City and Public Utility Review Committee (CPURC)

June 6, 2018
11:00 a.m.
City of Fredericksburg
City Hall
2nd Floor Conference Room – Suite (ROOM #218)

AGENDA

COMMITTEE MEMBERS

Public Works Department Director	**Dave King, Chair**
Community Planning & Building Department Director	**Chuck Johnston, Vice Chair**
Architectural Review Board Representative	**Jonathan Gerlach**
Building Official	**John Schaffer**
Planning Commission Representative	**Kenneth Gantt**

---

1. Call to Order

2. Adoption of Minutes – December 14, 2017

3. **Mobilitie, LLC – 1011 Charles Street** – Utility Permit Application. Installation of a new 34-foot wood utility pole with small cell antenna and backhaul equipment in the public right of way near 1016 Charles Street. The project will involve the replacement of an existing wooden utility pole with a slightly taller pole to accommodate the Mobilitie facilities, but will remain below the 40' maximum height.

4. Adjournment.

City and Public Utility Review Committee (CPURC)

December 14, 2017
11:00 a.m.
COUNCIL CHAMBERS

Meeting Notes

COMMITTEE MEMBERS PRESENT
Chuck Johnston, Director, Community Planning & Building
John Shaffer, Building Official, Building Services Division
Dave King, Director, Public Works
Kenneth Gantt, Planning Commission Representative
Jon Van Zandt, Architectural Review Board Representative

AGENDA TOPICS

1. Call to Order

Mr. King called the meeting to order at 11:00 a.m. He explained the purpose of the newly formed City and Public Utility Review Committee (CPURC) and Ordinances recently adopted by City Council relating to the Committee.

2. Adoption of Minutes

The November 1, 2017 Minutes were adopted and approved, unanimously.

3. **Mobilitie, LLC – 1011 Charles Street** – Utility Permit Application. Installation of a new 50-foot wood utility pole with small cell antenna and backhaul equipment in the public right of way near the intersection of Charles Street and Amelia Street.

Mr. King briefly explained the franchise agreement that Mobilitie, LLC, has with the City to co-locate its communication equipment.

Mr. Mark Holland, Mobilitie, LLC, provided three additional documents (ATTACHMENT A). He explained that the best option was for them to co-locate on an existing pole located in the area and that a height of below 40 feet is the preferred height. He said they would replace the existing pole to meet the height standards.

Mr. Schaffer asked Mr. Holland the total height of the proposed pole.

Mr. Holland said the current height of the subject pole is 25 feet. He said the replacement pole, in the same location, would have a maximum height of 35 feet.

Mr. Schaffer asked the total AMPs.

Mr. Holland said 120 amps.

Mr. Schaffer asked for confirmation that the maximum height, **including the equipment,** would be 35 feet.

Mr. Johnston aside if this revised/current information has been shared with the other property owners in the area.

Mr. Holland said that when the notices went out to the surrounding property owners, it was prior to the new revisions.

Mr. King said that since the application has changed, that it would be best for the applicant to revise all their documents and application and resubmit it for review and approval at the January, 2018 CPURC meeting.

Mr. Erik Nelson, Transportation Planner, noted that page 56 of the Comprehensive Plan shows recommendations to co-locate these types of utilities on existing tall buildings and that this should be made part of future discussions of the application.

In reference to Mr. Nelson's comments, Mr. Johnston said that the new role of CPURC on these types of applications is mandated by the General Assembly. And, this type of technology was something that was not anticipated by the Comp Plan and may require a Comp Plan amendment.

Ms. Kate Schwarts, Historic Preservation Planner, asked, in reference to the pole elevations, if the applicant will consolidate the equipment pieces.

Mr. Holland said the pole will consist of three (3) pieces. The meter, the box shroud and the antenna.

Ms. Schwartz asked which direction the shroud piece would be facing.

Mr. Holland said they could face the shroud where the City desires.

Committee members continued to discuss the aspects of the equipment placement and asked that the drawings submitted with the revised application for the January meeting depict this placement.

Mr. King said he appreciated the comments of the Committee in order to provide guidance to Mobilitie, LLC, prior to submitting a revised application.

Mr. Johnston said staff would also address other options with the applicant.

Mr. Johnston made a motion to defer action on the Mobilitie, LLC application until January and to shift the meeting in January to January 10th at 11:00.

Mr. Gantt seconded the motion. Motion carried by a unanimous vote.

4. Discussion: Market Square/Alley repaving.

Mr. Bill Freehling (Director of Economic Development and Tourism); and Mr. Erik Nelson, (Transportation Planner), provided a rendering of the proposed improvements. They noted that some of the money with come from grant funding (Transportation Alternatives Grant/VDOT). They also noted that they are attempting to figure out the best way to provide public restrooms in the area. Current options are port-a-potty's; a trailer of restrooms that would regularly need to be maintained (emptied, cleaned, etc.); or find a convenient location that will allow the restrooms to connect to existing City water and sewer.

Mr. Gantt asked if staff has conducted a cost analysis of each option and whether they have determined which option would be the most cost effective.

Mr. Freehling said they have not yet conducted an analysis or comparison. He added that they could receive additional funding from the EDA.

Mr. Gantt asked how many phases are proposed through project completion.

Mr. Freehling said that at this time, the alleyway would be the first phase; then addressing the bathrooms would be the second phase and the third phase would be resurfacing the entire square.

Mr. Van Zandt said that a bathroom trailer could pose ADA issues since they are typically raised. He said he likes the design concept.

Mr. King said he too believes it is a good design. He noted that the CPURC does not require an application for this project, nor does CPURC have purview over the project. He thanked staff for keeping the Committee up to date on the project and invited staff back to future CPURC meetings as the project progresses.

5. **Discussion/Adoption: Fee for Small Cell Tower/Antenna Applications.**

Mr. Johnston noted that Ordinance 17-29, adopted by City Council, allows the City to charge a reasonable fee not to exceed $250.00. He made a motion that the City Council officially enact the fee of $250.00 as a set fee for CPURC applications.

Mr. Van Zandt seconded the motion. Motion carried by a unanimous vote.

6. **Discussion/Adoption: CPURC By-Laws**.

Mr. Johnston made a motion to approve and adopt the By-Laws. Mr. Gantt seconded the motion and the motion carried unanimously.

Mr. Johnston noted that on the Property Owner Notifications form, it currently states: "**APPLICANT to mail this notice by certified return receipt mail to adjoining and abutting property owners and properties within 150 feet of proposed project not more than 15 and no less than 5 days prior to the scheduled meeting."** However, he said, there have been some issues with abutting property owners receiving the notifications in a timely manner.

Mr. Johnston made a motion to change those dates to "*…**not more than 21 and no less than 14 days prior to the scheduled meeting."*** Mr. Gantt seconded the motion. Motion carried unanimously.

Mr. King asked if the current applicant will now be required to resend notifications since the application has been deferred to January 10, 2018.

Mr. Johnston said that since the motion to defer was made and approved at this meeting that he would not be required to send additional property owner notifications but that staff could request that he send them.

Meeting adjourned.

_____

David King, Director of Public Works, CPURC Chair

MEMORANDUM

TO: Dave King, Chair, City Public Utility Review Committee
FROM: Kate Schwartz, Historic Resources Planner
DATE: May 30, 2018 (for the June 6, 2018 meeting)
SUBJECT: Utility Permit Application at 1010 Charles Street

ISSUE

Mobilitie, LLC requests to install a new 34-foot wood utility pole with small cell antenna and backhaul equipment in the public right of way near 1010 Charles Street. The project will involve the replacement of an existing wooden utility pole with a pole that is two feet taller to accommodate the Mobilitie facilities, but will remain below the 40 foot maximum height.

RECOMMENDATION

Approval of the Utility Permit Application for the request with the recommendation that the applicant monitor for archaeological deposits during excavation activities and notify the Historic Resources Planner of any findings.

APPLICABLE HISTORIC DISTRICT DESIGN STANDARDS & GUIDELINES

City Code § 66-194 *Review Standards*

A. In considering proposals for infrastructure improvements within the Old and Historic Fredericksburg District, the City and public utility review committee shall consider the following factors:
   (1) The relative cost and difficulty of modifying proposed improvements to make them compatible with the architectural review standards set forth in Chapter **72**;
   (2) The preservation of trees and other landscaping that provide visual uniformity to the streetscape;
   (3) Street lighting fixtures and equipment that complement the character of the historic district;
   (4) Street furniture (e.g., trash barrels and benches) that is appropriate to its setting and consistent in design;
   (5) Infrastructure that is unobtrusive and does not compromise the historic appearance of the neighborhood. Parking that enhances the streetscape. For example, on-street parking should be encouraged where suitable. Off-street parking should utilize low fencing or landscaping that conforms to the existing street edge or setback in order to avoid unnecessary breaks in the streetscape; and
   (6) Materials that are of high quality design and construction.

Design Guidelines for the Installation of Facilities in the City of Fredericksburg Rights-of-Way

b. Poles
   i. New poles and wireless support structures shall match or be consistent with the materials, finish, and color of the adjacent utility poles in the surrounding area. Steel poles are preferred so that all wiring can be internal to the pole. Any external equipment should match the color of the pole. If wooden poles must be used, all loose wires shall be wrapped and secured with a riser guard.

Additional Guidelines for Locations within the Old and Historic Fredericksburg District

a. General

iv. The maximum height of any facility inside the public right-of-way in the HFD shall be 40 feet, unless specifically approved otherwise by the Director.

BACKGROUND

The applicant proposes to replace an existing wood utility pole located in the public right of way on the west side of Charles Street between Amelia and William Streets, and install small cell equipment on the new pole. The current pole is located in the paved utility strip immediately adjacent to a driveway entrance. Adjacent historic structures include the former Planters Hotel building at 401 William Street and the one-and-one-half-story brick warehouse at 1010 Charles Street. The site of the former slave auction block is also located at the northwest corner of William and Charles Streets. Seven other wood utility poles ranging from 30 to 35 feet in height are located along the same block, and the existing pole to be replaced is approximately 32 feet in height.

The adopted design guidelines for the installation of facilities in the right-of-way address several elements of the proposal, including the appearance and height of poles, the positioning of equipment, and the co-location of facilities. Though the proposal requires the installation of a new utility pole, this will replace an existing pole in the same location and meets the recommendation for co-location. New poles are recommended to be consistent with the materials, finishes, and colors of adjacent poles. While steel poles are recommended in order to accommodate internal wiring, all other utility poles in the surrounding area are constructed of wood. This pole will also be constructed of wood, and all cabling will be secured to the pole every 36 inches or less. This design aligns with the guideline and is appropriate for use at this location.

The guidelines also specify that new poles in the Historic District are not permitted to be greater than 40 feet in height. Additionally, sufficient clearance must be provided between any equipment enclosures and the street or sidewalk. The proposed pole will be 34 feet in height with one antenna positioned at the top of the pole. The total height of all elements will be 37 feet 4 inches. The equipment enclosure will be positioned over the street, and approximately 16 feet of clearance will be provided. The proposed installation meets all the guidelines for this location. Due to the presence of archaeological resources throughout the Historic District, it is recommended that the applicant monitor for archaeological deposits during any excavation required for the installation of the new pole, and report any findings to City staff.

ATTACHMENTS

1. Aerial photograph and front elevation view
2. Existing street views

AERIAL

VIEW FACING SOUTHWEST FROM CHARLES STREET

View looking north on Charles Street towards Amelia Street; note the multiple wood utility poles at this site. Pole to be replaced seen at the far left of the image.

View looking south on Charles Street towards William Street. The pole to be replaced is boxed in red.

SITE ID-CANDIDATE LETTER/CASCADE ID-CANDIDATE LETTER:

9VAB002275/WA90XSCQ0D

LATITUDE/LONGITUDE:

38.30324500/-77.46198200

CROSS STREET:

CHARLES ST & WILLIAM ST

CITY, STATE, ZIP:

FREDERICKSBURG, VA 22401

IF YOU DIG IN ANY STATE DIAL 811 FOR THE LOCAL "ONE CALL CENTER" – IT'S THE LAW

THE UTILITIES SHOWN HEREIN ARE FOR THE CONTRACTORS CONVENIENCE ONLY. THERE MAY BE OTHER UTILITIES NOT SHOWN ON THESE PLANS. THE ENGINEER/SURVEYOR ASSUMES NO RESPONSIBILITY FOR THE LOCATIONS SHOWN AND IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY ALL THE UTILITIES WITHIN THE LIMITS OF THE WORK. ALL DAMAGE MADE TO THE (E) UTILITIES BY THE CONTRACTOR SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.

NOTE:
GENERAL CONTRACTOR IS REQUIRED TO CROSS CHECK COORDINATES. EXHIBIT PHOTO, AERIAL PHOTO AND SITE PLAN TO ENSURE PROPER POLE LOCATION PRIOR TO BREAKING GROUND. CONCERNS OR QUESTIONS SHOULD BE IMMEDIATELY DIRECTED TO ASSIGNED MOBILITIE CM.

GENERAL NOTES

THE FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION. A TECHNICIAN WILL VISIT THE SITE AS REQUIRED FOR ROUTINE MAINTENANCE. THE PROJECT WILL NOT RESULT IN ANY SIGNIFICANT DISTURBANCE OF EFFECT ON DRAINAGE; NO SANITARY SEWER SERVICE, POTABLE WATER OR TRASH DISPOSAL IS REQUIRED AND NO COMMERCIAL SIGNAGE IS PROPOSED.

SITE INFORMATION

SITE ID:	9VAB002275
CASCADE ID:	WA90XSCQ0D
LATITUDE:	38.30324500
LONGITUDE:	-77.46198200
CROSS STREET:	CHARLES ST & WILLIAM ST
CITY, STATE, ZIP:	FREDERICKSBURG, VA 22401
COUNTY:	FREDERICKSBURG CITY
JURISDICTION:	FREDERICKSBURG CITY
PROPERTY OWNER:	PUBLIC RIGHT-OF-WAY
APPLICANT:	MOBILITIE, LLC 3475 PIEDMONT ROAD NE; SUITE 1000 ATLANTA, GEORGIA 30305 PHONE: (312) 638-5400

ENGINEER

WARREN WILLIAMS & ASSOCIATES, PC
736 CARNEROS CIRCLE
HIGH POINT, NC 27265

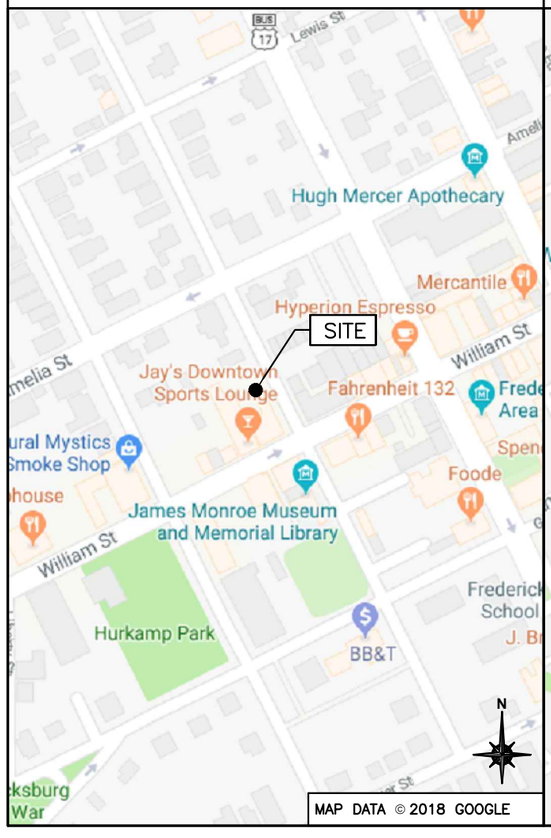
CONTACT: WARREN WILLIAMS, PE
PRESIDENT
TEL: (757) 450-2288

DO NOT SCALE DRAWINGS

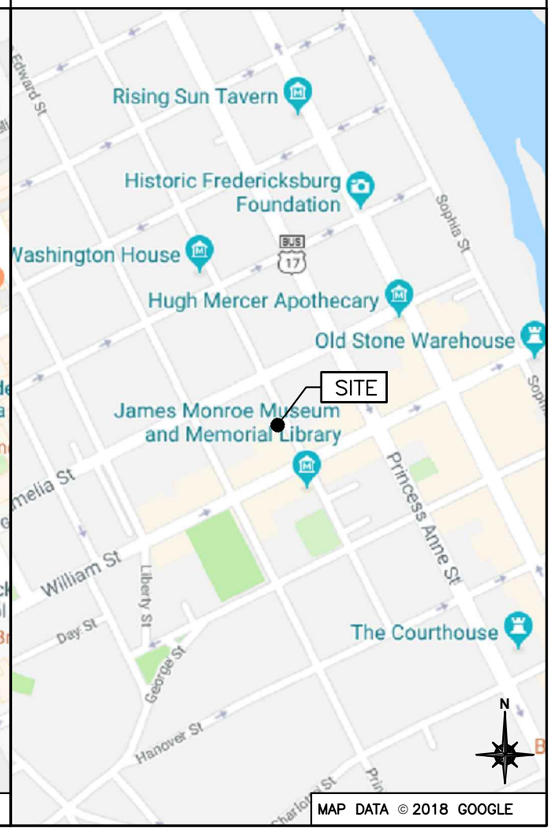
CONTRACTORS SHALL VERIFY ALL PLANS, (E) DIMENSIONS & FIELD CONDITIONS ON THE JOB SITE & SHALL IMMEDIATELY NOTIFY THE ARCHITECT/ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.

LOCATION MAPS

VICINITY MAP



REGIONAL MAP



PROJECT DESCRIPTION

END USER PROPOSES TO REPLACE EXISTING WOOD POLE AND INSTALL EQUIPMENT ON A NEW WOOD POLE WITHIN AN EXISTING RIGHT-OF-WAY.
THE SCOPE WILL CONSIST OF THE FOLLOWING:

- REMOVE EXISTING WOOD UTILITY POLE
- INSTALL A NEW WOOD UTILITY POLE WITH PROPOSED BACKHAUL TRANSPORT EQUIPMENT

CODES

INTERNATIONAL BUILDING CODE
NATIONAL ELECTRICAL SAFETY CODE
TIA/EIA-222-G-2 OR LATEST EDITION
LOCAL BUILDING/PLANNING CODE

DRAWING INDEX

SHEET NO:	SHEET TITLE
T-1	TITLE SHEET
SP-1	EXHIBIT PHOTO & SITE PLAN
EV-1	POLE ELEVATIONS
PL-1	PLUMBING & RISER DIAGRAM
EQ-1	EQUIPMENT DETAILS
EQ-2	EQUIPMENT DETAILS
EQ-3	EQUIPMENT DETAILS
E-1	ELECTRICAL DETAILS
G-1	GROUNDING DETAILS
S-1	POLE EMBEDMENT DETAILS
TC-1	VEHICULAR TRAFFIC CONTROL PLAN
TC-2	PEDESTRIAN SAFETY PLAN
GN-1	GENERAL NOTES
GN-2	GENERAL NOTES
GN-3	GENERAL NOTES

mobilitie
intelligent infrastructure

3475 PIEDMONT ROAD NE
SUITE 1000
ATLANTA, GEORGIA 30305
PHONE; (312) 638-5400

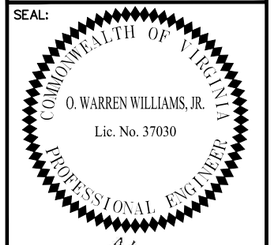
WW&A
warren williams & associates

736 CARNEROS CIRCLE
HIGH POINT NC, 27265

PROJECT NUMBER:	XXXX
DRAWN BY:	SB
CHECKED BY:	WW

0	02-20-18	FINAL CDs

SEAL:



SIGNATURE

WA90XSCQ0D
9VAB002275
CHARLES ST &
WILLIAM ST
FREDERICKSBURG, VA 22401
NEW WOOD UTILITY POLE

SHEET TITLE
TITLE SHEET

SHEET NUMBER
T-1

NOTE:
EXHIBIT PHOTO IS FOR REFERENCE USE ONLY AND SHOULD NOT BE USED FOR CONSTRUCTION PURPOSES.

EXHIBIT PHOTO

SCALE: NOT TO SCALE

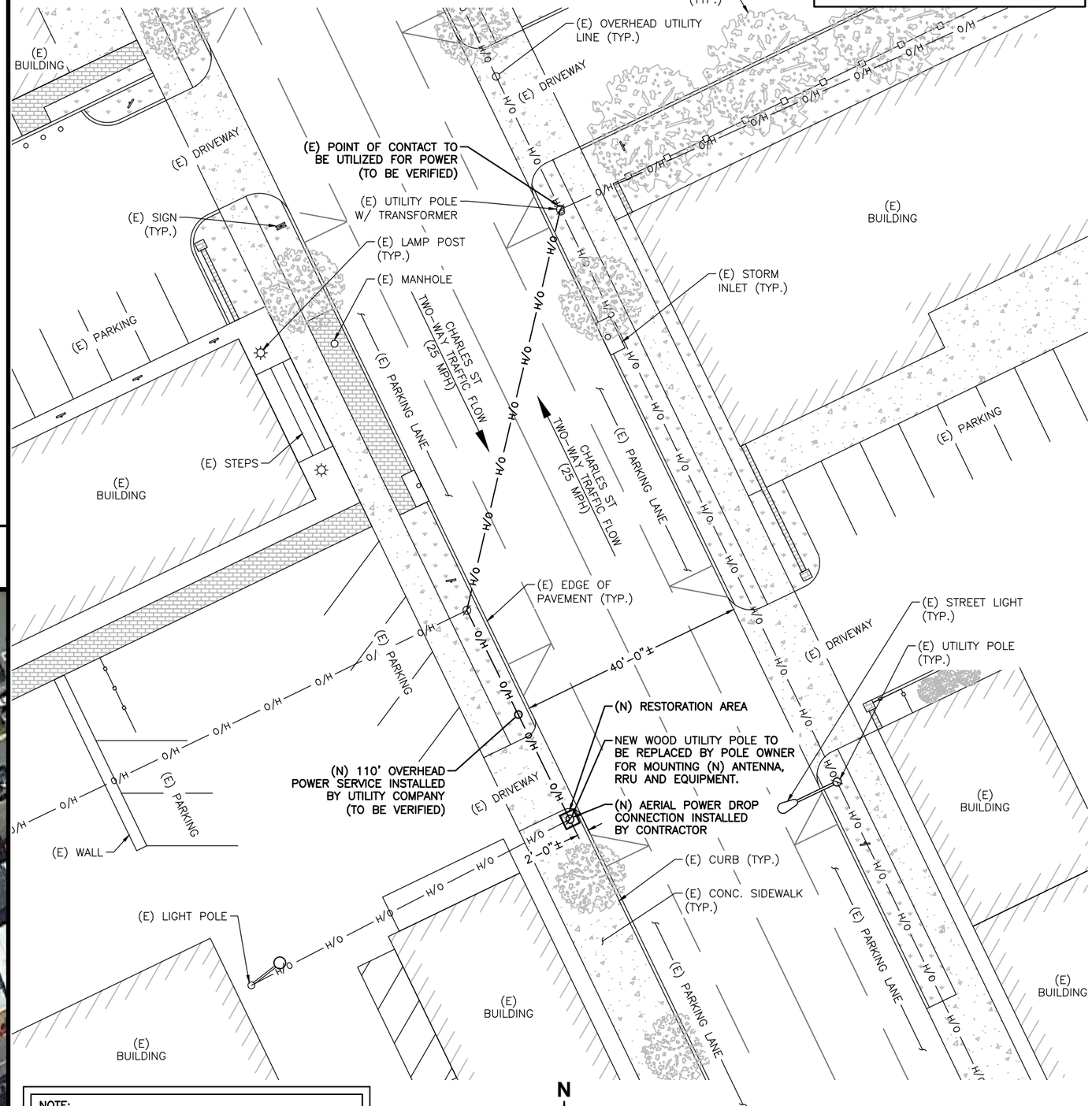
1

AERIAL SITE LOCATION

SCALE: NOT TO SCALE

2

POINT OF CONTACT FOR POWER TO BE DETERMINED PENDING UTILITY COORDINATION



NOTE:
THIS SITE PLAN WAS GENERATED WITHOUT THE USE OF A SURVEY. PROPERTY LINES, RIGHT-OF-WAYS, POWER & TELCO UTILITY POINT CONNECTIONS/ROUTES AND EASEMENTS SHOWN ON THESE PLANS ARE ESTIMATED. ALL ITEMS AND DIMENSIONS SHOULD BE VERIFIED IN THE FIELD.

ENLARGED SITE PLAN

SCALE: 1" = 20'-0" (1" = 10'-0" ON 24"x36" SHEET)

3

mobilitie
intelligent infrastructure
3475 PIEDMONT ROAD NE
SUITE 1000
ATLANTA, GEORGIA 30305
PHONE; (312) 638-5400

WW&A
warren williams & associates
736 CARNEROS CIRCLE
HIGH POINT NC, 27265

PROJECT NUMBER:	XXXX
DRAWN BY:	SB
CHECKED BY:	WW

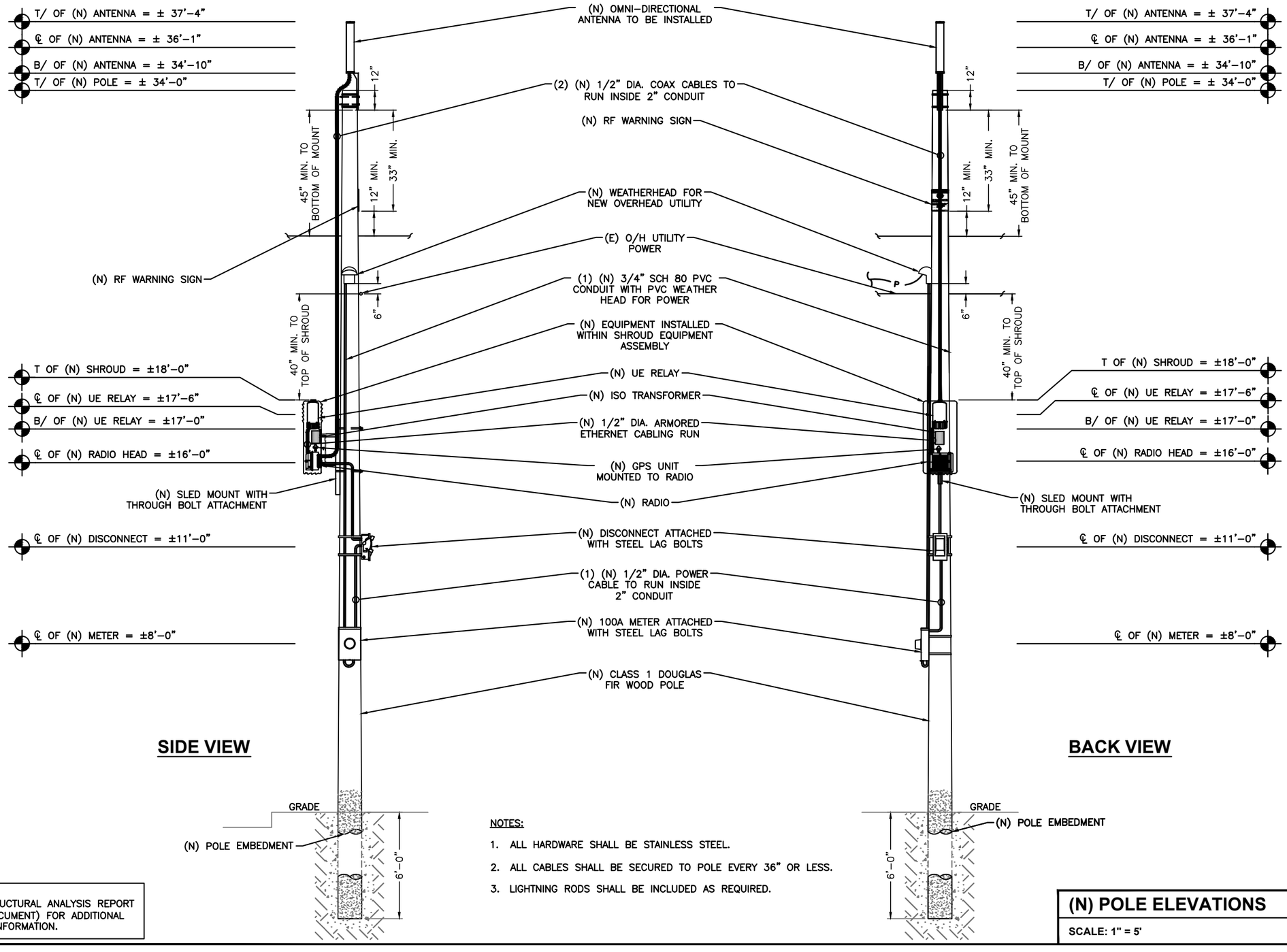
0	02-20-18	FINAL CDs

SEAL:
COMMONWEALTH OF VIRGINIA
O. WARREN WILLIAMS, JR.
Lic. No. 37030
PROFESSIONAL ENGINEER
SIGNATURE

WA90XSCQ0D
9VAB002275
CHARLES ST &
WILLIAM ST
FREDERICKSBURG, VA 22401
NEW WOOD UTILITY POLE

SHEET TITLE
EXHIBIT PHOTO & SITE PLAN

SHEET NUMBER
SP-1



SIDE VIEW

BACK VIEW

NOTES:

1. ALL HARDWARE SHALL BE STAINLESS STEEL.
2. ALL CABLES SHALL BE SECURED TO POLE EVERY 36" OR LESS.
3. LIGHTNING RODS SHALL BE INCLUDED AS REQUIRED.

NOTE:
REFER TO STRUCTURAL ANALYSIS REPORT (SEPARATE DOCUMENT) FOR ADDITIONAL STRUCTURAL INFORMATION.

(N) POLE ELEVATIONS

SCALE: 1" = 5'

1

mobilitie
intelligent infrastructure

3475 PIEDMONT ROAD NE
SUITE 1000
ATLANTA, GEORGIA 30305
PHONE; (312) 638-5400

WW&A
warren williams & associates

736 CARNEROS CIRCLE
HIGH POINT NC, 27265

PROJECT NUMBER:	XXXX
DRAWN BY:	SB
CHECKED BY:	WW

0	02-20-18	FINAL CDs

SEAL:

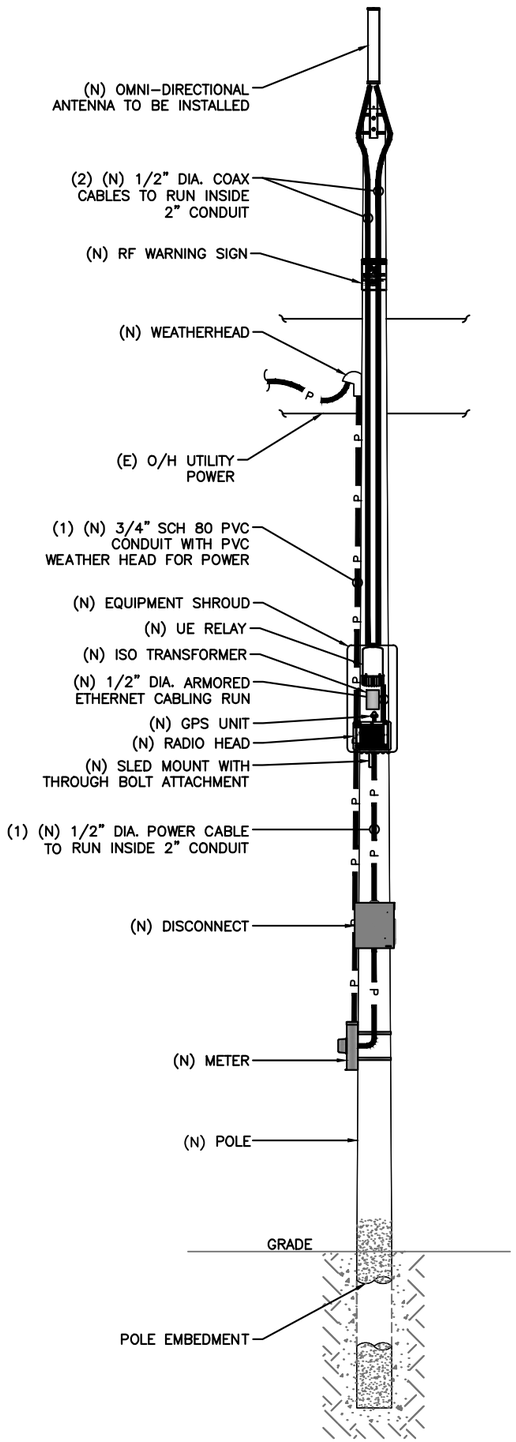
COMMONWEALTH OF VIRGINIA
O. WARREN WILLIAMS, JR.
Lic. No. 37030
PROFESSIONAL ENGINEER

SIGNATURE

WA90XSCQ0D
9VAB002275
CHARLES ST &
WILLIAM ST
FREDERICKSBURG, VA 22401
NEW WOOD UTILITY POLE

SHEET TITLE
POLE ELEVATIONS

SHEET NUMBER
EV-1



NOTE:
CABLING DIAGRAM IS FOR CLARITY OF CABLE ROUTE AND TERMINATION ONLY. CONTRACTOR SHALL INSTALL CABLES WITH MINIMAL VISUAL IMPACT ON (N) WOOD POLE. SEE ELEVATION DRAWING FOR EQUIPMENT AND ANTENNA LOCATIONS.

CABLING NOTES:

A) WOOD, CONCRETE AND EXISTING METALLIC POLES
I) FROM GRADE LINE TO 11'-0" ABOVE GRADE, ALL CABLES/CONDUCTORS EXCEPT GROUNDING CONDUCTOR MUST RUN IN RIGID GALVANIZED STEEL CONDUIT (RGS)

II) GROUNDING CONDUCTORS IN EXPOSED LOCATIONS MUST BE INSTALLED IN PVC.

III) IN EARTH INSTALL PVC CONDUIT FOR BACKHAUL AND ELECTRICAL SERVICE. TRANSITION TO RGS AT GRADE LINE.

IV) ABOVE 11'-0" ALL CABLES (POWER, ETHERNET, COAXIAL) MUST RUN IN PVC UTILITY POLE RISER.

(1) AT MAJOR EQUIPMENT, EXTEND UTILITY DUCT IMMEDIATELY ADJACENT TO THE EQUIPMENT. INSTALL CABLES IN THE UTILITY POLE RISER CREATING CABLE DRIP LOOPS NOT LESS THAN THE CABLE BENDING RADIUS.

(2) INSIDE THE UTILITY POLE RISER, UTILIZE ½" COAX BLOCKS WITH LAG SCREWS TO SUPPORT COAX, RADIO AND MW POWER, RF COAX, AND ETHERNET CABLES TO WITHIN 12" OF THE EQUIPMENT BEING SERVED AND ON INTERVALS NOT TO EXCEED 4'.

V) FOR UNDERGROUND HFC/PUBLIC BACKHAUL, ROUTE ETHERNET CABLE IN CONDUIT UP THE POLE AND ENTER THE UTILITY POLE RISER. SEAL EXPOSED END OF CONDUIT WITH A CABLE TERMINATION FITTING.

VI) BY APPROVAL IN SELECT CASES LIQUID-TIGHT FLEXIBLE METALLIC CONDUIT (LFMC) MAY BE USED IN LENGTHS NOT TO EXCEED 36" TO EXTEND THE ELECTRICAL SERVICE CONDUIT TO THE AC DISTRIBUTION BOX. EXAMPLE: UTILITY-REQUIRED DISCONNECT ON POLE W/ AC DISTRIBUTION BOX ON OPPOSITE SIDE OF POLE. NOT REQUIRED FOR COAX.

B) NEW METALLIC POLES

I) PROCURE NEW POLES WITH SUITABLE HAND HOLES SUCH THAT HAND HOLES EXIST AT ALL EQUIPMENT LOCATIONS.

II) WHERE REQUIRED, INSTALL POLE BASE SUCH THAT THE ELECTRICAL FEED AND BACKHAUL (IF UNDERGROUND) CIRCUIT ENTER THE POLE THROUGH THE POLE BASE.

PLUMBING DIAGRAM

SCALE: NOT TO SCALE

1

BILL OF MATERIALS

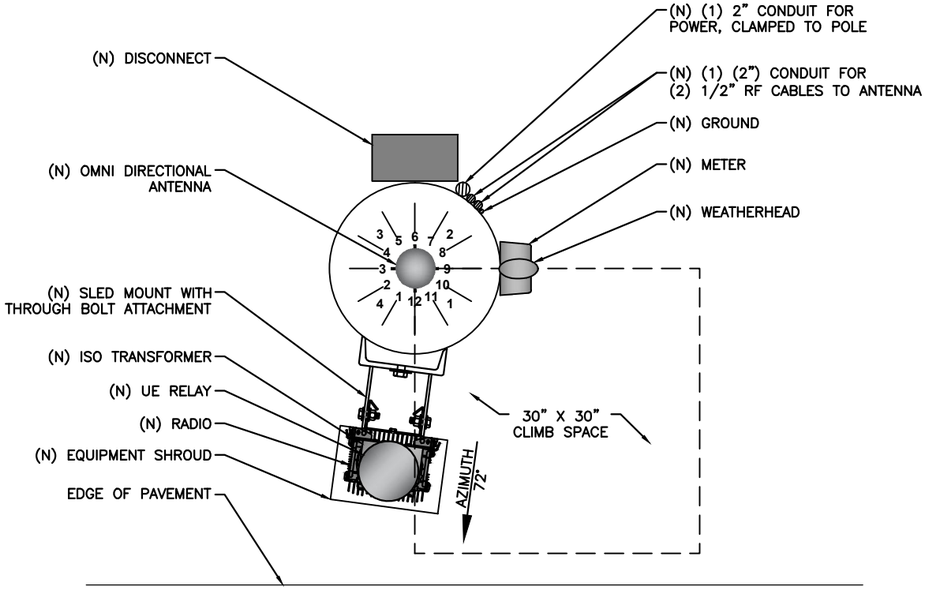
QTY.	DESCRIPTION	MANUFACTURER	MODEL NUMBER	AZIMUTH	CABLE	DIMENSIONS (HxWxD)	WEIGHT
1	ANTENNA	ALPHA WIRELESS	AW3477-S	0°	18'±	30.7" X 4.7" DIAMETER	7 LBS
1	UE RELAY	AIRSPAN	iR460-SPB-ST-1-P-0	72°	3'±	13" X 7" DIAMETER	8.8 LBS
–	–	–	–	–	–	–	–
1	GPS	NOKIA	FAWD/472932A	–	–	3.1" X 2.4" DIAMETER	0.3 LBS
1	RADIO	NOKIA	FWHR B41 HP	–	3'±	9.7" X 12.9" X 6.3"	27.3 LBS
–	MMS SHROUD ENCLOSURE	ELTEK	MMS SHROUD v1.0	–	–	35.6" X 15.5" X 9.0"	45 LBS
–	–	–	–	–	–	–	–
1	NEMA TYPE-3R DISCONNECT	SIEMENS	GF222NR	–	1'±	15.45" X 8.7" X 5.95"	14 LBS
1	METER SOCKET	MILBANK	U4801-XL-5T9	–	136'±	19" X 13" X 4.84"	21 LBS

RFDS REVISION TYPE:	NOT FINAL
RFDS REVISION NUMBER:	N/A
RFDS REVISION TIMESTAMP:	N/A

BILL OF MATERIALS

SCALE: NOT TO SCALE

2



ANTENNA AZIMUTH: 0°
UE RELAY AZIMUTH: 72°

RISER ORIENTATION DIAGRAM

SCALE: NOT TO SCALE

3

mobilitie
intelligent infrastructure
3475 PIEDMONT ROAD NE
SUITE 1000
ATLANTA, GEORGIA 30305
PHONE; (312) 638-5400

WW&A
warren williams & associates
736 CARNEROS CIRCLE
HIGH POINT NC, 27265

PROJECT NUMBER:	XXXX
DRAWN BY:	SB
CHECKED BY:	WW

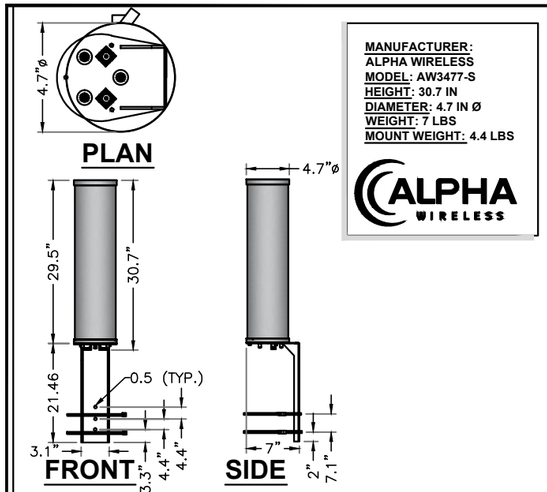
0	02-20-18	FINAL CDs

SEAL:
COMMONWEALTH OF VIRGINIA
O. WARREN WILLIAMS, JR.
Lic. No. 37030
PROFESSIONAL ENGINEER
SIGNATURE

WA90XSCQ0D
9VAB002275
CHARLES ST &
WILLIAM ST
FREDERICKSBURG, VA 22401
NEW WOOD UTILITY POLE

SHEET TITLE
PLUMBING & RISER DIAGRAM

SHEET NUMBER
PL-1

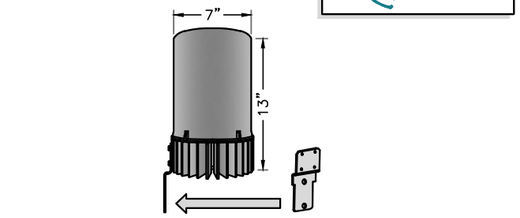


MANUFACTURER: ALPHA WIRELESS
MODEL: AW3477-S
HEIGHT: 30.7 IN
DIAMETER: 4.7 IN Ø
WEIGHT: 7 LBS
MOUNT WEIGHT: 4.4 LBS

ALPHA WIRELESS

ALPHA AW3477-S OMNI (B41)

SCALE N.T.S. | 1



MANUFACTURER: AIRSPAN
MODEL: IR460-SPB-ST-1-P-0
(OR APPROVED EQUAL)
HEIGHT: 13 IN
DIAMETER: 7 INØ
WEIGHT: 8.8 LBS

Airspan

UE RELAY iR460-SPB-ST-1-P-0

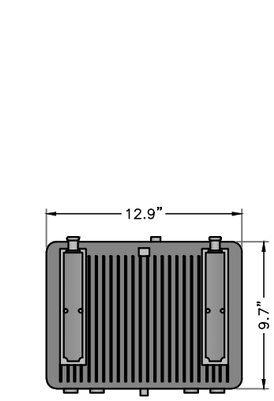
SCALE N.T.S. | 4

NOT USED

SCALE N.T.S. | 7

NOT USED

SCALE N.T.S. | 10

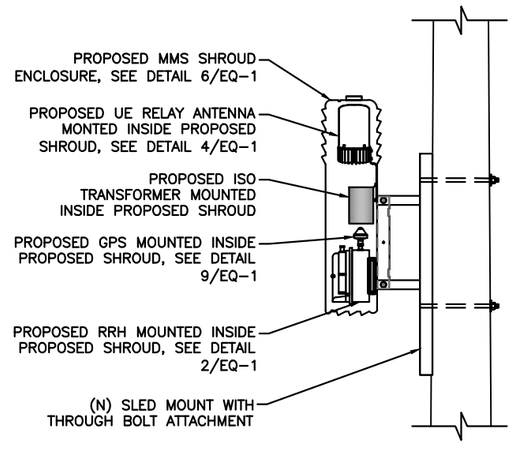


MANUFACTURER: NOKIA
MODEL: FWHR B41 HP
(473548A/473603A/473604A)
(OR APPROVED EQUAL)
HEIGHT: 9.7 IN
WIDTH: 12.9 IN
DEPTH: 6.3 IN
WEIGHT: 27.3 LBS

NOKIA

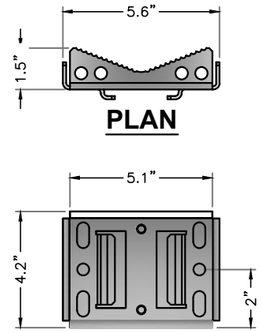
NOKIA RADIO FWHR B41 HP

SCALE N.T.S. | 2



SHROUD CUT-AWAY DETAIL

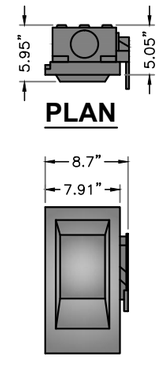
SCALE N.T.S. | 5



DETAIL A

iR460 FLUSH MOUNT

SCALE N.T.S. | 8



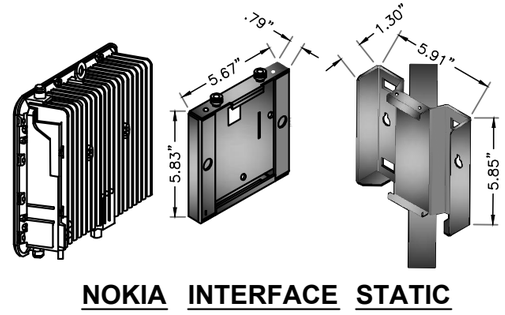
MANUFACTURER: SIEMENS
MODEL: GF222NR
TYPE-3R DISCONNECT
(OR APPROVED EQUAL)
HEIGHT: 15.45 IN
WIDTH: 8.7 IN
DEPTH: 5.95 IN
WEIGHT: 14 LBS

SIEMENS

NOTE:
EXAMPLE SHOWN MAY NOT BE TYPICAL MODEL, SELECT AS PER LOCAL REQUIREMENTS

NEMA TYPE-3R DISCONNECT

SCALE N.T.S. | 11

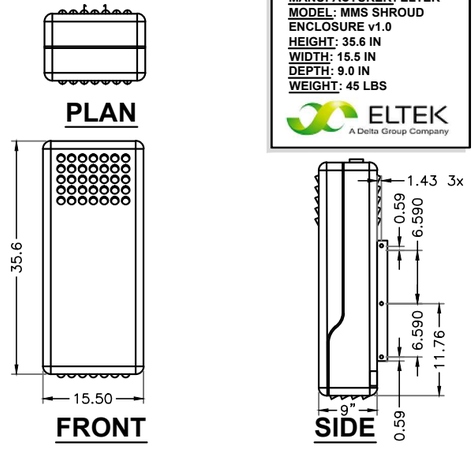


MANUFACTURER: NOKIA
MODEL: FMWA / 472858A
HEIGHT: 5.83 IN
WIDTH: 5.91 IN
DEPTH: 0.79 IN
WEIGHT: 2.2 LBS

NOKIA

NOKIA RADIO MOUNT

SCALE N.T.S. | 3

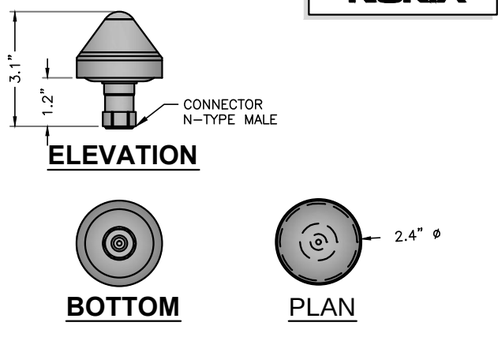


MANUFACTURER: ELTEK
MODEL: MMS SHROUD ENCLOSURE v1.0
HEIGHT: 35.6 IN
WIDTH: 15.5 IN
DEPTH: 9.0 IN
WEIGHT: 45 LBS

ELTEK
A Delta Group Company

MMS SHROUD v1.0

SCALE N.T.S. | 6

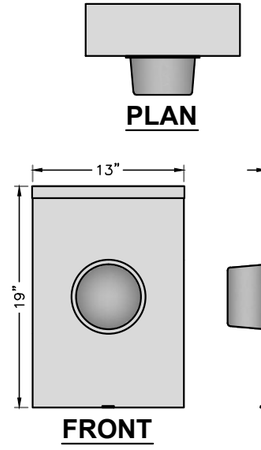


MANUFACTURER: NOKIA
MODEL: FAWD / 472932A
HEIGHT: 3.1 IN
DIAMETER: 2.4 IN Ø

NOKIA

NOKIA GPS UNIT

SCALE N.T.S. | 9



MANUFACTURER: MILBANK
MODEL: U4801-XL-5T9
(OR APPROVED EQUAL)
HEIGHT: 19 IN
WIDTH: 13 IN
DEPTH: 4.84 IN
WEIGHT: 21 LBS

NOTE:
EXAMPLE SHOWN MAY NOT BE TYPICAL MODEL, SELECT AS PER LOCAL REQUIREMENTS

MILBANK METER SOCKET

SCALE N.T.S. | 12

mobilitie
intelligent infrastructure
3475 PIEDMONT ROAD NE
SUITE 1000
ATLANTA, GEORGIA 30305
PHONE; (312) 638-5400

WW&A
warren williams & associates
736 CARNEROS CIRCLE
HIGH POINT NC, 27265

PROJECT NUMBER:	XXXX
DRAWN BY:	SB
CHECKED BY:	WW

0	02–20–18	FINAL CDs

SEAL:
COMMONWEALTH OF VIRGINIA
O. WARREN WILLIAMS, JR.
Lic. No. 37030
PROFESSIONAL ENGINEER

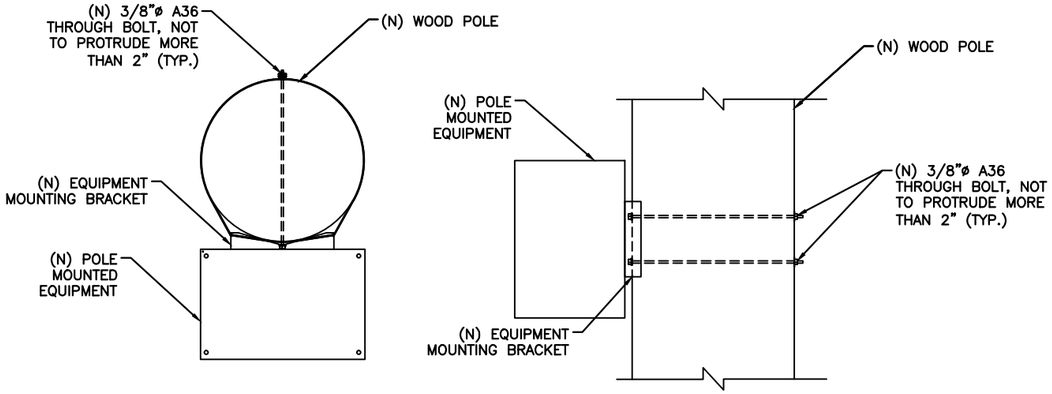
SIGNATURE

WA90XSCQ0D
9VAB002275
CHARLES ST &
WILLIAM ST
FREDERICKSBURG, VA 22401
NEW WOOD UTILITY POLE

SHEET TITLE
EQUIPMENT DETAILS

SHEET NUMBER
EQ-1

NOTE:
INSTALL BRACKETS WITH STAINLESS STEEL BANDING.

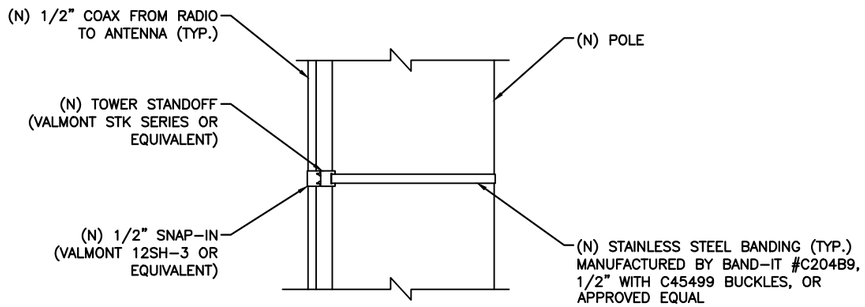


TOP VIEW **SIDE VIEW**

EQUIPMENT MOUNTING DETAIL

SCALE: NOT TO SCALE

1

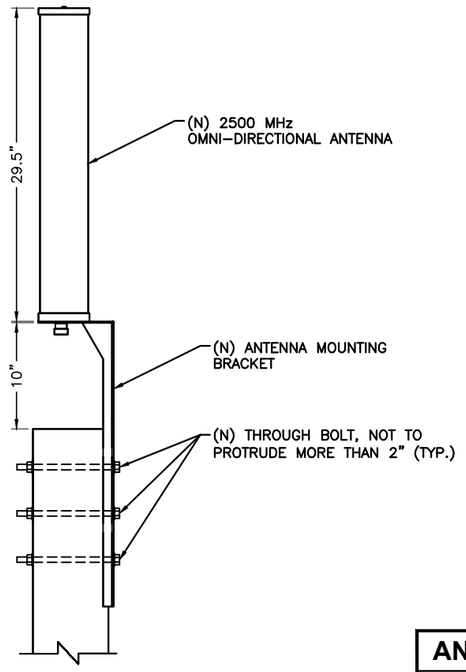


NOTE:
SPACE SNAP-INS PER CABLE MANUFACTURER'S SPECIFICATIONS

CABLE MOUNTING DETAIL

SCALE: NOT TO SCALE

2



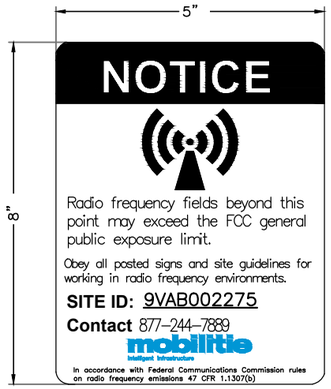
NOTE:

1. MOUNTING BRACKET ACCOMMODATES POLE SIZES FROM 3" TO 10" DIAMETER.
2. JACOBS HAS NOT PERFORMED A STRUCTURAL EVALUATION FOR THE MOUNTING BRACKET. REFER TO THE MANUFACTURER FOR ADDITIONAL INFORMATION.

ANTENNA MOUNTING DETAIL

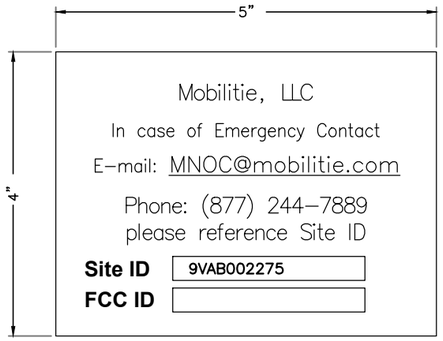
SCALE: NOT TO SCALE

3



ANTENNA SIGNAGE:
ON WOOD POLES – SIGN ON ALUMINUM WITH SS SCREW TO THE POLE
ON METAL POLES – ADHESIVE VINYL OR PLACARD STRAPPED WITH SS TIES
ON CONCRETE / COMPOSITE – PLACARD STRAPPED WITH SS TIES
SIGN PLACEMENT:
AFFIX TO THE STRUCTURE 3-4' BELOW THE COMMERCIAL RF ANTENNA(S)
SIZE APPROX. 8" x 5"

ANTENNA SIGNAGE



OWNER / OPERATOR NOTE:
SITE ID LABEL TO BE AFFIXED AT OR NEAR THE POINT OF POWER CONNECTION WITH TZeS241 LABELING TAPE OR EQUIVALENT BLACK ON WHITE LABELING TAPE OF AT LEAST 18mm WIDTH WITH EXTRA-STRENGTH ADHESIVE. USE ANY COMPATIBLE P-TOUCH LABEL MAKER. TEXT SHOULD BE PRINTED IN ALL CAPS WITH A MINIMUM HEIGHT OF 1/2".

EMERGENCY CONTACT SIGN

POLE MOUNTED SIGNS

SCALE: NOT TO SCALE

4

mobilitie
intelligent infrastructure
3475 PIEDMONT ROAD NE
SUITE 1000
ATLANTA, GEORGIA 30305
PHONE; (312) 638-5400

WW&A
warren williams & associates
736 CARNEROS CIRCLE
HIGH POINT NC, 27265

PROJECT NUMBER:	XXXX
DRAWN BY:	SB
CHECKED BY:	WW

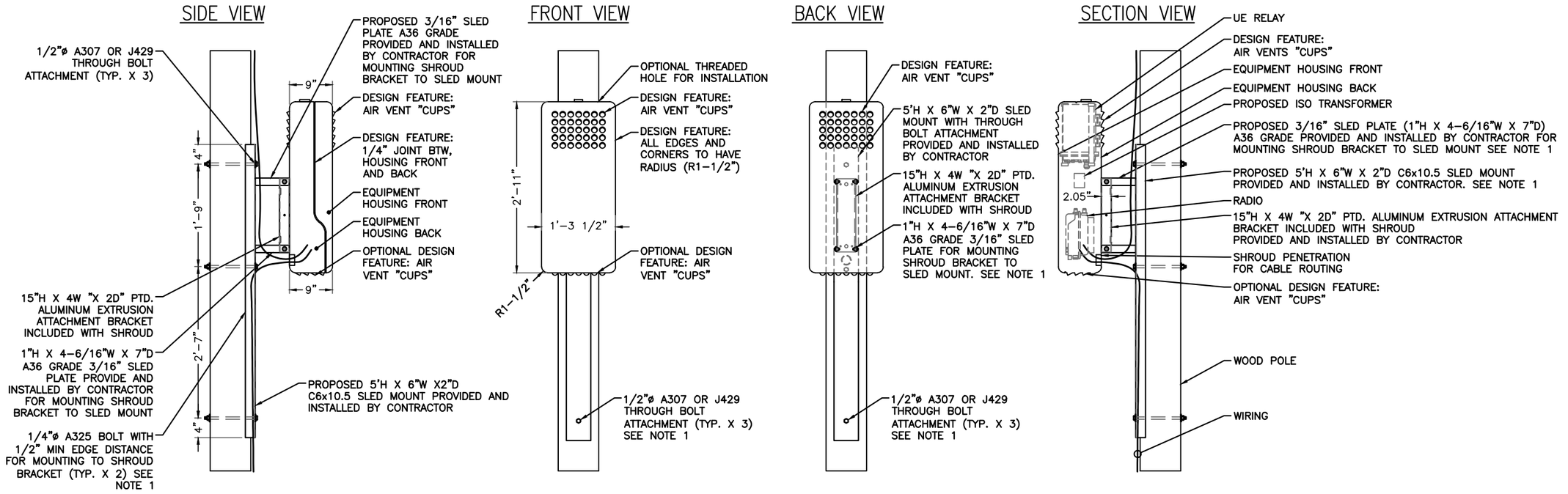
0	02-20-18	FINAL CDs

SEAL:
COMMONWEALTH OF VIRGINIA
O. WARREN WILLIAMS, JR.
Lic. No. 37030
PROFESSIONAL ENGINEER
SIGNATURE

WA90XSCQ0D
9VAB002275
CHARLES ST &
WILLIAM ST
FREDERICKSBURG, VA 22401
NEW WOOD UTILITY POLE

SHEET TITLE
EQUIPMENT DETAILS

SHEET NUMBER
EQ-2



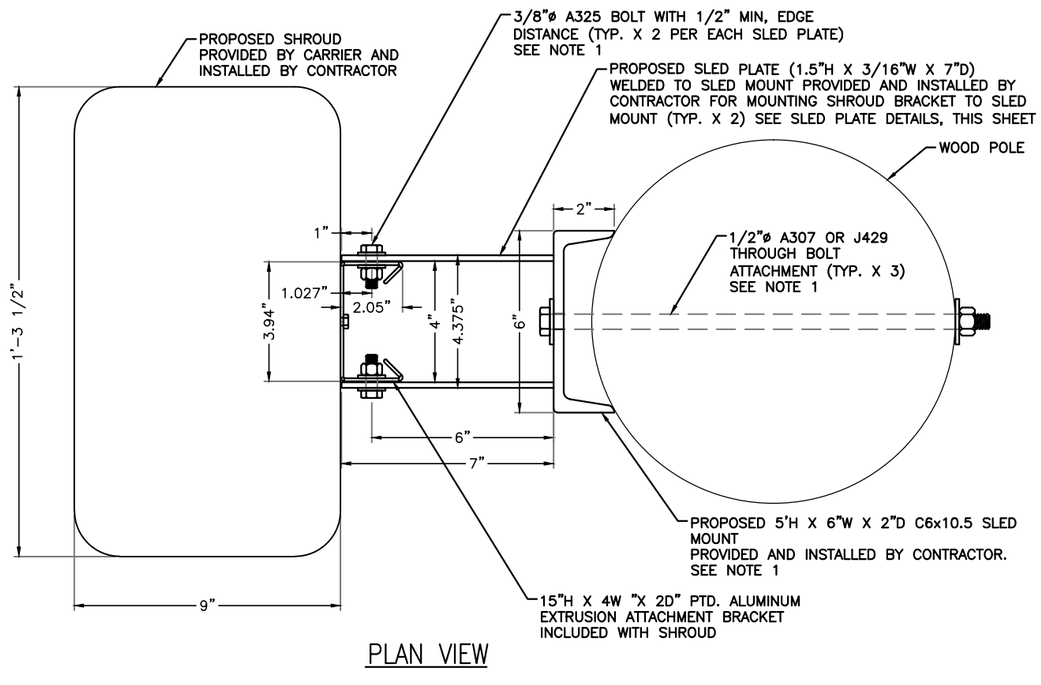
NOTE:

1. CONTRACTOR TO DRILL HOLES IN SHROUD BRACKET TO ALIGN WITH SLED PLATE HOLES.

SHROUD MOUNTING DETAILS

SCALE: NOT TO SCALE

1



PLAN VIEW

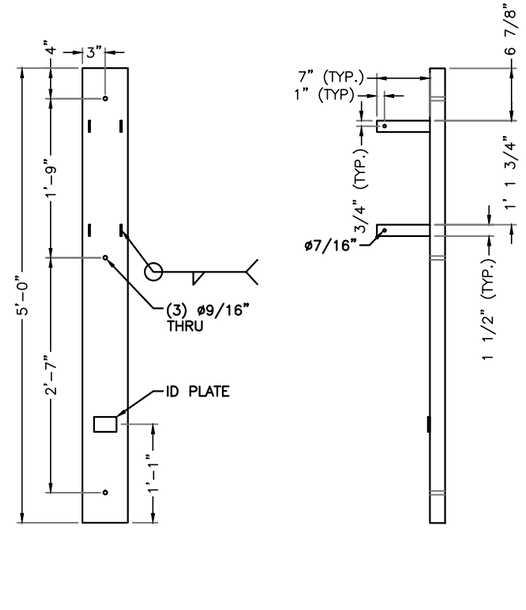
NOTE:

1. CONTRACTOR TO DRILL HOLES IN SHROUD BRACKET TO ALIGN WITH SLED PLATE HOLES.

OVERALL SHROUD MOUNTING DETAILS

SCALE: NOT TO SCALE

2



NOTE:

1. CONTRACTOR TO DRILL HOLES IN SHROUD BRACKET TO ALIGN WITH SLED PLATE HOLES.

SLED DETAILS

SCALE: NOT TO SCALE

3

mobilitie
intelligent infrastructure
3475 PIEDMONT ROAD NE
SUITE 1000
ATLANTA, GEORGIA 30305
PHONE; (312) 638-5400

WW&A
warren williams & associates
736 CARNEROS CIRCLE
HIGH POINT NC, 27265

PROJECT NUMBER:	XXXX
DRAWN BY:	SB
CHECKED BY:	WW

0	02-20-18	FINAL CDs

SEAL:

COMMONWEALTH OF VIRGINIA
O. WARREN WILLIAMS, JR.
Lic. No. 37030
PROFESSIONAL ENGINEER

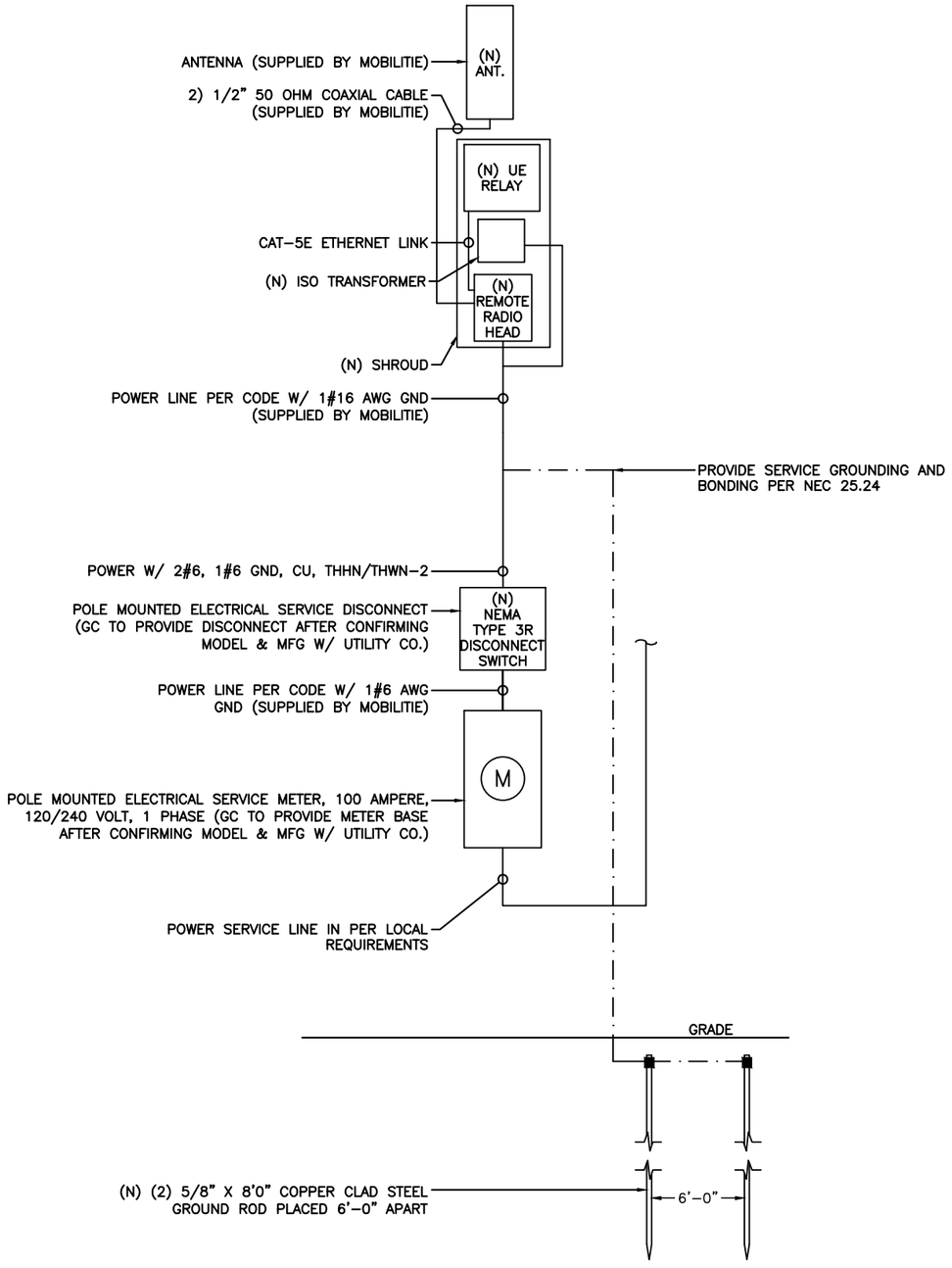
SIGNATURE

IT IS A VIOLATION OF THE LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT

WA90XSCQ0D
9VAB002275
CHARLES ST &
WILLIAM ST
FREDERICKSBURG, VA 22401
NEW WOOD UTILITY POLE

SHEET TITLE
EQUIPMENT DETAILS

SHEET NUMBER
EQ-3



ONE-LINE DIAGRAM

SCALE: NOT TO SCALE

1

NOTES:

1. NOMINAL POWER IS CALCULATED AS 80% OF OEM DOCUMENTED MAXIMUM POWER.
2. CALCULATIONS FOR UE W/ NOKIA DO NOT NEED TO INCLUDE THE POWER FOR THE UE ANTENNA AS IT IS INCLUDED IN THE MAX POWER FIGURE. CALCULATIONS FOR UE W/ AIRSPAN MUST INCLUDE UE AS IT IS NOT INCLUDED
3. KVA IS CALCULATED FROM THE CONSUMPTION VALUE ASSUMING A PF=1. MAXIMUM POWER WAS USED FOR KVA. WHERE MAXIMUM WAS NOTED BY THE OEM THE QUOTED FIGURE WAS USED. WHERE AVERAGE/NOMINAL POWER WAS NOTED BY THE OEM MAXIMUM POWER WAS CALCULATED BY INCREASING AVERAGE/NOMINAL POWER BY A FACTOR OF 50%

Nokia Scenario 5 B41 High Power Radio and Aispan UE Backhaul

Unit	Sub Description	Max Power (W)	Max Current (A)	KVA	kWh/Yr
NSN - B41 High	LTE Base Station	360	4.00	0.36	3153.6
Airspan IR460	UE Relay	N/A	N/A	N/A	N/A
Total		**360**	**4.00**	**0.36**	**3153.6**

LOAD CALCULATIONS

SCALE: NOT TO SCALE

3

mobilitie
intelligent infrastructure
3475 PIEDMONT ROAD NE
SUITE 1000
ATLANTA, GEORGIA 30305
PHONE; (312) 638-5400

WW&A
warren williams & associates
736 CARNEROS CIRCLE
HIGH POINT NC, 27265

PROJECT NUMBER:	XXXX
DRAWN BY:	SB
CHECKED BY:	WW

0	02-20-18	FINAL CDs

SEAL:

COMMONWEALTH OF VIRGINIA
O. WARREN WILLIAMS, JR.
Lic. No. 37030
PROFESSIONAL ENGINEER

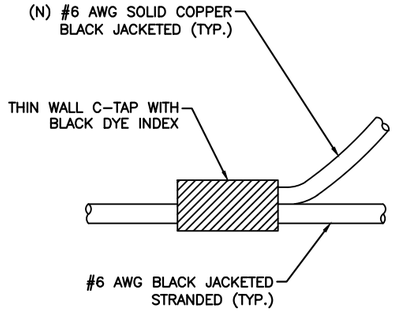
SIGNATURE

WA90XSCQ0D
9VAB002275
CHARLES ST &
WILLIAM ST
FREDERICKSBURG, VA 22401
NEW WOOD UTILITY POLE

SHEET TITLE
ELECTRICAL DETAILS

SHEET NUMBER
E-1

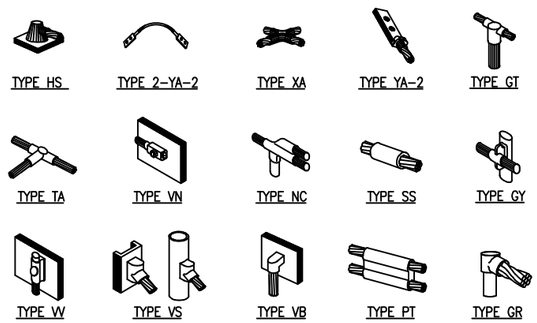
NOTE:
CONTRACTOR TO SURROUND COMPLETED CONNECTION WITH HEAT–SHRINK TUBING TO ENSURE WEATHER PROOF CONNECTION



C-TAP DETAIL

SCALE: NOT TO SCALE

1



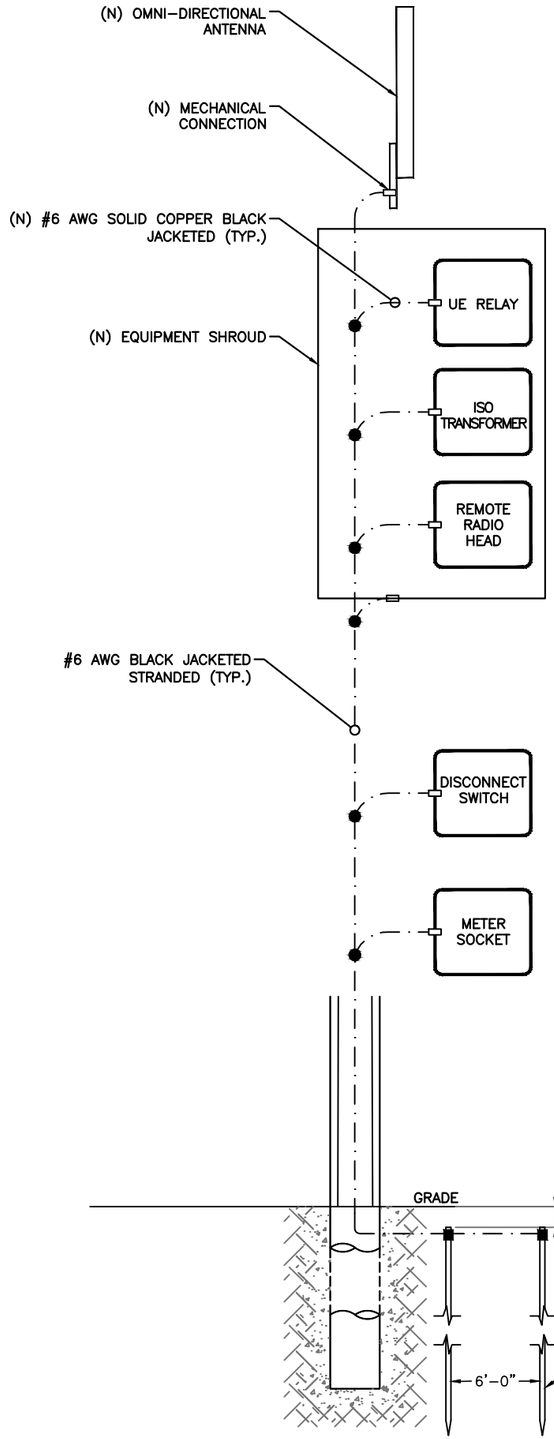
NOTE:

ERICO EXOTHERMIC "MOLD TYPES" SHOWN HERE ARE EXAMPLES. CONSULT WITH PROJECT MANAGER FOR SPECIFIC MOLDS TO BE USED FOR THIS PROJECT.

WELD CONNECTION DETAILS

SCALE: NOT TO SCALE

2



LEGEND
- ■ CADWELD CONNECTION
- ▭ MECHANICAL CONNECTION
- ● COMPRESSION CONNECTION

NOTE:
GROUNDING RISER FOR DIAGRAMMATIC PURPOSES ONLY. SEE ELEVATION DRAWING FOR EQUIPMENT AND ANTENNA LOCATIONS.

NOTES:

1. ALL RGS TO BE GROUNDED AT BOTH ENDS USING GROUNDING BUSHINGS
2. GROUND WIRE TO BE RUN IN 1/2" SCHEDULE 40 PVC.

GROUNDING RISER DIAGRAM

SCALE: NOT TO SCALE

3

mobilitie
intelligent infrastructure
3475 PIEDMONT ROAD NE
SUITE 1000
ATLANTA, GEORGIA 30305
PHONE; (312) 638-5400

WW&A
warren williams & associates
736 CARNEROS CIRCLE
HIGH POINT NC, 27265

PROJECT NUMBER:	XXXX
DRAWN BY:	SB
CHECKED BY:	WW

0	02–20–18	FINAL CDs

SEAL:
COMMONWEALTH OF VIRGINIA
O. WARREN WILLIAMS, JR.
Lic. No. 37030
PROFESSIONAL ENGINEER
SIGNATURE

WA90XSCQ0D
9VAB002275
CHARLES ST &
WILLIAM ST
FREDERICKSBURG, VA 22401
NEW WOOD UTILITY POLE

SHEET TITLE
GROUNDING DETAILS

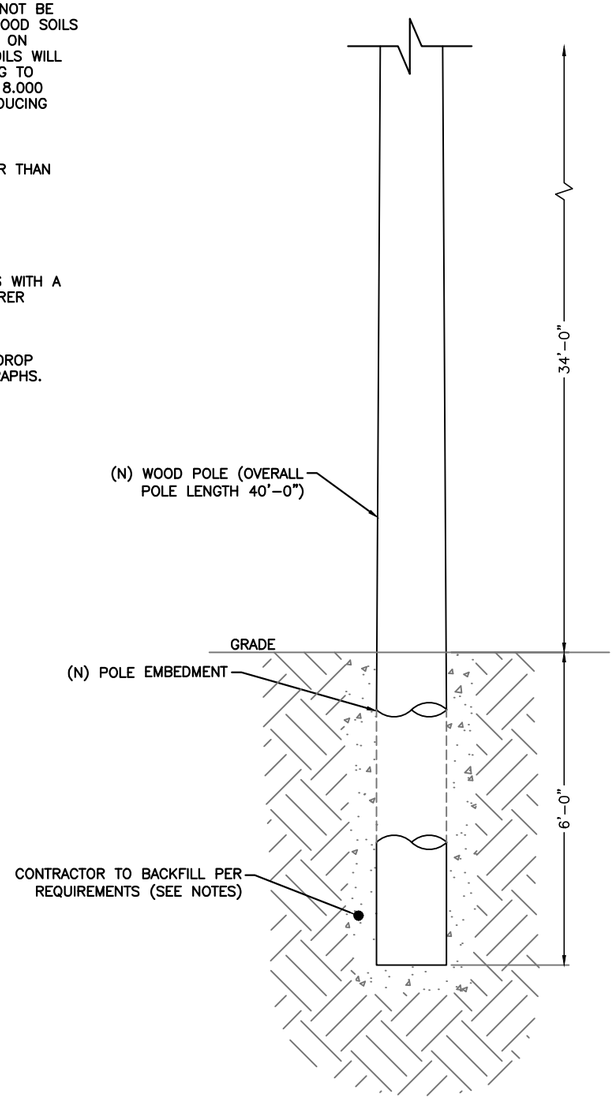
SHEET NUMBER
G-1

GENERAL CONSTRUCTION NOTES:

1. PRIOR TO ANY CONSTRUCTION WORK, CONTRACTOR SHALL LOCATE ALL UNDERGROUND UTILITIES. ALL UTILITIES SHALL BE MARKED.
2. BACKFILL OF THE POLES SHALL BE PERFORMED BASED ON THE WATER TABLE. FLOWABLE FILL MIXTURES PURCHASED FROM CONCRETE PLANTS WILL BE USED INSTEAD OF FOAM IN WATER TABLE AREAS.
   - A: NORMAL SOILS ORDER OF PREFERENCE – FOAM, FLOWABLE FILL, CONCRETE, COMPACTED AGGREGATES
   - B: HIGH WATER TABLE SOILS ORDER OF PREFERENCES – FLOWABLE FILL, CONCRETE, COMPACTED AGGREGATES.
3. NON–NATIVE SOILS SHALL BE REMOVED FROM BORE AREA AND SHALL NOT BE REUSED FOR BACKFILL. EMBED DEPTHS SHOWN ARE GENERALLY FOR GOOD SOILS AND UTILITY WOOD POLES. EMBED DEPTHS SHALL BE ADJUSTED BASED ON ACTUAL SOIL CONDITIONS AND FINAL POLE CLASS SELECTION. POOR SOILS WILL REQUIRE DEEPER EMBEDS. SOIL CONDITIONS ARE CLASSIFIED ACCORDING TO BEARING CAPACITY: "POOR": 0 TO 2,500 PSI, "AVERAGE": 2,501 PSI TO 8.000 PSI, "GOOD": GREATER THAN 8,000 PSI. GUYING IS AN OPTION FOR REDUCING EMBED DEPTHS BUT REQUIRES MOBILITIE CM WRITTEN APPROVAL.
4. FOUNDATION HOLE SHALL BE EXCAVATED TO A MINIMUM OF 12" LARGER THAN POLE BASE DIAMETER TO ALLOW FOR SUITABLE BACKFILL PLACEMENT.
5. REMOVE EXCESS WATER FROM HOLE BEFORE INSTALLING POLE.
6. CONTRACTOR SHALL PREPARE LIFT PLANS FOR POLE SETTING ACTIVITIES WITH A BOOM TRUCK OR CRANE. ATTACH LIFTING SLING PER POLE MANUFACTURER RECOMMENDATIONS.
7. IF REQUIRED BY MOBILITIE CM, CONTRACTOR SHALL PERFORM A TAPE DROP MEASUREMENT OF EXCAVATED HOLE AND WITNESS DROP WITH PHOTOGRAPHS.

NOTE:
SEE GN–3 FOUNDATION, EXCAVATION AND BACKFILL FOR ADDITIONAL NOTES.

NOTE:
REFER TO STRUCTURAL ANALYSIS REPORT (SEPARATE DOCUMENT) FOR ADDITIONAL STRUCTURAL INFORMATION.



CLASS 1 POLE DIAMETER TABLE		
OVERALL POLE LENGTH	DIAMETER SIX FEET FROM BUTT	MIN. CIRC. SIX FEET FROM BUTT
20'–0"	9.9"	31.0"
25'–0"	10.7"	33.5"
30'–0"	11.6"	36.5"
35'–0"	12.4"	39.0"
40'–0"	13.1"	41.0"
45'–0"	13.7"	43.0"
50'–0"	14.3"	45.0"
55'–0"	14.8"	46.5"
60'–0"	15.3"	48.0"
65'–0"	15.8"	49.5"
70'–0"	16.2"	51.0"
75'–0"	16.7"	52.5"
80'–0"	17.2"	54.0"
85'–0"	17.8"	55.0"
90'–0"	17.8"	56.0"

NOTE:
FOR OVERALL POLE LENGTHS BETWEEN TWO VALUES, SELECT THE HIGHER POLE ON TABLE.

FOAM TABLE

Pole Diameter (Inches)	Hole Depth (Feet) 4	5	6	7	8	9	10
8" Hole Diameter							
5.0	1	1					
6.2	1	1					
18" Hole Diameter							
7.0	6	8	9	11	12	13	15
8.0	6	7	9	10	12	12	14
9.0	6	7	8	9	11	12	13
10.0	5	6	8	9	9	11	12
11.0	5	6	7	8	9	10	11
12.0	4	5	6	7	8	9	10
13.0	4	4	5	6	7	7	9
14.0	3	4	4	5	6	6	7
15.0	2	3	4	4	5	5	6
16.0	2	2	2	3	3	3	4
24" Hole Diameter							
12.0	10	12	14	17	19	20	24
13.0	9	11	14	16	18	19	22
14.0	9	11	13	15	17	18	21
15.0	8	10	12	14	16	17	19
16.0	7	9	11	12	14	15	18
17.0	7	8	10	11	13	14	16
18.0	6	7	9	10	11	12	14
19.0	5	6	7	9	10	10	12
20.0	4	5	6	7	8	8	10
22.0	2	3	3	4	3	5	5
36" Hole Diameter							
18.0			32	37	43	45	53
20.0			30	34	39	42	49
22.0			27	31	36	38	44
24.0			24	28	32	34	39
26.0			21	24	27	29	33
28.0			17	20	23	24	27
30.0			13	15	18	19	21
32.0			9	11	12	13	15
34.0			5	6	6	7	7

	Hole Depth (Feet)						
48" Hole Diameter	7	8	9	10	11	12	14
36.0	39	44	47	55	61	66	77
38.0	33	38	40	47	52	56	66
40.0	27	31	33	39	42	46	54
42.0	21	24	25	30	33	36	41
44.0	14	16	17	20	22	24	28
46.0	8	8	9	10	12	12	15

WOOD POLE LENGTH TABLE			
OVERALL POLE LENGTH	MINIMUM EMBED (10%+2')	REQUIRED EMBED TO MEET 5' INCREMENT	POLE HEIGHT ABOVE GROUND
25'–0"	4'–6"	5'–0"	20'–0'
30'–0"	5'–0"	9'–0"	21'–0'
30'–0"	5'–0"	8'–0"	22'–0'
30'–0"	5'–0"	7'–0"	23'–0'
30'–0"	5'–0"	6'–0"	24'–0'
30'–0"	5'–0"	5'–0"	25'–0'
35'–0"	5'–6"	9'–0"	26'–0'
35'–0"	5'–6"	8'–0"	27'–0"
35'–0"	5'–6"	7'–0"	28'–0'
35'–0"	5'–6"	6'–0"	29'–0"
40'–0"	6'–0"	10'–0"	30'–0"
40'–0"	6'–0"	9'–0"	31'–0"
40'–0"	6'–0"	8'–0"	32'–0"
40'–0"	6'–0"	7'–0"	33'–0"
40'–0"	6'–0"	6'–0"	34'–0"
45'–0"	6'–6"	10'–0"	35'–0"
45'–0"	6'–6"	9'–0"	36'–0"
45'–0"	6'–6"	8'–0"	37'–0"
45'–0"	6'–6"	7'–0"	38'–0"
50'–0"	7'–0"	11'–0"	39'–0"
50'–0"	7'–0"	10'–0"	40'–0"
50'–0"	7'–0"	9'–0"	41'–0"
50'–0"	7'–0"	8'–0"	42'–0"
50'–0"	7'–0"	7'–0"	43'–0"
55'–0"	7'–6"	11'–0"	44'–0"
55'–0"	7'–6"	10'–0"	45'–0"
55'–0"	7'–6"	9'–0"	46'–0"
55'–0"	7'–6"	8'–0"	47'–0"
60'–0"	8'–0'	12'–0"	48'–0"
60'–0"	8'–0'	11'–0"	49'–0"
60'–0"	8'–0'	10'–0"	50'–0"
60'–0"	8'–0'	9'–0"	51'–0"
60'–0"	8'–0'	8'–0"	52'–0"
65'–0"	8'–6"	12'–0"	53'–0"
65'–0"	8'–6"	11'–0"	54'–0"
65'–0"	8'–6"	10'–0"	55'–0"
65'–0"	8'–6"	9'–0"	56'–0"
70'–0"	9'–0"	13'–0"	57'–0"
70'–0"	9'–0"	12'–0"	58'–0"
70'–0"	9'–0"	11'–0"	59'–0"
70'–0"	9'–0"	10'–0"	60'–0"
70'–0"	9'–0"	9'–0"	61'–0"
75'–0"	9'–6"	13'–0"	62'–0"
75'–0"	9'–6"	12'–0"	63'–0'
75'–0"	9'–6"	11'–0"	64'–0"
75'–0"	9'–6"	10'–0"	65'–0'
80'–0"	10'–0"	14'–0"	66'–0'
80'–0"	10'–0"	13'–0"	67'–0"
80'–0"	10'–0"	12'–0"	68'–0"
80'–0"	10'–0"	11'–0"	69'–0"
80'–0"	10'–0"	10'–0"	70'–0"
85'–0"	10'–6"	14'–0"	71'–0'
85'–0"	10'–6"	13'–0"	72'–0"
85'–0"	10'–6"	12'–0"	73'–0"
85'–0"	10'–6"	11'–0"	74'–0"
90'–0"	11'–0"	15'–0"	75'–0"

NOTE:
FOR ABOVE GRADE HEIGHTS BETWEEN TWO VALUES, SELECT THE HIGHER POLE ON TABLE.

POLE EMBEDMENT DETAILS

SCALE: NOT TO SCALE

1

mobilitie
intelligent infrastructure
3475 PIEDMONT ROAD NE
SUITE 1000
ATLANTA, GEORGIA 30305
PHONE; (312) 638-5400

WW&A
warren williams & associates
736 CARNEROS CIRCLE
HIGH POINT NC, 27265

PROJECT NUMBER:	XXXX
DRAWN BY:	SB
CHECKED BY:	WW

0	02–20–18	FINAL CDs

SEAL:
COMMONWEALTH OF VIRGINIA
O. WARREN WILLIAMS, JR.
Lic. No. 37030
PROFESSIONAL ENGINEER
SIGNATURE

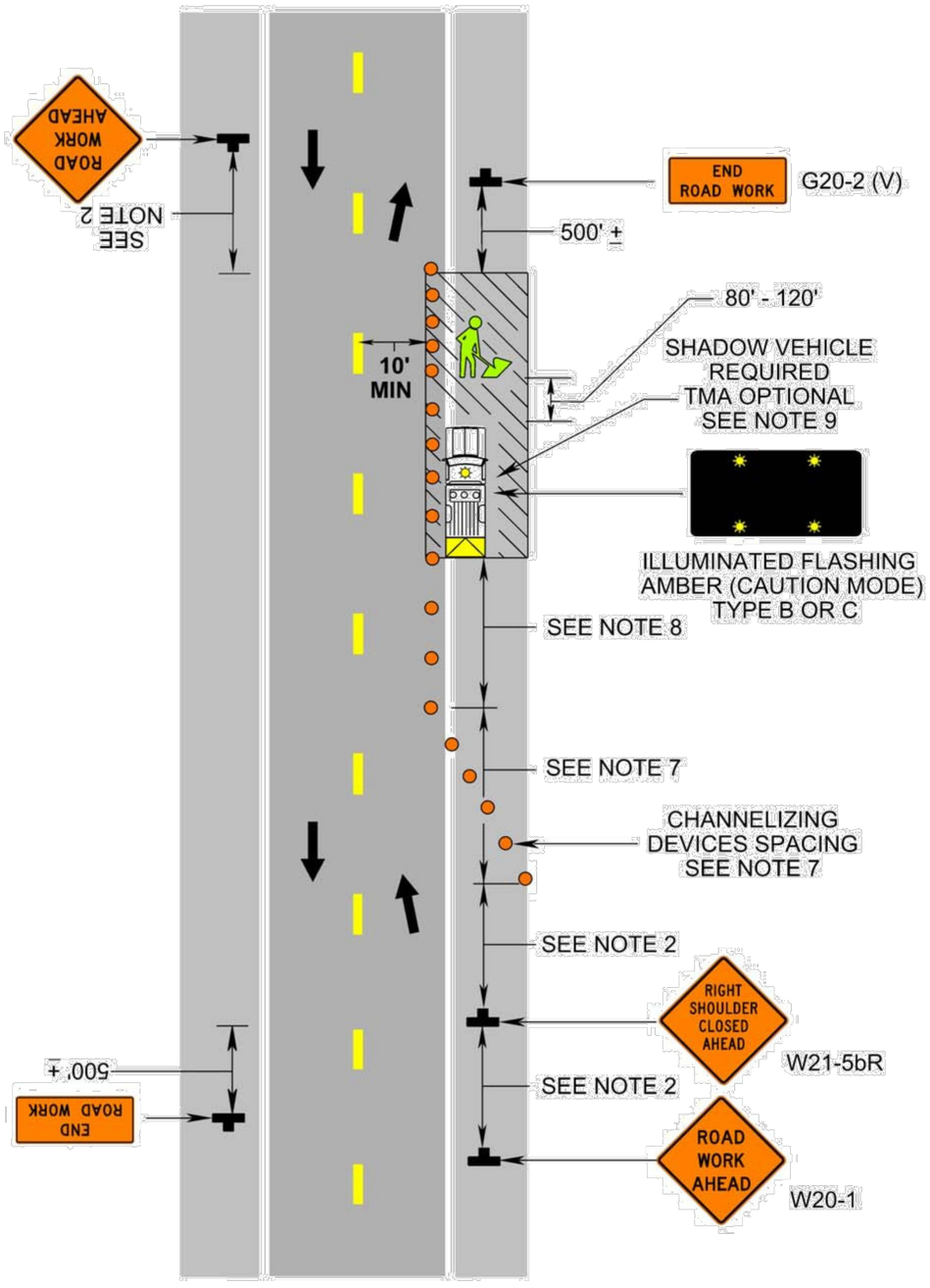
IT IS A VIOLATION OF THE LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT

WA90XSCQ0D
9VAB002275
CHARLES ST &
WILLIAM ST
FREDERICKSBURG, VA 22401
NEW WOOD UTILITY POLE

SHEET TITLE
POLE EMBEDMENT DETAILS

SHEET NUMBER
S-1

Shoulder Operation with Minor Encroachment
(Figure TTC-5.1)



Shoulder Operation with Minor Encroachment
(Figure TTC-5.1)
NOTES

Standard

1. **For required sign assemblies for multi-lane roadways see Note 1, TTC-4.[1]**

Guidance

2. *Sign spacing should be 1300'-1500' for Limited Access highways. For all other roadways, the sign spacing should be 500'-800' where the posted speed limit is greater than 45 mph, and 350'-500' where the posted speed limit is 45 mph or less.*
3. *When work takes up part of a lane on a high volume roadway; vehicular traffic volumes, vehicle mix, speed and capacity should be analyzed to determine whether the affected lane should be closed. Unless the lane encroachment analysis permits a remaining lane width of 10 feet, the lane should be closed. If the closure operation is on a Limited Access highway, the minimum lane width is 11 feet.*

Option:

4. The ROAD WORK AHEAD (W20-1) sign on an intersecting roadway may be omitted where drivers emerging from that roadway will encounter another advance warning sign prior to this activity area.

Standard:

5. **A shadow vehicle with either an arrow board operating in the caution mode, or at least one high-intensity amber rotating, flashing, or[1] oscillating light shall be parked 80' - 120' in advance of the first work crew.**
6. **Vehicle hazard warning signals shall not be used instead of the vehicle's high-intensity amber rotating, flashing, or[1] oscillating lights. Vehicle hazard warning signals can be used to supplement high-intensity amber rotating, flashing, or[1] oscillating lights.**
7. **Taper length (L) and channelizing device spacing shall be at the following:**

Taper Length (L)				
Speed Limit (mph)	Lane Width (Feet)			
	9	10	11	12
25	95	105	115	125
30	135	150	165	180
35	185	205	225	245
40	240	270	295	320
45	405	450	495	540
50	450	500	550	600
55	495	550	605	660
60	540	600	660	720
65	585	650	715	780
70	630	700	770	840
Minimum taper lengths for Limited Access highways shall be 1000 feet.				
Shoulder Taper = ⅓ L Minimum				

Channelizing Device Spacing		
Location	Speed Limit (mph)	
	0 - 35	36 +
Transition Spacing	20'	40'
Travelway Spacing	40'	80'
Construction Access*	80'	120'
* Spacing may be increased to this distance, but shall not exceed one access per ¼ mile.		

On roadways with paved shoulders having a width of 8 feet or more, channelizing devices shall be used to close the shoulder in advance of the merging taper to direct vehicular traffic to remain within the traveled way.

8. **The buffer space length shall be as shown in Table 6H-3 on Page 6H-5 for the posted speed limit.**
9. **A truck-mounted attenuator (TMA) shall be used on Limited Access highways and multi-lane roadways with posted speed limit equal to or greater than 45 mph.**
10. **When a side road intersects the highway within the temporary traffic control zone, additional traffic control devices shall be placed as needed.**

mobilitie
intelligent infrastructure
3475 PIEDMONT ROAD NE
SUITE 1000
ATLANTA, GEORGIA 30305
PHONE; (312) 638-5400

WW&A
warren williams & associates
736 CARNEROS CIRCLE
HIGH POINT NC, 27265

PROJECT NUMBER:	XXXX
DRAWN BY:	SB
CHECKED BY:	WW

0	02-20-18	FINAL CDs

SEAL:
COMMONWEALTH OF VIRGINIA
O. WARREN WILLIAMS, JR.
Lic. No. 37030
PROFESSIONAL ENGINEER
SIGNATURE

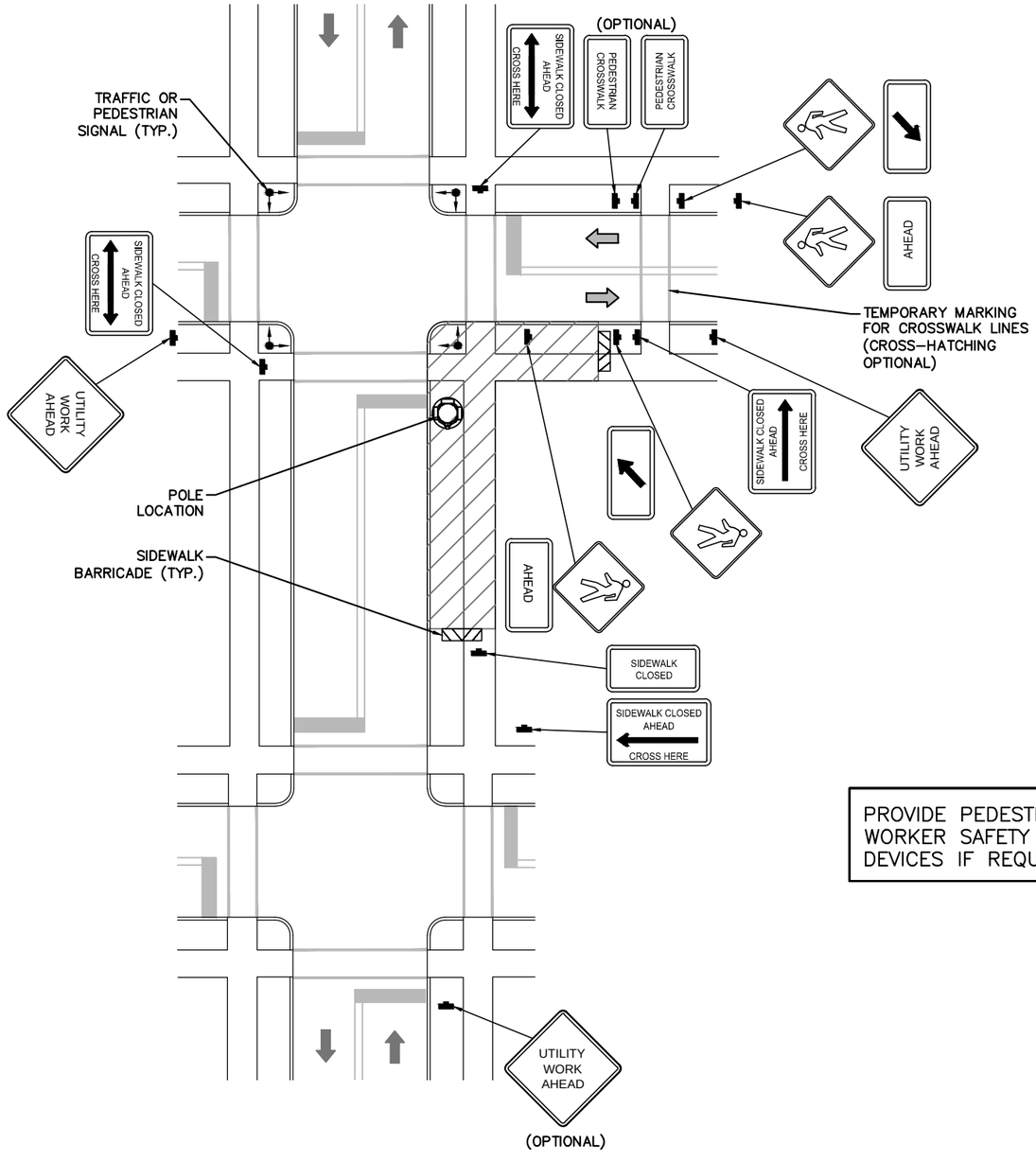
WA90XSCQ0D
9VAB002275
CHARLES ST &
WILLIAM ST
FREDERICKSBURG, VA 22401
NEW WOOD UTILITY POLE

SHEET TITLE
VEHICULAR TRAFFIC CONTROL PLAN

SHEET NUMBER
TC-1

TRAFFIC CONTROL GENERAL NOTES

1. ALL TEMPORARY TRAFFIC CONTROL SIGNAGE, LAYOUTS AND PROCEDURES SHALL COMPLY WITH LOCAL JURISDICTIONAL REQUIREMENTS AND MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD), LATEST EDITION, WHICHEVER IS MORE STRINGENT.
2. PRIOR TO ANY ROAD CONSTRUCTION, TRAFFIC CONTROL SIGNS AND DEVICES SHALL BE IN PLACE.
3. TRAFFIC CONTROL DEVICES FOR LANE CLOSURES INCLUDING SIGNS, CONES, BARRICADES, ETC. SHALL BE PLACED AS SHOWN ON PLANS. SIGNS SHALL NOT BE PLACED WITHOUT ACTUAL LANE CLOSURES AND SHALL BE IMMEDIATELY REMOVED UPON REMOVAL OF THE CLOSURES.
4. SELECTION, PLACEMENT, MAINTENANCE, AND PROTECTION OF TRAFFIC, PEDESTRIANS, AND WORKERS SHALL BE IN ACCORDANCE WITH THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) – PART VI "TEMPORARY TRAFFIC CONTROL", AND LOCAL JURISDICTIONAL REQUIREMENTS UNLESS OTHERWISE NOTED IN THE PLANS AND SPECIFICATIONS, AND SHALL BE APPROVED BY THE APPROPRIATE HIGHWAY AUTHORITY HAVING JURISDICTION.
5. ADVANCE WARNING SIGNS, DISTANCES, AND TAPER LENGTHS MAY BE EXTENDED TO ADJUST FOR REDUCED VISIBILITY DUE TO HORIZONTAL AND VERTICAL CURVATURE OF THE ROADWAY AND FOR ACTUAL TRAFFIC SPEEDS IF IN EXCESS OF POSTED SPEED LIMITS.
6. TAPERS SHALL BE LOCATED TO MAXIMIZE THE VISIBILITY OF THEIR TOTAL LENGTH.
7. CONFLICTING OR NON–OPERATING SIGNAL INDICATIONS ON THE (E) TRAFFIC SIGNAL SYSTEMS SHALL BE BAGGED OR COVERED.
8. ALL (E) ROAD SIGNS, PAVEMENT MARKINGS AND/OR PLOWABLE PAVEMENT REFLECTORS WHICH CONFLICT WITH THE (N) TRAFFIC CONTROL PLAN SHALL BE COVERED, REMOVED, OR RELOCATED. ALL TRAFFIC CONTROL DEVICES SHALL BE RESTORED TO MATCH PRE–CONSTRUCTION CONDITION AFTER COMPLETION OF WORK.
9. CONTRACTOR SHALL CONTACT LOCAL AUTHORITY HAVING HIGHWAY JURISDICTION AND PROVIDE ADDITIONAL "FLAGMEN" OR POLICE SUPERVISION, IF REQUIRED.
10. ALL EXCAVATED AREAS WITHIN OR ADJACENT TO THE ROADWAY SHALL BE BACKFILLED AND PLACED ON A MINIMUM 6H:1V SLOPE PRIOR TO END OF EACH WORK DAY. OTHER EXCAVATED AREAS WITHIN THE CLEAR ZONE ARE TO BE EITHER BACKFILLED OR PRECAST CONCRETE CURB BARRIER CONSTRUCTION BARRIER SET TEMPORARILY IN PLACE TO SHIELD VEHICULAR AND PEDESTRIAN TRAFFIC.
11. WHERE DICTATED BY LOCAL CONDITIONS, THE CONTRACTOR SHALL MAKE PROVISIONS FOR MAINTAINING PEDESTRIAN AND WORKER CROSSING LOCATIONS IN ACCORDANCE WITH ALL APPLICABLE CODES AND OSHA REQUIREMENTS.
12. CONSTRUCTION ZONE SPEED LIMIT IF REDUCED FROM POSTED LIMITS SHALL BE IN ACCORDANCE WITH MUTCD AND WILL BE DETERMINED BY THE AUTHORITY HAVING JURISDICTION.
13. THERE SHALL BE NO WORKERS, EQUIPMENT, OR OTHER VEHICLES IN THE BUFFER SPACE OR THE ROLL AHEAD SPACE.
14. DRIVEWAYS AND/OR SIDE STREETS ENTERING THE ROADWAY AFTER THE FIRST ADVANCE WARNING SIGN SHALL BE PROVIDED WITH AT LEAST ONE W20–1 SIGN (ROAD WORK AHEAD) AS A MINIMUM.
15. CONES MAY BE SUBSTITUTED FOR DRUMS AND INSTALLED UPON THE APPROVAL OF THE AUTHORITY HAVING JURISDICTION PROVIDED THEY COMPLY WITH MUTCD.
16. THE SPACING BETWEEN CONES, TUBULAR MARKERS, VERTICAL PANELS, DRUMS, AND BARRICADES SHOULD NOT EXCEED A DISTANCE IN FEET EQUAL TO 1.0 TIMES THE SPEED LIMIT IN MPH WHEN USED FOR TAPER CHANNELIZATION, AND A DISTANCE IN FEET EQUAL TO 2.0 TIMES THE SPEED LIMIT IN MPH WHEN USED FOR TANGENT CHANNELIZATION.
17. WHEN CHANNELIZATION DEVICES HAVE THE POTENTIAL OF LEADING VEHICULAR TRAFFIC OUT OF THE INTENDED VEHICULAR TRAFFIC SPACE, THE CHANNELIZATION DEVICES SHOULD BE EXTENDED A DISTANCE IN FEET OF 2.0 TIMES THE SPEED LIMIT IN MPH BEYOND THE DOWNSTREAM END OF THE TRANSITION AREA.
18. TAPER LENGTHS ARE CALCULATED AS FOLLOWS:
L= $WS^2/60$ (40 MPH AND HIGHER) OR L2= WS (OVER 40 MPH),
WHERE W= OFFSET WIDTH (FT), S= TRAFFIC SPEED (MPH).



PROVIDE PEDESTRIAN/ WORKER SAFETY CONTROL DEVICES IF REQUIRED

TYPICAL PEDESTRIAN / WORKER SAFETY PLAN

SCALE: NOT TO SCALE

1

mobilitie
intelligent infrastructure
3475 PIEDMONT ROAD NE
SUITE 1000
ATLANTA, GEORGIA 30305
PHONE; (312) 638-5400

WW&A
warren williams & associates
736 CARNEROS CIRCLE
HIGH POINT NC, 27265

PROJECT NUMBER:	XXXX
DRAWN BY:	SB
CHECKED BY:	WW

0	02–20–18	FINAL CDs

SEAL:

COMMONWEALTH OF VIRGINIA
O. WARREN WILLIAMS, JR.
Lic. No. 37030
PROFESSIONAL ENGINEER

SIGNATURE

WA90XSCQ0D
9VAB002275
CHARLES ST &
WILLIAM ST
FREDERICKSBURG, VA 22401
NEW WOOD UTILITY POLE

SHEET TITLE
PEDESTRIAN SAFETY PLAN

SHEET NUMBER
TC-2

GENERAL CONSTRUCTION NOTES:

1. ALL WORK SHALL CONFORM TO THE REQUIREMENTS OF THE LOCAL BUILDING CODE, THE LATEST ADOPTED EDITION AND ALL OTHER APPLICABLE CODES AND ORDINANCES.

2. CONTRACTOR SHALL CONSTRUCT SITE IN ACCORDANCE WITH THESE DRAWINGS AND LATEST MOBILITIE CONSTRUCTION STANDARDS. THE SPECIFICATION IS THE RULING DOCUMENT AND ANY DISCREPANCIES BETWEEN THE SPECIFICATION AND THE CONSTRUCTION DRAWINGS SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT/ENGINEER OR MOBILITIE CM PRIOR TO THE COMMENCEMENT OF WORK.

3. CONTRACTOR SHALL VISIT THE JOB SITE AND SHALL FAMILIARIZE THEMSELVES WITH ALL CONDITIONS AFFECTING THE (N) WORK AND SHALL MAKE PROVISIONS AS TO THE COST THEREOF. CONTRACTOR SHALL BE RESPONSIBLE FOR FAMILIARIZING THEMSELVES WITH ALL CONTRACT DOCUMENTS, FIELD CONDITIONS AND DIMENSIONS AND CONFIRMING THAT THE WORK MAY BE ACCOMPLISHED, AS SHOWN, PRIOR TO PROCEEDING WITH CONSTRUCTION. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT/ENGINEER OR MOBILITIE CM PRIOR TO THE COMMENCEMENT OF WORK. NO COMPENSATION WILL BE AWARDED BASED ON CLAIM OF LACK OF KNOWLEDGE OF FIELD CONDITIONS.

4. IT IS NOT THE INTENT OF THESE PLANS TO SHOW EVERY MINOR DETAIL OF CONSTRUCTION. CONTRACTOR IS REQUIRED TO FURNISH AND INSTALL ANY/ALL ITEMS FOR A COMPLETE AND FULLY FUNCTIONAL SYSTEM SUBJECT ONLY TO OWNER–SUPPLIED ITEMS. CONTRACTOR SHALL PROVIDE ANY/ALL REQUIREMENTS FOR THE EQUIPMENT TO BE PLACED IN PROPER WORKING ORDER.

5. PLANS ARE NOT TO BE SCALED. THESE PLANS ARE INTENDED TO BE A DIAGRAMMATIC OUTLINE ONLY UNLESS OTHERWISE NOTED. THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT AND APPURTENANCES, AND LABOR NECESSARY TO EFFECT ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS. OWNER PROVIDED AND CONTRACTOR INSTALLED MATERIALS WILL INCLUDE THE FOLLOWING, UNLESS NOTED OTHERWISE:

   A) TRANSMITTER
   B) UHF ANTENNA AND MOUNTING BRACKETS, GPS UNIT AND KU BACKHAUL
   C) UHF COAX AND HANGERS
   D) INTEGRATED LOAD CENTER

6. DIMENSIONS SHOWN ARE TO FINISH SURFACES UNLESS OTHERWISE NOTED. SPACING BETWEEN EQUIPMENT IS REQUIRED CLEARANCE. THEREFORE, IT IS CRITICAL TO FIELD VERIFY DIMENSIONS. SHOULD THERE BE ANY QUESTIONS REGARDING THE CONTRACT DOCUMENTS, (E) CONDITIONS AND/OR DESIGN INTENT, THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPORTING ANY DISCREPANCIES TO THE ATTENTION OF THE MOBILITIE CM, IN WRITING, PRIOR TO THE COMMENCEMENT OF WORK.

7. DETAILS PROVIDED ARE FOR THE PURPOSE OF SHOWING DESIGN INTENT. MODIFICATIONS MAY BE REQUIRED TO SUIT JOB DIMENSIONS OR SITE CONDITIONS, AND SUCH MODIFICATIONS SHALL BE INCLUDED AS PART OF THE WORK.

8. CONTRACTOR SHALL PAY FOR APPLICABLE PERMITS, FEES, INSPECTIONS AND TESTING. CONTRACTOR IS TO OBTAIN PERMITS AND APPROVED SUBMITTALS PRIOR TO ORDERING MATERIALS AND THE COMMENCEMENT OF WORK.

9. THE TERM ìPROVIDEò USED IN CONSTRUCTION DOCUMENTS AND SPECIFICATIONS, INDICATES THAT THE CONTRACTOR SHALL FURNISH AND INSTALL.

10. CONTRACTOR SHALL RECEIVE CLARIFICATION IN WRITING, AND SHALL RECEIVE IN WRITING AUTHORIZATION TO PROCEED BEFORE STARTING WORK ON ANY ITEMS NOT CLEARLY DEFINED OR IDENTIFIED BY THE CONTRACT DOCUMENTS.

11. CONTRACTOR SHALL SUPERVISE AND DIRECT THE WORK USING ACCEPTED INDUSTRY–STANDARD SKILLS AND ATTENTION. CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES AND FOR COORDINATING ALL PORTIONS OF THE WORK UNDER CONTRACT, UNLESS OTHERWISE NOTED.

12. CONTRACTOR SHALL BE RESPONSIBLE FOR THE SAFETY OF THE WORK AREA, ADJACENT AREAS AND BUILDING OCCUPANTS THAT ARE LIKELY TO BE AFFECTED BY THE WORK UNDER THIS CONTRACT. WORK SHALL CONFORM TO ALL OSHA REQUIREMENTS.

13. CONTRACTOR SHALL COORDINATE THEIR WORK WITH THE MOBILITIE CM AND SCHEDULE THEIR ACTIVITIES AND WORKING HOURS IN ACCORDANCE WITH THE REQUIREMENTS.

14. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING THEIR WORK WITH THE WORK OF OTHERS AS IT MAY RELATE TO RADIO EQUIPMENT, ANTENNAS AND ANY OTHER PORTIONS OF THE WORK.

15. CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS UNLESS SPECIFICALLY OTHERWISE INDICATED OR WHERE LOCAL CODES OR REGULATIONS TAKE PRECEDENCE.

16. CONTRACTOR SHALL MAKE NECESSARY PROVISIONS TO PROTECT (E) SURFACES, EQUIPMENT, IMPROVEMENTS, PIPING ETC. AND IMMEDIATE REPAIR, TO NEW CONDITION, ANY DAMAGE THAT OCCURS DURING CONSTRUCTION AT THE SOLE COST OF THE CONTRACTOR.

17. IN DRILLING HOLES, OR CORING, INTO CONCRETE WHETHER FOR FASTENING OR ANCHORING PURPOSES, OR PENETRATIONS THROUGH THE FLOOR FOR CONDUIT RUNS, PIPE RUNS, ETC., MUST BE CLEARLY UNDERSTOOD THAT REINFORCING STEEL SHALL NOT BE DRILLED INTO, CUT OR DAMAGED UNDER ANY CIRCUMSTANCES (UNLESS NOTED OTHERWISE). LOCATIONS OF REINFORCING STEEL ARE NOT DEFINITELY KNOWN AND THEREFORE MUST BE LOCATED BY THE CONTRACTOR USING APPROPRIATE METHODS AND EQUIPMENT PRIOR TO ANY DRILLING OR CORING OPERATIONS IN (E) CONCRETE.

18. CONTRACTOR SHALL REPAIR, TO NEW CONDITION, ALL (E) WALL SURFACES DAMAGED DURING CONSTRUCTION SUCH THAT THEY MATCH AND BLEND IN WITH ADJACENT SURFACES.

19. CONTRACTOR SHALL SEAL PENETRATIONS THROUGH FIRE RATED ASSEMBLIES OR MATERIALS WITH U.L. LISTED AND FIRE CODE APPROVED MATERIALS AND SYSTEMS THAT MEET OR EXCEED THE RATING OF THE ASSEMBLY IN WHICH THE NEW PENETRATION IS PLACED.

20. CONTRACTOR SHALL KEEP CONTRACT AREA CLEAN, HAZARD FREE, AND DISPOSE OF ALL DIRT, DEBRIS, AND RUBBISH. EQUIPMENT NOT SPECIFIED AS REMAINING ON THE PROPERTY OF THE OWNER SHALL BE REMOVED. LEAVE PREMISES IN CLEAN CONDITION AND FREE FROM PAINT SPOTS, DUST, OR SMUDGES OF ANY NATURE. CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING ALL ITEMS UNTIL COMPLETION OF CONSTRUCTION.

21. MINIMUM BEND RADIUS OF ANTENNA CABLES SHALL BE IN ACCORDANCE WITH CABLE MANUFACTURERS RECOMMENDATIONS.

22. CONTRACTOR SHALL MINIMIZE DISTURBANCE TO (E) SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES, IF REQUIRED DURING CONSTRUCTION SHALL BE IN CONFORMANCE WITH JURISDICTIONAL OR STATE AND LOCAL GUIDELINES FOR EROSION AND SEDIMENT CONTROL AND COORDINATED WITH LOCAL REGULATORY AUTHORITIES. CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTENANCE OF ANY EROSION CONTROL MEASURES, RECORD–KEEPING, MONITORING, AND REPORTING TO THE OWNER AND REGULATORY AUTHORITIES.

23. ALL CONSTRUCTION WORK IS TO ADHERE TO APPLICANT'S INTEGRATED CONSTRUCTION STANDARDS UNLESS STATE OR LOCAL CODE IS MORE STRINGENT.

24. THE INTENT OF THE PLANS AND SPECIFICATIONS IS TO PERFORM THE CONSTRUCTION IN ACCORDANCE PER STATE BUILDING STANDARDS CODE AND STATE CODE OF REGULATIONS. SHOULD ANY CONDITIONS DEVELOP NOT COVERED BY THE APPROVED PLANS AND SPECIFICATIONS WHEREIN THE FINISHED WORK WILL NOT COMPLY PER STATE CODE OF REGULATIONS, A SCOPE OF WORK DETAILING AND SPECIFYING THE REQUIRED WORK SHALL BE SUBMITTED TO AND APPROVED BY THE JURISDICTION BEFORE PROCEEDING WITH THE WORK. A CHANGE ORDER FOR THAT SCOPE SHALL BE SUBMITTED TO THE MOBILITIE CM PRIOR TO PROCEEDING WITH THE WORK.

25. ADEQUATE AND REQUIRED LIABILITY INSURANCE SHALL BE PROVIDED BY THE CONTRACTOR FOR PROTECTION AGAINST PUBLIC LOSS AND ANY/ALL PROPERTY DAMAGE FOR THE DURATION OF WORK.

26. CONTRACTOR SHALL GUARANTEE ANY/ALL MATERIALS AND WORK FREE FROM DEFECTS FOR A PERIOD OF NOT LESS THAN ONE YEAR FROM DATE OF ACCEPTANCE. ANY CORRECTIVE WORK SHALL BE COMPLETED AT THE SOLE COST OF THE CONTRACTOR.

ELECTRICAL NOTES:

1. ELECTRICAL CONTRACTOR SHALL SUPPLY AND INSTALL ANY/ALL ELECTRICAL WORK INDICATED. ANY/ALL CONSTRUCTION SHALL BE IN ACCORDANCE W/DRAWINGS AND ANY/ALL APPLICABLE SPECIFICATIONS. IF ANY PROBLEMS ARE ENCOUNTERED BY COMPLYING WITH THESE REQUIREMENTS, CONTRACTOR SHALL NOTIFY MOBILITIE CM AS SOON AS POSSIBLE, AFTER THE DISCOVERY OF THE PROBLEMS, AND SHALL NOT PROCEED WITH THAT PORTION OF WORK, UNTIL THE MOBILITIE CM HAS DIRECTED THE CORRECTIVE ACTIONS TO BE TAKEN.

2. ELECTRICAL CONTRACTOR SHALL VISIT THE JOB SITE AND FAMILIARIZE THEMSELVES WITH ANY/ALL CONDITIONS AFFECTING ELECTRICAL AND COMMUNICATION INSTALLATION AND MAKE PROVISIONS AS TO THE COST THEREOF. ALL (E) CONDITIONS OF ELECTRICAL EQUIP., ETC., THAT ARE PART OF THE FINAL SYSTEM, SHALL BE VERIFIED BY THE CONTRACTOR, PRIOR TO THE SUBMITTING OF THEIR BID. FAILURE TO COMPLY WITH THIS PARAGRAPH WILL IN NO WAY RELIEVE CONTRACTOR OF PERFORMING ALL WORK NECESSARY FOR A COMPLETE AND WORKING SYSTEM.

3. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE LATEST EDITION OF THE NEC, ALL CODES AND ORDINANCES OF THE LOCAL JURISDICTION, AND POWER & TELEPHONE COMPANIES HAVING JURISDICTION AND SHALL INCLUDE BUT ARE NOT BE LIMITED TO:

   A) UL – UNDERWRITERS LABORATORIES
   B) NEC – NATIONAL ELECTRICAL CODE
   C) NEMA – NATIONAL ELECTRICAL MANUFACTURERS ASSOC.
   D) OSHA – OCCUPATIONAL SAFETY AND HEALTH ACT
   E) SBC – STANDARD BUILDING CODE
   F) NFPA – NATIONAL FIRE PROTECTION AGENCY
   G) ANSI – AMERICAN NATIONAL STANDARDS INSTITUTE
   H) IEEE – INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS
   I) ASTM – AMERICAN SOCIETY FOR TESTING MATERIALS

4. REFER TO SITE PLANS AND ELEVATIONS FOR EXACT LOCATIONS OF ALL EQUIPMENT, AND CONFIRM WITH MOBILITIE CM ANY SIZES AND LOCATIONS WHEN NEEDED.

5. (E) SERVICES: CONTRACTOR SHALL NOT INTERRUPT (E) SERVICES WITHOUT WRITTEN PERMISSION OF THE OWNER.

6. CONTRACTOR SHALL CONFIRM WITH LOCAL UTILITY COMPANY ANY/ALL REQUIREMENTS SUCH AS THE: LUG SIZE RESTRICTIONS, CONDUIT ENTRY, SIZE OF TRANSFORMERS, SCHEDULED DOWNTIME FOR THE OWNERS' CONFIRMATION, ETC... ANY/ALL CONFLICTS SHALL BE BROUGHT TO THE ATTENTION OF THE MOBILITIE CM, PRIOR TO BEGINNING ANY WORK.

7. MINIMUM WIRE SIZE SHALL BE #12 AWG, NOT INCLUDING CONTROL WIRING, UNLESS NOTED OTHERWISE. ALL CONDUCTORS SHALL BE COPPER WITH THWN INSULATION, UNLESS OTHERWISE NOTED.

8. OUTLET BOXES SHALL BE PRESSED STEEL IN DRY LOCATIONS, CAST ALLOY WITH THREADED HUBS IN WET/DAMP LOCATIONS AND SPECIAL ENCLOSURES FOR OTHER CLASSIFIED AREAS.

9. IT IS NOT THE INTENT OF THESE PLANS TO SHOW EVERY MINOR DETAIL OF THE CONSTRUCTION. CONTRACTOR IS EXPECTED TO FURNISH AND INSTALL ALL ITEMS FOR A COMPLETE ELECTRICAL SYSTEM AND PROVIDE ALL REQUIREMENTS FOR THE EQUIPMENT TO BE PLACED IN PROPER WORKING ORDER.

10. ELECTRICAL SYSTEM SHALL BE AS COMPLETELY AND EFFECTIVELY GROUNDED, AS REQUIRED BY SPECIFICATIONS, SET FORTH BY APPLICANT.

11. ALL WORK SHALL BE PERFORMED BY A LICENSED ELECTRICAL CONTRACTOR IN A FIRST CLASS, WORKMANLIKE MANNER. THE COMPLETED SYSTEM SHALL BE FULLY FUNCTIONAL AND SHALL BE APPROVED BY THE MOBILITIE CM AND LOCAL JURISDICTION. ANY DEFICIENCIES SHALL BE CORRECTED BY AN ELECTRICAL CONTRACTOR AT THE SOLE COST OF THE CONTRACTOR.

12. ALL WORK SHALL BE COORDINATED WITH OTHER TRADES TO AVOID INTERFERENCE WITH THE PROGRESS OF CONSTRUCTION.

mobilitie
intelligent infrastructure
3475 PIEDMONT ROAD NE
SUITE 1000
ATLANTA, GEORGIA 30305
PHONE; (312) 638-5400

WW&A
warren williams & associates
736 CARNEROS CIRCLE
HIGH POINT NC, 27265

PROJECT NUMBER:	XXXX
DRAWN BY:	SB
CHECKED BY:	WW

0	02–20–18	FINAL CDs

SEAL:

COMMONWEALTH OF VIRGINIA
O. WARREN WILLIAMS, JR.
Lic. No. 37030
PROFESSIONAL ENGINEER

SIGNATURE

WA90XSCQ0D
9VAB002275
CHARLES ST &
WILLIAM ST
FREDERICKSBURG, VA 22401
NEW WOOD UTILITY POLE

SHEET TITLE
GENERAL NOTES

SHEET NUMBER
GN-1

ELECTRICAL NOTES CONT'D

13. THE CORRECTION OF ANY DEFECTS SHALL BE COMPLETED BY THE CONTRACTOR WITHOUT ANY ADDITIONAL CHARGE AND SHALL INCLUDE THE REPLACEMENT OR THE REPAIR OF ANY OTHER PHASE OF THE INSTALLATION, WHICH MAY HAVE BEEN DAMAGED THEREIN.

14. CONTRACTOR SHALL PROVIDE AND INSTALL CONDUIT, CONDUCTORS, PULL WIRES, BOXES, COVER PLATES AND DEVICES FOR ALL OUTLETS AS INDICATED.

15. DITCHING AND BACK FILL: CONTRACTOR SHALL PROVIDE FOR ALL UNDERGROUND INSTALLED CONDUIT AND/OR CABLES INCLUDING EXCAVATION AND BACKFILLING AND COMPACTION. REFER TO NOTES AND REQUIREMENTS 'EXCAVATION, AND BACKFILLING.

16. MATERIALS, PRODUCTS AND EQUIPMENT, INCLUDING ALL COMPONENTS THEREOF, SHALL BE NEW AND SHALL APPEAR ON THE LIST OF U.L. APPROVED ITEMS AND SHALL MEET OR EXCEED THE REQUIREMENTS OF THE NEC, NEMA AND IECE.

17. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS OR MANUFACTURER'S CATALOG INFORMATION OF ANY/ALL EQUIPMENT AND ALL OTHER ELECTRICAL ITEMS FOR APPROVAL BY THE MOBILITIE CM PRIOR TO INSTALLATION.

18. ANY CUTTING OR PATCHING DEEMED NECESSARY FOR ELECTRICAL WORK IS THE ELECTRICAL CONTRACTORS RESPONSIBILITY AND SHALL BE INCLUDED IN THE COST FOR WORK AND PERFORMED TO THE SATISFACTION OF THE MOBILITIE CM UPON FINAL ACCEPTANCE.

19. THE ELECTRICAL CONTRACTOR SHALL LABEL ALL PANELS WITH ONLY TYPEWRITTEN DIRECTORIES. ALL ELECTRICAL WIRING SHALL BE THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR.

20. DISCONNECT SWITCHES SHALL BE UL-RATED, H.P. RATED HEAVY-DUTY, QUICK-MAKE AND QUICK-BREAK ENCLOSURES, AS REQUIRED BY EXPOSURE TYPE.

21. ALL CONNECTIONS SHALL BE MADE WITH A PROTECTIVE COATING OF AN ANTI-OXIDE COMPOUND KNOWN AS "NO-OXIDE A" BY DEARBORNE CHEMICAL CO. COAT ALL WIRE SURFACES BEFORE CONNECTING. EXPOSED COPPER SURFACES, INCLUDING GROUND BARS, SHALL BE TREATED – NO SUBSTITUTIONS.

22. RACEWAYS: CONDUIT SHALL BE SCHEDULE 80 PVC MEETING OR EXCEEDING NEMA TC2 – 1990. CONTRACTOR SHALL PLUG AND CAP EACH END OF SPARE AND EMPTY CONDUITS AND PROVIDE TWO SEPARATE PULL STRINGS – 200 LBS TEST POLYETHYLENE CORD. ALL CONDUIT BENDS SHALL BE A MINIMUM OF 2 FT. RADIUS. RGS CONDUITS WHEN SPECIFIED, SHALL MEET UL-6 FOR GALVANIZED STEEL. ALL FITTINGS SHALL BE SUITABLE FOR USE WITH THREADED RIGID CONDUIT. COAT ALL THREADS WITH 'BRITE ZINC' OR 'COLD GALV'.

23. SUPPORT OF ALL ELECTRICAL WORK SHALL BE AS REQUIRED BY NEC.

24. CONDUCTORS: CONTRACTOR SHALL USE 98% CONDUCTIVITY COPPER WITH TYPE THWN INSULATION, UNLESS OTHERWISE NOTED, 600 VOLT, COLOR CODED. USE SOLID CONDUCTORS FOR WIRE UP TO AND INCLUDING NO. 8 AWG. USE STRANDED CONDUCTORS FOR WIRE ABOVE NO. 8 AWG.

25. CONNECTORS FOR POWER CONDUCTORS: CONTRACTOR SHALL USE PRESSURE TYPE INSULATED TWIST-ON CONNECTORS FOR NO. 10 AWG AND SMALLER. USE SOLDERLESS MECHANICAL TERMINAL LUGS FOR NO. 8 AWG AND LARGER.

26. SERVICE: AS SPECIFIED ON THE DRAWINGS. OWNER OR OWNER'S AGENT WILL APPLY FOR POWER. ALL PROVISIONS FOR TEMPORARY POWER WILL BE OBTAINED BY THE CONTRACTOR.

27. TELEPHONE OR FIBER SERVICE: CONTRACTOR SHALL PROVIDE EMPTY CONDUITS WITH PULL STRINGS AS INDICATED ON DRAWINGS.

28. ELECTRICAL AND TELCO/FIBER RACEWAYS TO BE BURIED A MINIMUM DEPTH OF 30", UNLESS OTHERWISE NOTED.

29. CONTRACTOR SHALL PLACE 6" WIDE DETECTABLE WARNING TAPE AT A DEPTH OF 6" BELOW GROUND AND DIRECTLY ABOVE ELECTRICAL AND TELCO SERVICE CONDUITS. CAUTIONS TAPE TO READ "CAUTION BURIED ELECTRIC" OR "BURIED TELECOM".

30. ALL BOLTS SHALL BE 3-16 STAINLESS STEEL

GROUNDING NOTES:

1. ALL HARDWARE SHALL BE 3-16 STAINLESS STEEL, INCLUDING LOCK WASHERS. COAT ALL SURFACES WITH AN ANTI-OXIDANT COMPOUND, AS SPECIFIED, BEFORE MATING. ALL HARDWARE SHALL BE STAINLESS STEEL 3/8 INCH DIAMETER OR SIZED TO MATCH COMPONENTS OR LOG SIZE.

2. FOR GROUND BOND TO STEEL ONLY: INSERT A CADMIUM FLAT WASHER BETWEEN LUG AND STEEL, COAT ALL SURFACES WITH AN ANTI-OXIDANT COMPOUND BEFORE MATING.

3. ALL STEEL CONDUIT SHALL BE BONDED AT BOTH ENDS WITH GROUNDING BUSHING.

4. ALL ELECTRICAL AND GROUNDING AT THE POLE SITE SHALL COMPLY WITH THE NATIONAL ELECTRICAL CODE (NEC), NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) 780 (LATEST EDITION), AND MANUFACTURER.

5. ALL DETAILS ARE SHOWN IN GENERAL TERMS. ACTUAL GROUNDING INSTALLATION AND CONSTRUCTION MAY VARY DUE TO SITE SPECIFIC CONDITIONS.

6. GROUND ALL ANTENNA BASES, FRAMES, CABLE RUNS, AND OTHER METALLIC COMPONENTS USING #6 GROUND WIRES. FOLLOW ANTENNA AND BTS MANUFACTURER'S PRACTICES FOR GROUNDING REQUIREMENTS.

7. ALL GROUND CONNECTIONS SHALL BE #6 AWG, UNLESS OTHERWISE NOTED. USE SOLID COPPER, BLACK JACKETED WIRE ON NON WOOD POLES AND SOLID TINNED COPPER, BARE (NO JACKET) WIRES ON WOOD POLES. BLACK WIRES WILL USE A SINGLE STRIPE OF GREEN ELECTRICAL TAPE WITHING 12" OF THE CONNECTION POINTS TO IDENTIFY AS GROUNDING WIRE.

8. NOTIFY ARCHITECT/ENGINEER IF THERE ARE ANY DIFFICULTIES INSTALLING GROUNDING SYSTEM DUE TO SITE SOIL CONDITIONS.

9. ALL HORIZONTALLY RUN GROUNDING CONDUCTORS SHALL BE INSTALLED A MINIMUM OF 30" BELOW GRADE/ 6ô BELOW FROST-LINE IN TRENCH, UNLESS OTHERWISE NOTED. BACK FILL SHALL BE COMPACTED AS REQUIRED BY ARCHITECT/ENGINEER.

10. ALL GROUND CONDUCTORS SHALL BE RUN AS STRAIGHT AND SHORT AS POSSIBLE, WITH A MINIMUM 12" BENDING RADIUS NOT LESS THAN 90 DEGREES.

11. ACCEPTABLE CONNECTIONS FOR GROUNDING SYSTEM SHALL BE:

A. BURNDY, HY-GRADE U.L. LISTED CONNECTORS FOR OUTDOOR USE OR AS APPROVED BY APPLICANT PROJECT MANAGER.

B. CADWELD, EXOTHERMIC WELDS (WELDED CONNECTIONS).

C. ONE (1) OR (2) HOLES TINNED COPPER COMPRESSION (LONG BARREL) FITTINGS.

12. ALL CRIMPED CONNECTIONS SHALL HAVE EMBOSSED MANUFACTURER'S DIEMARK VISIBLE AT THE CRIMP (RESULTING FROM USE OF PROPER CRIMPING DEVICES) AND WEATHER-PROOFED WITH HEAT SHRINK.

13. ALL CONNECTION HARDWARE SHALL BE TYPE 3-16 STAINLESS STEEL (NOT ATTRACTED TO MAGNETS).

14. ELECTRICAL SERVICE EQUIPMENT GROUNDING SHALL COMPLY WITH NEC, ARTICLE 250-82 AND SHALL BOND ALL (E) AND NEW GROUNDING ELECTRODES. NEW GROUNDING ELECTRODE SHALL INCLUDE BUT NOT LIMITED TO GROUND RODS.

TESTING AND EQUIPMENT TURN UP REQUIREMENTS:

1. RF CABLE, DATA CABLE, RADIO EQUIPMENT AND BACK HAUL EQUIPMENT TESTING WILL COMPLY WITH CURRENT INDUSTRY STANDARDS AND OR THOSE STANDARDS OF THE EQUIPMENT MANUFACTURER OR PROVIDED TO THE CONTRACTOR PRIOR TO TESTING.

2. CONTRACTOR WILL USE THE APPROPRIATE CALIBRATED TESTING EQUIPMENT IN THE TESTING OF RF CABLE, DATA CABLE, RADIO EQUIPMENT AND BACK HAUL EQUIPMENT THAT MEET INDUSTRY STANDARDS OF THE MANUFACTURER OR THOSE STANDARDS PROVIDED TO THE CONTRACTOR PRIOR TO TESTING.

3. CONTRACTOR TO VERIFY AND RECORD ALL TEST RESULTS AND PROVIDE THESE RESULTS WITHIN THE FINAL CLOSE OUT PACKAGE.

4. ALL PERSONNEL INVOLVED IN THE TESTING OF RF CABLE, DATA CABLE, RADIO EQUIPMENT AND BACK HAUL EQUIPMENT WILL BE REQUIRED TO HAVE BEEN TRAINED AND OR CERTIFIED IN THE PROPER TESTING OF RF CABLE, DATA CABLE, RADIO EQUIPMENT AND BACK HAUL EQUIPMENT.

5. ALL TEST RESULTS SHALL BE TIME STAMPED, RECORDED AND PRESENTED PRIOR TO ENERGIZING AND TURN UP OF ANY EQUIPMENT.

6. GPS EQUIPMENT (WHEN REQUIRED) IS NOT TO BE TESTED OR ATTACHED TO ANY CABLING DURING TESTING, DOING SO WILL DAMAGE THE GPS UNIT.

7. PRIOR TO TESTING IF THE CONTRACTOR HAS ANY QUESTIONS ABOUT THE TESTING PROCEDURES THEY ARE TO CALL AND OBTAIN ASSISTANCE FROM A QUALIFIED DESIGNATED TESTING REPRESENTATIVE.

8. EQUIPMENT IS NOT TO BE ENERGIZED UNTIL ALL TESTING HAS BEEN COMPLETED, APPROVED AND THE APPROPRIATE AUTHORITY HAS BEEN NOTIFIED AND GIVES APPROVAL TO ENERGIZE THE EQUIPMENT.

SITE WORK NOTES:

1. DO NOT EXCAVATE OR DISTURB BEYOND THE PROPERTY LINES OR LEASE LINES, UNLESS OTHERWISE NOTED.

2. SIZE, LOCATION AND TYPE OF ANY UNDERGROUND UTILITIES OR IMPROVEMENTS SHALL BE ACCURATELY NOTED AND PLACED ON AS-BUILT DRAWINGS BY GENERAL CONTRACTOR AND ISSUED TO ARCHITECT/ENGINEER AT COMPLETION OF PROJECT.

3. ALL (E) UTILITIES, FACILITIES, CONDITIONS AND THEIR DIMENSIONS SHOWN ON PLANS HAVE. BEEN PLOTTED FROM AVAILABLE RECORDS. THE ENGINEER AND OWNER ASSUME NO RESPONSIBILITY WHATSOEVER AS TO THE SUFFICIENCY OR ACCURACY OF THE INFORMATION SHOWN ON THE PLANS OR THE MANNER OF THEIR REMOVAL OR ADJUSTMENT. CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING EXACT LOCATION OF ALL (E) UTILITIES AND FACILITIES PRIOR TO START OF CONSTRUCTION. CONTRACTOR SHALL ALSO OBTAIN FROM EACH UTILITY COMPANY DETAILED INFORMATION RELATIVE TO WORKING SCHEDULES AND METHODS OF REMOVING OR ADJUSTING (E) UTILITIES.

4. CONTRACTOR SHALL VERIFY ALL (E) UTILITIES BOTH HORIZONTALLY AND VERTICALLY PRIOR TO START OF CONSTRUCTION. ANY DISCREPANCIES OR DOUBTS AS TO THE INTERPRETATION OF PLANS SHALL BE IMMEDIATELY REPORTED TO THE ARCHITECT/ENGINEER OR MOBILITIE CM FOR RESOLUTION AND INSTRUCTION, AND NO FURTHER WORK SHALL BE PERFORMED UNTIL THE DISCREPANCY IS CHECKED AND CORRECTED BY THE ARCHITECT/ENGINEER. FAILURE TO SECURE SUCH INSTRUCTION MEANS CONTRACTOR WILL HAVE WORKED AT THEIR OWN RISK AND EXPENSE. CONTRACTOR SHALL CALL LOCAL UTILITY LOCATE HOT LINE, SUCH AS 811, FOR UTILITY LOCATIONS A MINIMUM OF 48 HOURS PRIOR TO START OF CONSTRUCTION.

5. ALL NEW AND (E) UTILITY STRUCTURES ON SITE AND IN AREAS TO BE DISTURBED BY CONSTRUCTION SHALL BE ADJUSTED TO FINISH ELEVATIONS PRIOR TO FINAL INSPECTION OF WORK. ANY COST RELATED TO ADJUSTING (E) STRUCTURES SHALL BE BORNE SOLELY BY THE CONTRACTOR.

6. GRADING OF THE SITE WORK AREA IS TO BE SMOOTH AND CONTINUOUS IN SLOPE AND IS TO FEATHER INTO (E) GRADES AT THE GRADING LIMITS.

7. ALL TEMPORARY EXCAVATIONS FOR THE INSTALLATION OF FOUNDATIONS, UTILITIES, ETC., SHALL BE PROPERLY LAID BACK OR BRACED IN ACCORDANCE WITH CORRECT OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) REQUIREMENTS.

mobilitie
intelligent infrastructure
3475 PIEDMONT ROAD NE
SUITE 1000
ATLANTA, GEORGIA 30305
PHONE; (312) 638-5400

WW&A
warren williams & associates
736 CARNEROS CIRCLE
HIGH POINT NC, 27265

PROJECT NUMBER:	XXXX
DRAWN BY:	SB
CHECKED BY:	WW

0	02-20-18	FINAL CDs

SEAL:

COMMONWEALTH OF VIRGINIA
O. WARREN WILLIAMS, JR.
Lic. No. 37030
PROFESSIONAL ENGINEER

SIGNATURE

WA90XSCQ0D
9VAB002275
CHARLES ST &
WILLIAM ST
FREDERICKSBURG, VA 22401
NEW WOOD UTILITY POLE

SHEET TITLE
GENERAL NOTES

SHEET NUMBER
GN-2

SITE WORK NOTES CONT'D

8. STRUCTURAL FILLS SUPPORTING PAVEMENTS SHALL BE COMPACTED TO 95% OF MAXIMUM STANDARD PROCTOR DRY DENSITY, UNLESS OTHERWISE NOTED.

9. NEW GRADES NOT IN BUILDING AND DRIVEWAY IMPROVEMENT AREA TO BE ACHIEVED BY FILLING WITH APPROVED CLEAN FILL AND COMPACTED TO 95% OF STANDARD PROCTOR DENSITY.

10. ALL FILL SHALL BE PLACED IN UNIFORM LIFTS. THE LIFTS THICKNESS SHOULD NOT EXCEED THAT WHICH CAN BE PROPERLY COMPACTED THROUGHOUT ITS ENTIRE DEPTH WITH THE EQUIPMENT AVAILABLE.

11. ANY FILLS PLACED ON (E) SLOPES THAT ARE STEEPER THAN 10 HORIZONTAL TO 1 VERTICAL SHALL BE PROPERLY BENCHED INTO THE (E) SLOPE AS DIRECTED BY A GEOTECHNICAL ENGINEER.

12. CONTRACTOR SHALL CLEAN ENTIRE SITE AFTER CONSTRUCTION SUCH THAT NO DEBRIS, PAPER, TRASH, WEEDS, BRUSH, EXCESS FILL, OR ANY OTHER DEPOSITS WILL REMAIN. ALL MATERIALS COLLECTED DURING CLEANING OPERATIONS SHALL BE DISPOSED OF OFF–SITE BY THE GENERAL CONTRACTOR.

13. ALL TREES AND SHRUBS WHICH ARE NOT IN DIRECT CONFLICT WITH THE IMPROVEMENTS SHALL BE PROTECTED BY THE GENERAL CONTRACTOR.

14. ALL SITE WORK SHALL BE CAREFULLY COORDINATED BY GENERAL CONTRACTOR WITH LOCAL UTILITY COMPANY, TELEPHONE COMPANY, AND ANY OTHER UTILITY COMPANIES HAVING JURISDICTION OVER THIS LOCATION.

ENVIRONMENTAL NOTES:

1. ALL WORK PERFORMED SHALL BE DONE IN ACCORDANCE WITH ISSUED PERMITS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PAYMENT OF FINES AND PROPER CLEAN UP FOR AREAS IN VIOLATION.

2. CONTRACTOR SHALL BE RESPONSIBLE FOR CONSTRUCTION AND MAINTENANCE OF EROSION AND SEDIMENTATION CONTROLS DURING CONSTRUCTION FOR PROTECTION OF ADJACENT PROPERTIES, ROADWAYS AND WATERWAYS. ALL EROSION AND SEDIMENTATION CONTROLS SHALL BE MAINTAINED IN PLACE THROUGH FINAL JURISDICTIONAL INSPECTION & RELEASE OF SITE.

3. CONTRACTOR SHALL INSTALL/CONSTRUCT ALL NECESSARY SEDIMENT/SILT CONTROL FENCING AND PROTECTIVE MEASURES AS REQUIRED BY THE LOCAL JURISDICTION WITHIN THE LIMITS OF SITE DISTURBANCE PRIOR TO CONSTRUCTION.

4. NO SEDIMENT SHALL BE ALLOWED TO EXIT THE PROPERTY. THE CONTRACTOR IS RESPONSIBLE FOR TAKING ADEQUATE MEASURES FOR CONTROLLING EROSION. ADDITIONAL SEDIMENT CONTROL FENCING MAY BE REQUIRED IN ANY AREAS SUBJECT TO EROSION.

5. THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING POSITIVE DRAINAGE ON THE SITE AT ALL TIMES WITH SILT AND EROSION CONTROL MEASURES MAINTAINED ON THE DOWNSTREAM SIDE OF SITE DRAINAGE. ANY DAMAGE TO ADJACENT PROPERTY AS A RESULT OF EROSION WILL BE CORRECTED AT THE CONTRACTORS EXPENSE.

6. CONTRACTOR SHALL BE RESPONSIBLE FOR DAILY INSPECTIONS AND ANY REPAIRS OF ALL SEDIMENT CONTROL MEASURES INCLUDING SEDIMENT REMOVAL AS NECESSARY.

7. CLEARING OF VEGETATION AND TREE REMOVAL SHALL BE ONLY AS PERMITTED AND BE HELD TO A MINIMUM. ONLY TREES NECESSARY FOR CONSTRUCTION OF THE FACILITIES SHALL BE REMOVED.

8. SEEDING AND MULCHING AND/OR SODDING OF THE SITE WILL BE ACCOMPLISHED AS SOON AS POSSIBLE AFTER COMPLETION OF THE PROJECT FACILITIES AFFECTING LAND DISTURBANCE.

9. CONTRACTOR SHALL PROVIDE ALL EROSION AND SEDIMENTATION CONTROL MEASURES AS REQUIRED BY LOCAL, COUNTY AND STATE CODES AND ORDINANCES TO PROTECT EMBANKMENTS FROM SOIL LOSS AND TO PREVENT ACCUMULATION OF SOIL AND SILT IN STREAMS AND DRAINAGE PATHS LEAVING THE CONSTRUCTION AREA. THIS MAY INCLUDE, BUT IS NOT LIMITED TO SUCH MEASURES AS SILT FENCES, STRAW BALE SEDIMENT BARRIERS, AND CHECK DAMS.

10. RIP RAP OF SIZES INDICATED SHALL CONSIST OF CLEAN, HARD, SOUND, DURABLE, UNIFORM IN QUALITY STONE FREE OF ANY DETRIMENTAL QUANTITY OF SOFT, FRIABLE, THIN, ELONGATED OR LAMINATED PIECES, DISINTEGRATED MATERIAL, ORGANIC MATTER, OIL, ALKALI, OR OTHER DELETERIOUS SUBSTANCES.

11. GC TO PLACE FILTER MATERIAL AT ALL CATCH BASINS ADJACENT TO CONSTRUCTION SITE TO PREVENT SOLID WASTE CONTAMINATION FROM ENTERING SEWER SYSTEM

FOUNDATION, EXCAVATION AND BACKFILL NOTES:

1. ALL FINAL GRADED SLOPES SHALL BE A MAXIMUM OF 3 HORIZONTAL TO 1 VERTICAL, UNLESS OTHERWISE NOTED.

2. BACKFILL OF THE POLES SHALL BE PERFORMED BASED ON THE WATER TABLE. FLOWABLE FILL MIXTURES PURCHASED FROM CONCRETE PLANTS WILL BE USED INSTEAD OF FOAM IN WATER TABLE AREAS.
   - A: NORMAL SOILS ORDER OF PREFERENCE – FOAM, FLOWABLE FILL, CONCRETE, COMPACTED AGGREGATES
   - B: HIGH WATER TABLE SOILS ORDER OF PREFERENCES – FLOWABLE FILL, CONCRETE, COMPACTED AGGREGATES.

3. ALL EXCAVATIONS PREPARED FOR PLACEMENT OF CONCRETE SHALL BE OF UNDISTURBED SOILS, SUBSTANTIALLY HORIZONTAL AND FREE FROM ANY LOOSE, UNSUITABLE MATERIAL OR FROZEN SOILS, AND WITHOUT THE PRESENCE OF POUNDING WATER. DEWATERING FOR EXCESS GROUND WATER SHALL BE PROVIDED WHEN REQUIRED. COMPACTION OF SOILS UNDER CONCRETE PAD FOUNDATIONS SHALL NOT BE LESS THAN 95% OF THE MODIFIED PROCTOR MAXIMUM DRY DENSITY FOR THE SOIL IN ACCORDANCE WITH ASTM D1557.

4. CONCRETE FOUNDATIONS SHALL NOT BE PLACED ON ORGANIC OR UNSUITABLE MATERIAL. IF ADEQUATE BEARING CAPACITY IS NOT ACHIEVED AT THE DESIGNED EXCAVATION DEPTH, THE UNSATISFACTORY SOIL SHALL BE EXCAVATED TO ITS FULL DEPTH AND EITHER BE REPLACED WITH MECHANICALLY COMPACTED GRANULAR MATERIAL OR THE EXCAVATION SHALL BE FILLED WITH CONCRETE OF THE SAME TYPE SPECIFIED FOR THE FOUNDATION. CRUSHED LIME STONE #57 MAY BE USED TO STABILIZE THE BOTTOM OF THE EXCAVATION. ANY STONE SUB BASE MATERIAL, IF USED, SHALL NOT SUBSTITUTE FOR REQUIRED THICKNESS OF CONCRETE.

5. ALL EXCAVATIONS SHALL BE CLEAN OF UNSUITABLE MATERIAL SUCH AS VEGETATION, TRASH, DEBRIS, AND SO FORTH PRIOR TO BACK FILLING. BACK FILL SHALL CONSIST OF APPROVED MATERIALS SUCH AS EARTH, LOAM, SANDY CLAY, SAND AND GRAVEL, OR SOFT SHALE, FREE FROM CLODS OR LARGE STONES OVER 2 1/2" MAX DIMENSIONS. ALL BACK FILL SHALL BE PLACED IN COMPACTED LAYERS.

6. ALL FILL MATERIALS AND FOUNDATION BACK FILL SHALL BE PLACED IN MAXIMUM 6" THICK LIFTS BEFORE COMPACTION. EACH LIFT SHALL BE WETTED IF REQUIRED AND COMPACTED TO NOT LESS THAN 95% OF THE MODIFIED PROCTOR MAXIMUM DRY DENSITY FOR SOIL IN ACCORDANCE WITH ASTM D1557.

7. NEWLY PLACED CONCRETE FOUNDATIONS SHALL CURE A MINIMUM OF 72 HRS PRIOR TO BACK FILLING.

8. FINISHED GRADING SHALL BE SLOPED TO PROVIDE POSITIVE DRAINAGE AND PREVENT STANDING WATER. THE FINAL (FINISH) ELEVATION OF SLAB FOUNDATIONS SHALL SLOPE AWAY IN ALL DIRECTIONS FROM THE CENTER. FINISH GRADE OF CONCRETE PADS SHALL BE A MAXIMUM OF 4 INCHES ABOVE FINAL FINISH GRADE ELEVATIONS. PROVIDE SURFACE FILL GRAVEL TO ESTABLISH SPECIFIED ELEVATIONS WHERE REQUIRED.

9. NEWLY GRADED GRAVEL SURFACE AREAS TO RECEIVE GRAVEL SHALL BE COVERED WITH GEOTEXTILE FABRIC TYPE: TYPAR–3401 AS MANUFACTURED BY TYPAR GEOSYNTHETICS OR AN APPROVED EQUIVALENT, SHOWN ON PLANS. THE GEOTEXTILE FABRIC SHALL BE BLACK IN COLOR TO CONTROL THE RECURRENCE OF VEGETATIVE GROWTH AND EXTEND TO WITHIN 1 FOOT OUTSIDE THE SITE FENCING OR ELECTRICAL GROUNDING SYSTEM PERIMETER WHICH EVER IS GREATER. ALL FABRIC SHALL BE COVERED WITH A MINIMUM OF 4" DEEP COMPACTED STONE OR GRAVEL AS SPECIFIED. I.E. FDOT TYPE NO. 57 FOR FENCED COMPOUND; FDOT TYPE NO. 67 FOR ACCESS DRIVE AREA, UNLESS OTHERWISE NOTED.

10. IN ALL AREAS TO RECEIVE FILL: REMOVE ALL VEGETATION, TOPSOIL, DEBRIS, WET AND UNSATISFACTORY SOIL MATERIALS, OBSTRUCTIONS, AND DELETERIOUS MATERIALS FROM GROUND SURFACE. PLOW STRIP OR BREAK UP SLOPED SURFACES STEEPER THAN 1 VERTICAL TO 4 HORIZONTAL SUCH THAT FILL MATERIAL WILL BIND WITH (E)/PREPARED SOIL SURFACE.

11. WHEN SUB GRADE OR PREPARED GROUND SURFACE HAS A DENSITY LESS THAN THAT REQUIRED FOR THE FILL MATERIAL, SCARIFY THE GROUND SURFACE TO DEPTH REQUIRED, PULVERIZE, MOISTURE–CONDITION AND/OR AERATE THE SOILS AND RECOMPACT TO THE REQUIRED DENSITY PRIOR TO PLACEMENT OF FILLS.

12. IN AREAS WHICH (E) GRAVEL SURFACING IS REMOVED OR DISTURBED DURING CONSTRUCTION OPERATIONS, REPLACE GRAVEL SURFACING TO MATCH ADJACENT GRAVEL SURFACING AND RESTORED TO THE SAME THICKNESS AND COMPACTION AS SPECIFIED. ALL RESTORED GRAVEL SURFACING SHALL BE FREE FROM CORRUGATIONS AND WAVES.

13. (E) GRAVEL SURFACING MAY NOT BE REUSED.

14. GRAVEL SUB SURFACE SHALL BE PREPARED TO REQUIRED COMPACTION AND SUB GRADE ELEVATIONS BEFORE GRAVEL SURFACING IS PLACED AND/OR RESTORED. ANY LOOSE OR DISTURBED MATERIALS SHALL BE THOROUGHLY COMPACTED AND ANY DEPRESSIONS IN THE SUB GRADE SHALL BE FILLED AND COMPACTED WITH APPROVED SELECTED MATERIAL. GRAVEL SURFACING MATERIAL SHALL NOT BE USED FOR FILLING DEPRESSIONS IN THE SUB GRADE.

15. PROTECT (E) GRAVEL SURFACING AND SUB GRADE IN AREAS WHERE EQUIPMENT LOADS WILL OPERATE. USE PLANKING 'MATTS' OR OTHER SUITABLE PROTECTION DESIGNED TO SPREAD EQUIPMENT LOADS AS MAY BE NECESSARY. REPAIR ANY DAMAGE TO (E) GRAVEL SURFACING OR SUB GRADE WHERE SUCH DAMAGE IS DUE TO THE CONTRACTORS OPERATIONS.

16. DAMAGE TO (E) STRUCTURES AND/OR UTILITIES RESULTING FROM CONTRACTORS NEGLIGENCE SHALL BE REPAIRED AND/ OR REPLACED TO THE OWNERS SATISFACTION AT NO ADDITIONAL COST TO THE CONTRACT.

17. ALL SUITABLE BORROW MATERIAL FOR BACK FILL OF THE SITE SHALL BE INCLUDED IN THE BID. EXCESS TOPSOIL AND UNSUITABLE MATERIAL SHALL BE DISPOSED OF OFF SITE AT LOCATIONS APPROVED BY GOVERNING AGENCIES AT NO ADDITIONAL COST TO THE CONTRACT.

mobilitie
intelligent infrastructure

3475 PIEDMONT ROAD NE
SUITE 1000
ATLANTA, GEORGIA 30305
PHONE; (312) 638-5400

WW&A
warren williams & associates

736 CARNEROS CIRCLE
HIGH POINT NC, 27265

PROJECT NUMBER:	XXXX
DRAWN BY:	SB
CHECKED BY:	WW

0	02–20–18	FINAL CDs

SEAL:

COMMONWEALTH OF VIRGINIA
O. WARREN WILLIAMS, JR.
Lic. No. 37030
PROFESSIONAL ENGINEER

SIGNATURE

WA90XSCQ0D
9VAB002275
CHARLES ST &
WILLIAM ST
FREDERICKSBURG, VA 22401
NEW WOOD UTILITY POLE

SHEET TITLE
GENERAL NOTES

SHEET NUMBER
GN-3