

285 Billerica Road
3rd Floor
Chelmsford, MA 01824

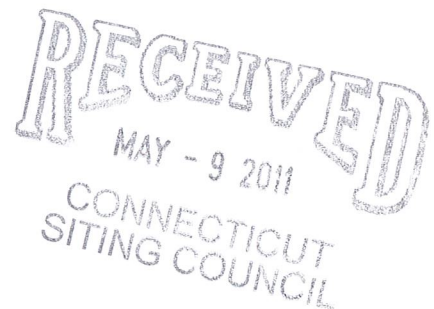
Friday, May 06, 2011

Sent Via UPS

Robert Stein- Chairman
Connecticut Siting Council
Ten Franklin Square
New Britain, CT 06051

Subject: MetroPCS Site ID: HFC0618A
CSC - ID: **EM-Pocket-077-081015**

Site Address: 53 Slater Street, Manchester, CT



Dear Mr. Stein:

MetroPCS recently acquired the assets of Pocket Communications in the Connecticut Market and is currently in the process of completing due diligence to ensure that all sites are in compliance. Youghioghny Communications- Northeast LLC d/b/a Pocket Communications received a decision from the Connecticut Siting Council on November 3, 2008 for Pocket Site ID HFC0618A (**EM-Pocket-077-081015**) with an address of 53 Slater Street, Manchester, CT. The decision contained a condition that the coaxial cable is to be installed as recommended in the structural analysis dated October 10, 2008 which is sealed by J. Russell Hill, P.E. MetroPCS recently had an engineer inspect the installation to confirm it is consistent with the structural analysis recommendations. The engineer's statement is attached hereto as Attachment C. You will see that their findings have shown that MetroPCS facility is in compliance and is consistent with the recommendations from the original structural report.

Attached to this Letter are the following documents:

- Attachment A: CSC Approval **EM-Pocket-077-081015**
- Attachment B: Structural analysis dated October 10, 2008
- Attachment C: Engineers Inspection Statement

Continued...

If you have any questions or require additional information please feel free to contact me anytime.

Sincerely,

A handwritten signature in black ink that reads "Andy Candiello". The signature is fluid and cursive, with the first name "Andy" and last name "Candiello" clearly legible.

Andy Candiello
Agent for MetroPCS
Tower Resource Management, Inc.
30 Lyman Street, Suite 12
Westborough, MA 01581
Phone: 978-855-3644
Email: acandiello@trmcom.com

Attachment A



STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

Ten Franklin Square, New Britain, CT 06051

Phone: (860) 827-2935 Fax: (860) 827-2950

E-Mail: siting.council@ct.gov

Internet: ct.gov/esc

Daniel F. Caruso
Chairman

November 3, 2008

Carrie L. Larson, Esq.
Pullman & Comley, LLC
90 State House Square
Hartford, CT 06103

RE: **EM-POCKET-077-081015** – Youghiogheny Communications-Northeast, LLC d/b/a Pocket Communications notice of intent to modify an existing telecommunications facility located at 53 Slater Street, Manchester, Connecticut.

Dear Attorney Larson:

The Connecticut Siting Council (Council) hereby acknowledges your notice to modify this existing telecommunications facility, pursuant to Section 16-50j-73 of the Regulations of Connecticut State Agencies with the following conditions:

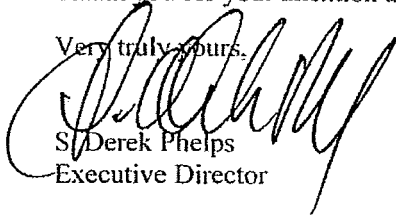
- The coaxial cable shall be installed as recommended in Appendix B in the structural analysis report dated October 10, 2008 and sealed by J. Russell Hill, P.E.; and
- The Council is notified in writing of compliance with this condition.

The proposed modifications are to be implemented as specified here and in your notice dated October 14, 2008, including the placement of all necessary equipment and shelters within the tower compound. The modifications are in compliance with the exception criteria in Section 16-50j-72 (b) of the Regulations of Connecticut State Agencies as changes to an existing facility site that would not increase tower height, extend the boundaries of the tower site, increase noise levels at the tower site boundary by six decibels, and increase the total radio frequencies electromagnetic radiation power density measured at the tower site boundary to or above the standard adopted by the State Department of Environmental Protection pursuant to General Statutes § 22a-162. This facility has also been carefully modeled to ensure that radio frequency emissions are conservatively below State and federal standards applicable to the frequencies now used on this tower.

This decision is under the exclusive jurisdiction of the Council. Please be advised that the validity of this action shall expire one year from the date of this letter. Any additional change to this facility will require explicit notice to this agency pursuant to Regulations of Connecticut State Agencies Section 16-50j-73. Such notice shall include all relevant information regarding the proposed change with cumulative worst-case modeling of radio frequency exposure at the closest point of uncontrolled access to the tower base, consistent with Federal Communications Commission, Office of Engineering and Technology, Bulletin 65. Any deviation from this format may result in the Council implementing enforcement proceedings pursuant to General Statutes § 16-50u including, without limitation, imposition of expenses resulting from such failure and of civil penalties in an amount not less than one thousand dollars per day for each day of construction or operation in material violation.

Thank you for your attention and cooperation.

Very truly yours,

A handwritten signature in black ink, appearing to read 'Derek Phelps', written over the typed name and title.

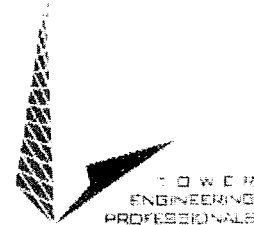
S/Derek Phelps
Executive Director

SDP/CMW/jb

- c: Mr. Scott A. Shanley, General Manager, Town of Manchester
- Scott A. Shanley, General Manager, Town of Manchester
- Thomas R. O'Marra, Zoning Enforcement Officer, Town of Manchester
- Crown Castle

Attachment B

Tower Engineering Professionals, Inc. (TEP)
3703 Junction Boulevard
Raleigh, NC 27603
(o) (919) 661-6351 Phone
bkramer@tepgroup.net



Date: October 10, 2008

Ms. Veronica Harris
Crown Castle International
1200 MacArthur Boulevard, Suite 200
Mahwah, NJ 07430

| | | |
|--------------------------------------|--|---------------|
| Subject: | Structural Analysis Report | |
| Carrier Designation: | Youghioghny Communications Co-Locate | |
| | Carrier Site Number: | CT-0618 |
| | Carrier Site Name: | N/A |
| Crown Castle Designation: | Crown Castle BU Number: | 876347 |
| | Crown Castle Site Name: | Buckland Mall |
| | Crown Castle JDE Job Number: | 106083 |
| Engineering Firm Designation: | TEP Project Number: | 081049 |
| Site Data: | 53 Slater Street, Hartford County, Manchester, CT 06040 Latitude 41°- 48'- 18.0", Longitude -72°-32'-1.0" 155 Foot – Monopole Tower | |

Dear Ms. Harris,

TEP is pleased to submit this "Structural Analysis Report" to determine the structural integrity of the aforementioned tower. This analysis has been performed in accordance with the Crown Castle Structural 'Statement of Work' and the terms of Crown Castle Purchase Order Number 2888376, in accordance with application 64333, revision 1.

The purpose of the analysis is to determine acceptability of the tower stress level. Based on our analysis we have determined the tower stress level for the structure and foundation, under the following load case, to be

Existing + Reserved + Proposed Equipment

Sufficient Capacity

Note: See Table I and Table II for the proposed and existing/reserved loading

This analysis has been performed in accordance with the TIA/EIA 222-F standard and the 2005 Connecticut Building Code, based upon a wind speed of 80 mph fastest mile (100-mph 3-second gust).

We at TEP appreciate the opportunity of providing our continuing professional services to you and Crown Castle International. If you have any questions or need further assistance on this or any other projects please give us a call.

Respectfully submitted,

J Russell Hill, P.E.

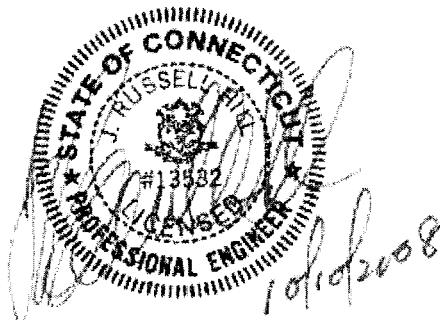


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1) INTRODUCTION

The subject tower is a 155-foot monopole tower manufactured by Summit Manufacturing, Inc.

2) ANALYSIS CRITERIA

The existing, reserved, and proposed antennas, transmission lines, and mountings are shown in the following tables. The site is in Hartford County. The structural analysis was performed in accordance with the ANSITIA/EIA-222-F-1996 (TIA), Structural Standards for Steel Antenna Towers and Antenna Supporting Structures dated June 1996. The governing winds forces are derived from the TIA Standard using a fastest-mile wind speed of 80 mph for an Exposure C and Importance Factor of 1.00.

Table 1 – Proposed Antenna and Cable Information

| Center Line Elevation (ft) | Number of Antennas | Antenna Manufacturer | Antenna Model | Mount | Number of Feed Lines | Feed Line Size (in) |
|----------------------------|--------------------|----------------------|---------------|-------------------|----------------------|---------------------|
| 103 (Proposed) | 3 | Kathrein | 742 213 | (3) Direct Mounts | 6 | 1 5/8 |

Table 2 – Existing and Reserved Antenna and Cable Information

| Center Line Elevation (ft) | Number of Antennas | Antenna Manufacturer | Antenna Model | Number of Feed Lines | Feed Line Size (in) |
|-----------------------------------|--------------------|------------------------|---------------|----------------------|---------------------|
| 60 (Existing) | 1 | Trimble | Acutime 2000 | 1 | 1/2 |
| 78 (Existing) | 12 | Decibel | DB844G65ZAXY | 12 | 1 5/8 |
| 78 (Reserved) | - | - | - | 3 | 1 5/8 |
| 113 (Existing) | 12 | Decibel | DB844H80-XY | 12 | 1 5/8 |
| 133 (Existing) | 6 | EMS Wireless | RR90-17-02DP | 12 | 1 5/8 |
| 145 ¹ (Existing) | 3 | Allgon | 7250.03 | 3 | 1 1/4 |
| 145 (Reserved) | 3 | Powerwave Technologies | 7770 | 3 | 1 1/4 |
| 145 (Reserved TMA) | 6 | Powerwave Technologies | LGP21401 | - | - |
| 155 (Existing) | 6 | EMS Wireless | RR90-18-00DP | 6 | 1 5/8 |
| 155 ² (MLA Loading) | 9 | EMS Wireless | FV65-14-00NA2 | 9 | 1 5/8 |

¹ – Existing antenna to be replaced by reserved

² – MLA loading used in place of Existing loading

Table 3 – Design Antenna and Cable Information

| Center Line Elevation (ft) | Number of Antennas | Antenna Manufacturer | Antenna Model | Mount | Number of Feed Lines | Feed Line Size (In) |
|----------------------------|--------------------|----------------------|---------------|--------------------------|----------------------|---------------------|
| 155 | 12 | Decibel | DB980H | 14' Low Profile Platform | Unknown | Unknown |
| 145 | 12 | Unknown | Panel Antenna | 14' Low Profile Platform | Unknown | Unknown |
| 135 | 12 | Unknown | Panel Antenna | 14' Low Profile Platform | Unknown | Unknown |
| 115 | 2 | Unknown | Whip Antenna | 6' Clamp Stiff Arms | Unknown | Unknown |
| 50 | 1 | GPS | GPS | Unknown | Unknown | Unknown |

3) ANALYSIS PROCEDURE

Table 4 – Documents Provided

| Document | Remarks | Crown Document ID |
|--|--|-------------------|
| Geotechnical Reports | Clough, Harbour & Associates, Site ID no. CT03XC211, dated February 5, 1998, provided by Crown | 1533476 |
| Tower Foundation Drawings/Design/Specs | Piedmont Olsen Hensley Engineering, Project no.22597-01, dated September 28, 1995, provided by Crown | 1615406 |
| Design Drawings | Paul J. Ford and Co. Structural Engineers, Job no. 29298-597, dated September 11,1998, provided by Crown | 1614661 |
| Structural Analysis Report | Tower Engineering Professionals, TEP # 070992, dated July 13, 2007 | – |

3.1) Analysis Method

RISA Tower (version 5.1.2.0), a commercially available analysis software package, was used to create a three-dimensional model of the tower and calculate member stresses for various dead, live, wind, and ice load cases. Selected output from the analysis is included in Appendix A.

3.2) Assumptions

1. All feed lines are installed in the locations noted on the cable routing drawing in *Appendix B*.
2. When applicable, feed lines were considered to be structural components for calculating wind loads, as allowed by the industry standard.
3. Information in the original design drawings and specifications that could not be verified by TEP is assumed to be correct. For this analysis, TEP will assume conformance with the original design drawings and specifications.
4. TEP shall assume that all tower components are in sufficient condition to carry their full design capacity.
5. Serviceability with respect to antenna twist, tilt, roll, or lateral translation, is not checked and is left to the carrier or tower owner to ensure conformance.

4) ANALYSIS RESULTS

Table 5 – Tower Component Stresses vs. Capacity

| Section Capacity Table | | | | | | | | | |
|-------------------------------|---------------|----------------|-----------------------|------------------|-----------|--------------------------|-----------------|-------------|-------------|
| Section No. | Elevation ft | Component Type | Size | Critical Element | P lb | SI*P _{allow} lb | % Capacity | Pass | Fail |
| L1 | 155 - 115.5 | Pole | TP29.3x22x0.25 | 1 | -4615.72 | 1169772.77 | 27.4 | Pass | |
| L2 | 115.5 - 79.25 | Pole | TP35.51x28.107x0.3125 | 2 | -10630.40 | 1771996.82 | 44.5 | Pass | |
| L3 | 79.25 - 43.75 | Pole | TP41.45x34.0522x0.375 | 3 | -18916.40 | 2481539.36 | 53.1 | Pass | |
| L4 | 43.75 - 0 | Pole | TP48.8x39.729x0.4375 | 4 | -32668.90 | 3491313.48 | 57.1 | Pass | |
| | | | | | | | Summary | | |
| | | | | | | | Pole (L4) | 57.1 | Pass |
| | | | | | | | Base Plate | 58.1 | Pass |
| | | | | | | | RATING = | 58.1 | Pass |

| Notes | Component | Elevation (ft) | % Capacity | Pass/Fail |
|---|---|------------------|-------------------|------------------|
| Individual Components: | | | | |
| Notes: | Component | Elevation | % Capacity | Pass/Fail |
| 1 | Tower Foundation (compared w/design reactions) | | 68.9 | Pass |
| Structure Rating (max from all components) = | | | | 68.9% |

* Notes:

- 1) See additional documentation in "Appendix C – Additional Calculations" for calculations supporting the % capacity listed.

4.1) Recommendations

It should be noted that in order for the tower to pass in the current load scenario, the proposed and reserved coax must be configured as shown in Appendix B.

APPENDIX A
RISA TOWER OUTPUT

155.0 ft

| | | | | |
|-----------------|----------|---------|---------|---------|
| Section | 1 | 2 | 3 | 4 |
| Length (ft) | 396" | 40' | 40' | 49' |
| Number of Sides | 18 | 18 | 18 | 18 |
| Thickness (in) | 0.2500 | 0.3125 | 0.3750 | 0.4375 |
| Lap Splice (ft) | 39" | 45" | 53" | |
| Top Dia (in) | 22.0000 | 28.1070 | 34.0522 | 39.7290 |
| Bot Dia (in) | 29.3000 | 35.5100 | 41.4500 | 48.8000 |
| Grade | 2709.0 | 4252.1 | 6055.2 | 10147.5 |
| Weight (lb) | | | | 23163.8 |
| | 115.5 ft | 79.3 ft | 43.8 ft | 0.0 ft |

DESIGNED APPURTENANCE LOADING

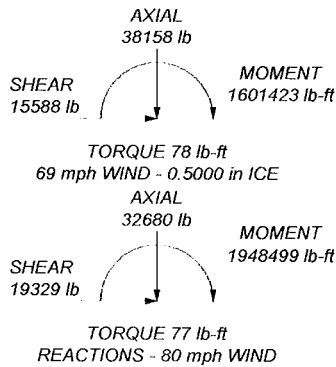
| TYPE | ELEVATION | TYPE | ELEVATION |
|---|-----------|--------------------------------------|-----------|
| 5/8-in x 4-ft Lightning Rod (lightning rod) | 155 | (2) RR90-17-02DP (t-mobile existing) | 133 |
| 12' Low Profile Platform | 155 | (2) RR90-17-02DP (t-mobile existing) | 133 |
| (3) FV65-14-00NA2 (MLA) | 155 | (2) RR90-17-02DP (t-mobile existing) | 133 |
| (3) FV65-14-00NA2 (MLA) | 155 | (4) DB844H80-XY (verizon existing) | 113 |
| (3) FV65-14-00NA2 (MLA) | 155 | (4) DB844H80-XY (verizon existing) | 113 |
| 7770.00 w/ Mount Pipe (Reserved) | 145 | (4) DB844H80-XY (verizon existing) | 113 |
| 7770.00 w/ Mount Pipe (Reserved) | 145 | 12' Low Profile Platform | 113 |
| 7770.00 w/ Mount Pipe (Reserved) | 145 | 742-213 (Proposed) | 103 |
| (2) Powerwave Tech LGP21401 (Reserved TMA) | 145 | 742-213 (Proposed) | 103 |
| (2) Powerwave Tech LGP21401 (Reserved TMA) | 145 | 742-213 (Proposed) | 103 |
| (2) Powerwave Tech LGP21401 (Reserved TMA) | 145 | 4.5" Dia. x 4' Dish Mount | 103 |
| (2) Powerwave Tech LGP21401 (Reserved TMA) | 145 | 4.5" Dia. x 4' Dish Mount | 103 |
| (2) Powerwave Tech LGP21401 (Reserved TMA) | 145 | 4.5" Dia. x 4' Dish Mount | 103 |
| 4.5" Dia. x 4' Dish Mount | 145 | 12' Low Profile Platform | 78 |
| 4.5" Dia. x 4' Dish Mount | 145 | (4) DB844G65ZAXY (nextel existing) | 78 |
| 4.5" Dia. x 4' Dish Mount | 145 | (4) DB844G65ZAXY (nextel existing) | 78 |
| 12' Low Profile Platform | 133 | (4) DB844G65ZAXY (nextel existing) | 78 |
| | | 1.5-ft Side Arm | 60 |
| | | GPS (sprint existing) | 60 |

MATERIAL STRENGTH

| GRADE | Fy | Fu | GRADE | Fy | Fu |
|---------|--------|--------|-------|----|----|
| A572-65 | 65 ksi | 80 ksi | | | |

TOWER DESIGN NOTES

1. Tower is located in Hartford County, Connecticut.
2. Tower designed for a 80 mph basic wind in accordance with the TIA/EIA-222-F Standard.
3. Tower is also designed for a 69 mph basic wind with 0.50 in ice.
4. Deflections are based upon a 50 mph wind.
5. TOWER RATING: 58.1%



| | |
|---|---|
| Tower Engineering Professionals 3703 Junction Blvd Raleigh, NC 27603 Phone: (919) 661-6351 FAX: (919) 661-6350 | Job: BU876347 "Buckland Mall 2" |
| | Project: TEP# 081049 |
| | Client: Crown Castle International |
| | Code: TIA/EIA-222-F |
| | Path: H:\2008\1049_Buckland Mall\Structural\TIA\876347.en |
| Drawn by: Brad Kramer | App'd: |
| Date: 05/23/08 | Scale: NTS |
| | Dwg No: E-1 |

| | | |
|---|--|-----------------------------------|
| RISATower Tower Engineering Professionals 3703 Junction Blvd Raleigh, NC 27603 Phone: (919) 661-6351 FAX: (919) 661-6350 | Job BU876347 "Buckland Mall 2" | Page 1 of 9 |
| | Project TEP# 081049 | Date 14:20:46 05/23/08 |
| | Client Crown Castle Internaional | Designed by Brad Kramer |

Tower Input Data

There is a pole section.

This tower is designed using the TIA/EIA-222-F standard.

The following design criteria apply:

- Tower is located in Hartford County, Connecticut.
- Basic wind speed of 80 mph.
- Nominal ice thickness of 0.5000 in.
- Ice density of 56 pcf.
- A wind speed of 69 mph is used in combination with ice.
- Temperature drop of 50 °F.
- Deflections calculated using a wind speed of 50 mph.
- A non-linear (P-delta) analysis was used.
- Pressures are calculated at each section.
- Stress ratio used in pole design is 1.333.
- Local bending stresses due to climbing loads, feedline supports, and appurtenance mounts are not considered.

Options

- | | | |
|--|--|--|
| <ul style="list-style-type: none"> Consider Moments - Legs Consider Moments - Horizontals Consider Moments - Diagonals Use Moment Magnification √ Use Code Stress Ratios √ Use Code Safety Factors - Guys Escalate Ice Always Use Max Kz Use Special Wind Profile √ Include Bolts In Member Capacity Leg Bolts Are At Top Of Section Secondary Horizontal Braces Leg Use Diamond Inner Bracing (4 Sided) Add IBC .6D+W Combination | <ul style="list-style-type: none"> Distribute Leg Loads As Uniform Assume Legs Pinned √ Assume Rigid Index Plate √ Use Clear Spans For Wind Area √ Use Clear Spans For KL/r Retension Guys To Initial Tension √ Bypass Mast Stability Checks √ Use Azimuth Dish Coefficients √ Project Wind Area of Appurt. Autocalc Torque Arm Areas SR Members Have Cut Ends √ Sort Capacity Reports By Component Triangulate Diamond Inner Bracing | <ul style="list-style-type: none"> Treat Feedline Bundles As Cylinder Use ASCE 10 X-Brace L.y Rules Calculate Redundant Bracing Forces Ignore Redundant Members in FEA SR Leg Bolts Resist Compression All Leg Panels Have Same Allowable Offset Girt At Foundation √ Consider Feedline Torque Include Angle Block Shear Check <li style="text-align: center;">Poles Include Shear-Torsion Interaction Always Use Sub-Critical Flow Use Top Mounted Sockets |
|--|--|--|

Tapered Pole Section Geometry

| Section | Elevation <i>ft</i> | Section Length <i>ft</i> | Splice Length <i>ft</i> | Number of Sides | Top Diameter <i>in</i> | Bottom Diameter <i>in</i> | Wall Thickness <i>in</i> | Bend Radius <i>in</i> | Pole Grade |
|---------|------------------------|-----------------------------|----------------------------|-----------------|---------------------------|------------------------------|-----------------------------|--------------------------|---------------------|
| 1.1 | 155'-115'6" | 39'6" | 3'9" | 18 | 22.0000 | 29.3000 | 0.2500 | 1.0000 | A572-65 (65 ksi) |
| 1.2 | 115'6"-79'3" | 40' | 4'6" | 18 | 28.1070 | 35.5100 | 0.3125 | 1.2500 | A572-65 (65 ksi) |
| 1.3 | 79'3"-43'9" | 40' | 5'3" | 18 | 34.0522 | 41.4500 | 0.3750 | 1.5000 | A572-65 (65 ksi) |
| 1.4 | 43'9"-0' | 49' | | 18 | 39.7290 | 48.8000 | 0.4375 | 1.7500 | A572-65 (65 ksi) |

| | | |
|--|--|-----------------------------------|
| RISA Tower Tower Engineering Professionals 3703 Junction Blvd Raleigh, NC 27603 Phone: (919) 661-6351 FAX: (919) 661-6350 | Job BU876347 "Buckland Mall 2" | Page 2 of 9 |
| | Project TEP# 081049 | Date 14:20:46 05/23/08 |
| | Client Crown Castle Internaional | Designed by Brad Kramer |

Tapered Pole Properties

| Section | Tip Dia. in | Area in ² | I in ⁴ | r in | C in | I/C in ³ | J in ⁴ | I/Q in ² | w in | w/t |
|---------|----------------|-------------------------|----------------------|---------|---------|------------------------|----------------------|------------------------|---------|--------|
| 1.1 | 22.3394 | 17.2586 | 1031.4832 | 7.7212 | 11.1760 | 92.2945 | 2064.3237 | 8.6310 | 3.4320 | 13.728 |
| | 29.7520 | 23.0512 | 2457.6656 | 10.3127 | 14.8844 | 165.1169 | 4918.5651 | 11.5278 | 4.7168 | 18.867 |
| 1.2 | 29.2453 | 27.5686 | 2690.7244 | 9.8670 | 14.2783 | 188.4480 | 5384.9892 | 13.7869 | 4.3968 | 14.07 |
| | 36.0578 | 34.9115 | 5464.2410 | 12.4951 | 18.0391 | 302.9113 | 10935.6720 | 17.4591 | 5.6998 | 18.239 |
| 1.3 | 35.4226 | 40.0842 | 5743.5703 | 11.9554 | 17.2985 | 332.0271 | 11494.6982 | 20.0459 | 5.3332 | 14.222 |
| | 42.0894 | 48.8895 | 10420.9751 | 14.5816 | 21.0566 | 494.9030 | 20855.6623 | 24.4494 | 6.6352 | 17.694 |
| 1.4 | 41.3288 | 54.5612 | 10641.9043 | 13.9485 | 20.1823 | 527.2877 | 21297.8116 | 27.2858 | 6.2223 | 14.222 |
| | 49.5528 | 67.1574 | 19844.8883 | 17.1687 | 24.7904 | 800.5070 | 39715.8890 | 33.5851 | 7.8188 | 17.872 |

| Tower Elevation | Gusset Area (per face) | Gusset Thickness | Gusset Grade | Adjust. Factor A _f | Adjust. Factor A _r | Weight Mult. | Double Angle Stitch Bolt Spacing Diagonals | Double Angle Stitch Bolt Spacing Horizontals |
|-----------------|------------------------|------------------|--------------|-------------------------------|-------------------------------|--------------|--|--|
| ft | ft ² | in | | | | | in | in |
| L1 155'-115'6" | | | | 1 | 1 | 1 | | |
| L2 115'6"-79'3" | | | | 1 | 1 | 1 | | |
| L3 79'3"-43'9" | | | | 1 | 1 | 1 | | |
| L4 43'9"-0' | | | | 1 | 1 | 1 | | |

Monopole Base Plate Data

| Base Plate Data | |
|-----------------------|-------------|
| Base plate is square | √ |
| Base plate is grouted | |
| Anchor bolt grade | A615-75 |
| Anchor bolt size | 2.2500 in |
| Number of bolts | 16 |
| Embedment length | 84.0000 in |
| f _c | 3 ksi |
| Grout space | 3.0000 in |
| Base plate grade | A572-50 |
| Base plate thickness | 3.2500 in |
| Bolt circle diameter | 56.0000 in |
| Outer diameter | 56.0000 in |
| Inner diameter | 49.0000 in |
| Base plate type | Plain Plate |

Feed Line/Linear Appurtenances - Entered As Area

| Description | Face or Leg | Allow Shield | Component Type | Placement | Total Number | C _v A ₁ | Weight |
|---|-------------|--------------|----------------|-----------|--------------|-------------------------------|--------------|
| | | | | ft | | ft ² /ft | plf |
| LDF4-50A (1/2 FOAM) (sprint existing) | B | No | Inside Pole | 60' - 0' | 1 | No Ice 1/2" Ice | 0.00 0.00 |
| LDF7-50A (1-5/8 FOAM) (nextel existing) | B | No | Inside Pole | 78' - 0' | 12 | No Ice 1/2" Ice | 0.00 0.82 |
| LDF7-50A (1-5/8 FOAM) (nextel reserved) | B | No | Inside Pole | 78' - 0' | 3 | No Ice 1/2" Ice | 0.00 0.82 |

| | | |
|---|--|-----------------------------------|
| RISATower Tower Engineering Professionals 3703 Junction Blvd Raleigh, NC 27603 Phone: (919) 661-6351 FAX: (919) 661-6350 | Job BU876347 "Buckland Mall 2" | Page 3 of 9 |
| | Project TEP# 081049 | Date 14:20:46 05/23/08 |
| | Client Crown Castle Internaional | Designed by Brad Kramer |

| Description | Face or Leg | Allow Shield | Component Type | Placement ft | Total Number | | C _A A _A ft ² /ft | Weight plf |
|---|-------------|--------------|----------------|-----------------|--------------|--------------------|--|---------------|
| 1.DF7-50A (1-5/8 FOAM) (verizon existing) | C | No | Inside Pole | 113' - 0' | 12 | No Ice 1/2" Ice | 0.00 0.00 | 0.82 0.82 |
| 1.DF7-50A (1-5/8 FOAM) (t-mobile existing) | C | No | Inside Pole | 133' - 0' | 12 | No Ice 1/2" Ice | 0.00 0.00 | 0.82 0.82 |
| 1.DF6-50A (1-1/4 FOAM) (cingular existing) | A | No | Inside Pole | 145' - 0' | 3 | No Ice 1/2" Ice | 0.00 0.00 | 0.66 0.66 |
| 1.DF6-50A (1-1/4 FOAM) (cingular reserved) | A | No | Inside Pole | 145' - 0' | 3 | No Ice 1/2" Ice | 0.00 0.00 | 0.66 0.66 |
| 1.DF7-50A (1-5/8 FOAM) (MLA) **** | B | No | Inside Pole | 155' - 0' | 9 | No Ice 1/2" Ice | 0.00 0.00 | 0.82 0.82 |
| 1.DF7-50A (1-5/8 FOAM) (Proposed) | A | No | Inside Pole | 103' - 0' | 6 | No Ice 1/2" Ice | 0.00 0.00 | 0.82 0.82 |

Feed Line/Linear Appurtenances Section Areas

| Tower Section | Tower Elevation ft | Face | A _R ft ² | A _F ft ² | C _A A _A In Face ft ² | C _A A _A Out Face ft ² | Weight lb |
|---------------|-----------------------|------|-----------------------------------|-----------------------------------|---|--|--------------|
| 1.1 | 155'-115'6" | A | 0.000 | 0.000 | 0.000 | 0.000 | 116.82 |
| | | B | 0.000 | 0.000 | 0.000 | 0.000 | 291.51 |
| | | C | 0.000 | 0.000 | 0.000 | 0.000 | 172.20 |
| 1.2 | 115'6"-79'3" | A | 0.000 | 0.000 | 0.000 | 0.000 | 260.40 |
| | | B | 0.000 | 0.000 | 0.000 | 0.000 | 267.52 |
| | | C | 0.000 | 0.000 | 0.000 | 0.000 | 688.80 |
| 1.3 | 79'3"-43'9" | A | 0.000 | 0.000 | 0.000 | 0.000 | 315.24 |
| | | B | 0.000 | 0.000 | 0.000 | 0.000 | 685.70 |
| | | C | 0.000 | 0.000 | 0.000 | 0.000 | 698.64 |
| 1.4 | 43'9"-0' | A | 0.000 | 0.000 | 0.000 | 0.000 | 388.50 |
| | | B | 0.000 | 0.000 | 0.000 | 0.000 | 867.56 |
| | | C | 0.000 | 0.000 | 0.000 | 0.000 | 861.00 |

Feed Line/Linear Appurtenances Section Areas - With Ice

| Tower Section | Tower Elevation ft | Face or Leg | Ice Thickness in | A _R ft ² | A _F ft ² | C _A A _A In Face ft ² | C _A A _A Out Face ft ² | Weight lb |
|---------------|-----------------------|-------------|---------------------|-----------------------------------|-----------------------------------|---|--|--------------|
| 1.1 | 155'-115'6" | A | 0.500 | 0.000 | 0.000 | 0.000 | 0.000 | 116.82 |
| | | B | | 0.000 | 0.000 | 0.000 | 0.000 | 291.51 |
| | | C | | 0.000 | 0.000 | 0.000 | 0.000 | 172.20 |
| 1.2 | 115'6"-79'3" | A | 0.500 | 0.000 | 0.000 | 0.000 | 0.000 | 260.40 |
| | | B | | 0.000 | 0.000 | 0.000 | 0.000 | 267.52 |
| | | C | | 0.000 | 0.000 | 0.000 | 0.000 | 688.80 |
| 1.3 | 79'3"-43'9" | A | 0.500 | 0.000 | 0.000 | 0.000 | 0.000 | 315.24 |
| | | B | | 0.000 | 0.000 | 0.000 | 0.000 | 685.70 |
| | | C | | 0.000 | 0.000 | 0.000 | 0.000 | 698.64 |
| 1.4 | 43'9"-0' | A | 0.500 | 0.000 | 0.000 | 0.000 | 0.000 | 388.50 |
| | | B | | 0.000 | 0.000 | 0.000 | 0.000 | 867.56 |
| | | C | | 0.000 | 0.000 | 0.000 | 0.000 | 861.00 |

| | | |
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Feed Line Center of Pressure

| Section | Elevation | CP _x | CP _z | CP _x Ice | CP _z Ice |
|---------|--------------|-----------------|-----------------|------------------------|------------------------|
| | ft | in | in | in | in |
| L1 | 155'-115'6" | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| L2 | 115'6"-79'3" | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| L3 | 79'3"-43'9" | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| L4 | 43'9"-0' | 0.0000 | 0.0000 | 0.0000 | 0.0000 |

Discrete Tower Loads

| Description | Face or Leg | Offset Type | Offsets: | | Azimuth Adjustment | Placement | C _{FA} | C _{SA} | Weight | |
|---|-------------|-------------|----------|---------|--------------------|-----------|-----------------|-----------------|--------|--------|
| | | | Horz | Lateral | | | | | | |
| | | | Vert | | | | | | | |
| | | | ft | ft | ° | ft | ft ² | ft ² | lb | |
| 1.5-ft Side Arm | A | From Leg | 0.75 | | 0.000 | 60' | No Ice | 0.16 | 0.20 | 12.00 |
| | | | 0' | | | | 1/2" Ice | 0.23 | 0.41 | 15.50 |
| GPS (sprint existing) | A | From Leg | 1.50 | | 0.000 | 60' | No Ice | 0.62 | 0.62 | 15.00 |
| | | | 0' | | | | 1/2" Ice | 0.73 | 0.73 | 22.03 |
| (4) DB844G65ZAXY (nextel existing) | A | From Leg | 4.00 | | 0.000 | 78' | No Ice | 4.67 | 3.73 | 16.00 |
| | | | 0' | | | | 1/2" Ice | 5.05 | 4.10 | 48.76 |
| (4) DB844G65ZAXY (nextel existing) | B | From Leg | 4.00 | | 0.000 | 78' | No Ice | 4.67 | 3.73 | 16.00 |
| | | | 0' | | | | 1/2" Ice | 5.05 | 4.10 | 48.76 |
| (4) DB844G65ZAXY (nextel existing) | C | From Leg | 4.00 | | 0.000 | 78' | No Ice | 4.67 | 3.73 | 16.00 |
| | | | 0' | | | | 1/2" Ice | 5.05 | 4.10 | 48.76 |
| (4) DB844I180-XY (verizon existing) | A | From Leg | 4.00 | | 0.000 | 113' | No Ice | 2.87 | 3.97 | 10.00 |
| | | | 0' | | | | 1/2" Ice | 3.18 | 4.34 | 36.27 |
| (4) DB844I180-XY (verizon existing) | B | From Leg | 4.00 | | 0.000 | 113' | No Ice | 2.87 | 3.97 | 10.00 |
| | | | 0' | | | | 1/2" Ice | 3.18 | 4.34 | 36.27 |
| (4) DB844I180-XY (verizon existing) | C | From Leg | 4.00 | | 0.000 | 113' | No Ice | 2.87 | 3.97 | 10.00 |
| | | | 0' | | | | 1/2" Ice | 3.18 | 4.34 | 36.27 |
| (2) RR90-17-02DP (t-mobile existing) | A | From Leg | 4.00 | | 0.000 | 133' | No Ice | 4.36 | 1.97 | 18.00 |
| | | | 0' | | | | 1/2" Ice | 4.77 | 2.31 | 40.42 |
| (2) RR90-17-02DP (t-mobile existing) | B | From Leg | 4.00 | | 0.000 | 133' | No Ice | 4.36 | 1.97 | 18.00 |
| | | | 0' | | | | 1/2" Ice | 4.77 | 2.31 | 40.42 |
| (2) RR90-17-02DP (t-mobile existing) | C | From Leg | 4.00 | | 0.000 | 133' | No Ice | 4.36 | 1.97 | 18.00 |
| | | | 0' | | | | 1/2" Ice | 4.77 | 2.31 | 40.42 |
| 5/8-in x 4-ft Lightning Rod (lightning rod) | C | None | | | 0.000 | 155' | No Ice | 0.25 | 0.25 | 4.58 |
| | | | | | | | 1/2" Ice | 0.66 | 0.66 | 7.39 |
| 12' Low Profile Platform | C | None | | | 0.000 | 78' | No Ice | 6.15 | 6.15 | 650.00 |

| | | | | | | | | |
|---|----------------|--|----------------------------|--|--------------------|--|-------------------|--|
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| | Client | | Crown Castle Internaional | | Designed by | | Brad Kramer | |

| Description | Face or Leg | Offset Type | Offsets: | | | Azimuth Adjustment | Placement | C ₁ A ₁ | | Weight |
|---|-------------|-------------|------------------|---------|------|--------------------|-----------|-------------------------------|-----------------|------------------|
| | | | Horz | Lateral | Vert | | | Front | Side | |
| | | | ft | ft | ft | ° | ft | ft ² | ft ² | lb |
| 12' Low Profile Platform | C | None | | | | 0.000 | 113' | 1/2" Ice 8.14 No Ice 6.15 | 8.14 6.15 | 750.00 650.00 |
| 12' Low Profile Platform | C | None | | | | 0.000 | 133' | 1/2" Ice 8.14 No Ice 6.15 | 8.14 6.15 | 750.00 650.00 |
| 12' Low Profile Platform | C | None | | | | 0.000 | 155' | 1/2" Ice 8.14 No Ice 6.15 | 8.14 6.15 | 750.00 650.00 |
| **** | | | | | | | | | | |
| (3) FV65-14-00NA2 (M.L.A) | A | From Leg | 4.00 0' 0' | | | 0.000 | 155' | No Ice 8.40 1/2" Ice 8.95 | 5.28 5.74 | 30.00 80.04 |
| (3) FV65-14-00NA2 (M.L.A) | B | From Leg | 4.00 0' 0' | | | 0.000 | 155' | No Ice 8.40 1/2" Ice 8.95 | 5.28 5.74 | 30.00 80.04 |
| (3) FV65-14-00NA2 (M.L.A) | C | From Leg | 4.00 0' 0' | | | 0.000 | 155' | No Ice 8.40 1/2" Ice 8.95 | 5.28 5.74 | 30.00 80.04 |
| **** | | | | | | | | | | |
| 7770.00 w/ Mount Pipe (Reserved) | A | From Leg | 1.00 0' 0' | | | 0.000 | 145' | No Ice 6.22 1/2" Ice 6.77 | 4.35 5.20 | 56.90 102.99 |
| 7770.00 w/ Mount Pipe (Reserved) | B | From Leg | 1.00 0' 0' | | | 0.000 | 145' | No Ice 6.22 1/2" Ice 6.77 | 4.35 5.20 | 56.90 102.99 |
| 7770.00 w/ Mount Pipe (Reserved) | C | From Leg | 1.00 0' 0' | | | 0.000 | 145' | No Ice 6.22 1/2" Ice 6.77 | 4.35 5.20 | 56.90 102.99 |
| (2) Powerwave Tech L.GP21401 (Reserved TMA) | A | From Leg | 0.00 0' 0' | | | 0.000 | 145' | No Ice 1.29 1/2" Ice 1.45 | 0.23 0.31 | 14.10 21.26 |
| (2) Powerwave Tech L.GP21401 (Reserved TMA) | B | From Leg | 0.00 0' 0' | | | 0.000 | 145' | No Ice 1.29 1/2" Ice 1.45 | 0.23 0.31 | 14.10 21.26 |
| (2) Powerwave Tech L.GP21401 (Reserved TMA) | C | From Leg | 0.00 0' 0' | | | 0.000 | 145' | No Ice 1.29 1/2" Ice 1.45 | 0.23 0.31 | 14.10 21.26 |
| **** | | | | | | | | | | |
| 742-213 (Proposed) | A | From Leg | 1.00 0' 0' | | | 0.000 | 103' | No Ice 5.14 1/2" Ice 5.61 | 2.87 3.48 | 22.00 47.15 |
| 742-213 (Proposed) | B | From Leg | 1.00 0' 0' | | | 0.000 | 103' | No Ice 5.14 1/2" Ice 5.61 | 2.87 3.48 | 22.00 47.15 |
| 742-213 (Proposed) | C | From Leg | 1.00 0' 0' | | | 0.000 | 103' | No Ice 5.14 1/2" Ice 5.61 | 2.87 3.48 | 22.00 47.15 |
| **** | | | | | | | | | | |
| 4.5" Dia. x 4' Dish Mount | A | From Leg | 1.00 0' 0' | | | 0.000 | 145' | No Ice 0.00 1/2" Ice 0.00 | 1.32 1.58 | 43.20 56.19 |
| 4.5" Dia. x 4' Dish Mount | B | From Leg | 1.00 0' 0' | | | 0.000 | 145' | No Ice 0.00 1/2" Ice 0.00 | 1.32 1.58 | 43.20 56.19 |
| 4.5" Dia. x 4' Dish Mount | C | From Leg | 1.00 0' 0' | | | 0.000 | 145' | No Ice 0.00 1/2" Ice 0.00 | 1.32 1.58 | 43.20 56.19 |
| 4.5" Dia. x 4' Dish Mount | A | From Leg | 1.00 | | | 0.000 | 103' | No Ice 0.00 | 1.32 | 43.20 |

| | | |
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| Description | Face or Leg | Offset Type | Offsets: | | | Azimuth Adjustment | Placement | C _A A ₁ Front | C _A A ₁ Side | Weight |
|---------------------------|-------------|-------------|----------|---------|------|--------------------|-----------|-------------------------------------|------------------------------------|--------|
| | | | Horz | Lateral | Vert | | | | | |
| | | | | | | | | | | |
| | | | | | | | 1/2" Ice | 0.00 | 1.58 | 56.19 |
| 4.5" Dia. x 4' Dish Mount | B | From Leg | 1.00 | 0.000 | 103' | No Ice | 0.00 | 1.32 | 43.20 | |
| | | | | | | 1/2" Ice | 0.00 | 1.58 | 56.19 | |
| 4.5" Dia. x 4' Dish Mount | C | From Leg | 1.00 | 0.000 | 103' | No Ice | 0.00 | 1.32 | 43.20 | |
| | | | | | | 1/2" Ice | 0.00 | 1.58 | 56.19 | |

Load Combinations

| Comb. No. | Description |
|-----------|-----------------------------|
| 1 | Dead Only |
| 2 | Dead+Wind 0 deg - No Ice |
| 3 | Dead+Wind 30 deg - No Ice |
| 4 | Dead+Wind 60 deg - No Ice |
| 5 | Dead+Wind 90 deg - No Ice |
| 6 | Dead+Wind 120 deg - No Ice |
| 7 | Dead+Wind 150 deg - No Ice |
| 8 | Dead+Wind 180 deg - No Ice |
| 9 | Dead+Wind 210 deg - No Ice |
| 10 | Dead+Wind 240 deg - No Ice |
| 11 | Dead+Wind 270 deg - No Ice |
| 12 | Dead+Wind 300 deg - No Ice |
| 13 | Dead+Wind 330 deg - No Ice |
| 14 | Dead+Ice+Temp |
| 15 | Dead+Wind 0 deg+Ice+Temp |
| 16 | Dead+Wind 30 deg+Ice+Temp |
| 17 | Dead+Wind 60 deg+Ice+Temp |
| 18 | Dead+Wind 90 deg+Ice+Temp |
| 19 | Dead+Wind 120 deg+Ice+Temp |
| 20 | Dead+Wind 150 deg+Ice+Temp |
| 21 | Dead+Wind 180 deg+Ice+Temp |
| 22 | Dead+Wind 210 deg+Ice+Temp |
| 23 | Dead+Wind 240 deg+Ice+Temp |
| 24 | Dead+Wind 270 deg+Ice+Temp |
| 25 | Dead+Wind 300 deg+Ice+Temp |
| 26 | Dead+Wind 330 deg+Ice+Temp |
| 27 | Dead+Wind 0 deg - Service |
| 28 | Dead+Wind 30 deg - Service |
| 29 | Dead+Wind 60 deg - Service |
| 30 | Dead+Wind 90 deg - Service |
| 31 | Dead+Wind 120 deg - Service |
| 32 | Dead+Wind 150 deg - Service |
| 33 | Dead+Wind 180 deg - Service |
| 34 | Dead+Wind 210 deg - Service |
| 35 | Dead+Wind 240 deg - Service |
| 36 | Dead+Wind 270 deg - Service |
| 37 | Dead+Wind 300 deg - Service |
| 38 | Dead+Wind 330 deg - Service |

| | | |
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Maximum Tower Deflections - Service Wind

| Section No. | Elevation ft | Horz. Deflection in | Gov. Load Comb. | Tilt ° | Twist ° |
|-------------|-----------------|---------------------------|-----------------------|-----------|------------|
| L1 | 155 - 115.5 | 26.32 | 27 | 1.415 | 0.000 |
| L2 | 119.25 - 79.25 | 16.17 | 27 | 1.243 | 0.000 |
| L3 | 83.75 - 43.75 | 8.05 | 27 | 0.900 | 0.000 |
| L4 | 49 - 0 | 2.78 | 27 | 0.519 | 0.000 |

Critical Deflections and Radius of Curvature - Service Wind

| Elevation ft | Appurtenance | Gov. Load Comb. | Deflection in | Tilt ° | Twist ° | Radius of Curvature ft |
|-----------------|-----------------------------|-----------------------|------------------|-----------|------------|------------------------------|
| 155' | 5/8-in x 4-ft Lightning Rod | 27 | 26.32 | 1.415 | 0.000 | 47260 |
| 145' | 7770.00 w/ Mount Pipe | 27 | 23.38 | 1.377 | 0.000 | 23630 |
| 133' | (2) RR90-17-02DP | 27 | 19.92 | 1.324 | 0.000 | 10740 |
| 113' | (4) DB8441I80-XY | 27 | 14.56 | 1.197 | 0.000 | 6440 |
| 103' | 742-213 | 27 | 12.15 | 1.109 | 0.000 | 6187 |
| 78' | (4) DB844G65ZAXY | 27 | 6.98 | 0.829 | 0.000 | 5377 |
| 60' | 1.5-ft Side Arm | 27 | 4.11 | 0.616 | 0.000 | 4463 |

Maximum Tower Deflections - Design Wind

| Section No. | Elevation ft | Horz. Deflection in | Gov. Load Comb. | Tilt ° | Twist ° |
|-------------|-----------------|---------------------------|-----------------------|-----------|------------|
| L1 | 155 - 115.5 | 67.30 | 2 | 3.619 | 0.000 |
| L2 | 119.25 - 79.25 | 41.34 | 2 | 3.180 | 0.000 |
| L3 | 83.75 - 43.75 | 20.60 | 2 | 2.301 | 0.000 |
| L4 | 49 - 0 | 7.12 | 2 | 1.329 | 0.000 |

Critical Deflections and Radius of Curvature - Design Wind

| Elevation ft | Appurtenance | Gov. Load Comb. | Deflection in | Tilt ° | Twist ° | Radius of Curvature ft |
|-----------------|-----------------------------|-----------------------|------------------|-----------|------------|------------------------------|
| 155' | 5/8-in x 4-ft Lightning Rod | 2 | 67.30 | 3.619 | 0.000 | 18608 |
| 145' | 7770.00 w/ Mount Pipe | 2 | 59.78 | 3.523 | 0.000 | 9303 |
| 133' | (2) RR90-17-02DP | 2 | 50.95 | 3.389 | 0.000 | 4227 |
| 113' | (4) DB8441I80-XY | 2 | 37.24 | 3.057 | 0.000 | 2532 |
| 103' | 742-213 | 2 | 31.07 | 2.827 | 0.000 | 2430 |
| 78' | (4) DB844G65ZAXY | 2 | 17.85 | 2.132 | 0.000 | 2108 |
| 60' | 1.5-ft Side Arm | 2 | 10.52 | 1.612 | 0.000 | 1748 |

| | | |
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Base Plate Design Data

| Plate Thickness | Number of Anchor Bolts | Anchor Bolt Size | Actual | Actual | Actual | Actual | Controlling Condition | Ratio |
|-----------------|------------------------|------------------|---------------------------------|-------------------------------------|----------------------------------|--------------------------------------|-----------------------|-------|
| | | | Allowable Ratio Bolt Tension lb | Allowable Ratio Bolt Compression lb | Allowable Ratio Plate Stress ksi | Allowable Ratio Stiffener Stress ksi | | |
| 3.2500 | 16 | 2.2500 | 101584.72 | 105668.33 | 22.55 | | Bolt T | 0.77 |
| | | | 131210.58 | 217809.56 | 37.50 | | | ✓ |
| | | | 0.77 | 0.49 | 0.60 | | | |

Compression Checks

Pole Design Data

| Section No. | Elevation ft | Size | L ft | L _u ft | KL/r | F _a ksi | A in ² | Actual P lb | Allow. P _a lb | Ratio P/P _a |
|-------------|-------------------|-----------------------|-------|-------------------|------|--------------------|-------------------|-------------|--------------------------|------------------------|
| 1.1 | 155 - 115.5 (1) | TP29.3x22x0.25 | 39'6" | 0' | 0.0 | 39.00 | 22.5012 | -4615.72 | 877549.00 | 0.005 |
| 1.2 | 115.5 - 79.25 (2) | TP35.51x28.107x0.3125 | 40' | 0' | 0.0 | 39.00 | 34.0854 | -10630.40 | 1329330.00 | 0.008 |
| 1.3 | 79.25 - 43.75 (3) | TP41.45x34.0522x0.375 | 40' | 0' | 0.0 | 39.00 | 47.7338 | -18916.40 | 1861620.00 | 0.010 |
| 1.4 | 43.75 - 0 (4) | TP48.8x39.729x0.4375 | 49' | 0' | 0.0 | 39.00 | 67.1574 | -32668.90 | 2619140.00 | 0.012 |

Pole Bending Design Data

| Section No. | Elevation ft | Size | Actual M _x lb-ft | Actual f _{bx} ksi | Allow. F _{bx} ksi | Ratio f _{bx} /F _{bx} | Actual M _y lb-ft | Actual f _{by} ksi | Allow. F _{by} ksi | Ratio f _{by} /F _{by} |
|-------------|-------------------|-----------------------|-----------------------------|----------------------------|----------------------------|--|-----------------------------|----------------------------|----------------------------|--|
| 1.1 | 155 - 115.5 (1) | TP29.3x22x0.25 | 184266.67 | -14.06 | 39.00 | 0.360 | 0.00 | 0.00 | 39.00 | 0.000 |
| 1.2 | 115.5 - 79.25 (2) | TP35.51x28.107x0.3125 | 549192.50 | -22.83 | 39.00 | 0.585 | 0.00 | 0.00 | 39.00 | 0.000 |
| 1.3 | 79.25 - 43.75 (3) | TP41.45x34.0522x0.375 | 1069766.67 | -27.22 | 39.00 | 0.698 | 0.00 | 0.00 | 39.00 | 0.000 |
| 1.4 | 43.75 - 0 (4) | TP48.8x39.729x0.4375 | 1948500.00 | -29.21 | 39.00 | 0.749 | 0.00 | 0.00 | 39.00 | 0.000 |

Pole Interaction Design Data

| Section No. | Elevation ft | Size | Ratio P/P _a | Ratio f _{bx} /F _{bx} | Ratio f _{by} /F _{by} | Comb. Stress Ratio | Allow. Stress Ratio | Criteria |
|-------------|-----------------|-----------------------|------------------------|--|--|--------------------|---------------------|----------|
| 1.1 | 155 - 115.5 (1) | TP29.3x22x0.25 | 0.005 | 0.360 | 0.000 | 0.366 | 1.333 | III-3 ✓ |
| 1.2 | 115.5 - 79.25 | TP35.51x28.107x0.3125 | 0.008 | 0.585 | 0.000 | 0.593 | 1.333 | III-3 ✓ |

| | | |
|---|--|-----------------------------------|
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| Section No. | Elevation ft | Size | Ratio | Ratio | Ratio | Comb. Stress Ratio | Allow. Stress Ratio | Criteria |
|-------------|-----------------|-----------------------|-------|----------|----------|--------------------|---------------------|----------|
| | | | P_a | f_{bc} | f_{bw} | | | |
| | (2) | | | | | ✓ | | |
| I.3 | 79.25 - 43.75 | TP41.45x34.0522x0.375 | 0.010 | 0.698 | 0.000 | 0.708 | 1.333 | III-3 ✓ |
| | (3) | | | | | ✓ | | |
| I.4 | 43.75 - 0 (4) | TP48.8x39.729x0.4375 | 0.012 | 0.749 | 0.000 | 0.761 | 1.333 | III-3 ✓ |
| | | | | | | ✓ | | |

Section Capacity Table

| Section No. | Elevation ft | Component Type | Size | Critical Element | P lb | SI*P _{allow} lb | % Capacity | Pass Fail | |
|-------------|-----------------|----------------|-----------------------|------------------|-----------|-----------------------------|-----------------|-------------|-------------|
| I.1 | 155 - 115.5 | Pole | TP29.3x22x0.25 | 1 | -4615.72 | 1169772.77 | 27.4 | Pass | |
| I.2 | 115.5 - 79.25 | Pole | TP35.51x28.107x0.3125 | 2 | -10630.40 | 1771996.82 | 44.5 | Pass | |
| I.3 | 79.25 - 43.75 | Pole | TP41.45x34.0522x0.375 | 3 | -18916.40 | 2481539.36 | 53.1 | Pass | |
| I.4 | 43.75 - 0 | Pole | TP48.8x39.729x0.4375 | 4 | -32668.90 | 3491313.48 | 57.1 | Pass | |
| | | | | | | | Summary | | |
| | | | | | | | Pole (I.4) | 57.1 | Pass |
| | | | | | | | Base Plate | 58.1 | Pass |
| | | | | | | | RATING = | 58.1 | Pass |

APPENDIX B
BASE LEVEL DRAWING

(RESERVED)
 (3) 1-1/4" TO 145 FT LEVEL
 (INSTALLED)
 (3) 1-1/4" TO 145 FT LEVEL

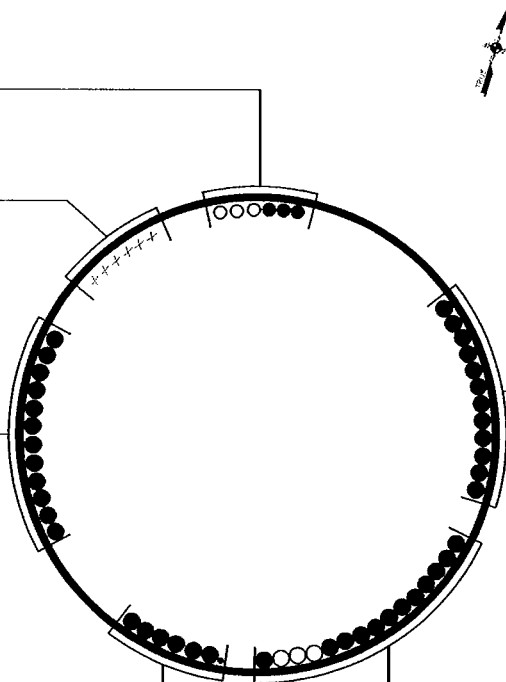
(PROPOSED)
 (6) 1-5/8" TO 103 FT LEVEL

(INSTALLED)
 (12) 1-5/8" TO 133 FT LEVEL

(INSTALLED)
 (6) 1-5/8" TO 155 FT LEVEL
 (INSTALLED)
 (1) 1/2" TO 60 FT LEVEL

(INSTALLED)
 (12) 1-5/8" TO 113 FT LEVEL


(RESERVED)
 (3) 1-5/8" TO 78 FT LEVEL
 (INSTALLED)
 (12) 1-5/8" TO 78 FT LEVEL



COAX CONFIGURATION

SCALE: N.T.S.

PREPARED BY:
TOWER ENGINEERING PROFESSIONALS
 3703 JUNCTION BOULEVARD
 RALEIGH, NC 27603-5263
 (919) 661-6351

PREPARED FOR:

 Crown Castle USA Inc.
 1200 MACARTHUR BLVD, SUITE 200
 MAHWAH, NJ 07430
 OFFICE: (201) 236-9070

PROJECT INFORMATION:
BUCKLAND MALL
SITE #: 876347
 53 SLATER STREET
 MANCHESTER, CT 06040
 (HARTFORD COUNTY)

| | |
|---------------|------------|
| REVISION: | 0 |
| TEP JOB #: | 081049 |
| SHEET NUMBER: | M-1 |

APPENDIX C
ADDITIONAL CALCULATIONS

| Design vs. Analysis Reaction Comparison | | | |
|---|---------|----------|-------|
| Foundation | Design | Analysis | % CAP |
| Moment = | 3,250.0 | 1,948.5 | 60.0 |
| Download = | 37.0 | 38.2 | - |
| Shear = | 28.0 | 19.3 | 68.9 |

- Does not control design

68.9 %

TOTAL = 68.9 %

Attachment C



Dewberry-Goodkind, Inc.
280 Summer Street, 10th Floor
Boston, MA 02210-1131
617.695.3400
617.695.3310 fax
www.dewberry.com

May 6, 2011

MetroPCS
285 Billerica Road
Third Floor
Chelmsford, MA 01824

**Re: Site No. HFC0618A
Site Name: CCI 876347
53 Slater Street
Manchester, CT 06040**

Dear Sir or Madam,

Dewberry-Goodkind Inc., (Dewberry) has performed a final inspection of the completed coax installation for Youghiogheny Communications Northeast LLC (Pocket) as specified in the prepared structural analysis completed by Tower Engineering Professional, Inc, project # 081049 dated October 10, 2008. The structural analysis specified that Pocket install (6) 1-5/8" coax cables banded to the outside of the 155' monopole.

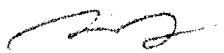
Dewberry performed a site visit and inspection on April 27, 2011 to verify the installation was completed as specified. The attached figures 1 – 3 illustrate the specified coax locations and the completed coax installation.

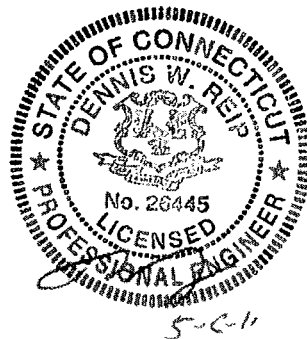
- Figure #1 – Coax Layout per the Structural analysis.
- Figure #2 – Picture of Pocket Coax installed at monopole base.
- Figure #3 – Picture of Pocket Coax installed on monopole.

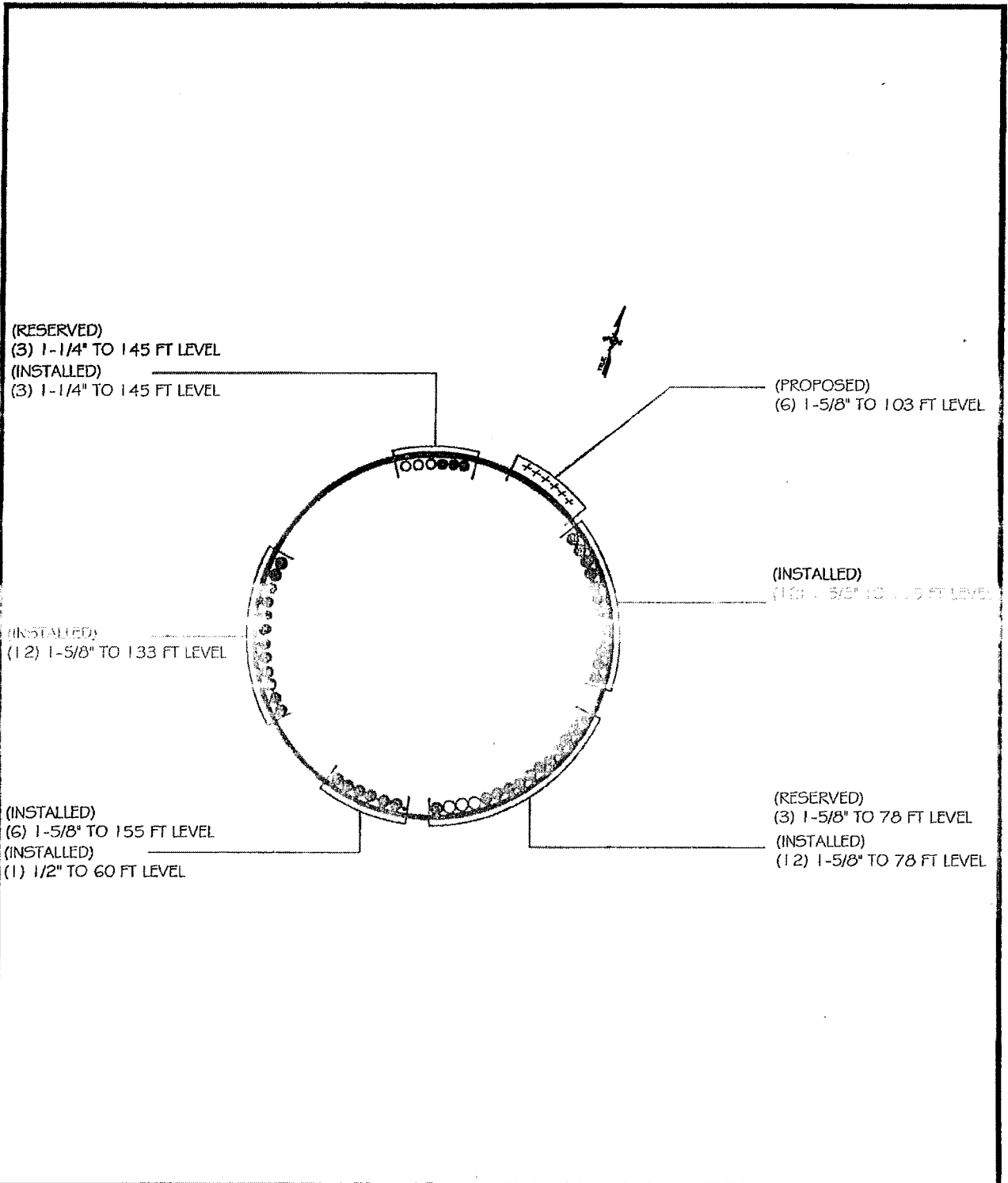
Based on visual observations it appears that the coax has been installed in general conformance with the applicable analysis and specifications. If you have any questions, please do not hesitate to contact Dewberry-Goodkind, Inc.

If you have any questions, please do not hesitate to call me at 617-531-0793.

Sincerely,
Dewberry-Goodkind, Inc.


Dennis W. Reip, P.E.
Senior Associate





COAX CONFIGURATION

SCALE: N.T.S.

PREPARED BY:
TOWER ENGINEERING PROFESSIONALS
 3703 JUNCTION BOULEVARD
 RALEIGH, NC 27803-5283
 (919) 661-6351

PREPARED FOR:
CROWN CASTLE INTERNATIONAL
Crown Castle USA Inc.
 1200 MACARTHUR BLVD, SUITE 200
 MAHWAH, NJ 07430
 OFFICE: (201) 236-9070

PROJECT INFORMATION:
BUCKLAND MALL
SITE #: 876347
 53 SLATER STREET
 MANCHESTER, CT 06040
 (HARTFORD COUNTY)

REVISION: 1
 TEP JOB # 081049
 SHEET NUMBER:
M-1

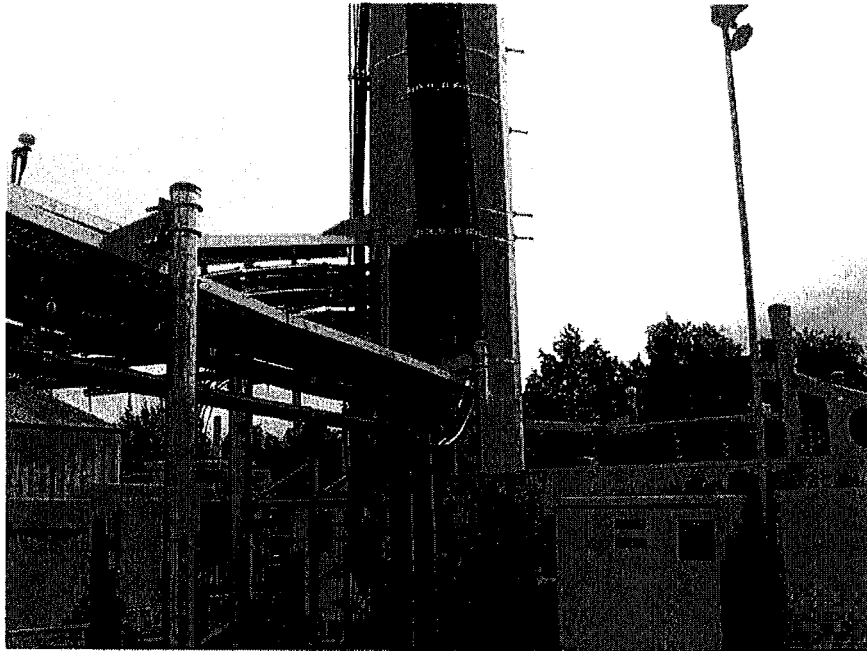


Figure #2: Pocket Coax installed at tower base.

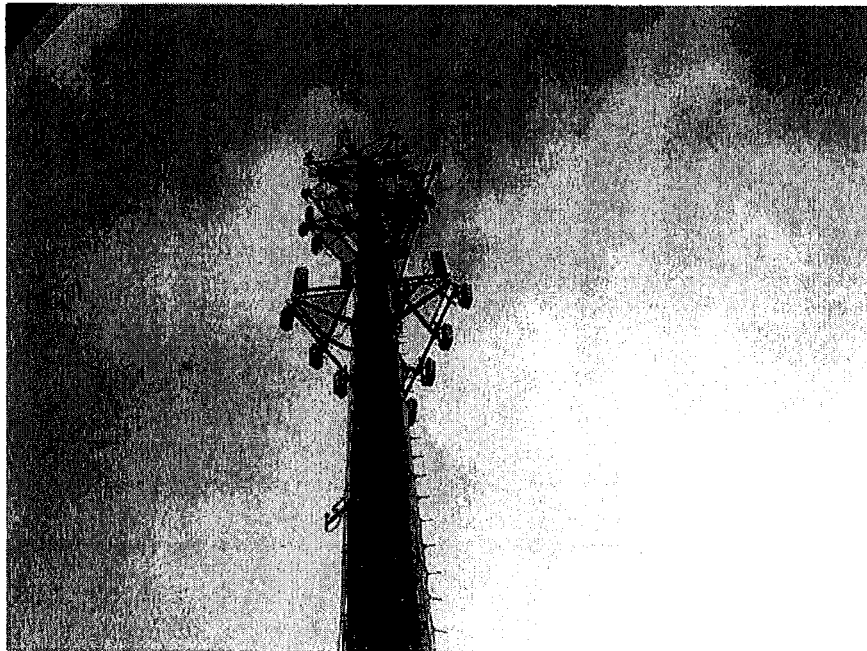


Figure #3: Pocket Coax installed on tower.

EM-POCKET-077-081015

CARRIE L. LARSON
90 State House Square
Hartford, CT 06103-3702
p (860) 424-4312
f (860) 424-4370

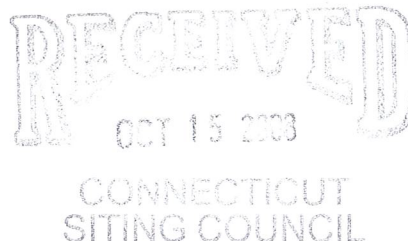
ORIGINAL

www.pullcom.com

October 14, 2008

Via Federal Express

S. Derek Phelps, Executive Director
Connecticut Siting Council
Ten Franklin Square
New Britain, CT 06051



**Re: Notice of Exempt Modification
Crown Castle USA, Inc. Telecommunications Facility
53 Slater Street, Manchester, Connecticut**

Dear Mr. Phelps:

Youghiogheny Communications-Northeast, LLC, doing business as Pocket Communications ("Pocket"), intends to install antennas and appurtenant equipment at the existing 155-foot monopole facility owned by Crown Castle USA, Inc. and located at 53 Slater Street, Manchester, Connecticut ("Facility"). Pocket Communications provides prepaid, flat rate wireless voice and data services to more than a quarter of a million subscribers. Pocket is licensed by the Federal Communications Commission (FCC) to provide PCS wireless telecommunications service in the State of Connecticut, which includes the area to be served by the proposed installation. This installation constitutes an exempt modification pursuant to the Public Utility Environmental Standards Act, Connecticut General Statutes Section 16-50g et. seq. (PUESA), and Section 16-50j-72(b)(2) of the Regulations of the Connecticut State Agencies adopted pursuant to PUESA. In accordance with R.C.S.A. Section 16-50j-73, a copy of this notice has been sent to Louis A. Spadaccini, Mayor, Town of Manchester.

The existing Facility consists of a 155-foot self-supporting monopole tower capable of supporting multiple carriers within a fenced compound. The coordinates for the Facility are **Lat: 41°-48'-18" and Long: 72°-32'-01"**. The tower is located in the northern portion of Manchester, roughly 2,800 feet south of the town line and approximately 380 feet south of Interstate 84. The Facility is approximately 200 feet east of Slater Street and roughly 400 feet north of Tolland Turnpike (see Site Map, attached as Exhibit A). The tower currently supports Nextel antennas at the seventy eight foot (78') level centerline AGL (above ground level), Verizon antennas at the one hundred thirteen foot level (113') AGL, T-Mobile antennas at the one hundred thirty three foot level (133') AGL AT&T antennas at the one hundred forty five foot level (145') AGL and Sprint antennas at the one hundred fifty five foot level (155') AGL. Pocket proposes to install three Kathrein 742-213 flush mount antennas on the tower at the one hundred three foot centerline (103') AGL, and a Nortel CDMA Micro BTS 3231 cabinet,

Page 2

mounted on an "H-Frame," contained within a six foot by six foot (6'-0" x 6'-0") lease area. A small GPS antenna will be mounted to an ice bridge which will run from the lease area to the tower. Utilities will be run via a proposed underground conduit from existing utility sources, within the compound (See Design Drawings and Equipment Specifications, attached as Exhibits B and C respectively).

For the following reasons, the proposed modifications to the Slater Street Facility meet the exempt modification criteria set forth in R.C.S.A. Section 16-50j-72(b)(2):

1. The proposed modification will not increase the height of the tower as Pocket's antennas will be installed at a center line height of approximately 103 feet.
2. The installation of Pocket's equipment and shelter will not require an extension of the site boundaries.
3. The proposed modifications will not increase the noise levels at the existing Facility by six decibels or more.
4. The operation of the additional antennas will not increase the total radio frequency (RF) power density, measured at the site boundary, to a level at or above the standard adopted by the Connecticut Department of Environmental Protection as set forth in Section 22a-162 of the Connecticut General Statutes and MPE limits established by the Federal Communications Commission. The worst-case RF power density calculations for the proposed Pocket antennas would be 35.86% of the FCC standard (see general power density calculations table, attached as Exhibit D).

Also attached, Exhibit E, is a structural analysis confirming that the tower can support the existing and proposed antennas and associated equipment.

For the foregoing reasons, Pocket respectfully submits that the proposed antenna installation and equipment at the Manchester Facility constitutes an exempt modification under R.C.S.A. Section 16-50j-72(b)(2)

Respectfully Submitted,



Carrie L. Larson

cc: Louis A. Spadaccini, Mayor
121 Connecticut Ave. Associates, underlying property owner

Exhibit A

Site Map

Pocket Site HFCT0618A

53 Slater Street

Manchester, Connecticut

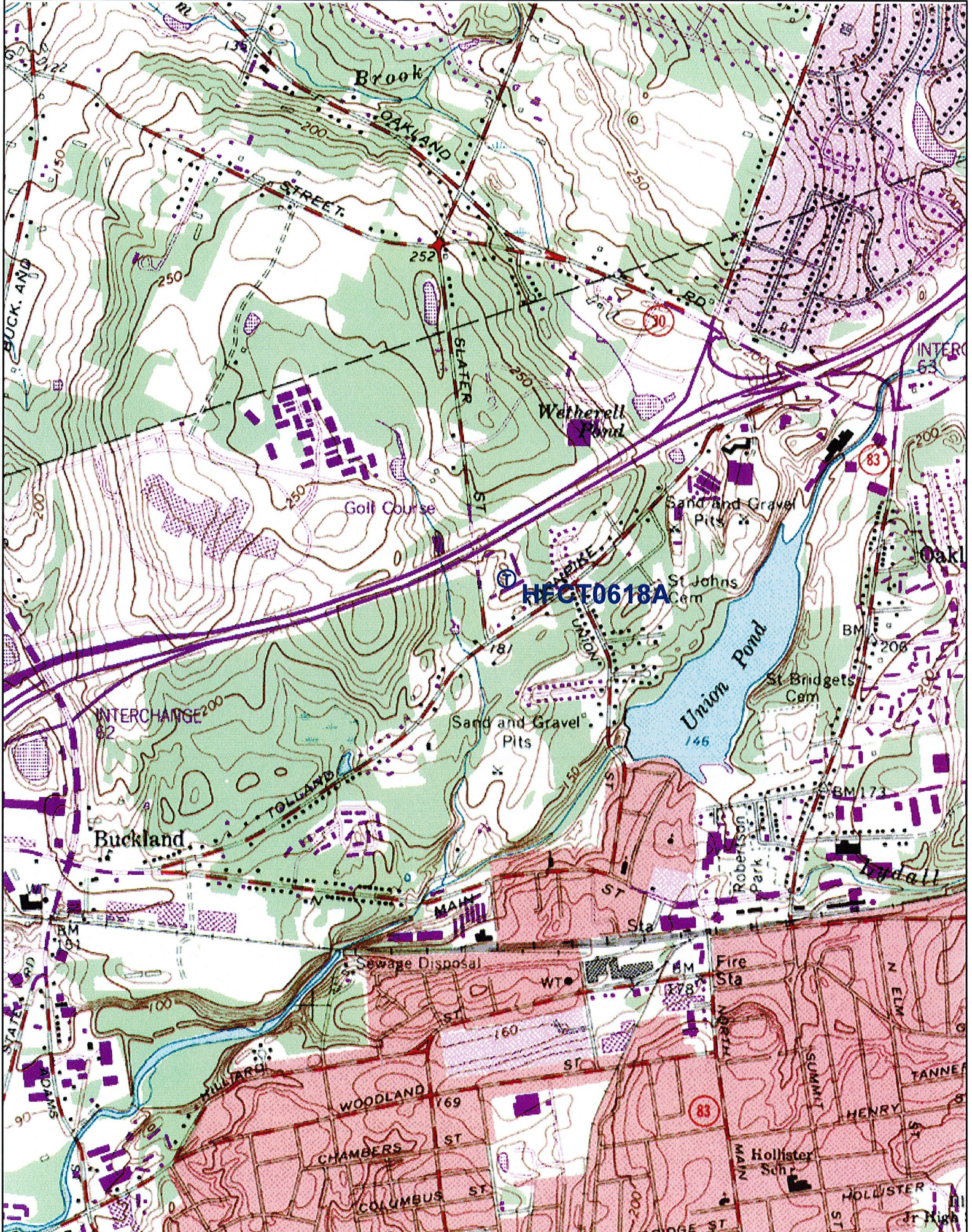


Exhibit B

Design Drawings

Pocket Site HFCT0618A

53 Slater Street

Manchester, Connecticut

| NO. | DATE | REVISIONS |
|-----|----------|--------------------------|
| 1 | 10-14-08 | REVISED SITE COORDINATES |
| 2 | 9-29-08 | ISSUED FOR CONSTRUCTION |
| 3 | | |
| 4 | | |
| 5 | | |
| 6 | | |
| 7 | | |
| 8 | | |
| 9 | | |
| 10 | | |

| PROJECT NAME | SHEET TITLE | SHEET NO. |
|-----------------------|-------------|-----------|
| POCKET COMMUNICATIONS | CCI 876347 | 01 |

THE INFORMATION CONTAINED HEREIN IS THE PROPERTY OF TRIVIS INC. IT IS TO BE USED ONLY FOR THE PROJECT AND SITE SPECIFIC TO THE PROJECT AND SITE IDENTIFIED HEREIN. NO PART OF THIS DOCUMENT IS TO BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS WITHOUT THE WRITTEN PERMISSION OF TRIVIS INC.



CHECKED BY: JSW
 DRAWN BY: JSW
 DATE: 9-17-08
 DRAWING NO.: 08489
 SCALE: AS SHOWN

01

SITE INFORMATION

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

BUILDING CODE: INTERNATIONAL BUILDING CODE (IBC), 2006

ELECTRICAL CODE: NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) 70 - 2005, NATIONAL ELECTRICAL CODE LIGHTNING PROTECTION CODE: [NFPA 780 - 2005, LIGHTNING PROTECTION CODE]

CONTRACTOR'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, 13TH EDITION

TELECOMMUNICATIONS INDUSTRY ASSOCIATION (TIA) 222-F, STRUCTURAL STANDARDS FOR STEEL ANTENNA TOWER AND ANTENNA SUPPORTING STRUCTURES;

TIA 607, COMMERCIAL BUILDING GROUNDING AND BONDING REQUIREMENTS FOR TELECOMMUNICATIONS

INSTITUTE FOR ELECTRICAL AND ELECTRONICS ENGINEERS (IEEE) 81, GUIDE FOR MEASURING EARTH RESISTIVITY, GROUND IMPEDANCE, AND EARTH SURFACE POTENTIALS OF A GROUND SYSTEM

IEEE 1100 (1996) RECOMMENDED PRACTICE FOR POWERING AND GROUNDING OF ELECTRONIC EQUIPMENT

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

TELECORDIA GR-1275, GENERAL INSTALLATION REQUIREMENTS

TELECORDIA 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

SITE INFORMATION

1. THIS SITE IS UNMANNED AND IS RESTRICTED TO OUTDOOR EQUIPMENT. IT WILL BE USED FOR TRANSMISSION OR RADIO SIGNALS FOR THE PURPOSE OF PROVIDING PUBLIC CELLULAR SERVICE.
2. POCKET COMMUNICATIONS CERTIFIES THAT THIS TELEPHONE EQUIPMENT FACILITY WILL BE CONSTRUCTED AND OPERATED IN ACCORDANCE WITH THE REQUIREMENTS OF THE FEDERAL COMMUNICATIONS COMMISSION (FCC) PART 15.207. ANY EQUIPMENT CANNOT BE OPERATED OR MAINTAINED EXCEPT BY PERSONNEL FREQUENTED ONLY BY SERVICE PERSONNEL FOR REPAIR PURPOSES ONLY. THIS FACILITY IS EXEMPT FROM THE REQUIREMENTS OF THE AMERICANS WITH DISABILITIES ACT (ADA), APPENDIX B, SECTION 4.11.(5)(B).
3. NO POTABLE WATER SUPPLY IS TO BE PROVIDED AT THIS LOCATION.
4. NO WASTE WATER WILL BE GENERATED AT THIS LOCATION.
5. NO SOLID WASTE WILL BE GENERATED AT THIS LOCATION.
6. POCKET COMMUNICATIONS MAINTENANCE CREW (TYPICALLY ONE PERSON) WILL MAKE AN AVERAGE OF ONE TRIP PER MONTH AT ONE HOUR PER VISIT.

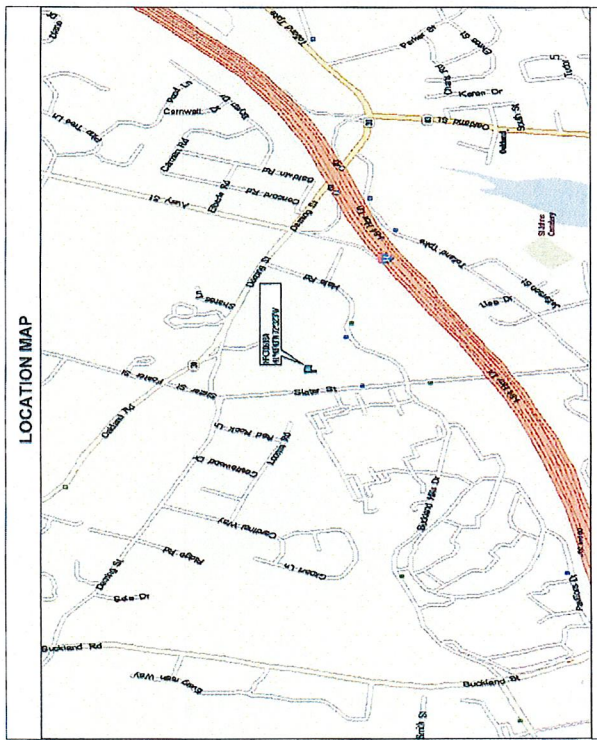


POCKET COMMUNICATIONS

HFCT0618A

CCI 876347

155' MONOPOLE



DRIVING DIRECTIONS

FROM HARTFORD TAKE I-84E TO EXIT 63 SR 30 (BEYOND ST). GO 0.3 MILES AND TURN LEFT ONTO HALE STREET. GO 2 MILES TO LEFT ON SLATER STREET. GO 0.6 MILES TO SLATER ROAD AND TURN RIGHT. TAKE SLATER ROAD ABOUT 300 YARDS. ACCESS ROAD IS ON THE RIGHT.

SITE INFORMATION

| | |
|------------------------|---|
| OWNER: | CCI 500 WEST CUMMINGS PARK SUITE 3500 DURHAM, NC 27704 CONTACT: TARA KATHLEEN RAND PHONE: 781-970-0090 876347 |
| OWNER SITE ID#: | |
| APPLICANT: | YOUGHIOGHENY COMMUNICATIONS-- NORTHEAST LLC 2819 HWY LOOP 410 SAN ANTONIO, TX 78230 |
| SITE ADDRESS: | 53 SLATER ST. HARTFORD, CT 06402 |
| COUNTY: | HARTFORD |
| LATITUDE: | N 41° 48' 18" |
| LONGITUDE: | W 72° 32' 1" |
| ZONING CLASSIFICATION: | N/A |
| ZONING JURISDICTION: | CONNECTICUT SITING COUNCIL |
| POWER COMPANY: | CL&P 1-888-947-2121 |
| TELEPHONE COMPANY: | AT&T 1-888-727-8368 |
| DESIGN FIRM: | TRIVIS 180 CHANDLER PLACE DRIVE PELHAM, NC 27224 PHONE: (252) 621-0106 |

DRAWING INDEX

| | |
|---|---|
| 1 | TITLE SHEET |
| 2 | SITE PLAN |
| 3 | TOWER, ANTENNA, H-FRAME DESIGN |
| 4 | GROUNDING PLAN & DETAILS |
| 5 | COAX SUPPORT STRUCTURE DETAIL & GROUNDING DETAILS |
| 6 | ELECTRICAL SITE PLAN & DETAILS |

APPROVALS

| | |
|------------------|----|
| REAL ESTATE | RF |
| OPS/CONSTRUCTION | |
| LEGAL/COMPLIANCE | |
| NET DESIGN | |

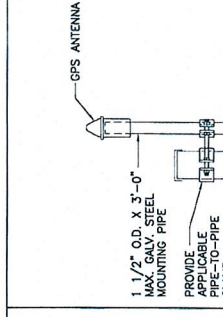
| | | | |
|-----|---------|-------------------------|-----------|
| NO. | DATE | ISSUED FOR CONSTRUCTION | REVISIONS |
| 0 | 9-29-08 | | |

PROJECT NAME: TOWER, ANTENNA, H-FRAME
 CCI 876347
 COMMUNICATIONS

THE INFORMATION CONTAINED IN THIS DOCUMENT IS THE PROPERTY OF TRIVIS INC. IT IS TO BE USED OR REPRODUCED IN WHOLE OR IN PART WITHOUT THE WRITTEN PERMISSION OF TRIVIS INC.



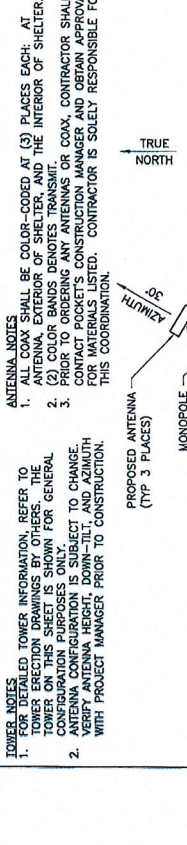
DRAWN BY: JSW
 DATE: 9-17-08
 JOB NO.: 08489
 SHEET NO.: 03



GPS ANTENNA PIPE MOUNT
 SCALE: N.T.S.

NOTES:
 1. LOCATION OF ANTENNA MUST HAVE CLEAR VIEW OF SOUTHERN SKY AND CANNOT HAVE ANY BLOCKAGES EXCEEDING 25% OF THE SURFACE AREA OF A HEMISPHERE AROUND THE GPS ANTENNA.
 2. ALL GPS ANTENNA LOCATIONS MUST BE ABLE TO RECEIVE CLEAR SIGNALS FROM A MINIMUM OF FOUR (4) SATELLITES. VERIFY WITH HANDHELD GPS BEFORE FINAL LOCATION OF GPS ANTENNA.

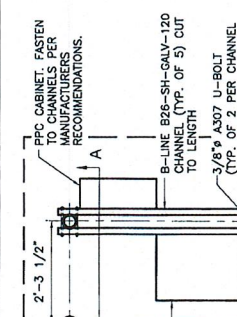
| ANTENNA # PER SECTOR | ANTENNA VENDOR | MODEL NUMBER | AZIMUTH | C/A HEIGHT | MECHANICAL DOWNWILT | ELECTRICAL DOWNWILT | COAX SIZE | # COAX PER ANTENNA | COAX VENDOR | COAX LENGTH |
|----------------------|----------------|--------------|---------|------------|---------------------|---------------------|-----------|--------------------|-------------|-------------|
| 1 | KATHREIN | N/A | 30° | 131'-0" | 0' | 0' | 1 5/8" | 2 | COMM-136 | 0' |
| 1 | KATHREIN | N/A | 150° | 131'-0" | 0' | 0' | 1 5/8" | 2 | COMM-136 | 0' |
| 1 | KATHREIN | N/A | 270° | 131'-0" | 0' | 0' | 1 5/8" | 2 | COMM-136 | 0' |



ANTENNA KEY

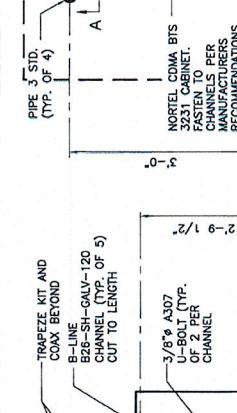
ANTENNA NOTES:
 1. ANTENNA SHALL BE COLOR CODED AT (3) PLACES EACH: AT ANTENNA EXTERIOR OF SHELTER AND THE INTERIOR OF SHELTER.
 2. (2) COLOR BANDS DENOTES TRANSMIT.
 3. PRIOR TO ORDERING ANY ANTENNAS OR COAX, CONTRACTOR SHALL CONTACT POCKET'S CONSTRUCTION MANAGER AND OBTAIN APPROVAL FOR MATERIALS LISTED. CONTRACTOR IS SOLELY RESPONSIBLE FOR THIS COORDINATION.

TOWER NOTES:
 1. UNLESS NOTED OTHERWISE, REFER TO TOWER ERECTION DRAWINGS BY OTHERS. THE TOWER ON THIS SHEET IS SHOWN FOR GENERAL CONFIGURATION PURPOSES ONLY. CONTRACTOR SHALL VERIFY ALL DIMENSIONS, HEIGHT, AND AZIMUTH WITH PROJECT MANAGER PRIOR TO CONSTRUCTION.



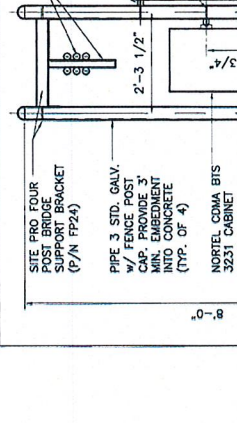
ONE ANTENNA PER SECTOR WITH FLUSHFACE MONOPOLE MOUNTING
 SCALE: N.T.S.

NOTES:
 1. TRAPEZE KIT AND COAX BEYOND B2B-SH-GALV-120 CHANNEL (TYP. OF 5) CUT TO LENGTH.
 2. 3/8" A307 U-BOLT FASTEN TO CHANNEL (TYP. OF 2 PER CHANNEL).
 3. PPC CABINET, FASTEN TO CHANNELS PER MANUFACTURERS RECOMMENDATIONS.



PROPOSED H-FRAME FOR NORTEL BITS CABINET
 SCALE: N.T.S.

NOTES:
 1. NORTEL CDMA BITS FASTEN TO CHANNELS PER MANUFACTURERS RECOMMENDATIONS.
 2. 3/8" A307 U-BOLT FASTEN TO CHANNEL (TYP. OF 2 PER CHANNEL).
 3. PPC CABINET, FASTEN TO CHANNELS PER MANUFACTURERS RECOMMENDATIONS.



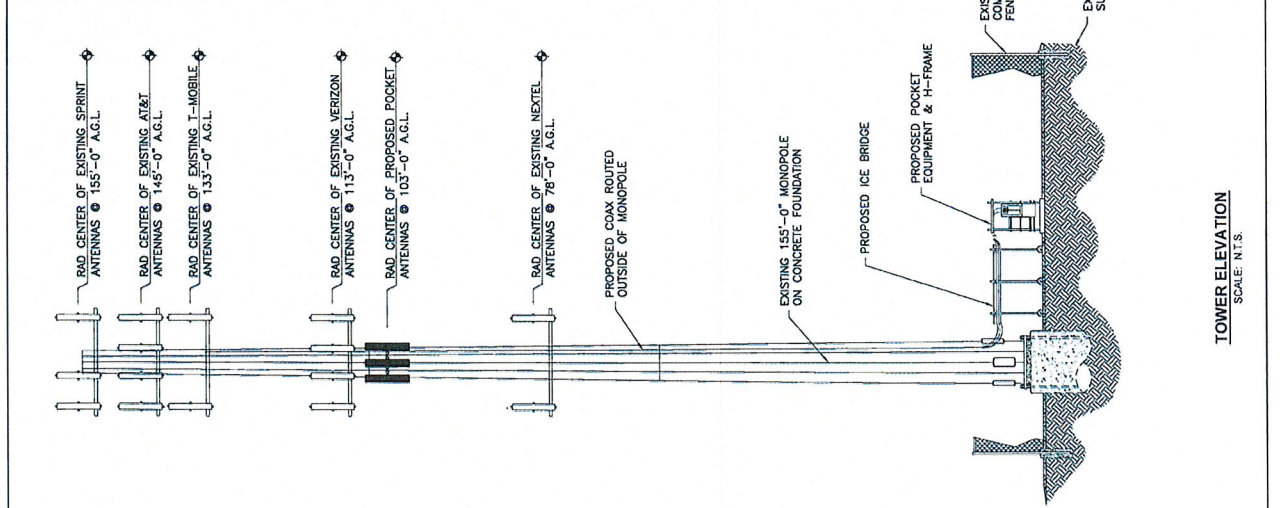
SECTION 'A-A'
 SCALE: N.T.S.

NOTES:
 1. SITE PRO FOUR POST BRIDGE SUPPORT BRACKET (P/N FP24).
 2. PIPE 3 STD. GALV. EXPOSED TO WEATHER. CAP PROTECT 3" MIN. EMBEDMENT INTO CONCRETE (TYP. OF 4).
 3. NORTEL CDMA BITS MOUNT POSTS TO PROPOSED CONCRETE SLAB W/ 1/2"x4" MECHANICAL ANCHORS.
 4. EXISTING CONCRETE SUBGRADE.
 5. FIN. GRADE.



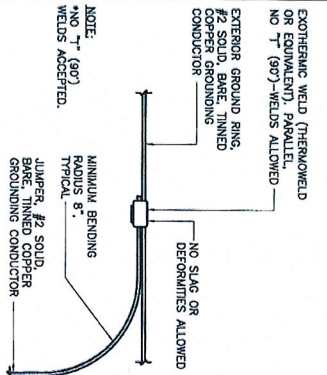
SECTION 'B-B'
 SCALE: N.T.S.

NOTES:
 1. PROPOSED 1/2"x4" HOLE (TYP. 4).
 2. PROPOSED 8 1/2"x8" A307 PIPE 3" STD.

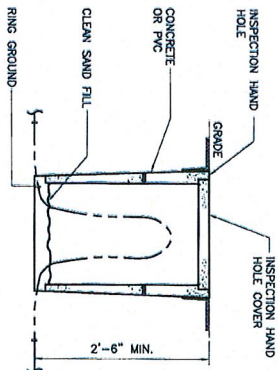


TOWER ELEVATION
 SCALE: N.T.S.

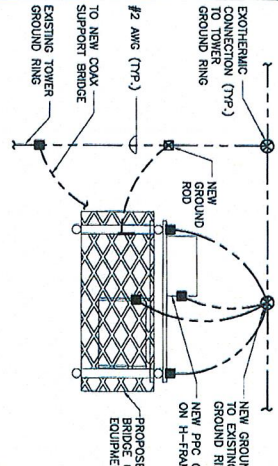
NOTES:
 1. RAD. CENTER OF EXISTING SPRINT ANTENNAS @ 155'-0" A.G.L.
 2. RAD. CENTER OF EXISTING AT&T ANTENNAS @ 145'-0" A.G.L.
 3. RAD. CENTER OF EXISTING T-MOBILE ANTENNAS @ 133'-0" A.G.L.
 4. RAD. CENTER OF EXISTING VERIZON ANTENNAS @ 113'-0" A.G.L.
 5. RAD. CENTER OF PROPOSED POCKET ANTENNAS @ 103'-0" A.G.L.
 6. RAD. CENTER OF EXISTING NEXTEL ANTENNAS @ 76'-0" A.G.L.
 7. PROPOSED COAX ROUTED OUTSIDE OF MONOPOLE.
 8. EXISTING 155'-0" MONOPOLE ON CONCRETE FOUNDATION.
 9. PROPOSED ICE BRIDGE.
 10. PROPOSED POCKET EQUIPMENT & H-FRAME.
 11. EXISTING CONCRETE FENCE.
 12. EXISTING SUBGRADE.



TYPICAL GROUNDING CONNECTION
SCALE: N.T.S.

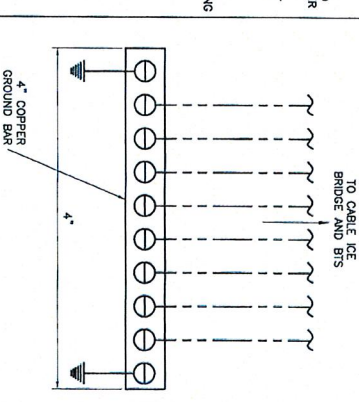


GROUND ROD WITH ACCESS AREA
SCALE: N.T.S.

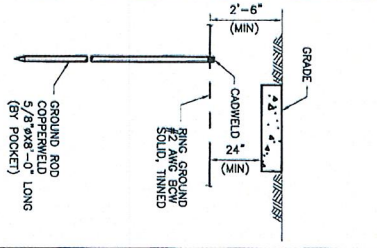


THE CONTRACTOR SHALL PERFORM JEEF FALL-OF-POTENTIAL RESISTANCE TO EARTH TESTING (PER IEEE 1100 AND 81) FOR NEW GROUND ELECTRODE SYSTEMS. THE CONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTAL GROUND ELECTRODES NEEDED TO ACHIEVE A TEST RESULT OF 5 OHMS OR LESS.

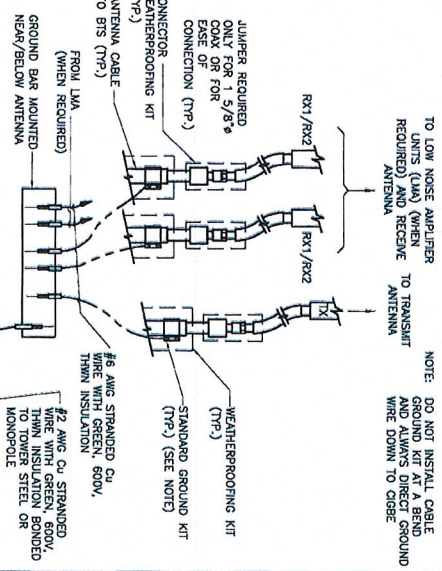
TYPICAL CABINET GROUNDING
SCALE: N.T.S.



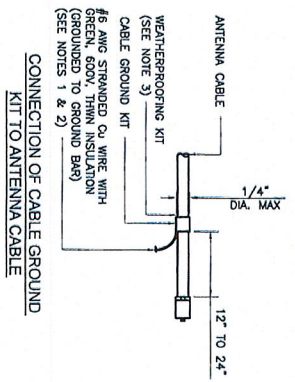
LOWER 4" GROUND BAR
SCALE: N.T.S.



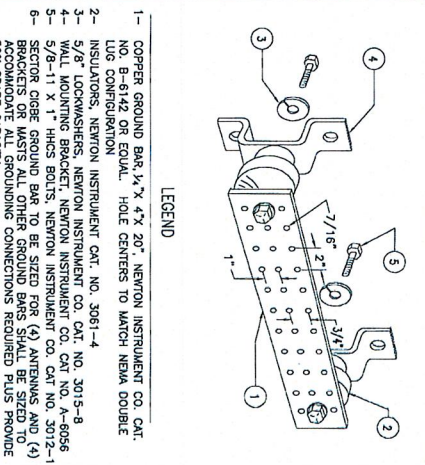
GROUNDING - STANDARD DETAIL GROUND ROD
SCALE: N.T.S.



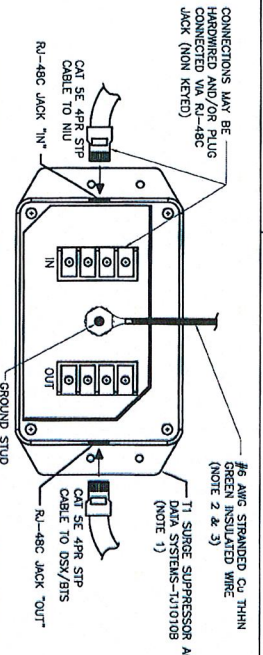
CONNECTION OF GROUND WIRE TO GROUNDING BAR (GIGBEE TOWER/MONOPOLE)
SCALE: N.T.S.



CONNECTION OF CABLE GROUND KIT TO ANTENNA CABLE
SCALE: N.T.S.



GROUND BAR (TYP.)
SCALE: N.T.S.



TI SURGE SUPPRESSOR
SCALE: N.T.S.

NOTES:

1. MOUNT TI-TRIS UNIT ON EQUIPMENT FRAME HOUSING THE DSP UNIT. USE APPROPRIATE STAINLESS STEEL BOLTS WITH FLATWASHERS AND A LOCK WASHER ON THE NUT SIDE. THE TRIS MAY BE LOCATED ON THE TELCO BACKBOARD. REFER TO MANUFACTURER'S INSTRUCTIONS.
2. ATTACH RING TERMINAL FROM SUPPLIED GROUND CONDUCTORS TO TRIS GROUND TERMINAL. ENSURE TRIS IS MOUNTED WITH SUPPLIED WIRE TO MANUFACTURER'S INSTRUCTIONS. FOR PROPER PERFORMANCE, THE GROUND CONDUCTOR LENGTH SHOULD BE LIMITED WITH NO SHARP BENDS ON COILS.
3. WHEN TRIS IS MOUNTED ON EQUIPMENT FRAME, BOND THE GROUND CONDUCTOR TO THE EQUIPMENT FRAME GROUND. ENSURE PROPER GROUNDING SURFACES. WHEN TRIS IS MOUNTED ON THE TELCO BACK BOARD, BOND THE GROUND CONDUCTOR TO THE TELCO (BOARD) GROUND BAR OR NEAREST GROUND BAR.



DATE: 8-17-08
DRAWN BY: JSW
CHECKED BY: JSW
JOB NO: 08489



PROJECT NAME: CCI 876347
GROUNDING PLAN & DETAILS

| NO. | DATE | ISSUED FOR CONSTRUCTION | REVISIONS | JSW INT. |
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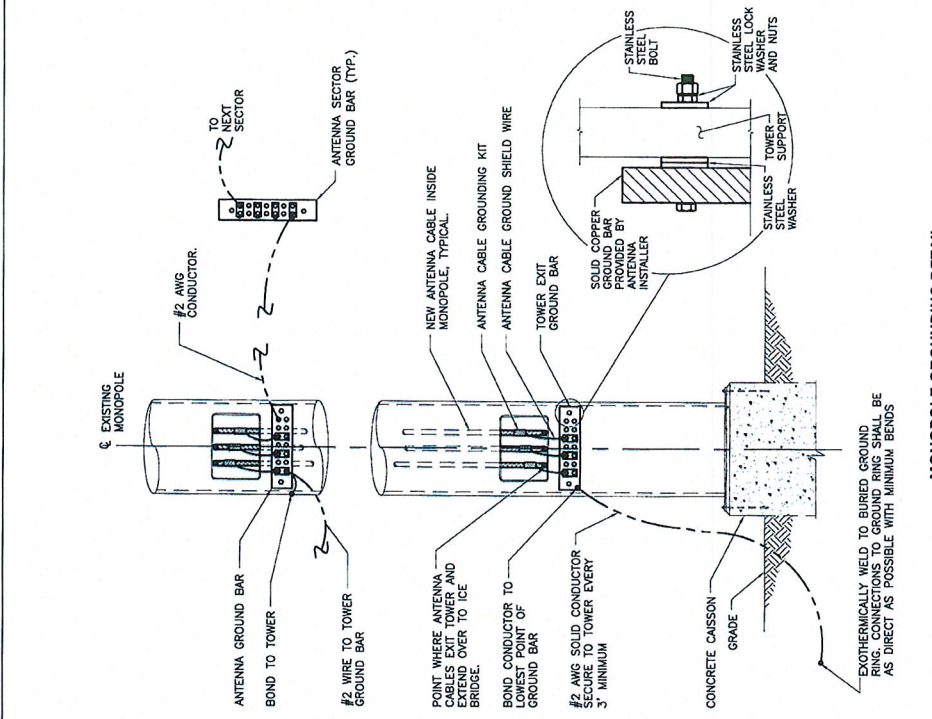
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| REVISIONS | |
| BY | JSW |
| CHK | |

PROJECT: COAX SUPPORT STRUCTURE
 DRAWING NO.: CCI 876347
 COMPANY: pocket COMMUNICATIONS

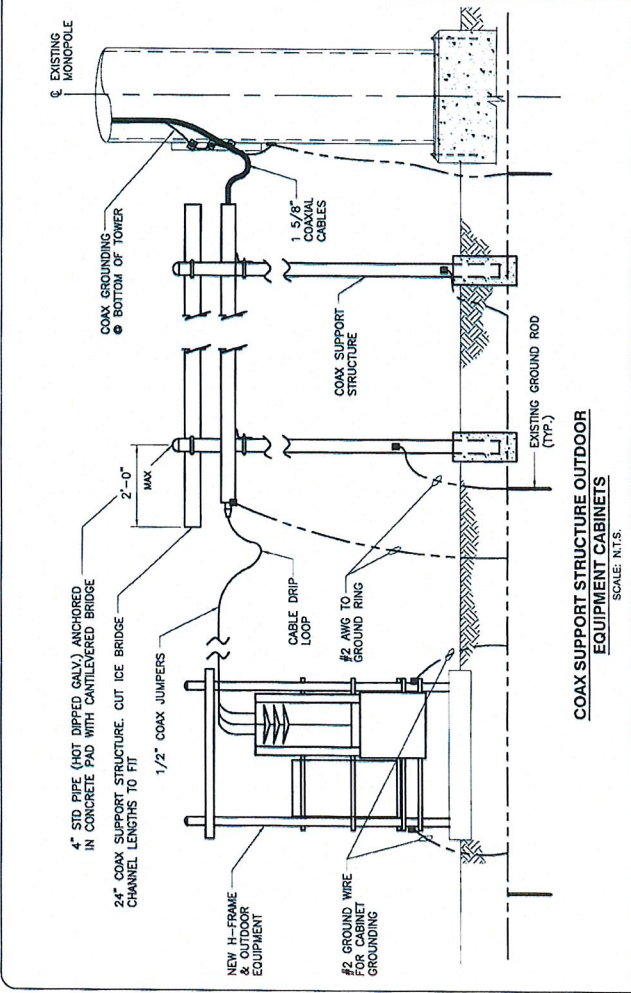
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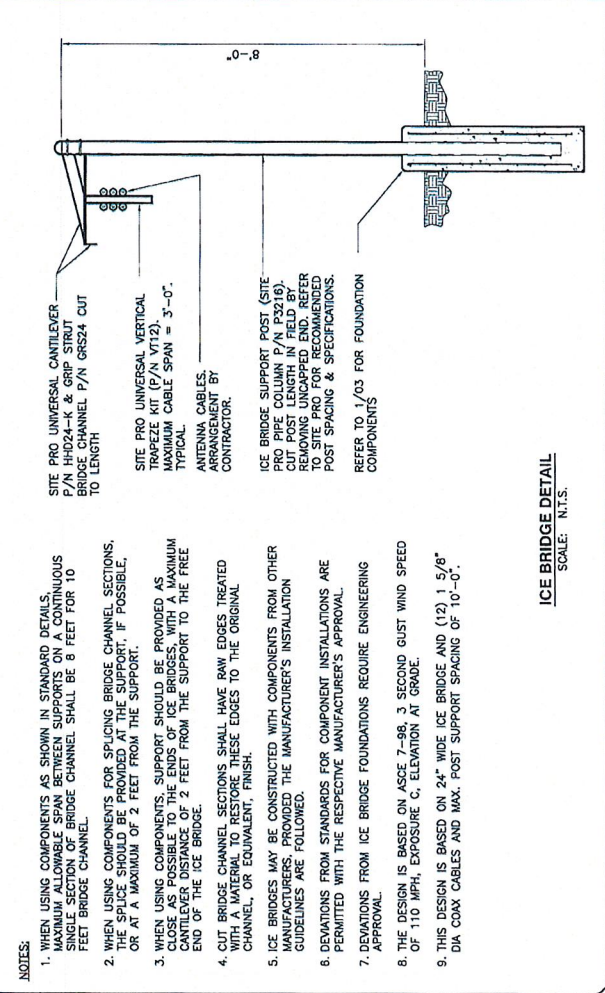
DESIGNED BY: JSW
 DRAWN BY: JSW
 DATE: 9-17-08
 SHEET NO.: 08489
 TOTAL SHEETS: 05



MONOPOLE GROUNDING DETAIL
 SCALE: N.T.S.



COAX SUPPORT STRUCTURE OUTDOOR EQUIPMENT CABINETS
 SCALE: N.T.S.



ICE BRIDGE DETAIL
 SCALE: N.T.S.

- NOTES:
- WHEN USING COMPONENTS AS SHOWN IN STANDARD DETAILS, SPACING BETWEEN SUPPORTS SHALL BE 8 FEET FOR 10 FEET BRIDGE CHANNEL.
 - WHEN USING COMPONENTS FOR SPlicing BRIDGE CHANNEL SECTIONS, ALL SPlices SHALL BE AT THE SUPPORT, IF POSSIBLE, OR AT A MAXIMUM OF 2 FEET FROM THE SUPPORT.
 - WHEN USING COMPONENTS, SUPPORT SHOULD BE PROVIDED AS CLOSE AS POSSIBLE TO THE ENDS OF ICE BRIDGES, WITH A MAXIMUM OF 2 FEET FROM THE SUPPORT TO THE FREE END OF THE ICE BRIDGE.
 - CUT BRIDGE CHANNEL SECTIONS SHALL HAVE RAW EDGES TREATED WITH A MATERIAL TO RESTORE THESE EDGES TO THE ORIGINAL CHANNEL, OR EQUIVALENT, FINISH.
 - ICE BRIDGES MAY BE CONSTRUCTED WITH COMPONENTS FROM OTHER MANUFACTURERS, PROVIDED THE MANUFACTURER'S INSTALLATION GUIDELINES ARE FOLLOWED.
 - DEVIATIONS FROM STANDARDS FOR COMPONENT INSTALLATIONS ARE PERMITTED WITH THE RESPECTIVE MANUFACTURER'S APPROVAL.
 - DEVIATIONS FROM ICE BRIDGE FOUNDATIONS REQUIRE ENGINEERING APPROVAL.
 - THE DESIGN IS BASED ON ASCE 7-98, 3 SECOND GUST WIND SPEED OF 110 MPH, EXPOSURE C, ELEVATION AT GRADE.
 - THIS DESIGN IS BASED ON 24" WIDE ICE BRIDGE AND (12) 1.5/8" DIA COAX CABLES AND MAX. POST SUPPORT SPACING OF 10'-0".

| PANEL "SSC" | | | | |
|------------------|------------|--------------------|-------|------------------|
| LOAD DESCRIPTION | LOAD (KVA) | BREAKER SIZE (A/B) | PHASE | LOAD DESCRIPTION |
| BTS CABINET | 2.5 | 30/2 | 1 | TVSS |
| LIGHTING | 2.5 | 3 | 4 | SPACE |
| SPACE | 9 | 10/1 | 5 | SPACE |
| SPACE | - | 7 | 8 | SPACE |
| SPACE | - | 9 | 10 | SPACE |
| SPACE | - | 11 | 12 | SPACE |
| SPACE | - | 13 | 14 | SPACE |
| SPACE | - | 15 | 16 | SPACE |
| SPACE | - | 17 | 18 | SPACE |
| SPACE | - | 19 | 20 | SPACE |
| SPACE | - | 21 | 22 | SPACE |
| SPACE | - | 23 | 24 | SPACE |
| LOAD SUB-TOTAL | 5.6 | | | LOAD SUB-TOTAL |
| | | | | 4.4 |

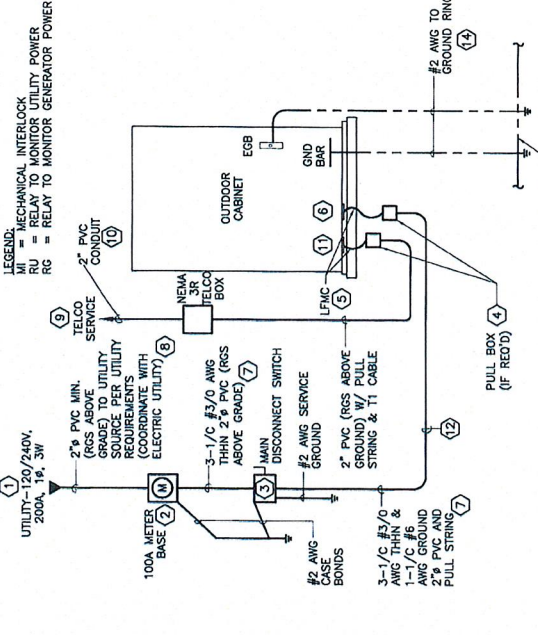
| | |
|--|-----------|
| 100A MCB, 120/240V, 1P, 3W, 65,000 AIC | |
| TOTAL CONNECTED LOAD | 10.3 KW |
| 25% OF LARGEST CONT. LOAD | 1750 W |
| TOTAL LOADS | 11.5 KW |
| | 47.9 AMPS |

NOTE: ALL NON-OPTIONAL BREAKERS PROVIDED BY SSC #FR

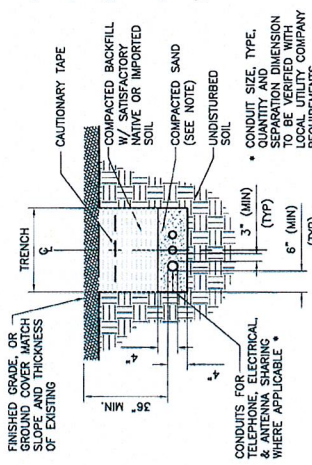
PANEL SCHEDULE

GENERAL ELECTRICAL NOTES:

- ALL ELECTRICAL AND GROUNDING WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS, NEC AND ALL APPLICABLE LOCAL CODES.
- CONDUIT ROUTINGS ARE SCHEMATIC. CONTRACTOR SHALL VERIFY ROUTING AND LENGTHS PRIOR TO CONSTRUCTION.
- WIRING, RACEWAY AND SUPPORT METHODS AND MATERIALS SHALL COMPLY WITH THE REQUIREMENTS OF THE NEC AND TELCORDIA.
- THE CONTRACTOR SHALL NOTIFY AND OBTAIN NECESSARY PERMITS BEFORE COMMENCING WORK ON THE AC POWER DISTRIBUTION PANELS.
- THE CONTRACTOR SHALL PROVIDE NECESSARY TAGGING ON THE PANELS AND DISTIBUTION DEVICES TO BE IDENTIFIED WITH THE APPLICABLE CODES AND STANDARDS TO SAFEGUARD AGAINST LIFE AND PROPERTY.



POWER, TELCO & GROUND SINGLE LINE DIAGRAM FOR OUTDOOR CABINET



NOTE: LEAN CONCRETE, RED-COLORED TOP, MAY BE USED IN PLACE OF COMPACTED SAND.
SCALE: N.T.S.
DIRECT BURIED CONDUIT

REFERENCE NOTES

- ELECTRICAL DEMARCATION POINT. ELECTRICAL CONTRACTOR TO COORDINATE WITH LOCAL POWER FOR SERVICE TO METER.
- CONTRACTOR TO SUPPLY AND INSTALL A 100A, 120/208/240V 1P, 3W METER BASE. METER BASE TO BE NEMA 3R RATED AND ENGRAVED TO LOCAL UTILITY. PROVIDE WITH MECHANICALLY ATTACHED ENGRAVED IDENTIFICATION LABEL INDICATING "POCKET COMMUNICATIONS METER".
- CONTRACTOR TO SUPPLY AND INSTALL NEMA 3R 100A FUSIBLE DISCONNECT SWITCH WITH LOCKABLE HANDLE. PROVIDE WITH 100A FUSES. AIC RATINGS TO COORDINATE WITH LOCAL UTILITY REQUIREMENTS. PROVIDE WITH MECHANICALLY ATTACHED ENGRAVED IDENTIFICATION LABEL INDICATING "POCKET COMMUNICATIONS SERVICE DISCONNECT".
- WEATHER TIGHT JUNCTION BOX (IF REQUIRED). SIZE TO NEC CODE FOR APPLICATION.
- FLEXIBLE METALLIC CONDUIT W/ W/ WEATHER TIGHT FITTINGS AND SUPPORTS. SIZE AND CONTENTS TO MATCH ASSOCIATED USE (POWER OR TELCO).
- UTILITY POWER ENTRY INTO CABINET. COORDINATE TERMINATION WITH CABINET MANUFACTURER.
- CONTRACTOR SUPPLY AND INSTALL 2" GRG. AFG AND PVC 24" BFG C/W #3/0 AWG THHN & (1) #6 GRND FOR UTILITY SERVICE.
- CONTRACTOR SUPPLY AND INSTALL 4" GRG. AFG AND PVC 24" BFG C/W #3/0 AWG THHN FOR UTILITY SERVICE.
- TELECOM DEMARCATION POINT. ELECTRICAL CONTRACTOR TO COORDINATE WITH LOCAL TELCO FOR SERVICE TO TELCO BOX OR CABINET.
- CONTRACTOR TO SUPPLY AND INSTALL (1) 2" GRG AFG AND PVC 24" BFG C/W PULL CORDS FOR TELCO SERVICE TO CABINET TERMINATION POINT.
- TELCO SERVICE ENTRY INTO CABINET. COORDINATE TERMINATION IN WITH CABINET MANUFACTURER.
- CONTRACTOR TO ARRANGE AND PAY FOR UNDERGROUND UTILITY. CONTRACTOR TO VERIFY ALL UTILITIES ARE DEPTH MARKED AND RE-INSTALL TO ORIGINAL CONDITION. INSTALL 3" WIDE METALLIC LINED RED PLASTIC MARKER TAPE 8" ABOVE ALL BURIED CONDUIT.
- PART OF CABINET BURIED GROUND RING.
- (1) #2 SOLID BARE TINNED CU GEC BONDED TO 5/8"x10" COPPER CLAD STEEL GROUNDING ELECTRODES. LOCATE GROUNDING ELECTRODE WITHIN 10' OF CONDUIT. BOND GROUNDING ELECTRODE SYSTEM TO CABINET GROUND RING.

NOTES

- CONTRACTOR SHALL PROVIDE 100AMP, SINGLE PHASE, 120/240 VAC, 60HZ SERVICE FOR SITE.
- CONTRACTOR SHALL COORDINATE WITH UTILITY COMPANY BEFORE THE START OF CONSTRUCTION. POWER AND TELCO CONDUIT SHALL BE PROVIDED AND INSTALLED PER UTILITY REQUIREMENTS.
- FOR COMPLETE INTERNAL WIRING AND ARRANGEMENT REFER TO DRAWINGS PROVIDED BY AC OR TELCO PANEL MANUFACTURER.
- ALL SERVICE EQUIPMENT AND INSTALLATIONS SHALL COMPLY WITH THE N.E.C. AND UTILITY COMPANY AND LOCAL CODE REQUIREMENTS.
- CONTRACTOR SHALL INSTALL SUFFICIENT LENGTHS OF LFMC INCLUDING ALL CONDUIT FITTINGS (NUTS, REDUCING BUSHINGS, ELBOWS, COUPLINGS, ETC) NECESSARY FOR CONNECTION FROM IMC CONDUIT TO THE PURCELL POWER CABINET.
- CONTRACTOR SHALL PROVIDE ELECTRICAL SERVICE EQUIPMENT WITH FAULT CURRENT RATINGS GREATER THAN THE AVAILABLE FAULT CURRENT FROM THE POWER UTILITY.
- CONTRACTOR SHALL VERIFY THAT THE MAIN BONDING, JUMPER AND GROUNDING ELECTRODE CONDUCTOR IS INSTALLED PROPERLY IN MAIN DISCONNECT SWITCH.



CREATED BY: JSW
DRAWN BY: JSW
DATE: 9-17-08
JOB NO. 08489
REV. NO.

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ISSUED FOR CONSTRUCTION
CCL 876347
COMMUNICATIONS

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Exhibit C

Equipment Specifications

Pocket Site HFCT0618A

53 Slater Street

Manchester, Connecticut

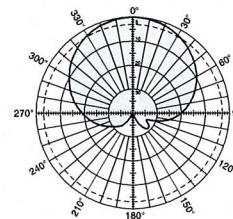
Kathrein's X-polarized adjustable electrical downtilt antennas offer the wireless carrier the ability to tailor polarization diversity sites for optimum performance. Using variable downtilt, only a few models need be procured to accommodate the needs of widely varying conditions. Remotely controlled downtilt is available as a retrofitable option.

- 0-6° downtilt range.
- UV resistant pulltruded fiberglass radome.
- DC Grounded metallic parts for impulse suppression.
- No moving electrical connections.
- Wideband vector dipole technology.
- Optional remote downtilt Control.
- Will accommodate future 3G / UMTS applications.

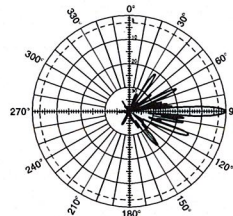
General specifications:

| | |
|---|---|
| Frequency range | 1710–2170 MHz |
| VSWR | < 1.5:1 |
| Impedance | 50 ohms |
| Intermodulation (2x20w) | IM3: <-150 dBc |
| Polarization | +45° and -45° |
| Front-to-back ratio (180°±30°) | >30 dB (co-polar) >25 dB (total power) |
| Maximum input power | 300 watts per input (at 50°C) |
| Electrical downtilt continuously adjustable | 0–6 degrees |
| Connector | 2 x 7/16 DIN female |
| Isolation | >30 dB |
| Cross polar ratio | |
| Main direction 0° | 25 dB (typical) |
| Sector ±60° | >10 dB |
| Weight | 22 lb (10 kg) |
| Dimensions | 76.5 x 6.1 x 2.7 inches (1942 x 155 x 69 mm) |
| Equivalent flat plate area | 4.62 ft² (0.429 m²) |
| Wind survival rating* | 120 mph (200 kph) |
| Shipping dimensions | 87.2 x 6.8 x 3.6 inches (2214 x 172 x 92 mm) |
| Shipping weight | 24.3 lb (11 kg) |
| Mounting | Fixed and tilt mount options are available for 2 to 4.6 inch (50 to 115 mm) OD masts. |

See reverse for order information.



Horizontal pattern
±45°- polarization



Vertical pattern
±45°- polarization

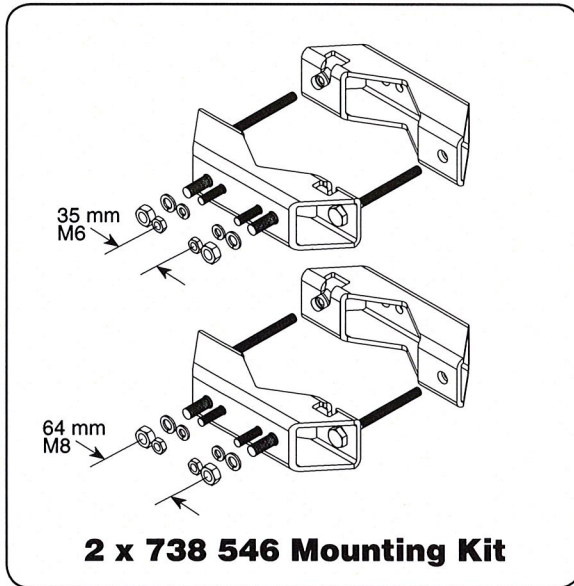


| Specifications: | 1710–1880 MHz | 1850–1990 MHz | 1920–2170 MHz |
|---|---------------------------------|---------------------------------|---------------------------------|
| Gain | 19 dBi | 19.2 dBi | 19.5 dBi |
| +45° and -45° polarization horizontal beamwidth | 67° (half-power) | 65° (half-power) | 63° (half-power) |
| +45° and -45° polarization vertical beamwidth | 4.7° (half-power) | 4.5° (half-power) | 4.3° (half-power) |
| Vertical Pattern—sidelobe suppression for first side-lobe above main beam | 0° 2° 4° 6° T 18 17 15 15 dB | 0° 2° 4° 6° T 18 18 17 15 dB | 0° 2° 4° 6° T 18 18 17 15 dB |



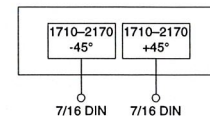
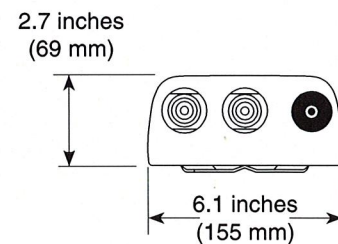
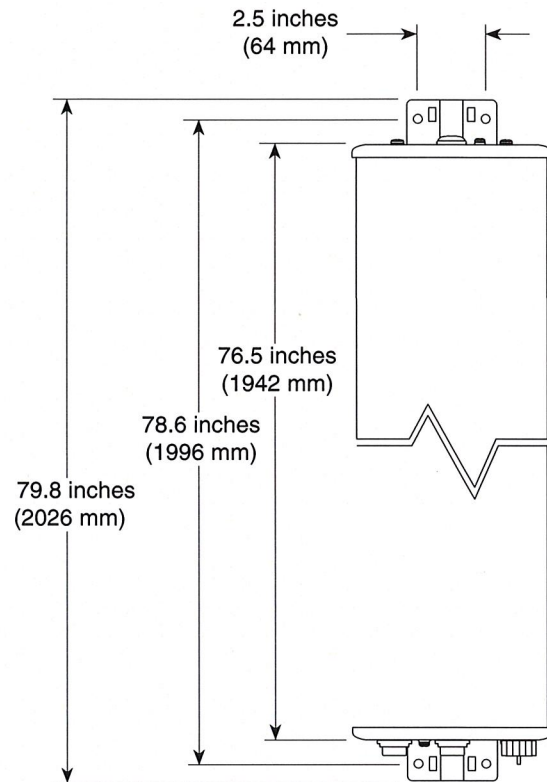
*Mechanical design is based on environmental conditions as stipulated in EIA-222-F (June 1996) and/or ETS 300 019-1-4 which include the static mechanical load imposed on an antenna by wind at maximum velocity. See the Engineering Section of the catalog for further details.

10642-H
936.2074/h



Mounting Options:

| Model | Description |
|-------------|--|
| 2 x 738 546 | Mounting Kit for 2 to 4.6 inch (50 to 115 mm) OD mast. |
| 737 978 | Tilt Kit for use with the above mounting kit, 0–11 degrees downtilt angle. (requires 2 x 738 546 Mounting Kit) |
| 742 263 | Three-panel Sector Mounting Kit (120 deg. ea.) for 3.5 inch (89 mm) OD mast. |

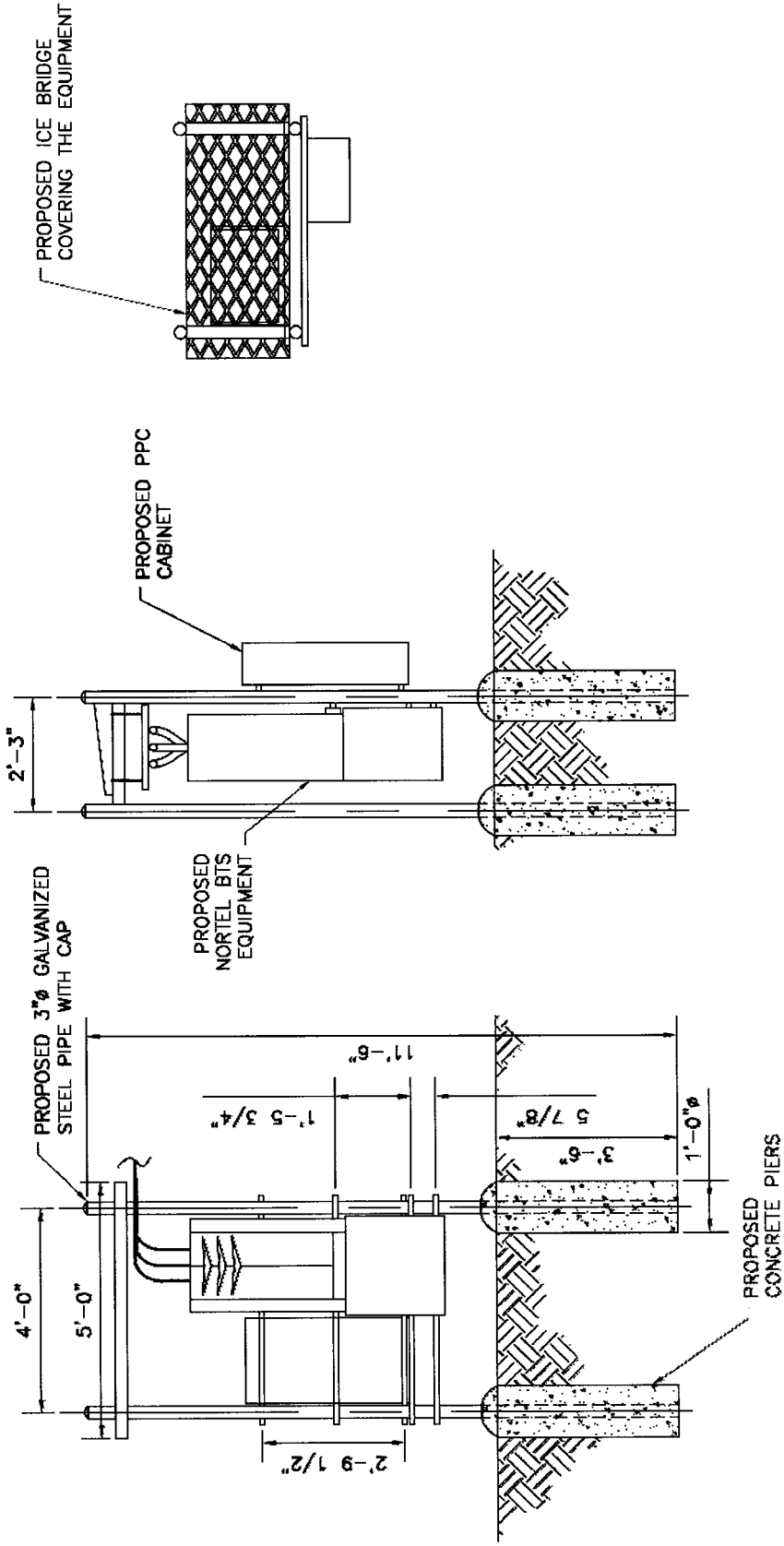


Order Information:

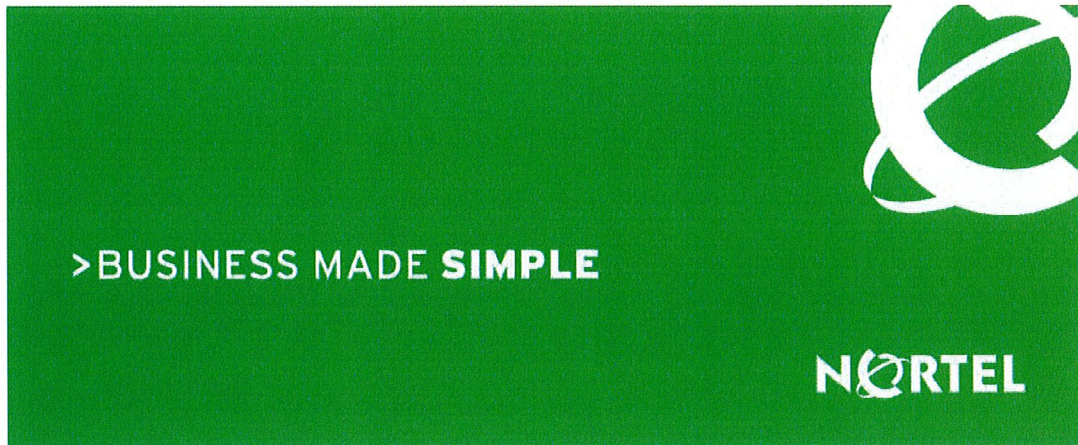
| Model | Description |
|---------|--|
| 742 213 | Antenna with 7/16 DIN connectors 0°–6° adjustable electrical downtilt |

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

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



Pocket/Youghiogheny Communications – Northeast, LLC
 Rack Detail



CDMA BTS 3231 AWS 1.7/2.1 GHz (Outdoor/Indoor)

CDMA BTS 3231

Industry's Highest Capacity AWS Micro BTS

The CDMA BTS 3231 is the latest extension to Nortel Networks BTS (Base Transceiver Station) portfolio providing the ideal solution for urban, sub-urban and rural deployments. The CDMA BTS 3231 is a 3-carrier, 3-sector outdoor/indoor BTS operating at the AWS band of 1.7/2.1 GHz supporting IS-95, 1XRTT and 1xEV-DO simultaneously. BTS 3231 provides flexible deployments solutions including floor, rack, and wall mount options. The power consumption of BTS3231 is industry leading consuming only 630W for 3C3S. The BTS 3231 is also very light at 240lbs making it easy

to transport to hard to reach locations such as the top of a high rise building.

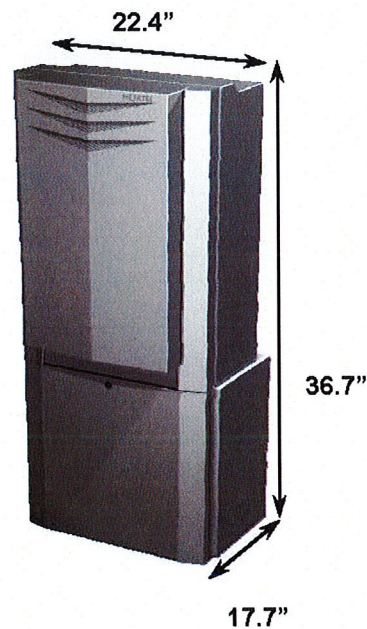


Exhibit D

Power Density Calculations

Pocket Site HFCT0618A

53 Slater Street

Manchester, Connecticut



C Squared Systems, LLC
920 Candia Road
Manchester, NH 03109
Phone: (603) 657 9702
E-mail:

support@csquaredsystems.com

Calculated Radio Frequency Emissions



CT-0618

53 Slater Street, Manchester, CT

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| 2. FCC Guidelines for Evaluating RF Radiation Exposure Limits | 2 |
| 3. RF Exposure Prediction Methods | 2 |
| 4. Calculation Results | 3 |
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| Attachment A: References | 6 |
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List of Tables

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| Table 1: Proposed Carrier Information | 3 |
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1. Introduction

The purpose of this report is to investigate compliance with applicable FCC regulations for the proposed Pocket antennas to be installed on the existing tower at 53 Slater St, Manchester, CT.

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

Public exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter (mW/cm^2). The number of mW/cm^2 emitted is called the power density. The general population exposure limit for the cellular band is $0.567\text{-}0.593 \text{ mW}/\text{cm}^2$, and the general population exposure limit for the PCS/AWS band is $1.0 \text{ mW}/\text{cm}^2$. Because each carrier will be using different frequency bands, and each frequency band has different exposure limits, it is necessary to report percent of MPE rather than power density.

The FCC general population / uncontrolled limits set the maximum exposure to which most people may be subjected. General population / uncontrolled exposures apply in situations in which the general public may be exposed, or in which persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or cannot exercise control over their exposure.

Higher exposure limits are permitted under the occupational / controlled exposure category, but only for persons who are exposed as a consequence of their employment and who have been made fully aware of the potential for exposure (through training), and they must be able to exercise control over their exposure. General population / uncontrolled limits are five times more stringent than the levels that are acceptable for occupational, or radio frequency trained individuals.”

The FCC describes exposure to radio frequency (RF) energy in terms of percentage of maximum permissible exposure (MPE) with 100% being the maximum allowed. Rather than the FCC presenting the user specification in terms of complex power density figures over a specified surface area, this MPE measure is particularly useful, and even more so when considering that power density limits actually vary by frequency because of the different absorptive properties of the human body at different frequencies.

MPE limits are specified as time-averaged exposure limits. This means that exposure can be averaged over 30 minutes for general population / uncontrolled exposure (or 6 minutes for occupational / controlled exposure). However, for the case of exposure of the general public, time averaging is usually not applied because of uncertainties over exact exposure conditions and difficulty in controlling time of exposure. Therefore, the typical conservative approach is to assume that any RF exposure to the general public will be continuous.

Finally, it should be noted that the MPE limits adopted by the FCC for both general population / uncontrolled exposure and for occupational / controlled exposure incorporate a substantial margin of safety and have been established to be well below levels generally accepted as having the potential to cause adverse health effects.

2. FCC Guidelines for Evaluating RF Radiation Exposure Limits

In 1985, the FCC established rules to regulate radio frequency (RF) exposure from FCC licensed antenna facilities. In 1996, the FCC updated these rules, which were further amended in August 1997 by OET Bulletin 65 Edition 97-01. These new rules include limits for Maximum Permissible Exposure (MPE) for transmitters operating between 300 kHz and 100 GHz. The FCC MPE limits are based on exposure limits recommended by the National Council on Radiation Protection and Measurements (NCRP), the exposure limits developed by the Institute of Electrical and Electronics Engineers, Inc., (IEEE) and adopted by the American National Standards Institute (ANSI).

Attachment B contains excerpts from OET Bulletin 65 and defines the Maximum Exposure Limit. As shown in these excerpts, each frequency band has different exposure limits, requiring power density to be reported as a percent of Maximum Permissible Exposure (MPE) when dealing with carriers transmitting in different frequency bands.

3. RF Exposure Prediction Methods

The emission field calculation results displayed in the following figures were generated using the following formula as outlined in FCC bulletin OET 65:

$$\text{Power Density} = \left(\frac{EIRP}{\pi \times R^2} \right) \times \text{Off Beam Loss}$$

Where:

EIRP = Effective Isotropic Radiated Power

R = Radial Distance = $\sqrt{(H^2 + V^2)}$

H = Horizontal Distance from antenna

V = Vertical Distance from bottom of antenna

Off Beam Loss is determined by the selected antenna patterns

4. Calculation Results

Table 1 below outlines the power density information for the site. All information for carriers other than Pocket was obtained from current CSC database, except where otherwise noted.¹

| Carrier | Number of Trans. | Effective Radiated Power (ERP) Per Transmitter (Watts) | Antenna Height (Feet) | Operating Frequency (MHz) | Total ERP (Watts) | Power Density (mw/cm ²) | Limit | %MPE |
|-----------|------------------|--|-----------------------|---------------------------|-------------------|-------------------------------------|--------|--------|
| Nextel | 9 | 100 | 78 | 851 | 900 | 0.0533 | 0.5673 | 9.39% |
| Sprint | 11 | 100 | 155 | 1962 | 1,100 | 0.0165 | 1.0000 | 1.65% |
| AT&T GSM | 4 | 631 | 145 | 1900 | 2,524 | 0.0432 | 1.0000 | 4.32% |
| AT&T UMTS | 1 | 500 | 145 | 880 | 500 | 0.0086 | 0.5867 | 1.46% |
| T-Mobile | 8 | 245.7 | 133 | 1930 | 1,966 | 0.0400 | 1.0000 | 4.00% |
| Verizon | 9 | 200 | 113 | 880 | 1,800 | 0.0507 | 0.5867 | 8.64% |
| Pocket | 3 | 631 | 103 | 2130-2133.75 | 1,893 | 0.0642 | 1.0000 | 6.42% |
| | | | | | | | Total | 35.86% |

Table 1: Proposed Carrier Information

5. Conclusion

The above analysis verifies that emissions from the proposed site will be well below the maximum power density levels as outlined by the FCC in the OET Bulletin 65 Ed. 97-01. Even when using conservative methods, the cumulative power density from the proposed transmit antennas at the existing facility is well below the limits for the general public. The highest expected percent of Maximum Permissible Exposure at the base of the tower is 35.86% of the FCC limit.

As noted in the introduction, obstructions (trees, buildings etc.) that would normally attenuate the signal are not taken into account. As a result, the predicted signal levels are more conservative (higher) than the actual signal levels will be from the finished installation.

¹ The CSC database reported Nextel's centerline at 123'. A recent structural analysis report completed on September 15, 2008 by Tower Engineering Professionals, Inc., shows Nextel's antennas at a centerline of 78'. Nextel's power density was recalculated at this lower centerline to derive the resultant %MPE shown in Table 1.

6. Statement of Certification

I certify to the best of my knowledge that the statements in this report are true and accurate. The calculations follow guidelines set forth in ANSI/IEEE Std. C95.3, ANSI/IEE Std. C95.1 and FCC OET Bulletin 65 Edition 97-01.



Daniel I. Goulet
C Squared Systems, LLC

September 26, 2008
Date

Attachment A: References

OET Bulletin 65 - Edition 97-01 - August 1997 Federal Communications Commission Office of Engineering & Technology

ANSI C95.1-1982, American National Standard Safety Levels With Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 300 kHz to 100 GHz. IEEE-SA Standards Board

IEEE Std C95.3-1991 (Reaff 1997), IEEE Recommended Practice for the Measurement of Potentially Hazardous Electromagnetic Fields - RF and Microwave. IEEE-SA Standards Board

Attachment B: FCC Limits For Maximum Permissible Exposure (MPE)

(A) Limits for Occupational/Controlled Exposure

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

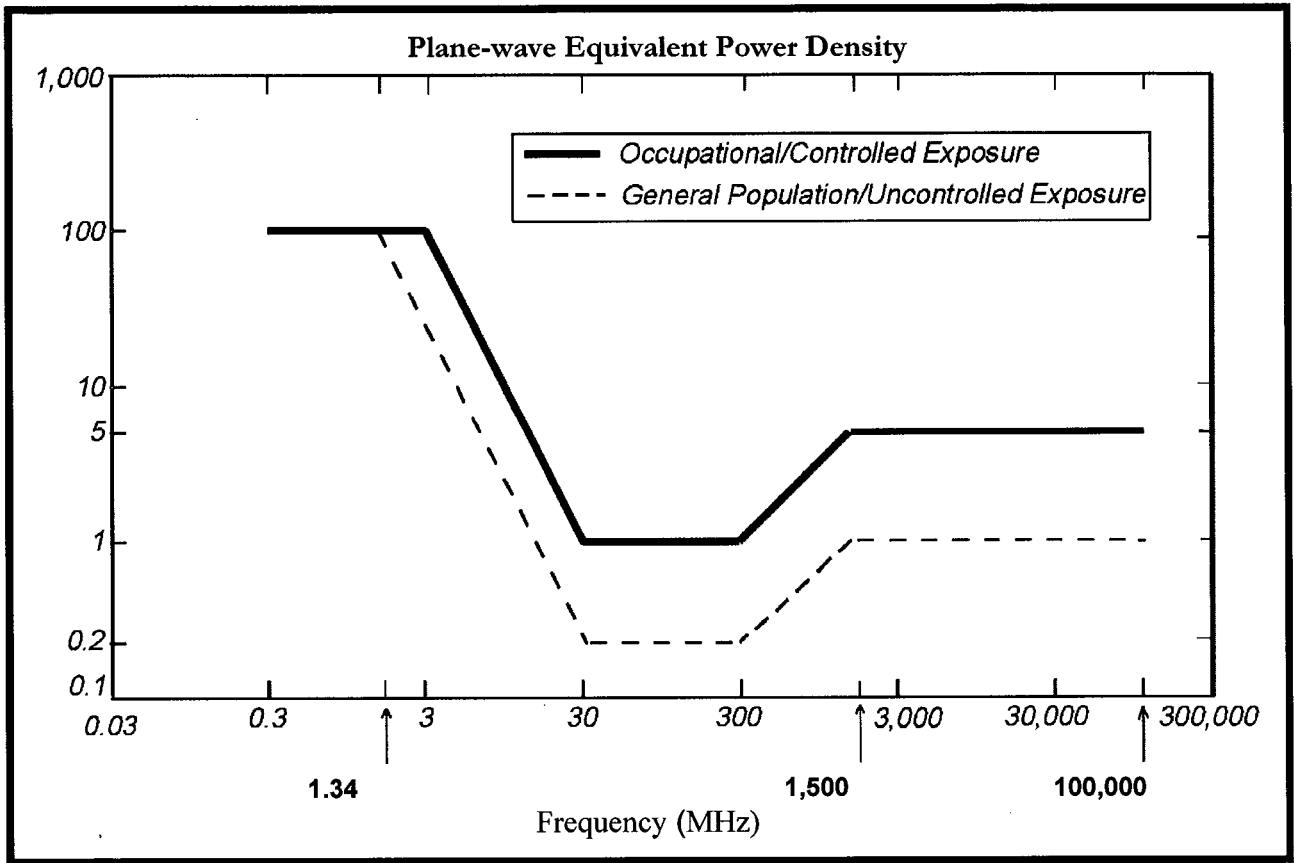
(B) Limits for General Population/Uncontrolled Exposure

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

f = frequency in MHz * Plane-wave equivalent power density

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

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



• FCC Limits for Maximum Permissible Exposure (MPE)

Exhibit E

Structural Analysis

Pocket Site HFCT0618A

53 Slater Street

Manchester, Connecticut

Tower Engineering Professionals Inc (TEP)
3703 Junction Boulevard
Raleigh, NC 27603
(o) (919) 661-6351 Phone
bkramer@tepgroup.net



Date: **October 10, 2008**

Ms. Veronica Harris
Crown Castle International
1200 MacArthur Boulevard Suite 200
Mahwah, NJ 07430

| | | |
|--------------------------------------|--|----------------------|
| Subject: | Structural Analysis Report | |
| Carrier Designation: | Youghiogheny Communications Co-Locate | |
| | Carrier Site Number: | CT-0618 |
| | Carrier Site Name: | N/A |
| Crown Castle Designation: | Crown Castle BU Number: | 876347 |
| | Crown Castle Site Name: | Buckland Mall |
| | Crown Castle JDE Job Number: | 106083 |
| Engineering Firm Designation: | TEP Project Number: | 081049 |
| Site Data: | 53 Slater Street, Hartford County, Manchester, CT 06040 Latitude 41° 48' - 18.0", Longitude -72° 32' - 1.0" 155 Foot – Monopole Tower | |

Dear Ms. Harris,

TEP is pleased to submit this "**Structural Analysis Report**" to determine the structural integrity of the aforementioned tower. This analysis has been performed in accordance with the Crown Castle Structural Statement of Work and the terms of Crown Castle Purchase Order Number 2888376, in accordance with application 64333, revision 1.

The purpose of the analysis is to determine acceptability of the tower stress level. Based on our analysis we have determined the tower stress level for the structure and foundation, under the following load case, to be:

| | |
|--|---------------------|
| Existing + Reserved + Proposed Equipment | Sufficient Capacity |
|--|---------------------|

Note: See Table I and Table II for the proposed and existing/reserved loading

This analysis has been performed in accordance with the TIA/EIA 222-F standard and the 2005 Connecticut Building Code, based upon a wind speed of 80 mph fastest mile (100-mph 3-second gust).

We at TEP appreciate the opportunity of providing our continuing professional services to you and Crown Castle International. If you have any questions or need further assistance on this or any other projects please give us a call

Respectfully submitted,

J Russell Hill, P.E.

A handwritten signature in black ink, appearing to read "J Russell Hill, P.E.", is written over the typed name.

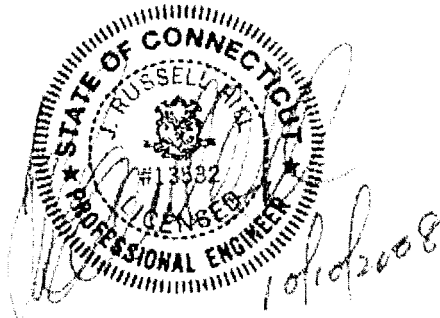


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1) INTRODUCTION

The subject tower is a 155-foot monopole tower manufactured by Summit Manufacturing, Inc.

2) ANALYSIS CRITERIA

The existing, reserved, and proposed antennas, transmission lines, and mountings are shown in the following tables. The site is in Hartford County. The structural analysis was performed in accordance with the ANSI/TIA/EIA-222-F-1996 (TIA), Structural Standards for Steel Antenna Towers and Antenna Supporting Structures dated June 1996. The governing winds forces are derived from the TIA Standard using a fastest-mile wind speed of 80 mph for an Exposure C and Importance Factor of 1.00.

Table 1 – Proposed Antenna and Cable Information

| Center Line Elevation (ft) | Number of Antennas | Antenna Manufacturer | Antenna Model | Mount | Number of Feed Lines | Feed Line Size (in) |
|----------------------------|--------------------|----------------------|---------------|-------------------|----------------------|---------------------|
| 103 (Proposed) | 3 | Kathrein | 742 213 | (3) Direct Mounts | 6 | 1 5/8 |

Table 2 – Existing and Reserved Antenna and Cable Information

| Center Line Elevation (ft) | Number of Antennas | Antenna Manufacturer | Antenna Model | Number of Feed Lines | Feed Line Size (in) |
|-----------------------------------|--------------------|------------------------|---------------|----------------------|---------------------|
| 155 ¹ (MLA Loading) | 9 | EMS Wireless | FV65-14-00NA2 | 9 | 1 5/8 |
| 155 (Existing) | 6 | EMS Wireless | RR90-18-00DP | 6 | 1 5/8 |
| 145 ² (Existing) | 3 | Allgon | 7250.03 | 3 | 1 1/4 |
| 145 (Reserved) | 3 | Powerwave Technologies | 7770 | 3 | 1 1/4 |
| 145 (Reserved TMA) | 6 | Powerwave Technologies | LGP21401 | - | - |
| 133 (Existing) | 6 | EMS Wireless | RR90-17-02DP | 12 | 1 5/8 |
| 113 (Existing) | 12 | Decibel | DB844H80-XY | 12 | 1 5/8 |
| 78 (Existing) | 12 | Decibel | DB844G65ZAXY | 12 | 1 5/8 |
| 78 (Reserved) | - | - | - | 3 | 1 5/8 |
| 60 (Existing) | 1 | Trimble | Acutime 2000 | 1 | 1/2 |

¹ – MLA loading used in place of Existing loading

² – Existing antenna to be replaced by reserved

Table 3 – Design Antenna and Cable Information

| Center Line Elevation (ft) | Number of Antennas | Antenna Manufacturer | Antenna Model | Mount | Number of Feed Lines | Feed Line Size (in) |
|----------------------------|--------------------|----------------------|---------------|--------------------------|----------------------|---------------------|
| 155 | 12 | Decibel | DB980H | 14' Low Profile Platform | Unknown | Unknown |
| 145 | 12 | Unknown | Panel Antenna | 14' Low Profile Platform | Unknown | Unknown |
| 135 | 12 | Unknown | Panel Antenna | 14' Low Profile Platform | Unknown | Unknown |
| 115 | 2 | Unknown | Whip Antenna | 6' Clamp Stiff Arms | Unknown | Unknown |
| 50 | 1 | GPS | GPS | Unknown | Unknown | Unknown |

3) ANALYSIS PROCEDURE

Table 4 – Documents Provided

| Document | Remarks | Crown Document ID |
|--|---|-------------------|
| Geotechnical Reports | Clough, Harbour & Associates, Site ID no. CT03XC211, dated February 5, 1998, provided by Crown | 1533476 |
| Tower Foundation Drawings/Design/Specs | Piedmont Olsen Hensley Engineering, Project no.22597-01, dated September 28, 1995, provided by Crown | 1615406 |
| Design Drawings | Paul J. Ford and Co. Structural Engineers, Job no. 29298-597, dated September 11, 1998, provided by Crown | 1614661 |
| Structural Analysis Report | Tower Engineering Professionals, TEP # 070992, dated July 13, 2007 | - |

3.1) Analysis Method

RISA Tower (version 5.3.0), a commercially available analysis software package, was used to create a three-dimensional model of the tower and calculate member stresses for various dead, live, wind, and ice load cases. Selected output from the analysis is included in Appendix A.

3.2) Assumptions

1. All feed lines are installed in the locations noted on the cable routing drawing in *Appendix B*.
2. When applicable, feed lines were considered to be structural components for calculating wind loads, as allowed by the industry standard.
3. Information in the original design drawings and specifications that could not be verified by TEP is assumed to be correct. For this analysis, TEP will assume conformance with the original design drawings and specifications.
4. TEP shall assume that all tower components are in sufficient condition to carry their full design capacity.
5. Serviceability with respect to antenna twist, tilt, roll, or lateral translation, is not checked and is left to the carrier or tower owner to ensure conformance.

4) ANALYSIS RESULTS

Table 5 – Tower Component Stresses vs. Capacity

| Section Capacity Table | | | | | | | | | |
|-------------------------------|---------------|----------------|-----------------------|------------------|-----------|--------------------------|-------------|-------------|------|
| Section No. | Elevation ft | Component Type | Size | Critical Element | P lb | SF*P _{allow} lb | % Capacity | Pass | Fail |
| L1 | 155 - 115.5 | Pole | TP29.3x22x0.25 | 1 | -4611.79 | 1169772.77 | 27.4 | Pass | |
| L2 | 115.5 - 79.25 | Pole | TP35.51x28.107x0.3125 | 2 | -10617.90 | 1771996.82 | 44.7 | Pass | |
| L3 | 79.25 - 43.75 | Pole | TP41.45x34.0522x0.375 | 3 | -18901.30 | 2481539.36 | 53.7 | Pass | |
| L4 | 43.75 - 0 | Pole | TP48.8x39.729x0.4375 | 4 | -32668.30 | 3491313.48 | 58.2 | Pass | |
| Summary | | | | | | | | | |
| Pole (L4) | | | | | | | 58.2 | Pass | |
| Base Plate | | | | | | | 59.2 | Pass | |
| RATING = | | | | | | | 59.2 | Pass | |

| Notes | Component | Elevation (ft) | % Capacity | Pass/Fail |
|---|---|----------------|------------|--------------|
| Individual Components: | | | | |
| Notes: | Component | Elevation | % Capacity | Pass/Fail |
| 1 | Tower Foundation (compared w/design reactions) | - | 71.4 | Pass |
| Structure Rating (max from all components) = | | | | 71.4% |

* Notes:

- 1) See additional documentation in "Appendix C – Additional Calculations" for calculations supporting the % capacity listed.

4.1) Recommendations

It should be noted that in order for the tower to pass in the current load scenario, the proposed and reserved coax must be configured as shown in Appendix B.

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****ALL RECHARGEABLE ITEMS INCLUDE CHARGING EQUIPMENT AT NO ADDITIONAL COST****

| Part Number | Description | Rental Price |
|-------------|-------------|--------------|
|-------------|-------------|--------------|

Gas Monitors:

MX6 iBrid Multi Gas Monitors (Datalogging Available)

| MX6-(Config) | MX6 Monitor--up to 6 gases can be detected simultaneously | Weekly--\$100.00/each | Monthly - \$300.00/each |
|-------------------------------|--|-----------------------|--|
| Category 1 Sensors Available: | O ₂ , LEL/CH ₄ , CO, H ₂ S, SO ₂ , H ₂ | | Add \$25.00 a week per sensor Add \$75.00 a month per sensor |
| Category 2 Sensors Available: | ClO ₂ , Cl ₂ , NO ₂ , NH ₃ , HCL, HCN, PH ₃ , NO, COSH (CO/H ₂ S), CO/H ₂ Null, ETO | | Add \$50.00 a week per sensor Add \$150.00 a month per sensor |
| Category 3 Sensors Available: | CO ₂ IR Sensor, Methane IR Sensor, Hydrocarbon IR Sensor, PID (VOC) Sensor | | Add \$75.00 a week per sensor Add \$225.00 a month per sensor |

ITX Multi Gas Monitors (Datalogging Available)

| 18104307 | ITX Monitor--up to 6 gases can be detected simultaneously | Weekly--\$100.00/each | Monthly - \$300.00/each |
|-------------------------------|---|-----------------------|--|
| Category 1 Sensors Available: | O ₂ , LEL/CH ₄ , CO, H ₂ S, SO ₂ , H ₂ | | Add \$25.00 a week per sensor Add \$75.00 a month per sensor |
| Category 2 Sensors Available: | ClO ₂ , Cl ₂ , NO ₂ , NH ₃ , HCL, HCN, PH ₃ , NO, COSH (CO/H ₂ S), CO/H ₂ Null | | Add \$50.00 a week per sensor Add \$150.00 a month per sensor |

TMX412 Multi Gas Monitors (Datalogging Available)

| 18102183 | TMX412 Monitor--up to 4 gases can be detected | Weekly - \$100.00/each | Monthly - \$300.00/each |
|-------------------------------|--|------------------------|--|
| Category 1 Sensors Available: | O ₂ , LEL/CH ₄ , CO, H ₂ S, SO ₂ | | Add \$25.00 a week per sensor Add \$75.00 a month per sensor |
| Category 2 Sensors Available: | ClO ₂ , Cl ₂ , NO ₂ | | Add \$50.00 a week per sensor Add \$150.00 a month per sensor |

ATX612 Multi Gas Monitors (Datalogging Available)

| 18102707 | ATX612 Monitor--up to 4 gases can be detected | Weekly - \$125.00/each | Monthly - \$375.00/each |
|-------------------------------|--|------------------------|--|
| Category 1 Sensors Available: | O ₂ , LEL/CH ₄ , CO, H ₂ S, SO ₂ | | Add \$25.00 a week per sensor Add \$75.00 a month per sensor |
| Category 2 Sensors Available: | ClO ₂ , Cl ₂ , NO ₂ | | Add \$50.00 a week per sensor Add \$150.00 a month per sensor |

ATX620 Multi Gas Monitors (Datalogging Available)

| 18102772 | ATX620 Monitor--up to 4 gases can be detected | Weekly - \$125.00/each | Monthly - \$375.00/each |
|-------------------------------|--|------------------------|--|
| Category 1 Sensors Available: | O ₂ , LEL/CH ₄ , CO, H ₂ S, SO ₂ | | Add \$25.00 a week per sensor Add \$75.00 a month per sensor |
| Category 2 Sensors Available: | ClO ₂ , Cl ₂ , NO ₂ | | Add \$50.00 a week per sensor Add \$150.00 a month per sensor |
| Category 3 Sensors Available: | CO ₂ IR Sensor or Methane IR Sensor | | Add \$75.00 a week per sensor Add \$225.00 a month per sensor |

GasBadge® Pro Single Gas Monitors (Datalogging Available)

| 18100060 | GasBadge® Pro Single Gas Monitor | Weekly - \$25.00/each | Monthly - \$75.00/each |
|-------------------------------|--|-----------------------|--|
| Category 1 Sensors Available: | O ₂ , CO, H ₂ S, SO ₂ | | Add \$25.00 a week per sensor Add \$75.00 a month per sensor |
| Category 2 Sensors Available: | ClO ₂ , Cl ₂ , NO ₂ , NH ₃ , PH ₃ , HCN, CO/H ₂ Null | | Add \$50.00 a week per sensor Add \$150.00 a month per sensor |

T82 Single Gas Monitors (Datalogging Available)

| 18104133 | T82 Single Gas Monitor | Weekly - \$65.00/each | Monthly - \$195.00/each |
|-------------------------------|---|-----------------------|--|
| Category 1 Sensors Available: | O ₂ , CO, H ₂ S, SO ₂ , H ₂ | | Add \$25.00 a week per sensor Add \$75.00 a month per sensor |
| Category 2 Sensors Available: | ClO ₂ , Cl ₂ , NO ₂ , HCN, PH ₃ | | Add \$50.00 a week per sensor Add \$150.00 a month per sensor |



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Gas Monitors: (Cont)

MDU420 Methane Gas Monitor (Datalogging Available)

| | | | |
|----------|------------------------------------|------------------------|-------------------------|
| 18102247 | MDU420 Methane Gas Monitor w/Probe | Weekly - \$200.00/each | Monthly - \$600.00/each |
|----------|------------------------------------|------------------------|-------------------------|

CDU440 Carbon Dioxide Gas Monitor (Datalogging Available)

| | | | |
|----------|---|------------------------|-------------------------|
| 18102947 | CDU440 Carbon Dioxide Gas Monitor w/Probe | Weekly - \$200.00/each | Monthly - \$600.00/each |
|----------|---|------------------------|-------------------------|

BM25 Multiquard - Multi Gas Monitors (Datalogging Available)

| | | | |
|-------------------------------|--|----------------------|--|
| BM25-(Config) | BM25 Monitor-up to 5 gases can be detected simultaneously | Weekly-\$300.00/each | Monthly - \$900.00/each |
| Category 1 Sensors Available: | O ₂ , LEL, CO, H ₂ S, SO ₂ , H ₂ | | Add \$25.00 a week per sensor Add \$75.00 a month per sensor |
| Category 2 Sensors Available: | CL ₂ , NO ₂ , NH ₃ , HCL, HCN, PH ₃ , NO, COSH (CO/H ₂ S), ETO, SiH ₄ , AsH ₃ | | Add \$50.00 a week per sensor Add \$150.00 a month per sensor |
| Category 3 Sensors Available: | CO ₂ IR Sensor | | Add \$65.00 a week per sensor Add \$195.00 a month per sensor |

Accessories:

Remote Sampling Equipment

| | | | |
|----------|---|-----------------------|------------------------|
| 18108765 | SP6 Sampling Pump w/10 feet of tubing (for use with MX6 Monitor) | Weekly - \$25.00/each | Monthly - \$75.00/each |
| 18104646 | ISP Sampling Pump w/10 feet of tubing (for use with ITX Monitor) | Weekly - \$25.00/each | Monthly - \$75.00/each |
| 18102156 | SP402 Sampling Pump w/10 feet of tubing (for use with TMX412 Monitor) | Weekly - \$25.00/each | Monthly - \$75.00/each |
| 18101386 | 6 Foot Extendible Stainless Steel Probe | Weekly - \$15.00/each | Monthly - \$45.00/each |

Spare Battery Packs

| | | | |
|------------|--|-----------------------|------------------------|
| 17131038-X | Spare Lithium Ion Ext. Battery Pack (for use with MX6 Monitor) | Weekly - \$15.00/each | Monthly - \$45.00/each |
| 17088618 | Spare Lithium Ion Battery Pack (for use with ITX & VX500 Monitors) | Weekly - \$15.00/each | Monthly - \$45.00/each |
| 17041872 | Spare 400 Series Ni-Cad Battery Pack (for use with TMX412, MDU420, CDU440, SP402 Monitors) | Weekly - \$10.00/each | Monthly - \$30.00/each |
| 17059494 | Spare 600 Series Ni-Cad Battery Pack (for use with ATX612 & ATX620 Monitors) | Weekly - \$30.00/each | Monthly - \$90.00/each |

Data Logging Download Equipment

| | | |
|----------|--|------------------------------------|
| 18107086 | MX6 Datalink w/Software (for use with MX6 Monitor) | Flat Monthly Charge - \$25.00/each |
| 18104737 | ITX Charger/Datalink w/Software (for use with ITX Monitor) | Flat Monthly Charge - \$25.00/each |
| 18104414 | VX500 Charger/Datalink w/Software (for use with VX500 Monitor) | Flat Monthly Charge - \$25.00/each |
| 18102195 | 400 Series Datalink Cable w/Software (for use with TMX412, MDU420 & CDU440 Monitors) | Flat Monthly Charge - \$25.00/each |
| 18103069 | 600 Series Datalink Cable w/Software (for use with ATX612 & ATX620 Monitors) | Flat Monthly Charge - \$25.00/each |
| 18104281 | T82 Datalink w/Software (for use with T82 Monitor) | Flat Monthly Charge - \$25.00/each |
| 18108260 | GasBadge® Pro Datalink w/Software (for use with the GasBadge® Pro Monitor) | Flat Monthly Charge - \$25.00/each |

Other Accessories

| | | | |
|----------|---|-----------------------|------------------------------------|
| 18103747 | 103 db External Alarm (for use with ITX, TMX412, MG140, MDU420, CDU440, ATX612, ATX620 & VX500) | Weekly - \$15.00/each | Monthly - \$45.00/each |
| 18104687 | ITX/ISP Series Combo Nylon Carrying Case | | Flat Monthly Charge - \$10.00/each |
| 18102161 | 400 Series Combo Leather Carrying Case | | Flat Monthly Charge - \$15.00/each |
| 18104109 | 400 Series Combo Nylon Carrying Case | | Flat Monthly Charge - \$10.00/each |
| 18102921 | ATX612/620 Carrying Handle | | Flat Monthly Charge - \$10.00/each |
| 1810XXXX | Calibration Flow Regulator for 34L, 58L & 103L Cylinders | | Flat Monthly Charge - \$50.00/each |

Docking Station Equipment

| | | | |
|----------|---|-----------------------|-------------------------|
| 1810XXXX | DS2 Docking Module - ITX, T82, VX500, GasBadge® Pro, MX6 | Weekly- \$350.00/each | Monthly- \$1050.00/each |
| 18103119 | DS1000 Master Control Unit | Weekly- \$300.00/each | Monthly - \$900.00/each |
| 1810XXXX | DS1000 Docking Module - 400 Series, 600 Series, ITX, T82, VX500 | Weekly - \$40.00/each | Monthly - \$120.00/each |



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APPENDIX A
RISA TOWER OUTPUT

| | | | | | |
|-----------------|---------|---------|---------|---------|----------|
| Section | 1 | 2 | 3 | 4 | 155.0 ft |
| Length (ft) | 39'6" | 40' | 40' | 48' | 115.5 ft |
| Number of Sides | 18 | 18 | 18 | 18 | 79.3 ft |
| Thickness (in) | 0.2500 | 0.3125 | 0.3750 | 0.4375 | 43.8 ft |
| Lap Splice (ft) | 3'9" | 4'6" | 5'3" | | 0.0 ft |
| Top Dia (in) | 22.0000 | 28.1070 | 34.0522 | 39.7290 | |
| Bot Dia (in) | 29.3000 | 35.5100 | 41.4500 | 48.8000 | |
| Grade | | A572-65 | 6055.2 | 10147.5 | |
| Weight (lb) | 2709.0 | 4252.1 | 6055.2 | 10147.5 | |

DESIGNED APPURTENANCE LOADING

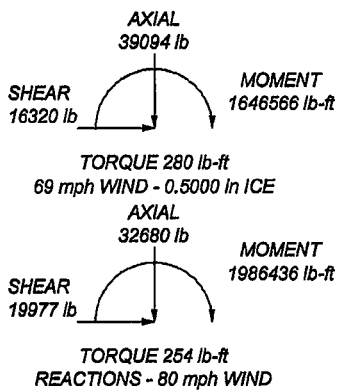
| TYPE | ELEVATION | TYPE | ELEVATION |
|---|-----------|--------------------------------------|-----------|
| 5/8-in x 4-ft Lightning Rod (lightning rod) | 155 | (2) RR90-17-02DP (t-mobile existing) | 133 |
| 12' Low Profile Platform | 155 | (2) RR90-17-02DP (t-mobile existing) | 133 |
| (3) FV65-14-00NA2 (MLA) | 155 | (2) RR90-17-02DP (t-mobile existing) | 133 |
| (3) FV65-14-00NA2 (MLA) | 155 | (4) DB844H80-XY (verizon existing) | 113 |
| (3) FV65-14-00NA2 (MLA) | 155 | (4) DB844H80-XY (verizon existing) | 113 |
| 7770.00 w/ Mount Pipe (Reserved) | 145 | (4) DB844H80-XY (verizon existing) | 113 |
| 7770.00 w/ Mount Pipe (Reserved) | 145 | 12' Low Profile Platform | 113 |
| 7770.00 w/ Mount Pipe (Reserved) | 145 | 742-213 (Proposed) | 103 |
| (2) Powerwave Tech LGP21401 (Reserved TMA) | 145 | 742-213 (Proposed) | 103 |
| (2) Powerwave Tech LGP21401 (Reserved TMA) | 145 | 742-213 (Proposed) | 103 |
| (2) Powerwave Tech LGP21401 (Reserved TMA) | 145 | 4.5" Dia. x 4' Dish Mount | 103 |
| (2) Powerwave Tech LGP21401 (Reserved TMA) | 145 | 4.5" Dia. x 4' Dish Mount | 103 |
| (2) Powerwave Tech LGP21401 (Reserved TMA) | 145 | 4.5" Dia. x 4' Dish Mount | 103 |
| 4.5" Dia. x 4' Dish Mount | 145 | 12' Low Profile Platform | 78 |
| 4.5" Dia. x 4' Dish Mount | 145 | (4) DB844G65ZAXY (nextel existing) | 78 |
| 4.5" Dia. x 4' Dish Mount | 145 | (4) DB844G65ZAXY (nextel existing) | 78 |
| 12' Low Profile Platform | 133 | (4) DB844G65ZAXY (nextel existing) | 78 |
| | | 1.5-ft Slide Arm | 60 |
| | | GPS (sprint existing) | 60 |

MATERIAL STRENGTH

| GRADE | Fy | Fu | GRADE | Fy | Fu |
|---------|--------|--------|-------|----|----|
| A572-65 | 65 ksi | 80 ksi | | | |

TOWER DESIGN NOTES

1. Tower is located in Hartford County, Connecticut.
2. Tower designed for a 80 mph basic wind in accordance with the TIA/EIA-222-F Standard.
3. Tower is also designed for a 69 mph basic wind with 0.50 in ice.
4. Deflections are based upon a 50 mph wind.
5. TOWER RATING: 59.2%



| | | | |
|--|-----------------------|-------------------|--------------------|
| Tower Engineering Professionals, Inc. | | | |
| 3703 Junction Boulevard Raleigh, NC 27603 Phone: (919) 661-8351 FAX: (919) 661-6350 | | | |
| Job: BU876347 "Buckland Mall 2" | | | |
| Project: TEP# 081049 | | | |
| Client: Crown Castle International | Drawn by: cply | App'd: | |
| Code: TIA/EIA-222-F | Date: 09/15/08 | Scale: NTS | |
| Path: H:\2008\1049_Buckland Mall\IS\Structure\TIA\Rev1\876347.dwg | | | Dwg No. E-1 |

| | | |
|--|--|----------------------------------|
| RISATower Tower Engineering Professionals, Inc. 3703 Junction Boulevard Raleigh, NC 27603 Phone: (919) 661-6351 FAX: (919) 661-6350 | Job BU876347 "Buckland Mall 2" | Page 1 of 9 |
| | Project TEP# 081049 | Date 13:14:28 09/15/08 |
| | Client Crown Castle Internaional | Designed by cply |

Tower Input Data

There is a pole section.

This tower is designed using the TIA/EIA-222-F standard.

The following design criteria apply:

Tower is located in Hartford County, Connecticut.

Basic wind speed of 80 mph.

Nominal ice thickness of 0.5000 in.

Ice density of 56 pcf.

A wind speed of 69 mph is used in combination with ice.

Temperature drop of 50 °F.

Deflections calculated using a wind speed of 50 mph.

A non-linear (P-delta) analysis was used.

Pressures are calculated at each section.

Stress ratio used in pole design is 1.333.

Local bending stresses due to climbing loads, feedline supports, and appurtenance mounts are not considered.

Options

- | | | |
|--|--|--|
| <ul style="list-style-type: none"> Consider Moments - Legs Consider Moments - Horizontals Consider Moments - Diagonals Use Moment Magnification √ Use Code Stress Ratios √ Use Code Safety Factors - Guys Escalate Ice Always Use Max Kz Use Special Wind Profile √ Include Bolts In Member Capacity Leg Bolts Are At Top Of Section Secondary Horizontal Braces Leg Use Diamond Inner Bracing (4 Sided) Add IBC .6D+W Combination | <ul style="list-style-type: none"> Distribute Leg Loads As Uniform Assume Legs Pinned √ Assume Rigid Index Plate √ Use Clear Spans For Wind Area √ Use Clear Spans For KL/r Retension Guys To Initial Tension √ Bypass Mast Stability Checks √ Use Azimuth Dish Coefficients √ Project Wind Area of Appurt. Autocalc Torque Arm Areas SR Members Have Cut Ends √ Sort Capacity Reports By Component Triangulate Diamond Inner Bracing | <ul style="list-style-type: none"> Treat Feedline Bundles As Cylinder Use ASCE 10 X-Brace Ly Rules Calculate Redundant Bracing Forces Ignore Redundant Members in FEA SR Leg Bolts Resist Compression All Leg Panels Have Same Allowable Offset Girt At Foundation √ Consider Feedline Torque Include Angle Block Shear Check |
|--|--|--|

Poles

- Include Shear-Torsion Interaction
- Always Use Sub-Critical Flow
- Use Top Mounted Sockets

Tapered Pole Section Geometry

| Section | Elevation ft | Section Length ft | Splice Length ft | Number of Sides | Top Diameter in | Bottom Diameter in | Wall Thickness in | Bend Radius in | Pole Grade |
|---------|-----------------|----------------------|---------------------|-----------------|--------------------|-----------------------|----------------------|-------------------|---------------------|
| L1 | 155'-115'6" | 39'6" | 3'9" | 18 | 22.0000 | 29.3000 | 0.2500 | 1.0000 | A572-65 (65 ksi) |
| L2 | 115'6"-79'3" | 40' | 4'6" | 18 | 28.1070 | 35.5100 | 0.3125 | 1.2500 | A572-65 (65 ksi) |
| L3 | 79'3"-43'9" | 40' | 5'3" | 18 | 34.0522 | 41.4500 | 0.3750 | 1.5000 | A572-65 (65 ksi) |
| L4 | 43'9"-0' | 49' | | 18 | 39.7290 | 48.8000 | 0.4375 | 1.7500 | A572-65 (65 ksi) |

| | | |
|--|--|----------------------------------|
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| | Project TEP# 081049 | Date 13:14:28 09/15/08 |
| | Client Crown Castle Internaional | Designed by cply |

Tapered Pole Properties

| Section | Tip Dia. in | Area in ² | I in ⁴ | r in | C in | I/C in ³ | J in ⁴ | I/Q ² in ² | w in | w/t |
|---------|----------------|-------------------------|----------------------|---------|---------|------------------------|----------------------|-------------------------------------|---------|--------|
| L1 | 22.3394 | 17.2586 | 1031.4832 | 7.7212 | 11.1760 | 92.2945 | 2064.3237 | 8.6310 | 3.4320 | 13.728 |
| | 29.7520 | 23.0512 | 2457.6656 | 10.3127 | 14.8844 | 165.1169 | 4918.5651 | 11.5278 | 4.7168 | 18.867 |
| L2 | 29.2453 | 27.5686 | 2690.7244 | 9.8670 | 14.2783 | 188.4480 | 5384.9892 | 13.7869 | 4.3968 | 14.07 |
| | 36.0578 | 34.9115 | 5464.2410 | 12.4951 | 18.0391 | 302.9113 | 10935.6720 | 17.4591 | 5.6998 | 18.239 |
| L3 | 35.4226 | 40.0842 | 5743.5703 | 11.9554 | 17.2985 | 332.0271 | 11494.6982 | 20.0459 | 5.3332 | 14.222 |
| | 42.0894 | 48.8895 | 10420.9751 | 14.5816 | 21.0566 | 494.9030 | 20855.6623 | 24.4494 | 6.6352 | 17.694 |
| L4 | 41.3288 | 54.5612 | 10641.9043 | 13.9485 | 20.1823 | 527.2877 | 21297.8116 | 27.2858 | 6.2223 | 14.222 |
| | 49.5528 | 67.1574 | 19844.8883 | 17.1687 | 24.7904 | 800.5070 | 39715.8890 | 33.5851 | 7.8188 | 17.872 |

| Tower Elevation | Gusset Area (per face) | Gusset Thickness | Gusset Grade | Adjust. Factor A _f | Adjust. Factor A _r | Weight Mult. | Double Angle Stitch Bolt Spacing Diagonals | Double Angle Stitch Bolt Spacing Horizontals |
|-----------------|---------------------------|------------------|--------------|----------------------------------|----------------------------------|--------------|---|---|
| ft | ft ² | in | | | | | in | in |
| L1 155'-115'6" | | | | 1 | 1 | 1 | | |
| L2 115'6"-79'3" | | | | 1 | 1 | 1 | | |
| L3 79'3"-43'9" | | | | 1 | 1 | 1 | | |
| L4 43'9"-0' | | | | 1 | 1 | 1 | | |

Monopole Base Plate Data

| Base Plate Data | |
|-----------------------|-------------|
| Base plate is square | √ |
| Base plate is grouted | |
| Anchor bolt grade | A615-75 |
| Anchor bolt size | 2.2500 in |
| Number of bolts | 16 |
| Embedment length | 84.0000 in |
| f _c | 3 ksi |
| Grout space | 3.0000 in |
| Base plate grade | A572-50 |
| Base plate thickness | 3.2500 in |
| Bolt circle diameter | 56.0000 in |
| Outer diameter | 56.0000 in |
| Inner diameter | 49.0000 in |
| Base plate type | Plain Plate |

Feed Line/Linear Appurtenances - Entered As Area

| Description | Face or Shield | Allow Shield | Component Type | Placement | Total Number | C _A A _A | Weight |
|--|----------------|--------------|----------------|-----------|--------------|-------------------------------|--------------|
| | Leg | | | ft | | ft ² /ft | plf |
| LDF4-50A (1/2 FOAM) (sprint existing) | B | No | Inside Pole | 60' - 0' | 1 | No Ice 1/2" Ice | 0.00 0.15 |
| LDF7-50A (1-5/8 FOAM) (nextel existing) | B | No | Inside Pole | 78' - 0' | 12 | No Ice 1/2" Ice | 0.00 0.82 |
| LDF7-50A (1-5/8 FOAM) (nextel reserved) | B | No | Inside Pole | 78' - 0' | 3 | No Ice 1/2" Ice | 0.00 0.82 |

| | | |
|--|--|----------------------------------|
| RISATower Tower Engineering Professionals, Inc. 3703 Junction Boulevard Raleigh, NC 27603 Phone: (919) 661-6351 FAX: (919) 661-6350 | Job BU876347 "Buckland Mall 2" | Page 3 of 9 |
| | Project TEP# 081049 | Date 13:14:28 09/15/08 |
| | Client Crown Castle Internaional | Designed by cply |

| Description | Face or Leg | Allow Shield | Component Type | Placement ft | Total Number | C _{AA} | | Weight plf |
|--|-------------|--------------|--------------------|-----------------|--------------|--------------------|--------------|---------------|
| | | | | | | No Ice | 1/2" Ice | |
| LDF7-50A (1-5/8 FOAM) (verizon existing) | C | No | Inside Pole | 113' - 0' | 12 | No Ice 1/2" Ice | 0.00 0.00 | 0.82 0.82 |
| LDF7-50A (1-5/8 FOAM) (t-mobile existing) | C | No | Inside Pole | 133' - 0' | 12 | No Ice 1/2" Ice | 0.00 0.00 | 0.82 0.82 |
| LDF6-50A (1-1/4 FOAM) (cingular existing) | A | No | Inside Pole | 145' - 0' | 3 | No Ice 1/2" Ice | 0.00 0.00 | 0.66 0.66 |
| LDF6-50A (1-1/4 FOAM) (cingular reserved) | A | No | Inside Pole | 145' - 0' | 3 | No Ice 1/2" Ice | 0.00 0.00 | 0.66 0.66 |
| LDF7-50A (1-5/8 FOAM) (MLA) **** | B | No | Inside Pole | 155' - 0' | 9 | No Ice 1/2" Ice | 0.00 0.00 | 0.82 0.82 |
| LDF7-50A (1-5/8 FOAM) (Proposed) | A | No | CaAa (Out Of Face) | 103' - 0' | 1 | No Ice 1/2" Ice | 0.20 0.30 | 0.82 2.33 |
| LDF7-50A (1-5/8 FOAM) - Ice Weight Only | A | No | CaAa (Out Of Face) | 103' - 0' | 5 | No Ice 1/2" Ice | 0.00 0.00 | 0.82 2.33 |

Feed Line/Linear Appurtenances Section Areas

| Tower Section | Tower Elevation ft | Face | A _R ft ² | A _F ft ² | C _{AA} In Face ft ² | C _{AA} Out Face ft ² | Weight lb |
|---------------|-----------------------|------|-----------------------------------|-----------------------------------|---|--|--------------|
| L1 | 155'-115'6" | A | 0.000 | 0.000 | 0.000 | 0.000 | 116.82 |
| | | B | 0.000 | 0.000 | 0.000 | 0.000 | 291.51 |
| | | C | 0.000 | 0.000 | 0.000 | 0.000 | 172.20 |
| L2 | 115'6"-79'3" | A | 0.000 | 0.000 | 0.000 | 4.702 | 260.40 |
| | | B | 0.000 | 0.000 | 0.000 | 0.000 | 267.52 |
| | | C | 0.000 | 0.000 | 0.000 | 0.000 | 688.80 |
| L3 | 79'3"-43'9" | A | 0.000 | 0.000 | 0.000 | 7.029 | 315.24 |
| | | B | 0.000 | 0.000 | 0.000 | 0.000 | 685.70 |
| | | C | 0.000 | 0.000 | 0.000 | 0.000 | 698.64 |
| L4 | 43'9"-0' | A | 0.000 | 0.000 | 0.000 | 8.662 | 388.50 |
| | | B | 0.000 | 0.000 | 0.000 | 0.000 | 867.56 |
| | | C | 0.000 | 0.000 | 0.000 | 0.000 | 861.00 |

Feed Line/Linear Appurtenances Section Areas - With Ice

| Tower Section | Tower Elevation ft | Face or Leg | Ice Thickness in | A _R ft ² | A _F ft ² | C _{AA} In Face ft ² | C _{AA} Out Face ft ² | Weight lb |
|---------------|-----------------------|-------------|---------------------|-----------------------------------|-----------------------------------|---|--|--------------|
| L1 | 155'-115'6" | A | 0.500 | 0.000 | 0.000 | 0.000 | 0.000 | 116.82 |
| | | B | | 0.000 | 0.000 | 0.000 | 0.000 | 291.51 |
| | | C | | 0.000 | 0.000 | 0.000 | 0.000 | 172.20 |
| L2 | 115'6"-79'3" | A | 0.500 | 0.000 | 0.000 | 0.000 | 7.077 | 476.27 |
| | | B | | 0.000 | 0.000 | 0.000 | 0.000 | 267.52 |
| | | C | | 0.000 | 0.000 | 0.000 | 0.000 | 688.80 |
| L3 | 79'3"-43'9" | A | 0.500 | 0.000 | 0.000 | 0.000 | 10.579 | 637.92 |
| | | B | | 0.000 | 0.000 | 0.000 | 0.000 | 685.70 |
| | | C | | 0.000 | 0.000 | 0.000 | 0.000 | 698.64 |

| | | | | |
|--|---------|----------------------------|-------------|-------------------|
| RISATower Tower Engineering Professionals, Inc. 3703 Junction Boulevard Raleigh, NC 27603 Phone: (919) 661-6351 FAX: (919) 661-6350 | Job | BU876347 "Buckland Mall 2" | Page | 4 of 9 |
| | Project | TEP# 081049 | Date | 13:14:28 09/15/08 |
| | Client | Crown Castle Internaional | Designed by | cply |

| Tower Section | Tower Elevation ft | Face or Leg | Ice Thickness in | A _R ft ² | A _F ft ² | C _{AA} In Face ft ² | C _{AA} Out Face ft ² | Weight lb |
|---------------|-----------------------|-------------|---------------------|-----------------------------------|-----------------------------------|---|--|--------------|
| L4 | 43'9"-0' | A | 0.500 | 0.000 | 0.000 | 0.000 | 13.037 | 786.16 |
| | | B | | 0.000 | 0.000 | 0.000 | 0.000 | 867.56 |
| | | C | | 0.000 | 0.000 | 0.000 | 0.000 | 861.00 |

Feed Line Center of Pressure

| Section | Elevation ft | CP _X in | CP _Z in | CP _X Ice in | CP _Z Ice in |
|---------|-----------------|-----------------------|-----------------------|------------------------------|------------------------------|
| L1 | 155'-115'6" | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| L2 | 115'6"-79'3" | 0.0000 | -0.1923 | 0.0000 | -0.2748 |
| L3 | 79'3"-43'9" | 0.0000 | -0.2796 | 0.0000 | -0.3991 |
| L4 | 43'9"-0' | 0.0000 | -0.2820 | 0.0000 | -0.4055 |

Discrete Tower Loads

| Description | Face or Leg | Offset Type | Offsets: Horz Lateral Vert ft ft ft | Azimuth Adjustment ° | Placement ft | C _{AA} Front ft ² | C _{AA} Side ft ² | Weight lb | |
|---|-------------|-------------|--|-------------------------|-----------------|---|--|--------------|-------|
| 1.5-ft Side Arm | A | From Leg | 0.75 0' | 0.000 | 60' | No Ice | 0.16 | 0.20 | 12.00 |
| | | | | | | 1/2" Ice | 0.23 | 0.41 | 15.50 |
| GPS (sprint existing) | A | From Leg | 1.50 0' | 0.000 | 60' | No Ice | 0.62 | 0.62 | 15.00 |
| | | | | | | 1/2" Ice | 0.73 | 0.73 | 22.03 |
| (4) DB844G65ZAXY (nextel existing) | A | From Leg | 4.00 0' | 0.000 | 78' | No Ice | 4.67 | 3.73 | 16.00 |
| | | | | | | 1/2" Ice | 5.05 | 4.10 | 48.76 |
| (4) DB844G65ZAXY (nextel existing) | B | From Leg | 4.00 0' | 0.000 | 78' | No Ice | 4.67 | 3.73 | 16.00 |
| | | | | | | 1/2" Ice | 5.05 | 4.10 | 48.76 |
| (4) DB844G65ZAXY (nextel existing) | C | From Leg | 4.00 0' | 0.000 | 78' | No Ice | 4.67 | 3.73 | 16.00 |
| | | | | | | 1/2" Ice | 5.05 | 4.10 | 48.76 |
| (4) DB844H80-XY (verizon existing) | A | From Leg | 4.00 0' | 0.000 | 113' | No Ice | 2.87 | 3.97 | 10.00 |
| | | | | | | 1/2" Ice | 3.18 | 4.34 | 36.27 |
| (4) DB844H80-XY (verizon existing) | B | From Leg | 4.00 0' | 0.000 | 113' | No Ice | 2.87 | 3.97 | 10.00 |
| | | | | | | 1/2" Ice | 3.18 | 4.34 | 36.27 |
| (4) DB844H80-XY (verizon existing) | C | From Leg | 4.00 0' | 0.000 | 113' | No Ice | 2.87 | 3.97 | 10.00 |
| | | | | | | 1/2" Ice | 3.18 | 4.34 | 36.27 |
| (2) RR90-17-02DP (t-mobile existing) | A | From Leg | 4.00 0' | 0.000 | 133' | No Ice | 4.36 | 1.97 | 18.00 |
| | | | | | | 1/2" Ice | 4.77 | 2.31 | 40.42 |
| (2) RR90-17-02DP (t-mobile existing) | B | From Leg | 4.00 0' | 0.000 | 133' | No Ice | 4.36 | 1.97 | 18.00 |
| | | | | | | 1/2" Ice | 4.77 | 2.31 | 40.42 |

| | | | | |
|--|---------|----------------------------|-------------|-------------------|
| RISATower Tower Engineering Professionals, Inc. 3703 Junction Boulevard Raleigh, NC 27603 Phone: (919) 661-6351 FAX: (919) 661-6350 | Job | BU876347 "Buckland Mall 2" | Page | 5 of 9 |
| | Project | TEP# 081049 | Date | 13:14:28 09/15/08 |
| | Client | Crown Castle Internaional | Designed by | cply |

| Description | Face or Leg | Offset Type | Offsets: | | Azimuth Adjustment | Placement | C _A A ₁ Front | C _A A ₁ Side | Weight | |
|--|-------------|-------------|----------|------|--------------------|-----------|-------------------------------------|------------------------------------|--------------|------------------|
| | | | Horz | Vert | | | | | | |
| | | | Lateral | ft | ° | ft | ft ² | ft ² | lb | |
| (2) RR90-17-02DP (t-mobile existing) | C | From Leg | 4.00 | 0' | 0.000 | 133' | No Ice 1/2" Ice | 4.36 4.77 | 1.97 2.31 | 18.00 40.42 |
| 5/8-in x 4-ft Lightning Rod (lightning rod) | C | None | | 0' | 0.000 | 155' | No Ice 1/2" Ice | 0.25 0.66 | 0.25 0.66 | 4.58 7.39 |
| 12' Low Profile Platform | C | None | | 0' | 0.000 | 78' | No Ice 1/2" Ice | 6.15 8.14 | 6.15 8.14 | 650.00 750.00 |
| 12' Low Profile Platform | C | None | | 0' | 0.000 | 113' | No Ice 1/2" Ice | 6.15 8.14 | 6.15 8.14 | 650.00 750.00 |
| 12' Low Profile Platform | C | None | | 0' | 0.000 | 133' | No Ice 1/2" Ice | 6.15 8.14 | 6.15 8.14 | 650.00 750.00 |
| 12' Low Profile Platform | C | None | | 0' | 0.000 | 155' | No Ice 1/2" Ice | 6.15 8.14 | 6.15 8.14 | 650.00 750.00 |
| **** | | | | | | | | | | |
| (3) FV65-14-00NA2 (MLA) | A | From Leg | 4.00 | 0' | 0.000 | 155' | No Ice 1/2" Ice | 8.40 8.95 | 5.28 5.74 | 30.00 80.04 |
| (3) FV65-14-00NA2 (MLA) | B | From Leg | 4.00 | 0' | 0.000 | 155' | No Ice 1/2" Ice | 8.40 8.95 | 5.28 5.74 | 30.00 80.04 |
| (3) FV65-14-00NA2 (MLA) | C | From Leg | 4.00 | 0' | 0.000 | 155' | No Ice 1/2" Ice | 8.40 8.95 | 5.28 5.74 | 30.00 80.04 |
| **** | | | | | | | | | | |
| 7770.00 w/ Mount Pipe (Reserved) | A | From Leg | 1.00 | 0' | 0.000 | 145' | No Ice 1/2" Ice | 6.22 6.77 | 4.35 5.20 | 56.90 102.99 |
| 7770.00 w/ Mount Pipe (Reserved) | B | From Leg | 1.00 | 0' | 0.000 | 145' | No Ice 1/2" Ice | 6.22 6.77 | 4.35 5.20 | 56.90 102.99 |
| 7770.00 w/ Mount Pipe (Reserved) | C | From Leg | 1.00 | 0' | 0.000 | 145' | No Ice 1/2" Ice | 6.22 6.77 | 4.35 5.20 | 56.90 102.99 |
| (2) Powerwave Tech LGP21401 (Reserved TMA) | A | From Leg | 0.00 | 0' | 0.000 | 145' | No Ice 1/2" Ice | 1.29 1.45 | 0.23 0.31 | 14.10 21.26 |
| (2) Powerwave Tech LGP21401 (Reserved TMA) | B | From Leg | 0.00 | 0' | 0.000 | 145' | No Ice 1/2" Ice | 1.29 1.45 | 0.23 0.31 | 14.10 21.26 |
| (2) Powerwave Tech LGP21401 (Reserved TMA) | C | From Leg | 0.00 | 0' | 0.000 | 145' | No Ice 1/2" Ice | 1.29 1.45 | 0.23 0.31 | 14.10 21.26 |
| **** | | | | | | | | | | |
| 742-213 (Proposed) | A | From Leg | 1.00 | 0' | 0.000 | 103' | No Ice 1/2" Ice | 5.14 5.61 | 2.87 3.48 | 22.00 47.15 |
| 742-213 (Proposed) | B | From Leg | 1.00 | 0' | 0.000 | 103' | No Ice 1/2" Ice | 5.14 5.61 | 2.87 3.48 | 22.00 47.15 |
| 742-213 (Proposed) | C | From Leg | 1.00 | 0' | 0.000 | 103' | No Ice 1/2" Ice | 5.14 5.61 | 2.87 3.48 | 22.00 47.15 |
| **** | | | | | | | | | | |
| 4.5" Dia. x 4' Dish Mount | A | From Leg | 1.00 | 0' | 0.000 | 145' | No Ice 1/2" Ice | 0.00 0.00 | 1.32 1.58 | 43.20 56.19 |

| | | |
|--|--|----------------------------------|
| RISATower Tower Engineering Professionals, Inc. 3703 Junction Boulevard Raleigh, NC 27603 Phone: (919) 661-6351 FAX: (919) 661-6350 | Job BU876347 "Buckland Mall 2" | Page 6 of 9 |
| | Project TEP# 081049 | Date 13:14:28 09/15/08 |
| | Client Crown Castle Internaional | Designed by cply |

| Description | Face or Leg | Offset Type | Offsets: | | | Azimuth Adjustment | Placement | C _{AA} Front | C _{AA} Side | Weight | |
|---------------------------|-------------|-------------|----------|---------|------|--------------------|-----------|-----------------------|----------------------|--------|-------|
| | | | Horz | Lateral | Vert | | | | | | ° |
| 4.5" Dia. x 4' Dish Mount | B | From Leg | 1.00 | | | 0.000 | 145' | No Ice | 0.00 | 1.32 | 43.20 |
| | | | 0' | | | | | 1/2" Ice | 0.00 | 1.58 | 56.19 |
| | | | 0' | | | | | | | | |
| 4.5" Dia. x 4' Dish Mount | C | From Leg | 1.00 | | | 0.000 | 145' | No Ice | 0.00 | 1.32 | 43.20 |
| | | | 0' | | | | | 1/2" Ice | 0.00 | 1.58 | 56.19 |
| | | | 0' | | | | | | | | |
| 4.5" Dia. x 4' Dish Mount | A | From Leg | 1.00 | | | 0.000 | 103' | No Ice | 0.00 | 1.32 | 43.20 |
| | | | 0' | | | | | 1/2" Ice | 0.00 | 1.58 | 56.19 |
| | | | 0' | | | | | | | | |
| 4.5" Dia. x 4' Dish Mount | B | From Leg | 1.00 | | | 0.000 | 103' | No Ice | 0.00 | 1.32 | 43.20 |
| | | | 0' | | | | | 1/2" Ice | 0.00 | 1.58 | 56.19 |
| | | | 0' | | | | | | | | |
| 4.5" Dia. x 4' Dish Mount | C | From Leg | 1.00 | | | 0.000 | 103' | No Ice | 0.00 | 1.32 | 43.20 |
| | | | 0' | | | | | 1/2" Ice | 0.00 | 1.58 | 56.19 |
| | | | 0' | | | | | | | | |

Load Combinations

| Comb. No. | Description |
|-----------|-----------------------------|
| 1 | Dead Only |
| 2 | Dead+Wind 0 deg - No Ice |
| 3 | Dead+Wind 30 deg - No Ice |
| 4 | Dead+Wind 60 deg - No Ice |
| 5 | Dead+Wind 90 deg - No Ice |
| 6 | Dead+Wind 120 deg - No Ice |
| 7 | Dead+Wind 150 deg - No Ice |
| 8 | Dead+Wind 180 deg - No Ice |
| 9 | Dead+Wind 210 deg - No Ice |
| 10 | Dead+Wind 240 deg - No Ice |
| 11 | Dead+Wind 270 deg - No Ice |
| 12 | Dead+Wind 300 deg - No Ice |
| 13 | Dead+Wind 330 deg - No Ice |
| 14 | Dead+Ice+Temp |
| 15 | Dead+Wind 0 deg+Ice+Temp |
| 16 | Dead+Wind 30 deg+Ice+Temp |
| 17 | Dead+Wind 60 deg+Ice+Temp |
| 18 | Dead+Wind 90 deg+Ice+Temp |
| 19 | Dead+Wind 120 deg+Ice+Temp |
| 20 | Dead+Wind 150 deg+Ice+Temp |
| 21 | Dead+Wind 180 deg+Ice+Temp |
| 22 | Dead+Wind 210 deg+Ice+Temp |
| 23 | Dead+Wind 240 deg+Ice+Temp |
| 24 | Dead+Wind 270 deg+Ice+Temp |
| 25 | Dead+Wind 300 deg+Ice+Temp |
| 26 | Dead+Wind 330 deg+Ice+Temp |
| 27 | Dead+Wind 0 deg - Service |
| 28 | Dead+Wind 30 deg - Service |
| 29 | Dead+Wind 60 deg - Service |
| 30 | Dead+Wind 90 deg - Service |
| 31 | Dead+Wind 120 deg - Service |

| | | | | |
|--|---------|----------------------------|-------------|-------------------|
| RISATower Tower Engineering Professionals, Inc. 3703 Junction Boulevard Raleigh, NC 27603 Phone: (919) 661-6351 FAX: (919) 661-6350 | Job | BU876347 "Buckland Mall 2" | Page | 7 of 9 |
| | Project | TEP# 081049 | Date | 13:14:28 09/15/08 |
| | Client | Crown Castle Internaional | Designed by | cply |

| Comb. No. | Description |
|-----------|-----------------------------|
| 32 | Dead+Wind 150 deg - Service |
| 33 | Dead+Wind 180 deg - Service |
| 34 | Dead+Wind 210 deg - Service |
| 35 | Dead+Wind 240 deg - Service |
| 36 | Dead+Wind 270 deg - Service |
| 37 | Dead+Wind 300 deg - Service |
| 38 | Dead+Wind 330 deg - Service |

Maximum Tower Deflections - Service Wind

| Section No. | Elevation ft | Horz. Deflection in | Gov. Load Comb. | Tilt ° | Twist ° |
|-------------|-----------------|------------------------|--------------------|-----------|------------|
| L1 | 155 - 115.5 | 26.64 | 27 | 1.428 | 0.000 |
| L2 | 119.25 - 79.25 | 16.39 | 27 | 1.256 | 0.000 |
| L3 | 83.75 - 43.75 | 8.18 | 27 | 0.912 | 0.000 |
| L4 | 49 - 0 | 2.83 | 27 | 0.528 | 0.000 |

Critical Deflections and Radius of Curvature - Service Wind

| Elevation ft | Appurtenance | Gov. Load Comb. | Deflection in | Tilt ° | Twist ° | Radius of Curvature ft |
|-----------------|-----------------------------|--------------------|------------------|-----------|------------|---------------------------|
| 155' | 5/8-in x 4-ft Lightning Rod | 27 | 26.64 | 1.428 | 0.000 | 47245 |
| 145' | 7770.00 w/ Mount Pipe | 27 | 23.67 | 1.390 | 0.000 | 23622 |
| 133' | (2) RR90-17-02DP | 27 | 20.18 | 1.337 | 0.000 | 10737 |
| 113' | (4) DB844H80-XY | 27 | 14.77 | 1.210 | 0.000 | 6434 |
| 103' | 742-213 | 27 | 12.33 | 1.122 | 0.000 | 6175 |
| 78' | (4) DB844G65ZAXY | 27 | 7.09 | 0.840 | 0.000 | 5345 |
| 60' | 1.5-ft Side Arm | 27 | 4.18 | 0.625 | 0.000 | 4412 |

Maximum Tower Deflections - Design Wind

| Section No. | Elevation ft | Horz. Deflection in | Gov. Load Comb. | Tilt ° | Twist ° |
|-------------|-----------------|------------------------|--------------------|-----------|------------|
| L1 | 155 - 115.5 | 68.07 | 2 | 3.650 | 0.001 |
| L2 | 119.25 - 79.25 | 41.88 | 2 | 3.212 | 0.000 |
| L3 | 83.75 - 43.75 | 20.91 | 2 | 2.330 | 0.000 |
| L4 | 49 - 0 | 7.24 | 2 | 1.350 | 0.000 |

Critical Deflections and Radius of Curvature - Design Wind

| Elevation ft | Appurtenance | Gov. Load Comb. | Deflection in | Tilt ° | Twist ° | Radius of Curvature ft |
|-----------------|-----------------------------|--------------------|------------------|-----------|------------|---------------------------|
| 155' | 5/8-in x 4-ft Lightning Rod | 2 | 68.07 | 3.650 | 0.001 | 18605 |

| | | |
|--|---|----------------------------------|
| RISATower Tower Engineering Professionals, Inc. 3703 Junction Boulevard Raleigh, NC 27603 Phone: (919) 661-6351 FAX: (919) 661-6350 | Job BU876347 "Buckland Mall 2" | Page 8 of 9 |
| | Project TEP# 081049 | Date 13:14:28 09/15/08 |
| | Client Crown Castle International | Designed by cply |

| Elevation | Appurtenance | Gov. Load Comb. | Deflection | Tilt | Twist | Radius of Curvature |
|-----------|-----------------------|-----------------|------------|-------|-------|---------------------|
| ft | | | in | ° | ° | ft |
| 145' | 7770.00 w/ Mount Pipe | 2 | 60.49 | 3.555 | 0.001 | 9302 |
| 133' | (2) RR90-17-02DP | 2 | 51.58 | 3.421 | 0.001 | 4226 |
| 113' | (4) DB844H80-XY | 2 | 37.74 | 3.089 | 0.000 | 2530 |
| 103' | 742-213 | 2 | 31.50 | 2.858 | 0.000 | 2427 |
| 78' | (4) DB844G65ZAXY | 2 | 18.13 | 2.160 | 0.000 | 2097 |
| 60' | 1.5-ft Side Arm | 2 | 10.70 | 1.636 | 0.000 | 1729 |

Base Plate Design Data

| Plate Thickness | Number of Anchor Bolts | Anchor Bolt Size | Actual Allowable Ratio Bolt Tension | Actual Allowable Ratio Bolt Compression | Actual Allowable Ratio Plate Stress | Actual Allowable Ratio Stiffener Stress | Controlling Condition | Ratio |
|-----------------|------------------------|------------------|-------------------------------------|---|-------------------------------------|---|-----------------------|-------|
| in | | in | lb | lb | ksi | ksi | | |
| 3.2500 | 16 | 2.2500 | 103602.33 | 107685.87 | 22.98 | | Bolt T | 0.79 |
| | | | 131210.58 | 217809.56 | 37.50 | | | ✓ |
| | | | 0.79 | 0.49 | 0.61 | | | |

Compression Checks

Pole Design Data

| Section No. | Elevation | Size | L | L _n | Kl/r | F _a | A | Actual P | Allow. P _a | Ratio P/P _a |
|-------------|-------------------|-----------------------|-------|----------------|------|----------------|-----------------|-----------|-----------------------|------------------------|
| | ft | | ft | ft | | ksi | in ² | lb | lb | |
| L1 | 155 - 115.5 (1) | TP29.3x22x0.25 | 39'6" | 0' | 0.0 | 39.00 | 22.5012 | -4611.79 | 877549.00 | 0.005 |
| L2 | 115.5 - 79.25 (2) | TP35.51x28.107x0.3125 | 40' | 0' | 0.0 | 39.00 | 34.0854 | -10617.90 | 1329330.00 | 0.008 |
| L3 | 79.25 - 43.75 (3) | TP41.45x34.0522x0.375 | 40' | 0' | 0.0 | 39.00 | 47.7338 | -18901.30 | 1861620.00 | 0.010 |
| L4 | 43.75 - 0 (4) | TP48.8x39.729x0.4375 | 49' | 0' | 0.0 | 39.00 | 67.1574 | -32668.30 | 2619140.00 | 0.012 |

Pole Bending Design Data

| Section No. | Elevation | Size | Actual M _x | Actual f _{bx} | Allow. F _{bx} | Ratio f _{bx} /F _{bx} | Actual M _y | Actual f _{by} | Allow. F _{by} | Ratio f _{by} /F _{by} |
|-------------|-------------------|-----------------------|-----------------------|------------------------|------------------------|--|-----------------------|------------------------|------------------------|--|
| | ft | | lb-ft | ksi | ksi | | lb-ft | ksi | ksi | |
| L1 | 155 - 115.5 (1) | TP29.3x22x0.25 | 184317.50 | -14.06 | 39.00 | 0.361 | 0.00 | 0.00 | 39.00 | 0.000 |
| L2 | 115.5 - 79.25 (2) | TP35.51x28.107x0.3125 | 551925.83 | -22.94 | 39.00 | 0.588 | 0.00 | 0.00 | 39.00 | 0.000 |
| L3 | 79.25 - 43.75 (3) | TP41.45x34.0522x0.375 | 1082033.33 | -27.53 | 39.00 | 0.706 | 0.00 | 0.00 | 39.00 | 0.000 |
| L4 | 43.75 - 0 (4) | TP48.8x39.729x0.4375 | 1986433.33 | -29.78 | 39.00 | 0.764 | 0.00 | 0.00 | 39.00 | 0.000 |

| | | |
|---|--|----------------------------------|
| RISA Tower Tower Engineering Professionals, Inc. 3703 Junction Boulevard Raleigh, NC 27603 Phone: (919) 661-6351 FAX: (919) 661-6350 | Job BU876347 "Buckland Mall 2" | Page 9 of 9 |
| | Project TEP# 081049 | Date 13:14:28 09/15/08 |
| | Client Crown Castle Internaional | Designed by cply |

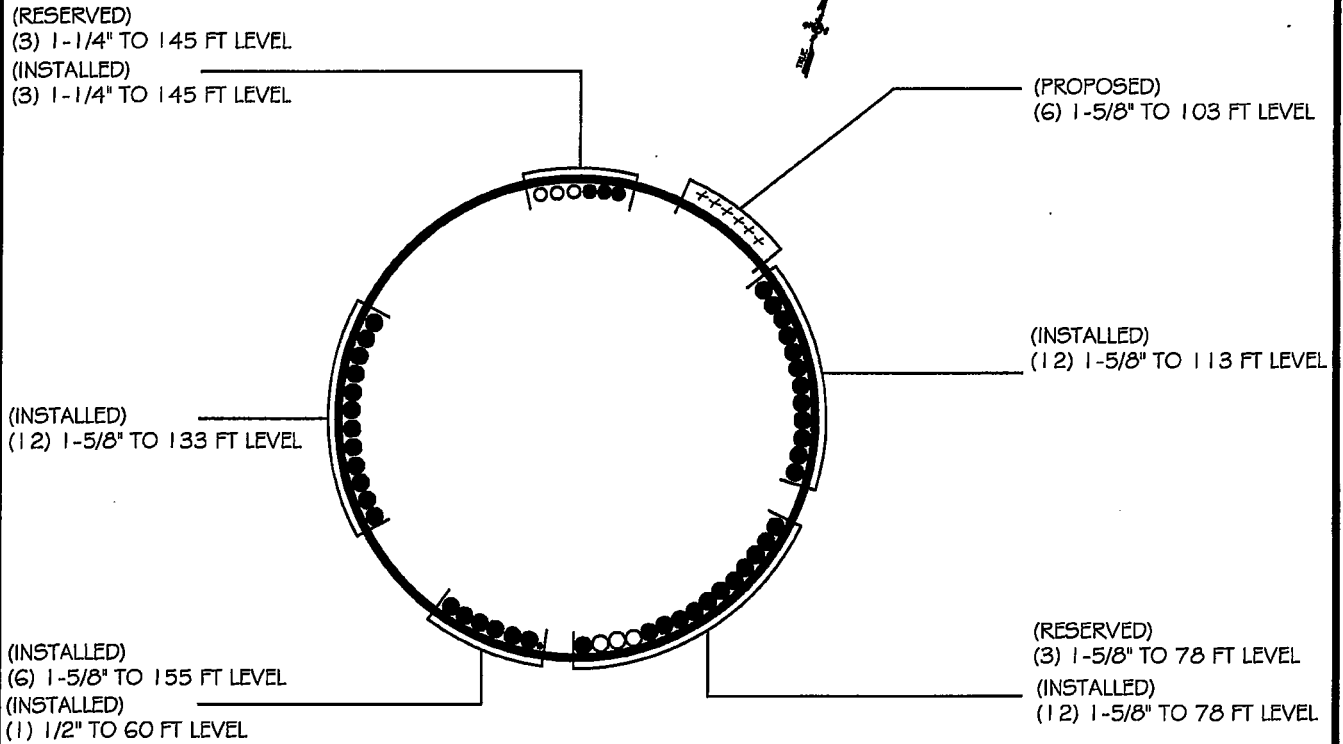
Pole Interaction Design Data

| Section No. | Elevation ft | Size | Ratio | Ratio | Ratio | Comb. Stress Ratio | Allow. Stress Ratio | Criteria |
|-------------|-------------------|-----------------------|-----------------|----------------------|----------------------|--------------------|---------------------|----------|
| | | | $\frac{P}{P_o}$ | $\frac{f_x}{F_{bx}}$ | $\frac{f_y}{F_{by}}$ | | | |
| L1 | 155 - 115.5 (1) | TP29.3x22x0.25 | 0.005 | 0.361 | 0.000 | 0.366 | 1.333 | H1-3 ✓ |
| L2 | 115.5 - 79.25 (2) | TP35.51x28.107x0.3125 | 0.008 | 0.588 | 0.000 | 0.596 | 1.333 | H1-3 ✓ |
| L3 | 79.25 - 43.75 (3) | TP41.45x34.0522x0.375 | 0.010 | 0.706 | 0.000 | 0.716 | 1.333 | H1-3 ✓ |
| L4 | 43.75 - 0 (4) | TP48.8x39.729x0.4375 | 0.012 | 0.764 | 0.000 | 0.776 | 1.333 | H1-3 ✓ |

Section Capacity Table

| Section No. | Elevation ft | Component Type | Size | Critical Element | P lb | SF*P _{allow} lb | % Capacity | Pass Fail | |
|-------------|-----------------|----------------|-----------------------|------------------|-----------|--------------------------|-----------------|-------------|-------------|
| L1 | 155 - 115.5 | Pole | TP29.3x22x0.25 | 1 | -4611.79 | 1169772.77 | 27.4 | Pass | |
| L2 | 115.5 - 79.25 | Pole | TP35.51x28.107x0.3125 | 2 | -10617.90 | 1771996.82 | 44.7 | Pass | |
| L3 | 79.25 - 43.75 | Pole | TP41.45x34.0522x0.375 | 3 | -18901.30 | 2481539.36 | 53.7 | Pass | |
| L4 | 43.75 - 0 | Pole | TP48.8x39.729x0.4375 | 4 | -32668.30 | 3491313.48 | 58.2 | Pass | |
| | | | | | | | Summary | | |
| | | | | | | | Pole (L4) | 58.2 | Pass |
| | | | | | | | Base Plate | 59.2 | Pass |
| | | | | | | | RATING = | 59.2 | Pass |

APPENDIX B
BASE LEVEL DRAWING



COAX CONFIGURATION

SCALE: N.T.S.

PREPARED BY:

TOWER ENGINEERING PROFESSIONALS
3703 JUNCTION BOULEVARD
RALEIGH, NC 27603-5263
(919) 681-6351

PREPARED FOR:



Crown Castle USA Inc.
1200 MACARTHUR BLVD, SUITE 200
MAHWAH, NJ 07430
OFFICE: (201) 236-9070

PROJECT INFORMATION:

BUCKLAND MALL
SITE #: 876347

53 SLATER STREET
MANCHESTER, CT 06040
(HARTFORD COUNTY)

REVISION:

1
TEP JOB # 081049

SHEET NUMBER:

M-1

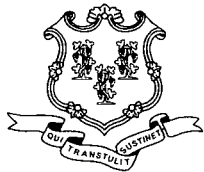
APPENDIX C
ADDITIONAL CALCULATIONS

| Design vs. Analysis Reaction Comparison | | | |
|---|---------|----------|-------|
| Foundation | Design | Analysis | % CAP |
| Moment = | 3,250.0 | 1,986.4 | 61.1 |
| Download = | 37.0 | 32.7 | - |
| Shear = | 28.0 | 20.0 | 71.4 |

- Does not control design

71.4 %

TOTAL = 71.4 %



STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

Ten Franklin Square, New Britain, CT 06051

Phone: (860) 827-2935 Fax: (860) 827-2950

E-Mail: siting.council@ct.gov

Internet: ct.gov/esc

Daniel F. Caruso
Chairman

November 3, 2008

Carrie L. Larson, Esq.
Pullman & Comley, LLC
90 State House Square
Hartford, CT 06103

RE: **EM-POCKET-077-081015** – Youghioghney Communications-Northeast, LLC d/b/a Pocket Communications notice of intent to modify an existing telecommunications facility located at 53 Slater Street, Manchester, Connecticut.

Dear Attorney Larson:

The Connecticut Siting Council (Council) hereby acknowledges your notice to modify this existing telecommunications facility, pursuant to Section 16-50j-73 of the Regulations of Connecticut State Agencies with the following conditions:

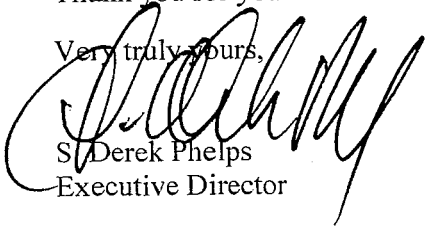
- The coaxial cable shall be installed as recommended in Appendix B in the structural analysis report dated October 10, 2008 and sealed by J. Russell Hill, P.E.; and
- The Council is notified in writing of compliance with this condition.

The proposed modifications are to be implemented as specified here and in your notice dated October 14, 2008, including the placement of all necessary equipment and shelters within the tower compound. The modifications are in compliance with the exception criteria in Section 16-50j-72 (b) of the Regulations of Connecticut State Agencies as changes to an existing facility site that would not increase tower height, extend the boundaries of the tower site, increase noise levels at the tower site boundary by six decibels, and increase the total radio frequencies electromagnetic radiation power density measured at the tower site boundary to or above the standard adopted by the State Department of Environmental Protection pursuant to General Statutes § 22a-162. This facility has also been carefully modeled to ensure that radio frequency emissions are conservatively below State and federal standards applicable to the frequencies now used on this tower.

This decision is under the exclusive jurisdiction of the Council. Please be advised that the validity of this action shall expire one year from the date of this letter. Any additional change to this facility will require explicit notice to this agency pursuant to Regulations of Connecticut State Agencies Section 16-50j-73. Such notice shall include all relevant information regarding the proposed change with cumulative worst-case modeling of radio frequency exposure at the closest point of uncontrolled access to the tower base, consistent with Federal Communications Commission, Office of Engineering and Technology, Bulletin 65. Any deviation from this format may result in the Council implementing enforcement proceedings pursuant to General Statutes § 16-50u including, without limitation, imposition of expenses resulting from such failure and of civil penalties in an amount not less than one thousand dollars per day for each day of construction or operation in material violation.

Thank you for your attention and cooperation.

Very truly yours,

A handwritten signature in black ink, appearing to read 'Derek Phelps', written over the typed name and title.

S. Derek Phelps
Executive Director

SDP/CMW/jb

- c: Mr. Scott A. Shanley, General Manager, Town of Manchester
- Scott A. Shanley, General Manager, Town of Manchester
- Thomas R. O'Marra, Zoning Enforcement Officer, Town of Manchester
- Crown Castle



STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

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Internet: ct.gov/csc

Daniel F. Caruso
Chairman

October 17, 2008

Mr. Scott A. Shanley
General Manager
Town of Manchester
Town Hall
41 Center Street
P. O. Box 191
Manchester, CT 06040-0191

RE: **EM-POCKET-077-081015** – Youghiogheny Communications-Northeast, LLC d/b/a Pocket Communications notice of intent to modify an existing telecommunications facility located at 53 Slater Street, Manchester, Connecticut.

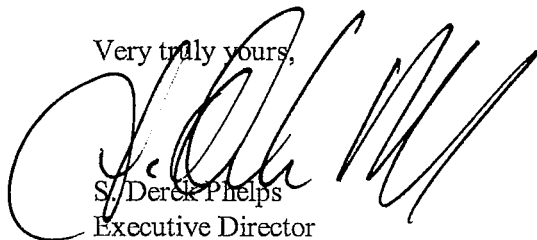
Dear Shanley:

The Connecticut Siting Council (Council) received this request to modify an existing telecommunications facility, pursuant to Regulations of Connecticut State Agencies Section 16-50j-72.

If you have any questions or comments regarding this proposal, please call me or inform the Council by October 30, 2008.

Thank you for your cooperation and consideration.

Very truly yours,



S. Derek Phelps
Executive Director

SDP/jb

Enclosure: Notice of Intent

c: Thomas R. O'Marra, Zoning Enforcement Officer, Town of Manchester