

Conditional Use CU21050017

Staff Analysis

Commission District: 3- Shelnut

Planning Commission Hearing Date: 07-01-2021

Board of Commissioners Hearing Date: 08-03-2021

Parcel ID: Map C0520065

Acreage: 19.86 acres

Applicant:

Verizon Wireless

10300 Old Alabama Road

Alpharetta, Georgia 30092

Owner:

Geiger Farms LLC

1037 Woodall Cres

Tignall, Georgia 30668-4222

Property Location: 3670 Anglin Road

Current Character Area: Rural Residential

Current Zoning: A1

Request: Conditional Use for a cell tower.

Article 5 Permitted Uses
 Part 1 Permitted and Conditional Uses
 Section 100 Table of Permitted and Conditional Uses

A. The Permitted and Conditional Uses listed in the table below shall be permitted in Walton County zoning districts and no structure shall be erected, structurally altered or enlarged unless the use is permitted as:

NAICS Code	Principal Uses	Suppl. Reg	A	A1	A2	R1	R2	R3	MHP	OI	B1	B2	B3	TC	MUBP	M1	M2
513322	Cellular & Other Wireless Telecommunications	Yes	C	C	C							C	C	C	C	P	P

Site Analysis: The 19.86 acre tract of land is located on 3670 Anglin Road. The surrounding properties are zoned A1 and R1.

Zoning History: No History

Character Area: The character area for this property is Rural Residential.

Comments and Recommendations from various Agencies:

Public Works: Public Works recommends a commercial driveway apron be installed.

Sheriffs' Department: No impact to the Walton County Sheriff's Office.

Water Authority: This area is served by an existing 10" water main along Youth-Jersey Road (static pressure: 75 psi, Estimated fire flow available: 2,500 gpm @ 20 psi). No system impacts anticipated.

Fire Department: No concerns

Fire Code Specialist: No comment

Board of Education: Will have no effect on the Walton County School District.

Development Inspector: No comment received

DOT Comments: Will require GDOT coordination.

Archaeological Information: No comment received

PC ACTION 7/1/2021:

- 1. Conditional Use – CU21050017– Conditional Use for a telecommunications tower on 19.86 acres – Applicant: Verizon Wireless/Owner: Geiger Farms LLC – Property located on 3670 Anglin Rd-Map/Parcel C0520065 – District 3.**

Presentation: Shamaury Myrick with Verizon Wireless represented the case. Verizon Wireless wants to install a 195' tower that has a 4' lightning rod. It would be an 80X80 SQFT leased compound. It would support local 911 and EMS services and the coverage gap on Youth Jersey Road. There were no questions from the board.

Speaking: None

Recommendation: John Pringle made a motion to recommend approval with conditions that a Commercial Driveway Apron be installed with a second by Josh Ferguson. The motion carried unanimously.

Conditional Use Application # CU21050017

Planning Comm. Meeting Date 7-1-2021 at 6:00PM held at WC Board of Comm. Meeting Room - 3rd Floor
 Board of Comm Meeting Date 8-3-2021 at 6:00PM held at WC Historical Court House - 2nd Floor
 You or a representative must be present at both meetings

Please Type or Print Legibly

Map/Parcel C0520065

Applicant Name/Address/Phone #

Verizon Wireless

10300 Old Alabama Rd

Alpharetta, GA 30092

Phone # 678-277-3502

Location 3670 Anglin Rd Loganville, GA

Property Owner Name/Address/Phone

Geiger Farms LLC

1037 Woodall Cres

Tignall, GA 30668 -4222

(If more than one owner, attach Exhibit "A")

Phone # _____

Present Zoning AI Acreage 19.86

Existing Use of Property: Vacant/Farm Land

Existing Structures: NA

Property is serviced by:

Public Water: _____ Provider: _____ Well: _____

Public Sewer: _____ Provider: _____ Septic Tank: _____

The purpose of this conditional use is: To construct a 199' monopole telecommunications tower and 60' x 60' compound.

The above statements and accompanying materials are complete and accurate. Applicant hereby grants permission for planning and zoning personnel to enter upon and inspect the property for all purposes allowed and required by the Comprehensive Land Development Ordinance.

Signature Shamary Myrick

Date 5/18/2021

Fee \$250.00

Fee Paid

Public Notice sign will be placed and removed by P&D Office

Signs will not be removed until after Board of Commissioners meeting

Office Use Only:

Existing Zoning AI Surrounding Zoning: North AI South AI

Comprehensive Land Use Rural Residential East AI West RI

Commission District: 3-Shelnett Watershed: Cornish Creek

I hereby withdraw the above application _____ Date _____

Standard Review Questions:

Provide a written, documented, detailed analysis of the impact of the proposed zoning map amendment or conditional use with respect to each of the standards and factors specified in Section 160 listed below:

Conditional Use Permit Criteria

1. Adequate provision is made such as setbacks, fences, etc., to protect adjacent properties from possible adverse influence of the proposed use, such as noise, dust vibration, glare, odor, electrical disturbances, and similar factors.
 - a. The proposed site is designed to adhere to all the provisions of the code and to minimize possible adverse influences on adjacent properties.
2. Vehicular traffic and pedestrian movement on adjacent streets will not be hindered or endangered.
 - a. The proposed site will have minimal impact on the vehicular traffic in the area. The site, under normal conditions, will require maintenance quarterly, with one vehicle servicing the site.
3. Off-street parking and loading and the entrances to and exits from such parking and loading will be adequate in terms of location, amount and design to serve the use
 - a. There will not be any parking needed for the site.
4. Public facilities and utilities are capable of adequately serving the proposed use.
 - a. The proposed site will not need public facilities. The utilities in the area are sufficient for the proposed use.
5. The proposed use will not adversely affect the level of property values or general character of the area.
 - a. The proposed use should not have an adverse affect on the value or general character of the area.

**AUTHORIZATION
BY PROPERTY OWNER**

I swear that I am the property owner of the property which is the subject matter of the attached Petition for Rezoning/Conditional Use Application, as is shown in the records of Wilcox County, Georgia.

I authorize the named below to act as Applicant in the pursuit of a Petition for Rezoning/Conditional Use Application.

Name of Applicant: Verizon Wireless
Address: 10300 Old Alabama Rd. Alpharetta, GA 30092
Telephone: 678-277-3502
Location of Property: 3670 Anglin Rd. Loganville, GA

Map/Parcel Number: CO520065

Current Zoning: A1 Requested Zoning: A1

[Signature] _____
Property Owner Signature Property Owner Signature

Print Name: GEIGER FARMS, LLC Print Name: _____
Address: 1037 Woodhall Cres. Tignall, GA 30668 Address: _____
Phone #: (404) 219-8899 Phone #: _____

Personally appeared before me and who swears that the information contained in this authorization is true and correct to the best of his/her knowledge

[Signature] _____ Date: 4.19.21
Notary Public





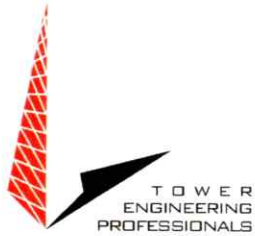
YOUTH JERSEY ROAD: CO-LOCATION STATEMENT

VERIZON YOUTH JERSEY ROAD CO-LOCATION STATEMENT: NO SUITABLE OR AVAILABLE STRUCTURES

This collocation statement is submitted in support of Verizon Wireless' application to construct a new cell tower in Walton County, GA, at 3670 Anglin Road, Loganville, GA (Coordinates Latitude 33.766315 and Longitude -83.835106. The collocation statement a) Explains Verizon's guidelines and standards for selecting the site, and b) Demonstrates that Verizon's site selection process is not incongruous but in harmony with the collocation requirements of Walton County Comprehensive Land Development Ordinance and specifically its Telecommunications Antennas and Towers provisions.

Three (3) guiding principles are used in our consideration of existing towers and tall structures for collocation when we search for a new tower site. They are as follows:

First, Verizon requires that the search for their new cell sites must first consider and exhaust all potential existing towers, existing tall structures, and any known proposed new towers before constructing a new cell tower. The building of a new cell tower is very expensive. It is time consuming. And it has a long drawn out and often complex Federal, state, and local government approval processes. Furthermore, Verizon is in the business of providing wireless telecommunications services to its customers, and satisfying its FCC license obligations in the county, and not the business of building, owning, and managing cell towers. Therefore, when



YOUTH JERSEY ROAD: CO-LOCATION STATEMENT

Verizon is building a new cell tower, there are no collocation opportunities available to address their coverage objectives.

Second, Verizon's site selection strategy and its priority to seek out collocation opportunities first is consistent with of Walton County's Telecommunications Antennas and Towers provision the stated purpose as follows: To Maximize use of any new and existing telecommunications towers through co-location so as to minimize the need to construct new towers and minimize the total number of towers throughout the County (Art.6. §100.E.(251).

Therefore, pursuant to Art.6. §130.D.8.(256), to provide information to justify why co-location on an existing tower is not being proposed, the Applicant states and provides the following information:

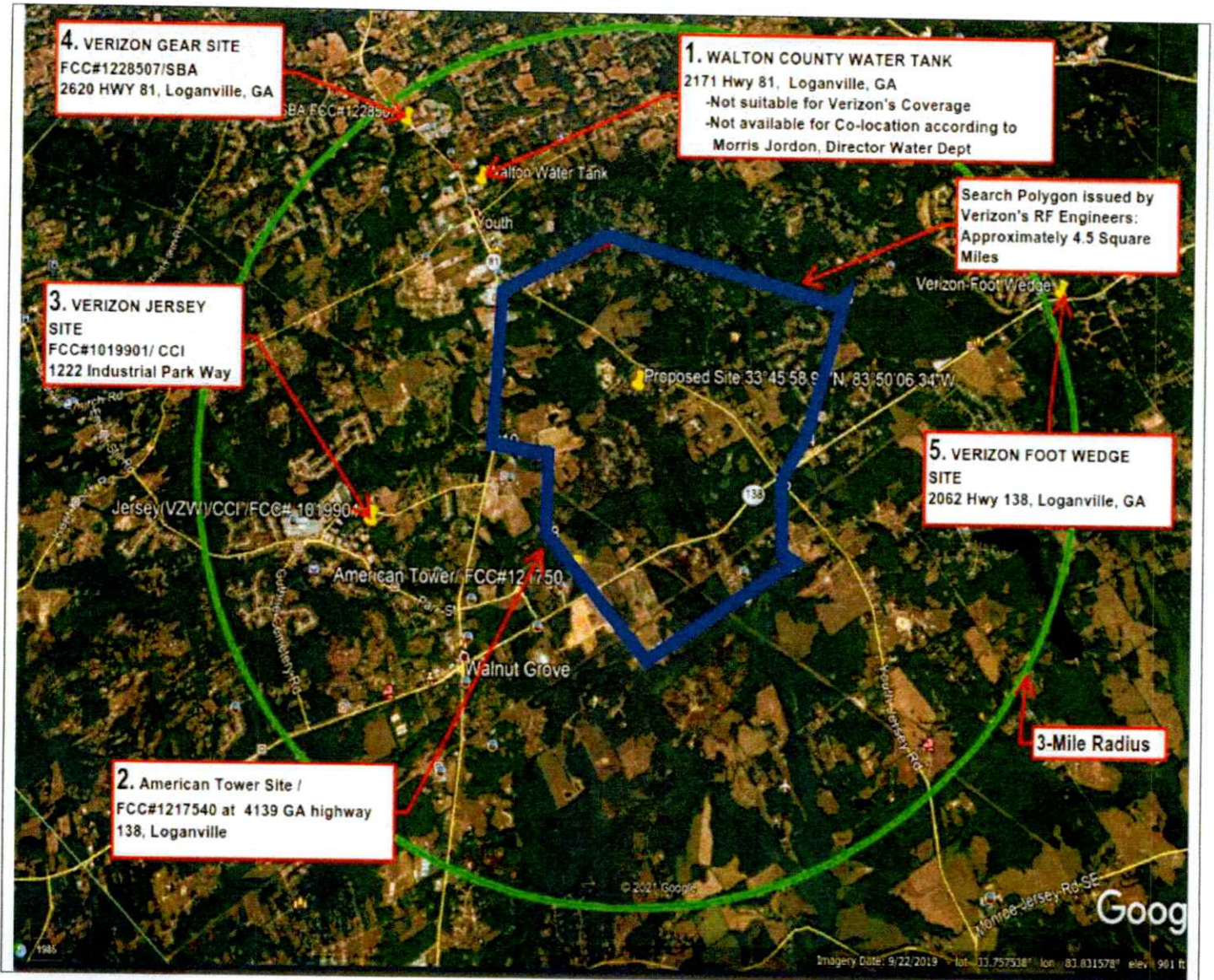
Tower Engineering Professionals (TEP) between October 15, 2019 and September 30, 2020, a period of approximately eleven months, conducted documents search and field review of a three (3) mile radius and of the proposed cell tower site for collocation opportunities and found no existing cell towers or alternative tall structures on which Verizon Wireless could co-locate to address its critical coverage problem in the area target by its Radio frequency engineers. A follow up review was further conducted between September 2020 and March 24, 2021 and the situation remained the same. No existing cell towers are tall structures were found that achieve Verizon's coverage objectives in the area. A map showing the 3-mile radius searched along with

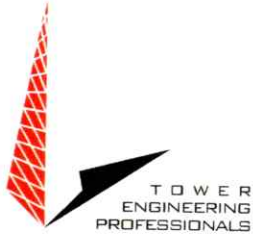


YOUTH JERSEY ROAD: CO-LOCATION STATEMENT

a highlighted polygon illustrating the area outlined by Verizon's Engineers in which the cell site must be collocated is provided below as Image 1.

IMAGE 1.: Verizon's engineer's search polygon and 3-mile radius area searched for collocation opportunities.





YOUTH JERSEY ROAD: CO-LOCATION STATEMENT

One (1) existing tall structure, a Walton County owned water tank, and four (4) existing cell towers were identified within the three (3) mile radius search area. None was found to be suitable to serve the targeted coverage area identified by Verizon. A description of the structure examined, and existing towers considered and the justification for their rejection by Verizon's Engineers are provided below:

1. Walton County Water Tank at 2171 Hwy 81, Loganville, GA 30052

Walton County Water Department Water tank located at 2171 Hwy 81 was examined by Tower Engineering Professionals and was rejected for two critical reasons.

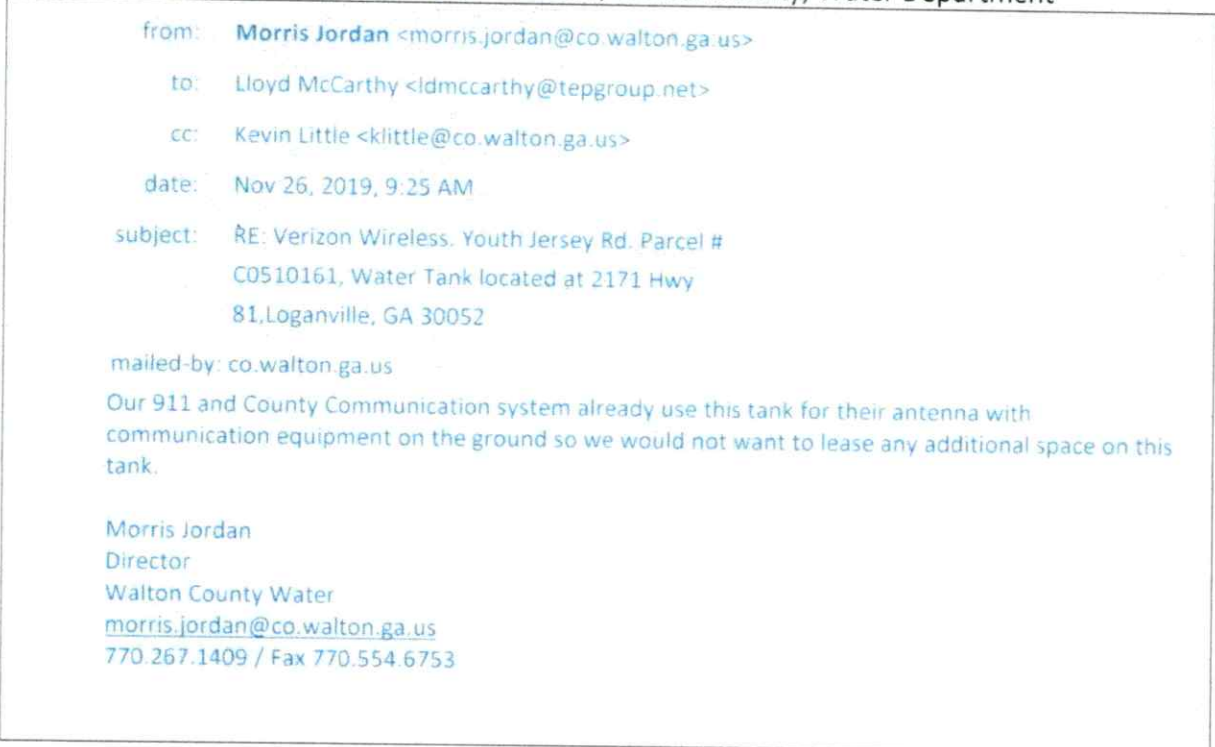
First, Morris Jordon, Director of Walton County Water Department, was contacted with a proposal in November 2019, for the Water Tank to be evaluated for collocation. The proposal was rejected by Walton County Water Department. On November 26, 2019 Morris Jordon advised as follows: Our 911 and County Communication system already use this tank for their antenna with communication equipment on the ground so we would not want to lease any additional space on this tank. On November 26, 2019 Morris Jordon advised as follows: Our 911 and County Communication system already use this tank for their antenna with communication



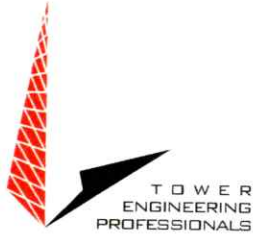
YOUTH JERSEY ROAD: CO-LOCATION STATEMENT

equipment on the ground so we would not want to lease any additional space on this tank. A copy of rejection message received from the county is provided below, as Image 2.

IMAGE 2.: Copy of Message from Morris Jordan, Walton County, Water Department



Second, Verizon's Engineers determined that the county's water tank was unsuitable to achieve their coverage objectives because it is almost two (2) miles NE and therefore too far away to provide coverage for the area from the area target for coverage. A map depicting the location of the water tank and its proximity to the area targeted for coverage and its proximity to the proposed cell site is shown at Image 2 (above).



YOUTH JERSEY ROAD: CO-LOCATION STATEMENT

2. American Tower Site / FCC#121754: 4139 GA highway 138, Loganville, GA

American Tower Site / FCC#1217540 located at 4139 GA highway 138, Loganville, GA (N33.749250°, W -83.841611°) was in the collocation review process and was rejected by Verizon's Radio Frequency Engineers. The Engineers advised that the existing tower was too close to an existing Verizon site called Jersey(CCI /FCC# 1019901) located West at 1222 Industrial Park Way, Loganville. The map at **Image 1.** above shows the American Tower owned existing cell tower and its proximity to the proposed cell site.

3. Verizon-Jersey--Crown Castle Tower/ FCC# 1019901: 1222 Industrial Park Way, Loganville

During the collocation review process, the Crown Castle International owned existing cell tower located at **1222 Industrial Park Way, Loganville** was examined. It was approximately 1.8 miles West of the proposed cell site. Verizon's radio frequency engineers confirmed that Verizon is already collocating on the tower and unsuitable to achieve Verizon's coverage objectives for the target area. The location of the existing tower and its proximity to the proposed cell site is illustrated at **Image 1.**



YOUTH JERSEY ROAD: CO-LOCATION STATEMENT

4. Verizon-Gear: SBA Communications Tower/FCC#1228507 at 2620 HWY 81, Loganville, GA

The existing SBA tower located approximately 2.8 Miles NW, at 2620 HWY 81, Loganville, was examined and rejected by Verizon's Radio Frequency Engineers. The Engineers advised that is the location of Verizon's existing site called Gear. It was too far North and unable to provide coverage for the area with the coverage problem. The Verizon site Gear is shown in **Image 1**.

5. Verizon Site Foot Wedge Loganville, GA (N33.77671, W-83.783) at 2066 HWY 138

An existing tower located approximately 3.2 miles East of the proposed cell site at 2066 Hwy 138, Loganville. Evaluations for collocation found that the tower was tower far East and that Verizon was already collocating on that tower. Verizon's Radio Frequency Engineers confirmed that it was Verizon's site called Foot Wedge. Consequently, it was rejected as a candidate for collocation. See Image 1. above for the existing tower's location and its proximity to the proposed tower site.

TO CONCLUDE, Tower Engineering Professionals collocation evaluation, conducted over the period October 2019 to March 24, , found no existing cell towers or tall structures suitable to address Verizon's coverage objectives for the proposed cell tower site. All existing towers and tall structure within a 3 mile radius of the proposed cell tower site were examined and rejected as unsuitable to address Verizon's coverage objectives for the proposed cell tower site.



YOUTH JERSEY ROAD: CO-LOCATION STATEMENT

Respectfully Submitted,

Lloyd McCarthy, BCP, MA
Site Acquisition Specialist
Tower Engineering Professionals
326 Tryon Road
Raleigh, NC 27603
Phone: (919) 539-4338
Email:ldmccarthy@tepgroup.net



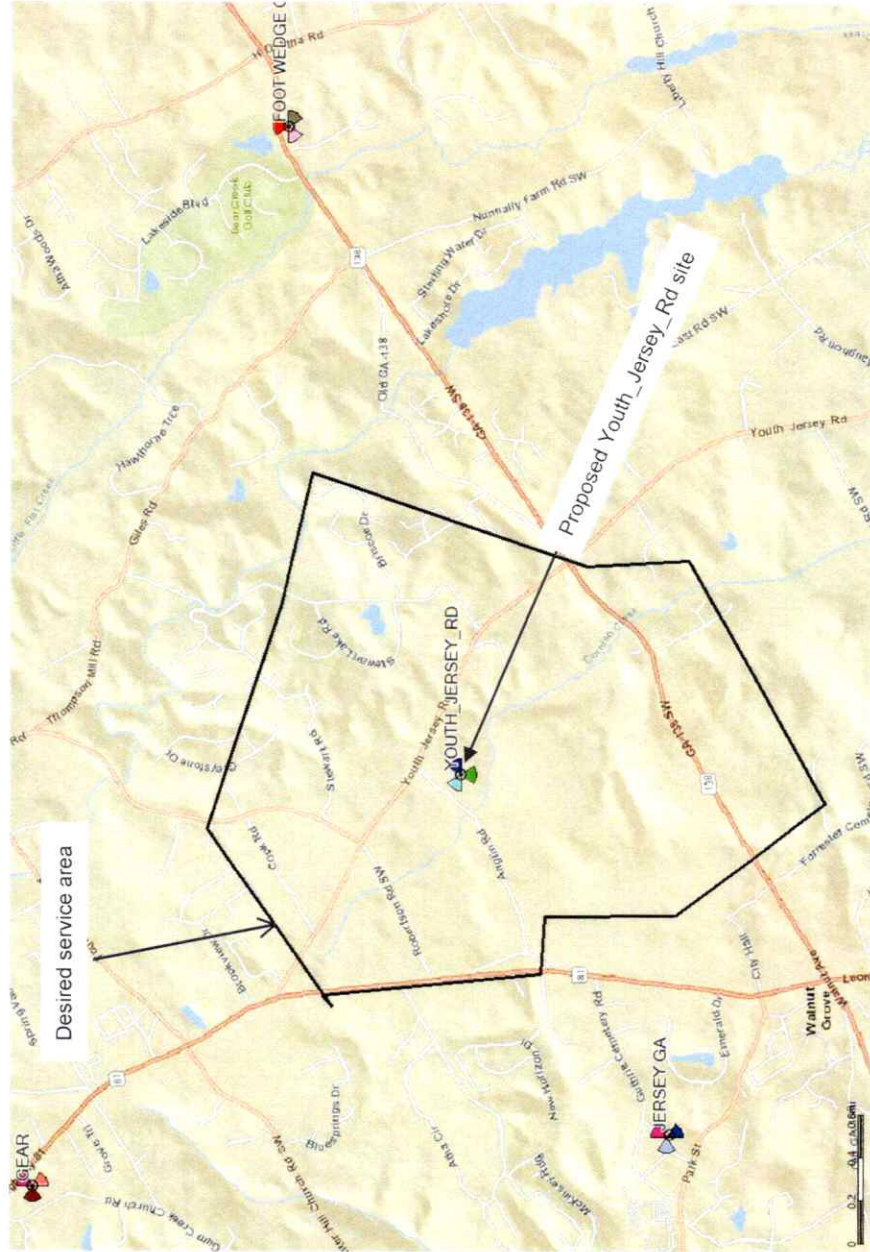
RF Justification with propagation maps Youth_Jersey_Rd

19 Mar 2021

SRIHARI NIMMAGADDA
Radio Frequency Engineer
Verizon Wireless



Service Area



- Youth_Jersey_Rd proposed location is located near 3670 Anglin Road, Loganville, GA 30052 in Walton County
- Location Coordinates
33°45'58.97"N, 83°50'06.34"W
- Service improvements targeted on the area enclosed in black polygon as shown to the left. Objective is to improve In-building, In-Car & Street level coverage to residences, businesses, vehicles traveling along approximately 2.2 mile stretch of Youth_Jersey_Rd within the desired service area (black polygon shown), and other streets GA-138, GA-81, Robertson Rd, Broadnax Mill Rd, Residences along Cook Rd, Steward Rd, Stewart Lake Ct, Biscoe Dr, Magnolia Way, Meridian Lake DR, and other small roads with in the desired service area.

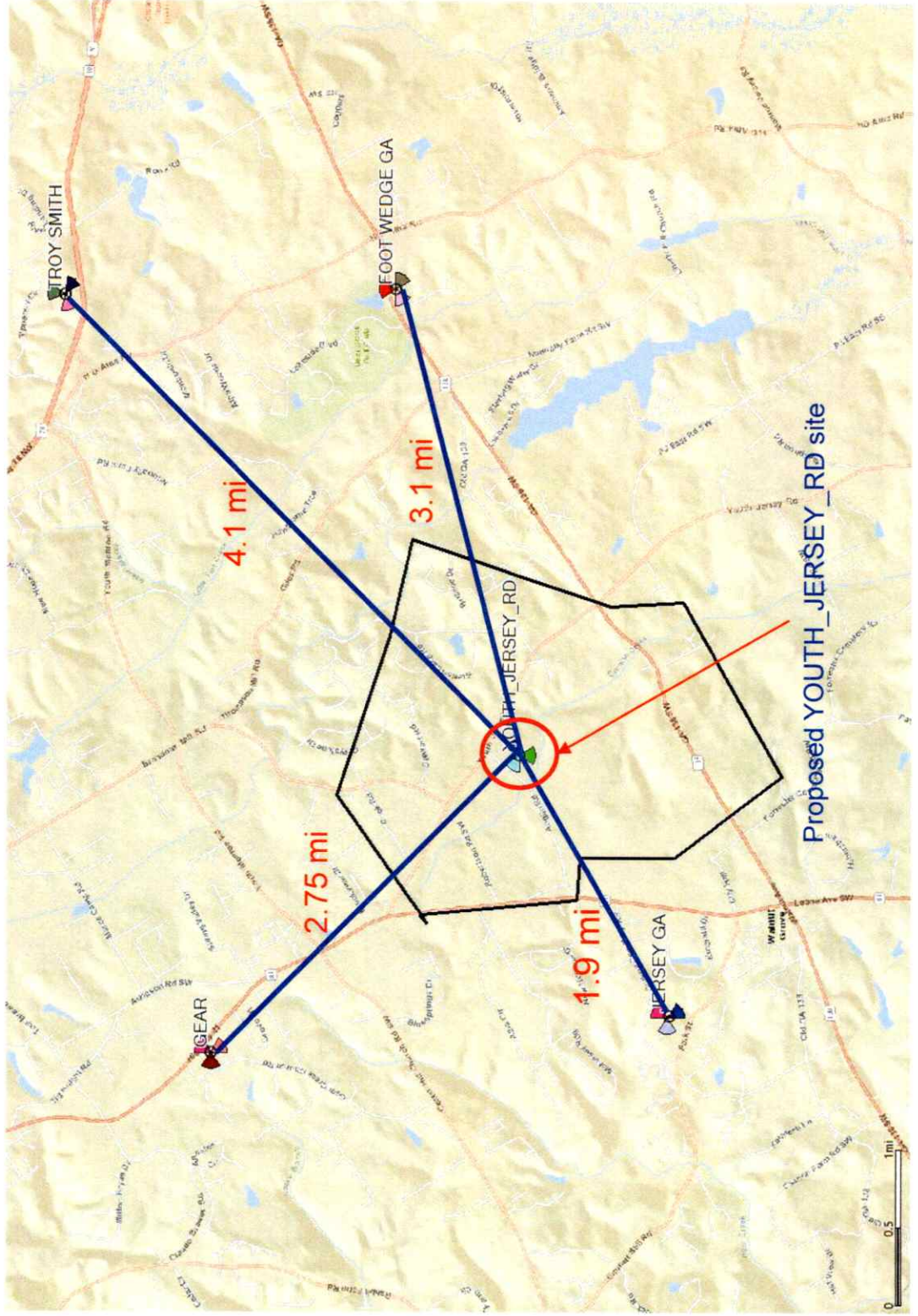


Existing Verizon sites list around proposed site Youth_Jersey_Rd

Site Friendly Name	Latitude	Longitude	Street Address	State	City	County	Zip Code
JERSEY	33.753167	-83.864349	1222 Industrial Pkwy	GA	Loganville	Walton	30052
GEAR	33.79586111	-83.86697222	2630 Hwy 81	GA	Loganville	Walton	30052
TROY SMITH	33.807381	-83.782456	1781 Highway 78	GA	Monroe	Walton	30655
FOOT WEDGE	33.77671	-83.78301	2062 GA HWY 138	GA	Monroe	Walton	30655

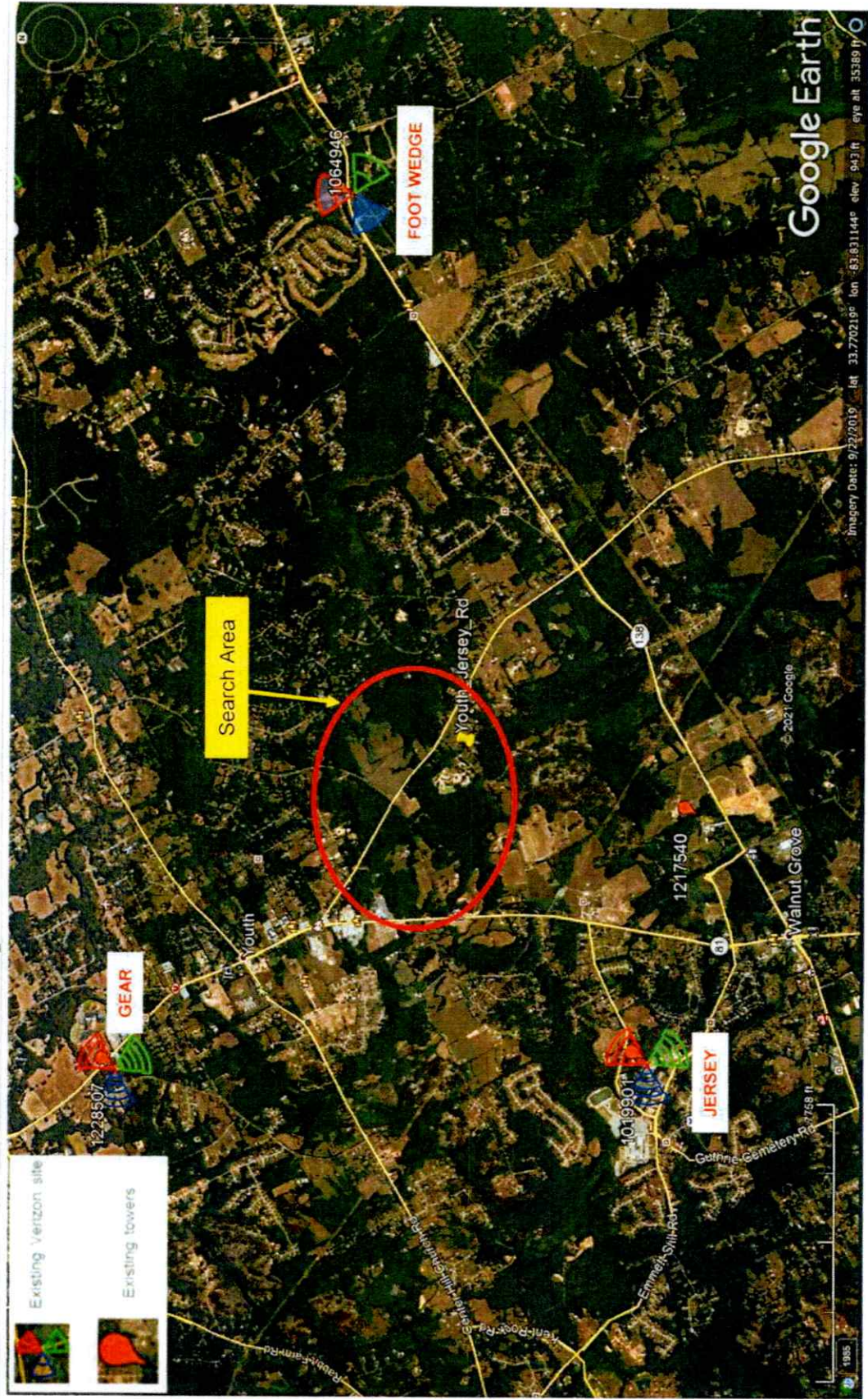


Distance of proposed site to the existing VZW sites





Inventory of existing towers around the Youth_Jersey_Rd search area – Google earth map





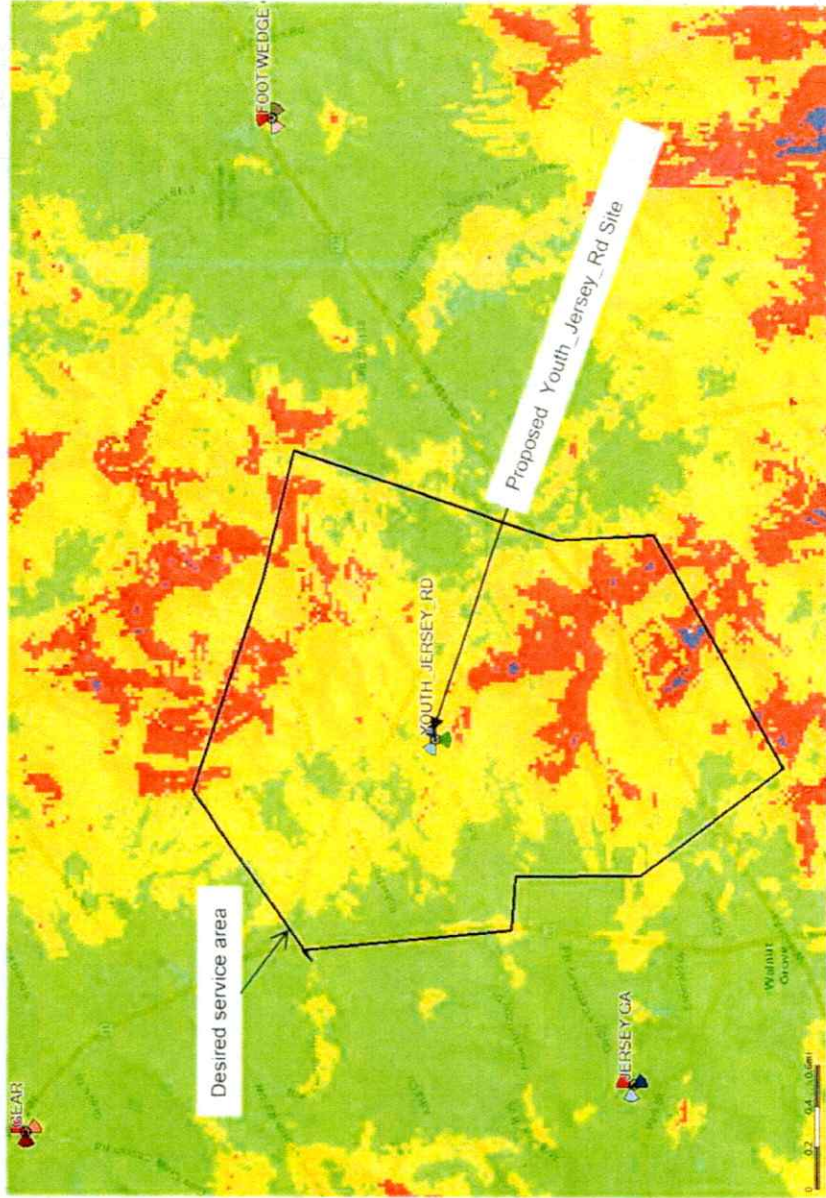
Inventory of existing towers around the Youth_Jersey_Rd search area - Table

Owner Name	Registration Number	Latitude	Longitude	Structure City/State	Structure Height (ft)	Structure Type	Comments
SBA Towers III LLC	1228507	33.79586	-83.86697	Loganville, GA	250	Lattice Tower	Verizon existing site(GEAR)
Crown Castle South LLC	1019901	33.75317	-83.86436	Loganville, GA	201	Lattice Tower	Verizon existing site(Jersey)
American Towers LLC	1064946	33.77672	-83.78303	Monroe, GA	251	Lattice Tower	Verizon existing site(Foot Wedge)
American Towers LLC	1217540	33.74925	-83.84161	Monroe, GA	262	Lattice Tower	Too close(1.3 miles) to existing Verizon site Jersey.

The closest existing tower which is not an Verizon colocation is American Towers LLC (1217540) which is 1.25 miles from proposed location for Youth_Jersey_Rd. However, as shown in slide # 9, this is not improving the coverage that well in the desired service area and is also too close (only 1.3 miles) from existing Verizon site, Jersey which will have too much overlapping coverage between both which is an inefficient way of adding a new site and could also cause poor service to customers in the area due to interference.



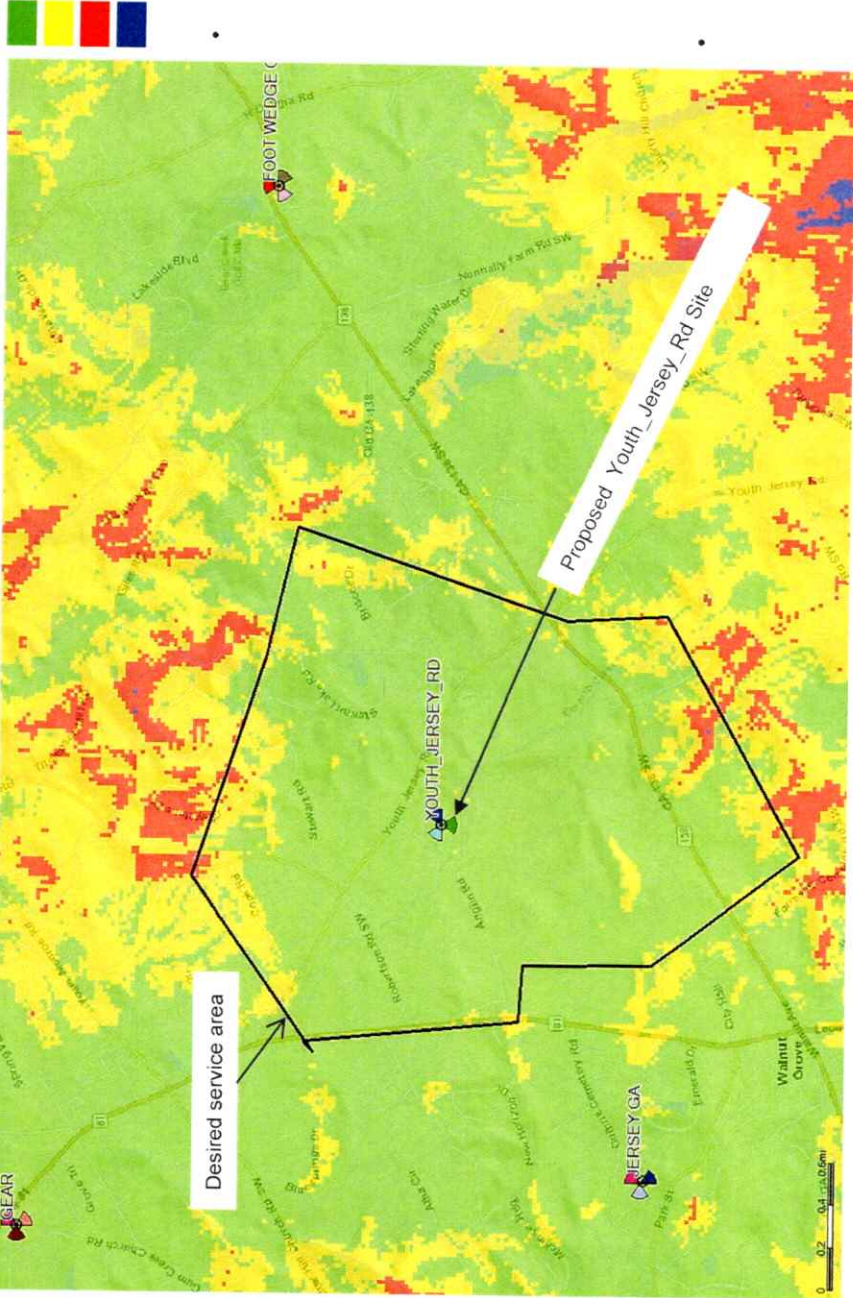
Existing LTE Coverage



- As shown, there is no adequate In-building & In Car coverage in residential areas East and SW of Youth Jersey Rd and also in the areas on both sides of GA 138 SW and in farm houses along Robertson Rd SW & Anglin Rd.
- In general majority of the area inside the polygon is lacking in building coverage.



Proposed LTE Coverage with Youth_Jersey_Rd Site – 190 feet Rad. Center



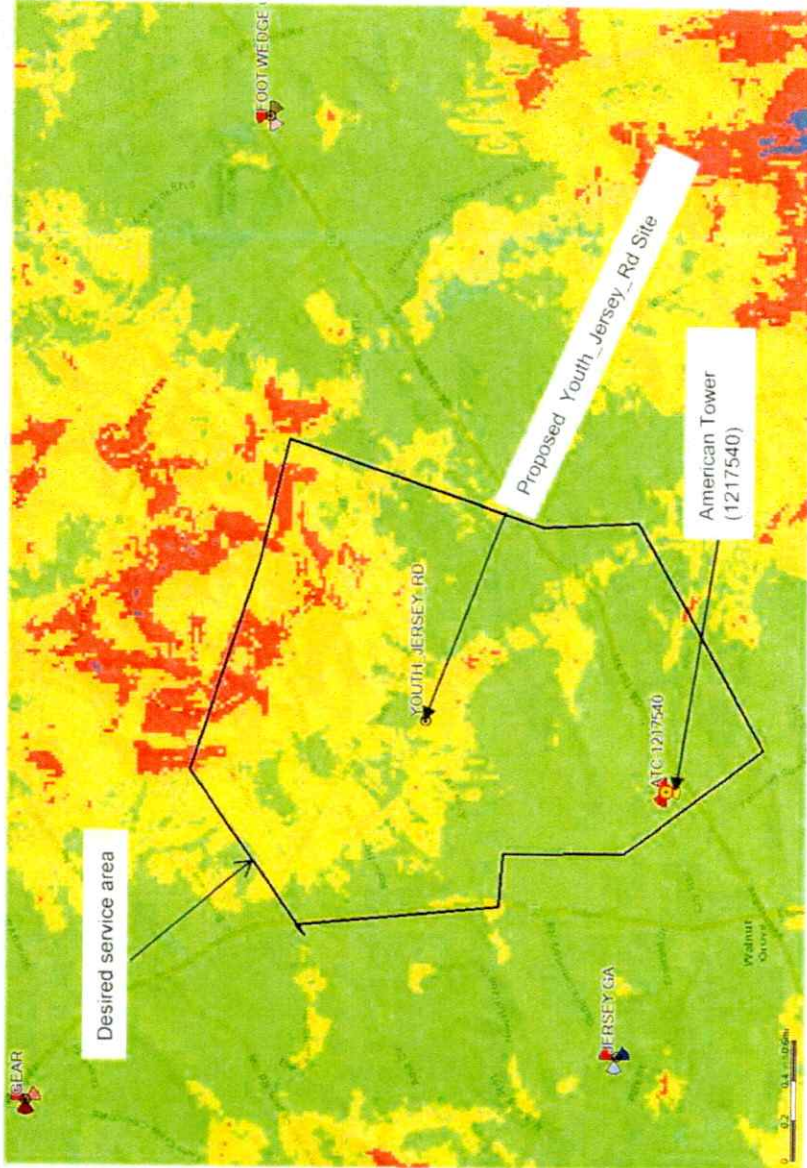
- Inbuilding Coverage
- In Car Coverage
- On Street Coverage
- Poor Coverage

As shown, there is a good improvement in In-building, In-Car & Street level coverage to residences, businesses, vehicles travelling along approximately 2.2 mile stretch of Youth_Jersey_Rd within the desired service area (black polygon shown), and other streets GA-138, GA-81, Robertson Rd, Broadnax Mill Rd, Residences along Cook Rd, Steward Rd, Stewart Lake Ct, Biscoe Dr, Magnolia Way, Meridian Lake DR, and other small roads with in the desired service area.

As such proposed Youth_Jersey_Rd site location will help improve In building, In car and On street coverages within the desired service area.



Proposed LTE Coverage with American Towers LLC (1217540) – 190 feet Rad. Center

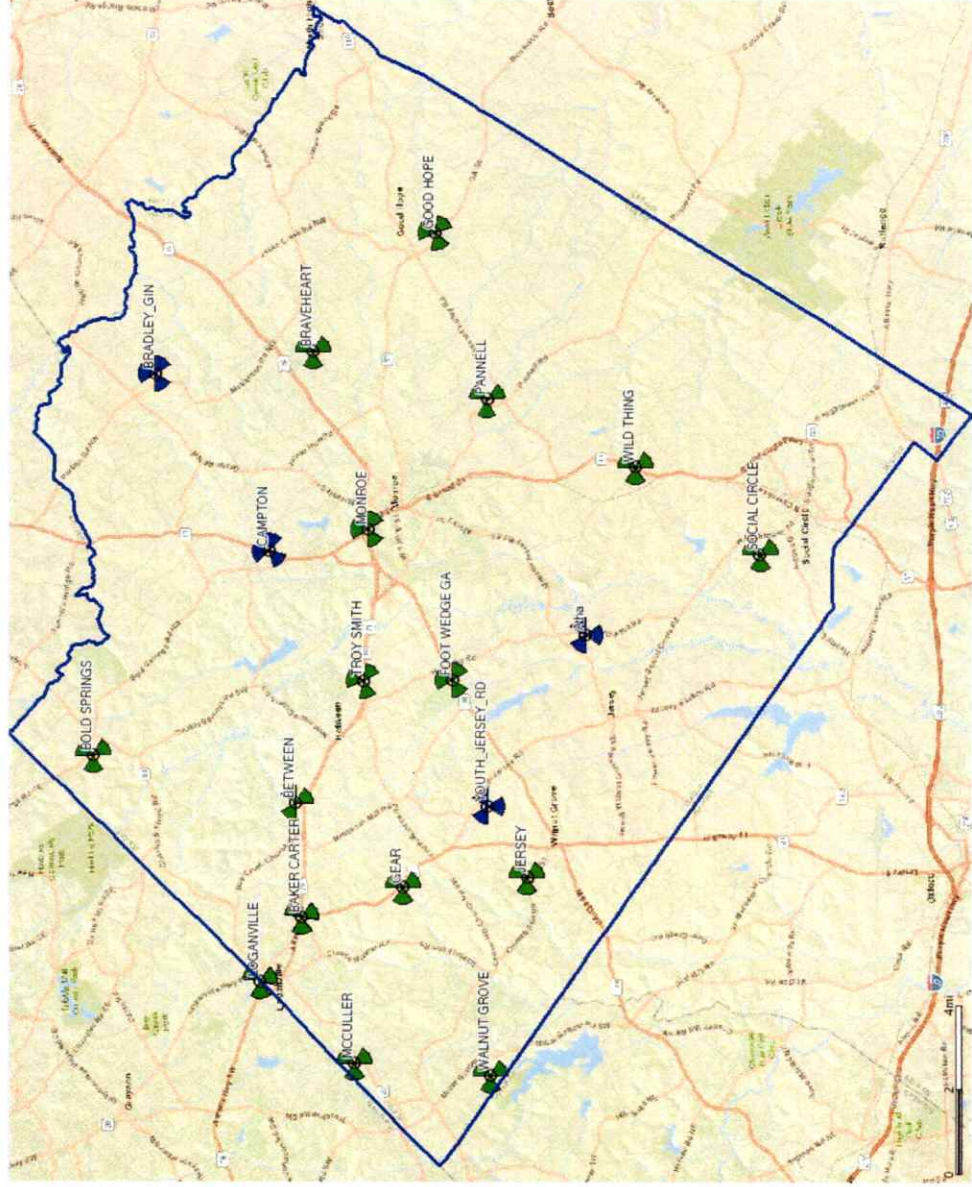
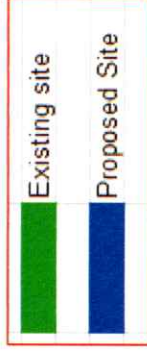


- Inbuilding Coverage
- In Car Coverage
- On Street Coverage
- Poor Coverage

- As shown, coverage from ATC tower (1217540) is not improving in building and in car coverage in residential areas to the North East and West of Youth Jersey Rd which is one of the major objectives of proposed new site. In general there is no improvement in in building coverage in approximately 40% of desired service area.
- 2nd reason why ATC 1217540 is not a viable candidate is due to it's close proximity (only 1.3 miles) from existing Verizon site Jersey which will have too much overlapping coverage between both sites which is an inefficient way of adding a new site and could also cause poor service to customers in the area due to interference.
- As such American Tower LLC location is not a good location to improve coverage within the desired service area.



Walton County - Map of existing sites & proposed sites (Available 5 year plan)



Note:- Site list with the requested Information is provided separately.

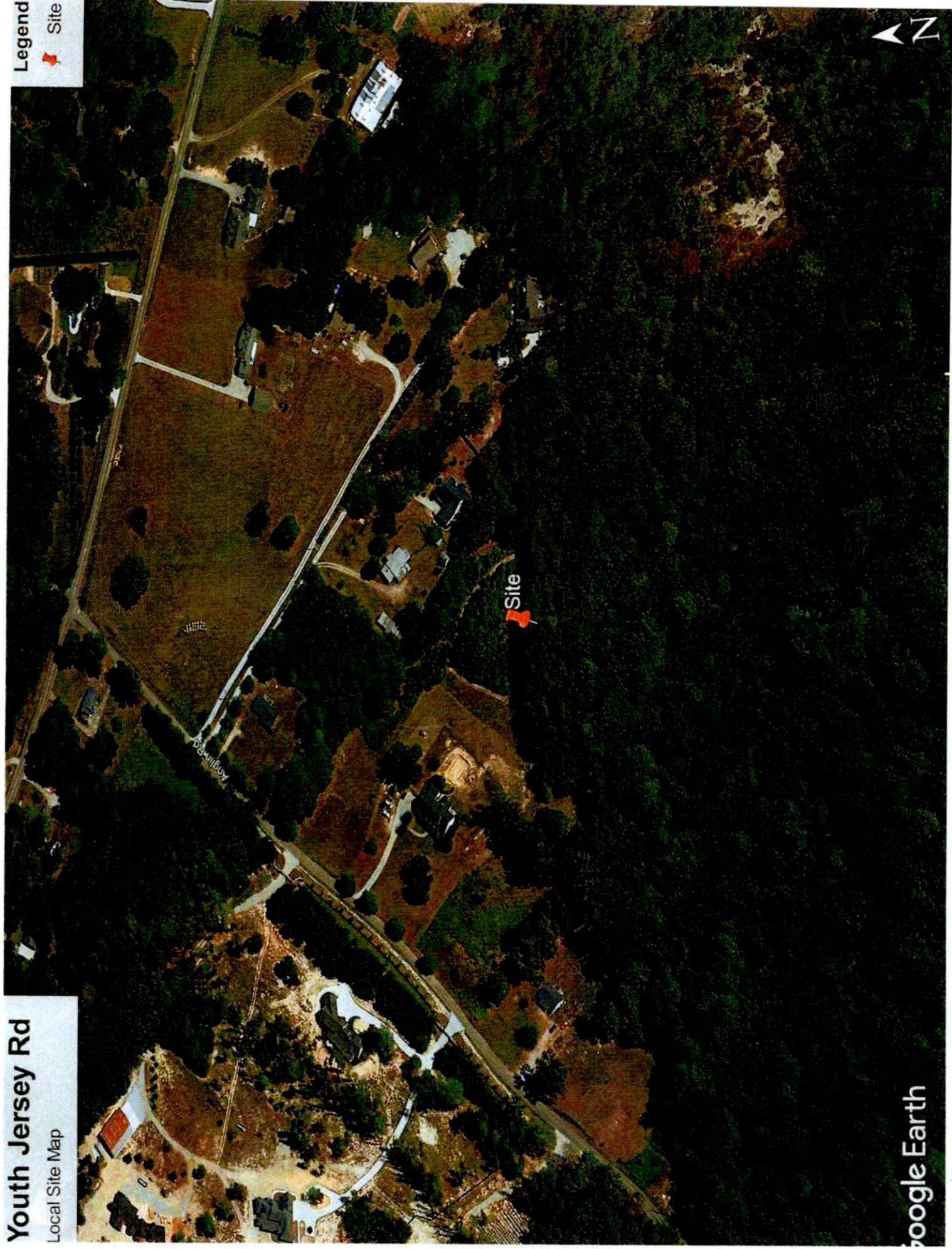
Note:- Proposed sites are what was planned as of today and is only tentative and may change depending on future demands and budget. Additional sites may be planned in next 5 years depending on future demands which is un deterministic at this point of time.

Youth Jersey Rd

Local Site Map

Legend

- Site

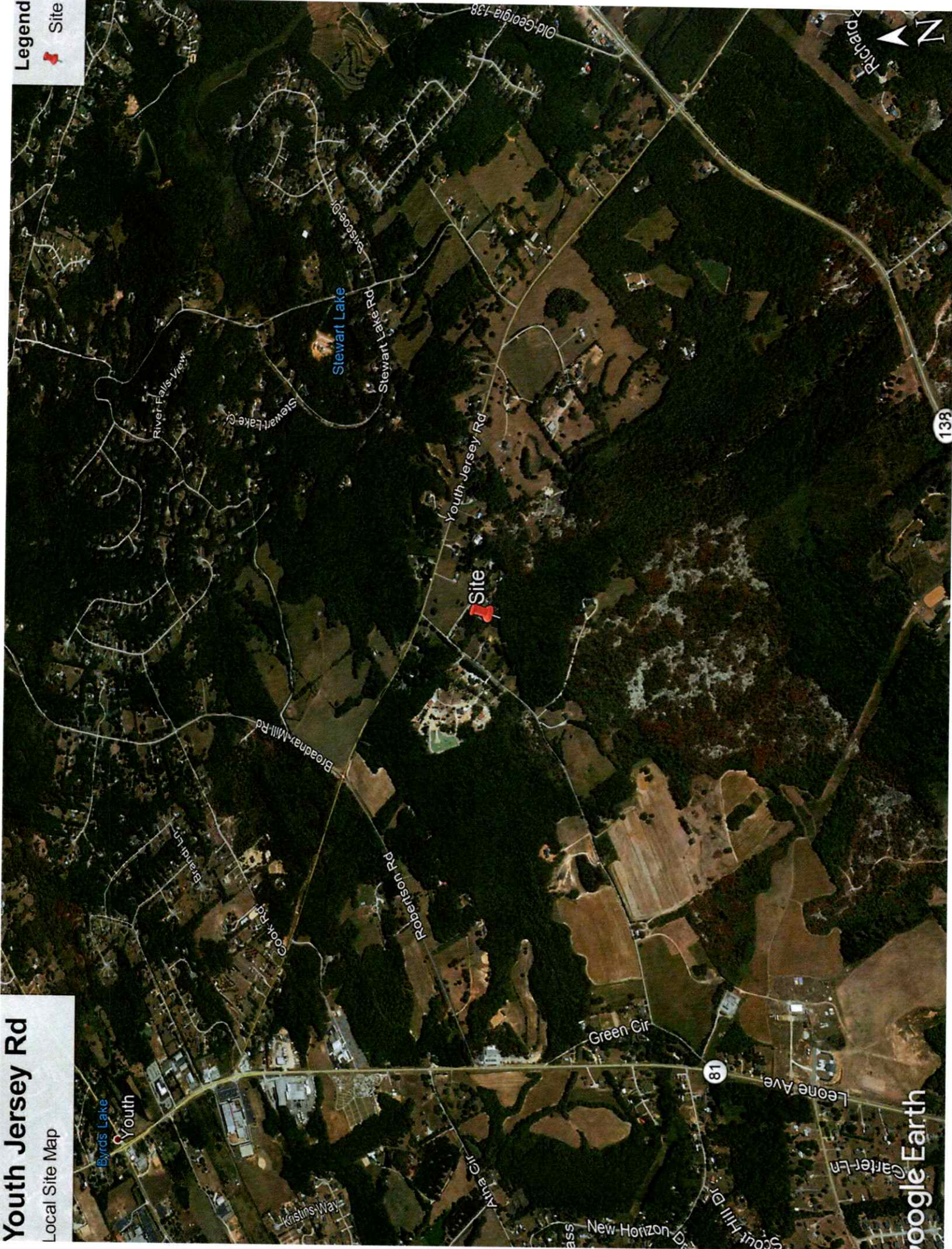


Youth Jersey Rd

Local Site Map

Legend

Site



Google Earth

STATE OF GEORGIA

Secretary of State

Corporations Division

313 West Tower

2 Martin Luther King, Jr. Dr.

Atlanta, Georgia 30334-1530

ANNUAL REGISTRATION

Electronically Filed

Secretary of State

Filing Date: 2/22/2021 11:08:07 AM

CONTROL NUMBER 10054158
BUSINESS NAME GEIGER FARMS, LLC
BUSINESS TYPE Domestic Limited Liability Company
EFFECTIVE DATE 02/22/2021
ANNUAL REGISTRATION PERIOD 2021, 2022

ADDRESS 1037 Woodall Crescent, Tignall, GA, 30668, USA

NAME	ADDRESS	COUNTY
Powell, Anthony O. L.	10 Lumpkin Street, Lawrenceville, GA, 30046, USA	Gwinnett

AUTHORIZER SIGNATURE Vince T Geiger
AUTHORIZER TITLE Member



Tower Procurement Package for Monopole Tower

Youth Jersey Rd
TEP No. 145469.511925
March 23, 2021
Page 1 of 8

- Site Name:** Youth Jersey Rd
Site Number: 504719
Site Address: Anglin Rd
Loganville, GA 30052
(Walton County)
Latitude: N 33° 45' 58.97"±
Longitude: W 83° 50' 06.34"±
- Structure Type:** Proposed 195-ft Monopole
- Contact Information:** Do **NOT** contact the owner with questions regarding the content of this Document. All questions or concerns shall be directed via email to: Matthew G. Young, P.E. (myoung@tepgroup.net)
- Design Capacity:** The tower shall be designed so that, once installed with all loading as shown in Table 2 – Design Antenna/Coax Loading, the tower superstructure and substructure shall **NOT exceed 100% of its capacity**. If, upon evaluation the design computes to be at a greater stress level than specified the bid will not be accepted. All bidders must provide design calculations verifying that this Design Capacity Requirement is met; see "Deliverables" for details.
- Materials:** Monopoles shall be tapered steel sections of polygonal or round cross-sections. No other materials or shapes shall be given consideration. However, straight sections with a flange connection are allowed to extend existing monopoles.
- Design Fall Radius:** No Fall Radius Required
 Fall Radius Required from Centerline of Tower: 100 -ft
- Standard:** As a minimum, all towers shall be designed to the requirements of ANSI/TIA-222-H, including released addendums.
- Design Wind Speed:** 108 mph (Ultimate 3-Second Gust Wind Speed) in accordance with the 2018 International Building Code to be used with the ANSI/TIA-222-H Structural Standard for Antenna Supporting Structures, Antennas and Small Wind Turbine Support Structures.
- Structure Class:** Structure Class I – Low Hazard
 Structure Class II – Substantial Hazard
 Structure Class III – High Hazard (Essential Communications)
- Topographic Cat.:** Category I – No abrupt changes in general topography
 Category II – Structures located at or near the crest of an escarpment
 Category III – Structures located in the upper half of a hill
 Category IV – Structures located in the upper half of a ridge
 Category V – Wind speed up criteria based on a site-specific investigation
- Exposure Category:** Exposure B – Urban and suburban areas
 Exposure C – Open terrain with scattered obstructions
 Exposure D – Flat, unobstructed shorelines
- Design Ice Loading:** Not required
 Ice loading per the TIA Standard (1.5-in with 30 mph 3-Second Gust Wind Speed)
- Seismic:** Not required (Site Specific $S_s = 0.184$)
 Seismic loads shall be evaluated in accordance with the Standard



Tower Procurement Package for Monopole Tower

Youth Jersey Rd
TEP No. 145469.511925
March 23, 2021
Page 2 of 8

Tower Finish:

- Galvanized
- Painted per FAA Advisory Circular AC 70/7460-1K
- Painted per Local Requirements

All structural steel products shall be hot-dip galvanized in accordance with ASTM A123 specifications. Tower manufacturer shall produce documentation verifying the appropriate galvanizing process what utilized. All steel hardware shall be galvanized in accordance with ASTM A153 or ASTM B695 specifications.

Tower Lights:

- Not required
- Provide obstruction lights per FAA Advisory Circular AC 70/7460-1K
- Tower lighting system with E1 (white strobes by day, and red lights at night). Beacons and Obstruction lights shall be all LED and Dual Red/White medium intensity and shall meet the requirements of FAA Advisory Circular AC 70/7460-1K. Ice shields shall be installed above sidelights to prevent damage to lenses from falling objects.

Grounding:

- Not required

Climbing Facilities:

- Not required
- Provide Climbing Facilities with safety climb

All structures, excluding stealth, shall be equipped with at least one safety fall protection system incorporating a 3/8" diameter corrosion resistant cable meeting OSHA/ANSI specifications. The device shall be installed to span the full height of the structure.

Ice Bridge:

- Not required; carrier to provide
- Provide an option for Ice Bridge

Transmission Ladder:

- Not required; carrier to provide
- Provide an option for Transmission Ladder. Provide "per foot" pricing.

Foundation:

- Provide Reactions; A Geotechnical Report will be provided at a later date for the foundation design
- Design with Normal Soils per the TIA Standard
- Design with Geotechnical Report provided, see Appendix E. In accordance with ANSI/TIA-222-G, Annex A, Section A.9.0, the tower manufacturer shall ensure the proper development of anchor rods and anchorage materials. Please provide two foundation design options:
 - 1) Deep Foundation – Caisson
 - 2) Shallow Foundation – Pad and Pier

Antenna Mounts:

- Not required; Antenna Mounts provided by carrier
- Provide an option for mounts per Table 2 – Design Antenna/Coax Loading



Additional Design Requirements

Minimum Sizes:

Monopole is to have a top diameter of 21" or greater. For poles with 4 or more carrier levels, minimum top diameter is to be 30". Monopoles must have sufficient diameter to allow installation of all required feed lines inside the pole such that the pole interior cross-sectional area is at least 4 times the total area of feed lines.

Base Plate Design:

Monopole base plates must be designed with a thickness derived using industry accepted methods of analysis with due consideration to the problems associated with the generation of fatigue cracks in the heat affected zone of the shaft to base plate welded connection. In addition, the base plate design must be acceptable when analyzed by TEP.

Linear Appurtenances:

All feed lines shall be run on the inside of monopoles. Portholes shall be designed accordingly.

Discrete Appurtenances:

Effective Projected Area (EPA)_A for antennas shall be determined according to TIA-222-H, Section 2.6.11.2, Design Wind Force on Appurtenances. If antenna or mount areas are specified, the provided values shall be used in lieu of calculated values. If height, width, and depth dimensions are provided by the antenna manufacturer, the panel shall be treated as a flat rectangular panel. Force coefficients shall be determined based on antenna aspect ratios and multiplied by the projected areas to calculate front and side EPAs.

Wind tunnel test results shall NOT be used unless the results have been provided to TEP and proposed effective areas have been approved. Back calculating wind areas from published antenna manufacturer's wind loads is prohibited.

For all mounts see Table 1 – Minimum Antenna Mount EPA Requirements for projected areas for quotation purposes. Note that in general, mounts are not purchased with the tower. However, larger mount areas may be used if the RFQ states that mounts are to be purchased with the tower. Mounting pipe areas shall be considered for each antenna as per TIA-222-H requirement.

Deliverables:

A PDF softcopy of all deliverables shall be sent to TEP for record purposes. All tower designs shall be complete with the following:

- General Notes
- Profile drawing (with tower reactions, design parameters, materials grades and referenced codes and standards shall be clearly shown)
- Foundation design drawings
- Supporting design calculations
- Bill of Materials

Note:

To facilitate the review process, connection information (such as edge distances, gage lines, etc.) for a rigorous structural analysis may be requested by TEP.



Table 1 – Minimum Antenna Mount EPA Requirements

Mount Description	(EPA) _A – ft ²					
	No Ice	1/4" Ice	1/2" Ice	3/4" Ice	1" Ice	1-1/4" Ice
Low Profile Platform	26	28.5	31	33.5	36	38.5
Full Platform w/ Handrails	35	40	45	50	55	60
(3) Sector Frames	35	40	45	50	55	60
(3) 12-ft T-Arms	15	17.5	20	22.5	25	27.5
Sidearm Mount	10	11.5	13	14.5	16	17.5
Pipe Mount	4	4.5	5	5.5	6	6.5
Dish Mount	4	4.5	5	5.5	6	6.5

- ¹ – The areas shown include shielding factors (K_s)
- ² – Linear interpolation may be used for other ice thicknesses
- ³ – Mounting pipe and antenna areas are not included

Table 2 - Design Antenna/Coax Loading

Height (ft)	Mount	Entry Port	Exit Port	Description / Model	Coax	Coax Location
190	Full Platform w/ Handrails	■	■	(6) Commscope NHH-65C-R2B (3) Ericsson 4408 (3) Ericsson RRUS 4449 (3) Ericsson RRUS 8843 (2) Raycap RVZDC-6627-PF-48	(2) 1-5/8"	Inside Pole



Appendix A

Verification of Wind Speed



Appendix C

Antenna and TMA Specifications

Radio Description

Radio 4449

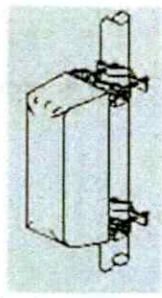
Description

ERICSSON 4408

Application Name Selection

US Name

SI Name



Type

Generic Height in

Flat Panel Width in

Triagonal [LPD] Depth in

Cylindrical [Omni] Weight K

Mount

2" Pipe

2 1/2" Pipe

3" Pipe

3 1/2" Pipe

Length in

		No Ice	1/2" Ice	1" Ice	2" Ice	4" Ice
Weight	K	<input type="text" value="0.01"/>	<input type="text" value="0.016614"/>	<input type="text" value="0.023704"/>	<input type="text" value="0.043386"/>	<input type="text" value="0.110204"/>
CaAa [Front]	ft^2	<input type="text" value="0.645167"/>	<input type="text" value="0.755136"/>	<input type="text" value="0.873747"/>	<input type="text" value="1.136895"/>	<input type="text" value="1.766895"/>
CaAa [Side]	ft^2	<input type="text" value="0.408333"/>	<input type="text" value="0.499506"/>	<input type="text" value="0.599321"/>	<input type="text" value="0.824877"/>	<input type="text" value="1.379691"/>

Radio Description

Radio 8843

Description



3 Technical Data

Table 1 Radio 4449 Technical Data

Description	Value
Maximum nominal output power ^{(1) (2)}	B5: 4×40 W, B13: 4×40 W B5: 2×60 W, B13: 2×60 W (License key is required for total output power over 2×10 W.)
Number of carriers per branch	B5: Up to three carriers B13: Up to one carrier
Number of carriers per radio	Up to 16 carriers
Frequency ⁽³⁾	824–849 MHz uplink 869–894 MHz downlink B5 for LTE 777–787 MHz uplink 746–756 MHz downlink B13 for LTE
Dimensions	
Height	455 mm
Width	335 mm
Depth	240 mm
Weight	
Radio 4449	32 kg
Color	
Body	NCS S 1002-B
Front	NCS S 6502-B

(1) Detailed information about LTE licences can be found in *License Management* or *Manage Licenses*.

(2) Detailed information about output power can be found in applicable *Output Power User Guide*.

(3) Information about Instantaneous Bandwidth (IBW) can be found in *RBS Configurations*.



(3) Information about Instantaneous Bandwidth (IBW) can be found in RBS Configurations.

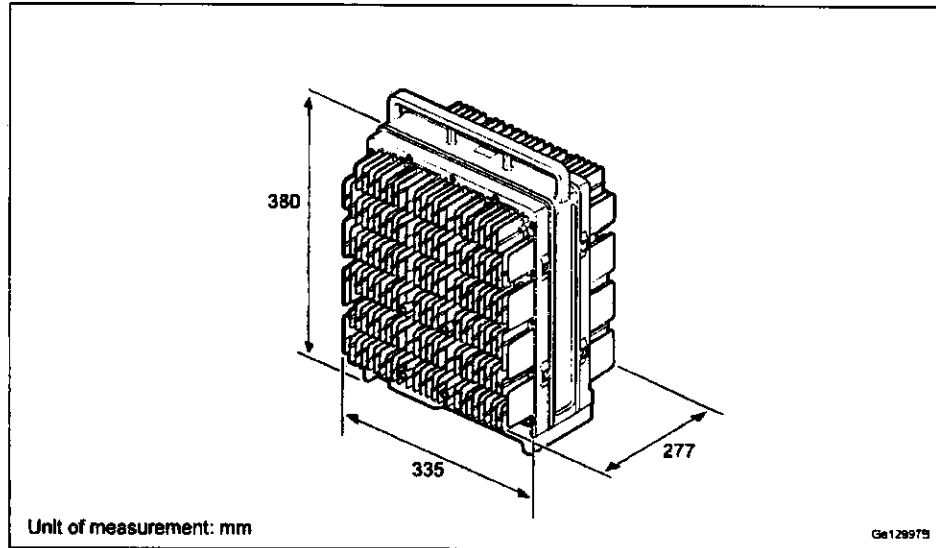


Figure 2 Radio 8843 Height, Width, and Depth

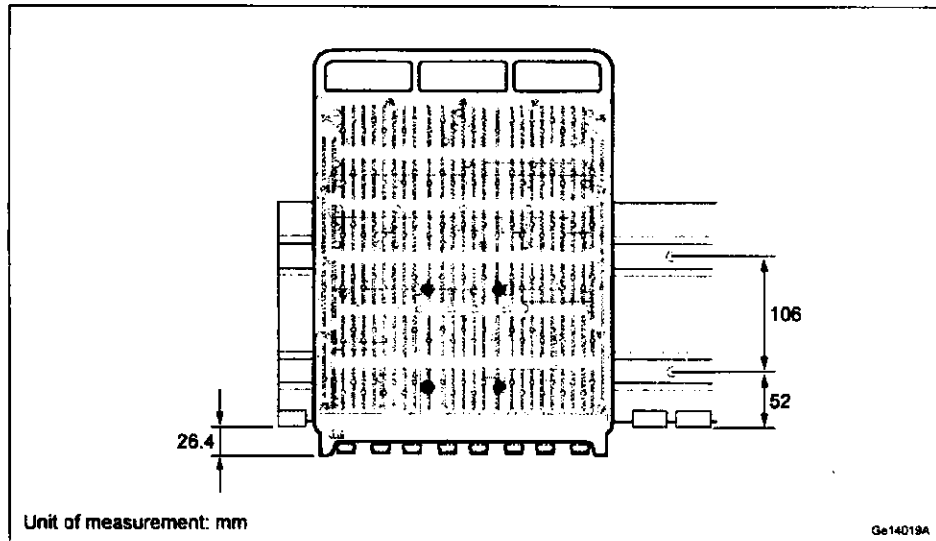


Figure 3 Radio 8843 to Rail Measurement

3.1 Installation Recommendations

To achieve reliable operation, and maximum performance, an appropriate installation location must be chosen.

Radio Description

Radio 8843

Description

RAYCAP RVZDC-6627-PF-48

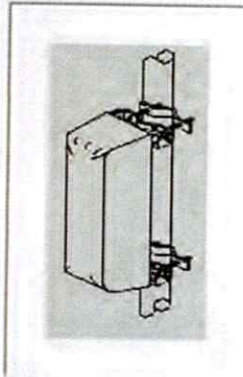
Appearance Section

US Name

RVZDC-6627-PF-48

SI Name

RVZDC-6627-PF-48



Type

- Generic
- Flat Panel
- Triagonal (LPD)
- Cylindrical (Omni)

Height in
 Width in
 Depth in
 Weight K

Mount

- 2" Pipe
- 2 1/2" Pipe
- 3" Pipe
- 3 1/2" Pipe

Length in

		No Ice	1/2" Ice	1" Ice	2" Ice	4" Ice
Weight	K	<input type="text" value="0.03"/>	<input type="text" value="0.063483"/>	<input type="text" value="0.098724"/>	<input type="text" value="0.181255"/>	<input type="text" value="0.39996"/>
CaAa [Front]	ft^2	<input type="text" value="4.424281"/>	<input type="text" value="4.718065"/>	<input type="text" value="5.020491"/>	<input type="text" value="5.651269"/>	<input type="text" value="7.016528"/>
CaAa [Side]	ft^2	<input type="text" value="2.899831"/>	<input type="text" value="3.158485"/>	<input type="text" value="3.425781"/>	<input type="text" value="3.9863"/>	<input type="text" value="5.211041"/>



Appendix D

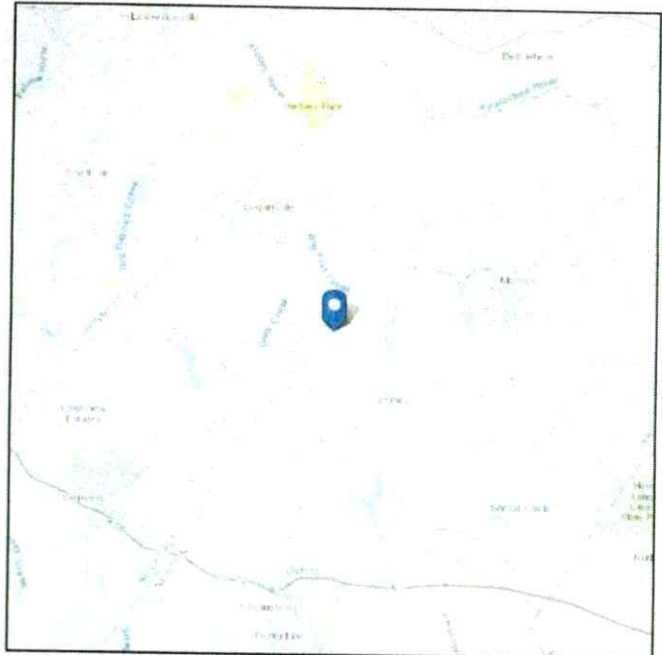
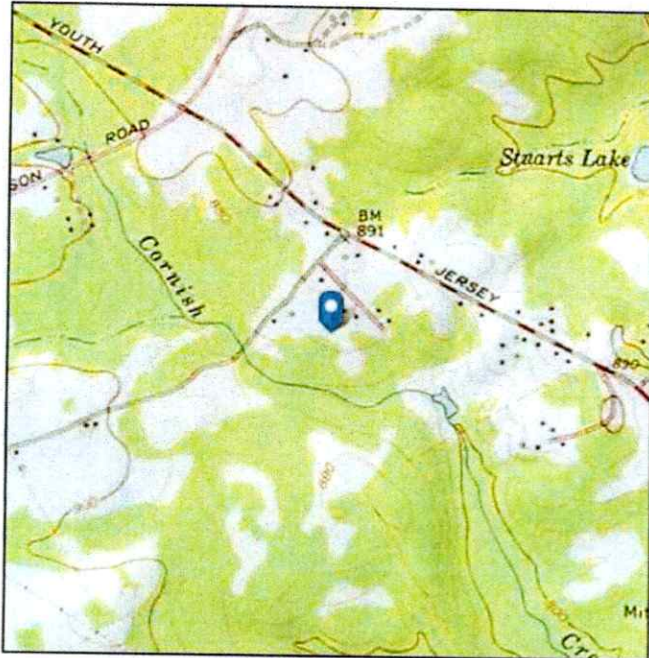
Civil Site Design Drawings

ASCE 7 Hazards Report

Address:
No Address at This
Location

Standard: ASCE/SEI 7-16
Risk Category: II
Soil Class: D - Default (see
Section 11.4.3)

Elevation: 884.34 ft (NAVD 88)
Latitude: 33.766381
Longitude: -83.835094



Wind

Results:

Wind Speed:	108 Vmph
10-year MRI	73 Vmph
25-year MRI	79 Vmph
50-year MRI	85 Vmph
100-year MRI	91 Vmph

Data Source: ASCE/SEI 7-16, Fig. 26.5-1B and Figs. CC.2-1–CC.2-4, and Section 26.5.2
Date Accessed: Mon Mar 22 2021

Value provided is 3-second gust wind speeds at 33 ft above ground for Exposure C Category, based on linear interpolation between contours. Wind speeds are interpolated in accordance with the 7-16 Standard. Wind speeds correspond to approximately a 7% probability of exceedance in 50 years (annual exceedance probability = 0.00143, MRI = 700 years).

Site is not in a hurricane-prone region as defined in ASCE/SEI 7-16 Section 26.2.

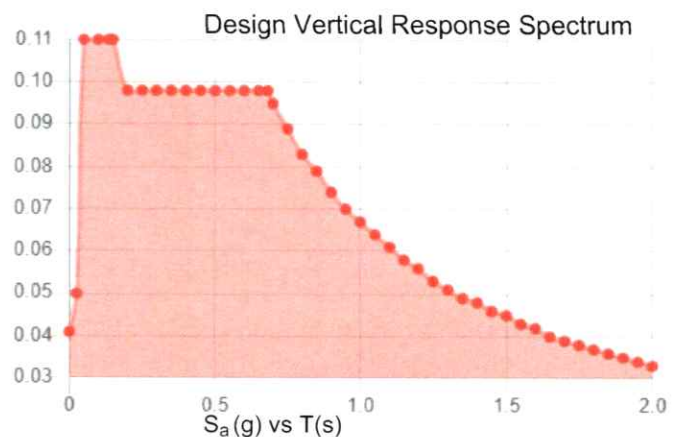
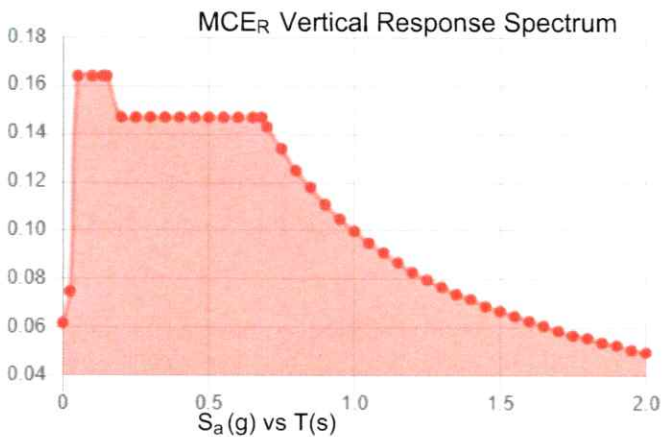
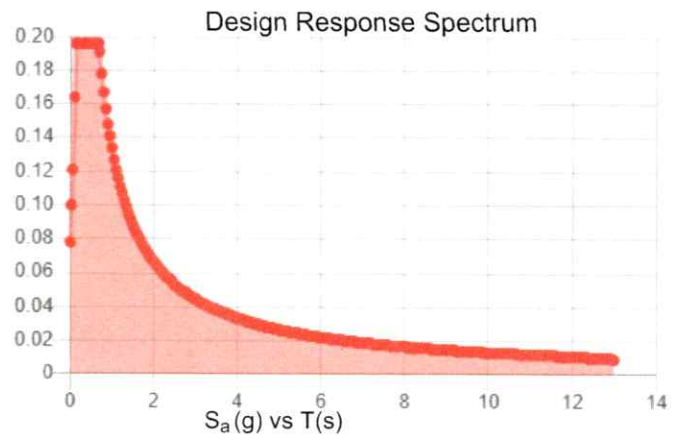
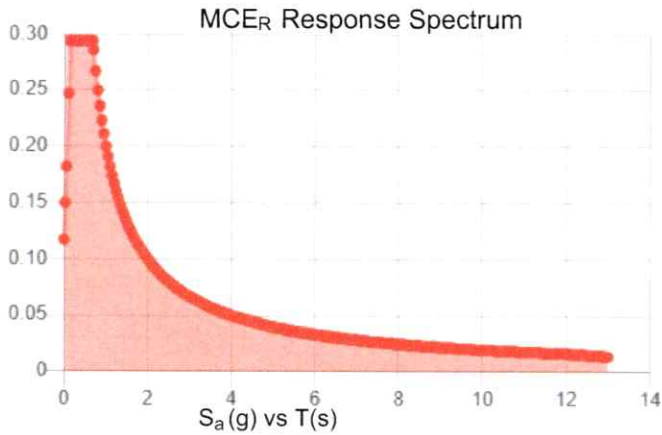
Seismic

Site Soil Class: D - Default (see Section 11.4.3)

Results:

S_S :	0.184	S_{D1} :	0.134
S_1 :	0.083	T_L :	12
F_a :	1.6	PGA :	0.092
F_v :	2.4	PGA _M :	0.147
S_{MS} :	0.294	F_{PGA} :	1.6
S_{M1} :	0.2	I_e :	1
S_{DS} :	0.196	C_v :	0.7

Seismic Design Category C



Data Accessed:

Mon Mar 22 2021

Date Source:

USGS Seismic Design Maps based on ASCE/SEI 7-16 and ASCE/SEI 7-16 Table 1.5-2. Additional data for site-specific ground motion procedures in accordance with ASCE/SEI 7-16 Ch. 21 are available from USGS.



Ice

Results:

Ice Thickness: 1.50 in.
Concurrent Temperature: 15 F
Gust Speed: 30 mph

Data Source: Standard ASCE/SEI 7-16, Figs. 10-2 through 10-8

Date Accessed: Mon Mar 22 2021

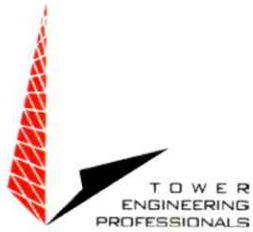
Ice thicknesses on structures in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

Values provided are equivalent radial ice thicknesses due to freezing rain with concurrent 3-second gust speeds, for a 500-year mean recurrence interval, and temperatures concurrent with ice thicknesses due to freezing rain. Thicknesses for ice accretions caused by other sources shall be obtained from local meteorological studies. Ice thicknesses in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

The ASCE 7 Hazard Tool is provided for your convenience, for informational purposes only, and is provided "as is" and without warranties of any kind. The location data included herein has been obtained from information developed, produced, and maintained by third party providers; or has been extrapolated from maps incorporated in the ASCE 7 standard. While ASCE has made every effort to use data obtained from reliable sources or methodologies, ASCE does not make any representations or warranties as to the accuracy, completeness, reliability, currency, or quality of any data provided herein. Any third-party links provided by this Tool should not be construed as an endorsement, affiliation, relationship, or sponsorship of such third-party content by or from ASCE.

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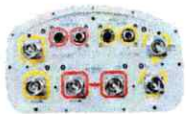
In using this Tool, you expressly assume all risks associated with your use. Under no circumstances shall ASCE or its officers, directors, employees, members, affiliates, or agents be liable to you or any other person for any direct, indirect, special, incidental, or consequential damages arising from or related to your use of, or reliance on, the Tool or any information obtained therein. To the fullest extent permitted by law, you agree to release and hold harmless ASCE from any and all liability of any nature arising out of or resulting from any use of data provided by the ASCE 7 Hazard Tool.



Appendix B

Site Vicinity and Location Map

NHH-65C-R2B



6-port sector antenna, 2x 698–896 and 4x 1695–2360 MHz, 65° HPBW, 2x RET. Both high bands share the same electrical tilt.

- Interleaved dipole technology providing for attractive, low wind load mechanical package
- Internal SBT on low and high band allow remote RET control from the radio over the RF jumper cable
- Separate RS-485 RET input/output for low and high band
- One RET for low band and one RET for both high bands to ensure same tilt level for 4x Rx or 4x MIMO

General Specifications

Antenna Type	Sector
Band	Multiband
Color	Light gray
Effective Projective Area (EPA), frontal	0.37 m ² 3.983 ft ²
Effective Projective Area (EPA), lateral	0.31 m ² 3.337 ft ²
Grounding Type	RF connector body grounded to reflector and mounting bracket
Performance Note	Outdoor usage Wind loading figures are validated by wind tunnel measurements described in white paper WP-112534-EN
Radome Material	Fiberglass, UV resistant
Radiator Material	Copper Low loss circuit board
Reflector Material	Aluminum
RF Connector Interface	7-16 DIN Female
RF Connector Location	Bottom
RF Connector Quantity, high band	4
RF Connector Quantity, low band	2
RF Connector Quantity, total	6

Remote Electrical Tilt (RET) Information, General

RET Interface	8-pin DIN Female 8-pin DIN Male
RET Interface, quantity	2 female 2 male

Dimensions

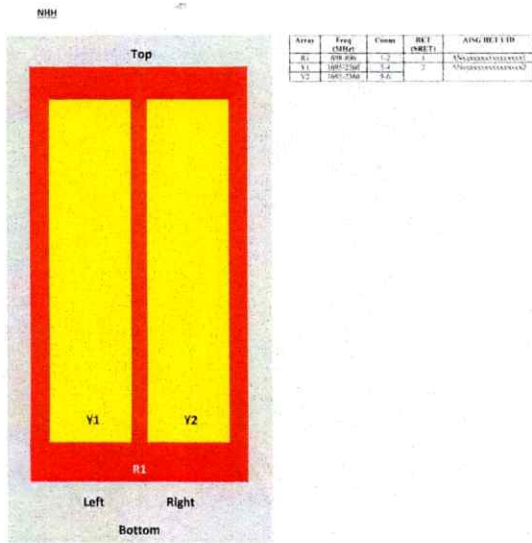
Width	301 mm 11.85 in
Depth	180 mm 7.087 in

Page 1 of 4

NHH-65C-R2B

Length 2438 mm | 95.984 in

Array Layout



View from the front of the antenna
(Sizes of colored boxes are not true depictions of array sizes)

Electrical Specifications

- Impedance** 50 ohm
- Operating Frequency Band** 1695 – 2360 MHz | 698 – 896 MHz
- Polarization** ±45°
- Total Input Power, maximum** 900 W @ 50 °C

Remote Electrical Tilt (RET) Information, Electrical

- Protocol** 3GPP/AISG 2.0 (Single RET)
- Power Consumption, idle state, maximum** 2 W

NHH-65C-R2B

Power Consumption, normal conditions, maximum	13 W
Input Voltage	10–30 Vdc
Internal Bias Tee	Port 1 Port 3
Internal RET	High band (1) Low band (1)

Electrical Specifications

Frequency Band, MHz	698–806	806–896	1695–1880	1850–1990	1920–2200	2300–2360
Gain, dBi	16	16.1	17.3	17.7	18.3	18.2
Beamwidth, Horizontal, degrees	65	62	74	66	62	59
Beamwidth, Vertical, degrees	9	7.9	5.6	5.2	4.9	4.5
Beam Tilt, degrees	0–11	0–11	0–7	0–7	0–7	0–7
USLS (First Lobe), dB	21	18	19	20	22	18
Front-to-Back Ratio at 180°, dB	35	31	33	29	29	30
Isolation, Cross Polarization, dB	25	25	25	25	25	25
Isolation, Inter-band, dB	30	30	30	30	30	30
VSWR Return loss, dB	1.5 14.0	1.5 14.0	1.5 14.0	1.5 14.0	1.5 14.0	1.5 14.0
PIM, 3rd Order, 2 x 20 W, dBc	-153	-153	-153	-153	-153	-153
Input Power per Port, maximum, watts	400	400	350	350	350	300

Electrical Specifications, BASTA

Frequency Band, MHz	698–806	806–896	1695–1880	1850–1990	1920–2200	2300–2360
Gain by all Beam Tilts, average, dBi	15.8	15.9	16.9	17.5	18	17.9
Gain by all Beam Tilts Tolerance, dB	±0.4	±0.4	±0.4	±0.3	±0.6	±0.4
Gain by Beam Tilt, average, dBi	0* 15.9 5* 15.9 11* 15.5	0* 15.8 5* 16.0 11* 15.7	0* 16.9 4* 17.0 7* 16.9	0* 17.4 4* 17.5 7* 17.4	0* 17.9 4* 18.0 7* 18.0	0* 17.8 4* 17.9 7* 17.9
Beamwidth, Horizontal Tolerance, degrees	±1.2	±1.6	±5.3	±3.4	±6	±3.1
Beamwidth, Vertical Tolerance, degrees	±0.6	±0.4	±0.3	±0.2	±0.2	±0.2
USLS, beampeak to 20° above beampeak, dB	15	14	17	16	17	15
Front-to-Back Total Power at	25.6	23.8	28	25	25	24

Page 3 of 4

NHH-65C-R2B

180° ± 30°, dB

CPR at Boresight, dB	18	26	20	25	20	17
CPR at Sector, dB	15	9	11	10	8	2

Mechanical Specifications

Wind Loading at Velocity, frontal	393.0 N @ 150 km/h 88.8 lbf @ 150 km/h
Wind Loading at Velocity, lateral	330.0 N @ 150 km/h 74.2 lbf @ 150 km/h
Wind Loading at Velocity, maximum	170.2 lbf @ 150 km/h 757.0 N @ 150 km/h
Wind Loading at Velocity, rear	398.0 N @ 150 km/h 89.5 lbf @ 150 km/h
Wind Speed, maximum	241 km/h 149.75 mph

Packaging and Weights

Width, packed	409 mm 16.102 in
Depth, packed	299 mm 11.772 in
Length, packed	2561 mm 100.827 in
Net Weight, without mounting kit	23.4 kg 51.588 lb
Weight, gross	36.1 kg 79.587 lb

Regulatory Compliance/Certifications

Agency	Classification
CHINA-ROHS	Above maximum concentration value
ISO 9001:2015	Designed, manufactured and/or distributed under this quality management system
REACH-SVHC	Compliant as per SVHC revision on www.commscope.com/ProductCompliance
ROHS	Compliant/Exempted



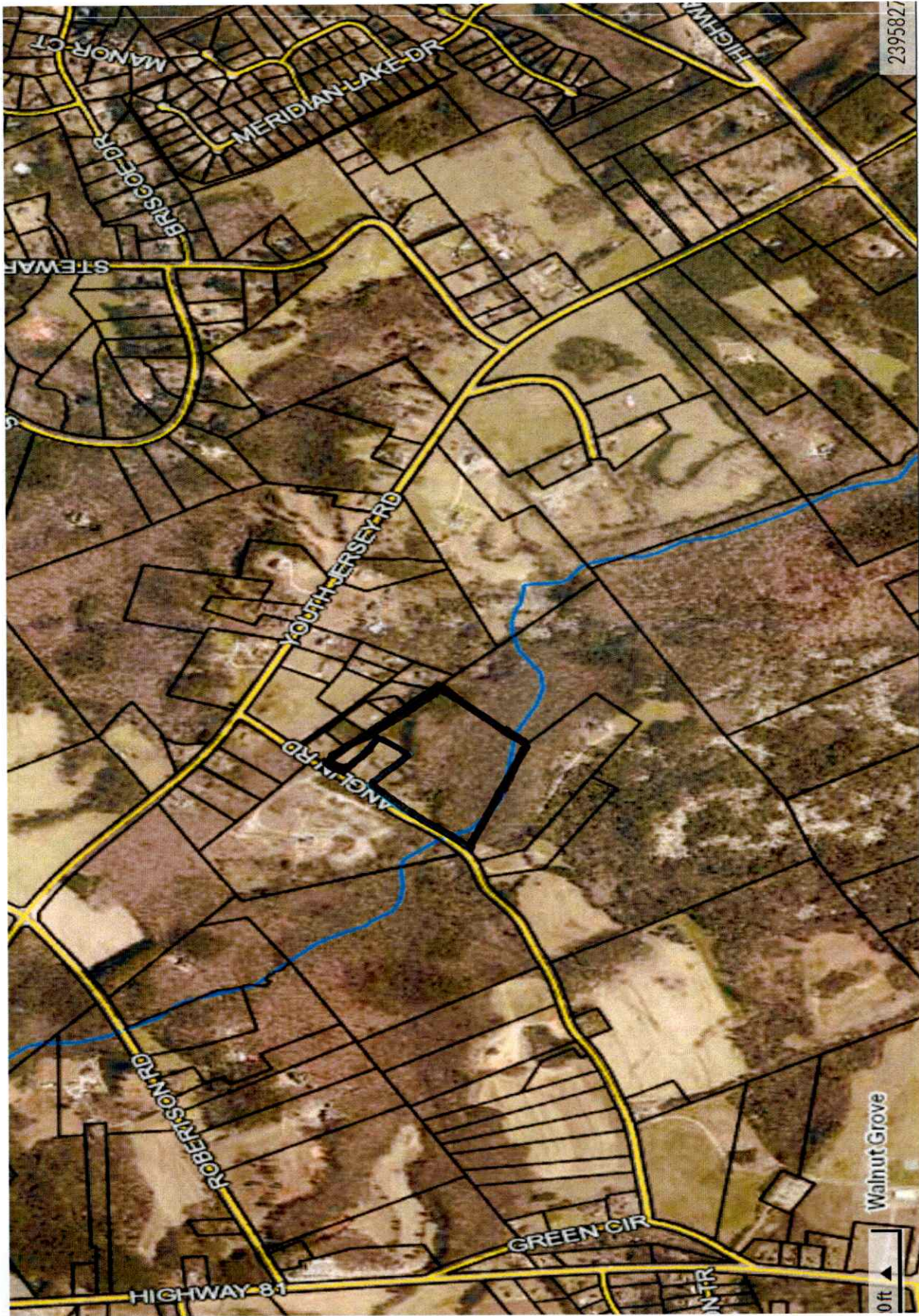
Included Products

BSAMNT-3	–	Wide Profile Antenna Downtilt Mounting Kit for 2.4 - 4.5 in (60 - 115 mm) OD round members. Kit contains one scissor top bracket set and one bottom bracket set.
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* Footnotes

Performance Note	Severe environmental conditions may degrade optimum performance
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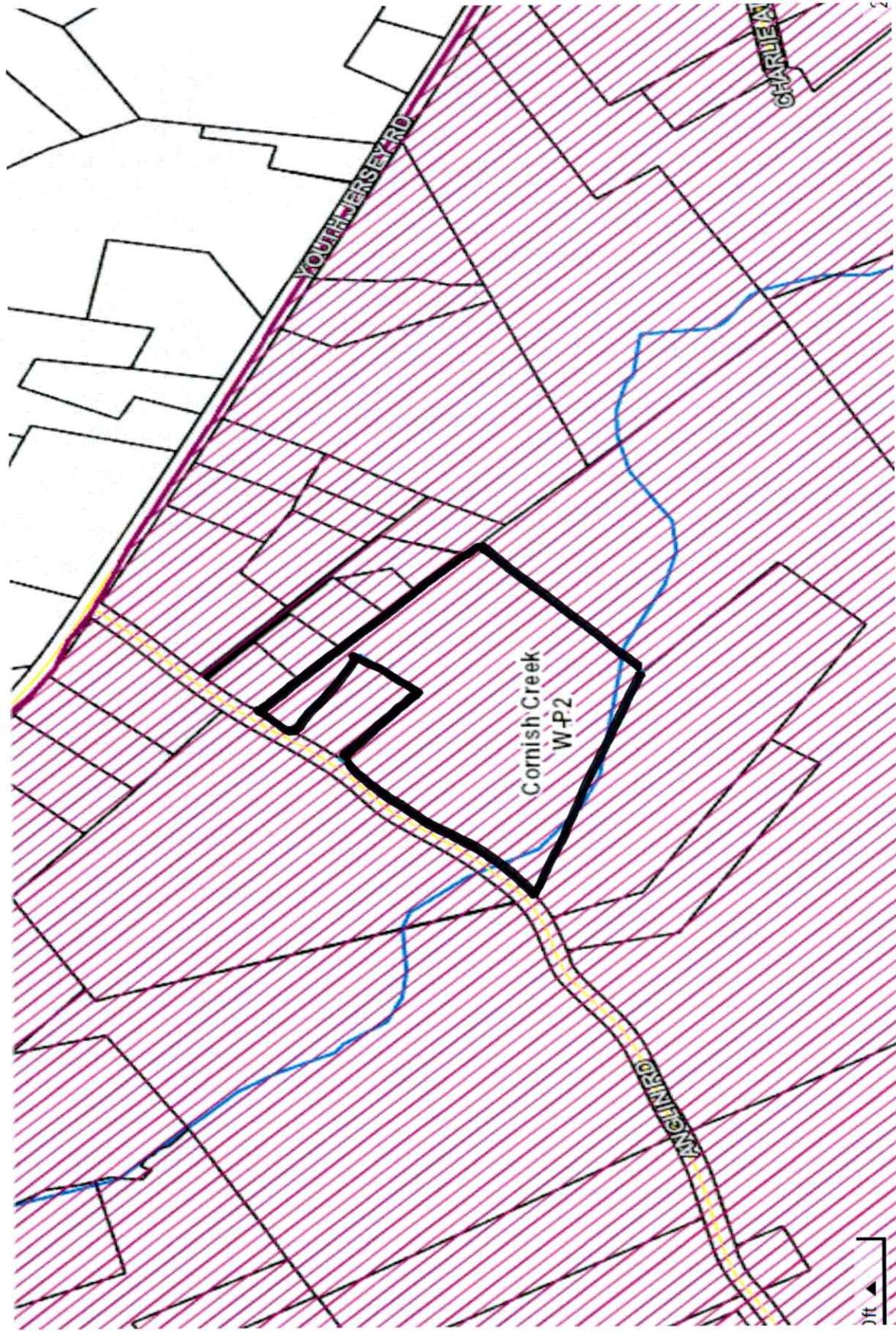
CU21050017 - 3670 Anglin Road



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