



# County of Fairfax, Virginia

## MEMORANDUM

DATE: May 5, 2010

**TO:** David Marshall, Chief  
Facilities Planning Branch, Planning Division, DPZ

**FROM:** Kevin Guinaw, Chief *K. Guinaw*  
Special Projects/Applications Management Branch, Zoning Evaluation Division, DPZ

**SUBJECT:** Proposed Clearwire Telecommunications Facility at 10922 Vale Road;  
Tax Map 37-1 ((1)) 17; 2232 Application FS-Y09-107

This is in response to a request for a determination as to whether the proposed installation of telecommunication equipment by Clearwire at 10922 Vale Road is in substantial conformance with the development conditions and plat approved by the Board of Supervisors with Special Exception Amendment SEA 2005-SU-020 (for site modifications for a previously approved land-based telecommunications facility and a church and private school of general education). As described in the application dated August 19, 2009, from Adam Knubel, agent for the applicant, one (1) microwave dish antenna (26.1 inches in diameter) is proposed to be installed on an existing mount within the existing stealth tree branches at a height of 111 feet on the existing 148-foot tall tree monopole. No equipment cabinets are proposed with this application. A copy of the 2232 application with illustrations depicting the proposed locations of the telecommunications equipment is attached.

The Zoning Administration Division has determined that a telecommunications facility, as described above, is a permitted use pursuant to the provisions of Sect. 2-514 of the Zoning Ordinance provided that it is determined to be in substantial conformance with any applicable special exception amendment. It is my determination that the proposed telecommunications facility is in substantial conformance with SEA 2005-SU-020, provided that the proposed dish is painted to match the existing monopole or additional screening branches are added to screen the proposed dish antenna. Please note that this proposal is subject to 2232 review requirements and that Clearwire's ability to proceed with its proposal is dependent upon approval of the pending 2232 application by the Fairfax County Planning Commission. This determination has been made in my capacity as the duly authorized agent of the Zoning Administrator. If you have any questions regarding this memorandum, please call Carrie Lee at (703) 324-1290.

KG/CDL/O:\clee01\ActionAssignments\Antennas\10922 Vale Rd\10922 Vale Rd\_Clearwire\_treepole2.doc

Attachments: A/S

cc: Michael R. Frey, Supervisor, Sully District  
John L. Litzengerger, Planning Commissioner, Sully District  
Regina C. Coyle, Director, Zoning Evaluation Division, DPZ  
Diane Johnson-Quinn, Deputy Zoning Administrator, Zoning Permit Review, ZAD, DPZ  
Adam Knubel, Network Building & Consulting, 7380 Coca Cola Drive, Suite 106, Hanover, MD 21076  
File: SEA 2005-SU-020, ANT 0908 043, Imaging, Reading File





# County of Fairfax, Virginia

## MEMORANDUM

TO: Lorrie Kirst, Deputy Zoning Administrator ZAD  
Other: \_\_\_\_\_

DATE: 8-14-09 RECEIVED

FROM: David B. Marshall, Chief  
Facilities Planning Branch, DPZ

FAIRFAX COUNTY  
RECEIVED  
AUG 17 2009  
2009-0466  
DIVISION OF  
ZONING ADMINISTRATION

Department of Planning & Zoning

AUG 25 2009

Zoning Evaluation Division

SUBJECT: Request for Review: 2232 Application

RE: Application Number: FS-1/09-107 Tax Map: 37-1 (11) 17

Attached for your review and comment is a 2232 Review application:

RECEIVED FROM: Clearwire  
PROPOSED USE: Treepole collocation  
LOCATION OF USE: 10922 Nale Rd  
ADDITIONAL COMMENTS: NA

Please send your comments to David Marshall by: 9/1/09  
Staff Coordinator: Sandi Smith Phone: 703-324-1239 Email: sandi.smith@fairfaxcounty.gov

### \*\*ZAD COMMENTS:

Property is zoned R-E  
 Proposed use is permitted by Zoning Ordinance and meets all zoning requirements,  
 Proposed use does not meet all Zoning requirements as follows:  
pursuant to Par 1 of Sect. 2-514 of the Zoning Ordinance.

Referred to ZED for the following: MUT to in substantial conformance with SFA 2005-SU-020  
ZAD comments prepared by: Brian Parsons Date: 8/18/09

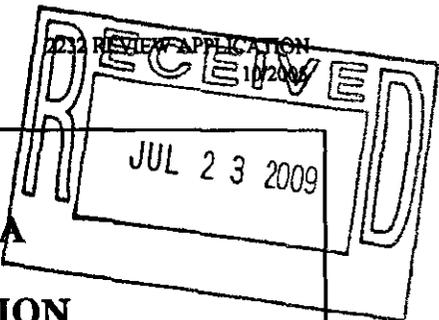
### \*\*ZED COMMENTS:

Proposed use is in substantial conformance with all development conditions and/or proffers.  
 Proposed use is not in substantial accord with all development conditions and proffers.

\*\*ZED comments prepared by: \_\_\_\_\_ Date: \_\_\_\_\_

Department of Planning and Zoning  
Planning Division  
12055 Government Center Parkway, Suite 730  
Fairfax, Virginia 22035-5509  
Phone 703-324-1380  
Fax 703-324-3056  
www.fairfaxcounty.gov/dpz/





**COUNTY OF FAIRFAX, VIRGINIA**

**APPLICATION FOR DETERMINATION  
PURSUANT TO  
SECTION 15.2-2232 OF THE CODE OF VIRGINIA**

**Application Number:** FS-409-107  
(assigned by staff)

*The application contains three parts: I. Application Summary; II. Statement of Justification; and III. Telecommunication Proposal Details. Please do not staple, bind or hole-punch this application. Please provide at least one copy of all pages, including maps and drawings, on 8.5 x 11 inch paper.*

*(Please Type or Print All Requested Information)*

**PART I: APPLICATION SUMMARY**

**ADDRESS OF PROPOSED USE**

Street Address 10922 Vale Road

City/Town Oakton Zip Code 22124

**APPLICANT(S)**

Name of Applicant Adam Knubel for Clearwire

Street Address 7380 Coca Cola Drive, Suite 106

City/Town Hanover State MD Zip Code 21076

Telephone Number: Work (410) 712-7092 x1083 Fax (410) 712-4056

E-mail Address aknubel@nbcllc.com

Name of Applicant's Agent/Contact (if applicable) N/A

Agent's Street Address \_\_\_\_\_

City/Town \_\_\_\_\_ State \_\_\_\_\_ Zip Code \_\_\_\_\_

Telephone: Work (\_\_\_\_) \_\_\_\_\_ Fax (\_\_\_\_) \_\_\_\_\_

**PROPOSED USE**

Street Address 10922 Vale Road

Fairfax Co. Tax Map and Parcel Number(s) 0371 01 0017

Brief Description of Proposed Use \_\_\_\_\_

Clearwire is proposing to modify a previous approval (2232-Y05-10, Approved 9-29-05) to allow for the installation of one (1) 26.1" dish antenna. The antenna will be mounted to an existing array located on the existing monopole. There is no new radio equipment cabinets proposed with this application.

Total Area of Subject Parcel(s) 8.8146 acres (acres or square feet)

Portion of Site Occupied by Proposed Use 10 s.f. (acres or square feet)

Fairfax County Supervisor District Sully

Planned Use of Subject Property (according to Fairfax County Comprehensive Plan)

Zoning of Subject Property R-E

List all applicable Proffer Conditions, Development Plans, Special Exceptions, Special Permits or Variances previously approved and related to this site

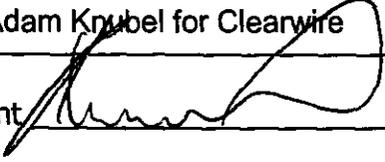
**PROPERTY OWNER(S) OF RECORD**

Owner CHURCH WHOLE WORD

Street Address 10922 Vale Road

City/Town Oakton State VA Zip Code 22124

**PART II**, entitled "Statement of Justification," pages 4 through 6, shall be completed by all applicants and included as part of the application. **PART III**, entitled "Telecommunication Proposal Details," pages 7 through 9, also shall be completed and included for all proposed telecommunication uses.

Name of Applicant or Agent Adam Krubel for Clearwire  
Signature of Applicant or Agent   
Date 07/22/2009

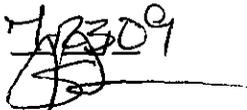
\*\*\*\*\*

*Please do not staple, bind or hole-punch this application. Please provide at least one copy of all pages, including maps and drawings, on 8.5 x 11 inch paper.*

**Submit completed application to:**

**Fairfax County  
Department of Planning and Zoning, Planning Division  
Herrity Building  
12055 Government Center Parkway, Suite 730  
Fairfax, Virginia 22035**

\*\*\*\*\*

<b>FOR STAFF USE ONLY</b>
Date application received: <u>7/23/09</u>
By: 
Additional information requested to complete application: _____ _____ _____
Date application accepted: <u>8/19/09</u>
By: _____

### **PART III: TELECOMMUNICATION PROPOSAL DETAILS**

*Please complete and provide all requested information. If question is not applicable to the proposed use, please indicate with N/A.*

#### **PROPOSED TELECOMMUNICATION USE**

Use is (check one):

- New structure (monopole, tower or camouflaged facility)
- Replacement of existing pole or tower at same location with another pole or tower
- Antenna placement on building or penthouse facade
- Antenna placement on building or penthouse rooftop
- Collocation on other existing telecommunications structure (monopole or tower)
- Collocation on other non-telecommunications structure (such as an electric transmission tower/pole, utility pole, water tower, etc.)
- Modification to telecommunications facility previously approved for same applicant:  
Prior 2232 Review application number: 2232-Y05-10  
Date of Planning Commission approval: 9-29-05

#### **PROJECT DETAILS**

##### **1. ANTENNA**

Number and Type: 1 microwave antenna  
Dimensions: height \_\_\_\_\_ width \_\_\_\_\_ depth \_\_\_\_\_ diameter 26.1"  
Location / Placement: Mounted to existing mounts behind stealth enclosure branches  
Wattage: 57.5 dBm  
Material and Color: Plastic & Steel: Painted to Match Tree Pole  
Material and Color of the Antenna Mounting: Steel: Painted to Match Tree Pole  
Height Above Ground: 111 feet

##### **2. EQUIPMENT**

Number and Type of Cabinets or Structures: Existing Equipment  
Cabinet / Structure Dimensions: height \_\_\_\_\_ width \_\_\_\_\_ depth \_\_\_\_\_  
Height of equipment platforms, if any: \_\_\_\_\_  
Material and Color: \_\_\_\_\_  
Location: \_\_\_\_\_  
Method of Screening: \_\_\_\_\_

##### **3. STRUCTURE ON WHICH ANTENNAS WILL BE MOUNTED**

Maximum Height: 148 Feet  
Material: Steel  
Color: Green & Brown  
If structure is within a utility right-of-way, state right-of-way width:  
\_\_\_\_\_

If the proposed structure will replace an existing pole or tower, provide dimensions of the existing structure:

Height of Structure to be Replaced: \_\_\_\_\_

Diameter or Overall Footprint of Structure to be Replaced: \_\_\_\_\_

#### 4. ADDITIONAL INFORMATION

The following information, as relevant to the proposal, shall be included:

- A. ELEVATIONS: Structural elevation drawings showing the placement of the antenna and the related equipment on the existing or proposed structure;
- B. ANTENNA: Details showing the antenna and antenna mountings and the location of the antenna on the building or structure;
- C. BUILDING ROOF PLAN AND CALCULATION: If located on a building rooftop, provide a roof plan at a scale of 1"= not more than 20' showing all existing penthouses, structures and mechanical equipment on the roof and the location of the proposed antenna and related telecommunications equipment. Include a calculation stating 1) the percentage of the roof which is covered by all existing structures, and 2) the percentage that will be covered by all existing structures plus the proposed antennas, equipment cabinets and shelters;
- D. SCREENING: Details of screening for the equipment structure and/or antenna structure showing type of screening material, dimensions and placement; if landscaping is provided, list the height of the landscaping at time of planting and the ultimate height;
- E. PROPERTY PLAT: A plat of the property prepared by a certified engineer showing the location of the proposed ground equipment structure and antenna, the relationship to other structures on site, with measured distances from all property boundaries or easement lines if the structure or antenna is placed in an easement;
- F. PHOTOGRAPHS: For collocations on existing buildings or other structures such as power poles or towers, provide photographs of the building or structure showing the proposed placement of the antenna and related equipment;
- G. PHOTOGRAPHIC SURVEY: For proposed structures, provide a photographic survey of the project site. Photographs should be taken from the subject property boundaries at four or more locations to show on- and off-site views of the subject property and to identify the proposed location of the facility on the site. The number of photos submitted will vary according to site size but should be adequate to view the entire site;



July 22, 2009

Mr. James P. Zook, Director  
Fairfax County Office of Comprehensive Planning  
12055 Government Center Parkway, Suite 730  
Fairfax, Virginia 22035-5505

**RE: Feature Shown Application  
10922 Vale Road  
Oakton, VA 22124  
Applicant: Clearwire  
Clearwire Site Number: DC-WSH5721**

Dear Mr. Zook:

Clearwire, an FCC licensed provider of wireless personal telecommunications services is proposing to modify a previous approval (2232-Y05-10, Approved 9-29-05) to allow for the installation of one (1) 26.1" dish antenna. The antenna will be mounted to an existing array located on the existing monopole. There is no new radio equipment cabinets proposed with this application.

**APPLICANT:**

Clearwire  
5808 Lake Washington Blvd., Suite 300  
Kirkland, WA 98033

**APPLICANT'S AGENT:**

Adam Knubel  
7380 Coca Cola Drive, Suite 106  
Hanover, Maryland 21076  
410.712.7092  
[aknubel@nbcllc.com](mailto:aknubel@nbcllc.com)

**SITE LOCATION:**

Tax Map: 0371 01 0017  
Address: 10922 Vale Road  
Zoning District: R-E  
Use: Telecommunication Facility  
Use Group: U  
Supervisor District: Sully



## **DESCRIPTION OF PROPOSAL:**

At 10922 Vale Road, Clearwire is proposing to modify a previous approval (2232-Y05-10, Approved) to allow for the installation of one (1) 26.1" dish antenna. The antenna will be mounted to an existing array located on the existing monopole. There is no new radio equipment cabinets proposed with this application. The location of the proposed dish antenna is shown plan drawings prepared by Fullerton.

The facility will operate automatically and will not require personnel or hours of attendance. It will operate twenty-four (24) hours a day, 365 days a year. It is anticipated that a technician will need to perform routine maintenance on the facility at a rate of once or twice per month or on an "as needed" basis for cases of emergency repair.

## **REQUIREMENT FOR PROPOSED USE:**

The proposed installation is part of Clearwire's communications network. Clearwire's technology is line of site technology, which accounts for the placement of its installations on existing towers and tall structures.

## **ANTICIPATED IMPACTS ON ADJOINING PROPERTIES:**

Clearwire has eliminated the need for a new telecommunications monopole or tower in the search area and employs an antenna and equipment cabinet configuration that minimizes the visual impact of the project on the surrounding property owners. Due to the fact that the facility will be unmanned, there will be no other impact of the underlying Amendment to Feature Shown.

## **RELATIONSHIP OF THE PROPOSAL TO THE COMPREHENSIVE PLAN:**

The location, character and extent of the application should be found to be in substantial accord with the Comprehensive Plan.

The instant application is also consistent with the objectives found under the Policy Plan of the Comprehensive Plan concerning "Mobile and Land-Based Telecommunication Services."

Under the "General Guidelines" section, it states:

***Objective 42: In order to provide for the multiple and land-based telecommunication network for wireless telecommunication systems licensed by the Federal Communications Commission, and in order to achieve opportunities for the collocation of related facilities and the reduction of their visual impact, locate the network's necessary support facilities which include antennas,***



**monopoles, lattice towers and equipment building in accordance with the following policies:**

**Policy b. Avoid construction of new structures by locating mobile and land-based telecommunication facilities on available existing structures such as building rooftops, telecommunication broadcast poles and towers, electrical utility poles and towers, and water storage facilities when the telecommunication facilities can be placed inconspicuously to blend with existing structures.**

*Proposal is consistent.*

**Policy g. Design, site and/or landscape mobile and land-based telecommunication facilities to minimize impacts on the character of the property and surrounding areas. Demonstrate the appropriateness of the design through facility schematics and plans which detail the type, location, height, and material of the proposed structures and their relationship to other structures on the property and surrounding areas.**

*Proposal is consistent.*

**Policy i. Locate telecommunication facilities to ensure the protection of historically significant landscapes. The views of and vistas from architecturally and/or historically significant structures should not be impaired or diminished by the placement of telecommunication facilities.**

*Proposal is consistent.*

**Policy j. Site proposed facilities to avoid areas of environmental sensitivity.**

*Proposal is consistent.*

**Objective 43: Design telecommunication facilities to mitigate their visual presence and prominence, particularly when located in residential areas, by concealing their intended purpose in a way that is consistent with the character of the surrounding area.**

**Policy a. Disguise and camouflage the appearance of telecommunication facilities so as to resemble other man-made structures and natural features (such as flagpoles, bell towers, and trees) that are typically found in a similar context and belong to the setting where placed.**



**NETWORK BUILDING  
& CONSULTING, LLC**

*Collocation on an existing monopine minimizes impact by avoiding a need for a new site.*

**Objective 44: With Planning Commission approval, consider mobile and land-based telecommunication facilities to be located on existing or replacement structures a "feature shown" of the Comprehensive Plan to be processed without a public hearing when placed in conformance with the following policies:**

**Policy a.: Locate telecommunication facilities on existing buildings and structures at the following properties:**

- **commercial and industrial zoned property and in the commercial areas of PDH, PDC, PRM and PRC zoning districts**

*The proposed facility is located within a R-E zoning district. Additionally, by utilizing an existing monopole Clearwire has avoided the need to construct a new tower or monopine. Furthermore, This is a stealth facility which will further mitigate any visual impact.*

**Policy c.: In determining that the proposed telecommunication facilities are a feature shown of the Comprehensive Plan, ensure that the following general factors are met:**

- **the proposed installation has no material adverse impact on the visual quality or character of the general area in which it is to be placed including any surrounding residential properties;**

*Proposal is consistent.*

- **the proposed installation is located and designed to blend with the structure on which it is placed such as flush-mounting antennas or screening the antennas and equipment as appropriate to the site;**

*This is a collocation on an existing 148' monopine and there is no new equipment cabinets proposed with this application.*

- **the proposed installation, when in a grouping of other similar structures, is consistent with the pattern of those surrounding structures;**



**NETWORK BUILDING  
& CONSULTING, LLC**

*Proposal is consistent.*

- ***related equipment cabinets or shelters located on the ground or on a rooftop should be appropriately screened or placed to obscure their visibility from surrounding properties;***

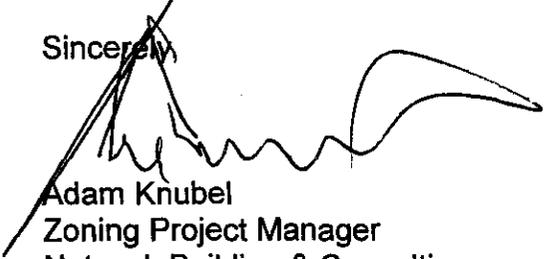
*Proposal is consistent.*

**ALTERNATIVE SITES CONSIDERED FOR THIS PROPOSAL**

Clearwire is expanding its own antenna installation to meet its customers needs in this area and for this reason chose to collocate additional antennas at this site. Since the installation is a collocation and meets the objectives of the plan, Clearwire does not see any need to evaluate alternative locations.

The applicant submits to the Planning Commission that the proposal is consistent with the Comprehensive Plan as to character, location and extent and requests that the Planning Commission determine that the facility is a feature shown. If you have any questions, or need further information, please feel free to contact me at 410.459.8573 or [aknubel@nbcllc.com](mailto:aknubel@nbcllc.com).

Sincerely,



Adam Knubel  
Zoning Project Manager  
Network Building & Consulting  
Consultant to ClearWire



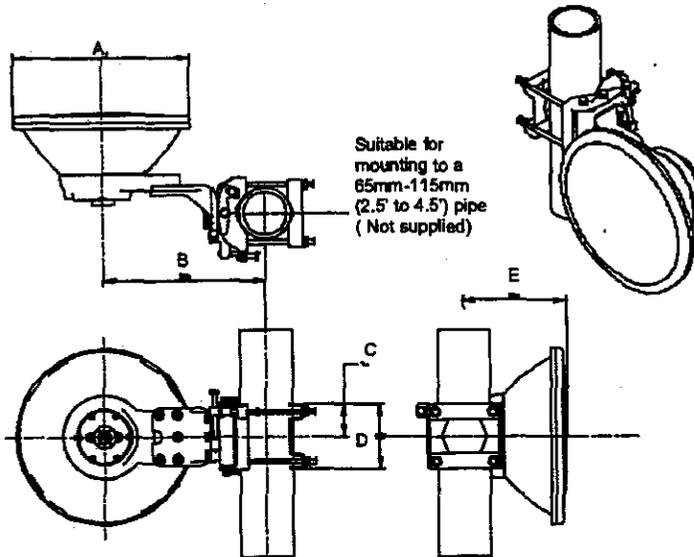
# HIGH PERFORMANCE ANTENNAS

## DIAMETER: 0.6 m

### ELECTRICAL SPECIFICATIONS

	A-ANT-11G-2-C	A-ANT-13G-2-C	A-ANT-15G-2-C	A-ANT-18G-2-C	A-ANT-23G-2-C	A-ANT-26G-2-C	A-ANT-28G-2-C	A-ANT-38G-2-C
Frequency Band, GHz	10.7-11.7	12.7-13.25	14.25-15.35	17.7-19.7	21.2-23.6	24.25-26.25	27.3-31.3	37.0-40.0
Bottom Band Gain, dBi	34.2	35.6	36.8	38.2	39.7	40.7	41.8	44.0
Mid Band Gain, dBi	34.5	35.8	37.0	38.6	40.2	41.1	42.2	44.3
Top Band Gain, dBi	34.8	36.0	37.3	39.0	40.7	41.5	42.7	44.7
Beamwidth, degrees	3.4	2.8	2.4	2.1	1.7	1.5	1.3	1.0
Front/Back, dB	55.0	62.0	64.0	67.0	66.0	68.0	68.0	66.0
XPD, dB	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0
Return Loss, dB	16.1	16.1	16.1	16.1	16.1	16.1	16.1	16.1
Pattern								
ETSI EN201217 Class	R1C2	R1C3	R2C3	R2C3	R3C3	R4C3	R4C3	R5C3
FCC Part 101	-	-	-	Cat A	Cat A	Cat A	-	Cat A
Antenna Pattern	RPE-74-000119-02-01	RPE-74-000120-02-01	RPE-74-000121-02-01	RPE-74-000066-02-01	RPE-74-000067-02-01	RPE-74-000068-02-01	RPE-74-000125-02-01	RPE-74-000126-02-01

### OUTLINE DIMENSIONS



#### Antenna Dimensions, mm (in)

A	663 (26.10)
B	358 (14.10)
C	72 (2.80)
D	143 (5.60)
E	335 (13.20)

#### Antenna Fine Adjustment

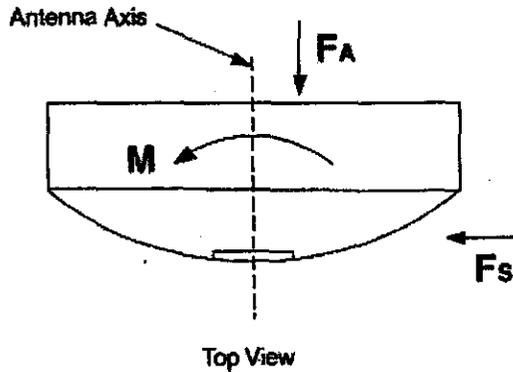
Fine Azimuth	± 10°
Fine Elevation	± 25°

Actual antenna appearances may differ from shown.

# HIGH PERFORMANCE ANTENNAS –DIAMETER: 0.6 M

## WIND FORCES

The axial, side and twisting moment forces provided are maximum loads applied to the tower by the antenna at a wind survival speed of 200 km/h (125 mph). In every instance they are the result from the most critical direction for each parameter. The individual maximums may not occur simultaneously. All forces are referenced to the antenna mounting pipe.



Axial Force	$F_a$ max	682 N
Side Force	$F_s$ max	317 N
Moment	$M_T$ max	244 N

### Antenna Weights Including Mount

Net Weight, kg 12.3

### Antenna Packed Weights (Gross)

Gross Weight, kg 21.7

### Antenna Dimensions (Single Unit Pack)

Dimensions, cm (in) 71 x 71 x 61 (29 x 29 x 27)

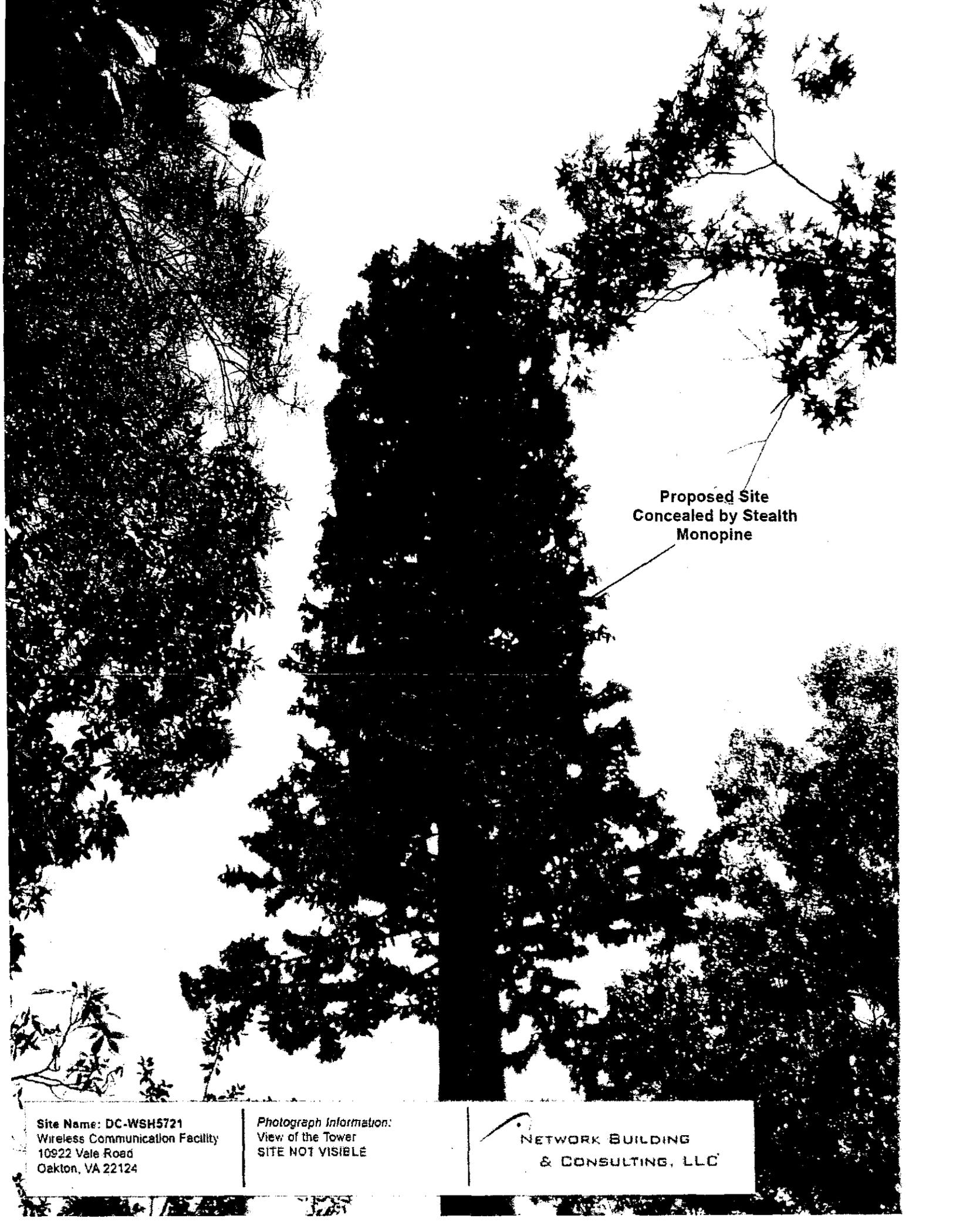


Connect with us today!

600-411 Legget Drive  
Ottawa, Ontario, Canada, K2K 3C9  
Tel: 613-599-9991  
Fax: 613-599-4225

[nasales@dragonwaveinc.com](mailto:nasales@dragonwaveinc.com)  
[emcasales@dragonwaveinc.com](mailto:emcasales@dragonwaveinc.com)

[www.dragonwaveinc.com](http://www.dragonwaveinc.com)



**Proposed Site  
Concealed by Stealth  
Monopine**

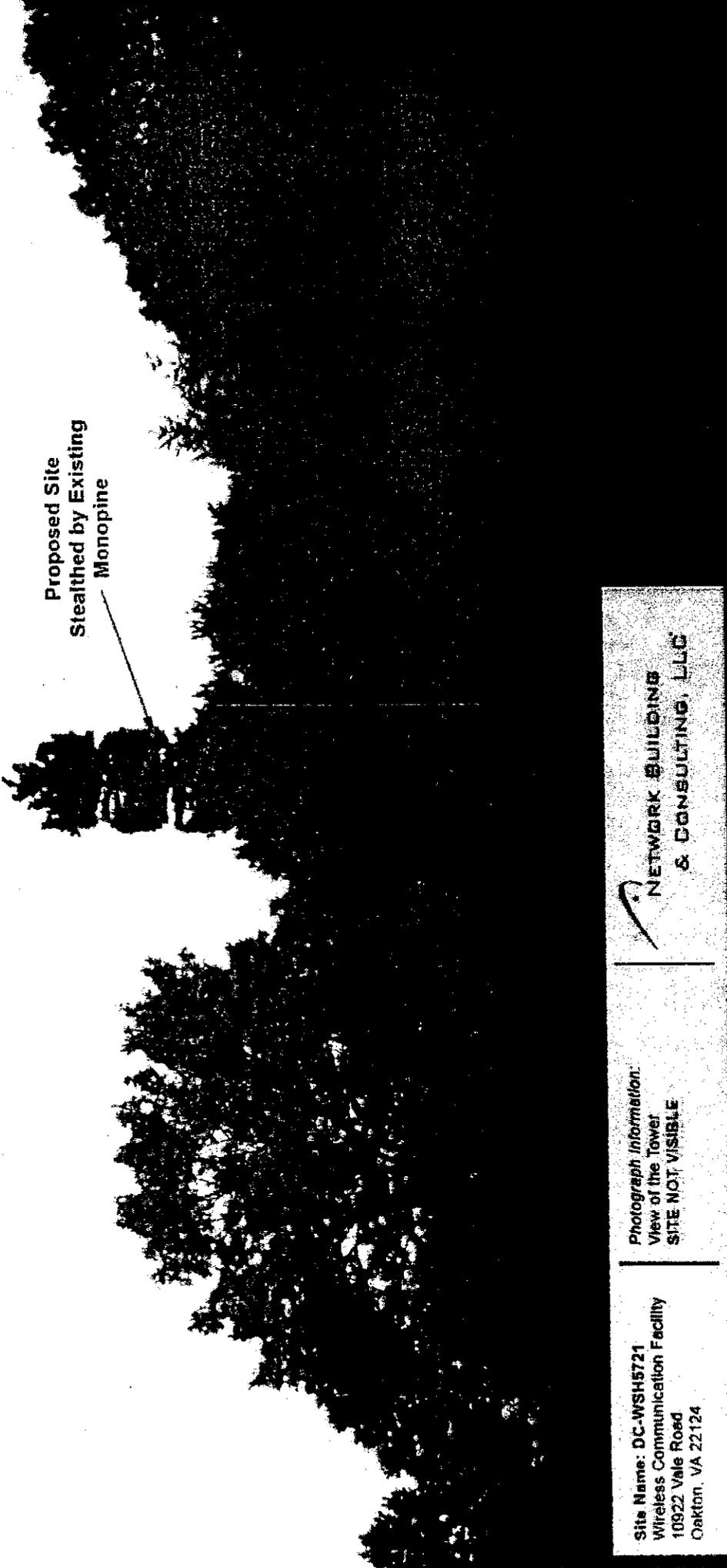
**Site Name: DC-WSH5721**  
Wireless Communication Facility  
10922 Vale Road  
Oakton, VA 22124

*Photograph Information:*  
View of the Tower  
SITE NOT VISIBLE



**NETWORK BUILDING  
& CONSULTING, LLC**

Proposed Site  
Stealthed by Existing  
Monopine



 NETWORK BUILDING  
& CONSULTING, LLC

Photograph Information:  
View of the Tower  
SITE NOT VISIBLE

Site Name: DC-WSH5721  
Wireless Communication Facility  
10922 Vale Road  
Oakton, VA 22124





