STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

Ten Franklin Square
New Britain, Connecticut 06051
Phone: (860) 827-2935
Fax: (860) 827-2950

December 19, 2000

Sandy M. Carter
Verizon Wireless
20 Alexander Drive
P.O. Box 5029
Wallingford, CT 06492

RE: **TS-VER-039-001117** - Cellco Partnership d/b/a Verizon Wireless request for an order to approve tower sharing at an existing telecommunications facility located at 35 Old Route 44, Eastford, Connecticut.

Dear Ms. Carter:

At a public meeting held December 14, 2000, the Connecticut Siting Council (Council) ruled that the shared use of this existing tower site is technically, legally, environmentally, and economically feasible and meets public safety concerns, and therefore, in compliance with General Statutes § 16-50aa, the Council has ordered the shared use of this facility to avoid the unnecessary proliferation of tower structures. 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. Any additional change to this facility may require an explicit request to this agency pursuant to General Statutes § 16-50aa or notice pursuant to Regulations of Connecticut State Agencies Section 16-50j-73, as applicable. Such request or notice shall include all relevant information regarding the proposed change with cumulative worst-case modeling of radio frequency exposure at the closest point 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.

This decision applies only to this request for tower sharing and is not applicable to any other request or construction.

The proposed shared use is to be implemented as specified in your letter dated November 16, 2000.

Thank you for your attention and cooperation.

Very truly yours,

Mortimer A. Gelston
Chairman

MAG/FOC/laf

c: Honorable Richard L. Woodward, First Selectman, Town of Eastford
Robert J. Francis, Cordless Data Transfer, Inc.
Ronald C. Clark, Nextel Communications
Julie M. Cashin, Esq., Hurwitz & Sagarin, LLC

I:\siting\cm\ver\eastford\dc111400.doc

Network Dept.

Verizon Wireless
20 Alexander Drive
Wallingford, Connecticut 06492

November 16, 2000

Mr. Mortimer A. Gelston, Chairman
Connecticut Siting Council
10 Franklin Square
New Britain, Connecticut 06051

HAND DELIVERED

Re: **Request by Cellco Partnership d/b/a Verizon Wireless for an Order to Approve the Shared Use of a Tower Facility located at 35 Old Route 44, Eastford, Connecticut.**

Dear Chairman Gelston:

Pursuant to Connecticut General Statutes (C.G.S.) Sec. 16-50aa, Cellco Partnership d/b/a Verizon Wireless hereby requests an order from the Connecticut Siting Council ("Council") to approve the proposed shared use by Verizon Wireless of an existing tower located at 35 Old Route 44, Eastford, Connecticut. The property is owned by Priscilla Armitage and the tower is owned by Cordless Data Transfer which is located in Marlborough, Connecticut. As shown on the attached drawing and as further described below, Verizon Wireless proposes to install antennas on the existing tower and to locate an equipment shelter at the base of the tower. Verizon Wireless requests that the Council finds that the proposed shared use of the tower facility satisfy the criteria stated in C.G.S. Sec. 16-50aa, and to issue an order approving the proposed shared use.

Background

Verizon Wireless is licensed by the Federal Communications Commission to provide cellular telephone service in the Windham County New England County Metropolitan Area (NECMA), which includes the area to be served by the proposed Eastford installation.

The facility at 35 Old Route 44 in Eastford, consists of an approximately 193 foot AGL guyed steel tower built by Cordless Data Transfer. The guyed tower can structurally support multiple carriers and there other carriers located on the tower which are shown on the attached site plan. Verizon Wireless and Cordless Data transfer have agreed to the proposed-shared use of this tower pursuant to mutually acceptable terms and conditions. Cordless data Transfer has authorized Verizon Wireless to apply for all necessary permits, approvals and authorizations which may be required for the proposed shared use of this facility.

Verizon Wireless proposes to install twelve (12) Swedcom Model ALP-9011 antennas, approximately 43 inches in height, on a platform with their center of radiation at approximately 194 feet above ground level ("AGL"). Verizon Wireless will also install one (1) GPS antenna on the tower. Equipment associated with these antennas, as well as a 40 KW diesel-fueled emergency stand-by generator, would be located in a new approximately 12-foot x 30-foot equipment building located at the base of the tower.

C.G.S. Sec. 16-50aa provides that, upon written request for approval of a proposed shared use, "if the Council finds that the proposed shared use of the facility is technically, legally, environmentally and economically feasible and meets public safety concerns, the Council shall issue an order approving such shared use" (C.G.S. Sec. 16-50aa(c)(1).)

Discussion

A. Technical Feasibility. The existing tower is structurally sound and capable of supporting the proposed Verizon Wireless antennas. The tower will not require any structural modification to support the proposed attachments. Verizon Wireless engineers have determined that the proposed antenna installations present minimal potential for interference to or from existing radio transmissions from this location. In addition, the applicant is unaware of any occasion where its operations have caused interference with AM, FM or television reception. The proposed-shared use of this tower therefore is technically feasible. A copy of the structural analysis is attached to this application.

B. Legal Feasibility. Under C.G.S. Sec. 16-50aa, the Council has been authorized to issue an order approving the proposed-shared use of an existing communications tower facility such as the facility at 35 Old Route 44. (C.G.S. Sec. 16-50aa(c)(1).) This authority complements the Council's prior-existing authority under C.G.S. Sec. 16-50p to issue orders approving the construction of new towers that are subject to the Council's jurisdiction. C.G.S. Sec. 16-50x(a) directs the Council to "give consideration to other state laws and municipal regulations as it shall deem appropriate" in ruling on requests for the shared use of existing tower facilities. Under the authority vested in the Council by C.G.S. Sec. 16-50aa, an order by the Council approving the shared use would permit the applicant to obtain a building permit for the proposed installations.

C. Environmental Feasibility. The proposed shared use would have a minimal environmental effect, for the following reasons:

1. The proposed installations would have an insignificant incremental visual impact, and would not cause any significant change or alteration in the physical or environmental characteristics of the existing site. The addition of the proposed antennas would not increase the height of the tower, although a portion of the antennas themselves would extend above the tower. The proposed installation would not extend the boundaries of the tower site, including the placement of the equipment building near the base of the existing tower.

2. The proposed installation would not increase the noise levels at the existing facility by six decibels or more. The only additional noise will occur during emergency use or periodic exercising of the generator.

3. Operation of the additional antennas will not increase the total radio frequency electromagnetic radiation power density, measured at the tower base to a level at or above the applicable standard. "Worst-case" exposure calculation for a point at the base of the tower in relation to the operation of Verizon Wireless's and other existing antenna arrays are as follows:

	Applicable ANSI Stnd	Calculated "Worst-Case"	Percentage of Stnd.
Verizon Wireless	0.583 mW/cm2	0.0181 mW/cm2	3.11%
Nextel	0.5673 mW/cm2	0.0117 mW/cm2	2.05%
Sprint PCS	1.000 mW/cm2	0.0149 mW/cm2	1.49%
		Total	6.65%

The "worst-case" exposure would be only 6.65 % of the ANSI standard, as calculated for mixed frequency sites. Power density levels from shared use of the tower facility would thus be well below applicable ANSI standards

4. The proposed installations would not require any water or sanitary facilities, or generate discharges to water bodies. Operation of the emergency back-up generator will result in limited air emissions; pursuant to R.C.S.A. Section 22a-174-3, the generator will require the issuance of a permit from the Department of Environmental Protection Bureau of Air Management. After construction is complete, the proposed installation would not generate any traffic other than periodic maintenance visits.

The proposed use of this facility would therefore have a minimal environmental effect, and is environmentally feasible.

D. Economic Feasibility. As previously mentioned, the tower owner and the applicant have entered into a mutual agreement to share the use of the existing tower on terms agreeable to the parties, and the proposed tower sharing is thus economically feasible.

E. Public Safety Concerns. As stated above, the existing tower is structurally capable of supporting the proposed Verizon Wireless antennas. The Applicant is not aware of any other public safety concerns relative to the proposed tower sharing of the existing tower. In fact, the provision of new or improved cellular phone service in the Eastford area, including 5 miles of Route 44 and 3.5 miles of Route 198 and the surrounding area, through shared use of the tower is expected to enhance the safety and welfare of area residents and travelers. The public safety benefits of wireless service are further illustrated by the decision of local authorities elsewhere in Connecticut to provide cellular phones to residents to improve local public safety and emergency communications. The proposed-shared use of this facility would likewise improve public safety in the Eastford area.

Conclusion

For the reasons discussed above, the proposed shared use of the existing telecommunications tower facility at 35 Old Route 44 satisfies the criteria stated in C.G.S. Sec. 16-50aa, and advances the General Assembly's and the Council's goal of preventing the proliferation of towers in Connecticut. The Applicant therefore requests that the Council issue an order approving the proposed shared use.

Thank you for your consideration of this matter.

Pursuant to Connecticut General Statutes Sec. 16-50v and Section 16-50v-1(a) of the Regulations of Connecticut State Agencies, Verizon Wireless has enclosed a check in the amount of $500.00 for the required filing fee.

Respectfully yours,

Sandy M. Carter

Sandy M. Carter
Manager – Regulatory
Verizon Wireless

Attachments
cc: Honorable Richard Woodward, First Selectman

Network Dept.

Verizon Wireless
20 Alexander Drive
Wallingford, Connecticut 06492

November 16, 2000

Honorable Richard Woodward,
First Selectman
Town Office Building
16 Westford Road
Eastford, Connecticut 06242

Dear Mr. Woodward:

This letter is to inform you that Cellco Partnership d/b/a Verizon Wireless plans to install antennas and associated equipment at the existing tower facility located at 35 Old Route 44, Eastford, Connecticut. I am enclosing a copy of Verizon Wireless's tower sharing application to the Connecticut Siting Council.

The application fully sets forth the Company's proposal. However, if you have any questions or require further information on our plans or the Siting Council's procedures, please contact me at (203) 294-8519 or Mr. Joel Rinebold, Executive Director of the Connecticut Siting Council at (860) 827-2935.

Sincerely,

Sandy M. Carter

Sandy M. Carter
Manager- Regulatory
Verizon Wireless

Enclosure

CDT

P. O. Box 363 Marlborough, Connecticut 06447 (860) 295-0445 FAX -1473

August 3, 2000

Ms. Sandy M. Carter
Manager Regulatory
Verizon Wireless
20 Alexander Drive
P.O. Box 5029
Wallingford, Connecticut 06492-2430

RE: Eastford Tower (35 Old Route 44, Eastford, Connecticut)
VIA USPS Overnight Service

Dear Ms. Carter

Please consider this letter to be authorization to proceed with your installation of a wireless telephone facility at our tower site located at the above referenced address. I have included with this letter an original Connecticut Licensed Professional Engineer's Stamped plan of the tower which includes a structural analysis of the structure including your proposed antenna and all existing and planned for antenna on the tower as of this date.

If I may be of any further assistance please feel free to call anytime.

Yours Truly

Cordless Data Transfer, Inc.

Robert J. Francis
President

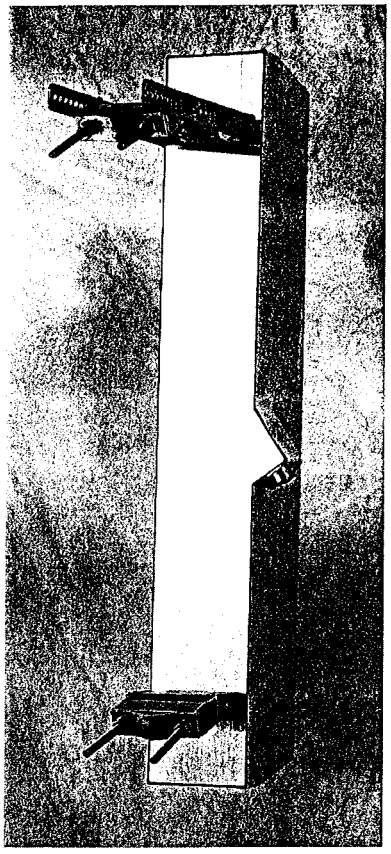
Swedcom

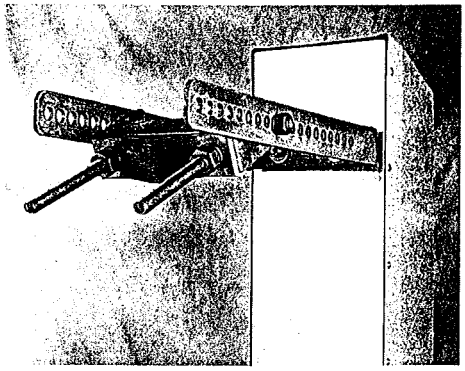
ALP-E 9011-Din

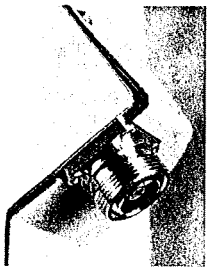
Enhanced Log-Periodic Antenna

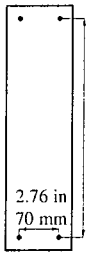
Features:

- ❑ Small Size
- ❑ Aesthetically Pleasing
- ❑ Suitable For TDMA/CDMA
- ❑ High Return Loss
- ❑ Low Intermodulation
- ❑ High FTB
- ❑ Broadbanded
- ❑ Side-lobe Suppression
- ❑ Sturdy Design
- ❑ Down-Tilt Brackets Incl.









The distance between the center of the bolts (on the back of the antenna) are shown in the drawing above.

Bolt diameter is: **3/8-16** [comes with lock nut].

Electrical Specifications

Frequency Range:	**800-900 MHz**
Impedance:	**50 ohm**
Connector Type:	**7/16 Din**
Return Loss:	**20 dB**
Polarization:	**Vertical**
Gain:	**> 11 dBd**
Front To Back Ratio:	**> 30 dB**
Side-Lobe Suppression:	**18 dB**
Intermodulation (2x25W):	**IM3 > 146 dB**
	IM5 > 153 dB
	IM7/9 > 163 dB
Power Rating:	**500 W**
H-Plane (-3 dB point):	**85 - 92°**
V-Plane (-3 dB point):	**16 - 18°**
Lightning Protection:	**DC Grounded**

Mechanical Specifications

Overall Height:	**43 in**	**[1092 mm]**
Width:	**6.5 in**	**[165 mm]**
Depth:	**8 in**	**[203 mm]**
Weight Including Tilt-Brackets:	**20 lbs**	**[9.1 Kg]**
Rated Wind Velocity:	**113 mph**	**[180 Km/h]**
Wind Area (CxA/Side):	**2.3 sq. ft.**	**[0.22 sq.m]**
Lateral Thrust At Rated Wind Worst Case:	**112 lbs**	**[500 N]**

Materials

Radiating Elements:	**Aluminum**
Extrusion:	**Aluminum**
Radome:	**Grey PVC**
Tilt-Bracket:	**Hot Dip Galvanized Steel**
Antenna Bolts:	**Stainless Steel**

The ALP-E 9011-Din is made in U.S.A.

FRED A. NUDD CORPORATION

1743 ROUTE 104, BOX 577
ONTARIO, NY 14519
(315) 524 -2531 FAX (315) 524-4249

www.nuddtowers.com

July 31, 2000

Bob Francis
CDT
PO Box 363
17 Ridgewood Drive
Marlborough, CT 06447

Bob,

We have completed the analysis of your Eastford tower and have found it adequate within the scope of this analysis to support the proposed antenna loading. The analysis was performed using 85 mph wind speed with 1/2" radial ice per EIA/TIA 222-F recommended standard.

The tower we analyzed is a 180' Nudd G42 guyed tower consisting of pipe legs and angle bracing. Tower sections are all-welded with a face dimension of 3'-6". Foundation capacities were predicated on original design criteria.

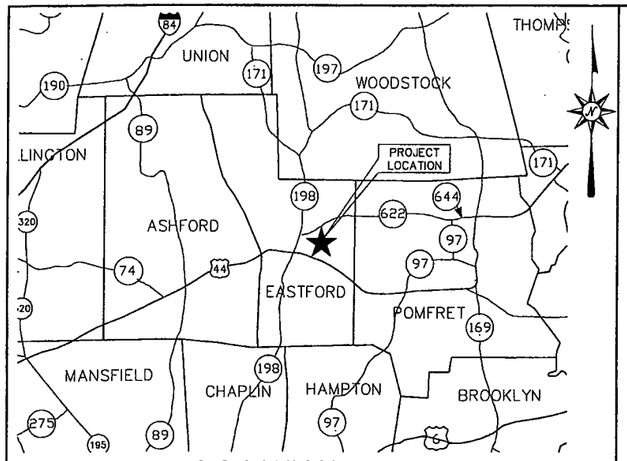
The antenna loading used in the analysis consisted of the configuration shown on drawing #00-5874A-1. The results of the analysis showed with the addition of the 10' section and new guy cable, all tower & foundation elements were loaded within allowable limits.

If you have any questions concerning this analysis, please contact me.

Sincerely,

FRED A. NUDD CORPORATION

Patrick Botimer
Engineer

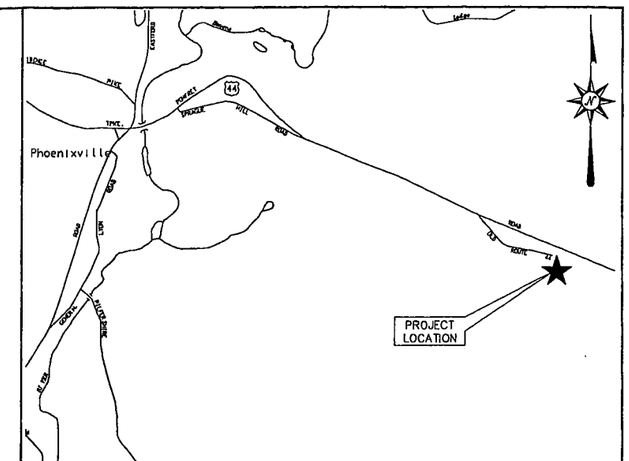


LOCATION MAP

SCALE: NONE

SITING COUNCIL SUBMISSION

EASTFORD TELECOMMUNICATION FACILITY



VICINITY MAP

SCALE: 1"=1000'

35 OLD ROUTE 44
EASTFORD, CONNECTICUT 06242

PREPARED FOR:

CELLCO PARTNERSHIP DBA VERIZON WIRELESS
20 ALEXANDER DRIVE
WALLINGFORD, CONNECTICUT 06492

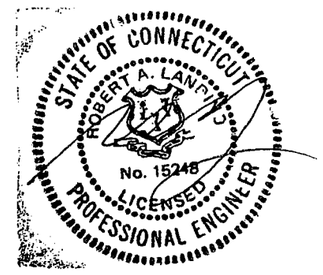
CONTENTS

PREPARED BY:

BL Companies

ARCHITECTURE ENGINEERING PLANNING LANDSCAPE ARCHITECTURE
LAND SURVEYING ENVIRONMENTAL SCIENCES ANALYTICAL SERVICES

355 RESEARCH PARKWAY
MERIDEN, CONNECTICUT 06450
(203) 630-1406
(203) 630-2615 Fax

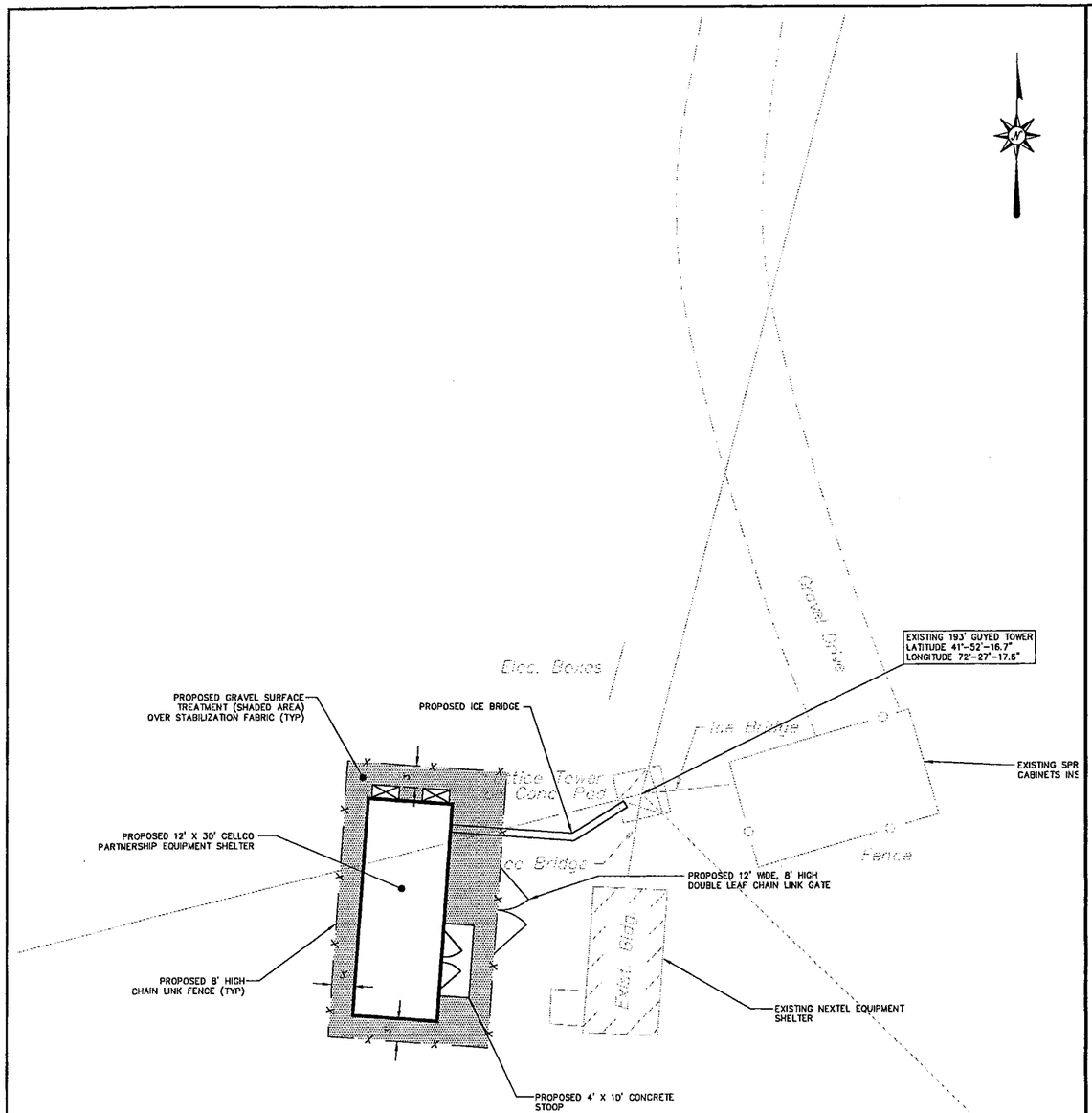


NOT FOR CONSTRUCTION

DATES

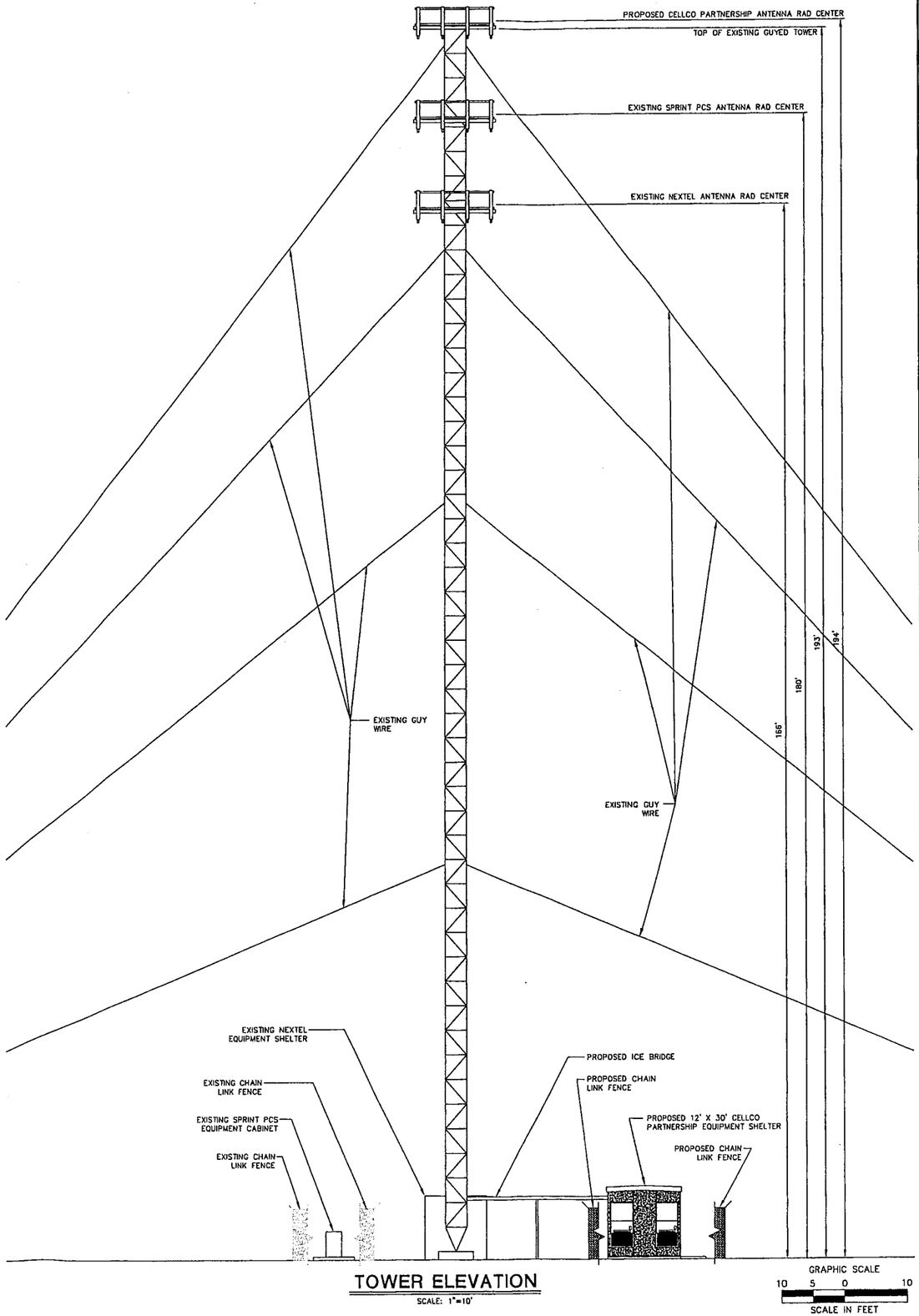
ISSUE DATE: NOVEMBER 15, 2000
REVISION:

CAD FILE: CVC75101



SITE PLAN

SCALE: 1"=10'



TOWER ELEVATION

SCALE: 1"=10'

STATE OF CONNECTICUT
ROBERT A. LANDINO
No. 15248
LICENSED PROFESSIONAL ENGINEER

BL Companies

ARCHITECTURE
ENGINEERING
PLANNING
LANDSCAPE ARCHITECTURE
LAND SURVEYING
ENVIRONMENTAL SCIENCES
ANALYTICAL SERVICES

355 Research Parkway
Meriden, CT 06450
(203) 630-1406
(203) 630-2615 Fax

EASTFORD TELECOMMUNICATION FACILITY

35 OLD ROUTE 44
EASTFORD, CONNECTICUT

REVISIONS

No.	Date	Desc.

Designed	R.C.B.
Drawn	R.C.B.
Checked	R.C.B.
Approved	R.A.L.
Scale	AS SHOWN
Project No.	00C751
Date	11/15/00
CAD File	SCC75101

Title

SITE PLAN AND TOWER ELEVATION

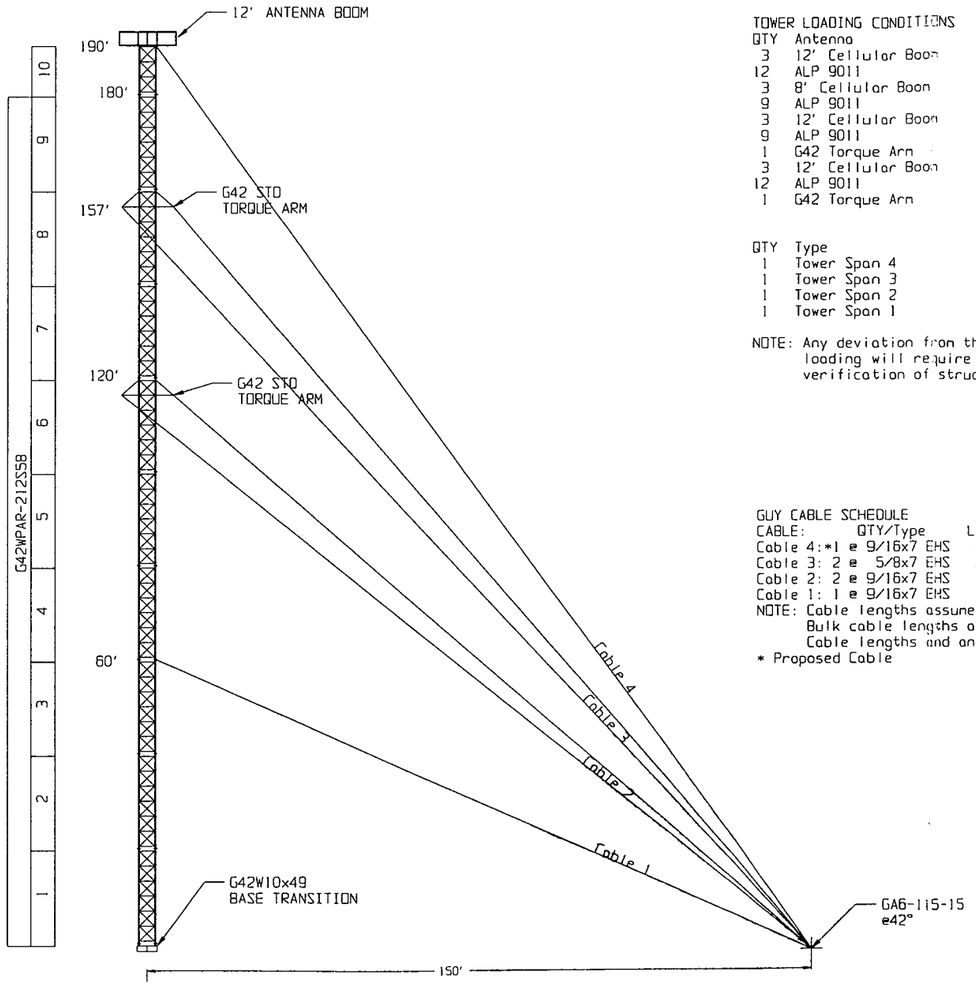
Sheet No.

SC-1

Xref (s): XTC75101, XCC75101, XCC75102

TOWER DESIGN CONDITIONS
This tower has been designed to conform to the requirments
of ANSI/EIA/TIA 222-F recommended standard for 85 mph wind speed with 1/2" radial ice.
Worst case load condition is wind with ice with load reduction.
Allowable steel stresses per AISC ASD 9th Edition
Allowable concrete stresses per ACI 318-89.

MATERIAL SPECIFICATIONS
Tower Legs: ASTM A500-C, Fy > 58 ksi.
All other Steel: ASTM A36, Fy > 36 ksi
Hardware: ASTM A325 Hot Dipped Galvanized Bolts with Anco Nuts.
Galvanizing: ASTM A123
Guy Anchor Shaft: ASTM A36M, Fy > 48 ksi

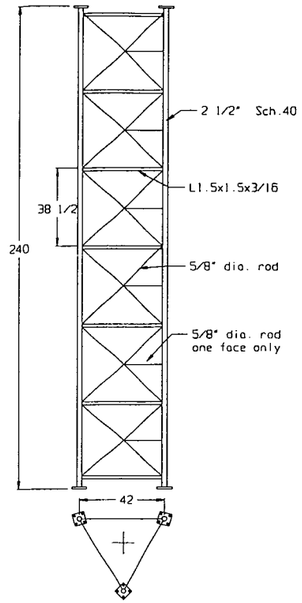


TOWER LOADING CONDITIONS

QTY	Antenna	Elevation	Windload	Deadload	
3	12' Cellular Boom	191	290	170	
12	ALP 9011	191	116	20	Verizon Wirelss
3	8' Cellular Boom	178	226	130	
9	ALP 9011	178	114	20	Nextel
3	12' Cellular Boom	158	275	170	
9	ALP 9011	158	110	20	Sprint PCS
1	G42 Torque Arm	160	527	262	
3	12' Cellular Boom	150	271	170	
12	ALP 9011	150	109	20	Future
1	G42 Torque Arm	120	485	262	

QTY	Type	Elevation Start	Elevation Stop	#/ft Windload	#/ft Deadload
1	Tower Span 4	160	190	249.0	57.8
1	Tower Span 3	120	160	233.7	57.8
1	Tower Span 2	60	120	206.3	57.8
1	Tower Span 1	0	60	154.4	63.9

NOTE: Any deviation from the proposed design antenna loading will require a tower analysis for verification of structural integrity.

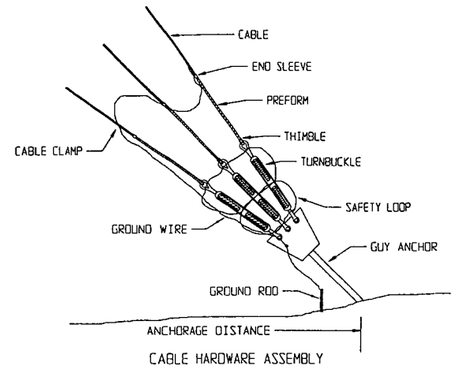


G42WPAR TOWER SECTION

GUY CABLE SCHEDULE

CABLE:	QTY/Type	Length	Ti	Turnbuckle	Preform	Thmbl	Endslve	Shckl
Cable 4:	*1 @ 9/16x7 EHS	239'	5250#	7/8"x12" J-J	9/16" BG	5/8"	65267	3/4"
Cable 3:	2 @ 5/8x7 EHS	216'	6360#	1"x18" J-J	5/8" BG	3/4"	65268	3/4"
Cable 2:	2 @ 9/16x7 EHS	188'	5250#	7/8"x12" J-J	9/16" BG	5/8"	65267	3/4"
Cable 1:	1 @ 9/16x7 EHS	157'	5250#	7/8"x12" J-J	9/16" BG	5/8"	65267	3/4"

NOTE: Cable lengths assume anchors at elevation 0'.
Bulk cable lengths assume 20' tails.
Cable lengths and anchor layout must compensate for site topography.
* Proposed Cable

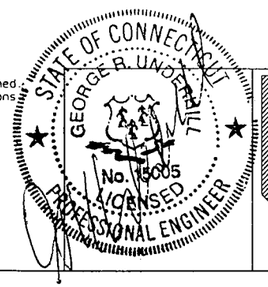


CABLE HARDWARE ASSEMBLY
NOTE: Install cable hardware per manufacturer's specifications.

INSTALLATION NOTES
1. Installation of tower must be performed by a qualified tower erector.
2. Install sections with section number on the bottom, and climbing device is aligned.
3. Install safety climb, lights, cable attachments per manufacturer's recommendations.
4. Do not lift more than 100' of assembled tower sections.
5. Install "sharp" edge of adapter plates against face of tower.
6. Plumb and tension tower and cables as erected.
7. "Ti"=Initial tension of cable.

G42 Section Weights: 785/685 +/-
Top Frame: 1000 +/-

SECTION DESIGNATION:
G42WPAR-212S55 = 2-1/2"; (212), (S)Sch.40/(EH)Sch.80, (55)ksi strength
96-47-xx = Year-(47) ksi strength-xx



FRED A. NUDD CORPORATION
Route 104*Ontario, New York 14519*315/524-2531

SCALE: N/S	DRAWN BY: PCB	APPROVED BY:
DATE: 7/31/00		

180' TOWER MT. EXTENSION

COT
EASTFORD, CT

DRAWING NUMBER: 00-5874A-1

FRED A. NUDD CORPORATION

1743 ROUTE 104, BOX 577
ONTARIO, NY 14519
(315) 524 -2531 FAX (315) 524-4249

www.nuddtowers.com

July 31, 2000

Bob Francis
CDT
PO Box 363
17 Ridgewood Drive
Marlborough, CT 06447

Bob,

We have completed the analysis of your Eastford tower and have found it adequate within the scope of this analysis to support the proposed antenna loading. The analysis was performed using 85 mph wind speed with 1/2" radial ice per EIA/TIA 222-F recommended standard.

The tower we analyzed is a 180' Nudd G42 guyed tower consisting of pipe legs and angle bracing. Tower sections are all-welded with a face dimension of 3'-6". Foundation capacities were predicated on original design criteria.

The antenna loading used in the analysis consisted of the configuration shown on drawing #00-5874A-1. The results of the analysis showed with the addition of the 10' section and new guy cable, all tower & foundation elements were loaded within allowable limits.

If you have any questions concerning this analysis, please contact me.

Sincerely,

FRED A. NUDD CORPORATION

Patrick Botimer
Engineer

FRED A. NUDD CORPORATION

1743 ROUTE 104, BOX 577
ONTARIO, NY 14519
(315) 524-2531 FAX (315) 524-4249
www.nuddtowers.com

Analysis of
190 ' Guyed Tower

MODEL #: G42WPAR

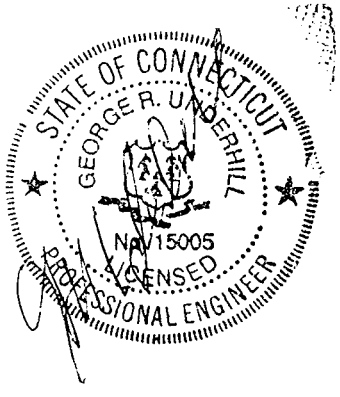
PROJECT #: 5874A

LOCATION: Eastford, Ct

for

CDT
Box 363
17 Ridgewood Dr.
Marlborough, CT 06447

July, 2000



SYNOPSIS OF TOWER ANALYSIS

1. Wind loading conditions considered:
   75% wind load with concurrent 1/2" ice.
   100% wind with no ice.

Worst wind load case is wind with ice.

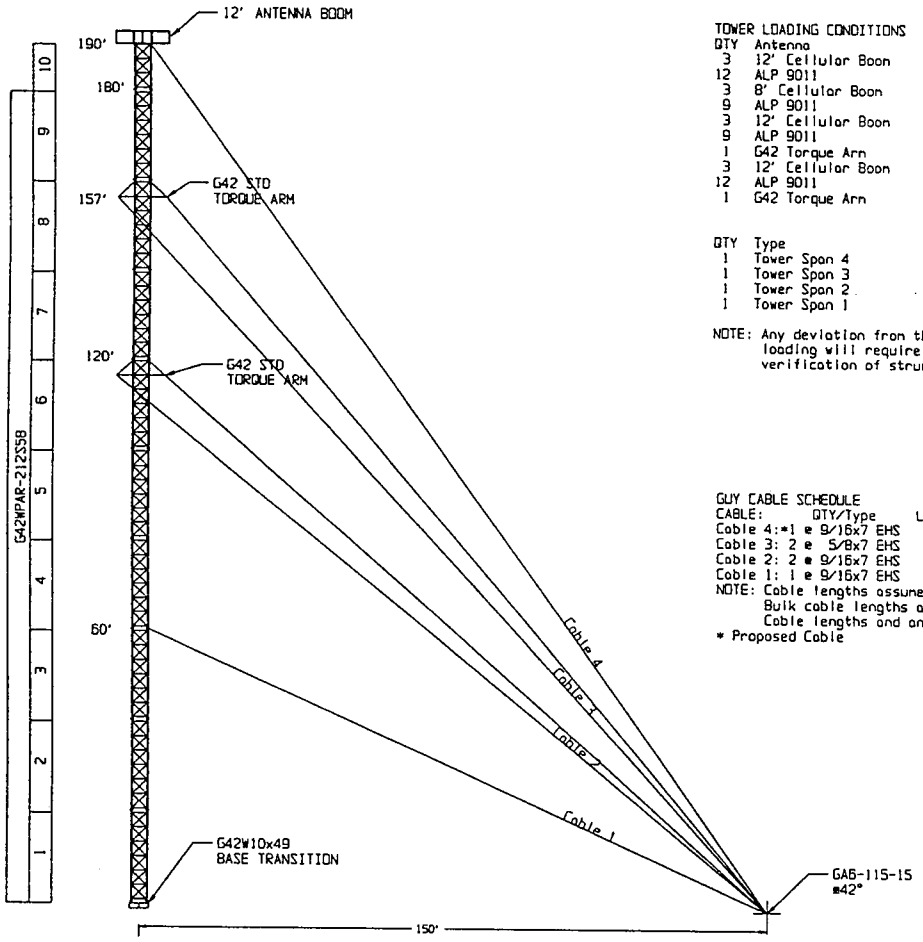
2. Maximum Leg Load:	66% loaded
3. Tower Bracing:	78% loaded
4. Foundations:	89% loaded
5. Guy Cables:	91% loaded

PRIMARY ASSUMPTIONS USED IN THE ANALYSIS

1. Allowable steel stresses are defined by AISC-ASD 9th Edition.
2. All tower members adequately galvanized to prevent corrosion of steel members.
3. All proposed antenna mounts are modeled as Nudd manufactured.
4. No residual stresses due to incorrect tower erection.
5. All bolts are appropriately tightened providing the necessary connection continuity.
6. All welds conform to the requirements of AWS D1.1.
7. We have assumed an allowable wind speed of 85 mph per EIA/TIA 222-F standard for analysis purposes.
8. The acceptability of the analyzed antenna loading is the responsibility of CDT to confirm with the other carriers.
9. Any deviation from the analyzed antenna loading will require a tower analysis for verification of structural integrity.
10. This analysis has been commissioned by Bob Francis of CDT who has provided information about the proposed antennas and location.

TOWER DESIGN CONDITIONS
This tower has been designed to conform to the requirments
of ANSI/EIA/TIA 222-F recommended standard for 85 mph wind speed with 1/2" radial ice.
Worst case load condition is wind with ice with load reduction.
Allowable steel stresses per AISC ASD 9th Edition
Allowable concrete stresses per ACI 318-89.

MATERIAL SPECIFICATIONS
Tower Legs: ASTM A500-C, Fy > 58 ksi.
All other Steel: ASTM A36, Fy > 36 ksi
Hardware: ASTM A325 Hot Dipped Galvanized Bolts with Anco Nuts.
Galvanizing: ASTM A123
Guy Anchor Shaft: ASTM A36M, Fy > 48 ksi

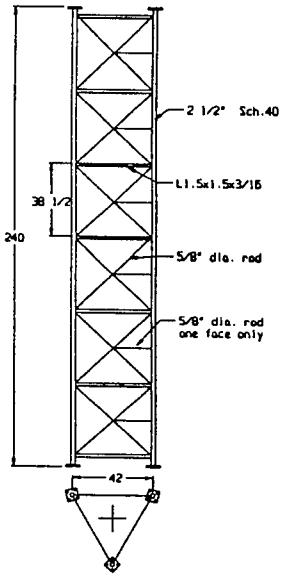


TOWER LOADING CONDITIONS

QTY	Antenna	Elevation	Windload	Deadload	
3	12' Cellular Boon	191	290	170	
12	ALP 9011	191	116	20	Verizon Wirelss
3	8' Cellular Boon	178	226	130	
9	ALP 9011	178	114	20	Nextel
3	12' Cellular Boon	158	275	170	
9	ALP 9011	158	110	20	Sprint PCS
1	G42 Torque Arm	160	527	262	
3	12' Cellular Boon	150	271	170	
12	ALP 9011	150	109	20	Future
1	G42 Torque Arm	120	485	262	

QTY	Type	Elevation Start	Stop	#/ft Windload	Deadload
1	Tower Span 4	160	190	249.0	57.8
1	Tower Span 3	120	160	233.7	57.8
1	Tower Span 2	60	120	206.3	57.8
1	Tower Span 1	0	60	154.4	63.9

NOTE: Any deviation from the proposed design antenna loading will require a tower analysis for verification of structural integrity.

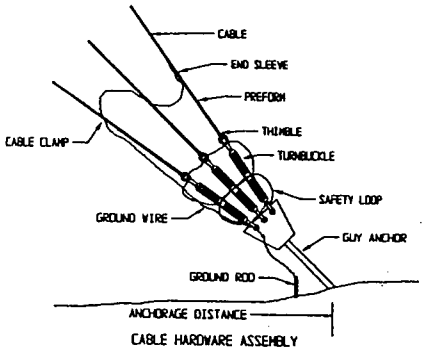


G42WPAR TOWER SECTION

GUY CABLE SCHEDULE

CABLE:	QTY/Type	Length	Ti	Turnbuckle	Preform	Thmbl	Endslve	Shckl
Cable 4:	*1 @ 9/16x7 EHS	238'	5250#	7/8"x12" J-J	9/16" BG	5/8"	65267	3/4"
Cable 3:	2 @ 5/8x7 EHS	215'	6360#	1"x18" J-J	5/8" BG	3/4"	65268	3/4"
Cable 2:	2 @ 9/16x7 EHS	188'	5250#	7/8"x12" J-J	9/16" BG	5/8"	65267	3/4"
Cable 1:	1 @ 9/16x7 EHS	157'	5250#	7/8"x12" J-J	9/16" BG	5/8"	65267	3/4"

NOTE: Cable lengths assune anchors at elevation 0'.
Bulk cable lengths assune 20' tails.
Cable lengths and anchor layout nust conpensate for site topography.
* Proposed Cable



CABLE HARDWARE ASSEMBLY
NOTE: Install cable hardware per manufacturer's specifications.

INSTALLATION NOTES
1. Installation of tower must be performed by a qualified tower erector.
2. Install sections with section number on the bottom, and climbing device is aligned.
3. Install safety climb, lights, cable attachments per manufacturer's recommendations.
4. Do not lift more than 100' of assembled tower sections.
5. Install "sharp" edge of adapter plates against face of tower.
6. Plumb and tension tower and cables as erected.
7. "Ti"=Initial tension of cable.

G42 Section Weights: 785/685 +/-
Top Frame: 1000 +/-

SECTION DESIGNATION:
G42WPAR-212SS5 = 2-1/2"; (212), (S)Sch.40/(EH)Sch.80, (55)ksi strength
96-47-xx = Year-(47) ksi strength-xx

FRED A. NUDD CORPORATION
Route 104-Ontario, New York 14519-315/524-2531

SCALE:	DRAWN BY:	
N/S	PCB	
DATE: 7/31/00		

180' TOWER MT. EXTENSION

COT
EASTFORD, CT

DRAWING NUMBER: 00-5874A-1

7/31/00
8:03:41 AM
CDT
Eastford, NY
Project #: 5874A

GUY CABLE DATA ft, lbf

	Elev	Horiz	Length	Angle	Wind Length	Total Length	Cable Type
Cable 4:	190	145	240	52.79	419	719	EHS
Cable 3:	160	145	217	47.99	728	1300	EHS
Cable 2:	120	145	189	39.84	589	1133	EHS
Cable 1:	60	145	157	22.81	200	472	EHS

CABLE LOADS -lbf

	Shear	Download	Cable Load	Cable Size	%Loaded
Cable 4:	7135	10853	13626	1 - 9/16x7	77.9
Cable 3:	15973	20480	27561	2 - 5/8x7	65.0
Cable 2:	13618	13122	20481	2 - 9/16x7	58.5
Cable 1:	12737	6187	15956	1 - 9/16x7	91.2

Cable Safety Factor:2.00
Shear at 0': 3492 lbf
Shear on Guy Anchors: 493 lbf
ACCUMULATED DOWN LOADS

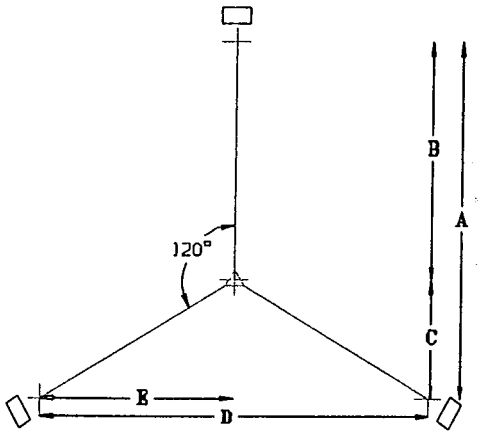
Elevation	Down load (lbf)
193	0
191	750
190	12085
175	13522
160	36187
140	38783
120	54083
90	55816
60	64054
30	65970
0	67886

GUY ANCHOR REACTIONS

Anchor Radius (ft):	145
Vertical Reaction (lbf):	50642
Horizontal Reaction (lbf):	57116
Resultant (lbf):	76333
Horizontal Angle (°):	41.56

TOWER PLOT DIMENSIONS

A=	218 ft
B=	145 ft
C=	73 ft
D=	251 ft
E=	126 ft



TOWER PLOT PLAN

7/31/00
8:03:55 AM
CDT
Eastford, NY
Project #: 5874A

MOMENT DISTRIBUTION OUTPUT

Beam Configuration:
5 Spans

SPAN	FEMB	FEMT	VB	VT	dfB	dfT
1	-46309	46308	4630	4630	1.0000	0.5000
2	-61877	61876	6187	6672	0.5000	0.4000
3	-35303	46334	5294	8511	0.6000	0.4286
4	-23585	26038	4417	4757	0.5714	1.0000
5	-2265	0	2264	0	0.0000	0.0000

10 Iterations

SPAN #	DISTRIBUTED MOMENTS(ft-lb) MOM B	MOM T	SHEARS(lb) VB	VT	REACTIONS(lb)
					3492
1	0	68354	3492	5770	
					12245
2	-68354	51141	6475	6386	
					12030
3	-51141	37154	5644	8162	
					13742
4	-37154	2265	5580	3595	
					5859
5	-2265	0	2265	0	
					0

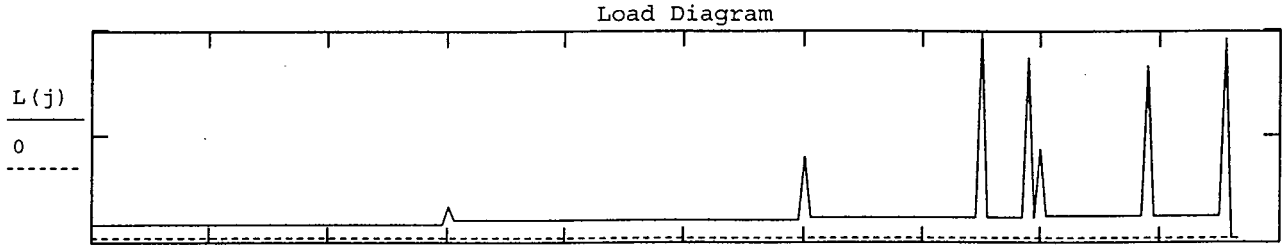
Project: CDT
Location: Eastford, CT
Date: 7/00

Maximum_Download = 67885.6

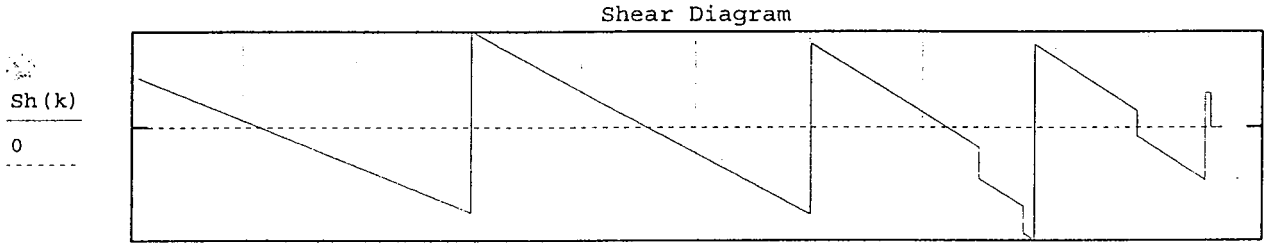
Maximum_Load = 2348

Top := 200 ft High

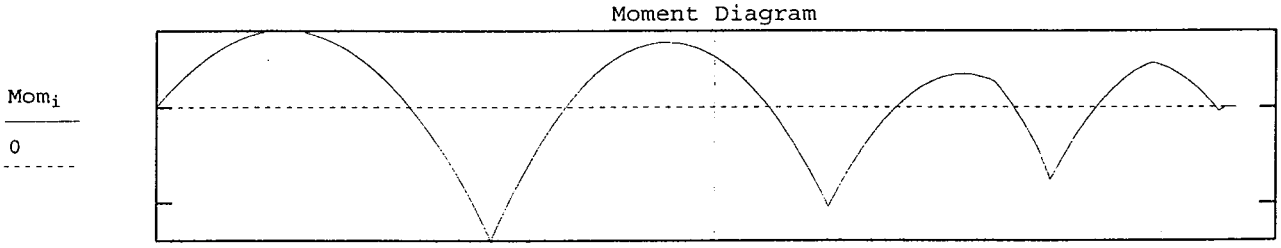
Load Diagram



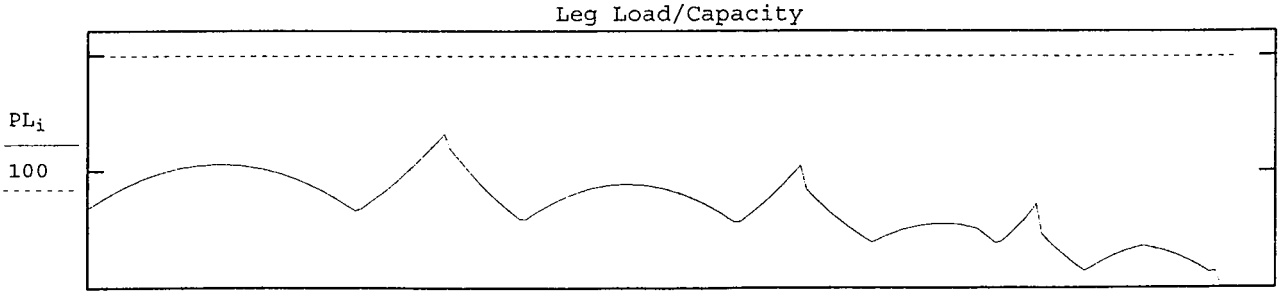
Shear Diagram



Moment Diagram



Leg Load/Capacity



PL_i=% Loaded Elevation ≡ 180 Moment = 21232.7 Leg_Load = 11226

Mom_i=Moment DownLoad = 12663.1 $Percent\_Loaded_1$ = 16.8 %

max(PL) = 66.4

Check Girts at Guy Pulls:

Steel Properties:

$E := 29 \cdot 10^6 \cdot psi$

$Fy_{girt} := 36000 \cdot psi$

$Fy_{diag} := 36000 \cdot psi$

Tensile capacity of (1) L1.5x1.5x3/16:

$Area := \left[1.5^2 - (1.5 - .1875)^2 - .4375 \cdot .1875\right] \cdot in^2$

$Capacity := .6 \cdot Fy_{girt} \cdot \frac{4}{3} \cdot Area \cdot 1 \cdot bars$

$Capacity = 12825\,lbf$

Maximum Single cable shear is 12800 lb, resolved into each brace.

$$Percent\_Loaded_2 := \frac{\frac{12800 \cdot lbf}{2 \cdot girt \cdot \cos(30 \cdot deg)}}{Capacity}$$

$Percent\_Loaded_2 = 57.6\,\%$

Check compression capacity of girts against maximum shear:

$l := (42 - 2.875) \cdot in$ $\quad Area := \left[1.5^2 - (1.5 - .1875)^2\right] \cdot in^2$

$Area = 0.527\,in^2$

$r := .293 \cdot in$ $\quad$ L1.5x1.5x.1875"

$K := .70$ $\quad$ All welded

$$klr := \frac{K \cdot l}{r} \qquad Cc := \sqrt{\frac{2 \cdot \pi^2 \cdot E}{Fy_{girt}}}$$

$klr = 93.5$

$Cc = 126.1$

$$Fa(klr, Cc, Fy) := \frac{\left[1 - \frac{\left(\frac{klr}{Cc}\right)^2}{2}\right] \cdot Fy}{\frac{5}{3} + \frac{3}{8} \cdot \frac{klr}{Cc} - \left(\frac{klr}{2 \cdot Cc}\right)^3} \cdot (klr < Cc) + \frac{12 \cdot \pi^2 \cdot E}{23 \cdot klr^2} \cdot (klr \geq Cc)$$

$Fa1 := Fa(klr, Cc, Fy_{girt})$

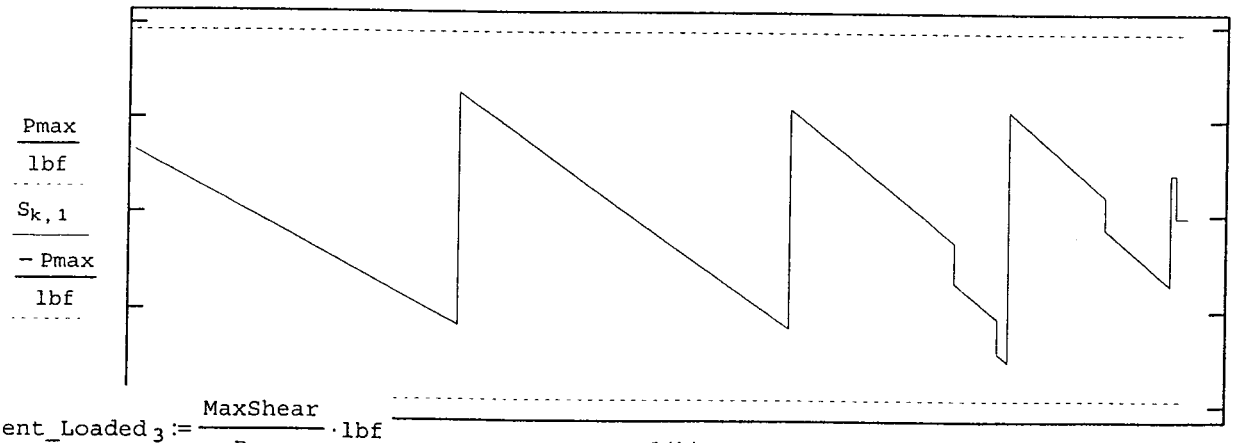
$Fa1 = 13787.4\,psi$

Maximum allowable compression load:

$Pmax := Fa1 \cdot \frac{4}{3} \cdot Area$

$Pmax = 9694.3\,lbf$

$MaxShear = 7635.3$



$$Percent\_Loaded_3 := \frac{MaxShear}{Pmax} \cdot lbf$$

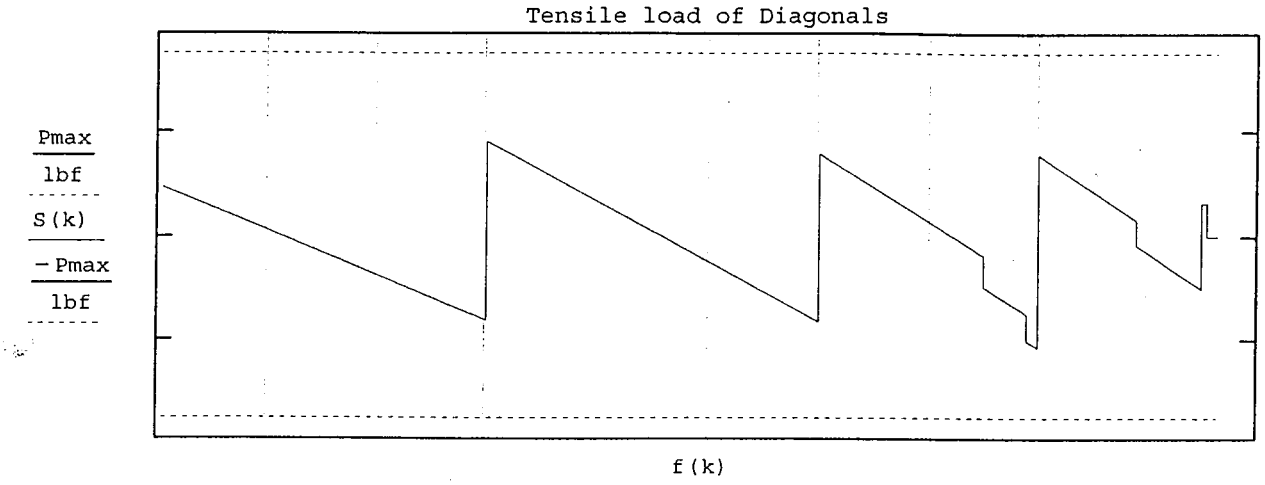
$Percent\_Loaded_3 = 78.8\,\%$

Check tension capacity of diagonals:

$$S(k) := \frac{Sh(k)}{2 \cdot braces \cdot \cos(45 \cdot deg)}$$

$$Pmax := \frac{\pi}{4} \cdot \left(\frac{5}{8} \cdot in\right)^2 \cdot .6 \cdot Fy_{diag} \cdot \frac{4}{3}$$

$$Pmax = 8835.7\,lbf$$



Bracing:
Use 5/8" diagonals throughout tower,
3/4" at guypull panels.
Use L1.5x1.5x.1875" Horizontals.
Legs: 2-1/2" pipe

All allowable stresses per
American Institute of Steel Construction 9th edition and
Electronics Industry Association 222-F recommended standard.

INNER GUY ANCHOR DESIGN CALCULATIONS

Customer: CDT
Project: Eastford, NY
7/31/00 8:22 AM

REACTIONS:

Vertical	50.6 kips
Horizontal	57.1 kips
Resultant	76.3 kips
Hor. Angle	41.6 °
Submerged?	0 No
Water Depth:	0 ft

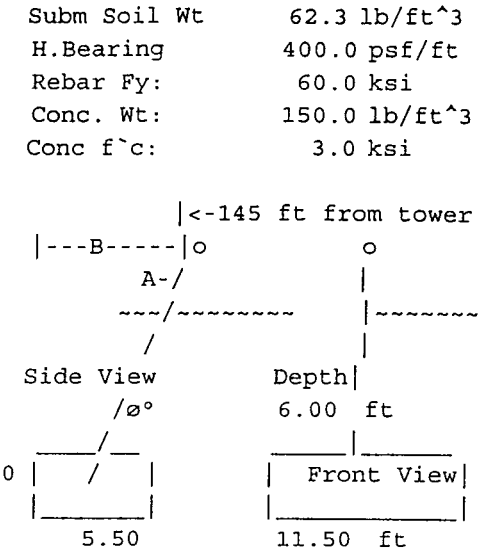
Soil Wt:	100.0 lb/ft^3
Soil Gs:	2.65
Subm Soil Wt	62.3 lb/ft^3
H.Bearing	400.0 psf/ft
Rebar Fy:	60.0 ksi
Conc. Wt:	150.0 lb/ft^3
Conc f`c:	3.0 ksi

CONCRETE WEIGHT:

Block Volume	4.7 cu yds
Block Wt	19.0 kips

SOIL FRUSTUM WEIGHT:

Frustum:	30 °
Block:	38.0 kips
Edges:	35.3 kips
Corners:	9.6 kips
Total Wt:	82.9 kips
Excavatn:	506 cuft



HORIZONTAL CAPACITY: EIA 7.1.2

Load @	7 ft
Load:	64400 lb

Check anchor shaft embedment? OK

Design Loads:	Uplift 50.64	Horizontal 57.12	kips
Capacity:*	56.62	64.40	kips
% Loaded:	89%	89%	OK

* EIA 7.2.4

Concrete Volume: 14.1 cu yds

GUY ANCHOR ROD:

Resultant	76.33 kips
Hole QTY	6 holes
# of rods	1
Fy	48000 psi
Min. Area	1.988 in²/bar
Min. Dia.	1.591 in
Act. Area	2.405 in²/bar
Act. Dia.	1.75 in, 82.6% Loaded
Anchor ID:	GA6-115-15

ANCHOR ROD LENGTH:

Minimum:	13.30 ft
Maximum:	15.07 ft
Recommend:	14.00 ft
Actual:	15 ft

BLOCK REINFORCEMENT: Cover: 6 in

	Vertical	Horizontal	
Factored Loads:	65.8	74.3	kips EIA 3.1.13
Factored Moment:	1261.8	1423.1	kip-inch
Minimum As:	1.583	0.529	in² ACI 10.5.1
Minimum Qty:	9	3	Bar #:
Actual Qty:	9	4	4
Actual As:	1.767	0.785	in² OK

ANCHOR DIMENSIONS:

Length	11'- 6"
Width	5'- 6"
Height	2'- 0"
Depth	6'- 0"
OADepth	8'- 0"
Dim. A:	7'- 0"
Dim. B:	12'- 6"
ø:	41°

REBAR DIMENSIONS:

RBL:	121"
RBH:	12"
RBW:	56"
Bent OAL:	68"
QTY Long:	14 Bars ea
QTY Bent:	14 Bars ea
Rebar Wt.	164 lb ea

MASTER CHECK: OK

Anchor design per ACI 318-89, ANSI/EIA 222-F, AISC ASD 9th Edition

SQUARE FOOTING AND PIER DESIGN

Customer: CDT
Project: Eastford, NY
7/31/00 8:22 AM

Dead Load	20	kips			
Wind Load	55	kips			
e Load	0	kips			
ASSUMED DIMENSIONS:					
Width	5.50	ft OK	f'c:	3000	psi
Thickness	1.00	ft	Fy:	60000	psi
Pier OD	2.00	ft	Soil:	4000	psf net bearing capacity
Sqr Pier	0				
Rnd Pier	1		Pier Area:	452	inch²
Depth	4.00	ft	Ht. above Grade:	3	inches
Cover	3	inches			
Bar #	4	0.5	G42W10x49 Base Transition ID		
Eff.Depth	8.500	inches			

CALCULATIONS: Minimum Width: 4.330 ft 62% loaded
Ultimate Load: 43.0 kips ACI 9.2.2
Ultimate Stress 1421 psf (factored)

CHECK SHEAR

Two Way Action: Assumes ßc=1		One Way Action Load Area:	5.729 ft²
Vu:	34799 lbs	Vu:	8141 lbs
Vc:	161619 lbs	Vc:	52236 lbs
	21.53% <= OK =>		15.59%

LOAD TRANSFER Pier Capacity/Pu ACI 15.8
@ Pad/Pier interface 5% OK - Dowels not required.

Pivot Pin Bearing Stress: ACI 10.15.1

Minimum Area	12	inch²
Minimum plate OD	3.92	inchø, 3.47" ea. side square
Distance "d" to edge	0.5	inch
Minimum Plate Thickness:	0.2230	inch

-» d

Bearing Plate--^ |<--Pivot Pin

MINIMUM PIER REINFORCING ACI 15.8.2.1, 7.10.5

	.5% Req.	2.262 inch²	Steel Area:
8 Bars of #	5	2.454 inch²	OK

Bar Lngth: 54 inch
Pier Tie bar #: 3 10 " tie bar spacing

PAD BENDING MOMENT REINFORCEMENT

Mn:	13297	ft-lbs
Ratio:	0.000561	ACI 10.5.1
Steel:	0.315	inch²
Bar #:	5	
Req'd QTY:	2	
Act'l QTY:	5	OK
Act. Stl:	1.534	inch²
Act. d:	8.500	inches
Ldb:	11.25	inches OK

|<-->|2'-0"
1'-0"
4'-0
5'-0"
5'-6"
5'-6"

Mat Bars:	Concrete:
10 @ 13.50" spacing	1.6 cuyd
84 lb	6422.5 lb

MASTER CHECK: OK

Concrete Per ACI 318-89, ANSI/EIA 222-F, AISC ASD 9th Edition

TOWER LOADS

Point Loads

QTY	Antenna	Elevation (ft)	Windload (lb)	Deadload (lb)	
3	12' Cellular Boom	191	290	170	
12	ALP 9011	191	116	20	Verizon Wirelss
3	8' Cellular Boom	178	226	130	
9	ALP 9011	178	114	20	Nextel
3	12' Cellular Boom	158	275	170	
9	ALP 9011	158	110	20	Sprint PCS
1	G42 Torque Arm	160	527	262	
3	12' Cellular Boom	150	271	170	
12	ALP 9011	150	109	20	Future
1	G42 Torque Arm	120	485	262	

Uniform Loads

QTY	Type	Elevation Start	Elevation Stop	#/ft Windload	#/ft Deadload
1	Tower Span 4	160	190	249.0	57.8
1	Tower Span 3	120	160	233.7	57.8
1	Tower Span 2	60	120	206.3	57.8
1	Tower Span 1	0	60	154.4	63.9

TRIANGULAR TOWER SECTION DATA

Client: CDT
Project: Eastford, NY
7/31/00 8:19 AM

Guyed Tower
Wind Angle 0,60,90 90 °
Elevation of Foundation: 1 ft
Wind Speed 85 mph
Gh 1.12 EIA 2.3.4
Wind Pres. 20.6 psf EIA 2.3.3
Radial Ice 0.5 inch
EIA 2.3.15 Wind/Ice Reductn? Yes
ANSI/EIA Overstress Factor: Yes

	OD,L1	ID,L2	wall
LEGS			
2.5" Sch40	2.875	2.469	0.203
DIAGONALS			
5/8" Rod	0.625	0.000	0.313
HORIZONTALS			
L1.5x1.5x3	1.500	1.500	0.188

Dbl Angle Gap: 0 in
Galvanizing? Yes
WaveGuide hole reduction? Yes

ITEM	DL	WL
Ladder:	100	10
Misc.	159	0
Total lbf:	259	10

Elev@Top 40 feet
Elev@Base 20 feet
Tower Ht. 193 feet
Top Face 42.00 inches 3.50
Bot Face 42.00 inches 3.50
Taper/Se 0.00 in.
Ave Face 42.00 inches
Length 240 inches
FL.to BR 6 inches
Panel 6 panels
Panel 38.00 inches
Br/Panel 2 |x|
Br Lngth 54.54 inches
Horiz 7 7
Density 0.283 lb/in^3
Bracing Type: 1 |x|

SECTION GEOMETRY »
Section Ixx,Iyy » 1508 in^4
Face Vert. Angle 0.000 °
Leg Angle in face 0.000 °
Leg/Axis Angle 0.000 °
Brace Angle 42.138 °

SECTION 1 WIND LOAD / WEIGHT CALCULATIONS:

	Pro OD	X-Area	Weight	Ice Wt
Legs	3.875	1.704	347.2	123.7 lbs
Diagonals	1.625	0.307	170.5	112.4 lbs
Horizontals	2.500	0.527	131.6	100.0 lbs
			---	---
Total Weigh			682	336 lbs

Ag: 76 ft²
Af: 3 ft² Df: 0.850
Ar: 22 ft² Rr: 0.625
SR(e): 0.328 ft² Dr: 1.000
Cf: 2.225
Area: 16.30 ft²
Shear: 571 28.6 lbf,lbf/f
CnMoment: 5713 ft-lbf
Deadload: 1277 63.9 lbf,lbf/ft
Solid Area Windloads:
Shear: 3087 154.4 lbf,lbf/ft

	feet²
Ae 0°	16.73
Ae 45°	20.07
Ae 60°	16.16
Ae 90°	16.30

Span Length 60 ft
Span Capacity 66121 lbf/leg

Legs:
K 1.00
KL/r 40.1 OK
Fy 58000 psi
EIA 3.1.1, Cc 99.3
AISC E2 Fa 39247 psi
Max.Compresn.Force 66879 lbs
K 1.00
Diagonals : KL/r 153.0 OK
Fy 36000 psi
Cc 126.1
EIA 3.1.1 Fa 8502 psi
Max.Compresn.Force 2608 lbs
Max.Tension.Force* 8836 lbs
*Verify Net Section on member.
K 1
Horizontals: KL/r 133.4 OK
Cc 126.1
EIA 3.1.1 Fa 11193 psi
Max.Compresn.Force 5903 lbs

TRIANGULAR TOWER SECTION DATA

Client: CDT
Project: Eastford, NY
7/31/00 8:19 AM

Guyed Tower
Wind Angle 0,60,90 90 °
Elevation of Foundation: 1 ft
Wind Speed 85 mph
Gh 1.12 EIA 2.3.4
Wind Pres. 27.6 psf EIA 2.3.3
Radial Ice 0.5 inch
EIA 2.3.15 Wind/Ice Reductn? Yes
ANSI/EIA Overstress Factor: Yes

Span: 2
Elev@Top 100 feet
Elev@Base 80 feet
Tower Ht. 193 feet
Top Face 42.00 inches 3.50
Bot Face 42.00 inches 3.50
Taper/Se 0.00 in.
Ave Face 42.00 inches
Length 240 inches
FL.to BR 6 inches
Panel 6 panels
Panel 38.00 inches
Br/Panel 2 |x|
Br Lngth 54.54 inches
Horiz 7 7
Density 0.283 lb/in^3

LEGS	OD,L1	ID,L2	wall
2.5" Sch40	2.875	2.469	0.203
DIAGONALS			
5/8" Rod	0.625	0.000	0.313
HORIZONTALS			
L1.5x1.5x3	1.500	1.500	0.188

Dbl Angle Gap: 0 in
Galvanizing? Yes
WaveGuide hole reduction? Yes

Bracing Type: 1 |x|

SECTION GEOMETRY »
Section Ixx,Iyy » 1508 in^4
Face Vert. Angle 0.000 °
Leg Angle in face 0.000 °
Leg/Axis Angle 0.000 °
Brace Angle 42.138 °

ITEM	DL	WL
Ladder:	100	10
Misc.	38	0
Total lbf:	138	10

SECTION 2 WIND LOAD / WEIGHT CALCULATIONS:

	Pro OD	X-Area	Weight	Ice Wt
Legs	3.875	1.704	347.2	123.7 lbs
Diagonals	1.625	0.307	170.5	112.4 lbs
Horizontals	2.500	0.527	131.6	100.0 lbs
			---	---
Total Weigh			682	336 lbs

Ag: 76 ft²
Af: 3 ft² Df: 0.850
Ar: 22 ft² Rr: 0.625
SR(e): 0.328 ft² Dr: 1.000
Cf: 2.225

Area: 16.30 ft²
Shear: 760 38.0 lbf,lbf/f
CnMoment: 7600 ft-lbf
Deadload: 1156 57.8 lbf,lbf/ft
Solid Area Windloads:
Shear: 4125 206.3 lbf,lbf/ft

	feet²
Ae 0°	16.73
Ae 45°	20.07
Ae 60°	16.16
Ae 90°	16.30

Span Length 60 ft
Span Capacity 66121 lbf/leg

Legs:
K 1.00
KL/r 40.1 OK
Fy 58000 psi
EIA 3.1.1, Cc 99.3
AISC E2 Fa 39247 psi
Max.Compresn.Force 66879 lbs

Diagonals :
K 1.00
KL/r 142.2 OK
Fy 36000 psi
Cc 126.1
EIA 3.1.1 Fa 9848 psi
Max.Compresn.Force 3021 lbs
Max.Tension.Force* 8836 lbs
*Verify Net Section on member.

Horizontals:
K 1
KL/r 133.4 OK
Cc 126.1
EIA 3.1.1 Fa 11193 psi
Max.Compresn.Force 5903 lbs

TRIANGULAR TOWER SECTION DATA

Client: CDT
Project: Eastford, NY
7/31/00 8:19 AM

Guyed Tower
Wind Angle 0,60,90 90 °
Elevation of Foundation: 1 ft
Wind Speed 85 mph
Gh 1.12 EIA 2.3.4
Wind Pres. 31.3 psf EIA 2.3.3
Radial Ice 0.5 inch
EIA 2.3.15 Wind/Ice Reductn? Yes
ANSI/EIA Overstress Factor: Yes

Span: 3
Elev@Top 150 feet
Elev@Base 130 feet
Tower Ht. 193 feet
Top Face 42.00 inches 3.50
Bot Face 42.00 inches 3.50
Taper/Se 0.00 in.
Ave Face 42.00 inches
Length 240 inches
FL.to BR 6 inches
Panel 6 panels
Panel 38.00 inches
Br/Panel 2 |x|
Br Lngth 54.54 inches
Horiz 7 7
Density 0.283 lb/in^3

LEGS	OD,L1	ID,L2	wall
2.5" Sch40	2.875	2.469	0.203
DIAGONALS			
5/8" Rod	0.625	0.000	0.313
HORIZONTALS			
L1.5x1.5x3	1.500	1.500	0.188

Dbl Angle Gap: 0 in
Galvanizing? Yes
WaveGuide hole reduction? Yes

Bracing Type: 1 |x|

ITEM	DL	WL
Ladder:	100	10
Misc.	38	0
Total lbf:	138	10

SECTION GEOMETRY »
Section Ixx,Iyy » 1508 in^4
Face Vert. Angle 0.000 °
Leg Angle in face 0.000 °
Leg/Axis Angle 0.000 °
Brace Angle 42.138 °

SECTION 3 WIND LOAD / WEIGHT CALCULATIONS:

	Pro OD	X-Area	Weight	Ice Wt
Legs	3.875	1.704	347.2	123.7 lbs
Diagonals	1.625	0.307	170.5	112.4 lbs
Horizontals	2.500	0.527	131.6	100.0 lbs
			---	---
Total Weigh			682	336 lbs

Ag: 76 ft²
Af: 3 ft² Df: 0.850
Ar: 22 ft² Rr: 0.625
SR(e): 0.328 ft² Dr: 1.000
Cf: 2.225

Area: 16.30 ft²
Shear: 860 43.0 lbf,lbf/ f
CnMoment: 8599 ft-lbf
Deadload: 1156 57.8 lbf,lbf/ft
Solid Area Windloads:
Shear: 4675 233.7 lbf,lbf/ft

	feet²
Ae 0°	16.73
Ae 45°	20.07
Ae 60°	16.16
Ae 90°	16.30

Span Length 40 ft
Span Capacity 71530 lbf/leg

Legs:
K 1.00
KL/r 40.1 OK
Fy 58000 psi
EIA 3.1.1, Cc 99.3
AISC E2 Fa 39247 psi
Max.Compresn.Force 66879 lbs

Diagonals :
K 1.00
KL/r 142.2 OK
Fy 36000 psi
Cc 126.1
EIA 3.1.1 Fa 9848 psi
Max.Compresn.Force 3021 lbs
Max.Tension.Force* 8836 lbs
*Verify Net Section on member.

Horizontals:
K 1
KL/r 133.4 OK
Cc 126.1
EIA 3.1.1 Fa 11193 psi
Max.Compresn.Force 5903 lbs

TRIANGULAR TOWER SECTION DATA

Guyed Tower

Wind Angle 0,60,90 90 °

Elevation of Foundation: 1 ft

Wind Speed 85 mph

Gh 1.12 EIA 2.3.4

Wind Pres. 33.3 psf EIA 2.3.3

Radial Ice 0.5 inch

EIA 2.3.15 Wind/Ice Reductn? Yes

ANSI/EIA Overstress Factor: Yes

	OD,L1	ID,L2	wall
LEGS			
2.5" Sch40	2.875	2.469	0.203
DIAGONALS			
5/8" Rod	0.625	0.000	0.313
HORIZONTALS			
L1.5x1.5x3	1.500	1.500	0.188

Dbl Angle Gap: 0 in

Galvanizing? Yes

WaveGuide hole reduction? Yes

ITEM	DL	WL
Ladder:	100	10
Misc.	38	0
Total lbf:	138	10

Client: CDT

Project: Eastford, NY

7/31/00 8:19 AM

Span: 4

Elev@Top 185 feet

Elev@Base 165 feet

Tower Ht. 193 feet

Top Face 42.00 inches 3.50

Bot Face 42.00 inches 3.50

Taper/Se 0.00 in.

Ave Face 42.00 inches

Length 240 inches

FL.to BR 6 inches

Panel 6 panels

Panel 38.00 inches

Br/Panel 2 |x|

Br Lngth 54.54 inches

Horiz 7 7

Density 0.283 lb/in^3

Bracing Type: 1 |x|

SECTION GEOMETRY »

Section Ixx,Iyy » 1508 in^4

Face Vert. Angle 0.000 °

Leg Angle in face 0.000 °

Leg/Axis Angle 0.000 °

Brace Angle 42.138 °

SECTION 4 WIND LOAD / WEIGHT CALCULATIONS:

	Pro OD	X-Area	Weight	Ice Wt
Legs	3.875	1.704	347.2	123.7 lbs
Diagonals	1.625	0.307	170.5	112.4 lbs
Horizontals	2.500	0.527	131.6	100.0 lbs
			---	---
Total Weigh			682	336 lbs

Ag: 76 ft²

Af: 3 ft² Df: 0.850

Ar: 22 ft² Rr: 0.625

SR(e): 0.328 ft² Dr: 1.000

Cf: 2.225

Area: 16.30 ft²

Shear: 916 45.8 lbf,lbf/ f

CnMoment: 9155 ft-lbf

Deadload: 1156 57.8 lbf,lbf/ft

Solid Area Windloads:

Shear: 4981 249.0 lbf,lbf/ft

	feet²
Ae 0°	16.73
Ae 45°	20.07
Ae 60°	16.16
Ae 90°	16.30

Span Length 30 ft

Span Capacity 73853 lbf/leg

Legs:

K	1.00
KL/r	40.1 OK
Fy	58000 psi
Cc	99.3
EIA 3.1.1, AISC E2 Fa	39247 psi
Max.Compresn.Force	66879 lbs

Diagonals :

K	1.00
KL/r	142.2 OK
Fy	36000 psi
Cc	126.1
EIA 3.1.1 Fa	9848 psi
Max.Compresn.Force	3021 lbs
Max.Tension.Force*	8836 lbs

*Verify Net Section on member.

Horizontals:

K	1
KL/r	133.4 OK
Cc	126.1
EIA 3.1.1 Fa	11193 psi
Max.Compresn.Force	5903 lbs

TRIANGULAR TOWER SECTION DATA

Guyed Tower

Wind Angle 0,60,90	90 °		
Elevation of Foundation:	1	ft	
Wind Speed	85	mph	
Gh	1.12	EIA 2.3.4	
Wind Pres.	34.2	psf	EIA 2.3.3
Radial Ice	0.5	inch	
EIA 2.3.15 Wind/Ice Reductn?	Yes		
ANSI/EIA Overstress Factor:	Yes		

LEGS	OD,L1	ID,L2	wall
2.5" Sch40	2.875	2.469	0.203
DIAGONALS			
5/8" Rod	0.625	0.000	0.313
HORIZONTALS			
L1.5x1.5x3	1.500	1.500	0.188

Dbl Angle Gap:	0	in
Galvanizing?	Yes	
WaveGuide hole reduction?	Yes	

ITEM	DL	WL
Ladder:	100	10
Misc.	38	0
Total lbf:	138	10

Client: CDT
Project: Eastford, NY
7/31/00 8:19 AM

Span:	5		
Elev@Top	201	feet	
Elev@Base	181.5	feet	
Tower Ht.	193	feet	
Top Face	42.00	inches	3.50
Bot Face	42.00	inches	3.50
Taper/Se	0.00	in.	
Ave Face	42.00	inches	
Length	240	inches	
FL.to BR	6	inches	
# Panel	6	panels	
Panel	38.00	inches	
Br/Panel	2	|x|	
Br Lngth	54.54	inches	
# Horiz	7	7	
Density	0.283	lb/in^3	
Bracing Type:	1	|x|	

SECTION GEOMETRY »

Section Ixx,Iyy »	1508	in^4
Face Vert. Angle	0.000	°
Leg Angle in face	0.000	°
Leg/Axis Angle	0.000	°
Brace Angle	42.138	°

SECTION 5 WIND LOAD / WEIGHT CALCULATIONS:

	Pro OD	X-Area	Weight	Ice Wt
Legs	3.875	1.704	347.2	123.7 lbs
Diagonals	1.625	0.307	170.5	112.4 lbs
Horizontals	2.500	0.527	131.6	100.0 lbs
			---	---
Total Weigh			682	336 lbs

Ag:	76	ft²				
Af:	3	ft²	Df:	0.850		
Ar:	22	ft²	Rr:	0.625		
SR(e):	0.328	ft²	Dr:	1.000	Legs:	
Cf:	2.225					
Area:	16.30	ft²			EIA 3.1.1, AISC E2	
Shear:	939	46.9	lbf,lbf/f		Max.Compresn.Force	66879 lbs
CnMoment:	9390	ft-lbf				
Deadload:	1156	57.8	lbf,lbf/ft			
Solid Area Windloads:					Diagonals :	
Shear:	5110	255.5	lbf,lbf/ft			

	K	1.00	
Legs:	KL/r	40.1	OK
	Fy	58000	psi
	Cc	99.3	
	Fa	39247	psi
	K	1.00	
Diagonals :	KL/r	142.2	OK
	Fy	36000	psi
	Cc	126.1	
	Fa	9848	psi
	Max.Compresn.Force	3021	lbs
	Max.Tension.Force*	8836	lbs

*Verify Net Section on member.

	feet²
Ae 0°	16.73
Ae 45°	20.07
Ae 60°	16.16
Ae 90°	16.30

	K	1
Horizontals:	KL/r	133.4 OK
	Cc	126.1
EIA 3.1.1	Fa	11193 psi
Max.Compresn.Force		5903 lbs

Span Length	6	ft
Span Capacity	78255	lbf/leg

Elevation	Moment	Accum. Download	Resolved Legload	Panel / Span Capacity		% Loaded
0	0	67886	22629	66121	66121	34.2
1	3414	67822	23734	66121	66121	35.9
2	6675	67758	24788	66121	66121	37.5
3	9780	67694	25791	66121	66121	39.0
4	12732	67630	26744	66121	66121	40.4
5	15529	67566	27645	66121	66121	41.8
6	18171	67502	28496	66121	66121	43.1
7	20660	67439	29295	66121	66121	44.3
8	22993	67375	30044	66121	66121	45.4
9	25173	67311	30742	66121	66121	46.5
10	27198	67247	31389	66121	66121	47.5
11	29069	67183	31985	66121	66121	48.4
12	30785	67119	32530	66121	66121	49.2
13	32348	67055	33024	66121	66121	49.9
14	33755	66991	33467	66121	66121	50.6
15	35009	66928	33859	66121	66121	51.2
16	36108	66864	34200	66121	66121	51.7
17	37052	66800	34491	66121	66121	52.2
18	37843	66736	34730	66121	66121	52.5
19	38479	66672	34919	66121	66121	52.8
20	38960	66608	35056	66121	66121	53.0
21	39287	66544	35143	66121	66121	53.1
22	39460	66481	35179	66121	66121	53.2
23	39479	66417	35163	66121	66121	53.2
24	39343	66353	35097	66121	66121	53.1
25	39053	66289	34980	66121	66121	52.9
26	38608	66225	34812	66121	66121	52.6
27	38009	66161	34593	66121	66121	52.3
28	37256	66097	34324	66121	66121	51.9
29	36348	66033	34003	66121	66121	51.4
30	35286	65970	33631	66121	66121	50.9
31	34069	65906	33209	66121	66121	50.2
32	32699	65842	32735	66121	66121	49.5
33	31174	65778	32211	66121	66121	48.7
34	29494	65714	31635	66121	66121	47.8
35	27660	65650	31009	66121	66121	46.9
36	25672	65586	30332	66121	66121	45.9
37	23529	65523	29604	66121	66121	44.8
38	21232	65459	28824	66121	66121	43.6
39	18781	65395	27994	66121	66121	42.3
40	16176	65331	27114	66121	66121	41.0
41	13415	65267	26182	66121	66121	39.6
42	10501	65203	25199	66121	66121	38.1
43	7432	65139	24165	66121	66121	36.5
44	4209	65075	23081	66121	66121	34.9
45	832	65012	21945	66121	66121	33.2
46	-2700	64948	22540	66121	66121	34.1
47	-6386	64884	23735	66121	66121	35.9
48	-10227	64820	24981	66121	66121	37.8
49	-14222	64756	26277	66121	66121	39.7

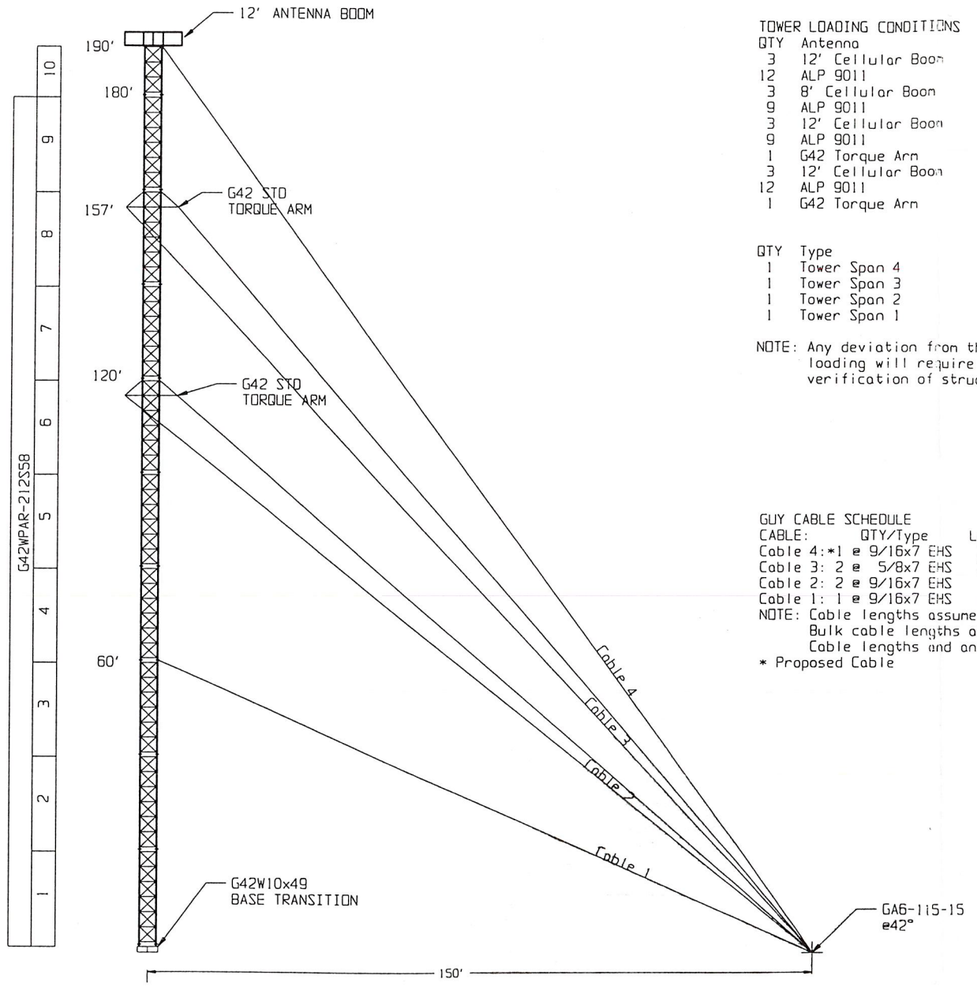
Elevation	Moment	Accum. Download	Resolved Legload	Panel / Span Capacity		% Loaded
50	-18371	64692	27625	66121	66121	41.8
51	-22675	64628	29024	66121	66121	43.9
52	-27133	64565	30473	66121	66121	46.1
53	-31745	64501	31973	66121	66121	48.4
54	-36512	64437	33525	66121	66121	50.7
55	-41433	64373	35127	66121	66121	53.1
56	-46508	64309	36780	66121	66121	55.6
57	-51738	64245	38484	66121	66121	58.2
58	-57122	64181	40239	66121	66121	60.9
59	-62661	64117	42045	66121	66121	63.6
60	-68354	64054	43902	66121	66121	66.4
61	-61982	57492	39613	66121	66121	59.9
62	-55817	57434	37560	66121	66121	56.8
63	-49858	57376	35574	66121	66121	53.8
64	-44106	57319	33657	66121	66121	50.9
65	-38559	57261	31808	66121	66121	48.1
66	-33219	57203	30027	66121	66121	45.4
67	-28085	57145	28314	66121	66121	42.8
68	-23158	57087	26669	66121	66121	40.3
69	-18436	57030	25092	66121	66121	37.9
70	-13921	56972	23584	66121	66121	35.7
71	-9612	56914	22143	66121	66121	33.5
72	-5510	56856	20770	66121	66121	31.4
73	-1614	56799	19465	66121	66121	29.4
74	2077	56741	19599	66121	66121	29.6
75	5560	56683	20729	66121	66121	31.4
76	8838	56625	21791	66121	66121	33.0
77	11909	56567	22785	66121	66121	34.5
78	14774	56510	23711	66121	66121	35.9
79	17433	56452	24569	66121	66121	37.2
80	19886	56394	25359	66121	66121	38.4
81	22132	56336	26081	66121	66121	39.4
82	24172	56279	26734	66121	66121	40.4
83	26006	56221	27320	66121	66121	41.3
84	27633	56163	27838	66121	66121	42.1
85	29055	56105	28287	66121	66121	42.8
86	30270	56047	28669	66121	66121	43.4
87	31279	55990	28982	66121	66121	43.8
88	32081	55932	29228	66121	66121	44.2
89	32677	55874	29405	66121	66121	44.5
90	33067	55816	29515	66121	66121	44.6
91	33251	55759	29556	66121	66121	44.7
92	33229	55701	29530	66121	66121	44.7
93	33000	55643	29435	66121	66121	44.5
94	32565	55585	29272	66121	66121	44.3
95	31924	55527	29041	66121	66121	43.9
96	31076	55470	28742	66121	66121	43.5
97	30022	55412	28375	66121	66121	42.9
98	28762	55354	27940	66121	66121	42.3
99	27296	55296	27437	66121	66121	41.5

Elevation	Moment	Accum. Download	Resolved Legload	Panel / Span Capacity		% Loaded
100	25623	55239	26866	66121	66121	40.6
101	23745	55181	26227	66121	66121	39.7
102	21659	55123	25520	66121	66121	38.6
103	19368	55065	24745	66121	66121	37.4
104	16871	55007	23902	66121	66121	36.1
105	14167	54950	22990	66121	66121	34.8
106	11257	54892	22011	66121	66121	33.3
107	8140	54834	20964	66121	66121	31.7
108	4818	54776	19848	66121	66121	30.0
109	1289	54719	18665	66121	66121	28.2
110	-2446	54661	19027	66121	66121	28.8
111	-6388	54603	20308	66121	66121	30.7
112	-10535	54545	21657	66121	66121	32.8
113	-14889	54487	23075	66121	66121	34.9
114	-19449	54430	24560	66121	66121	37.1
115	-24216	54372	26113	66121	66121	39.5
116	-29188	54314	27734	66121	66121	41.9
117	-34367	54256	29424	66121	66121	44.5
118	-39752	54199	31181	66121	66121	47.2
119	-45344	54141	33006	66121	66121	49.9
120	-51141	54083	34900	66121	66121	52.8
121	-45614	39881	28342	66879	66879	42.4
122	-40321	39823	26577	66879	66879	39.7
123	-35261	39765	24888	66879	66879	37.2
124	-30436	39707	23277	66879	66879	34.8
125	-25844	39649	21743	66879	66879	32.5
126	-21485	39592	20286	66879	66879	30.3
127	-17361	39534	18906	66879	66879	28.3
128	-13470	39476	17603	66879	66879	26.3
129	-9813	39418	16377	66879	66879	24.5
130	-6390	39361	15228	66879	66879	22.8
131	-3200	39303	14157	66879	66879	21.2
132	-244	39245	13162	66879	66879	19.7
133	2478	39187	13880	66879	66879	20.8
134	4966	39129	14682	66879	66879	22.0
135	7221	39072	15406	66879	66879	23.0
136	9242	39014	16054	66879	66879	24.0
137	11029	38956	16624	66879	66879	24.9
138	12582	38898	17117	66879	66879	25.6
139	13902	38841	17533	66879	66879	26.2
140	14988	38783	17872	66879	66879	26.7
141	15840	38725	18134	66879	66879	27.1
142	16458	38667	18319	66879	66879	27.4
143	16843	38609	18426	66879	66879	27.6
144	16994	38552	18457	66879	66879	27.6
145	16911	38494	18410	66879	66879	27.5
146	16594	38436	18287	66879	66879	27.3
147	16044	38378	18086	66879	66879	27.0
148	15260	38321	17808	66879	66879	26.6
149	14242	38263	17453	66879	66879	26.1

Elevation	Moment	Accum. Download	Resolved Legload	Panel / Span Capacity		% Loaded
150	12990	38205	17021	66879	66879	25.4
151	9391	37397	15564	66879	66879	23.3
152	5557	37339	14280	66879	66879	21.4
153	1490	37282	12919	66879	66879	19.3
154	-2811	37224	13335	66879	66879	19.9
155	-7345	37166	14812	66879	66879	22.1
156	-12114	37108	16366	66879	66879	24.5
157	-17116	37051	17997	66879	66879	26.9
158	-22351	36993	19705	66879	66879	29.5
159	-29636	36245	21859	66879	66879	32.7
160	-37154	36187	24320	66879	66879	36.4
161	-31699	14331	15235	66879	66879	22.8
162	-26492	14273	13498	66879	66879	20.2
163	-21535	14215	11843	66879	66879	17.7
164	-16826	14158	10271	66879	66879	15.4
165	-12367	14100	8780	66879	66879	13.1
166	-8157	14042	7372	66879	66879	11.0
167	-4195	13984	6046	66879	66879	9.0
168	-483	13926	4802	66879	66879	7.2
169	2980	13869	5606	66879	66879	8.4
170	6195	13811	6647	66879	66879	9.9
171	9160	13753	7606	66879	66879	11.4
172	11876	13695	8483	66879	66879	12.7
173	14343	13638	9278	66879	66879	13.9
174	16562	13580	9990	66879	66879	14.9
175	18531	13522	10621	66879	66879	15.9
176	20251	13464	11169	66879	66879	16.7
177	21722	13406	11635	66879	66879	17.4
178	22944	13349	12019	66879	66879	18.0
179	22213	12721	11569	66879	66879	17.3
180	21233	12663	11226	66879	66879	16.8
181	20004	12605	10801	66879	66879	16.2
182	18526	12548	10294	66879	66879	15.4
183	16798	12490	9705	66879	66879	14.5
184	14822	12432	9034	66879	66879	13.5
185	12597	12374	8281	66879	66879	12.4
186	10123	12316	7445	66879	66879	11.1
187	7400	12259	6527	66879	66879	9.8
188	4427	12201	5528	66879	66879	8.3
189	1206	12143	4446	66879	66879	6.6
190	-2265	12085	4776	66879	66879	7.1
191	0	750	250	66879	66879	0.4
192	0	0	0	66879	66879	0.0
193	0	0	0	66879	66879	0.0

TOWER DESIGN CONDITIONS
This tower has been designed to conform to the requirments
of ANSI/EIA/TIA 222-F recommended standard for 85 mph wind speed with 1/2" radial ice.
Worst case load condition is wind with ice with load reduction.
Allowable steel stresses per AISC ASD 9th Edition
Allowable concrete stresses per ACI 318-89.

MATERIAL SPECIFICATIONS
Tower Legs: ASTM A500-C, Fy > 58 ksi.
All other Steel: ASTM A36, Fy > 36 ksi
Hardware: ASTM A325 Hot Dipped Galvanized Bolts with Anco Nuts.
Galvanizing: ASTM A123
Guy Anchor Shaft: ASTM A36M, Fy > 48 ksi

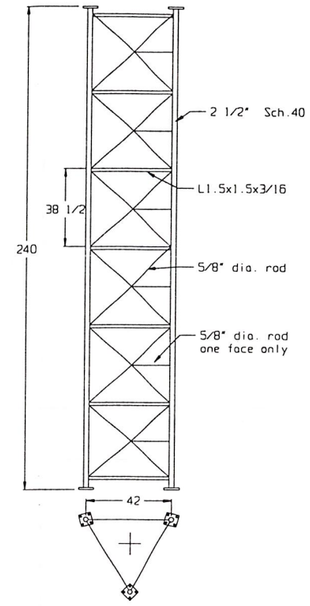


TOWER LOADING CONDITIONS

QTY	Antenna	Elevation	Windload	Deadload	
3	12' Cellular Boom	191	290	170	
12	ALP 9011	191	116	20	Verizon Wirelss
3	8' Cellular Boom	178	226	130	
9	ALP 9011	178	114	20	Nextel
3	12' Cellular Boom	158	275	170	
9	ALP 9011	158	110	20	Sprint PCS
1	G42 Torque Arm	160	527	262	
3	12' Cellular Boom	150	271	170	
12	ALP 9011	150	109	20	Future
1	G42 Torque Arm	120	485	262	

QTY	Type	Elevation Start	Stop	#/ft Windload	Deadload
1	Tower Span 4	160	190	249.0	57.8
1	Tower Span 3	120	160	233.7	57.8
1	Tower Span 2	60	120	206.3	57.8
1	Tower Span 1	0	60	154.4	63.9

NOTE: Any deviation from the proposed design antenna loading will require a tower analysis for verification of structural integrity.

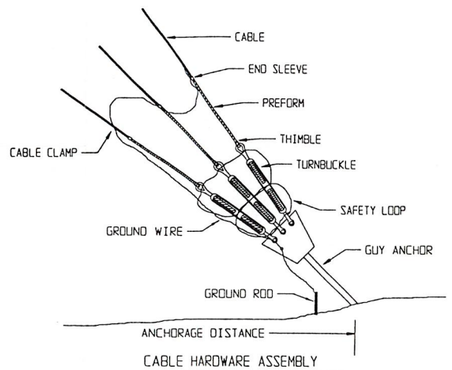


G42WPAR TOWER SECTION

GUY CABLE SCHEDULE

CABLE:	QTY/Type	Length	Ti	Turnbuckle	Preform	Thmbl	Endslve	Shckl
Cable 4:	*1 @ 9/16x7 EHS	239'	5250#	7/8"x12" J-J	9/16" BG	5/8"	65267	3/4"
Cable 3:	2 @ 5/8x7 EHS	216'	6360#	1"x18" J-J	5/8" BG	3/4"	65268	3/4"
Cable 2:	2 @ 9/16x7 EHS	188'	5250#	7/8"x12" J-J	9/16" BG	5/8"	65267	3/4"
Cable 1:	1 @ 9/16x7 EHS	157'	5250#	7/8"x12" J-J	9/16" BG	5/8"	65267	3/4"

NOTE: Cable lengths assune anchors at elevation 0'.
Bulk cable lengths assune 20' tails.
Cable lengths and anchor layout must compensate for site topography.
* Proposed Cable



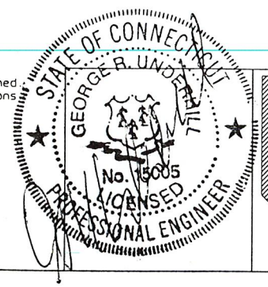
CABLE HARDWARE ASSEMBLY

NOTE: Install cable hardware per manufacturer's specifications.

INSTALLATION NOTES
1. Installation of tower must be performed by a qualified tower erector.
2. Install sections with section number on the botton, and climbing device is aligned.
3. Install safety climb, lights, cable attachments per manufacturer's recommendations.
4. Do not lift more than 100' of assembled tower sections.
5. Install "sharp" edge of adapter plates against face of tower.
6. Plumb and tension tower and cables as erected.
7. "Ti"=Initial tension of cable.

G42 Section Weights: 785/685 +/-
Top Frame: 1000 +/-

SECTION DESIGNATION:
G42WPAR-212S55 = 2-1/2"; (212), (S)Sch.40/(EH)Sch.80, (55)ksi strength
96-47-xx = Year-(47) ksi strength-xx



FRED A. NUDD CORPORATION
Route 104*Ontario, New York 14519*315/524-2531

SCALE: N/S	DRAWN BY: PCB	APPROVED BY:
DATE: 7/31/00		

180' TOWER MT. EXTENSION

COT
EASTFORD, CT

DRAWING NUMBER: 00-5874A-1