County of Fairfax, Virginia

MEMORANDUM

DATE: May 10, 2012

TO: Chris B. Caperton, Chief
Facilities Planning Branch, Planning Division, DPZ

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

SUBJECT: Proposed Cricket Communications Telecommunications Facility at 2709 Popkins Lane; Tax Map 93-3 ((1)) 3; 2232 Application FS-V12-6

This is in response to a request for a determination as to whether a telecommunications facility proposed by Cricket Communications at 2709 Popkins Lane (Bryant Alternative High School) is in substantial conformance with the development conditions approved by the Board of Supervisors in conjunction with Special Exception Amendment SEA 86-V-072-4 (for an increase in age of children and hours of operation for a previously approved alternate use of a public facility for child care center and nursery school). As described in the 2232 application dated February 27, 2012, revised April 18, 2012, from Paul Whitley, agent for the applicant, the applicant proposes to extend the height of the existing 106 foot tall light pole an additional 10 feet, for a total height of 116 feet, to accommodate three (3) panel antennas (72" tall x 9" wide x 7.4" deep). In addition, one (1) equipment cabinet (66.8" tall x 52" wide x 30" deep) is proposed within an expanded equipment area (15' x 20') adjacent to the existing equipment compound at the base of the monopole/light pole. The expanded equipment area will be enclosed by an 8-foot solid board fence to match the existing fence. A copy of the 2232 telecommunications application with illustrations depicting the proposed locations of the telecommunications equipment is attached.

The Zoning Administration Division has determined that a telecommunications facility as described above is a permitted use pursuant to the provisions of Sect. 2-514 of the Zoning Ordinance provided that it is determined to be in substantial conformance with any applicable special exception. It is my determination that the proposed telecommunications facility is in substantial conformance with SEA 86-V-072-4. Please note that this proposal is subject to 2232 review requirements and that the applicant's ability to proceed is dependent upon approval by the Fairfax County Planning Commission of the pending 2232 application. 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/N:\Antennas\2709 Popkins Ln_monopole lightpole\Cricket.doc

Attachments: A/S

cc: Gerald W. Hyland, Supervisor, Mount Vernon District
Earl Flanagan, Planning Commissioner, Mount Vernon District
Barbara C. Berlin, Director, Zoning Evaluation Division, DPZ
Diane Johnson-Quinn, Deputy Zoning Administrator, Zoning Permit Review, ZAD, DPZ
Paul Whitley, Network Building & Consulting LLC, 7380 Coca Cola Dr., Suite 106, Hanover, MD 21076
File: SEA 86-V-072-4, ANT 12 04 041, Imaging, Reading File

County of Fairfax, Virginia

MEMORANDUM

TO: Distribution below **DATE:** April 24, 2012

FROM: Chris B. Caperton, Chief
Facilities Planning Branch, Planning Division, DPZ

SUBJECT: 2232 Review Application

RE: Application Number: FS-V12-6 Tax Map: 93-3 ((1)) 3

FAIRFAX COUNTY
RECEIVED
APR 25 2012
2012-0552
DIVISION OF
ZONING ADMINISTRATION

Attached for your review and comment is a 2232 Review application

RECEIVED FROM: Cricket Communications
PROPOSED USE: Construct 10' tower extension to existing 106' light pole and mount 3 antennas at 110'; expand compound by 10'x15' to house a new equipment cabinet platform
LOCATION OF USE: Bryant Alternative School, 2709 Popkins Lane, Alexandria, VA 22306
ADDITIONAL COMMENTS: _____

DEADLINE
Please send your comments to **Leanna O'Donnell** by: **5/10/12**
Phone: 703-324-1272 **Email:** Leanna.O'Donnell@fairfaxcounty.gov

****

Distribution:

DPWES/
- ☐ LDS - Site Development & Inspections Div.
- ☐ LDS - Urban Forestry
- ☐ WM - Wastewater Plan. & Monitoring Div.

DPZ /
- ☐ Planning Div. - Env. & Dev. Review
- ☐ Planning Div. - Historic Preservation
- ☒ ZAD - Ordinance Administration
- ☐ ZED See attached

- ☐ **FCPA** / Planning & Development Div.

- ☐ **FW** / Planning & Engineering Div.

FCPS /
- ☒ Property Management
- ☐ Facilities Planning

- ☐ **FCDOT** / Transportation Planning Div.
- ☐ **Fire & Rescue** / Strategic Planning
- ☐ **Police**
- ☐ **VDOT** / District Land Development Mgr.

Other/
- ☐ _____
- ☐ _____

FOR INFORMATION/
- ☒ Planning Commission Mt. Vernon
- ☒ Board of Supervisors Mt. Vernon

RECEIVED
Department of Planning & Zoning
APR 26 2012
Zoning Evaluation Divi

Department of Planning and Zoning
Planning Division
12055 Government Center Parkway, Suite730
Fairfax, Virginia 22035-5509
Phone 703-324-1380
Fax 703-324-3056
www.fairfaxcounty.gov/dpz/

DEPARTMENT OF PLANNING & ZONING

Kirst, Lorrie

From: Kirst, Lorrie
Sent: Thursday, April 26, 2012 11:00 AM
To: O'Donnell, Leanna
Cc: Parsons, Brian S.
Subject: FS-V12-6, Cricket, 2709 Popkins lane

RE: FS-V12-6

Cricket Communications, Inc. –Light pole extension and collocation

2709 Popkins Lane (Bryant Alternative High School)

Tax Map: 93-3 ((1)) 3

Zoning District: R-2

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

Refer to ZED: Must be in substantial conformance with the Special Exception Amendment SEA 86-V-072-4 for an alternate use of public facility for a child care center and nursery school.

Submitted by: Brian Parsons 4/26/12

COUNTY OF FAIRFAX, VIRGINIA

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

Application Number: FS-V12-6
(assigned by staff)

The application con ains 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.

RECEIVED
FEB 27 2012

(Please Type or Print All Requested Information)

PART I: APPLICATION SUMMARY

ADDRESS OF PROPOSED USE

Street Address 2709 Popkins Lane

City/Town Alexandria Zip Code 22306

APPLICANT(S)

Name of Applicant Cricket Communications

Street Address 6671 Santa Barbara Rd

City/Town Elkridge State MD Zip Code 21075

Telephone Number: Work (410) 567-7800 Fax (410) 796-4923

E-mail Address pwhitley@nbcllc.com

Name of Applicant's Agent/Contact (if applicable) Paul Whitley

Agent's Street Address 7380 Coca Cola Drive STE. 106

City/Town Hanover State MD Zip Code 21076

Telephone: Work (443) 752-0338 Fax (___) 410-712-4056

PROPOSED USE

Street Address 2709 Popkins Lane

Fairfax Co. Tax Map and Parcel Number(s) 0933 01 0003

Brief Description of Proposed Use

Site is currently being used as a telecommunication facility. Cricket Communictions is proposing to construct a 10' tower extension to the existing 106' tower and mount three antennas at a RAD Center of 110'. In addition, Cricket is proposing a 10'x15' compound expansion to house a new equipment cabinet being placed on a steel platform.

Total Area of Subject Parcel(s) 23.7753 (acres or square feet)

Portion of Site Occupied by Proposed Use 150 sf (acres or square feet)

Fairfax County Supervisor District MT VERNON DIST. #1

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

Zoning of Subject Property R-2(Residential 2 DU/AC)

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

2232-V04-8

PROPERTY OWNER(s) OF RECORD

Owner SCHOOL BOARD OF FAIRFAX COUNTY

Street Address 8115 GATEHOUSE RD

City/Town FALLS CHURCH State VA Zip Code 22042

RECEIVED
FEB 27 2012

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 Paul Whitley

Signature of Applicant or Agent Paul Whitley

Date 2/27/2012

****

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

****

FOR STAFF USE ONLY

Date application received: 2/27/12

By: PPZ

Additional information requested to complete application:
photos / photo-simulations / plan copies – received 4/18/12

Date application accepted: __/__/__

By: _____

RECEIVED
FEB 27 2012

NETWORK BUILDING
& CONSULTING, LLC

February 23, 2012

Chris Caperton
Fairfax County Department of Planning and Zoning
12055 Government Center Parkway, Suite 730
Fairfax, Virginia 22035-5505

RE: PART II – STATEMENT OF JUSTIFICATION
Request for Determination under VA Code §15.2-2232 and
Fairfax Co. Zoning Ordinance §2-514
Applicant: Cricket Communications, Inc.
Cricket Site: IAD-1034 A

Dear Mr. Caperton:

Cricket Communications, Inc. ("Cricket"), an FCC licensed provider of wireless personal telecommunications services, respectfully requests that the Planning Commission of Fairfax County ("PC") make a determination pursuant to Virginia Code §5.2-2232, and to §2-514 of the Fairfax County Zoning Ordinance, that the proposal is consistent with previously-approved conditions set forth by PC, the Fairfax County Comprehensive Plan, and the Fairfax County Zoning Ordinance. Further, Cricket respectfully requests that the PC approves the subject proposal, as a "feature shown" of the Comprehensive Plan.

APPLICANT – TENANT:

Cricket Communications, Inc.
6671 Santa Barbara Road, Suite O
Elkridge, Maryland 22150

APPLICANTS' AGENT:

Paul Whitley, NB&C, LLC
7380 Coca Cola Drive, Suite 106
Hanover, Maryland 21076
410.712.7092 x1067
pwhitley@nbcllc.com

SITE LOCATION:

Tax Map: 0933 01 0003
Address: 2709 Popkins Lane
Zoning Description: R-2
Use: Telecommunication Facility
Use Group: U
Supervisor District: Mt Vernon

DESCRIPTION OF PROPOSAL:

Site is currently being used as a telecommunication facility. Cricket Communications is proposing to construct a 10' pole extension to the existing 106' light standard and mount three panel antennas at a RAD Center of 110'. In addition, Cricket is proposing a 10'x15' compound expansion to house a new equipment cabinet being placed on a steel platform. All work will be screened behind an 8' solid wood fence.

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

REQUIREMENT FOR PROPOSED USE:

The proposed installation will fill a gap in voice and data coverage in the vicinity of the proposed site.

ANTICIPATED IMPACTS ON ADJOINING PROPERTIES:

Cricket has eliminated the need for a new telecommunications support structure in the coverage search area, and employs an antenna and equipment configuration that minimizes the visual impact of the facility on the surrounding property owners. The proposed facility will have no impact on traffic, nor will it emit noise, fumes, or light. It will not adversely affect the environment, or the use and development of adjoining properties. Cricket's antennas will operate well below the RF emission guidelines adopted by the FCC, and they will not interfere with other communication facilities.

RELATIONSHIP OF THE PROPOSAL TO THE COMPREHENSIVE PLAN:

Cricket contends that the location, character and extent of this application should be found to be in substantial accord with the Comprehensive Plan. The instant application is also consistent with the objectives found under the Policy Plan of the Comprehensive Plan concerning "Mobile and Land-Based Telecommunication Services." Under the "General Guidelines" section, it states:

GENERAL GUIDELINES

Objective 42: **In order to provide for the mobile and land based telecommunication network for wireless telecommunication systems licensed by the Federal Communications Commission, and in order to achieve opportunities for the collocation of related facilities and the reduction of their visual impact, locate the network's necessary support facilities which include antennas, monopoles, lattice towers and equipment buildings in accordance with the following policies.**

Policy a. Avoid the construction of new structures by locating mobile and land- based telecommunication facilities on available existing structures such as building rooftops, telecommunication and broadcast poles and towers, electrical utility poles and towers, and water storage facilities when the telecommunication facilities can be placed inconspicuously to blend with such existing structures. (See Figures 8, 9, 10.)

Cricket's proposal to collocate its antennas and equipment on an existing approved telecom facility is consistent.

Policy e. Locate mobile and land-based telecommunication facilities operated by different service providers on single sites and/or structures whenever appropriate. Locate single-use structures on a property when a collocation structure for multiple service providers is not desirable or feasible due to site limitations or visual impact concerns.

Policy f. Ensure that the height of towers and monopoles has the least visual impact and is no greater than required to achieve service area requirements and potential collocation, when visually appropriate.

Policy g. Ensure that the use of public property by mobile and land based telecommunication facilities does not interfere with the existing or planned operational requirements of the public use.

N/A.

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

Proposal is consistent, as Cricket is utilizing an existing structure.

Policy i. Demonstrate that the selected site for a new monopole and tower provides the least visual impact on residential areas and the public way. Analyze the potential impacts from other vantage points in the area to illustrate that the selected site provides the best opportunity to minimize the visual impact of the proposed facility.

Policy j. Mitigate the visual impact of proposed telecommunication structures, and their antennas and ancillary equipment, using effective design options appropriate to the site such as:

- locating facilities near to or within areas of mature vegetation and trees which effectively screen or provide an appropriate setting for the proposed structure or which, when viewed in context, considering perspective views, relative topography and other factors, mitigate their visual presence and prominence;
- blending facilities with an existing pattern of tall structures;
- obscuring or blocking the views of facilities with other existing structures, vegetation, treecover, or topographic features to the maximum extent feasible;
- increasing the height of or replacing existing structures to reduce the need for another structure when such height increases or structure replacements are appropriate to the site and the surrounding area.

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

Policy l. Site proposed facilities to avoid areas of environmental sensitivity.

Policy m. Site proposed facilities to allow for future expansion and maintain levels of screening to accommodate expansion.

Policy n. Design and site proposed facilities to preserve areas necessary for future right-of-way dedication and ancillary easements for construction of road improvements.

Policy o. Locate and construct antennas used for purposes other than mobile and land-based telecommunication services in accordance with the same guidelines established in this "Mobile and Land-Based Telecommunications Services" section.

By increasing the height of the existing telecommunications support structure and collocating on it, Cricket will eliminate the need for a new structure in this area.

Objective 43: **Design telecommunication facilities to mitigate their visual presence and prominence, particularly when located in residential areas, by concealing their intended purpose in a way that is consistent with the character of the surrounding area. (See Figures 11 and 12.)**

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

Policy b. Design telecommunications facilities that are disguised and camouflaged to be of a bulk, mass and height typical of and similar to the feature selected;

Policy c. Use appropriately other new and existing structures and vegetation of comparable form and style to establish a grouping that complements a camouflaged telecommunication facility and supports its design, location and appearance.

Cricket will utilize and blend with an existing support structure and its current screening.

FEATURE SHOWN GUIDELINES

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

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

- publicly owned property (as defined under Sect. 2-514 of the Zoning Ordinance);
- commercial and industrial zoned property and in the commercial areas of PDH, PDC, PRM and PRC zoning districts;
- residential properties zoned for and developed with multiple family dwellings 35 feet or greater in height;
- institutional and quasi-public property (as defined under Section 2-514 of the Zoning Ordinance).

Cricket's proposal is consistent, as collocation is to occur on an existing structure that is located on Fairfax County School Board property.

Policy b. Utilize the following types of existing poles and towers for telecommunication facilities to avoid the construction of new monopoles and towers:

- utility poles and towers that are within an easement 90 feet and greater in width, including "Fort Worth" or similar mounts that are designed to integrate a pole or other supporting structure within a transmission tower (See Figure 13.);

N/A.

- utility distribution poles on property zoned for residential uses provided:

  - the pole is located either within 10 feet of the pavement of an existing Principal or Minor (Type A) Arterial roadway as defined in Appendix 1 (Functional Classification) of the Transportation element of the County's Policy Plan; or is located on land that is developed with a public or nonresidential use; or is located on land that is undeveloped and planned for public or nonresidential use;

  - the antennas on the pole are either concealed within a cap enclosure that resembles the pole, is no greater than 12 inches in diameter, and is no higher than 7 feet above the top of the pole (See Figure 14.); or the antennas are flush-mounted panels no higher than the top of the pole and are limited to four in number; or the antennas are omni-directional (whips) that either extend no more than 4 feet above the top of the pole and are limited to 3 in number or extend no more than 8.5 feet above the top of the pole and are limited to 1 in number.

  - there is no more than one related equipment cabinet which is either (1) located on and painted to match the pole and is 20 cubic feet or less in volume, or (2) is located on the ground immediately adjacent to the pole, is 70 cubic feet or less in volume and no more than 5 feet in height, and is screened according to Zoning Ordinance provisions.

N/A.

- utility distribution poles on property zoned for commercial or industrial uses or that is within the right-of-way of an interstate highway or the Dulles Airport Access/Toll Road provided:

  - the antennas on the pole are either concealed within a cap enclosure that resembles the pole, is no greater than 12 inches in diameter and is no higher than 7 feet above the top of the pole; or the antennas are flush-mounted panels and are placed no higher than the top of the pole and are limited to 12 in number; or the antennas are placed in a unified design, such as a candelabra with cylindrical shells covering each antenna (See Figure 15.), and are limited to 12 in number.

  - there is no more than one related equipment cabinet which is (1) located on and painted to match the pole and is 20 cubic feet or less in volume; or (2) is located on the ground no larger than 250 square

    feet in size, setback a minimum distance of 10 feet from any property line, and screened according to Zoning Ordinance provisions.

N/A.

- water tanks and water towers;

N/A.

- communication towers and monopoles;

N/A.

- light and camera standards in rights-of-way of an interstate highway or the Dulles Airport Access/Toll Road provided:

  - the antennas on the standard are either concealed within a cap enclosure that resembles the standard, is no greater than 12 inches in diameter, and is no higher than 7 feet above the top of the pole; or the antennas are flush-mounted panels and are placed no higher than the top of the standard and are limited to 12 in number; or the antennas are placed in a unified design, such as a candelabra with cylindrical shells covering each antenna, and are limited to 12 in number.

N/A.

- replacement poles or poles extended in height to accommodate telecommunication antennas provided the diameter and overall height of the new or extended pole are no more than 25% greater than that of the originally approved structure and provided such poles: (a) are located on a parcel of land developed with a public or nonresidential use or are on a vacant parcel that is planned for public or nonresidential use; and (b) are outfitted with antennas consistent with the sizes and numbers described above in this objective under the "utility distribution poles" bullets.

Cricket's proposal for a 10' extension of the existing 106' will not result in greater than a 25% increase of the originally approved structure height of 93.75'. A 25% increase would result in a height of 117'. Moreover, the site is on County School Board property. Thus, proposal is in compliance.

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

- the proposed installation has no material adverse impact on the visual quality or character of the general area in which it is to be placed including any surrounding residential properties;
- the proposed installation is located and designed to blend with the structure on which it is placed such as flush-mounting antennas or screening the antennas and equipment as appropriate to the site;
- the proposed installation, when in a grouping of other similar structures, is consistent with the pattern of those surrounding structures;
- related equipment cabinets or shelters located on the ground or on a rooftop should be appropriately screened or placed to obscure their visibility from surrounding properties;
- building rooftop antennas should be either flush mounted to surface walls, screened or placed to not be visible from the surrounding area.
- access to the proposed installation for purposes of maintenance has no material adverse impact on adjoining properties.

Cricket will comply by collocating on an existing telecommunications facility.

Policy d. Consider new monopoles or towers to be located in major utility transmission easements or rights-of-way, which are at least 100 feet in width and not used for underground gas transmission lines, to be a feature shown of the Comprehensive Plan it is demonstrated that the telecommunication facilities cannot be accommodated on existing utility structures and the following guidelines are met:

- the monopole or tower is placed at least 35 feet inside the transmission easement;
- the monopole or tower is placed a minimum of 200 feet from any existing residence;
- the monopole or tower is placed a minimum of 200 feet from the right-of-way of any existing public roadway or street.

N/A.

ADMINISTRATIVE REVIEW GUIDELINES

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

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

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

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

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

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

- the equipment cabinet or shelter shall be either:

  - located inside the building, building penthouse or inside the building parking structure on a level other than the roof;

  - located on the ground and enclosed within a structure no greater than 500 square feet in area and 12 feet in height that is attached to the building and constructed of the material that is the same as, or visually the same as, the color and pattern of the building;

  - located on the ground behind a solid fence, wall, berm, or planted hedge, or combination thereof, as required by the Zoning Ordinance, and shall be no greater than 500 square feet in area and 12 feet in height; or,

  - located on the roof of the building immediately adjacent to its penthouse or other structure on the roof, is no greater than 500 square feet in area and 12 feet in height, and shall be screened by a material of the same, or visually the same, color or pattern and of an equal or lesser height as the adjacent rooftop structure.

N/A.

Policy b. **Locate telecommunication facilities on electrical transmission towers in accordance with the following standards:**

- The electrical transmission tower shall be within an easement of 100 feet or greater.
- The top of the antenna shall be no higher than 15 feet above the top of the existing transmission tower.
- The color of the antenna and its mounting shall closely match the surface on which they are placed.
- The related equipment cabinet or shelter shall be located under, and match the color of the tower structure.

N/A.

Policy c. Locate telecommunication facilities on existing monopoles and towers in accordance with the following standards:

- The antenna shall be self-supporting and its top shall be located no more than 15 feet above the top of the existing structure.
- The color of the antenna and its mountings shall closely match the surface on which they are placed.
- The related equipment cabinet or shelter shall be located behind a solid fence, wall, berm, or planted hedge, or combination thereof, as required by the Zoning Ordinance, and shall be no greater than 500 square feet in area and 12 feet in height.
- The structure shall be located on property that is zoned I-1 through I-6 industrial zoning district.

N/A.

Policy d. Install telecommunication facilities within existing structures in accordance with the following standards:

- The antenna shall be located totally within an existing structure.
- The equipment cabinet or shelter shall be located totally within an existing structure.

N/A.

Policy e. Expand and/or modify telecommunications facilities at existing installations in accordance with the following standards:

- The surface area (as measured for panel antennas as height times width and for whip antennas as height times diameter) of a replacement antenna shall be no more than 50% greater than the antenna originally approved by the Planning Commission.
- The top of the replacement antenna shall be mounted at a level no higher than the level of the top of the antennas being replaced.
- The color of the replacement antenna and its mountings closely match the background on which placed.
- The square footage and the height of the replacement or expanded equipment cabinet or shelter shall be no more than 25% greater than the square footage and the height of the original equipment cabinet or shelter approved by the Planning Commission for the provider at the site.

N/A.

NETWORK BUILDING
& CONSULTING, LLC

RELATIONSHIP OF THE PROPOSAL TO THE ZONING ORDINANCE.

2-514 Limitations on Mobile and Land Based Telecommunication Facilities

Mobile and land based telecommunication facilities shall be permitted on any lot in the following zoning districts when such use is in accordance with the following limitations and when such use is not specifically precluded or regulated by any applicable proffered condition, development condition, special permit or special exception condition which limits the number, type and location of antenna and/or related equipment structure. Further provided, however, such use shall be in substantial conformance with any proffered condition, development GENERAL REGULATIONS 2-39 condition, special permit or special exception condition. In addition, such uses shall be subject to the requirements of Sect. 15.2-2232 of the Code of Virginia.

1. Structure or rooftop mounted antennas, with related unmanned equipment cabinets and/or structures:
A. Shall be permitted:
(1) When located on a multiple family dwelling which is thirty-five (35) feet or greater in height.
(2) In all C districts, I-1, I-2, I-3, I-4, I-5, and I-6 Districts, and in the commercial areas of PDH, PDC, PRC and PRM Districts.
(3) On an existing transmission tower or monopole in any zoning district.
(4) In any zoning district on buildings and structures owned or controlled by a public use or Fairfax County governmental unit.
(5) In any residential district on nonresidential buildings and structures which are a Group 3 special permit use, except home child care facilities and group housekeeping units, Group 4 special permit use or Category 1, 2, 3, or 4 special exception use, and which are thirty-five (35) feet or greater in height.
(6) In any zoning district when the antennas and related equipment are totally enclosed within an existing nonresidential building or structure.
(7) In any zoning district when the antennas are totally enclosed within a new or replacement flagpole, bell tower, clock tower, steeple or similar structure designed to disguise antennas which is no more than twenty (20) feet taller than the rooftop or original structure on which it is placed.

Cricket's proposal to collocate on an existing structure controlled by the Fairfax County School Board is consistent with 1A(4) above.

B. Antennas allowed under Par. 1A(2) above, which do not exceed the maximum building height limitations, and Par. 1A(6) above shall be permitted in accordance with the applicable zoning district regulations and shall not be subject to the provisions listed below. Antennas allowed under Par. 1A(2) above, which exceed the maximum building height limitations, and Paragraphs 1A(1), 1A(3) through 1A(5) and 1A(7) shall be permitted subject to the provisions listed below.

D. Except for directional or panel antennas completely enclosed within a structure, directional or panel antennas shall not exceed eight and one-half (8 ½) feet in height or two (2) feet in width and the antennas and their supporting mounts shall be of a material or color which closely matches and blends with the exterior of the building or structure.

The proposed 72x9" Amphenol panel antennas are consistent.

I. The related unmanned equipment cabinet or structure for each provider shall not exceed 14 feet in height or a total of 500 square feet of gross floor area when located on the roof of a building, or shall not exceed 12 feet in height or a total of 750 square feet of gross floor area when located on the ground. For multiple family dwellings which are less than sixty-five (65) feet in height, or nonresidential buildings and structures which are less than sixty-five (65) feet in height and which are a Group 3 special permit use, except home child care facilities and group housekeeping units, Group 4 special permit use or Category 1, 2, 3, or 4 special exception use, the related unmanned equipment cabinet or structure, if over seventy (70) cubic feet in volume or four (4) feet in height, shall be located on the ground and shall not be located on the roof of the structure.

Cricket's equipment will be installed on a 4x12' steel platform inside a 10x15' lease area. Total area will not exceed 150 square feet. Equipment height does not exceed 12'.

K. Equipment cabinets or structures located on the ground shall meet the minimum yard requirements of the zoning district in which located, except that equipment cabinets or structures associated with antennas mounted on existing monopoles and transmission towers located in a utility transmission easement or street right-of-way shall be located a minimum of twenty (20) feet from the utility transmission easement or street right-of-way line.

Cricket's equipment is approximately 197' away from the nearest property line.

L. Equipment cabinets or structures located on the ground, and notwithstanding the fence/wall height limitations of Sect. 10-104, shall be screened by a solid fence, wall or berm eight (8) feet in height, an evergreen hedge with an ultimate height of at least eight (8) feet and a planted height of at least forty-eight (48) inches, or an eight (8) foot tall fence, wall, berm and/or landscaping combination, except that equipment cabinets or structures associated with antennas mounted on existing monopoles or towers located outside of a utility transmission easement shall be subject to the transitional screening provisions of Article 13 for a light public utility use. If a new equipment cabinet or structure is added to an existing fenced or screened enclosure that contains telecommunications equipment structures, the screening requirement for the new equipment cabinet or structure may be satisfied with the existing screening, provided that such screening meets the requirements listed above.

Cricket will comply by extending the existing 8' wood fence and by planting additional landscaping if necessary.

N. If any additions, changes or modifications are to be made to monopoles or towers, the Director shall have the authority to require proof, through the submission of engineering and structural data, that the addition, change, or modification conforms to structural wind load and all other requirements of the Virginia Uniform Statewide Building Code.

A passing structural analysis by Entrex is enclosed.

O. All antennas and related equipment cabinets or structures shall be removed within 120 days after such antennas or related equipment cabinets or structures are no longer in use.

Cricket agrees to camply with this section.

2. Antennas mounted on existing or replacement utility distribution and transmission poles (poles) and light/camera standards (standards), with related unmanned equipment cabinets and/or structures, shall be permitted in accordance with the following and may exceed the maximum building height limitations, subject to the following paragraphs:

B. The following antenna types shall be permitted subject to Paragraphs 2C through 2I below:
(2) Directional or panel antennas, not exceeding six (6) feet in height or two (2) feet in width.

The proposed 72x9" panel antennas are compliant.

C. The antennas listed in Par. 2B above shall be permitted as follows:
(3) In commercial or industrial districts; in commercial areas of PDH, PDC, PRC and PRM Districts; in districts zoned for multiple family dwellings and residentially developed with buildings that are greater than thirty-five (35) feet in height; in any zoning district on lots containing: Group 3 special permit uses, except home child care facilities and group housekeeping units, Group 4, 5 or 6 special permit uses, Category 1, 2, 3 or 4 special exception uses, or Category 5 special exception uses of country clubs, golf clubs, commercial golf courses, golf driving ranges, miniature golf ancillary to golf driving ranges, baseball hitting and archery ranges, or kennels and veterinary hospitals ancillary to kennels; or in any zoning district on property owned or controlled by a public use or Fairfax County governmental unit, to include street right-of-ways, the following shall apply:
(a) When located on the ground, each provider shall be limited to a related equipment cabinet or structure which shall not exceed 12 feet in height or a total of 500 square feet in gross floor area. Notwithstanding the fence/wall height limitations of Sect. 10-104, ground-mounted related equipment cabinets or structures shall be screened from view of all residentially zoned and developed or residentially zoned and vacant property which abuts or is directly across the street from the structure or cabinet. Such screening shall consist of a solid fence, wall or berm eight (8) feet in height, an evergreen hedge with an ultimate height of eight (8) feet and a planted height of forty-eight (48) inches, or an eight (8) foot tall fence, wall, berm and/or landscaping combination. If a new ground-

mounted equipment cabinet or structure is added to an existing fenced or screened enclosure that contains telecommunications equipment structures, the screening requirement for the new equipment cabinet or structure may be satisfied with the existing screening, provided that such screening meets the requirements listed above.
When located on a pole or standard, a maximum of one (1) related equipment cabinet or structure shall be permitted that does not exceed five (5) feet in height or twenty (20) cubic feet in volume.
Equipment located within an existing principal or accessory structure shall not be subject to the provisions of this paragraph.
(b) Except for replacement light/camera standards identified in the following paragraph, the height of a replacement pole or standard, including antennas, shall not exceed 100 feet, provided however, if the height of the existing pole or standard exceeds 100 feet, the replacement pole or standard, including antennas, shall be no more than 15 feet higher. The diameter of a replacement pole or standard shall not exceed forty-two (42) inches.
The height of a new or replacement light/camera standard on property used for athletic fields and owned or controlled by a public use or Fairfax County governmental unit, including antennas, shall not exceed 125 feet. The diameter of the light/camera standard shall not exceed forty-two (42) inches.

Cricket proposes a 4x12' steel platform with equipment in a 10x15' lease area within an expanded 8' wooden fence compound. Equipment height will not exceed 12'. Cricket also proposes a 10' extension of the 106' standard to 116', shorter than the 125' limit for County athletic fields. The diameter of the extension will not exceed 42". The proposal is compliant.

ALTERNATIVE SITES CONSIDERED FOR THIS PROPOSAL

Since the installation is an addition to an existing collocation, and since it meets the objectives of the plan, Cricket does not see any need to evaluate alternative locations.

The Applicant submits to the PC that the proposal is consistent with the Comprehensive Plan as to character, location and extent, and requests that the PC determine that the facility is a "feature shown" of the Comprehensive Plan.

Should you have additional questions, or need further information, please do not hesitate to contact me at **410.712.7092 x 1067**, or at **pwhitley@nbcllc.com**.

Respectfully Submitted,

Paul Whitley
Agent for Cricket Communications, Inc.

RECEIVED
FEB 27 2012

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: Three panel Amphenol WBX 065A19Rx50
Dimensions: height 72" width 9" depth 7.4" diameter _____
Location / Placement: antenna will be mounted to the tower
Wattage: 300W
Material and Color: Smooth face Grey aluminum alloy
Material and Color of the Antenna Mounting: Grey steel
Height Above Ground: 110'

2. EQUIPMENT

Number and Type of Cabinets or Structures: 1 compact Metro cell
Cabinet / Structure Dimensions: height 66.8" width 52" depth 30"
Height of equipment platforms, if any: 12"
Material and Color: Grey
Location: existing compound
Method of Screening: 8' solid wood fencing

3. STRUCTURE ON WHICH ANTENNAS WILL BE MOUNTED

Maximum Height: 116'
Material: steel
Color: grey
If structure is within a utility right-of-way, state right-of-way width:

_____

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

Height of Structure to be Replaced: _____

Diameter or Overall Footprint of Structure to be Replaced: _____

4. ADDITIONAL INFORMATION

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

A. ELEVATIONS: Structural elevation drawings showing the placement of the antenna and the related equipment on the existing or proposed structure;

B. ANTENNA: Details showing the antenna and antenna mountings and the location of the antenna on the building or structure;

C. BUILDING ROOF PLAN AND CALCULATION: If located on a building rooftop, provide a roof plan at a scale of 1"= not more than 20' showing all existing penthouses, structures and mechanical equipment on the roof and the location of the proposed antenna and related telecommunications equipment. Include a calculation stating 1) the percentage of the roof which is covered by all existing structures, and 2) the percentage that will be covered by all existing structures plus the proposed antennas, equipment cabinets and shelters;

D. SCREENING: Details of screening for the equipment structure and/or antenna structure showing type of screening material, dimensions and placement; if landscaping is provided, list the height of the landscaping at time of planting and the ultimate height;

E. PROPERTY PLAT: A plat of the property prepared by a certified engineer showing the location of the proposed ground equipment structure and antenna, the relationship to other structures on site, with measured distances from all property boundaries or easement lines if the structure or antenna is placed in an easement;

F. PHOTOGRAPHS: For collocations on existing buildings or other structures such as power poles or towers, provide photographs of the building or structure showing the proposed placement of the antenna and related equipment;

G. PHOTOGRAPHIC SURVEY: For proposed structures, provide a photographic survey of the project site. Photographs should be taken from the subject property boundaries at four or more locations to show on- and off-site views of the subject property and to identify the proposed location of the facility on the site. The number of photos submitted will vary according to site size but should be adequate to view the entire site;

H. PHOTO SIMULATIONS: Provide photo simulations illustrating the proposed facility, antennas and equipment. Include enough photo simulations to accurately depict the proposed facility. For new structures, the photo simulations should depict the appearance of all proposed structures and equipment as viewed from the subject site and adjoining properties and show the relationship to existing site features such as building, trees and other physical features. For rooftop or structure installations, the photo simulations should depict the appearance of the antennas and equipment when installed. Photo simulations may be submitted to Fairfax County as part of the application. For new structures the simulations may be submitted following completion of an on-site height test.

I. On-site Height Test: For proposed poles or towers, the applicant should conduct an on-site height demonstration, such as a balloon or crane test, to simulate the extent of the proposed structure's visibility from surrounding properties. Such test should be coordinated with the staff coordinator.

END OF APPLICATION

MAP #: 0933 01 0003
SCHOOL BOARD OF FAIRFAX COUNTY

2709 POPKINS LA

Owner

Name	SCHODL BOARD OF FAIRFAX COUNTY,
Mailing Address	8115 GATEHOUSE RD FALLS CHURCH VA 22042
Book	
Page	

Parcel

Property Location	2709 POPKINS LA
Map #	0933 01 0003
Tax District	60100
District Name	MT VERNDN DIST. #1
Land Use Code	Public Schools
Land Area (acreage)	23.7753
Land Area (SQFT)	
Zoning Description	R-2(Residential 2 DU/AC)
Utilities	WATER CONNECTED SEWER CONNECTED GAS CONNECTED
County Historic Overlay District	NO For further information about Historic Overlay Districts, Click here
Street/Road	PAVED
Site Description	BUILDABLE-AVERAGE LDT

Legal Description

Legal Description	BRYANT EDUCATION CENTER 2608 616

Last Refresh Date

Data last refreshed: 21-JAN-12

General Information

Need Help?

For questions and requests for information about the Real Estate site, call 703-222-8234 or CLICK HERE

Disclaimer

Under Virginia State law these records are public information. Display of this information on the Internet is specifically authorized by Va. Code 58.1-3122.2 (1998). See the Virginia State Code to read the pertinent enabling statute.

If you believe any data provided is inaccurate or if you have any comments about this site, we would like to hear from you. Owner names will be withheld from the Internet record upon request. Comments or requests may be made via e-mail to the Real Estate Division at Real Estate Division or by phone at (703) 222-8234.

While Fairfax County has attempted to ensure that the data contained in this file is accurate and reflects the property's characteristics, Fairfax County makes no warranties, expressed or implied, concerning the accuracy, completeness, reliability, or suitability of this data. Fairfax County does not assume any liability associated with the use or misuse of this data.

Site Design Copyright 1999-2006 Akanda Group LLC. All rights reserved.

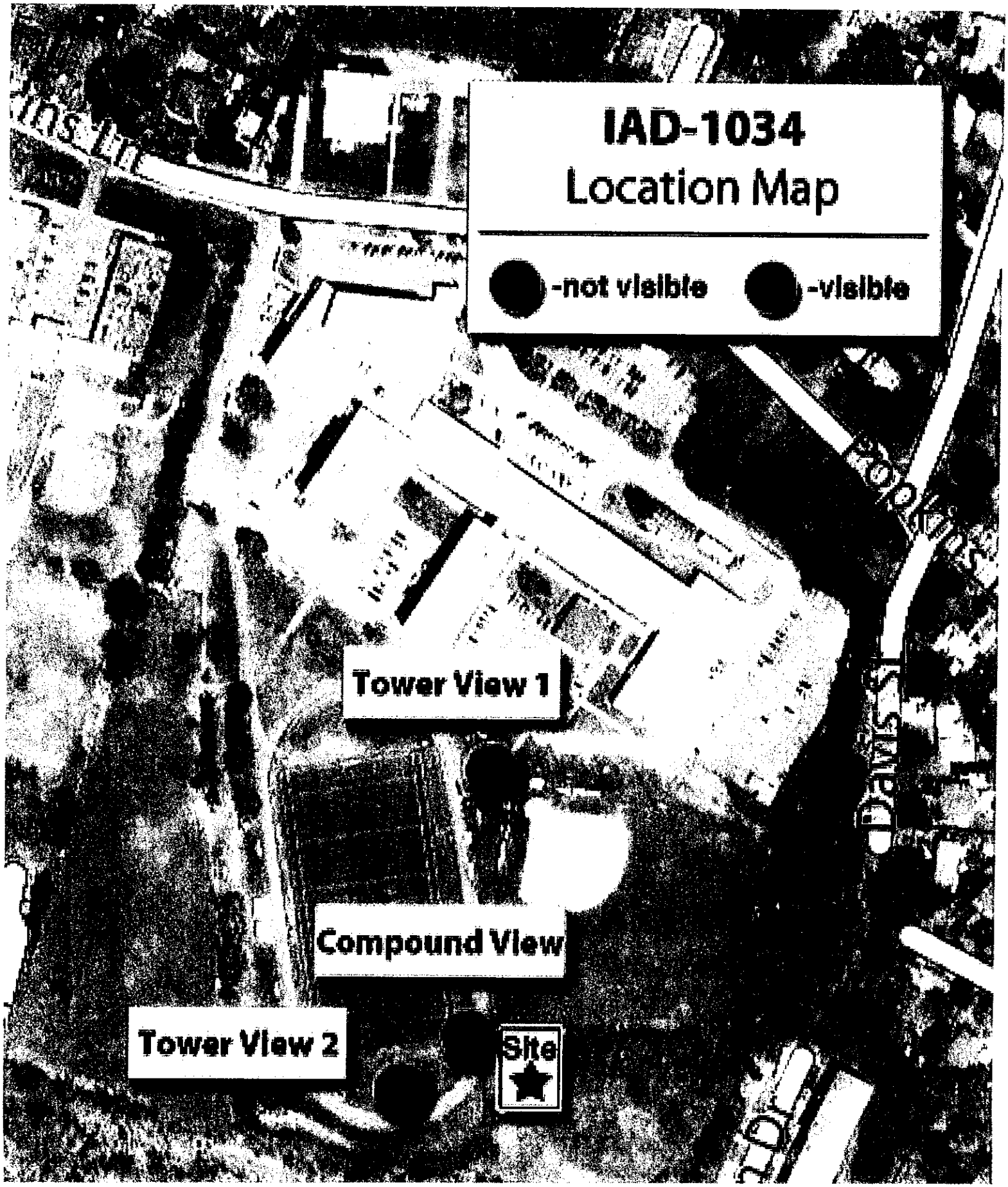
MAP #: 0933 01 0003
SCHOOL BOARD OF FAIRFAX COUNTY

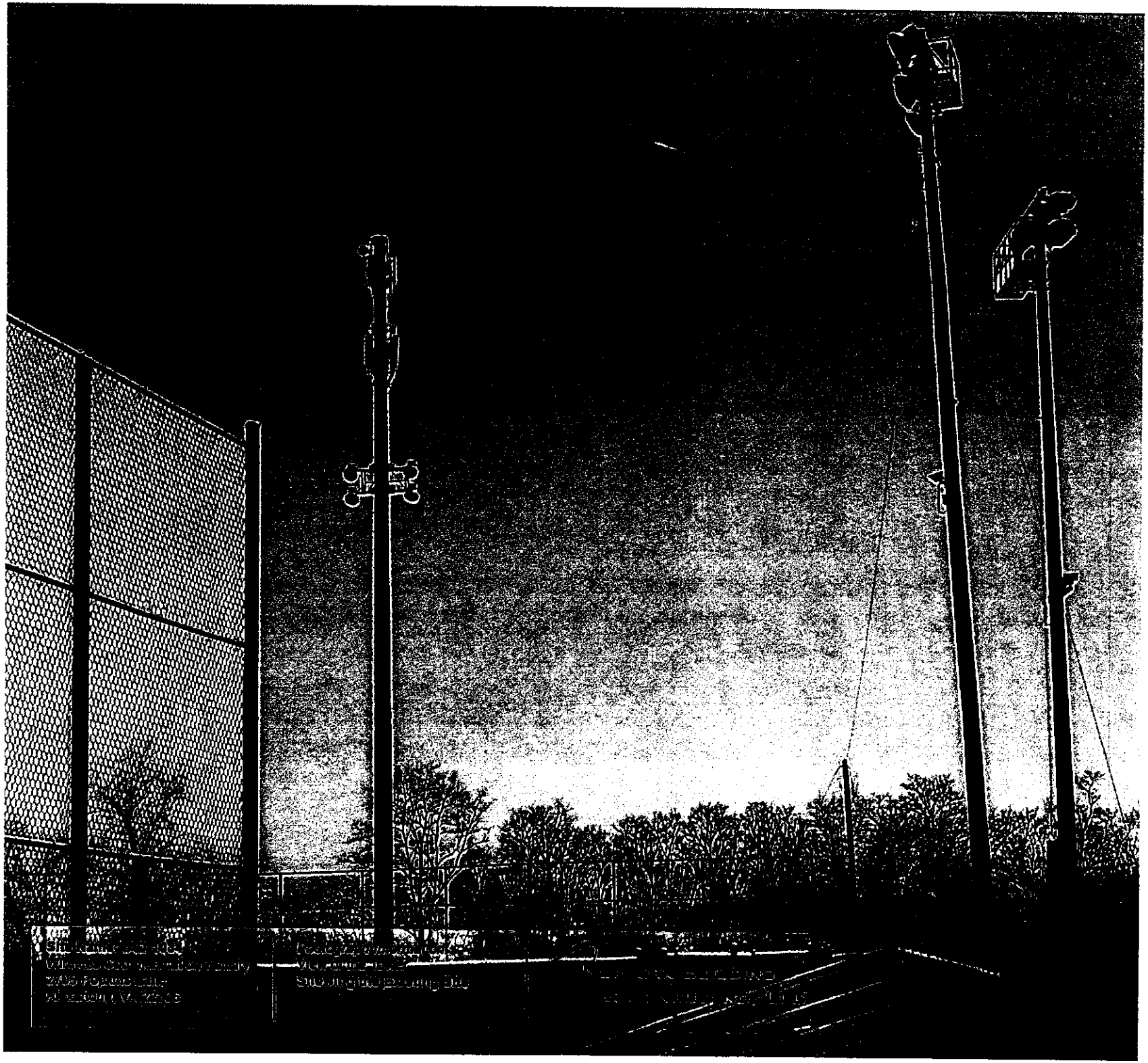
2709 POPKINS LA

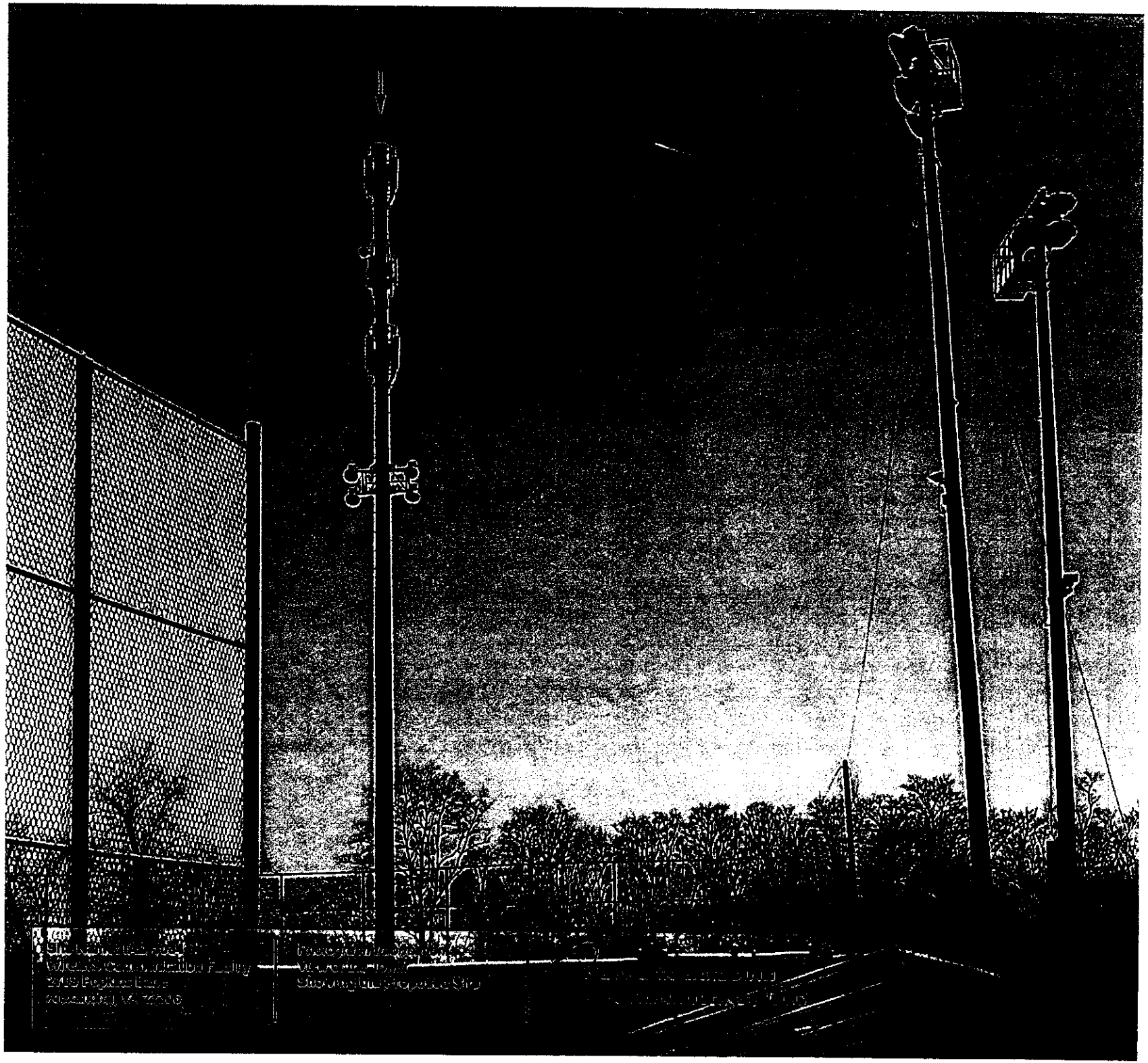
Aerials Layers

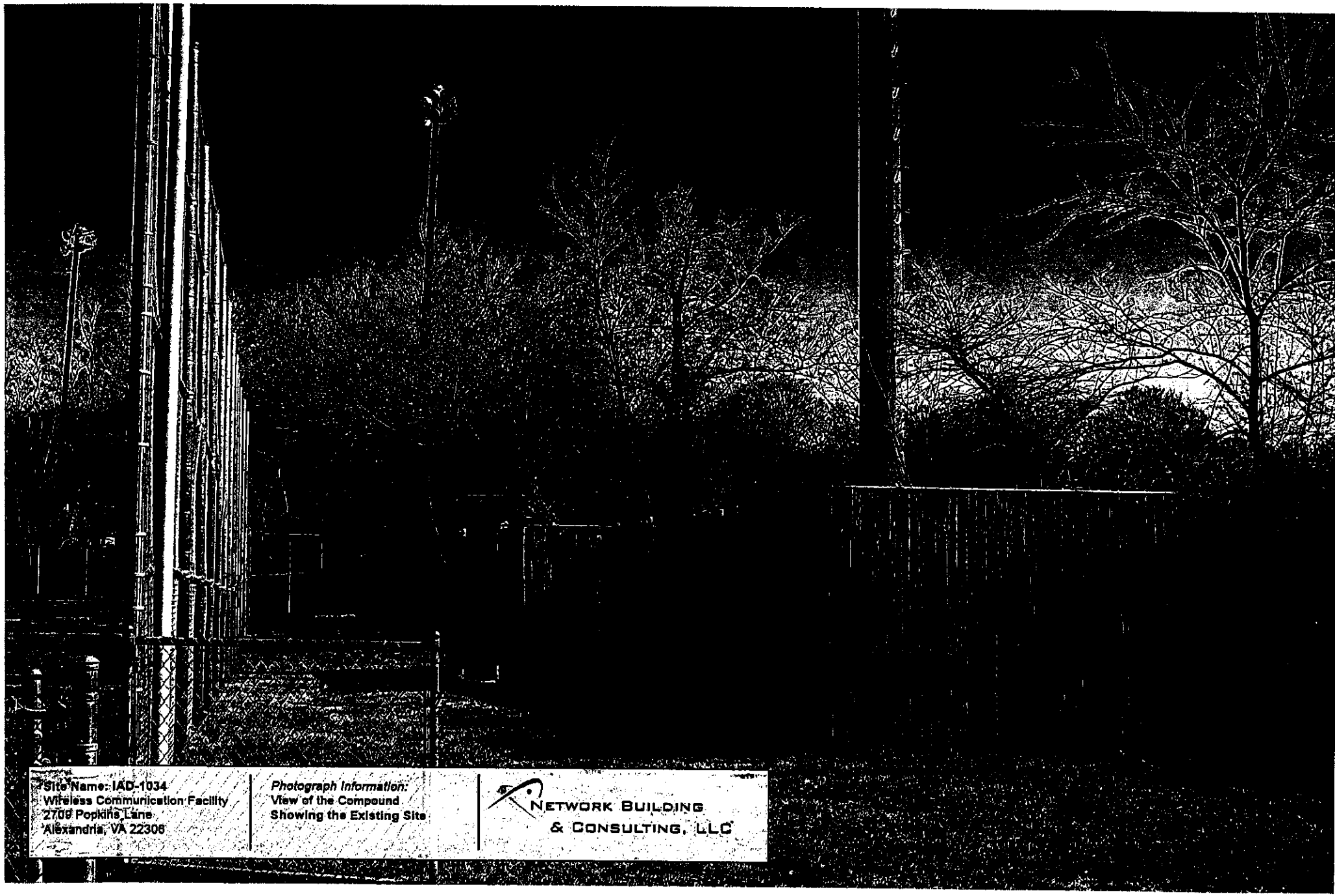
Aerial imagery © 2007 Commonwealth of Virginia

Site Design Copyright 1999-2006 Akanda Group LLC. All rights reserved.


IAD-1034
Location Map
-not visible
-visible
Tower View 1
Compound View
Tower View 2
Site
Davis St



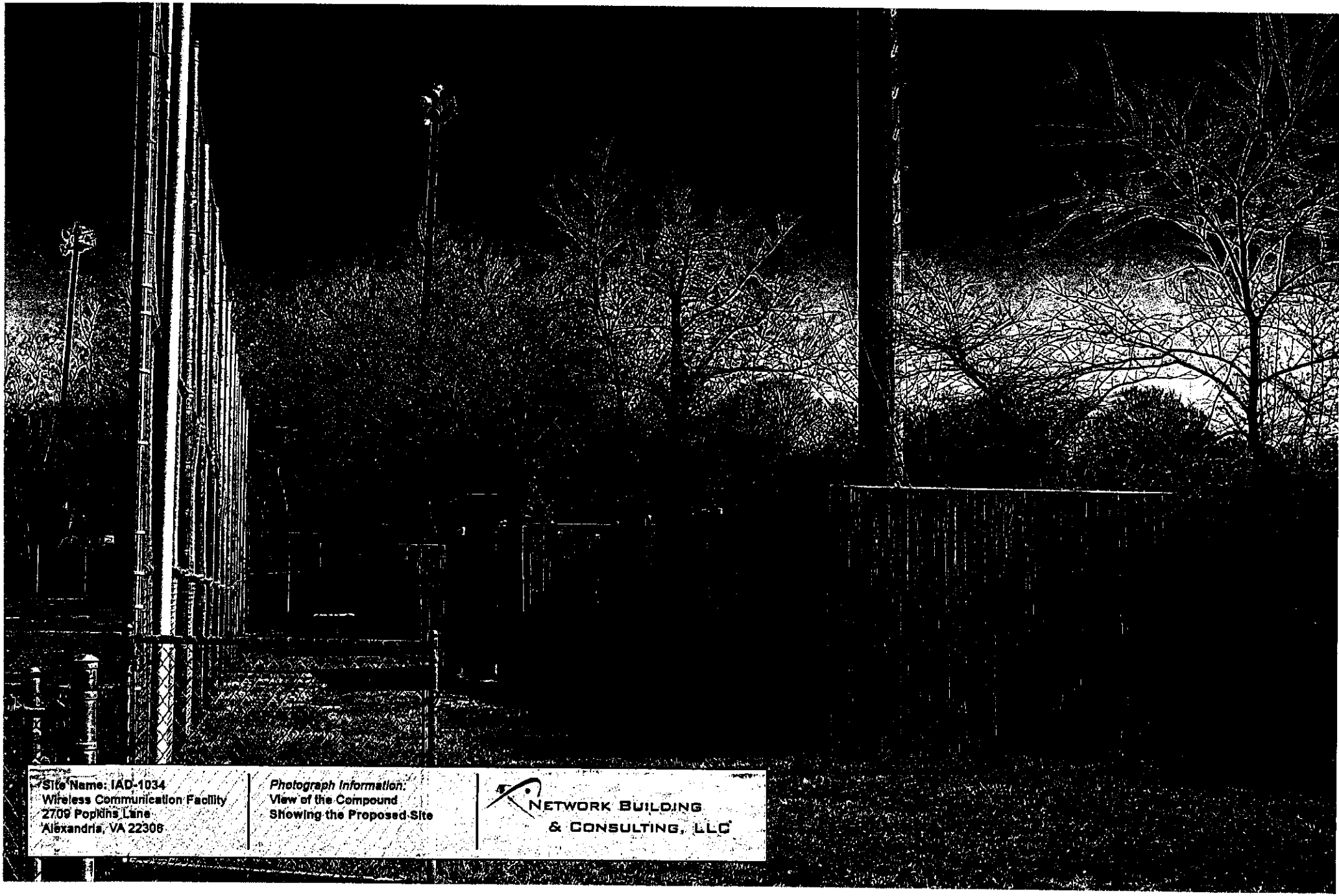

Site Location Map
Wireless Communications Facility
2709 Popular Lane
View Looking Toward Proposed Site



Site Name: IAD-1034
Wireless Communication Facility
2709 Popkins Lane
Alexandria, VA 22306

Photograph Information:
View of the Compound
Showing the Existing Site

NETWORK BUILDING
& CONSULTING, LLC



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Wireless Communication Facility
2709 Popkins Lane
Alexandria, VA 22306

Photograph Information:
View of the Compound
Showing the Proposed Site

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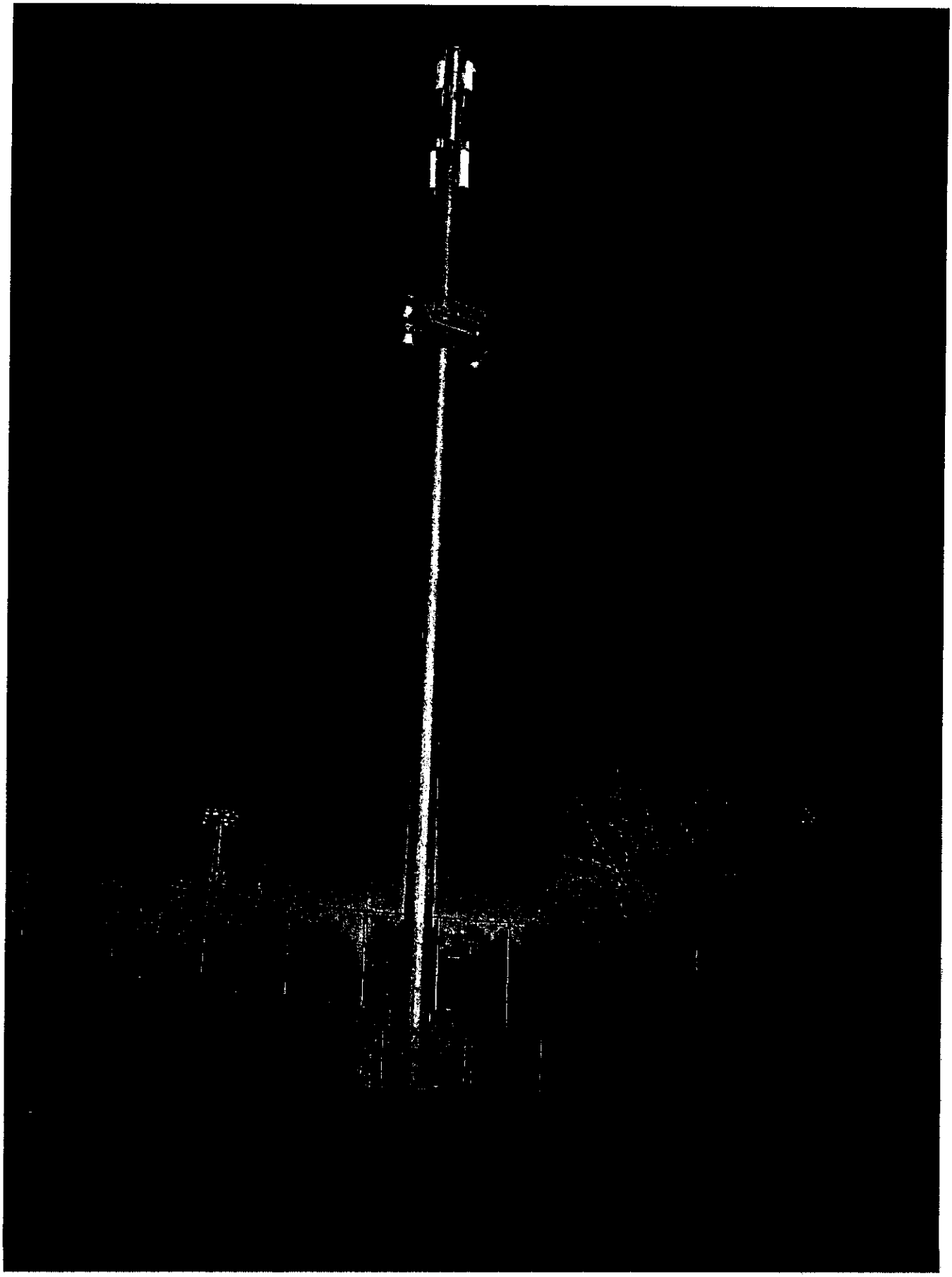
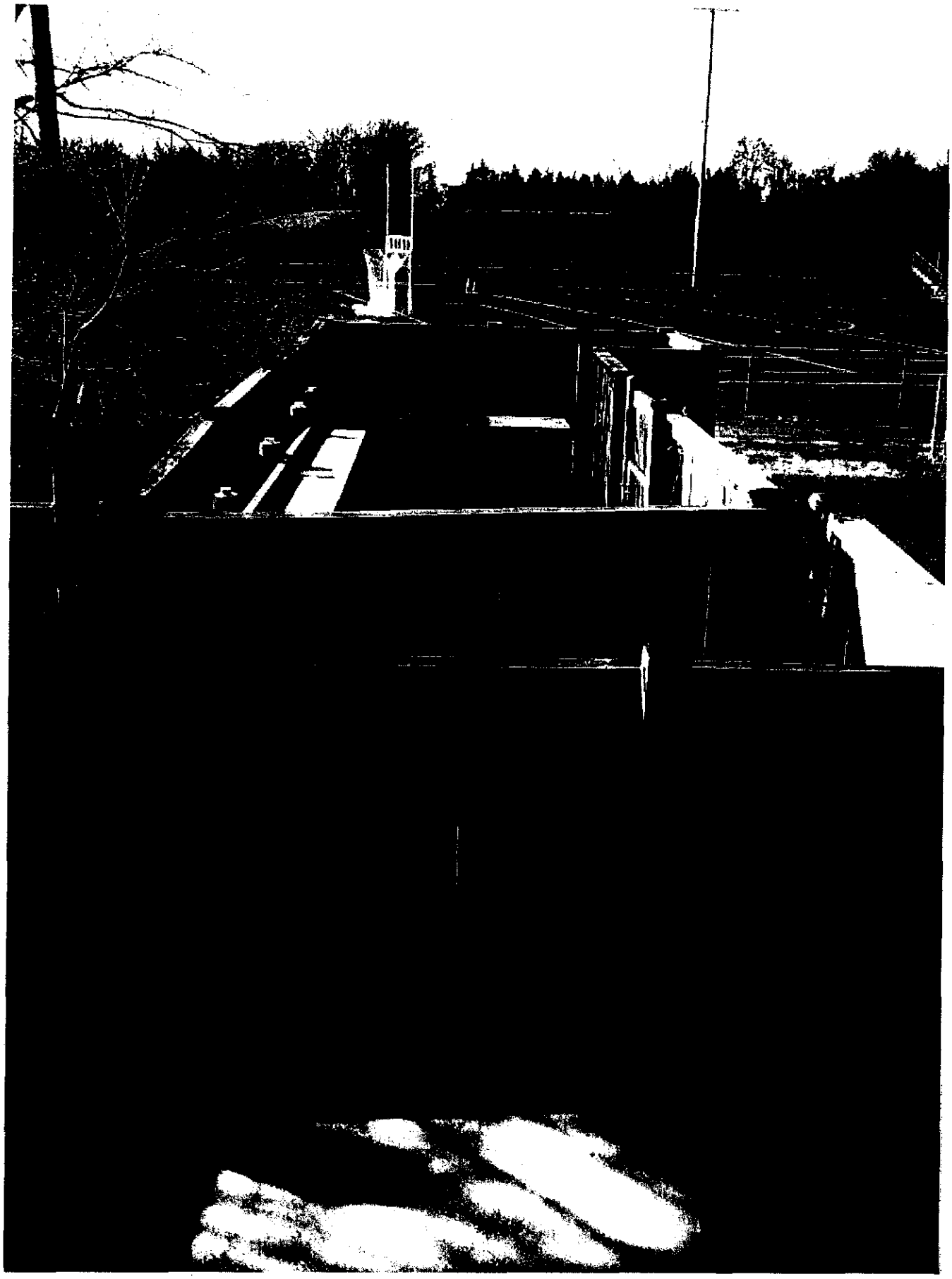
& CONSULTING, LLC

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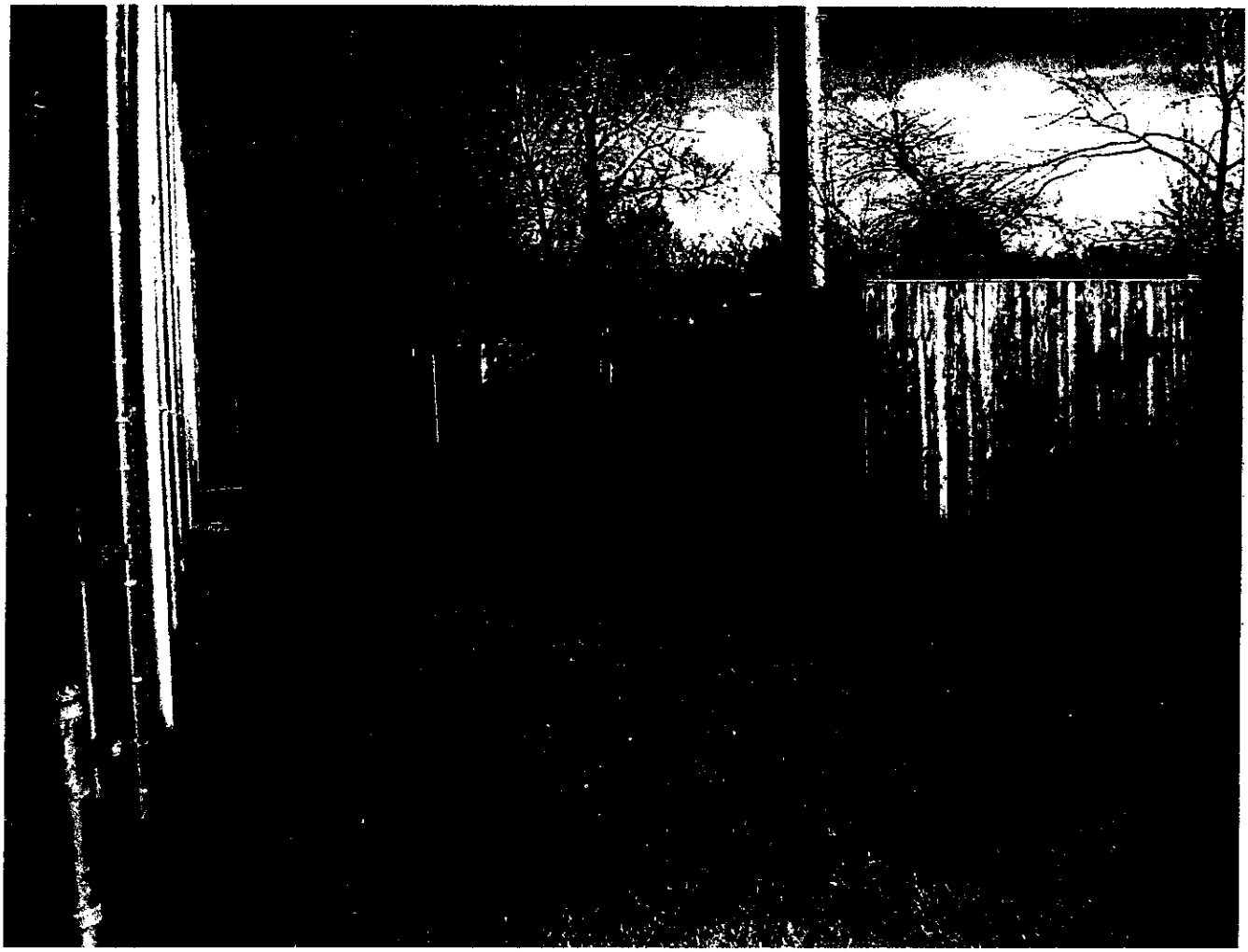


APPLICABLE BUILDING CODES AND STANDARDS

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) 2009, IRC (LATEST EDITION) WITH LOCAL AMENDMENTS
NATIONAL ELECTRIC CODE: NEC (LATEST EDITION) WITH LOCAL AMENDMENTS FIRE/LIFE SAFETY CODE, NFPC (LATEST EDITION) 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, LATEST EDITION.

TELECOMMUNICATIONS INDUSTRY ASSOCIATION TIA/EIA-222-F, STRUCTURAL STANDARDS FOR STEEL ANTENNA TOWER AND ANTENNA SUPPORTING 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 (WHEN LOCATION CATEGORY "C" AND "B" IS INVOLVED)
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.

cricket communications Inc.

MAGNETIC DECLINATION

SITE NAME:

BRYANT ALTERNATIVE HIGH SCHOOL

SITE NUMBER:

IAD-1034-A

NEW EQUIPMENT AND NEW ANTENNAS ON AN EXISTING LIGHTPOLE.
EXISTING LIGHTPOLE TO BE EXTENDED FROM 106'-0" TO 116'-0"

va811.com

-(3) ANTENNAS MOUNTED TO FUTURE EXTENSION ON EXISTING LIGHTPOLE
EXTEND THE EXISTING LIGHTPOLE TO
-(1) CABINET INSTALLED ON GRADE IN NEW FENCED IN AREA
-(1) 4'X 2' PLATFORM INSTALLED ON GRADE

SCOPE OF WORK

SHT. NO.	DESCRIPTION
T-1	TITLE SHEET
C-1	SITE PLAN
C-2	COMPOUND PLAN
C-3	LIGHTPOLE ELEVATION
C-4	ANTENNA AND COAX DETAILS
C-5	EQUIPMENT PLAN, PHOTO AND SITE DETAILS
C-6	CABINET PLANS AND ELEVATIONS
C-7	SITE DETAILS
E-1	ELECTRICAL PLAN, DIAGRAMS AND DETAILS
EG-1	GROUNDING PLAN, DIAGRAMS AND DETAILS
EG-2	GROUNDING DIAGRAM AND DETAILS
ES-1	ELECTRICAL SPECS AND PANEL SCHEDULE
SP-1	SPECIFICATIONS (SHEET 1)
SP-2	SPECIFICATION (SHEET 2)
SP-3	SPECIFICATION (SHEET 3)
SP-4	SPECIFICATIONS (SHEET 4)

SHEET INDEX

ARCHITECT INFORMATION:

GALLETTA ENGINEERING CORP.
1300 PENN AVE
PITTSBURGH, PA 15222
PHONE: (412) 261 3357
FAX: (412) 281 8489
CONTACT: BERNIE BOMBARA

APPLICANT:

CRICKET COMMUNICATIONS, INC.
6671 SANTA BARBARA ROAD
SUITE G
ELKRIDGE, MD 21075
CELL PHONE: (410) 667-4903
FAX: (410) 796-4923

SITE ACQUISITION MANAGER:

BRIAN [illegible]
PHONE: (301) 254-4262

LEAD CONSTRUCTION MANAGER:

[illegible]
PHONE: (410) 567-7807

ZONING MANAGER

[illegible]
PHONE: (410) 712-7092 X 200

CONSULTANT TEAM

ELECTRIC:

DOMINION VIRGINIA POWER 1-866-366-4357

TELEPHONE:

VERIZON 1 866 683 0116

CONTACTOR TO CALL MISS UTILITY OF VIRGINIA (800) 552-7001 (48) HRS PRIOR TO EXCAVATION FOR UNDERGROUND UTILITY LOCATIONS. LOCATION SURROUNDING EXCAVATED AREA MUST BE PHYSICALLY LOCATED FOR NON-PUBLIC UTILITIES.

UTILITIES

SITE NAME:

BRYANT ALTERNATIVE HIGH SCHOOL

SITE NUMBER:

IAD-1034-A

SITE ADDRESS:

2709 POPKINS LANE
ALEXANDRIA, VA 22306

JURISDICTION:

FAIRFAX COUNTY

PROPERTY INFORMATION:

ACCOUNT ID: 60100
MAP # 093-3 D 0003
LATITUDE: 38° 48' 47.638" N
LONGITUDE: [illegible] W
GROUND ELEVATION: 152 FT.
MAGNETIC DECLINATION: 10° 44' W
LAND AREA: 23.7933 AC

ZONING DISTRICT: R-2

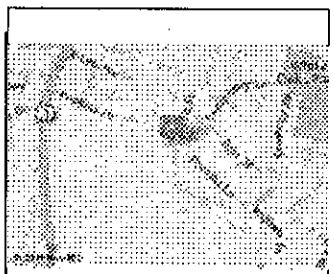
USE: RESIDENTIAL 2 DU/AC

OWNER: BRYANT ALTERNATIVE HIGH SCHOOL
CHRISTIAN WINKLER
2709 POPKINS LANE
ALEXANDRIA, VA 22306

PROJECT SUMMARY

HANDICAP ACCESS REQUIREMENTS ARE NOT REQUIRED
THE FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION
THE FACILITY HAS NO PLUMBING OR REFRIGERANTS
THE FACILITY SHALL MEET OR EXCEED ALL FAA AND FCC REGULATORY REQUIREMENTS.
THE FACILITY MEETS THE REQUIREMENTS OF THE 2009 INTERNATIONAL BUILDING CODE.

COMPLIANCE NOTES



VICINITY MAP (NOT TO SCALE)

FROM IAD AIRPORT: PROCEED WEST ON SAARINEN CIR, TAKE RIGHT TO PARKING/DAILY GARAGE 1/DAILY GARAGE 2 (500 FT), TURN RIGHT ON CARGO DR (900 FT), TURN LEFT ON(I-495)/WASHINGTON/(VA-28)/(US-50)/(VA-7)/STERLING/CENTREVILLE (0.4MI), RAMP FORKS, KEEP LEFT TO(I-495)/WASHINGTON (700FT),EXIT RIGHT FOLLOWING THE SIGN EXIT 18-19(H95)/BALTIMORE (VA-123)/RICHMOND (11.3MI), EXIT RIGHT FOLLOWING THE SIGN BALTIMORE /RICHMOND/I-495N/I-495S (EXIT 18) (1.1MI), RAMP FORKS, KEEP RIGHT TO RICHMOND/I-495S(900FT),EXIT RIGHT FOLLOWING THE SIGN VA-241S(EXIT 178A)/TELEGRAPH RD (18.2MI), RAMP FORKS, KEEP RIGHT TO VA-241S/VA-911S/N KINGS HWY/TELEGRAPH RD(700FT),RAMP FORKS, KEEP LEFT TO VA-241S/N KINGS HWY(900FT),TURN RIGHT ON RICHMOND HWY/US-1S(1.3MI), TURN LEFT ON POPKINGS LN (1.2MI) FOLLOW TO SITE (0.4MI).

DRIVING DIRECTIONS

THE FOLLOWING PARTIES HEREBY APPROVE AND ACCEPT THESE DOCUMENTS AND AUTHORIZE THE CONTRACTOR TO PROCEED WITH THE CONSTRUCTION DESCRIBED HEREIN. ALL DOCUMENTS ARE SUBJECT TO REVIEW BY THE LOCAL BUILDING DEPARTMENT AND MAY IMPOSE CHANGES OR MODIFICATIONS.

CRICKET R.F.: _____ DATE: _____
CRICKET ZONING: _____ DATE: _____
CRICKET SA: _____ DATE: _____
CRICKET P&T: _____ DATE: _____
CRICKET CONST.: _____ DATE: _____
CRICKET A&F MGR: _____ DATE: _____
PROPERTY OWNER: _____ DATE: _____

APPROVALS

cricket communications Inc.
6671 Santa Barbara Road, Suite G
Elkridge, MD 21075
(410) 567-7800 (O)
(410) 796-4923 (F)

GALLETTA
ENGINEERING CORPORATION
Consulting Engineers
1300 Penn Avenue
Pittsburgh, Pa. 15222
Phone: (412) 261-3357
Fax: (412) 281-8489

A&F PROJ. NO.:	41407
DRAWN BY:	KPS
CHECKED BY:	BPB

SUBMITTALS

C	03/28/12	ISSUED FOR 933 REVIEW
B	03/12/12	ISSUED FOR 933 REVIEW
A	02/29/12	ISSUED FOR 930 REVIEW

THE INFORMATION CONTAINED IN THIS SET OF DOCUMENTS IS PROPRIETARY BY NATURE. ANY USE OR DISCLOSURE OTHER THAN THAT INCIDENTAL TO CLIENT WORK IS STRICTLY PROHIBITED.

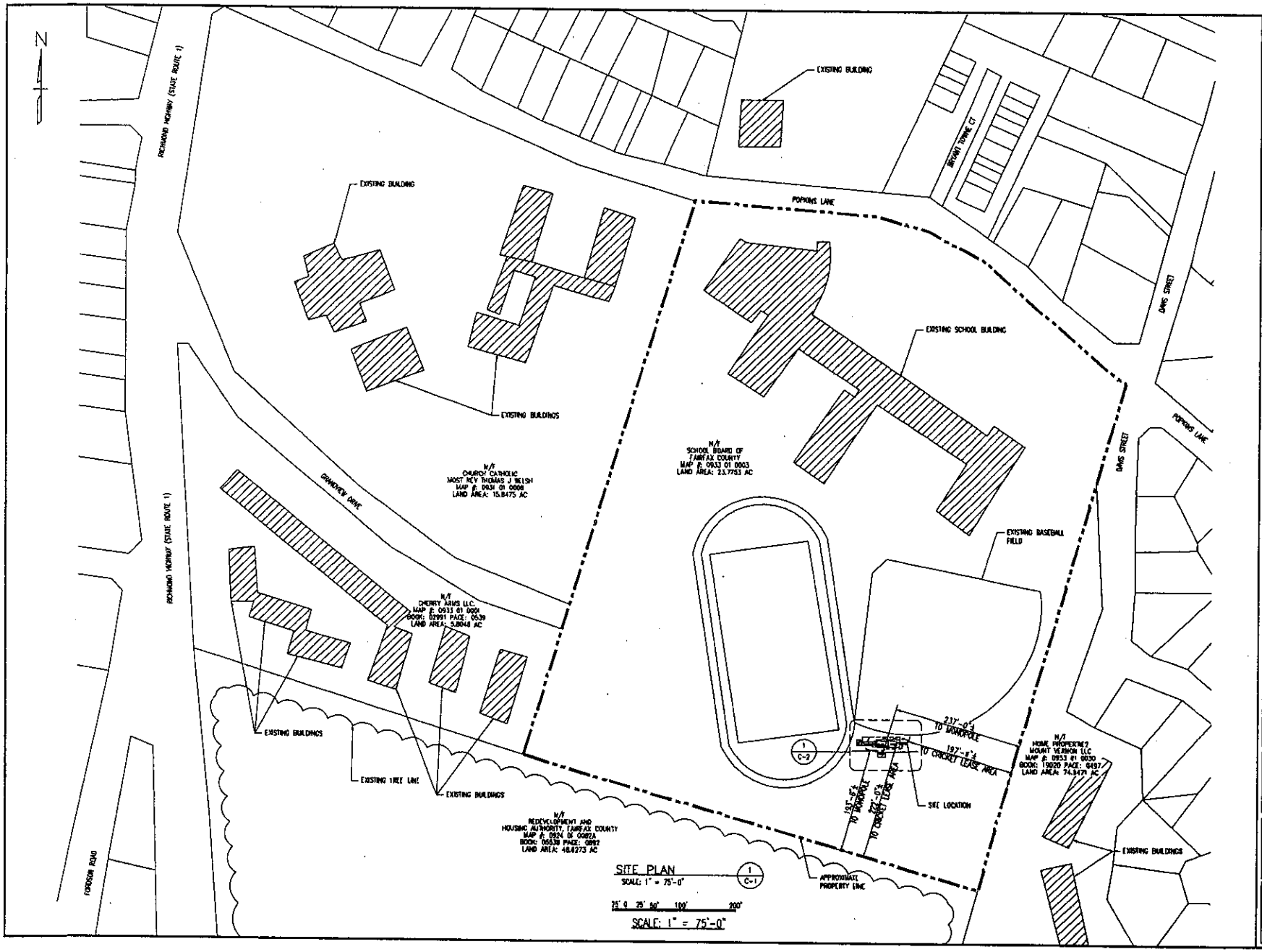
COMMONWEALTH OF VIRGINIA
BERNARD P. BOMBARA
No. 012024118
PROFESSIONAL ENGINEER

IAD-1034-A
BRYANT ALTERNATIVE HIGH SCHOOL
2709 POPKINS LANE
ALEXANDRIA, VA 22306

DESIGN TYPE:
CO-LOCATION

SHEET TITLE:
TITLE SHEET

SHEET NUMBER:
T-1



cricket
communications Inc.
6671 Santa Barbara Road, Suite O
Elkridge, MD 21075
(410) 567-7800 (O)
(410) 796-1923 (F)

GALLETTA
ENGINEERING CORPORATION
Consulting Engineers
1300 Penn Avenue
Pittsburgh, Pa. 15222
Phone: (412) 281-3357
Fax: (412) 281-8489

A&E PROJ. NO.:	41407
DRAWN BY:	RPS
CHECKED BY:	BPB

SUBMITTALS

C	03/29/12	ISSUED FOR 933 REVIEW
B	03/12/12	ISSUED FOR 933 REVIEW
A	02/29/12	ISSUED FOR 930 REVIEW

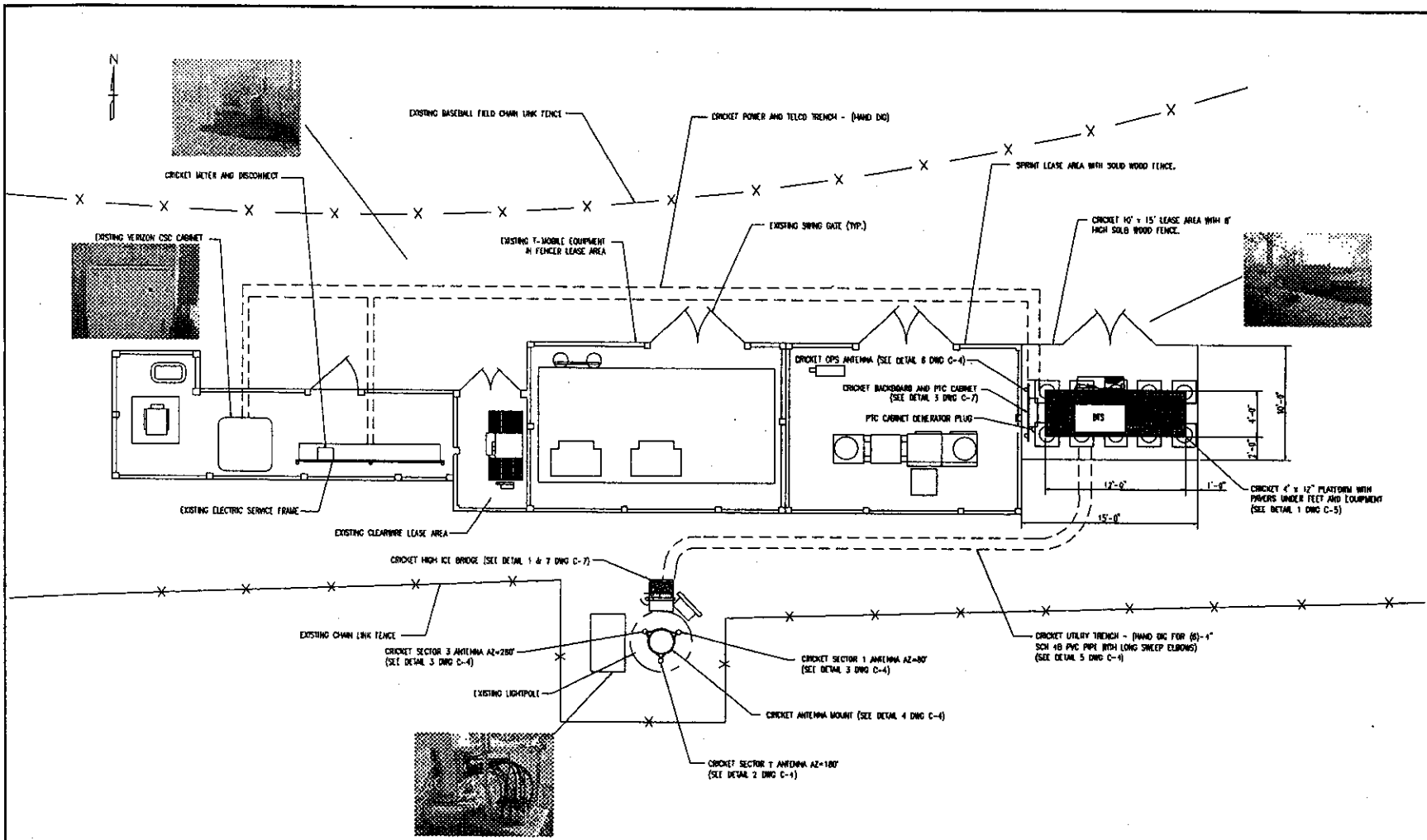
THE INFORMATION CONTAINED IN THIS SET OF DOCUMENTS IS PROPRIETARY BY NATURE. ANY USE OR DISCLOSURE OTHER THAN THAT WHICH IS AUTHORIZED TO CLIENT NAME IS STRICTLY PROHIBITED.

IAD-1034-A
BRYANT ALTERNATIVE HIGH SCHOOL
2709 POPKINS LANE
ALEXANDRIA, VA 22306

DESIGN TYPE:
CO-LOCATION

SHEET TITLE:
SITE PLAN

SHEET NUMBER:
C-1



COMPOUND PLAN (1 / C-2)
SCALE: 1/4" = 1'-0"

cricket communications Inc.
6671 Santa Barbara Road, Suite O
Elkridge, MD 21075
(410) 567-7800 (O)
(410) 796-4923 (F)

GALLETTA ENGINEERING CORPORATION
Consulting Engineers
1300 Penn Avenue
Pittsburgh, Pa. 15222
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Fax: (412) 281-8489

A&E PROJ. NO.:	41407
DRAWN BY:	RPS
CHECKED BY:	BPB

SUBMITTALS

C	03/26/12	ISSUED FOR 90% REVIEW
B	03/12/12	ISSUED FOR 90% REVIEW
A	02/29/12	ISSUED FOR 90% REVIEW

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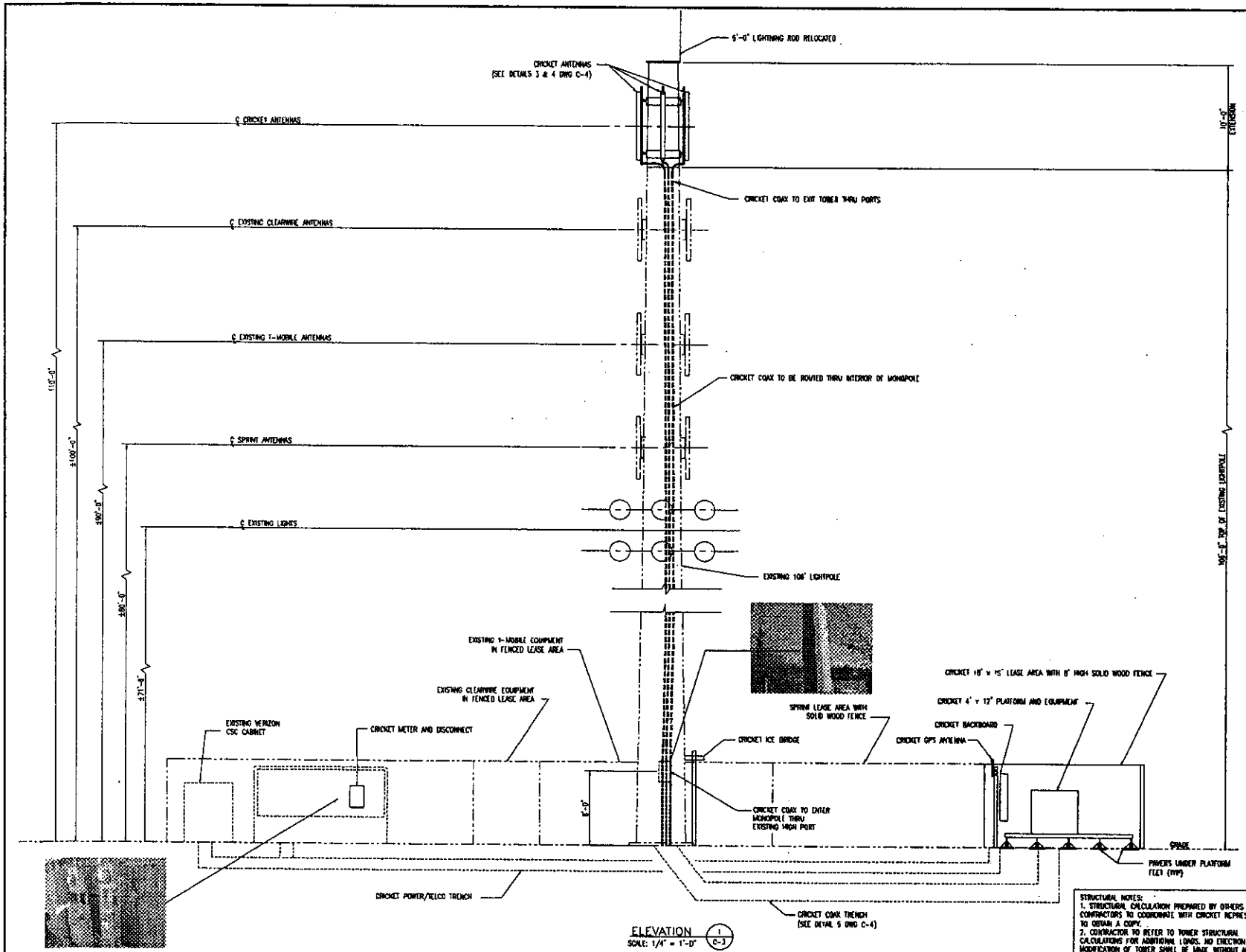
IAD-1034-A
BRYANT ALTERNATIVE HIGH SCHOOL
2709 POPKINS LANE
ALEXANDRIA, VA 22306

DESIGN TYPE:
CO-LOCATION

SHEET TITLE:
COMPOUND PLAN

SHEET NUMBER:
C-2



ELEVATION (1 / C-3)
SCALE: 1/4" = 1'-0"

STRUCTURAL NOTES:
1. STRUCTURAL CALCULATION PREPARED BY OTHERS CONTRACTORS TO COORDINATE WITH CRICKET REPRESENTATIVE TO OBTAIN A COPY.
2. CONTRACTOR TO REFER TO TOWER STRUCTURAL CALCULATIONS FOR ADDITIONAL LOADS. NO ERECTION OR MODIFICATION OF TOWER SHALL BE MADE WITHOUT APPROVAL OF STRUCTURAL ENGINEER.

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(410) 796-4923 (F)

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A&E PROJ. NO.: 41407

DRAWN BY: RPS

CHECKED BY: BPB

SUBMITTALS

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A	02/29/12	ISSUED FOR 930 REVIEW

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IAD-1034-A
BRYANT ALTERNATIVE HIGH SCHOOL
2709 POPLARS LANE
ALEXANDRIA, VA 22306

DESIGN TYPE:
CO-LOCATION

SHEET TITLE:
LIGHTPOLE ELEVATION

SHEET NUMBER:
C-3

ANTENNA INFORMATION

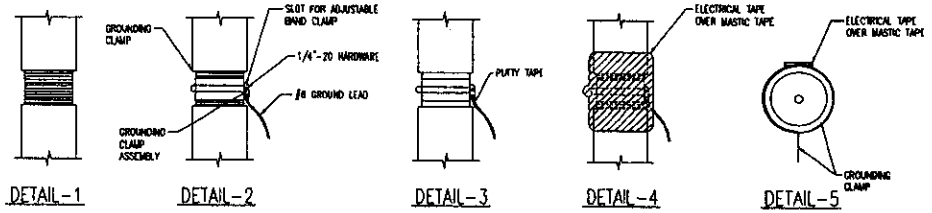
	SECTOR 1	SECTOR 2	SECTOR 3
MFR	ANTEL	ANTEL	ANTEL
MODEL	WBX065A19R250	WBX065A19R250	WBX065A19R250
QUANTITY	1	1	1
WEIGHT (LBS)	33	33	33
DIM (L x W x D)	72" x 9.0" x 7.4"	72" x 9.0" x 7.4"	72" x 9.0" x 7.4"
RAD CENTER (FT)	110'-0"	110'-0"	110'-0"
AZIMUTH (DEG)	80°	180°	280°
ELECTRICAL DOWNTILT	2	2	2
MECHANICAL DOWNTILT	0°	0°	0°

CABLE INFORMATION

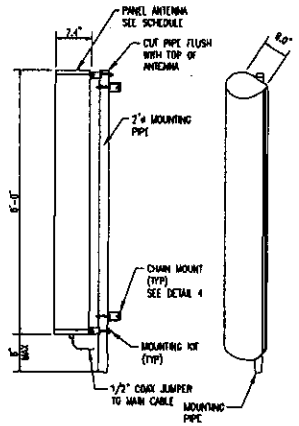
COAX CABLE MFR	RFS	RFS	RFS
COAX CABLE MODEL	LCF158 50JL	LCF158 50JL	LCF158 50JL
COAX CABLE DIA (IN)	1 5/8"ø	1 5/8"ø	1 5/8"ø
QUANTITY	2	2	2
COAX LENGTH (FT)	130	130	130
COAX CODE (TX)	YELLOW/BROWN	RED/BROWN	GREEN/BROWN
COLOR CODE (RX)	YELLOW/WHITE	RED/WHITE	GREEN/WHITE

ANTENNA AND CABLE INFORMATION

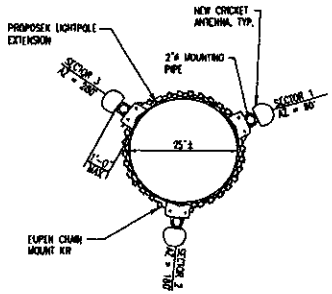
1. EACH LINE OF COAX SHALL BE LABELED PURSUANT TO THE COLOR CODING SCHEDULE 12" BEFORE ANY CONNECTOR. COLOR CODING METHOD IS BY MEANS OF 2" WIDE COLORED ELECTRICAL TAPE WRAPPED AROUND COAX THREE TIMES TO PRODUCE A STRIPE (I.E. TWO RED WILL HAVE TWO STRIPES) (3M SCOTCH SUPER 88 ELECTRICAL TAPE-ALL WEATHER, HEAVY DUTY, ABRASION RESISTANCE TAPE-38" WIDE)
2. ALL MAIN COAX LINES WILL BE GROUNDED AT SPECIFIED LOCATIONS AND ACCORDING TO MANUFACTURER'S SPECIFICATION.
3. ALL INSTANCES WHERE THE COAX HAS BEEN CUT, MODIFIED, SPLICED OR STRIPPED SHALL BE PROPERLY SEALED ACCORDING TO MANUFACTURER'S SPECIFICATION.
4. ALL COAX IS TO BE PROPERLY INSPECTED UPON RECEIPT AND SHALL BE HANDLED ACCORDING TO THE MANUFACTURER'S SPECIFICATIONS. IT SHALL NOT BE BENT BEYOND SPECIFICATION.
5. COAX SHALL BE INSTALLED TO SHED WATER IMMEDIATELY BEFORE ENTRY INTO INTERIOR AREAS OF THE EQUIPMENT.
6. ALL ANTENNAS (AND SUPPORTING STRUCTURES AS PRACTICAL) SHALL BE ACCURATELY ORIENTED IN THE SPECIFIED DIRECTION.
7. SWEEP TEST SHALL BE PERFORMED BY GENERAL CONTRACTOR AND SUBMITTED TO CRICKET REPRESENTATIVE. TEST SHALL BE PERFORMED PER CRICKET STANDARDS.



TYPICAL COAX WEATHERPROOFING DETAILS (2 / C-4)

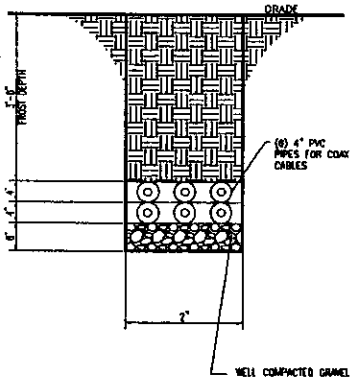


ANTENNA DETAILS (3 / C-4)

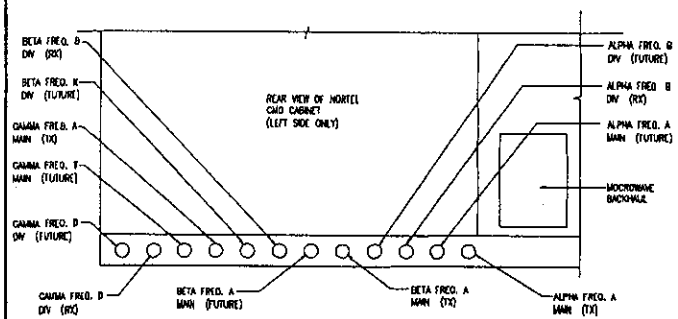


ANTENNA MOUNTING LAYOUT (4 / C-4)

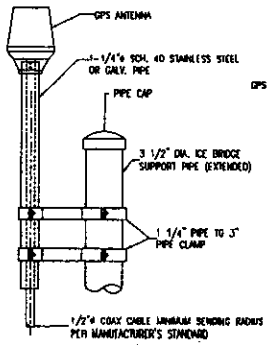
TRUE NORTH



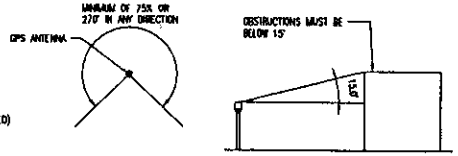
TRENCH DETAIL (5 / C-4)



COAX CONFIGURATION DETAIL AT CABINET (1 / C-4)



GPS ANTENNA DETAIL (8 / C-4)



GPS MINIMUM SKY VIEW REQUIREMENTS

NOTES:

1. THE ELEVATION AND LOCATION OF THE GPS ANTENNA SHALL BE IN ACCORDANCE WITH THE FINAL RF REPORT.
2. THE GPS ANTENNA MOUNT IS DESIGNED TO FASTEN TO A STANDARD 1 1/4" DIAMETER SCHEDULE 40GALVANIZED OR STAINLESS STEEL PIPE. THE PIPE MUST NOT BE THREADED AT THE ANTENNA MOUNT END. THE PIPE SHALL BE CUT TO THE REQUIRED LENGTH (MINIMUM OF 18 INCHES) USING A HAND OR ROTARY PIPE CUTTER TO ASSURE A SMOOTH AND PERPENDICULAR CUT. A HACK SAW SHALL NOT BE USED. THE CUT PIPE END SHALL BE DEBURRED AND SMOOTH IN ORDER TO SEAL AGAINST THE NEOPRENE GASKET ATTACHED TO THE ANTENNA MOUNT.
3. IT IS CRITICAL THAT THE GPS ANTENNA IS MOUNTED SUCH THAT IT IS WITHIN 2 DEGREES OF VERTICAL AND THE BASE OF THE ANTENNA IS WITHIN 2 DEGREES OF LEVEL.
4. DO NOT SWEEP TEST GPS ANTENNA CABLE.

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Fax: (412) 261-8469

A&E PROJ. NO.: 41407

DRAWN BY: RPS

CHECKED BY: BPB

SUBMITTALS

C	03/26/12	ISSUED FOR 933 REVIEW
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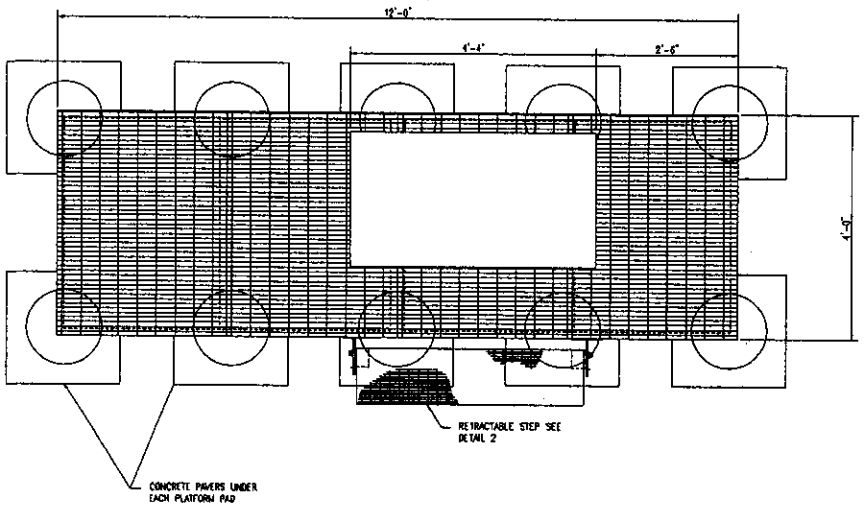
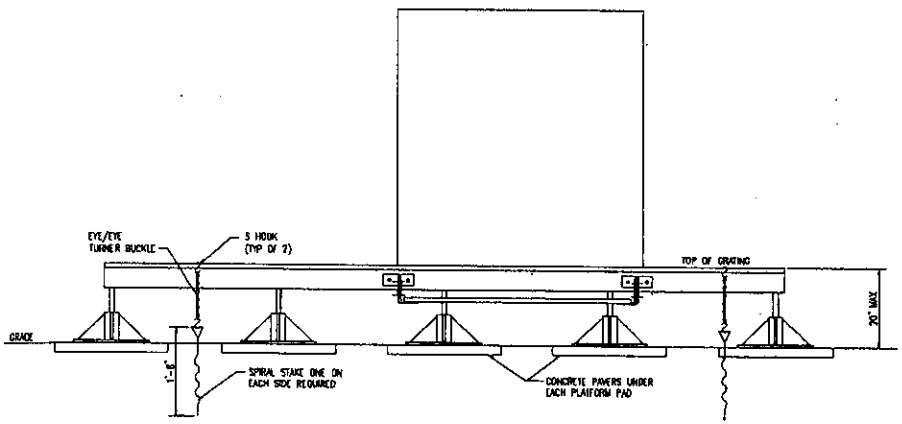
IAD-1034-A
BRYANT ALTERNATIVE HIGH SCHOOL
2709 POPKINS LANE
ALEXANDRIA, VA 22306

DESIGN TYPE:
CO-LOCATION

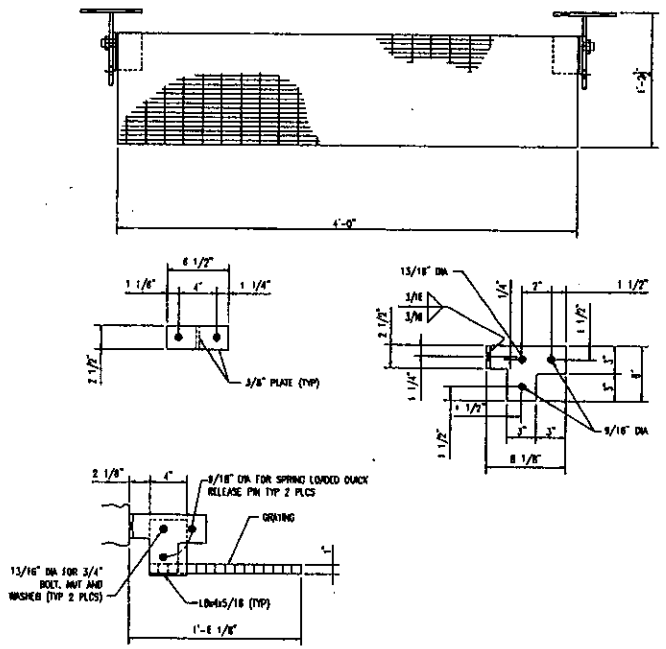
SHEET TITLE:
ANTENNA AND COAX DETAILS

SHEET NUMBER:
C-4





MODULAR EQUIPMENT PLATFORM DETAIL (1 / C-5)



RETRACTABLE STEP DETAILS (7 / C-5)

NOTE:

CONTRACTOR TO CAP ALL STRUCTURAL MEMBERS USING 1/4" WELDED PLATE

STRUCTURAL STEEL NOTES:

1. ALL STRUCTURAL STEEL WORK SHALL BE IN ACCORDANCE WITH THE "SPECIFICATIONS FOR STRUCTURAL STEEL BUILDINGS" OF THE AISC (LATEST EDITION).
2. ALL STRUCTURAL STEEL TO BE ASTM A36.
3. ALL STRUCTURAL STEEL SHALL BE GALVANIZED ASTM A153. ALL BOLTS, FASTENERS AND HARDWARE TO BE GALVANIZED.
4. ALL BOLTS TO ASTM A325 3/4" DIA UNLESS OTHERWISE NOTED.
5. ALL WELDING SHALL BE IN ACCORDANCE WITH THE STRUCTURAL WELDING CODE AWS D1.1 LATEST EDITION OF THE AMERICAN WELDING SOCIETY. ELECTRODES SHALL BE E7001 FOR MANUAL ARC WELDING.

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A&E PROJ. NO.:	41407
DRAWN BY:	RFS
CHECKED BY:	BPB

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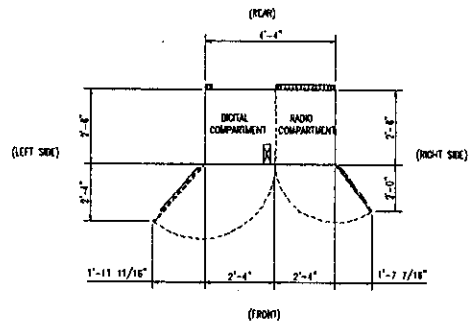
IAD-1034-A
BRYANT ALTERNATIVE HIGH SCHOOL
2709 POPKINS LANE
ALEXANDRIA, VA 22306

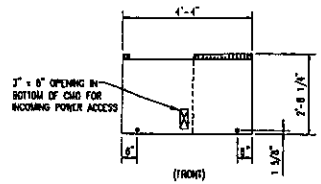
DESIGN TYPE:
CO-LOCATION

SHEET TITLE:
PLATFORM DETAILS

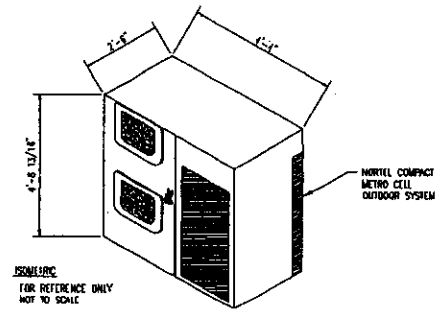
SHEET NUMBER:
C-5



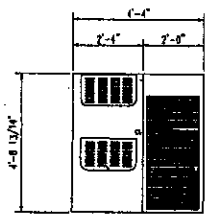
TOP PLAN



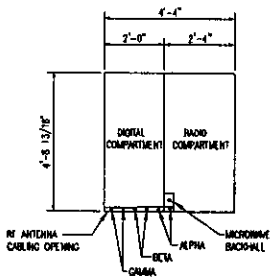
BASE PLAN



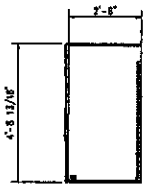
ISOMETRIC VIEW



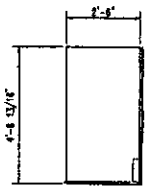
FRONT ELEVATION



REAR ELEVATION



RIGHT SIDE ELEVATION



LEFT SIDE ELEVATION

OUTDOOR COMPACT METRO CELL OUTDOOR SYSTEM (1/C-6)

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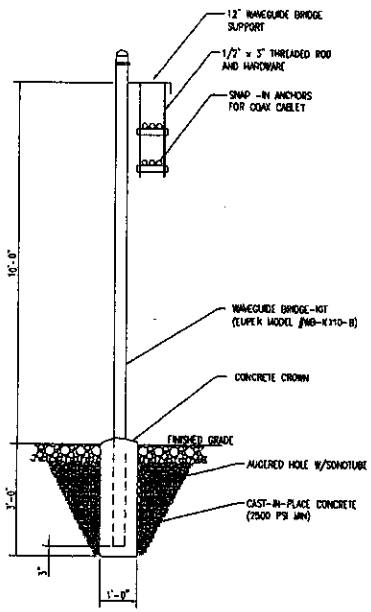
IAD-1034-A
BRYANT ALTERNATIVE HIGH SCHOOL
2709 POPKINS LANE
ALEXANDRIA, VA 22308

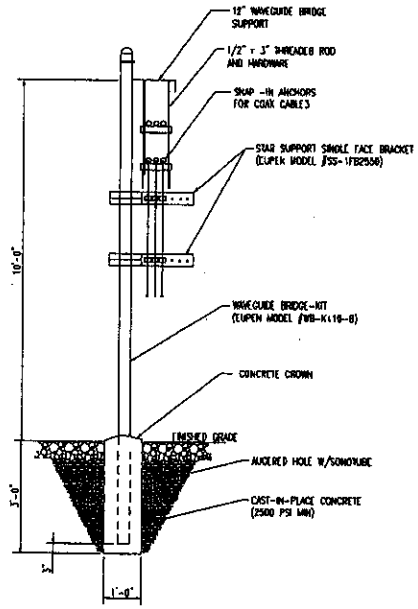
DESIGN TYPE:
CO-LOCATION

SHEET TITLE:
CABINET PLANS AND ELEVATIONS

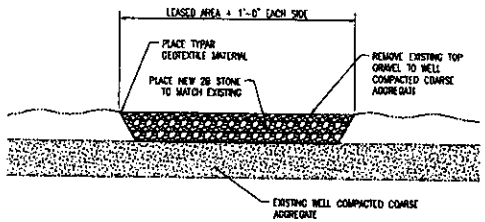
SHEET NUMBER:
C-6



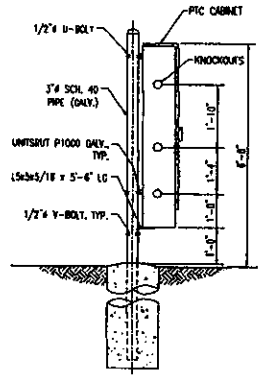
ICE BRIDGE SUPPORT DETAIL (1 / C-7)



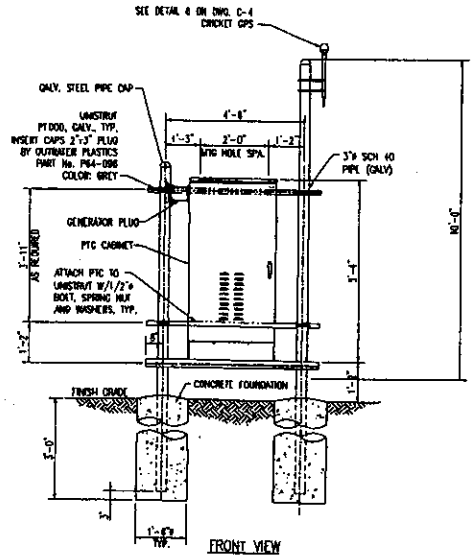
ICE BRIDGE SUPPORT DETAIL (2 / C-7)



LEASE AREA AND EXPANSION PREPARATION (4 / C-7)



SIDE VIEW



FRONT VIEW

POWER TELCO CABINET MOUNTING DETAIL (3 / C-7)

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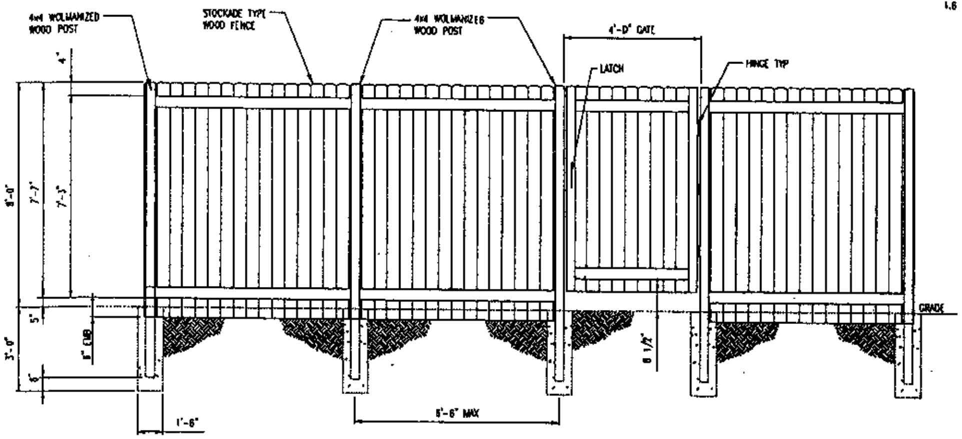
BRYANT ALTERNATIVE HIGH SCHOOL
2709 POPKINS LANE
ALEXANDRIA, VA 22306

DESIGN TYPE:
CO-LOCATION

SHEET TITLE:
SITE DETAILS

SHEET NUMBER:
C-7



WOOD FENCE ELEVATION

SPECIFICATIONS FOR FENCING AND GATES

PART 1 GENERAL

1.01 WORK INCLUDED

A. FURNISH AND INSTALL WOOD STOCKADE FENCE.

1.07 REFERENCES

A. AMERICAN WOOD PRESERVER'S ASSOCIATION STANDARD C-2, LUMBER, TIMBER, AND TIES, PRESERVATION TREATMENT BY PRESSURE PROCESS.

1.05 QUALITY ASSURANCE

A. ALL WOOD PRODUCTS SHALL BE PRESSURE TREATED.

B. ALL MATERIALS USED ARE TO BE NEW.

1.05 SEQUENCING

A. THE DECK AREA MAY HAVE FINISH GRAVEL AND PLASTIC IN PLACE BEFORE FENCING TAKES PLACE. IN THIS CASE SITE FINISH GRAVEL SHOULD BE RAKED BACK AWAY FROM EACH POST AREA BEFORE HOLES ARE DUG. THE SPOIL FROM THE HOLE SHALL NOT BE MIXED WITH SITE GRAVEL. SPOIL MATERIAL IS TO BE REMOVED FROM SITE AREA AND DISPOSED OF.

B. THE SITE FENCE CORNER POSTS SHALL BE SET SQUARE IN RELATION TO EACH OTHER. PLUS OR MINUS 1 INCH PRIOR TO PLACING CONCRETE.

PART 2 PRODUCTS

2.01 MATERIAL

A. ALL WOOD MATERIAL USED IN THE CONSTRUCTION OF WOOD FENCING SHALL BE TREATED. ALL POST SHALL BE 4x4 WITH 2- 2x6 RAILS. LENGTH OF POST TO BE DETERMINED IN FIELD. SEE WOOD FENCE ELEVATION.

B. CONCRETE SHALL BE A MINIMUM OF 2,500 PSI.

2.02 EQUIPMENT

A. ALL FIELD CUTS SHALL BE BY BLADE.

PART 3 EXECUTION

3.01 INSPECTION

A. TO CONFIRM PROPEA DEPTH AND DIAMETER OF POST HOLE EXCAVATIONS. ALL POST HOLES SHALL BE INSPECTED BY THE CRICKET COMMUNICATIONS REPRESENTATIVE PRIOR TO THE PLACEMENT OF CONCRETE.

3.02 PREPARATION

A. LOCATE ALL KNOWN UNDERGROUND UTILITIES PRIOR TO CONSTRUCTION.

B. FINAL SITE GRADING SHALL BE ACCOMPLISHED PRIOR TO CONSTRUCTION.

C. VERIFY THE SURVEYOR PLACED SITE CORNER STAKES AND ENSURE THAT THE CORNERS ARE SQUARE, PLUS OR MINUS 1 INCH.

3.03 INSTALLATION

A. POST FOUNDATIONS SHALL HAVE A MINIMUM OF 9 INCHES OF CONCRETE UNDER THE POST. THE TOP OF CONCRETE SHALL BE AT THE TOP OF THE BASE COURSE (IMMEDIATELY UNDER THE SURFACE COURSE).

B. ALL FENCE POSTS SHALL BE VERTICALLY PLUMB, PLUS OR MINUS 1/4 INCH.

3.04 PROTECTION

A. UPON COMPLETION OF ERECTION, INSPECT FENCE MATERIAL:

1. APPLY WATER SEALANT IN A SINGLE APPLICATION, EMPLOYING MULTIPLE BRUSH PASSES.

3.05 AS-BUILT DOCUMENTATION

A. RESPONSIBILITIES APPLICABLE TO THIS SPECIFICATION REGARDING ANNOTATIONS TO THE CONTRACTOR MAINTAINED RECORD SET DRAWINGS SHALL INCLUSE, BUT NOT BE LIMITED TO, THE FOLLOWING AREA OF CONCERN:

1. MODIFICATIONS AFFECTING DEPICTED DIMENSIONS, ELEVATIONS, OR DIRECTIONS.

CONSTRUCTION NOTES

1.0 EXCAVATION

1.1 EXCAVATION SHALL CONSIST OF REMOVING ALL MATERIALS OF EVERY NATURE AND DESCRIPTION NECESSARY TO ACHIEVE THE GRADES, LINES, AND ELEVATIONS (AND BEYOND IF NECESSARY) REQUIRED TO COMPLETE THE WORK. ALL FROZEN OR LOOSE MATERIAL, COMBUSTIBLE, EXPANSIVE, DECOMPOSABLE, OR OTHERWISE UNSUITABLE MATERIAL SHALL BE REMOVED FROM EXCAVATION BEFORE PLACING BACKFILL, GRAVEL, CONCRETE OR OTHER DESIGNATED WORK THEREON.

1.2 ALL SUITABLE EXCAVATED MATERIAL MAY BE REUSED FOR "COMMON FILL." "COMMON FILL" MAY BE USER FOR ACCESS ROADWAY EMBANKMENT CONSTRUCTION, GENERAL SITE GRADING, AND BACKFILL OF UTILITY TRENCHES

1.3 SURPLUS EXCAVATED MATERIAL, OTHERWISE SUITABLE FOR USE AT BACKFILL, AND MATERIAL NOT SUITABLE FOR USE RS BACKFILL SHALL BE DISPOSED OF OFF-SITE TO A LOCATION OF THE CONTRACTOR'S DISCRETION. ALL TRANSPORTATION AND DISPOSAL OF MATERIALS TAKEN OFF-SITE SHALL BE IN ACCORDANCE WITH ALL LOCAL REGULATIONS.

1.4 EXCAVATIONS FOR UTILITIES, CULVERTS, DRAINS, OR TRENCHES SHALL BE TO THE LINES AND GRADES NECESSARY TO FACILITATE THE WORK. BOTTOMS OF EXCAVATIONS SHALL BE ACCURATELY GRADED TO PROVIDE UNIFORM BEARING. REQUIRED SLOPE, AND SHALL BE TAMPED TO PROVIDE A FIRM BED. IF SOIL AT GRADE IS FOUND TO BE SOFT, WET OR UNSUITABLE FOR LOAD BEARING PURPOSES, THE ENGINEER WILL DETERMINE WHETHER ADDITIONAL EXCAVATIONS, OR SPECIAL FOUNDATIONS WILL BE REQUIRED. ROCK, BOULDERS, OR HARD MATERIAL, WHERE ENCOUNTERED, SHALL BE EXCAVATED TO A DEPTH AT LEAST 8 INCHES BELOW BOTTOM OF PIPE, CONDUIT, DUCT, OR OTHER STRUCTURE UNLESS OTHERWISE INDICATED OR SPECIFIED. TRENCH SIDES SHALL BE MADE AS NEARLY VERTICAL AS PRACTICABLE. THE SIDES OF TRENCHES SHALL NOT BE SLOPED FROM THE BOTTOM OF THE TRENCH UP TO THE ELEVATION OF THE TOP OF THE PIPE. GRADING SHALL BE DONE AS MAY BE NECESSARY TO PREVENT SURFACE WATER FROM FLOWING INTO THE EXCAVATION. ANY WATER ACCUMULATING THEREIN SHALL BE REMOVED SO THAT THE STABILITY OF THE BOTTOM AND SOILS OF THE EXCAVATION IS MAINTAINED.

1.5 ALL EXCAVATIONS SHALL COMPLY WITH OSHA SAFETY REQUIREMENTS. CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR THE DESIGN AND ADEQUACY OF SHEETING, SHEET PILING, SHORING AND BRACING, AND SHALL MAKE CHANGES THEREIN THAT MAY BE REQUIRED TO ASSURE PROPER QUALITY OF WORK AND SAFEGUARD WORKMEN, ADJACENT WORK AND STRUCTURES, AND WORK WITHIN EXCAVATION(S). WHERE REQUIRED, CONTRACTOR SHALL INSTALL SHEETING, SHEET PILING, SHORING OR BRACING TO MAINTAIN EXCAVATION(S) AND BANKS IN A SAFE, STABLE CONDITION.

1.6 EXCAVATION SHALL BE PERFORMED SO THAT AREA OF SITE AND AREA IMMEDIATELY SURROUNDING SITE, AS WELL AS AREAS AFFECTING OPERATIONS AT SITE, WILL BE CONTINUALLY AND EFFECTIVELY DRAINED. WATER SHALL NOT BE PERMITTED TO ACCUMULATE IN EXCAVATION(S). EXCAVATION SHALL BE DRAINED BY PUMPING USING A SYSTEM OF DITCHES AND SUMPS OR OTHER SATISFACTORY METHODS TO PREVENT SOFTENING OF FOUNDATION BOTTOM, LOSS OF STRENGTH OF FOUNDATION SOILS, EROSION AROUND OR BENEATH FOOTINGS, INSTABILITY OF EXCAVATION SLOPES, OR OTHER AFFECTS DETRIMENTAL TO PROPER CONSTRUCTION PROCEDURES. THE DISCHARGE OF WATER BY WHATEVER CONTROL METHOD USED SHALL BE IN ACCORDANCE WITH LOCAL REGULATIONS.

1.7 THE FINAL CUT AND FILL SLOPES SHALL BE PROOF ROLLED USING A STEEL SMOOTH WHEEL ROLLER OR EQUIVALENT COMPACTION EQUIPMENT TO VISUAL NONMOVEMENT OF THE SOIL BENEATH THE EQUIPMENT IN ORDER TO MINIMIZE SOIL EROSION PRIOR TO SEEDING PREPARATION.

2.0 BACKFILL

2.1 PRIOR TO FILL PLACEMENT, ALL EXCAVATIONS AND GRADED AREAS SHALL BE PROOF ROLLED BY COMPACTION EQUIPMENT TO VISUAL NON-MOVEMENT OF THE SOIL BENEATH THE EQUIPMENT.

2.2 COMPACTION SHALL BE ACCOMPLISHED BY USE OF APPROVED TAMPING ROLLERS, PNEUMATIC ROLLERS, RUBBER-TIRED ROLLERS, HAND-OPERATED PLATE TYPE VIBRATORY TAMPERS, OR OTHER EQUIPMENT SUITABLE FOR TYPE OF SOIL BEING COMPACTED.

2.3 "COMMON FILL" SHALL CONSIST OF NATURAL MATERIALS OBTAINED FROM ON-SITE EXCAVATION OR OFF-SITE BORROW SOURCES. "COMMON FILL" MATERIAL SHALL BE CRUSHED BY SUITABLE EARTHMOVING EQUIPMENT SUCH THAT NO PARTICLES ARE LARGER THAN 5 INCHES IN ANY DIMENSION. "COMMON FILL" MATERIALS SHALL BE FREE OF DEBRIS, ROOTS, WOOD SCRAP MATERIAL, VEGETATIVE MATTER, REFUSE, COAL FRAGMENTS, SOFT UNSOUND PARTICLES, FROZEN, DELETERIOUS OR OBJECTIONABLE MATERIALS.

2.4 "COMMON FILL" MATERIAL SHALL BE PLACED IN UNIFORM HORIZONTAL LAYERS BY MECHANICAL EQUIPMENT OR BY MANUAL MEANS APPROVED BY THE ENGINEER ABOVE THE APPROVED SUBGRADE AND SHALL BE MIXED THOROUGHLY AND SPREAD IN LOOSE LIFTS NOT EXCEEDING 6-INCH LAYERS FOR HAND OPERATED TAMPING EQUIPMENT AND NOT EXCEEDING 8 INCHES FOR LAYERS COMPACTED UTILIZING SELF-PROPELLED EQUIPMENT. THE WATER CONTENT OF THE FILL MATERIAL SHALL BE CHANGED WHEN NECESSARY TO ATTAIN SPECIFIED DRY DENSITY. THIS SHALL BE ACCOMPLISHED BY AERATING SOIL, OR BY ADDING WATER TO SOIL, AS REQUIRED. IF WETTING OR DRYING IS REQUIRED, EACH LIFT SHALL BE THOROUGHLY MIXED WITH A DISC TO ENSURE A UNIFORM DISTRIBUTION OF MOISTURE. THE DIAMETERS OF THE DISCS SHALL BE LARGE ENOUGH TO SATISFACTORILY MIX A LIFT HAVING A THICKNESS OF UP TO 8 INCHES. CONTRACTOR SHALL BE PREPARED TO PROVIDE CLEAN WATER TO BE ADDED TO THE MATERIAL IF IT IS TOO DRY OR TO PREPARE DRYING BEDS IF THE MATERIAL IS TOO WET.

2.5 EACH LIFT OF "COMMON FILL" MATERIAL SHALL BE COMPACTED USING SUITABLE COMPACTION EQUIPMENT FOR THE TYPE OF MATERIAL TO ACHIEVE AT LEAST 95% OF THE MAXIMUM DRY DENSITY, FOR THAT MATERIAL, AS DETERMINED BY A STANDARD PROCTOR TEST (ASTM D-698). SHOULD THE STANDARD PROCTOR TEST NOT BE APPLICABLE, DUE TO THE GRADATION OF THE MATERIAL, THEN COMPACT IT TO A MINIMUM OF 70% RELATIVE DENSITY AS DETERMINED BY ASTM TEST NO. D-4253 AND NO. D-4254.

3.0 GEOTEXTILE

3.1 GEOTEXTILE FABRIC SHALL BE TYPAR #3401 OR APPROVED EQUAL AS MANUFACTURED BY REEMAY, INC.

3.2 GEOTEXTILE FABRIC SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

3.3 GEOTEXTILE FABRIC SHALL BE INSTALLED OVER THE ENTIRE SITE WORK AREA AS SHOWN ON THE DRAWINGS.

4.0 COARSE AGGREGATE

4.1 THE SITE COARSE AGGREGATE SHALL CONSIST OF A LAYER AS NOTED ON THIS DRAWING OF AASHTO NO. 3 (PADOT NO. 3A) COARSE AGGREGATE WITH A SIX-INCH THICK LAYER OF CLEAN PADOT NO. 2B (AASHTO NO. 57) BLUE CHIPPED LIMESTONE COARSE AGGREGATE PLACED ON TOP.

4.2 ALL COARSE AGGREGATE SHALL MEET THE REQUIREMENTS OF THE PADOT PUBLICATION 408, SECTION 703.

4.3 COARSE AGGREGATE SHALL BE PLACED IN LIFTS AND BE COMPACTED TO VISUAL NONMOVEMENT OF THE MATERIAL BENEATH THE COMPACTION EQUIPMENT.

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A&E PROJ. NO.:	41407
DRAWN BY:	RPS
CHECKED BY:	BPB

SUBMITTALS

C	03/26/12	ISSUED FOR 933 REVIEW
B	03/12/12	ISSUED FOR 933 REVIEW
A	02/20/12	ISSUED FOR 930 REVIEW

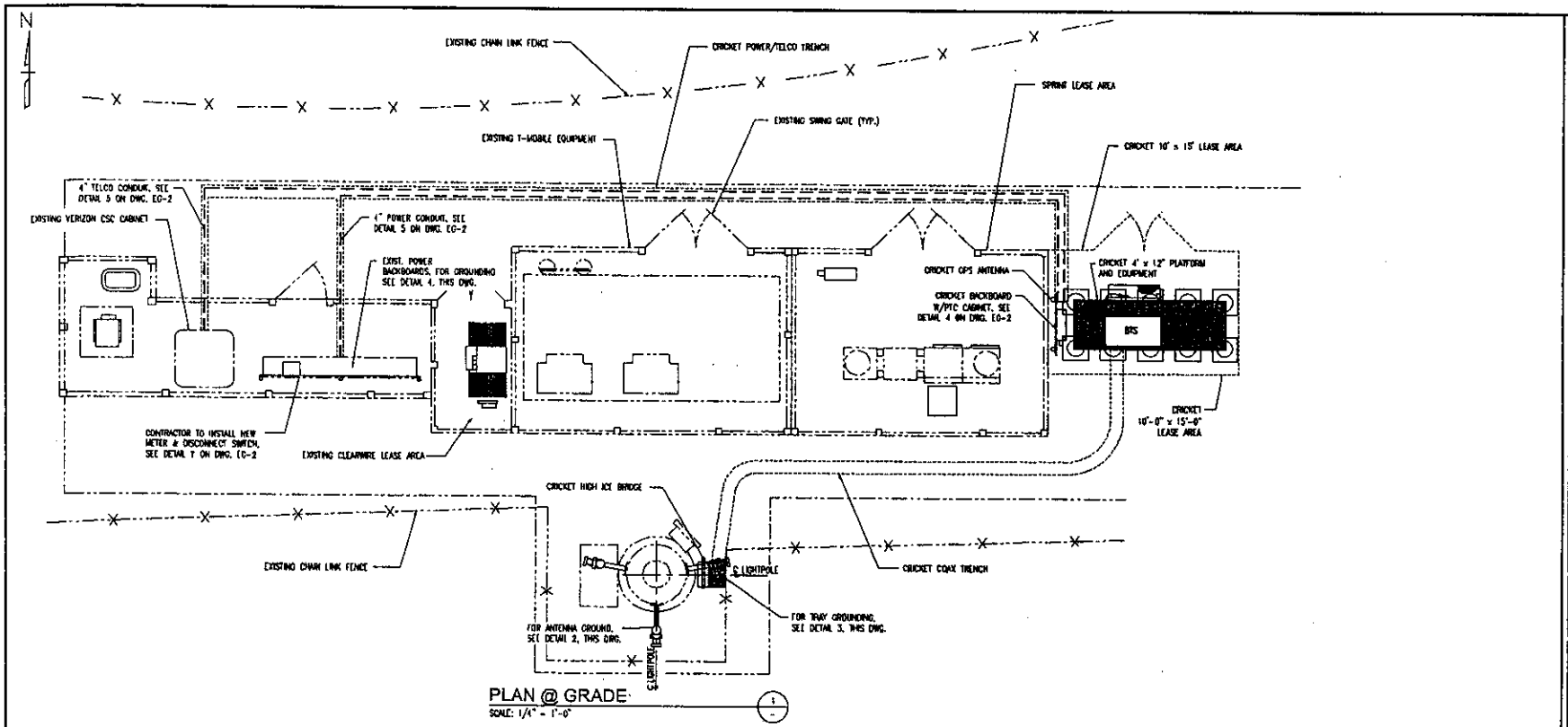
THE INFORMATION CONTAINED IN THIS SET OF DOCUMENTS IS PROPRIETARY BY NATURE. ANY USE OR DISCLOSURE OTHER THAN THAT WHICH RELATES TO CLIENT NAME IS STRICTLY PROHIBITED.

IAD-1034-A
BRYANT ALTERNATIVE HIGH SCHOOL
2709 POPKINS LANE
ALEXANDRIA, VA 22306

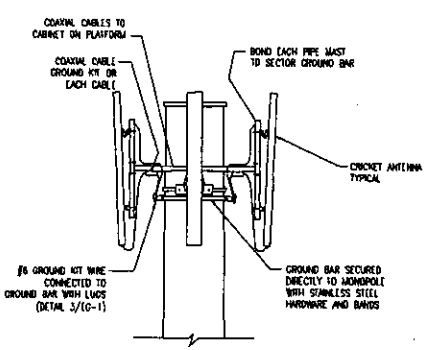
DESIGN TYPE:
CO-LOCATION

SHEET TITLE:
WOOD FENCE SPECIFICATIONS AND ELEVATION

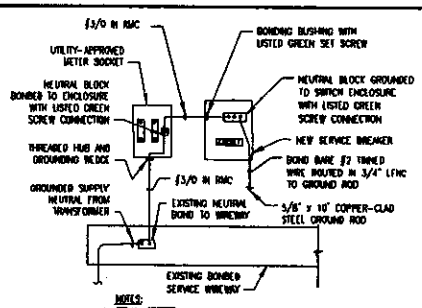
SHEET NUMBER:
C-8



PLAN @ GRADE (1)
SCALE: 1/4" = 1'-0"



ANTENNA GROUNDING DETAIL (2)
SCALE: N.T.S.



NOTES:
1. [ ] AND [ ] REPRESENT A GROUNDING TERMINAL WITH A LISTED GREEN SCREW THAT ACHIEVES CONTINUOUS METALLIC CONTACT WITH THE METAL ENCLOSURE.
2. NEUTRAL WIRES SHALL BE INSULATED AND MARKED WITH WHITE TAPE
3. DRIVE 10' LONG GROUND ROD COMPLETELY BELOW GRADE.

SERVICE GROUNDING DETAIL (4)
SCALE: N.T.S.

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A&E PROJ. NO.:	41407
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CHECKED BY:	BPB

SUBMITTALS

C	03/26/12	ISSUED FOR 933 REVIEW
B	03/12/12	ISSUED FOR 933 REVIEW
A	02/29/12	ISSUED FOR 930 REVIEW

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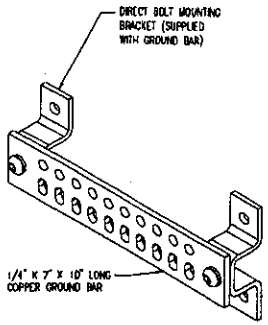
IAD-1034-A
BRYANT ALTERNATIVE HIGH SCHOOL
2709 POPKINS LANE
ALEXANDRIA, VA 22306

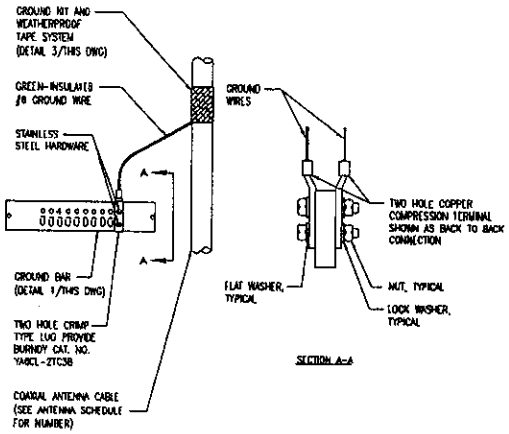
DESIGN TYPE:
CO-LOCATION

SHEET TITLE:
COMPOUND PLAN

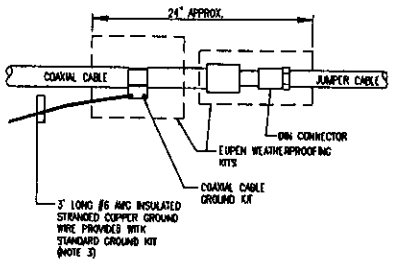
SHEET NUMBER
E-1



GROUND BAR DETAIL (1)
SCALE: N.T.S.

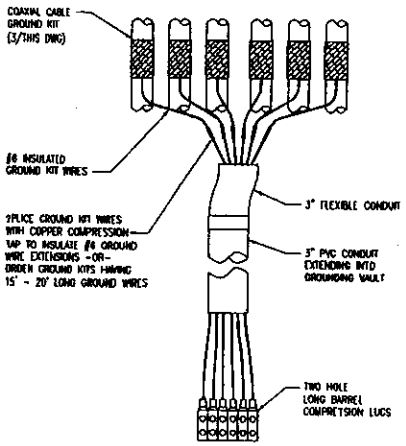


COAXIAL CABLE & GROUND BAR CONNECTION (2)
SCALE: N.T.S.

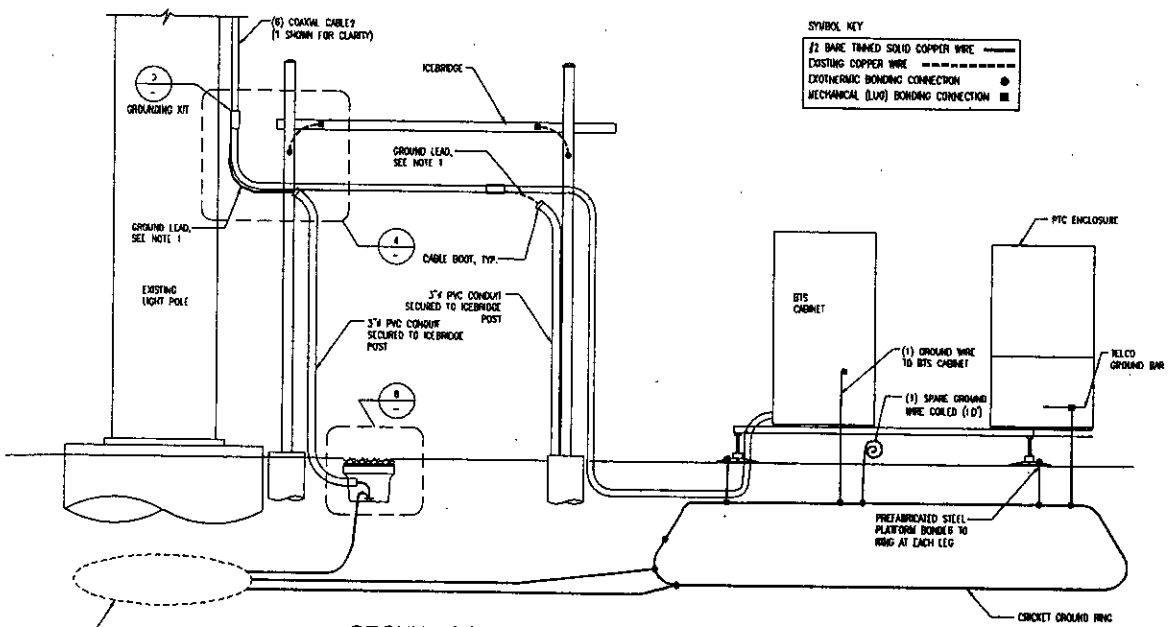


NOTES
1. DO NOT INSTALL CABLE GROUND KIT AT A BEND. ALWAYS DIRECT GROUNDING KIT WIRE DOWNWARD TO GROUND BAR.
2. 1"X 2"X 1" TAPE WRAPPING SHALL BE INSTALLED OVER ALL WEATHERPROOFING CONNECTIONS. EXTEND TAPING A MINIMUM OF 8" BEYOND CONNECTION POINT ON COAXIAL CABLES. EACH WRAP SHALL OVERLAP THE PRECEDING LAYER TO ENSURE WATERTIGHT INTEGRITY.
3. WHERE GROUND KITS ARE LOCATED GREATER THAN (3) FEET FROM GROUND BAR, PROVIDE INSULATED #6 OF LENGTH REQUIRED FOR CONNECTION TO GROUND BAR.

COAXIAL CABLE GROUND KIT DETAILS (3)
SCALE: N.T.S.

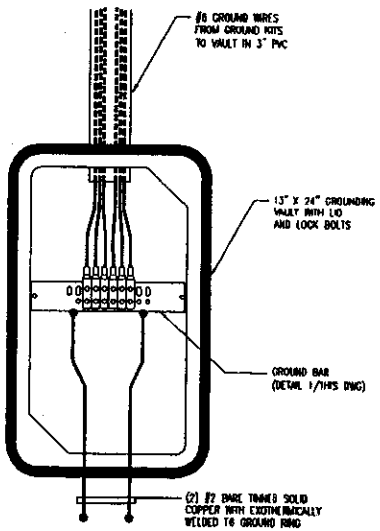


COAXIAL CABLE GROUNDING DETAIL (4)
SCALE: N.T.S.



GROUND CONNECTION ELEVATION (5)
SCALE: N.T.S.

NOTES
1. DO NOT INSTALL CABLE GROUND KIT AT A BEND. ALWAYS DIRECT GROUNDING KIT WIRE DOWNWARD TO GROUND BAR.



NOTE: TOP OF VAULT TO BE COVERED WITH 1' OF STONE LAYER

GROUND VAULT DETAIL (6)
SCALE: N.T.S.

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A&R PROJ. NO.:	41497
DRAWN BY:	HHS
CHECKED BY:	RPR

SUBMITTALS

C	03/28/12	ISSUED FOR 933 REVIEW
B	03/12/12	ISSUED FOR 933 REVIEW
A	02/29/12	ISSUED FOR 930 REVIEW

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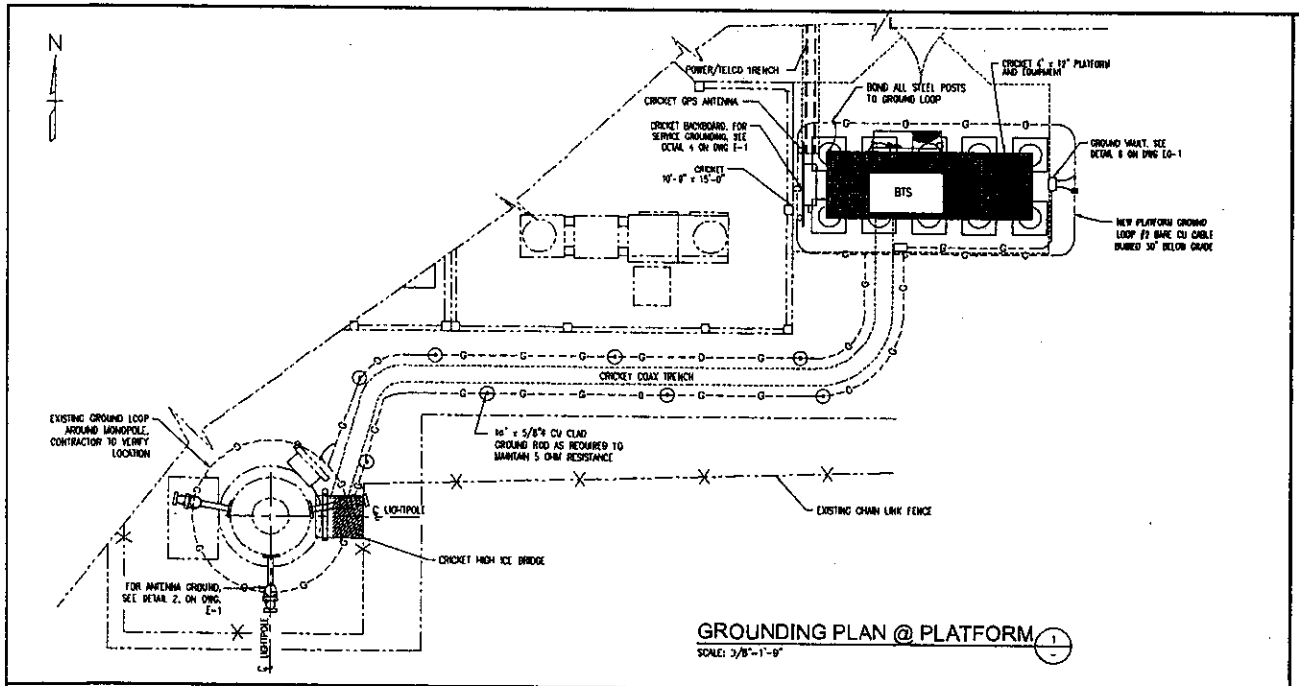
1AD-1034-A
BRYANT ALTERNATIVE HIGH SCHOOL
2709 POPKINS LANE
ALEXANDRIA, VA 22306

DESIGN TYPE:
CO-LOCATION

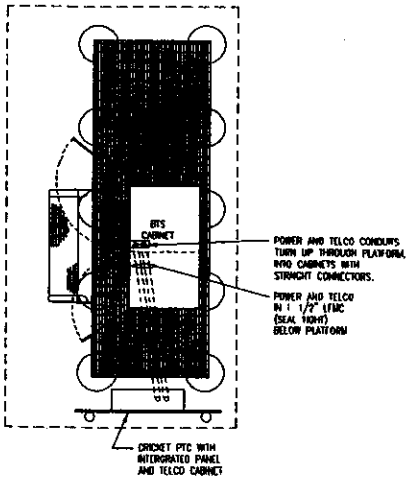
SHEET TITLE:
GROUNDING PLAN, DIAGRAMS & DETAILS

SHEET NUMBER:
EG-1



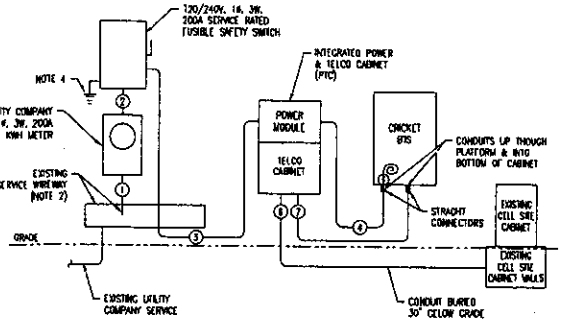
GROUNDING PLAN @ PLATFORM (1)

SCALE: 3/8"=1'-0"



PARTIAL PLAN ELECTRICAL (2)

SCALE: N.T.S.

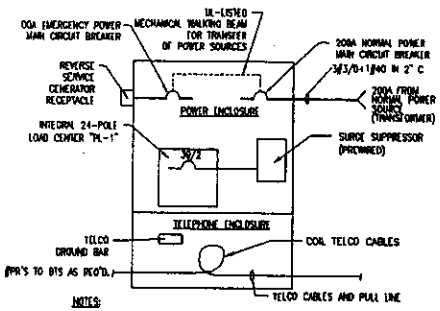


NOTES:
1. ALL ENCLOSURES SHALL BE NEMA 3R
2. INSTALL (2)-5 WAY MULES IN EXISTING WIREWAY
3. SERVICE SWITCH SHALL HAVE AN A.I.C. RATING GREATER THAN THE SITE'S AVAILABLE FAULT CURRENT. OBTAIN FAULT CURRENT DATA FROM PEPCO REPRESENTATIVE.
4. SEE DETAIL 4 ON DWG. E-1 FOR SERVICE ENTRANCE GROUNDING REQUIRED PER N.E.C.

SINGLE LINE DIAGRAM (3)

SCALE: N.T.S.

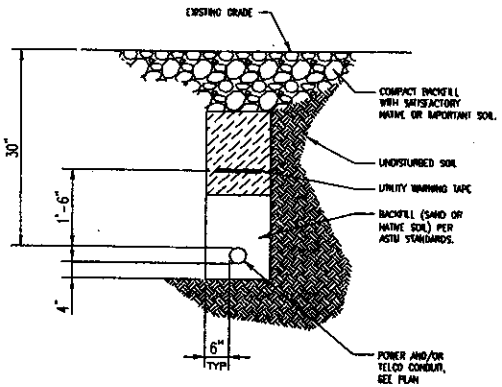
POWER CONNECTION KEY						
	NO.	AWG.	GROUND		CONDUIT	REMARKS
(1)	(3)	#4	#8	1"	EMT	
(2)	(3)	#4	#8	1"	GALVANIZED RMC	
(3)	(3)	#4	#8	1"	LFMC	
(4)	(3)	#3	#8	2"	LFMC	
(5)	(3)	#6	#6	1-1/2"	LFMC	FINAL CONNECTION INTO BTS
TELCO CABLING KEY						
(6)	(2)	25 PAIR TELCO CABLE IN 4" EMT WITH POLY PULL LINE				
(7)	(2)	25 PAIR TELCO CABLE IN 4" GALV. RMC WITH POLY PULL LINE				
(8)	(6)	25 PAIR TELCO CABLE IN 1-1/2" LFMC FINAL CONNECTION INT BTS				



NOTES:
1. PTC ENCLOSURES ARE NEMA 3R.

PTC ONE LINE DIAGRAM (4)

SCALE: N.T.S.



NOTE:
HAND DIG TRENCH TO AVOID NUMEROUS EXISTING CONDUITS IN COMPOUND

BURIED CONDUIT TRENCH DETAIL (5)

SCALE: N.T.S.

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A&E PROJ. NO.: 41407

DRAWN BY: RTS

CHECKED BY: JJPH

SUBMITTALS

C	03/26/12	ISSUED FOR 633 REVIEW
B	03/12/12	ISSUED FOR 933 REVIEW
A	02/29/12	ISSUED FOR 930 REVIEW

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IAD-1034-A
BRYANT ALTERNATIVE HIGH SCHOOL
2709 POPKINS LANE
ALEXANDRIA, VA 22306

DESIGN TYPE:
CO-LOCATION

SHEET TITLE:
GROUNDING DIAGRAM & DETAIL

SHEET NUMBER:
EG-2

ELECTRICAL SPECIFICATIONS:

THE ELECTRICAL CONTRACT FOR CONSTRUCTION FOR THIS PROJECT SHALL INCLUDE PROVISIONS OF ALL LABOR, MATERIALS, EQUIPMENT, TOOLS, AND ADMINISTRATIVE TASKS REQUIRED TO COMPLETE AND MAKE OPERATIONAL, THE ELECTRICAL INSTALLATION SHOWN ON THE DRAWINGS AND SPECIFIED HEREIN, BUT NOT LIMITED TO THE FOLLOWING:

1. OBTAIN AND PAY FOR PERMITS ASSOCIATED WITH THE ELECTRICAL PORTION OF THIS CONSTRUCTION

2. TEST, BALANCE, CLEAN, ADJUST AND GUARANTEE ALL ELECTRICAL WORK IN THIS CONTRACT TO OPERATE SAFELY, PROPERLY AND CONTINUOUSLY.

GENERAL REQUIREMENTS

PRIOR TO SUBMITTING BID, VISIT THE SITE TO DETERMINE THE EXTENT OF WORK REQUIRED TO COMPLETE THE PROJECT AS SHOWN ON THE PLANS. IDENTIFY POSSIBLE CONFLICTS OBSERVED DURING VISIT AND SUBMIT, IN WRITING PRIOR TO SUBMITTING BID, CONDITIONS WHICH MAY PREVENT CONSTRUCTION OF ELECTRICAL WORK AS SHOWN ON THESE PLANS. NO ADDITIONAL CHARGE WILL BE ALLOWED FOR REMEDIATION OF FIELD CONDITIONS NOT IDENTIFIED THROUGH THIS PROCESS.

1. REGULATORY REQUIREMENTS

WORK SHALL CONFORM TO THE FOLLOWING:
A. NATIONAL ELECTRICAL CODE (N.E.C.) LATEST EDITION
B. IBC - 2003 EDITION
C. NFPA 101 LIFE SAFETY CODE

2. QUALITY ASSURANCE

A. ALL WORK SHALL BE PERFORMED WITH A MINIMUM OF DISTURBANCE TO EXISTING STRUCTURES AND SURROUNDING AREAS. THE DEVICES INSTALLED SHALL BE PLUMB AND MAKING NO SCRATCHES OR DENTS. TAKE ALL MEASURES NECESSARY TO PROTECT NEW EQUIPMENT DURING THE COURSE OF CONSTRUCTION.

B. MATERIALS SHALL BE NEW AND UL APPROVED FOR THE INTENDED USE. DEFECTIVE OR DAMAGED MATERIALS SHALL BE REPLACED OR REPAIRED AS ACCEPTABLE TO CRICKET.

3. SUBMITTALS

PROVIDE RED-LINED AS-BUILT DRAWINGS DOCUMENTING EXACT ROUTING OF ALL CONDUITS.

4. SITE MAINTENANCE

REMOVE TRASH ON A DAILY BASIS. CONTRACTOR SHALL BE RESPONSIBLE FOR HAULING AND DISPOSING OF TRASH IN A LEGAL MANNER. USE OF PROPERTY OWNER'S DUMPSTER IS PROHIBITED. SITE SHALL BE FREE OF DENTS, MUDDY SMUDGES, AND EMPTY CONTAINERS.

5. WARRANTY

THE ELECTRICAL CONTRACTOR SHALL REMEDY, AT HIS OWN EXPENSE, ANY FAILURE OF THE WORK (INCLUDING EQUIPMENT) FOR A PERIOD OF ONE YEAR, TO CONFORM TO CONTRACT SPECIFICATIONS AND DRAWINGS. THIS SHALL INCLUDE ANY DEFECT OF MATERIALS OR WORKMANSHIP, AND ANY ADJUSTMENTS REQUIRED TO BE MADE FROM PROPER FUNCTIONING OF THE EQUIPMENT AND SYSTEMS.

PRODUCTS

1. RACEWAYS
A. ALL WIRING SHALL BE INSTALLED IN CONDUIT.
B. CONDUIT INSTALLED BELOW GRADE SHALL BE SCHEDULE 40 PVC.
C. CONDUIT INSTALLED ABOVE GRADE SHALL BE GALVANIZED RMC.
D. CONDUIT USED FOR FINAL CONNECTIONS INTO BTS CABINETS SHALL BE LIQUIDTIGHT FLEXIBLE METAL CONDUIT.

RACEWAY INSTALLATION
E. THE TOTAL RADII OF BENDS IN A CONDUIT SHALL NOT EXCEED 360 DEGREES

2. CONDUCTORS
A. SHALL BE COPPER, SOLID THROUGH #10.
B. SHALL HAVE 600 VOLT THWN/THHN INSULATION.

3. SERVICE DISCONNECT SWITCH
A. 120/240 VOLT FUSIBLE 200 AMP 3 WIRE + GROUND
B. PROVIDE THREE 200 AMP FUSES HAVING AN A.I.C. RATING EXCEEDING THE SITE'S AVAILABLE FAULT CURRENT.
C. HEAVY DUTY, SERVICE RATED.
D. NEMA 3R ENCLOSURE.

4. ANTI-OXIDATION COMPOUND.
SHALL BE BURNDY "PENETROX-3" OR THOMAS & BETTS KOPR-SHIELD.

5. LABELS
SHALL BE ENGRAVED LAMACOID PLASTIC HAVING 1" HIGH LETTERS AND SHALL BE AFFIXED TO ENCLOSURES WITH STAINLESS STEEL SCREWS.

GROUNDING

1. ALL GROUND ELECTRODE SYSTEMS (INCLUDING TELECOMMUNICATION, RADIO, LIGHTNING PROTECTION AND POWER) SHALL BE BONDED TOGETHER AT OR BELOW GRADE, BY TWO OR MORE COPPER BONDING CONDUCTORS IN ACCORDANCE WITH THE LATEST EDITION NEC.

2. USE A CLAMP ON RESISTANCE TESTER TO DETERMINE RESISTANCE TO EARTH FOR CRICKET GROUND ELECTRODE SYSTEM. SYSTEM SHALL NOT EXCEED 5 OHMS. PROVIDE SUPPLEMENTAL GROUND RODS AND/OR BACKFILL MATERIAL HAVING RESISTANCE LOWERING CHARACTERISTIC, SUCH AS HARBER, INC. "ULTRAFILL".

3. PROPERLY SEQUENCE GROUNDING AND UNDERGROUND CONDUIT INSTALLATION TO PREVENT ANY LOSS OF CONTINUITY IN THE GROUNDING SYSTEM OR DAMAGE TO THE CONDUIT

4. METAL CONDUIT AND TRAY SHALL BE GROUNDED AND MADE ELECTRICALLY CONTINUOUS WITH LISTED BONDING FITTINGS OR BY BONDING ACROSS THE DISCONTINUITY WITH #8 AWG COPPER WIRE UL APPROVED GROUNDING TYPE CONDUIT CLAMPS.

5. STRANDED GROUND WIRES SHALL HAVE GREEN 600 VOLT THWN INSULATION

6. CONNECTIONS TO THE GROUND BUS SHALL NOT BE DOUBLED UP OR STACKED. BACK TO BACK CONNECTIONS ON OPPOSITE SIDES OF THE GROUND BUS ARE PERMITTED.

7. ALL GROUND CONDUCTORS BETWEEN EQUIPMENT/GROUND BARS AND THE GROUND RING, SHALL BE #2 AWG SOLID TINNED COPPER UNLESS OTHERWISE INDICATED.

8. ALUMINUM CONDUCTOR OR COPPER CLAD STEEL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS.

9. USE OF 90 DEGREE BENDS IN THE PROTECTION GROUNDING CONDUCTORS SHALL BE AVOIDED WHEN USE OF 45 DEGREE BENDS CAN BE ADEQUATELY SUPPORTED.

10. EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE.

11. ALL GROUND CONNECTIONS ABOVE GRADE SHALL BE FORGED USING HIGH PRESSURE COPPER C-TAPS.

12. COMPRESSION GROUND CONNECTIONS MAY BE REPLACED BY EXOTHERMIC WELD CONNECTIONS.

13. ICE BRIDGE BONDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED OR BOLTED TO THE ADJACENT SECTIONS OF THE BRIDGE.

14. APPROVED ANTIOXIDANT COATINGS (I.E. CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.

15. ALL GROUND CONNECTIONS SHALL BE COATED WITH A CORROSION RESISTANT MATERIALS.

16. MISCELLANEOUS ELECTRICAL AND NON-ELECTRICAL METAL BOXES, FRAMES AND SUPPORTS SHALL BE BONDED TO THE GROUND RING, IN ACCORDANCE WITH THE LATEST EDITION NEC.

17. BOND ALL METALLIC OBJECTS WITHIN 6 FEET OF MAIN GROUND WIRES WITH 1-#2 AWG TINNED COPPER GROUND CONDUCTOR.

18. DO NOT ROUTE GROUNDING CONDUCTORS THROUGH METALIC OBJECTS THAT FORM A RING AROUND THE CONDUIT. CLIPS AND FASTENERS USED TO SECURE AND GROUND WIRE SHALL BE NON-METALLIC TO PREVENT "CHOKE EFFECT".

ABBREVIATIONS:

A	AMPERE	MCB	MAIN CIRCUIT BREAKER
AIC	ASYMETRICAL INTERRUPT CURRENT	NEC	NATIONAL ELECTRIC CODE
BCW	BARE COPPER WIRE	NFS	NOT TO SCALE
C	CONDUIT	PVC	POLYVINYL CHLORIDE
CCB	COAX GROUND BAR	P	POLE
GFI	GROUND FAULT INTERRUPTING	φ	PHASE
G	GROUND	RMC	RIGID METAL CONDUIT
KVA	KILOVOLT-AMPERE	S/N	SOLID NEUTRAL
KW	KILOWATT	V	VOLT
LFMC	LIQUIDTIGHT FLEXIBLE METAL CONDUIT	W	WIRE

PANEL LP-1

120/240 VOLTS, 1 PHASE, 3 WIRE, 200 AMP MAIN CIRCUIT BREAKER

LOAD DESCRIPTION	AMPS	BKR	CCT	4 L1	4 L2	CCT	BKR	AMPS	LOAD DESCRIPTION
TELCO FAN	0.3	10	1	X		2	40	32	CRICKET BTS
INTERNAL OUT RECEPTACLE	2.0	15	3		T	4		32	
TRANSIENT VOLTAGE SURGE SUPPRESSOR	-	20	5	X		6			SPACE
	-		7		Y	8			SPACE
SPACE			9	S		10			SPACE
SPACE			11		X	12			SPACE
SPACE			13	X		14			SPACE
SPACE			15		X	16			SPACE
SPACE			17	X		18			SPACE
SPACE			19		Y	20			SPACE
SPACE			21	X		22			SPACE
SPACE			23		2	24			SPACE
			33	34		6 KVA			

PANELBOARD "LP-1"

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DRAWN BY: BPB

CHECKED BY: BPB

SUBMITTALS

C	03/26/12	ISSUED FOR 933 REVIEW
B	03/12/12	ISSUED FOR 933 REVIEW
A	02/29/12	ISSUED FOR 930 REVIEW

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IAD-1034-A
BRYANT ALTERNATIVE HIGH SCHOOL
2709 POPKINS LANE
ALEXANDRIA, VA 22306

DESIGN TYPE:
CO-LOCATION

SHEET TITLE:
ELECTRICAL SPEC'S & PANEL SCHEDULE

SHEET NUMBER:
ES-1

IMPORTANT NOTE:

THE CONTRACTOR MUST PROVIDE CLOSE-OUT DOCUMENTS AT THE FINAL INSPECTION WALK BEFORE PAYMENTS WILL BE MADE.

GENERAL REQUIREMENTS

1. THE CONTRACTOR SHALL GIVE ALL NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS, AND LAWFUL ORDERSOF ANY PUBLIC AUTHORITY, MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS, AND LOCAL AND STATE JURISDICTIONAL CODES BEARING ON THE PERFORMANCE OF THE WORK. THE WORK PERFORMED ON THE PROJECT AND THE MATERIALS INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES.

2. THE ARCHITECT/ENGINEER HAVE MADE EVERY EFFORT TO SET FORTH IN THE CONSTRUCTION AND CONTRACT DOCUMENTS THE COMPLETE SCOPE OF WORK. THE CONTRACTOR BIDDING THE JOB IS NEVERTHELESS CAUTIONED THAT MINOR OMISSIONS OR ERRORS IN THE DRAWINGS AND OR SPECIFICATIONS SHALL NOT EXCUSE SAID CONTRACTOR FORM COMPLETING THE PROJECT AND IMPROVEMENTS IN ACCORDANCE WITH THE INTENT OF THESE DOCUMENTS.

3. THE CONTRACTOR OR BIDDER SHALL BEAR THE RESPONSIBILITY OF NOTIFYING (IN WRITING) OWNER'S REPRESENTATIVE OF ANY CONFLICTS, ERRORS, OR OMISSIONS PRIOR TO THE SUBMISSION OF CONTRACTOR'S PROPOSAL OR PERFORMANCE OF WORK.

4. THE SCOPE OF WORK SHALL INCLUDE FURNISHING ALL MATERIALS, EQUIPMENT, LABOR AND ALL OTHER MATERIALS AND LABOR DEEMED NECESSARY TO COMPLETE THE WORK/ PROJECT AS DESCRIBED THEREIN.

5. THE CONTRACTOR SHALL VISIT THE JOB SITE PRIOR TO THE SUBMISSION OF BIDS OR PERFORMING WORK TO FAMILIARIZE HIMSELF WITH THE FIELD CONDITIONS AND TO VERIFY THAT THE PROJECT CAN BE CONSTRUCTED IN ACCORDANCE WITH THE CONTRACT.

6. THE CONTRACTOR SHALL OBTAIN AUTHORIZATION TO PROCEED WITH CONSTRUCTION PRIOR TO STARTING WORK ON ANY ITEM NOT CLEARLY DEFINED BY THE CONSTRUCTION DRAWINGS /CONTRACT.

7. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS ACCORDING TO THE MANUFACTURER'S/VENDOR'S SPECIFICATIONS UNLESS OTHERWISE NOTED OR WHERE LOCAL CODES OR ORDINANCES TAKE PRECEDENCE.

8. THE CONTRACTOR SHALL MAINTAIN A FULL SET OF CONSTRUCTION DOCUMENTS AT THE SITE UPDATED WITH THE LATEST REVISIONS AND ADDENDUMS OR CLARIFICATIONS AVAILABLE FOR THE USE BY ALL PERSONNEL INVOLVED WITH THE PROJECT.

9. THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE PROJECT DESCRIBED HEREIN. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES AND FOR COORDINATING ALL PORTIONS OF THE WORK UNDER THE CONTRACT.

10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND INSPECTIONS WHICH MAY BE REQUIRED FOR THE WORK BY THE ARCHITECT/ENGINEER, THE STATE, COUNTY OR LOCAL GOVERNMENT AUTHORITY.

11. THE CONTRACTOR SHALL MAKE NECESSARY PROVISIONS TO PROTECT EXISTING IMPROVEMENTS, EASEMENTS, PAVING, CURBING, ETC. DURING CONSTRUCTION. UPON COMPLETION OF WORK, THE CONTRACTOR SHALL REPAIR ANY DAMAGE THAT MAY HAVE OCCURED DUE TO CONSTRUCTION ON OR ABOUT THE PROPERTY.

12. THE CONTRACTOR SHALL KEEP THE GENERAL WORK AREA CLEAN AND HAZARD FREE DURING CONSTRUCTION AND DISPOSE OF ALL DIRT, DEBRIS, RUBBISH AND REMOVE EQUIPMENT NOT SPECIFIED AS REMAINING ON THE PROPERTY. PREMISES SHALL BE LEFT IN CLEAN CONDITION AND FREE FROM PAINT SPOTS, DUST OR SMUDGES OF ANY KIND.

13. THE CONTRACTOR SHALL COMPLY WITH ALL PERTINENT SECTIONS OF THE APPLICABLE BUILDING CODES AND ALL OSHA REQUIREMENTS AS THEY APPLY TO THIS PROJECT.

14. THE CONTRACTOR SHALL NOTIFY OWNER'S REPRESENTATIVE WHERE A CONFLICT OCCURS ON ANY OF THE CONTRACT DOCUMENTS THE CONTRACTOR IS NOT TO ORDER MATERIAL OR CONSTRUCT ANY PORTION OF THE WORK THAT IS IN CONFLICT UNTIL CONFLICT IS RESOLVED BY OWNER'S. REPRESENTATIVE.

15. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS, ELEVATIONS, PROPERTY LINES, ETC. ON THE JOB.

16. THE CONTRACTOR SHALL NOTIFY THE RF ENGINEER FOR ANTENNA AZIMUTH VERIFICATION (DURING ANTENNA INSTALLATION) PRIOR TO COORDINATING SITE SWEEPING.

17. THE CONTRACTOR SHALL SUBMIT, AT THE END OF THE PROJECT, A COMPLETE SET OF AS-BUILT DRAWINGS TO OWNER'S PROJECT MANAGER.

SITE WORK AND DRAINAGE

EARTHWORK, EXCAVATION, AND GRADING

PART 1 GENERAL

1.01 WORK INCLUDED: REFER TO SURVEY AND SITE PLAN FOR WORK INCLUDED.

1.02 RELATED WORK

A. CONSTRUCTION OF EQUIPMENT FOUNDATIONS

B. INSTALLATION OF ANTENNA SYSTEM

1.03 DESCRIPTIONS

A. ACCESS ROAD, TURNAROUND AREAS, AND SITES ARE CONSTRUCTED TO PROVIDE A WELL DRAINED, EASILY MAINTAINED, EVEN SURFACE FOR MATERIAL AND EQUIPMENT DELIVERIES AND MAINTENANCE PERSONNEL ACCESS.

1.04 QUALITY ASSURANCE

A. APPLY SOIL STERILIZER IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATION (USE AS NEEDED)

B. VEGETATION LANDSCAPING, IF INCLUDED WITHIN THE CONTRACT WILL BE PLACED AND MAINTAINED AS RECOMMENDED BY NURSERY INDUSTRY STANDARDS.

1.05 SEQUENCING

A. CONTRACTOR IS RESPONSIBLE FOR LAYOUT AND CONSTRUCTION STAKING.

B. GRUB THE COMPLETE ROAD AND SITE AREA PRIOR TO FOUNDATION CONSTRUCTION OR PLACEMENT OF BACKFILL OR SUB-BASE MATERIAL.

C. CONSTRUCT TEMPORARY CONSTRUCTION ZONE ALONG ACCESS DRIVE.

D. THE SITE AREA WILL BE BROUGHT TO SUB-BASE COURSE ELEVATION AND THE ACCESS ROAD TO BASE COURSE ELEVATION PRIOR TO FORMING FOUNDATIONS.

E. APPLY SILT STERILIZER PRIOR TO PLACING BASE MATERIALS.

F. IF REQUIRED, GRADE, SEED, FERTILIZE AND MULCH DISTURBED AREAS IMMEDIATELY AFTER BRINGING THE SITE AND ACCESS ROAD TO BASE ELEVATION. WATER TO ENSURE GROWTH.

G. REMOVE EXCESS GRAVEL FROM TEMPORARY CONSTRUCTION ZONE.

H. AFTER APPLICATIONS OF FINAL SURFACES, APPLY SOIL STERILIZER TO THE STONE SURFACES.

1.06 SUBMITTALS

A. BEFORE CONSTRUCTION

1. IF LANDSCAPING IS APPLICABLE TO THE CONTRACT, SUBMIT TWO COPIES OF THE LANDSCAPING PLAN UNDER NURSERY LETTERHEAD. IF A LANDSCAPE ALLOWANCE IS INCLUDED IN THE CONTRACT, PROVIDE AN ITEMIZED LISTING OF PROPOSED COSTS UNDER NURSERY LETTERHEAD (REFER TO SITE PLAN FOR LANDSCAPING REQUIREMENT).

2. SUBMIT FOR APPROVAL 1/2 CUBIC FOOT OF THE PROPOSED SURFACE COURSE MATERIAL.

3. LANDSCAPING WARRANTY STATEMENT, IF REQUIRED.

PART 2 PRODUCTS

2.01 MATERIALS

A. ROAD AND SITE MATERIALS: FILL MATERIAL SHALL BE ACCEPTABLE, SELECT FILL SHALL BE IN ACCORDANCE WITH LOCAL DEPARTMENT OF HIGHWAY AND PUBLIC TRANSPORTATION STANDARD SPECIFICATIONS.

B. SOIL STERILIZER SHALL BE EPA REGISTERED OF LIQUID COMPOSITION AND OF PRE-EMERGENCE DESIGN.

C. SOIL STABILIZER FABRIC SHALL BE MIRAFI OR EQUAL - 500X AT ACCESS ROAD AND SOAK AT COMPOUND.

D. GRAVEL FILL: WELL GRADED, HARD, DURABLE, NATURAL SAND AND GRAVEL, FREE FROM ICE AND SNOW, ROOTS, SOD RUBBISH, AND OTHER DELETERIOUS OR ORGANIC MATTER. MATERIAL SHALL CONFORM TO THE FOLLOWING GRADATION REQUIREMENTS.

U. S. SIEVE NO.	% PASSING BY WEIGHT
4"	100
1/2"	50-85
#4	40-75
#10	30-60
#40	18-30
#100	5-20
#200	6-9

GRAVEL FILL TO BE PLACED IN LIFTS OF 9" MAXIMUM THICKNESS AND COMPACTED TO 95% DENSITY

2.02 EQUIPMENT

A. COMPACTION SHALL BE ACCOMPLISHED BY MECHANICAL MEANS LARGER AREAS SHALL BE COMPACTED BY SHEEPS FOOT, VIBRATORY OR RUBBER TIED ROLLERS WEIGHING AT LEAST FIVE TONS. SMALLER AREAS SHALL BE COMPACTED BY POWER-DRIVER, HAND HELD TAMPERS.

B. PRIOR TO OTHER EXCAVATION AND CONSTRUCTION EFFORTS GRUB ORGANIC MATERIAL TO A MINIMUM OF 6" BELOW ORIGINAL GROUND LEVEL.

C. UNLESS OTHERWISE INSTRUCTED BY OWNER'S REPRESENTATIVE, REMOVE TREES, BRUSH AND DEBRIS FROM THE PROPERTY TO AN AUTHORIZED DISPOSAL LOCATION.

D. PRIOR TO PLACEMENT OF FILL OR BASE MATERIALS, ROLL THE SOIL.

E. WHERE UNSTABLE SOIL CONDITIONS ARE ENCOUNTERED, LINE THE GRUBBED AREAS WITH STABILIZER MAT PRIOR TO PLACEMENT OF FILL OR BASE MATERIAL.

3.03 INSTALLATION

A. THE SITE AND TURNAROUND AREAS SHALL BE AT THE SUB-BASE COURSE ELEVATION PRIOR TO FORMING FOUNDATIONS. GRADE OR FILL THE SITE AND ACCESS ROAD AS REQUIRED TO PRODUCE EVEN DISTRIBUTION OF SPOILS RESULTING FROM FOUNDATION EXCAVATIONS. THE RESULTING GRADE SHALL CORRESPOND WITH SAID SUB-BASE COURSE, ELEVATIONS ARE TO BE CALCULATED FORM FINISHED GRADES OR SLOPES INDICATED.

B. CLEAR EXCESS SPOILS, IF ANY, FROM JOB SITE AND DO NOT SPREAD BEYOND THE LIMITS OF OWNER'S. LEASE PROPERTY UNLESS AUTHORIZED BY PROJECT MANAGER.

C. THE ACCESS ROAD SHALL BE BROUGHT TO BASE COURSE ELEVATION PRIOR TO FOUNDATION CONSTRUCTION.

D. DO NOT CREATE DEPRESSIONS WHERE WATER MAY POND.

E. THE CONTRACT INCLUDES ALL NECESSARY GRADING, BANKING, DITCHING AND COMPLETE SURFACE COURSE FOR ACCESS ROAD. ALL ROADS OR ROUTES UTILIZED FOR ACCESS TO PUBLIC THOROUGHFARE IS INCLUDED IN SCOPE OF WORK UNLESS OTHERWISE INDICATED.

F. WHEN IMPROVING AN EXISTING ACCESS ROAD, GRADE THE EXISTING ROAD TO REMOVE ANY ORGANIC MATTER AND THE SMOOTH SURFACE BEFORE PLACING FILL OR STONE.

G. PLACE FILL OR STONE IN 3" MAXIMUM LIFTS AND COMPACT BEFORE PLACING NEXT LIFT.

H. THE FINISH GRADE, INCLUDING TOP SURFACE COURSE, SHALL EXTEND A MINIMUM OF 12" BEYOND THE SITE FENCE AND SHALL COVER THE AREA AS INDICATED.

I. RIP-RAP SHALL BE APPLIED TO THE SIDE SLOPES OF ALL FENCED AREAS, PARKING AREAS AND TO ALL OTHER SLOPES GREATER THAN 2:1.

J. RIP-RAP SHALL BE APPLIED TO THE SIDES OF DITCHES OR DRAINAGE SWALES AS INDICATED ON PLANS.

K. RIP-RAP ENTIRE DITCH FOR 8'-0" IN ALL DIRECTIONS AT CULVERT OPENINGS.

L. SEED, FERTILIZER AND STRAW COVER SHALL BE APPLIED TO ALLOTHER DISTURBED AREAS AND DITCHES, DRAINAGE, SWALES, NOT OTHERWISE RIP-RAPPED.

M. UNDER NO CIRCUMSTANCES SHALL DITCHES, SWALES OR CULVERTS BE PLACED SO THEY DIRECT WATER TOWARDS, OR PERMIT STANDING WATER IMMEDIATELY ADJACENT TO SITE. IF OWNER DESIGNS OR IF DESIGN ELEVATIONS CONFLICT WITH THIS GUIDANCE ADVISE THE OWNER IMMEDIATELY.

N. IF A DITCH LIES WITH SLOPES GREATER THAN TEN PRECENT, MOUND DIVERSIONARY HEADWALLS IN THE DITCH FOR 6'-0" ABOVE THE CULVERT ENTRANCE.

O. SEED AND FERTILIZER SHALL BE APPLIED TO SURFACE CONDITIONS WHICH WILL ENCOURAGE ROOTING. RAKE AREAS TO BE SEEDED TO EVEN THE SURFACE AND TO LOOSEN THE SOIL.

P. SOW SEED IN TWO DIRECTIONS IN TWICE THE QUANTITY RECOMMENDED BY THE SEED PRODUCER.

Q. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE GROWTH OF SEEDED AND LANDSCAPED AREAS BY WATERING TO THE POINT OF RELEASE FROM THE CONTRACT. CONTINUE TO REWORK BARE AREAS UNTIL COMPLETE COVERAGE IS OBTAINED.

3.04 FIELD QUALITY CONTROL

A. COMPACTION SHALL BE 90% MAXIMUM DENSITY IN ACCORDANCE WITH ASTM D-1557 FOR SITE WORK AND 95% MAXIMUM DENSITY UNDER SLAB AREAS. AREAS OF SETTLEMENT WILL BE EXCAVATED AND REFILLED AT CONTRACTOR'S EXPENSE.

3.05 PROTECTION

A. PROTECT SEEDED AREAS FORM EROSION BY SPREADING STRAW TO A UNIFORM LOOSE DEPTH OF 1"-2". STAKE AND TIE DOWN AS REQUIRED. USE OF EROSION CONTROL MESH OR MULCH NET SHALL BE AN ACCEPTABLE ALTERNATIVE.

B. ALL TREES PLACED IN CONJUNCTION WITH A LANDSCAPE CONTRACT SHALL BE WRAPPED, TIED WITH HOSE PROTECTED WIRE AND SECURED TO STAKES EXTENDING 2'-0" INTO THE GROUND ON FOUR SIDES OF THE TREE.

C. ALL EXPOSED AREAS SHALL BE PROTECTED AGAINST WASHOUTS AND SOIL EROSION. STRAW BALES SHALL BE PLACED AT THE INLET APPROACH TO ALL NEW OR EXISTING CULVERTS.

CHAIN LINK FENCE

PART 1 - GENERAL

4.01 SEQUENCING

A. IF THE SITE AREA HAS BEEN BROUGHT UP TO SURFACE COURSE ELEVATION PRIOR TO FENCE CONSTRUCTION, FENCE POST EXCAVATION SPOILS MUST BE CONTROLLED TO PRECLUDE CONTAMINATION OF SAID SURFACE COURSE.

4.02 APPLICABLE STANDARDS

ASTM-A120 SPECIFICATION FOR PIPE, STEEL BLACK AND HOT-DIPPED ZINC COATED (GALVANIZED) WELDED AND SEAMLESS FOR ORDINARY USES.

ASTM-A123 ZINC (HOT-DIP GALVANIZED) COATING ON IRON AND STEEL PRODUCTS.

ASTM-A525 STANDARD SPECIFICATION FOR STEEL SHEET ZINC COATED (GALVANIZED) BY THE HOT-DIPPED PROCESS.

FEDERAL SPECIFICATION RR-F-191-FENCING, WIRE AND POST METAL (AND GATES, CHAIN LINK FENCE FABRIC AND ACCESSORIES).

PART 2 - PRODUCTS

4.03 FENCE MATERIALS

A. ALL FABRIC WIRE, RAILS, POLES, HARDWARE AND OTHER SHALL MATERIALS SHALL BE HOT-DIPPED GALVANIZED.

B. FABRIC SHALL BE 8'-0" HIGH x 2" CHAIN LINK MESH OF NO. 9 GAUGE (0.148) WIRE. THE FABRIC SHALL HAVE A TWISTED AND BARBED FINISH FOR THE TOP EDGES AND A KNUCKLED FINISH FOR THE BOTTOM EDGES. FABRIC SHALL CONFORM TO THE SPECIFICATIONS OF ASTM A-392 CLASS 1.

C. BARBED WIRE SHALL BE DOUBLE-STRAND, 12 GAUGE TWISTED WIRE, WITH 14 GAUGE 4 POINT ROUND BARBS SPACED AT 5" O.C.

D. ALL POSTS SHALL BE SCHEDULE 20-GALVANIZED STEEL PIPE AND SHALL BE TYPE 1 ASTM A-123 AND OF THE FOLLOWING DIAMETER (DO PER FENCE INDUSTRY STANDARDS).

LINE	2 3/8"
CORNER	3"
GATE	3"

E. EXTEND GATE AND CORNER POSTS 12", INCLUDING DOME CAP, TO PROVIDE FOR ATTACHMENT OF BARBED WIRE.

F. ALL TOP AND BRACED RAIL SHALL BE 1 5/8" DIAMETER SCHEDULE - 20 MECHANICAL - SERVICE PIPE. FRAMES SHALL HAVE WELDED CORNERS.

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SUBMITTALS

A	01/20/12	ISSUED FOR 960 CONST

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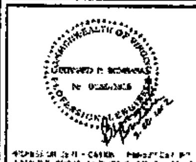

DESIGN TYPE:

SHEET TITLE:

SPECIFICATIONS

SHEET NUMBER:

SP-1

G. GATE FRAMES SHALL HAVE A FULL-HEIGHT VERTICAL BRACE AND A FULL-WIDTH HORIZONTAL BRACE, SECURED IN PLACE BY USE OF GATE BRACE CLAMPS.

H. GATE HINGES SHALL BE MERCHANTS METAL MODEL 64380 HINGE ADAPTER WITH MODEL 8400, 180 DEGREE DEGREE ATTACHMENT, OR EQUAL.

I. THE GUIDE (LATCH ASSEMBLY) SHALL BE TAMPER PROOF.

J. LATCHES, STOPS, AND KEEPERS SHALL BE PROVIDED FOR ALL GATES.

K. ALL STOPS SHALL HAVE A FULL-HEIGHT PLUNGER BAR WITH DOME CAP.

L. DOUBLE GATES SHALL HAVE A FULL-HEIGHT PLUNGER BAR WITH DOME CAP.

M. A NO. 7 GAUGE ZINC COATED TENSION WIRE SHALL BE USED AT THE BOTTOM OF THE FABRIC, TERMINATED WITH BAND CLIPS AT CORNER AND GATE POSTS.

N. A 6" X 1/2" EYE-BOLT TO HOLD TENSION WIRE WILL BE PLACED AT LINE POSTS.

O. STRETCHER BARS SHALL BE 3/16" X 3/4" OR HAVE EQUIVALENT CROSS SECTIONAL AREA.

P. ALL CORNER, GATE AND END PANELS SHALL HAVE A 3/8" TRUSS ROD WITH TURNBUCKLES AND BE BRACED WITH ONE 1-5/8" HORIZONTAL COMPRESSION MEMBER, SECURELY ATTACHED WITH IRON FITTINGS.

R. PROVIDE OTHER HARDWARE INCLUDING BUT NOT LIMITED TO TIE CLIPS, BAND CLIPS AND TENSION BAND CLIPS.

S. BARBED WIRE GATE GUARDS SHALL BE FITTED WITH DOME CAPS.

T. BARBED WIRE SUPPORT ARMS SHALL BE CAST IRON WITH SET BOLT AND LOCK WIRE IN THE ARM.

U. ALL CAPS SHALL BE CAST STEEL.

Y. INSTALL REDWOOD SLATTING IN BETWEEN ALL FABRIC WIRE - FULL HT. (IF REQUIRED)

PART 3 - EXECUTION

4.04 EQUIPMENT: EXCAVATE POST HOLES WITH MECHANICAL AUGER EQUIPMENT

4.05 INSPECTION: EXCAVATE POST HOLES PER CONSTRUCTION DOCUMENT CONFIRM PROPER DEPTH AND DIAMETER OF POST HOLE EXCAVATIONS.

4.00 INSTALLATION

A. POST FOUNDATIONS SHALL HAVE A MINIMUM 8" CONCRETE COVER UNDER POST.

B. ALL FENCE POSTS SHALL BE VERTICALLY PLUMB WITHIN 1/4" IN 0'-0".

C. AT CORNER POSTS, GATE POST AND SIDES OF GATE FRAME, FABRIC SHALL BE ATTACHED WITH STRETCHER AND TENSION BAND-CLIPS AT 1'-3" INTERVALS.

D. AT LINE POSTS, FABRIC SHALL BE ATTACHED WITH BAND-CLIPS AT 1'-3" INTERVALS.

E. ATTACH FABRIC TO BRACE RAILS, TENSION WIRE AND TRUSS RODS WITH TIE CLIPS AT 2'-8" INTERVALT.

F. A MAXIMUM GAP OF 1" WILL BE PERMITTED BETWEEN THE CHAIN LINK FABRIC AND THE FINAL GRADE.

G. GATES SHALL BE INSTALLED SO LOCKS ARE ACCESSIBLE FROM BOTH SIDES.

H. GATE HINGE BOLTS SHALL HAVE THEIR THREADS PEENED OR WELDED TO PREVENT UNAUTHORIZED REMOVAL.

4.07 PROTECTION: UPON COMPLETION OF ERECTION, INSPECT FENCE MATERIAL AND PAINT FIELD CUTS OR GALVANIZING BREAKS WITH ZINC-BASED PAINT COLOR TO MATCH THE GALVANIZING PROCESS.

CONCRETE

CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.01 DESCRIPTION

WORK INCLUDES CONSTRUCTION OF CAST-IN-PLACE CONCRETE FOUNDATIONS, INCLUDING FURNISHING AND INSTALLING READY-MIX CONCRETE, REINFORCING, FORM WORK, AND ACCESSORY MATERIALS AS SHOWN ON THE DRAWINGS. CAST-IN-PLACE CONCRETE INCLUDES ALL SITE CONCRETE, INCLUDING FOUNDATIONS, SLABS ON GRADE, EQUIPMENT PADS, AND GUARDPOST FOUNDATIONS.

1.02 RELATED WORK

A. COORDINATE UNDER SLAB CONDUITS.

B. COORDINATE WITH GROUNDING.

1.03 APPLICABLE STANDARDS

A. ACI-301 - SPECIFICATIONS FOR STRUCTURAL CONCRETE BUILDINGS.

B. ACI 347 - GUIDE TO FORM WORK FOR CONCRETE.

C. ASTM C33 - CONCRETE AGGREGATES.

D. ASTM C94 - READY-MIXED CONCRETE.

E. ASTM C150 - PORTLAND CEMENT.

F. ASTM C260 - AIR-ENTRAINING ADMIXTURES FOR CONCRETE.

G. ASTM C309 - LIQUID MEMBRANE FORMING COMPOUNDS FORMING COMPOUNDS FOR CURING CONCRETE.

H. ASTM C494 - CHEMICAL ADMIXTURES FOR CONCRETE.

I. ASTM A615 - STEEL WELDED WIRE FABRIC FOR CONCRETE REINFORCEMENT.

J. ASTM A185 - STEEL WELDED WIRE FABRIC FOR CONCRETE REINFORCEMENT.

1.04 QUALITY ASSURANCE

CONCRETE MATERIALS AND OPERATIONS SHALL BE TESTED AND INSPECTED BY THE ENGINEER

1.05 TESTS

CONCRETE MATERIALS AND OPERATIONS SHALL BE TESTED AND INSPECTED BY THE ENGINEER AS THE WORK PROGRESSES. FAILURE TO DETECT ANY DEFECTIVE WORK OR MATERIAL SHALL NOT IN ANY WAY PREVENT LATER MATERIAL REJECTION WHEN SUCH DEFECT IS DISCOVERED NOR SHALL IT OBLIGATE THE ENGINEER FOR FINAL ACCEPTANCE.

A. FIVE CONCRETE TEST CYLINDERS SHALL BE TAKEN OF THE TOWER AND PIER FOUNDATION. TWO SHALL BE TESTED @ THREE DAYS, TWO @ TWENTY-EIGHT DAYS. THE FIFTH CYLINDER SHALL BE KEPT SEPARATELY. IF REQUIRED TO BE USED IN THE FUTURE.

B. ONE ADDITIONAL TEST CYLINDER SHALL BE TAKEN DURING COLD WEATHER AND CURED ON SITE UNDER SAME CONDITIONS AS CONCRETE IT REPRESENTS.

G. ONE SLUMP TEST SHALL BE TAKEN FOR EACH SET OF TEST CYLINDERS TAKEN.

PART 2 - PRODUCT

2.01 CONCRETE MATERIALS

CONCRETE SHALL BE COMPOSED OF PORTLAND CEMENT, WATER, FINE AND COARSE AGGREGATES, AND ADMIXTURES AS SPECIFIED BELOW ALL WELL MIXED AND BROUGHT TO PROPER CONSISTENCY.

A. CEMENT: CEMENT SHALL BE TYPE II, GRAY COLOR, LOW -ALKALI PORTLAND CEMENT CONFORMING TO ASTM C150.

D. FINE AND COARSE AGGREGATES: AGGREGATES FOR USE IN CONCRETE SHALL COMPLY WITH ASTM C33.

C. WATER: WATER FOR MIXING AND CURING CONCRETE SHALL BE FREE FROM SEWAGE, OIL, ACID, ALKALI, AND SLATS AND SHALL BE FREE FORM OBJECTIONABLE QUANTITIES OF SILT, AND OTHER DELETERIOUS SUBSTANCES.

2.02 ADMIXTURES

A. AIR ENTRAINMENT: AIR ENTRAINING AGENT SHALL CONFORM TO ASTM C260. THE ADMIXTURE SHALL BE ADDED AS PART OF THE COMPUTED MIXING WATER REQUIREMENTS. AGENTS PREPARED IN SOLUTION SHALL BE MAINTAINED AT A UNIFORM STRENGTH AND SHALL BE BATCH BY MEANS OF RELIABLE MECHANICAL DISPENSERS.

B. CHEMICAL ADMIXTURES: ASTM 494, TYPE A-WATER REDUCING AND RETARDING.

3.03 CURING COMPOUND: ASTM C309, TYPE 1, CLASS B; TRANSLUCENT.

2.04 ACCESSORIES

A. NON-SHRINK GROUT: PREMIXED COMPOUND CONSISTING OF NONMETALLIC AGGREGATE, CEMENT, WATER REDUCING AND PLASTICIZING AGENTS; CAPABLE OF DEVELOPING MINIMUM COMPRESSIVE STRENGTH OF 7,000 PSI IN 28 DAYS.

B. JOINT FILLERS BITUMINOUS TYPE, ASTM D1751 OR NON-BITUMINOUS TYPE, ASTM D1752.

C. ANCHOR BOLTS: ASTM A307, UNPRIMED.

2.05 CONCRETE MIX

A. CONCRETE SHALL BE PROPORTIONED FOR WORKABILITY, MAXIMUM DENSITY, STRENGTH, AND DURABILITY REQUIREMENTS IN ACCORDANCE WITH ACI 301. THE 28 -DAY DESIGN COMPRESSIVE STRENGTH OF CONCRETE SHALL BE AS SPECIFIED ON THE DRAWINGS. CONCRETE FURNISHED MAY BE A COMMERCIAL READY-MIX PROVIDED THAT DELIVERY TO THE PLACING LOCATION IS SATISFACTORILY ESTABLISHED AS OCCURRING NOT LATER THAN 45 MINUTES AFTER ADDITION OF WATER TO THE MIX. SLUMP OF DELIVERED CONCRETE SHALL NOT EXCEED 5".

B. THE FOLLOWING STRENGTHS SHALL BE USED:

1. FENCE POSTS FOUNDATIONS - DESIGN COMPRESSIVE STRENGTH AT 28 DAYS OF 2,000 PSI.

2. EQUIPMENT FOUNDATIONS - DESIGN COMPRESSIVE STRENGTH AT 28 DAYS OF 4,000 PSI.

3. ALL OTHER CONCRETE NOT SPECIFIED - DESIGN COMPRESSIVE STRENGTH AT 28 DAYS OF 3,000 PSI.

4. CONCRETE SPECIFICATION FOR MONOPOLE OR TOWER FOUNDATION SHALL CONFORM TO MANUFACTURER'S RECOMMENDATIONS.

C. USE ACCELERATING ADMIXTURES IN COLD WEATHER ONLY WHEN APPROVED BY THE ENGINEER. USE OF ADMIXTURES WILL NOT RELAX COLD WEATHER PLACEMENT REQUIREMENTS.

D. USE SET-RETARDING ADMIXTURES DURING HOT WEATHER ONLY WHEN APPROVED BY THE ENGINEER.

E. ADD AIR ENTRAINING AGENT TO CONCRETE MIX FOR CONCRETE WORK SUBJECT TO OR EXPOSED TO EXTERIOR.

PART 3 - EXECUTION

3.01 INSPECTION

THE CONTRACTOR SHALL VERIFY ANCHORS, SEATS, PENETRATIONS, PLATES, REINFORCEMENT, AND OTHER ITEMS TO BE CAST INTO CONCRETE ARE ACCURATELY PLACED, HELD SECURELY, AND SHALL NOT CAUSE HARDSHIP IN PLACING CONCRETE.

3.02 PREPARATION

A. THE CONTRACTOR SHALL PREPARE PREVIOUSLY PLACED CONCRETE BY CLEANING WITH STEEL BRUSH AND APPLYING BONDING AGENT. APPLY BONDING AGENT IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

3.03 PLACING CONCRETE

A. THE ENGINEER SHALL BE NOTIFIED NOT LESS THAN 24 HOURS IN ADVANCE OF CONCRETE PLACEMENT, UNLESS INSPECTION IS WAIVED IN EACH CASE. PLACING OF CONCRETE SHALL BE PERFORMED ONLY IN THE PRESENCE OF THE ENGINEER.

CONCRETE SHALL NOT BE PLACED UNTIL ALL FORM WORK, EMBEDDED PARTS, STEEL REINFORCEMENT, FOUNDATION SURFACES, AND JOINTS INVOLVED IN THE PLACING HAVE BEEN APPROVED, AND UTIL FACILITIES ACCEPTABLE TO THE OWNER'S REPRESENTATIVE HAVE BEEN PROVIDED AND MADE READY FOR ACCOMPLISHMENT OF THE WORK AS SPECIFIED. CONCRETE MAY NOT BE ORDERCR FOR PLACEMENT UNTIL ALL ITEMS HAVE BEEN APPROVED AND OWNER HAS PERFORMED A FINAL INSPECTION AND GIVEN APPROVAL TO START PLACEMENT TESTING.

B. PLACEMENT OF CONCRETE SHALL BE IN ACCORDANCE WITH ACI 301.

C. THE CONTRACTOR SHALL ENSURE THAS REINFORCEMENT, INSERTS, EMBEDDED PARTS, FORMED JOINTS, AND VAPOR BARRIERS ARE NOT DISTURBED DURING CONCRETE PLACEMENT.

3.04 SURFACE FINISHES

A. SURFACES AGAINST WHICH BACKFILL OR CONCRETE SHALL BE PLACED REQUIRE NO TREATMENT EXCEPT REPAIR OF DEFECTIVE AREAS.

B. SURFACES THAT WILL BE PERMANENTLY EXPOSED SHALL PRESENT A UNIFORM FINISH PROVIDED BY THE REMOVAL OF FINS AND THE FILLING OF HOLES AND OTHER IRREGULARITIES WITH DRY PACK GROUT, OR BY SACKING WITH UTILITY OR ORDINARY GROUT.

C. SURFACES THAT WOULD NORMALLY BE LEVEL AND WHICH WILL BE PERMANENTLY EXPOSE TO THE WEATHER SHALL BE SLOPED FOR DRAINAGE. UNLESS ENGINEER'S DESIGN DRAWING SPECIFIES A HORIZONTAL SURFACE OF SURFACES, SUCH AS STAIR TREADS, WALLS, CURBS, AND PARAPETS SHALL BE SLOPED APPROXIMATELY 1/4 FT.

D. SURFACES THAT WILL BE COVERED BY BACKFILL OR CONCRETE SHALL BE SMOOTH SCREENED.

E. EXPOSED SLAB SURFACES SHALL BE CONSOLIDATED, SCREENED, FLOATED, AND STEEL TROWELED. HAND OR POWER-DRIVEN EQUIPMENT MAY BE USED FOR FLOATING SHALL BE STARTED AS SOON AS THE SCREENED SURFACE HAS ATTAINED A STIFFNESS TO PERMIT FINISHING OPERATIONS. FLOATING SHALL BE CONTINUED THE MINIMUM TIME REQUIRED TO PRODUCE A SURFACE UNIFORM IN TEXTURE AND FREE FROM SCREENED MARKS OR OTHER IMPERFECTIONS. THE FINAL FINISH SHALL BE PRODUCED BY USE OF STEEL-BLADED FINISHING TROWELS. STEEL TROWLING SHALL COMMENCE ONLY AFTER THE SURFACES TO BE FINISHED HAVE BEEN BROUGHT TO CORRECT ELEVATION AND ALL SURFACE IMPERFECTIONS CORRECTED, AND SHALL BE CONTINUED ONLY UNTIL THE SURFACE IS SMOOTH AND UNIFORM IN TEXTURE AND APPEARANCE. IF FREE WATER IS BROUGHT TO THE SURFACE DURING THE FINISHING OPERATIONS, IT SHALL BE REMOVED BY SPONGING. FINISHING SHALL BE TIMED AND PERFORMED SO THAT EXTRA WATER NEED NOT BE APPLIED TO THE SURFACE BEING TROWELED.

3.05 PATCHING

THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY UPON REMOVAL OF THE FORMS TO OBSERVE CONCRETE SURFACE CONDITIONS. IMPERFECTIONS SHALL BE PATCHED ACCORDING TO THE ENGINEER'S DIRECTION.

3.06 DEFECTIVE CONCRETE

THE CONTRACTOR SHALL NOTIFY OR REPLACE CONCRETE NOT CONFORMING TO REQUIRED LEVELS AND LINES, DETAILS, AND ELEVATIONS AS SPECIFIED IN ACI 301.

3.07 PROTECTION

A. IMMEDIATELY AFTER PLACEMENT, THE CONTRACTOR SHALL PROTECT THE CONCRETE FROM PREMATURE DRYING, EXCESSIVELY HOT OR COLD TEMPERATURES, AND MECHANICAL INJURY. FINISH WORK SHALL BE PROTECTED.

B. CONCRETE SHALL BE MAINTAINED WITH MINIMAL MOISTURE LOSS AT RELATIVELY CONSTANT TEMPERATURE FOR PERIOD NECESSARY FOR HYDRATION OF CEMENT AND HARDENING OF CONCRETE.

C. ALL CONCRETE SHALL BE WATER CURED BY CONTINUOUS (NOT PERIODIC) FINE MIST SPRAYING OR SPRINKLING ALL EXPOSED SURFACES. WATER SHALL BE CLEAN AND FREE FROM ACID, ALKALI SALTS, OIL, SEDIMENT, OR ORGANIC MATTER. SUCCESSFUL CURING SHALL BE ASSURED BY USE OF AN AMPLE WATER SUPPLY UNDER PRESSURE IN PIPES, WITH ALL NECESSARY APPLIANCES OF HOSE, SPRINKLERS, AND SPRAYING DEVICES.

METALS

PART 1 - GENERAL

1.01 WORK INCLUDED

A. THE WORK CONSISTS OF THE FABRICATION AND INSTALLATION OF ALL MATERIALS TO BE FURNISHED, AND WITHOUT LIMITING THE GENERALITY THEREOF, INCLUDES ALL EQUIPMENT, LABOR AND SERVICES REQUIRED FOR ALL STRUCTURAL STEEL WORK INCLUDING ALL ITEMS INCIDENTAL THERETO AS SPECIFIED HEREIN AND AS SHOWN ON THE DRAWINGS. INCLUDING:

1. STEEL FRAMING INCLUDING BEAMS, ANGLES, CHANNELS AND PLATES.

2. WELDING AND BOLTING OF ATTACHMENTS.

1.02 REFERENCE STANDARDS

A. THE WORK SHALL CONFORM TO THE CODES AND STANDARDS OF THE FOLLOWING AGENCIES AS FURTHER SPECIFIED HEREIN:

1. ASTM: AMERICAN SOCIETY FOR TESTING AND MATERIALS, 198 RACE STREET, PHILADELPHIA, PA 19103, USA AS PUBLISHED IN "COMPILATION OF ASTM STANDARDS IN BUILDING CODES".

2. AWS: AMERICAN WELDING SOCIETY INC., 2501 NW 7TH STREET, MIAMI, FL 33125 USA AS PUBLISHED IN "CODE FOR STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES"; "SPECIFICATIONS FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS."

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PART 2 - PRODUCTS

2.01 MATERIALS

A. STRUCTURAL STEEL: SHALL COMPLY WITH THE REQUIREMENTS OF ASTM A36 AND A50 FOR STRUCTURAL STEEL.

2.02 WELDING

A. ALL WELDING SHALL BE DONE BY CERTIFIED WELDERS. CERTIFICATION DOCUMENTS SHALL BE MADE AVAILABLE FOR ENGINEER'S AND/OR OWNER'S REVIEW IF REQUESTED.

B. WELDING ELECTRODES FOR MANUAL SHIELDED METAL ARC WELDING SHALL CONFORM TO ASTM 1-233, E70 SERIES. BARE ELECTRODES AND GRANULAR FLUX USED IN THE SUBMERGED ARC PROCESS SHALL CONFORM TO AISC SPECIFICATIONS.

C. FIELD WELDING SHALL BE DONE AS PER AWSD1.1 REQUIREMENTS VISUAL INSPECTION IS ACCEPTABLE.

D. STUD WELDING SHALL BE ACCOMPLISHED BY CAPACITOR DISCHARGE (CD) WELDING TECHNIQUE USING MIDWEST FASTENERS, INC. CD100 CAPACITOR DISCHARGE STUD WELDER OR EQUAL.

1.2 PROVIDE STUD FASTENERS OF MATERIALS AND SIZES SHOWN ON DRAWINGS OR AS RECOMMENDED BY THE MANUFACTURER FOR STRUCTURAL LOADINGS REQUIRED.

2.3 FOLLOW MANUFACTURERS SPECIFICATIONS AND INSTRUCTIONS TO PROPERLY SELECT AND INSTALL STUD WELDS.

2.03 BOLTING

A. BOLTS SHALL BE 3/4" (MINIMUM) CONFORMING TO ASTM A325 HOT DIP GALVANIZED OR ASTM A153, NUTS SHALL BE HEAVY HEX TYPE.

B. ALL BOLTS SHALL BE INSTALLED IN SLIP CRITICAL CONNECTIONS CONFORMING TO AISC METHOD, CONFORMING TO THE 1/4 TURN METHOD.

2.04 FABRICATION

A. FABRICATION OF STEEL SHALL CONFORM TO THE AISC AND AWS STANDARDS AND CODES.

2.05 FINISH

A. STRUCTURAL STEEL EXPOSED TO WEATHER SHALL BE HOT-DIP GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123.

2.06 PROTECTION

A. UPON COMPLETION OF ERECTION INSPECT ALL GALVANIZED STEEL AND PAINT ANY FIELD CUTS, WELDS, OR GALVANIZED BREAKS WITH ZINC BASED PAINT. COLOR TO MATCH THE GALVANIZING PROCESS.

3.01 ERECTION OF STEEL

A. PROVIDE ALL ERECTION EQUIPMENT, BRACING, PLANKING, FIELD BOLTS, NUTS, WASHERS, DRIFT PINS, AND SIMILAR MATERIALS WHICH DO NOT FORM A PART OF THE COMPLETED CONSTRUCTION, BUT ARE NECESSARY FOR PROPER ERECTION.

B. ERECT AND ANCHOR ALL STRUCTURAL STEEL IN ACCORDANCE WITH AISC REFERENCE STANDARDS. ALL WORK SHALL BE ACCURATELY SET TO ESTABLISHED ATTACHMENTS TO THE CONSTRUCTION OF THE BUILDING.

C. TEMPORARY BRACING, GUYING, AND SUPPORT SHALL BE PROVIDED TO KEEP THE STRUCTURE SET AND ALIGNED AT ALL TIMES DURING CONSTRUCTION, AND TO PREVENT DANGER TO PERSONS AND PROPERTY. CHECK ALL TEMPORARY LOADS AND STAY WITHIN SAFE CAPACITY OF ALL BUILDING COMPONENTS.

SPECIAL CONSTRUCTION
ANTENNA INSTALLATION

PART 1 - GENERAL

1.01 WORK INCLUDED

A. ANTENNAS AND COAXIAL CABLES ARE FURNISHED BY CRICKET UNDER SEPARATE CONTRACT. THE CONTRACTOR SHALL BE ANTENNA INSTALLATION CONTRACTOR IN TERMS OF COORDINATION AND SITE ACCESS. ERECTION SUBCONTRACTOR SHALL BE RESPONSIBLE FOR THE PROPERTY.

B. INSTALL ANTENNAS AS INDICATED ON DRAWINGS AND CRICKET COMMUCATIONS SPECIFICATIONS.

D. INSTALL FURNISHED GALVANIZED STEEL OR ALUMINUM WAVEGUIDE AS INDICATED ON DRAWINGS.

E. CONTRACTOR SHALL PROVIDE FOUR (4) SETS OF SWEEP TEST UNDER HEWLETT-PACKARD 8713B RF SCALAR NETWORK ANALYZER SUBMIT FREQUENCY DOMAIN REFLECTOMETER (FDR) TEST RESULTS TO THE PROJECT MANAGER. TESTING SHALL BE PERFORMED BY AN INDEPENDENT TESTING SERVICE AND BE BOUND AND SUBMITTED WITHIN ONE WEEK OF WORK COMPLETION.

F. INSTALL COAXIAL CABLES AND TERMINATIONS BETWEEN ANTENNAS AND EQUIPMENT PER MANUFACTURER'S. RECOMMENDATIONS. WEATHERPROOF ALL CONNECTORS BETWEEN THE ANTENNA AND EQUIPMENT PER MANUFACTURER'S REQUIREMENTS. TERMINATE ALL COAXIAL CABLE THREE (3) FEET IN EXCESS OF ENTRY PORT LOCATION UNLESS OTHERWISE STATED.

G. ANTENNA AND COAXIAL CABLE GROUNDING:

1. ALL EXTERIOR #6 GREEN GROUND WIRE DAISY CHAIN CONNECTIONS ARE TO BE WEATHER SEALED WITH ANDREWS CONNECTOR/SPLICE WEATHERPROOFING KIT TYPE 3221213 OR EQUIVALENT.

2. ALL COAXIAL CABLE GROUNDING KITS ARE TO BE INSTALLED ON STRAIGHT RUNS OF COAXIAL CABLE (NOT WITHIN BENDS).

1.02 RELATED WORK

FURNISH THE FOLLOWING WORK AS SPECIFIED UNDER CONSTRUCTION DOCUMENTS, BUT COORDINATE WITH OTHER TRADES PRIOR TO BD:

1. FLASHING OF OPENING INTO OUTSIDE WALLS.
2. SEALING AND CAULKING ALL OPENINGS.
3. PAINTING.
4. CUTTING AND PATCHING.

1.03 REQUIREMENTS OF REGULATOR AGENCIES

A. FURNISH U.L. LISTED EQUIPMENT WHERE SUCH LABEL IS AVAILABLE. INSTALL IN CONFORMANCE WITH U.L. STANDARDS WHERE APPLICABLE.

B. INSTALL ANTENNA, ANTENNA CABLES, GROUNDING SYSTEM IN COORDANCE WITH DRAWINGS AND SPECIFICATIONS IN EFFECT AT PROJECT LOCATION AND RECOMMENDATIONS OF STATE AND LOCAL BUILDING CODES HAVING JURISDICTION OVER SPECIFIC PORTIONS OF WORK. THIS WORK INCLUDES, BUT IS NOT LIMITED TO THE FOLLOWING:

1. EIA - ELECTRONIC INDUSTRIES ASSOCIATION RS-22. STRUCTURAL STANDARDS FOR STEEL ANTENNA TOWERS AND ANTENNA SUPPORTING STRUCTURES.

2. FAA - FEDERAL AVIATION ADMINISTRATION ADVISORY CIRCULAR AC 70/7460-1H, CONSTRUCTION MARKING AND LIGHTING.

3. FCC - FEDERAL COMMUNICATION COMMISSION RULES AND REGULATIONS FORM 715, OBSTRUCTION MARKING AND LIGHTING SPECIFICATION FOR ANTENNA STRUCTURES

4. AISC - AMERICAN INSTITUTE OF STEEL CONSTRUCTION FOR STRUCTURAL JOINTS USING ASTM 1325 OR A490 BOLTS.

5. NEC - NATIONAL ELECTRIC CODE - ON TOWER LIGHTING KITS.

6. UL - UNDERWRITER'S LABORATORIES APPROVED ELECTRICAL PRODUCTS.

7. IN ALL CASES, PART 77 OF THE FAA RULES AND PARTS 17 AND 72 OF THE FCC RULES ARE APPLICABLE AND IN THE EVENT OF CONFLICT, SUPERSEDE ANY OTHER STANDARDS OR SPECIFICATIONS.

8. LIFE SAFETY CODE NFPA LATEST EDITION.

ELECTRICAL SPECIFICATIONS

GENERAL PROPERTIES

A. REQUIREMENTS: FURNISH ALL LABOR, MATERIALS, SERVICE, EQUIPMENT, AND APPLIANCES REQUIRED TO COMPLETE THE INSTALLATION OF THE COMPLETE ELECTRICAL SYSTEM IN ACCORDANCE WITH THE SPECIFICATIONS AND CONTRACT DRAWINGS.

B. REQUIREMENTS OF REGULATORY AGENCIES AND STANDARDS: INSTALLATION, MATERIAL, EQUIPMENT AND WORKMANSHIP SHALL CONFORM TO THE APPLICABLE PROVISIONS OF THE NATIONAL ELECTRIC CODE (NEC) - APPLICABLE STATE ELECTRIC CODES. THE NATIONAL ELECTRICAL SAFETY CODES (NESC), AND THE TERMS AND THE CONDITIONS OF THE AUTHORITIES HAVING LAWFUL JURISDICTION PERTAINING TO THE WORK REQUIRED. ALL MODIFICATIONS REQUIRED BY THESE CODES, RULES, REGULATIONS, AND AUTHORITIES SHALL BE MADE BY THE CONTRACTOR WITHOUT ADDITIONAL CHARGE TO THE UNDERWRITER'S LABORTORIES (UL): ALL MATERIALS, APPLIANCES, OR DEVICES SHALL CONFORM TO THE APPLICABLE STANDARDS OF UNDERWRITER'S LABORTORIES, INC. THE LABEL OF, OR LISTING BY; U.L. IS REQUIRED.

C. MATERIALS: ALL SIMILAR MATERIALS AND EQUIPMENT SHALL BE THE PRODUCT OF THE SAME MANUFACTURER WHERE NO SPECIFIC MATERIAL APPARATUS OR APPLIANCE IS MENTIONED. MANUFACTURER MAY BE USED PROVIDING IT CONFORMS TO THE CONTRACT REQUIREMENTS AND MEETS THE APPROVAL OF THE OWNER. MATERIAL AND EQUIPMENT SHALL BE THE STANDARD PRODUCTS OF MANUFACTURER'S REGULARLY ENGAGED IN THE PRODUCTIONS OF SUCH MATERIAL AND SHALL BE THE MANUFACTURER' CURRENT IN STANDARD AND DESIGN.

D. EXECUTION: FABRICATION, ERECTION, AND INSTALLATION OF THE COMPLETE ELECTRICAL SYSTEM SHALL BE DONE IN A FIRST CLASS WORKMANLIKE MANNER BY QUALIFIED PERSONNEL EXPEIENCE IN SUCH WORK AND SHALL PROCEED IN AN ORDERLY MANNER SO AS NOT TO HOLD UP PROGRESS OF THE PROJECT.

E. PERFORMANCE TESTS: THOROUGHLY TEST FEEDERS, EQUIPMENT AND ALL CIRCUITS FOR PROPER OPERATING CONDITION AND FREEDOM FROM GROUNDS AND SHORT CIRCUITS BEFORE ACCEPTANCE IS REQUESTED ALL EQUIPMENT, APPLIANCES, AND DEVICES SHALL BE OPERATED UNDER LOAD CONDITIONS.

F. AS-BUILT DRAWINGS: DURING PROCESS OF THE WORK. MAINTAIN AN ACCURATE RECORD OF THE INSTALLATION OF THE SYSTEM, LOCATING EACH CIRCUIT PRECISELY BY DIMENSION. UPON COMPLETION OF THE INSTALLATION, TRANSFER ALL RECORDED DATA TO BLUE PRINTS OF THE ORIGINAL DRAWINGS.

RACEWAYS AND FITTINGS

A. CONDUITS: ELECTRICAL METALLIC TUBING (EMT): MILD STEEL. ZINC COATED ON THE OUTSIDE AND EITHER ZINC COATED OR COATED WITH AN APPROVED CORROSION RESISTANT COATING ON THE INSIDE. MAXIMUM, SIZE 2 ELECTRICAL TRADE SIZE, UNLESS NOTED ON THE DRAWINGS OR SPECIFICALLY APPROVED FOR EQUIPMENT CONNECTIONS. SIZES NOT NOTED ON DRAWINGS SHALL BE AS REQUIRED BY NEC.

B. CONDUIT FITTINGS: CONNECTORS AND COUPLINGS: EMT COUPLINGS AND CONNECTORS EITHER STEEL OR MALLEABLE IRON ONLY. CONCRETE TIGHT OR RAIN TIGHT AND EITHER THE GLAND AND RING COMPRESSION TYPE OR THE STAINLESS STEEL MULTIPLE LOCKING TYPE, CONNECTORS TO HAVE INSULATED THROATS, EMT FITTINGS USING SET SCREWS OR INDENTATIONS AS A MEANS OF ATTACHMENT ARE NOT TO BE PERMITTED. BUSHINGS: INSULATED TYPE DESIGNED TO PREVENT ABRASION OF WIRES WITHOUT IMPAIRING THE CONTINUITY OF THE CONDUIT, IMC AND RIGID ALUMINUM CONDUIT.

C. CONDUIT INSTALLATIONS: CONDUITS SYSTEMS, EMT, OR RIGID NONMETALLIC CONDUIT UNLESS NOTED. CONDUIT INSTALLATION: INSTALL CONCEALED CONDUIT AND EMT IN AS DIRECT LINES AS POSSIBLE. INSTALL EXPOSED CONDUITS AND EMT PARALLEL TO OR AT RIGHT ANGLES TO THE LINES OF THE BUILDING. RIGHT ANGLE BENDS IN EXPOSED CONDUIT AND EMT RUNS SHALL BE MADE WITH STANDARD ELBOWS, SCREW JOINTED CONDUIT FITTINGS OR CONDUIT BENT TO RADIUS NO LESS THAN THOSE OF STANDARD ELBOWS.

D. CONDUIT SUPPORTS: PROVIDE SUPPORTS FOR HORIZONTAL CONDUITS AND EMT NOT MORE THAN 8 FEET APART WITH NOT LESS THAN TWO ELBOW OR BEND INCLUDING RUNS ABOVE SUSPENDED CEILINGS AND WITHIN 3 FEET OF ALL JUNCTION BOXES, SWITCHES, FITTINGS, ETC. INSTALL HOLE PIPE STRAPS ON CONDUITS 1 INCH OR SMALLER. INSTALL INDIVIDUAL PIPE HANGERS FOR CONDUITS LARGER THAN 1 INCH. SPRING STEEL FASTNERS WITH HANGER RODS MAY BE USED IN DRY LOCATIONS IN LIEU OF PIPE STRAPS.

CONDUCTORS

A. WIRES AND CABLES (600 VOLTS): CONFORM TO THE APPLICABLE UL AND IPCEA STANDARDS FOR THE USE INTENDED. COPPER CONDUCTORS WITH 600 VOLTS INSULATION UNLESS OTHERWISE SPECIFIED OR NOTED ON THE DRAWINGS. STRANDED CONDUTORS FOR NO. 8 OR LARGER WHERE ELSEWHERE SPECIFIED OR NOTED ON THE DRAWINGS. USE OF ALUMINUM CONDUCTORS WILL NOT BE PERMITTED. INSULATION SHALL BE TYPE THHN/THWN INSULATION 75' FOR ALL CONDUCTORS, OTHERWISE SPECIFIED CONDUCTORS COLOR-CODED IN ACCORDANCE WITH NEC. CONNECT ALL CONDUCTORS OF THE SAME PHASE CONDUCTOR, COLOR CODING SHALL BE A-BLACK, B-RED,N-WHITE, WITH GREEN FOR ALL GROUND CONDUCTORS.

B. CONNECTORS AND LUGS: FOR COPPER CONDUCTORS NO. 9 AND SMALLER: 3M SCOTCH-LOK OR T & B STA-KON COMPRESSON OR INDENT TYPE CONNECTORS WITH INTEGRAL OR SEPARATE INSULATING CAPS. FOR COPPER CONDUCTORS LARGER THAN NO. 8 SOLDERLESS INDENT HEX SCREW OR BOLT TYPE PRESSURE CONDUCTORS, PROPERLY TAPED OR INSULATED.

C. SPLICES: (480 VOLTS AND UNDER): CONDUCTOR LENGTHS SHALL BE CONTINUOUS FROM TERMINATION TO TERMINATION WITHOUT SPLICES UNLESS APPROVED BY THE BUILDING INSPECTOR.

CIRCUIT BREAKERS

A. PROVIDE MOLDED CASE, BOLT-ON, THERMAL MAGNETIC TRIP, SINGLE, TWO, OR THREE POLE BRANCH CIRCUIT BREAKERS AS SHOWN ON DRAWINGS. MULTIPLE POLE BREAKERS SHALL BE SINGLE HANDLE, COMMON TRIP, A/C RATING TO MATCH EXISTING OR AS REQUIRED FOR AVAILABLE FAULT CURRENTS.

GROUNDING

1. ALL ELECTRICAL AND GROUNDING AT THE CELL SITE SHALL COMPLY WITH THE NATIONAL ELECTRICAL CODE (NEC), NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) 780 (LATEST EDITION), AND MANUFACTURER.

2. IF THE AC PANEL IN THE POWER CABINET IS WIRED AS SERVICE ENTRANCE. THE AC SERVICE GROUND CONDUCTOR SHALL BE CONNECTED TO GROUND ELECTRODE SYSTEM. WHEN THE AC PANEL IN THE POWER CABINET IS CONSIDERED A SUB-PANEL, THE GROUND WIRE SHALL BE INSTALLED IN THE AC POWER CONDUIT. THE INSTALLATION SHALL BE PER LOCAL AND NATIONAL ELECTRIC CODE (NFPA-70).

3. EXOTHERMIC WELDING IS RECOMMENDED FOR GROUNDING CONNECTION WHERE PRACTICAL OTHERWISE, THE CONNECTION SHALL BE MADE USING COMPRESSION TYPE-2 HOLES. LONG BARREL LUGS OR DOUBLE CRIMP CLAMP "C" CLAMP. THE COPPER CABLES SHALL BE COATED WITH ANTIOXIDANT (COPPER SHIELD) BEFORE MAKING THE CEMO CONNECTIONS. THE MANUFACTURER'S TORQUING RECOMMENDATIONS ON THE BOLT ASSEMBLY TO SECURE CONNECTIONS ARE TO BE FOLLOWED.

4. THE ANTENNA CABLES SHALL BE GROUNDED AT THE TOP AND BOTTOM OF THE VERTICAL RUN FOR LIGHTING PROTECTION. THE ANTENNA CABLE SHIELD SHALL BE BONDED TO A COPPER GROUND BUS AT THE LOWERMOS POINT OF A VERTICAL RUN JUST BEFORE IT BEGINS TO BEND TOWARD THE HORIZONTAL PLANE. WIRE RUNS TO GROUNR SHALL BE KEPT AS STRAIGHT AND SHORT AS POSSIBLE. ANTENNA CABLE SHIELD SHALL BE GROUNDED JUST BEFORE ENTERING THE CELL CABINET. ANY ANTENNA CABLES OVER 200 FEET IN LENGTH SHALL ALSO BE EQUIPPED WITH ADDITIONAL GROUNDING AT MID-POINT.

5. ALL GROUNDING CONDUCTORS INSIDE THE BUILDING SHALL BE RUN IN CONDUIT RACEWAY SYSTEM, AND SHALL BE INSTALLED AS STRAIGHT AS PRACTICAL WITH MINOR BENDS TO AVOID OBSTRUCTIONS. THE BENDING RADIUS OF ANY #2 GROUNDING CONDUCTOR IS 8". PVC RACEWAY MAY BE FLEXIBLE OR RIGID PER THE FIELD CONDITIONS. GROUNDING CONDUITORS SHALL NOT MAKE CONTACT WITH ANY METALLIC CONDUITS, SURFACES, OR EQUIPMENT.

6. PROVIDE PVC SLEEVES WHERE GROUNDING CONDUCTORS PASS THROUGH THE BUILDING WALLS AND/OR CEILINGS.

7. INSTALL GROUND BUSHINGS ON ALL METALLIC CONDUITS AND BOND TO THE EQUIPMENT GROUND BUS IN THE PANELBOARD.

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8. GROUND ANTENNA BASES, FRAMES, CABLE RACKS, AND OTHER METALLIC COMPONENTS WITH #2 GROUNDING CONDUCTORS AND CONNECT TO INSULATED SURFACE MOUNTED GROUND BARS. CONNECTION DETAILS SHALL FOLLOW MANUFACTURER'S SPECIFICATIONS FOR GROUNDING.

9. GROUND COAXIAL SHIELD AT BOTH ENDS USING MANUFACTURER'S GUIDELINES.

GROUND FIELD TEST PROCEDURE:

1. THE CONTRACTOR SHALL BE RESPONSIBLE TO PROVIDE A "FALL OF POTENTIAL" TEST ON THE NEW SUPPLEMENTAL GROUND FIELD PRIOR TO FINAL CONNECTION OF THE GROUNDING SYSTEM TO EQUIPMENT.THE TEST SHALL BE PERFORMED BY A QUALIFIED AND CERTIFIED TESTING AGENT. PROVIDE INDEPENDENT TEST RESULTS TO THE PROJECT MANAGER FOR REVIEW. THE GROUND SYSTEM RESISTANCE TO EARTH GROUND SHALL NOT EXCEED FIVE (5) ohms. IF THE GROUND TEST EXCEEDS THE MAXIMUM OF 5 OHMS THE CONTRACTOR SHALL BE RESPONSIBLE TO PROVIDE ADDITIONAL GROUND CONNECTIONS AS REQUIRED TO MEET THE 5 ohms MAXIMUM. (CLAMP ON TEST WHEN SITE HAS COMMERCIAL POWER)

ENCLOSURES:

1. ANY ENCLOSURES PURCHASED BY THE CONTRACTOR SHALL BE STAINLESS STEEL, NEMA 4X (WEATHERPROOF) CONSTRUCTION. HOFFMAN ENCLOSURES OR APPROVED EQUAL.

GENERAL NOTES

1. CONTRACTOR SHALL INSPECT THE EXISTING CONDITIONS PRIOR TO SUBMITTING BID. ANY QUESTIONS ARISING DURING THE BID PERIOD IN REGARDS TO THE CONTRACTORS FUNCTIONS, THE SCOPE OF WORK, OR ANY OTHER ISSUERELATED TO THIS PROJECT SHALL BE BROUGHT UP DURING THE BID PERIOD WITH THE PROJECT MANAGER FOR CLARIFICATION, NOT AFTER THE CONTRACT HAS BEEN AWARDED.

2. LOCATION OF EQUIPMENT, CONDUIT AND DEVICES SHOWN ON THE DRAWINGS ARE APPROXIMATE AND SHALL BE COORDINATED WITH FIELD CONDITIONS PRIOR TO ROUGH-IN.

3. THE CONDUIT RUNS AS SHOWN ON THE PLANS ARE APPROXIMATE. EXACT LOCATION AND ROUTING SHALL BE PER EXISTING FIELD CONDITIONS.

4. PROVIDE PULL BOXES AND JUNCTION BOXES WHERE SHOWN OR REQUIRED BY NEC.

5. ALL CONDUITS SHALL BE MET WITH BENDS MADE IN ACCORDANCE WITH NEC TABLE 346-10. NO RIGHT ANGLE DEVICE OTHER THAN STANDARD CONDUIT ELBOWS WITH 12" MINIMUM INSIDE SWEEPS FOR ALL CONDUITS 2" OR LARGER.

6. ALL CONDUIT TERMINATIONS SHALL BE PROVIDER WITH PLASTIC THROAT INSULATING GROUNDING BUSHINGS.

7. ALL WIRE SHALL BE TYPE THWN, SOLID, ANNEALED COPPER UP TO SIZE #10 AWG (#8 AND LARGER SHALL SHALL BE CONCENTRIC STRANDED) 75 DEGREE C. (167 DEGREES F), 88% CONDUCTIVITY, MINIMUM #12.

8. ALL WIRES SHALL BE TAGGED AT ALL PULL BOXES, J-BOXES, EQUIPMENT BOXES AND CABINETS WITH APPROVED PLASTIC TAGS. ACTION CRAFT, BRADY, OR APPROVED EQUAL.

9. ALL NEW MATERIAL SHALL HAVE A U.L. LABEL.

10. CONDUIT ROUGH-IN SHALL BE COORDINATED WITH THE MECHANICAL EQUIPMENT TO AVOID LOCATION TO CONFLICTS. VERIFY WITH MECHANICAL CONTRACTOR AND COMPLY AS REQUIRED.

11. ALL PANEL DIRECTORIES SHALL BE TYPEWRITTEN NOT HAND WRITTEN.

12. INSTALL AN EQUIPMENT GROUNDING CONDUCTOR IN ALL CONDUITS PER THE SPECIFICATIONS AND NEC. THE EQUIPMENT GROUNDING CONDUCTORS SHALL BE BONDED AT ALL JUNCTION BOXES, PULLBOXES, AND ALL DISCONNECT SWITCHES, STARTERS, AND EQUIPMENT CABINETS.

13. THE CONTRACTOR SHALL PREPARE AS-BUILT DRAWINGS, DOCUMENT ANY AND ALL WIRING AND EQUIPMENT CONDITIONS AND CHANGES WHILE COMPLETING THIS CONTRACT. SUBMIT AT SUBSTANTIAL COMPLETION.

14. ALL DISCONNECT SWITCHES AND OTHER CONTROLLING DEVICES SHALL BE PROVIDED WITH ENGRAVED LAMICOID NAMEPLATE INDICATING EQUIPMENT CONTROLLED, BRANCH CIRCUITS INSTALLED ON, AND PANEL FIELD LOCATIONS FED FROM (NO EXCEPTIONS.)

15. ALL ELECTRICAL DEVICES AND INSTALLATIONS OF THE DEVICES SHALL COMPLY WITH (ADA) AMERICANS WITH DISABILITIES ACR AS ADOPTED BY THE APPLICABLE STATE.

16. PROVIDE CORE DRILLING AS NECESSARY FOR PENETRATIONS OR RISERS THROUGH BUILDING. DO NOT PENETRATE STRUCTURAL MEMBERS WITHOUT CONSTRUCTION MANAGERS APPROVAL. SLEEVES AND/OR PENETRATIONS IN FIRE RATED CONSTRUCTION SHALL BE PACKED WITH FIRE RATED MATERIAL WHICH SHALL MAINTAIN THE FIRE RATING OF THE WALL OR STRUCTURE. FILL FOR FLOOR PENETRATIONS SHALL PREVENT PASSAGE OF WATER, SMOKE, FIRE AND FUMES. ALL MATERIAL SHALL BE UL APPROVED FOR THIS PURPOSE.

17. ELECTRICAL CHARACTERISTICS OF ALL EQUIPMENT (NEW AND EXISTING) SHALL BE FIELD VERIFIED WITH THE OWNER'S REPRESENTATIVE AND EQUIPMENT SUPPLIER PRIOR TO ROUGH-IN OF CONDUIT AND WIRE. ALL EQUIPMENT SHALL BE PROPERLY CONNECTED ACCORDING TO THE NAMEPLATE DATA FURNISHED.

18. THE EQUIPMENT (THE DESIGN OF THESE PLANS ARE BASED UPON BEST AVAILABLE INFORMATION AT THE TIME OF DESIGN AND SOME EQUIPMENT CHARACTERISTICS MAY VARY FROM DESIGN AS SHOWN ON THESE DRAWINGS). LOCATION OF ALL OUTLET, BOXES, ETC., AND THE TYPE OF CONNECTION (PLUG OR DIRECT) SHALL BE CONFIRMED WITH THE OWNER'S REPRESENTATIVE PRIOR TO ROUGH-IN.

cricket communications Inc.
6671 Santa Barbara Road, Suite O
Elkridge, MD 21075
(410) 367-7800 (O)
(410) 796-4923 (F)

GALLETTA
ENGINEERING CORPORATION
Consulting Engineers
1300 Penn Avenue
Pittsburgh, Pa. 15222
Phone: (412) 281-3357
Fax: (412) 281-8489

A&E PROJ. NO.:

DRAWN BY:

CHECKED BY:

SUBMITTALS

A	01/20/12	ISSUED FOR 90D CONST

THE INFORMATION CONTAINED IN THIS SET OF DOCUMENTS IS PROPRIETARY IN NATURE. ANY USE OR DISCLOSURE OTHER THAN THAT IN CONNECTION WITH CLIENT NAME'S STRICTLY PROHIBITED.

COMMONWEALTH OF VIRGINIA
GERARD P. BONAVITA
No. 012001656
PROFESSIONAL ENGINEER

DESIGN TYPE:

SHEET TITLE:

SPECIFICATIONS

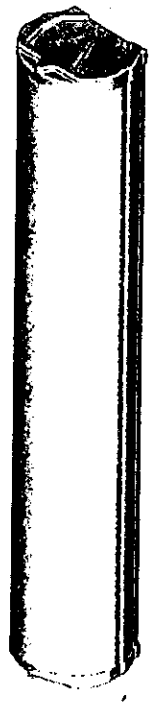
SHEET NUMBER:

SP-4

Amphenol ANTENNA SOLUTIONS

WBX065A19Rx50

X-Pol | 2-Way VET with Remote Azimuth Steering | 65° | 19.3 dBi



Ordering Options	INCLUDES: Internal RET	Internal Bias-T	BTS AISG Modem	Use With
WBX065A19R050	Yes	No	No	AISG RET cabling only
WBX065A19R250	Yes	Yes	No	Removable BTS AISG Bias-T MODEM100 or MODEM101
WBX065A19R250-0	Yes	Yes	MODEM100 (DF/DF)	—
WBX065A19R250-1	Yes	Yes	MODEM101 (DF/DM)	—

Electrical Characteristics	1710-2170 MHz		
Frequency bands	1710-1880 MHz	1850-1990 MHz	1900-2170 MHz
Polarization	±45°	±45°	±45°
Horizontal beamwidth	68°	66°	64°
Vertical beamwidth	5.3°	5.1°	4.7°
Gain	16.3 dBd / 18.4 dBi	16.6 dBd / 18.7 dBi	17.2 dBd / 19.3 dBi
Electrical downtilt	2-8° Variable Electrical Tilt		
Adjustable azimuth steering	±30°		
Impedance	50Ω		
VSWR	< 1.4:1		
Upper sidelobe suppression	< 20 dB typical		
Front-to-back ratio	> 25 dB		
In band isolation	> 28 dB		
IM3 (2x20W carrier)	< -153 dBc		
Input power	2 x 300 W		
Input DC power (where applicable)	10V - 30V DC		
Modem frequency (where applicable)	2.176 MHz		
Lightning protection (where applicable)	Gas discharge		
Connector(s)	2 ports / 7/16 DIN / Female / Bottom		
Operating temperature	-40° to +60° C / -40° to +140° F		

Mechanical Characteristics		
Dimensions Length x Width x Depth	1829 x 228 x 187 mm	72.0 x 9.0 x 7.4 in
Weight without mounting brackets	15.0 kg	33 lbs
Survival wind speed	201 km/hr	125 mph
Wind load @ 161 km/hr (100 mph)	Front: 340 N Side: 280 N	Front: 77 lbf Side: 63 lbf

Mounting Options	Part Number	Fits Pipe Diameter		Weight	
Standard scissor tilt bracket kit	MKS02T08 included	40-115 mm	1.6-4.5 in	4.3 kg	9.5 lbs
Optional pole mounting bracket kit	MKS02P01 sold separately	40-115 mm	1.6-4.5 in	2.9 kg	8.5 lbs

Accessories	Part Number	Description
Portable Control Unit Kit	PCU-Kit-4-US	Kit includes PCU-4 controller, USB controller cable, RS485 cable, ALDC software and storage bag
Portable Control Unit Kit with BTS AISG Bias-T MODEM100	PCU-4-BT100-Kit	Kit includes PCU-4 controller, USB controller cable, RS485 cable, ALDC software, removable AISG Bias-T MODEM100 and storage bag
Portable Control Unit Kit with BTS AISG Bias-T MODEM101	PCU-4-BT101-Kit	Kit includes PCU-4 controller, USB controller cable, RS485 cable, ALDC software, removable AISG Bias-T MODEM101 and storage bag
BTS AISG Bias-T Modem	MODEM100	DF/DF spare Bias-T
	MODEM101	DF/DM spare Bias-T
Connector Caps	CC-CAP-M	Male to protect female
	CC-CAP-F	Female to protect male
Control Cable Jumpers	CC-05-xxx-FM	5 conductor, female x male connector; many lengths available

Concealment Options	
Unicell module	None

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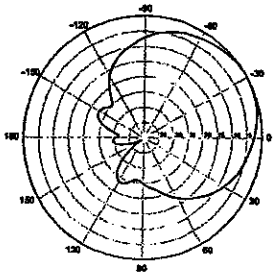
WBX065A19Rx50

X-Pol | 2-Way VET with Remote Azimuth Steering | 65° | 19.3 dBi

1710-1880 MHz



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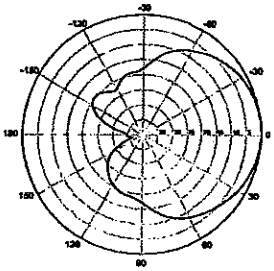
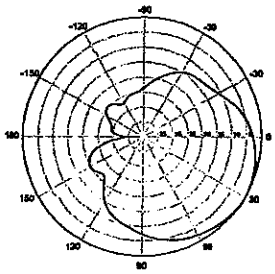
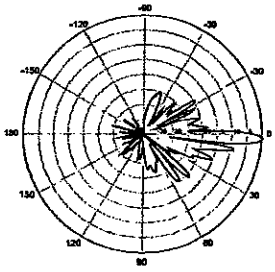


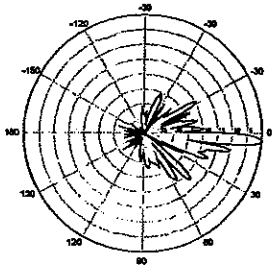
0° | Horizontal



30° | Horizontal

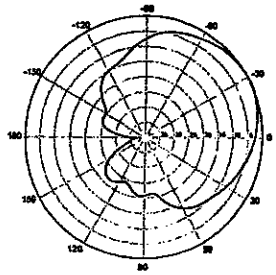


2° | Vertical

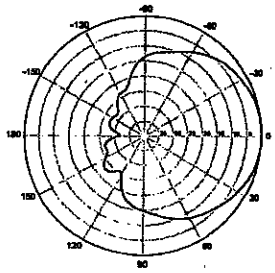


4° | Vertical

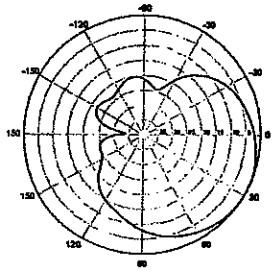
1850-1990 MHz



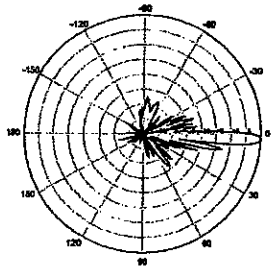
-30° | Horizontal



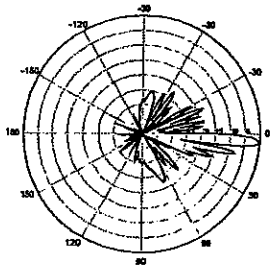
0° | Horizontal



30° | Horizontal

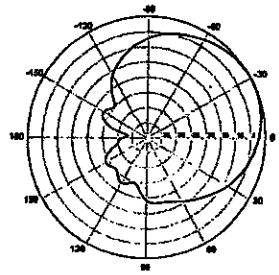


2° | Vertical

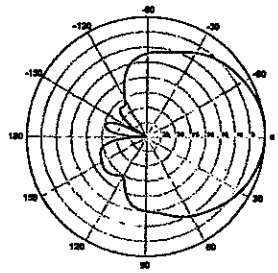


4° | Vertical

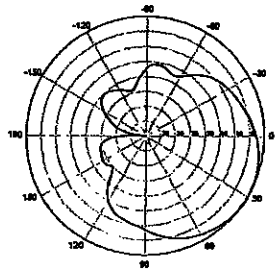
1900-2170 MHz



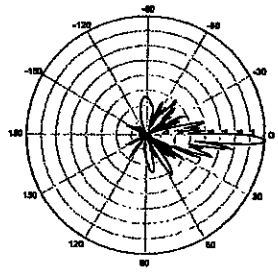
-30° | Horizontal



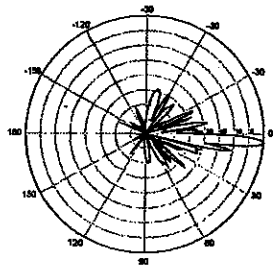
0° | Horizontal



30° | Horizontal



2° | Vertical



4° | Vertical

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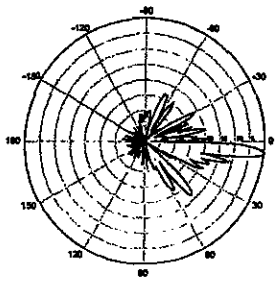
Amphenol ANTENNA SOLUTIONS

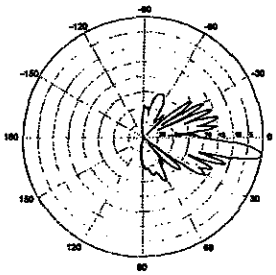
WBX065A19Rx50

X-Pol | 2-Way VET with Remote Azimuth Steering | 65° | 19.3 dBi

1710-1880 MHz

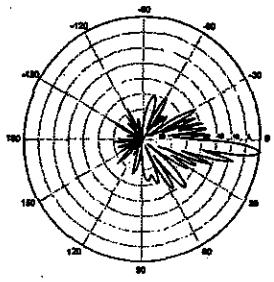


6° | Vertical

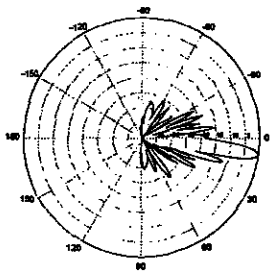


8° | Vertical

1850-1990 MHz

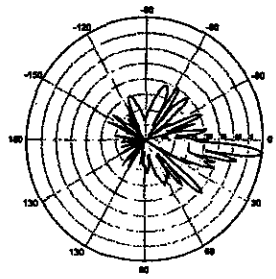


6° | Vertical

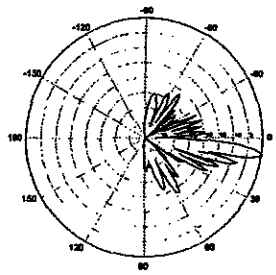


8° | Vertical

1900-2170 MHz



6° | Vertical



8° | Vertical

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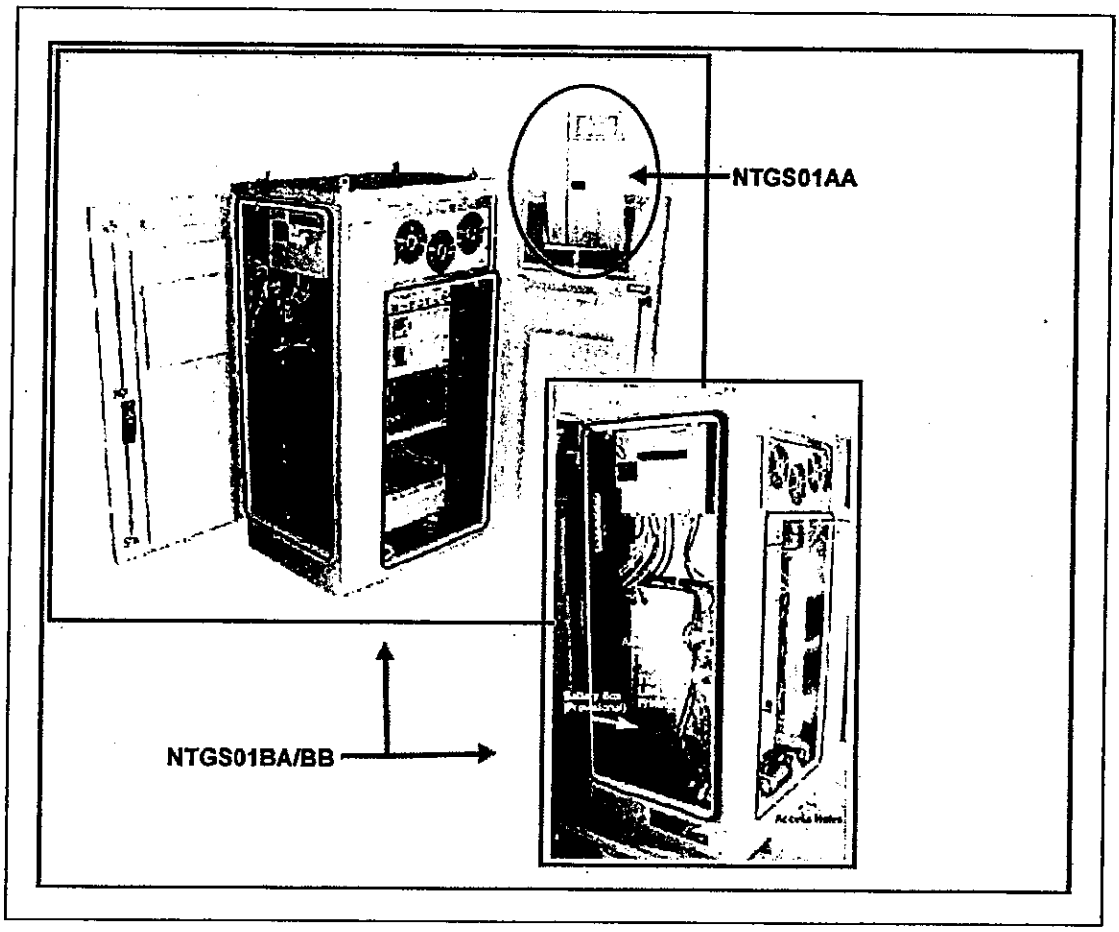
View of outdoor Metro Cell system



Compact Metro Cell Outdoor

"View of the Compact Metro Cell Outdoor system" (page 16) depicts the Compact Metro Cell Outdoor with the cabinet closed and the cabinet open.

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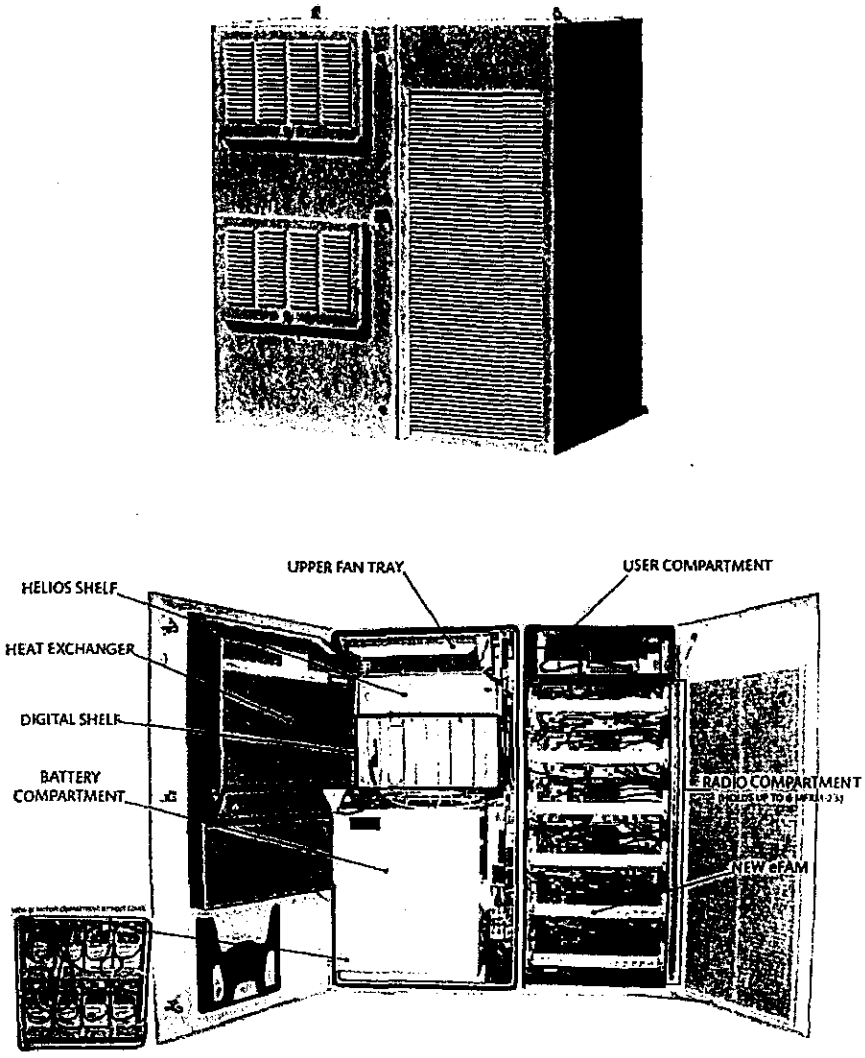
View of the Compact Metro Cell Outdoor system



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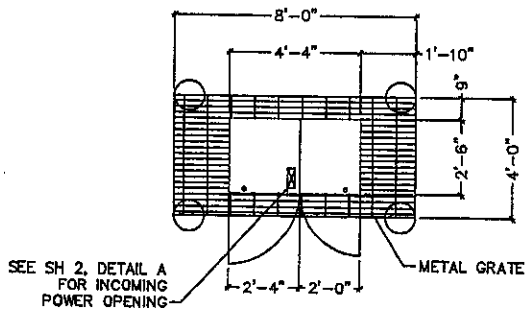
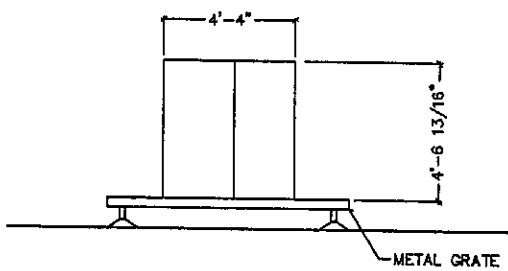
FEB 27 2...

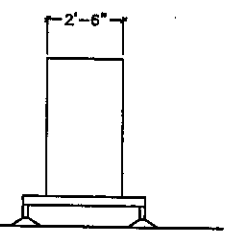
C.O.E.O.	REV	DESCRIPTION	DWN	DSFD	APPD	DATE
–	–	INITIAL DRAWING	RH	GWB	–	01/13/00
–	A	ADDED TX AND RX TO ANTENNA CABLING DETL	RH	GWB		01/23/00
–	B	REVISED ANTENNA CABLING CHART ADDED POWER, GND, BREAKER CHART	RH	GWB		01/24/00
	C	ADDED 40 AMP BREAKER TO CHATY SH 4	RH	GWB		01/30/00



TOP VIEW
NORTEL CMO



FRONT VIEW
NORTEL CMO



SIDE VIEW
NORTEL CMO

"RED LINE" INFORMATION

SITE ENGINEER: X

CONTACT NAME: RUSSELL HAHN

COMPANY NAME: GLOW NETWORKS
2140 LAKE PARK BLVD
SUITE 303
RICHARDSON, TX 75080

PHONE NO.: 972-699-1994

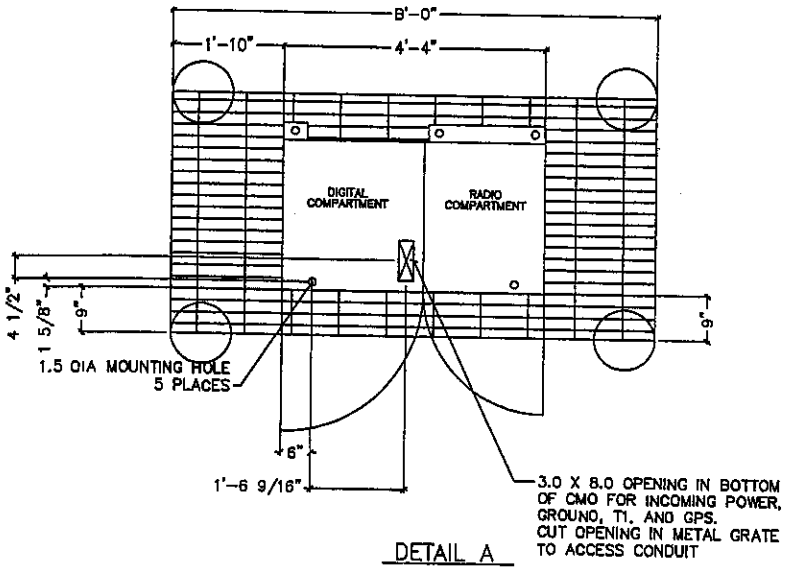
Cricket

DRAWN GAYLEN BOX	DATE 01/13/00	SITE NAME: XXXX
ENGINEER NAME	DATE 00/00/00	TITLE: INSTALLATION PLAN SHEET 1: COMPACT METROCELL OUTDOOR
CHECKED NAME	DATE 00/00/00	LAT: LON:
APPROVAL NAME	DATE 00/00/00	REGION 1 : AREA : XXXX REGIND ZONE : — FLOOR # —

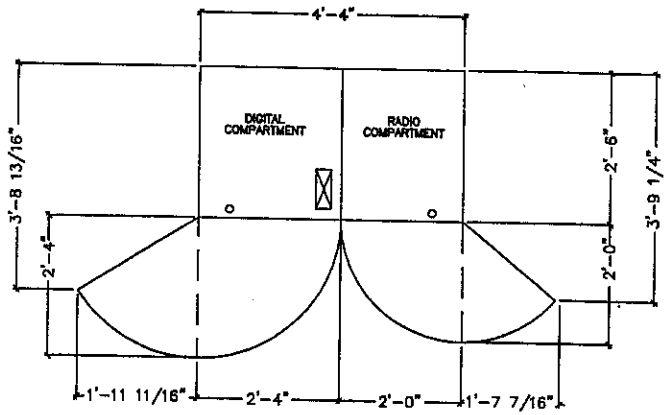
Glow Networks

SITE NO. NORTEL CM0e — REV C

SIZE B — SCALE 1/4"=1'-0" — SHEET 1 OF 4



DETAIL A



DETAIL SHOWING DOOR OPENINGS

LOCATION	APERTURE SIZE	CABLE
DIGITAL COMPARTMENT BOTTOM	8" X 3"	MAIN AC POWER CABLE. BACK-UP AC POWER CABLE, T1/E1 CABLE, CUSTOMER ALARM CABLE, GPS CABLE, GROUND CABLE.
RADIO COMPARTMENT RIGHT	1.5" X 3"	SBE CABLE
DIGITAL COMPARTMENT RIGHT	1.5" X 8"	SBE CABLE

CLEARENCE REQUIREMENTS	
FRONT	36 INCH
REAR	12 INCH
SIDE	25.3 INCH IF LEFT SIDE BY WALL, OTHERWISE 6 INCH

COLOR LEGEND

- EQUIPMENT ADDITIONS
- EQUIPMENT TO BE REMOVED
- EQUIPMENT RELOCATED, NOT TO BE REMOVED
- EQUIPMENT GROUNDING
- EXISTING EQUIPMENT
- FUTURE EQUIPMENT
- FACE OF EQUIPMENT

GENERAL NOTES:

1. ALL CUT METAL SHALL BE FILED SMOOTH AND PAINTED WITH THE SAME COLOR PAINT FOR SAFETY AND TO PREVENT RUST.
2. ALL EXPOSED THREADS OF SCREWS AND THREADED ROD SHALL BE EXPOSED A MINIMUM OF 3 THREADS TO A MAXIMUM OF 5 THREADS FOR SAFETY.
3. ALL TIE RAPS SHALL BE CUT FLUSH WITH APPROVED FLUSH CUTTING TOOL FOR SAFETY AND PROTECTION.
4. ALL SITE CABLING SHALL MAINTAIN MAXIMUM CABLE SEPARATION REQUIREMENTS AS TO TYPE AS TO TYPE OF CABLE AND FUNCTION. THIS IS DONE IN ORDER TO PROTECT CABLES FROM DAMAGE, AS WELL AS, PREVENT THE INDUCTION OF CURRENT INTO CONDUCTORS FROM FROM MAGNETIC LINES OF FLUX CREATED FROM POWER AND FAULT CURRENTS THROUGH CABLES.
5. ALL POWER CABLE SHALL BE INSTALLED PAIRED AND CLOSELY COUPLED TO MINIMIZE MAGNETIC LINES OF FLUX.
6. ALL POWER, COAXIAL AND CABLE TERMINATION AND CONNECTIONS SHALL BE INSTALLED PER INSTALLED PER MANUFACTURER REQUIREMENTS AND/OR NORTEL CORPORATE STANDARDS: –CS 100.01, –CS 150.04, –CS 160.09
7. ALL GROUNDING CABLING AND CONNECTIONS SHALL BE INSTALLED PER NORTEL NETWORKS CORPORATE STANDARD 4122.00 AND AT&T WIRELESS SERVICE ENGINEERING STANDARDS ES–1022.
8. ALL INTERBAY CABLING SHALL BE ROUTED UP INTO THE CABLE RACK OR DUCT AND BACK DOWN INTO THE EQUIPMENT UNLESS SPECIFICALLY NOTED OTHERWISE IN THE EQUIPMENT DESIGN OR INSTALLATION METHOD FOR THAT EQUIPMENT.
9. ALL SITE ALARM, T1 AND SWITCH BOARD TYPE CABLING SHALL BE INSTALLED IN A MANNER THAT WILL LEAVE APPROXIMATELY 3' OF SLACK FOR MAINTENANCE SERVICE LOOP IN THE THE CABLE LADDER RACK AND 4" PRIOR TO THE TERMINATION POINT, WHILE MAINTAINING THE PROPER BEND RADIUS FOR THAT TYPE OF CABLE.
10. COAXIAL CABLES SHALL BE PROTECTED FROM DAMAGE AND SHALL NOT EXCEED ALLOWABLE MINIMUM BEND RADIUS FOR THE SIZE AND MANUFACTURER OF THAT CABLE.
11. IN EARTHQUAKE ZONES 2, 3 AND 4, 12" OF SLACK SHALL BE LEFT IN CABLES LEAVING THE RACK TO THEIR TERMINATION POINTS. THIS IS DONE IN ORDER TO PROVIDE STRESS RELIEF ON CABLES AND CONNECTIONS IN THE EVENT OF SEISMIC ACTIVITY.
12. ALL CABLES SHALL BE ROUTED AND INSTALLED IN A MANNER AS TO PROTECT THE CABLES FROM DAMAGE OF SHARP EDGES OF HARDWARE AND WHERE CABLES DROP OFF THE SIDE OF CABLE LADDER RACK. MINIMUM OF 2 LAYERS OF NO–MAX FIBER PAPER OR SPLIT PVC FIBER TUBING MAY BE USED.
13. INSTALLER SHALL NOT ROUTE CABLES THROUGH CABLE LADDER RACK RUNNS.
14. INSTALLER SHALL RETURN ALL EXCESS NORTEL SUPPLIED HARDWARE, CABLING AND MATERIAL TO THE NORTEL DEPLOYMENT WAREHOUSE.

INSTALLATION NOTES:

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Cricket

DRAFTER GAYLEN BOX	DATE 01/12/00	SITE NAME: XXXX	
TITLE: INSTALLATION PLAN			
ENGINEER NAME	DATE 00/00/00	SYSTEM: COMPACT METROCELL OUTDOOR	
CHECKER NAME	DATE 00/00/00	LAT: LON:	
APPROVAL NAME	DATE 00/00/00	REGION: SEISMIC ZONE: —	AREA: XXXX FLOOR: —
Glow Networks		SITE NO. NORTEL CMOs	REV C
SIZE B	SCALE 1/4"=1'-0"	SHEET 2 OF 4	