



County of Fairfax, Virginia

MEMORANDUM

DATE: July 30, 2010

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

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

SUBJECT: Proposed XO Communications Telecommunications Facility at 1751 Pinnacle Drive;
Tax Map 29-4 ((1)) 2; 2232 Application FS-P10-23

This is in response to a request for a determination as to whether the telecommunications facility proposed by XO Communications, Inc. at 1751 Pinnacle Drive is in substantial conformance with the development conditions approved by the Board of Supervisors in conjunction with the approvals of Special Exceptions SE 84-D-003 (increase in building height), SE 95-P-045 (waiver of certain sign regulations), and Special Exception Amendment SEA 95-P-045 (permit telecommunications facility); and with the development conditions approved by the Board of Zoning Appeals in conjunction with approval of Variance VC 96-P-005 (peripheral parking lot landscaping reduction along the street line of a corner lot). As described in the 2232 application dated June 25, 2010, from Aron Garcia, five (5) existing 2-foot diameter microwave dish antennas will be removed from the penthouse façade. The applicant proposes eighteen (18) microwave dish antennas (9 - 1 foot diameter, 9 - 2 foot diameter) will be flush-mounted to the façade of the rooftop penthouse on existing mounts. The antennas and associated mounts, brackets and cables will be finished in a color to match the façade of the penthouse. In addition, two (2) equipment cabinets are proposed to be installed inside the penthouse equipment room. A copy of the 2232 application with illustrations of the proposed locations of the telecommunications equipment is attached.

The Zoning Administration Division has determined that a telecommunications facility, as described above, is a permitted use pursuant to the provisions of Sect. 2-514 of the Zoning Ordinance provided that it is determined to be in substantial conformance with any applicable special exception and variance. It is my determination that the proposed telecommunications facility is in substantial conformance with the above-referenced applications. Please note that this proposal is subject to 2232 review requirements and that the applicant's ability to proceed is dependent upon approval of the pending 2232 application by the Fairfax County Planning Commission. This determination has been made in my capacity as the duly authorized agent of the Zoning Administrator. If you have any questions regarding this memorandum, please call Carrie Lee at (703) 324-1290.

KG/CDL/O:\clee01\ActionAssignments\Antennas\1751 Pinnacle Dr_rooftop\1751 Pinnacle Dr_XO Communications.doc

Attachments: A/S

cc: Linda Q. Smyth, Supervisor, Providence District
Kenneth Lawrence, Planning Commissioner, Providence District
Regina C. Coyle, Director, Zoning Evaluation Division, DPZ
Diane Johnson-Quinn, Deputy Zoning Administrator, Zoning Permit Review, ZAD, DPZ
Aron Garcia, Allpro Consulting Group, 2528 Horse Pasture Rd., Ste. 100, Virginia Beach, VA 23453
File: SE 84-D-003, SE 95-P-045, SEA 95-P-045, VC 96-P-005, ANT 1007 055, Imaging, Reading File



County of Fairfax, Virginia

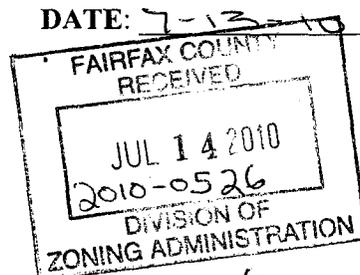
MEMORANDUM

TO: Lorrie Kirst, Deputy Zoning Administrator, ZAD
Other: _____

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

SUBJECT: Request for Review: 2232 Application

RE: Application Number: FS-P10-23 Tax Map: 29-4 (1) 2



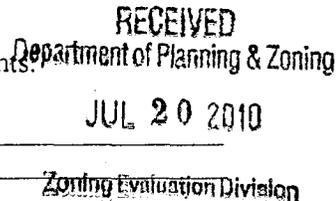
Attached for your review and comment is a 2232 Review application:

RECEIVED FROM: XO Communications Services
PROPOSED USE: Add (18) dish antennas to rooftop
LOCATION OF USE: 1751 Pinnacle Dr
ADDITIONAL COMMENTS: _____

Please send your comments to David Marshall by: 7/23/10
Staff Coordinator: Sandi Smith **Phone:** 703-324-1239 **Email:** sandi.smith@fairfaxcounty.gov

****ZAD COMMENTS:**

Property is zoned C-4
 Proposed use is permitted by Zoning Ordinance and meets all zoning requirements.
 Proposed use does not meet all Zoning requirements as follows:



See attached comments

Referred to ZED for the following: See attached comments
ZAD comments prepared by: Brian Parsons Date: 7/19/10

****ZED COMMENTS:**

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

****ZED comments prepared by:** _____ **Date:** _____



Kirst, Lorrie

From: Kirst, Lorrie
Sent: Tuesday, July 20, 2010 12:10 PM
To: Smith, Sandi M.
Cc: Parsons, Brian S.
Subject: FW: FS-P10-23, XO Communications, 1751 Pinnacle Drive

FS-P10-23

XO Communications Services - rooftop collocation

1751 Pinnacle Drive

Tax Map Ref.: 29-4 ((1)) 2

Zoning District: C-4

The proposed use meets the requirements of Par. 1 of Sect. 2-514 of the Zoning Ordinance.

Referred to ZED: Must be in substantial conformance with SEA 95-P-045, SE 95-P-045, SE 84-D-003 and VC 96-P-005.

Prepared by: Brian Parsons 7/19/10

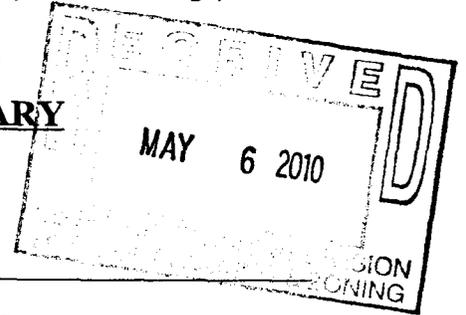
COUNTY OF FAIRFAX, VIRGINIA
APPLICATION FOR DETERMINATION
PURSUANT TO
SECTION 15.2-2232 OF THE CODE OF VIRGINIA

Application Number: FS-910-23
(assigned by staff)

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

(Please Type or Print All Requested Information)

PART I: APPLICATION SUMMARY



ADDRESS OF PROPOSED USE

Street Address 1751 Pinnacle Drive
City/Town McLean Zip Code 22102

APPLICANT(S)

Name of Applicant XO Communications Services, INC.
Street Address 13865 Sunrise Valley Drive, 4th Floor
City/Town Herndon State VA Zip Code 20171
Telephone Number: Work (757) 589-0904 Fax (757) 490-4990
E-mail Address agarcia@allprocgi.com
Name of Applicant's Agent/Contact (if applicable) Aron Garcia
Agent's Street Address 2528 Horse Pasture Road, Suite 100
City/Town Virginia Beach State VA Zip Code 23453
Telephone: Work (757) 589-0904 Fax (757) 490-4990

PROPOSED USE

Street Address 1751 Pinnacle Drive

Fairfax Co. Tax Map and Parcel Number(s) 0294 01 0002

Brief Description of Proposed Use _____

XO Communications is removing 5 - 2' existing Microwave dishes and replacing them with 9 - 1' and 9 - 2' Microwave dishes for their Broadband Radio Services.

Total Area of Subject Parcel(s) 291,116 (acres or square feet)

Portion of Site Occupied by Proposed Use 35 (acres or square feet)

Fairfax County Supervisor District Providence

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

Sub-Unit M-1 is planned for office use with support retail and service uses up to 1.65 FAR

Zoning of Subject Property C-4 (High Density Office)

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

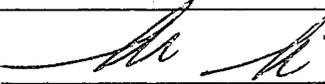
Owner TRC Pinnacle Towers LLC

Street Address 6711 Columbia Gateway DR Suite 300 Care Corporate Office Pro

City/Town Columbia State MD Zip Code 21046

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 Aron Garcia

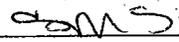
Signature of Applicant or Agent 

Date 4-27-10

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

Submit completed application to:

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

<p>FOR STAFF USE ONLY</p> <p>Date application received: <u>4/30/10</u></p> <p>By: <u></u></p> <p>Additional information requested to complete application:</p> <p><u>Revised - flush-mount 6-25-10</u></p> <p>Date application accepted: <u> / / </u></p> <p>By: _____</p>

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: 18 - Microwave Dishes
Dimensions: height _____ width _____ depth _____ diameter 2 ft.
Location / Placement: on Penthouse facade on existing mounts
Wattage: 1 Watt Max
Material and Color: Coated Aluminum - Painted to match building
Material and Color of the Antenna Mounting: Galvanized Steel - Painted to Mat
Height Above Ground: 222 ft.

2. EQUIPMENT

Number and Type of Cabinets or Structures: 2 Cabinets
Cabinet / Structure Dimensions: height 76 " width 28" depth 32"
Height of equipment platforms, if any: N/A
Material and Color: Aluminum - Gray
Location: Inside Penthouse Telecom Room
Method of Screening: Inside Penthouse Telecom Room

3. STRUCTURE ON WHICH ANTENNAS WILL BE MOUNTED

Maximum Height: 247 ft.
Material: Building
Color: Gray
If structure is within a utility right-of-way, state right-of-way width:
N/A

Statement of Justification

Proposal: Broadband Radio Service Hub Facility

Applicant: XO Communications Services, INC

Subject Property: Pinnacle Tower North; tax map 0294 01 0002

Location and Size: 1751 Pinnacle DR; 6.68 acres approx.

Owner: TRC Pinnacle Towers LLC

Existing Conditions: High rise office buildings, parking lot

Adjacent Properties: High rise office buildings, parking lots to the North, West and East and Chain Bridge RD to the South.

Project Justification: XO's Network Architect has identified the proposed location as one of the highest point in the Tysons Corner area. From this location XO will be able to service all of the existing and future broadband customers in the Tysons Corner urban area. This location is the ideal line of sight to the numerous customer-end antennas that are in place currently or in the future to provide service to customers at those locations. Since XO will be upgrading an existing site it will make the integration of new and existing customers easier.

Proposed Use: Broadband Radio Service Hub Facility

Facility: The proposed facility will include the following (all dimensions are approximate):

- **Location** – 1751 Pinnacle Drive, Penthouse area.
- **Structure** – Penthouse room for the equipment, penthouse wall and roof for the Microwave dish locations.
- **Microwave dishes** – 9 – 1' Microwave Dishes and 9 – 2' Microwave Dishes.
- **Equipment** – 2 equipment cabinets (each 76" tall X 28" wide X 32' deep) located in the existing Penthouse equipment room.
- **Type of Operation** – An unmanned Broadband Radio Service Hub facility, used to transmit and receive broadband service from customer-end antennas to applicant's backhaul network.

- Applicant's use will conform to the provisions of all applicable ordinances, regulations adopted standards and applicable federal regulations.

Alternative Sites: Applicant did not considered any alternate locations since this is an existing site that is being upgraded to become a hub site. Applicant will remove 5 – 2' existing Microwave Dishes and replace them with 9 – 2' Microwave dishes and 9 – 1' Microwave dishes.

The applicant, XO, respectfully submits to the Planning Commission that the proposed upgrade to the existing 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.

For the reasons stated above, the Applicant respectfully requests that the application be granted.

Please do not hesitate to contact me should you have any questions regarding XO's application or should you require additional information regarding this Project. With kind regards, I am

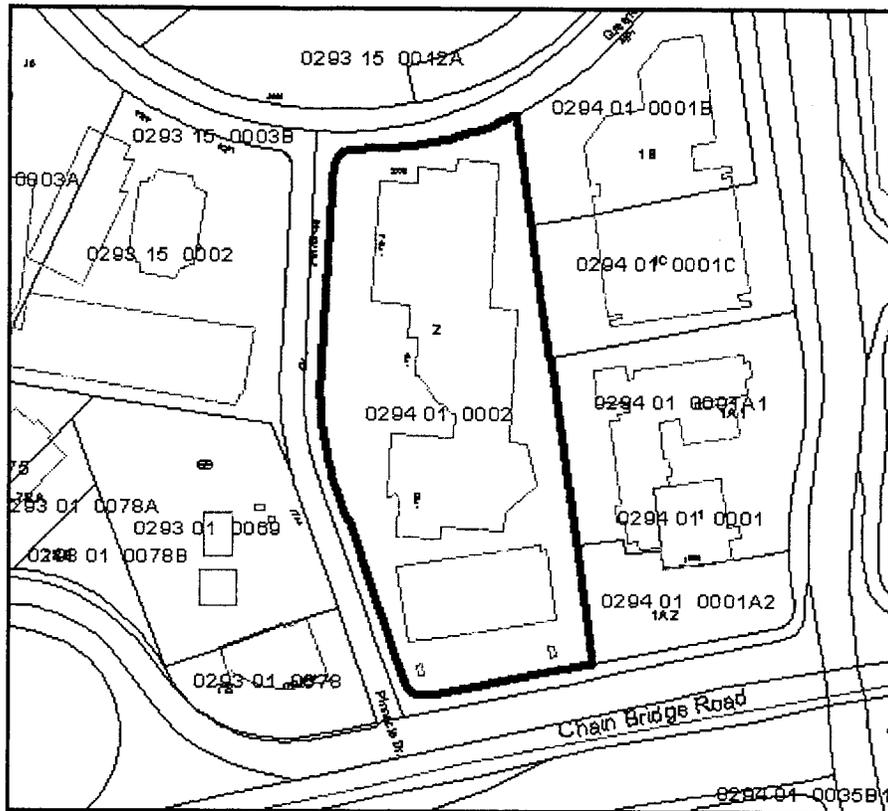
Very truly yours,



Aron Garcia

MAP #: 0294 01 0002
TRC PINNACLE TOWERS LLC

1753 PINNACLE DR

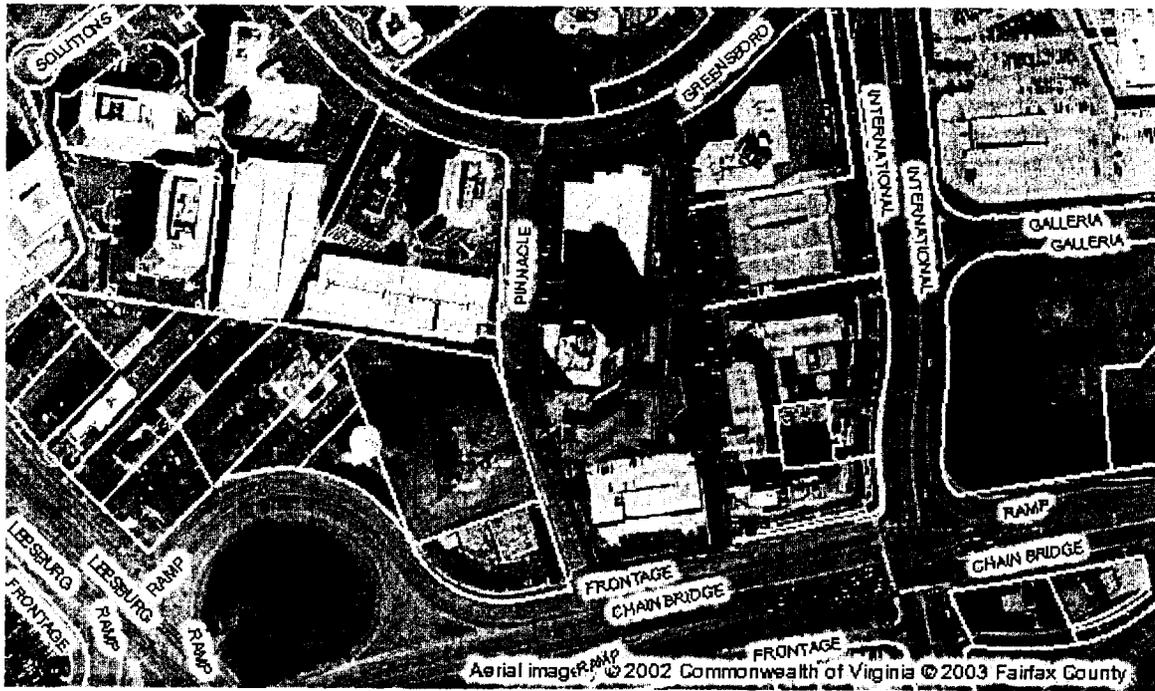


Aerial Imagery © 2007 Commonwealth of Virginia

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



Please refer to the [data disclaimer and limitations](#).



Please refer to the [data disclaimer and limitations](#).

VA-0041 PINNACLE TOWER NORTH

1751 PINNACLE DR.

MCLEAN, VA

View looking North



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View looking South

PROPOSED DISH ANTENNAS



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MCLEAN, VA

View looking East



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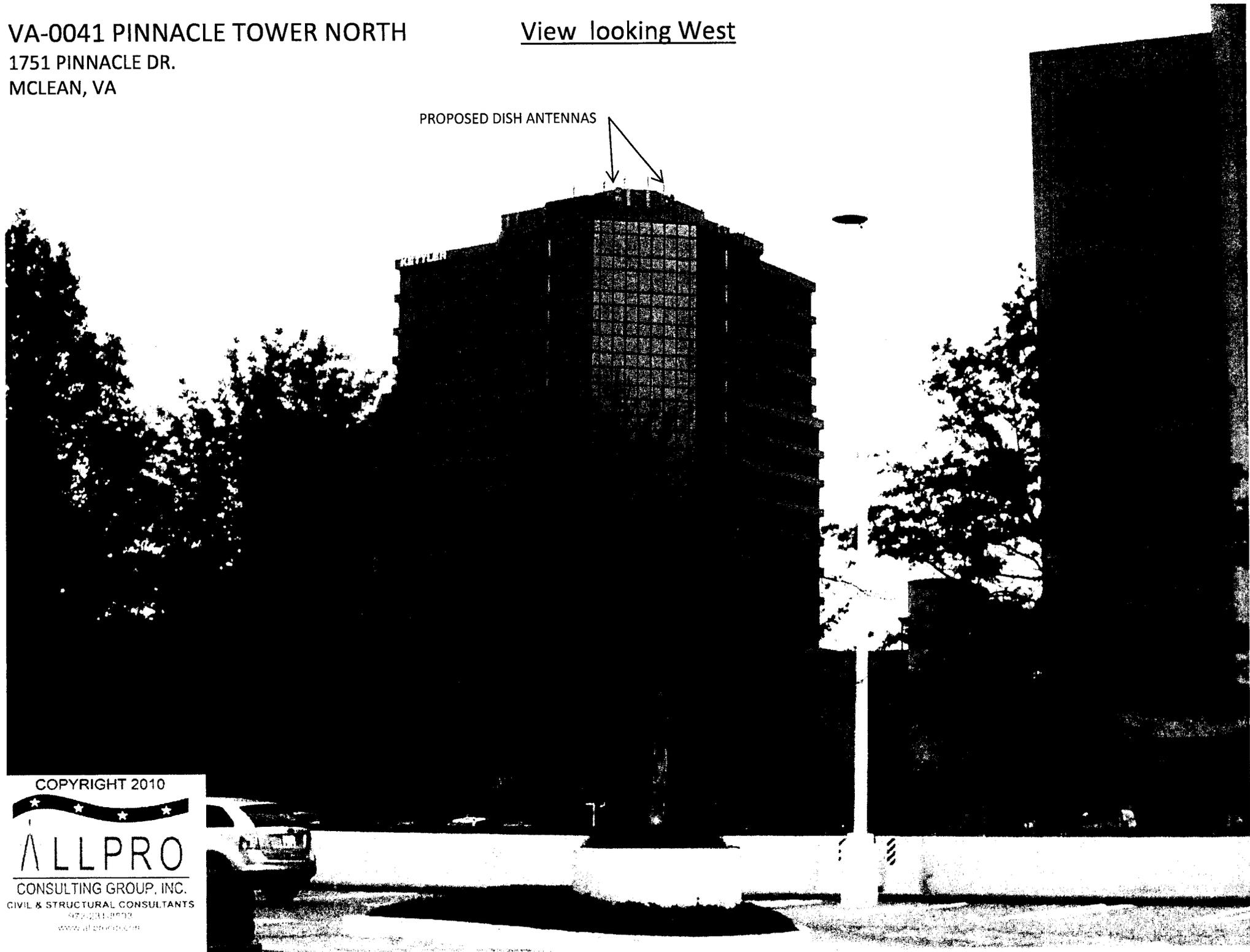
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972-231-8810
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VA-0041 PINNACLE TOWER NORTH

1751 PINNACLE DR.
MCLEAN, VA

View looking West

PROPOSED DISH ANTENNAS



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PROJECT TYPE

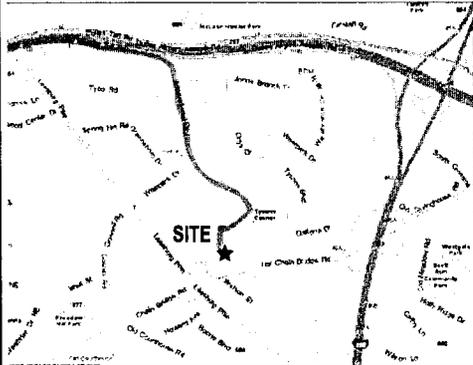
EXISTING BUILDING WITH EXISTING ANTENNAS TO BE REPLACED AT 232' RAD CENTER WITH EXISTING ASSOCIATED UNMANNED COMMUNICATION EQUIPMENT INSIDE TELECOM ROOM AT PENTHOUSE TO BE REPLACED.

DIRECTIONS TO SITE

SUMMARY: 15.6 MILES (28 MINUTES)

INSTRUCTION DEPART WASHINGTON-DULLES INTERNATIONAL AIRPORT ON LOCAL ROAD(S) (WEST) BEAR RIGHT (NORTH-WEST) ONTO BEANS SCHOOL RD TURN RIGHT (NORTH-EAST) ONTO SR-606 (OLD CR RD) TURN RIGHT ONTO RAMP *TOLL ROAD MERGE ONTO SR-267 (DULLES GREENWAY) AT EXIT 17, TURN RIGHT ONTO RAMP TAKE RAMP (RIGHT) ONTO SR-604 (SPRING HILL RD) KEEP STRAIGHT ONTO INTERNATIONAL DR. TURN RIGHT (SOUTH-WEST) ONTO GREENSBORO DR. TURN LEFT (SOUTH) ONTO PINNACLE DRIVE/RV 1751 PINNACLE DR., MCLEAN, VA 22102

ENLARGED VICINITY MAP



**SITE NAME
PINNACLE TOWER NORTH**

**SITE NUMBER
VA-0041**

**SITE ADDRESS
1751 PINNACLE DR.
McLEAN, VA 22102**

SITE COORDINATES

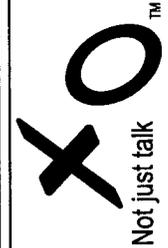
LATITUDE: N 38° 55' 16.82" (NAD 83)
LONGITUDE: W 77° 13' 42.70" (NAD 83)
GROUND ELEVATION: 242± (NGVD 83)

APPROVED FOR CD

PROPERTY OWNER OR REP.	RF
CONSTRUCTION MANAGER	NETWORK
ZONING	OPERATIONS
REAL ESTATE	OTHER

SHEET INDEX

- T-1 TITLE SHEET
- Z-1 ZONING MAP
- C-1 ROOFTOP SITE PLAN
- C-2 PENTHOUSE SITE PLAN
- C-3 ELEVATION
- C-4 TELECOM ROOM EQUIPMENT LAYOUT
- C-5 ANTENNA SPECIFICATIONS
- C-6 ANTENNA SPECIFICATIONS
- C-7 ANTENNA DETAILS
- E-1 ELECTRICAL PLAN
- E-2 GROUNDING PLAN
- E-3 GROUNDING RISER DIAGRAM
- E-4 ELECTRICAL DETAILS
- E-5 ELECTRICAL DETAILS
- E-6 ELECTRICAL SPECIFICATIONS
- E-7 ELECTRICAL SPECIFICATIONS
- E-8 ELECTRICAL SPECIFICATIONS
- S-1 CONNECTION DETAILS
- S-2 CONNECTION DETAILS
- S-3 INDOOR EQUIPMENT CABINET DETAILS



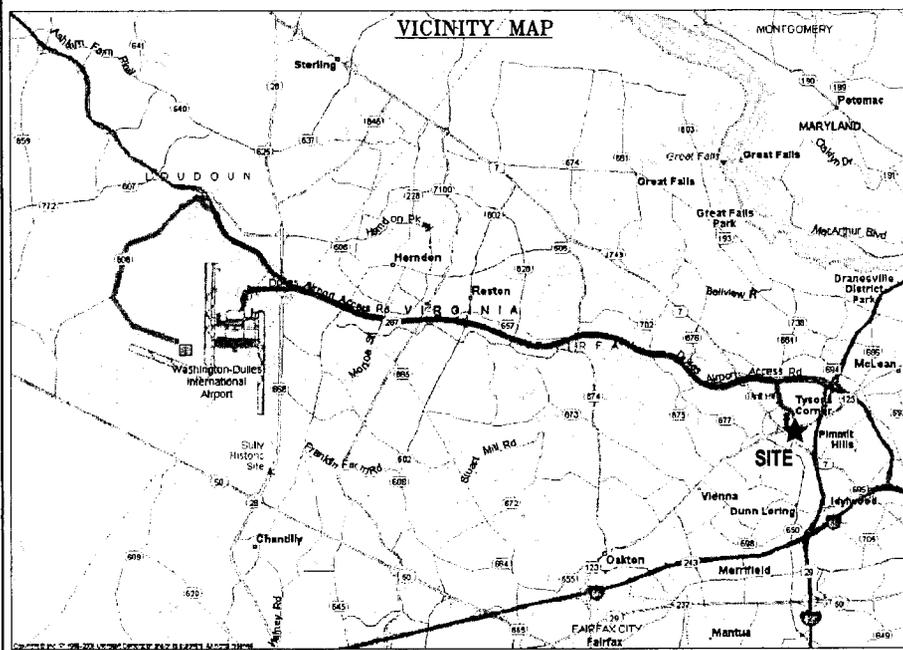
PROJECT NO: 10-0474

DRAWN BY: CG

CHECKED BY: JG

5	06/22/10	REV ZONING PER COMMENTS
4	06/27/10	FINAL ZONING
3	04/28/10	FINAL ZONING
2	04/16/10	ZONING
1	04/05/10	PRELIM CD
0	03/23/10	LEASE EXHIBIT

ALLPRO
CONSULTING GROUP, INC.
521 Lyndon B Johnson Fwy
Suite 300
Dallas, TX 75243
Phone: 972-231-8883 Fax: 972-231-8375
www.allprocd.com registration no. 952



PROJECT SUMMARY

SITE INFORMATION

JURISDICTION: FAIRFAX COUNTY
CODE: IRC 2009
OCCUPANCY: UNMANNED - UTILITY FACILITY
ZONING: C-4(HIGH DENSITY OFFICE)
CONSTRUCTION TYPE: ROOFTOP
SPN #: 0294 01 0002

LANDLORD

ITC PINNACLE TOWERS LLC,
6711 COLUMBIA GATEWAY DR, SUITE 300
CARE CORPORATE OFFICE PROP TRUST
COLUMBIA MD 21046

APPLICANT

XO COMMUNICATIONS SERVICES, INC.
13865 SUNRISE VALLEY DR.
4th FLOOR
HERNDON, VA 20171
ATT: CHAZ HUNTER
PHONE: 866-966-8975

CONSULTANTS

A&E CONSULTANT

ALLPRO CONSULTING GROUP, INC.
5221 LYNDON B JOHNSON Fwy, SUITE 204
DALLAS, TX 75243
PHONE: 972-231-8883
FAX: 972-231-8375
CONTACT: JOEL M. GEORGE P.E.

PRIME CONTRACTOR

GLOBAL TOWER PARTNERS
750 PARK OF COMMERCE BLDG.
SUITE 300
BOCA RATON, FL 33487
ATT: LEASING
PHONE: 281-246-1279

UTILITIES

MISS UTILITY

! CALL BEFORE DIGGING !
CONTRACTOR TO CALL 48 HOURS BEFORE DIGGING!
PHONE: 811
CONTRACTOR RESPONSIBLE FOR DAMAGE OF EXISTING UTILITIES DURING CONSTRUCTION

POWER

DOMINION POWER
PHONE: 1-800-667-3000

TELCO

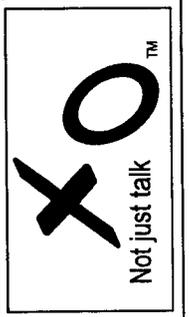
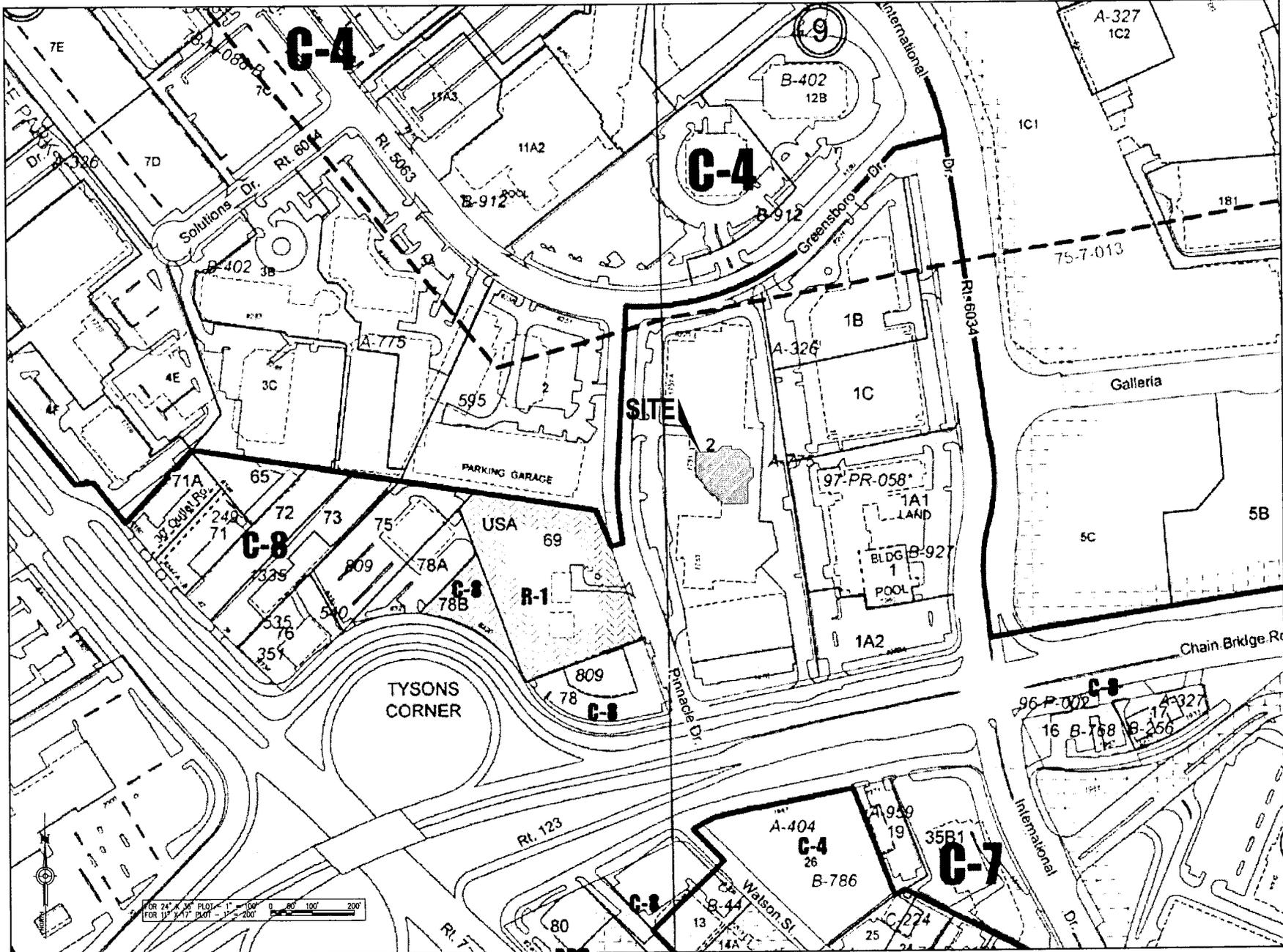
VERIZON
CONTACT: CUSTOMER SERVICE
PHONE: (800) 463-5000



VA-0041
PINNACLE TOWER NORTH
1751 PINNACLE DR.
MCLEAN, VA

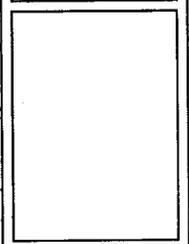
SHEET TITLE
TITLE SHEET

SHEET NUMBER
T-1



PROJECT NO: 10-0474		
DRAWN BY: CG		
CHECKED BY: JG		
5	06/22/00	REV ZONING PER COMMENTS
4	05/27/00	FINAL ZONING
3	04/28/00	FINAL ZONING
2	04/14/00	ZONING
1	04/05/00	PRELIM CD
0	03/23/00	LEASE EXHIBIT

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 CONSULTING GROUP, INC.
 5224 York Road, Suite 202
 Alexandria, VA 22304
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 www.allprogroup.com registration no. 6242



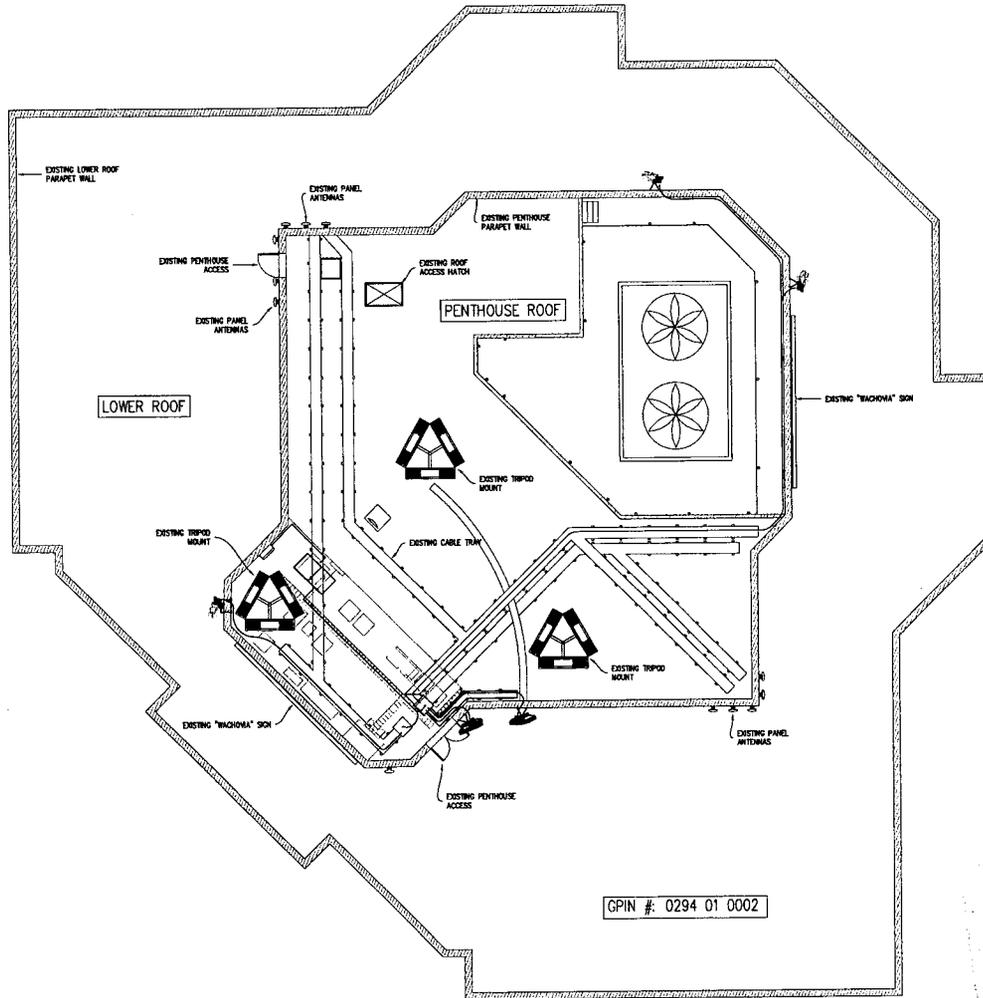
VA-0041
 PINNACLE TOWER
 NORTH
 1751 PINNACLE DR.
 MCLEAN, VA

SHEET TITLE
ZONING MAP

SHEET NUMBER
Z-1

FOR 24" X 36" PLOT - 1" = 200'
 FOR 11" X 17" PLOT - 1" = 200'

ANALYSIS AND DESIGN OF ROOFTOP BY OTHERS.
NO ERECTION OR MODIFICATION ROOFTOP SHALL BE
MADE WITHOUT APPROVAL OF STRUCTURAL
ENGINEER.



GPIN #: 0294 01 0002



FOR 24" X 36" PLOT - 1/8" = 1' 0" 2" 4" 6" 16"
FOR 11" X 17" PLOT - 1/16" = 1'

XO
Not just talk™

PROJECT NO: 10-0474

DRAWN BY: CG

CHECKED BY: JG

5	06/22/10	REV ZONING PER COMMENTS
4	05/27/10	FINAL ZONING
3	04/28/10	FINAL ZONING
2	04/14/10	ZONING
1	04/05/10	PRELIM CD
0	03/23/10	LEASE EXHIBIT

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5021 Lyndon B Johnson Fwy
Suite 200, McLean, VA 22102
Phone: 877-231-8893 Fax: 866-364-8375
www.allproci.com registration no. 8272



VA-0041
PINNACLE TOWER
NORTH
1751 PINNACLE DR.
MCLEAN, VA

SHEET TITLE
ROOFTOP PLAN

SHEET NUMBER
C-1

RECEIVED
JUN 25 2010
PLANNING DIVISION
CITY OF MCLEAN

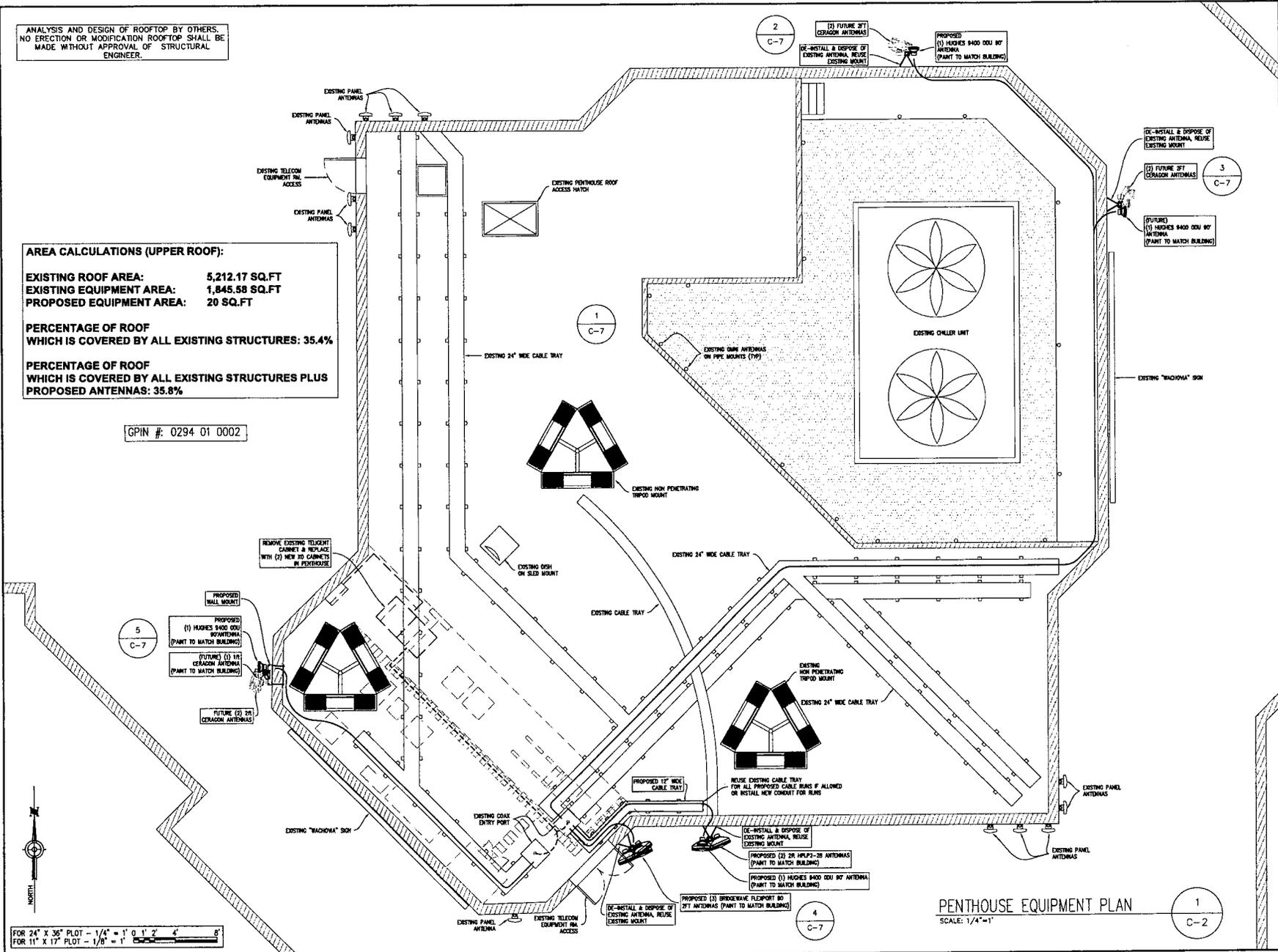
ANALYSIS AND DESIGN OF ROOFTOP BY OTHERS. NO ERECTION OR MODIFICATION ROOFTOP SHALL BE MADE WITHOUT APPROVAL OF STRUCTURAL ENGINEER.

AREA CALCULATIONS (UPPER ROOF):
 EXISTING ROOF AREA: 5,212.17 SQ.FT
 EXISTING EQUIPMENT AREA: 1,845.58 SQ.FT
 PROPOSED EQUIPMENT AREA: 20 SQ.FT

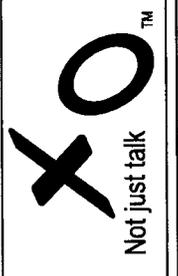
PERCENTAGE OF ROOF WHICH IS COVERED BY ALL EXISTING STRUCTURES: 35.4%

PERCENTAGE OF ROOF WHICH IS COVERED BY ALL EXISTING STRUCTURES PLUS PROPOSED ANTENNAS: 35.8%

GPIN #: 0294 01 0002



FOR 24" X 36" PLOT - 1/4" = 1' 0 1' 2' 4' 8'
 FOR 11" X 17" PLOT - 1/8" = 1'



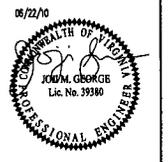
PROJECT NO: 10-0474

DRAWN BY: CG

CHECKED BY: JG

5	04/22/10	REV ZONING PER COMMENTS
4	05/27/10	FINAL ZONING
3	04/28/10	FINAL ZONING
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ALPRO
 CONSULTING GROUP, INC.
 8224 Lyndon B Johnson Fwy
 Suite 1000, Dallas, TX 75243
 Phone: 972-232-8833 Fax: 972-232-8837
 www.alprogroup.com registration no. 8242



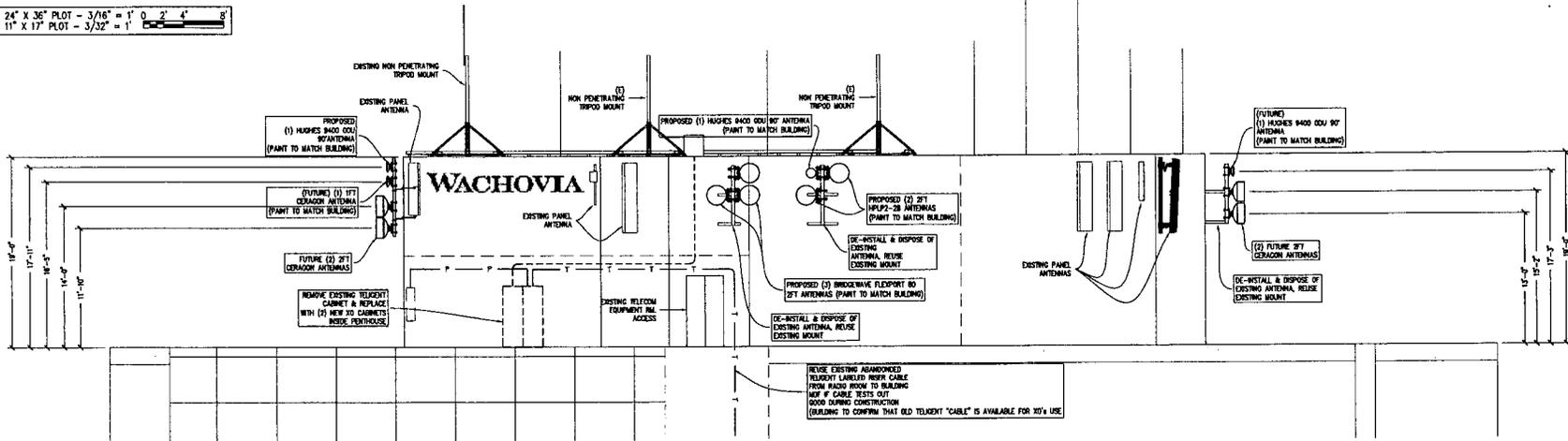
VA-0041
 PINNACLE TOWER
 NORTH
 1751 PINNACLE DR.
 MCLEAN, VA

SHEET TITLE
**PENTHOUSE
 EQUIPMENT
 PLAN**

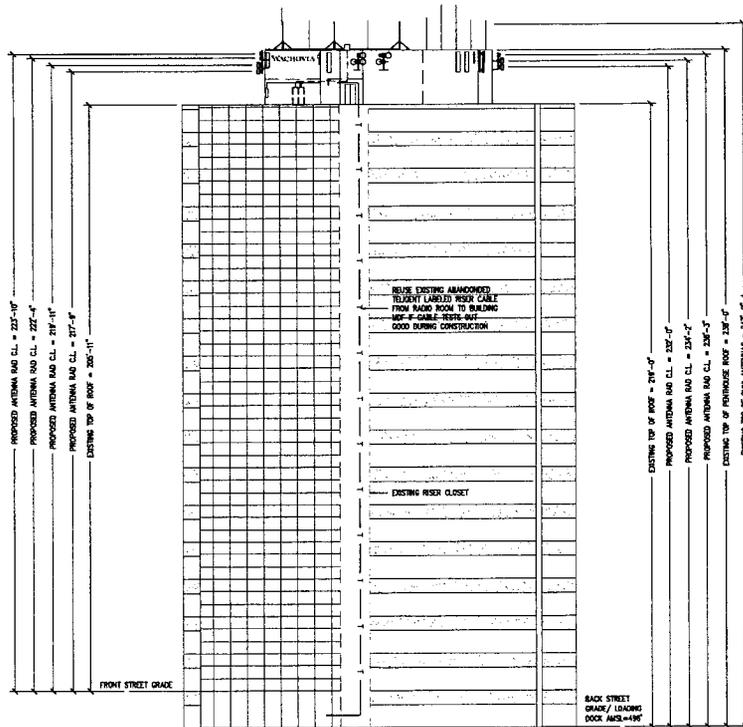
SHEET NUMBER
C-2

PENTHOUSE EQUIPMENT PLAN
 SCALE: 1/4" = 1'

FOR 24' X 36' PLOT - 3/16" = 1' 0 2' 4'
 FOR 11' X 17' PLOT - 3/32" = 1'



ANALYSIS AND DESIGN OF ROOFTOP BY OTHERS. NO ERECTION OR MODIFICATION ROOFTOP SHALL BE MADE WITHOUT APPROVAL OF STRUCTURAL ENGINEER.



FOR 24' X 36' PLOT - 1" = 20' 0 10' 20' 40'
 FOR 11' X 17' PLOT - 1" = 40'



PROJECT NO: 10-0474

DRAWN BY: CG

CHECKED BY: JG

5	06/23/10	REV ZONING PER COMMENTS
4	05/27/10	FINAL ZONING
3	04/28/10	FINAL ZONING
2	04/14/10	ZONING
1	04/05/10	PRELIM CD
0	03/23/10	LEASE EXHIBIT

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 CONSULTING GROUP, INC.
 10000 Lee Ave. Suite 700
 Fairfax, VA 22031
 Phone: 877-231-8883 Fax: 866-364-8375
 www.alprocorp.com registration no. 8242

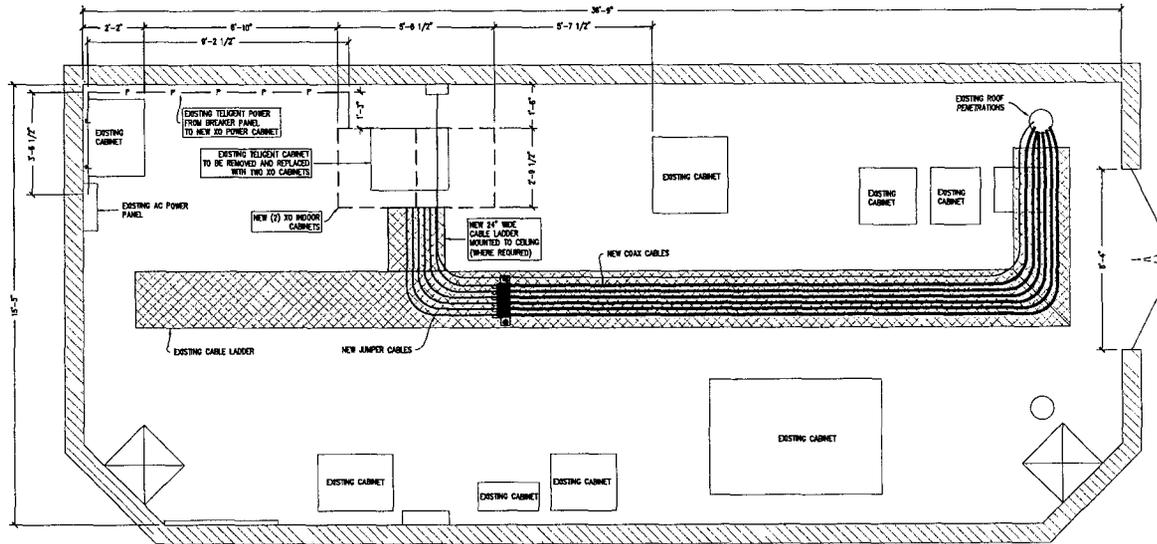


VA-0041
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 1751 PINNACLE DR.
 MCLEAN, VA

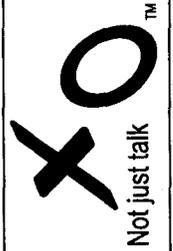
SHEET TITLE
ELEVATION

SHEET NUMBER
C-3

ANALYSIS AND DESIGN OF ROOFTOP BY OTHERS.
NO ERECTION OR MODIFICATION ROOFTOP SHALL BE
MADE WITHOUT APPROVAL OF STRUCTURAL
ENGINEER.



FOR 24" X 36" PLOT - 1/2" = 1' 0" 1" 2" 4"
FOR 11" X 17" PLOT - 1/4" = 1'



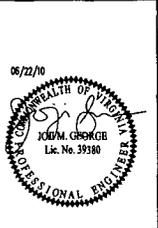
PROJECT NO: 10-0474

DRAWN BY: CG

CHECKED BY: JG

5	06/22/10	REV ZONING PER COMMENTS
4	05/27/10	FINAL ZONING
3	04/28/10	FINAL ZONING
2	04/14/10	ZONING
1	04/05/10	PRELIM CD
0	10/23/10	LEASE EXHIBIT

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SHEET TITLE
**TELECOM ROOM
EQUIPMENT
PLAN**

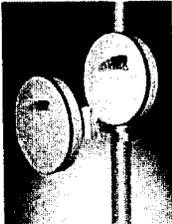
SHEET NUMBER
C-4



28 GHz / 27.3 - 31.3 HIGH PERFORMANCE MICROPOWER ANTENNAS

FEATURES

- Antenna diameter: 1.5" (38.1 mm)
- 2.2" (56 mm) height
- Antenna weight: 0.125 lbs (56.7 g)
- 28 GHz Frequency Range: 27.3 to 31.3 GHz
- HP model: Superior performance
- HPD model: High Power
- FCC or ETSI Approval available
- Direct mounting on PCB or waveguide
- Easy of installation: Antenna supplied on test fixture
- High return loss: Superior performance
- Rugged and lightweight: Antennas mount with the same ease as a standard antenna
- Compact size: Antennas are small and light
- Minimal noise: Antennas are quiet
- Easy to install: Antennas are easy to install
- Low cost: Antennas are low cost



27.3 - 31.3 GHz Electrical Specifications (typical)

Model	Element	Gain (dB)	Beamwidth (°)	Return Loss (dB)	SWR	VSWR (dB)	VSWR (dB)
HP Series	HPD Series	HPD Series	HPD Series	HPD Series	HPD Series	HPD Series	HPD Series
HPD100	HPD100	10.0	1.5	15.0	1.2	1.5	1.5
HPD100	HPD100	10.0	1.5	15.0	1.2	1.5	1.5

Dist. Pattern

Model	Element	Gain (dB)	Beamwidth (°)	Return Loss (dB)	SWR	VSWR (dB)	VSWR (dB)
HPD100	HPD100	10.0	1.5	15.0	1.2	1.5	1.5

RadioWaves, Inc. 2000-01-01

RadioWaves, Inc.

Physical specifications

Table 2-24 lists the physical specifications for the 0400H1001.

Item	Value
See 0400H1001	25 mm x 95 mm x 43 mm
Weight	242 mm x 52 mm x 116 mm
	8 lbs. (3.7 kg)

Environmental specifications

Table 2-25 lists the environmental specifications for 0400H1001.

Item	Value
Operational	-10 to 50°C (-14 to 122°F)
Storage	-55 to 150°C (-67 to 302°F)
Transportation	-55 to 150°C (-67 to 302°F)
Shock	100 g, 11 ms
Vibration	10 g, 11 ms
Humidity	95% RH, 27°C



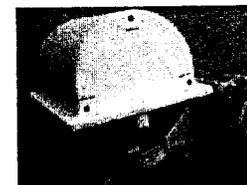
455-28172 Revision C01 2-15

455-00519

Antenna specification

Table 2-26 lists the antenna specifications.

Item	Value
28 GHz Frequency Range	27.3 to 31.3 GHz
28 GHz Frequency Range	27.3 to 31.3 GHz
Element	Variable (HPD model)
Crosspolarization	< -25 dB
Front to back	< -40 dB
Beamwidth (3 dB)	1.5°
Beamwidth (10 dB)	0.5°
Element diameter (mm)	19 mm
Element diameter (in)	0.75 in
Element height (mm)	43 mm
Element height (in)	1.7 in
Mount	Direct mount on PCB or waveguide



2-16 | 455-28172 Revision C01

455-00520

ANTENNA WAVE FORMS AND LOADS HP Series



Antenna Model	Element	Gain (dB)	Beamwidth (°)	Return Loss (dB)	SWR	VSWR (dB)	VSWR (dB)
HP Series	HP Series	HP Series	HP Series	HP Series	HP Series	HP Series	HP Series

Antenna Model	Element	Gain (dB)	Beamwidth (°)	Return Loss (dB)	SWR	VSWR (dB)	VSWR (dB)
HP Series	HP Series	HP Series	HP Series	HP Series	HP Series	HP Series	HP Series

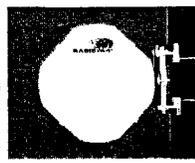
RadioWaves, Inc. 2000-01-01

RADIO WAVES THE LEADER IN MICROWAVE ANTENNA INNOVATION

High Performance Discriminator™
Low Side Lobe Design
23, 28, 28, 31, 38, 80 & 80 GHz Bands

Key Features

- Antenna diameter: 12" square
- 31 GHz Version FCC Category A
- Microwave: Operational: 20 mm (0.787 in) / Non-operational: 125 mm (4.921 in)
- Low Side Lobe Design, typically -23 dB
- Lightweight and rugged design, ready installed
- Fully mounting to standards to integrate with any OEM design.
- Standard antenna mount provides fine adjustment for both azimuth and elevation. Accommodates a 2.25 in. to 4.5 in. diameter horn.
- "Think Your Warranty"



Antenna Specifications (Electrical Typical)	HPD100	HPD100	HPD100	HPD100	HPD100
Model #	HPD100	HPD100	HPD100	HPD100	HPD100
Frequency, GHz	27.3 - 31.3	27.3 - 31.3	27.3 - 31.3	27.3 - 31.3	27.3 - 31.3
Gain (dB)	10.0	10.0	10.0	10.0	10.0
Beamwidth (3 dB)	1.5°	1.5°	1.5°	1.5°	1.5°
Beamwidth (10 dB)	0.5°	0.5°	0.5°	0.5°	0.5°
VSWR (max)	1.2	1.2	1.2	1.2	1.2
Return Loss (dB)	15.0	15.0	15.0	15.0	15.0
Element diameter (mm)	19	19	19	19	19
Element diameter (in)	0.75	0.75	0.75	0.75	0.75
Element height (mm)	43	43	43	43	43
Element height (in)	1.7	1.7	1.7	1.7	1.7
Mount	Direct mount on PCB or waveguide				

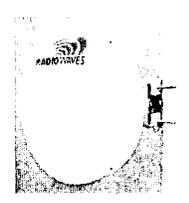
RadioWaves, Inc. 2000-01-01



HPLP2-80 2' 80 GHz FCC Category A Low Profile Antenna

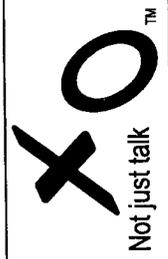
Key Features

- 2' 80 GHz FCC CAT A
- Low Profile Design
- Position optimized for superior performance at E-band
- On industry leading Super narrow
- High FR ratio



Antenna Specifications, Electrical (Typical)	HPD100	HPD100	HPD100
Model #	HPD100	HPD100	HPD100
Frequency, GHz	27.3 - 31.3	27.3 - 31.3	27.3 - 31.3
Gain (dB)	10.0	10.0	10.0
Beamwidth (3 dB)	1.5°	1.5°	1.5°
Beamwidth (10 dB)	0.5°	0.5°	0.5°
VSWR (max)	1.2	1.2	1.2
Return Loss (dB)	15.0	15.0	15.0
Element diameter (mm)	19	19	19
Element diameter (in)	0.75	0.75	0.75
Element height (mm)	43	43	43
Element height (in)	1.7	1.7	1.7
Mount	Direct mount on PCB or waveguide	Direct mount on PCB or waveguide	Direct mount on PCB or waveguide

RadioWaves, Inc. 2000-01-01



PROJECT NO:	10-0474
DRAWN BY:	CG
CHECKED BY:	JG
5/06/22/10	REV ZONING PER COMMENTS
4/06/27/10	FINAL ZONING
3/04/28/10	FINAL ZONING
2/04/14/10	ZONING
1/04/05/10	PRELIM CD
0/03/23/10	LEASE EXHIBIT

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www.allpro.com registration no. 0374

06/22/10
STATE OF VIRGINIA
KIM M. GIBBS
Lic. No. 99380
PROFESSIONAL ENGINEER

VA-0041
PINNACLE TOWER
NORTH
1751 PINNACLE DR.
MCLEAN, VA

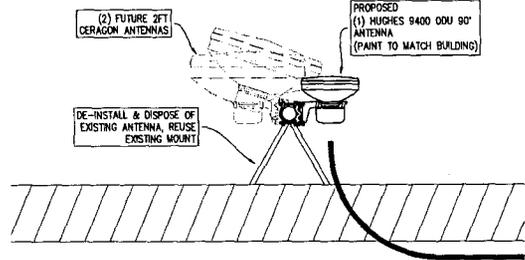
SHEET TITLE
ANTENNA
SPECIFICATIONS

SHEET NUMBER
C-5

DETAIL - NOT USED

SCALE: -

1
C-7

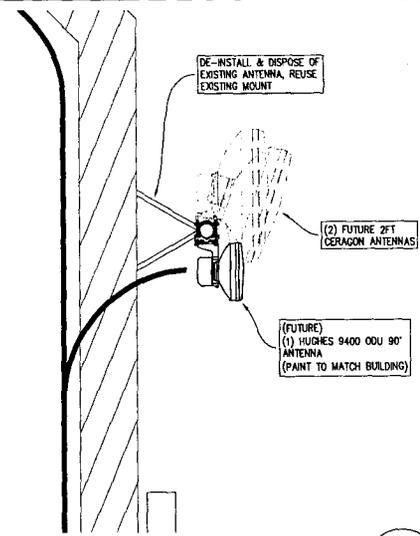


DETAIL

SCALE: 1"=1'

2
C-7

FOR 24" X 36" PLOT - 1" = 1' 0 6" 1'
FOR 11" X 17" PLOT - 1/2" = 1'

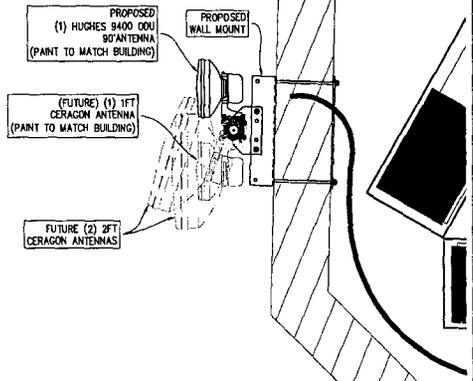


DETAIL

SCALE: 1"=1'

3
C-7

FOR 24" X 36" PLOT - 1" = 1' 0 6" 1'
FOR 11" X 17" PLOT - 1/2" = 1'



DETAIL

SCALE: 1"=1'

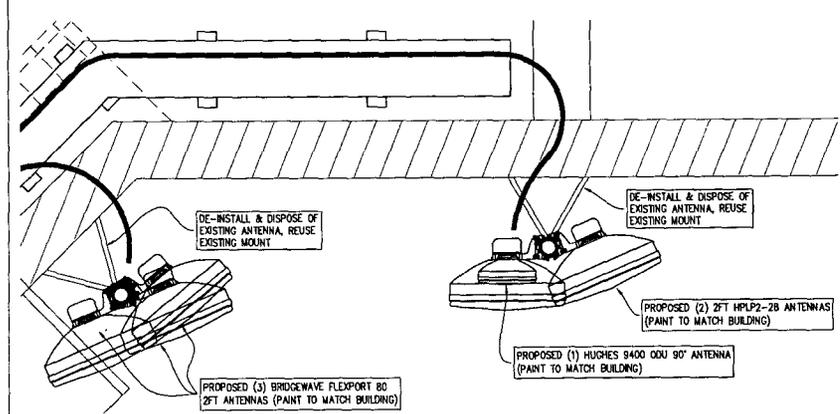
5
C-7

FOR 24" X 36" PLOT - 1" = 1' 0 6" 1'
FOR 11" X 17" PLOT - 1/2" = 1'

DETAIL - NOT USED

SCALE: -

6
C-7



ANALYSIS AND DESIGN OF ROOFTOP BY OTHERS.
NO ERECTION OR MODIFICATION ROOFTOP SHALL BE
MADE WITHOUT APPROVAL OF STRUCTURAL
ENGINEER.

DETAIL

SCALE: 1"=1'

4
C-7

FOR 24" X 36" PLOT - 1" = 1' 0 6" 1'
FOR 11" X 17" PLOT - 1/2" = 1'

XO
Not just talk™

PROJECT NO: 10-0474

DRAWN BY: CG

CHECKED BY: JG

5	06/22/10	REV ZONING PER COMMENTS
4	05/27/10	FINAL ZONING
3	04/28/10	FINAL ZONING
2	04/14/10	ZONING
1	04/05/10	PRELIM CD
0	03/23/10	LEASE EXHIBIT

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CONSULTING GROUP, INC.
8221 Lyndon B Johnson Fwy
Suite 201, Dallas, TX 75241-4375
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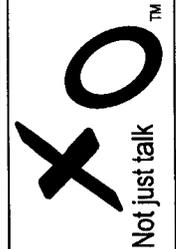
06/22/10
SEAL OF PROFESSIONAL ENGINEER
KIM M. GEORGE
Lic. No. 39390

VA-0041
PINNACLE TOWER
NORTH
1751 PINNACLE DR.
MCLEAN, VA

SHEET TITLE
**ANTENNA
DETAILS**

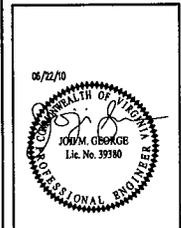
SHEET NUMBER

C-7



PROJECT NO:	10-0474	
DRAWN BY:	CG	
CHECKED BY:	JG	
5	06/22/10	REV ZONING PER COMMENTS
4	05/27/10	FINAL ZONING
3	04/28/10	FINAL ZONING
2	04/11/10	ZONING
1	04/05/10	PRELIM CD
0	03/23/10	LEASE EXHIBIT

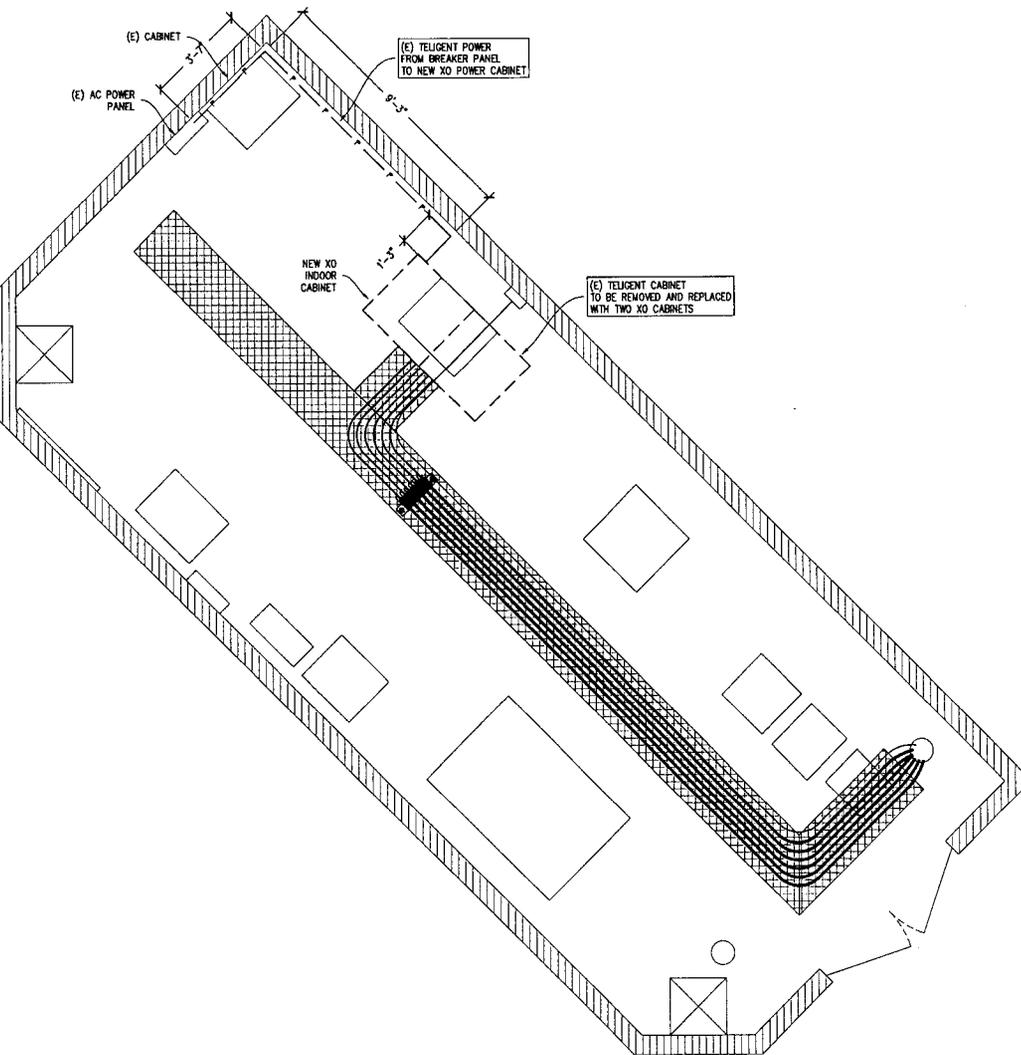
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VA-0041
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SHEET TITLE
**ELECTRICAL
SITE PLAN**

SHEET NUMBER
E-1



LEGEND	
PROPOSED	NEW
(E)	EXISTING
— G —	GROUND WIRE
— P —	POWER CONDUIT
— T —	TELCO CONDUIT

GENERAL NOTES:

ALL GROUNDING SHOULD BE IN COMPLIANCE WITH NEC ARTICLE 250.

ELECTRICAL SERVICE NOTES:

DRAWING(S) WERE COMPLETED BEFORE THE UTILITY CO. COULD CONFIRM AVAILABLE SPARE CAPACITY IN THE EXISTING ELECTRICAL SERVICE. DESIGN IS BASED UPON SITE OBSERVATIONS ONLY.

CONTRACTOR SHALL CONTACT LOCAL UTILITY TO CONFIRM THAT EXISTING ELECTRICAL SERVICE CAN ACCOMMODATE LOAD IMPOSED BY T-MOBILE EQUIPMENT AND SATISFY SPARE CAPACITY REQUIREMENTS OF NEC.

CONTRACTOR SHALL SUBMIT IN WRITING RESULTS OF INVESTIGATION TO THE OWNER, PRIOR TO INSTALLATION.

ABBREVIATIONS

- AWG AMERICAN WIRE GAUGE
- BCW BARE COPPER WIRE
- CGBE COAX GROUND BAR EXTERNAL
- CIGBE COAX ISOLATED GROUND BAR EXTERNAL
- DWG DRAWING
- IGR INTERIOR GROUND RING
- MIGB MASTER ISOLATION GROUND BAR
- NEC NATIONAL ELECTRIC CODE
- TYP. TYPICAL
- W/ WITH

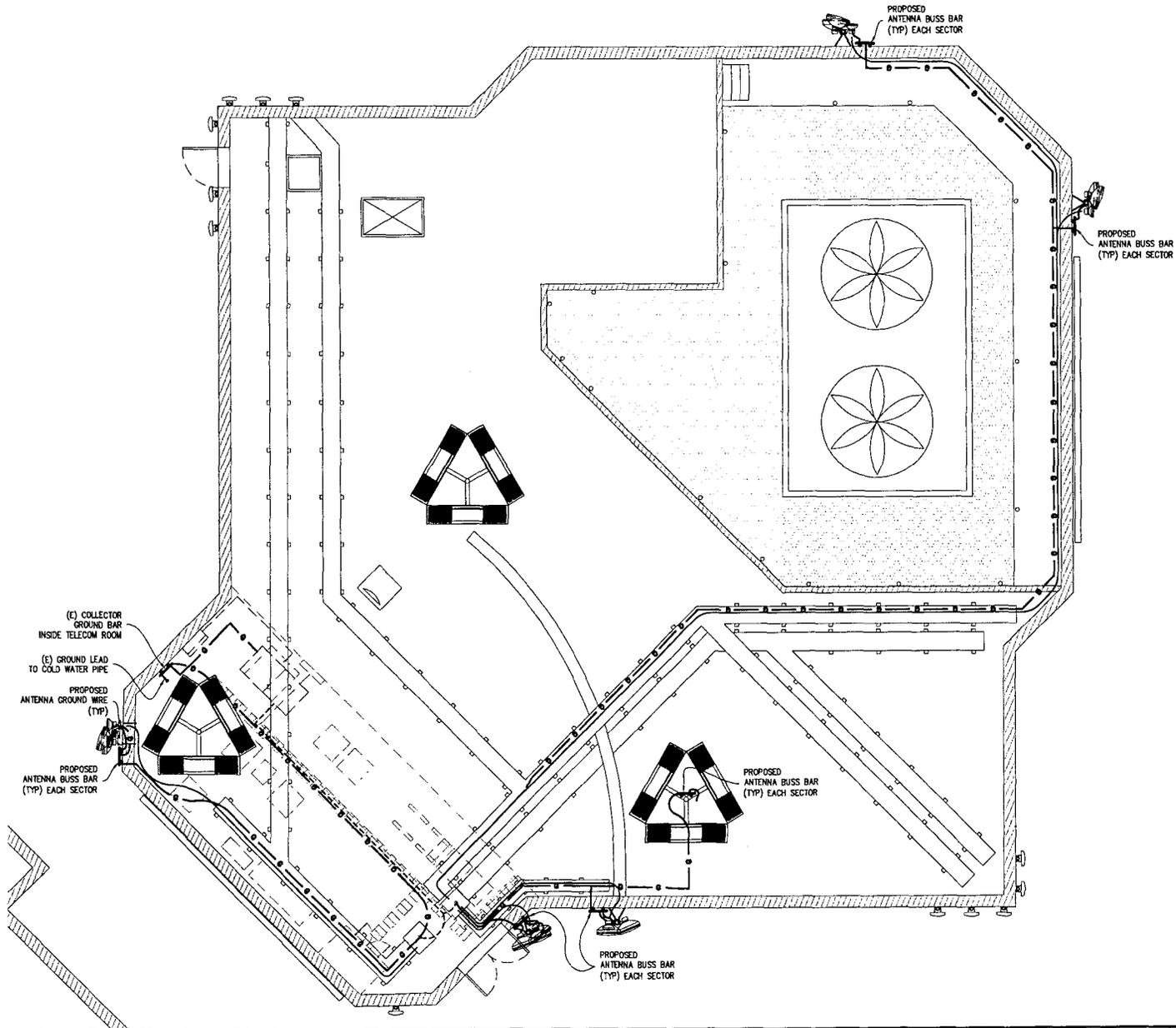
NOTE:
DRAWINGS WERE COMPLETED BEFORE THE UTILITY COMPANIES COULD CONFIRM THE SOURCE OF ELECTRICAL/TELEPHONE SERVICES. DESIGN IS BASED UPON SITE OBSERVATIONS ONLY.



FOR 24" X 36" PLOT - 1/8" = 1' 0" 2' 4" 8" 16"
FOR 11" X 17" PLOT - 1/16" = 1'

GROUND LEGEND

- GROUND BAR
- GROUNDING WIRE, #2 BCW U.I.O.
- BURNDY CONNECTION
- ▲ CADWELD CONNECTION



PROJECT NO:	10-0474	
DRAWN BY:	CG	
CHECKED BY:	JG	
REV	DATE	DESCRIPTION
5	06/22/10	REV ZONING PER COMMENTS
4	05/27/10	FINAL ZONING
3	04/28/10	FINAL ZONING
2	04/14/10	ZONING
1	04/05/10	PRELIM CD
0	03/23/10	LEASE EXHIBIT

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VA-0041
PINNACLE TOWER
NORTH
1751 PINNACLE DR.
MCLEAN, VA

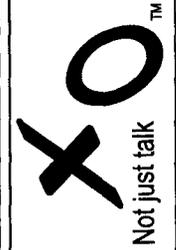
SHEET TITLE
**GROUNDING
SITE PLAN**

SHEET NUMBER
E-2



FOR 24" X 36" PLOT - 1/4" = 1' 0" 1" 2" 4" 8"
FOR 11" X 17" PLOT - 1/8" = 1'

GROUNDING PLAN



PROJECT NO: 10-0474

DRAWN BY: CG

CHECKED BY: JG

5	06/22/10	REV ZONING PER COMMENTS
4	05/27/10	FINAL ZONING
3	04/28/10	FINAL ZONING
2	04/14/10	ZONING
1	04/05/10	PRELIM CD
0	03/25/10	LEASE EXHIBIT

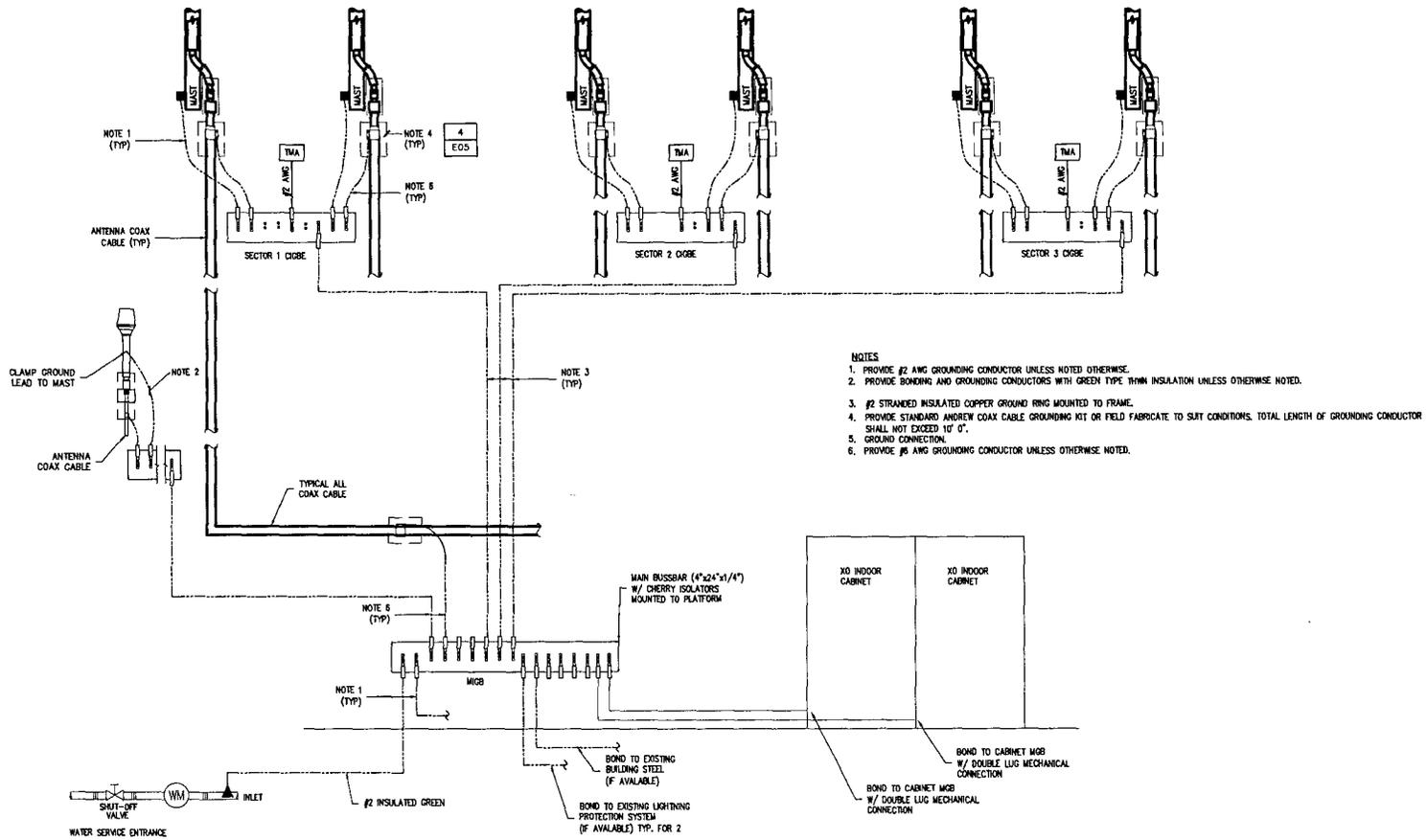
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Suite 204, Dallas, TX 75243
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JOE M. GEORGE
Lic. No. 59389

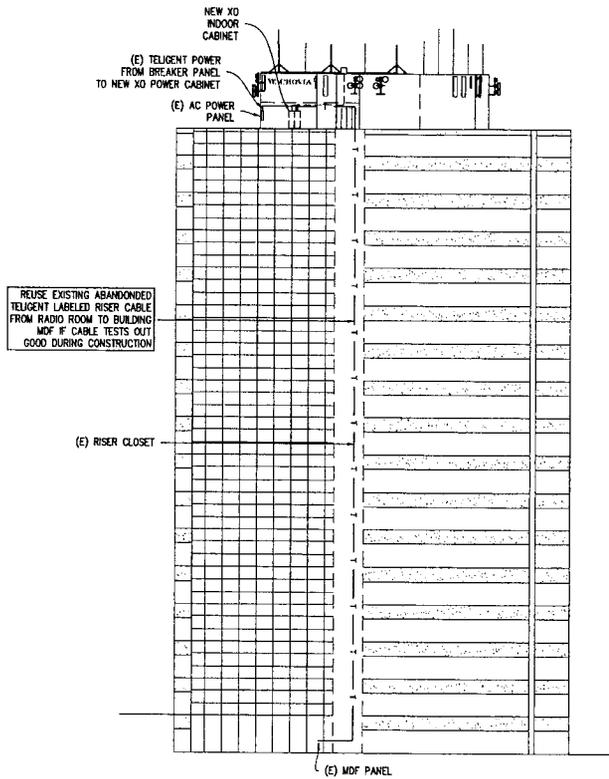
VA-0041
PINNACLE TOWER
NORTH
1751 PINNACLE DR.
MCLEAN, VA

SHEET TITLE
**GROUNDING
RISER DIAGRAM**

SHEET NUMBER
E-3

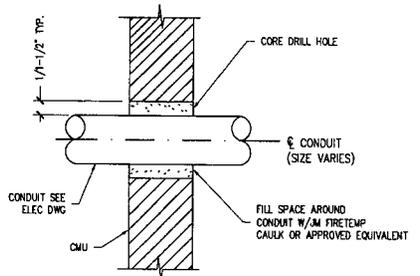


- NOTES**
1. PROVIDE #2 AWG GROUNDING CONDUCTOR UNLESS OTHERWISE NOTED.
 2. PROVIDE BONDING AND GROUNDING CONDUCTORS WITH GREEN TYPE THHN INSULATION UNLESS OTHERWISE NOTED.
 3. #2 STRANDED INSULATED COPPER GROUND RING MOUNTED TO FRAME.
 4. PROVIDE STANDARD ANDREW COAX CABLE GROUNDING KIT OR FIELD FABRICATE TO SUIT CONDITIONS. TOTAL LENGTH OF GROUNDING CONDUCTOR SHALL NOT EXCEED 10' 0".
 5. GROUND CONNECTION.
 6. PROVIDE #6 AWG GROUNDING CONDUCTOR UNLESS OTHERWISE NOTED.



RISER DIAGRAM

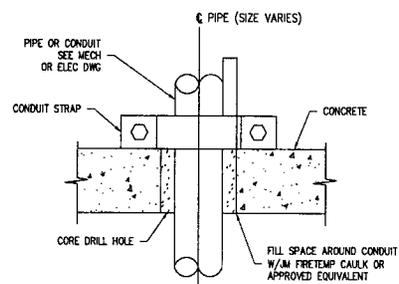
SCALE: NTS 1



NOTE: PIPE ANCHORAGE IS REQUIRED NEARBY TO PREVENT PIPE MOVEMENT THRU PENETRATION

PIPE PENETRATION AT CMU WALL (CONC. WALL SIMILAR)

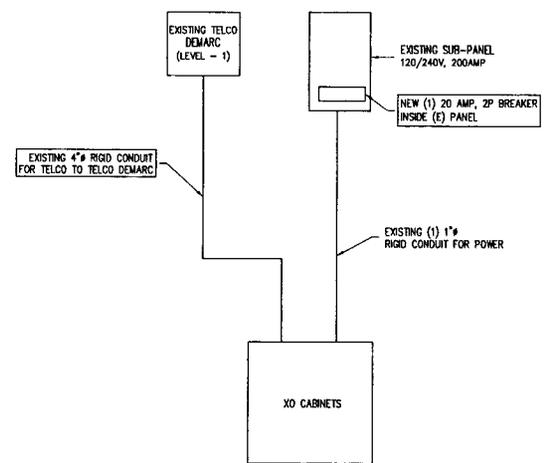
SCALE: NTS 3



PIPE PENETRATION AT FLOOR

SCALE: NTS 4

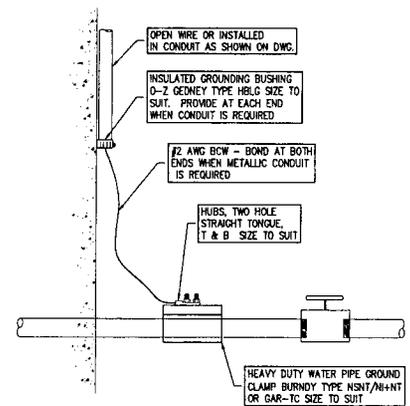
NOTE: DRAWINGS WERE COMPLETED BEFORE THE UTILITY COMPANIES COULD CONFIRM THE SOURCE OF ELECTRICAL/TELEPHONE SERVICES. DESIGN IS BASED UPON SITE OBSERVATIONS ONLY.



NOTES:
1. ELECTRICAL SERVICE SHALL BE RATED 20A, 240/120V, 1Ø 1PH, 3W.

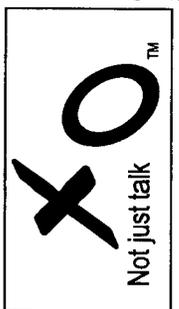
ONE LINE DIAGRAM

SCALE: NTS 2



GROUNDING TO WATER MAIN

SCALE: NTS 5



PROJECT NO: 10-0474

DRAWN BY: CG

CHECKED BY: JG

5	06/22/10	REV ZONING PER COMMENTS
4	05/27/10	FINAL ZONING
3	04/28/10	FINAL ZONING
2	04/14/10	ZONING
1	04/05/10	PRELIM CD
0	10/23/10	LEASE EXHIBIT

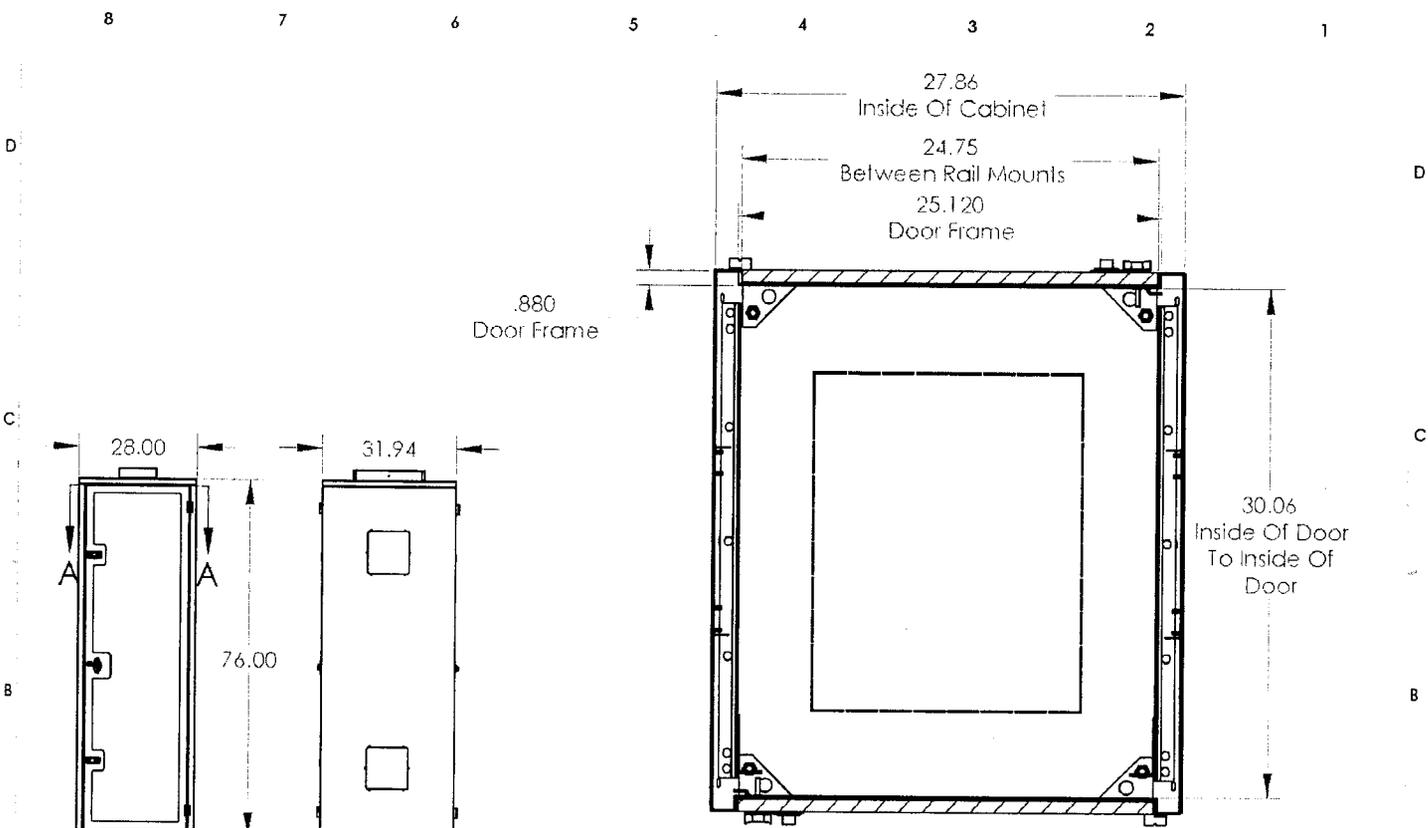
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06/22/10

VA-0041
PINNACLE TOWER NORTH
1751 PINNACLE DR.
MCLEAN, VA

SHEET TITLE
ELECTRICAL DETAILS

SHEET NUMBER
E-4



SECTION A-A
SCALE 1 : 8

REMOVE ALL BURRS
BREAK ALL SHARP EDGES
DO NOT SCALE DRAWING

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REV.	REVISIONS DESCRIPTION	DATE	APPR.

THIRD ANGLE PROJECTION
UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES.
TOLERANCES ARE:

DECIMAL S	ANGLES
X +/- .053	+/- .2°
XX +/- .032	
XXX +/- .015	

APPROVALS	DATE
DRAWN DDT	4/07/10

CHECKED

Spec of location 3004
Class Number

MATERIAL X

FINISH

BEND RADI XXX

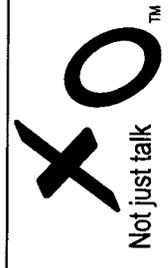
METAL-TECH PARTNERS

EC283276

18E DWG. NO. **A** DRAWING NUMBER **0**

SCALE X.X PROG #: XXXX SHEET 1 OF 1

1 EQUIPMENT CABINET DETAILS
Scale: N.T.S.



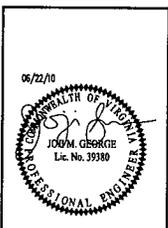
PROJECT NO: 10-0474

DRAWN BY: CG

CHECKED BY: JG

REV	DATE	DESCRIPTION
5	06/22/10	REV ZONING PER COMMENTS
4	05/27/10	FINAL ZONING
3	04/28/10	FINAL ZONING
2	04/14/10	ZONING
1	04/05/10	PRELIM CD
0	03/23/10	LEASE EXHIBIT

ALLPRO
CONSULTING GROUP, INC.
2274 Lyndon B Johnson Fwy
Ft. Worth, TX 76156-3644
Phone: 817-231-8933
www.allproci.com registration no. 82742



VA-0041
PINNACLE TOWER
NORTH
1751 PINNACLE DR.
MCLEAN, VA

SHEET TITLE
**CABINET
DETAILS**

SHEET NUMBER
S-3