PHONE: (910) 893-7525
ATTN.: PLANNING DEPARTMENT

PERMIT INFORMATION

MUNICIPALITY:
HARNETT COUNTY

STATE:
NORTH CAROLINA

TOWER TYPE:
SELF-SUPPORT TOWER

TOWER HEIGHT:
235' (240' TO HIGHEST APPURTENANCE)

NUMBER OF CARRIERS:
0 EXISTING, 1 PROPOSED

USE:
PROPOSED TELECOMMUNICATIONS TOWER
AND UNMANNED EQUIPMENT

CONSULTANT
KIMLEY-HORN AND ASSOCIATES, INC.
2 SUN COURT, SUITE 450
PEACHTREE CORNERS, GEORGIA 30092
PHONE: (678) 710-9394
ATTN.: DAVID M. FRANKLIN

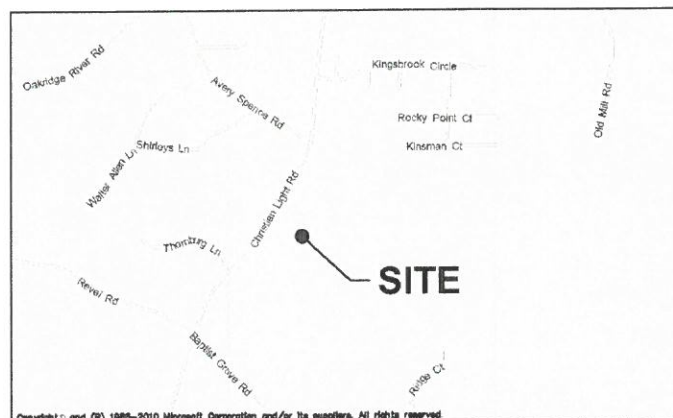
PROJECT SUMMARY

DEVELOPER
VERIZON WIRELESS
8921 RESEARCH DRIVE
CHARLOTTE, NC 28262
PHONE: (704) 577-8785
ATTN: MICHAEL HAVEN

POWER COMPANY
DUKE ENERGY
PHONE: (919) 546-6111
ATTN.: CUSTOMER SERVICE

PROPERTY OWNER
ELLIS LAVELL & CYNTHIA J. JOHNSON
6492 CHRISTIAN LIGHT ROAD
FUQUAY VARINA, NC 27526
PHONE: (919) 796-4298
ATTN.: ELLIS "BUSTER" JOHNSON

CONTACTS



VICINITY MAP

FROM CHARLOTTE OFFICE: HEAD NORTHEAST ON RESEARCH DR TOWARD LOUIS ROSE PL 0.1 MI; TURN RIGHT ONTO DAVID TAYLOR DR 0.5 MI; TURN RIGHT ONTO SENATOR ROYAL PL/SENATOR ROYALL DR 0.9 MI; USE THE RIGHT 2 LANES TO TURN RIGHT ONTO W MALLARD CREEK CHURCH RD 0.7 MI; TURN LEFT TO MERGE ONTO I-85 N 0.3 MI; MERGE ONTO I-85 N 40.5 MI; KEEP LEFT AT THE FORK TO STAY ON I-85 N 32.8 MI; KEEP LEFT AT THE 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-421 N/I-40 W/WINSTON-SALEM 5.6 MI; TAKE EXIT 126A-126B TO MERGE ONTO US-421 S TOWARD SANFORD 44.9 MI; KEEP LEFT TO STAY ON US-421 S 3.4 MI; KEEP LEFT TO STAY ON US-421 S 5.9 MI; TAKE EXIT 144 FOR NC-42 TOWARD SANFORD/FUQUAY-VARINA 0.4 MI; USE THE LEFT 2 LANES TO TURN LEFT ONTO NC-42 E/BROADWAY RD 1.4 MI; TURN LEFT ONTO NC-42 E 15.8 MI; TURN RIGHT ONTO BALL RD 1.9 MI; TURN RIGHT ONTO COKEBURY RD 0.5 MI; TURN LEFT ONTO OAKRIDGE RIVER RD 2.1 MI; TURN RIGHT ONTO REVELS RD 0.8 MI; TURN LEFT ONTO CHRISTIAN LIGHT RD AND THE SITE WILL BE ON THE RIGHT 0.4 MI

DRIVING DIRECTIONS



PROJECT INFORMATION:

VERIZON NAME:
REVELS_RD
VERIZON No.: 427450
6492 CHRISTIAN LIGHT ROAD
FUQUAY VARINA, NC 27526
HARNETT COUNTY

CURRENT ISSUE DATE:

10/03/17

ISSUED FOR:

CONSTRUCTION

REV.: DATE: ISSUED FOR: BY:

REV.	DATE	ISSUED FOR	BY
0	08/16/17	CONSTRUCTION	DMF
1	09/08/17	CONSTRUCTION	DMF
2	10/03/17	CONSTRUCTION	DMF

CONSULTANT:



2 SUN COURT, SUITE 450
PEACHTREE CORNERS, GA 30092
PHONE: 770-825-0744
WWW.KIMLEY-HORN.COM
NC License F-0102

CONSULTANT:

DRAWN BY: CHK.: APV.:

KAB TDM DMF

LICENSER:



SHEET TITLE:

COVER SHEET

SHEET NUMBER: REVISION:

T1

2

018985462

2012 APPENDIX B
BUILDING CODE SUMMARY
FOR ALL COMMERCIAL PROJECTS
(EXCEPT 1 AND 2-FAMILY DWELLINGS AND TOWNHOUSES)
(Reproduce the following data on the building plans sheet 1 or 2)

Name of Project: **WIRELESS COMMUNICATIONS - REVELS ROAD**
Address: **6492 CHRISTIAN LIGHT ROAD FUQUAY VARINA, NC** Zip Code: **27526**
Proposed Use: **WIRELESS COMMUNICATIONS SERVICES**
Owner/Authorized Agent: **KEITH MARKLAND** Phone # **678 533-3928** E-Mail **keith.markland@kimley-horn.com**
Owned By: City/County Private State Other
Code Enforcement Jurisdiction: City County **Hamett** State

LEAD DESIGN PROFESSIONAL: **DAVID FRANKLIN, P.E. (#042027)**

DESIGNER	FIRM	NAME	LICENSE #	TELEPHONE #	E-MAIL
Architectural					
Civil	KIMLEY-HORN & ASSOC.	DAVID FRANKLIN	042027	(770) 825-0744	dfranklin@kimley-horn.com
Electrical	KIMLEY-HORN & ASSOC.	CORBIN C. HARDY	040828	(919) 677-2000	corbin.hardy@kimley-horn.com
Fire Alarm					
Plumbing					
Mechanical					
Sprinkler-Standpipe					
Structural					
Retaining Walls >5' High					
Other					

2012 EDITION OF NC CODE FOR: New Construction Addition Upfit
EXISTING: Reconstruction Alteration Repair Renovation
CONSTRUCTED: (date) _____ ORIGINAL USE(S) (Ch. 3): **TELECOMMUNICATIONS SITE**
RENOVATED: (date) _____ CURRENT USE(S) (Ch. 3): **TELECOMMUNICATIONS SITE**
PROPOSED USE(S) (Ch. 3): **TELECOMMUNICATIONS SITE**

BASIC BUILDING DATA
Construction Type: I-A II-A III-A IV V-A
(check all that apply) I-B II-B III-B V-B
Sprinklers: No Partial Yes NFPA 13 NFPA 13R NFPA 13D
Standpipes: No Yes Class I II III Wet Dry
Fire District: No Yes (Primary) Flood Hazard Area: No Yes
Building Height: (feet) _____
Gross Building Area:

FLOOR	EXISTING (SQ.FT)	NEW (SQ.FT)	SUB-TOTAL
6 th Floor			
5 th Floor			
4 th Floor			
3 rd Floor			
2 nd Floor			
Mezzanine			
1 st Floor			
Basement			
TOTAL			

ALLOWABLE AREA
Occupancy:
Assembly A-1 A-2 A-3 A-4 A-5
Business
Educational
Factory F-1 Moderate F-2 Low
Hazardous H-1 Detonate H-2 Deflagrate H-3 Combust H-4 Health H-5 HPM
Institutional I-1 I-2 I-3 I-4
1-3 Condition 1 2 3 4 5
Mercantile
Residential R-1 R-2 R-3 R-4
Storage S-1 Moderate S-2 Low High-piled
 Parking Garage Open Enclosed Repair Garage
Utility and Miscellaneous

Accessory Occupancies:
Assembly A-1 A-2 A-3 A-4 A-5
Business
Educational
Factory F-1 Moderate F-2 Low
Hazardous H-1 Detonate H-2 Deflagrate H-3 Combust H-4 Health H-5 HPM
Institutional I-1 I-2 I-3 I-4
1-3 Condition 1 2 3 4 5
Mercantile
Residential R-1 R-2 R-3 R-4
Storage S-1 Moderate S-2 Low High-piled
 Parking Garage Open Enclosed Repair Garage
Utility and Miscellaneous

Incidental Uses (Table 508.2.5):
 Furnace room where any piece of equipment is over 400,000 Btu per hour input
 Rooms with boilers where the largest piece of equipment is over 15 psi and 10 horsepower
 Refrigerant machine room
 Hydrogen cutoff rooms, not classified as Group H
 Incinerator rooms
 Paint shops, not classified as Group H, located in occupancies other than Group F
 Laboratories and vocational shops, not classified as Group H, located in a Group E or I-2 occupancy
 Laundry rooms over 100 square feet
 Group I-3 cells equipped with slatted surfaces
 Group I-2 waste and linen collection rooms
 Waste and linen collection rooms over 100 square feet
 Stationary storage battery systems having a liquid electrolyte capacity of more than 50 gallons, or a lithium-ion capacity of 1,000 amp-hours used for facility standby power, emergency power or uninterrupted power supplies
 Rooms containing fire pumps
 Group I-2 storage rooms over 100 square feet
 Group I-2 commercial kitchens
 Group I-2 laundries equal to or less than 100 square feet
 Group I-2 rooms or spaces that contain fuel-fired heating equipment

Special Uses: 402 403 404 405 406 407 408 409 410 411 412
 413 414 415 416 417 418 419 420 421 422 423 424
 425 426 427

Special Provisions: 509.2 509.3 509.4 509.5 509.6 509.7 509.8 509.9

Mixed Occupancy: No Yes Separation: _____ Hr. Exception: _____
 Incidental Use Separation (508.2.5)
This separation is not exempt as a Non-Separated Use (see exceptions).
 Non-Separated Use (508.3)
The required type of construction for the building shall be determined by applying the height and area limitations for each of the applicable occupancies to the entire building. The most restrictive type of construction, so determined, shall apply to the entire building.
 Separated Use (508.4) - See below for area calculations
For each story, the area of the occupancy shall be such that the sum of the ratios of the actual floor area of each use divided by the allowable floor area for each use shall not exceed 1.

$$\frac{\text{Actual Area of Occupancy A}}{\text{Allowable Area of Occupancy A}} + \frac{\text{Actual Area of Occupancy B}}{\text{Allowable Area of Occupancy B}} \leq 1$$

STORY NO.	DESCRIPTION AND USE	(A) BLDG AREA PER STORY (ACTUAL)	(B) TABLE 503 AREA	(C) AREA FOR INCREASE	(D) AREA FOR SPRINKLER INCREASE	(E) ALLOWABLE AREA OR UNLIMITED	(F) MAXIMUM BUILDING AREA*

* Frontage area increases from Section 506.2 are computed thus:
a. Perimeter which fronts a public way or open space having 20 feet minimum width = _____ (F)
b. Total Building Perimeter = _____ (P)
c. Ratio (F/P) = _____ (F/P)
d. W = Minimum width of public way = _____ (W)
e. Percent of frontage increase $I_f = 100 [(F/P) - 0.25] \times W/30 = ______ (\%)$
2. The sprinkler increase per Section 506.3 is as follows:
a. Multi-story building $I_s = 200$ percent
b. Single-story building $I_s = 300$ percent
3. Unlimited area applicable under conditions of Section 507.
4. Maximum Building Area = total number of stories in the building x F (506.4).
5. The maximum area of open parking garages must comply with Table 406.3.5. The maximum area of air traffic control towers must comply with Table 412.1.2.

ALLOWABLE HEIGHT

Type of Construction	ALLOWABLE TYPE	INCREASE FOR SPRINKLERS	SHOWN ON PLANS	CODE REFERENCE
Building Height in Feet				
Building Height in Stories				

FIRE PROTECTION REQUIREMENTS

BUILDING ELEMENT	FIRE SEPARATION DISTANCE (FEET)	REQ'D	RATING PROVIDED (W/REDUCTION)	DETAIL # AND SHELF #	DIVISION # FOR RATED ASSEMBLY	DESIGN # FOR RATED PENETRATION	DESIGN # FOR RATED JOINTS
Structural Frame, including columns, girders, trusses							
Bearing Walls							
Exterior							
North							
East							
West							
South							
Interior							
Nonbearing Walls and Partitions							
Exterior walls							
North							
East							
West							
South							
Interior walls and partitions							
Floor Construction							
Including supporting beams and joists							
Roof Construction							
Including supporting beams and joists							
Shaft Enclosures - Exit							
Shaft Enclosures - Other							
Corridor Separation							
Occupancy Separation							
Party-Fire Wall Separation							
Smoke Barrier Separation							
Tenant Separation							
Incidental Use Separation							

LIFE SAFETY SYSTEM REQUIREMENTS

Emergency Lighting: No Yes
Exit Signs: No Yes
Fire Alarm: No Yes
Smoke Detection Systems: No Yes Partial
Panic Hardware: No Yes

LIFE SAFETY PLAN REQUIREMENTS

Life Safety Plan Sheet #: _____

Fire and/or smoke rated wall locations (Chapter 7)
 Assumed and real property line locations
 Exterior wall opening area with respect to distance to assumed property lines (705.8)
 Existing structures within 30' of the proposed building
 Occupancy types for each area as it relates to occupant load calculation (Table 1004.1.1)
 Occupant loads for each area
 Exit access travel distances (1016)
 Common path of travel distances (1014.3 & 1028.8)
 Dead end lengths (1018.4)
 Clear exit widths for each exit door
 Maximum calculated occupant load capacity each exit door can accommodate based on egress width (1005.1)
 Actual occupant load for each exit door
 A separate schematic plan indicating where fire rated floor/ceiling and/or roof structure is provided for purposes of occupancy separation
 Location of doors with panic hardware (1008.1.10)
 Location of doors with delayed egress locks and the amount of delay (1008.1.9.7)
 Location of doors with electromagnetic egress locks (1008.1.9.8)
 Location of doors equipped with hold-open devices
 Location of emergency escape windows (1029)
 The square footage of each fire area (902)
 The square footage of each smoke compartment (407.4)
 Note any code exceptions or table notes that may have been utilized regarding the items above

ACCESSIBLE DWELLING UNITS (SECTION 1107)

TOTAL UNITS	ACCESSIBLE UNITS REQUIRED	ACCESSIBLE UNITS PROVIDED	TYPE A UNITS REQUIRED	TYPE A UNITS PROVIDED	TYPE B UNITS REQUIRED	TYPE B UNITS PROVIDED	TOTAL ACCESSIBLE UNITS PROVIDED

ACCESSIBLE PARKING (SECTION 1106)

LOT OR PARKING AREA	TOTAL # OF PARKING SPACES REQUIRED	PROVIDED	# OF ACCESSIBLE SPACES PROVIDED	TOTAL # ACCESSIBLE UNITS PROVIDED

DESIGN LOADS: STRUCTURAL DESIGN

Importance Factors: Wind (I_w) _____
Snow (I_s) _____
Seismic (I_e) _____

Live Loads: Roof _____ psf
Mezzanine _____ psf
Floor _____ psf

Ground Snow Load: _____ psf

Wind Load: Basic Wind Speed _____ mph (ASCE-7)
Exposure Category _____
Wind Base Shears (for MW) _____ V_x = _____ V_y = _____

SEISMIC DESIGN CATEGORY: A B C D

Provide the following Seismic Design Parameters:
Occupancy Category (Table 1604.5): I II III IV
Spectral Response Acceleration S_s _____
Site Classification (Table 1613.5.2): A B C D E F
Data Source: Field Test Presumptive Historical Data

Basic structural system (check one):
 Bearing Wall Dual w/Special Moment Frame
 Building Frame Dual w/Intermediate R/C or Special Steel
 Moment Frame Inverted Pendulum

Seismic base shear: V_s = _____ V_y = _____

Analysis Procedure: Simplified Equivalent Lateral Force Dynamic
Architectural, Mechanical, Components anchored? Yes No

LATERAL DESIGN CONTROL: Earthquake Wind

SOIL BEARING CAPACITIES:
Field Test (provide copy of test report) _____ psf
Presumptive Bearing capacity _____ psf
Pile size, type, and capacity _____

SPECIAL INSPECTIONS REQUIRED: Yes No

PLUMBING FIXTURE REQUIREMENTS (TABLE 2902.1)

USE	WATERCLOSETS		SINKS		SHOWERS/TUBS		DRINKING FOUNTAINS	
	MALE	FEMALE	MALE	FEMALE	REGULAR	ACCESSIBLE	REGULAR	ACCESSIBLE
EXISTING								
NEW								
REQUIRED								

SPECIAL APPROVALS

Special approval: (Local Jurisdiction, Department of Insurance, OSC, DPI, DHS, R.C., etc., describe below)

ENERGY REQUIREMENTS

The following data shall be considered minimum and any special attribute required to meet the energy code shall also be provided. Each Designer shall furnish the required portions of the project information for the plan data sheet. If performance method, state the annual energy cost for the standard reference design vs annual energy cost for the proposed design.

Climate Zone: 3 4 5

Method of Compliance:
 Prescriptive (Energy Code)
 Performance (Energy Code)
 Prescriptive (ASHRAE 90.1)
 Performance (ASHRAE 90.1)

THERMAL ENVELOPE

Roof/ceiling Assembly (each assembly)
Description of assembly: _____
U-Value of total assembly: _____
R-Value of insulation: _____
Skylights in each assembly: _____
U-Value of skylight: _____
total square footage of skylights in each assembly: _____

Exterior Walls (each assembly)
Description of assembly: _____
U-Value of total assembly: _____
R-Value of insulation: _____
Openings (windows or doors with glazing)
U-Value of assembly: _____
Solar heat gain coefficient: _____
projection factor: _____
Door R-Values: _____

Walls below grade (each assembly)
Description of assembly: _____
U-Value of total assembly: _____
R-Value of insulation: _____

Floors over unconditioned space (each assembly)
Description of assembly: _____
U-Value of total assembly: _____
R-Value of insulation: _____

Floors slab on grade
Description of assembly: _____
U-Value of total assembly: _____
R-Value of insulation: _____
Horizontal/vertical requirement: _____
slab heated: _____

MECHANICAL SUMMARY

MECHANICAL SYSTEMS, SERVICE SYSTEMS AND EQUIPMENT

Thermal Zone
winter dry bulb: _____
summer dry bulb: _____

Interior design conditions
winter dry bulb: _____
summer dry bulb: _____
relative humidity: _____

Building heating load: _____
Building cooling load: _____

Mechanical Spacing Conditioning System
Unitary description of unit: _____
heating efficiency: _____
cooling efficiency: _____
size category of unit: _____
Boiler size category. If oversized, state reason: _____
Chiller size category. If oversized, state reason: _____
List equipment efficiencies: _____

ELECTRICAL SUMMARY

ELECTRICAL SYSTEM AND EQUIPMENT

Method of Compliance:
Energy Code: Prescriptive Performance
ASHRAE 90.1: Prescriptive Performance

Lighting schedule (each fixture type)
lamp type required in fixture _____
number of lamps in fixture _____
ballast type used in the fixture _____
number of ballasts in fixture _____
total wattage per fixture _____
total interior wattage specified vs. allowed (whole building or space by space) _____
total exterior wattage specified vs. allowed _____

Additional Prescriptive Compliance
 506.2.1 More Efficient Mechanical Equipment
 506.2.2 Reduced Lighting Power Density
 506.2.3 Energy Recovery Ventilation Systems
 506.2.4 Higher Efficiency Service Water Heating
 506.2.5 On-Site Supply of Renewable Energy
 506.2.6 Automatic Daylighting Control Systems

NOTE: SCOPE OF WORK INCLUDES INSTALLATION OF CAST IN PLACE CONCRETE PAD, PREFABRICATED EQUIPMENT CABINETS AND GENERATOR. NO NEW BUILDING BEING CONSTRUCTED.



PROJECT INFORMATION:
VERIZON NAME:
REVELS RD
VERIZON No.: **427450**
6492 CHRISTIAN LIGHT ROAD
FUQUAY VARINA, NC 27526
HARNETT COUNTY

CURRENT ISSUE DATE:
09/08/17

ISSUED FOR:
CONSTRUCTION

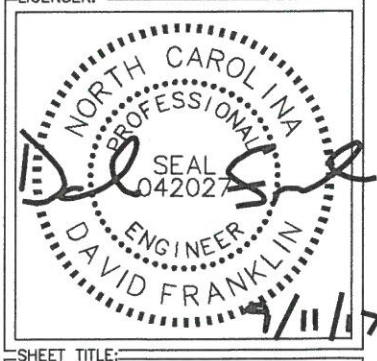
REV.: DATE: ISSUED FOR: BY:

REV.	DATE	ISSUED FOR	BY
0	08/16/17	CONSTRUCTION	DMF
1	09/08/17	CONSTRUCTION	DMF

CONSULTANT:
Kimley»Horn
2 SUN COURT, SUITE 450
PEACHTREE CORNERS, GA 30092
PHONE: 770-825-0744
WWW.KIMLEY-HORN.COM
NC License F-0102

DRAWN BY: CHK.: APV.:
KAB TDM DMF

LICENSER:



SHEET TITLE:
APPENDIX B: BUILDING CODE SUMMARY

SHEET NUMBER: **T2** REVISION: **1**
018985462

N/F
 ELLIS & CYNTHIA JOHNSON
 PARCEL: 08-0644--0007
 ZONED: RA-30
 DB: 725 PG: 347

N/F
 KENNETH D. RAYNOR
 PARCEL: 08-0644--0011-03
 ZONED: RA-30
 DB: 3032 PG: 657

N/F
 MICHAEL & KATHERINE GRIFFIN
 PARCEL: 08-0644--0010-01
 ZONED: RA-30
 DB: 1417 PG: 257

N/F
 MICHAEL & PAMELA SENTER
 PARCEL: 08-0644--0051
 ZONED: RA-30
 DB: 1025 PG: 941

N/F
 ELLIS & CYNTHIA JOHNSON
 PARCEL: 08-0644--0010
 ZONED: RA-30
 DB: 3315 PG: 264

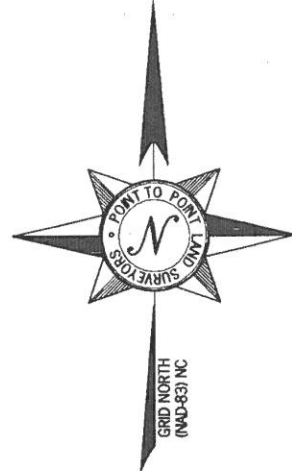
N/F
 SYLVIA D. JOHNSON
 PARCEL: 08-0644--0008
 ZONED: RA-30
 DB: 3315 PG: 260

N/F
 LARRY & EMILY WESTER
 PARCEL: 08-0645--0049
 ZONED: RA-30
 PB: 2007 PG: 556

PROPOSED LESSEE
 INGRESS-EGRESS &
 UTILITIES RIGHT-OF-WAY
 (SEE SHEET 2 FOR DETAIL VIEW)

PROPOSED LESSEE
 LAND SPACE
 (SEE SHEET 2 FOR DETAIL VIEW)

CHRISTIAN LIGHT ROAD
 60' PUBLIC R/W



- LEGEND**
- POB POINT OF BEGINNING
 - POC POINT OF COMMENCEMENT
 - IPS IRON PIN SET
 - IPF IRON PIN FOUND
 - CMF CONCRETE MONUMENT FOUND
 - UP UTILITY POLE
 - LP LIGHT POLE
 - FP FLAG POLE
 - SSMH SANITARY SEWER MANHOLE
 - SDMH STORM DRAIN MANHOLE
 - INV INVERT
 - FH FIRE HYDRANT
 - EP EDGE OF PAVEMENT
 - TC TOP OF CURB
 - BC BACK OF CURB
 - TW TOP OF WALL
 - BW BOTTOM OF WALL
 - OU OVERHEAD UTILITY
 - UE UNDERGROUND UTILITY
 - CMP CORRUGATED METAL PIPE
 - RCF REINFORCED CONCRETE PIPE
 - PVC POLYVINYL CHLORIDE PIPE
 - GW GUY WIRE ANCHOR
 - TR TRANSFORMER
 - JB JUNCTION BOX
 - SWCB SINGLE WING CATCH BASIN
 - DWCB DOUBLE WING CATCH BASIN
 - CLF CHAIN LINK FENCE
 - WV WATER VALVE
 - WM WATER METER
 - CO SEWER CLEAN-OUT
 - GV GAS VALVE
 - N/F NOW OR FORMERLY
 - IB ICE BRIDGE
 - IBP ICE BRIDGE POLE

TITLE EXCEPTIONS

THIS SURVEY WAS COMPLETED WITH THE AID OF TITLE WORK PREPARED BY FIDELITY NATIONAL TITLE INSURANCE COMPANY, ISSUE DATE OF APRIL 10, 2017, BEING FIDELITY ORDER NO. 24850089, FOR THE SUBJECT PROPERTY, TO DETERMINE THE IMPACTS OF EXISTING TITLE EXCEPTIONS.

2. PLAT RECORDED IN PLAT BOOK 2015, PAGE 115.

(THIS ITEM IS PLOTTED HEREON)

**SUBJECT PROPERTY
 PER TITLE NO. 24850089**

PROPERTY LOCATED IN HARNETT, NC

BEING ALL THAT CERTAIN TRACT OR PARCEL CONTAINING 11.659 ACRES, MORE OR LESS, AS DEPICTED UPON MAP OF SURVEY ENTITLED, "SUBDIVISION PLAT FOR: RUTH MAE HORTON JOHNSON" DRAWN MARCH 6, 2015 BY BENTON W. DEWAR AND ASSOCIATES, PROFESSIONAL LAND SURVEYOR, HOLLY SPRINGS, NORTH CAROLINA AND WHICH WAS RECORDED IN MAP BOOK 2015, PAGE 115, HARNETT COUNTY REGISTRY, REFERENCE TO THE RECORDED MAP IS INCORPORATED HEREIN BY REFERENCE FOR GREATER ACCURACY OF DESCRIPTION.

AND BEING THE SAME PROPERTY CONVEYED TO ELLIS LAVELL JOHNSON AND WIFE, CYNTHIA J. JOHNSON FROM SYLVIA DARNELL JOHNSON, EXECUTRIX FOR THE ESTATE OF RUTH MAE JOHNSON BY NORTH CAROLINA SPECIAL WARRANTY DEED DATED JUNE 15, 2015 AND RECORDED JUNE 17, 2015 IN DEED BOOK 3315, PAGE 264.

TAX PARCEL NO. 0644-24-3903.000

SUBJECT PROPERTY

OWNER: ELLIS LAVELL & CYNTHIA J. JOHNSON

SITE ADDRESS: 6492 CHRISTIAN LIGHT ROAD, FUQUAY VARINA, NC 27526

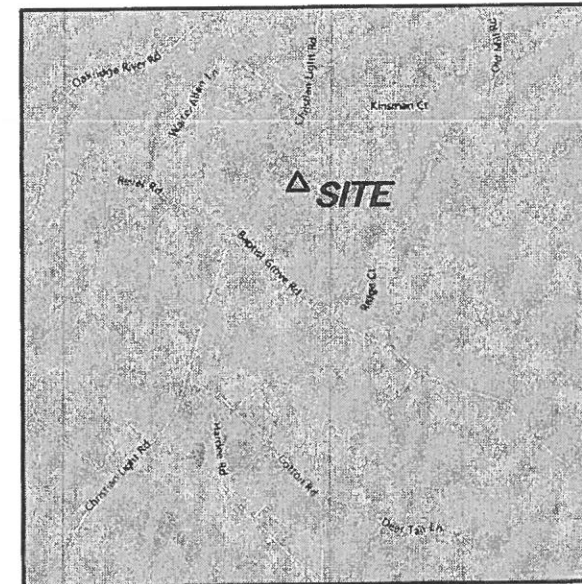
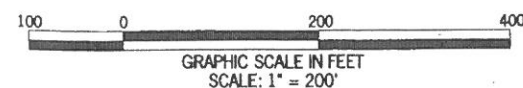
PARCEL ID: 08-0644--0010 (A.K.A. 0644-24-3903.000)

AREA: 10.513 ACRES (PER TAX ASSESSOR)

ZONED: RA-30

ALL ZONING INFORMATION SHOULD BE VERIFIED WITH THE PROPER ZONING OFFICIALS

REFERENCE: DEED BOOK 3315 PAGE 264



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 CELCO PARTNERSHIP D/B/A VERIZON WIRELESS AND EXCLUSIVELY FOR THE TRANSFERRAL OF THE PROPOSED 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.

THE FIELD DATA UPON WHICH THIS SPECIFIC PURPOSE SURVEY IS BASED HAS A CLOSURE PRECISION OF ONE FOOT IN 20,000+ FEET AND AN ANGULAR ERROR OF 5.0" PER ANGLE POINT AND WAS ADJUSTED USING LEAST SQUARES.

EQUIPMENT USED FOR ANGULAR & LINEAR MEASUREMENTS: LEICA TPS 1200 ROBOTIC & GEOMAX ZENITH 35 (DATE OF LAST FIELD VISIT: APRIL 13, 2017)

THE 1' CONTOURS AND SPOT ELEVATIONS SHOWN ON THIS SPECIFIC PURPOSE SURVEY ARE ADJUSTED TO NAVD 88 DATUM (COMPUTED USING GEOID 12B) 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 GRID NORTH (NAD 83) NC SINGLE ZONE.

NO PORTION OF THIS PROPERTY IS LOCATED IN A SPECIAL FLOOD AREA AS PER F.I.R.M. COMMUNITY PANEL NO. 3720064400J DATED OCTOBER 3, 2006.

NO WETLAND AREAS HAVE BEEN INVESTIGATED BY THIS SPECIFIC PURPOSE SURVEY.

ALL ZONING INFORMATION SHOULD BE VERIFIED WITH THE PROPER ZONING OFFICIALS.

ANY UNDERGROUND UTILITIES SHOWN HAVE BEEN LOCATED FROM ABOVE GROUND FIELD SURVEY INFORMATION. THE SURVEYOR MAKES NO GUARANTEES THAT ANY UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN-SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THAT ANY UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE. THE SURVEYOR HAS NOT PHYSICALLY LOCATED ANY UNDERGROUND UTILITIES.

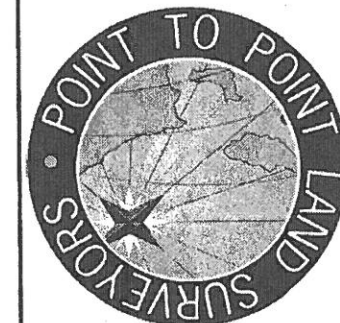


NO.	DATE	REVISION

* SPECIFIC PURPOSE SURVEY PREPARED BY:

**POINT TO POINT
 LAND SURVEYORS**

1010 Pennsylvania Avenue
 McDonough, GA 30253
 (p) 678.565.4440 (f) 678.565.4497
 (w) pointtopointsurvey.com



SPECIFIC PURPOSE SURVEY PREPARED FOR:



"REVELS ROAD"

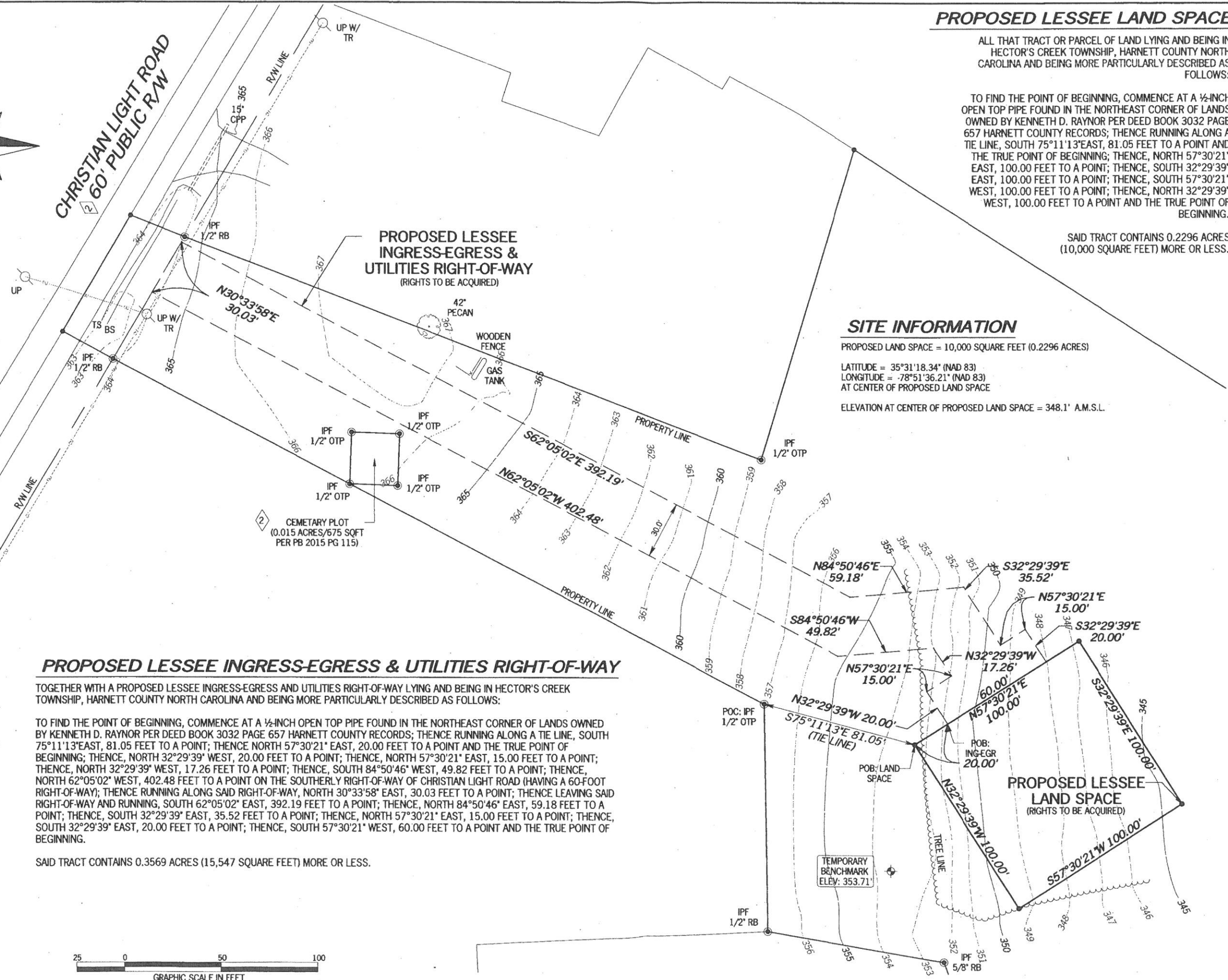
HECTOR'S CREEK TOWNSHIP
 HARNETT COUNTY, NORTH CAROLINA

DRAWN BY: DRC	SHEET:
CHECKED BY: JKL	1
APPROVED: C. INER	OF 2
DATE: MAY 2, 2017	
P2P JOB #: N170103	

(SURVEY NOT VALID WITHOUT SHEET 2 OF 2)



CHRISTIAN LIGHT ROAD
60' PUBLIC R/W



PROPOSED LESSEE LAND SPACE

ALL THAT TRACT OR PARCEL OF LAND LYING AND BEING IN HECTOR'S CREEK TOWNSHIP, HARNETT COUNTY NORTH CAROLINA AND BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

TO FIND THE POINT OF BEGINNING, COMMENCE AT A 1/2-INCH OPEN TOP PIPE FOUND IN THE NORTHEAST CORNER OF LANDS OWNED BY KENNETH D. RAYNOR PER DEED BOOK 3032 PAGE 657 HARNETT COUNTY RECORDS; THENCE RUNNING ALONG A TIE LINE, SOUTH 75°11'13" EAST, 81.05 FEET TO A POINT AND THE TRUE POINT OF BEGINNING; THENCE, NORTH 57°30'21" EAST, 100.00 FEET TO A POINT; THENCE, SOUTH 32°29'39" EAST, 100.00 FEET TO A POINT; THENCE, SOUTH 57°30'21" WEST, 100.00 FEET TO A POINT; THENCE, NORTH 32°29'39" WEST, 100.00 FEET TO A POINT AND THE TRUE POINT OF BEGINNING.

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

SITE INFORMATION

PROPOSED LAND SPACE = 10,000 SQUARE FEET (0.2296 ACRES)
 LATITUDE = 35°31'18.34" (NAD 83)
 LONGITUDE = -78°51'36.21" (NAD 83)
 AT CENTER OF PROPOSED LAND SPACE
 ELEVATION AT CENTER OF PROPOSED LAND SPACE = 348.1' A.M.S.L.

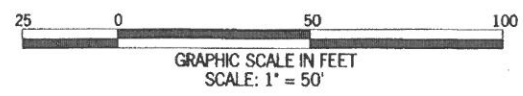
PROPOSED LESSEE INGRESS-EGRESS & UTILITIES RIGHT-OF-WAY

TOGETHER WITH A PROPOSED LESSEE INGRESS-EGRESS AND UTILITIES RIGHT-OF-WAY LYING AND BEING IN HECTOR'S CREEK TOWNSHIP, HARNETT COUNTY NORTH CAROLINA AND BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

TO FIND THE POINT OF BEGINNING, COMMENCE AT A 1/2-INCH OPEN TOP PIPE FOUND IN THE NORTHEAST CORNER OF LANDS OWNED BY KENNETH D. RAYNOR PER DEED BOOK 3032 PAGE 657 HARNETT COUNTY RECORDS; THENCE RUNNING ALONG A TIE LINE, SOUTH 75°11'13" EAST, 81.05 FEET TO A POINT; THENCE NORTH 57°30'21" EAST, 20.00 FEET TO A POINT AND THE TRUE POINT OF BEGINNING; THENCE, NORTH 32°29'39" WEST, 20.00 FEET TO A POINT; THENCE, NORTH 57°30'21" EAST, 15.00 FEET TO A POINT; THENCE, NORTH 32°29'39" WEST, 17.26 FEET TO A POINT; THENCE, SOUTH 84°50'46" WEST, 49.82 FEET TO A POINT; THENCE, NORTH 62°05'02" WEST, 402.48 FEET TO A POINT ON THE SOUTHERLY RIGHT-OF-WAY OF CHRISTIAN LIGHT ROAD (HAVING A 60-FOOT RIGHT-OF-WAY); THENCE RUNNING ALONG SAID RIGHT-OF-WAY, NORTH 30°33'58" EAST, 30.03 FEET TO A POINT; THENCE LEAVING SAID RIGHT-OF-WAY AND RUNNING, SOUTH 62°05'02" EAST, 392.19 FEET TO A POINT; THENCE, NORTH 84°50'46" EAST, 59.18 FEET TO A POINT; THENCE, SOUTH 32°29'39" EAST, 35.52 FEET TO A POINT; THENCE, NORTH 57°30'21" EAST, 15.00 FEET TO A POINT; THENCE, SOUTH 32°29'39" EAST, 20.00 FEET TO A POINT; THENCE, SOUTH 57°30'21" WEST, 60.00 FEET TO A POINT AND THE TRUE POINT OF BEGINNING.

SAID TRACT CONTAINS 0.3569 ACRES (15,547 SQUARE FEET) MORE OR LESS.

- LEGEND**
- POB POINT OF BEGINNING
 - POC POINT OF COMMENCEMENT
 - IPS IRON PIN SET
 - IPF IRON PIN FOUND
 - CMF CONCRETE MONUMENT FOUND
 - UP UTILITY POLE
 - LP LIGHT POLE
 - FP FLAG POLE
 - SSMH SANITARY SEWER MANHOLE
 - SDMH STORM DRAIN MANHOLE
 - INV INVERT
 - FH FIRE HYDRANT
 - EP EDGE OF PAVEMENT
 - TC TOP OF CURB
 - BC BACK OF CURB
 - TW TOP OF WALL
 - BW BOTTOM OF WALL
 - OU OVERHEAD UTILITY
 - UE UNDERGROUND UTILITY
 - CMP CORRUGATED METAL PIPE
 - RCP REINFORCED CONCRETE PIPE
 - PVC POLYVINYL CHLORIDE PIPE
 - GW GUY WIRE ANCHOR
 - TR TRANSFORMER
 - JB JUNCTION BOX
 - SWCB SINGLE WING CATCH BASIN
 - DWCB DOUBLE WING CATCH BASIN
 - CLF CHAIN LINK FENCE
 - WW WATER WALL
 - WM WATER METER
 - CO SEWER CLEAN-OUT
 - GV GAS VALVE
 - N/F NOW OR FORMERLY
 - IB ICE BRIDGE
 - IBP ICE BRIDGE POLE
 - TS TOP SLOPE
 - BS BOTTOM SLOPE



NO.	DATE	REVISION

SPECIFIC PURPOSE SURVEY PREPARED BY:
POINT TO POINT LAND SURVEYORS
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 (p) 678.565.4440 (f) 678.565.4497
 (w) pointtopointsurvey.com



SPECIFIC PURPOSE SURVEY PREPARED FOR:



'REVELS ROAD'

HECTOR'S CREEK TOWNSHIP
 HARNETT COUNTY, NORTH CAROLINA

DRAWN BY: DRC	SHEET: 2
CHECKED BY: JKL	OF 2
APPROVED: C. INER	
DATE: MAY 2, 2017	
P2P JOB #: N170103	

SURVEY NOT VALID WITHOUT SHEET 1 OF 2

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K:\ATL_Wireless\000_Verizon\2017 Sites\Revels Road\CD\Rev1-9-8-17\Revels Road_CD_R1.dwg September 8, 2017 11:58 AM by: kerry.pierre

1.00 GENERAL NOTES

- 1.01 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.
- 1.02 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 PROJECT MANAGER AND/OR ENGINEER AND BE RESOLVED BEFORE PROCEEDING WITH WORK. WHERE THERE IS A CONFLICT BETWEEN DRAWING AND VERIZON SPECIFICATIONS, THE VERIZON PROJECT ENGINEER SHOULD BE CONTACTED FOR CLARIFICATION.
- 1.03 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 PROJECT 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 PROJECT MANAGER AND/OR ENGINEER.
- 1.04 CONTRACTOR SHALL REVIEW AND BE FAMILIAR WITH SITE CONDITIONS AS SHOWN ON THE ATTACHED SITE PLAN AND/OR SURVEY DRAWINGS.
- 1.05 WAVEGUIDE BRIDGE AND EQUIPMENT CABINETS ARE SHOWN FOR REFERENCE ONLY. REFER TO SEPARATE DRAWINGS FOR SPECIFIC INFORMATION.
- 1.06 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.
- 1.07 THE PROPOSED TOWER AND TOWER FOUNDATIONS WERE DESIGNED BY OTHERS. TOWER INFORMATION PROVIDED ON THESE PLANS ARE PROVIDED FOR REFERENCE PURPOSES ONLY. NOTIFY ENGINEER OR PROJECT MANAGER OF ANY CONFLICTS OR DISCREPANCIES. CONTRACTOR TO OBTAIN COPY OF TOWER DESIGN DRAWINGS, IF AVAILABLE, FROM VERIZON PROJECT MANAGER TO CONFIRM COAX ROUTING AND ANTENNA MOUNT INFORMATION.
- 1.08 THE CONTRACTOR SHALL PROVIDE ADEQUATE EXCAVATION SLOPING, SHORING, BRACING, AND GUYS IN ACCORDANCE WITH ALL NATIONAL, STATE, AND LOCAL SAFETY ORDINANCES.
- 1.09 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.
- 1.10 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 "NORTH CAROLINA 811" 48 HOURS IN ADVANCE OF PERFORMING ANY WORK BY CALLING THE TOLL FREE NUMBER (800) 632-4949 (OR 811). ANY UTILITIES DAMAGED BY CONSTRUCTION ACTIVITIES SHALL BE REPAIRED BY THE CONTRACTOR, AT NO EXPENSE TO THE OWNER.
- 1.11 CONTRACTOR TO PROVIDE DUMPSTER AND PORTABLE TOILET FACILITY DURING CONSTRUCTION.
- 1.12 CONTRACTOR TO PROVIDE STYMIE LOCK OR EQUIVALENT AS APPROVED BY VERIZON PROJECT MANAGER.
- 1.13 CONTRACTOR TO PROVIDE ANY NECESSARY SIGNAGE PER VERIZON PROJECT MANAGER'S INSTRUCTIONS. SEE DETAIL ON SHEET C11.

2.00 EQUIPMENT FOUNDATION NOTES

- 2.01 FOUNDATIONS ARE DESIGNED FOR A PRESUMPTIVE ALLOWABLE SOIL BEARING CAPACITY OF 2,000 PSF. CONTRACTOR SHALL VERIFY SOIL CONDITIONS AND BEARING CAPACITY PRIOR TO CONSTRUCTION.
- 2.02 EXCAVATE A MINIMUM 18" BELOW PROPOSED EQUIPMENT FOUNDATIONS OF EXPANSIVE, ORGANIC, UNCONSOLIDATED OR OTHERWISE UNACCEPTABLE MATERIAL AND REPLACE WITH WELL-COMPACTED MATERIAL ACCEPTABLE TO VERIZON.
- 2.03 CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING, PROTECTING, AND RELOCATING AS REQUIRED ALL SERVICE AND UTILITY LINES IN VICINITY OF THE WORK SITE. ALL EXCAVATIONS NEAR THESE LINES TO BE CARRIED OUT WITH EXTREME CAUTION. COORDINATE ALL RELOCATIONS WITH THE PROPERTY OWNER.
- 2.04 CONTRACTOR TO CUT/FILL EXISTING COMPOUND SUBSOIL TO PROVIDE AN AREA AS LEVEL AS POSSIBLE FOR THE EQUIPMENT FOUNDATIONS. ALL FILL AREAS ARE TO BE FILLED WITH SUITABLE MATERIALS. FILL MATERIALS ARE TO BE PLACED, COMPACTED, AND TESTED IN MAXIMUM LAYERS OF 8". COMPACTION OF ALL FILL MATERIAL SHALL ACHIEVE 95 PERCENT OF MAXIMUM DRY DENSITY AT OPTIMUM MOISTURE CONTENT IN ACCORDANCE WITH ASTM D 698. ALL TESTS MUST MEET THE MINIMUM SPECIFIED SOIL BEARING CAPACITY. COMPACTION TESTING IS BY THE GEOTECHNICAL TESTING COMPANY DESIGNATED FOR THE PROJECT. SCHEDULING AND COORDINATION IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR. REPORTS OF ALL TESTING ARE TO BE PROMPTLY DELIVERED OR FAXED TO THE VERIZON WIRELESS PROJECT MANAGER.
- 2.05 CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4,000 PSI AT 28 DAYS AND SHALL BE INSTALLED IN ACCORDANCE WITH THE LATEST REVISION TO ACI-318 BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE.
- 2.06 CONCRETE SHALL HAVE A SLUMP BETWEEN 3" AND 6".
- 2.07 REINFORCING BARS SHALL CONFORM TO THE LATEST REVISION OF ASTM-A615 GRADE 60 SPECIFICATIONS AND BE DETAILED IN ACCORDANCE WITH THE LATEST REVISION TO ACI-318.
- 2.08 AT THE REQUEST OF THE VERIZON WIRELESS PROJECT MANAGER, TEST CYLINDERS SHALL BE MOLDED AND LABORATORY CURED IN ACCORDANCE WITH ASTM C31. THREE CYLINDERS SHALL BE TAKEN FOR EACH DAY'S CONCRETE PLACEMENT. CYLINDERS SHALL BE TESTED IN ACCORDANCE WITH THE LATEST REVISION TO ASTM C39.
- 2.09 CHAMFER ALL EXPOSED EXTERNAL CORNERS OF CONCRETE WITH 3/4" x 45° CHAMFER, UNLESS OTHERWISE NOTED.
- 2.10 CONCRETE FORMWORK IS TO BE STRIPPED WITHIN 48 HOURS. VIBRATION OF THE CONCRETE MUST ASSURE THAT HONEYCOMBING WILL BE AT A MINIMUM. MECHANICAL VIBRATION OF ALL CONCRETE IS REQUIRED UNLESS OTHERWISE DIRECTED BY VERIZON WIRELESS' PROJECT MANAGER. ABOVE GRADE CONCRETE IS TO BE RUBBED AND PATCHED TO ASSURE SMOOTH FINISH AT TIME OF FORMS REMOVAL. CONTRACTOR SHALL PROVIDE A BROOM FINISH ON THE TOP SURFACE OF THE EQUIPMENT FOUNDATION UNLESS OTHERWISE DIRECTED BY VERIZON WIRELESS' PROJECT MANAGER.
- 2.11 TOPS OF CONCRETE FOUNDATION MUST BE WITHIN 0.02' OF ELEVATION REQUIRED.
- 2.12 TOP OF FOUNDATION FINISH TO BE LEVEL ±1/8" IN 10'.
- 2.13 TOP OF FOUNDATION TO HAVE MEDIUM BROOM FINISH.
- 2.14 CONTRACTOR SHALL REFER TO DRAWINGS OF OTHER TRADES AND VENDOR DRAWINGS FOR EMBEDDED ITEMS AND RECESSES NOT SHOWN ON THE STRUCTURAL DRAWINGS. CONTRACTOR SHALL VERIFY PLACEMENT OF EQUIPMENT AND LOCATION OF CONDUIT FOR MANUFACTURER'S AND VENDORS SPECIFICATIONS. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE ALL OPENINGS AND SLEEVES FOR PROPER DISTRIBUTION OF ALL UTILITIES.



PROJECT INFORMATION:
VERIZON NAME:
 REVELS_RD
VERIZON No.: 427450
 6492 CHRISTIAN LIGHT ROAD
 FUQUAY VARINA, NC 27526
 HARNETT COUNTY

CURRENT ISSUE DATE:
 09/08/17

ISSUED FOR:
 CONSTRUCTION

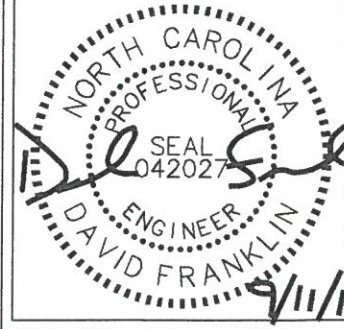
REV.:	DATE:	ISSUED FOR:	BY:
0	08/16/17	CONSTRUCTION	DMF
1	09/08/17	CONSTRUCTION	DMF

CONSULTANT:
Kimley»Horn
 2 SUN COURT, SUITE 450
 PEACHTREE CORNERS, GA 30092
 PHONE: 770-825-0744
 WWW.KIMLEY-HORN.COM
 NC License F-0102

CONSULTANT:
 (Blank area for consultant signature)

DRAWN BY: CHK.: APV.:
 KAB TDM DMF

LICENSER:



SHEET TITLE:
GENERAL NOTES

SHEET NUMBER: **N1** REVISION: **1**
 018985462

verizon

8921 RESEARCH DRIVE
CHARLOTTE, NORTH CAROLINA 28262

PROJECT INFORMATION:

VERIZON NAME:

REVELS_RD
VERIZON No.: 427450
6492 CHRISTIAN LIGHT ROAD
FUQUAY VARINA, NC 27526
HARNETT COUNTY

CURRENT ISSUE DATE:

09/08/17

ISSUED FOR:

CONSTRUCTION

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0	08/16/17	CONSTRUCTION	DMF
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CONSULTANT:

Kimley»Horn

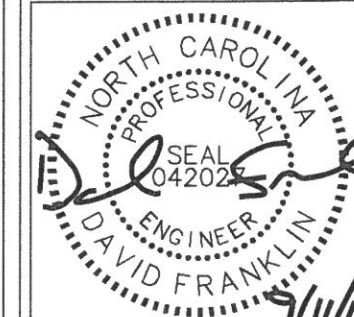
2 SUN COURT, SUITE 450
PEACHTREE CORNERS, GA 30092
PHONE: 770-825-0744
WWW.KIMLEY-HORN.COM
NC License F-0102

CONSULTANT:

DRAWN BY: CHK.: APV.:

KAB TDM DMF

LICENSER:



SHEET TITLE:

OVERALL SITE PLAN

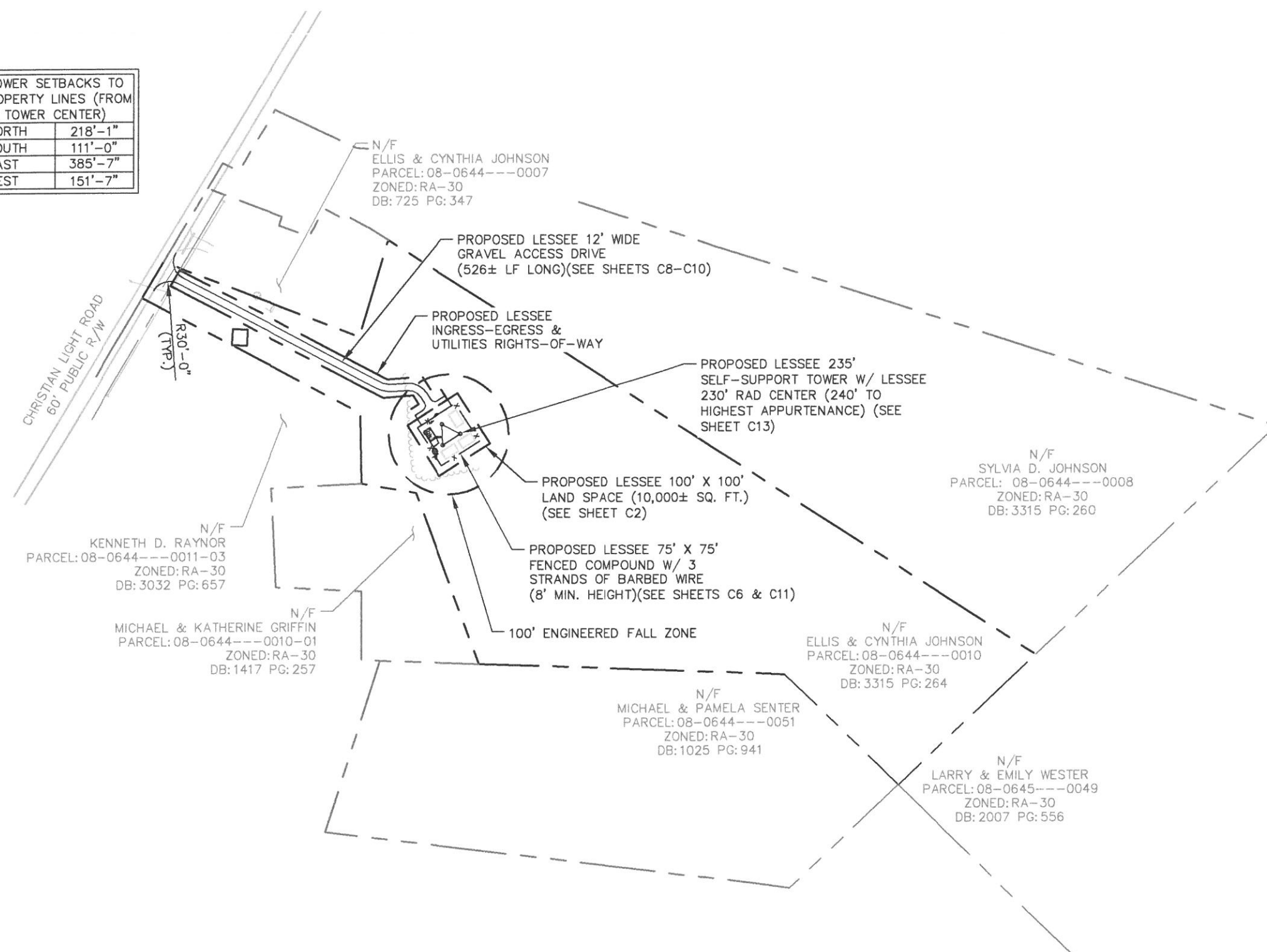
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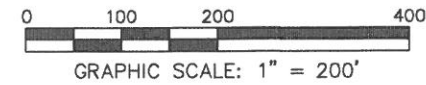
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TOWER SETBACKS TO PROPERTY LINES (FROM TOWER CENTER)	
NORTH	218'-1"
SOUTH	111'-0"
EAST	385'-7"
WEST	151'-7"



1 OVERALL SITE PLAN
C1 SCALE: 1" = 200'

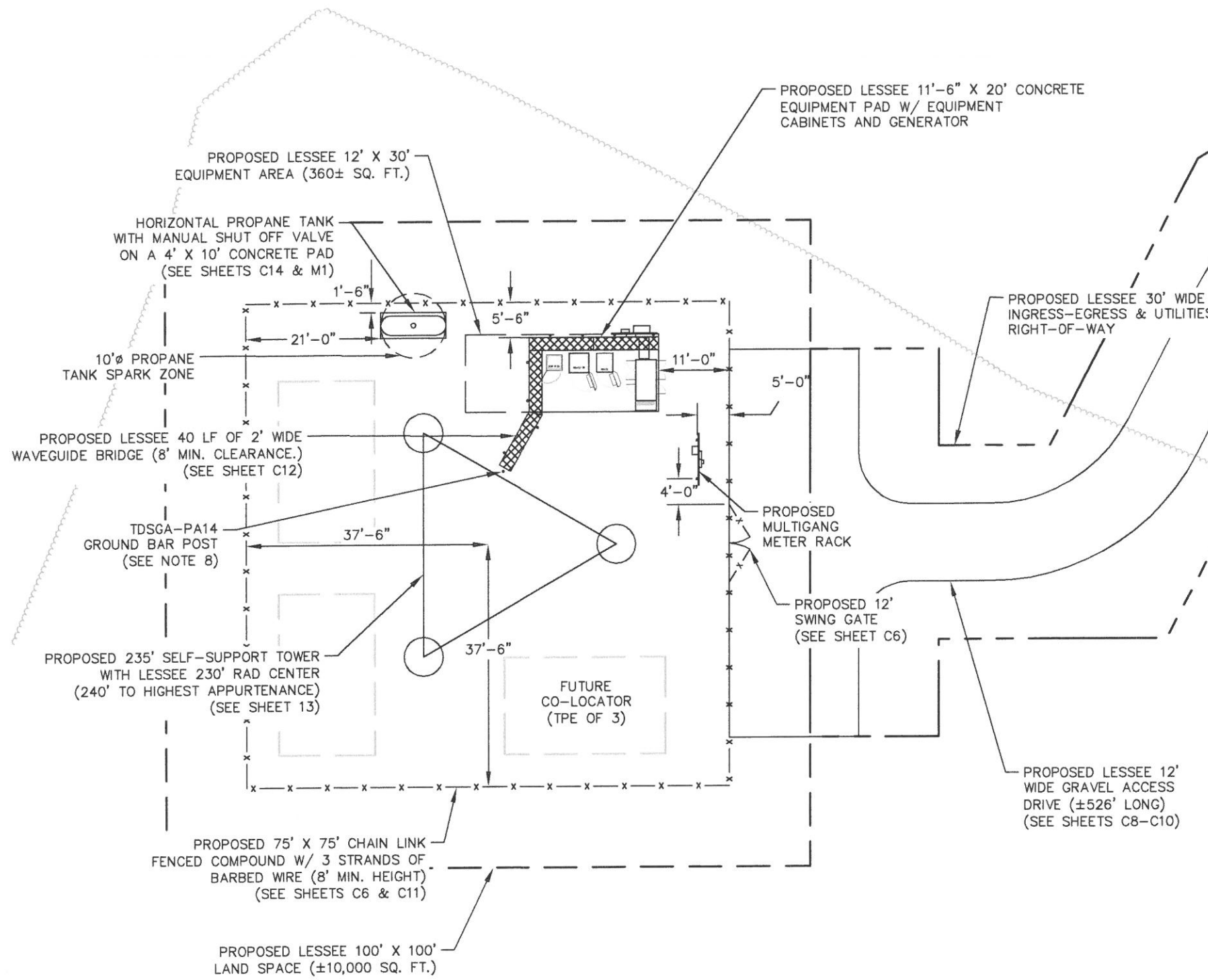


SURVEY NOTE:

1. VERIZON WIRELESS 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 05/02/17 AND SITE VISIT ON 04/10/17.

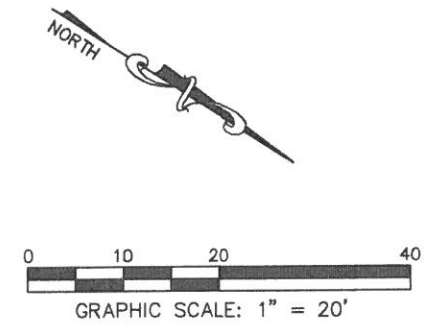
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1 SITE PLAN
C2 SCALE: 1" = 20'

- SITE NOTES:**
1. VERIZON WIRELESS 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 05/02/17 AND SITE VISIT ON 04/10/17.
 3. CONTRACTOR TO CONFIRM WITH VERIZON CONSTRUCTION MANAGER THAT THE EQUIPMENT SHOWN HAS BEEN ORDERED/SCHEDULED FOR DELIVERY TO THIS SITE.
 4. THE BASIS OF EQUIPMENT DESIGN INCLUDES ONE (1) COMMSCOPE RBA72-36 BATTERY CABINET, ONE (1) COMMSCOPE RBA72 RF CABINET, AND ONE (1) ERICSSON RBS 6120 RF CABINET.
 5. GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING AND MODIFYING SCOPE OF WORK TO ACCOMMODATE ANY CHANGES IN THE EXACT EQUIPMENT PROCURED BY VERIZON WIRELESS. COORDINATE ANY CHANGES WITH VERIZON WIRELESS CONSTRUCTION MANAGER.
 6. ROUTE COAX/FIBER UP TOWER PER STRUCTURAL ANALYSIS BY TOWER OWNER.
 7. TOWER DIMENSIONS SHOWN ON THIS PLAN ARE FOR TOWER CENTER LOCATION. CONTRACTOR TO OBTAIN COPY OF TOWER ERECTION DRAWINGS FROM VERIZON CONSTRUCTION MANAGER PRIOR TO DRILLING TOWER FOUNDATIONS. CASSIONS AND TOWER SHOWN ON THIS PLAN ARE ILLUSTRATIVE, SEE DESIGN DRAWING BY OTHERS. DO NOT SCALE.
 8. INSTALL 3/2" O.D. GALVANIZED STEEL POST FOR TDSGA-PA14 GROUND BAR. POST TO EXTEND 78" ABOVE GRADE AND SHALL BE EMBEDDED IN A 12"Ø CONCRETE FOOTING A MINIMUM OF 36". FOOTING SHALL EXTEND A MINIMUM OF 42" BELOW GRADE.
 9. FASTEN PROPANE TANK SUPPORTS USING SIMPSON STRONG-TIE TITEN HD CONCRETE ANCHORS. MINIMUM ANCHOR DIAMETER IS 1/2"Ø, MINIMUM EMBEDMENT IS 2 1/2" AND MINIMUM CLEAR DISTANCE FROM ANCHOR TO EDGE OF CONCRETE IS 2". INSTALL ANCHOR IN STRICT ACCORDANCE WITH ANCHOR MANUFACTURER'S INSTALLATION INSTRUCTIONS. CONTRACTOR TO NOTIFY ENGINEER PRIOR TO PLACING PAD AND TANK IF THE ANCHOR REQUIREMENTS LISTED ABOVE CANNOT BE ACCOMMODATED DUE TO ACTUAL TANK PROCURED. CONTRACTOR MAY SUBMIT ALTERNATIVE ANCHOR PRODUCT FOR ENGINEER'S APPROVAL. SUBMITTAL SHALL INCLUDE ANCHOR TECHNICAL DATA AND ICC-ES AC193 APPROVAL FOR USE WITH CRACKED CONCRETE.



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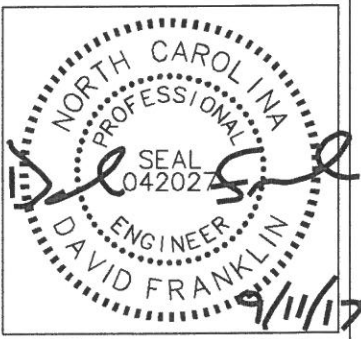
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CONSULTANT:
Kimley»Horn
 2 SUN COURT, SUITE 450
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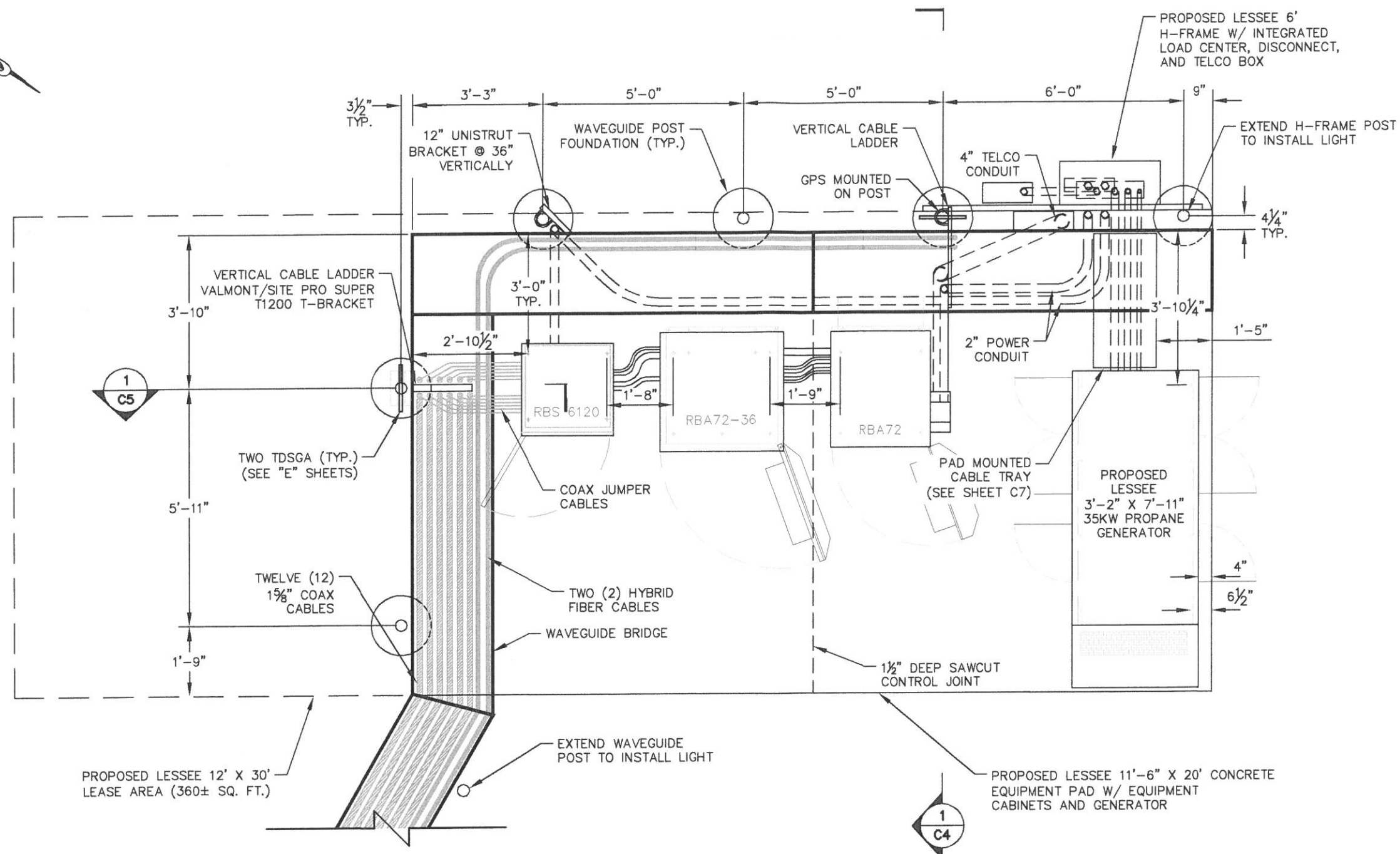
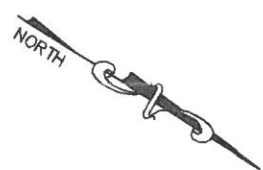
CONSULTANT:

DRAWN BY: CHK.: APV.:
 KAB TDM DMF



SHEET TITLE:
 SITE PLAN

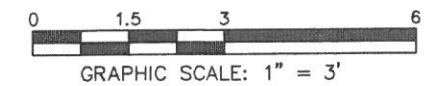
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1 EQUIPMENT PAD LAYOUT
SCALE: 1" = 3'

EQUIPMENT PAD NOTES:

- REFER TO THE SITE PLAN FOR EQUIPMENT PAD LOCATION AND ORIENTATION.
- RUN 4" TELCO CONDUIT OVERHEAD ON WAVEGUIDE BRIDGE USING 16" RADIUS SWEEPS AT ALL BENDS. FASTEN TO UNDERSIDE OF ICE BRIDGE PER CONDUIT HANGER DETAIL. RUN DOWN CABLE LADDER TO APPROX. 3 FT HIGH, THEN SWEEP OVER TO 12X12X6 PVC NEMA BOX MOUNTED TO SIDE OF RBA72 CABINET WITH CHASE NIPPLE THROUGH FACTORY KNOCKOUT.
- RUN 2" POWER CONDUIT OVERHEAD ON WAVEGUIDE BRIDGE. FASTEN TO UNDERSIDE OF ICE BRIDGE PER CONDUIT HANGER DETAIL. RUN DOWN CABLE LADDER TO APPROX. 5 FT HIGH, THEN SWEEP OVER TO 6X6X6 PVC NEMA BOX MOUNTED TO SIDE OF RBA72 CABINET WITH CHASE NIPPLE THROUGH FACTORY KNOCKOUT.
- RUN 2" POWER CONDUIT OVERHEAD ON WAVEGUIDE BRIDGE. FASTEN TO UNDERSIDE OF ICE BRIDGE PER CONDUIT HANGER DETAIL. RUN DOWN CABLE LADDER TO APPROX. 6" HIGH, THEN ELBOW OVER TO BACK OF PLINTH BELOW RBS6120 CABINET. PENETRATE PLINTH USING FIELD DRILLED OPENING.
- RUN HYBRID CABLE OVERHEAD ON TRAPEZE SUSPENDED FROM WAVE GUIDE BRIDGE. SWEEP DOWN ONTO CABLE LADDER TO APPROX. 18 INCH HEIGHT, THEN SWEEP OVER TO PENETRATION IN DOGHOUSE ON BACK OF RBA72 CABINET.
- GPS ANTENNA TO BE MOUNTED TO EXTENDED ICE BRIDGE POST, OR TO STANDARD HEIGHT POST USING EXTENDED MOUNTING PIPE, USING COMMSCOPE GPS-U MOUNTING KIT. MOUNT AS NEAR AS IS PRACTICAL TO RBA72 CABINET.
- FASTEN CONDUITS TO UNISTRUT ON WAVEGUIDE BRIDGE AND TO CABLE LADDER OR H-FRAME WITH TWO PIECE HOT DIP GALVANIZED CONDUIT STRAPS.
- BOLT CABINETS AND GENERATOR TO SLAB USING FASTENERS SPECIFIED BY EQUIPMENT MANUFACTURER IN FACTORY PROVIDED MOUNTING HOLES.
- SAWCUT CONTROL JOINT TO BE TREATED WITH SIKADUR 51 SL SEALANT OR APPROVED EQUAL.



PROJECT INFORMATION:
VERIZON NAME:
 REVELS_RD
VERIZON No.: 427450
 6492 CHRISTIAN LIGHT ROAD
 FUQUAY VARINA, NC 27526
 HARNETT COUNTY

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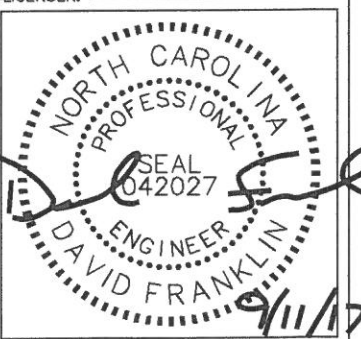
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CONSULTANT:
Kimley»Horn
 2 SUN COURT, SUITE 450
 PEACHTREE CORNERS, GA 30092
 PHONE: 770-825-0744
 WWW.KIMLEY-HORN.COM
 NC License F-0102

DRAWN BY: CHK. APV.:

KAB	TDM	DMF
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LICENSER:



SHEET TITLE:
EQUIPMENT PAD LAYOUT

SHEET NUMBER: **C3** REVISION: **1**
 018985462

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8921 RESEARCH DRIVE
CHARLOTTE, NORTH CAROLINA 28262

PROJECT INFORMATION:

VERIZON NAME:
REVELS_RD
VERIZON No.: 427450
6492 CHRISTIAN LIGHT ROAD
FUQUAY VARINA, NC 27526
HARNETT COUNTY

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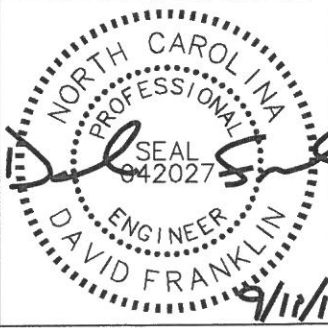
2 SUN COURT, SUITE 450
PEACHTREE CORNERS, GA 30092
PHONE: 770-825-0744
WWW.KIMLEY-HORN.COM
NC License F-0102

CONSULTANT:

DRAWN BY: CHK.: APV.:

KAB TDM DMF

LICENSER:



SHEET TITLE:

EQUIPMENT
PAD FOUNDATION
SECTION DETAILS

SHEET NUMBER: REVISION:

C4 1
018985462

ALL OVERHEAD CONDUITS TO BE MOUNTED TO 7/8" P3300 UNISTRUT MOUNTED TO SIDE FLANGE OF WAVEGUIDE BRIDGE USING UNISTRUT P1498 FITTINGS. SUPPORT TELCO AND ELECTRICAL CONDUIT FROM UNISTRUT USING TWO PIECE HOT DIP GALVANIZED CONDUIT CLAMPS.

WAVEGUIDE BRIDGE KIT (PART #: WB-K210-B15 WITH MF-273 BURIAL POST OR APPROVED EQUIVALENT)

HYBRID FIBER CABLES. CONTRACTOR TO REFER TO VERIZON RF DESIGN FOR EXACT QUANTITY.

VALMONT/SITE PRO SITE STRUT OR APPROVED EQUAL. FASTEN TO POST USING 1/2" GALVANIZED U-BOLT OR APPROVED EQUAL. COLD GALVANIZE ANY DRILLED HOLES IN SITE STRUT AND AT ANY CUT-OFF BOLT ENDS.

WAVEGUIDE POST (SEE SHEET C12)

STANDARD COAX GROUNDING KIT TO GROUND BAR

TDSGA-PA14 GROUND BAR (SEE ELECTRICAL SHEETS)

HYBRID FIBER CABLES RUN TOWARDS SLAB INTERIOR PAST THIS POINT

PROPOSED LESSEE 11'-6" X 20' CONCRETE EQUIPMENT PAD W/ EQUIPMENT CABINETS AND GENERATOR

#4 @ 1'-0" (MAX.) E.W. TOP AND BOTTOM

2" CLEAR (TYP. U.O.N.)

FINISH GRADE

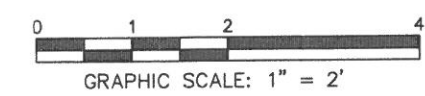
6" OF #57 STONE-MIN.

WELL COMPACTED FILL MATERIAL (18" MINIMUM)

1
C4

EQUIPMENT PAD FOUNDATION SECTION

SCALE: 1" = 2'



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8921 RESEARCH DRIVE
CHARLOTTE, NORTH CAROLINA 28262

PROJECT INFORMATION:

VERIZON NAME:

REVELS_RD
VERIZON No.: 427450
6492 CHRISTIAN LIGHT ROAD
FUQUAY VARINA, NC 27526
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CONSULTANT:

Kimley»Horn

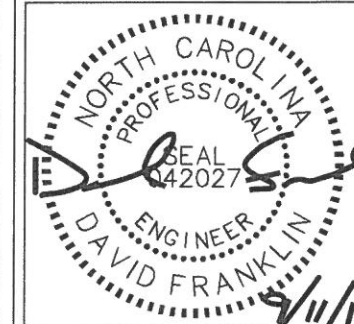
2 SUN COURT, SUITE 450
PEACHTREE CORNERS, GA 30092
PHONE: 770-825-0744
WWW.KIMLEY-HORN.COM
NC License F-0102

CONSULTANT:

DRAWN BY: CHK.: APV.:

KAB TDM DMF

LICENSER:



SHEET TITLE:

**EQUIPMENT
PAD FOUNDATION
SECTION DETAILS**

SHEET NUMBER: REVISION:

C5

1

018985462

ALL OVERHEAD CONDUITS TO BE MOUNTED TO 7/8" P3300 UNISTRUT MOUNTED TO SIDE FLANGE OF WAVEGUIDE BRIDGE USING UNISTRUT P1498 FITTINGS. SUPPORT TELCO AND ELECTRICAL CONDUIT FROM UNISTRUT USING TWO PIECE HOT DIP GALVANIZED CONDUIT CLAMPS.

HYBRID FIBER CABLES. CONTRACTOR TO REFER TO VERIZON RF DESIGN FOR EXACT QUANTITY.

WAVEGUIDE BRIDGE KIT (PART #: WB-K210-B15 WITH MF-273 BURIAL POST OR APPROVED EQUIVALENT)

WAVEGUIDE POST (SEE SHEET C12)

COAX CABLES. CONTRACTOR TO REFER TO VERIZON RF DESIGN FOR EXACT QUANTITY.

SITE STRUTS TO SUPPORT DIPLEXERS. INSTALLED AS REQUIRED.

VALMONT/SITE PRO SITE SUPER T1200 T-BRACKET OR APPROVED EQUAL. FASTEN TO POST USING MANUFACTURER'S PROVIDED HARDWARE.

TDSGA-PA14 GROUND BAR (SEE ELECTRICAL SHEETS)

18"Ø WAVEGUIDE BRIDGE POST FOOTING (SEE SHEET C12)

COAX JUMPER CABLES RUN TOWARDS SLAB INTERIOR PAST THIS POINT

PROPOSED LESSEE 11'-6" X 20' CONCRETE EQUIPMENT PAD W/ EQUIPMENT CABINETS AND GENERATOR

#4 @ 1'-0" (MAX.) E.W. TOP AND BOTTOM

2" CLEAR (TYP. U.O.N.)

3" CLEAR

WELL COMPACTED FILL MATERIAL (18" MINIMUM)

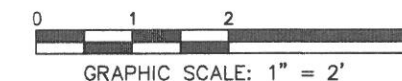
NOTE:

IF DIPLEXERS ARE USED, TERMINATE COAX ABOVE DIPLEXERS AND RUN JUMPERS FROM COAX TO TOP OF DIPLEXERS.

1
C5

EQUIPMENT PAD FOUNDATION SECTION

SCALE: 1" = 2'



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PROJECT INFORMATION:

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FUQUAY VARINA, NC 27526
HARNETT COUNTY

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CONSULTANT:

Kimley»Horn

2 SUN COURT, SUITE 450
PEACHTREE CORNERS, GA 30092
PHONE: 770-825-0744
WWW.KIMLEY-HORN.COM
NC License F-0102

CONSULTANT:

DRAWN BY: CHK.: APV.:

KAB TDM DMF

LICENSER:



SHEET TITLE:

**PAD MOUNTED
CABLE TRAY
DETAILS**

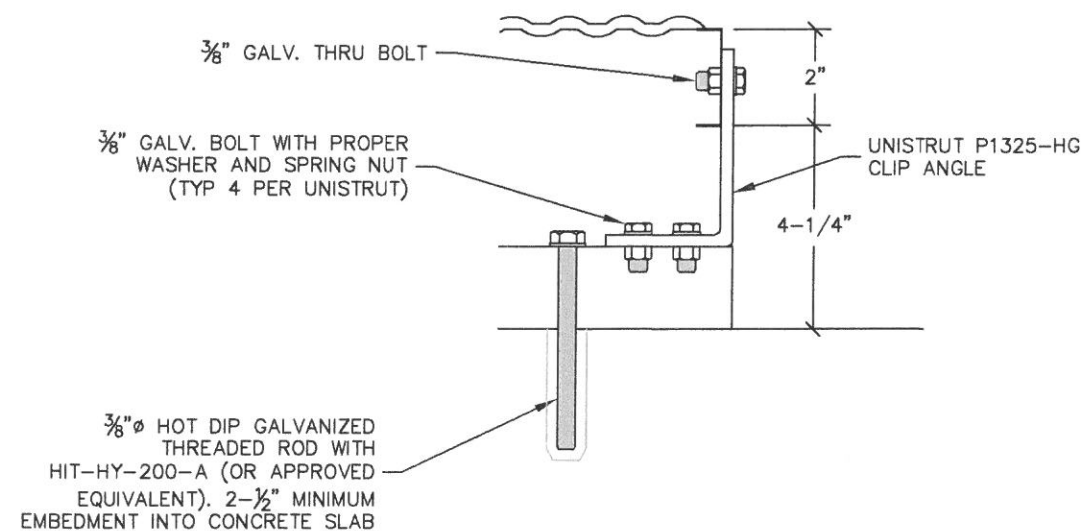
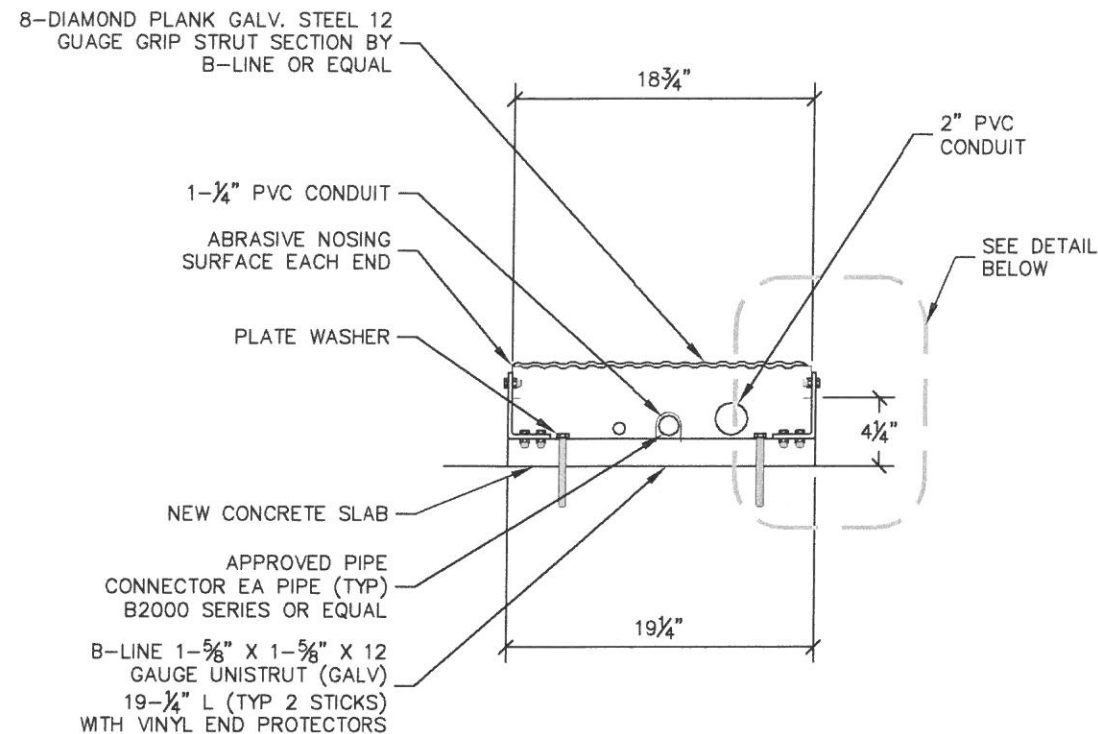
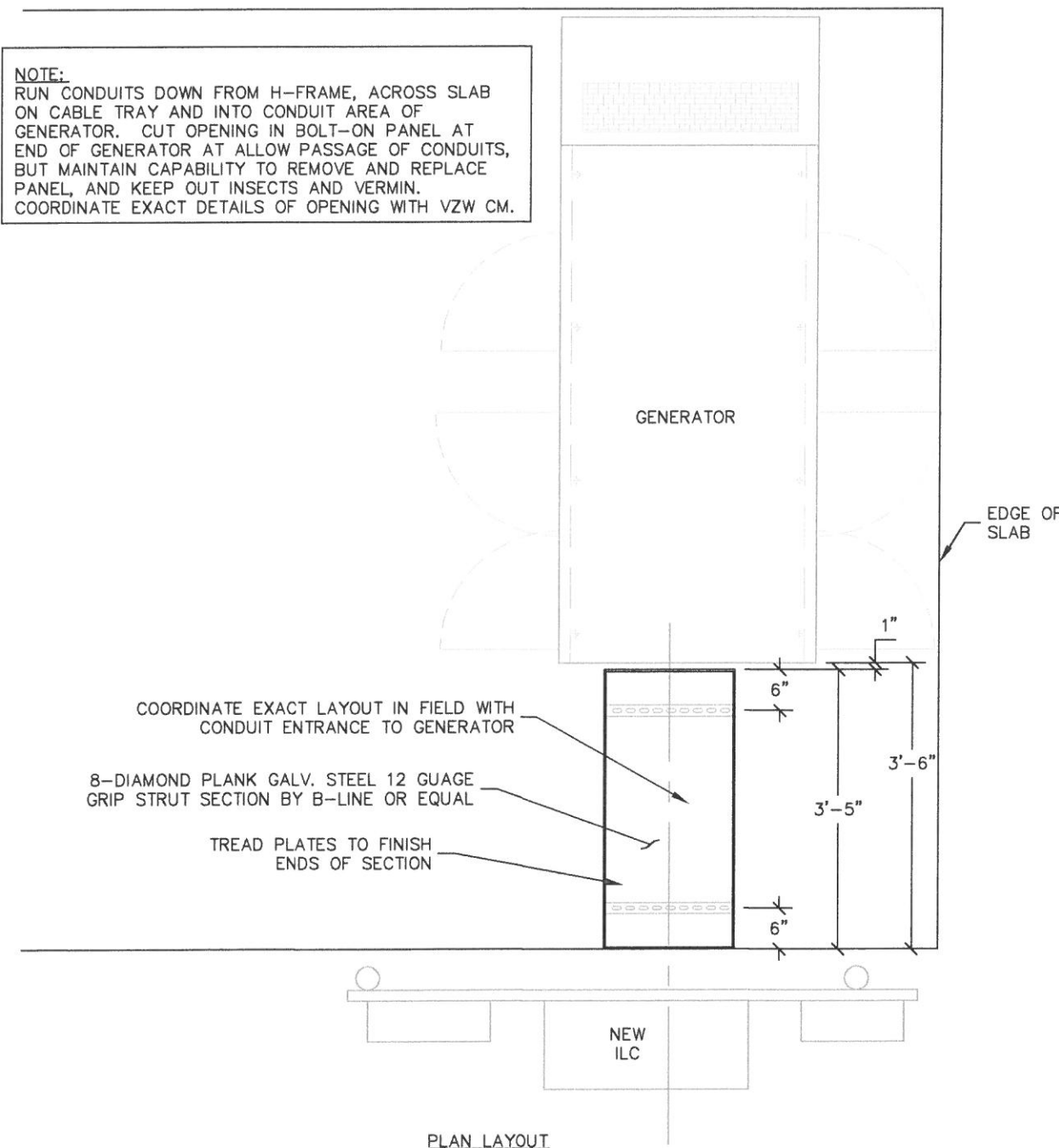
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C7

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NOTE:
RUN CONDUITS DOWN FROM H-FRAME, ACROSS SLAB ON CABLE TRAY AND INTO CONDUIT AREA OF GENERATOR. CUT OPENING IN BOLT-ON PANEL AT END OF GENERATOR AT ALLOW PASSAGE OF CONDUITS, BUT MAINTAIN CAPABILITY TO REMOVE AND REPLACE PANEL, AND KEEP OUT INSECTS AND VERMIN. COORDINATE EXACT DETAILS OF OPENING WITH VZW CM.



1
C7 **PAD MOUNTED CABLE TRAY DETAILS**
NOT TO SCALE

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8921 RESEARCH DRIVE
CHARLOTTE, NORTH CAROLINA 28262

PROJECT INFORMATION:

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VERIZON No.: 427450
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CONSULTANT:

Kimley»Horn

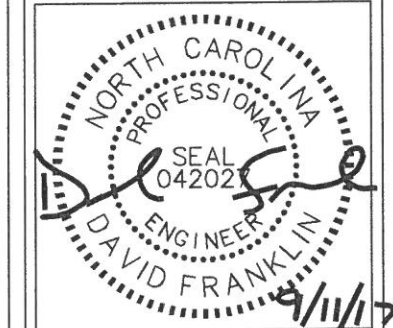
2 SUN COURT, SUITE 450
PEACHTREE CORNERS, GA 30092
PHONE: 770-825-0744
WWW.KIMLEY-HORN.COM
NC License F-0102

CONSULTANT:

DRAWN BY: CHK.: APV.:

KAB TDM DMF

LICENSER:



SHEET TITLE:

GRADING & EROSION CONTROL PLAN 1 OF 2

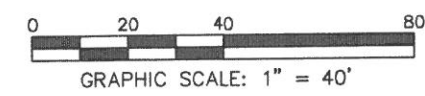
SHEET NUMBER: REVISION:

C8 **1**

018985462



1 GRADING & EROSION CONTROL PLAN
C8 SCALE: 1" = 40'



NOTE:
CURRENT DESIGN ANTICIPATES APPROXIMATELY 20,888± SQ. FT. (0.48 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 PROJECT 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.

GRADING NOTES:

1. THE CONTRACTOR SHALL CLEAR AND GRUB THE SITE AND PLACE, COMPACT, AND MOISTURE CONDITION ALL FILL PER THE PROJECT GEOTECHNICAL ENGINEERS SPECIFICATIONS. FILL MATERIAL SHALL BE APPROVED BY THE GEOTECHNICAL ENGINEER PRIOR TO PLACEMENT.
2. ALL PROPOSED CONTOURS AND SPOT ELEVATIONS REFLECT FINISHED GRADES.
3. CONTRACTOR SHALL BLEND EARTHWORK SMOOTHLY TO TRANSITION BACK TO EXISTING GRADE.
4. PORTIONS OF THE SITE NOT SPECIFICALLY MENTIONED WITHIN THE GEOTECHNICAL REPORT SHALL BE COMPACTED TO 95 PERCENT OF THE MATERIALS MAXIMUM DRY DENSITY WITHIN 3 PERCENT OF OPTIMUM MOISTURE CONTENT.
5. FILL SHALL BE PLACED IN MAXIMUM 8 INCH LOOSE LIFTS.
6. UNDISTURBED AREAS WITHIN 30' INGRESS/EGRESS EASEMENT NOT NEEDED FOR UTILITY ROUTING TO BE LEFT UNDISTURBED.
7. GROUND WATER SHOULD BE REASONABLY EXPECTED. ANY DE-WATERING OR MOISTURE CONDITIONING IS THE RESPONSIBILITY OF THE CONTRACTOR AND SHOULD BE INCLUDED IN THE CONTRACT PRICE.
8. SEED ALL DISTURBED AREAS NOT TOPPED WITH GRAVEL PER SEEDING SCHEDULE ON DETAIL ON SHEET C9.
9. MAXIMUM CUT SLOPE = 2H:1V UNLESS OTHERWISE NOTED.
10. MAXIMUM FILL SLOPE = 3H:1V UNLESS OTHERWISE NOTED.

LEGEND

- EXISTING CONTOURS
- PROPOSED CONTOURS
- LOD/SILT FENCE
- TPF
- EXISTING SPOT ELEVATION XXX
- PROPOSED SPOT ELEVATION XXX

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8921 RESEARCH DRIVE
CHARLOTTE, NORTH CAROLINA 28262

PROJECT INFORMATION:

VERIZON NAME:

REVELS_RD
VERIZON No.: 427450
6492 CHRISTIAN LIGHT ROAD
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HARNETT COUNTY

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CONSULTANT:

Kimley»Horn

2 SUN COURT, SUITE 450
PEACHTREE CORNERS, GA 30092
PHONE: 770-825-0744
WWW.KIMLEY-HORN.COM
NC License F-0102

CONSULTANT:

DRAWN BY: CHK.: APV.:

KAB TDM DMF

LICENSER:



SHEET TITLE:

**GRADING &
EROSION CONTROL
PLAN 2 OF 2**

SHEET NUMBER: REVISION:

C8.1

1

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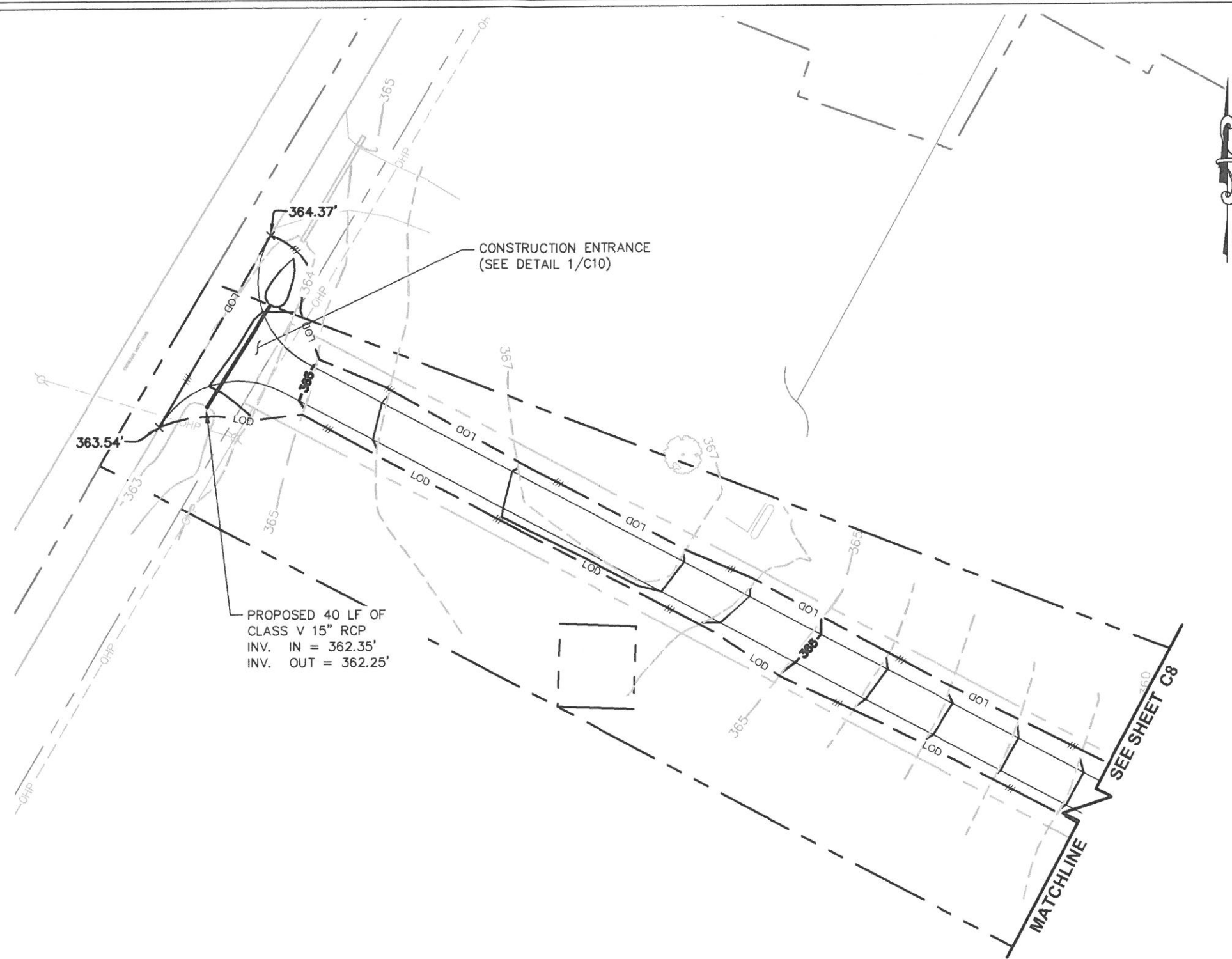
NOTE:
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GRADING NOTES:

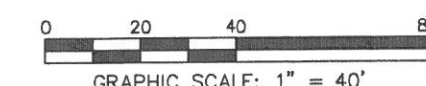
1. THE CONTRACTOR SHALL CLEAR AND GRUB THE SITE AND PLACE, COMPACT, AND MOISTURE CONDITION ALL FILL PER THE PROJECT GEOTECHNICAL ENGINEERS SPECIFICATIONS. FILL MATERIAL SHALL BE APPROVED BY THE GEOTECHNICAL ENGINEER PRIOR TO PLACEMENT.
2. ALL PROPOSED CONTOURS AND SPOT ELEVATIONS REFLECT FINISHED GRADES.
3. CONTRACTOR SHALL BLEND EARTHWORK SMOOTHLY TO TRANSITION BACK TO EXISTING GRADE.
4. PORTIONS OF THE SITE NOT SPECIFICALLY MENTIONED WITHIN THE GEOTECHNICAL REPORT SHALL BE COMPACTED TO 95 PERCENT OF THE MATERIALS MAXIMUM DRY DENSITY WITHIN 3 PERCENT OF OPTIMUM MOISTURE CONTENT.
5. FILL SHALL BE PLACED IN MAXIMUM 8 INCH LOOSE LIFTS.
6. UNDISTURBED AREAS WITHIN 30' INGRESS/EGRESS EASEMENT NOT NEEDED FOR UTILITY ROUTING TO BE LEFT UNDISTURBED.
7. GROUND WATER SHOULD BE REASONABLY EXPECTED. ANY DE-WATERING OR MOISTURE CONDITIONING IS THE RESPONSIBILITY OF THE CONTRACTOR AND SHOULD BE INCLUDED IN THE CONTRACT PRICE.
8. SEED ALL DISTURBED AREAS NOT TOPPED WITH GRAVEL PER SEEDING SCHEDULE ON DETAIL ON SHEET C9.
9. MAXIMUM CUT SLOPE = 2H:1V UNLESS OTHERWISE NOTED.
10. MAXIMUM FILL SLOPE = 3H:1V UNLESS OTHERWISE NOTED.

LEGEND

- EXISTING CONTOURS _____
- PROPOSED CONTOURS _____
- LOD/SILT FENCE — — LOD — — ///
- TPF _____ TPF _____ TPF _____
- EXISTING SPOT ELEVATION × XXX
- PROPOSED SPOT ELEVATION ● XXX



1 GRADING & EROSION CONTROL PLAN
C8.1 SCALE: 1" = 40'



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EROSION CONTROL NOTES:

1. EROSION CONTROLS SHALL BE INSTALLED PRIOR TO CONSTRUCTION AND SHALL BE ADEQUATE TO MAINTAIN SEDIMENT ON SITE.
2. ALL EXCAVATED SOILS NOT NEEDED ON SITE FOR BACKFILL OPERATIONS SHALL BECOME PROPERTY OF THE CONTRACTOR AND SHALL BE TAKEN OFF SITE AND LEGALLY DISPOSED OF.
3. SOIL REMAINING ON SITE SHALL HAVE SILT FENCE TIGHTLY PLACED AROUND THE ENTIRE CIRCUMFERENCE OF THE PILE.
4. PROVIDE EROSION CONTROLS AS NECESSARY TO PREVENT EXISTING SOILS FROM DRAINING OFF SITE OR INTO EXISTING DRAINAGE STRUCTURES.
5. ERECTION OF EROSION CONTROLS SHALL BE IN ACCORDANCE WITH STATE AND LOCAL EROSION CONTROL REGULATIONS.

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

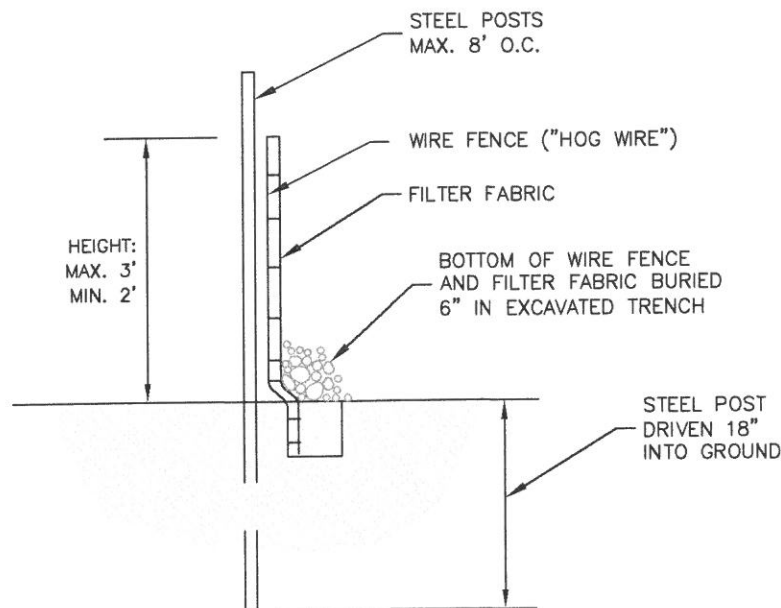
Apply lime and fertilizer according to soil tests, or apply 3,000 lb/acre ground agricultural limestone and 500 lb/acre 10-10-10 fertilizer.

MULCH

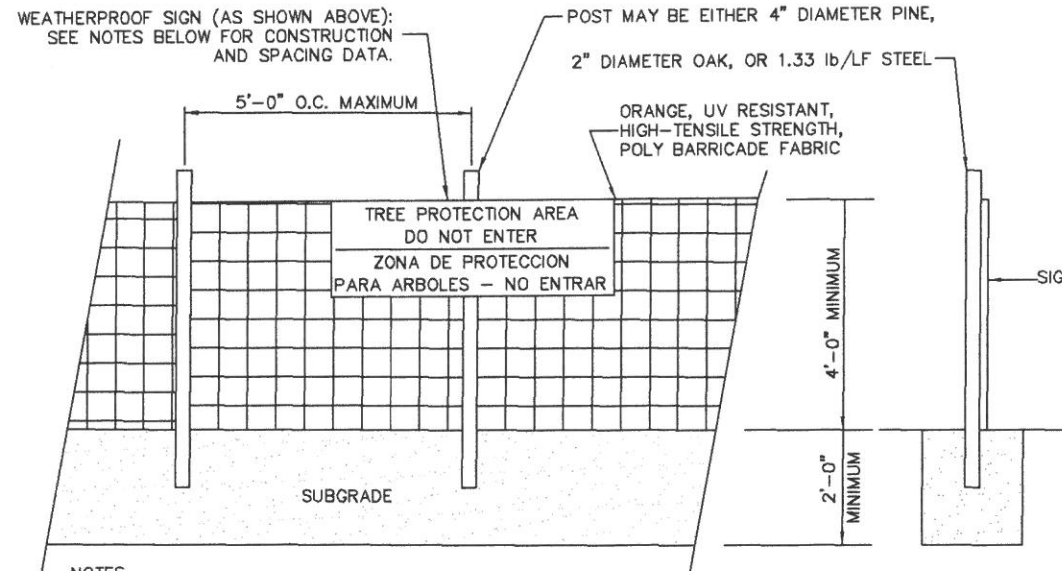
Use jute, excelsior matting, or other effective channel lining material to cover the bottom of channels and ditches. The lining should extend above the highest calculated depth of flow. On channel side slopes above this height, and in drainages not requiring temporary lining, apply 4,000 lb/acre grain 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.



1
C9
SEDIMENT FENCE (SILT FENCE)
NOT TO SCALE



NOTES
 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
C9
TREE PROTECTION FENCE
NOT TO SCALE



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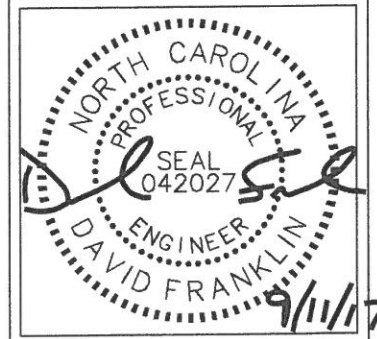
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CONSULTANT:
Kimley»Horn
 2 SUN COURT, SUITE 450
 PEACHTREE CORNERS, GA 30092
 PHONE: 770-825-0744
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CONSULTANT:
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LICENSER:



SHEET TITLE:
GRADING & EROSION CONTROL DETAILS

SHEET NUMBER: REVISION:
C9 **1**
 018985462

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8921 RESEARCH DRIVE
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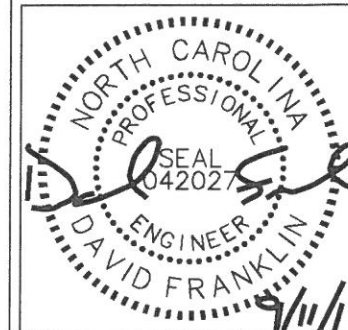
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LICENSER:



SHEET TITLE:

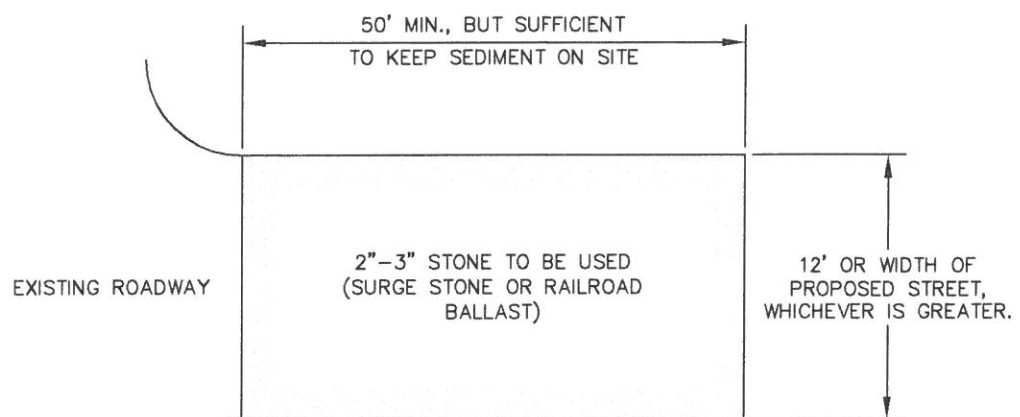
**ACCESS ROAD
DETAILS**

SHEET NUMBER: - REVISION:

C10

1

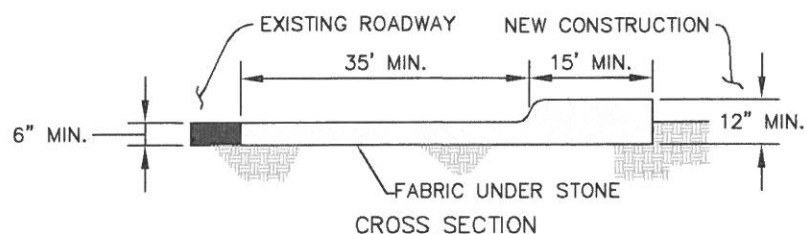
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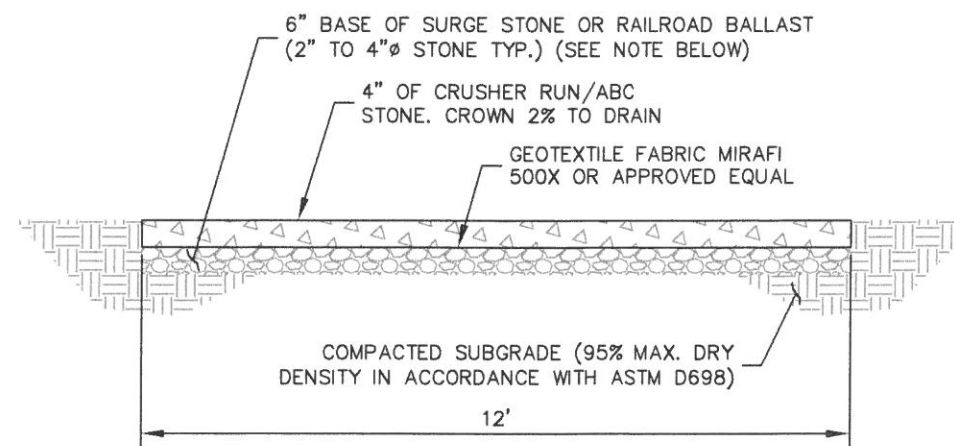
PLAN

NOTES:

1. PUT SILT FENCE OR TREE PROTECTION FENCE UP TO ENSURE CONSTRUCTION ENTRANCE IS USED.
2. IF CONSTRUCTION ON THE SITES ARE SUCH THAT THE MUD IS NOT REMOVED BY THE VEHICLE TRAVELING OVER THE STONE, THEN THE TIRES OF THE VEHICLES MUST BE WASHED BEFORE ENTERING THE PUBLIC ROAD.
3. IF A PROJECT CONTINUES TO PULL MUD AND DEBRIS ON TO THE PUBLIC ROAD, THE GOVERNING AUTHORITY WILL CLEAN THE AREA AND INVOICE THE FINANCIALLY RESPONSIBLE PERSON AS INDICATED ON THE FINANCIAL RESPONSIBILITY FORM.



1 CONSTRUCTION ENTRANCE
C10 NOT TO SCALE

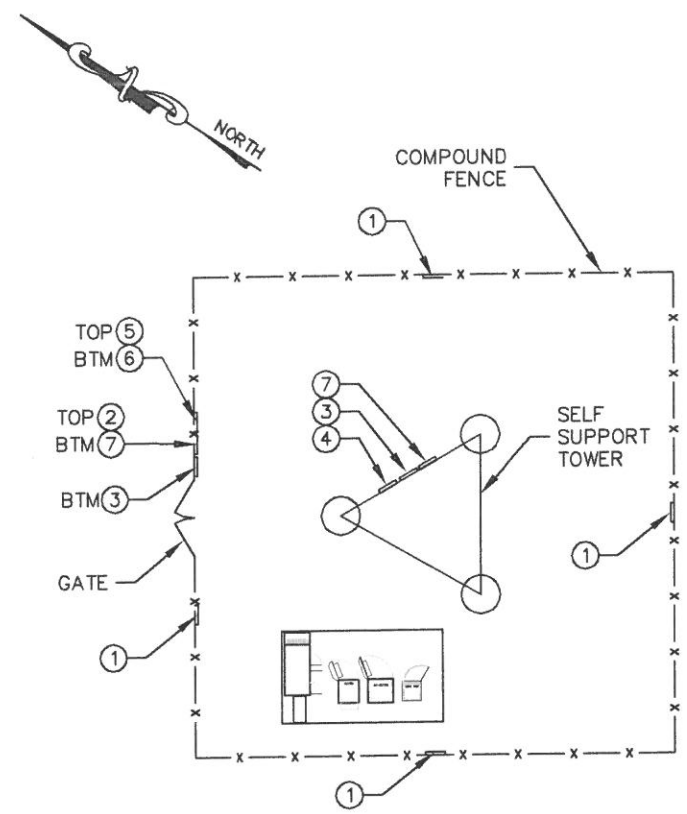


NOTE:

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

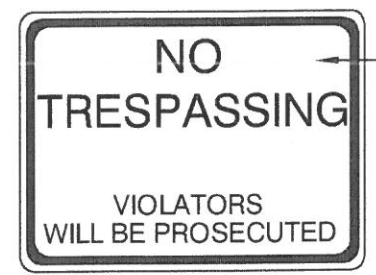
2 STANDARD ACCESS ROAD AND TURN-AROUND DETAIL
C10 NOT TO SCALE

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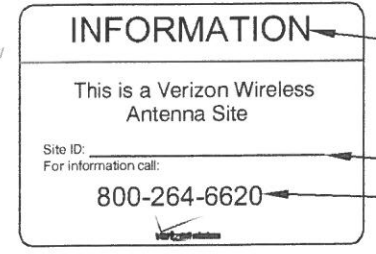


NOTE: SEE TYPICAL SIGNS AND SPECIFICATIONS DETAIL ON THIS SHEET FOR SIGN DESIGNATIONS.

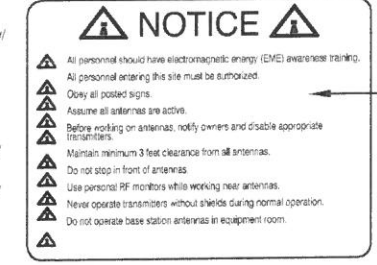
1
C11
OVERALL SIGN PLACEMENT PLAN VIEW
NOT TO SCALE



1 **NO-TRESPASSING SIGN**
18" HIGH X 24" WIDE
(OPERATIONS PROVIDED)



2 **VERIZON WIRELESS-SITE ID SIGN**
15" HIGH X 23" WIDE
(OPERATIONS PROVIDED)



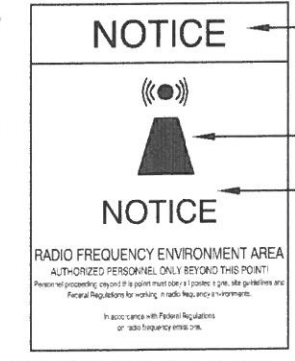
3 **NOTICE-RFE SIGN**
12" WIDE X 18" HIGH
(OPERATIONS PROVIDED)



4 **WARNING-RF SIGN (RED)**
12" WIDE X 18" HIGH



5 **CAUTION-RF SIGN (YELLOW)**
12" WIDE X 18" HIGH

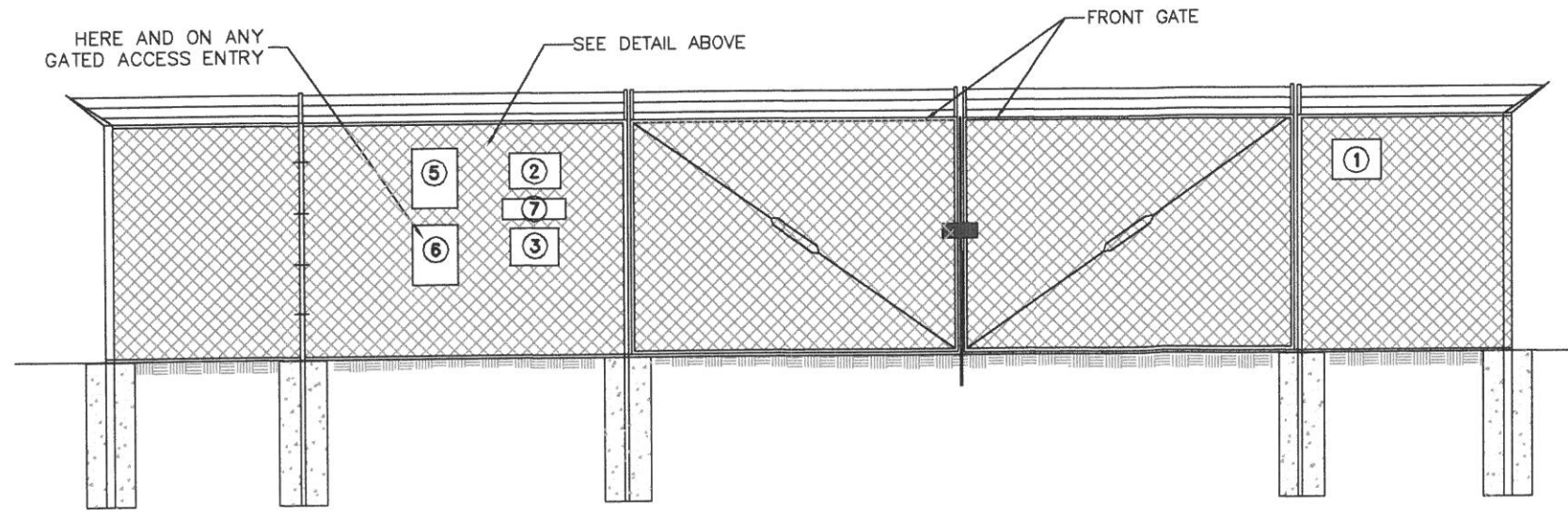


6 **NOTICE-RF SIGN (BLUE)**
12" WIDE X 18" HIGH



7 **FCC REGISTRATION SIGN**
20 WIDE X 4" HIGH

2
C11
TYPICAL SIGNS AND SPECIFICATIONS
NOT TO SCALE



3
C11
SITE SIGNAGE FRONT GATE VIEW
NOT TO SCALE

SIGNAGE NOTES:
1. SIGNS SHALL BE FABRICATED FROM CORROSION RESISTANT PRESSED METAL, AND PAINTED WITH LONG LASTING UV RESISTANT COATINGS.
2. SIGNS (EXCEPT WHERE NOTED OTHERWISE) SHALL BE MOUNTED TO THE TOWER, GATE, AND FENCE USING A MINIMUM OF 9 GAUGE ALUMINUM WIRE, HOG RINGS (AS UTILIZED IN FENCE INSTALLATIONS) OR BRACKETS WHERE NECESSARY. BRACKETS SHALL BE OF SIMILAR METAL AS THE STRUCTURE TO AVOID GALVANIC CORROSION.



PROJECT INFORMATION:
VERIZON NAME:
REVELS_RD
VERIZON No.: 427450
6492 CHRISTIAN LIGHT ROAD
FUGUAY VARINA, NC 27526
HARNETT COUNTY

CURRENT ISSUE DATE:
09/08/17

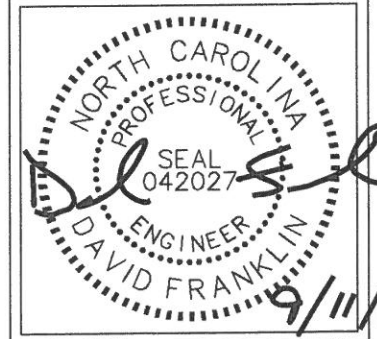
ISSUED FOR:
CONSTRUCTION

REV.:	DATE:	ISSUED FOR:	BY:
0	08/16/17	CONSTRUCTION	DMF
1	09/08/17	CONSTRUCTION	DMF

CONSULTANT:
Kimley»Horn
2 SUN COURT, SUITE 450
PEACHTREE CORNERS, GA 30092
PHONE: 770-825-0744
WWW.KIMLEY-HORN.COM
NC License F-0102

CONSULTANT:
DRAWN BY: CHK.: APV.:
KAB TDM DMF

LICENSER:



SHEET TITLE:
SITE SIGNAGE DETAILS

SHEET NUMBER: C11
REVISION: 1
018985462

verizon

8921 RESEARCH DRIVE
CHARLOTTE, NORTH CAROLINA 28262

PROJECT INFORMATION:

VERIZON NAME:
REVELS_RD
VERIZON No.: 427450
6492 CHRISTIAN LIGHT ROAD
FUQUAY VARINA, NC 27526
HARNETT COUNTY

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1	09/08/17	CONSTRUCTION	DMF

CONSULTANT:

Kimley»Horn

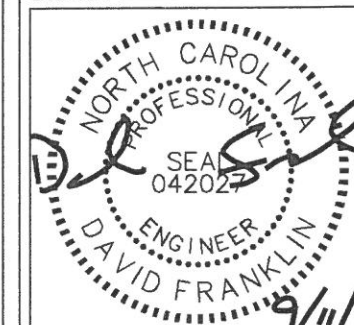
2 SUN COURT, SUITE 450
PEACHTREE CORNERS, GA 30092
PHONE: 770-825-0744
WWW.KIMLEY-HORN.COM
NC License F-0102

CONSULTANT:

DRAWN BY: CHK.: APV.:

KAB TDM DMF

LICENSER:



SHEET TITLE:

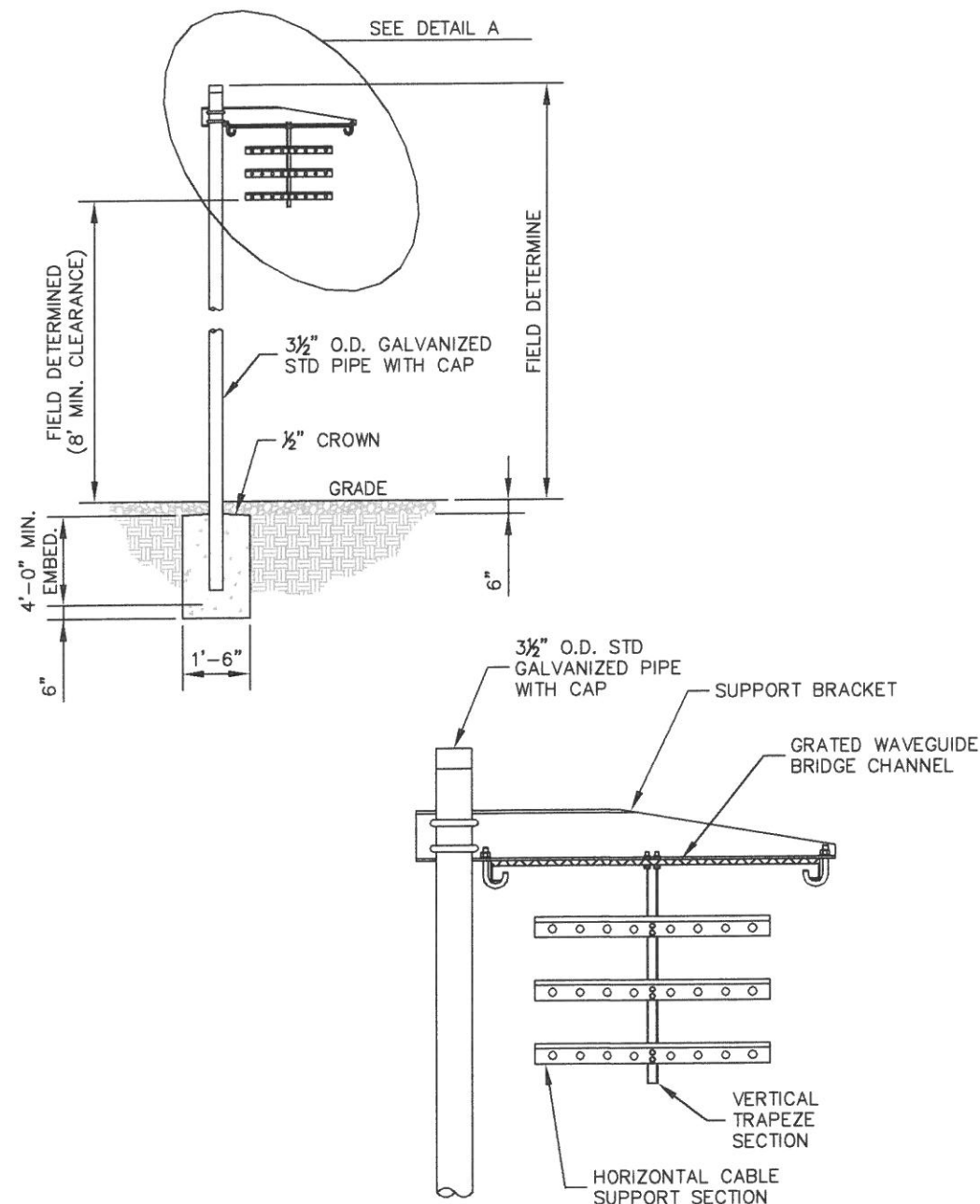
**WAVEGUIDE
BRIDGE DETAILS**

SHEET NUMBER: REVISION:

C12

1

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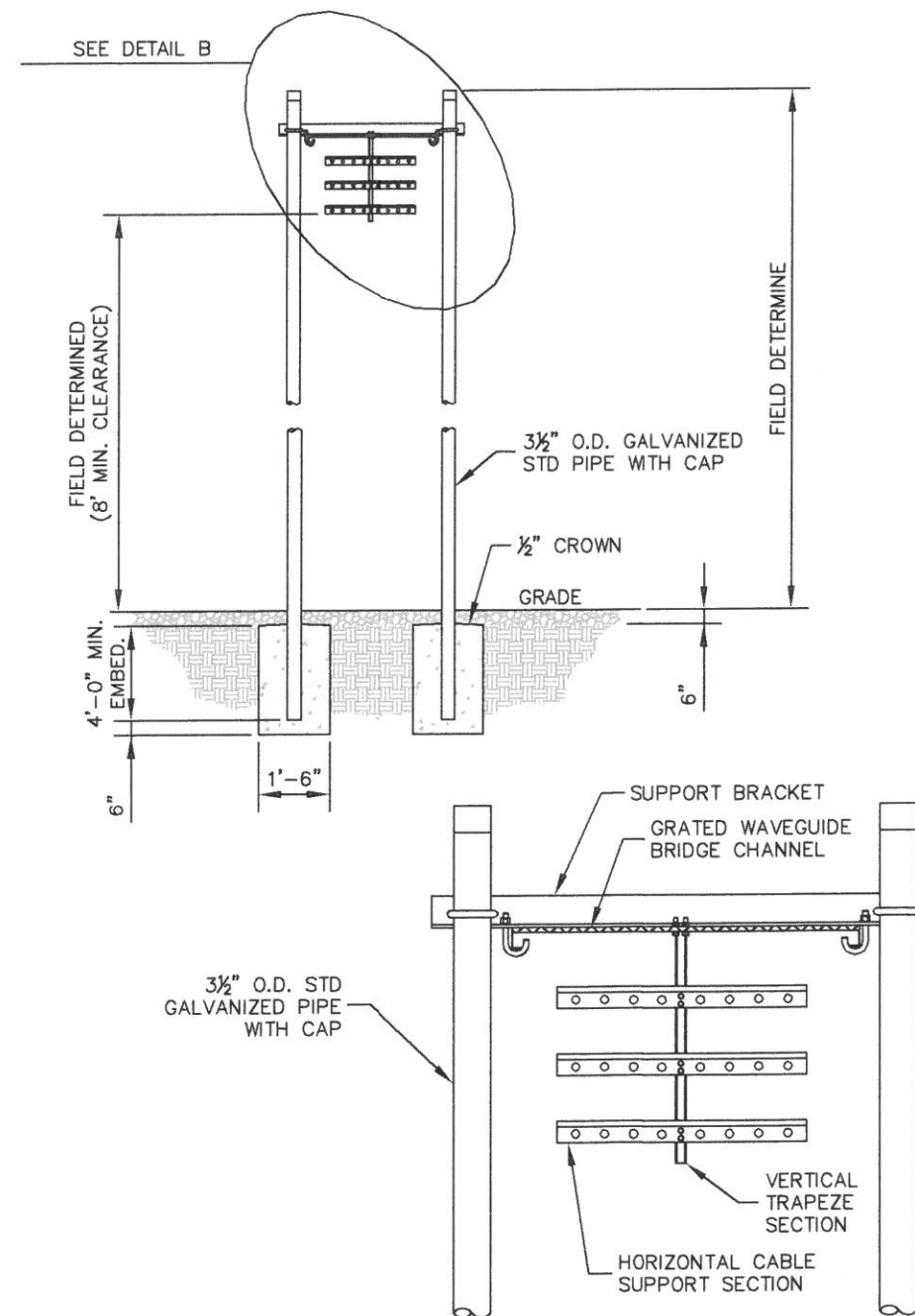
DETAIL A

ANDREW 1 POST WAVEGUIDE BRIDGE KIT (PART #: WB-K210-B15, OR APPROVED EQUIVALENT)

NOTE:

1. ALL MATERIALS FURNISHED BY CONTRACTOR UNLESS OTHERWISE NOTED.

1 WAVEGUIDE BRIDGE DETAIL
C12 NOT TO SCALE



DETAIL B

ANDREW 2 POST WAVEGUIDE BRIDGE KIT (PART #: WB-K410-B15, OR APPROVED EQUIVALENT)

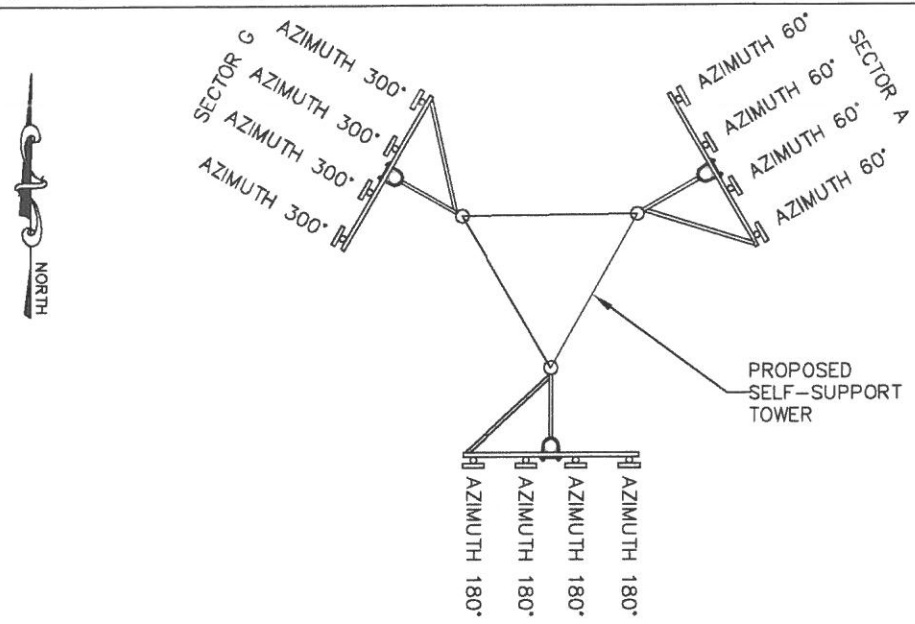
NOTE:

1. ALL MATERIALS FURNISHED BY CONTRACTOR UNLESS OTHERWISE NOTED.

2 WAVEGUIDE BRIDGE DETAIL
C12 (ALTERNATIVE DESIGN WITH 2 PIPE COLUMNS)
NOT TO SCALE

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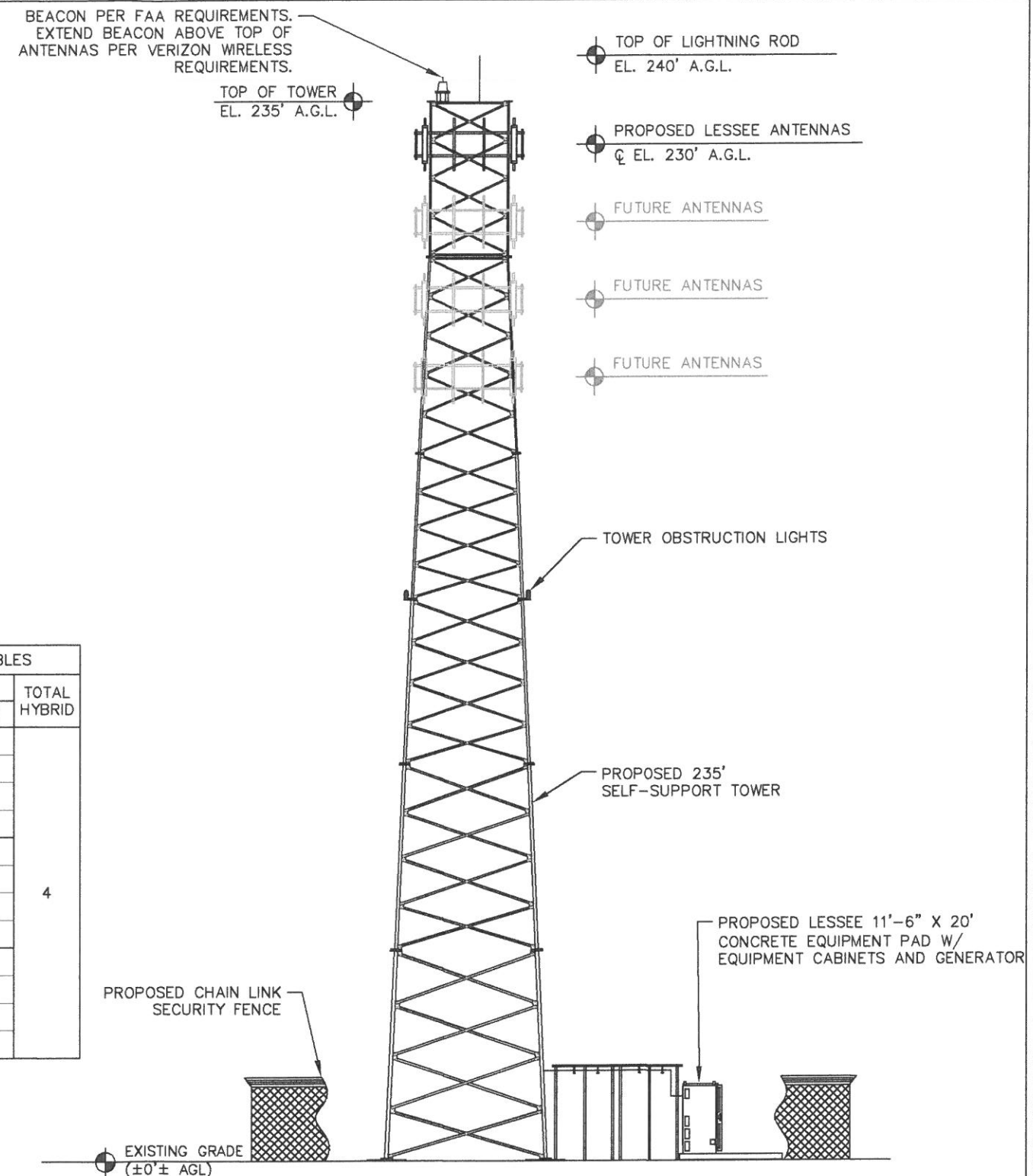


1 ANTENNA ORIENTATION PLAN
 (NOT TO SCALE, FOR ILLUSTRATIVE PURPOSES ONLY, SEE STRUCTURAL ANALYSIS BY OTHERS TO CONFIRM ANTENNA MOUNT TYPE)

ANTENNA SECTOR	AZIMUTH IN DEGREES	MECHANICAL DOWN TILT	LICENSED FREQUENCY	ANTENNA* (QTY) MAKE/MODEL	REMOTE RADIO UNIT	COMPOSITION CABLES		
						LENGTH	COAX QTY	COAX SIZE
A1	60°	0°	700/850	(1) ANDREW/LNX-6515DS-A1M	RADIO 4449	297'±	-	-
A2	60°	0°	1900	(1) ANDREW/HBXX-6516DS-A2M	RADIO 8843	297'±	-	-
A3	60°	0°	2100	(1) ANDREW/HBXX-6516DS-A2M	RADIO 8843	297'±	-	-
A4	60°	0°	700/850	(1) ANDREW/LNX-6515DS-A1M	RADIO 4449	297'±	-	-
B1	180°	0°	700/850	(1) ANDREW/LNX-6515DS-A1M	RADIO 4449	297'±	-	-
B2	180°	0°	1900	(1) ANDREW/HBXX-6516DS-A2M	RADIO 8843	297'±	-	-
B3	180°	0°	2100	(1) ANDREW/HBXX-6516DS-A2M	RADIO 8843	297'±	-	-
B4	180°	0°	700/850	(1) ANDREW/LNX-6515DS-A1M	RADIO 4449	297'±	-	-
G1	300°	0°	700/850	(1) ANDREW/LNX-6515DS-A1M	RADIO 4449	297'±	-	-
G2	300°	0°	1900	(1) ANDREW/HBXX-6516DS-A2M	RADIO 8843	297'±	-	-
G3	300°	0°	2100	(1) ANDREW/HBXX-6516DS-A2M	RADIO 8843	297'±	-	-
G4	300°	0°	700/850	(1) ANDREW/LNX-6515DS-A1M	RADIO 4449	297'±	-	-

* CONTRACTOR TO INSTALL ANY RAYCAP BOXES AS NECESSARY. VERIFY WITH VERIZON WIRELESS PROJECT MANAGER PRIOR TO CONSTRUCTION.

NOTES:
 1. ALL INFORMATION ON THIS PAGE IS PROVIDED BY VERIZON WIRELESS AND/OR OTHERS AND IS SHOWN FOR ILLUSTRATIVE PURPOSES ONLY. CONTRACTOR SHALL CONTACT THE VERIZON WIRELESS CONSTRUCTION MANAGER PRIOR TO CONSTRUCTION FOR ALL DETAILED ANTENNA, AND COAX CABLE INFORMATION.
 2. REFER TO STRUCTURAL ANALYSIS BY TOWER OWNER FOR ANALYSIS OF PROPOSED TOWER.
 3. IT IS UNDERSTOOD THAT KIMLEY-HORN MAKES NO WARRANTY, EITHER EXPRESSED OR IMPLIED, FINDINGS, DESIGNS, RECOMMENDATIONS, SPECIFICATIONS, OPINION, OR PROFESSIONAL ADVICE RELATING TO THE STRUCTURAL ADEQUACY OF THE PROPOSED TOWER OR ATTACHMENT OF ANTENNAS OR OTHER APPURTENANCES.



2 SELF-SUPPORT TOWER ELEVATION - EAST VIEW
 (FACING WEST)
 NOT TO SCALE

- NOTES:**
- ALL PROPOSED ATTACHMENTS TO TOWER BASED ON TOWER DESIGN DRAWINGS BY OTHERS (SEE GENERAL NOTE 1.07, SHEET N1).
 - THE TOWER ELEVATION SHOWN IS FOR REFERENCE ONLY.
 - COAX/FIBER CABLE LENGTHS ARE APPROXIMATE. CONTRACTOR TO VERIFY CORRECT LENGTH IN FIELD AT TIME OF CONSTRUCTION.
 - PROPOSED TOWER WILL BE GALVANIZED STEEL-GRAY IN COLOR.



PROJECT INFORMATION:
VERIZON NAME:
 REVELS_RD
VERIZON No.: 427450
 6492 CHRISTIAN LIGHT ROAD
 FUQUAY VARINA, NC 27526
 HARNETT COUNTY

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 CONSTRUCTION

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1	09/08/17	CONSTRUCTION	DMF
2	10/03/17	CONSTRUCTION	DMF

CONSULTANT:
Kimley»Horn
 2 SUN COURT, SUITE 450
 PEACHTREE CORNERS, GA 30092
 PHONE: 770-825-0744
 WWW.KIMLEY-HORN.COM
 NC License F-0102

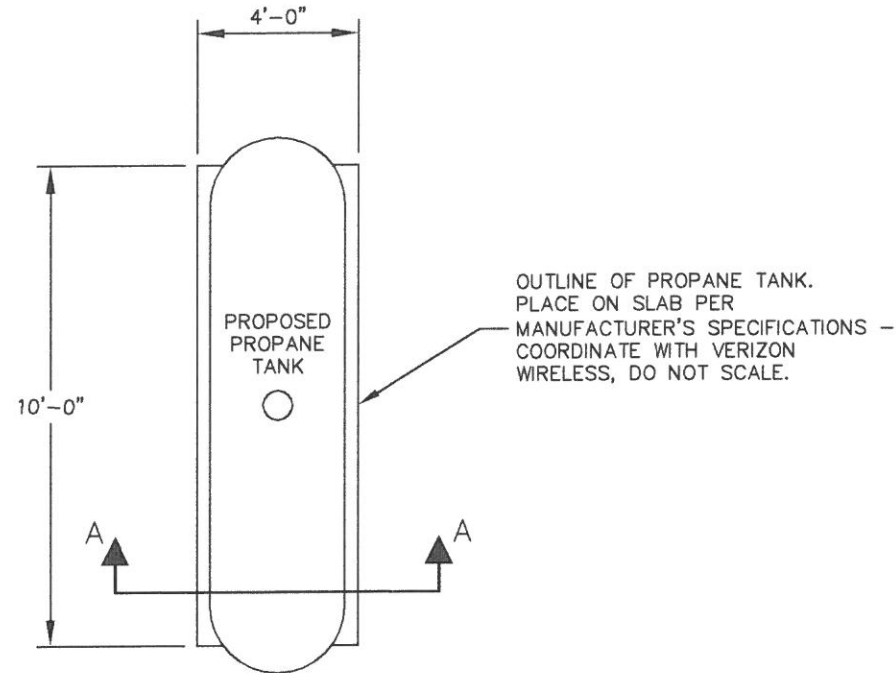
DRAWN BY: CHK.: APV.:
 KAB TDM DMF

FOR ILLUSTRATIVE PURPOSES ONLY - NO SIGNATURE REQUIRED

SHEET TITLE:
ANTENNA AND TOWER ELEVATION DETAILS

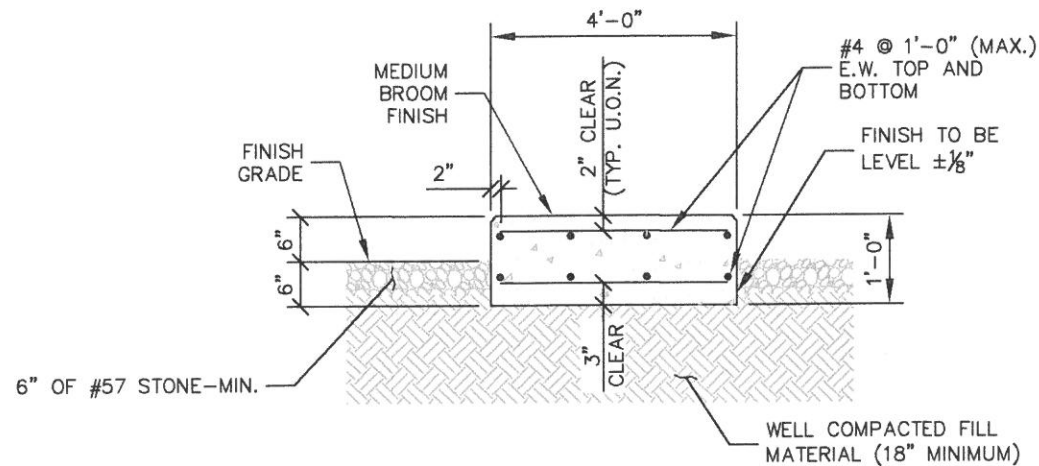
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NOTES:
1. REFER TO THE SITE PLAN ON SHEET C2 FOR PROPANE TANK PAD LOCATION AND ORIENTATION.

1 PROPANE TANK FOUNDATION PLAN
C14 SCALE : NTS



2 PROPANE TANK FOUNDATION SECTION A - A
C14 SCALE : NTS

GENERAL

- FOUNDATIONS ARE DESIGNED FOR A PRESUMPTIVE ALLOWABLE SOIL BEARING CAPACITY OF 2,000 PSF. CONTRACTOR SHALL VERIFY SOIL CONDITIONS AND BEARING CAPACITY PRIOR TO CONSTRUCTION.
- EXCAVATE A MINIMUM 18" BELOW PROPOSED EQUIPMENT FOUNDATIONS OF EXPANSIVE, ORGANIC, UNCONSOLIDATED OR OTHERWISE UNACCEPTABLE MATERIAL AND REPLACE WITH WELL-COMPACTED MATERIAL ACCEPTABLE TO VERIZON.
- CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING, PROTECTING, AND RELOCATING AS REQUIRED ALL SERVICE AND UTILITY LINES IN VICINITY OF THE WORK SITE. ALL EXCAVATIONS NEAR THESE LINES TO BE CARRIED OUT WITH EXTREME CAUTION. COORDINATE ALL RELOCATIONS WITH THE PROPERTY OWNER.
- CONTRACTOR TO CUT/FILL EXISTING COMPOUND SUBSOIL TO PROVIDE AN AREA AS LEVEL AS POSSIBLE FOR THE EQUIPMENT FOUNDATIONS. ALL FILL AREAS ARE TO BE FILLED WITH SUITABLE MATERIALS. FILL MATERIALS ARE TO BE PLACED, COMPACTED, AND TESTED IN MAXIMUM LAYERS OF 8". COMPACTION OF ALL FILL MATERIAL SHALL ACHIEVE 95 PERCENT OF MAXIMUM DRY DENSITY AT OPTIMUM MOISTURE CONTENT IN ACCORDANCE WITH ASTM D 698. ALL TESTS MUST MEET THE MINIMUM SPECIFIED SOIL BEARING CAPACITY. COMPACTION TESTING IS BY THE GEOTECHNICAL TESTING COMPANY DESIGNATED FOR THE PROJECT. SCHEDULING AND COORDINATION IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR. REPORTS OF ALL TESTING ARE TO BE PROMPTLY DELIVERED OR FAXED TO THE VERIZON WIRELESS PROJECT MANAGER.

MATERIALS

- CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4,000 PSI AT 28 DAYS AND SHALL BE INSTALLED IN ACCORDANCE WITH THE LATEST REVISION TO ACI-318 BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE.
- CONCRETE SHALL HAVE A SLUMP BETWEEN 3" AND 6".
- REINFORCING BARS SHALL CONFORM TO THE LATEST REVISION OF ASTM-A615 GRADE 60 SPECIFICATIONS AND BE DETAILED IN ACCORDANCE WITH THE LATEST REVISION TO ACI-318.
- AT THE REQUEST OF THE VERIZON WIRELESS PROJECT MANAGER, TEST CYLINDERS SHALL BE MOLDED AND LABORATORY CURED IN ACCORDANCE WITH ASTM C31. THREE CYLINDERS SHALL BE TAKEN FOR EACH DAY'S CONCRETE PLACEMENT. CYLINDERS SHALL BE TESTED IN ACCORDANCE WITH THE LATEST REVISION TO ASTM C39.
- CHAMFER ALL EXPOSED EXTERNAL CORNERS OF CONCRETE WITH 3/4" x 45° CHAMFER, UNLESS OTHERWISE NOTED.
- CONCRETE FORMWORK IS TO BE STRIPPED WITHIN 48 HOURS. VIBRATION OF THE CONCRETE MUST ASSURE THAT HONEYCOMBING WILL BE AT A MINIMUM. MECHANICAL VIBRATION OF ALL CONCRETE IS REQUIRED UNLESS OTHERWISE DIRECTED BY VERIZON WIRELESS' PROJECT MANAGER. ABOVE GRADE CONCRETE IS TO BE RUBBED AND PATCHED TO ASSURE SMOOTH FINISH AT TIME OF FORMS REMOVAL. CONTRACTOR SHALL PROVIDE A BROOM FINISH ON THE TOP SURFACE OF THE EQUIPMENT FOUNDATION UNLESS OTHERWISE DIRECTED BY VERIZON WIRELESS' PROJECT MANAGER.

ELECTRICAL

- CONTRACTOR SHALL REFER TO DRAWINGS OF OTHER TRADES AND VENDOR DRAWINGS FOR EMBEDDED ITEMS AND RECESSES NOT SHOWN ON THE STRUCTURAL DRAWINGS. CONTRACTOR SHALL VERIFY PLACEMENT OF EQUIPMENT AND LOCATION OF CONDUIT FOR MANUFACTURER'S AND VENDORS SPECIFICATIONS. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE ALL OPENINGS AND SLEEVES FOR PROPER DISTRIBUTION OF ALL UTILITIES.

TOLERANCES

- TOPS OF CONCRETE FOUNDATION MUST BE WITHIN 0.02' OF ELEVATION REQUIRED.

3 FOUNDATION NOTES
C14



8921 RESEARCH DRIVE
CHARLOTTE, NORTH CAROLINA 28262

PROJECT INFORMATION:

VERIZON NAME:
REVELS_RD
VERIZON No.: 427450
6492 CHRISTIAN LIGHT ROAD
FUQUAY VARINA, NC 27526
HARNETT COUNTY

CURRENT ISSUE DATE:

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ISSUED FOR:

CONSTRUCTION

REV.: DATE: ISSUED FOR: BY:

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1	09/08/17	CONSTRUCTION	DMF

CONSULTANT:



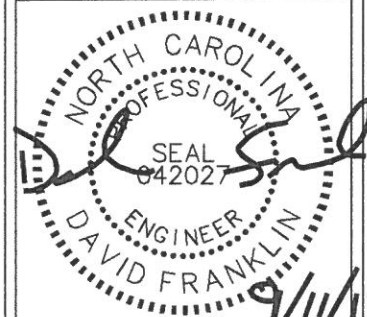
2 SUN COURT, SUITE 450
PEACHTREE CORNERS, GA 30092
PHONE: 770-825-0744
WWW.KIMLEY-HORN.COM
NC License F-0102

CONSULTANT:

DRAWN BY: CHK.: APV.:

KAB TDM DMF

LICENSER:



SHEET TITLE:

**WAVEGUIDE
BRIDGE DETAILS**

SHEET NUMBER: REVISION:

C14 1
018985462

PROJECT INFORMATION:

VERIZON NAME:
REVELS_RD
VERIZON No.: 427450
6492 CHRISTIAN LIGHT ROAD
FUGUAY VARINA, NC 27526
HARNETT COUNTY

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CONSULTANT:

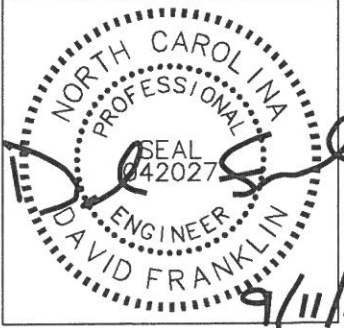
Kimley»Horn
2 SUN COURT, SUITE 450
PEACHTREE CORNERS, GA 30092
PHONE: 770-825-0744
WWW.KIMLEY-HORN.COM
NC License F-0102

CONSULTANT:

DRAWN BY: CHK.: APV.:

KAB TDM DMF

LICENSER:



SHEET TITLE:

**WAVEGUIDE
BRIDGE DETAILS**

SHEET NUMBER: REVISION:

M1 **1**
018985462

KEY NOTES - CONDUIT, CONDUCTORS, & MISC

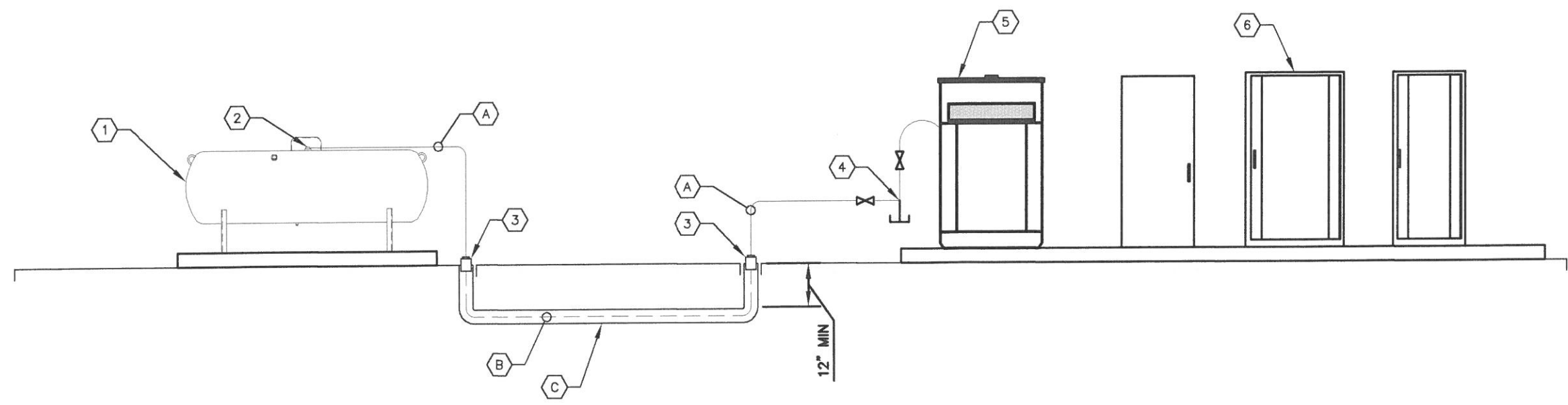
- A 1" SCHEDULE 40 STEEL PIPE. PIPE MATERIAL TO COMPLY WITH SECTION 403.4.2 OF THE 2012 NORTH CAROLINA FUEL GAS CODE. PIPE SIZED FOR AN INLET PRESSURE OF 11" IN W.C.I AND A MAXIMUM LENGTH OF 50 LF.
- B 1" POLYETHYLENE PIPE WITH A TRACER WIRE. PIPE MATERIAL TO COMPLY SECTION 403.6 OF THE 2012 NORTH CAROLINA FUEL GAS CODE. PIPE SIZED FOR INLET PRESSURE OF 11" IN W.C. AND MAXIMUM LENGTH OF 50 LF. TRACER WIRE SHALL COMPLY WITH SECTION 404.17.3 OF 2012 NORTH CAROLINA FUEL GAS CODE.
- C 4" SCHEDULE 80 PVC SLEEVE.

KEY NOTES - EQUIPMENT

- 1 HORIZONTAL LIQUID PROPANE TANK (HANSON TANK MODEL #PA-414-B OR APPROVED EQUIVALENT) WITH AN INTEGRAL MANUAL SHUTOFF VALVE. TANK SHALL COMPLY WITH ALL REQUIREMENTS OF THE NFPA AND INTERNATIONAL FUEL GAS CODE.
- 2 FIRST STAGE REGULATOR PER NFPA 58 SECTION 6.8.1.1.
- 3 4" PVC CAP.
- 4 PROPOSED VALVE, DRIP LEG, SECOND STAGE REGULATOR, AND FLEXIBLE CONNECTORS. ALL MATERIALS SHALL BE INSTALLED PER THE 2012 NORTH CAROLINA FUEL GAS CODE.
- 5 PROPOSED LP GENERATOR.
- 6 PROPOSED EQUIPMENT CABINETS.

ADDITIONAL NOTES

1. UPON COMPLETION OF ASSEMBLY, PIPING SYSTEMS (INCLUDING HOSE) SHALL BE TESTED AND PROVED FREE OF LEAKS IN ACCORDANCE WITH SECTION 406 OF THE 2012 NORTH CAROLINA FUEL GAS CODE.
2. GENERATOR SUPPLY LINE UPSTREAM OF SECOND STAGE REGULATOR SIZED FOR 632 THOUSAND BTU AT 30 FEET MAXIMUM PIPING LENGTH. LINES SIZED PER TABLES 402.4(28) AND 402.4(35) OF THE 2012 NORTH CAROLINA FUEL GAS CODE. IF THE INSTALLATION OF THE SERVICE LINE CANNOT BE MADE WITHIN 30 FEET, THE CONTRACTOR SHALL CONTACT THE ENGINEER PRIOR TO ORDERING MATERIALS TO RECEIVE DIRECTION.
3. COORDINATE ALL ROUTING WITH OTHER TRADES SHOWN ON CIVIL AND ELECTRICAL DRAWINGS.
4. MINIMUM SEPARATION BETWEEN POINT OF DISCHARGE OF CONTAINER PRESSURE RELIEF VALVE, VENT OF A FIXED MAXIMUM LIQUID LEVEL GAUGE ON A CONTAINER, AND THE CONTAINER FILLING CONNECTION TO EXTERIOR SOURCES SHALL BE NO LESS THAN FIVE FEET TO ANY SPARK SOURCE. NOTE THAT THIS SEPARATION IS DETERMINED BY SECTION 6.26.3 OF THE NFPA AND IS ONLY VALID IF A MANUAL SHUT OFF VALVE IS INSTALLED.



1 MECHANICAL DETAILS
M1 NOT TO SCALE

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ELECTRICAL NOTES

1.00 CODES, STANDARDS, & SPECIFICATIONS

- 1.01 IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE THAT ALL MATERIALS AND LABOR RELATED DIRECTLY OR INDIRECTLY TO ALL ELECTRICAL WORK DOCUMENTED IN THESE DRAWINGS SHALL BE PROVIDED AND PERFORMED IN CONFORMANCE WITH ALL CURRENT GOVERNING CODES, STANDARDS, AND PROFESSIONAL STANDARD OF CARE TO INCLUDE THE AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM), UNDERWRITERS LABORATORY (UL), NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION (NEMA), AMERICAN STANDARDS ASSOCIATION (ASA), NATIONAL FIRE PROTECTION ASSOCIATION (NFPA), AND THE NATIONAL ELECTRICAL CODE (NEC).
- 1.02 MATERIALS SHALL BE NEW AND SHALL CONFORM TO ALL APPLICABLE CURRENT GOVERNING STANDARDS ESTABLISHED FOR EACH ITEM BY ASTM, UL, NEMA, ASA, AND NFPA.
- 1.03 ALL ELECTRICAL WORK SHALL COMPLY WITH ALL APPLICABLE STATE, COUNTY, AND MUNICIPAL CODES AND ORDINANCES, AS WELL AS ALL CURRENT GOVERNING STANDARDS AND PRACTICES AS REQUIRED BY NEC, NEMA, ANSI, NFPA, UBC, UL, IEEE, AND THE LOCAL UTILITY COMPANY.
- 1.04 ALL ELECTRICAL GROUNDING SHALL COMPLY WITH THE CURRENT EDITION OF THE NEC.
- 1.05 CONTRACTOR SHALL MAINTAIN UL LISTED FIRE RATINGS AT ALL WALL PENETRATIONS.
- 1.06 CONTRACTOR SHALL MAINTAIN A MINIMUM CLEARANCE OF 36" IN FRONT OF ALL ELECTRICAL EQUIPMENT AS REQUIRED BY NEC. MINIMUM CLEARANCE SHALL BE OBSERVED FOR BOTH THE FRONT AND THE REAR OF THE METER H-FRAME RACK AND THE EQUIPMENT H-FRAME RACK.

2.00 GENERAL

- 2.01 CONTRACTOR SHALL BE RESPONSIBLE FOR ALL PERMITS AND ASSOCIATED FEES RELATED TO THE PROJECT AND SHALL DELIVER A COPY OF ALL PERMITS TO THE VERIZON REPRESENTATIVE.
- 2.02 CONTRACTOR SHALL SCHEDULE AND SHOULD ATTEND ALL INSPECTIONS REQUIRED BY THE JURISDICTION HAVING AUTHORITY.
- 2.03 CONTRACTOR SHALL FURNISH ALL LABOR, MATERIALS, TOOLS, ACCESSORIES, ETC., FOR A COMPLETE WORKING ELECTRICAL INSTALLATION.
- 2.04 ALL WORK SHALL BE PERFORMED IN STRICT ACCORDANCE WITH APPLICABLE BUILDING CODES AND LOCAL ORDINANCES, INSTALLED IN A NEAT MANNER, AND SHALL BE SUBJECT TO APPROVAL BY THE ENGINEER.
- 2.05 CONTRACTOR SHALL PROTECT ADJACENT EQUIPMENT AND FINISHES FROM DAMAGE AND SHALL REPAIR TO ORIGINAL CONDITION ANY ITEMS DAMAGED AS A RESULT OF THE WORK.
- 2.06 CONTRACTOR SHALL REPAIR ANY LANDSCAPING DISTURBED DURING CONSTRUCTION.
- 2.07 IF CONDUIT RUNS HAVE MORE THAN THREE (3) CONSECUTIVE 90 DEGREE TURNS, THE CONTRACTOR SHALL INSTALL PULL BOXES AS REQUIRED BY NEC.
- 2.08 CONTRACTOR SHALL INDICATE THE LOCATION OF ALL CAPPED UNDERGROUND SPARE CONDUIT ON THE RECORD DRAWINGS SUBMITTED TO THE OWNER.
- 2.09 CONTRACTOR SHALL COORDINATE EXACT ROUTING OF CONDUIT WITH OWNER. ALL CONDUIT SHALL BE ROUTED WITHIN 3 FEET, EITHER SIDE, OF PERIMETER FENCING.

3.00 MATERIALS

- 3.01 ALL EQUIPMENT AND MATERIALS SHOWN SHALL BE CONSIDERED NEW UNLESS SPECIFICALLY NOTED OTHERWISE ON THE DRAWINGS.
- 3.02 FINAL CONNECTIONS OF EQUIPMENT SHALL BE PER MANUFACTURER'S APPROVED WIRING DIAGRAMS, DETAILS, AND INSTRUCTIONS. THE ELECTRICAL CONTRACTOR SHALL PROVIDE MATERIALS AND EQUIPMENT COMPATIBLE WITH EQUIPMENT SUPPLIED BY VERIZON.
- 3.03 CONTRACTOR SHALL PROVIDE AN UPDATED PANELBOARD DIRECTORY FOR THE PANEL FROM WHICH THE NEW VERIZON EQUIPMENT CIRCUIT WILL BE CONNECTED. CONTRACTOR SHALL SUBMIT UPDATED DIRECTORY IN A PLASTIC COVER TO THE BUILDING OWNER FOR APPROVAL PRIOR TO INSTALLATION.
- 3.04 CONTRACTOR SHALL FIELD DETERMINE ACTUAL CONDUIT ROUTING AND SHALL OBTAIN APPROVAL FROM THE TOWER OWNER OF THE PROPOSED ROUTING PRIOR TO CONDUIT INSTALLATION.
- 3.05 ALL CONDUCTORS SHALL BE COPPER WITH THWN INSULATION AND ALL TERMINATIONS SHALL BE RATED FOR AT LEAST 75 DEGREES CELSIUS.
- 3.06 ALL NEUTRAL CONDUCTORS SHALL HAVE WHITE INSULATION. ALL GROUND CONDUCTORS SHALL HAVE GREEN INSULATION. COLOR TAPE IDENTIFICATION OF THESE CONDUCTORS IS NOT PERMITTED.
- 3.07 CONTRACTOR SHALL SEAL ALL CONDUITS ENTERING AN ENCLOSURE WITH CONDUIT SEALANT THAT IS COMPATIBLE WITH THE INSULATION OF THE CONDUCTORS IN THE CONDUIT.
- 3.08 CONDUIT RUNS SHALL HAVE A CONTINUOUS DOWNWARD SLOPE AWAY FROM ALL EQUIPMENT TO PREVENT WATER INFILTRATION.
- 3.09 ALL CONDUIT SHALL BE SCHEDULE 40 PVC UNLESS NOTED OTHERWISE ON THE PLANS. WHEN CONDUIT IS ROUTED UNDER A ROADWAY, SCHEDULE 80 PVC CONDUIT SHALL BE UTILIZED. MANUFACTURED BEND RADII SHALL BE PER NEC.
- 3.10 CONTRACTOR SHALL PROVIDE TWO (2) 200 POUND TEST POLYETHYLENE PULL CORDS IN ALL CONDUITS AND ALL INNERDUCTS. PULL CORDS SHALL BE SECURED AT EACH END OF CONDUIT RUNS. ALL SPARE CONDUIT ENDS SHALL BE CAPPED WITH MANUFACTURED PVC FITTINGS.
- 3.11 CONTRACTOR SHALL BOND EACH METALLIC CONDUIT ENTERING A METALLIC ENCLOSURE WITH A #8 MIN AWG INSULATED COPPER BONDING JUMPER PER NEC. CONTRACTOR SHALL BOND ALL ELECTRICAL EQUIPMENT TO THE H-FRAME RACK ON WHICH EQUIPMENT IS MOUNTED WITH #8 MIN AWG INSULATED COPPER BONDING JUMPERS PER NEC.
- 3.12 CONTRACTOR SHALL IDENTIFY THE END OF ALL SPARE UNDERGROUND CONDUITS AND PROVIDE AND INSTALL 90 DEGREE ELBOWS WITH VERTICAL CONDUIT EXTENSIONS TO EXTEND 3" ABOVE FINISHED CRUSHED AGGREGATE GRADE. CONTRACTOR SHALL TERMINATE CONDUITS WITH MANUFACTURED CONDUIT CAPS THAT THE CONTRACTOR HAS PAINTED ORANGE.
- 3.13 CONTRACTOR SHALL PROVIDE AND INSTALL AN ENGRAVED PHENOLIC PLATE ON THE FRONT OF THE INTEGRATED LOAD CENTER. THE WORDING ON THE PLATE SHALL READ AS FOLLOWS: "MAXIMUM DRAW OF ALL RECTIFIERS AND EQUIPMENT ON THE LOAD CENTER CANNOT EXCEED 35kW. IF ADDITIONAL POWER IS REQUIRED, THE EXISTING 35kW GENERATOR MUST BE REPLACED."

4.00 PRE-CONSTRUCTION COORDINATION

- 4.01 CONTRACTOR SHALL VISIT THE SITE PRIOR TO BID AND NOTE EXISTING CONDITIONS THAT MIGHT AFFECT THEIR WORK. ALL SUCH CONDITIONS SHALL BE REPORTED TO THE ENGINEER PRIOR TO BID.
- 4.02 THE CONTRACTOR SHALL PROVIDE A UTILITY LOCATOR AND SHALL VERIFY THE ACTUAL LOCATION OF ALL UTILITIES PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING ALL EXISTING UTILITIES. ANY DAMAGE TO EXISTING UTILITIES SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.
- 4.03 CONTRACTOR SHALL VERIFY, PRIOR TO ROUGH-IN, THAT SITE CONDITIONS ALLOW FOR THE PLACEMENT OF THE ELECTRICAL EQUIPMENT AS SHOWN ON THE PLANS.
- 4.04 CONTRACTOR SHALL COORDINATE WITH LOCAL ELECTRICAL UTILITY REGARDING THE EXACT LOCATION OF THE TRANSFORMER, ALL METERING REQUIREMENTS, AND CONDUIT ROUTING BETWEEN TRANSFORMER AND METER.
- 4.05 CONTRACTOR SHALL COORDINATE WITH LOCAL TELCO UTILITY REGARDING THE EXACT LOCATION OF THE TELCO SERVICE ENTRY POINT.
- 4.06 CONTRACTOR SHALL COORDINATE WITH AUTHORITY HAVING JURISDICTION REGARDING LOCAL FROST LINE REQUIREMENTS FOR RACEWAY MATERIAL SELECTION AND INSTALLATION.
- 4.07 CONTRACTOR SHALL PERFORM AN ARC FLASH ANALYSIS AT THE INTEGRATED LOAD CENTER AND PROVIDE ARC FLASH LABEL PER NEC.
- 4.08 ALL CIRCUIT BREAKERS AND EQUIPMENT SHALL HAVE A MINIMUM AIC RATING OF 10,000 AMPS. IF THE RATING OF THE UTILITY TRANSFORMER PROVIDING THE ELECTRICAL SERVICE IS GREATER THAN 75 kVA, THE CONTRACTOR SHALL PERFORM A SHORT CIRCUIT ANALYSIS TO DETERMINE THE REQUIRED AIC RATING FOR THE CIRCUIT BREAKERS AND EQUIPMENT. PRIOR TO PURCHASING EQUIPMENT, THE CONTRACTOR SHALL CONTACT THE ELECTRIC UTILITY AND OBTAIN IN WRITING THE MAXIMUM AVAILABLE FAULT CURRENT (AFC) 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 PANELBOARDS HAVE A FAULT CURRENT INTERRUPTING RATING GREATER THAN THE AVAILABLE FAULT CURRENT.



8921 RESEARCH DRIVE
CHARLOTTE, NORTH CAROLINA 28262

PROJECT INFORMATION:

VERIZON NAME:
REVELS_RD
VERIZON No.: 427450
6492 CHRISTIAN LIGHT ROAD
FUQUAY VARINA, NC 27526
HARNETT COUNTY

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CONSULTANT:



2 SUN COURT, SUITE 450
PEACHTREE CORNERS, GA 30092
PHONE: 770-825-0744
WWW.KIMLEY-HORN.COM
NC License F-0102

CONSULTANT:

DRAWN BY: CHK.: APV.:

KAB TDM CCH

LICENSER:



SHEET TITLE:

**ELECTRICAL
NOTES**

SHEET NUMBER: REVISION:

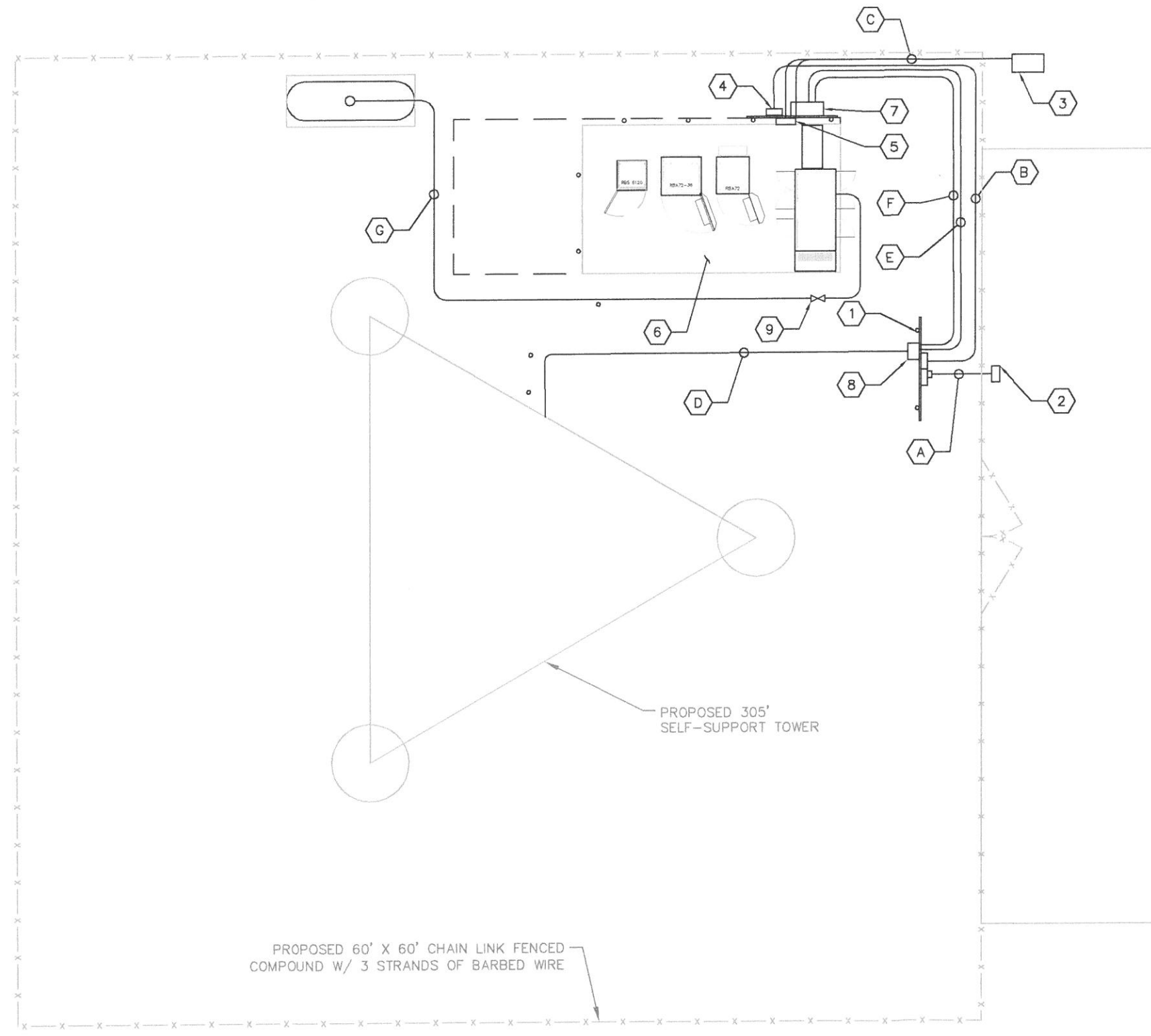
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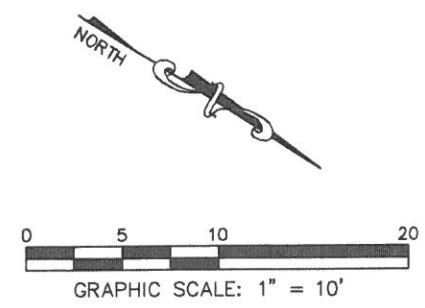
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E2 **UTILITY SERVICE ROUTING PLAN**
SCALE: 1" = 10'

KEY NOTES - ELECTRICAL EQUIPMENT

- 1 UTILITY METER H-FRAME (SEE DETAIL 1/E4).
- 2 POWER STUB UP (SEE NOTE 4.04 ON SHEET E1).
- 3 TRAFFIC RATED TELCO VAULT (SEE NOTE 4.05 ON SHEET E1).
- 4 DISCONNECT SWITCH (SEE SHEET E3 AND DETAIL 1/E5).
- 5 TELCO BOX (SEE SHEET E3 AND DETAIL 1/E5.1).
- 6 VERIZON CONCRETE EQUIPMENT PAD (SEE SHEET E3).
- 7 INTEGRATED LOAD CENTER WITH AUTOMATIC TRANSFER SWITCH (SEE SHEET E3 AND DETAIL 1/E5).
- 8 HAZARD LIGHTING CONTROL PANEL (SEE DETAIL 1/E4.1).
- 9 PROPANE VALVE (SEE SHEET M1)

KEY NOTES - CONDUIT, CONDUCTORS, & MISC

- A TWO (2) 4" PVC POWER CONDUITS FOR INCOMING SERVICE LATERALS FROM LOCAL UTILITY (SEE TRENCH DETAIL 3/E8)
- B 2" PVC POWER CONDUIT FROM PROPOSED METER RACK TO EQUIPMENT RACK (SEE TRENCH DETAIL 2/E8).
- C 4" PVC TELCO CONDUIT WITH (3) 1-1/4" INNER DUCTS (SEE TRENCH DETAIL 2/E8).
- D 1" PVC POWER CONDUIT FROM PROPOSED HAZARD LIGHTING CONTROL PANEL ON METER RACK TO TOWER LIGHTING.
- E 1" PVC TELCO CONDUIT FROM HAZARD LIGHTING CONTROL PANEL TO PROPOSED INTEGRATED LOAD CENTER (ILC).
- F 1" PVC POWER CONDUIT FROM HAZARD LIGHTING CONTROL PANEL TO PROPOSED INTEGRATED LOAD CENTER (ILC).
- G PROPANE SERVICE LINE (SEE SHEET M1)



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 REVELS_RD
VERIZON No.: 427450
 6492 CHRISTIAN LIGHT ROAD
 FUQUAY VARINA, NC 27526
 HARNETT COUNTY

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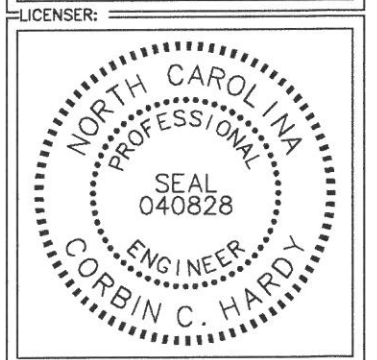
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CONSULTANT:
Kimley»Horn
 2 SUN COURT, SUITE 450
 PEACHTREE CORNERS, GA 30092
 PHONE: 770-825-0744
 WWW.KIMLEY-HORN.COM
 NC License F-0102

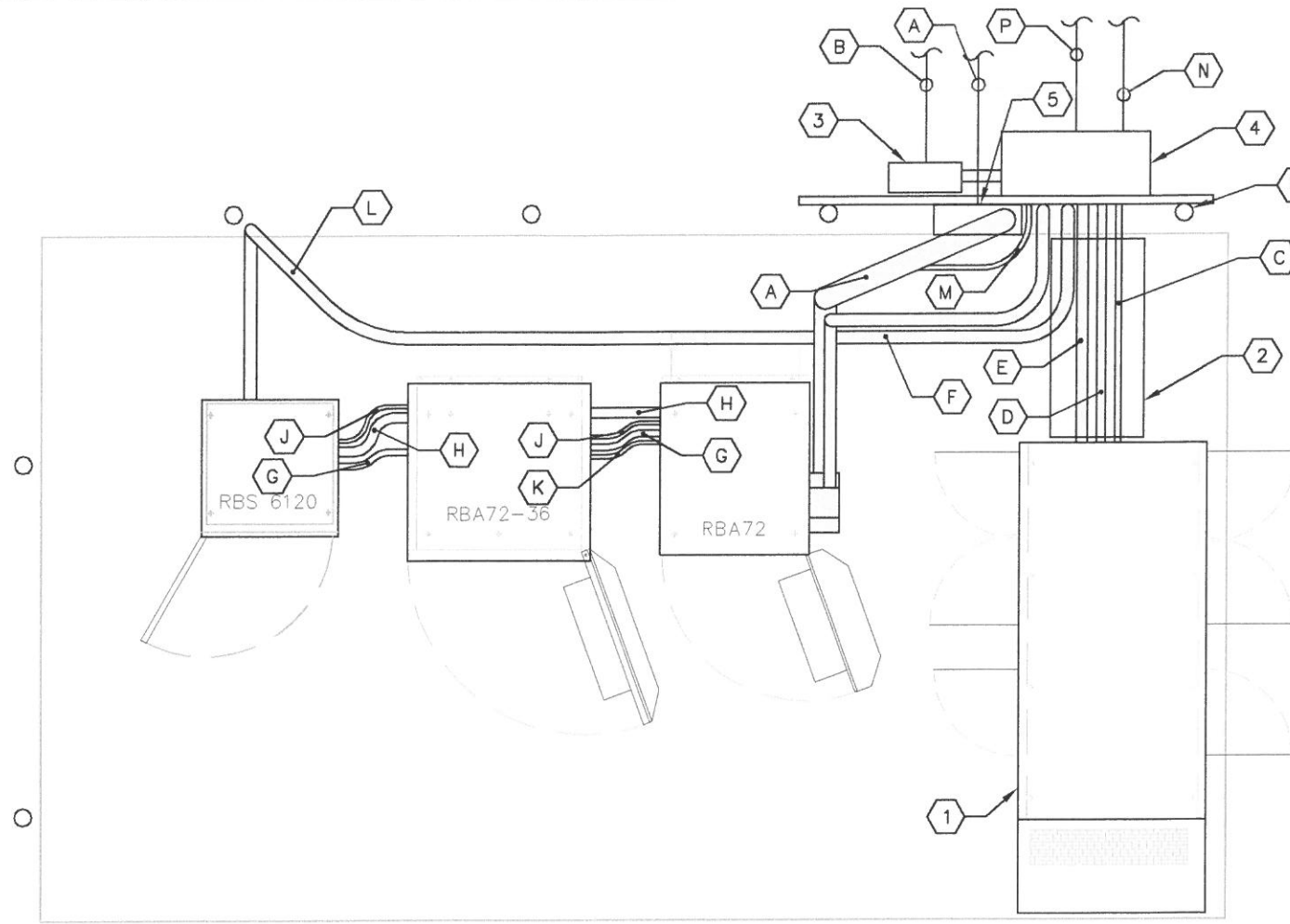
CONSULTANT:
 (Blank space for consultant name)

DRAWN BY: CHK.: APV.:
 KAB TDM CCH



SHEET TITLE:
UTILITY SERVICE ROUTING PLAN

SHEET NUMBER: REVISION:
E2 **1**
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KEY NOTES - CONDUIT, CONDUCTORS, & MISC

- A 4" PVC CONDUIT WITH (3) 1-1/4" INNER DUCTS FOR TELCO CABLES.
- B 2" PVC CONDUIT FOR ROUTING POWER CONDUCTORS FROM THE UTILITY COMPANY METER TO THE DISCONNECT SWITCH.
- C 3/4" PVC CONDUIT FOR ROUTING POWER CONDUCTORS TO THE GENERATOR BATTERY CHARGER AND THE GENERATOR BLOCK HEATER.
- D 1-1/4" PVC CONDUIT FOR ROUTING GENERATOR CONTROL AND ALARM SIGNAL CABLES TO THE GENERATOR.
- E 2" PVC CONDUIT FOR ROUTING POWER CONDUCTORS TO THE GENERATOR.
- F 2" PVC CONDUIT FOR ROUTING POWER CONDUCTORS TO RBA72.
- G 1-1/4" FLEX TELCO CONDUIT FOR ROUTING TELCO CABLES.
- H 2" FLEX POWER CONDUIT.
- J 3/4" FLEX ALARM CONDUIT.
- K 3/4" FLEX POWER CONDUIT.
- L 2" PVC CONDUIT FOR ROUTING POWER CONDUCTORS TO RBS 6120.
- M 3/4" POWER CONDUIT FOR ROUTING GENERATOR ALARM CABLE FROM RBA72 CABINET, THROUGH INTEGRATED LOAD CENTER, AND TO THE GENERATOR.
- N 1" PVC TELCO CONDUIT FROM HAZARD LIGHTING CONTROL PANEL TO PROPOSED ILC.
- P 1" PVC POWER CONDUIT FROM HAZARD LIGHTING CONTROL PANEL TO PROPOSED ILC.

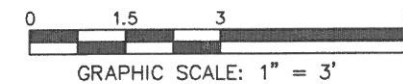
KEY NOTES - ELECTRICAL EQUIPMENT

- 1 3'-2" X 7'-11" 35KW GENERATOR.
- 2 PAD MOUNTED CABLE TRAY (ROUTE ALL GENERATOR CONDUITS ON CABLE TRAY) (SEE SHEET C7).
- 3 DISCONNECT SWITCH (SEE DETAIL 1/E5).
- 4 INTEGRATED LOAD CENTER WITH AUTOMATIC TRANSFER SWITCH (SEE DETAIL 1/E5).
- 5 TELCO BOX. (SEE DETAIL 1/E5.1).
- 6 H-FRAME POST WITH AREA LIGHT, LITHONIA HFR SERIES, 250 WATT METAL HALIDE, SCWA BALLAST, NATURAL ALUMINUM FINISH (OR APPROVED EQUIVALENT).
- 7 WAVEGUIDE BRIDGE POST WITH AREA LIGHT, LITHONIA HFR SERIES, 250 WATT METAL HALIDE, SCWA BALLAST, NATURAL ALUMINUM FINISH (OR APPROVED EQUIVALENT).



VERIZON CONNECTION SERVICE

SCALE: 1" = 3'



verizon

8921 RESEARCH DRIVE
CHARLOTTE, NORTH CAROLINA 28262

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VERIZON NAME:
REVELS_RD
VERIZON No.: 427450
6492 CHRISTIAN LIGHT ROAD
FUQUAY VARINA, NC 27526
HARNETT COUNTY

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CONSULTANT:

Kimley»Horn

2 SUN COURT, SUITE 450
PEACHTREE CORNERS, GA 30092
PHONE: 770-825-0744
WWW.KIMLEY-HORN.COM
NC License F-0102

CONSULTANT:

DRAWN BY: CHK.: APV.:

KAB TDM CCH

LICENSER:



SHEET TITLE:

VERIZON CONNECTION SERVICE

SHEET NUMBER: REVISION:

E3

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PROJECT INFORMATION:

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REVELS_RD
VERIZON No.: 427450
6492 CHRISTIAN LIGHT ROAD
FUQUAY VARINA, NC 27526
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CONSULTANT:

Kimley»Horn

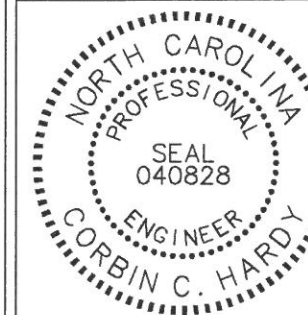
2 SUN COURT, SUITE 450
PEACHTREE CORNERS, GA 30092
PHONE: 770-825-0744
WWW.KIMLEY-HORN.COM
NC License F-0102

CONSULTANT:

DRAWN BY: CHK.: APV.:

KAB TDM CCH

LICENSER:



SHEET TITLE:

**METER RACK
DETAILS-FRONT**

SHEET NUMBER: REVISION:

E4

1

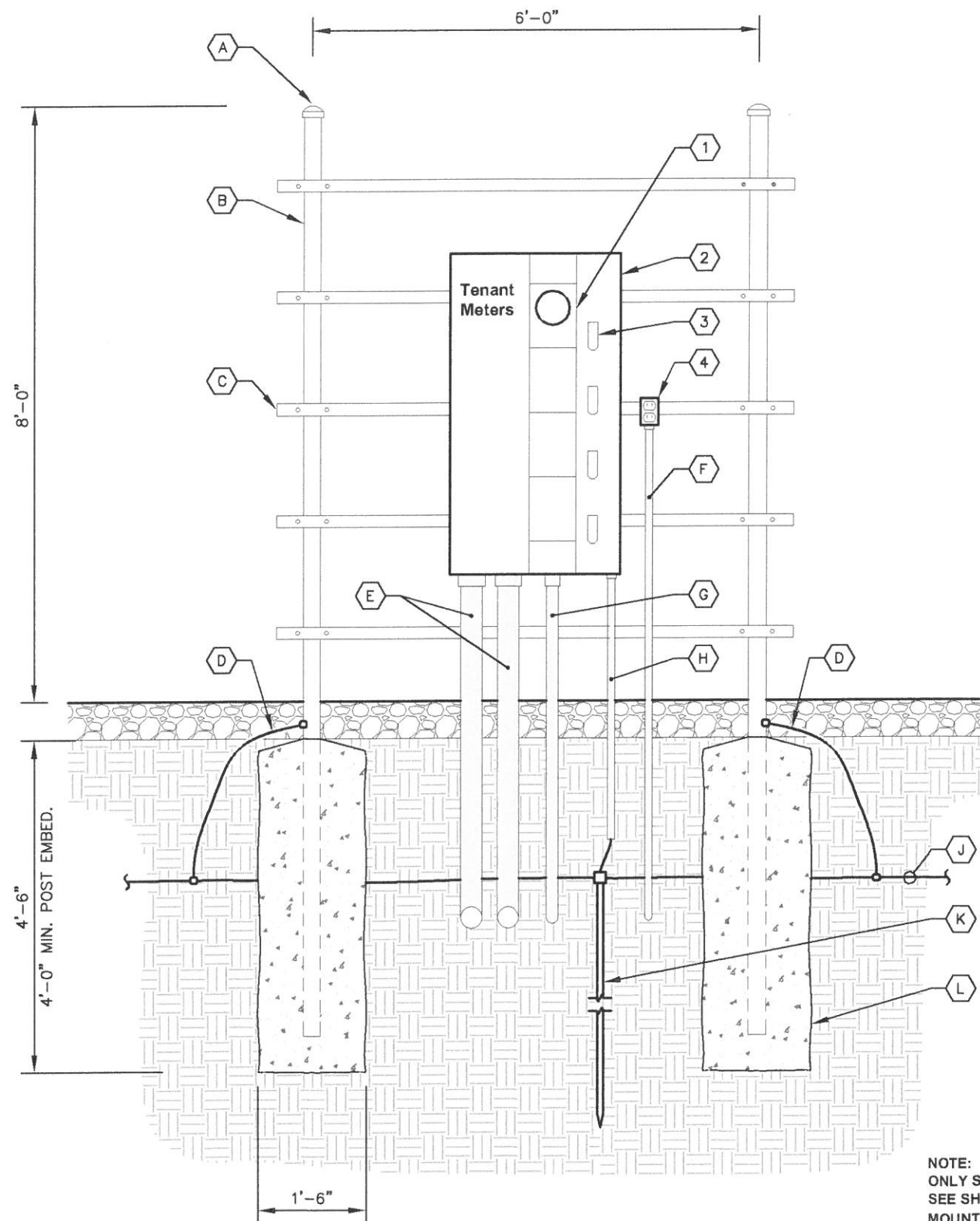
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KEY NOTES - CONDUIT, CONDUCTORS, & MISC

- (A) GALVANIZED RIGID STEEL CAP, TYPICAL.
- (B) 3" GALVANIZED RIGID STEEL PIPE, TYPICAL.
- (C) 1-5/8" x 1-5/8" GALVANIZED STEEL CHANNEL (UNISTRUT #P1000 OR APPROVED EQUIVALENT) WITH PLASTIC END CAP (UNISTRUT #P2860), TYPICAL.
- (D) ONE (1) #2 AWG BARE SOLID TINNED COPPER BONDING CONDUCTORS (BC) FROM H-FRAME VERTICAL PIPE TO GROUND RING, EXOTHERMIC WELD BOTH ENDS.
- (E) 4" PVC CONDUIT FOR INCOMING SERVICE LATERALS FROM LOCAL UTILITY, TYPICAL OF 2.
- (F) 3/4" PVC CONDUIT FOR ROUTING POWER CONDUCTORS FROM INTEGRATED LOAD CENTER TO DUPLEX OUTLET.
- (G) 2" PVC CONDUIT FOR ROUTING FEEDERS TO NON-FUSED DISCONNECT SWITCH.
- (H) 3/4" PVC CONDUIT WITH ONE (1) - 2/0 BARE STRANDED TINNED COPPER GROUNDING ELECTRODE CONDUCTOR (GEC) FROM GROUNDING LUG TO GROUND ROD, EXOTHERMIC WELD GEC TO GROUND ROD.
- (J) GROUND RING (SEE SHEETS E9 - E12).
- (K) GROUND ROD, EXOTHERMIC WELD TO GROUND RING. (SEE DETAIL 2/E12).
- (L) CONCRETE FOUNDATION FOR H-FRAME VERTICAL PIPE. CONCRETE SHALL HAVE A 28 DAY COMPRESSIVE STRENGTH OF 3,000 PSI.

KEY NOTES - ELECTRICAL EQUIPMENT

- (1) 200 AMP METER SOCKET IN NEMA 3R ENCLOSURE, TYPICAL OF 4. ONLY TOP SOCKET WILL RECEIVE METER UNDER THIS CONTRACT.
- (2) 800 AMP, 22KAIC, 4 GANG, SERVICE ENTRANCE RATED METER CENTER IN NEMA 3R ENCLOSURE. BOND TO RACK PER NEC.
- (3) 200 AMP, 2 POLE (22KAIC) DISCONNECT CIRCUIT BREAKER FOR TOP METER ONLY. CONTRACTOR SHALL MOUNT THE METER CENTER SUCH THAT THE TOP CIRCUIT BREAKER IS NO MORE THAN 6' ABOVE GRADE.
- (4) 20 AMP GFCI DUPLEX RECEPTACLE IN LOCKABLE WEATHERPROOF ENCLOSURE.



NOTE: FOR CLARITY PURPOSES, THE FRONT ELEVATION OF THE "H" FRAME ONLY SHOWS EQUIPMENT AND CONDUIT ASSOCIATED WITH THE FRONT SIDE. SEE SHEET E4.1 FOR DETAILS ASSOCIATED WITH EQUIPMENT AND CONDUIT MOUNTED ON THE REAR SIDE OF THE "H" FRAME.

1 METER RACK DETAILS-FRONT
E4 NTS

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CONSULTANT:

Kimley»Horn

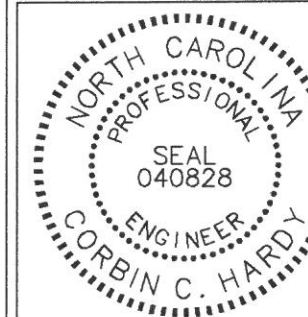
2 SUN COURT, SUITE 450
PEACHTREE CORNERS, GA 30092
PHONE: 770-825-0744
WWW.KIMLEY-HORN.COM
NC License F-0102

CONSULTANT:

DRAWN BY: CHK.: APV.:

KAB TDM CCH

LICENSER:



SHEET TITLE:

**METER RACK
DETAILS-REAR**

SHEET NUMBER: REVISION:

E4.1

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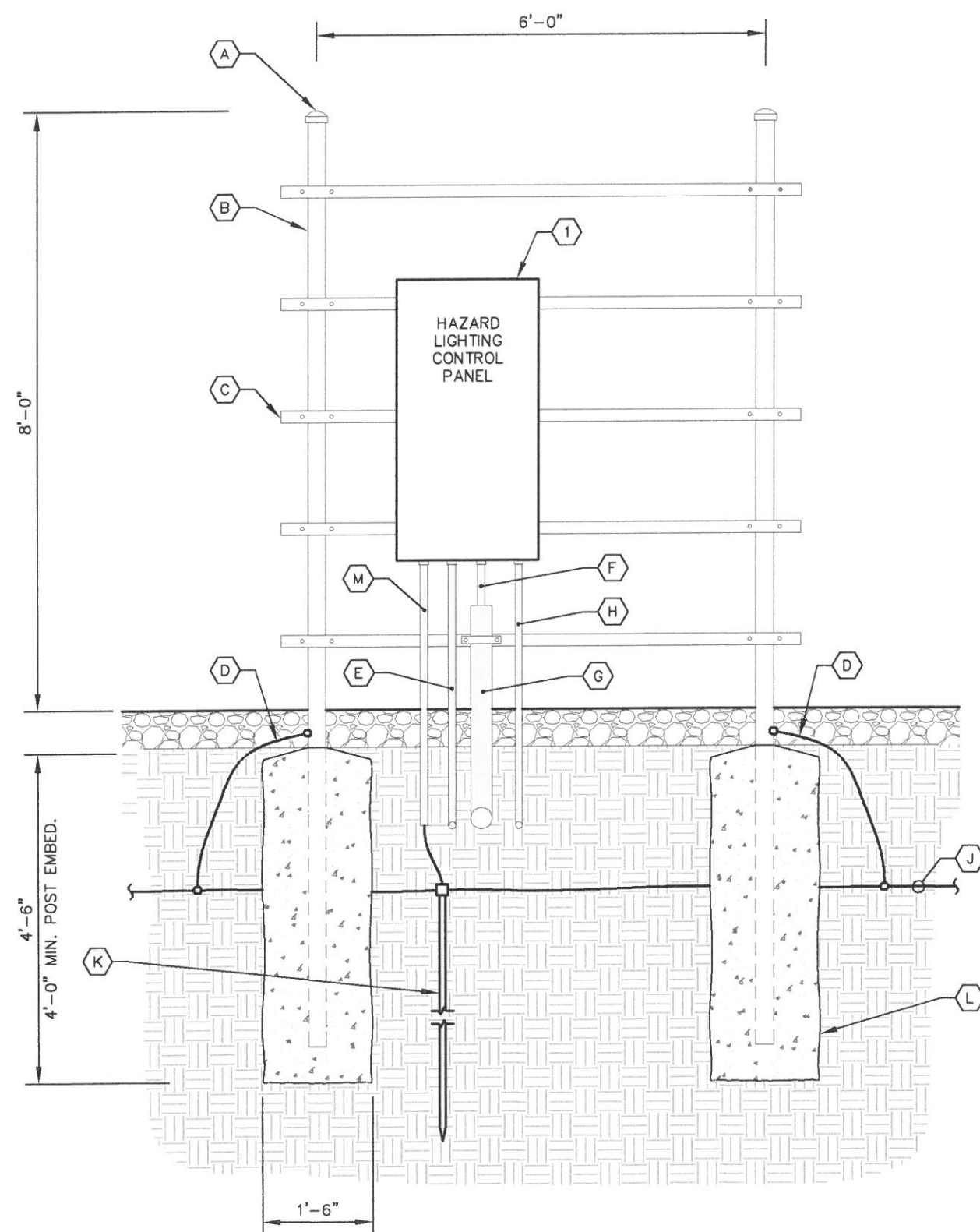
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KEY NOTES - CONDUIT, CONDUCTORS, & MISC

- (A) GALVANIZED RIGID STEEL CAP, TYPICAL.
- (B) 3" GALVANIZED RIGID STEEL PIPE, TYPICAL.
- (C) 1-5/8" x 1-5/8" GALVANIZED STEEL CHANNEL (UNISTRUT #P1000 OR APPROVED EQUIVALENT) WITH PLASTIC END CAP (UNISTRUT #P2860), TYPICAL.
- (D) ONE (1) #2 AWG BARE SOLID TINNED COPPER BONDING CONDUCTOR (BC) FROM H-FRAME VERTICAL PIPE TO GROUND RING, EXOTHERMIC WELD BOTH ENDS.
- (E) 1" PVC CONDUIT FOR POWER CABLES FROM INTEGRATED LOAD CENTER.
- (F) FLASH HEAD CABLE.
- (G) 2 1/2" FLASH HEAD CABLE PROTECTION CONDUIT (MIN. 18" BELOW GRADE). TRANSITION TO 1" PVC CONDUIT FOR UNDERGROUND ROUTING TO TOWER.
- (H) 1" PVC CONDUIT FOR TELECOM LINK FROM INTEGRATED LOAD CENTER.
- (J) GROUND RING (SEE SHEETS E9 - E12).
- (K) GROUND ROD, EXOTHERMIC WELD TO GROUND RING. (SEE DETAIL 2/E12).
- (L) CONCRETE FOUNDATION FOR H-FRAME VERTICAL PIPE. CONCRETE SHALL HAVE A 28 DAY COMPRESSIVE STRENGTH OF 3,000 PSI.
- (M) 3/4" PVC WITH ONE (1) - 2/0 BARE STRANDED TINNED COPPER GROUNDING ELECTRODE CONDUCTOR (GEC) FROM GROUNDING LUG TO GROUND ROD, EXOTHERMIC WELD GEC TO GROUND ROD.

KEY NOTES - ELECTRICAL EQUIPMENT

- (1) HAZARD LIGHTING CONTROL PANEL IN NEMA 4X ENCLOSURE.



NOTE: FOR CLARITY PURPOSES, THE REAR ELEVATION OF THE "H" FRAME ONLY SHOWS EQUIPMENT AND CONDUIT ASSOCIATED WITH THE REAR SIDE. SEE SHEET E4 FOR DETAILS ASSOCIATED WITH EQUIPMENT AND CONDUIT MOUNTED ON THE FRONT SIDE OF THE "H" FRAME.

1
E4.1 METER RACK DETAILS - REAR
NTS

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CONSULTANT:

Kimley»Horn

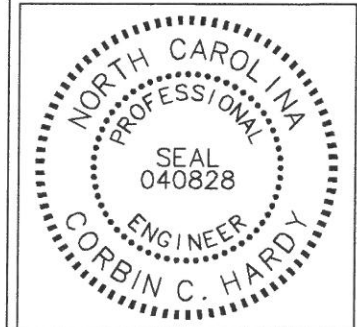
2 SUN COURT, SUITE 450
PEACHTREE CORNERS, GA 30092
PHONE: 770-825-0744
WWW.KIMLEY-HORN.COM
NC License F-0102

CONSULTANT:

DRAWN BY: CHK.: APV.:

KAB TDM CCH

LICENSER:



SHEET TITLE:

**EQUIPMENT RACK
DETAILS - FRONT**

SHEET NUMBER: REVISION:

E5

1

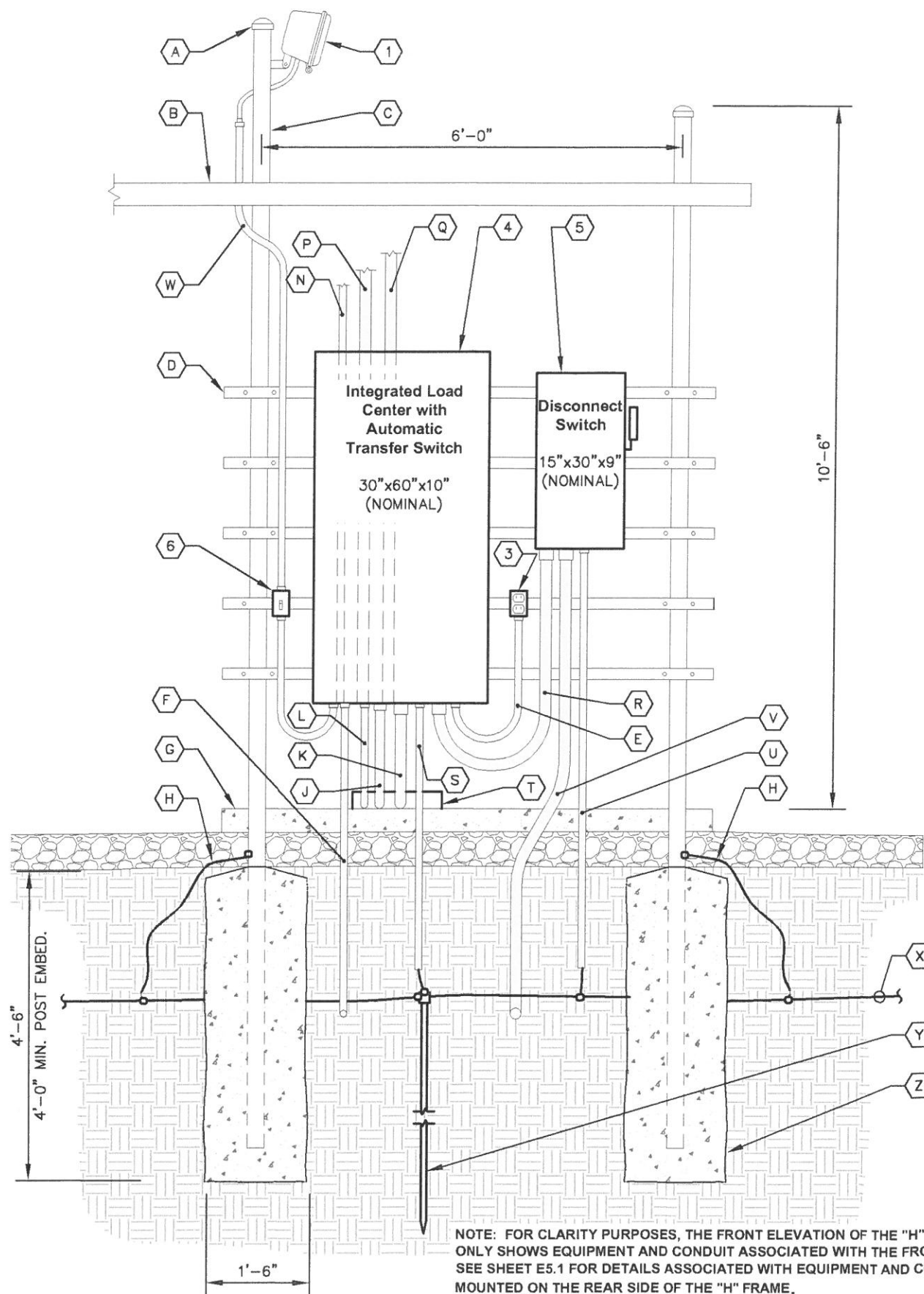
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KEY NOTES - CONDUIT, CONDUCTORS, & MISC

- (A) GALVANIZED RIGID STEEL CAP, TYPICAL.
- (B) ICE BRIDGE, SEE CIVIL SHEETS FOR ADDITIONAL DETAILS.
(NOTE: ROUTE ALL NON-GENERATOR CONDUITS OVERHEAD ON ICEBRIDGE)
- (C) 3" GALVANIZED RIGID STEEL PIPE, TYPICAL. EXTEND H-FRAME OR ICE BRIDGE POST HIGHER TO SUPPORT AREA LIGHT FIXTURES AT LOCATIONS AS NOTED.
- (D) 1-5/8" x 1-5/8" GALVANIZED STEEL CHANNEL (UNISTRUT #P1000) WITH PLASTIC END CAP (UNISTRUT #P2860), TYPICAL.
- (E) 3/4" PVC CONDUIT FOR ROUTING POWER CONDUCTORS TO DUPLEX OUTLET.
- (F) 3/4" PVC CONDUIT FOR ROUTING POWER CONDUCTORS TO DUPLEX OUTLET AT METER CENTER RACK.
- (G) SLAB BEHIND EQUIPMENT RACK.
- (H) ONE (1) #2 AWG BARE SOLID TINNED COPPER BONDING CONDUCTOR (BC) FROM H-FRAME VERTICAL PIPE TO GROUND RING, EXOTHERMIC WELD BOTH ENDS.
- (J) 1-1/4" PVC CONDUIT FOR ROUTING GENERATOR CONTROL AND ALARM SIGNAL CABLES TO THE GENERATOR.
- (K) 2" PVC CONDUIT FOR ROUTING POWER CONDUCTORS TO THE GENERATOR
- (L) 3/4" PVC CONDUIT FOR ROUTING POWER CONDUCTORS TO THE GENERATOR BATTERY CHARGER AND THE GENERATOR BLOCK HEATER.
- (M) (KEYNOTE NOT USED)
- (N) 3/4" PVC CONDUIT FROM INTEGRATED LOAD CENTER (ILC) TO RBA72 FOR ALARM SIGNAL CABLES.
- (P) 2" PVC CONDUIT FOR ROUTING POWER CONDUCTORS TO RBA72.
- (Q) 2" PVC CONDUIT FOR ROUTING POWER CONDUCTORS TO RBS-6120.
- (R) 2" PVC CONDUIT FOR ROUTING POWER CONDUCTORS FROM THE DISCONNECT SWITCH TO THE UTILITY BREAKER IN THE ILC.
- (S) 3/4" PVC WITH ONE (1) - 2/0 BARE STRANDED TINNED COPPER GEC FROM GROUNDING LUG IN ILC TO GROUND ROD, EXOTHERMIC WELD GEC TO GROUND ROD.
- (T) CABLE TRAY, SEE CIVIL DRAWINGS FOR ADDITIONAL DETAILS.
(NOTE: ROUTE ALL GENERATOR CONDUITS ON CABLE TRAY)
- (U) 3/4" PVC WITH ONE (1) - 2/0 BARE STRANDED TINNED COPPER GEC FROM GROUNDING LUG IN DISCONNECT SWITCH TO GROUND RING, EXOTHERMIC WELD TO GROUND RING.
- (V) 2" PVC CONDUIT FOR ROUTING POWER CONDUCTORS FROM THE UTILITY COMPANY METER TO THE DISCONNECT SWITCH.
- (W) 3/4" PVC CONDUIT FOR ROUTING POWER CONDUCTORS TO AREA LIGHTS.
- (X) GROUND RING, SEE SHEETS E9-E12 FOR ADDITIONAL DETAILS.
- (Y) GROUND ROD, EXOTHERMIC WELD TO GROUND RING, SEE DETAIL 2/E12.
- (Z) CONCRETE FOUNDATION FOR H-FRAME VERTICAL PIPE. CONCRETE SHALL HAVE A 28 DAY COMPRESSIVE STRENGTH OF 3,000 PSI.

KEY NOTES - ELECTRICAL EQUIPMENT

- (1) H-FRAME POST WITH AREA LIGHT, LITHONIA HFR SERIES, 250 WATT METAL HALIDE, SCWA BALLAST, NATURAL ALUMINUM FINISH (OR APPROVED EQUIVALENT).
- (2) (KEYNOTE NOT USED)
- (3) 20 AMP GFCI DUPLEX RECEPTACLE IN LOCKABLE WEATHERPROOF ENCLOSURE.
- (4) 200 AMP, 120/240 VOLT, INTEGRATED LOAD CENTER (BY GENERAC) WITH 42 SPACE PANEL AND AUTOMATIC TRANSFER SWITCH (30" X 60" X 10" NOMINAL).
- (5) 200 AMP, 120/240 VOLT, SAFETY DISCONNECT SWITCH IN NEMA 3R ENCLOSURE (15" X 30" X 9" NOMINAL).
- (6) TIMER SWITCH, ENERLITES HET06 SERIES (OR APPROVED EQUIVALENT) IN WEATHERPROOF ENCLOSURE WITH CLEAR PLASTIC COVER.



NOTE: FOR CLARITY PURPOSES, THE FRONT ELEVATION OF THE "H" FRAME ONLY SHOWS EQUIPMENT AND CONDUIT ASSOCIATED WITH THE FRONT SIDE. SEE SHEET E5.1 FOR DETAILS ASSOCIATED WITH EQUIPMENT AND CONDUIT MOUNTED ON THE REAR SIDE OF THE "H" FRAME.

1 EQUIPMENT RACK DETAILS - FRONT
E5 NTS

PROJECT INFORMATION:

VERIZON NAME:
REVELS_RD
VERIZON No.: 427450
6492 CHRISTIAN LIGHT ROAD
FUQUAY VARINA, NC 27526
HARNETT COUNTY

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CONSTRUCTION

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1	09/08/17	CONSTRUCTION	CCH

CONSULTANT:

Kimley»Horn

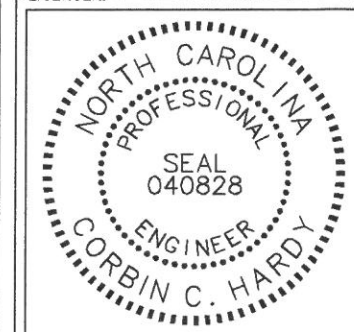
2 SUN COURT, SUITE 450
PEACHTREE CORNERS, GA 30092
PHONE: 770-825-0744
WWW.KIMLEY-HORN.COM
NC License F-0102

CONSULTANT:

DRAWN BY: CHK.: APV.:

KAB TDM CCH

LICENSER:



SHEET TITLE:

**EQUIPMENT RACK
DETAILS - REAR**

SHEET NUMBER: REVISION:

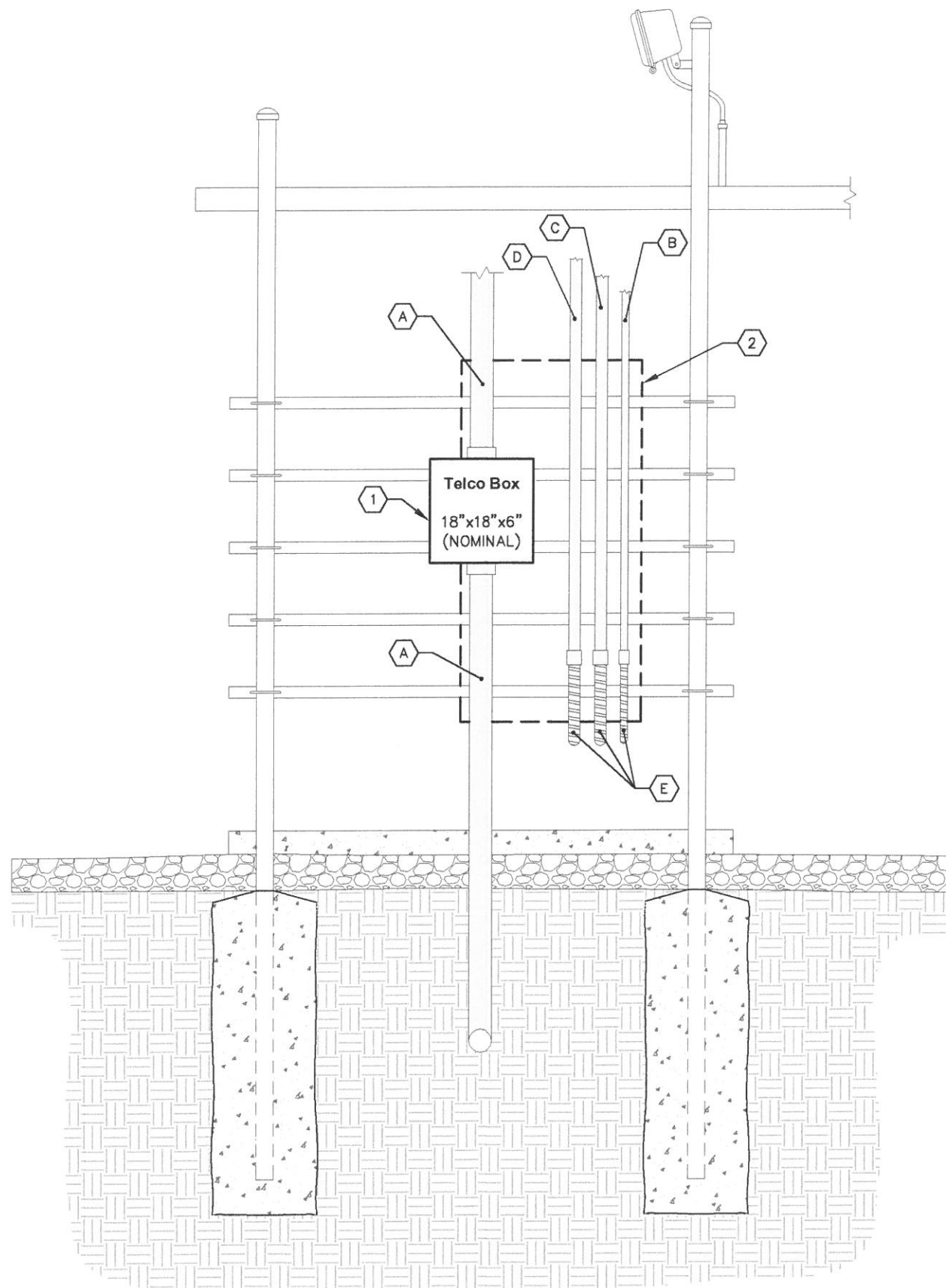
E5.1 1
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KEY NOTES - CONDUIT, CONDUCTORS, & MISC

- A 4" PVC CONDUIT WITH THREE (3) 1-1/4" INNER DUCTS FOR TELCO CABLES.
- B 3/4" PVC CONDUIT FROM INTEGRATED LOAD CENTER (ILC) TO RBA72 FOR ALARM SIGNAL CABLES.
- C 2" PVC CONDUIT FOR ROUTING POWER CONDUCTORS TO RBA72.
- D 2" PVC CONDUIT FOR ROUTING POWER CONDUCTORS TO RBS-6120.
- E TRANSITION TO FLEX CONDUIT TO ENTER BOTTOM OF ILC (TYP. OF 3).

KEY NOTES - ELECTRICAL EQUIPMENT

- 1 NEMA 3R ENCLOSURE TELCO BOX WITH REMOVABLE FRONT PANEL, PVC, (18" X 18" X 6" NOMINAL).
- 2 200 AMP, 120/240 VOLT, INTEGRATED LOAD CENTER (BY GENERAC) WITH 42 SPACE PANEL AND AUTOMATIC TRANSFER SWITCH (30" X 60" X 10" NOMINAL).



1 EQUIPMENT RACK DETAILS - REAR
E5.1 NTS

NOTE: FOR CLARITY PURPOSES, THE REAR ELEVATION OF THE "H" FRAME ONLY SHOWS EQUIPMENT AND CONDUIT ASSOCIATED WITH THE REAR SIDE. SEE SHEET E5 FOR DETAILS ASSOCIATED WITH EQUIPMENT AND CONDUIT MOUNTED ON THE FRONT SIDE OF THE "H" FRAME.



8921 RESEARCH DRIVE
CHARLOTTE, NORTH CAROLINA 28262

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REVELS RD
VERIZON No.: 427450
6492 CHRISTIAN LIGHT ROAD
FUQUAY VARINA, NC 27526
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CONSULTANT:



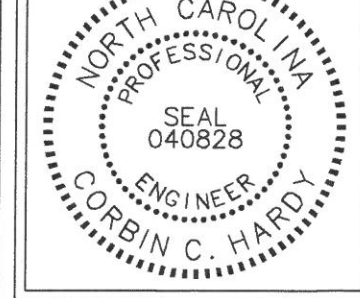
2 SUN COURT, SUITE 450
PEACHTREE CORNERS, GA 30092
PHONE: 770-825-0744
WWW.KIMLEY-HORN.COM
NC License F-0102

CONSULTANT:

DRAWN BY: CHK.: APV.:

KAB	TDM	CCH
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LICENSER:



SHEET TITLE:

**ELECTRICAL
SINGLE LINE
DIAGRAM**

SHEET NUMBER: REVISION:

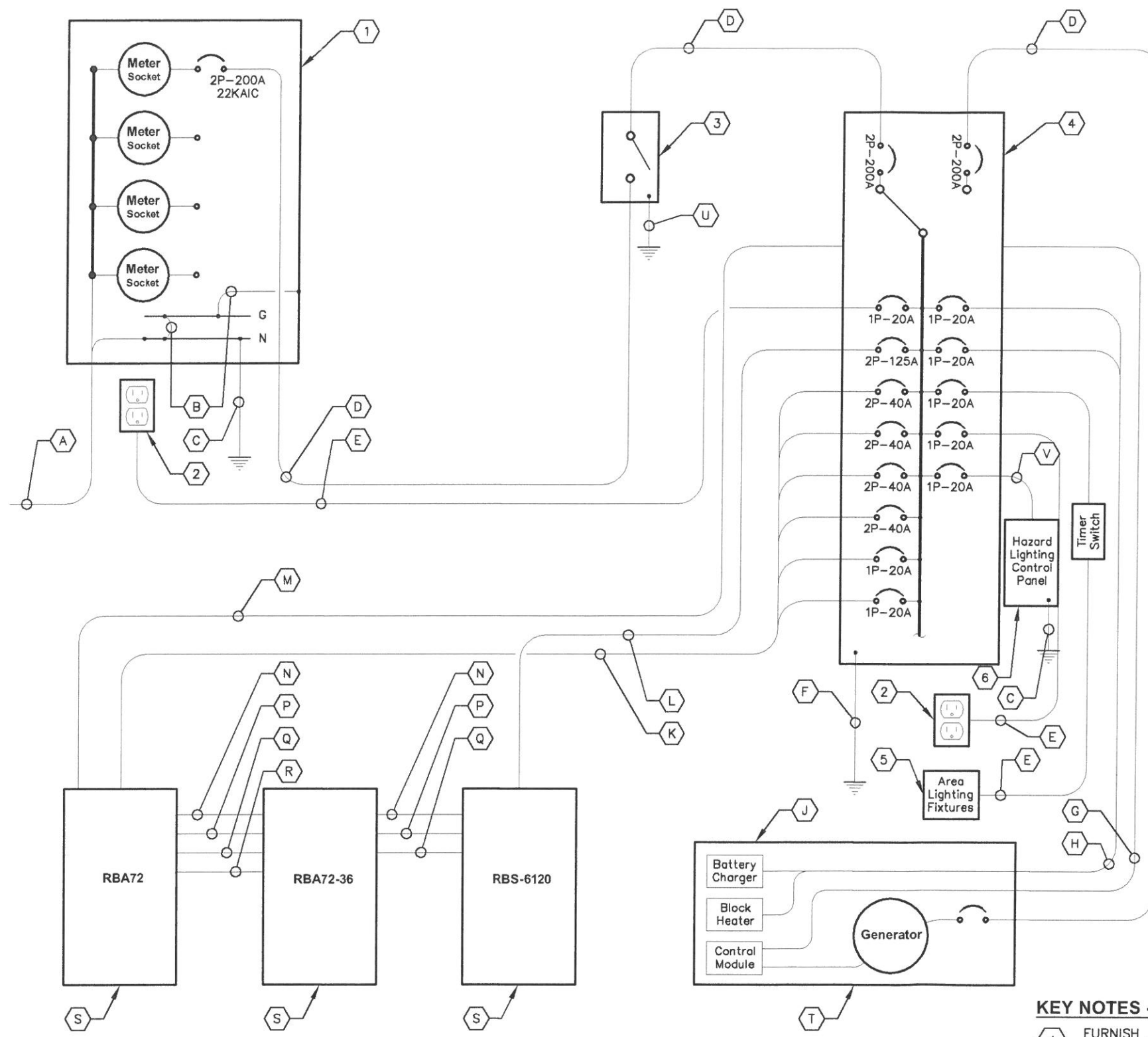
E6 **1**
018985462

KEY NOTES - CONDUIT, CONDUCTORS, & MISC

- A TWO (2) 4" CONDUITS BY CONTRACTOR FOR INCOMING SERVICE LATERALS BY LOCAL UTILITY FOR 800 AMP, 120/240 VOLT SINGLE PHASE SERVICE.
- B BOND GROUND BUS TO NEUTRAL BUS AND GROUND BUS TO ENCLOSURE WITH 2/0 BONDING JUMPERS.
- C ONE (1) 2/0 BARE STRANDED TINNED COPPER GEC TO GROUND ROD, EXOTHERMIC WELD GEC TO GROUND ROD.
- D THREE (3) 3/0 CONDUCTORS AND ONE (1) #4 AWG GROUND IN 2" CONDUIT.
- E TWO (2) #12 AWG CONDUCTORS AND ONE (1) #12 AWG GROUND IN 3/4" CONDUIT.
- F ONE (1) 2/0 BARE STRANDED TINNED COPPER GEC FROM GROUNDING LUG IN ILC TO GROUND ROD, EXOTHERMIC WELD GEC TO GROUND ROD.
- G AUTOMATIC TRANSFER SWITCH ALARM AND GENERATOR CONTROL CABLES IN 1-1/4" CONDUIT
- H FOUR (4) #12 CONDUCTORS AND ONE (1) #12 AWG GROUND IN 3/4" CONDUIT.
- J THE GENERATOR, WHEN UTILIZING A TWO POLE ATS WITH A SOLID NEUTRAL, IS NOT A SEPARATELY DERIVED SYSTEM. THEREFORE, DO NOT BOND THE NEUTRAL TO THE GROUND AT THE GENERATOR.
- K EIGHT (8) #6 AWG CONDUCTORS AND FOUR (4) #8 AWG GROUNDS PLUS FOUR (4) #10 AWG CONDUCTORS AND TWO (2) #10 AWG GROUNDS, ALL IN 2" CONDUIT.
- L TWO (2) #1 AWG CONDUCTORS AND ONE (1) #6 AWG GROUND IN 2" CONDUIT.
- M ALARM CABLES IN 3/4" CONDUIT.
- N 1-1/4" CONDUIT FOR TELCO CABLES BETWEEN EQUIPMENT CABINETS.
- P 3/4" CONDUIT FOR ALARM CABLES BETWEEN EQUIPMENT CABINETS.
- Q 2" FLEX CONDUIT BETWEEN EQUIPMENT CABINETS.
- R TWO (2) #10 AWG CONDUCTORS AND ONE (1) #10 AWG GROUND IN 3/4" CONDUIT TO GFCI RECEPTACLE IN RBA72-36.
- S CONNECT DC POWER PLANT IN COMMSCOPE RBA72 CABINET TO 48 VOLT BATTERY STRINGS #1, #2, AND #3 LOCATED ON LOWER TWO SHELVES OF THE RBA72-36 BATTERY CABINET. CONNECT DC POWER IN ERICSSON RBS-6120 CABINET TO 48 VOLT BATTERY STRINGS #4, #5, AND #6 LOCATED ON UPPER TWO SHELVES OF THE RBA72-36 BATTERY CABINET. IN THE CASE WHERE NO RBS6120 IS USED, ALL APPLICABLE BATTERY STRINGS SHALL BE DIRECTLY CONNECTED TO THE RBA72 CABINET.
- T 40 KW DIESEL GENERATOR, CONTRACTOR SHALL COORDINATE SPECIFIC GENERATOR CONFIGURATION WITH OWNER AND INSTALL THE GENERATOR IN ACCORDANCE WITH MANUFACTURER'S INSTALLATION INSTRUCTIONS. GENERATOR BREAKER SIZED AND PROVIDED BY GENERATOR MANUFACTURER.
- U ONE (1) - 2/0 BARE STRANDED TINNED COPPER GEC FROM GROUNDING LUG IN DISCONNECT SWITCH TO GROUND RING, EXOTHERMIC WELD TO GROUND RING.
- V 1" PVC CONDUIT FOR POWER CABLES FROM INTEGRATED LOAD CENTER TO HAZARD LIGHTING CONTROL PANEL.

KEY NOTES - ELECTRICAL EQUIPMENT

- 1 FURNISH AND INSTALL 800 AMP, 3-WIRE, SINGLE PHASE, 120/240 VOLT, 22KAIC, FOUR-SPACE MULTI-GANG METER CENTER WITH 200 AMP RATED METER SOCKETS IN NEMA 3R ENCLOSURE, SE RATED. CONTRACTOR SHALL FURNISH AND INSTALL 200 AMP CIRCUIT BREAKER AT METER BASE IF NOT ALREADY EXISTING.
- 2 20 AMP GFCI DUPLEX OUTLET IN LOCKABLE WEATHER-PROOF ENCLOSURE.
- 3 FURNISH AND INSTALL 200 AMP, 2 POLE (SOLID NEUTRAL), NON-FUSED DISCONNECT SWITCH IN NEMA 3R ENCLOSURE.
- 4 200 AMP, 120/240 VOLT, ILC BY GENERAC WITH 42 SPACE PANEL AND AUTOMATIC TRANSFER SWITCH. ALL CIRCUIT BREAKERS SHALL BE RATED 10KAIC MINIMUM. ILC IS FURNISHED BY VERIZON AND INSTALLED BY GENERAL CONTRACTOR.
- 5 FURNISH AND INSTALL TWO (2) AREA LIGHTS, (LITHONIA HFR 250M DNA LP1) AND MANUAL TIMER SWITCH (ENERLITES HET06 SERIES) FOR LIGHTING CONTROL (OR APPROVED EQUIVALENTS).
- 6 FURNISH AND INSTALL HAZARD LIGHTING CONTROL PANEL IN NEMA 4X ENCLOSURE.



REQUIRED SIGNAGE PER NEC 702 AT SERVICE DISCONNECT

"WARNING: Shock hazard exists if grounding electrode conductor or bonding jumper connection in this equipment is removed while alternate source(s) is energized. Opening the equipment disconnect will cause the stand-by generator to start. To remove power entirely from the equipment, the generator must be turned OFF and the generator circuit breaker must be open."

REQUIRED SIGNAGE PER NEC 702 AT SERVICE DISCONNECT & INTEGRATED LOAD CENTER

"NOTE: Emergency power is supplied by a stand-by generator located on Verizon equipment pad."

1
E6 **ELECTRICAL SINGLE LINE DIAGRAM**
NTS

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PANEL SCHEDULE - VERIZON INTEGRATED LOAD CENTER

Voltage: 120/240 Volts
Phase, Wires: Single Phase, 3 Wire
Mounting Type: Surface
Enclosure Type: NEMA 3R

MCB Size: 200 Amps
AIC Rating: 10,000 Amps min
Bus Rating: 200 Amps
Neutral Rating: 100%

Load Served	Load (kVA)		Circuit Bkr Size	Ckt Nbr	Phase A B	Ckt Nbr	Circuit Bkr Size	Load (kVA)		Load Served
	A	B						A	B	
RBA 72 RECTIFIERS 1 & 2	2.84		2P-40	1	A B	2	1P-20	0.18		GFCI DUPLEX OUTLET
		2.84		3		4	1P-20		0.18	GFCI DUPLEX OUTLET
RBA 72 RECTIFIERS 3 & 4	2.84		2P-40	5	A B	6	1P-20	0.18		CAB DUPLEX OUTLET
		2.84		7		8	1P-20		0.18	CAB DUPLEX OUTLET
RBA 72 - RECTIFIERS 5 & 6	2.84		2P-40	9	A B	10	1P-20	0.60		AREA LIGHTS
		2.84		11		12	1P-20		0.50	GEN BLOCK HEATER
RBA 72 - (FUTURE RECTIFIERS 7 & 8)	0.00		2P-40	13	A B	14	1P-20	0.10		GEN BATTERY CHARGER
		0.00		15		16	1P-20		0.60	TOWER LIGHT
RBS 6120 (3 PSU's)	2.34		2P-125	17	A B	18	----	0.00		SPACE
		2.34		19		20	----		0.00	SPACE
SPACE	0.00		----	21	A B	22	----	0.00		SPACE
SPACE		0.00	----	23		24	----		0.00	SPACE
SPACE	0.00		----	25	A B	26	----	0.00		SPACE
SPACE		0.00	----	27		28	----		0.00	SPACE
SPACE	0.00		----	29	A B	30	----	0.00		SPACE
SPACE		0.00	----	31		32	----		0.00	SPACE
SPACE	0.00		----	33	A B	34	----	0.00		SPACE
SPACE		0.00	----	35		36	----		0.00	SPACE
SPACE	0.00		----	37	A B	38	----	0.00		SPACE
SPACE		0.00	----	39		40	----		0.00	SPACE
SURGE PROTECTION DEVICE (internal to load center)		0.00	2P-30	41	A B	42	----	0.00		SPACE
	0.00			41		42	----		0.00	SPACE
Sub-Total (kVA)	10.86	10.86						1.06	1.46	Sub-Total (kVA)

LOAD SUMMARY		A		B		Total Connected (kVA)
Load Description	Connected Load (kVA)	A	B	A	B	
RECTIFIERS/EQUIP	10.86	10.86		11.92	12.32	24.24
LARGEST MOTOR	0.00	0.00				
ALL OTHER MOTORS	0.00	0.00				
LIGHTING	0.60	0.60		0.75	0.75	
DUPLEX RECEPTACLES	0.36	0.36		0.36	0.36	
TOTAL MISCELLANEOUS	0.10	0.50		0.13	0.63	
Total Power per Phase				14.81	15.32	
Total Demand Current per Phase				123.42	127.67	Amps
Total Demand Power				30.13		kVA

1 PANEL SCHEDULE
E7 NTS



8921 RESEARCH DRIVE
 CHARLOTTE, NORTH CAROLINA 28262

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VERIZON No.: 427450
 6492 CHRISTIAN LIGHT ROAD
 FUQUAY VARINA, NC 27526
 HARNETT COUNTY

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REV.	DATE	ISSUED FOR	BY
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CONSULTANT:



2 SUN COURT, SUITE 450
 PEACHTREE CORNERS, GA 30092
 PHONE: 770-825-0744
 WWW.KIMLEY-HORN.COM
 NC License F-0102

CONSULTANT:

DRAWN BY: CHK.: APV.:
 KAB TDM CCH

LICENSER:



SHEET TITLE:

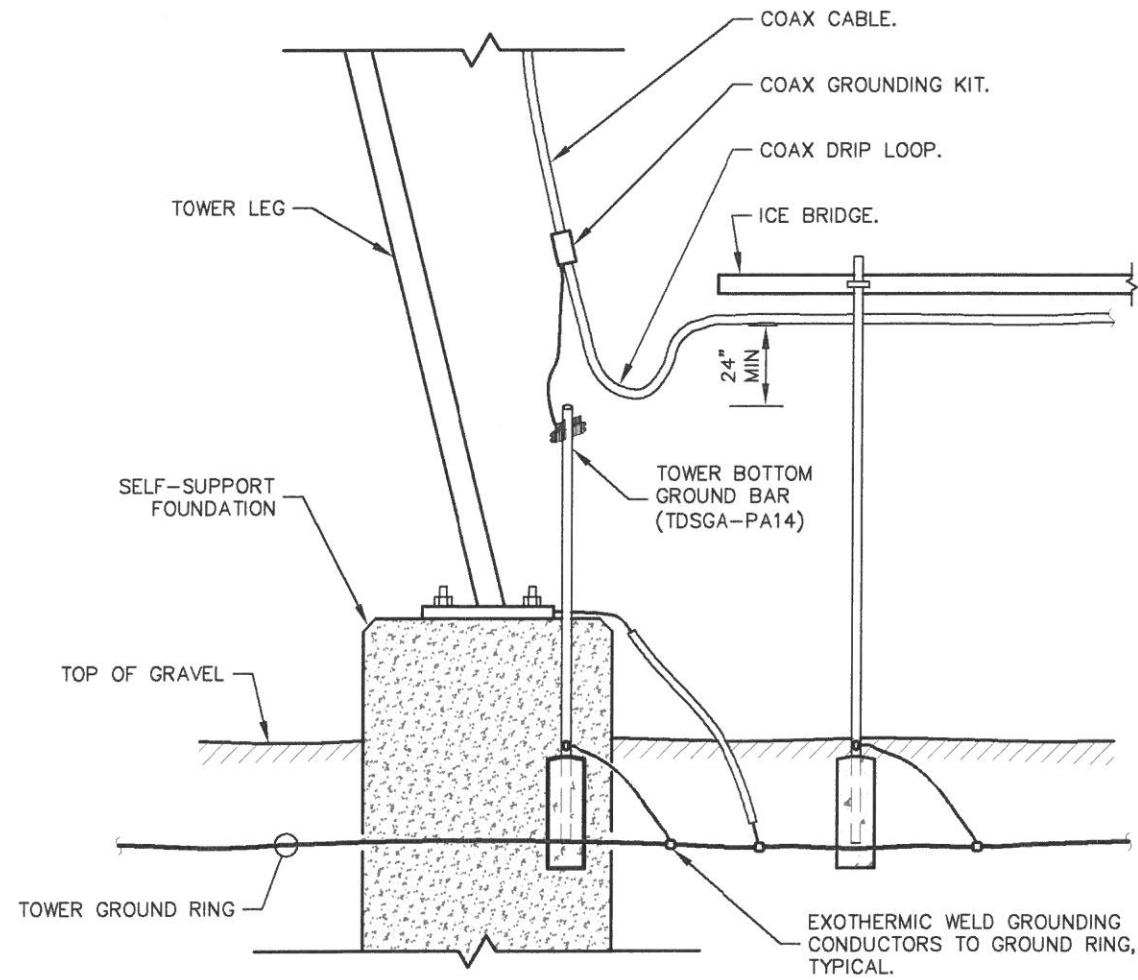
PANEL SCHEDULE

SHEET NUMBER: REVISION:

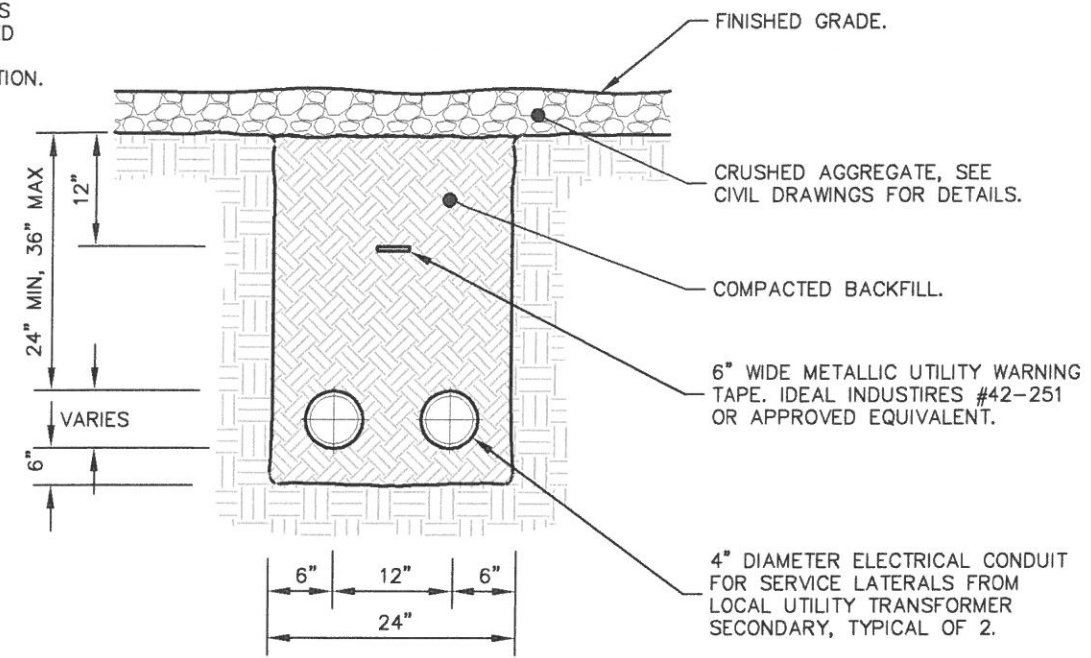
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K:\ATL_Wireless\000_Verizon\2017_Sites\Revels Road\CAD\CD\Rev1-9-8-17\Revels Road_CD_R1.dwg September 8, 2017 11:59 AM by: kerry.pierre

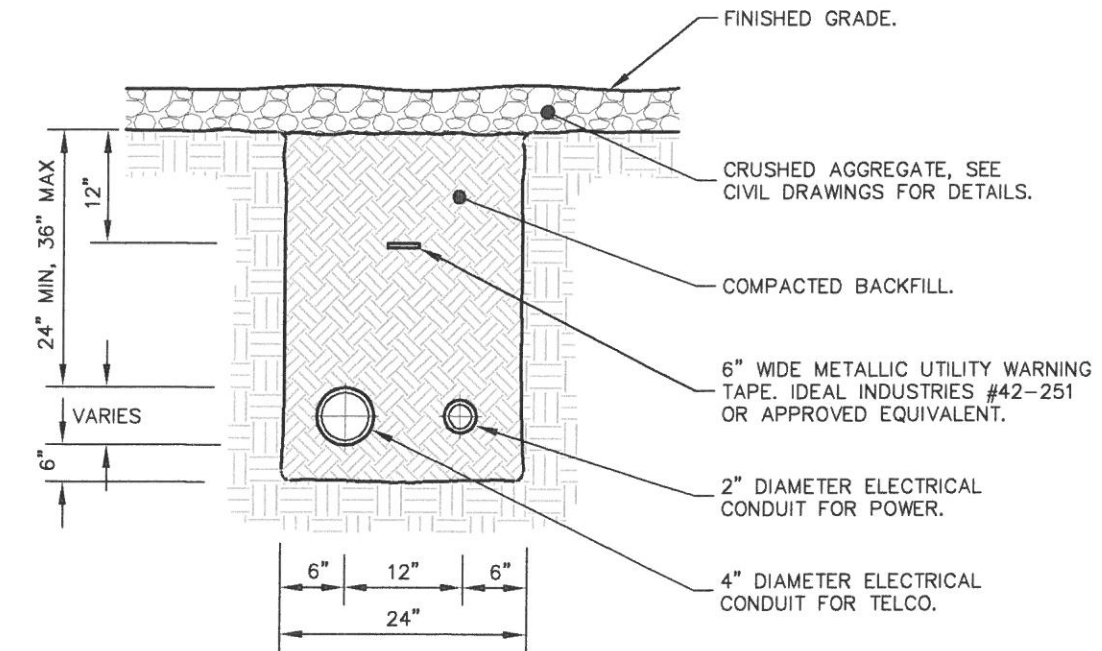
NOTE: IF GROUND SURFACE IS OTHER THAN NEWLY GRAVELED AREA. CONTRACTOR IS TO RESTORE TO ORIGINAL CONDITION.



1 DRIP LOOP DETAIL
E8 NTS



3 TRENCH DETAIL - UTILITY TRANSFORMER TO METER BANK
E8 NTS



2 TRENCH DETAIL - ELECTRICAL AND TELCO FEED
E8 NTS

verizon

8921 RESEARCH DRIVE
CHARLOTTE, NORTH CAROLINA 28262

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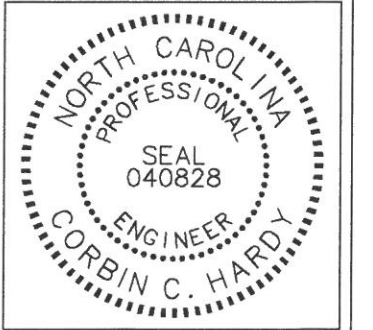
2 SUN COURT, SUITE 450
PEACHTREE CORNERS, GA 30092
PHONE: 770-825-0744
WWW.KIMLEY-HORN.COM
NC License F-0102

CONSULTANT:

DRAWN BY: CHK.: APV.:

KAB TDM CCH

LICENSER:



SHEET TITLE:

ELECTRICAL
DETAILS

SHEET NUMBER: REVISION:

E8

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GROUNDING NOTES

1. THE GROUND RING SHALL CONSIST OF #2 AWG BARE SOLID TINNED COPPER (STC) CONDUCTOR, UNLESS NOTED OTHERWISE, BURIED AT 30" BELOW FINISHED GRADE (OR BELOW FROST LINE). LOCATE 24" MINIMUM AND 36" MAXIMUM FROM EQUIPMENT PAD AND FROM TOWER FOUNDATION. ALL CONNECTIONS SHALL BE MADE USING A PARALLEL TYPE EXOTHERMIC WELD, UNLESS NOTED OTHERWISE.
2. INSTALL GROUND RODS AS SHOWN AND AS REQUIRED. GROUND RODS TO BE COPPER CLAD STEEL, 5/8" DIAMETER AND 10FT IN LENGTH. SPACING BETWEEN GROUND RODS SHALL BE 10FT MINIMUM AND 15FT MAXIMUM. TOP OF GROUND ROD TO BE 30" MINIMUM BELOW GRADE (OR BELOW FROST LINE). BOND TOP OF GROUND ROD TO GROUND WIRE WITH EXOTHERMIC WELD. DO NOT EXOTHERMICALLY WELD ANYTHING TO GROUND ROD EXCEPT GROUND WIRE WHICH PASSES OVER TOP OF GROUND ROD (CLAMPED CONNECTIONS TO GROUND ROD PER TOWER MANUFACTURERS DETAILS ARE ACCEPTABLE).
3. EQUIPMENT GROUND RING SHALL HAVE A MINIMUM OF 4 GROUND RODS, INSTALLED AT THE CORNERS OF THE GROUND RING PLUS ADDITIONAL RODS AS REQUIRED TO COMPLY WITH THE SPACING REQUIREMENTS. TOWER GROUND RING SHALL HAVE A MINIMUM OF 3 GROUND RODS, EXCEPT USE 4 RODS AT A MONOPOLE TOWER. WHERE SPREAD TOWER FOOTING WOULD PREVENT GROUND RODS FROM BEING DRIVEN INTO SOIL ADJACENT TO TOWER, PROVIDE VERTICAL 1" DIAMETER PVC SLEEVES EMBEDDED IN FOOTING TO ALLOW INSTALLATION OF GROUND RODS.
4. EQUIPMENT GROUND RING AND TOWER GROUND RING SHALL BE BONDED TOGETHER WITH TWO #2 STC GROUND LEADS, TYPICALLY ONE ON EACH SIDE OF ICE BRIDGE.
5. BOND TOWER TO TOWER GROUND RING AT THREE LOCATIONS WITH #2 STC GROUND LEAD. SELF SUPPORT TOWERS SHALL HAVE EACH LEG BONDED TO GROUND RING, MONOPOLES AND GUYED TOWERS SHALL HAVE GROUND LEADS EQUALLY SPACED AROUND TOWER. EXOTHERMICALLY WELD GROUND LEADS TO TOP OF BASE PLATES, OR ATTACH TO TOWER USING TOWER MANUFACTURER PROVIDED DETAIL.
6. PROVIDE #2 STC RADIALS FROM THE TOWER GROUND RING TO EACH FENCE CORNER POST. RADIALS SHALL HAVE GROUND RODS AS PER THE REQUIRED SPACING. THE GROUND ROD AT THE END OF EACH RADIAL SHALL BE 24" MAXIMUM FROM FENCE CORNER POST. EQUIPMENT PAD GROUND RING AND CONNECTING GROUND LEADS [BETWEEN EQUIPMENT PAD AND TOWER GROUND RINGS] MAY BE USED AS PART OF THE RADIAL GOING TO THE FENCE CORNER POST CLOSEST TO THE EQUIPMENT PAD.
7. MINIMUM BEND RADIUS FOR #2 AWG GROUND WIRE IS 12", EXCEPT USE 24" FOR TOWER GROUND RINGS AND EQUIPMENT PAD GROUND RINGS.
8. GROUND ALL EXTERIOR EXPOSED METAL OBJECTS. USE TWO HOLE LUGS FOR CONNECTION TO FLAT METAL SURFACES. USE ONLY STAINLESS STEEL HARDWARE ON ALL MECHANICAL CONNECTIONS. CLEAN ALL SURFACES (AND STRIP PAINTED SURFACES) TO BARE BRIGHT METAL PRIOR TO MAKING GROUND CONNECTIONS. APPLY ANTI-OXIDE COMPOUND TO ALL CONNECTIONS. APPLY ZINC RICH PAINT (COLD GALV.) TO ALL EXOTHERMIC WELDS, AND TO ANY METAL EXPOSED BY CLEANING, STRIPPING, GRINDING, CUTTING OR DRILLING.
9. ALL GROUNDING CONDUCTORS ABOVE GRADE SHALL BE RUN IN 3/4" FLEXIBLE PVC CONDUIT. CONDUIT SHALL BEGIN WITHIN 3/4" OF ABOVE GROUND CONNECTION POINT, SHALL EXTEND 24" BELOW GRADE MINIMUM, AND SHALL BE FILLED WITH SEALANT AT ABOVE GROUND CONNECTION POINT. SECURE CONDUIT EVERY 24" ON VERTICAL RUNS AND EVERY 36" ELSEWHERE WITH NON-METALLIC TIES.
- 10A. AT GUYED AND SELF SUPPORT TOWERS MOUNT TDSCA-PA14 TOWER BOTTOM GROUND BAR ON DEDICATED POST DIRECTLY BELOW COAX CABLES COMING OFF TOWER. POST TO BE 3.5" OD GALVANIZED SCHEDULE 40 PIPE WITH GALVANIZED PIPE CAP. TOP OF POST TO BE 78" ABOVE GRADE. EMBED POST 30" MINIMUM IN 12" DIAMETER BY 36" DEEP MINIMUM CONCRETE FOOTING WITH TOP OF FOOTING 6" BELOW GRADE. IF TOWER FOUNDATION OBSTRUCTS AUGERED FOOTING, USE POST WITH 10" SQUARE GALVANIZED STEEL FLANGE PLATE WELDED TO BOTTOM AND BOLT FLANGE TO TOP OF CONCRETE TOWER FOOTING.
- 10B. AT MONOPOLE TOWERS CLAMP TDSCA-BC14 TOWER BOTTOM GROUND BAR DIRECTLY TO TOWER. IF RUNNING COAX INSIDE MONOPOLE, CLAMP ONTO BOTTOM LIP OF EXIT PORT. IF BANDING COAX TO OUTSIDE OF TOWER, CLAMP ONTO STEEL ANGLE WHICH IS Banded TO TOWER. BOND TDSCA-BC14 TO TOWER GROUND RING WITH TWO #2 STC LEADS LUGGED TO GROUND BAR AND EXOTHERMICALLY WELDED TO GROUND RING.
11. AT EQUIPMENT PAD, INSTALL TDSCA-PA14 EXTERIOR GROUND BAR (THRU-BOLTED STYLE) AT BASE OF ICE BRIDGE POST SUPPORTING COAX CABLE LADDER AND AT BASE OF ICE BRIDGE POST SUPPORTING HYBRID CABLE LADDER. MOUNT GROUND BAR TO POST AT 18" ABOVE TOP OF CONCRETE PAD, EXCEPT MOUNT GROUND BAR 6" ABOVE TOP OF PAD WHEN USED AS A GROUNDING POINT BY RACK MOUNTED RRU'S OR BY COAX/HYBRID CABLES COMING FROM UNDERGROUND CONDUITS..
12. ALL ICE BRIDGE SECTIONS ARE TO BE JUMPERED TOGETHER WITH #2 WIRE, EITHER BARE TINNED COPPER OR GREEN INSULATED STRANDED. ICE BRIDGE SHALL BE GROUNDED AT EACH END WITH #2 STC WIRE LUGGED TO ICE BRIDGE AND EXOTHERMICALLY WELDED TO UPPER PORTION OF NEAREST ICE BRIDGE POST.
13. BOND EACH ICE BRIDGE POST, H-FRAME POST OR DEDICATED GROUNDING POST TO BURIED GROUNDING SYSTEM WITH #2 STC LEAD EXOTHERMICALLY WELDED TO POST BELOW TOP OF GRAVEL AND EXOTHERMICALLY WELDED TO GROUND RING. EACH POST TO HAVE SEPARATE GROUND LEAD DIRECTLY TO GROUND RING - DO NOT DAISY CHAIN POSTS TOGETHER.
14. BOND SURFACE MOUNTED CABLE TRAY TO GROUND RING WITH #2 STC LEAD LUGGED TO SIDE OF GRIP STRUT CABLE TRAY COVER AND EXOTHERMICALLY WELDED TO GROUND RING.
15. BOND EACH COMMSCOPE RBA72 CABINET TO EQUIPMENT PLATFORM GROUND RING WITH #2 AWG TINNED SOLID BARE COPPER CONDUCTOR LUGGED TO CABINET BODY AND EXOTHERMICALLY WELDED TO GROUND RING. LUG TO CABINET BODY USING LOCATION AT WHICH STUDS ON CABINET CHASSIS HAVE DIRECT GROUND WIRE CONNECTION TO CABINET INTERNAL GROUND BAR. RUN CONDUIT AND CONDUCTOR ACROSS BACK OF CABINET (DO NOT RUN TOWARDS NEAREST CORNER OF CABINET AND THEN BEND GROUND WIRE SHARPLY), ACROSS CONCRETE PAD BELOW CABLE LADDER, THEN DOWN INTO GRAVEL AREA.
16. BOND EACH ERICSSON RBS6120 CABINET TO GROUND RING WITH #2 AWG TINNED SOLID BARE COPPER CONDUCTOR LUGGED TO CABINET GROUND BAR AND EXOTHERMICALLY WELDED TO GROUND RING. RUN GROUND LEAD IN FLEX CONDUIT ACROSS CONCRETE PAD BELOW CABLE LADDER, THEN DOWN INTO GRAVEL AREA. CONNECT FLEX CONDUIT TO CABINET AT PLINTH COVER PLATE WITH POSITIVE MECHANICAL FLEXIBLE CONDUIT FITTING.
17. BOND EACH COMMSCOPE RBA72-36 BATTERY CABINET TO GROUND RING WITH #2 AWG TINNED SOLID BARE COPPER CONDUCTOR LUGGED TO CABINET BODY AND EXOTHERMICALLY WELDED TO GROUND RING. RUN GROUND LEAD IN FLEX CONDUIT ALONG BACK OF RBA72 CABINET, ACROSS CONCRETE PAD BELOW CABLE LADDER, THEN DOWN INTO GRAVEL AREA. CONNECT TWO HOLE LUG TO BACK OF CABINET AT FACTORY PROVIDED GROUNDING STUDS.
18. BOND GENERATOR TO GROUND RING WITH #2 STC AT TWO DIAGONALLY OPPOSITE LOCATIONS BY DRILLING AND BOLTING TWO HOLE LUG TO FINS ON GENERATOR BASE STRUCTURE. GROUND LEADS SHOULD RUN ALONG BASE OF GENERATOR AND TAKE SHORTEST PATH ACROSS CONCRETE PAD TO GRAVEL AREA, THEN CONTINUE TO GROUND RING.
19. WHERE PROPANE TANK IS INSTALLED TO FUEL GENERATOR, BOND PROPANE TANK TO GROUND RING WITH A SINGLE #2 STC CLAMPED TO FILLER PIPE OF PROPANE TANK AND EXOTHERMICALLY WELDED TO GROUND RING. GROUND LEAD SHOULD RUN TO TANK SUPPORT AND TAKE SHORTEST PATH ACROSS CONCRETE PAD TO GRAVEL AREA, THEN CONTINUE TO GROUND RING. IF PROPANE TANK FUEL LINE IS METALLIC, BOND FUEL LINE TO EQUIPMENT GROUND RING WHERE THE TWO LINES CROSS WITH A SINGLE #2 STC CLAMPED TO FUEL LINE AND EXOTHERMICALLY WELDED TO GROUND RING.
20. BOND GPS ANTENNA AND GPS ANTENNA MOUNT TO TDSCA GROUND BAR AT BOTTOM OF ICE BRIDGE POST WITH #2 GREEN INSULATED STRANDED GROUND WIRE.
21. PROVIDE TWO GROUND RODS OUTSIDE GATES OF COMPOUND. DISTANCE BETWEEN GROUND RODS SHALL MATCH WIDTH OF GATE OPENING, AND DISTANCE FROM FENCE SHALL MATCH LENGTH OF LONGEST INDIVIDUAL GATE LEAF. BOND GATE POSTS TOGETHER WITH #2 STC LEAD WHICH RUNS PAST AND CONNECTS TO GROUND RODS OUTSIDE GATES.
22. BOND EACH GATE POST WITH #2 STC TO NEAREST PORTION OF GROUNDING SYSTEM INSIDE COMPOUND.
23. BOND EACH GATE TO GATE POST WITH FLEXIBLE INSULATED OR BRAIDED #4/0 COPPER STRAP. EXOTHERMICALLY WELD STRAP TO BOTH GATE AND GATE POST.
24. ANY METAL FENCE POST WITHIN 6FT OF A GROUNDED METAL OBJECT SHALL BE BONDED TO THE NEAREST GROUND RING. ANY METAL FENCE WITHIN 6FT OF A GROUND RING SHALL HAVE THE LINE POSTS BONDED TO THE GROUND RING AT 20FT MAXIMUM INTERVALS AS MEASURED ALONG THE LENGTH OF THE FENCE.
25. WHERE GROUND BASED RRU'S ARE INSTALLED ON H-FRAMES AT THE EQUIPMENT PAD, BOND EACH RRU TO TDSCA GROUND BAR AT BASE OF H-FRAME POST WITH #2 GREEN INSULATED STRANDED GROUND WIRE. SINGLE HOLE LUG OR RING TYPE CONNECTOR IS SUITABLE FOR CONNECTION TO GROUNDING STUD ON RRU.
26. NOTIFY VZW CM TO INSPECT GROUND RING BEFORE BACKFILLING. CONTRACTOR SHALL HIRE A 3RD PARTY TO PERFORM AN IEEE81 FALL OF POTENTIAL METHOD GROUND TEST. MAXIMUM ALLOWABLE RESISTANCE TO GROUND IS 5 OHMS. PROVIDE ADDITIONAL GROUND SYSTEM COMPONENTS AS REQUIRED TO ACHIEVE THIS VALUE.
27. REFER TO TOWER GROUNDING DIAGRAM AND NOTES FOR GROUND SYSTEM REQUIREMENTS ON THE TOWER.
28. GROUNDING OF ALL ELECTRICAL EQUIPMENT SHALL BE AS PER NEC, MUNICIPAL AND UTILITY COMPANY REQUIREMENTS.

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8921 RESEARCH DRIVE
CHARLOTTE, NORTH CAROLINA 28262

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CONSULTANT:

Kimley»Horn

2 SUN COURT, SUITE 450
PEACHTREE CORNERS, GA 30092
PHONE: 770-825-0744
WWW.KIMLEY-HORN.COM
NC License F-0102

CONSULTANT:

DRAWN BY: CHK.: APV.:

KAB TDM CCH

LICENSER:



SHEET TITLE:

GROUNDING NOTES

SHEET NUMBER: REVISION:

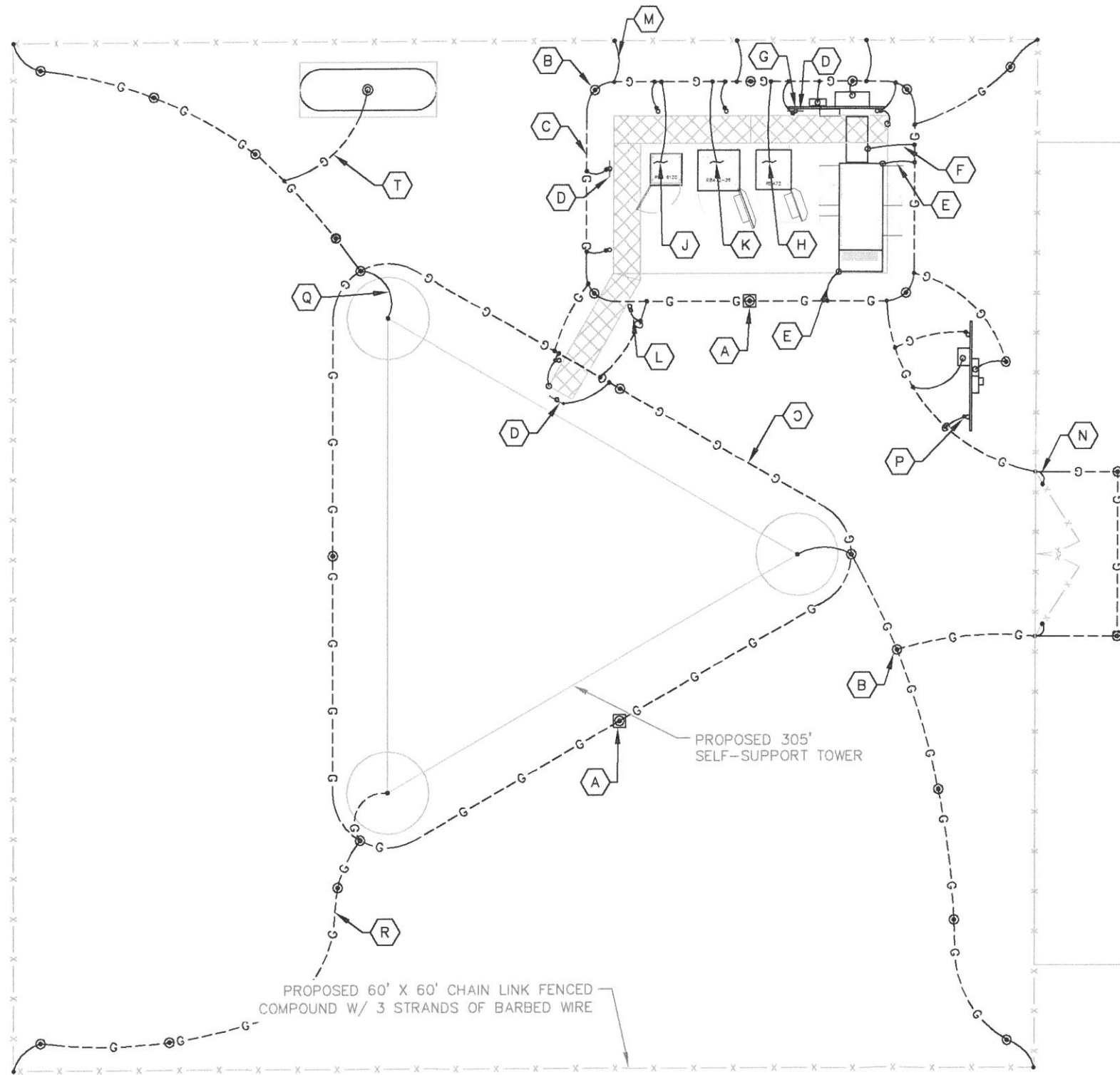
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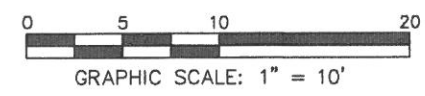
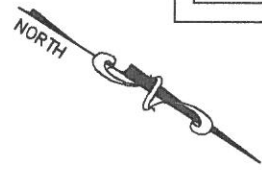
1 GROUNDING PLAN
E10 SCALE: 1" = 10'

KEY NOTES - GROUNDING EQUIPMENT

- A GROUND ROD TEST WELL (SEE DETAIL 1/E12).
- B GROUND ROD, TYPICAL (SEE DETAIL 2/E12 AND NOTES 2 AND 3 ON E9).
- C TOWER AND EQUIPMENT GROUND RING (SEE NOTES 1, 3, 4 AND 7 ON E9).
- D TDSGA-PA14 OR TDSGA-BC14 WHERE APPLICABLE (SEE NOTES 10A AND 11 ON E9).
- E GENERATOR GROUNDING (SEE NOTE 18 ON E9).
- F PAD MOUNTED CABLE TRAY GROUNDING (SEE NOTE 14 ON E9).
- G GPS ANTENNA GROUNDING (SEE NOTE 20 ON E9).
- H RF (RBA72) CABINET GROUNDING (SEE NOTE 15 ON E9).
- J RF (RBS6120) CABINET GROUNDING (SEE NOTE 16 ON E9).
- K (RBA72-36) BATTERY CABINET GROUNDING (SEE NOTE 17 ON E9).
- L ICE BRIDGE POST. BOND TO GROUND RING, TYPICAL (SEE NOTES 12 AND 13 ON E9).
- M FENCE POST GROUNDING, TYPICAL. (SEE NOTE 24 ON E9).
- N GATE GROUNDING, TYPICAL. (SEE NOTES 21, 22 & 23 ON E9).
- P UTILITY H-FRAME GROUNDING, TYPICAL. (SEE DETAIL 1/E4 AND NOTE 13 ON E9).
- Q TOWER GROUNDING, TYPICAL. (SEE NOTES 5, 6 & 27 ON E9).
- R GROUND RADIALS, TYPICAL (SEE NOTE 6 ON E9).
- S REFER TO SHEETS E9, E11, E12 & E13 FOR GROUNDING NOTES, DETAILS, AND SPECIFICATIONS.
- T PROPANE TANK GROUNDING (SEE NOTE 19 ON E9).

LEGEND:

- G---G--- GROUND RING
- G---G--- GROUND ROD EXOTHERMICALLY WELDED TO GROUND RING
- EXOTHERMIC WELD
- ⊙ GROUND ROD TEST WELL (SEE DETAIL 1/E12)
- MECHANICAL CONNECTION



8921 RESEARCH DRIVE
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CONSULTANT:



2 SUN COURT, SUITE 450
PEACHTREE CORNERS, GA 30092
PHONE: 770-825-0744
WWW.KIMLEY-HORN.COM
NC License F-0102

CONSULTANT:

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LICENSER:



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GROUNDING PLAN

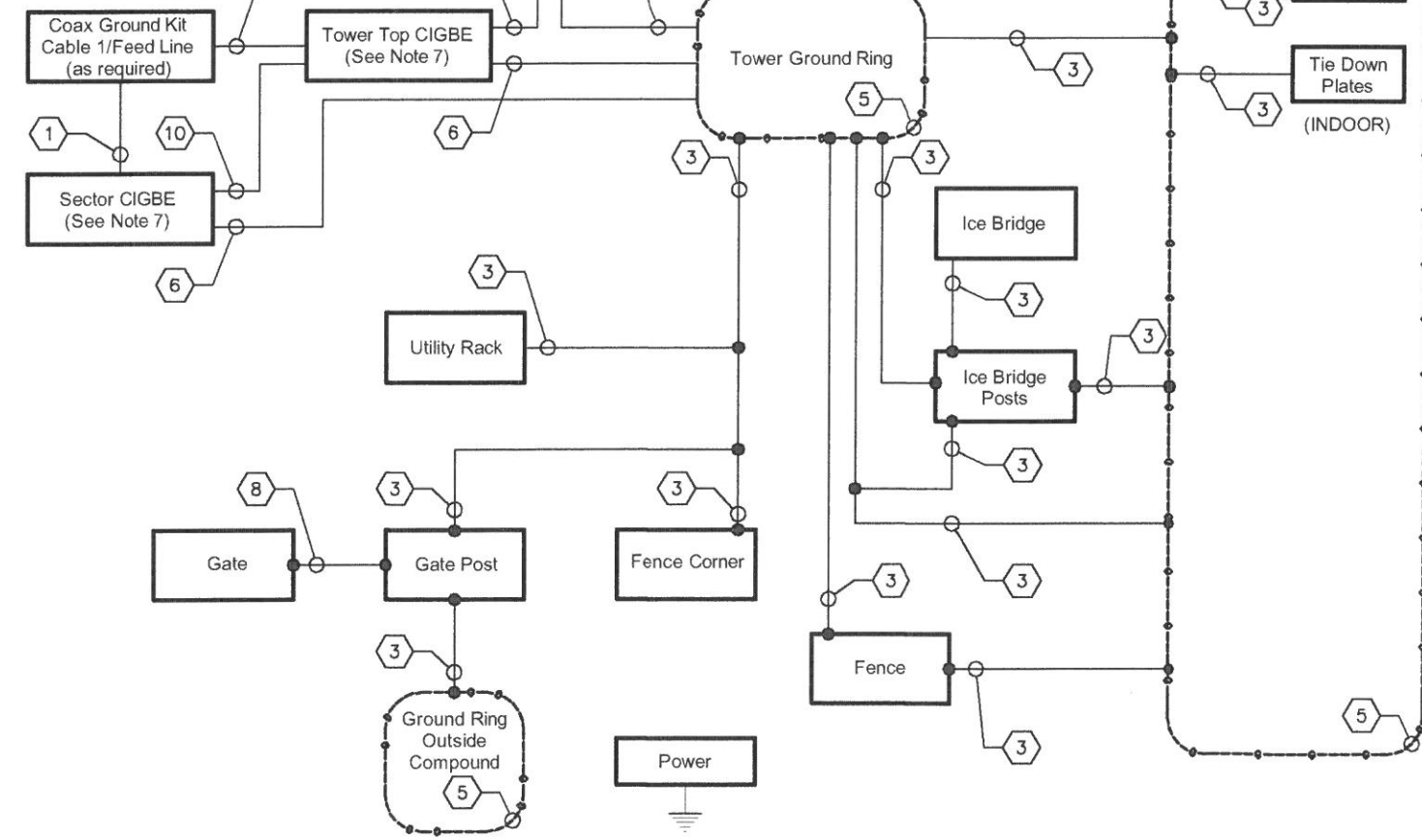
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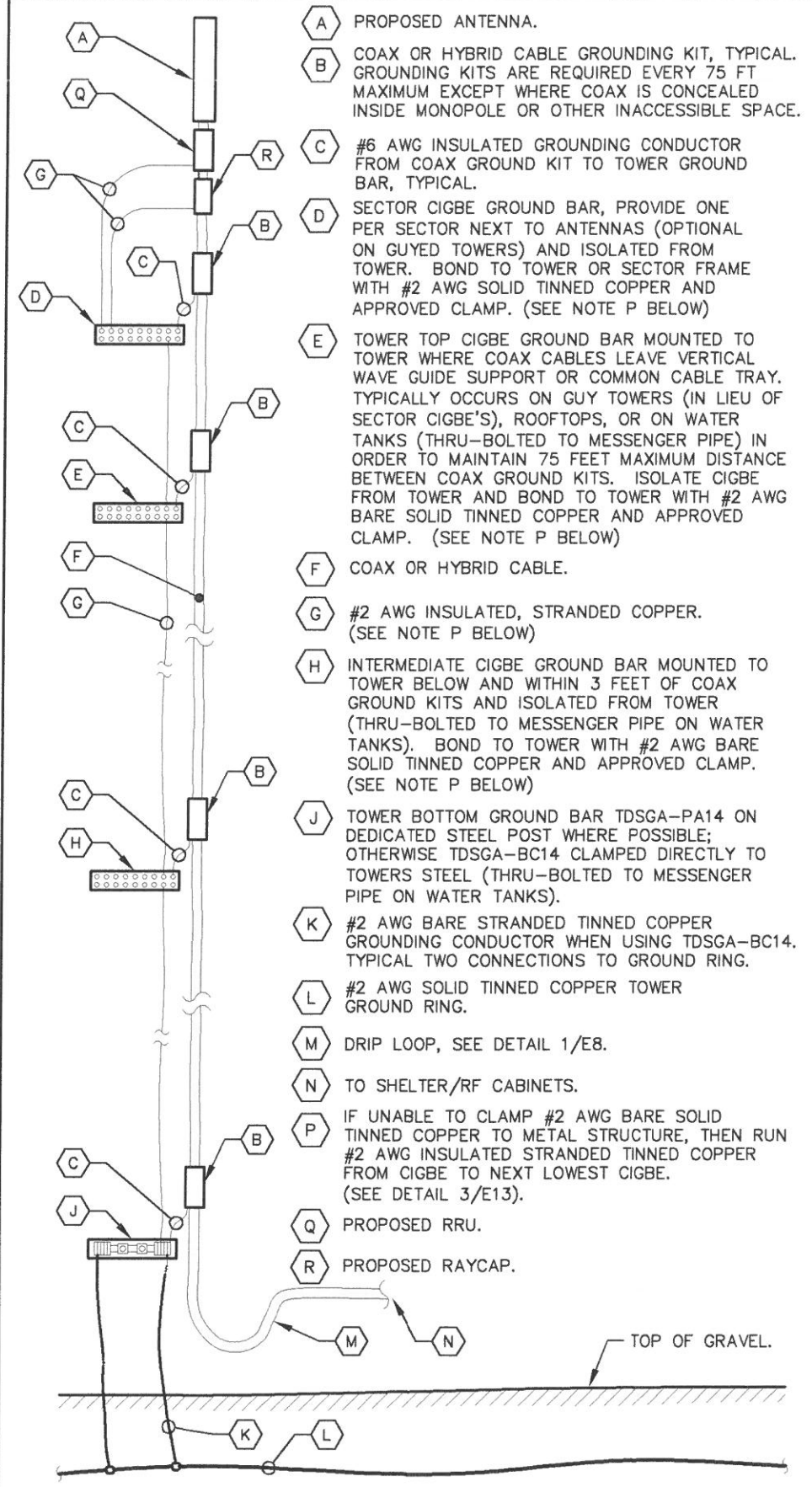
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- 1 #6 AWG INSULATED STRANDED COPPER.
- 2 #6 AWG INSULATED STRANDED COPPER. CONNECT COAX GROUND KITS DIRECTLY TO TOWER TOP CIGBE ONLY AS NOTED ON DETAIL 3/E13.
- 3 #2 AWG SOLID TINNED COPPER.
- 4 #2 AWG SOLID TINNED COPPER. (OUTDOOR EQUIPMENT OPTION)
- 5 #2 AWG SOLID TINNED COPPER GROUND RING BURIED 30" BELOW GRADE.
- 6 TOWER ACTS AS CONDUCTOR.
- 7 TOWER GROUND BARS WILL BE ISOLATED FROM TOWER BUT BONDED TO TOWER WITH #2 AWG INSULATED STRANDED COPPER AND CLAMPED, OR EXOTHERMIC WELD, UNLESS OTHERWISE NOTED.
- 8 4/0 BRAIDED COPPER STRAP, EXOTHERMIC WELD TO BOTH GATE AND GATE POST.
- 9 BOND GROUND BAR TO GROUNDING POST USING THROUGH BOLT CONNECTION.
- 10 #2 AWG INSULATED STRANDED COPPER.



1 GROUNDING SINGLE LINE DIAGRAM
E11 NTS



2 COAX-TOWER GROUNDING SCHEMATIC
E11 NTS

- A PROPOSED ANTENNA.
- B COAX OR HYBRID CABLE GROUNDING KIT, TYPICAL. GROUNDING KITS ARE REQUIRED EVERY 75 FT MAXIMUM EXCEPT WHERE COAX IS CONCEALED INSIDE MONOPOLE OR OTHER INACCESSIBLE SPACE.
- C #6 AWG INSULATED GROUNDING CONDUCTOR FROM COAX GROUND KIT TO TOWER GROUND BAR, TYPICAL.
- D SECTOR CIGBE GROUND BAR, PROVIDE ONE PER SECTOR NEXT TO ANTENNAS (OPTIONAL ON GUYED TOWERS) AND ISOLATED FROM TOWER. BOND TO TOWER OR SECTOR FRAME WITH #2 AWG SOLID TINNED COPPER AND APPROVED CLAMP. (SEE NOTE P BELOW)
- E TOWER TOP CIGBE GROUND BAR MOUNTED TO TOWER WHERE COAX CABLES LEAVE VERTICAL WAVE GUIDE SUPPORT OR COMMON CABLE TRAY. TYPICALLY OCCURS ON GUY TOWERS (IN LIEU OF SECTOR CIGBE'S), ROOFTOPS, OR ON WATER TANKS (THRU-BOLTED TO MESSENGER PIPE) IN ORDER TO MAINTAIN 75 FEET MAXIMUM DISTANCE BETWEEN COAX GROUND KITS. ISOLATE CIGBE FROM TOWER AND BOND TO TOWER WITH #2 AWG BARE SOLID TINNED COPPER AND APPROVED CLAMP. (SEE NOTE P BELOW)
- F COAX OR HYBRID CABLE.
- G #2 AWG INSULATED, STRANDED COPPER. (SEE NOTE P BELOW)
- H INTERMEDIATE CIGBE GROUND BAR MOUNTED TO TOWER BELOW AND WITHIN 3 FEET OF COAX GROUND KITS AND ISOLATED FROM TOWER (THRU-BOLTED TO MESSENGER PIPE ON WATER TANKS). BOND TO TOWER WITH #2 AWG BARE SOLID TINNED COPPER AND APPROVED CLAMP. (SEE NOTE P BELOW)
- J TOWER BOTTOM GROUND BAR TDSCA-PA14 ON DEDICATED STEEL POST WHERE POSSIBLE; OTHERWISE TDSCA-BC14 CLAMPED DIRECTLY TO TOWERS STEEL (THRU-BOLTED TO MESSENGER PIPE ON WATER TANKS).
- K #2 AWG BARE STRANDED TINNED COPPER GROUNDING CONDUCTOR WHEN USING TDSCA-BC14. TYPICAL TWO CONNECTIONS TO GROUND RING.
- L #2 AWG SOLID TINNED COPPER TOWER GROUND RING.
- M DRIP LOOP, SEE DETAIL 1/E8.
- N TO SHELTER/RF CABINETS.
- P IF UNABLE TO CLAMP #2 AWG BARE SOLID TINNED COPPER TO METAL STRUCTURE, THEN RUN #2 AWG INSULATED STRANDED TINNED COPPER FROM CIGBE TO NEXT LOWEST CIGBE. (SEE DETAIL 3/E13).
- Q PROPOSED RRU.
- R PROPOSED RAYCAP.



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 6492 CHRISTIAN LIGHT ROAD
 FUGUAY VARINA, NC 27526
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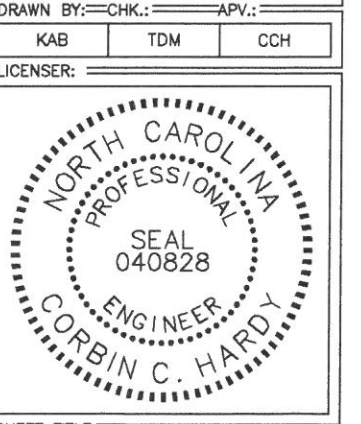
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CONSULTANT:
Kimley»Horn
 2 SUN COURT, SUITE 450
 PEACHTREE CORNERS, GA 30092
 PHONE: 770-825-0744
 WWW.KIMLEY-HORN.COM
 NC License F-0102

CONSULTANT:
 DRAWN BY: CHK.: APV.:
 KAB TDM CCH
 LICENSER:



SHEET TITLE:
GROUNDING SINGLE LINE DIAGRAM

SHEET NUMBER: E11 REVISION: 1
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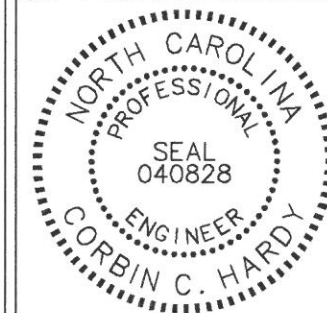
2 SUN COURT, SUITE 450
PEACHTREE CORNERS, GA 30092
PHONE: 770-825-0744
WWW.KIMLEY-HORN.COM
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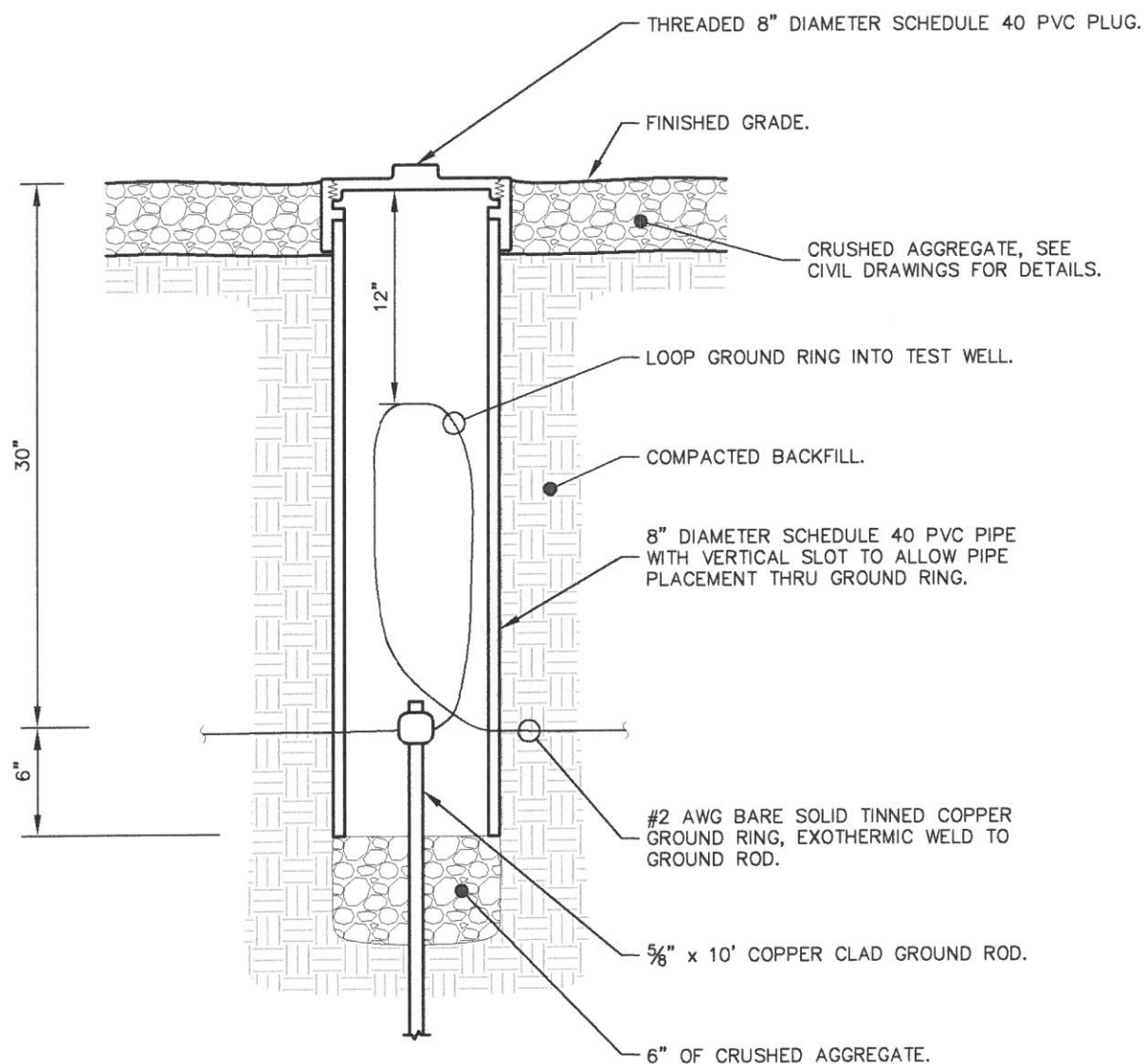
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DETAILS**

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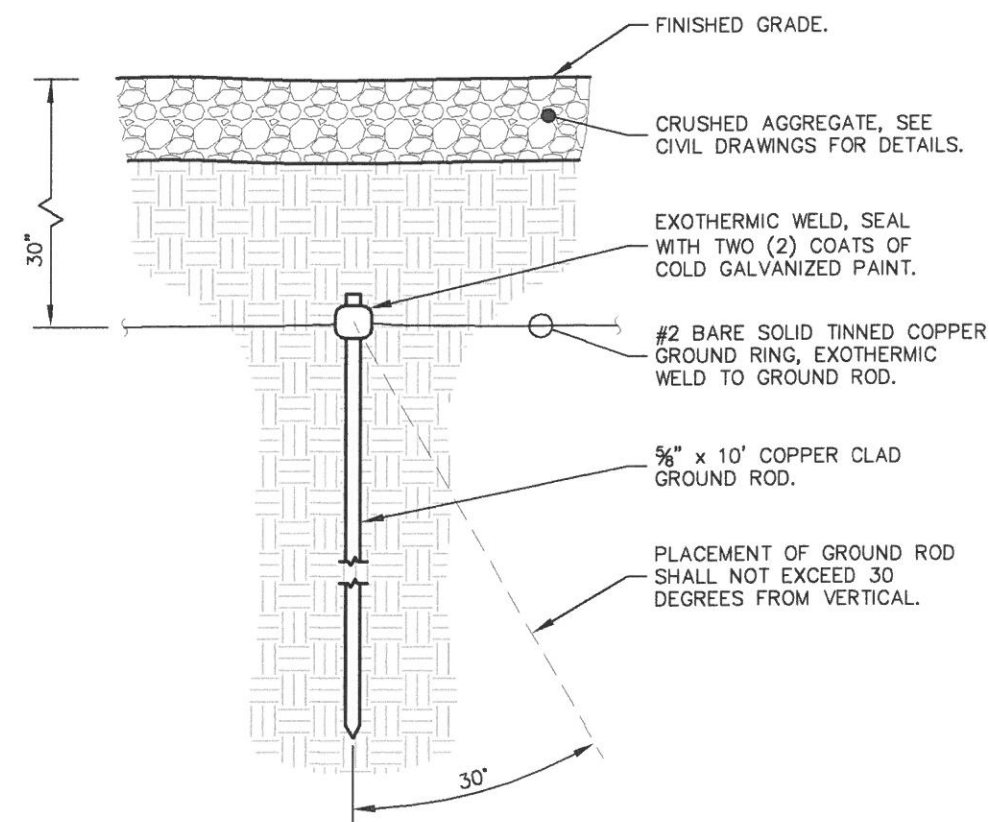
E12

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1 GROUND ROD TEST WELL DETAIL
E12 NTS



2 GROUND ROD INSTALLATION DETAIL
E12 NTS

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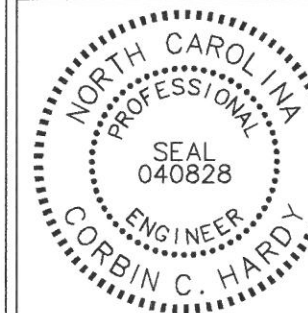
2 SUN COURT, SUITE 450
PEACHTREE CORNERS, GA 30092
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WWW.KIMLEY-HORN.COM
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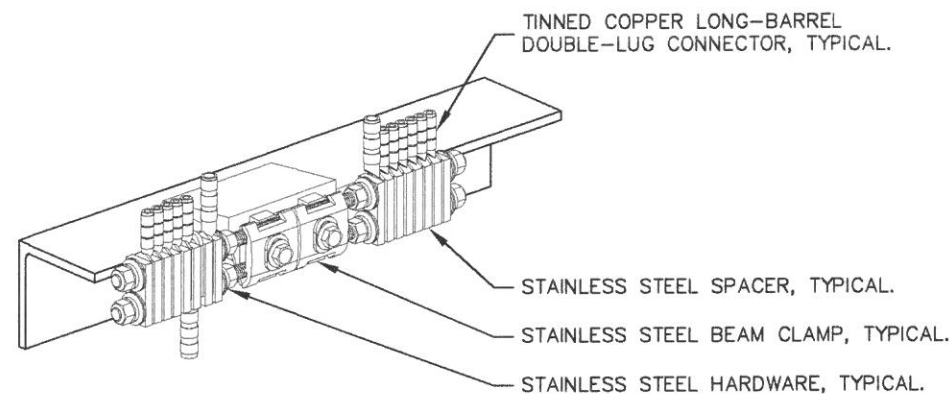
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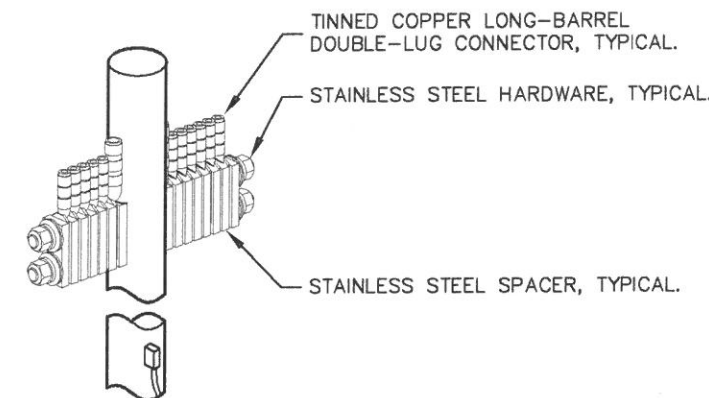
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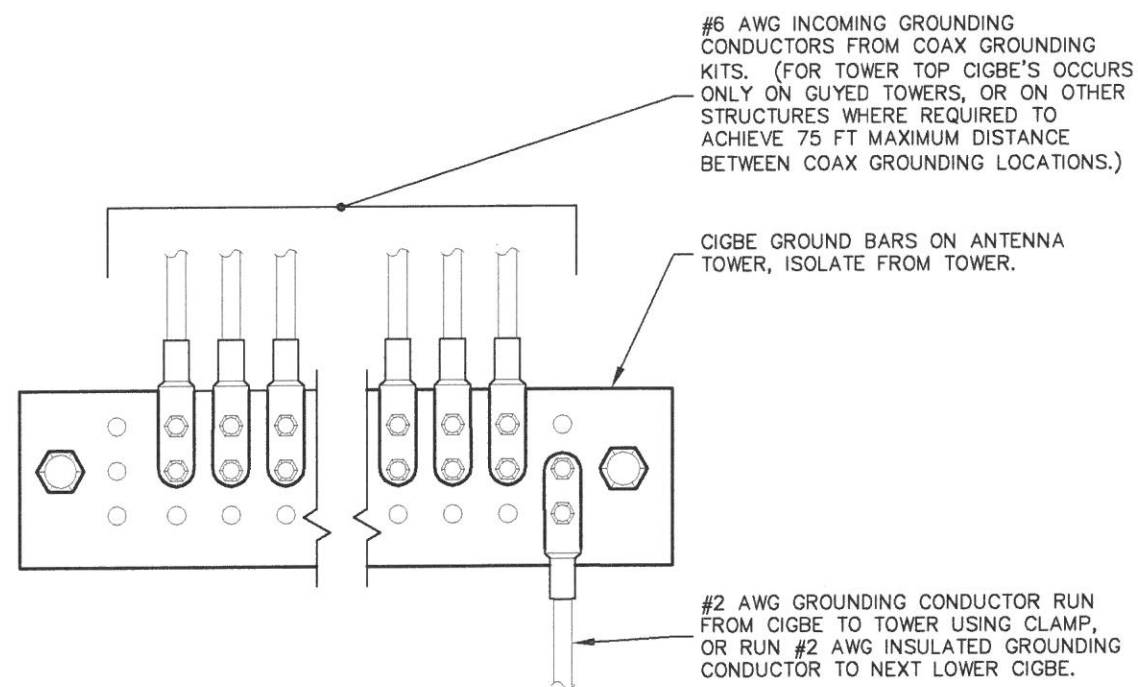
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1 BAR NONE GROUNDED BEAM CLAMP (TDSGA-BC14)
E13 NTS



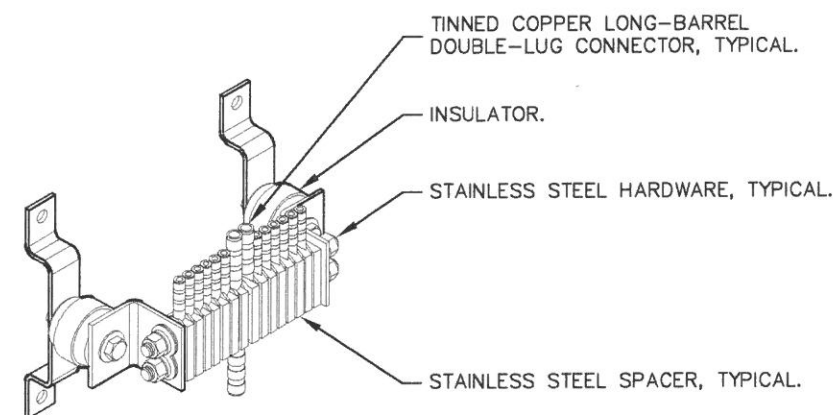
2 BAR NONE POST MOUNTED (TDSGA-PA14)
E13 NTS



3 ANTENNA GROUND WIRE INSTALLATION DETAIL
E13 NTS

NOTES:

1. ALL CIGBE GROUND BARS ON TOWER ARE TO BE ERICO TDSGA. TYPICALLY USE TDSGA-WB17 ISOLATED FROM UNISTRUT BRACKET.
2. IF CIGBE CANNOT BE CONNECTED TO TOWER WITH #2 AWG GROUNDING CONDUCTOR, VIA CLAMP OR EXOTHERMIC WELD, THEN RUN #2 AWG BLACK GROUND LEAD FROM CIGBE DOWN TO NEXT LOWER CIGBE. SECURE GROUND LEAD WITH NON-METALIC TIES AT SAME SPACING AS COAX SUPPORTS.



4 BAR NONE INSULATED (TDSGA-WB17)
E13 NTS