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
www.ct.gov/csc

July 9, 2012

Kenneth C. Baldwin, Esq.
Robinson & Cole LLP
280 Trumbull Street
Hartford, CT 06103

RE: **EM-VER-017-120608**- Cellco Partnership d/b/a Verizon Wireless notice of intent to modify an existing telecommunications facility located at 371 Terryville Avenue, Bristol, Connecticut.

Dear Attorney Baldwin:

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:

- Additional reinforcements to the tower be added in accordance with the recommendations made in the Structural Analysis with Mod Design prepared by Black & Veatch dated May 17, 2012 , and stamped by Chris Krafft;
- Prior to antenna installation, a signed letter from a Professional Engineer duly licensed in the State of Connecticut shall be submitted to the Council to certify that the recommended modifications have been completed and the tower and foundation will not exceed 100 percent of the post-construction structural rating;
- Any deviation from the proposed modification as specified in this notice and supporting materials with Council shall render this acknowledgement invalid;
- Any material changes to this modification as proposed shall require the filing of a new notice with the Council;
- Not less than 45 days after completion of construction, the Council shall be notified in writing that construction has been completed;
- The validity of this action shall expire one year from the date of this letter; and
- The applicant may file a request for an extension of time beyond the one year deadline provided that such request is submitted to the Council not less than 60 days prior to the expiration;

The proposed modifications including the placement of all necessary equipment and shelters within the tower compound are to be implemented as specified here and in your notice dated June 7, 2012. 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. Thank you for your attention and cooperation.

Very truly yours,

Linda Roberts
Executive Director

LR/CDM/jbw

c: The Honorable Arthur J. Ward, Mayor, City of Bristol
Alan Weiner, Planner/Dev. Coordinator, City of Bristol
Christopher B Fisher, Esq.

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June 12, 2012

The Honorable Arthur J. Ward
Mayor
City of Bristol
City Hall
111 North Main Street
P.O.Box 114
Bristol, CT 06010-0114

RE: **EM-VER-017-120608**- Cellco Partnership d/b/a Verizon Wireless notice of intent to modify an existing telecommunications facility located at 371 Terryville Avenue, Bristol, Connecticut.

Dear Mayor Ward:

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 June 26, 2012.

Thank you for your cooperation and consideration.

Very truly yours,

Linda Roberts

Linda Roberts
Executive Director

LR/jbw

Enclosure: Notice of Intent

c: Alan Weiner, Planner/Dev. Coordinator, City of Bristol

CSC
CONNECTICUT SITING COUNCIL

ROBINSON & COLE

EM-VER-017-120608

KENNETH C. BALDWIN

280 Trumbull Street
Hartford, CT 06103-3597
Main (860) 275-8200
Fax (860) 275-8299
kbaldwin@rc.com
Direct (860) 275-8345

June 7, 2012

Linda Roberts
Executive Director
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051

Re: **Notice of Exempt Modification – Antenna Swap**
371 Terryville Avenue, Bristol, Connecticut

Dear Ms. Roberts:

Cellco Partnership d/b/a Verizon Wireless ("Cellco") currently maintains twelve (12) wireless telecommunications antennas at the 140-foot level of the 170-foot tower at the above-referenced address. The tower is owned by AT&T. The Council approved Cellco's shared use of this tower in 2006. Cellco now intends to replace six (6) of its antennas with two (2) model BXA-171085-12BF PCS antennas; one (1) model 171063-8BF PCS antenna; two (2) model BXA-70080-6CF LTE antennas; and one (1) model BXA-70063-4CF LTE antenna, all at the 140-foot level. Cellco also intends to install six (6) coax cable diplexers behind its antennas. Attached behind Tab 1 are the specifications for the replacement antennas and cable diplexers.

Please accept this letter as notification pursuant to R.C.S.A. § 16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to Arthur J. Ward, Mayor for the City of Bristol. A copy of this letter is also being sent to Laviero Realty LLC, the owner of the property on which the tower is located.

The planned modifications to the facility fall squarely within those activities explicitly provided for in R.C.S.A. § 16-50j-72(b)(2).

1. The proposed modifications will not result in an increase in the height of the existing tower. Cellco's replacement antennas will be located at the 140-foot level of the tower.

2. The proposed modifications will not involve any change to ground-mounted equipment and, therefore, will not require the extension of the site boundaries.

3. The proposed modifications will not increase noise levels at the facility by six decibels or more.

4. The operation of the replacement antennas will not increase radio frequency (RF) emissions at the facility to a level at or above the Federal Communications Commission (FCC) adopted safety standard. A Cumulative power density table for Cellco's modified facility is included behind Tab 2.

Also attached is a Structural Analysis with Mod Design confirming that the tower and foundation, with certain structural modifications, can support Cellco's proposed modifications. (See Tab 3).

For the foregoing reasons, Cellco respectfully submits that the proposed modifications to the above-referenced telecommunications facility constitutes an exempt modification under R.C.S.A. § 16-50j-72(b)(2).

Sincerely,

Kenneth C. Baldwin

Enclosures
Copy to:
Arthur J. Ward, Bristol Mayor
Laviero Realty LLC
Sandy M. Carter

BXA-171085-12BF-EDIN-X

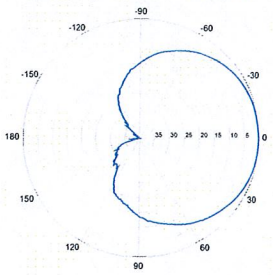
Replace "X" with desired electrical downtilt.

X-Pol | FET Panel | 85° | 18.0 dBi

Electrical Characteristics	1710-2170 MHz		
Frequency bands	1710-1880 MHz	1850-1990 MHz	1920-2170 MHz
Polarization	±45°	±45°	±45°
Horizontal beamwidth	88°	85°	80°
Vertical beamwidth	4.5°	4.5°	4.5°
Gain	15.1 dBd / 17.2 dBi	15.5 dBd / 17.6 dBi	15.9 dBd / 18.0 dBi
Electrical downtilt (X)	0, 2, 4		
Impedance	50Ω		
VSWR	≤1.5:1		
First upper sidelobe	< -17 dB		
Front-to-back ratio	> 30 dB		
In-band isolation	> 28 dB		
IM3 (20W carrier)	< -150 dBc		
Input power	300 W		
Lightning protection	Direct Ground		
Connector(s)	2 Ports / EDIN / Female / Bottom		
Operating temperature	-40° to +60° C / -40° to +140° F		
Mechanical Characteristics			
Dimensions Length x Width x Depth	1820 x 154 x 105 mm	71.7 x 6.1 x 4.1 in	
Depth with z-brackets	133 mm	5.2 in	
Weight without mounting brackets	6.8 kg	15 lbs	
Survival wind speed	> 201 km/hr	> 125 mph	
Wind area	Front: 0.28 m² Side: 0.19 m²	Front: 3.1 ft² Side: 2.1 ft²	
Wind load @ 161 km/hr (100 mph)	Front: 460 N Side: 304 N	Front: 103 lbf Side: 68 lbf	

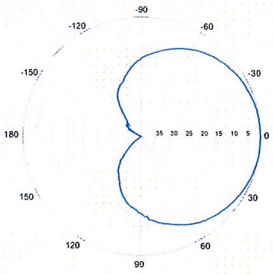
Mounting Options	Part Number	Fits Pipe Diameter	Weight
2-Point Mounting Bracket Kit	26799997	50-102 mm 2.0-4.0 in	2.3 kg 5 lbs
2-Point Mounting & Downtilt Bracket Kit	26799999	50-102 mm 2.0-4.0 in	3.6 kg 8 lbs
Concealment Configurations	For concealment configurations, order BXA-171085-12BF-EDIN-X-FP		

BXA-171085-12BF-EDIN-X



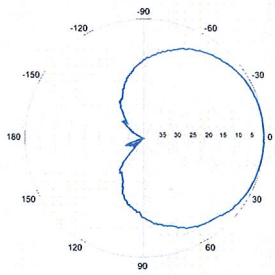
Horizontal | 1710-1880 MHz

BXA-171085-12BF-EDIN-X



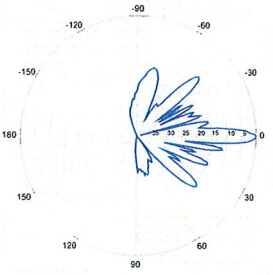
Horizontal | 1850-1990 MHz

BXA-171085-12BF-EDIN-X



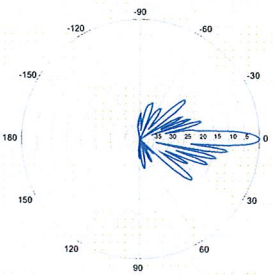
Horizontal | 1920-2170 MHz

BXA-171085-12BF-EDIN-0



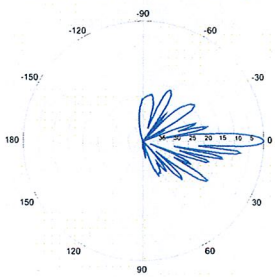
0° | Vertical | 1710-1880 MHz

BXA-171085-12BF-EDIN-0



0° | Vertical | 1850-1990 MHz

BXA-171085-12BF-EDIN-0

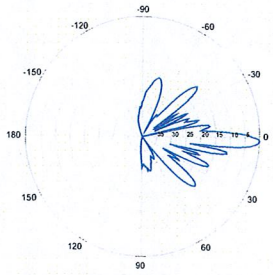


0° | Vertical | 1920-2170 MHz

BXA-171085-12BF-EDIN-X

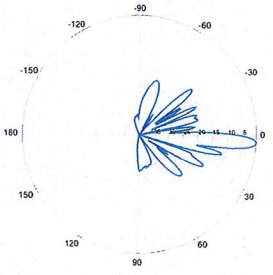
X-Pol | FET Panel | 85° | 18.0 dBi

BXA-171085-12BF-EDIN-2



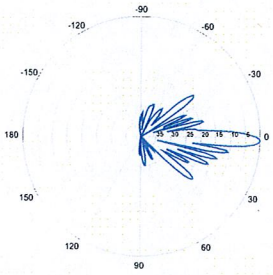
2° | Vertical | 1710-1880 MHz

BXA-171085-12BF-EDIN-4



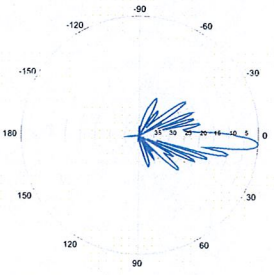
4° | Vertical | 1710-1880 MHz

BXA-171085-12BF-EDIN-2



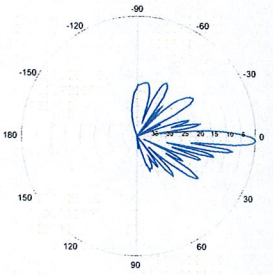
2° | Vertical | 1850-1990 MHz

BXA-171085-12BF-EDIN-4



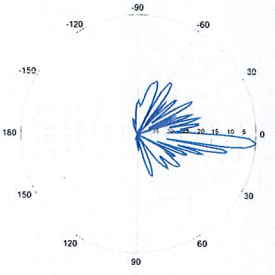
4° | Vertical | 1850-1990 MHz

BXA-171085-12BF-EDIN-2



2° | Vertical | 1920-2170 MHz

BXA-171085-12BF-EDIN-4



4° | Vertical | 1920-2170 MHz

BXA-171063-8BF-EDIN-X

Replace "X" with desired electrical downtilt.

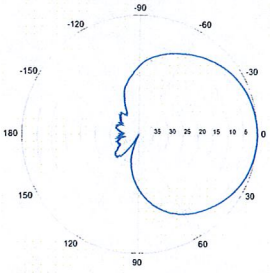
X-Pol | FET Panel | 63° | 17.4 dBi

Electrical Characteristics	1710-2170 MHz		
Frequency bands	1710-1880 MHz	1850-1990 MHz	1920-2170 MHz
Polarization	±45°	±45°	±45°
Horizontal beamwidth	68°	65°	60°
Vertical beamwidth	7°	7°	7°
Gain	14.5 dBd / 16.6 dBi	14.9 dBd / 17.0 dBi	15.3 dBd / 17.4 dBi
Electrical downtilt (X)	0, 2, 4, 8		
Impedance	50Ω		
VSWR	≤1.5:1		
First upper sidelobe	< -17 dB		
Front-to-back isolation	> 30 dB		
In-band isolation	> 28 dB		
IM3 (20W carrier)	< -150 dBc		
Input power	300 W		
Lightning protection	Direct Ground		
Connector(s)	2 Ports / EDIN / Female / Bottom		
Operating temperature	-40° to +60° C / -40° to +140° F		

Mechanical Characteristics		
Dimensions Length x Width x Depth	1232 x 154 x 105 mm	48.5 x 6.1 x 4.1 in
Depth with t-brackets	133 mm	5.2 in
Weight without mounting brackets	4.8 kg	10.5 lbs
Survival wind speed	296 km/hr	184 mph
Wind area	Front: 0.19 m² Side: 0.14 m²	Front: 2.0 ft² Side: 1.5 ft²
Wind load @ 161 km/hr (100 mph)	Front: 281 N Side: 223 N	Front: 63 lbf Side: 50 lbf

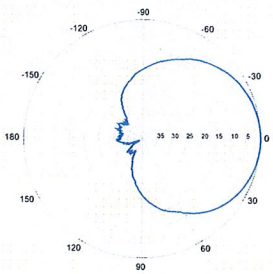
Mounting Options	Part Number	Fits Pipe Diameter	Weight
2-Point Mounting Bracket Kit	26799997	50-102 mm 2.0-4.0 in	2.3 kg 5 lbs
2-Point Mounting & Downtilt Bracket Kit	26799999	50-102 mm 2.0-4.0 in	3.6 kg 8 lbs
Concealment Configurations	For concealment configurations, order BXA-171063-8BF-EDIN-X-FP		

BXA-171063-8BF-EDIN-X



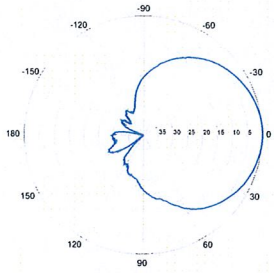
Horizontal | 1710-1880 MHz

BXA-171063-8BF-EDIN-X



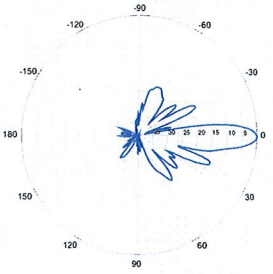
Horizontal | 1850-1990 MHz

BXA-171063-8BF-EDIN-X



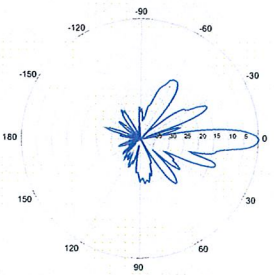
Horizontal | 1920-2170 MHz

BXA-171063-8BF-EDIN-0



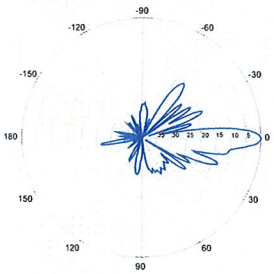
0° | Vertical | 1710-1880 MHz

BXA-171063-8BF-EDIN-0



0° | Vertical | 1850-1990 MHz

BXA-171063-8BF-EDIN-0

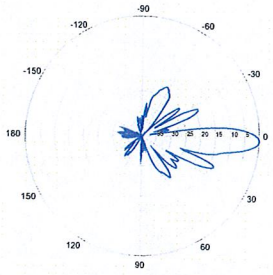


0° | Vertical | 1920-2170 MHz

BXA-171063-8BF-EDIN-X

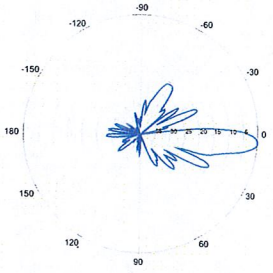
X-Pol | FET Panel | 63° | 17.4 dBi

BXA-171063-8BF-EDIN-2



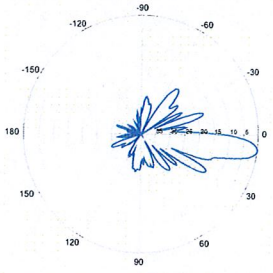
2° | Vertical | 1710-1880 MHz

BXA-171063-8BF-EDIN-4



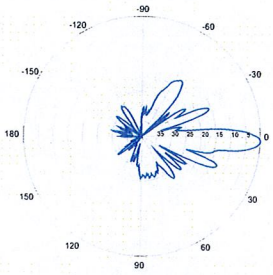
4° | Vertical | 1710-1880 MHz

BXA-171063-8BF-EDIN-8



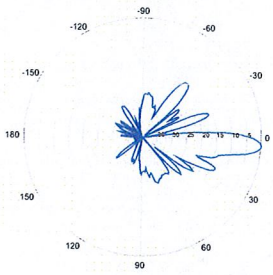
8° | Vertical | 1710-1880 MHz

BXA-171063-8BF-EDIN-2



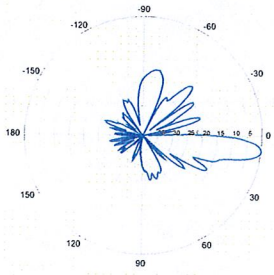
2° | Vertical | 1850-1990 MHz

BXA-171063-8BF-EDIN-4



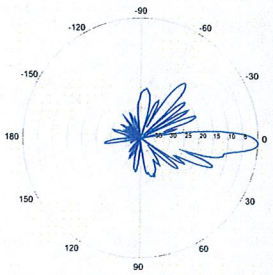
4° | Vertical | 1850-1990 MHz

BXA-171063-8BF-EDIN-8



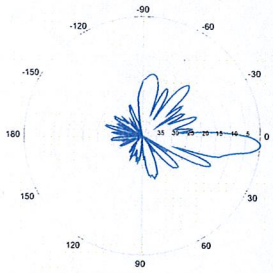
8° | Vertical | 1850-1990 MHz

BXA-171063-8BF-EDIN-2



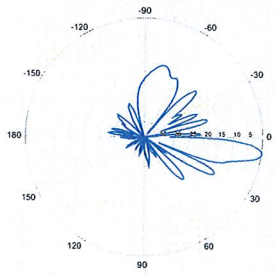
2° | Vertical | 1920-2170 MHz

BXA-171063-8BF-EDIN-4



4° | Vertical | 1920-2170 MHz

BXA-171063-8BF-EDIN-8



8° | Vertical | 1920-2170 MHz

Amphenol ANTENNA SOLUTIONS

BXA-70080-6CF-EDIN-X

X-Pol | FET Panel | 80° | 13.5 dBd

Replace "X" with desired electrical downtilt.

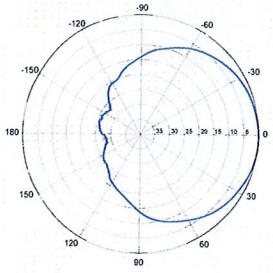
Antenna is also available with NE connector(s). Replace "EDIN" with "NE" in the model number when ordering.

Electrical Characteristics	696-900 MHz	
Frequency bands	696-806 MHz	806-900 MHz
Polarization	±45°	
Horizontal beamwidth	82°	80°
Vertical beamwidth	12°	10°
Gain	13.0 dBd (15.1 dBi)	13.5 dBd (15.6 dBi)
Electrical downtilt (X)	0, 2, 4, 6, 8, 10	
Impedance	50Ω	
VSWR	≤1.35:1	
Upper sidelobe suppression (0°)	-18.3 dB	-18.6 dB
Front-to-back ratio (+/-30°)	-26.9 dB	-25.6 dB
Null fill	5% (-26.02 dB)	
Isolation between ports	< -30 dB	
Input power with EDIN connectors	500 W	
Input power with NE connectors	300 W	
Lightning protection	Direct Ground	
Connector(s)	2 Ports / EDIN or NE / Female / Center (Back)	

Mechanical Characteristics		
Dimensions Length x Width x Depth	1804 x 204 x 151 mm	71.0 x 8.0 x 5.9 in
Depth with z-brackets	191 mm	7.5 in
Weight without mounting brackets	8.2 kg	18 lbs
Survival wind speed	> 201 km/hr	> 125 mph
Wind area	Front: 0.37 m² Side: 0.27 m²	Front: 3.9 ft² Side: 2.9 ft²
Wind load @ 161 km/hr (100 mph)	Front: 531 N Side: 475 N	Front: 119 lbf Side: 104 lbf

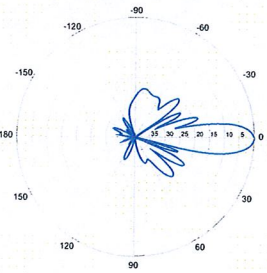
Mounting Options	Part Number	Fits Pipe Diameter	Weight
3-Point Mounting & Downtilt Bracket Kit	36210008	40-115 mm 1.57-4.5 in	6.9 kg 15.2 lbs
Concealment Configurations	For concealment configurations, order BXA-70080-6CF-EDIN-X-FP		

BXA-70080-6CF-EDIN-X



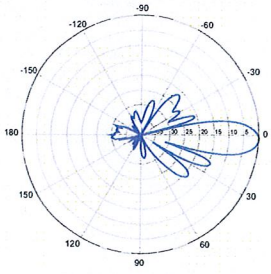
Horizontal | 750 MHz

BXA-70080-6CF-EDIN-0



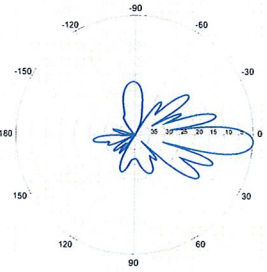
0° | Vertical | 750 MHz

BXA-70080-6CF-EDIN-2

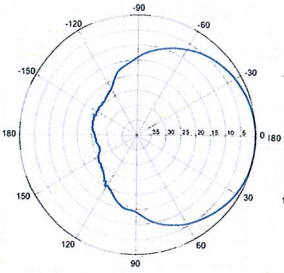


2° | Vertical | 750 MHz

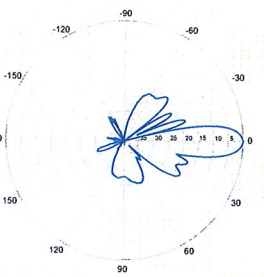
BXA-70080-6CF-EDIN-4



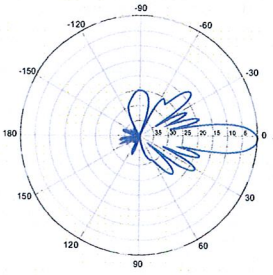
4° | Vertical | 750 MHz



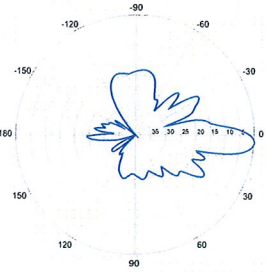
Horizontal | 850 MHz



0° | Vertical | 850 MHz



2° | Vertical | 850 MHz

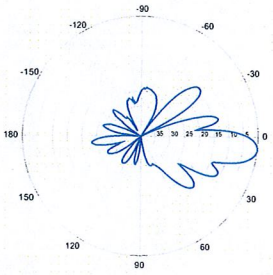


4° | Vertical | 850 MHz

BXA-70080-6CF-EDIN-X

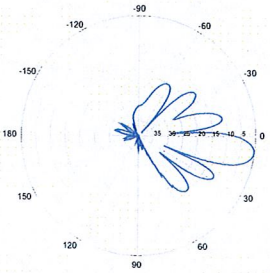
X-Pol | FET Panel | 80° | 13.5 dBd

BXA-70080-6CF-EDIN-6



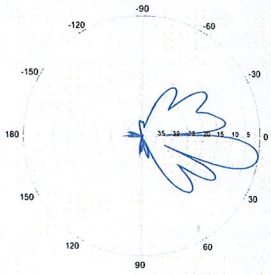
6° | Vertical | 750 MHz

BXA-70080-6CF-EDIN-8

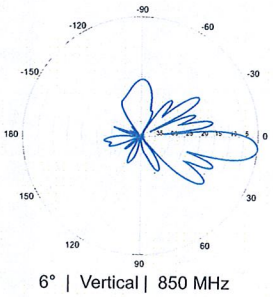


8° | Vertical | 750 MHz

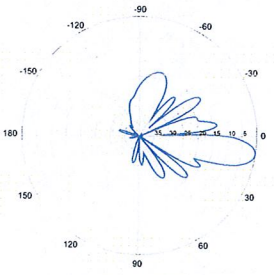
BXA-70080-6CF-EDIN-10



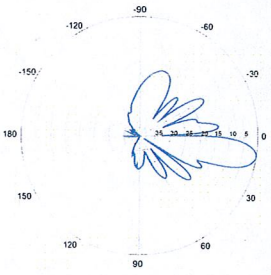
10° | Vertical | 750 MHz



6° | Vertical | 850 MHz



8° | Vertical | 850 MHz



10° | Vertical | 850 MHz

Amphenol ANTENNA SOLUTIONS

BXA-70063-4CF-EDIN-X

X-Pol | FET Panel | 63° | 13.0 dBd

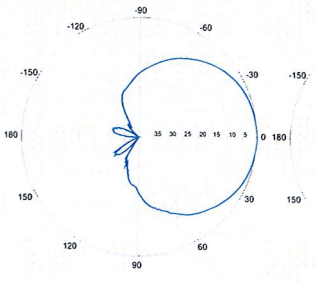
Replace "X" with desired electrical downtilt.

Antenna is also available with NE connector(s). Replace "EDIN" with "NE" in the model number when ordering.

Electrical Characteristics	696-900 MHz	
Frequency bands	696-806 MHz	806-900 MHz
Polarization	±45°	
Horizontal beamwidth	65°	63°
Vertical beamwidth	17°	15°
Gain	12.5 dBd (14.6 dBi)	13.0 dBd (15.1 dBi)
Electrical downtilt (X)	0, 2, 3, 4, 5, 6, 8, 9, 10, 12, 14	
Impedance	50Ω	
VSWR	≤1.35:1	
Upper sidelobe suppression (0°)	-16.3 dB	-22.1 dB
Front-to-back ratio (+/-30°)	-36.1 dB	-34.9 dB
Null fill	5% (-26.02 dB)	
Isolation between ports	< -30 dB	
Input power with EDIN connectors	500 W	
Input power with NE connectors	300 W	
Lightning protection	Direct Ground	
Connector(s)	2 Ports / EDIN or NE / Female / Center (Back)	
Mechanical Characteristics		
Dimensions Length x Width x Depth	1205 x 285 x 133 mm	47.4 x 11.2 x 5.2 in
Depth with z-brackets	173 mm	6.8 in
Weight without mounting brackets	4.5 kg	9.9 lbs
Survival wind speed	> 201 km/hr	> 125 mph
Wind area	Front: 0.34 m² Side: 0.16 m²	Front: 3.7 ft² Side: 1.7 ft²
Wind load @ 161 km/hr (100 mph)	Front: 498 N Side: 260 N	Front: 111 lbf Side: 55 lbf

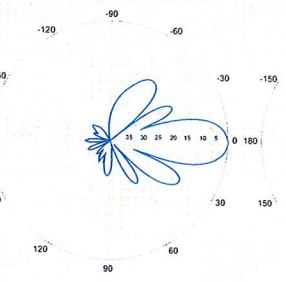
Mounting Options	Part Number	Fits Pipe Diameter	Weight
2-Point Mounting & Downtilt Bracket Kit	36210006	40-115 mm 1.57-4.5 in	4.1 kg 9 lbs
Concealment Configurations	For concealment configurations, order BXA-70063-4CF-EDIN-X-FP		

BXA-70063-4CF-EDIN-X



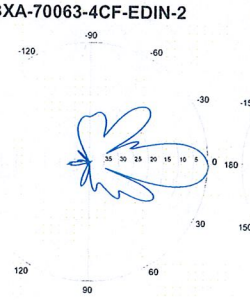
Horizontal | 750 MHz

BXA-70063-4CF-EDIN-0



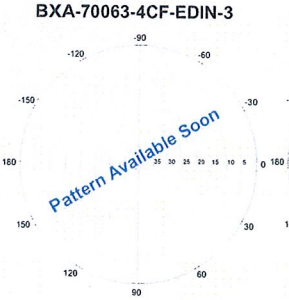
0° | Vertical | 750 MHz

BXA-70063-4CF-EDIN-2



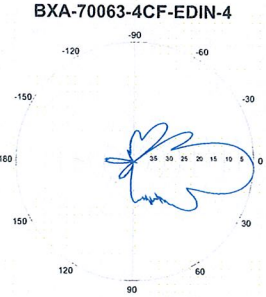
2° | Vertical | 750 MHz

BXA-70063-4CF-EDIN-3

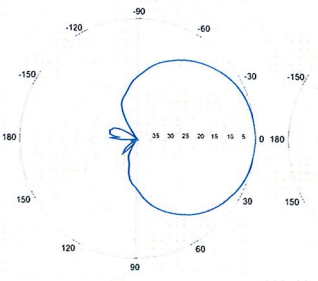


3° | Vertical | 750 MHz

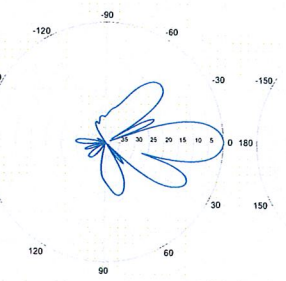
BXA-70063-4CF-EDIN-4



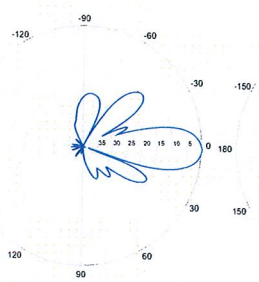
4° | Vertical | 750 MHz



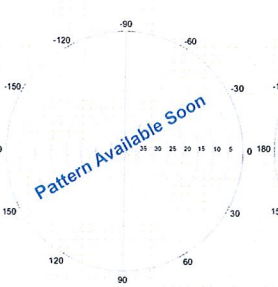
Horizontal | 850 MHz



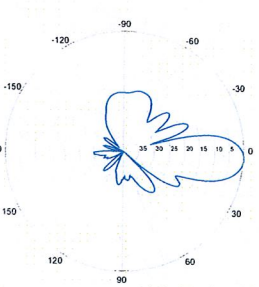
0° | Vertical | 850 MHz



2° | Vertical | 850 MHz



3° | Vertical | 850 MHz

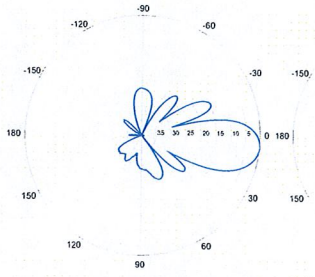


4° | Vertical | 850 MHz

BXA-70063-4CF-EDIN-X

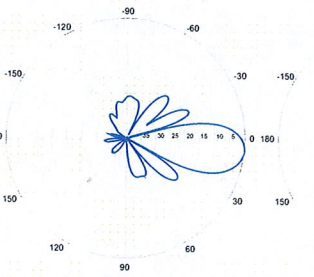
X-Pol | FET Panel | 63° | 13.0 dBd

BXA-70063-4CF-EDIN-5



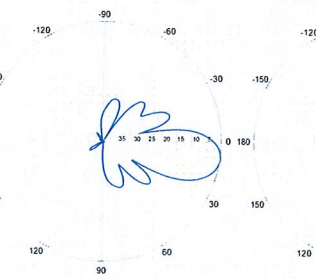
5° | Vertical | 750 MHz

BXA-70063-4CF-EDIN-6



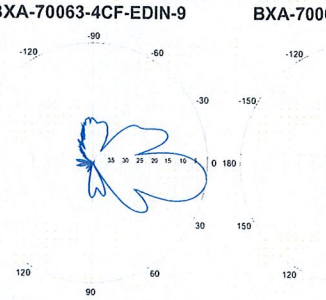
6° | Vertical | 750 MHz

BXA-70063-4CF-EDIN-8



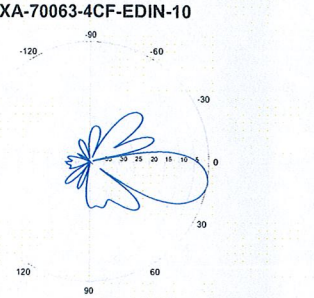
8° | Vertical | 750 MHz

BXA-70063-4CF-EDIN-9

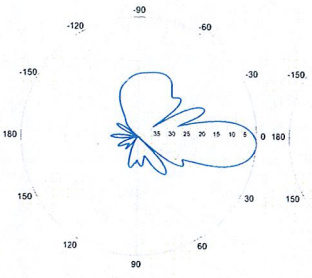


9° | Vertical | 750 MHz

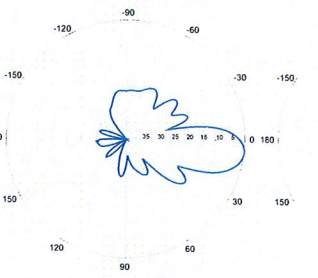
BXA-70063-4CF-EDIN-10



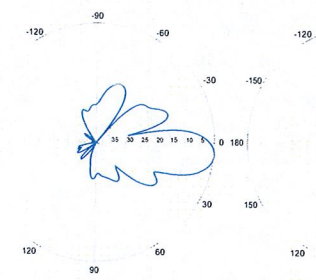
10° | Vertical | 750 MHz



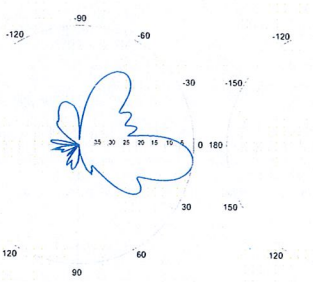
5° | Vertical | 850 MHz



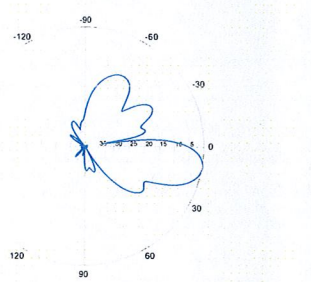
6° | Vertical | 850 MHz



8° | Vertical | 850 MHz

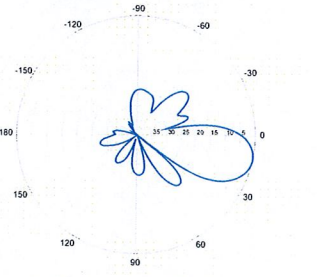


9° | Vertical | 850 MHz

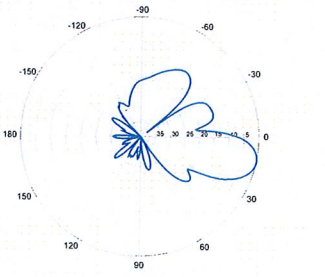


10° | Vertical | 850 MHz

BXA-70063-4CF-EDIN-12

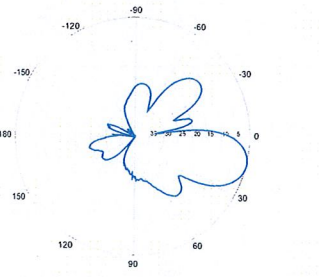


12° | Vertical | 750 MHz

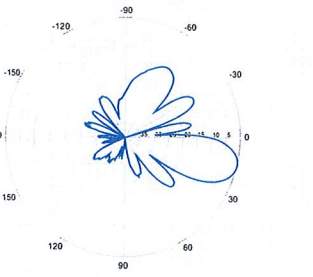


12° | Vertical | 850 MHz

BXA-70063-4CF-EDIN-14



14° | Vertical | 750 MHz



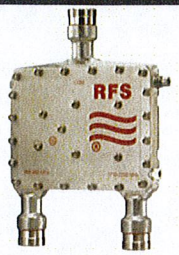
14° | Vertical | 850 MHz

Product Data Sheet **FD9R6004/2C-3L**

ShareLite Wideband Diplexer – In-line 698-960 MHz/1710-2200 MHz, DC pass in high frequency path

Product Description

The ShareLite FD9R6004 Series of diplexers are designed to enable feeder sharing between systems in the 698-960 MHz range and in the 1710-2200 MHz range. The diplexer is equipped with in-line connector placement so it can be installed in the BTS cabinet or at the tower top. This is especially valuable in crowded sites or when the feeders are not easily accessible. Due to its wideband design, the FD9R6004 Series can accommodate many combining solutions between 698-960 MHz and 1710-2200 MHz systems such as LTE 700 MHz, Cellular 800 MHz with PCS, GSM900 with GSM1800, or GSM900 with UMTS. This diplexer features a highly selective filter. It provides a high level of isolation between ports, while keeping the insertion loss on both paths at an extremely low level. The FD9R6004 diplexers are available with various DC pass options, helpful in configurations with or without the Tower Mount Amplifiers installed.



Features/Benefits

- **LTE ready design**
- **Extremely Low Insertion Loss**
- **High level of Rejection between bands – Protection against interferences**
- **Extremely High Power Handling Capability**
- **Integrated DC block/bypass versions available**
- **Very compact & small size design – Easy installation and reduced tower load**
- **In-line long-neck connectors for easy connection & waterproofing**
- **Exceptional reliability & environmental protection (IP 67)**
- **Equipped with 1 * Breathable Vent – Prevent any humidity inside the product**
- **Mounting hardware for Wall and Pole mount provided (P/N SEM2-1A)**
- **Grounding already provided through the mounting bracket**
- **Kit available for easy dual mount**

Technical Specifications

Product Type	Diplexer/Cross Band Coupler
Application	LTE700, GSM900, UMTS, GSM1800, Cellular 800, PCS
Frequency Range 1, MHz	698-960
Frequency Range 2, MHz	1710-2200
Configuration	Sharelite Single diplexer, outdoor, DC pass in the 1710-2170MHz path, with mounting hardware SEM2-1A
Mounting	Wall Mounting: With 4 screws (maximum 6mm diameter); Pole Mounting: With included clamp set 40-110mm (1.57-4.33)
Return Loss All Ports Min/Typ, dB	19/23
Power Handling Continuous, Max, W	1250 at common port; 750 in low frequency path & 500 in high frequency path
Power Handling Peak, Max, W	15000 in low frequency path & 8000 in high frequency path
Impedance, Ohms	50
Insertion Loss, Path 1, dB	0.07 typ.
Insertion Loss, Path 2, dB	0.13 typ.
Rejection Between Bands Min/Typ, dB	58/64@698-960MHz; 57/70@1710-2200MHz
IMP Level at the COM Port, Typ, dBm	-112 @ 2x43
DC Pass in Low Frequency Path	No
DC Pass in High Frequency Path	Yes
Temperature Range, °C (°F)	-40 to +60 (-40 to +140)
Environmental	ETSI 300-019-2-4 Class 4.1E
Ingress Protection	IP 67
Lightning Protection	EN/IEC61000-4-5 Level 4
Connectors	In-line long-neck 7-16-Female
Weight, kg (lb)	1.2 (2.6)
Shipping Weight, kg (lb)	3.2 (7) for 2 * single units in 1 * box, 9.8 (21.6) for 6 * units = 3 * Boxes in 1 * overwrap
Dimensions, H x W x D, mm (in)	147 x 164 x 37 (5.8 x 6.5 x 1.5)
Shipping Dimensions, H x W x D, mm (in)	254 x 406 x 82 (10 x 16 x 3.2) for 2 * Single Units in 1 * box, 280 x 406 x 241 (11 x 16 x 9.5) for 6 * units = 3 * Boxes in 1 * overwrap
Volume, L	0.43
Housing	Aluminum

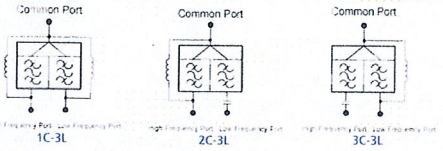
Notes

ShareLite Wideband Diplexer – In-line 698-960 MHz/1710-2200 MHz, DC pass in high frequency path

Other Documentation

FD9R6004/2C-3L Installation Instructions: Wideband_Diplexer_Installation_Rev5.pdf

Selection Guide Diplexer 698-960 / 1710-2200MHz					
	Model Number	Full DC Pass	DC Pass High Band	DC Pass Low Band	Mounting Hardware Included
Single	FD9R6004/1C-3L				X
	FD9R6004/2C-3L				X
	FD9R6004/3C-3L				X
Dual	KIT-FD9R6004/1C-DL				X
	KIT-FD9R6004/2C-DL				X
	KIT-FD9R6004/3C-DL				X



The FD9R6004 Series is upgradeable to a Dual Diplexer kit by means of 2 diplexers and mounting hardware kits SEM2-1A and SEM2-3

Mounting Hardware and Ground Cable Ordering Information		
Model Number	Description	
SEM2-1A	Mounting Hardware, Pole mount ø40-110mm (Included with the Single and Dual Diplexer) Wall Screws M6 (Not included with the product)	
SEM2-3	Assembly kit for 2 pcs of FD9R6004/xC-3L (Can be ordered separately but included with the Dual Diplexer Kit)	
CA020-2	Ground Cable, 2m, includes lugs (Optional)	
CA030-2	Ground Cable, 2m, includes lugs (Optional)	
SEM6	Mounting Hardware for 6 Diplexers, Tower Base (Optional)	

	General	Power	Density					
Site Name: Bristol W 2								
Tower Height: Verizon @ 140Ft.								
CARRIER	**# OF CHAN.**	**WATTS ERP**	**HEIGHT**	**CALC. POWER DENS**	**FREQ.**	**MAX. PERMISS. EXP.**	**FRACTION MPE**	**Total**
*Sprint	11	239	166	0.0343	1962.5	1.0000	3.43%	
*Pocket	3	631	156	0.0280	2130	1.0000	2.80%	
*Cingular GSM	4	490	169	0.0247	1900	1.0000	2.47%	
*Cingular UMTS	1	500	169	0.0063	880	0.5867	1.07%	
*T-Mobile GSM	8	126	130	0.0214	1945	1.0000	2.14%	
*T-Mobile UMTS	2	711	130	0.0303	2100	1.0000	3.03%	
Verizon PCS	**11**	**250**	**140**	**0.0504**	**1970**	**1.0000**	**5.04%**	
Verizon Cellular	**9**	**257**	**140**	**0.0424**	**869**	**0.5793**	**7.32%**	
Verizon AWS	**1**	**680**	**140**	**0.0125**	**2145**	**1.0000**	**1.25%**	
Verizon 700	**1**	**841**	**140**	**0.0154**	**698**	**0.4653**	**3.32%**	
								31.87%
* Source: Siting Council								

AT&T Towers
5405 Windward Parkway
Alpharetta, GA 30004
770-708-6100
5/4V2012

BLACK & VEATCH Corporation
10950 Grandview Dr. Building 34
Overland Park, KS 66210

STRUCTURAL ANALYSIS WITH MOD DESIGN

168.5' Monopole

AT&T DESIGNATION:	Site ID:	27074
	Site FA:	10070954
	Site Name:	Bristol Center
	Project Number:	166951 (27074VERCT-MOD)
ANALYSIS CRITERIA:	Codes:	TIA/EIA-222-F

SITE DATA:

371 Terryville Avenue , Bristol, CT 06010, Hartford County
Latitude 41.680892, Longitude -72.965699
Market: MA/RI/VT/NH/ME/CT
168.5' Monopole

Mr. Marty Jelleme

Black & Veatch Corp. is pleased to submit this Structural Analysis Report to determine the structural integrity of the aforementioned tower. The purpose of the analysis is to determine the suitability of the tower with the existing and proposed loading configuration detailed in the analysis report.

Analysis Results

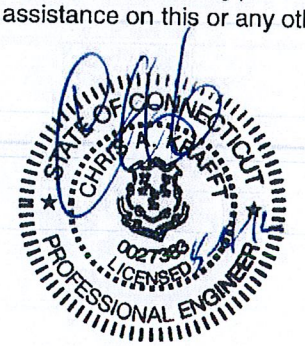
Tower Stress Level with Proposed Equipment:	96.20%	Pass
Foundation Ratio with Proposed Equipment:	100.00%	Pass

We at Black & Veatch Corp. appreciate the opportunity of providing our continuing professional services to you and AT&T Towers. If you have any questions or need further assistance on this or any other projects please give us a call.

Respectfully Submitted by: Black & Veatch Corp.

Analysis Prepared by: Saowalak Hanruk

Analysis Reviewed by: Chris A. Krafft, P.E.



This analysis was prepared by me or under my direct supervision and to the best of my knowledge and ability complies with the applicable provisions of the governing codes and ordinances.

Table of Contents

Executive Summary

This report presents the results of the structural reinforcement analysis performed by Black & Veatch for the existing tower structure to accommodate proposed equipment upgrades. The purpose of this report is to describe the existing conditions, structurally evaluate the monopole for additional loads, and provide recommendations for structural reinforcement to the existing structure.

The existing tower structure was analyzed based on the existing and proposed loads listed in the Tower Analysis Summary Form (TAS). Refer to the Documents section for information on the existing structure.

Black & Veatch investigated the following three loading conditions per the TIA/EIA-222-F standard:

- Load Case 1: 80 mph basic wind speed with no ice
- Load Case 2: 69 mph basic wind speed with 1/2" radial ice
- Load Case 3: 50 mph service wind speed for deflection

Analysis Results and Recommendations

Analyzing the existing tower structure for the equipment loadings as prescribed in the TAS form based on the loading conditions mentioned above, the existing structure has a maximum stress level of 201.1%.

The following reinforcement is recommended to bring the maximum structure stress level down to 96.2%. This includes, but is not limited to, the following:

- Attach reinforcing plates symmetrically around the monopole between one hundred twenty feet (120'-0") above the tower base and the tower base (0'-0").
- Modify the existing base plate.

See the construction drawings for the reinforcement design of the tower.

With the proposed structural reinforcement to the existing monopole, the reinforced structure is deemed sufficient for supporting the existing and proposed load cases. Therefore, the structure fully complies with the TIA/EIA-222-F standard and may safely support the existing loads and proposed equipment installation. If the existing or proposed load cases are different than those analyzed, this report should be considered obsolete and further analysis will be required. It is the responsibility of AT&T to confirm the proposed and existing loading listed in this report is correct.

A rigorous analysis of the foundation was completed at this time. Based on this analysis, the existing foundation is adequate to support the existing and proposed load cases.

The existing and proposed coaxial cables are to be routed inside of the monopole. If not, this report should be considered obsolete and further analysis will be required.

Documents

Document	Description	Source
Structural Analysis by Black & Veatch Corp., dated 01/19/2012	Previous Structural Analysis	Black & Veatch
Design Structural completed by Engineering Endeavors, Inc., dated 11/26/2003	Tower Geometry Data	AT&T Siterra
Tower Mapping completed by URS Corporation AES, dated 05/08/2003	Tower Geometry Data	AT&T Siterra
Foundation Design by Engineering Endeavors, Inc., dated 12/02/2003	Foundation Data	AT&T Siterra
Partial Geotechnical Report by FDH Engineering, dated 04/24/2012	Geotechnical Data	FDH Engineering
Site Photos	Site Condition Data	AT&T Siterra
Carrier Co-Location Documents (Applications, Leases, Initial Co-Location Analyses, Modification Request for Information Form, etc.)	Tower Loading Data	AT&T Siterra

Tower Analysis Summary Form

General Info

Site Name	Bristol Center
Site Number	27074VERCT-MOD
FA Number	100709054
Date of Analysis	5/4/2012
Company Performing Analysis	Black & Veatch Corp.

The information contained in this summary report is not to be used independently from the PE stamped tower analysis.

Tower Info

	Description	Date
Tower Type (G, SST, MP)	MP	
Tower Height (top of steel AGL)	168.5'	
Tower Manufacturer	Engineering Endeavors, Inc.	
Tower Model	N/A	
Tower Design	Engineering Endeavors, Inc.	11/26/1993
Foundation Design	Engineering Endeavors, Inc.	12/2/2003
Geotech Report	FDH Engineering, Inc.	4/24/2012
Tower Mapping	URS Corporation AES	5/8/2003
Previous Structural Analysis	Black & Veatch Corp.	1/19/2012
Foundation Mapping	N/A	

Design Parameters

Design Code Used	TIA/EIA-222-F
Location of Tower (County, State)	Hartford County, CT
Basic Wind Speed (mph)	80
Ice Thickness (in)	0.5
Structure Classification (I, II, III)	
Exposure Category (B, C, D)	
Topographic Category (1 to 5)	

Analysis Results (% Maximum Usage)

Existing/Reserved + Future + Proposed Condition	
Tower (%)	96.2%
Base Plate (%)	87.3%
Foundation (%)	100.0%
Foundation Adequate?	YES

Analysis Results (% Maximum Usage)

Existing/Reserved	
Tower (%)	
Base Plate (%)	
Foundation (%)	
Foundation Adequate?	

Analysis Results (% Maximum Usage)

Existing/Reserved + Proposed Condition	
Tower (%)	
Base Plate (%)	
Foundation (%)	
Foundation Adequate?	

Steel Yield Strength (ksi)

Pole	A572-65
Base Plate	A572-60
Anchor Rods	A615-75

Existing / Reserved Loading

Antenna								Mount			Transmission Line			
Antenna Owner	Mount Height (ft)	Antenna CL (ft)	Quantity	Type	Manufacturer	Model	Azimuth	Quantity	Manufacturer	Type	Quantity	Model	Size	Attachment Leg/Face
AT&T	168.5	169	3	Panel	Kathrein-Scala	800-10121	0,120,240	3*		Pipe Mount	6		1 5/8"	Inside
AT&T	168.5	169	6	TMA	Powerwave	LGP 21401					1		RET cable	Inside
Sprint	158	158	9	Panel	Decibel	DB980F90T4E-M	60, 160, 280	3		T-Arm	9		1 5/8"	Inside
Pocket Communications	148	148	3	Panel	RFS	APXV18-206517S-C	25, 130, 250	3		Pipe Mount	6		1 5/8"	Inside
Verizon	140	140	6**	Panel	Antel	LPD 6513	30,150,270	1		Low Profile Platform	12		1 5/8"	Inside
Verizon	140	140	6**	Panel	Antel	LPA 185063/8CF	30,150,270							
T-Mobile	130	130	3	Panel	RFS	APXV18-209014-C	30,150,270	1		Low Profile Platform	12		1 5/8"	Inside
T-Mobile	130	130	3	Panel	RFS	APX16DWV-16DWV-S-E-ACU	30,150,270							
T-Mobile	130	130	6	TMA	Andrew	Twin Dual Duplex							1 5/8"	Inside
Sprint	70	70	1	GPS	Unknown	GPS unit		1		Pipe Mount	1		1/2"	Inside

* Existing antenna mounts for AT&T to be removed.

** Six (6) panel antennas to be removed. Remaining antennas to be reoriented to 60/180/300 degree azimuths.

Proposed Loading

Antenna								Mount			Transmission Line			
Antenna Owner	Mount Height (ft)	Antenna CL (ft)	Quantity	Type	Manufacturer	Model	Azimuth	Quantity	Manufacturer	Type	Quantity	Model	Size	Attachment Leg/Face
Verizon	140	140	2	Panel	Antel	BXA 70080/6CF-4	60,300							
Verizon	140	140	1	Panel	Antel	BXA 70063/4CF	180							
Verizon	140	140	2	Panel	Antel	BXA 171085-12BF	60,300							
Verizon	140	140	1	Panel	Antel	BXA171063/8BF	180							
Verizon	140	140	6	Diplexer	RFS	FD9R6004/2C-3L								

Future Loading

Antenna								Mount			Transmission Line			
Antenna Owner	Mount Height (ft)	Antenna CL (ft)	Quantity	Type	Manufacturer	Model	Azimuth	Quantity	Manufacturer	Type	Quantity	Model	Size	Attachment Leg/Face
AT&T	168.5	169	3	Panel	Andrew	P65-16-XLH-RR	0,120,240	1		12' Platform w/handrails	3		1 1/4"	Inside
AT&T	168.5	169	3	RRU	Ericsson	LTE RRUWs								

*** A platform with handrails to be installed to accommodate the proposed loading.

NOTE: THIS FORM MUST BE SAVED AS EXCEL 97-2003 TO UPLOAD IN SITERRA

Assumptions, Disclaimers, and Notes

1. This analysis was performed under the assumption that all information provided to Black & Veatch is current and correct. This is to include site data, existing/proposed appurtenance loading, tower/foundation details, and geotechnical data. If this information is not current and correct, this report should be considered obsolete and further analysis will be required.
2. This analysis assumes that the tower structural components and mounts, including all steel sections and attachment hardware, are in good working order and in their original state, free of rust or other forms of corrosion. Furthermore, it is assumed that the tower and the tower foundation have been properly maintained and monitored since the time of construction. This report should be considered obsolete and further analysis will be required if the tower and/or foundation does not meet all of the above specifications.
3. This analysis assumes that all existing and/or proposed equipment mounts on the tower will have adequate capacity to support the existing and proposed equipment loading.
4. Capacity of the structural members is based on theoretical values as shown in the attached TAS form.
5. The existing tower foundation was analyzed using the L-PILE computer program version 6.0.23, assuming 4000 psi concrete.
6. Reported foundation ratio is based on calculated deflection compared to the allowable deflection for the foundation.
7. This analysis assumes that all existing and proposed port cuts are properly installed such that the overall structural capacity of the monopole is not reduced.
8. The attached existing site photos in Appendix are based on current best knowledge of the existing condition. Contractor shall field verify and measure dimensions of the site structure before placing construction bid and fabrication of materials for all tower modification installations.

TnxTower Loading Inputs

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
Kathrein 800-10121 w/ Mount Pipe (AT&T / E)	A	From Face	3.00 6.00 0.50	0.0000	168.50	No Ice 1/2" Ice	6.04 6.72	4.96 6.03	0.07 0.12
Kathrein 800-10121 w/ Mount Pipe (AT&T / E)	B	From Face	3.00 6.00 0.50	0.0000	168.50	No Ice 1/2" Ice	6.04 6.72	4.96 6.03	0.07 0.12
Kathrein 800-10121 w/ Mount Pipe (AT&T / E)	C	From Face	3.00 6.00 0.50	0.0000	168.50	No Ice 1/2" Ice	6.04 6.72	4.96 6.03	0.07 0.12
PiROD 12' Platform w / handrails (AT&T / Future)	A	None		0.0000	168.50	No Ice 1/2" Ice	26.30 35.60	26.30 35.60	1.92 2.34
(2) LGP21401 (AT&T / E)	A	From Face	3.00 0.00 0.50	0.0000	168.50	No Ice 1/2" Ice	1.23 1.38	0.26 0.34	0.01 0.02
(2) LGP21401 (AT&T / E)	B	From Face	3.00 0.00 0.50	0.0000	168.50	No Ice 1/2" Ice	1.23 1.38	0.26 0.34	0.01 0.02
(2) LGP21401 (AT&T / E)	C	From Face	3.00 0.00 0.50	0.0000	168.50	No Ice 1/2" Ice	1.23 1.38	0.26 0.34	0.01 0.02
Valmont T-Arm (1) (Sprint / E)	A	From Leg	0.00 0.00 0.00	0.0000	158.00	No Ice 1/2" Ice	10.54 14.45	10.54 14.45	0.34 0.41
Valmont T-Arm (1) (Sprint / E)	B	From Leg	0.00 0.00 0.00	0.0000	158.00	No Ice 1/2" Ice	10.54 14.45	10.54 14.45	0.34 0.41
Valmont T-Arm (1) (Sprint / E)	C	From Leg	0.00 0.00 0.00	0.0000	158.00	No Ice 1/2" Ice	10.54 14.45	10.54 14.45	0.34 0.41
(3) DB980F90T4E-M w/Mount Pipe (Sprint / E)	A	From Leg	3.00 0.00 0.00	0.0000	158.00	No Ice 1/2" Ice	4.37 4.96	3.95 5.04	0.03 0.07
(3) DB980F90T4E-M w/Mount Pipe (Sprint / E)	B	From Leg	3.00 0.00 0.00	-20.0000	158.00	No Ice 1/2" Ice	4.37 4.96	3.95 5.04	0.03 0.07
(3) DB980F90T4E-M w/Mount Pipe (Sprint / E)	C	From Leg	3.00 0.00 0.00	-20.0000	158.00	No Ice 1/2" Ice	4.37 4.96	3.95 5.04	0.03 0.07
PiROD 13' Low Profile Platform (Monopole) (Verizon / E)	A	None		0.0000	140.00	No Ice 1/2" Ice	15.70 20.10	15.70 20.10	1.30 1.76
LPD-6513 w/Mount Pipe (Verizon / E)	A	From Leg	4.00 -6.50 0.00	0.0000	140.00	No Ice 1/2" Ice	7.14 7.86	6.81 7.92	0.05 0.09
LPD-6513 w/Mount Pipe (Verizon / E)	A	From Leg	4.00 6.50 0.00	0.0000	140.00	No Ice 1/2" Ice	7.14 7.86	6.81 7.92	0.05 0.09
LPD-6513 w/Mount Pipe	B	From Leg	4.00	0.0000	140.00	No Ice	7.14	6.81	0.05

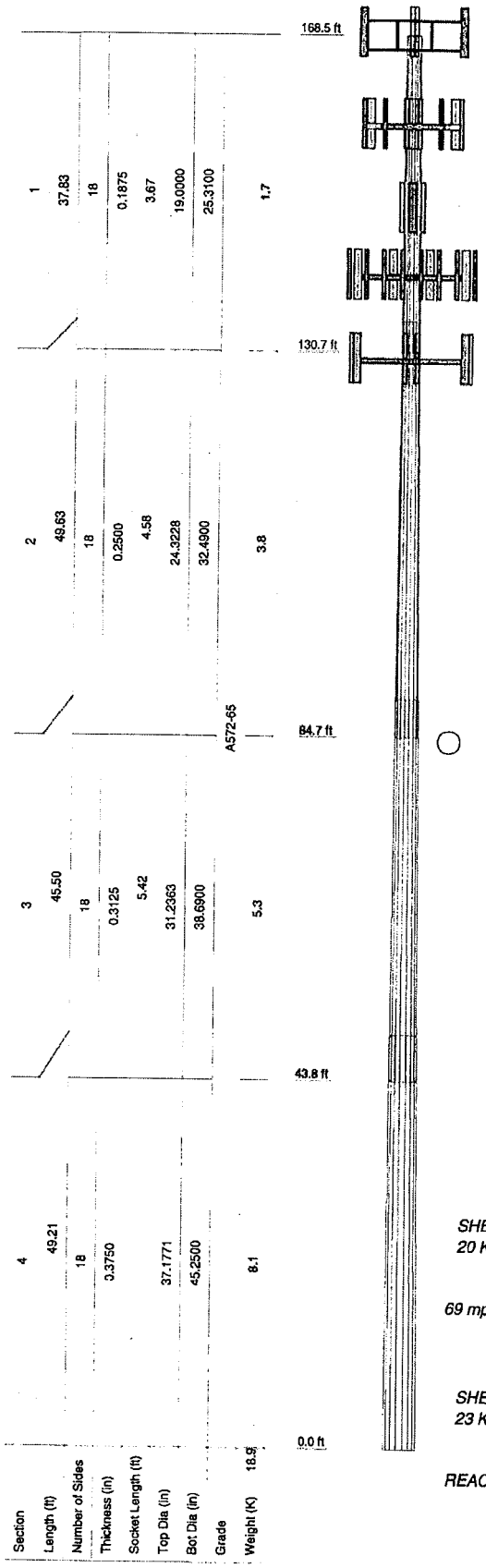
Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
(Verizon / E)			-6.50 0.00			1/2" Ice	7.86	7.92	0.09
LPD-6513 w/Mount Pipe (Verizon / E)	B	From Leg	4.00 6.50 0.00	0.0000	140.00	No Ice 1/2" Ice	7.14 7.86	6.81 7.92	0.05 0.09
LPD-6513 w/Mount Pipe (Verizon / E)	C	From Leg	4.00 -6.50 0.00	0.0000	140.00	No Ice 1/2" Ice	7.14 7.86	6.81 7.92	0.05 0.09
LPD-6513 w/Mount Pipe (Verizon / E)	C	From Leg	4.00 6.50 0.00	0.0000	140.00	No Ice 1/2" Ice	7.14 7.86	6.81 7.92	0.05 0.09
PiROD 13' Low Profile Platform (Monopole) (T-Mobile / E)	A	None		0.0000	130.00	No Ice 1/2" Ice	15.70 20.10	15.70 20.10	1.30 1.76
APXV18-209014-C w/mount pipe (T-Mobile / E)	A	From Face	3.50 -6.50 0.00	30.0000	130.00	No Ice 1/2" Ice	3.64 4.02	3.19 3.82	0.04 0.07
APXV18-209014-C w/mount pipe (T-Mobile / E)	B	From Face	3.50 -6.50 0.00	30.0000	130.00	No Ice 1/2" Ice	3.64 4.02	3.19 3.82	0.04 0.07
APXV18-209014-C w/mount pipe (T-Mobile / E)	C	From Face	3.50 -6.50 0.00	30.0000	130.00	No Ice 1/2" Ice	3.64 4.02	3.19 3.82	0.04 0.07
APX16DWV-16DWV-S-E-ACU w/mount pipe (T-Mobile / E)	A	From Face	3.50 6.50 0.00	30.0000	130.00	No Ice 1/2" Ice	3.78 4.17	3.22 3.86	0.06 0.09
APX16DWV-16DWV-S-E-ACU w/mount pipe (T-Mobile / E)	B	From Face	3.50 6.50 0.00	30.0000	130.00	No Ice 1/2" Ice	3.78 4.17	3.22 3.86	0.06 0.09
APX16DWV-16DWV-S-E-ACU w/mount pipe (T-Mobile / E)	C	From Face	3.50 6.50 0.00	30.0000	130.00	No Ice 1/2" Ice	3.78 4.17	3.22 3.86	0.06 0.09
(2) Twin Dual Duplex TMA (T-Mobile / E)	A	From Face	3.50 0.00 0.00	30.0000	130.00	No Ice 1/2" Ice	0.67 0.79	0.31 0.39	0.01 0.02
(2) Twin Dual Duplex TMA (T-Mobile / E)	B	From Face	3.50 0.00 0.00	30.0000	130.00	No Ice 1/2" Ice	0.67 0.79	0.31 0.39	0.01 0.02
(2) Twin Dual Duplex TMA (T-Mobile / E)	C	From Face	3.50 0.00 0.00	30.0000	130.00	No Ice 1/2" Ice	0.67 0.79	0.31 0.39	0.01 0.02
2'6"x4" Pipe Mount (Sprint / E)	A	From Face	0.50 0.00 0.00	0.0000	70.00	No Ice 1/2" Ice	0.75 0.95	0.75 0.95	0.03 0.04
GPS (Sprint / E)	A	From Face	2.00 0.00 0.00	0.0000	70.00	No Ice 1/2" Ice	1.00 1.50	1.00 1.50	0.01 0.01
P65-16-XLH-RR w/ Mount Pipe (AT&T / Future)	A	From Face	3.00 -6.00 0.50	0.0000	168.50	No Ice 1/2" Ice	8.64 9.29	6.36 7.54	0.05 0.12
P6S-16-XLH-RR w/ Mount Pipe (AT&T / Future)	B	From Face	3.00 -6.00 0.50	0.0000	168.50	No Ice 1/2" Ice	8.64 9.29	6.36 7.54	0.05 0.12

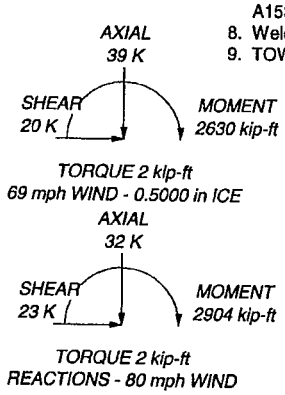
Description	*Face or Leg*	*Offset Type*	*Offsets: Horz Lateral Vert* ft ft ft	*Azimuth Adjustment* °	*Placement* ft		C_AA_A *Front* ft^2	C_AA_A *Side* ft^2	*Weight* K
P65-16-XLH-RR w/ Mount Pipe (AT&T / Future)	C	From Face	3.00 -6.00 0.50	0.0000	168.50	No Ice 1/2" Ice	8.64 9.29	6.36 7.54	0.05 0.12
Ericsson LTE RRUW (AT&T / Future)	A	From Face	3.00 0.00 0.50	0.0000	168.50	No Ice 1/2" Ice	1.66 1.84	1.26 1.43	0.04 0.05
Ericsson LTE RRUW (AT&T / Future)	B	From Face	3.00 0.00 0.50	0.0000	168.50	No Ice 1/2" Ice	1.66 1.84	1.26 1.43	0.04 0.05
Ericsson LTE RRUW (AT&T / Future)	C	From Face	3.00 0.00 0.50	0.0000	168.50	No Ice 1/2" Ice	1.66 1.84	1.26 1.43	0.04 0.05
BXA 70080/6CF-4 w/mount pipe (Verizon / P)	A	From Leg	4.00 -2.17 0.00	0.0000	140.00	No Ice 1/2" Ice	4.49 4.99	11.23 12.42	0.05 0.11
BXA 70063/4CF w/mount pipe (Verizon / P)	B	From Leg	4.00 -2.17 0.00	0.0000	140.00	No Ice 1/2" Ice	5.18 5.60	3.47 4.04	0.03 0.07
BXA 70080/6CF-4 w/mount pipe (Verizon / P)	C	From Leg	4.00 -2.17 0.00	0.0000	140.00	No Ice 1/2" Ice	4.49 4.99	11.23 12.42	0.05 0.11
BXA-171085-12BF w/mount pipe (Verizon / P)	A	From Leg	4.00 2.17 0.00	0.0000	140.00	No Ice 1/2" Ice	4.86 5.35	5.12 6.16	0.04 0.08
BXA 171063/8BF w/mount pipe (Verizon / P)	B	From Leg	4.00 2.17 0.00	0.0000	140.00	No Ice 1/2" Ice	3.06 3.40	3.19 3.77	0.03 0.06
BXA 171085-12BF w/mount pipe (Verizon / P)	C	From Leg	4.00 2.17 0.00	0.0000	140.00	No Ice 1/2" Ice	4.89 5.40	5.15 6.23	0.04 0.09
(2) FD9R6004/2C-3L (Verizon / P)	A	From Leg	4.00 0.00 0.00	0.0000	140.00	No Ice 1/2" Ice	0.37 0.45	0.08 0.14	0.00 0.00
(2) FD9R6004/2C-3L (Verizon / P)	B	From Leg	4.00 0.00 0.00	0.0000	140.00	No Ice 1/2" Ice	0.37 0.45	0.08 0.14	0.00 0.00
(2) FD9R6004/2C-3L (Verizon / P)	C	From Leg	4.00 0.00 0.00	0.0000	140.00	No Ice 1/2" Ice	0.37 0.45	0.08 0.14	0.00 0.00
APXV18-206517S-C w/mount pipe (Pocket Communications / E)	A	From Face	0.50 0.00 0.00	25.0000	148.00	No Ice 1/2" Ice	5.33 5.84	4.62 5.71	0.06 0.10
APXV18-206517S-C w/mount pipe (Pocket Communications / E)	B	From Face	0.50 0.00 0.00	10.0000	148.00	No Ice 1/2" Ice	5.33 5.84	4.62 5.71	0.06 0.10
APXV18-206517S-C w/mount pipe (Pocket Communications / E)	C	From Face	0.50 0.00 0.00	10.0000	148.00	No Ice 1/2" Ice	5.33 5.84	4.62 5.71	0.06 0.10

Description	*Face or Leg*	*Allow Shield*	*Component Type*	*Placement*	*Total Number*		C_AA_A	*Weight*
				ft			ft^2/ft	*plf*
Safety Line 3/8 (Existing)	A	No	CaAa (Out Of Face)	168.50 - 8.00	1	No Ice	0.04	0.22
						1/2" Ice	0.14	0.75
LDF7-50A (1-5/8 FOAM) (AT&T / E)	A	No	Inside Pole	168.50 - 8.00	6	No Ice	0.00	0.82
						1/2" Ice	0.00	0.82
RET cable (AT&T / E)	A	No	Inside Pole	168.50 - 8.00	1	No Ice	0.00	0.08
						1/2" Ice	0.00	0.08
LDF7-50A (1-5/8 FOAM) (Sprint / E)	A	No	Inside Pole	158.00 - 8.00	9	No Ice	0.00	0.82
						1/2" Ice	0.00	0.82
LDF7-50A (1-5/8 FOAM) (Verizon / E)	B	No	Inside Pole	140.00 - 8.00	12	No Ice	0.00	0.82
						1/2" Ice	0.00	0.82
LDF7-50A (1-5/8 FOAM) (T-Mobile / E)	B	No	Inside Pole	130.00 - 8.00	12	No Ice	0.00	0.82
						1/2" Ice	0.00	0.82
LDF4P-50A (1/2 FOAM) (Sprint / E)	C	No	Inside Pole	70.00 - 8.00	1	No Ice	0.00	0.15
						1/2" Ice	0.00	0.15
LDF6-50A (1-1/4 FOAM) (AT&T / Future)	C	No	Inside Pole	168.50 - 8.00	3	No Ice	0.00	0.66
						1/2" Ice	0.00	0.66
LDF7-50A (1-5/8 FOAM) (Pocket / E)	C	No	Inside Pole	148.00 - 8.00	6	No Ice	0.00	0.82
						1/2" Ice	0.00	0.82

Section Capacity Summary (Unreinforced)

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	$SF*P_{allow}$ K	% Capacity	Pass Fail
L1	168.5 - 130.67	Pole	TP25.31x19x0.1875	1	-9.03	53.77	84.1	Pass
L2	130.67 - 84.71	Pole	TP32.49x24.3228x0.25	2	-12.84	151.98	131.4	Fail ✗
L3	84.71 - 43.79	Pole	TP38.69x31.2363x0.3125	3	-20.29	320.68	128.9	Fail ✗
L4	43.79 - 0	Pole	TP45.25x37.1771x0.375	4	-31.82	659.97	118.2	Fail ✗
							Summary	
						Pole (L2)	131.4	Fail ✗
						Base Plate	201.1	Fail ✗
						RATING =	**201.1**	**Fail** ✗





DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
Kathrein 800-10121 w/ Mount Pipe (ATI / E)	168.5	LPD-6513 w/Mount Pipe (Verizon / E)	140
Kathrein 800-10121 w/ Mount Pipe (ATI / E)	168.5	LPD-6513 w/Mount Pipe (Verizon / E)	140
Kathrein 800-10121 w/ Mount Pipe (ATI / E)	168.5	BXA 70080/6CF-4 w/mount pipe (Verizon / P)	140
PIROD 12' Platform w / handrails (ATI / Future)	168.5	BXA 70063/4CF w/mount pipe (Verizon / P)	140
(2) LGP21401 (ATI / E)	168.5	BXA 70080/6CF-4 w/mount pipe (Verizon / P)	140
(2) LGP21401 (ATI / E)	168.5	BXA-171085-12BF w/mount pipe (Verizon / P)	140
(2) LGP21401 (ATI / E)	168.5	BXA 171063/8BF w/mount pipe (Verizon / P)	140
P65-16-XLH-RR w/ Mount Pipe (ATI / Future)	168.5	BXA 171085-12BF w/mount pipe (Verizon / P)	140
P65-16-XLH-RR w/ Mount Pipe (ATI / Future)	168.5	(2) FD9R6004/2C-3L (Verizon / P)	140
P65-16-XLH-RR w/ Mount Pipe (ATI / Future)	168.5	(2) FD9R6004/2C-3L (Verizon / P)	140
Ericsson LTE RRUW (ATI / Future)	168.5	(2) FD9R6004/2C-3L (Verizon / P)	140
Ericsson LTE RRUW (ATI / Future)	168.5	LPD-6513 w/Mount Pipe (Verizon / E)	140
Ericsson LTE RRUW (ATI / Future)	168.5	(2) Twin Dual Duplex TMA (T-Mobile / E)	130
Valmont T-Arm (1) (Sprint / E)	158	(2) Twin Dual Duplex TMA (T-Mobile / E)	130
Valmont T-Arm (1) (Sprint / E)	158	APXV18-209014-C w/mount pipe (T-Mobile / E)	130
Valmont T-Arm (1) (Sprint / E)	158	APXV18-209014-C w/mount pipe (T-Mobile / E)	130
(3) DB980F90T4E-M w/Mount Pipe (Sprint / E)	158	APX16DWV-16DWV-S-E-ACU w/mount pipe (T-Mobile / E)	130
(3) DB980F90T4E-M w/Mount Pipe (Sprint / E)	158	APX16DWV-16DWV-S-E-ACU w/mount pipe (T-Mobile / E)	130
(3) DB980F90T4E-M w/Mount Pipe (Sprint / E)	158	APX16DWV-16DWV-S-E-ACU w/mount pipe (T-Mobile / E)	130
APXV18-206517S-C w/mount pipe (Pocket Communications / E)	148	(2) Twin Dual Duplex TMA (T-Mobile / E)	130
APXV18-206517S-C w/mount pipe (Pocket Communications / E)	148	PIROD 13' Low Profile Platform (Monopole) (T-Mobile / E)	130
APXV18-206517S-C w/mount pipe (Pocket Communications / E)	148	APXV18-209014-C w/mount pipe (T-Mobile / E)	130
PIROD 13' Low Profile Platform (Monopole) (Verizon / E)	140	2'6"x4" Pipe Mount (Sprint / E)	70
LPD-6513 w/Mount Pipe (Verizon / E)	140	GPS (Sprint / E)	70
LPD-6513 w/Mount Pipe (Verizon / E)	140		
LPD-6513 w/Mount Pipe (Verizon / E)	140		

MATERIAL STRENGTH

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

TOWER DESIGN NOTES

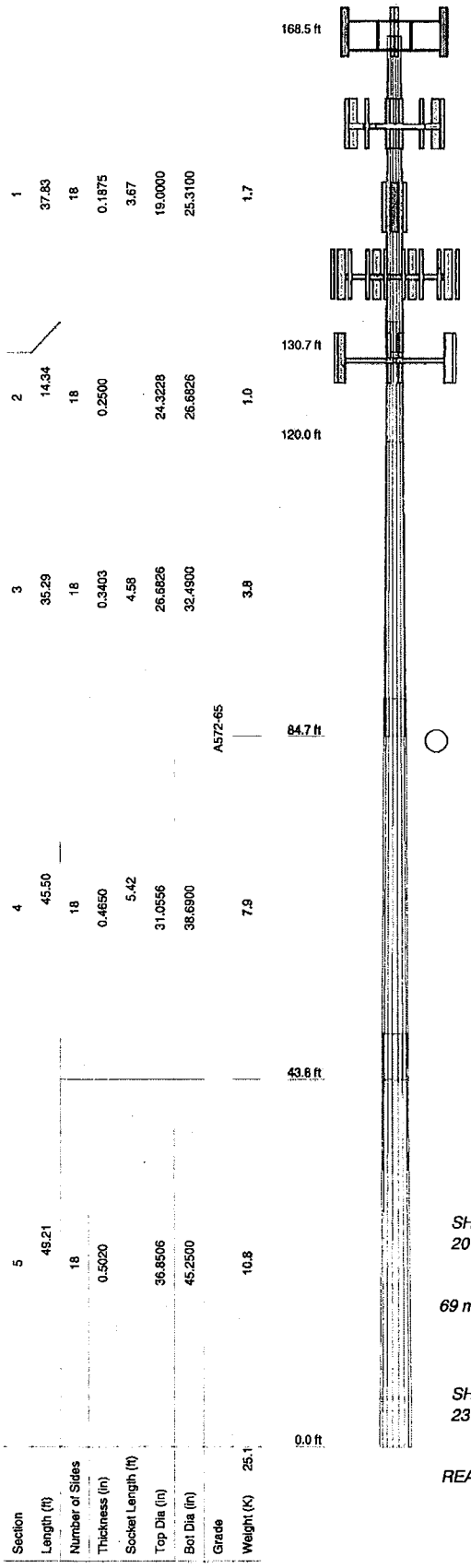
1. Tower is located in Hartford County, Connecticut.
2. Tower designed for a 80 mph basic wind in accordance with the TIA/EIA-222-F Standard.
3. Tower is also designed for a 69 mph basic wind with 0.50 in ice.
4. Deflections are based upon a 50 mph wind.
5. Weld together tower sections have flange connections.
6. Connections use galvanized A325 bolts, nuts and locking devices. Installation per TIA/EIA-222 and AISC Specifications.
7. Tower members are "hot dipped" galvanized in accordance with ASTM A123 and ASTM A153 Standards.
8. Welds are fabricated with ER-70S-6 electrodes.
9. TOWER RATING: 201.1%

BLACK & VEATCH
Building a world of difference.
Black & Veatch Corp.
10950 Grandview Drive
Overland Park, KS 66210
Phone: (913) 458-2000
FAX: (913) 458-8136

Job: 27074 Bristol Center		
Project: 166951 (27074VERCT-S (REV 1)) Unreinforced		
Client: AT&T Towers	Drawn by: Saowalak Hanruk	App'd:
Code: TIA/EIA-222-F	Date: 04/30/12	Scale: NTS
Path:		Dwg No. E-1

Section Capacity Summary (Reinforced)

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	$SF*P_{allow}$ K	% Capacity	Pass Fail
L1	168.5 - 130.67	Pole	TP25.31x19x0.1875	1	-9.57	53.77	83.0	Pass
L2	130.67 - 120	Pole	TP26.6826x24.3228x0.25	2	-9.43	89.92	92.2	Pass
L3	120 - 84.71	Pole	TP32.49x26.6826x0.3404	3	-14.27	205.13	96.2	Pass
L4	84.71 - 43.79	Pole	TP38.69x31.0556x0.465	4	-23.78	470.55	87.1	Pass
L5	43.79 - 0	Pole	TP45.25x36.8506x0.502	5	-38.05	876.01	88.7	Pass
							Summary	
						Pole (L3)	96.2	Pass
						Base Plate	87.3	Pass
						RATING =	**96.2**	**Pass**



Section	1	2	3	4	5
Length (ft)	37.83	14.34	35.29	45.50	49.21
Number of Sides	18	18	18	18	18
Thickness (in)	0.1875	0.2500	0.3403	0.4650	0.5020
Socket Length (ft)	3.67		4.58	5.42	
Top Dia (in)	19.0000	24.3228	26.6826	31.0556	36.8506
Bot Dia (in)	25.3100	26.6826	32.4900	38.6900	45.2500
Grade					
Weight (K)	1.7	1.0	3.8	7.9	10.8

DESIGNED APPURTENANCE LOADING

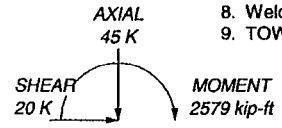
TYPE	ELEVATION	TYPE	ELEVATION
Kathrein 800-10121 w/ Mount Pipe (ATI / E)	168.5	LPD-6513 w/Mount Pipe (Verizon / E)	140
		LPD-6513 w/Mount Pipe (Verizon / E)	140
Kathrein 800-10121 w/ Mount Pipe (ATI / E)	168.5	BXA 70080/6CF-4 w/mount pipe (Verizon / P)	140
Kathrein 800-10121 w/ Mount Pipe (ATI / E)	168.5	BXA 70063/4CF w/mount pipe (Verizon / P)	140
PiROD 12' Platform w / handrails (ATI / Future)	168.5	BXA 70080/6CF-4 w/mount pipe (Verizon / P)	140
(2) LGP21401 (ATI / E)	168.5	BXA-171085-12BF w/mount pipe (Verizon / P)	140
(2) LGP21401 (ATI / E)	168.5		
(2) LGP21401 (ATI / E)	168.5	BXA 171063/8BF w/mount pipe (Verizon / P)	140
P65-16-XLH-RR w/ Mount Pipe (ATI / Future)	168.5	BXA 171085-12BF w/mount pipe (Verizon / P)	140
P65-16-XLH-RR w/ Mount Pipe (ATI / Future)	168.5	(2) FD9R6004/2C-3L (Verizon / P)	140
P65-16-XLH-RR w/ Mount Pipe (ATI / Future)	168.5	(2) FD9R6004/2C-3L (Verizon / P)	140
		(2) FD9R6004/2C-3L (Verizon / P)	140
Ericsson LTE RRUW (ATI / Future)	168.5	LPD-6513 w/Mount Pipe (Verizon / E)	140
Ericsson LTE RRUW (ATI / Future)	168.5	(2) Twin Dual Duplex TMA (T-Mobile / E)	130
Ericsson LTE RRUW (ATI / Future)	168.5		
Valmont T-Arm (1) (Sprint / E)	158	(2) Twin Dual Duplex TMA (T-Mobile / E)	130
Valmont T-Arm (1) (Sprint / E)	158		
Valmont T-Arm (1) (Sprint / E)	158	APXV18-209014-C w/mount pipe (T-Mobile / E)	130
(3) DB980F90T4E-M w/Mount Pipe (Sprint / E)	158	APXV18-209014-C w/mount pipe (T-Mobile / E)	130
(3) DB980F90T4E-M w/Mount Pipe (Sprint / E)	158	APX16DWV-16DWV-S-E-ACU w/mount pipe (T-Mobile / E)	130
(3) DB980F90T4E-M w/Mount Pipe (Sprint / E)	158	APX16DWV-16DWV-S-E-ACU w/mount pipe (T-Mobile / E)	130
APXV18-206517S-C w/mount pipe (Pocket Communications / E)	148	APX16DWV-16DWV-S-E-ACU w/mount pipe (T-Mobile / E)	130
APXV18-206517S-C w/mount pipe (Pocket Communications / E)	148	(2) Twin Dual Duplex TMA (T-Mobile / E)	130
APXV18-206517S-C w/mount pipe (Pocket Communications / E)	148	PiROD 13' Low Profile Platform (Monopole) (T-Mobile / E)	130
PiROD 13' Low Profile Platform (Monopole) (Verizon / E)	140	APXV18-209014-C w/mount pipe (T-Mobile / E)	130
LPD-6513 w/Mount Pipe (Verizon / E)	140	2'6"x4" Pipe Mount (Sprint / E)	70
LPD-6513 w/Mount Pipe (Verizon / E)	140	GPS (Sprint / E)	70
LPD-6513 w/Mount Pipe (Verizon / E)	140		

MATERIAL STRENGTH

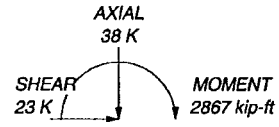
GRADE	Fy	Fu	GRADE	Fy	Fu
A572-65	65 ksi	80 ksi			

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. Weld together tower sections have flange connections.
6. Connections use galvanized A325 bolts, nuts and locking devices. Installation per TIA/EIA-222 and AISC Specifications.
7. Tower members are "hot dipped" galvanized in accordance with ASTM A123 and ASTM A153 Standards.
8. Welds are fabricated with ER-70S-6 electrodes.
9. TOWER RATING: 96.2%



TORQUE 2 kip-ft
69 mph WIND - 0.5000 in ICE

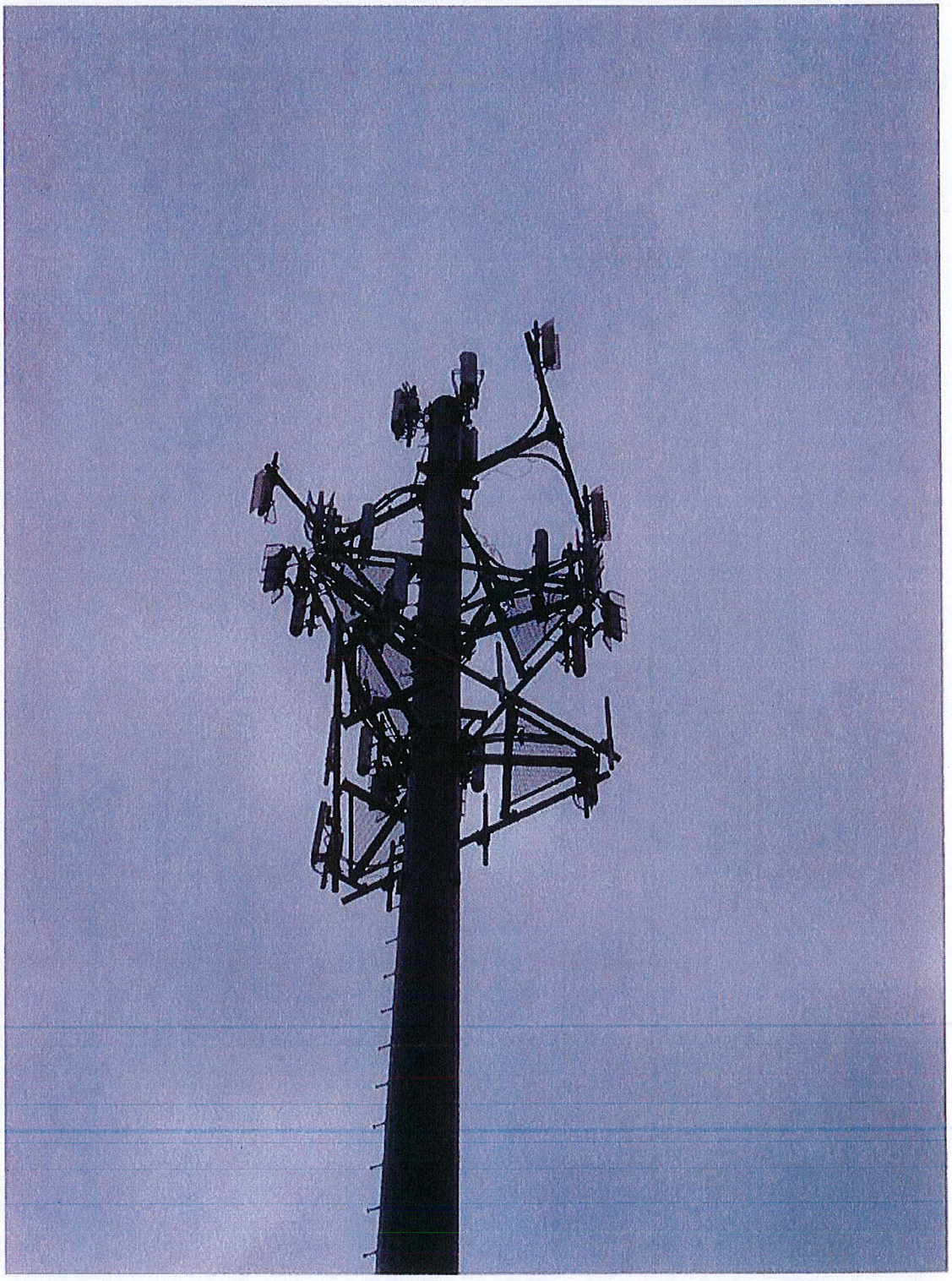


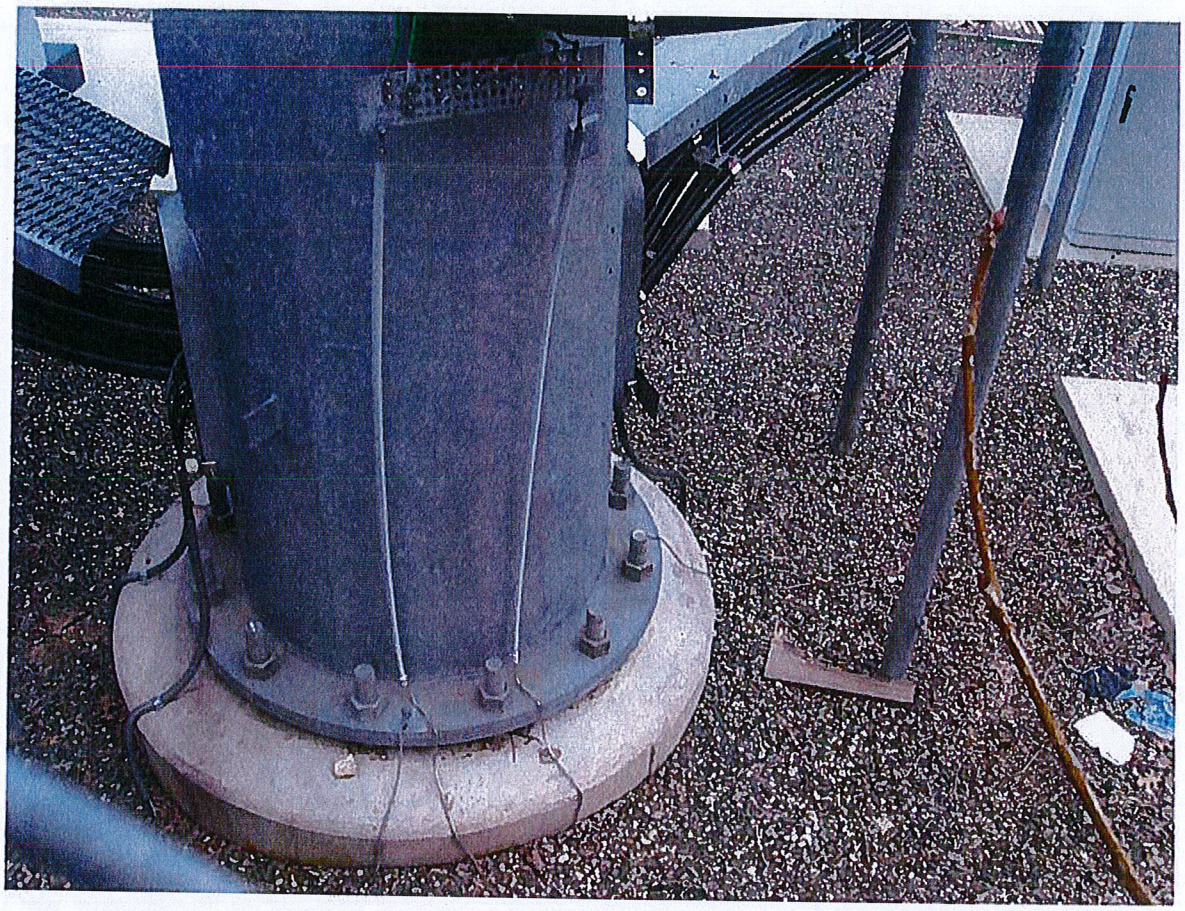
TORQUE 2 kip-ft
REACTIONS - 80 mph WIND

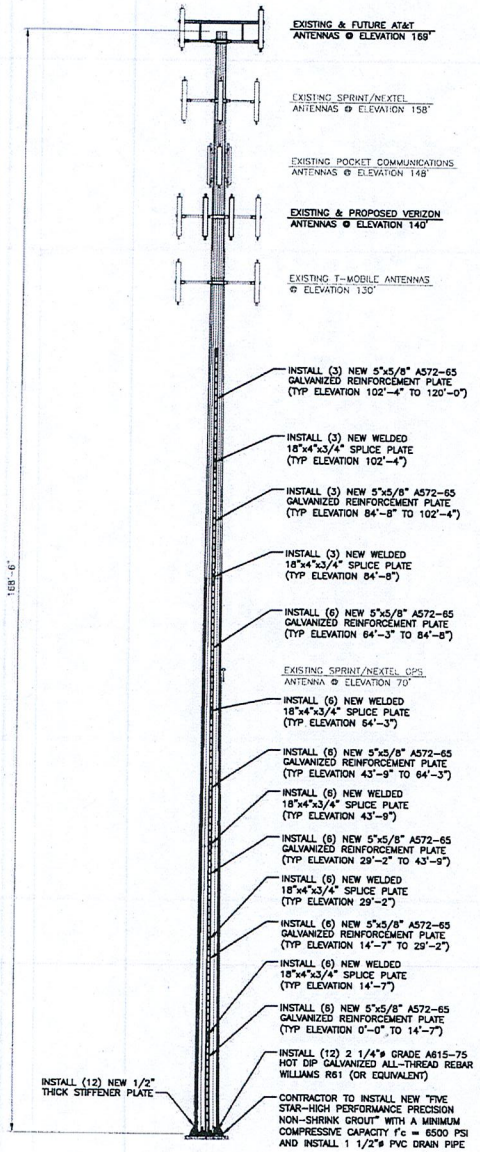
BLACK & VEATCH
Building a world of difference.
Black & Veatch Corp.
10950 Grandview Drive
Overland Park, KS 66210
Phone: (913) 458-2000
FAX: (913) 458-8136

Job: *27074 Bristol Center*			
Project: *166951 (27074VERCT-MOD)*			
Client: AT&T Towers	Drawn by: Saowalak Hanruk	App'd:	
Code: TIA/EIA-222-F	Date: 04/30/12	Scale: NTS	
Path:		Dwg No. E-	

Appendix: Existing Site Photos







TOWER ELEVATION

NO SCALE

NOTES

1. FIELD LOCATE REINFORCEMENT EVENLY SPACED ABOUT SHAFT AS SHOWN AND AS REQUIRED TO AVOID EXISTING INTERFERENCES.
2. DESIGN MAY BE ADJUSTED SLIGHTLY TO ACCOMMODATE INTERFERENCES PENDING NOTIFICATION & APPROVAL OF ENGINEER.
3. LNA BOXBOLT STRUCTURAL FASTENERS OR EQUIVALENT ARE TO BE INSTALLED PER MANUFACTURERS INSTRUCTIONS WITH ALL RELATED HARDWARE.
4. LNA BOXBOLT STRUCTURAL FASTENER OR EQUIVALENT SHALL BE HOT DIPPED GALVANIZED. CONTRACTOR TO VERIFY LNA BOXBOLT FASTENER CLAMPING RANGE.
5. SELECT THE LENGTH OF THE BOXBOLT BY REPLACING THE "_" IN THE CODE WITH 1, 2, OR 3 FOR DIFFERENT CLAMPING RANGE OF THE BOXBOLT.
6. CONTRACTOR TO FIELD VERIFY ALL NEW & EXISTING MEMBER SIZES PRIOR TO PURCHASE.
7. CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS DURING WELDING OPERATIONS OF GALVANIZED MATERIALS ACCORDING TO AWS B2.1-1-011.
8. WELDING WILL CONFORM TO AWS D1.1 WELDING CODE, USING E70XX ELECTRODES.
9. CONTRACTOR SHALL HAVE ALL WELDING INSPECTED BY THIRD PARTY CERTIFIED WELDING INSPECTOR AND SUBMIT THE REPORT TO TOWER OWNER.
10. CONTRACTOR TO VERIFY REQUIRED STEEL PLATE LENGTHS FROM BOTTOM OF SECTION TO BOTTOM OF NEXT SECTION.
11. TOWER MODIFICATIONS AND ANALYSIS COMPLY WITH TIA/EIA-222-F.
12. CONSTRUCTION SHALL BE IN ACCORDANCE WITH APPLICABLE OSHA REGULATIONS, PER TIA/EIA-222-F (1996), AND SHALL BE PERFORMED ONLY IN "GOOD WEATHER". GOOD WEATHER MEANS LITTLE OR NO WIND AND RAIN AND MINIMUM TEMPERATURE OF 50 DEGREES F. CONTACT ENGINEER FOR ADDITIONAL INSTRUCTIONS IF "GOOD WEATHER" CANNOT BE ACHIEVED.
13. MOVE ALL COAX AND OTHER FLAMMABLE MATERIALS FROM ANY AREA THAT MAY BE HEATED DURING CONSTRUCTION.
14. ALL WELDING SHOULD BE PERFORMED IN ACCORDANCE WITH AWS D1.1 LATEST EDITION, INCLUDING CERTIFIED WELDERS, QUALIFIED PROCEDURES AND SATISFACTORY WEATHER CONDITIONS, THE WELDER SHALL BE CERTIFIED FOR THE METHODS AND POSITIONS T

COATED USING SHERWIN-WILLIAMS "ZINC CLAD 5" (NO SUBSTITUTIONS) APPLIED IN STRICT ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS. (SEE PAINT SPECIFICATION SHEETS N1 AND N2.) AREAS THAT HAVE BEEN TOUCHED UP SHOULD BE INSPECTED AS PART OF THE ROUTINE MAINTENANCE OF THE STRUCTURE. NO SPRAY PAINT ALLOWED. AFTER ZINC-RICH PAINT IS DRY, OVERCOAT WITH OWNER'S PAINT SPECIFICATIONS, APPLIED IN STRICT ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

15. THESE DRAWINGS DO NOT INDICATE THE METHOD OF CONSTRUCTION. THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE WORK AND SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION METHODS, MEANS, TECHNIQUES, SEQUENCES AND PROCEDURES.
16. OXY FUEL GAS WELDING OR BRAZING IS STRICTLY PROHIBITED. SPECIFICALLY, NO TORCH CUTTING IS PERMITTED ON SITE. ALL HOLES SHALL BE CUT WITH A GRINDER OR DRILLED.
17. CONTRACTOR SHALL MAKE PROPER PRECAUTIONS AND PROCEDURES TO PROTECT THE STRUCTURE FROM CATCHING FIRE DURING ALL WELDING OPERATIONS. THE FOLLOWING FIRE SAFETY PREVENTION PROTOCOL IS THE MINIMUM REQUIREMENTS DURING WELDING OPERATIONS.
    - 500 GALLON WATER TANK WITH PUMP TO BE ON SITE AT ALL TIME.
    - 2 FIRE EXTINGUISHERS ON SITE AT ALL TIME
    - 2 MAN FIRE WATCH ON ANY ADJACENT STRUCTURES, FIELDS AND POLE.
    - INTERMITTENT COOLING OF WELDED SURFACE TO REDUCE HEAT IN STRUCTURE.
18. IN THE EVENT OF AN EMERGENCY, CONTRACTOR SHALL CONTACT BLACK & VEATCH AND AT&T TOWERS PERSONAL TO REPORT ANY EVENT OR EMERGENCY INCIDENT AT ANY AT&T TOWER SITES PER ATTACHED CONTACT INFORMATION TABLE.

AT&T Towers Contacts and Phone Numbers			
Name	Title	Office Phone	E-Mail
Marty Jellema	Construction Support Manager	770-708-6124	MJ533b@att.com
Alisha Seigel	AT&T Towers Regional Manager	770-708-6077	AS9338@att.com

Black & Veatch Contacts and Phone Numbers			
Name	Title	Office Phone	E-Mail
Carl F. Mazingo	Project Manager	913-458-4808	MazingoCF@bv.com
Ashley Broek	Construction Manager	913-458-8013	BroekA@overlandcontracting.com
Eric Brandstadter	Lead Tower Mod Design Engineer	913-458-7360	BrandstadterES@bv.com
Taylor Murphy	Lead Project Engineer	913-458-2163	MurphyT@bv.com

CONTRACTOR SHALL FIELD VERIFY AND MEASURE DIMENSIONS OF THE SITE STRUCTURE BEFORE FABRICATION OF MATERIALS FOR ALL TOWER MODIFICATION INSTALLATIONS.

at&t

BLACK & VEATCH
10950 GRANDVIEW DRIVE
OVERLAND PARK, KANSAS 66210
(913) 458-2000

PROJECT NO:	166951
DRAWN BY:	TYW
CHECKED BY:	ESB

REV	DATE	DESCRIPTION
0	05/03/12	ISSUED FOR CONSTRUCTION

STATE OF CONNECTICUT
CHRISTOPHER S. BUTLER
0027363
LICENSED
PROFESSIONAL ENGINEER

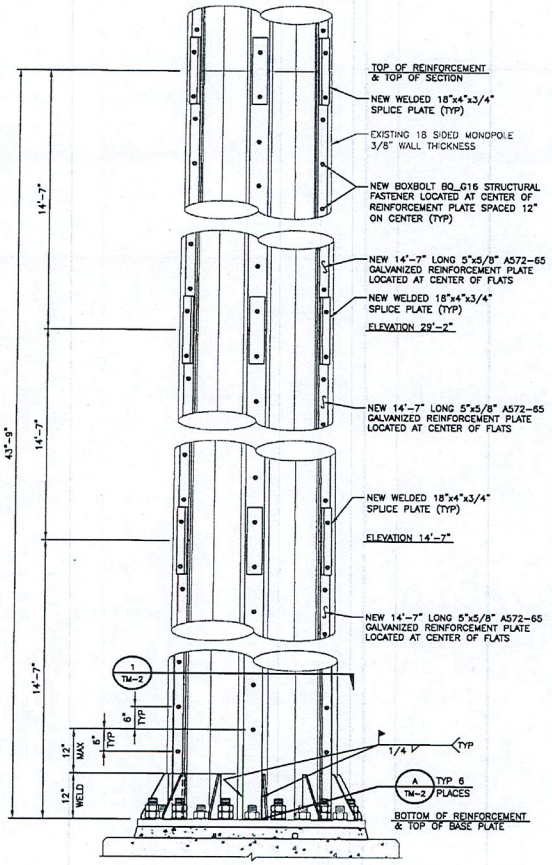
27074VERCT (CTU5833)
BRISTOL CENTER
371 TERRYVILLE AVE
BRISTOL, CT 06010
MONOPOLE

SHEET TITLE

TOWER MODIFICATIONS REINFORCEMENT

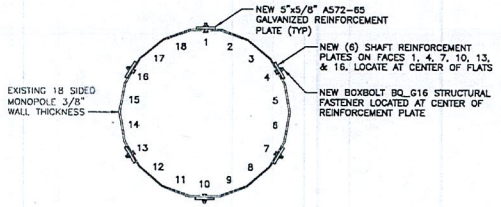
SHEET NUMBER

TM-1



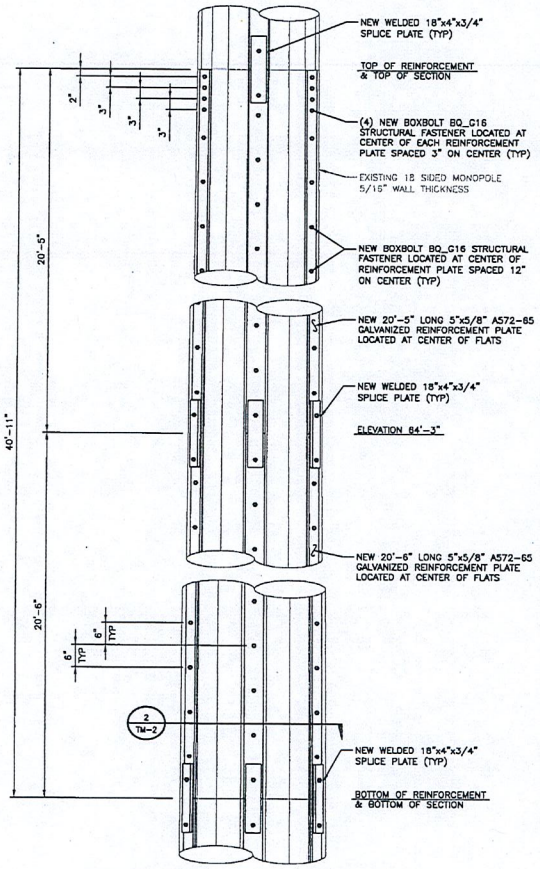
ELEVATION: SHAFT REINFORCEMENT FOR SECTION 0'-0" TO 43'-9"

SCALE: 3/4" = 1'-0"



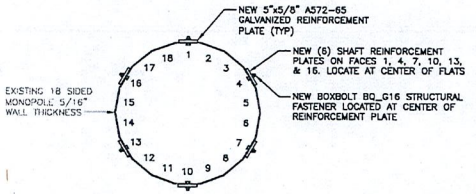
SECTION 1

SCALE: 3/4" = 1'-0"



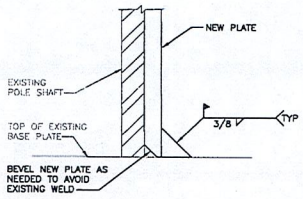
ELEVATION: SHAFT REINFORCEMENT FOR SECTION 43'-9" TO 84'-8"

SCALE: 3/4" = 1'-0"



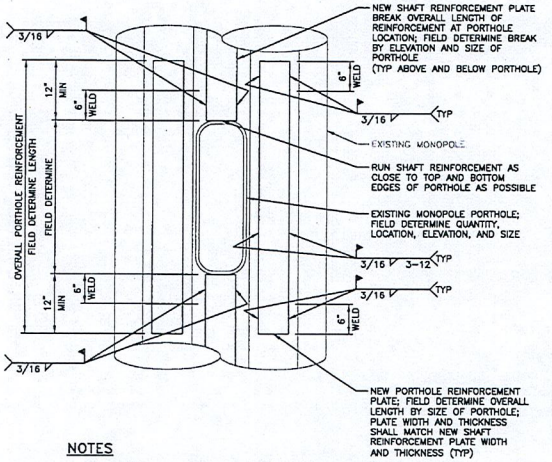
SECTION 2

SCALE: 3/4" = 1'-0"



DETAIL A

NO SCALE



NOTES

1. ONE PORTHOLE SHOWN; FIELD DETERMINE QUANTITY REQUIRED.
2. THIS PORTHOLE REINFORCEMENT ONLY REQUIRED IF THE NEW SHAFT REINFORCEMENT WILL BE INTERRUPTED BY THE EXISTING PORTHOLE.

TYPICAL WELDED PORTHOLE REINFORCEMENT DETAIL

NO SCALE

at&t

BLACK & VEATCH

10950 GRANDVIEW DRIVE
OVERLAND PARK, KANSAS 66210
(913) 458-2000

PROJECT NO:	166951
DRAWN BY:	TYW
CHECKED BY:	ESB

REV	DATE	DESCRIPTION
0	05/03/12	ISSUED FOR CONSTRUCTION

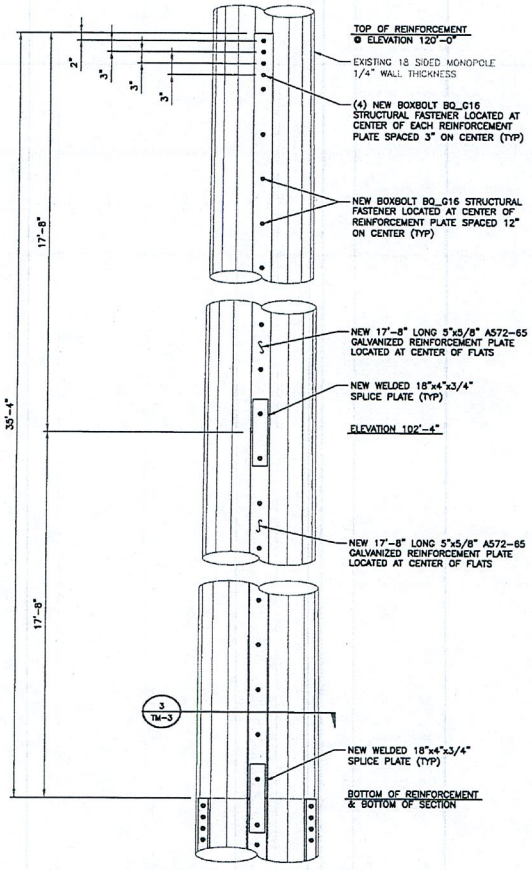
27074VERCT (CTU5833)
BRISTOL CENTER
371 TERRYVILLE AVE
BRISTOL, CT 06010
MONOPOLE

SHEET TITLE

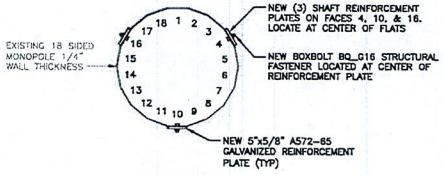
TOWER MODIFICATIONS
SHAFT REINFORCEMENT

SHEET NUMBER

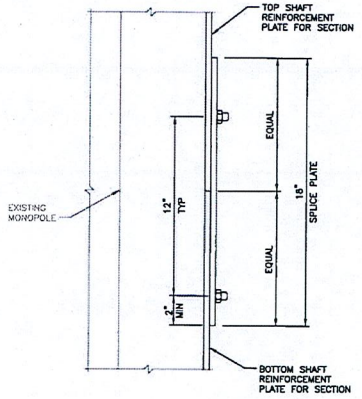
TM-2



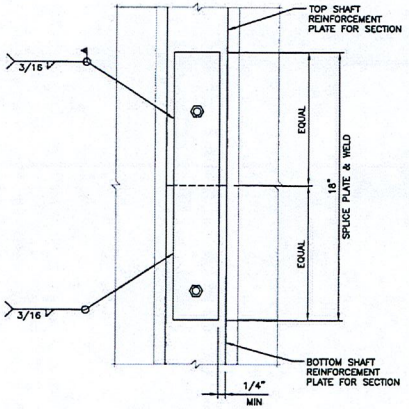
ELEVATION: SHAFT REINFORCEMENT FOR SECTION 84'-8" TO 130'-8"
SCALE: 3/4" = 1'-0"



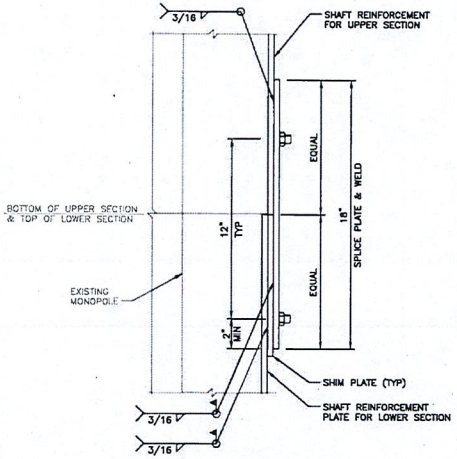
SECTION 3
SCALE: 3/4" = 1'-0"



TYPICAL REINFORCEMENT DETAIL @ SPLICE PLATE
NO SCALE



TYPICAL WELDED SPLICE PLATE DETAIL
NO SCALE



TYPICAL WELDED SPLICE PLATE DETAIL @ END OF SECTION
NO SCALE

at&t

BLACK & VEATCH
10950 GRANDVIEW DRIVE
OVERLAND PARK, KANSAS 66210
(913) 458-2000

PROJECT NO:	166951
DRAWN BY:	TYW
CHECKED BY:	ESB

REV	DATE	DESCRIPTION
0	05/03/12	ISSUED FOR CONSTRUCTION

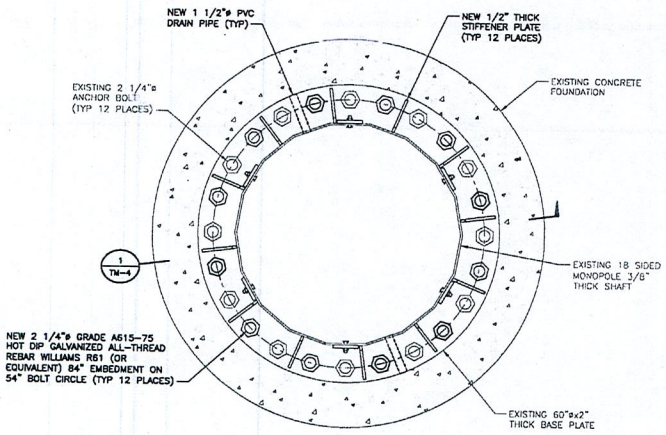
STATE OF CONNECTICUT
CHRISTOPHER B. KRAFFT
0027388
LICENSED
PROFESSIONAL ENGINEER

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

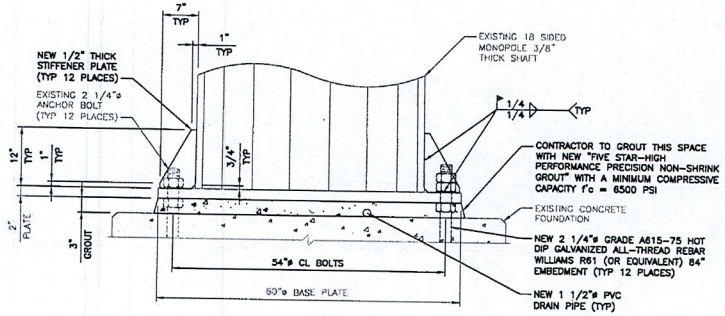
27074VERCT (CTU5833)
BRISTOL CENTER
371 TERRYVILLE AVE
BRISTOL, CT 06010
MONOPOLE

SHEET TITLE
TOWER MODIFICATIONS
SHAFT REINFORCEMENT

SHEET NUMBER
TM-3



STIFFENER PLATE DETAIL
SCALE: 1" = 1'-0"



SECTION 1
SCALE: 1" = 1'-0"

NOTES

1. FIELD LOCATE STIFFENER PLATES EVENLY SPACED ABOUT SHAFT AS SHOWN AND AS REQUIRED TO AVOID EXISTING INTERFERENCES.
2. DESIGN MAY BE ADJUSTED SLIGHTLY TO ACCOMMODATE INTERFERENCES PENDING NOTIFICATION & APPROVAL OF ENGINEER.
3. CONTRACTOR TO FIELD VERIFY ALL NEW & EXISTING MEMBER SIZES PRIOR TO PURCHASE.
4. CONTRACTOR WILL TOUCH UP ALL FIELD DRILLING, FIELD GRINDING AND FIELD WELDING WITH ZINC RICH PAINT.
5. CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS DURING WELDING OPERATIONS OF GALVANIZED MATERIALS ACCORDING TO AWS B2.1-1-011.
6. WELDING WILL CONFORM TO AWS D1.1 WELDING CODE, USING E70XX ELECTRODES.
7. CONTRACTOR SHALL HAVE ALL WELDING INSPECTED BY THIRD PARTY CERTIFIED WELDING INSPECTOR AND SUBMIT THE REPORT TO TOWER OWNER.
8. GRADE OF STEEL FOR BASE PLATE STIFFENERS TO BE A572-65. ALL NEW PLATES SHALL BE HOT-DIPPED GALVANIZED.
9. NEW ANCHOR RODS AND NUTS TO BE COATED WITH ZINC RICH PAINT.
10. NEW ANCHOR RODS TO BE DRILLED AND EPOXIED INTO FOUNDATION USING WILLIAMS ULTRABOND 1 EPOXY (OR EQUIVALENT) PER WILLIAMS SPECIFICATIONS.
11. ALL NEW ANCHOR RODS SHALL BE WILLIAMS R61 GRADE 75 ALL-THREAD REBAR - ASTM A615. ANCHOR RODS SHALL BE HOT DIPPED GALVANIZED PER ASTM A-153.
12. ALL NEW ANCHOR RODS SHALL BE INSTALLED WITH DOUBLE HEAVY HEX NUTS.
13. GROUT ANY VOID WHERE NUT IS NOT FULLY THREADED TO ANCHOR BOLT/ROD WITH 6500 PSI NON-SHRINK GROUT.

at&t

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OVERLAND PARK, KANSAS 66210
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CHRISTOPHER J. KRAFFT
0027363
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BRISTOL CENTER
371 TERRYVILLE AVE
BRISTOL, CT 06010
MONOPOLE

SHEET TITLE
TOWER MODIFICATIONS
STIFFENER PLATES

SHEET NUMBER
TM-4