



ARLINGTON COUNTY, VIRGINIA

**County Board Agenda Item
Meeting of March 12, 2011**

DATE: March 4, 2011

SUBJECT: U-3276-11-1 USE PERMIT for public utility/telecommunications for three (3) AT&T antennas and an equipment cabinet at 2807 N. Glebe Road (RPC# 03-047-001)

Applicant:
AT&T Mobility

By:
Charles Salamone
Network Building and Consulting
7150 Standard Drive
Hanover, MD 21076

C.M. RECOMMENDATION:

Approve the use permit for three (3) antennas and an equipment cabinet at 2807 N. Glebe Road, subject to the proposed conditions of the staff report.

ISSUES: This is a request for three (3) new antennas and an equipment cabinet on the rooftop of a Marymount University residence hall building. The Donaldson Run Civic Association does not support the use permit request, because they would like the applicant to conduct emissions studies on a periodic basis. The applicant has provided an emissions report demonstrating their compliance with current and proposed emissions standards.

SUMMARY: AT&T Mobility is requesting approval to place three (3) antennas and an equipment cabinet on the roof of the Gerard Phelan Hall residence building at 2807 N. Glebe Road (Marymount University). There are existing antennas on the roof of the building, which face surrounding Marymount University buildings and parking lots. Therefore, visual impact will be minimal. The proposal is consistent with the *Interim Guidelines for Placement of Telecommunications Facilities on County-Owned Property (Telecommunications Guidelines)*, which encourage location of antennas on existing structures. Therefore, staff recommends approval of the use permit request for antennas at 2807 N. Glebe Road subject to the proposed conditions.

BACKGROUND: The applicant is proposing to mount three (3) additional antennas and add an

County Manager:

BMD/GA

Staff: Marco Antonio Rivero, DCPHD, Planning Division

PLA-5841

10.

equipment cabinet on the roof of a Marymount University building. There are currently nine (9) antennas and related equipment on the building's rooftop that were previously approved administratively in May 2008. The site is located at 2807 North Glebe Road, and is described as follows:

Site: The site is comprised of a Marymount University educational building.

To the north:	The Cathedral View Townhouses, the Washington Golf and Country Club and further north, North Rock Spring Road
To the south	Yorktown Boulevard
To the east:	26 th Street North
To the west:	North Glebe Road and Old Dominion Drive

Zoning: The site is zoned "R-10" One-Family Dwelling Districts and "S-3A" Special Districts.

Land Use: The site is designated on the General Land Use Plan (GLUP) as "Public" (*Local, regional, and federal*). Parkways, major unpaved rights-of-way. Libraries and cultural facilities. It is also designated "Semi Public" Country clubs and semi-public recreational facilities. Churches, private schools and private cemeteries (*predominant use on block*).

Neighborhood: The site is not located within a specific civic association. Four (4) civic/citizens' associations surround the property: Old Dominion, Donaldson Run, Yorktown, and Rock Spring. Representatives from these civic associations have been contacted regarding this use permit request. As of the date of this report, the Old Dominion, Yorktown and Rock Spring civic/citizens' associations have not responded to staff's request for comment. The Donaldson Run Civic Association opposes the use permit request. They would like the applicant to conduct emissions studies on a periodic basis. The applicant submitted an Electromagnetic Energy (EME) Measurement and Site Compliance Report for the existing and proposed facilities that demonstrate their compliance. Furthermore, the existing and proposed antennas are and will be installed in compliance with Federal Communications Commission (FCC) standards. The applicant has not agreed to conduct periodic emissions studies and no condition will be added because they have demonstrated through the EME report that they are in compliance with all emissions standards. Studies conducted on a periodic basis would not be necessary given their current compliance and proposed compliance levels.

DISCUSSION: AT&T Mobility is proposing a total of three (3) antennas and one (1) equipment cabinet on the roof of the Gerard Phelan Hall residence building at 2807 N. Glebe Road. The proposed antennas would be mounted at the same centerline as the nine (9) existing antennas on the rooftop; two (2) antennas will be mounted at a height of 50 feet from grade and one (1) at 74 feet from grade. The proposed equipment cabinet would be mounted next to the existing equipment cabinets on an existing platform enclosed by a security railing on the building's rooftop. The penthouse of the building virtually blocks the equipment cabinet area, and it is not clearly visible from most areas. The existing platform is visible from one of Marymount's parking lots, which is located away from surrounding residences. The proposed antennas and equipment

cabinet create little additional visual impact, as they are primarily facing existing Marymount University buildings and parking lots. Furthermore, the proposed antennas will be painted to match the appearance of the existing antennas on the building. The facility will be unmanned and only requires infrequent visits by maintenance personnel.

The Interim Guidelines for Placement of Telecommunications Facilities on County-Owned Properties (Telecommunications Guidelines) were used to evaluate the application. The *Telecommunication Guidelines* offer direction in the way of design, visual impact, and compliance with Federal Communications Commission (FCC) regulations, among other things.

The *Telecommunication Guidelines* can be applied to telecommunication facilities on privately owned as well as County-owned property. The *Telecommunications Guidelines* encourage the location of new antennas on existing structures, as opposed to constructing a new pole. The proposed antennas meet these criteria. Attached are plans depicting the location and general appearance of the proposed antennas and the roof equipment.

CONCLUSION: Staff supports the applicant's proposal because it is consistent with the *Telecommunications Guidelines* and will be in compliance with Federal Communications Commission (FCC) regulations. The new antennas will create minimal visual impact since they will be facing surrounding Marymount University buildings and parking lots. Therefore, staff recommends that the use permit for AT&T Mobility for the placement of three (3) antennas and an equipment cabinet to an existing telecommunications facility at 2807 N. Glebe Road be approved subject to the following conditions.

Conditions:

1. The applicant agrees that the three (3) AT&T Mobility panel antennas and an equipment cabinet on the existing building at 2807 N. Glebe Road will be installed as shown on plans dated January 31, 2011. Any additional antennas and equipment cabinets on the site will require a use permit amendment.
2. The applicant shall identify a community liaison that shall be available to address any concerns regarding the facility operation. The name and telephone number of the liaison shall be provided to the Old Dominion, Donaldson Run, Yorktown, and Rock Spring Civic/Citizens' Associations and the Zoning Administrator.
3. The applicant agrees that the antennas shall be removed within ninety (90) days after any cessation of use.

care and learning center for 60 children, three to five years old, 7:00 a.m. to 6:00 p.m., Monday through Friday.

April 3, 1982

Approved a use permit for an off- site parking area incidental to a use permitted in an "R" District for the parcel of real property known as 4761 Old Dominion Drive (U-2332-82-2), subject to conditions, and with review in one (1) year:

April 8, 1983

Renewed a use permit for an off- site parking area incidental to a use permitted in an "R" District for the parcel of real property known as 4761 Old Dominion Drive (U-2332-82-2), subject to all previous conditions and with no further review.

August 16, 1986

Approved a use permit amendment (U-1974-74-4) to expand the enrollment in a day care center from 60 to 120 children, ages two to six years, from 7:00 a.m. to 6:00 p.m. on weekdays, subject to a condition and review in three years.

July 9, 1988

Approved a use permit amendment (U-1671-65-2) to address the change in program from a junior college with an enrollment of 1,000 students to a university with an enrollment which may exceed 1,000 students and to permit the construction of a three story addition containing 32,804 square feet of gross floor area to provide additional library space and related services, subject to conditions and review in 18 months.

January 9, 1990

Requested Marymount University to work with the County staff to address parking issues and to designate a liaison to speak with affected civic associations.

Renewed a use permit (U-1671-65-2) for a program change from a junior college with an enrollment of 1,000 students to a university with an enrollment which may exceed 1,000 students, and for construction of a three story addition for additional library space and related services, subject to all previous conditions and review in six months.

July 30, 1991

Renewed a use permit (U-1671-65-2) for a

university with an enrollment which may exceed 1,000 students, and associated library and related services, subject to all previous conditions, one new condition, and review in one year.

Established a Mission Statement for the Working Group as agreed to by representatives of Marymount University.

August 10, 1991

Approved and ratified the Purchase Agreement attached to the County Manager's August 8, 1991 replacement report between the County and Marymount University for the sale to the University of a parcel of land bounded by Old Dominion Drive, Yorktown Boulevard, and North 26th Street for \$1,087,500, and authorized the Chairman to execute the deed conveying the property, with the contract and deed subject to changes which either clarify or improve the County's position and do not adversely affect the County's interest, as determined by the County Manager and approved by the County Attorney.

September 18, 1991

Renewed a use permit (U-2332-82-2) for an off-site parking area incidental to a use permitted in zoning district "R-6," One-Family Dwelling District, for the parcel known as 4761 Old Dominion Drive, subject to all previous conditions and one new condition.

May 16, 1992

Carried over to the May 26, 1992 recessed session, a rezoning (Z-2404-92-1); use permit amendment and review (U-1671-65-2); and abandonment and conveyance to Marymount University of a portion of right-of-way for Yorktown Boulevard at North 26th Street.

May 26, 1992

Approved a rezoning (Z-2404-92-1) of approximately 42,357 square feet of land at the intersection of Yorktown Boulevard and North 26th Street from "S-3A," Special District, "R-10," One-Family Dwelling District; and Approved a use permit amendment (U-1671-65-2) to incorporate into the university site approximately 42,357 square feet of land on which a parking facility containing 289 spaces will be constructed for the parcels of real property known as 2807 North

Glebe Road and the property at the intersection of Yorktown Boulevard and North 26th Street, approval is granted and the parcels so described shall be used according to the use permit approval requested by the application, subject to all previous conditions, new conditions, and review of the operation of the garage in one year following the issuance of a certificate of occupancy; and

Abandoned and conveyed to Marymount University the portion of the right-of-way for Yorktown Boulevard at North 26th Street, as shown on a plat attached to the County Manager's May 5, 1992 report, subject to conditions.

July 16, 1998

Approved a use permit amendment (U-1671-65-2) for construction of an addition to provide gymnasium, locker rooms, and ancillary space to Butler Hall at Marymount University (approximately 27,000 square feet of gross floor area) for the parcel of real property known as 2807 North Glebe Road, subject to all previous conditions; amended conditions, and new conditions; and review in one year following issuance of a Certificate of Occupancy.

December 12, 2006

Deferred consideration of a use permit amendment (U-1671-65-2) for the construction of additional classrooms, faculty offices, academic space, laboratories, dorm rooms, accessory uses, parking; 2807 N. Glebe Rd., 4655 N. 26th St. and subject property bounded by Old Dominion Dr., Yorktown Blvd. and N. 26th St. (Marymount University) (RPC #03-065-001, 03-047-001, -217) to the March 17, 2007 meeting.

March 17, 2007

Deferred consideration of a use permit amendment (U-1671-65-2) for the construction of additional classrooms, faculty offices, academic space, laboratories, dorm rooms, accessory uses, parking; 2807 N. Glebe Rd., 4655 N. 26th St. and subject property bounded by Old Dominion Dr., Yorktown Blvd. and N. 26th St. (Marymount University) (RPC #03-065-001, 03-047-001, -217) to the June 9, 2007 meeting.

June 9, 2007	Deferred consideration of a use permit amendment (U-1671-65-2) for the construction of additional classrooms, faculty offices, academic space, laboratories, dorm rooms, accessory uses, parking; 2807 N. Glebe Rd., 4655 N. 26 th St. and subject property bounded by Old Dominion Dr., Yorktown Blvd. and N. 26 th St. (Marymount University) (RPC #03-065-001, 03-047-001, -217) to the July 7, 2007 meeting.
July 7, 2007	Approved use permit amendment (U-1671-65-2) for the construction of additional classrooms, faculty offices, academic space, laboratories, dorm rooms, accessory uses, parking; 2807 N. Glebe Rd., 4655 N. 26 th St. and subject property bounded by Old Dominion Dr., Yorktown Blvd. and N. 26 th St. (Marymount University) (RPC #03-065-001, 03-047-001, -217).
January 23, 2010	Approved a use permit amendment (U-1671-65-3) for modification of Condition #68 pertaining to improvements under the Yorktown Boulevard/Old Dominion Drive Bridge, subject to the conditions of the staff report.
April 24, 2010	Approved a use permit amendment (U-1671-65-3) for modification of Condition #8.e. of approval to allow off-hour construction activity, subject to the conditions of the staff report.
September 25, 2010	Approved a use permit amendment (U-1671-65-3) for a comprehensive sign plan, subject to all previously approved conditions and the new conditions of the staff report.



To: Marco Rivero
From: Charles Salamone
Date: February 8th, 2011
Re: AT&T @ Richmond

Mr. Rivero,

Please review the revised plans addressing comments generated for the AT&T proposed installation located at 2807 N Glebe Rd.

- Copy of prior building permit
- Elevation details
- Revised cover letter addressing antenna RAD Center

Please let me know if you need any additional information and thank you for your assistance with this matter.

Charles Salamone

A handwritten signature in cursive script that reads "Charles Salamone".

Network Building & Consulting

Consultants to AT&T Mobility

443-617-5691

bsalamone@nbcllc.com



Arlington County, Virginia
Zoning Office
2100 Clarendon Boulevard, Suite 1000
Arlington, Virginia 22201

**RE: Statement of Support
Application for Use Permit
2807 N Glebe Rd Arlington, VA 22207
Applicant: AT&T Mobility
Site Name: Richmond**

This is a request for approval for a modification to an existing AT&T telecommunication facility at the above referenced location in conformity to the Arlington County Zoning Regulations. The purpose of the installation is to provide better service for its customers while keeping with the footprint of collocating whenever possible. This site will ensure dependable coverage as part of the LTE Data Service upgrade for their Network.

The proposed installation will consist of installing three additional panel antennas at the same RAD Center's as the existing antennas. The new antennas will be mounted to the existing antenna sled mounts on the building rooftop. Two at a height of 50' and one at 74' In addition, one equipment cabinet and one E 911 GPS antenna will be added to the existing equipment platform.

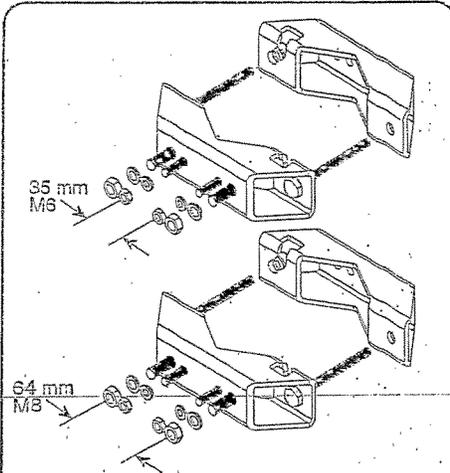
AT&T Mobility is licensed by the FCC to provide continuous coverage for its customer base. The AT&T network provides wireless transport of data traffic between customer sites.

Thank you for your time and consideration with this matter. Please contact me if you have any questions.

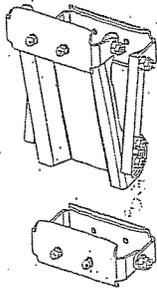
Most Respectfully,

A handwritten signature in cursive script that reads "Charles Salamone IV".

Charles Salamone
Network Building and Consulting
Consultants to AT&T
bsalamone@nbcllc.com
443-617-5691



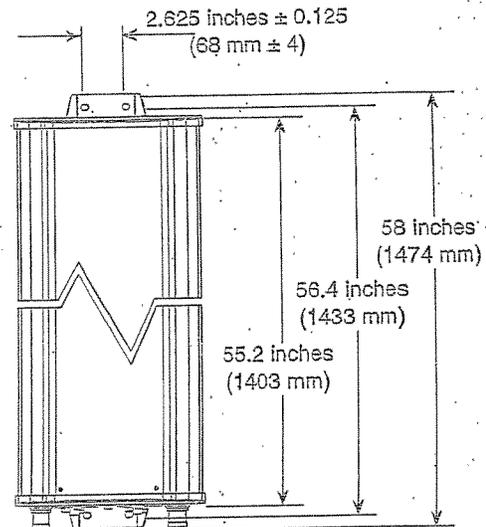
Mounting Brackets
for use with 2-point mount antennas
Mast dia. 2-4.5 inches (50-115 mm)
Weight: 4 lb (1.8 kg)



Mechanical Tilt Brackets
for use with 2-point mount antennas
Weight: 13 lb (5.9 kg)
(Model 850 10007)

Mechanical specifications:

Weight	40.8 lb (18.5 kg)
Dimensions	55.2 x 11.8 x 6 inches (1403 x 300 x 152 mm)
Wind load Front/Side/Rear	at 93 mph (150kph) 156 lbf / 59 lbf / 160 lbf (690 N) / (260 N) / (710 N)
Wind survival rating*	150 mph (240 kph)
Shipping dimensions	64.8 x 12.6 x 7.5 inches (1646 x 322 x 190 mm)
Shipping weight	47.4 lb (21.5 kg)
Mounting	Mounting hardware included for 2 to 4.6 inch (50 to 115 mm) OD masts.

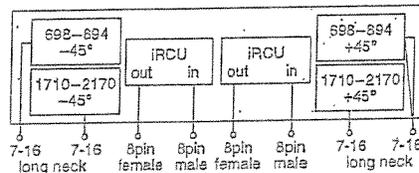
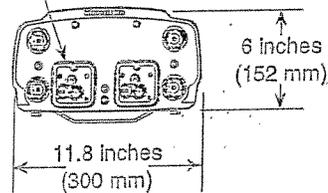


KATHREIN 860 10145

FCC Tested To Comply With FCC Standards

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Note: Refer to part number 860 10145 for the specifications of the remote control actuator.



Order information:

Model	Description
800 10764	Dualband antenna with mounting bracket 0°-16° // 0°-10° electrical downtilt
800 10764 K	Dualband antenna with mounting bracket and mechanical tilt bracket 0°-16° // 0°-10° electrical downtilt

* Mechanical design is based on environmental conditions as stipulated in TIA-222-G-2 (December 2009) and/or ETS 300 019-1-4 which include the static mechanical load imposed on an antenna by wind at maximum velocity. See the Engineering Section of the catalog for further details.

All specifications are subject to change without notice. The latest specifications are available at www.kathrein-scala.com.

Kathrein Inc., Scala Division Post Office Box 4580 Medford, OR 97501 (USA) Phone: (541) 779-6500 Fax: (541) 779-3991
Email: communications@kathrein.com Internet: www.kathrein-scala.com

PROJECT DESCRIPTION

THIS PROPOSAL IS FOR AN UNMANNED TELECOMMUNICATIONS FACILITY CONSISTING OF THE LOCATION OF THREE (3) ADDITIONAL PANEL ANTENNAS (1 PER SECTOR) ON EXISTING ANTENNA MOUNTS ON EXISTING ROOFTOP.

PROJECT INFORMATION

APPLICANT:
AT&T MOBILITY CORPORATION
7150 STANDARD DRIVE
HANOVER, MD 21076

LANDLORD/PROPERTY OWNER:
MARYMOUNT UNIVERSITY, INC.
2807 N. GLEBE ROAD
VIRGINIA, VA 22207

APPLICANT REPRESENTATIVE:
BECHTEL COMMUNICATIONS
9200 BERGER ROAD
COLUMBIA, MD 21046

JURISDICTION:
ARLINGTON COUNTY, VA

BECHTEL CORPORATION:
BECHTEL COMMUNICATIONS
9200 BERGER ROAD
COLUMBIA, MD 21046

PROPERTY INFORMATION:
2807 NORTH GLEBE ROAD
ARLINGTON, VA 22207
LATITUDE: N 38° 54' 17.10"
LONGITUDE: W 77° 07' 37.67"

CONSULTANT:
GPD GROUP
520 SOUTH MAIN STREET, SUITE 2531
AKRON, OHIO 44311
CONTACT: ED BLOCK
TELEPHONE: (330) 572-2100
FAX: (330) 572-3792

HANDICAP REQUIREMENTS: FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION. HANDICAP ACCESS NOT REQUIRED.

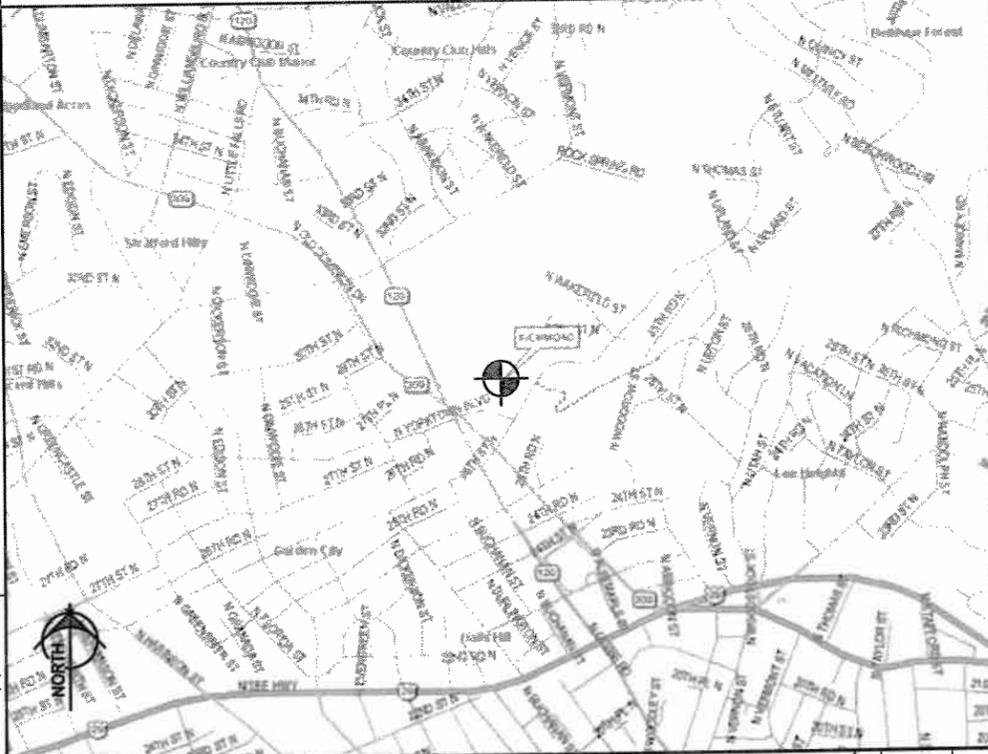
ALL EXCAVATORS MUST CONTACT VA UTILITY LOCATORS (1-800-552-7001) AT LEAST 3 BUSINESS DAYS PRIOR TO EXCAVATION, AS REQUIRED BY LAW.



SITE NAME: RICHMOND
SITE ID NUMBER: 3798

VICINITY MAP

DIRECTIONS: FROM AT&T HANOVER OFFICE:
HEADING SOUTHWEST ON STANDARD DRIVE, TURN LEFT ONTO PARKWAY DR. TAKE 1ST RIGHT ONTO PARK CIRCLE DR. TURN LEFT ONTO COCA COLA DR. MERGE ONTO MD-100W. TAKE EXIT 5A-B TO MERGE ONTO I-95 S. THEN TAKE EXIT 43-44 ONTO GEO WASH MEM PKWY. TAKE THE RAMP TOWARD VA-193, EXIT 44. TURN LEFT ONTO VA-193/GEORGETOWN PIKE. TURN RIGHT ONTO BALLS HILL RD. SLIGHT LEFT ONTO OLD DOMINION DR. SLIGHT RIGHT ONTO N. GLEBE RD. SITE WILL BE ON RIGHT.



APPLICABLE BUILDING CODES AND STANDARDS

SUBCONTRACTOR'S WORK SHALL COMPLY WITH ALL APPLICABLE NATIONAL, STATE, AND LOCAL CODES AS ADOPTED BY THE LOCAL AUTHORITY HAVING JURISDICTION (AHJ) FOR THE LOCATION. THE EDITION OF THE AHJ ADOPTED CODES AND STANDARDS IN EFFECT ON THE DATE OF CONTRACT AWARD SHALL GOVERN THE DESIGN.

BUILDING CODES:
INTERNATIONAL BUILDING CODE (IBC 2006), IRC 2003 WITH LOCAL AMENDMENTS
NATIONAL ELECTRIC CODE: NEC 2008 WITH LOCAL AMENDMENTS
FIRE/LIFE SAFETY CODE: NFPC 2009 WITH LOCAL AMENDMENTS

SUBCONTRACTOR'S WORK SHALL COMPLY WITH THE LATEST EDITION OF THE FOLLOWING STANDARDS:

AMERICAN CONCRETE INSTITUTE (ACI) 318, BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE

AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC), MANUAL OF STEEL CONSTRUCTION, ASD, NINTH EDITION

TELECOMMUNICATIONS INDUSTRY ASSOCIATION TIA/EIA-222-F, STRUCTURAL STANDARDS FOR STEEL ANTENNA TOWER AND ANTENNA SUPPORTING STRUCTURES:
TIA 607, COMMERCIAL BUILDING GROUNDING AND BONDING REQUIREMENTS FOR TELECOMMUNICATIONS

INSTITUTE FOR ELECTRICAL AND ELECTRONICS ENGINEERS (IEEE) 81, GUIDE FOR MEASURING EARTH RESISTIVITY, GROUND IMPEDANCE, AND EARTH SURFACE POTENTIALS OF A GROUND SYSTEM IEEE 1100 (LATEST EDITION) RECOMMENDED PRACTICE FOR POWERING AND GROUNDING OF ELECTRONIC EQUIPMENT

IEEE C62.41, RECOMMENDED PRACTICES ON SURGE VOLTAGES IN LOW VOLTAGE AC POWER CIRCUITS (FOR LOCATION CATEGORY "C3" AND "HIGH SYSTEM EXPOSURE")

TELCORDIA GR-1275, GENERAL INSTALLATION REQUIREMENTS
TELCORDIA GR-1503, COAXIAL CABLE CONNECTIONS

ANSI T1.311, FOR TELECOM - DC POWER SYSTEMS - TELECOM, ENVIRONMENTAL PROTECTION

FOR ANY CONFLICTS BETWEEN SECTIONS OF LISTED CODES AND STANDARDS REGARDING MATERIAL, METHODS OF CONSTRUCTION, OR OTHER REQUIREMENTS, THE MOST RESTRICTIVE REQUIREMENT SHALL GOVERN. WHERE THERE IS CONFLICT BETWEEN A GENERAL REQUIREMENT AND A SPECIFIC REQUIREMENT, THE SPECIFIC REQUIREMENT SHALL GOVERN.

RF DATA SHEET

DATE ISSUED: 9/28/10 VERSION: LTE_V04.0

DRAWING INDEX

REV

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3798-C2A	ROOF PLAN	0
3798-C3	SITE DETAILS	0
3798-C4	GROUNDING DETAILS	0
3798-C5	SITE DETAILS	0
3798-C6	CABINET DETAILS	0
3798-1403	AT&T MOBILITY SYSTEM DIAGRAM, ROOFTOP SITE WITH OUTDOOR BASEBAND AND RRHs ON ROOF	0
3798-1414	AT&T MOBILITY SYSTEM DIAGRAM, OUTDOOR BASE BAND AND RRHs ON ROOFTOP, DC/DC CONVERTER, DC2	0
3798-8A&8D	LTE & RRH DETAILS	0
3798-8B	LTE DETAILS	0
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CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE ENGINEERS IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK.

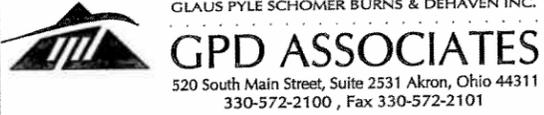
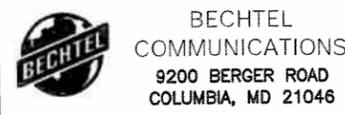
THIS DOCUMENT WAS DEVELOPED TO REFLECT A SPECIFIC SITE AND ITS SITE CONDITIONS AND IS NOT TO BE USED FOR ANOTHER SITE OR WHEN OTHER CONDITIONS PERTAIN. REUSE OF THIS DOCUMENT IS AT THE SOLE RISK OF THE USER.

DETAIL 103

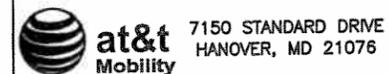
A&E DESIGN PACKAGE REVIEW STATUS			
1. <input type="checkbox"/> ACCEPTED--NO COMMENTS, PROCEED			
2. <input type="checkbox"/> COMMENTS			
A. <input type="checkbox"/> SAC info missing/incomplete	F. <input type="checkbox"/> Design deviation from standard		
B. <input type="checkbox"/> A/E did not follow directions provided	G. <input type="checkbox"/> Omissions		
C. <input type="checkbox"/> Site owner requested changes	H. <input type="checkbox"/> A/E generated change in design		
D. <input type="checkbox"/> Design input changes i.e. RF zoning required	I. <input type="checkbox"/> AT&T changed site design		
E. <input type="checkbox"/> Revised site design	J. <input type="checkbox"/> OTHER		
Permission to proceed does not constitute acceptance or approval of design details, calculations, analyses, test methods or materials developed or selected by the supplier and does not relieve supplier from full compliance with contractual obligations.			
Reviewed by: BA 9/14		Date:	
RF ENGINEER	SA	MARKET LEAD	CONSTRUCTION
	NO 9/15/2010		CML 9/14/10

TELCO-MT 9/14/2010

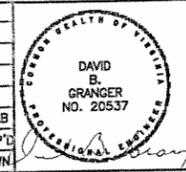
2010257.01 T#83



SITE NAME: RICHMOND
SITE ID NUMBER: 3798
2807 NORTH GLEBE ROAD
ARLINGTON, VA 22207



0	1/31/11	ISSUED FOR CONSTRUCTION	KSS	EAB	EAB
NO.	DATE	REVISIONS / ISSUANCE	BY	CHK	APP'D
DESIGNED BY:	EAB	DRAWN BY:	SJV	SCALE:	AS SHOWN



AT&T
LTE PROJECT

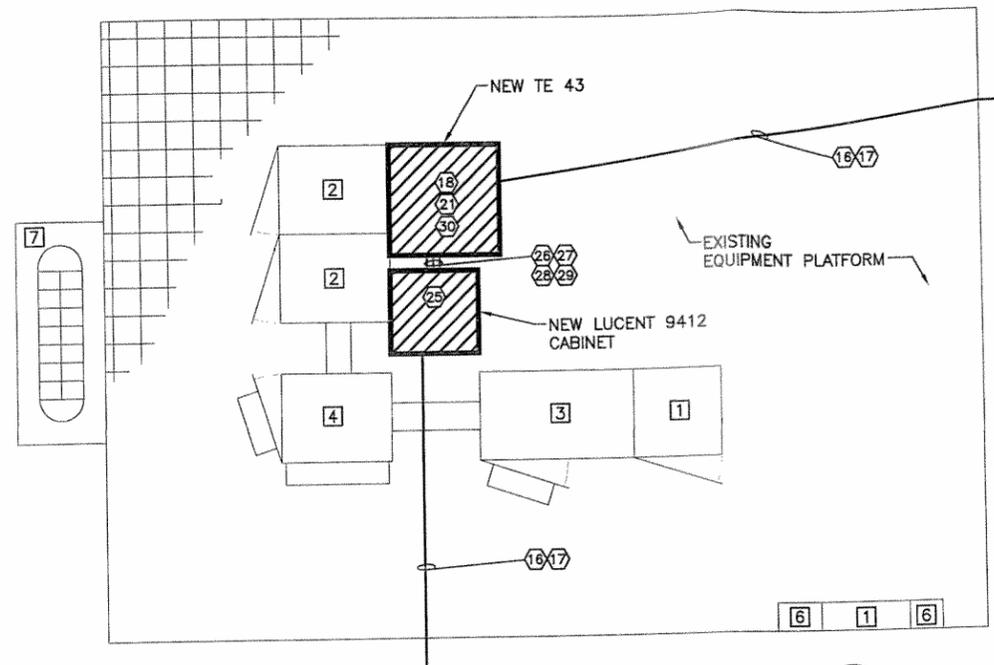
TITLE SHEET	
DRAWING NUMBER	REV
3798-T1	0

SCOPE OF WORK:

- 1 INSTALL (3) NEW KATHREIN LTE ANTENNA ON NEW MOUNTS -
- 2 DECOM EXISTING 5M RET CABLE BETWEEN EACH ANTENNA PER SECTOR (3 TOTAL)
- 3 INSTALL (1) NEW 5M RET CABLE FROM (E) ANTENNA TO NEW LTE ANTENNA (3 TOTAL)
- 4 INSTALL (1) NEW 5M RET CABLE FROM NEW LTE ANTENNA TO (E) ANTENNA (3 TOTAL)
- 5 INSTALL (1) NEW 1M RET CABLE ON LTE ANTENNA BETWEEN MOTORS (3 TOTAL)
- 6 REPLACE (1) (E) GROUND BAR WITH (N) AT SECTOR MOUNT (3 TOTAL)
- 7 INSTALL (2) NEW UNISTRUT FRAMES EXISTING SLED MOUNTS (3 TOTAL)
- 8 PREP FOR (2) RRH'S PER SECTOR ON UNISTRUT FRAMES - IE. GROUNDS (6 TOTAL)
- 9 INSTALL (12) JUMPERS FROM ANTENNAS TO RRHS
- 10 INSTALL (4) FEMALE DC STOPS ON RRH END OF JUMPERS (12 TOTAL)
- 11 INSTALL (1) DC2 AT EACH SECTOR (3 TOTAL)
- 12 INSTALL (1) 1" FLEX CONDUIT FROM DC2 TO RRH FOR DC CABLE (60 LF)
- 13 INSTALL (6) DC DROPS FROM DC2 TO RRH (60LF)
- 14 ZIP TIE FIBER FROM RAYCAP UNIT TO RRH ON 1" FLEX CONDUIT
- 15 REMOVE AND REINSTALL(375LF) OF TRAY
- 16 INSTALL (6) NEW FIBER CABLES FROM LTE FLEX BAY TO DC2 (80M,40M,50M) 1115LF
- 17 INSTALL (6) NEW DC CIRCUITS FROM DC6 SURGE TO DC2 (80M,40M,50M) 1115LF
- 18 INSTALL 1 NEW TE 43 (LTE CABINET) ON PLATFORM FOR LTE SUPPORT CABINET (CONDUITS, TRENCHING)
- 19 INSTALL (1) RECTIFIERS
- 20 INSTALL (2) 3 PORT HATCH PLATE IN TE43
- 21 INSTALL (1) NEW RAYCAP DC6 UNIT IN LTE FLEX BAY/CABINET
- 22 INSTALL (2) NEW 250A BREAKERS FOR CONVERTER MODULE
- 23 INSTALL (1) NEW -48V DC CONVERTER W/ (3) 2KW CONVERTER MODULES
- 24 INSTALL (6) NEW 15A BREAKERS FOR SECTORS / RRHS
- 25 PREP (1) NEW LUCENT 9412 CABINET
- 26 INSTALL (1) 1" FLEX CONDUIT FROM LTE FLEX BAY TO 9412 LOCATION - TELCO (30 LF)
- 27 INSTALL (1) 2" FLEX WITH 1 1/2" REDUCER FROM 9412 TO LTE FLEX BAY - RF FIBER (30 LF)
- 28 INSTALL (1) 1" FLEX CONDUIT FROM 9412 TO LTE FLEX BAY - ALARMS (30 LF)
- 29 INSTALL (1) 2" CONDUIT W/ 1-1/2" REDUCER HUB THE LTE FLEX BAY TO 9412 - POWER (30 LF)
- 30 INSTALL (1) 66 BLOCK ON ALARM BACKBOARD FOR LTE
- 31 INSTALL (1) 50 A BREAKERS FOR 9412 WITH #8 DC DROPS
- 32 INSTALL (1) GPS ANTENNA MOUNT NEXT TO (E) GPS ANTENNA
- 33 INSTALL ALL GROUNDS AS REQUIRED FOR NEW EQUIPMENT
- 34 SET ANTENNA DOWNTILTS FOR UMTS / GSM / LTE PER RFDS
- 35 INSTALL WEATHERPROOFING AS REQUIRED
- 36 COMPLETE PSAP CALL TESTING

- MT-
- 1) siad install and provisioning
 - 2) Installation of (2) fiber jumpers 10 meters
 - 3) Install 20' of 1" conduit from purcell to Lucent Cabinet

PROPOSED WORK, REFERENCE SCOPE OF WORK

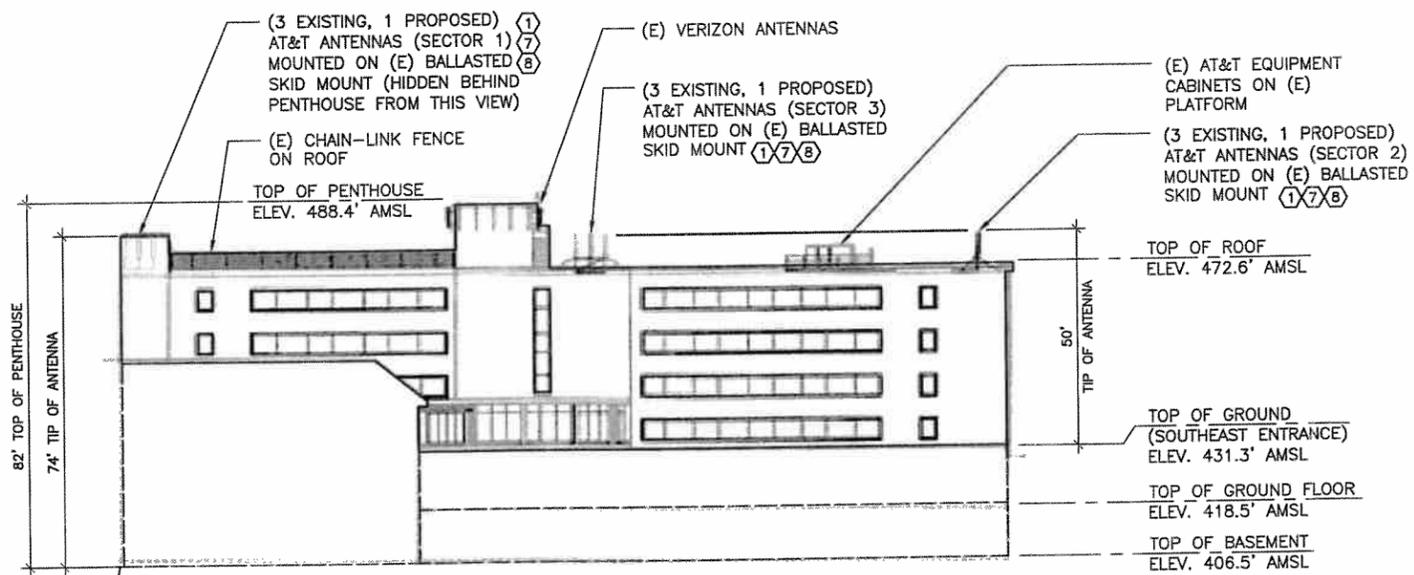


EQUIPMENT LAYOUT PLAN

SCALE: 1" = 2'-0"

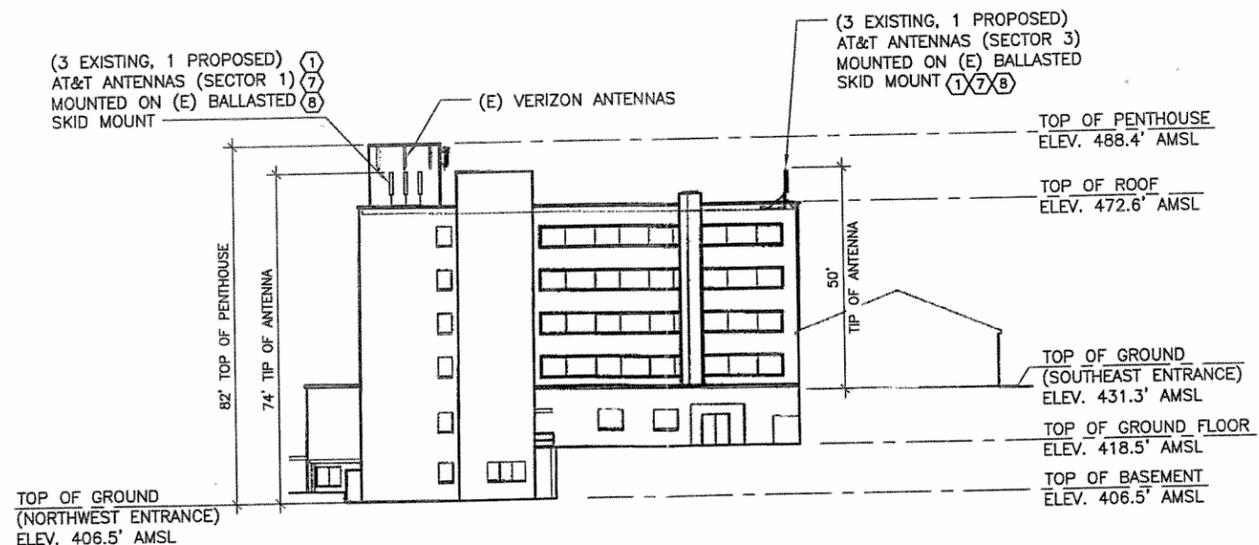
EXISTING EQUIPMENT LEGEND

- 1 EXISTING UMTS
- 2 EXISTING NOKIA
- 3 EXISTING BATTERY STACK
- 4 EXISTING TELCO
- 5 EXISTING DISCONNECT
- 6 EXISTING TRANSFORMER
- 7 EXISTING DIPLEXERS



SOUTHWEST ELEVATION VIEW

N.T.S.



NORTHWEST ELEVATION VIEW

N.T.S.

2010257.01 T#83

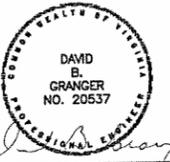
BECHTEL COMMUNICATIONS
9200 BERGER ROAD
COLUMBIA, MD 21046

GLAUS PYLE SCHOMER BURNS & DEHAVEN INC.
GPD ASSOCIATES
520 South Main Street, Suite 2531 Akron, Ohio 44311
330-572-2100, Fax 330-572-2101

SITE NAME: RICHMOND
SITE ID NUMBER: 3798
2807 NORTH GLEBE ROAD
ARLINGTON, VA 22207

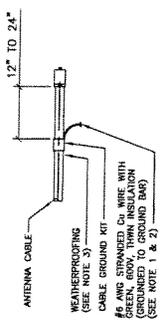
at&t Mobility 7150 STANDARD DRIVE
HANOVER, MD 21076

NO.	DATE	REVISIONS / ISSUANCE	BY	CHK	APP'D
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DESIGNED BY: EAB DRAWN BY: SJV SCALE: AS SHOWN					



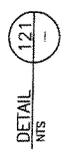
AT&T LTE PROJECT

SITE PLAN AND ELEVATION VIEW	
DRAWING NUMBER	REV
3798-C2	0

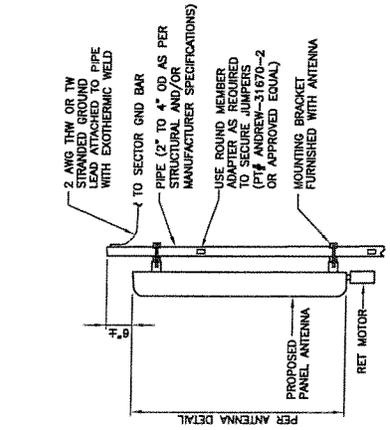


CONNECT OF CABLE GROUND KIT TO ANTENNA CABLE

- NOTES:
1. DIRECT INSTALL CABLE GROUND KIT AS SHOWN AND ALWAYS DIRECT GROUND WIRE DOWN TO GROUND BAR.
 2. GROUNDING KIT SHALL BE TYPE AND PART NUMBER AS SUPPLIED OR RECOMMENDED BY CABLE MANUFACTURER.
 3. WEATHERPROOFING SHALL BE TYPE AND PART NUMBER AS SUPPLIED OR RECOMMENDED BY CABLE MANUFACTURER.

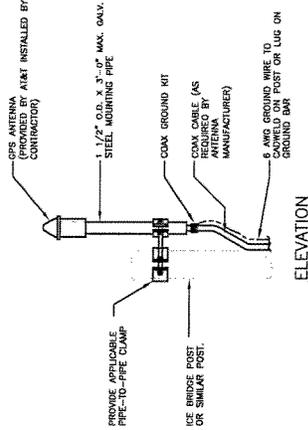


DETAIL 121 NIS



ANTENNA MOUNTING DETAIL 1520

DETAIL 1520 NIS



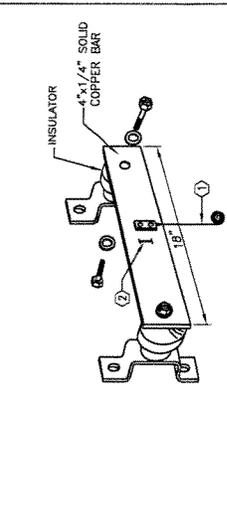
ELEVATION

NOTES:

1. LOCATION OF ANTENNA MUST HAVE CLEAR VIEW OF SOUTHERN SKY AND SURFACE AREA OF A HEMISPHERE AROUND THE GPS ANTENNA.
2. ALL GPS ANTENNA LOCATIONS MUST BE ABLE TO RECEIVE CLEAR SIGNALS FROM A MINIMUM OF FOUR (4) SATELLITES. VERIFY WITH HANDHELD GPS BEFORE FINAL LOCATION OF GPS ANTENNA.

E911 - GPS ANTENNA PIPE MOUNT

DETAIL 1121 NIS



(IGB) ISOLATED GROUND BAR

EACH GROUND CONDUCTOR TERMINATING ON ANY GROUND BAR SHALL HAVE AN IDENTIFICATION TAG ATTACHED AT EACH END THAT WILL IDENTIFY ITS ORIGINAL DESTINATION.

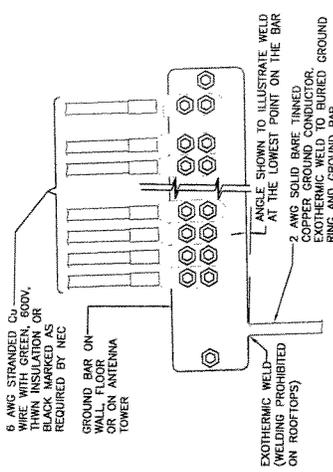
CONNECTION FOR: ALL COMMUNICATIONS EQUIPMENT FRAMES. MASTER GROUND BAR (2 AWG)

DETAIL NOTES:

1. TWO-HOLE, LONG BARREL COMPRESSION LUG WITH 2 AWG STRANDED COPPER CONDUCTOR AND GREEN THW INSULATION TO GROUND BAR. ROUTE CONDUCTOR TO MASTER GROUND BAR AND CONNECT WITH TWO-HOLE LUG TO "I" SECTION.
2. USE PERMANENT MARKER TO LABEL THE WHOLE BAR AS "I" WITH "1" HIGH LETTERS.

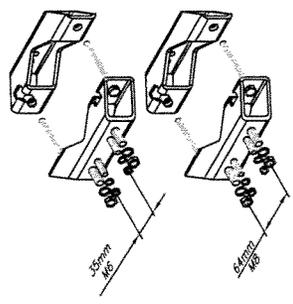
(IGB) ISOLATED GROUND BAR

DETAIL 1121 NIS



INSTALLATION OF GROUND WIRE TO COAX CABLE GROUND BAR

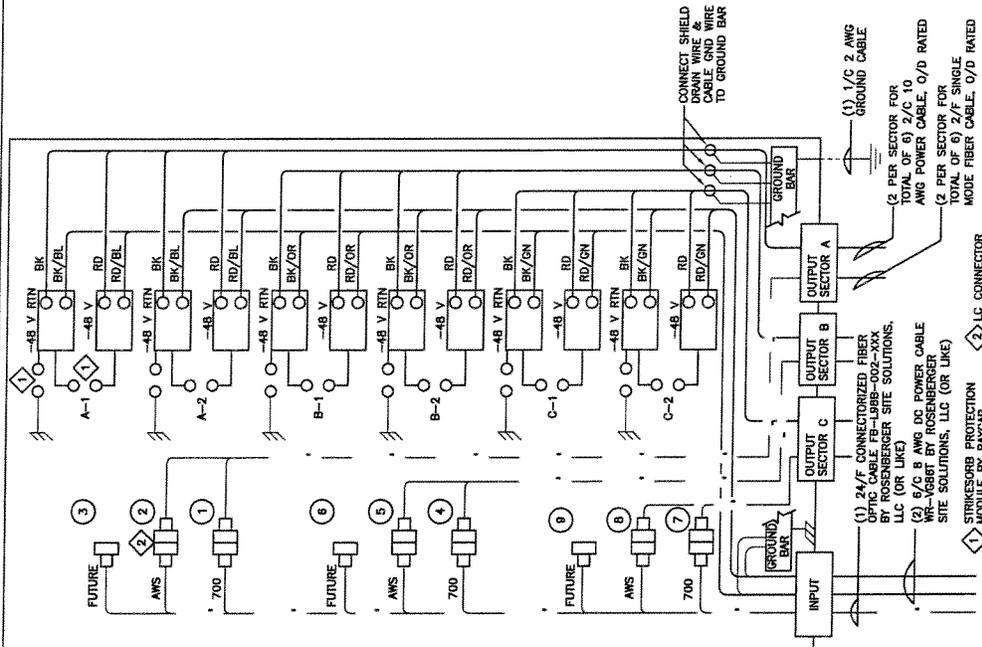
DETAIL 118 NIS



2x738 546 KATHEIN MOUNTING KIT

DETAIL 1509 NIS

<p>BECHTEL COMMUNICATIONS 8200 BERGER ROAD COLUMBIA, MD 21046</p>	<p>GLAUS PYLE SCHOMER BURNS & DEHAVEN INC. GPD ASSOCIATES 520 South Main Street, Suite 2531 Akron, Ohio 44311 330-572-2100, Fax 330-572-2101</p>	<p>7150 STANDARD DRIVE HANOVER, MD 21076</p>	<p>SITE NAME: RICHMOND SITE ID NUMBER: 3798 2807 NORTH GLEBE ROAD ARLINGTON, VA 22207</p>	<p>AT&T LTE PROJECT</p>	<table border="1"> <thead> <tr> <th>NO.</th> <th>DATE</th> <th>BY</th> <th>DESCRIPTION</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>9/23/10</td> <td>SM</td> <td>ISSUED FOR CONSTRUCTION</td> </tr> <tr> <td>1</td> <td>9/23/10</td> <td>SM</td> <td>ISSUED FOR REVIEW & COMMENTS</td> </tr> <tr> <td>2</td> <td>9/23/10</td> <td>SM</td> <td>ISSUED FOR REVIEW & COMMENTS</td> </tr> </tbody> </table>	NO.	DATE	BY	DESCRIPTION	0	9/23/10	SM	ISSUED FOR CONSTRUCTION	1	9/23/10	SM	ISSUED FOR REVIEW & COMMENTS	2	9/23/10	SM	ISSUED FOR REVIEW & COMMENTS	<p>20100227.01, YRS</p>
						NO.	DATE	BY	DESCRIPTION													
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1	9/23/10	SM	ISSUED FOR REVIEW & COMMENTS																			
2	9/23/10	SM	ISSUED FOR REVIEW & COMMENTS																			
<p>DESIGNED BY: LPS (LARRY B. SMITH) CHECKED BY: SM</p>			<p>SITE DETAILS</p>	<p>3798-C3</p>	<p>0</p>																	



CONNECTION DIAGRAM, DC SURGE SUPPRESSION
 SYSTEM, DC6-48-60-18-8F (BY RAYCAP)

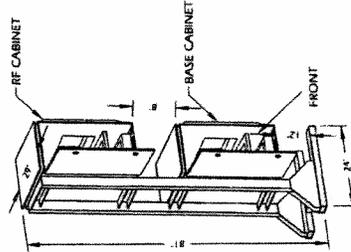
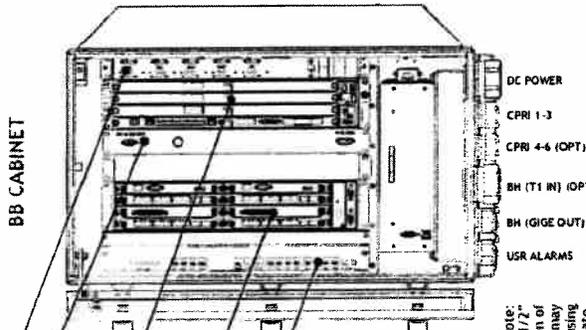
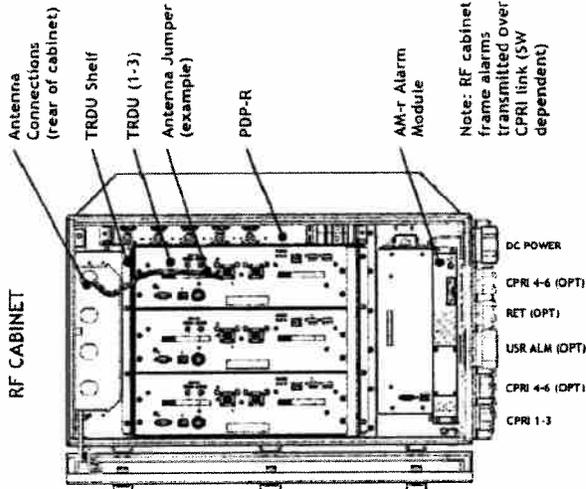
DETAIL 1410

FIBER TRUNK CHANNEL	FREQUENCY BAND	SECTOR	RRH NUMBER	RADIO NAME	FIBER TAG	DC TRUNK #1	DC TRUNK #2	DC SURGE SUPPRESSION POSITION
1	700	A	RRH-A1	RRH-700-A1	A1-700	RED/BLUE BK/BLUE		A-1
2	AWS	A	RRH-A2	RRH-AWS-A2	A2-AWS		RED/BLUE BK/BLUE	B-1
3		A		SECTOR A SPARE	FUTURE	FUTURE	FUTURE	FUTURE
4		A		SECTOR A SPARE	FUTURE	FUTURE	FUTURE	FUTURE
5	700	B	RRH-B1	RRH-700-B1	B1-700	RED/OR BK/OR		A-2
6	AWS	B	RRH-B2	RRH-AWS-B2	B2-AWS		RED/OR BK/OR	B-2
7		B		SECTOR B SPARE	FUTURE	FUTURE	FUTURE	FUTURE
8		B		SECTOR B SPARE	FUTURE	FUTURE	FUTURE	FUTURE
9	700	C	RRH-C1	RRH-700-C1	C1-700	RD/GREEN BK/GREEN		A-3
10	AWS	C	RRH-C2		C2-AWS		RD/GREEN BK/GREEN	B-3
11		C		SECTOR C SPARE	FUTURE	FUTURE	FUTURE	FUTURE
12		C		SECTOR C SPARE	FUTURE	FUTURE	FUTURE	FUTURE

LTE FIBER TRUNK CONNECTION CODE

DETAIL 1405

 BECHTEL COMMUNICATIONS 9200 BERGER ROAD COLUMBIA, MD 21046	 GPD ASSOCIATES 520 South Main Street, Suite 2531 Akron, Ohio 44311 330-572-2100, Fax: 330-572-2101	SITE NAME: RICHMOND SITE ID NUMBER: 3798 2807 NORTH GLEBE ROAD ARLINGTON, VA 22207	 7150 STANDARD DRIVE HANOVER, MD 21076		AT&T	SITE DETAILS PROJECT NUMBER: 3798-C5 REV: 0
					LTE PROJECT	



- FEATURES**
- 19" RACK MOUNTABLE FOR MONITORING BASE & BB
 - BASE CABINET 17" ABOVE FLOOR
 - RF CABINET 8" ABOVE BASE CABINET
 - 2" REAR CLEARANCE REQUIRED FOR STRENGTHENING THE FLOOR STAND
 - FOOT PRINT: 20" X 24"
- CLEARANCES AND LOADS**
- FRONT: 24 INCH FOR MAINTENANCE
 - SIDE: 24 INCH FOR MAINTENANCE
 - REAR: 12 INCH FOR RF JUMPER

9412 ENODEB CABINET DETAIL

2010297.01 TFS3

REV	DATE	DESCRIPTION	BY	CHK	APP
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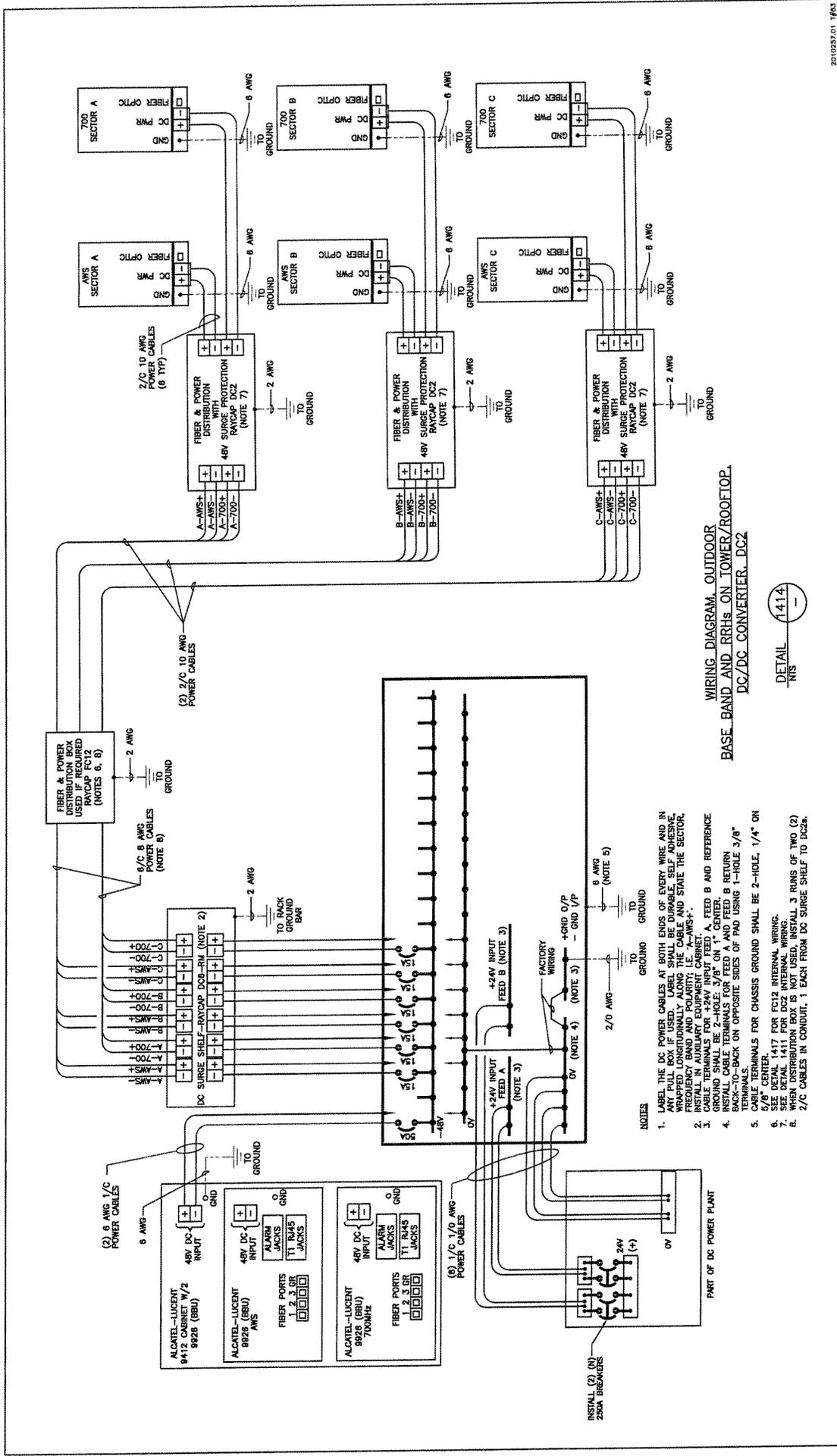
7150 STANDARD DRIVE
HANOVER, MD 21076

SITE NAME: RICHMOND
SITE ID NUMBER: 3798
2807 NORTH GLEBE ROAD
ARLINGTON, VA 22207

GCLAUS PYLE SCHOMER BURNS & BEHAVEN INC.
520 South Main Street, Suite 2331 Akron, Ohio 44311
330-572-2180, Fax 330-572-2101

BECHTEL COMMUNICATIONS
9200 BERGER ROAD
COLUMBIA, MD 21046

CABINET DETAIL
DRAWING NUMBER: 3798-C6
REV: 0



WIRING DIAGRAM, OUTDOOR
BASE BAND AND RRHS ON TOWER/ROOFTOP,
DC/DC CONVERTER, DC2



- NOTES
1. LABEL THE DC POWER CABLES AT BOTH ENDS OF EVERY WIRE AND IN ANY PULL BOX IF USED. LABEL SHALL BE DURABLE, SELF ADHESIVE, RESISTANT TO WEATHER, AND EASY TO REMOVE AND STATE THE SECTOR, FREQUENCY BAND AND POLARITY (E.G. "A-700+").
 2. INSTALL IN AUXILIARY EQUIPMENT CABINET.
 3. CABLE TERMINALS FOR +24V INPUT FEED A, FEED B AND REFERENCE WIRE AND CABLE TERMINALS FOR -48V INPUT FEED B RETURN MUST BE INSTALLED ON OPPOSITE SIDES OF PAD USING 1-HOLE 3/8" TERMINALS.
 4. BACK-TO-BACK ON OPPOSITE SIDES OF PAD USING 1-HOLE 3/8" TERMINALS.
 5. CABLE TERMINALS FOR CHASSIS GROUND SHALL BE 2-HOLE, 1/4" ON 5/16" CENTER.
 6. SEE DETAIL 1417 FOR EC12 INTERNAL WIRING.
 7. SEE DETAIL 1411 FOR DC2 INTERNAL WIRING.
 8. WHEN DISTRIBUTION BOX IS NOT USED, INSTALL 3 RUNS OF TWO (2) 2/C CABLES IN CONDUIT, 1 EACH FROM DC SURGE SHELF TO DC2A.

2010257.01, 1/03

AT&T MOBILITY
SYSTEM DIAGRAM, OUTDOOR
BASE BAND AND RRHS ON
TOWER/ROOFTOP, DC/DC
CONVERTER, DC2

AT&T
LTE PROJECT

DESIGNED BY: EAB | DRAWN BY: SWI (SCALE AS SHOWN)

NO.	DATE	REVISIONS / ISSUANCE	BY	CHK	APP
A	9/13/10	ISSUED FOR REVIEW & COMMENT	SWI	EAB	EAB
0	9/23/10	ISSUED FOR OWNER COMMENTS	SWI	EAB	EAB

7150 STANDARD DRIVE
HANOVER, MD 21076

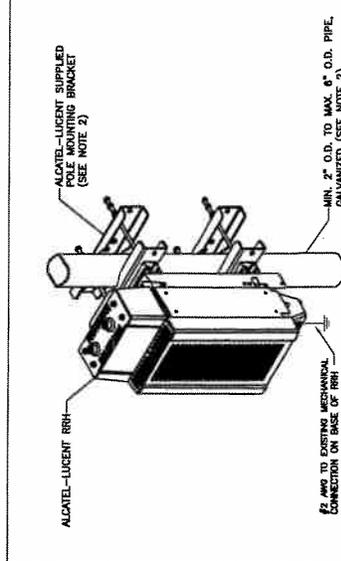
at&t
Mobility

SITE NAME: RICHMOND
SITE ID NUMBER: 3798
2807 NORTH GLEBE ROAD
ARLINGTON, VA 22207

GLAUS PYLE SICHOMER BURNS & DEHAVEN INC.
GPD ASSOCIATES
520 South Main Street, Suite 2531 Akron, Ohio 44311
330-572-2100, Fax 330-572-2101

BECHTEL
COMMUNICATIONS
8200 BERGER ROAD
COLUMBIA, MD 21046

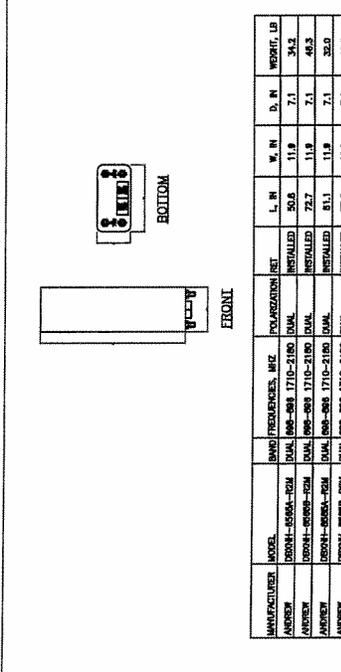
3798-1414



NOTES:

- ALCATEL-LUCENT (ALU) VIA AT&T SUPPLIES RRR, RRR POLE-MOUNTING BRACKET. SUBCONTRACTOR SHALL SUPPLY POLE/PIPE AND INSTALL ALL MOUNTING HARDWARE INCLUDING RRR POLE-MOUNTING BRACKET. ALU INSTALLS RRR AND MAKES CABLE TERMINATIONS.
- FOR POLE DIAMETERS FROM 6" TO 15", ALCATEL-LUCENT CAN SUPPLY A PAIR OF POLE MOUNTING METAL BANDS WITH BOLTING WELDMENT.

ALCATEL-LUCENT 9442
REMOTE RADIO HEAD (RRH) POLE MOUNT



MANUFACTURER	MODEL	BAND / FREQUENCIES, MHz	POLARIZATION	SET	L IN	W IN	D IN	WEIGHT, LB
ANDREX	10004-1004-RM	DUAL 800-904 1710-2170	DUAL	INSTALLED	50.6	11.9	7.1	34.2
ANDREX	10004-1004-RM	DUAL 800-904 1710-2170	DUAL	INSTALLED	72.7	11.9	7.1	46.5
ANDREX	10004-1004-RM	DUAL 800-904 1710-2170	DUAL	INSTALLED	81.1	11.9	7.1	32.9
ANDREX	10004-1004-RM	DUAL 800-904 1710-2170	DUAL	INSTALLED	72.9	11.9	7.1	49.2
ANDREX	1000-10724 K	DUAL 800-904 1710-2170	DUAL	INSTALLED	75.9	11.9	6.0	31.9
ANDREX	1000-10724 K	DUAL 800-904 1710-2170	DUAL	INSTALLED	84.9	11.8	6.0	48.2
ANDREX	1000-10724 K	DUAL 800-904 1710-2170	DUAL	INSTALLED	82.2	11.8	6.0	40.8
ANDREX	1000-10724 K	DUAL 800-904 1710-2170	DUAL	INSTALLED	72.0	11.8	6.0	37.2
ANDREX	1000-10724 K	DUAL 800-904 1710-2170	DUAL	INSTALLED	86.0	11.8	6.0	61.7
ANDREX	1000-10724 K	DUAL 800-904 1710-2170	DUAL	INSTALLED	83.2	11.8	6.0	49.3
ANDREX	1000-10724 K	DUAL 800-904 1710-2170	DUAL	INSTALLED	81.0	12.0	6.0	30.0
ANDREX	1000-10724 K	DUAL 800-904 1710-2170	DUAL	INSTALLED	72.0	12.0	6.0	35.0
ANDREX	1000-10724 K	DUAL 800-904 1710-2170	DUAL	INSTALLED	49.0	12.0	6.0	30.0

LIE/AMTS/GSM DUAL BAND
DUAL POLARIZATION ANTENNA (TYP)



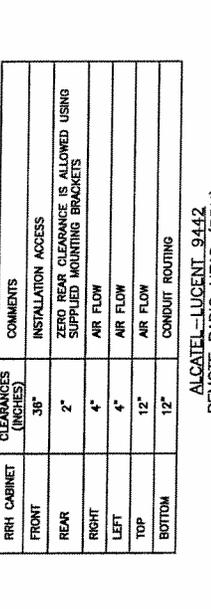
SIZE AND WEIGHT TABLE

RRH	WIDTH	DEPTH	HEIGHT W/O CABLE MANAGEMENT COVER	HEIGHT W/O CABLE MANAGEMENT COVER	WEIGHT W/O BRACKET
RRH 700 MHz 2X40 (60W)	12.2"	10.8"	21"	21"	51 LBS.
RRH AWS 2X40 (60W)	12"	9"	25"	25"	43 LBS. (W/O SOLAR SHIELD)

NOTE: DIMENSIONS INCLUDE MOUNTING BRACKET, SOLAR SHIELD AND CONNECTORS.

MINIMUM CLEARANCE TABLE

RRH CABINET	CLEARANCES (INCHES)	COMMENTS
FRONT	36"	INSTALLATION ACCESS
REAR	2"	ZERO REAR CLEARANCE IS ALLOWED USING SUPPLIED MOUNTING BRACKETS
RIGHT	4"	AIR FLOW
LEFT	4"	AIR FLOW
TOP	12"	AIR FLOW
BOTTOM	12"	CONDUIT ROUTING



ALCATEL-LUCENT 9442
REMOTE RADIO HEAD (RRH)



MECHANICAL CHARACTERISTICS

DIMENSIONS
 (L x W x H)
 (132mm x 300mm x 146mm)
 WEIGHT: 44.1 lbs (20kg)

FRONT VIEW
 11.8"

SIDE VIEW
 6"

ELEVATION
 2.625" x 0.125"

DUAL BAND DUAL POLE PANEL ANTENNA
 KATHREIN 800-10764
 AZIMUTH BEAMWIDTH 65°
 (698 MHz-894 MHz / 1710 MHz-2170 MHz)
 INTERNAL RET DRIVES

BECHTEL COMMUNICATIONS
 9200 BERGER ROAD
 COLUMBIA, MD 21046

GPD ASSOCIATES
 530 South Lakeshore Street, Suite 2331 Akron, Ohio 44311
 330-972-2100, Fax 330-572-2101

GLAS PYLE SCHOMER BURNS & DEHAVEN, INC.

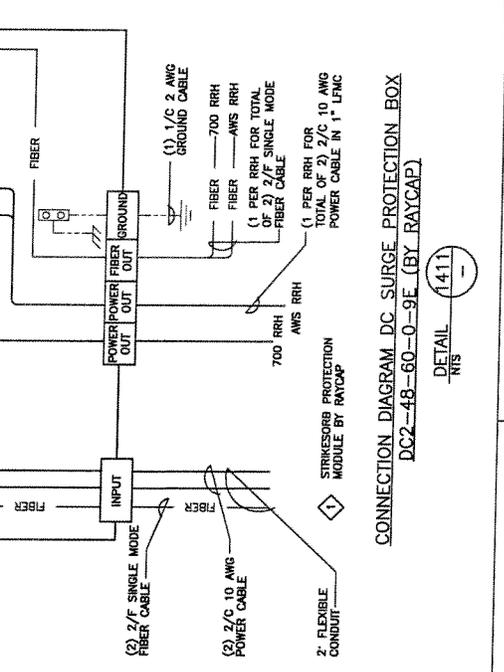
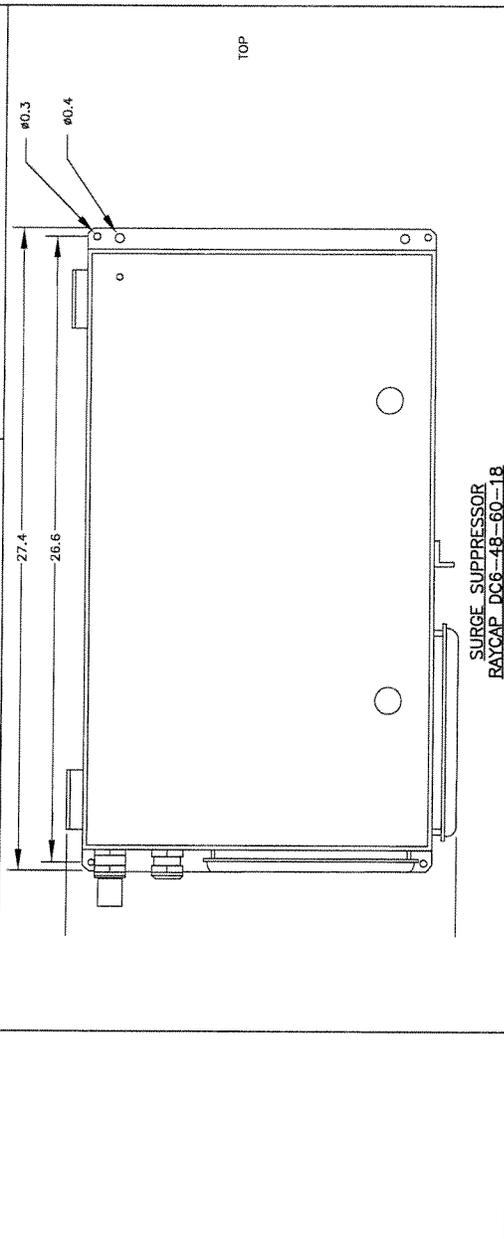
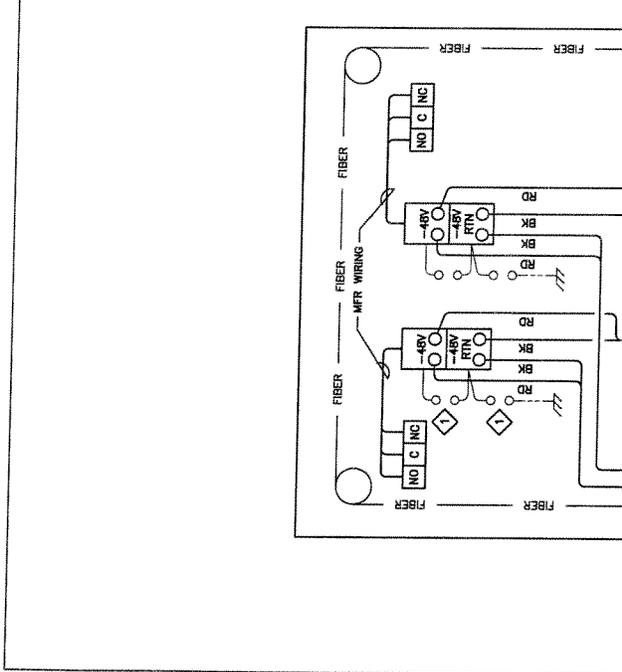
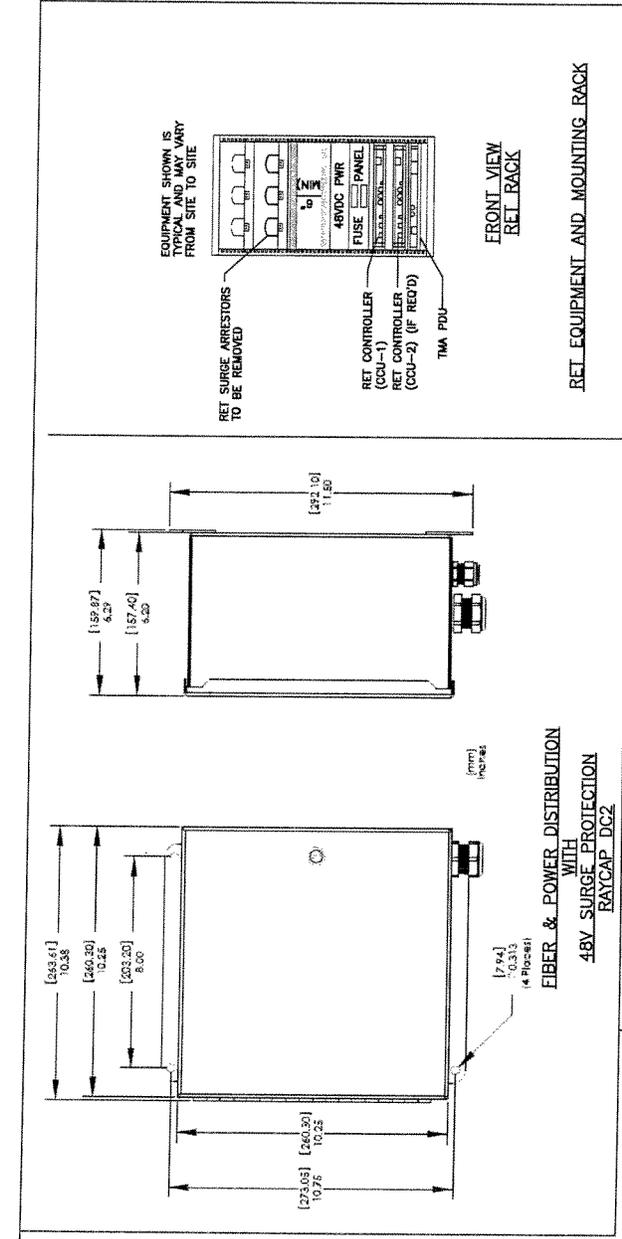
at&t Mobility
 7150 STANDARD DRIVE
 HANOVER, MD 21076

SITE NAME: RICHMOND
SITE ID NUMBER: 3798
 2807 NORTH GLEBE ROAD
 ARLINGTON, VA 22207

2010057.01 T&S

LIE & RRR DETAILS
 AT&T
 LTE PROJECT

DESIGNED BY: SWI
CHECKED BY: SWI
DATE: 9/23/10
REVISIONS / ISSUANCE: SWI
NO.: 1
DATE: 9/23/10
REVISIONS / ISSUANCE: SWI
NO.: 1
DATE: 9/23/10



201027.01 T183

LTE DETAILS RET RACK & RAYCAP BOXES

AT&T LTE PROJECT

DAVID HANOVER (Signature)

NO.	DATE	REVISIONS / ISSUANCE	BY	CHK	APP
0	9/23/10	REVISED FOR OWNER COMMENTS	SOB	EAS	EAS
1	9/13/10	REVISED FOR REVIEW & COMMENT	SAV	EAS	EAS

DESIGNED BY: EAS | DRAWN BY: SAV | SCALE: AS SHOWN

7150 STANDARD DRIVE HANOVER, MD 21076

at& Mobility

SITE NAME: RICHMOND
SITE ID NUMBER: 3798
2807 NORTH GLEBE ROAD ARLINGTON, VA 22207

CLAUS PYLE SCHOMER BURNS & DEHAVEN INC. GPD ASSOCIATES
520 South Main Street, Suite 2131, Albany, Ohio 44511
330-572-2100 / Fax: 330-572-2101

BECHTEL COMMUNICATIONS
9200 BERGER ROAD COLUMBIA, MD 21046

3798-12B

REV 0

SECTOR #1 (ALPHA)

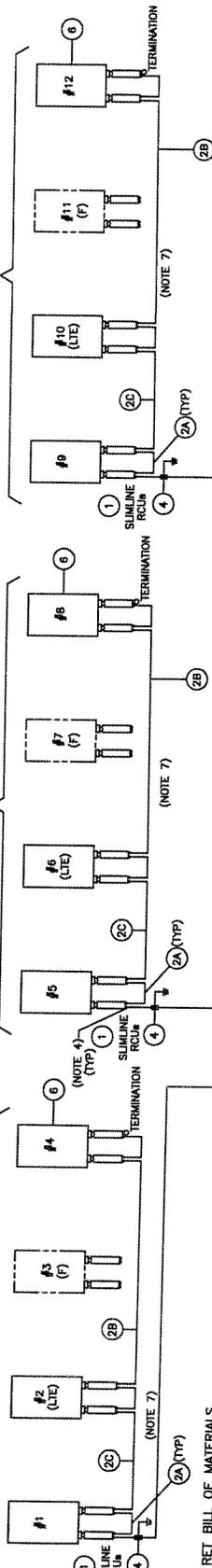
FACING REAR OF ANTENNAS LOOKING FROM LEFT TO RIGHT

SECTOR #2 (BETA)

FACING REAR OF ANTENNAS LOOKING FROM LEFT TO RIGHT

SECTOR #3 (GAMMA)

FACING REAR OF ANTENNAS LOOKING FROM LEFT TO RIGHT



RET BILL OF MATERIALS

ITEM	DESCRIPTION	PART #	QTY.
1	REMOTE CONTROL UNIT (RCU) WITH DAISSY CHAIN TERMINATION	NOTE 8	2 EACH PER ANTENNA
2A	RCUC-1 CONTROL CABLE ASSEMBLY BETWEEN RCUs (5 M)	860-10054	1 PER ANTENNA
2B	RCUC-2 CONTROL CABLE ASSEMBLY BETWEEN ANTENNAS (5 M)	860-10009	AS REQ. BETWEEN ANTENNAS
2C	RCUC-3 CONTROL CABLE ASSEMBLY BETWEEN ANTENNAS (2 M)	860-10008	AS REQ. BETWEEN ANTENNAS
3A	RCUC CONTROL CABLE ASSEMBLY		
	RCU CABLE 3.3 FT. (1M)	860-10007	
	RCU CABLE 5.6 FT. (2M)	860-10008	
	RCU CABLE 16.4 FT. (5M)	860-10009	
	RCU CABLE 32.8 FT. (10M)	860-10010	
	RCU CABLE 82.7 FT. (25M)	860-10011	
	RCU CABLE 131.2 FT. (40M)	860-10012	
	RCU CABLE 198.9 FT. (60M)	860-10013	
	RCU CABLE 292.5 FT. (90M)	860-10014	
	RCU CABLE 328.1 FT. (100M)	860-10015	
4	CABLE GROUNDING KITS, 2FT., 6AWG FOR ASG CABLE	860-10031	3 PER SECTOR
5	CENTRAL CONTROL UNIT (CCU), -48VDC/100-240VAC	920-25507 860-10066	1 EACH PER SITE
6	ANTENNAS. SEE RF DATA SHEET FOR APPROVED KATHREIN ADT ANTENNAS		AS REQUIRED

- NOTES:
- SUPPORT RET CONTROL CABLE IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS.
 - USE 16MM (6 AWG) STRANDED TO TELCO RACK GROUND BAR IF EXISTING. OTHERWISE CONNECT TO MGB (INDOOR SITES).
 - ROUTE DC POWER IN WIREWAY OR 3/4" IMC TO EXISTING -48VDC DISTRIBUTION PANEL. PROVIDE 5 AMP PROTECTIVE DEVICE WHEN DIRECTLY SUPPLYING CCU. DO NOT INSTALL ANY SINGLE CONDUCTOR WIRE SIZE 1 AWG OR SMALLER IN CABLE RACK.
 - APPLY ADHESIVE LINED, 1" SHRINK TUBING 6" LONG (BLACK) TO EACH RET LIGHTNING CONTROL CABLE CONNECTION FROM APPROVED VENDOR.
 - TO FACILITATE WEATHERPROOFING OF ANTENNA CONNECTORS, THE RF COAX CABLES SHOULD BE INSTALLED AND WEATHERPROOFED PRIOR TO INSTALLING THE RET UNITS. TORQUE RET ANTENNA WITH 41MM WRENCH. MIN TORQUE 16 Nm MAX TORQUE 18Nm.
 - THE CCU IS TO BE POWERED WITH -48VDC WHENEVER POSSIBLE TO PROVIDE CONTINUOUS OPERATION. IF BATTERY BACKUP ON THE DC PLANT IS AVAILABLE, THE AC POWER CONNECTION IS TO BE USED ONLY WHEN -48VDC IS NOT AVAILABLE.
 - INSTALLER TO USE EXTREME CAUTION WHEN MAKING ALSO CONNECTORS. OBSERVE THAT THE KEYED CONNECTORS ARE ALIGNED BEFORE MATING AND TIGHTENING THE CONNECTOR TO THE REQUIRED TORQUE.
 - RET MOTORS CAN BE FACTORY INSTALLED IN KATHREIN ANTENNAS. PART NO. VARIES BY ANTENNA TYPE.

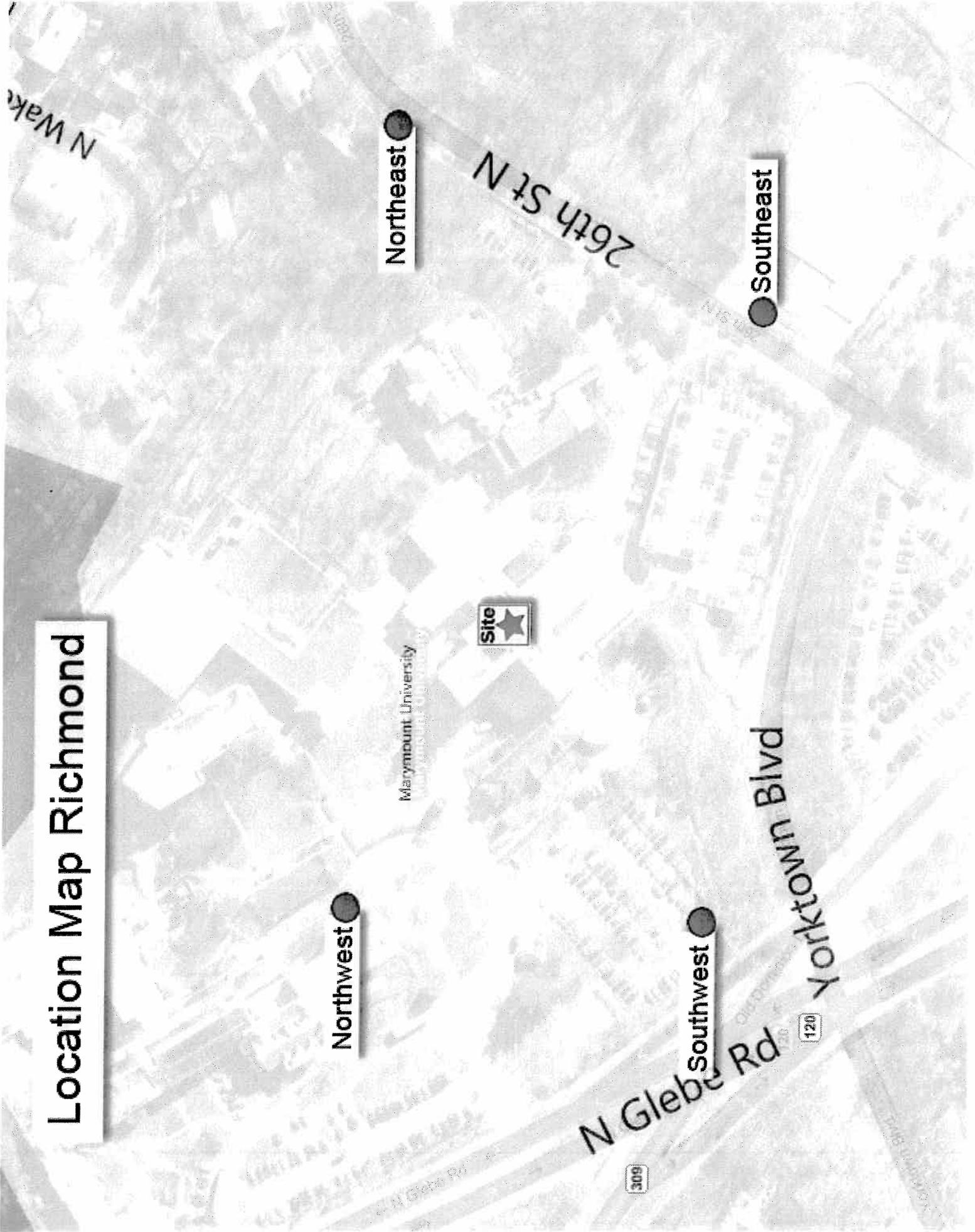
(F) - FUTURE ANTENNA

RET CONTROL DIAGRAM (TYPICAL - KATHREIN)
DIRECT CONNECTION CONFIGURATION
3 SECTORS - 3 ANTENNA / SECTOR

DETAIL 1419

<p>BECHTEL COMMUNICATIONS 9200 BERGER ROAD COLUMBIA, MD 21046</p>	<p>GPD ASSOCIATES 520 South Main Street, Suite 2331 Akron, Ohio 44311 330-572-2100 • Fax 330-572-2101</p>	<p>7150 STANDARD DRIVE HANOVER, MD 21076</p>	<p>SITE NAME: RICHMOND SITE ID NUMBER: 3798 2807 NORTH GLEBE ROAD ARLINGTON, VA 22207</p>			AT&T PROJECT	RET CONFIGURATION DIAGRAM
						3798-1419	0

Location Map Richmond



Northeast

Southeast

Northwest

Southwest

Site

Marymount University

26th St N

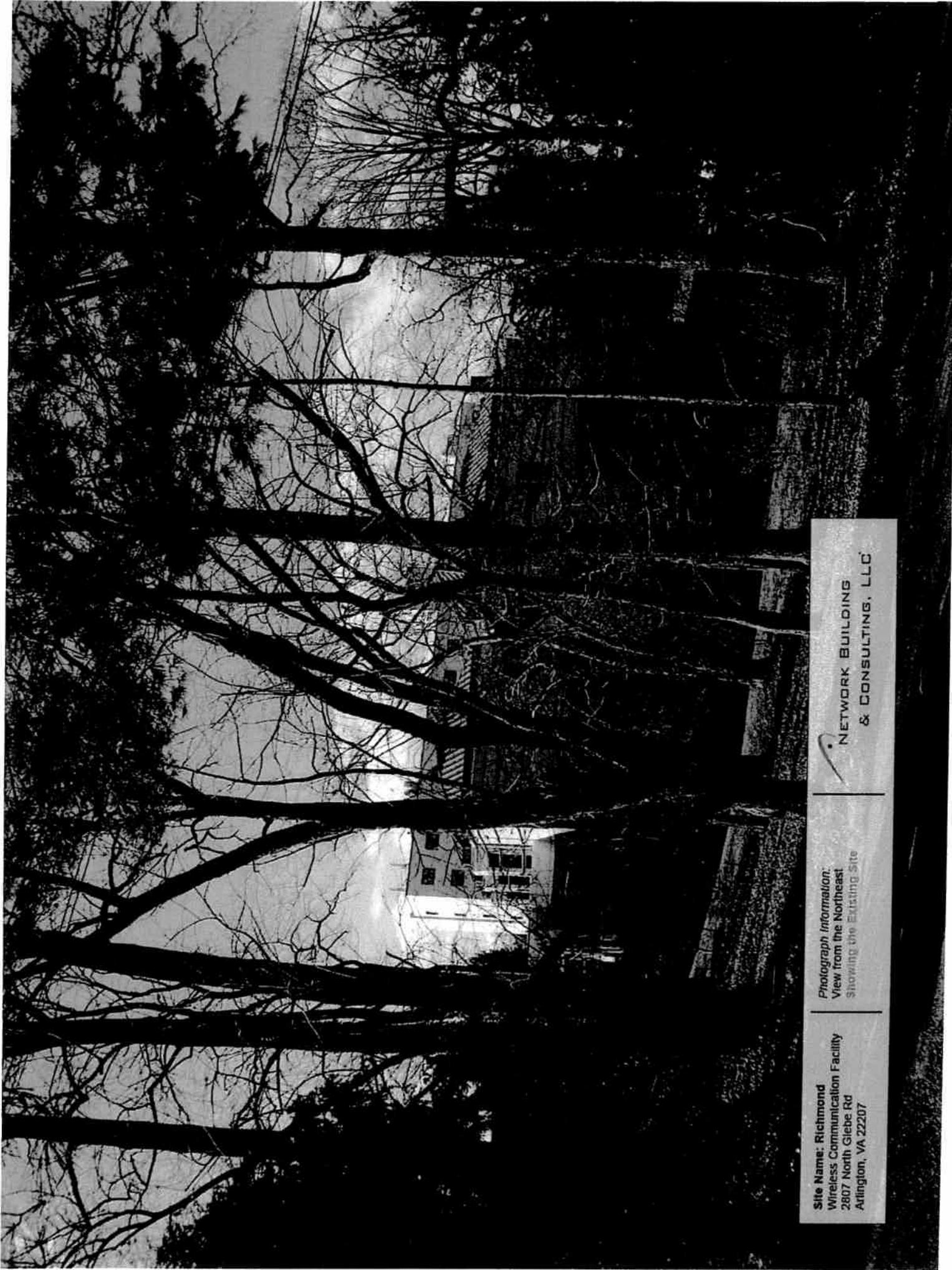
Yorktown Blvd

N Glebe Rd

N Wakefield Rd

309

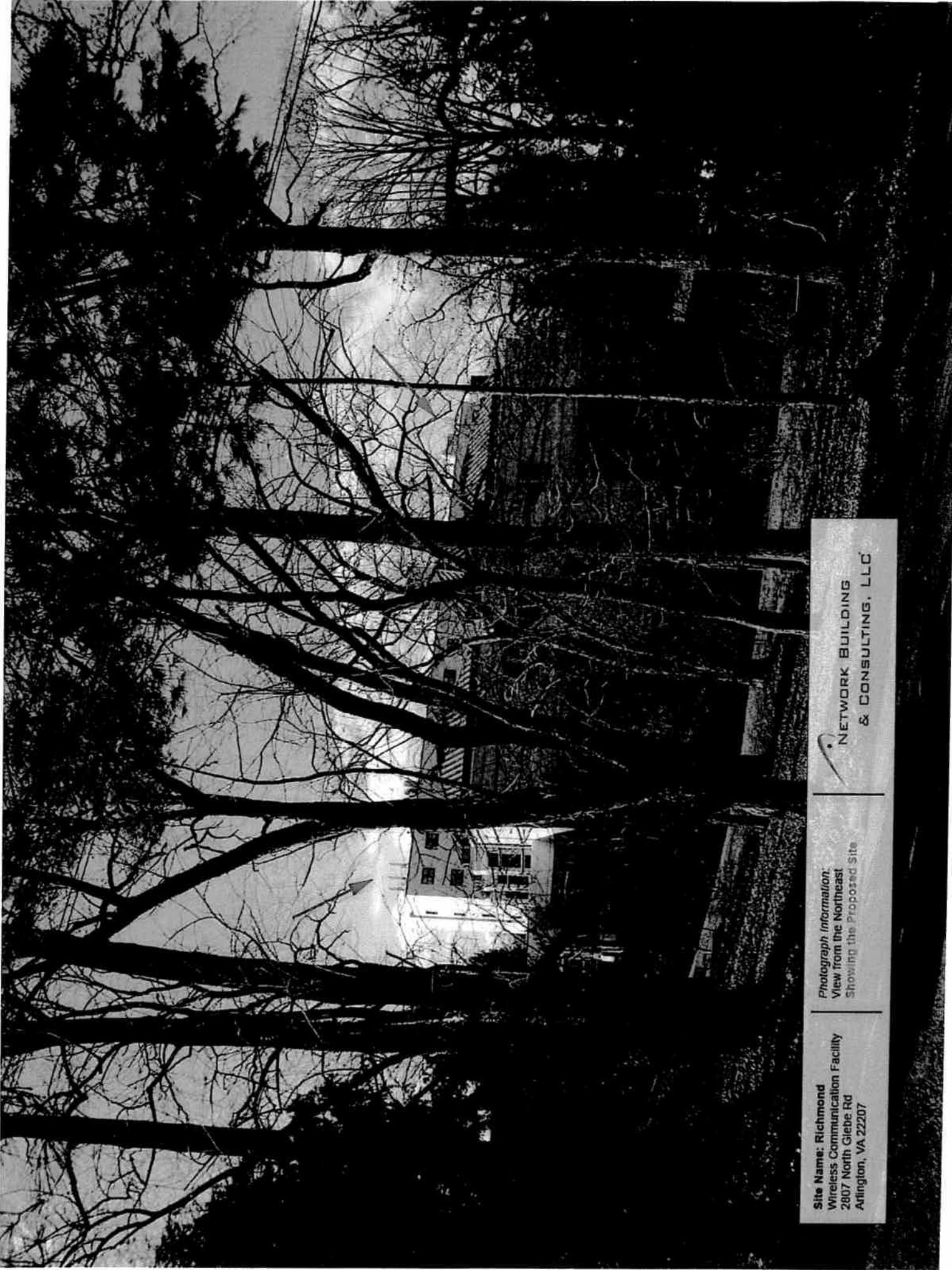
120



Site Name: Richmond
Wireless Communication Facility
2807 North Glebe Rd
Arlington, VA 22207

Photograph Information:
View from the Northeast
Showing the Existing Site


**NETWORK BUILDING
& CONSULTING, LLC**



Site Name: Richmond
Wireless Communication Facility
2807 North Glebe Rd
Arlington, VA 22207

Photograph Information:
View from the Northeast
Showing the Proposed Site

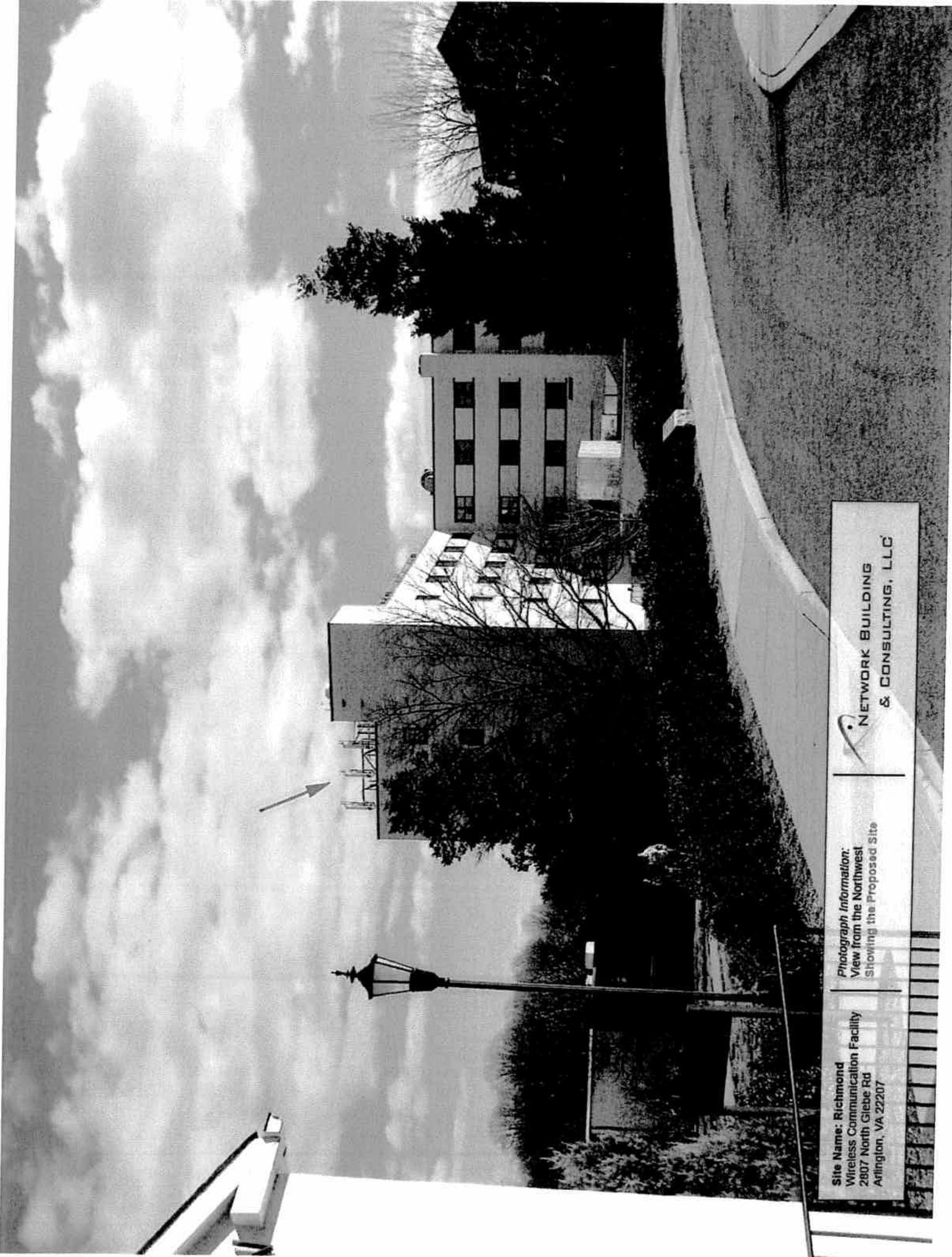

**NETWORK BUILDING
& CONSULTING, LLC**



Site Name: Richmond
Wireless Communication Facility
2807 North Giebe Rd
Arlington, VA 22207

Photograph Information:
View from the Northwest
Showing the Existing Site

 NETWORK BUILDING
& CONSULTING, LLC



Site Name: Richmond
Wireless Communication Facility
2807 North Glebe Rd
Arlington, VA 22207

Photograph Information:
View from the Northwest
Showing the Proposed Site



NETWORK BUILDING
& CONSULTING, LLC



Site Name: Richmond
Wireless Communication Facility
2807 North Glebe Rd
Arlington, VA 22207

Photograph Information:
View from the Southeast
Showing the Existing Site



NETWORK BUILDING
& CONSULTING, LLC



**Site Name: Richmond
Wireless Communication Facility
2807 North Glebe Rd
Arlington, VA 22207**

*Photograph Information:
View from the Southeast
Showing the Proposed Site.*

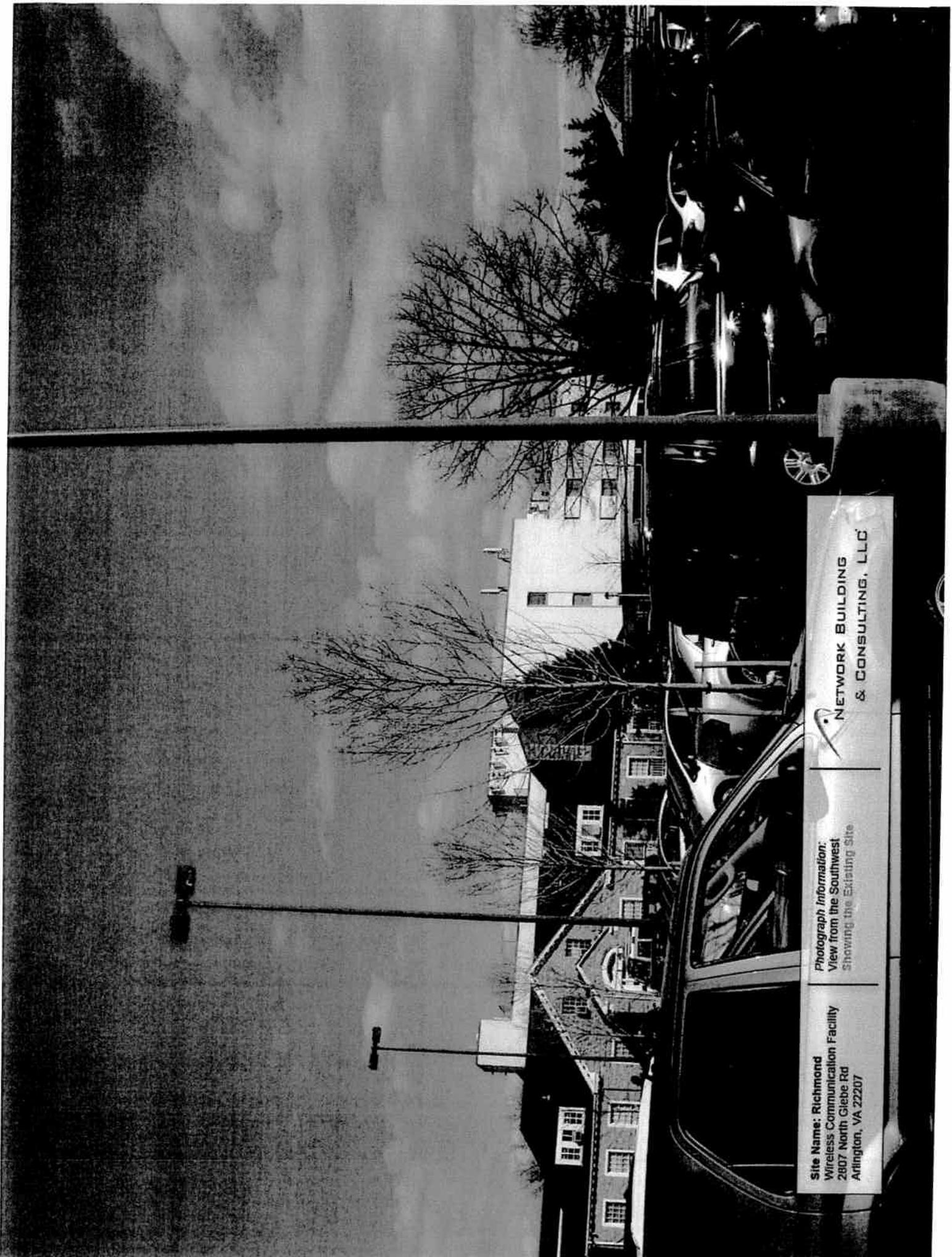


**NETWORK BUILDING
& CONSULTING, LLC**

Site Name: Richmond
Wireless Communication Facility
2807 North Glebe Rd
Arlington, VA 22207

Photograph Information:
View from the Southwest
Showing the Existing Site


**NETWORK BUILDING
& CONSULTING, LLC**

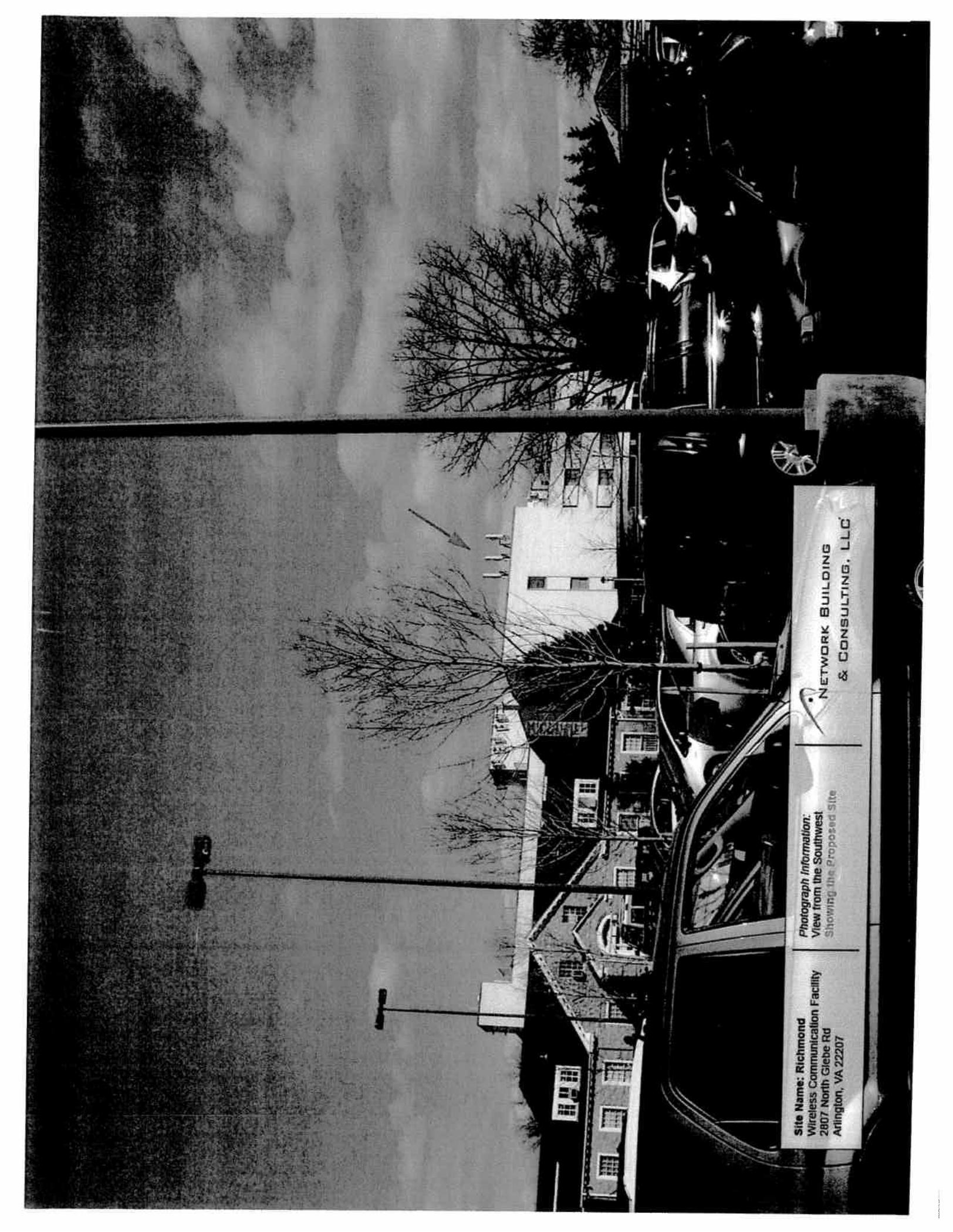


Site Name: Richmond
Wireless Communication Facility
2807 North Glebe Rd
Arlington, VA 22207

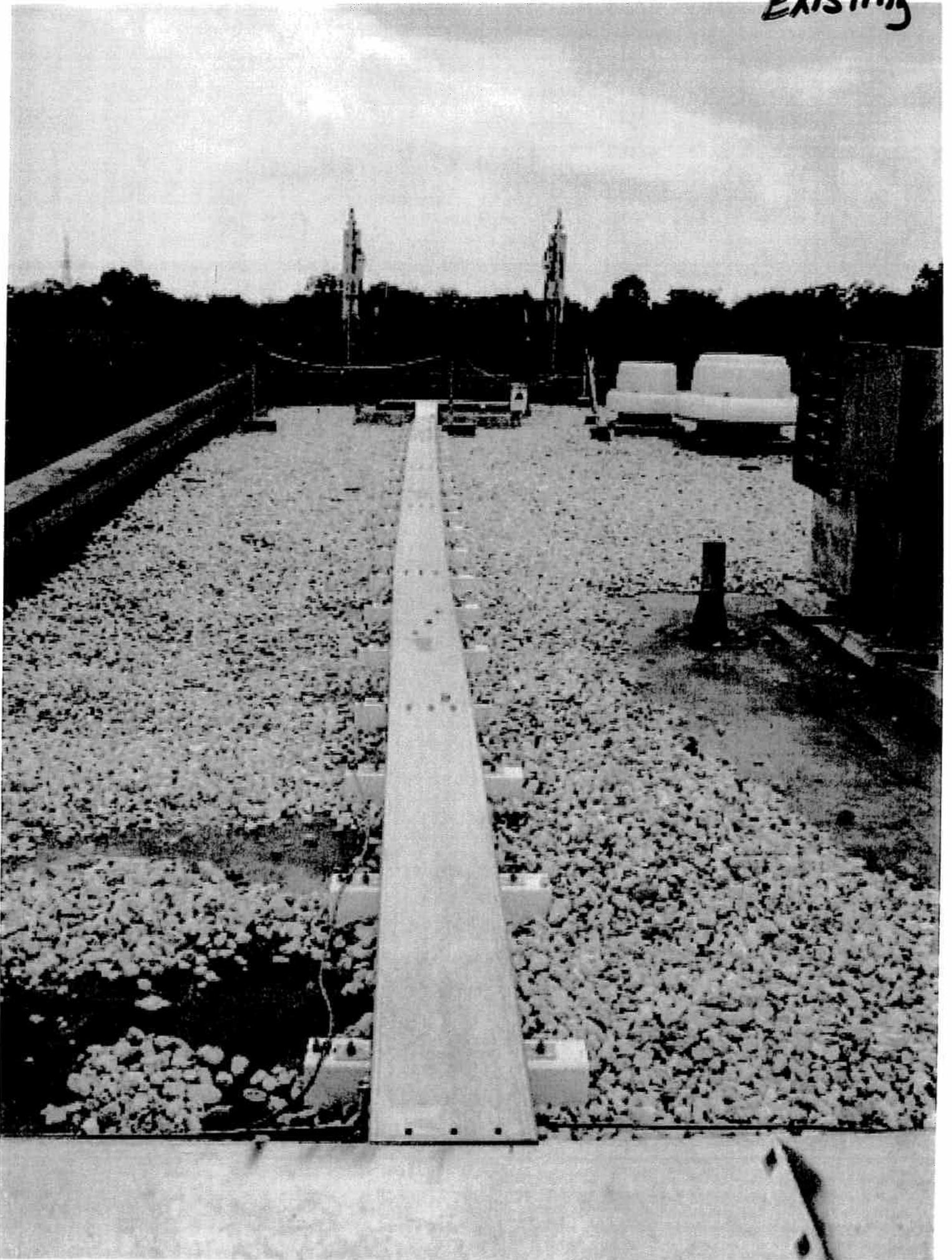
Photograph Information:
View from the Southwest
Showing the Proposed Site



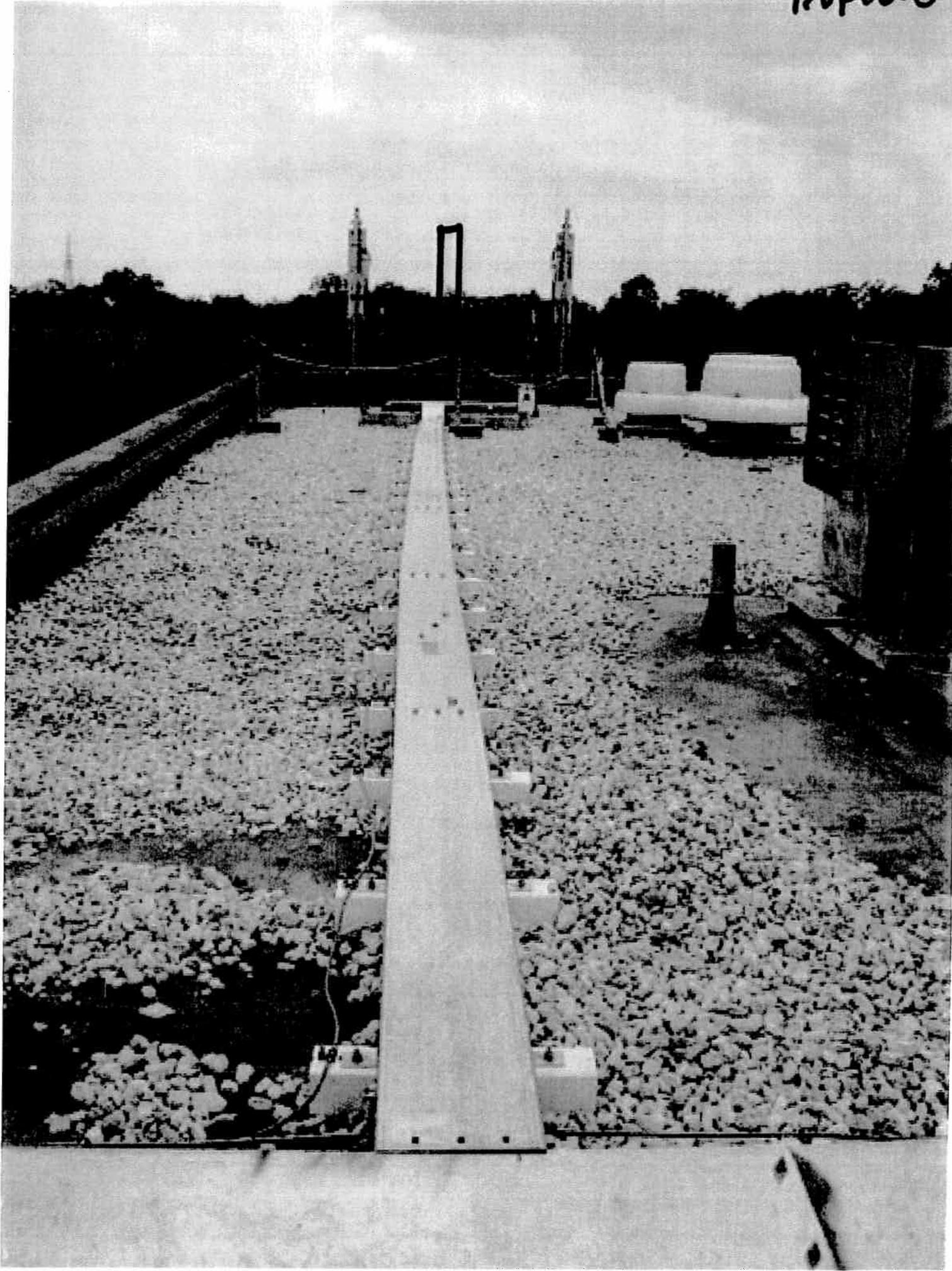
NETWORK BUILDING
& CONSULTING, LLC



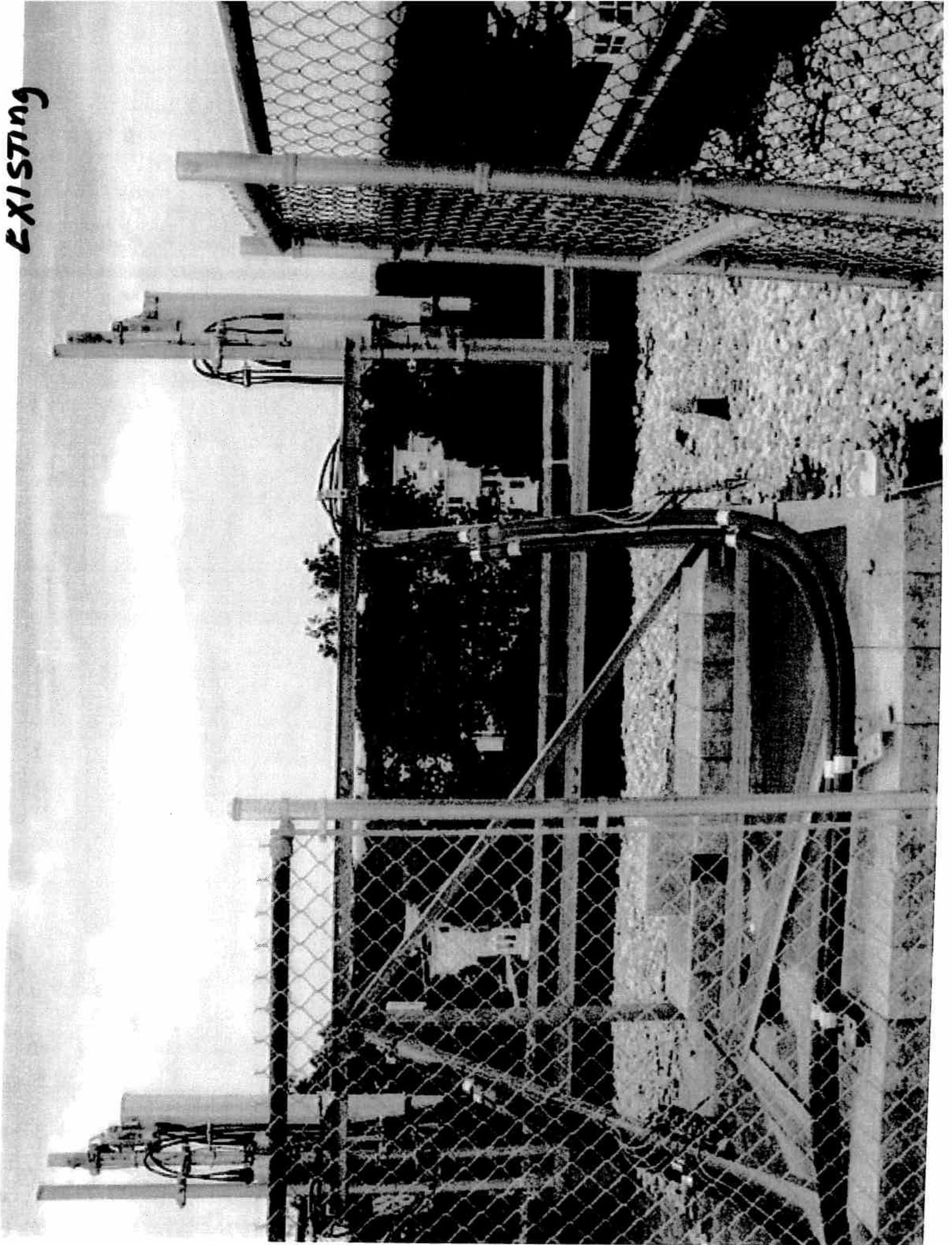
EXISTING



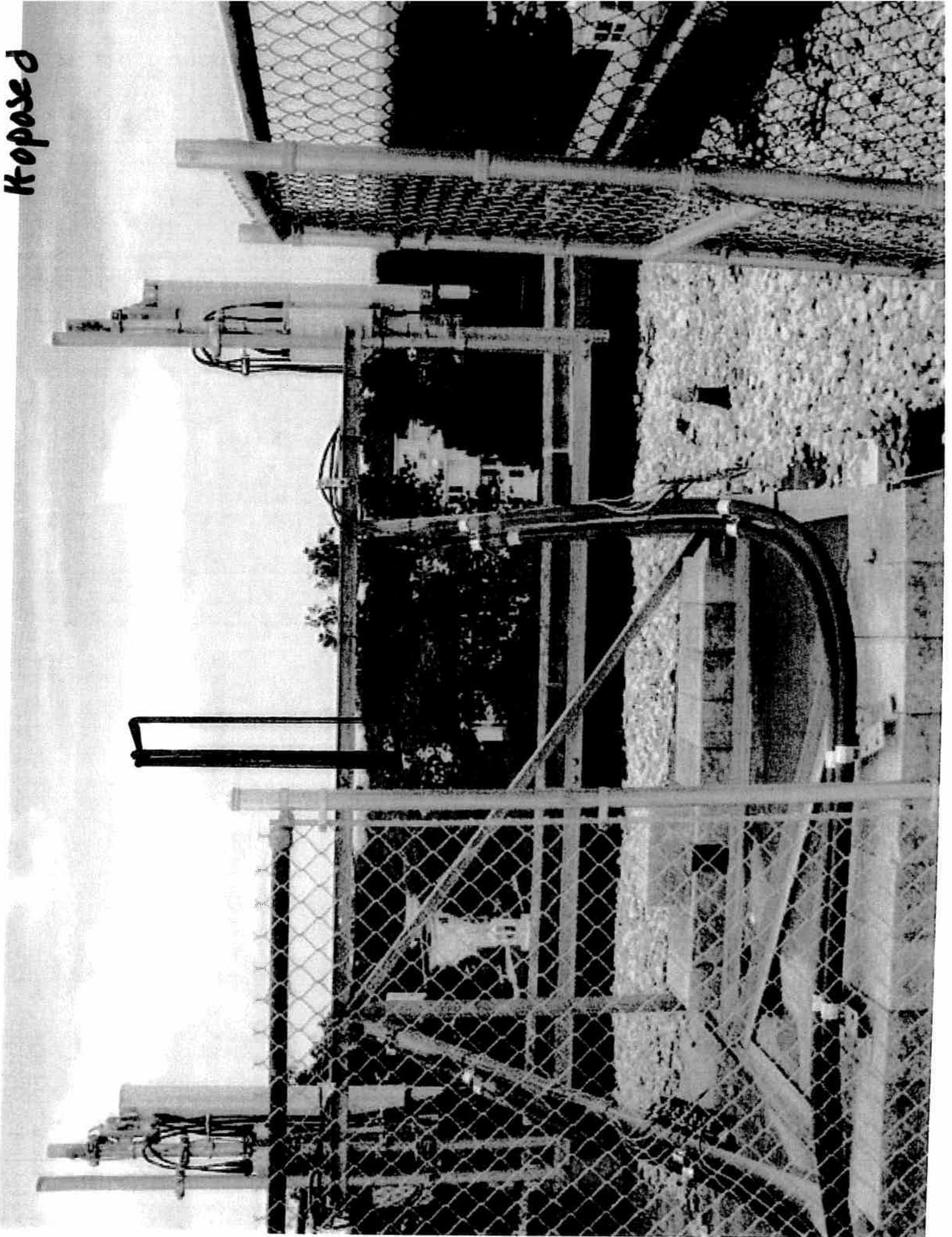
Proposed



EXISTING



Копасе



Marco Rivero

From: Ned W. Rhodes [ned@softwaresystemsgroup.com]
Sent: Tuesday, February 22, 2011 11:52 AM
To: Marco Rivero; dharing@yorktowncivic.com; cunninghamrsca@verizon.net; ned@drca.org
Cc: ec@drca.org
Subject: RE: U-3276-11-1 Use Permit Request: 2807 N Glebe Rd

The Donaldson Run Civic Association opposes this use permit request for the following reasons:

1. This use permit was not discussed at our December or January Neighborhood Relations Committee meetings. This committee was set up to hear and to discuss use permits such as this on campus.
2. Requests for additional information from Marymount University have gone unanswered
3. When the first towers were installed, an EMI emission report was to be completed on a periodic basis and shared with the adjoining Civic Associations. No emission report has been shared and we have no knowledge as to how these new antenna will affect emissions from the site.

Ned W. Rhodes
Software Systems Group
703.812.5072 x100

From: Marco Rivero [mailto:Mrivero@arlingtonva.us]
Sent: Wednesday, February 09, 2011 1:11 PM
To: dharing@yorktowncivic.com; cunninghamrsca@verizon.net; ned@drca.org
Subject: U-3276-11-1 Use Permit Request: 2807 N Glebe Rd

Hello,

The following is updated information for this use permit request sent in by the applicant on 2/8/11.

The use-permit is for the **installation of three (3) additional antennas to an existing telecommunications facility. In addition, one equipment cabinet will be added to the existing equipment platform of the facility (One (1) antenna will be mounted on the roof of the building at 74' from grade, and the other two (2) will be at 50' from grade, based on grade changes with the site. All of which are the heights of the existing antennas on site).** The previous information is updated information that is shown in the attachments. Section 31.B.2.e of the Arlington County Zoning Ordinance (ACZO) allows for antennas at no higher than 75' above ground level.

There are no foreseeable issues pertaining to this use permit and the use is in compliance with the zoning district (R-10/S-3A). We do not foresee any visual obstructions that these antennas will have with the surrounding properties, since they will be mounted at the same heights as the existing antennas and facing Marymount University buildings and parking lots.

Thank you, and have a great day!

Best,
Marco

<<AT&TUpdatedCoverLet2-8-11.pdf>>
<<AT&TUpdatedPlans2-8-11.pdf>>

02/22/2011

Marco Antonio Rivero

Planner I - DCPHD, Current Planning

Arlington County Government

2100 Clarendon Blvd, Suite 700

Arlington, Virginia 22201

mrivero@arlingtonva.us

Main: 703-228-3525

Direct: 703-228-3572

Fax: 703-228-3543

Electromagnetic Energy (“EME”) Measurement and Site Compliance Report



Prepared for



Site Information

US ID: 98591
Site Name: RICHMOND

Address: 2807 N. Glebe Road,
Arlington, VA, 22207

Survey Date: October 21, 2010
Surveyed By: Steven Fruit
M-RFSC: Sean Miller

Report Date: October 22, 2010



AT&T

US ID: 98591 - Site Name: RICHMOND
Electromagnetic Energy ("EME")
Measurement and Site Compliance Report



2807 N. Glebe Road, Arlington, VA, 22207



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1 Summary

1.1 Introduction

AT&T has installed RF transmitting antennas at the following location (the “wireless telecommunications facility”):

Street Address: 2807 N. Glebe Road, Arlington, VA, 22207

US ID: 98591

Construction ID: 3798

Latitude / Longitude: 38.90475/ -77.127111

Telnet, Inc performed an RF emission survey of the RF environment surrounding the facilities installed by AT&T at this location. The facility is located on a six-story building.

AT&T is licensed by the Federal Communications Commission (“FCC”) to provide wireless communications services. As required by the FCC, wireless system operators perform an assessment of the potential human exposure to radio frequency emissions emanating from transmitting antennas at the site.

The physical survey verified antenna placement and technical specifications for accurate recommendations to determine compliance with FCC guidelines. Antenna specifications presented herein are based on direct evidence from an antenna or transmitter cabinet, information from the site manager or building manager, information from the licensees, educated estimates by the field technician or a combination of some or all of these sources.

1.2 Statement of Compliance

After evaluation of the total RF emission levels from all the operators and a thorough review of the site access procedures, signage and observable antenna locations, Telnet has determined that:

This site is compliant with FCC Policy.

AT&T contributes more than 5% of the maximum permissible exposure (MPE) based on theoretical modeling using the parameters supplied by the client.

The compliance determination is based on General Public MPE levels due to predicted and measured levels based on Spatial Averaging, RF signage placement, and the level of restricted access to the antennas at the site.



1.3 Safety Recommendations & Site Compliance Actions

This site is compliant with the FCC rules and regulations and further steps must be taken at this time. Since AT&T contributes more than 5% of the MPE, should this site be non-compliant for any reason, all other operators who contribute greater than 5 % would all be liable to bring the site into compliance.

During the field visit, Telnet documented the presence and location of signs and barriers. Areas that require that action in order to meet AT&T corporate policy are listed below. No action means the location is compliant with the company policy.

Site Access Locations

No Action required

Alpha Sector Location

No Action required

Beta Sector Location

No Action required

Gamma Sector Location

No Action required

1.3.1 Lockout/Tagout Procedures for Antenna, Transmission Line and Power Amplifier Maintenance

Whenever anyone is working on an antenna, transmission line, high power amplifier (HPA), or multi-channel power amplifier (MCPA), the transmitter (power amplifier) MUST be turned off. This can be accomplished either locally by flipping a circuit breaker(s) or remotely by command from the NMC/NOC.

The person initiating or requesting the transmitter shutdown is the ONLY person authorized to restore the transmitter to service. This person is responsible for making sure that ALL work has been completed, that ALL cables have been properly reconnected, and that EVERYONE is clear of the work area before the transmitter is reactivated. Generally, this person is considered to be the one actually performing the work. In the case of a contractor working at an active site, the FE/Technician may initiate the request on behalf of the contractor.



1.3.2 Lockout/Tagout Procedure, Local Shutdown

After securing permission to shut the transmitter down, the Field Engineer (FE)/Field Technician (FT) will turn off the circuit breaker and verify that the correct transmitter was deactivated. The FE/FT will then place a locking device(s) over the circuit breaker(s) to prevent accidental activation by an unauthorized person and place a TAG on, or in the immediate vicinity of, the circuit breaker(s). The tag should state "Do Not Operate." At the NMC/NOC the same note, including date and time and location, must be entered in the computer or a tag must be placed on the monitor frame in such a manner that the console operator will be made aware that the transmitter can not be activated without permission from the person who initiated the maintenance request.

The FE/FT will turn the key(s) over to the person performing the work. Upon completion of the work, this person performing the task will return the key(s). As a precautionary measure, prior to reactivating the transmitter, the FE/FT MUST verify, to the extent possible, that all connections have been made and that the work area is clear of personnel.

1.3.3 Lockout/Tagout Procedure, Remote Shutdown

After requesting the NMC/NOC to shut the transmitter down, the FE/FT will verify that the correct transmitter was deactivated. The FE/FT will then place a TAG on or in the immediate vicinity of transmitter. The tag should state "Do Not Operate." At the NMC/NOC the same note, including date/time, must be entered in the computer or a tag must be placed on the monitor frame in such a manner that the console operator will be made aware that the transmitter can not be activated unless the following conditions are met: 1) The tag has been removed by the person performing the work; and 2) Permission is provided by the person who initiated the maintenance request.

Upon completion of the work, the person performing the task will remove the tag and notify the FE/FT that the work is completed. As a precautionary measure, prior to requesting reactivation of the transmitter, the FE/FT MUST verify, to the extent possible, that all connections have been made and that the work area is clear of personnel.

Note: Even though normal procedures call for a remote shutdown, if it is possible to turn off the circuit breaker without causing a software reload or other similar problems the FE/FT should follow the local shut down procedure.



1.4 Site Measurements

The site survey crew has provided the sketch of the rooftop with a visual representation of the RF environment at the site and depict antenna locations and rooftop structures. Figure 3 depict the surveyed measurements in percentage of MPE limits for General Population standards. Percentages greater than 100% exceed the FCC MPE limits. Section 4.5 contains actual spatially averaged MPE measured at each reference point.

Additional Information in the Site Layout Diagram

The RF emissions diagram provides indications of RF Signage, barriers and locked doors.

RF Signage & Barrier Key					
RF Signage			Barriers		
Type	Existing Location	Recommended Location	Type	Existing Location	Recommended Location
Notice	NE	NR	Locked Door	LE	LR
Caution	CE	CR	Fencing	RE	RR
Warning	WE	WR	Rope Chain		
Information Sign 1	I1E	I1R	Paint Stripes		
Information Sign 2	I2E	I2R	Tape		
Information Sign 3	I3E	I3R			
Information Sign 4	I4E	I4R			

Table 1
RF Signage & Barrier Key

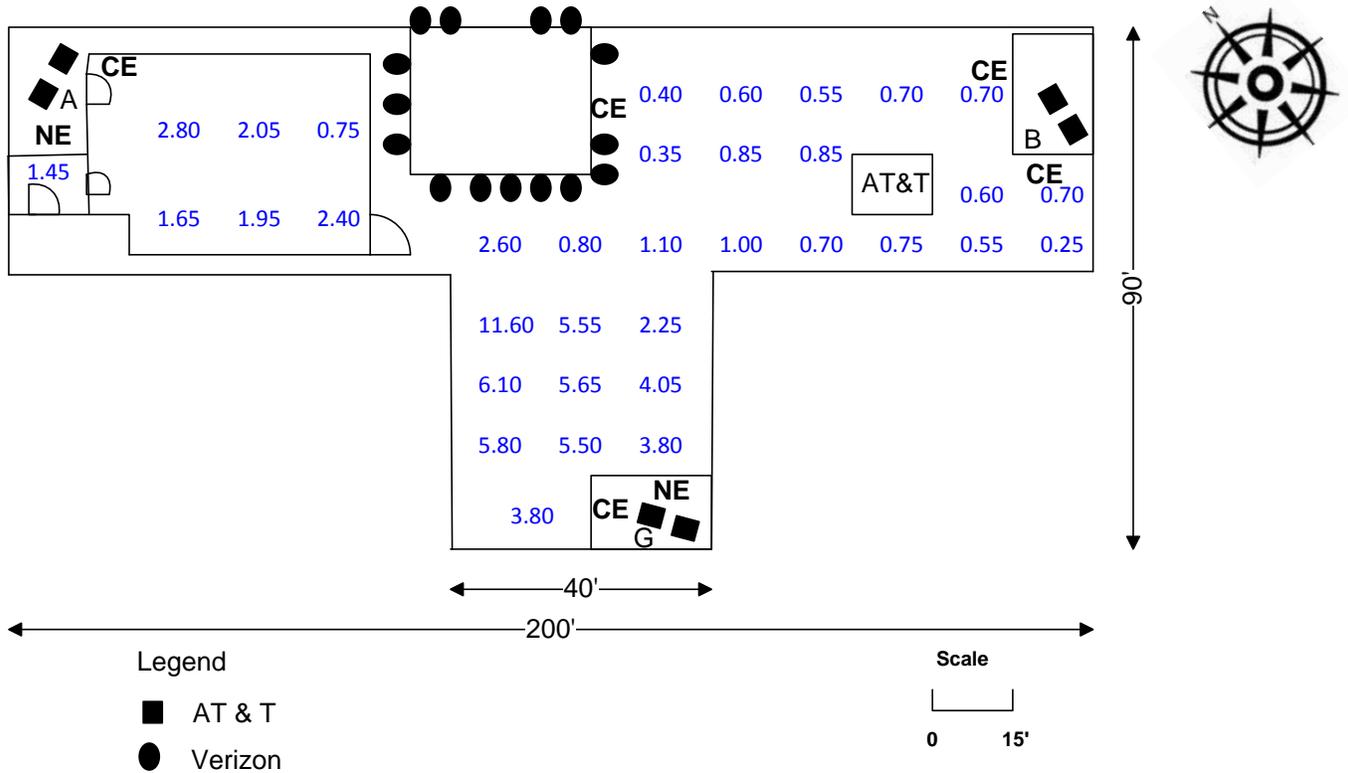
1.5 Roof Level Measurements

Figure 1 represents the actual readings at various points on the rooftop. These measurements depicts the energy levels that can be encountered by an individual at the site.

Maximum value for Occupational Standard based on Spatial Averaging: 11.6%

Maximum value for General Population Standard based on Spatial Averaging: 2.32%

Result Summary : AT&T is Compliant with FCC Policy based on General Public Maximum Permissible Exposure





1.6 RF Modeling

The modeling calculations assume that the antennas are operating at 100% capacity; that all antenna channels are transmitting simultaneously and that the radio transmitters are operating at full power. Obstructions (trees, buildings etc) that would normally attenuate the signal are not taken into account. As a result, the predicted signal levels are more conservative (higher) than the actual signal levels will be from the measurement conclusions.

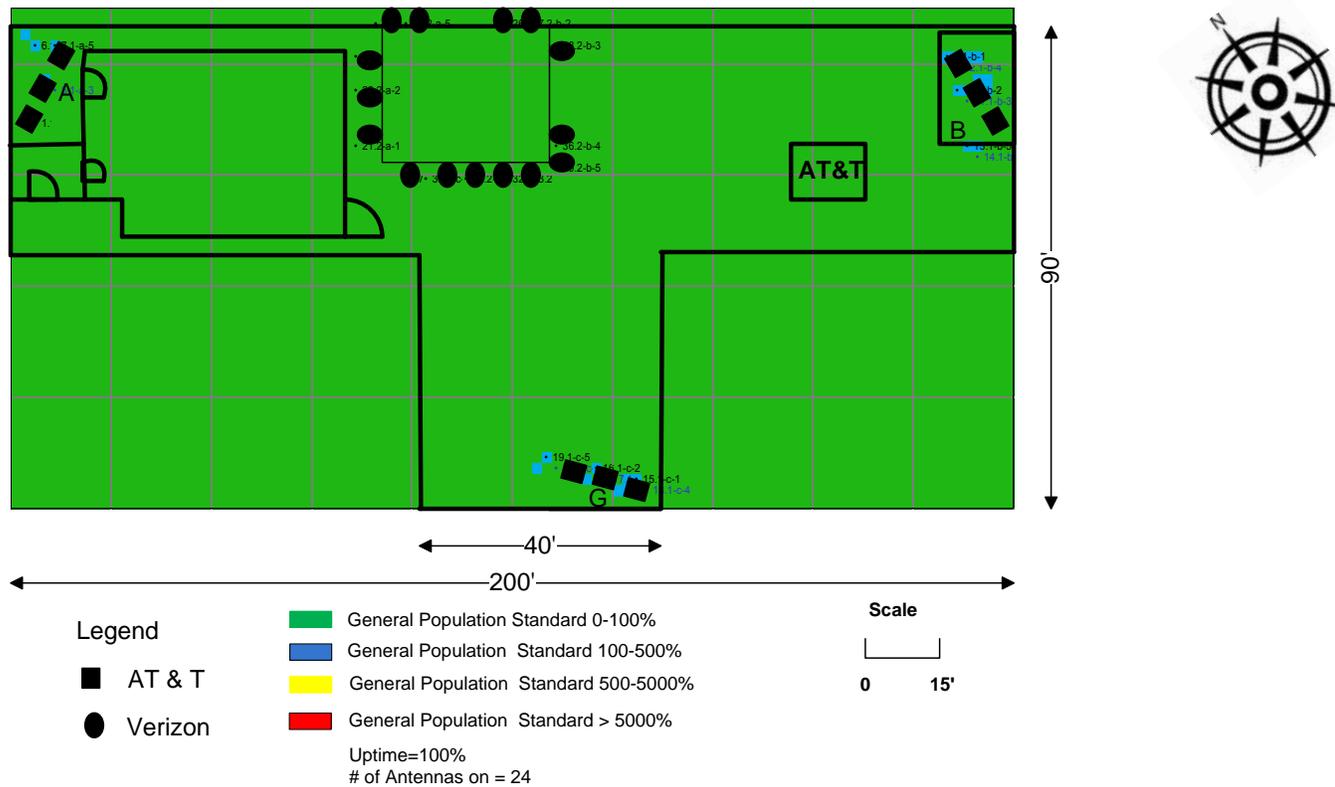


Figure 2
Percent of FCC General Population Exposure Limit, All carriers including proposed LTE

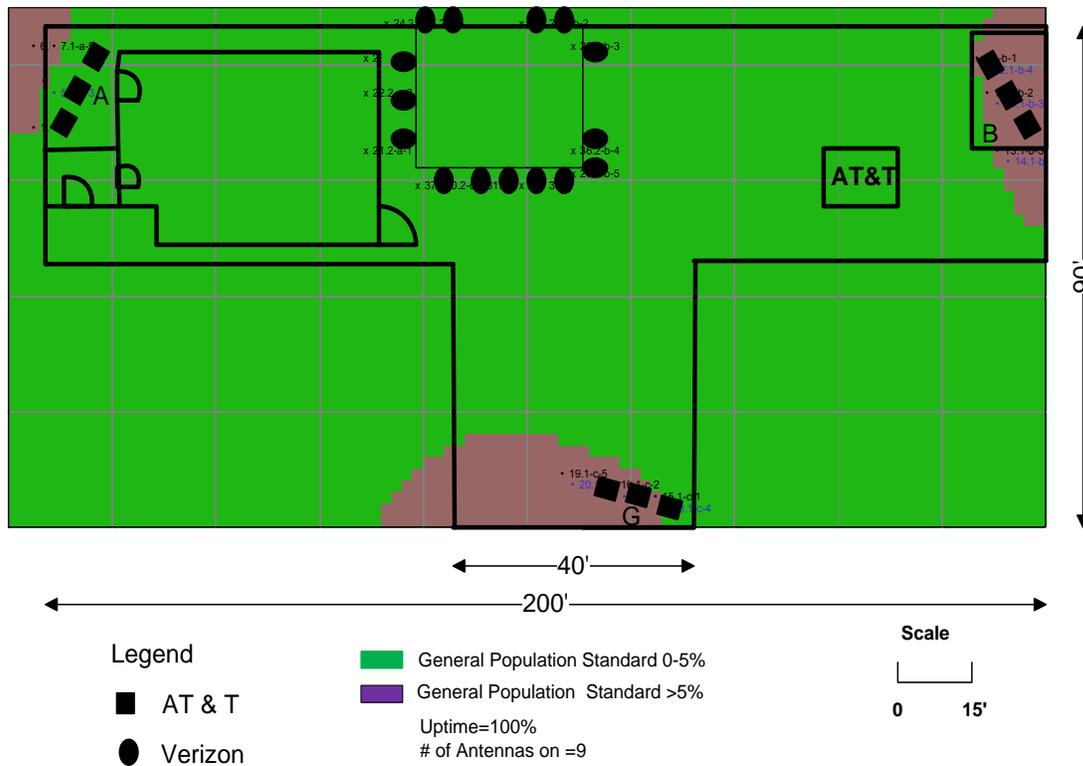


Figure 3
5% FCC Exposure Limit, AT&T



2 Site Configuration

A survey was performed on 10/21/2010 to determine the RF emission levels present at the site. Measurements were performed on the areas considered accessible to the occupational population. At this site, additional steps were taken to assess areas accessible to the general population. The results of the measurements were the combined energy levels of AT&T antennas. To measure the RF emissions within the vicinity, Telnet, inc, utilized NARDA E Field Probe Model EA5091, Frequency Range 300 KHz - 50 GHz with NARDA Electromagnetic Survey Meter Model NBM-550. Calibration was performed by Narda Safety Test Solutions on April 26, 2007 for a total interval of 24 month.

Relevant administrative and compliance-related information about the antenna site rooftop area is summarized in the table below :

Rooftop Access	
Access Method	Stairs leading to Roof
Access to Keys	Yes
Door Locked	Yes
Collocation Status	
	Collocated
Rooftop Area Classification	
	General Population
Weather Conditions	
	Sunny/Clear

2.1 Antenna Inventory

The Antenna Inventory shows all transmitting antennas on the site (see Table 1). This inventory was verified on site and was used by Telnet to perform software modeling of RF emissions . The inventory coincides with the site diagrams on this report, identifying each antennas location at the site.

For other carriers at the site, the use of “Generic” as an antenna model, or “ Unknown” for an operator means the information with regard to the carrier, their FCC license and / or antenna information was not available nor could it be secured while on site. Equipment, antenna models and nominal transmit power were used for modeling, based on past experience with radio service providers.



Antenna Number	Operator	Type	TX Freq (MHz)	ERP (Watts)	Gain (dBd)	Model	Azimuth (deg.)	Length (ft)	Horizontal Beamwidth (Deg.)	X	Y	Z
1-a-1	AT&T	Panel	850	363	11.85	Kathrein 742 264	0	4.3	65	3.0	35.0	6.0
1-a-2	AT&T	Panel	1900	581	14.65	Kathrein 742 264	0	4.3	65	4.0	39.0	6.0
1-a-3	AT&T	Panel	850	321	11.85	Kathrein 742 264	0	4.3	65	4.0	39.0	6.0
1-a-4	AT&T	Panel	1900	1542	14.65	Kathrein 742 264	0	4.3	65	3.0	42.0	6.0
1-a-5	AT&T	Panel	700	264	11	Kathrein 80010764-700	0	4.3	65	5.0	42.0	6.0
1-a-6	AT&T	Panel	2100	538	14.85	Kathrein 80010764-AWS	0	4.3	65	5.0	75.0	6.0
1-b-1	AT&T	Panel	850	444	11.85	Kathrein 742 264	120	4.3	65	94.0	41.0	6.0
1-b-2	AT&T	Panel	1900	2127	14.65	Kathrein 742 264	120	4.3	65	95.0	38.0	6.0
1-b-3	AT&T	Panel	850	393	11.85	Kathrein 742 264	120	4.3	65	95.0	38.0	6.0
1-b-4	AT&T	Panel	1900	2127	14.65	Kathrein 742 264	120	4.3	65	94.0	41.0	6.0
1-b-5	AT&T	Panel	700	323	11	Kathrein 80010764-700	120	4.3	65	96.0	33.0	6.0
1-b-6	AT&T	Panel	2100	743	14.85	Kathrein 80010764-AWS	120	4.3	65	96.0	33.0	6.0
1-c-1	AT&T	Panel	850	393	11.85	Kathrein 742 264	240	4.3	65	63.0	3.0	6.0
1-c-2	AT&T	Panel	1900	661	14.65	Kathrein 742 264	240	4.3	65	59.0	4.0	6.0
1-c-3	AT&T	Panel	850	348	11.85	Kathrein 742 264	240	4.3	65	59.0	4.0	6.0
1-c-4	AT&T	Panel	1900	1755	14.65	Kathrein 742 264	240	4.3	65	63.0	3.0	6.0
1-c-5	AT&T	Panel	700	286	11	Kathrein 80010764-700	240	4.3	65	54.0	5.0	6.0
1-c-6	AT&T	Panel	2100	612	14.85	Kathrein 80010764-AWS	240	4.3	65	54.0	5.0	6.0
2-a-1	Verizon	Panel	1900	127	15	Unknown	0	5.0	65	35.0	33.0	13.0
2-a-2	Verizon	Panel	1900	127	15	Unknown	0	5.0	65	35.0	38.0	13.0
2-a-3	Verizon	Panel	1900	127	15	Unknown	0	5.0	65	35.0	41.0	13.0
2-a-4	Verizon	Panel	1900	127	15	Unknown	0	5.0	65	37.0	44.0	13.0
2-a-5	Verizon	Panel	1900	127	15	Unknown	0	5.0	65	40.0	44.0	13.0
2-b-1	Verizon	Panel	1900	127	15	Unknown	120	5.0	65	50.0	44.0	13.0
2-b-2	Verizon	Panel	1900	127	15	Unknown	120	5.0	65	52.0	44.0	13.0
2-b-3	Verizon	Panel	1900	127	15	Unknown	120	5.0	65	55.0	42.0	13.0
2-b-4	Verizon	Panel	1900	127	15	Unknown	120	5.0	65	55.0	33.0	13.0
2-b-5	Verizon	Panel	1900	127	15	Unknown	120	5.0	65	55.0	31.0	13.0
2-c-1	Verizon	Panel	1900	127	15	Unknown	240	5.0	65	40.0	30.0	13.0
2-c-2	Verizon	Panel	1900	127	15	Unknown	240	5.0	65	42.0	30.0	13.0
2-c-3	Verizon	Panel	1900	127	15	Unknown	240	5.0	65	46.0	30.0	13.0
2-c-4	Verizon	Panel	1900	127	15	Unknown	240	5.0	65	50.0	30.0	13.0
2-c-5	Verizon	Panel	1900	127	15	Unknown	240	5.0	65	52.0	30.0	13.0

**Table 2
Antenna Inventory**



2.2 AT&T Site Specifications

AT&T will be operating in four different frequency bands – the 700 MHz, 850 MHz, 1900 MHz & 2100 MHz- and plans to use three different technologies called GSM, UMTS, LTE.

The table below summarizes the relevant technical data for the site

Wireless Provider	AT&T
Frequency	850 Mhz
Antenna Manufacture & Model	Kathrein 742 264
Maximum Gain	14 dBi
RF Channels Per Sector (Max)	8 (GSM), 1 (UMTS)
Max. Trans Power / RF Channel	40 Watts
Antenna Centerline Postion Above Ground Level (A,B,G)	72.5', 47.3', 47.3'
Antenna Orientation	0, 120, 240 Degrees
Wireless Provider	AT&T
Frequency	1900 Mhz
Antenna Manufacture & Model	Kathrein 742 264
Maximum Gain	16.8 dBi
RF Channels Per Sector (Max)	8 (GSM), 3 (UMTS)
Max. Trans Power / RF Channel	40 Watts
Antenna Centerline Postion Above Ground Level (A,B,G)	72.5', 47.3', 47.3'
Antenna Orientation	0, 120, 240 Degrees
Wireless Provider	AT&T
Frequency	700 Mhz
Antenna Manufacture & Model	80010764-700
Maximum Gain	13.15 dBi
RF Channels Per Sector (Max)	1 (LTE)
Max. Trans Power / RF Channel	40 Watts
Antenna Centerline Postion Above Ground Level (A,B,G)	72.5', 47.3', 47.3'
Antenna Orientation	0, 120, 240 Degrees



Wireless Provider	AT&T
Frequency	2100 Mhz
Antenna Manufacture & Model	80010764-AWS
Maximum Gain	17 dBi
RF Channels Per Sector (Max)	1 (AWS)
Max. Trans Power / RF Channel	40 Watts
Antenna Centerline Postion Above Ground Level (A,B,G)	72.5', 47.3', 47.3'
Antenna Orientation	0, 120, 240 Degrees

Table 3
Site Specifications

3 Photos of Rooftop and Antennas

3.1 AT&T Existing Sectors



AT&T Sector 1



AT&T Sector 2



AT&T Sector 3



AT&T BTS

3.2 Co Located Carriers



Verizon Sector 1



Verizon Sector 2



Verizon Sector 3



3.3 Signs and Access to the Site

Required RF signs include an information sign and all access locations were checked.

Pictures below show the roof access door and stairs leading to it.



Stairs leading to Rooftop



Access Door



AT&T Sector 1 Notice Sign



AT&T Sector 1 Caution Sign



AT&T Sector 2 Caution Sign



AT&T Sector 2 Caution Sign



AT&T Sector 3 Caution Sign



AT&T Sector 3 Notice Sign



Verizon sector 2 Caution Sign



4 Modeling Summary and Assumptions

4.1.1 General Model Assumptions

In this report, it is assumed that all antennas are operating at full power at all times. Software modeling was performed for all transmitting antennas located on the site. Telnet, Inc has further assumed a 100% duty cycle and maximum radiated power.

The site has been modeled with these assumptions to show the maximum RF energy density. Telnet Inc believes this to be a worst case analysis, based on best available data.

If at any time power density measurements were to be made, Telnet Inc believes the real time measurements would indicate levels below those shown in this report. By modeling in this way, we have conservatively shown exclusion areas (areas not to be entered without a personal RF monitor, carriers reducing power or performing real time measurements to show real time exposure levels).

4.1.2 Use of Generic Antennas

For the purposes of this report, the use of 'Generic' as an antenna model, or 'Unknown' for a wireless carrier, means that the information about the carrier, their FCC license and/ or antenna information was not provided and could not be obtained while on site. In the event of unknown information, Telnet will use our industry specific knowledge of equipment, antenna models and transmit power to model the site. If more specific information can be obtained for the unknown measurement criteria, remodeling of the site is recommended. If no information is available regarding the transmitting service associated with an unidentified antenna, using the antenna manufacturer's published data regarding the antenna's physical characteristics makes more conservative assumptions.



4.1.3 Statistical Summary

Statistical Summary		
%MPE	SQ. FT	%SQ. FT.
	4500	100.00 % of total ROOF Area
0-100	4476	99.47 % of Selected Area
101 - 500	24	0.53 % of Selected Area
501 - 5000	0	0.00 % of Selected Area
> 5000	0	0.00 % of Selected Area
<p>Roof Area 4500 sq. ft. Max %MPE 275.7 % Min %MPE 0.1 % Using Near/Far Spatial Avg Model With FCC 1997 Public Standard</p>		

Table 4 Percent of FCC General Population Exposure Limit, All carriers

Statistical Summary		
%MPE	SQ. FT	%SQ. FT.
	4500	100.00 % of total ROOF Area
0-5	4186	93.02 % of Selected Area
6 - 500	314	6.98 % of Selected Area
501 - 5000	0	0.00 % of Selected Area
> 5000	0	0.00 % of Selected Area
<p>Roof Area 4500 sq. ft. Max %MPE 275.7 % Min %MPE 0.1 % Using Near/Far Spatial Avg Model With FCC 1997 Public Standard</p>		

Table 5 Percent of FCC General Population Exposure Limit, AT&T proposed



5 Survey Methodology

5.1 Sampling Description

The rooftop area of the site under evaluation was laid out in a grid of measurement points. Measurements were performed every 5-10' at various locations on the rooftop. The measurements were performed using industry-accepted techniques described in FCC Bulletin OET-65. At each measurement point identified where measurement was over 20%, a spatially averaged measurement is collected over the height of an average human body. The survey meter performs a time average measurement while the user slowly moves the probe over a distance range of 0 cm to 200 cm (about six feet) above the rooftop level. The results recorded at each measurement location include the average values over the spatial distance. The analysis included all emitters aggregated by carrier and height that were indicated to be present.

6 Analysis and Computation

Based on emission patterns of the antennas at this location most of the energy emitted is spread towards the horizon. This assumes the antennas have a zero downtilt. If a mechanical downtilt other than zero is applied to the antennas then the maximum energy emitted will need to be calculated using the information below.

The following formulas can be used for calculating the power density.

Power density is calculated by dividing the surface area of the sphere or the unit area normal to the direction of the propagation. This information is usually shown in units of microwatts per square centimeter (uW/cm²), milliwatt per square centimeters (mW/cm²), or watts per square meter (W/m²).

6.1 Analysis

$$S = \frac{(P \times KFact)}{(2\pi Rh)}$$

where :

S = power density (mW/cm²)

P = total power input to the antenna (mW)

K = antenna correction factor / numeric factor for antenna discrimination

R = straight line distance of the antenna from a 6 ft. human (cm)

h = distance between the roof level and the bottom of the antenna (cm) or the vertical distance from the tip of the antenna to the roof level where a 6 ft. human being is assumed standing directly from the antenna (also equal to R at 0)

MPE% = Calculated exposure level, as a percentage of the FCC MPE limit for continuous exposure of the general population



7 FCC Limits for MPE

The FCC guidelines for human exposure to RF electromagnetic fields were derived from the recommendations of two expert organizations, the National Council on Radiation Protection and Measurements (“NCRP”) and the Institute of Electrical and Electronics Engineers (“IEEE”). The exposure guidelines are based on thresholds for known adverse effects and they incorporate appropriate margin of safety. The federal health and safety agencies such as: the Environmental Protection Agency (“EPA”), the Food and Drug Administration (“FDA”), the National Institute on Occupational Safety and Health (“NIOSH”) and the Occupational Safety and Health Administration (“OSHA”) have also been actively involved in monitoring and investigating issues related to RF exposure.

The FCC’s MPE limits are based on exposure limits over a wide range of frequencies recommended by the NCRP and the exposure limits developed by the IEEE and adopted by the American National Standards Institute (“ANSI”) to replace the 1982 ANSI guidelines. The limits for localized absorption are based on the recommendations of both the ANSI/IEEE and the NCRP. The potential hazard associated with the RF electromagnetic fields is discussed in OET Bulletin No. 56 “Questions and Answers about the Biological Effects and Potential Hazards of RF Electromagnetic Fields”. This document can be obtained on the FCC website at <http://www.fcc.gov>.

Sections 7.1, 7.2 and 7.3 represent the FCC limits for both occupational and general population exposures to different radio frequencies:

7.1 (A) Limits for Occupational/Controlled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm ²)	Averaging Time E ² , H ² or S (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842/f	4.89/f	(900/f ²)*	6
30-300	61.4	0.163	1.0	6
300-1500	--	--	f/300	6
1500-100,000	--	--	5	6



7.2 (B) Limits for General Population/Uncontrolled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm ²)	Averaging Time E ² , H ² or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	(180/f ²)*	30
30-300	27.5	0.073	0.2	30
300-1500	--	--	f/1500	30
1500-100,000	--	--	1.0	30

f = frequency in MHz

*Plane-wave equivalent power density

NOTE 1: **Occupational/controlled** limits apply in situations in which persons are exposed as a consequence of their employment provided those persons are fully aware of the potential for exposure and can exercise control over their exposure. Limits for occupational/controlled exposure also apply in situations when an individual is transient through a location where occupational/controlled limits apply provided he or she is made aware of the potential for exposure.

NOTE 2: **General population/uncontrolled** exposures apply in situations in which the general public may be exposed, or in which persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or can not exercise control over their exposure.

7.3 Controlled and Uncontrolled Exposure Limits

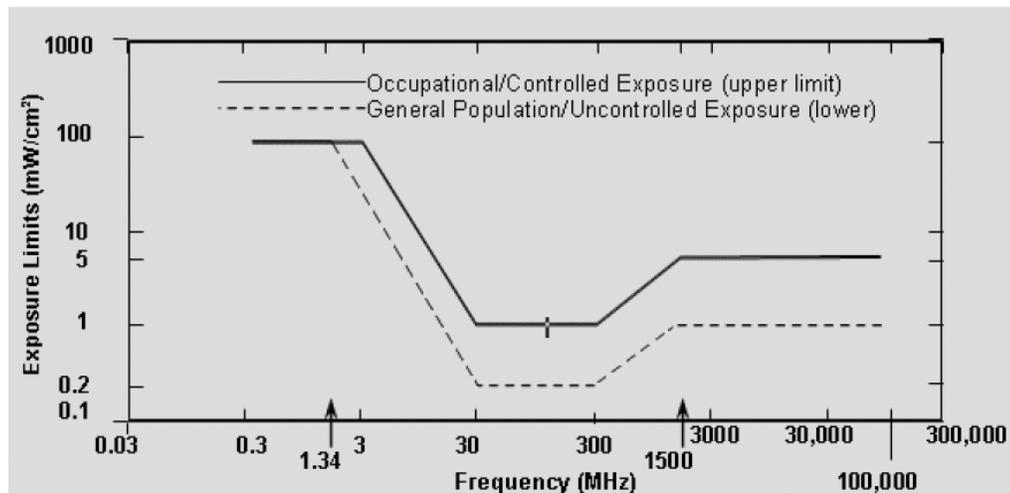


Figure 3



8 FCC Standard Certification

This report certifies that the site RICHMOND – 98591 is in compliance with the FCC standard. The analysis and procedure used to provide the report is according to OET Bulletin 65 and other industry standards.

Prepared by:
Steven Fruit
RF Technician
Telnet Inc.

Date: 10/22/10

Reviewed by:
Homan Alizadeh
Project Manager, EMF Specialist
Telnet Inc.

Date: 10/22/10



9 Glossary of Terms

1. *Electromagnetic Field (energy density)* – the electromagnetic energy contained in an infinitesimal volume divided by that volume.
2. *Exposure* – Exposure occurs whenever and wherever a person is subjected to electric, magnetic or electromagnetic fields other than those originating from physiological processes in the body and other natural phenomena.
3. *General Population / Uncontrolled Exposure* – applies to human exposure to RF fields when the general public is exposed or in which persons who are exposed as a consequence of their employment may not be made fully aware of the potential for exposure or cannot exercise control over their exposure. Therefore, members of the general public always fall under this category when exposure is not employment-related.
4. *Maximum Permissible Exposure (MPE)* – the rms and peak electric and magnetic field strength, their squares, or the plane-wave equivalent power densities associated with these fields to which a person may be exposed without harmful effect and with an acceptable safety factor.
5. *Occupational / Controlled Exposure* – applies to human exposure to RF fields when persons are exposed as a consequence of their employment and in which those persons who are exposed have been made fully aware of the potential for exposure and can exercise control over their exposure. Occupational/controlled exposure limits also apply where exposure is of a transient nature as a result of incidental passage through a location where exposure levels may be above general population/controlled limits.
6. *Power Density (S)* – Power per unit area normal to the direction of propagation, usually expressed in units of watts per square meter (W/m^2) or, for convenience, units such as milliwatts per square centimeter (mW/cm^2) or microwatts per square centimeter ($\mu W/cm^2$).
7. *Ionization* – a process by which electrons are stripped from atoms and molecules. This process can produce molecular changes that can lead to damage in biological tissue, includes effect on DNA, the genetic material. This process requires interaction with high levels of electromagnetic energy.
8. *Non-Ionizing radiation* – a type of emission that is not great enough to cause ionization of atom and molecules. “RF and Microwave Emissions” are low-level energy which are not capable of ionization.



10 Appendix

Narda Safety Test Solutions
435 Moreland Road, Hauppauge, NY 11788
Phone: 631-231-1700 · Fax: 631-231-1711
E-mail: nardaeast@L-3com.com
www.nardamicrowave.com



Calibration Certificate

Narda Safety Test Solutions hereby certifies that the referenced equipment has been calibrated by qualified personnel to Narda's approved procedures. The calibration was carried out within a certified quality management system conforming to ISO 9001:2000.

The metrological confirmation system for test equipment complies with ISO 10012-1.

Object	Electric Field Probe EA5091
Part Number (P/N)	2402/07
Serial Number (S/N)	01006
Manufacturer	Narda Safety Test Solutions
Date of Calibration	Tue 07/Jul/2009 13:10:41
Results of Calibration	Test Results within Specification
Confirmation interval (recommended)	24 Months
Ambient Conditions	(23 +/-3)°C (40..60)% rel. humidity
Calibration Procedure	ATE Software 990199 Ver. 1.49
Probe Definition File Set	P/N 990199-04 Ver. 1.06
Results Filed Under	EA5091_01006_07Jul2009.txt

Hauppauge, NY

Calibrated by

Quality Assurance

This certificate may only be published in full, unless permission for the publication of an approved extract has been obtained in writing from the Director of Quality Assurance.

Certificate No. 01006_07Jul2009.txt

Date of issue: 07/Jul/2009

Page 1 of 6



Narda Safety Test Solutions GmbH
Sandwiesenstrasse 7 · D-72793 Pfullingen · Germany
Phone: +49-7121-9732-0 · Fax: +49-7121-9732-790



Calibration Certificate

Narda Safety Test Solutions GmbH hereby certifies that the referenced equipment has been calibrated by qualified personnel to Narda's approved procedures. The calibration was carried out within a certified quality management system conforming to DIN EN ISO 9001:2000.

The metrological confirmation system for test equipment complies with ISO 10012-1.

Object	Broadband Field Meter NBM-550
Part Number (P/N)	2401/01
Serial Number (S/N)	A-0125
Manufacturer	Narda Safety Test Solutions GmbH
Customer	
Date of Calibration	2009-07-02
Results of Calibration	Test results within specifications
Confirmation interval (recommended)	24 months
Ambient conditions	(23 ± 3)°C (20 ... 60) % rel. humidity
Calibration procedure	2401-8700-00A

Pfullingen, 2009-07-02


Person in charge
M. Budim


Head of Laboratory
N. Moll

This certificate may only be published in full, unless permission for the publication of an approved extract has been obtained in writing from the Managing Director.

MANAGEMENT
SYSTEM

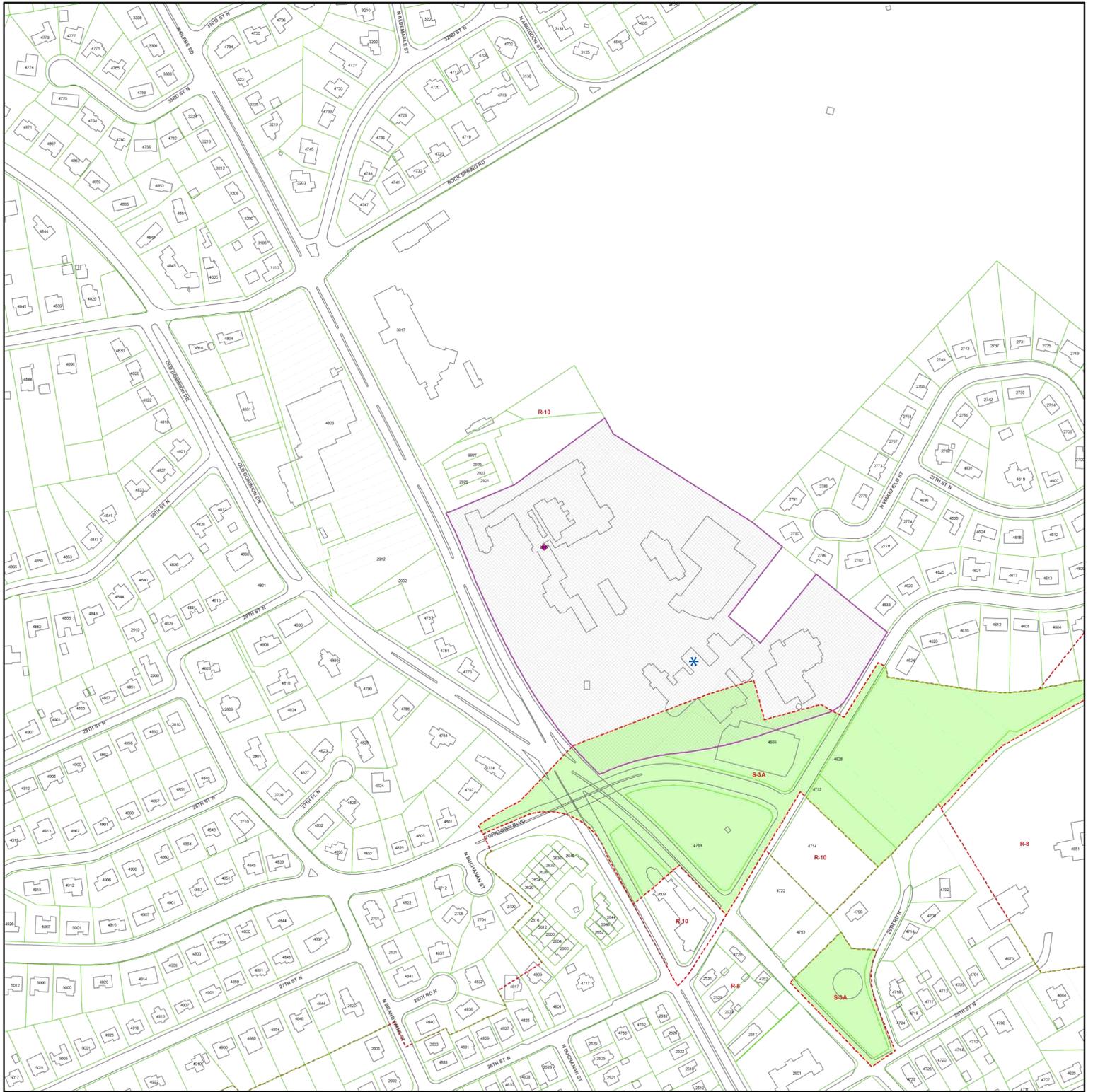


Certified by DQS against
DIN EN ISO 9001:2000
(Reg.-No. 99379-QM)

Certificate No. NBM-550-A-0125-090702-63

Date of issue: 2009-07-02

Page 1 of 3



U-3276-11-1

2807 N Glebe Road

RPC: 03-047-001.



 Case
 Location(s)
 Scale: 1:4,573

Note: These maps are for property location assistance only.
 They may not represent the latest survey and other information.