



County of Fairfax, Virginia

MEMORANDUM

DATE: April 19, 2007

TO: David Marshall, Chief
Facilities Planning Branch, PD, DPZ

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

SUBJECT: Proposed Clearwire Telecommunications Facility at 9335 Lee Highway
Tax Map 48-4 ((1)) 3 A1

This is in response to a request for a determination as to whether the telecommunications facility proposed by Clearwire US LLC, at 9335 Lee Highway, would be in substantial conformance with the development conditions imposed by the Board of Supervisors with the approval of Conceptual Development Plan Amendment CDPA B-993; the development conditions imposed by the Planning Commission with the approval of Final Development Plan Amendment FDPA B-993; and the development conditions imposed by the Board of Supervisors with the approvals of Special Exception SE 88-P-005 to permit additions to an existing residential building and telecommunications facilities, and Special Exception SE 95-P-003 for a fast food restaurant. As described in the 2232 application dated October 9, 2006, from Gregory S. Tully, as revised by Jasim Jafri, February 28, 2007, four (4) panel antennas (each 3.5 feet high x 6 inches wide x 3 inches deep) and four (4) dish antennas (each 25.1 inches in diameter) are proposed on the main roof of an existing 125 foot high apartment building. The antennas will be paired as combination units consisting of one panel antenna and one dish antenna within each of four (4) stealth cylinders (26 5/8 inches in diameter and 10 feet high). In addition, one (1) equipment cabinet (51 inches high x 30 inches wide x 25 inches deep, as per the applicant's verbal confirmation) is proposed to be wall-mounted on the exterior of the elevator machine room on the roof. A copy of the 2232 telecommunications application is attached, including illustrations that depict the proposed locations of the telecommunications equipment.

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 conceptual/final development plan and special exceptions. It is my determination that the proposed telecommunications facility described above is in substantial conformance with the approved conceptual/final development plan and special exceptions. The proposed antennas, stealth cylinders and wall-mounted equipment cabinet must be of material or color that matches the exterior of the building. Please note that this proposal is subject to 2232 review requirements and that Clearwire's ability to proceed is dependent upon the pending 2232 application being approved 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.

Attachments: A/S

KG\\clee01\Action Assignments\Antennas\9335 Lee Hwy Clearwire.doc

cc: Linda Q. Smyth, Supervisor, Providence District
Kenneth A. Lawrence, Planning Commissioner, Providence District
Barbara A. Byron, Director, Zoning Evaluation Division, DPZ
Diane E. Johnson-Quinn, Deputy Zoning Administrator, Permits Review Branch, ZAD, DPZ
Michelle Brickner, Assistant Director, Land Development Services, DPWES
Jasim Jafri, Network Building & Consulting LLC, 812 Oregon Avenue, Suite E, Linthicum, MD 21090
File: CDPA/FDPA B-993, SE 88-P-005, SE 95-P-003, ANT 0610 060, Imaging, Reading File

Department of Planning and Zoning
12055 Government Center Parkway, Suite 801
Fairfax, Virginia 22035-5509
Phone 703 324-1290
FAX 703 324-3924
www.fairfaxcounty.gov/dpz/

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COUNTY OF FAIRFAX, VIRGINIA
APPLICATION FOR DETERMINATION
PURSUANT TO
SECTION 15.2-2232 OF THE CODE OF VIRGINIA

Application Number: FS-PO6-78
(assigned by staff)

The application contains three parts: I. Application Summary; II. Statement of Justification; and III. Telecommunication Proposal Details.

(Please Type or Print All Requested Information)

PART I: APPLICATION SUMMARY

ADDRESS OF PROPOSED USE

Street Address 9335 Lee Highway

City/Town Fairfax Zip Code _____

APPLICANT(S)

Name of Applicant Clearwire US LLC

Street Address 5808 Lake Washington Blvd., Suite 100

City/Town Kirkland State WA Zip Code 98033

Telephone Number: Work (443) 992-3450 Fax (410) 636-5287

E-mail Address gtully@nbcllc.com

Name of Applicant's Agent/Contact (if applicable) Gregory S. Tully

Agent's Street Address 812 Oregon Ave., Suite E

City/Town Linthicum State MD Zip Code 21090

Telephone: Work (443) 992-3450 Fax (410) 636-5287

PROPOSED USE

Street Address 9335 Lee Highway

Fairfax Co. Tax Map and Parcel Number(s) 0484-01-0003A1

Brief Description of Proposed Use _____

Telecommunication Facility

Total Area of Subject Parcel(s) 13.9602 acres (acres or square feet)

Portion of Site Occupied by Proposed Use 49 sf (acres or square feet)

Fairfax County Supervisor District Providence

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

Zoning of Subject Property PDH-12

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

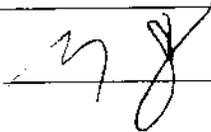
Owner AG-FCP Circle Towers Residential LLC

Street Address 15245 Shady Grove Road, Suite 160

City/Town Rockville State MD Zip Code 20850

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 Gregory S. Tully

Signature of Applicant or Agent 

Date 9/27/06

Submit completed application to:

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

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.

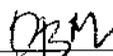
FOR STAFF USE ONLY

Date application received: 9/29/06

By: 

Additional information requested to complete application:

Date application accepted: 10/2/06

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: _____
Date of Planning Commission approval: _____

PROJECT DETAILS

1. ANTENNA

Number and Type: Four (4) Stella Doris Ireland SD9890 panel antennas
Dimensions: height 35.8" width 5.5" depth 4.7" diameter _____
Location / Placement: On existing building
Wattage: 25 Watts
Material and Color: Metal, paint-to-match
Material and Color of the Antenna Mounting: Metal, paint-to-match
Height Above Ground: 123.5 ft.

2. EQUIPMENT

Number and Type of Cabinets or Structures: One (1) DDB Unlimited Cabinet
Cabinet / Structure Dimensions: height 30.091" width 12.27" depth 8.34"
Height of equipment platforms, if any: NA
Material and Color: Pre-fab, paint-to-match
Location: Attached to existing elevator equipment room
Method of Screening: Paint-to-match

3. STRUCTURE ON WHICH ANTENNAS WILL BE MOUNTED

Maximum Height: 125 ft. building
Material: Steel
Color: Brown
If structure is within a utility right-of-way, state right-of-way width: _____

Dish Antennas

Number and Type: Four (4) Andrew Valuline III Next
Generation Antennas

Dimensions: Height NA diameter 26.1"

Location / Placement: on existing ~~structure tower~~ building

Wattage: 30 watts

Material: Metal, ~~primed~~ paint-to-match

Material of Antenna mounting: Metal, paint-to-match

Height above ground: 123.5 ft.

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September 27, 2006

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

RE: Request for determination under Virginia Code sec. 15.2-2232
Clearwire US, LLC
Site 221
Tax Map No. 0484-01-0003A1

Dear Mr. Zook:

Clearwire US, LLC ("Clearwire"), an FCC licensed broadband service provider, respectfully requests that the Planning Commission of Fairfax County, Virginia make a determination pursuant to sec. 15.2-2232 of the Code of Virginia that Clearwire's proposed rooftop telecommunication facility on an existing building rooftop is substantially in accord with the Fairfax County Comprehensive Land Use Plan, and find that, in accordance with Objective 45, the proposed facility is a feature shown of the Plan according to the "Administrative Review" guidelines. Clearwire's FCC license covers the Greater Washington areas, including Fairfax County and other areas of Northern Virginia.

APPLICANT:

Clearwire US, LLC ("Clearwire")
5808 Lake Washington Blvd., Suite 100
Kirkland, WA 98033
Tel: 443-992-3450
Fax: 410-636-5287

SITE LOCATION:

Address: 9335 Lee Highway
Tax Map #: 0484-01-0003A1
Zoning District: PDH-12
Use: Commercial
Supervisor District: Providence

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DESCRIPTION OF PROPOSED USE:

Clearwire proposes to install an unmanned wireless telecommunications link which will consist of four (4) panel antennas and four (4) dish antennas which will be flush-mounted to the existing walls of a 125-foot building, owned by the AG-FCP Circle Towers Residential LLC, and located at 9335 Lee Highway in Fairfax, Virginia. The antennas will be mounted at a height of approximately 123.5 feet. In addition to antenna array, Clearwire will install one (1) proposed ancillary equipment cabinet, which is shown on the Clearwire US LLC engineering zoning drawings ("ZD's") prepared by Glock Smidt Engineering, Inc. ("GS"). This facility is sought to provide in-home residential broadband service penetration to the Fairfax Circle area.

The antennas will be flush-mounted at height of approximately 123.5 feet on the existing building walls. The 30.091-inch by 12.27-inch by 8.34-inch (height by width by depth) ancillary equipment cabinet will be attached (wall-mounted) to an existing elevator machine room and painted-to-match as shown on the ZD's so that it will not be visible from adjacent properties.

The facility will operate automatically and will not require personnel or hours of attendance. It will operate twenty-four (24) hours a day, three hundred and sixty-five days a year. Maintenance personnel will visit the site periodically and occasionally for repairs or modifications to the facility.

REQUIREMENT FOR PROPOSED USE:

The proposed facility is a vital component of Clearwire's area-wide wireless broadband network. Clearwire proposes to use this existing building to eliminate the need for a new telecommunications tower in this search area. This site is not only strategically superior to other sites in the area, but also makes use of an existing structure, which is a stated goal of the Fairfax County Comprehensive Land Use Plan and the Fairfax County Zoning Ordinance.

Broadband service providers must locate antenna sites according to a network design within relatively limited geographic parameters in order to provide uninterrupted coverage. When providers cannot locate a site within these geographic parameters, network users will be in an area where their wireless internet connection will be disrupted or will slow significantly. In addition, an incomplete system is inconsistent with Clearwire's legal requirements to provide coverage to a percentage of the population within specific time parameters as required by its FCC license.

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This site offers both an excellent land-use and visual solution to Clearwire's coverage objective within the narrow placement parameters of this particular search area. Clearwire's analysis of its network indicates that there are significant problems in the Fairfax Circle area of Fairfax County. As is referenced to under the Alternatives section, Clearwire is making use of this existing building to avoid constructing a new tower. Consequently, this facility will be the least disruptive means to provide the needed coverage and network capacity in the area.

ANTICIPATED IMPACTS ON ADJOINING PROPERTIES

The proposed facility will have no impact as to traffic, noise, light pollution, air quality, water quality, or radiation on the adjoining properties. As stated previously, this proposal will both make use of an existing building so that there will be little to no adverse visual impact on surrounding properties. In addition to being the best alternative to provide the needed coverage in this search area, the proposed collocation installation is an unobtrusive site to surrounding properties.

RELATIONSHIP OF THE PROPOSAL TO THE COMPREHENSIVE PLAN

The proposed facility is consistent with and furthers the transcendent goals of the Fairfax County Comprehensive Land Use Plan ("Plan") as well as the applicable objectives.

The location, character and extent of the application should be found to be in substantial accord with the Comprehensive Plan. In terms of location, property that contains existing vertical structures, such as buildings, is encouraged by the plan for new site development.

In addition, the extent of the proposed facility should be found to be in substantial accord with the plan as well. The proposed facility poses no encroachment on any existing easements or services, and the antenna mounting height is the minimum needed to serve the facility's goals for the applicant.

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."

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

Clearwire would argue that, by making use of an existing structure, namely a building rooftop, they have avoided the construction of a new structure, and thus furthered this objective of the Comprehensive Plan.

Policy e. Locate mobile and land-based telecommunication facilities operated by different service providers on single sites and/or structures whenever available.

Clearwire would like to point out that the building in question for this application is currently being utilized by additional multiple wireless service providers.

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.

Clearwire will submit that before any construction occurs on the proposal in question, a full engineering study will be completed demonstrating compliance with all NEPA regulations, including sec. 106 which deals directly with impact on historic structures.

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

(See description of compliance with Policy i.)

Furthermore, Clearwire would like to point out that the proposed facility should be found to be a feature shown of the Comprehensive Plan by demonstrating compliance with the "Administrative Review Guidelines" of the Comprehensive Plan, which state:

Objective 45: *Consider the placement of antennas and their associated equipment to be a "feature shown" of the Comprehensive Plan requiring no further Planning Commission review when the placement of the antennas and the related equipment structures is in full compliance with all Fairfax County Zoning Ordinance provisions and the following applicable policies:*

Policy a. *Locate telecommunication facilities on building surfaces (including water tanks or towers) in accordance with the following standards:*

- *The antenna shall be placed directly in front of the building's or tank's surface, including surfaces of the penthouse and other structures on the building's roof, and be no greater than 72 inches in height, 24 inches in width, and 6 inches in depth, or, when a dish antenna, no more than 24 inches in diameter;*

Clearwire will state definitively, for purposes of this application, that not only will the proposed antennas be flush to the existing building walls, but the antenna dimensions will be 35.8 inches in height, 5.5 inches in width and 4.7 inches in depth, which is clearly within the parameters stated above (see antenna specifications).

- *No part of the antenna shall extend above the surface of the building or tank on which it is placed and no part of the antenna's mounting shall extend more than 6 inches above the surface of the building on which it is placed;*

Clearwire will submit that no part of the proposed antenna array will extend above the top of the building walls.

- *The back of the antenna shall be no more than one foot horizontally from the surface on which it is placed;*

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Clearwire will submit that the proposed antenna array will be set off the surface of the building penthouse no more than twelve (12) inches.

- *The antenna and its mounting shall be of a color or finish that closely matches and blends with the surface on which they are placed;*

As stated previously, Clearwire will state for the purposes of this application, that the antenna arrays will be painted a color to match the color of the existing screen wall.

- *The equipment cabinet or shelter shall be either:*
 - *located on the roof of the building immediately adjacent to its penthouse or other structure on the roof and it no greater than 500 square feet in area and 12 feet in height, and shall be screened by a material of the same, or visually the same, color or pattern and of an equal or lesser height than the adjacent rooftop structure;*

Clearwire will state that the proposed equipment cabinet will be located (wall-mounted) immediately adjacent to an existing elevator machine room and painted-to-match the color of that room. This cabinet, moreover, will be approximately 5 feet tall, which is well under the 12-foot height restriction called for by this portion of the Comprehensive Plan.

Policy c. In determining that 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 of character of the general area in which it is to be placed including any surrounding residential properties;*

Clearwire submits that the nature of the rooftop proposal has no adverse impact on the visual quality of the general area.

- *The proposed installation is located and designed to blend with the structure on which it is placed such as flush-*

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mounting antennas or screening the antennas and equipment as appropriate to the site;

The four (4) antennas on the building screen wall will be flush-mounted and the equipment cabinets will be placed (wall-mounted) adjacent to an existing elevator machine room.

- *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;*

(See second bullet)

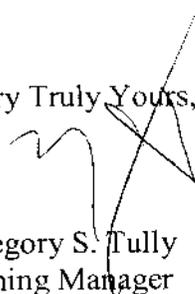
ALTERNATIVE SITES CONSIDERED FOR THIS PROPOSAL

Because Clearwire has chosen to make use of an existing building to provide for their radio-frequency needs in this search area, it did not seem necessary to eliminate other existing structures.

The applicant, Clearwire US, LLC, respectfully submits to the Planning Commission that the proposed facility 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 of the Comprehensive Plan.

Please contact me if you have any questions with reference to this submission.

Very Truly Yours,



Gregory S. Tully
Zoning Manager
Network Building & Consulting, LLC
Consultant for Clearwire US LLC

Exhibit A – Tax Map

PARID: 0484 01 0003A1
AG-FCP CIRCLE TOWERS RESIDENTIAL
L L C

N/A



Aerial Imagery © 2002 Commonwealth of Virginia
Fairfax © 2003

Source: Fairfax County Department
of Tax Administration, Real Estate Division.

PARID: 0484 01 0003A1
AG-FCP CIRCLE TOWERS
RESIDENTIAL L L C

N/A

Owner

Name AG-FCP CIRCLE TOWERS RESIDENTIAL L L C,
Mailing Address 15245 SHADY GROVE RD SUITE 160 CARE
DONALDSON GROUP ROCKVILLE MD 20850
Book 18502
Page 0557

Parcel

Property Location
Parcel ID 0484 01 0003A1
Tax District 70000
District Name PROVIDENCE
Land Use Code Combination of Structure types
Land Area (acreage) 13.9602
Land Area (SQFT)
Zoning Description PDH-12(Residential 12 DU/AC)
Utilities

County Historic Overlay District NO
FOR FURTHER INFORMATION ABOUT HISTORIC
OVERLAY DISTRICTS, [CLICK HERE](#)

Street/Road
Site Description

Legal Description

Legal Description CIRCLE TOWERS
PCL A

Sales History

| Date | Amount | Seller | Buyer |
|------------|--------------|--------------------------|---|
| 06/01/2006 | \$97,800,000 | TGM CIRCLE TOWERS INC | AG-FCP CIRCLE TOWERS RESIDENTIAL L L C |
| 07/28/2000 | \$63,000,000 | | TGM CIRCLE TOWERS INC |
| 09/30/1987 | \$37,721,000 | | CIRCLE ASSOCIATES |

Sales

Date 06/01/2006
Amount \$97,800,000
Seller TGM CIRCLE TOWERS INC
Buyer AG-FCP CIRCLE TOWERS RESIDENTIAL L L C
Notes Valid and Verified Multi-parcel sale
Deed Book and Page 18502-0557
This property was part of a multi-parcel
transaction.
For further information contact DTA by phone at
(703) 222-8234 or
by e-mail at dtared@fairfaxcounty.gov

1 of 3

Values

Current Land \$24,240,000
Current Building \$0
Current Assessed Total \$24,240,000
Tax Exempt NO
Note

Exhibit B – Aerial Map

[Send To Printer](#)

[Back To TerraServer](#)

[Change to 11x17 Print Size](#)

[Show Grid Lines](#)

[Change to Landscape](#)

USGS 22 km W of Washington, D.C., United States 20 Apr 1988



0 100M

0 100yd

Image courtesy of the U.S. Geological Survey

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Exhibit C – Antenna Specifications



Stella Doradus Ireland Ltd.

2.6 GHz SD9890 Base Station Sector Antenna



The 26SD9890 is designed for gain, pattern, and cross pol. properties to fit a range of RF systems, from single sites up to large scale cellular coverage

Electrical Specifications

| | |
|---------------------------|--------------|
| Gain | 16 dBi |
| 3 dB Beam Pattern | 90° x 7° |
| Bandwidth | 2.5- 2.7 GHz |
| VSWR | 1.4 : 1 |
| Front to Back Ratio | 35 dB |
| Polarization | Vertical |
| Cross Pol. Discrimination | 35 dB |
| Power Rating | 25 W |
| Impedance | 50 ohms |
| Connector | N female |

Mechanical Specifications

| | |
|--------------------------------|-----------------------------------|
| Length | 35.8 inches / 91 cm |
| Width | 5.5 inches / 14 cm |
| Depth | 4.7 inches / 12 cm |
| Weight | 8.5 lbs / 3.9 kg |
| Adjustable Tilt Brackets | 6.5 lbs / 3 kg |
| Windage (at 125 mph / 200 kph) | 86 lbs / 382 newtons |
| Mounting Pipe Diameter | up to 3.5 inches / 9 cm |
| Materials | |
| Radiating Element | Beam forming PCB dipole array |
| Radome | Steel + ABS Grey |
| Adjustable Tilt Brackets | HDG steel + stainless steel bolts |

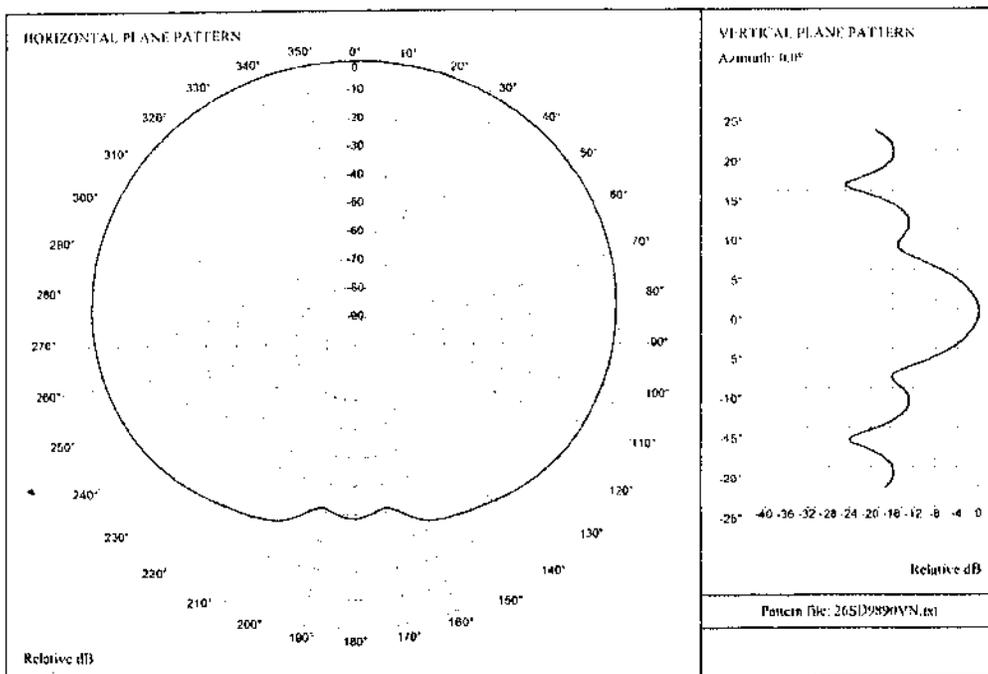
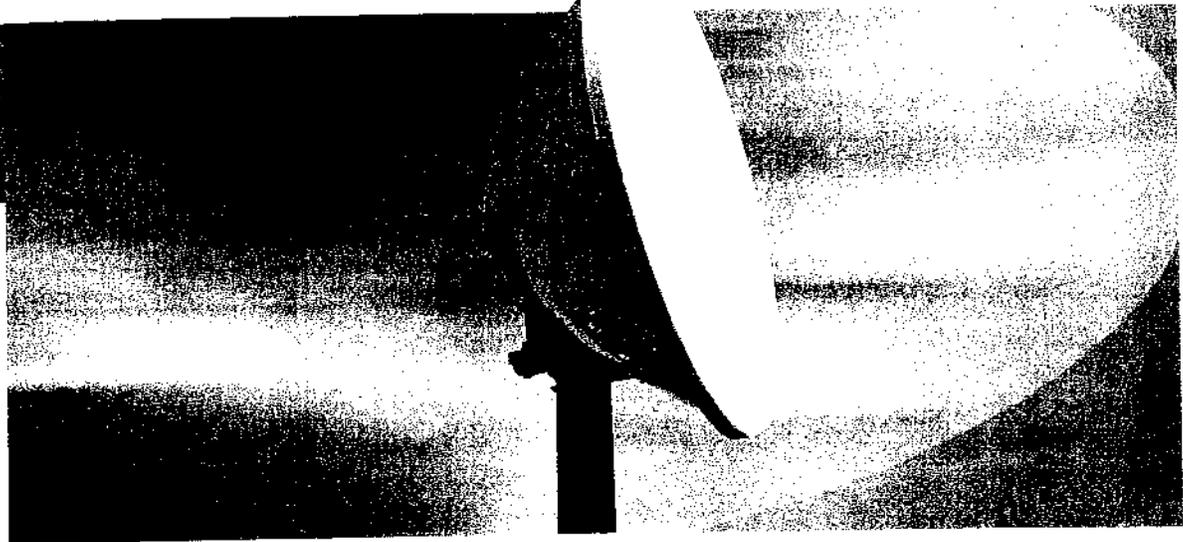


Exhibit D – Equipment Specifications

Exhibit E – Dish Specifications



**PRODUCT
SPECIFICATION**



ValuLine® III Next Generation Antennas VHLP2

SPECIFICATIONS

| | VHLP2-10 | VHLP2-13 | VHLP2-15 | VHLP2-18 | VHLP2-23 | VHLP2-26 | VHLP2-28 | VHLP2-32 | VHLP2-38 |
|-----------------------|-----------|-------------|-------------|-----------|-----------|------------|-----------|-----------|-----------|
| Frequency Band, GHz | 10.5–10.7 | 12.70–13.25 | 14.25–15.35 | 17.7–19.7 | 21.2–23.6 | 24.25–26.5 | 27.5–29.5 | 31.8–33.4 | 37.0–40.0 |
| Bottom Band Gain, dBi | 34 | 35.6 | 36.5 | 38.3 | 39.8 | 40.8 | 41.8 | 43.4 | 44.6 |
| Mid Band Gain, dBi | 34.15 | 35.8 | 36.8 | 38.7 | 40.4 | 41.2 | 42.2 | 43.7 | 45.2 |
| Top Band Gain, dBi | 34.3 | 36 | 37.2 | 39.1 | 41.0 | 41.8 | 42.7 | 44.0 | 45.8 |
| Beamwidth, degrees | 3.5 | 2.7 | 2.5 | 2.1 | 1.7 | 2.5 | 1.3 | 1.0 | 0.9 |
| Front/Back, dB | 56 | 62 | 65 | 67 | 66 | 63 | 68 | 61 | 66 |
| XPD, dB | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 |
| Return Loss, dB | 17.7 | 17.7 | 17.7 | 17.7 | 17.7 | 17.7 | 17.7 | 17.7 | 17.7 |
| Regulatory Compliance | | | | | | | | | |
| ETSI Class | R1 C2 | R1 C3 | R2 C3 | R2 C3 | R3 C3 | R4 C2 | R4 C2 | R5 C3B | R5 C3B |
| FCC Part 101 | CAT A | NA | NA | CAT A | CAT A | CAT A | NA | NA | CAT A |
| Brazil Anatel | CAT A | CAT B | CAT A | CAT A | CAT A | CAT A | CAT A | NA | CAT A |
| Canada SRSP | CAT A | CAT B | CAT A | Note 1 | Note 2 | NA | NA | NA | CAT A |
| Andrew RPE Number | 7000 | 7004 | 7008 | 7012 | 7016 | 7020 | 7024 | 7028 | 7032 |

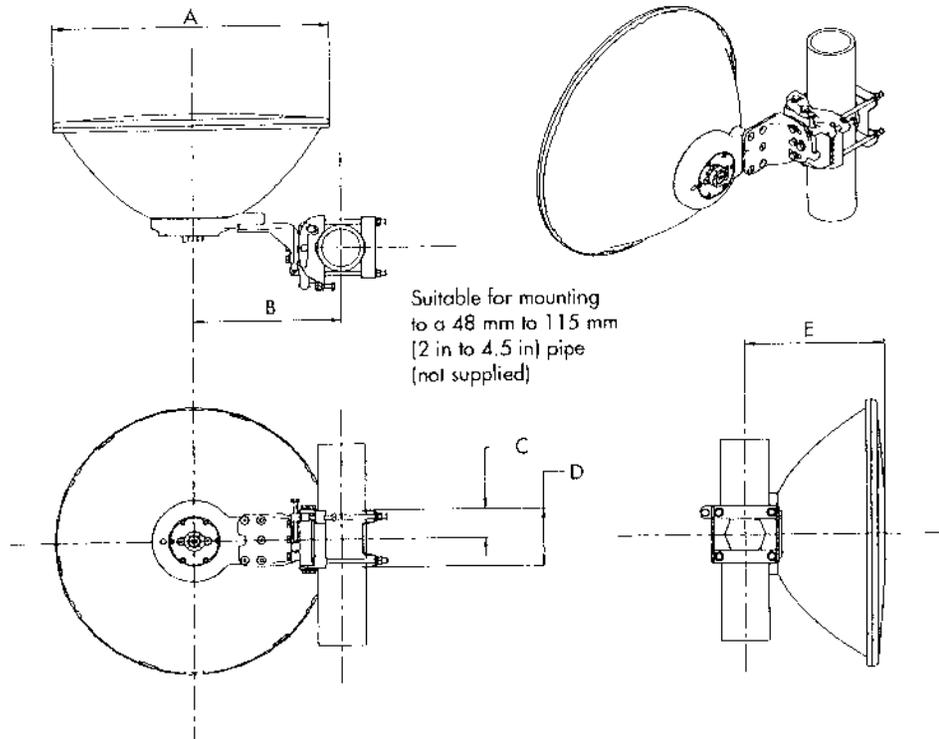
Note 1: Meets Canada SRSP 317.7, 318.5, 318.8

Note 2: Meets Canada SRSP 312.2A, 321.8A

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SPECIFICATIONS

ValuLine® III Next Generation Antennas—VHLP2



Antenna Dimensions, mm (in)

| | |
|---|------------|
| A | 663 (26.1) |
| B | 358 (14.1) |
| C | 72 (2.8) |
| D | 143 (5.6) |
| E | 335 (13.2) |

Antenna Fine Adjustment

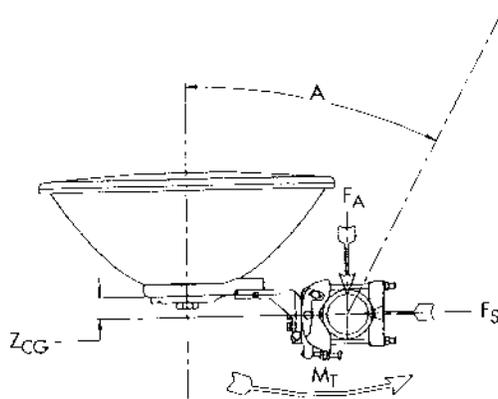
| | |
|----------------|------|
| Fine Aximuth | ±10° |
| Fine Elevation | ±25° |

SPECIFICATIONS

ValuLine® III Next Generation Antennas—VHLP2

Wind Loading

The axial, side, and twisting moment forces stated below are the maximum loads applied to the tower by the antenna at a survival windspeed of 250 km/h (155 mph). They are the result of wind 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 | 1066 N (240 lb) |
| Side force | F_S | 496 N (111 lb) |
| Moment | M_T | 382 N-m (282 lb-ft) |
| Angle A for M_T maximum | | 0° |
| Z_{CG} * without ice, mm (in) | | 125 (4.9) |
| X_{CG} with 12 mm (1/2 in) radial ice, mm (in) | | 188 (7.4) |

* Z_{CG} is the axial distance from the center of gravity to the mounting pipe.

Antenna Weights Including Mount

| | |
|---|-----------|
| Antenna without ice, kg (lb) | 14 (31) |
| Antenna with 12 mm (1/2 in) radial ice, kg (lb) | 24.7 (54) |

Antenna Packed Weights (Gross)

| | |
|-----------------|---------|
| Weight, kg (lb) | 14 (31) |
|-----------------|---------|

Packed Antenna Dimensions (Single Unit Pack)

| | |
|---------------------|-----------------------------------|
| Dimensions, cm (in) | 70 x 70 x 56 (27.5 x 27.5 x 22.0) |
|---------------------|-----------------------------------|



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Andrew Corporation
3 Westbrook Corporate Center
Suite 900
Westchester, IL 60154 US

Customer Support Center
From North America
Telephone: 1-800-255-1479
Fax: 1-800-349-5444

International
Telephone: +1-708-873-2307
Fax: +1-708-349-5444
Internet: www.andrew.com

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5.25 - 5.85 GHz

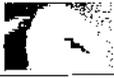
Antenna Inputs: All antenna VSWR values are specified with Type N Female connectors. Other optional inputs may result in equal or slightly VSWR. Contact Andrew for details.
 Pressurization: Pressurization not required.



| Type Number | Diameter ft (m) | RPE Number(s) | Regulatory Compliance | | | | | Gain, dBi | | | Beamwidth Degrees | Cross Pol. Disc., dB | F/B Ratio dB | VSWR max. (R.L., dB) | |
|---|-----------------|---------------|-----------------------|----|----|------------|-----------|-----------|----------|------|-------------------|----------------------|--------------|----------------------|-------------|
| | | | U.S. FCC 101 | 74 | 78 | ETSI Class | ETSI Gain | Low | Mid-Band | Top | | | | | |
| P, PX  Unlicensed Radios Including Spread Spectrum, NII, and ISM – Single and Dual Polarized Antenna Input: Type N Female | | | | | | | | | | | | | | | |
| P2F-52 | 2 (0.6) | 4528 | - | - | - | - | - | - | 29.0 | 29.2 | 29.9 | 5.4 | 30 | 43 | 1.50 (14.0) |
| PX2F-52 | 2 (0.6) | 4740 | - | - | - | - | - | - | 29.0 | 29.2 | 29.9 | 5.4 | 30 | 43 | 1.50 (14.0) |
| P3F-52 | 3 (0.9) | 4529 | - | - | - | - | - | - | 32.3 | 33.0 | 33.3 | 3.8 | 30 | 44 | 1.50 (14.0) |
| PX3F-52 | 3 (0.9) | 4741 | - | - | - | - | - | - | 32.3 | 33.0 | 33.3 | 3.8 | 30 | 44 | 1.50 (14.0) |

5.6 - 6.2 GHz*

Antenna Inputs: All antenna VSWR values are specified with CPR and PDR flanges. Other optional flanges may result in equal or slightly higher VSWR. Contact Andrew for details.
 Pressurization: Feeds are pressurizable to 10 lb/in² (70 kPa).

| Type Number | Diameter ft (m) | RPE Number(s) | Regulatory Compliance | | | | | Gain, dBi | | | Beamwidth Degrees | Cross Pol. Disc., dB | F/B Ratio dB | VSWR max. (R.L., dB) |
|--|-----------------|---------------|-----------------------|----|----|------------|-----------|-----------|----------|------|-------------------|----------------------|--------------|----------------------|
| | | | U.S. FCC 101 | 74 | 78 | ETSI Class | ETSI Gain | Low | Mid-Band | Top | | | | |
| UHX  Ultra High Performance Antennas – Dual Polarization Antenna Inputs: CPR137G and PDR70 | | | | | | | | | | | | | | |
| UHX10-56 | 10 (3.0) | 1636, 1637 | A | - | - | 3 | 2 | 42.5 | 42.9 | 43.3 | 1.1 | 36 | 72 | 1.06 (30.7) |
| UHX12-56 | 12 (3.7) | 1638, 1639 | A | - | - | 3 | 2 | 44.0 | 44.5 | 44.9 | 0.9 | 36 | 73 | 1.06 (30.7) |
| HPX  High Performance Antennas – Dual Polarized Antenna Inputs: CPR137G and PDR70 | | | | | | | | | | | | | | |
| HPX8-56 | 8 (2.4) | 1025 | B | - | - | 3 | 2 | 40.5 | 41.0 | 41.4 | 1.6 | 30 | 68 | 1.06 (30.7) |
| HPX10-56 | 10 (3.0) | 1027 | B | - | - | 2 | 2 | 42.0 | 42.5 | 42.9 | 1.4 | 30 | 69 | 1.06 (30.7) |
| HPX12-56 | 12 (3.7) | 1030 | A | - | - | 3 | 2 | 43.8 | 44.2 | 44.7 | 1.0 | 30 | 71 | 1.06 (30.7) |

5.725 - 6.425 GHz

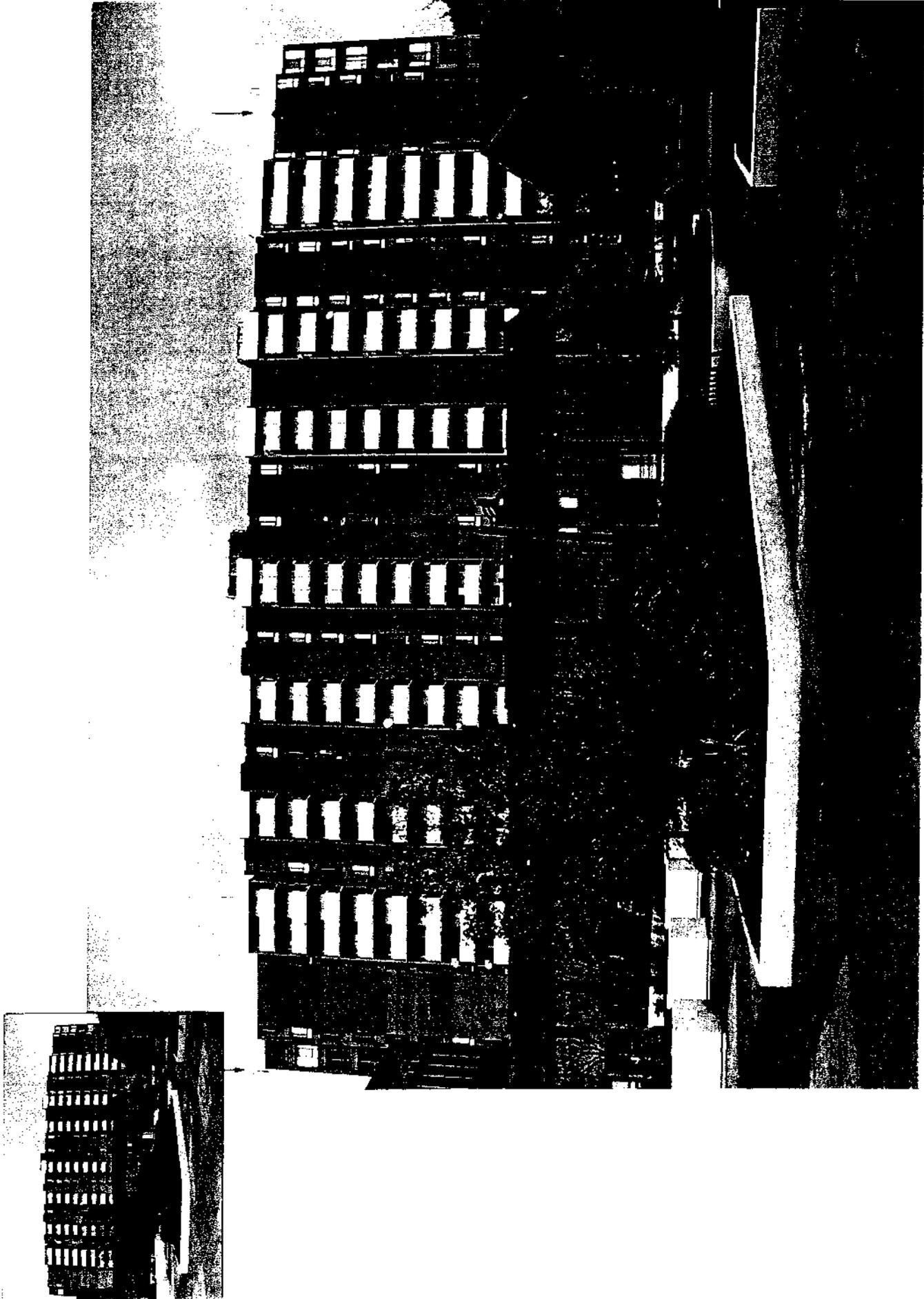
Antenna Inputs: All antenna VSWR values are specified with CPR and PDR flanges. Other optional flanges may result in equal or slightly higher VSWR. Contact Andrew for details.
 Pressurization: Feeds are pressurizable to 10 lb/in² (70 kPa).

| Type Number | Diameter ft (m) | RPE Number(s) | Regulatory Compliance | | | | | Gain, dBi | | | Beamwidth Degrees | Cross Pol. Disc., dB | F/B Ratio dB | VSWR max. (R.L., dB) |
|--|-----------------|---------------|-----------------------|----|----|------------|-----------|-----------|----------|------|-------------------|----------------------|--------------|----------------------|
| | | | U.S. FCC 101 | 74 | 78 | ETSI Class | ETSI Gain | Low | Mid-Band | Top | | | | |
| HP  High Performance / Wide Band Antennas – Single Polarization Antenna Inputs: CPR137G and PDR70 | | | | | | | | | | | | | | |
| HP4-57W | 4 (1.2) | 4269 | - | - | - | 1 | 2 | 34.6 | 35.0 | 35.4 | 2.9 | 30 | 52 | 1.10 (26.4) |
| HP6-57W | 6 (1.8) | 0817 | - | - | - | - | - | 38.0 | 38.5 | 39.0 | 2.0 | 30 | 60 | 1.06 (30.7) |
| HP8-57W | 8 (2.4) | 4273 | B | - | - | 2 | 2 | 40.7 | 41.2 | 41.7 | 1.6 | 30 | 64 | 1.06 (30.7) |
| HP10-57W | 10 (3.0) | 4275 | A | - | - | 2 | 2 | 42.5 | 42.9 | 43.4 | 1.3 | 30 | 65 | 1.06 (30.7) |
| HP12-57W | 12 (3.7) | 4277 | A | - | - | 2 | 2 | 44.2 | 44.6 | 45.0 | 1.0 | 30 | 70 | 1.06 (30.7) |
| HP15-57W | 15 (4.6) | - | A | - | - | 2 | 2 | 45.9 | 46.4 | 46.8 | 0.8 | 30 | 70 | 1.06 (30.7) |
| PL  Standard/Wide Band Antennas – Single Polarized Standard and Low VSWR Antenna Inputs: CPR137G, PDR70, and Type N Female | | | | | | | | | | | | | | |
| P2-57W | 2 (0.6) | 2892 | - | - | - | 1 | 1 | 29.2 | 29.3 | 29.9 | 5.8 | 30 | 40 | 1.10 (26.4) |
| P4-57W | 4 (1.2) | 4268 | - | - | - | - | - | 34.6 | 35.0 | 35.4 | 2.9 | 30 | 40 | 1.10 (26.4) |
| PL6-57W | 6 (1.8) | 4270 | B | - | - | 1 | 2 | 38.0 | 38.5 | 39.0 | 2.0 | 30 | 45 | 1.06 (30.7) |
| PL8-57W | 8 (2.4) | 4272 | B | - | - | 1 | 2 | 40.7 | 41.2 | 41.7 | 1.6 | 30 | 47 | 1.06 (30.7) |
| PL10-57W | 10 (3.0) | 4274 | B | - | - | 1 | 2 | 42.5 | 42.9 | 43.4 | 1.3 | 30 | 50 | 1.06 (30.7) |
| PL12-57W | 12 (3.7) | 4276 | B | - | - | 1 | 2 | 44.2 | 44.6 | 45.0 | 1.0 | 30 | 51 | 1.06 (30.7) |
| PL15-57W | 15 (4.6) | - | B | - | - | 1 | 2 | 46.0 | 46.5 | 47.0 | 0.8 | 30 | 57 | 1.06 (30.7) |

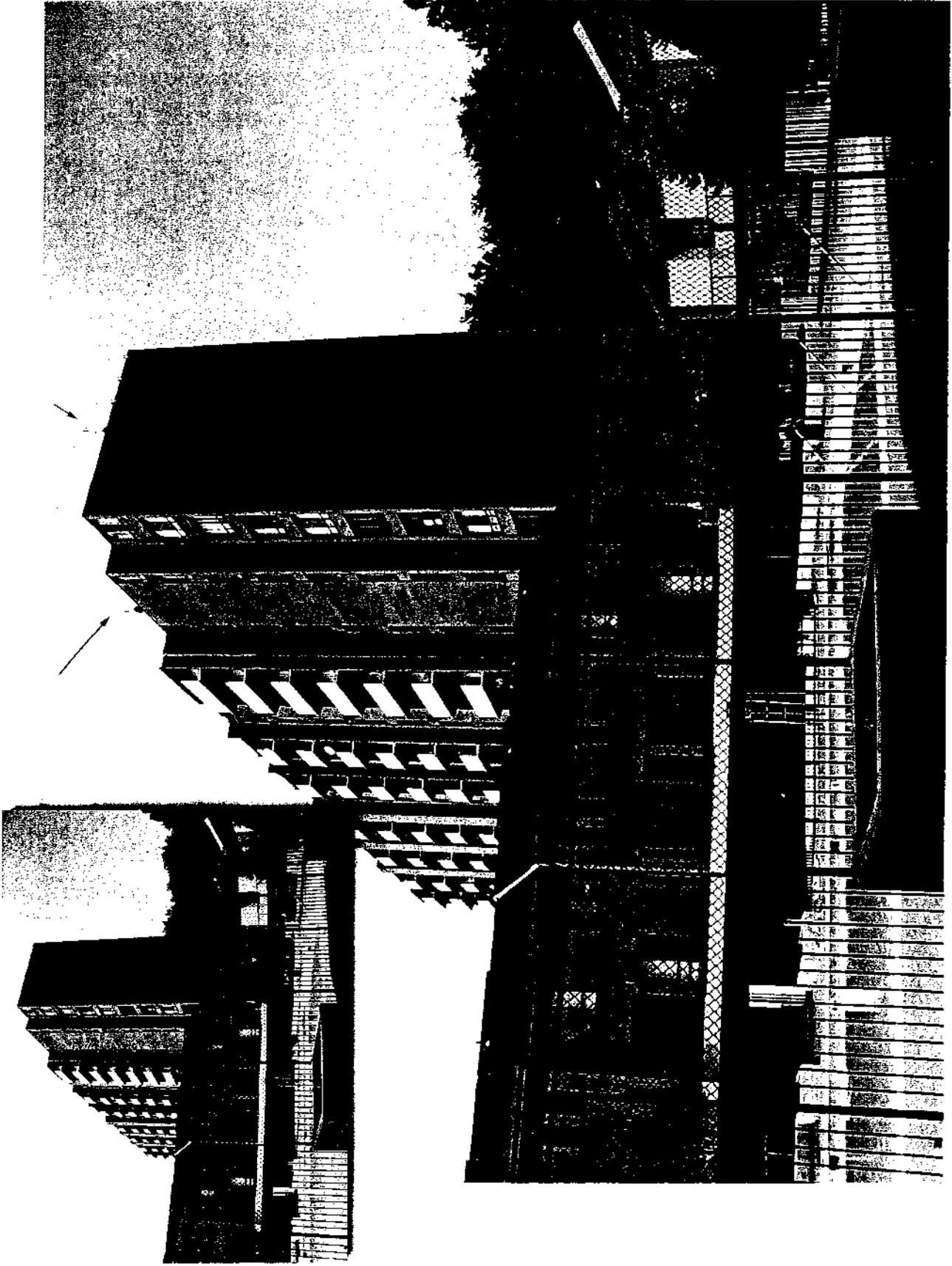
Reference ETSI Document EN300833 for 3 to 60 GHz.

*Multiband antennas are available in this frequency band. See pages 93-94.

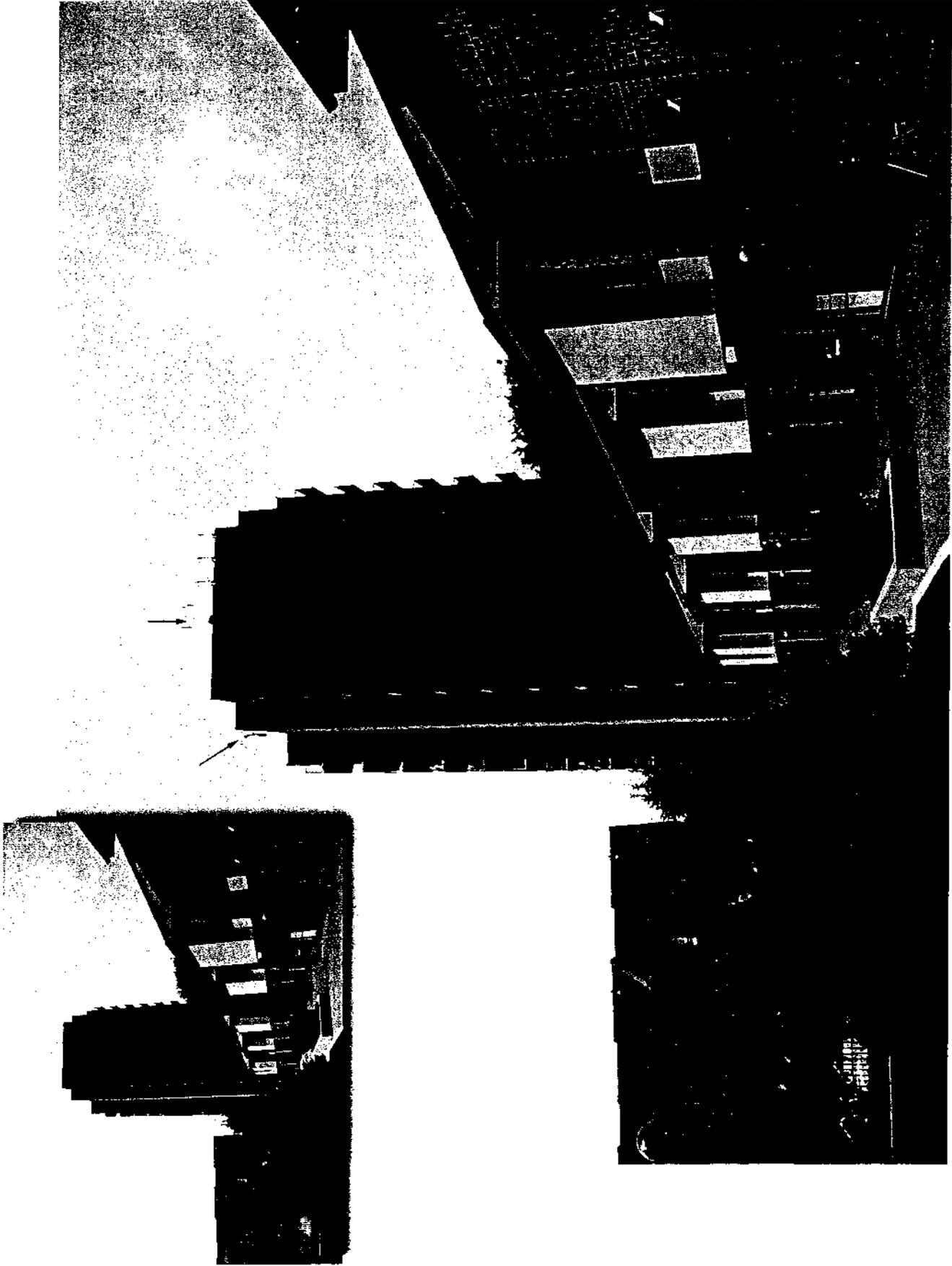
Exhibit F – Photo Simulations



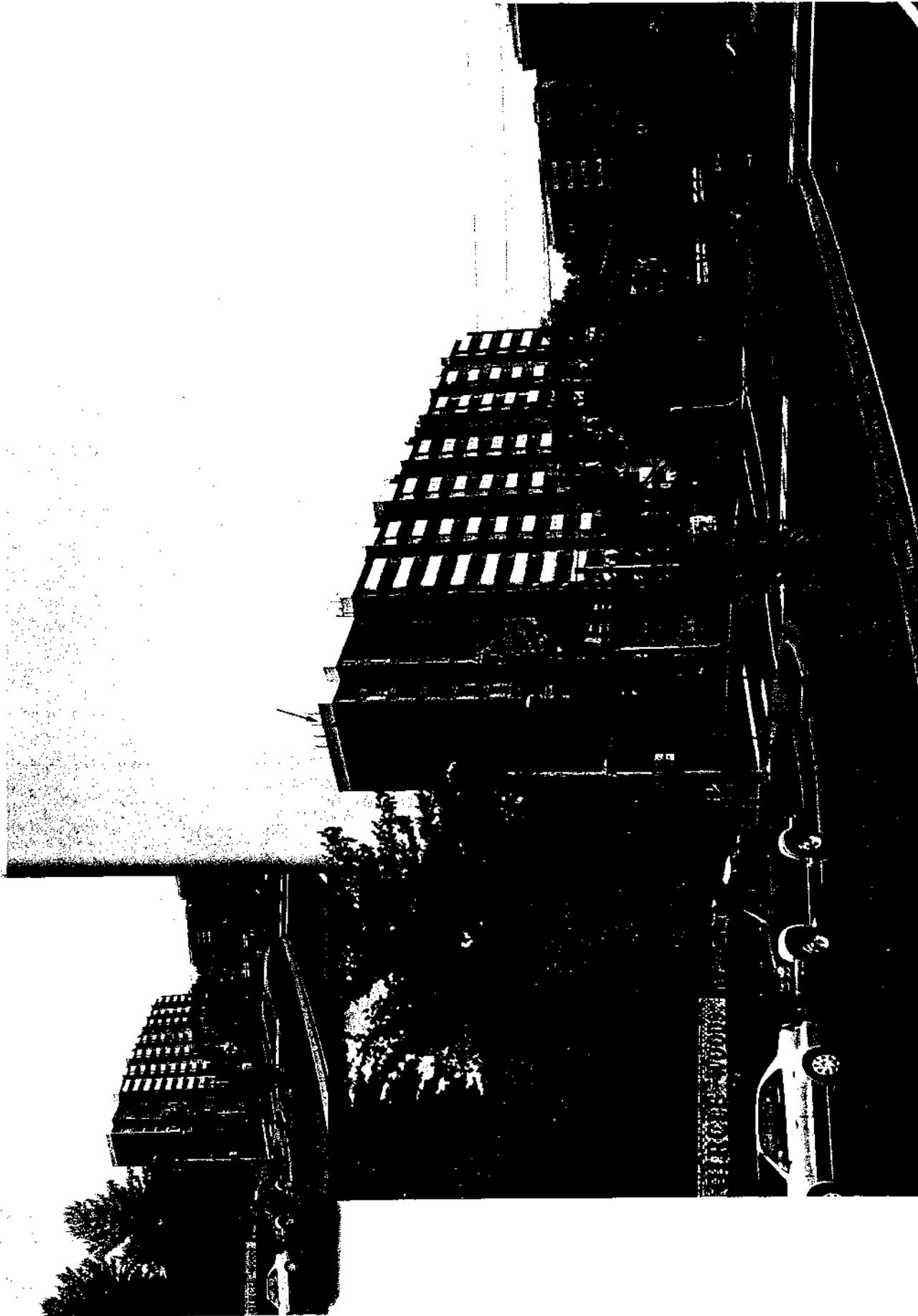
Cleanwire VA Site #221
9335 Lee Highway, Fairfax, VA



Clewire VA Site #221
9335 Lee Highway, Fairfax, VA



Cleanwire VA Site #221
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Exhibit G – Engineering Drawings

