Infrastructure That Delivers.

October 20, 2017

To: Land Use Technician
Address: 46 meadow Road, Clinton CT
EM-SBA-027-170924-SBA

RE: Cell Tower Modification Exemption Notice
Site Address: 46 Meadow Road, Clinton CT

Enclosed please find the Notice of Exempt Modification package information from Mastec Network Solutions on behalf of AT&T in connection with the above referenced site.

We are mailing the original and two copies to your office.

Please let me know if you have any comments or questions regarding these documents listed below:

- Copy of the Post Modification Design
- Copy of the Construction Drawings
- Signed Drawings of Post Modification SA by CT Engineer

Sincerely,

Walter McCowan
Authorized Agent for AT&T
c/o MasTec
1000 Centre Green Way Suite 300
Cary, NC 27513
919.889.0121 Cell
919.674.5823 Office
Walter.mccowan@mastec.com

46 MEADOW RD

Location	46 MEADOW RD	**Mblu**	85/ 69/ 1/ /
Acct#	C0092100	**Owner**	NICHOLS AUTO PARTS INC
Assessment	$215,000	**Appraisal**	$307,200
PID	6361	**Building Count**	1

Current Value

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2015	$61,400	$245,800	$307,200
Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2015	$42,900	$172,100	$215,000

Owner of Record

Owner	NICHOLS AUTO PARTS INC	**Sale Price**	$0
Co-Owner		**Certificate**	
Address	46 MEADOW RD CLINTON, CT 06413	**Book & Page**	452/ 683
		Sale Date	06/21/2011

Ownership History

Ownership History				
Owner	**Sale Price**	**Certificate**	**Book & Page**	**Sale Date**
NICHOLS AUTO PARTS INC	$0		452/ 683	06/21/2011
CHARNEY MICHAEL R 1/2 & ROBERT 1/2	$0		442/1250	06/01/2010
CHARNEY ANNE LOUISE 1/2 INT;	$0		312/1009	03/11/2001
CHARNEY MICHAEL & ANNE LOUISE TIC	$0		239/ 575	07/28/1995

Building Information

Building 1 : Section 1

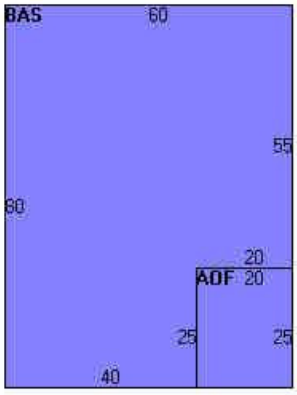
Year Built:	1974
Living Area:	4,800
Replacement Cost:	$183,040
Building Percent Good:	41
Replacement Cost Less Depreciation:	$75,000

Building Attributes	
Field	**Description**
STYLE	Pre-Eng Gar
MODEL	Ind/Comm
Grade	Below Average
Stories:	1
Occupancy	1
Exterior Wall 1	Pre-finsh Metl
Exterior Wall 2	
Roof Structure	Gable/Hip
Roof Cover	Metal/Tin
Interior Wall 1	Minim/Masonry
Interior Wall 2	
Interior Floor 1	Concr-Finished
Interior Floor 2	
Heating Fuel	Oil
Heating Type	Hot Air-no Duc
AC Type	None
Bldg Use	IND BLDG
Total Rooms	
Total Bedrms	00
Total Baths	0
1st Floor Use:	316I
Heat/AC	NONE
Frame Type	STEEL
Baths/Plumbing	AVERAGE
Ceiling/Wall	NONE
Rooms/Prtns	AVERAGE
Wall Height	14
% Comn Wall	0

Building Photo

(http://images.vgsi.com/photos/ClintonCTPhotos//\00\01\36/37.

Building Layout



Building Sub-Areas (sq ft)			Legend
Code	**Description**	**Gross Area**	**Living Area**
BAS	First Floor	4,300	4,300
AOF	Office, (Average)	500	500
		4,800	4,800

Extra Features

Extra Features	Legend
No Data for Extra Features	

Land

Land Use

Use Code 4022

Land Line Valuation

Size (Acres) 12.8

Description	IND BLDG	**Frontage**	0
Zone	I-2	**Depth**	0
Neighborhood	1500	**Assessed Value**	$172,100
Alt Land Appr	No	**Appraised Value**	$245,800
Category			

Outbuildings

Outbuildings						Legend
Code	**Description**	**Sub Code**	**Sub Description**	**Size**	**Value**	**Bldg #**
FGR1	GARAGE-AVE			576 S.F.	$9,800	1

Valuation History

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2010	$121,700	$223,300	$345,000
2009	$144,000	$281,200	$425,200
2005	$144,000	$281,200	$425,200

Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2010	$85,200	$156,400	$241,600
2009	$100,800	$196,900	$297,700
2005	$100,800	$196,900	$297,700

TES

Tower Engineering Solutions

Phone (972) 483-0607, Fax (972) 975-9615
8445 Freeport Parkway, Suite 375, Irving, Texas 75063

Post-Mod Structural Analysis Report

Existing 195 ft Sabre Self Supporting Tower

Customer Name: SBA Communications Corp

Customer Site Number: CT01879-S

Customer Site Name: Clinton 4 CT

Carrier Name: AT&T

Carrier Site ID / Name: FA# 10049127 USID# CT2230 / 2230 Clinton-Meadow

Site Location: 46 Meadow Road

Clinton, Connecticut

Middlesex County

Latitude: 41.275205

Longitude: -72.497711

Analysis Result:

Max Structural Usage: 97% [Pass]

Max Foundation Usage: 99% [Pass]

Report Prepared By : Ram Kodali

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Analysis Result:

Max Structural Usage: 97% [Pass]

Max Foundation Usage: 99% [Pass]

Report Prepared By : Ram Kodali

Introduction

The purpose of this report is to summarize the analysis results on the 195 ft Sabre Self Supporting Tower to support the proposed antennas and transmission lines in addition to those currently installed. Any existing modification listed under Sources of Information was assumed completed and was included in this analysis.

The proposed modification by **TES** listed under Sources of Information was considered completed and was included in this analysis.

Sources of Information

Tower Drawings	Sabre, Job # 00-10101, dated 11/19/99
Foundation Drawing	Sabre, Dwg # 9014022, dated 11/23/99
Geotechnical Report	JGI, Project # 99500G, dated 12/13/99 Original design soil parameters from Sabre Job # 00-10101, dated 11/23/99
Existing Modification	FDH, Project # 1465YH1400, dated 6/3/14 FDH, Project # 15BZTJ1400, dated 9/24/15
Proposed Modification	TES Job # 32039

Analysis Criteria

The rigorous analysis was performed in accordance with the requirements and stipulations of the ANSI/TIA/EIA 222-G**.** In accordance with this standard, the structure was analyzed using **TESTowers,** a proprietary analysis software. The program considers the structure as an elastic 3-D model with second-order effects and temperature effects incorporated in the analysis. The analysis was performed using multiple wind directions.

Wind Speed Used in the Analysis:	Ultimate Design Wind Speed V_{ult} = 135 mph (3-Sec. Gust)/ Nominal Design Wind Speed V_{asd} = 105 mph (3-Sec. Gust)
Wind Speed with Ice:	50 mph (3-Sec. Gust) with 3/4" radial ice concurrent
Operational Wind Speed:	60 mph + 0" Radial ice
Standard/Codes:	ANSI/TIA/EIA 222-G / 2012 IBC / 2016 Connecticut State Building Code
Exposure Category:	D
Structure Class:	II
Topographic Category:	1
Crest Height:	0 ft

Existing Antennas, Mounts and Transmission Lines

The table below summarizes the antennas, mounts and transmission lines that were considered in the analysis as existing on the tower.

Items	Elevation (ft)	Qty.	Antenna Descriptions	Mount Type & Qty.	Transmission Lines	Owner
1	194.0	3	AIR 21 B2A B4P - Panel	(3) Sector Frame	(12) 1 5/8" (1) 1 5/8" Fiber	T-Mobile
2		3	AIR 21 B4A B2P - Panel			
3	192.5	3	KRY 112 144/1			
4	184.0	1	PD1151	Direct	(1) 7/8"	Town of Clinton
5	182.0	3	APXVTM14-C-120 - Panel	(3) Sector Frame	(4) 1 1/4"	Sprint
6		3	APXVSPP18-C-A20 - Panel			
7		3	TD-RRH8x20-25			
8		3	1900 MHz RRH			
9		3	800 MHz RRH			
10		4	ACU-A20-N			
11		3	ALU 800 MHz Filter			
12	162.0	6	SBNHH-1D65B - Panel	(3) Sector Frame	(10) 1 5/8" (2) 1 5/8" Fiber	Verizon
13		4	LPA-80063-4CF - Panel			
14		2	LPA-80063/6CF - Panel			
15		6	FD9R6004/2C-3L			
16		3	RRH2X60-AWS			
17		3	RRH2X60-PCS			
18		3	RRH2X60-700			
19		2	DB-T1-6Z-8AB-0Z			
-	150.5	6	Powerwave 7770 - Panel	(3) Sector Frame	(12) 1 5/8" (1) 1/2" Fiber & (2) 3/4" DC in (1) 3" Flex Conduit	AT&T
-		3	KMW AMXCD1465 - Panel			
-		3	Andrew SBNHH-1D65A - Panel			
-		6	Powerwave TT19-08BP111-001 - TMA			
-		12	Powerwave 7020			
-		6	Ericsson RRUS 11 - RRU			
-		3	Ericsson RRUS A2 - RRU			
-		1	Raycap DC6-48-60-18-8F			
27	141.5	3	SD312HL	(3) Side Arm	(4) 7/8"	Town of Clinton
28	102.0	1	Radiowave RDH4518A - Dish	Pipe	(2) CAT5e	
29	75.0	1	GPS	Direct	(1) 1/2	Verizon

Proposed Carrier's Final Configuration of Antennas, Mounts and Transmission Lines

Information pertaining to the proposed carrier's final configuration of antennas and transmission lines was provided by SBA Communications Corp. The proposed antennas and lines are listed below.

Items	Elevation (ft)	Qty.	Antenna Descriptions	Mount Type & Qty.	Transmission Lines	Owner
20	150.5	6	Powerwave 7770 - Panel	(3) Sector Frame	(12) 1 5/8" (1) 1/2" Fiber & (2) 3/4" DC in (1) 3" Flex Conduit	AT&T
21		3	Andrew SBNHH-1D65A - Panel			
22		6	Powerwave TT19-08BP111-001 - TMA			
23		12	Powerwave 7020			
24		3	Ericsson RRUS 11 - RRU			
25		3	Ericsson RRUS 32 B2 - RRU			
26		1	Raycap DC6-48-60-18-8F			

There are no proposed coax lines.

Analysis Results

The results of the structural analysis, performed for the wind and ice loading and antenna equipment as defined above, are summarized as the following:

Tower Component	Legs	Diagonals	Horizontals
Max. Usage:	**97.0%**	**82.0%**	**13.0%**
Pass/Fail	**Pass**	**Pass**	**Pass**

Foundations

	Compression (Kips)	Uplift (Kips)	Shear (Kips)
Analysis Reactions	507.4	447.8	54.7

The foundation has been investigated using the supplied documents and soils report and was found to be adequate. Therefore, no modification to the foundation will be required.

Operational Condition (Rigidity)

Operational characteristics of the tower are found to be within the limits prescribed by ANSI/TIA/EIA 222-G for the installed antennas. The maximum twist/sway at the elevation of the proposed equipment is 0.2322 degrees under the operational wind speed as specified in the Analysis Criteria.

Conclusions

Based on the analysis results, the structure and its foundation will be adequate to safely support the existing and proposed equipment and meet the minimum requirements per the design ANSI/TIA/EIA 222-G standards under a basic wind speed of 105 mph no ice and 50 mph with 3/4" radial ice after the following proposed modification is successfully completed.

- Proposed modification design drawing by **TES** Job # 32039

Pre-Mod Installation Determination

We have also checked this tower to determine if the proposed AT&T equipment loading can be installed prior to the completion of the required modifications. We ran a reduced wind loading case as required by TIA-322 considering a construction period of no more than 6 months.

The tower and foundations passed, so the Carrier can proceed and install their proposed loading prior to the mods completion. Please be aware that this approval is being provided and is based on the method outlined in TIA-322. This approval is not a blanket approval and there is still a risk that the tower will experience a wind event that cannot be predicted by TIA-322 or our Engineers. In the event of an unforeseen wind event, Tower Engineering Solutions will not be liable nor responsible for damage to the tower or the Carriers equipment. Additionally, the tower cannot go beyond the 6 month construction period without the modifications being completed. If the modifications cannot be completed within 6 months from the completed installation of the Carrier's proposed equipment, TES must be notified immediately for further review.

Standard Conditions

1. This analysis was performed based on the information supplied to **(TES) Tower Engineering Solutions, LLC.** Verification of the information provided was not included in the Scope of Work for **TES**. The accuracy of the analysis is dependent on the accuracy of the information provided.

2. The analysis is based on the presumption that the tower members and components along with any existing reinforcement items have been correctly and properly designed, manufactured, installed and maintained.

3. All the existing structural members were assumed to be in good condition with no physical damage or deterioration associated with corrosion.

4. An initial tension of 10% of the break strength on all the existing guy wires was assumed in all the structural analyses of guyed towers unless different values were provided by the client. **TES** cannot take responsibility for the deviations in the analysis results because of differences in the initial tension forces of the existing guy wires.

5. Secondary component or connection secondary components, welds and bolts are assumed to be able to carry their intended original design loads. **TES** cannot take responsibility for verification of the adequacy on the connections, bolts and welds present in the structure.

6. The analyses will be performed based on the codes as specified by the client or based on the best knowledge of the engineering staff of **TES**. In the absence of information to the contrary, all work will be performed in accordance with the latest relevant revision of ANSI/TIA-222. If wind speed or/and ice loads are different from the minimum values recommended by the EIA/TIA-222 standard or other codes, **TES** should be notified in writing and the applicable minimum values provided by the client.

7. The configuration of the existing mounts, antennas, coax and other appurtenances were supplied by the customer for the current structural analysis. **TES** has not visited the tower site to verify the adequacy of the information provided. If there is any discrepancy found in the report regarding the existing conditions, **TES** should be notified immediately to evaluate the effect of the discrepancy on the analysis results.

8. The client will assume responsibility for rework associated with the differences in initially provided information, including tower and foundation information, existing and/or proposed equipment and transmission lines.

9. If a feasibility analysis was performed, final acceptance of changed conditions shall be based upon a rigorous structural analysis.

Structure: CT01879-S-SBA

Site Name:	Clinton 4 CT			**Code:**	EIA/TIA-222-G	5/5/2017
Type:	Self Support	**Base Shape:**	Triangle	**Basic WS:**	105.00	
Height:	195.00 (ft)	**Base Width:**	23.00	**Basic Ice WS:**	50.00	
Base Elev:	0.00 (ft)	**Top Width:**	5.00	**Operational WS:**	60.00	Page: 1

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Section Properties

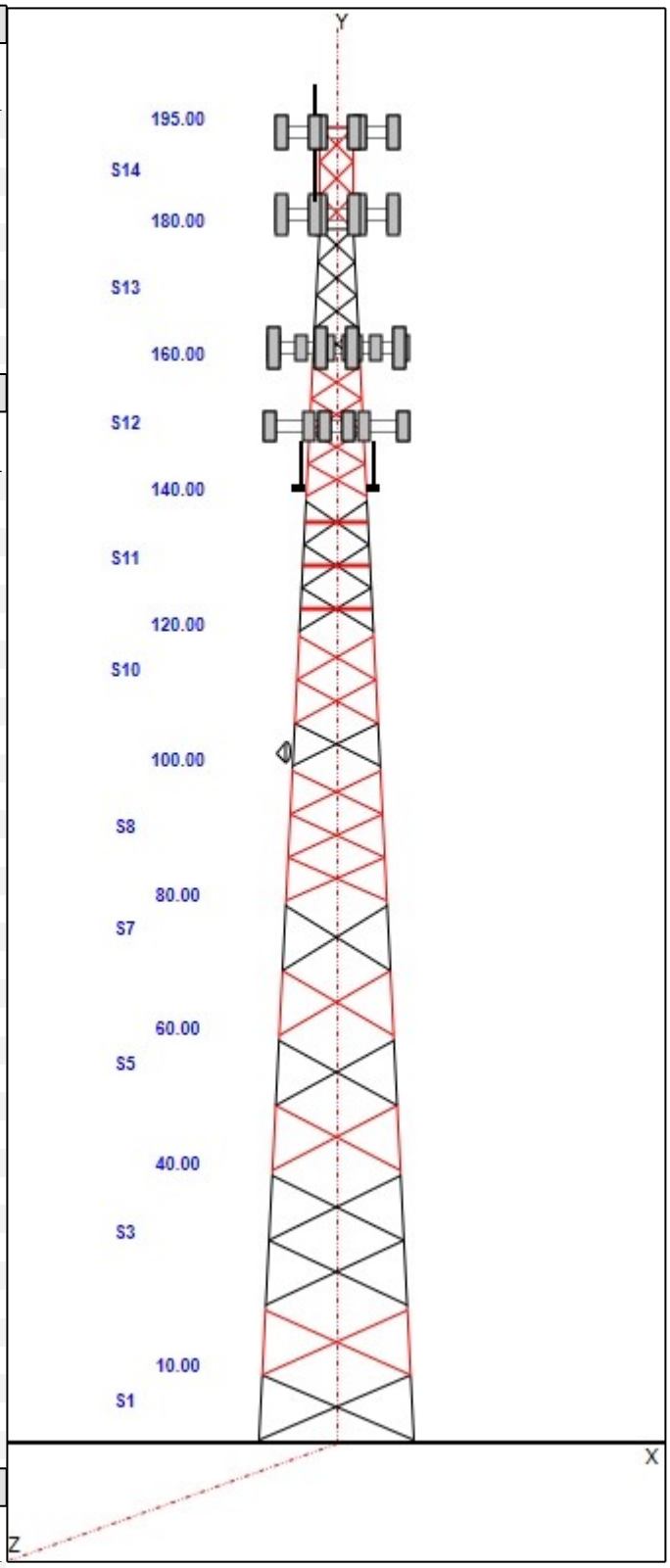
Sect	Leg Members	Diagonal Members	Horizontal Members
1-2	PX 8" DIA PIPE	SAE 4X4X0.375	
3-5	MOD 8"PST+5x5x3/8L	SAE 4X4X0.375	
6-7	MOD 6"PX+L4x4x3/8	SAE 4X4X0.375	
8	MOD 6"PST+4x4x3/8L	SAE 3X3X0.375	
9-10	PX 5" DIA PIPE	SAE 2.5X2.5X0.375	
11	PX 4" DIA PIPE	SAE 2.5X2.5X0.375	
12	PX 3" DIA PIPE	SAE 2.5X2.5X0.375	
13	PST 3" DIA PIPE	SAE 1.75X1.75X0.1875	SAE 1.75X1.75X0.1875
14	PST 2" DIA PIPE	SAE 1.75X1.75X0.1875	SAE 1.75X1.75X0.1875

Discrete Appurtenances

Attach Elev (ft)	Force Elev (ft)	Qty	Description
194.00	194.00	3	Sector Frame
194.00	194.00	3	AIR 21 B2A B4P
194.00	194.00	3	AIR 21 B4A B2P
192.50	192.50	3	KRY 112 144/1
184.00	192.60	1	PD1151
182.00	182.00	3	Sector Frame
182.00	182.00	3	APXVTM14-C-120
182.00	182.00	3	APXVSPP18-C-A20
182.00	182.00	3	TD-RRH8x20-25
182.00	182.00	3	1900 MHz RRH
182.00	182.00	3	800 MHz RRH
182.00	182.00	4	ACU-A20-N
182.00	182.00	3	ALU 800 MHz Filter
162.00	162.00	3	Sector Frame
162.00	162.00	6	SBNHH-1D65B
162.00	162.00	4	LPA-80063-4CF
162.00	162.00	2	LPA-80063/6CF
162.00	162.00	6	FD9R6004/2C-3L
162.00	162.00	3	RRH2X60-AWS
162.00	162.00	3	RRH2X60-PCS
162.00	162.00	3	RRH2X60-700
162.00	162.00	2	DB-T1-6Z-8AB-0Z
150.50	150.50	3	Sector Frame
150.50	150.50	6	7770
150.50	150.50	3	SBNHH-1D65A
150.50	150.50	6	TT19-08BP111-001
150.50	150.50	12	7020
150.50	150.50	3	RRUS 11
150.50	150.50	3	RRUS 32 B2
150.50	150.50	1	DC6-48-60-18-8F
141.50	141.50	3	Side Arm
141.50	144.96	3	SD312HL
102.00	102.00	1	Radiowave RDH4518A
102.00	102.00	1	Pipe Mount
75.00	75.00	1	GPS

Linear Appurtenances

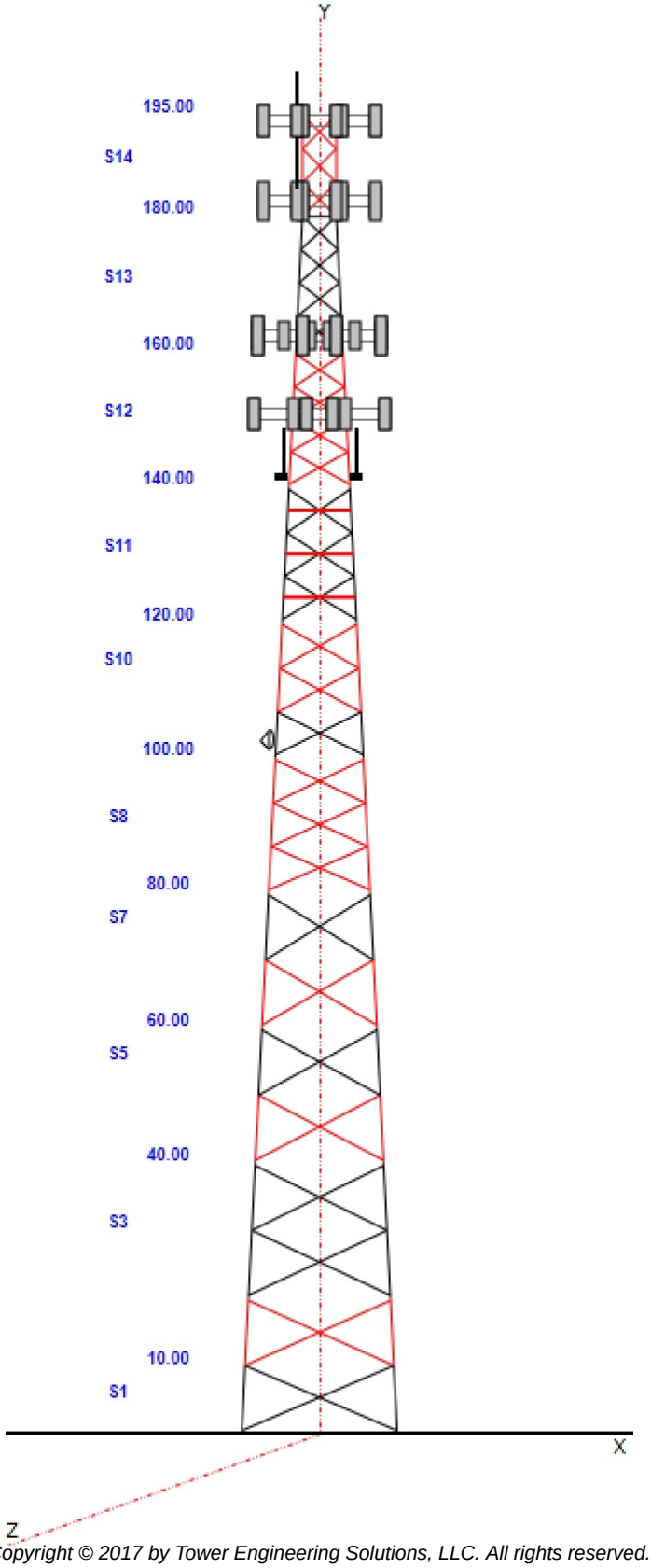
Elev From (ft)	Elev To (ft)	Qty	Description
0.00	195.00	1	Climbing Ladder
0.00	195.00	1	Safety Cable



0.00	194.00	12	1 5/8" Coax
0.00	194.00	1	1 5/8" Fiber
0.00	194.00	1	W/G Ladder
0.00	184.00	1	7/8" Coax
0.00	182.00	4	1 1/4" Coax
0.00	182.00	1	W/G Ladder
0.00	162.00	10	1 5/8" Coax
0.00	162.00	2	1 5/8" Fiber
0.00	162.00	1	W/G Ladder
0.00	150.50	6	1 5/8" Coax
0.00	150.50	4	1 5/8" Coax
0.00	150.50	2	1 5/8" Coax
0.00	150.50	1	3" Flex Conduit
0.00	150.50	1	W/G Ladder
0.00	141.50	4	7/8" Coax
0.00	102.00	2	CAT5e
0.00	75.00	1	1/2" Coax

Base Reactions

Leg			Overturning	
Max Uplift:	-447.81	(kips	Moment:	9672.64 (ft-kips)
Max Down:	507.40	(kips	Total Down:	65.36 (kips)
Max Shear:	54.65	(kips	Total Shear:	90.89 (kips)



Structure: CT01879-S-SBA - Coax Line Placement

Type: Self Support
Site Name: Clinton 4 CT
Height: 195.00 (ft)

5/5/2017

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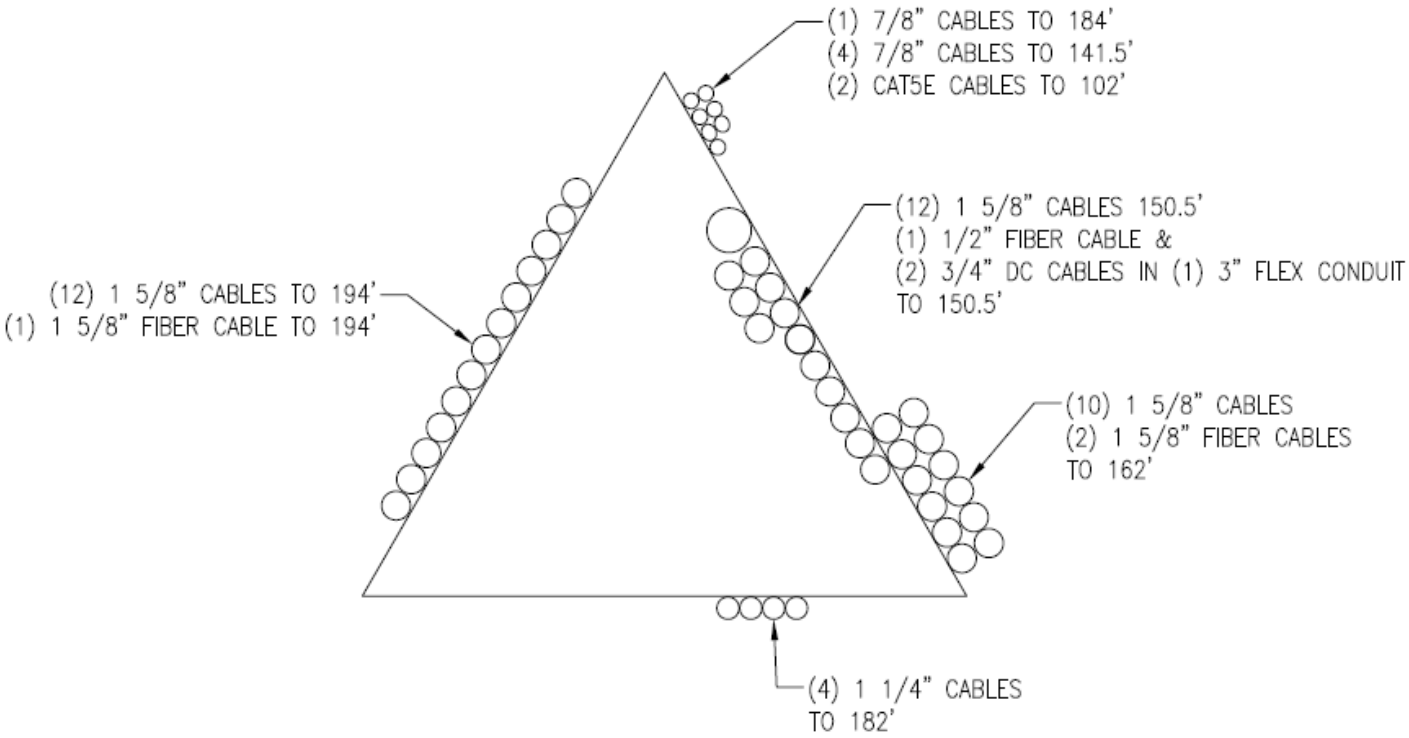

Loading Summary

Structure:	CT01879-S-SBA		**Code:**	EIA/TIA-222-G	5/5/2017
Site Name:	Clinton 4 CT		**Exposure:**	D	
Height:	195.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	0.85	**Topography:** 1	**Struct Class:**	II	Page: 5

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Discrete Appurtenances Properties

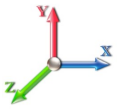
Attach Elev (ft)	Description	Qty	No Ice Weight (lb)	No Ice CaAa (sf)	Ice Weight (lb)	Ice CaAa (sf)	Len (in)	Width (in)	Depth (in)	Ka	Orientation Factor	Vert Ecc (ft)
194.00	Sector Frame	3	500.00	17.500	1213.84	31.741	0.000	0.000	0.000	0.75	0.75	0.000
194.00	AIR 21 B2A B4P	3	91.50	6.090	264.95	7.214	56.000	12.100	7.900	1.00	0.86	0.000
194.00	AIR 21 B4A B2P	3	90.40	6.090	263.85	7.214	56.000	12.100	7.900	1.00	0.86	0.000
192.50	KRY 112 144/1	3	11.00	0.410	22.02	0.896	6.900	6.100	2.700	0.80	0.67	0.000
184.00	PD1151	1	20.00	4.820	243.60	11.145	206.400	2.800	2.800	1.00	1.00	8.600
182.00	Sector Frame	3	500.00	17.500	1206.88	31.602	0.000	0.000	0.000	0.75	0.75	0.000
182.00	APXVTM14-C-120	3	56.00	6.340	218.85	7.468	56.300	12.600	6.300	0.80	0.79	0.000
182.00	APXVSPP18-C-A20	3	57.00	8.020	259.69	9.332	72.000	11.800	7.000	0.80	0.83	0.000
182.00	TD-RRH8x20-25	3	70.00	4.050	182.15	4.874	26.100	18.600	6.700	0.80	0.67	0.000
182.00	1900 MHz RRH	3	44.00	3.800	154.54	5.207	23.000	13.000	17.000	0.80	0.67	0.000
182.00	800 MHz RRH	3	53.00	2.490	127.89	3.648	19.700	13.000	10.800	0.80	0.67	0.000
182.00	ACU-A20-N	4	1.00	0.140	5.35	0.441	4.000	2.000	3.500	0.80	0.67	0.000
182.00	ALU 800 MHz Filter	3	8.80	0.780	26.67	1.435	10.000	8.000	3.000	0.80	0.67	0.000
162.00	Sector Frame	3	500.00	17.500	1206.88	31.602	0.000	0.000	0.000	0.75	0.75	0.000
162.00	SBNHH-1D65B	6	40.60	8.080	245.24	9.389	72.000	11.900	7.100	0.80	0.83	0.000
162.00	LPA-80063-4CF	4	20.00	6.150	228.53	7.197	47.400	15.200	13.100	0.80	0.93	0.000
162.00	LPA-80063/6CF	2	27.00	9.600	319.21	10.971	70.900	15.000	13.100	0.80	0.94	0.000
162.00	FD9R6004/2C-3L	6	3.10	0.360	11.23	0.809	5.800	6.500	1.500	0.80	0.67	0.000
162.00	RRH2X60-AWS	3	55.00	3.500	136.02	4.299	37.000	11.000	6.000	0.80	0.67	0.000
162.00	RRH2X60-PCS	3	55.00	2.200	140.85	2.845	22.000	12.000	9.400	0.80	0.67	0.000
162.00	RRH2X60-700	3	55.00	3.500	136.02	4.299	37.000	11.000	6.000	0.80	0.67	0.000
162.00	DB-T1-6Z-8AB-0Z	2	18.90	4.800	164.77	5.685	24.000	24.000	10.000	0.90	0.90	0.000
150.50	Sector Frame	3	450.00	14.000	801.84	21.037	0.000	0.000	0.000	0.75	0.75	0.000
150.50	7770	6	35.00	5.500	170.17	6.565	55.000	11.000	5.000	0.80	0.73	0.000
150.50	SBNHH-1D65A	3	33.50	5.880	191.86	6.960	55.000	11.900	7.100	0.80	0.83	0.000
150.50	TT19-08BP111-001	6	16.00	0.640	36.24	1.233	9.900	6.700	5.400	0.80	0.67	0.000
150.50	7020	12	2.20	0.400	12.43	0.884	4.900	8.300	2.400	0.80	0.67	0.000
150.50	RRUS 11	3	50.70	2.520	139.89	3.171	17.000	17.800	9.200	0.80	0.67	0.000
150.50	RRUS 32 B2	3	77.00	1.650	125.49	2.230	20.900	9.500	3.300	0.80	0.67	0.000
150.50	DC6-48-60-18-8F	1	31.80	0.920	93.62	1.358	24.000	11.000	11.000	1.00	1.00	0.000
141.50	Side Arm	3	120.00	4.500	224.71	9.746	0.000	0.000	0.000	0.75	0.75	0.000
141.50	SD312HL	3	10.30	3.450	108.73	6.263	83.100	3.500	18.900	1.00	1.00	3.462
102.00	Radiowave RDH4518A	1	110.00	8.920	276.38	10.612	0.000	0.000	0.000	1.00	1.00	0.000
102.00	Pipe Mount	1	100.00	2.000	180.71	3.345	0.000	0.000	0.000	1.00	1.00	0.000
75.00	GPS	1	10.00	1.000	37.36	1.664	12.000	9.000	6.000	1.00	1.00	0.000
	Totals:	**116**	**9,706.80**		**27,122.43**						**Number of Appurtenances :**	**35**

Linear Appurtenances Properties

Elev. From (ft)	Elev. To (ft)	Description	Qty	Width (in)	Weight (lb/ft)	Pct In Block	Spread On Faces	Bundling Arrangement	Cluster Dia (in)	Out of Zone	Spacing (in)	Orientation Factor	Ka Override
0.00	195.00	Climbing Ladder	1	1.00	6.90	100.00	2	Individual NR		N	1.00	1.00	
0.00	195.00	Safety Cable	1	0.38	0.27	100.00	2	Individual NR		N	1.00	1.00	
0.00	194.00	1 5/8" Coax	12	1.98	1.04	100.00	1	Individual IR		N	1.00	1.00	
0.00	194.00	1 5/8" Fiber	1	1.63	1.10	100.00	1	Individual NR		N	1.00	1.00	
0.00	194.00	W/G Ladder	1	1.00	6.00	100.00	1	Individual NR		N	1.00	1.00	
0.00	184.00	7/8" Coax	1	1.11	0.52	100.00	2	Individual NR		N	1.00	1.00	
0.00	182.00	1 1/4" Coax	4	1.55	0.66	100.00	3	Individual IR		N	1.00	1.00	
0.00	182.00	W/G Ladder	1	1.00	6.00	100.00	3	Individual NR		N	1.00	1.00	
0.00	162.00	1 5/8" Coax	10	1.98	1.04	50.00	2	Block		N	0.50	1.00	
0.00	162.00	1 5/8" Fiber	2	1.63	1.10	50.00	2	Block		N	0.50	1.00	
0.00	162.00	W/G Ladder	1	1.00	6.00	100.00	2	Individual NR		N	1.00	1.00	
0.00	150.50	1 5/8" Coax	6	1.98	1.04	50.00	2	Block		N	0.50	1.00	
0.00	150.50	1 5/8" Coax	4	1.98	1.04	100.00	2	Individual IR		N	1.00	1.00	
0.00	150.50	1 5/8" Coax	2	1.98	1.04	100.00	2	Individual IR		N	1.00	1.00	0
0.00	150.50	3" Flex Conduit	1	3.00	1.78	100.00	2	Individual NR		N	1.00	1.00	
0.00	150.50	W/G Ladder	1	1.00	6.00	100.00	2	Individual NR		N	1.00	1.00	
0.00	141.50	7/8" Coax	4	1.11	0.52	50.00	2	Block		N	0.50	1.00	
0.00	102.00	CAT5e	2	0.19	0.02	50.00	2	Block		N	1.00	1.00	
0.00	75.00	1/2" Coax	1	0.65	0.16	100.00	2	Individual NR		N	1.00	1.00	

Section Forces

Structure:	CT01879-S-SBA	**Code:**	EIA/TIA-222-G	5/5/2017	
Site Name:	Clinton 4 CT	**Exposure:**	D		
Height:	195.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	0.85 **Topography:** 1	**Struct Class:**	II	Page: 7	



Tower Engineering Solutions

Load Case: 1.2D + 1.6W Normal Wind — 1.2D + 1.6W 105 mph Wind at Normal To Face

Wind Load Factor: 1.60 — **Wind Importance Factor:** 1.00

Dead Load Factor: 1.20

Ice Dead Load Factor: 0.00 — **Ice Importance Factor:** 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1	5.0	24.71	15.825	14.40	0.00	0.13	2.85	1.00	1.00	0.00	21.71	64.15	0.00	4,181.6	0.0	2076.52	1623.55	3,700.06
2	15.0	24.72	15.237	14.40	0.00	0.13	2.83	1.00	1.00	0.00	21.15	64.15	0.00	4,119.4	0.0	2014.20	1623.91	3,638.11
3	30.0	27.88	28.213	41.18	0.00	0.17	2.72	1.00	1.00	0.00	45.77	128.31	0.00	7,857.8	0.0	4716.14	3663.91	8,380.05
4	45.0	29.92	13.208	20.59	0.00	0.17	2.69	1.00	1.00	0.00	22.08	64.15	0.00	3,833.8	0.0	2415.06	1965.80	4,380.86
5	55.0	30.98	12.642	20.59	0.00	0.18	2.67	1.00	1.00	0.00	21.58	64.15	0.00	3,773.9	0.0	2424.68	2035.62	4,460.30
6	65.0	31.90	12.188	16.14	0.00	0.16	2.72	1.00	1.00	0.00	19.06	64.15	0.00	3,618.9	0.0	2250.18	2095.62	4,345.80
7	75.0	32.70	11.639	16.14	0.00	0.17	2.70	1.00	1.00	0.00	18.57	63.88	0.00	3,559.7	0.0	2227.64	2139.76	4,367.40
8	90.0	33.75	21.896	32.28	0.00	0.18	2.65	1.00	1.00	0.00	35.97	127.22	0.00	6,242.5	0.0	4382.41	4399.49	8,781.90
9	103.3	34.57	5.694	6.19	0.00	0.14	2.82	1.00	1.00	0.00	8.41	42.36	0.00	1,692.0	0.0	1116.97	1499.78	2,616.76
10	113.3	35.13	10.749	12.38	0.00	0.14	2.80	1.00	1.00	0.00	16.19	84.58	0.00	3,317.1	0.0	2163.65	3043.14	5,206.79
11	130.0	35.98	20.633	15.02	0.00	0.17	2.69	1.00	1.00	0.00	28.13	126.91	0.00	4,812.4	0.0	3706.98	4792.19	8,499.16
12	150.0	36.89	15.082	11.69	0.00	0.16	2.73	1.00	1.00	0.00	21.41	104.65	0.00	3,824.2	0.0	2932.84	4055.26	6,988.10
13	170.0	37.70	9.382	11.69	0.00	0.17	2.71	1.00	1.00	0.00	15.71	62.55	0.00	1,894.7	0.0	2181.16	2386.16	4,567.32
14	187.5	38.35	6.701	5.94	0.00	0.16	2.73	1.00	1.00	0.00	10.08	34.08	0.00	988.1	0.0	1433.61	1295.50	2,729.11
														53,716.0	**0.0**			**72,661.72**

Load Case: 1.2D + 1.6W 60° Wind — 1.2D + 1.6W 105 mph Wind at 60° From Face

Wind Load Factor: 1.60 — **Wind Importance Factor:** 1.00

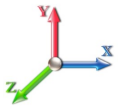
Dead Load Factor: 1.20

Ice Dead Load Factor: 0.00 — **Ice Importance Factor:** 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1	5.0	24.71	15.825	14.40	0.00	0.13	2.85	0.80	1.00	0.00	18.55	64.15	0.00	4,181.6	0.0	1773.83	1623.55	3,397.37
2	15.0	24.72	15.237	14.40	0.00	0.13	2.83	0.80	1.00	0.00	18.10	64.15	0.00	4,119.4	0.0	1723.94	1623.91	3,347.85
3	30.0	27.88	28.213	41.18	0.00	0.17	2.72	0.80	1.00	0.00	40.13	128.31	0.00	7,857.8	0.0	4134.79	3663.91	7,798.70
4	45.0	29.92	13.208	20.59	0.00	0.17	2.69	0.80	1.00	0.00	19.44	64.15	0.00	3,833.8	0.0	2126.10	1965.80	4,091.90
5	55.0	30.98	12.642	20.59	0.00	0.18	2.67	0.80	1.00	0.00	19.05	64.15	0.00	3,773.9	0.0	2140.62	2035.62	4,176.24
6	65.0	31.90	12.188	16.14	0.00	0.16	2.72	0.80	1.00	0.00	16.62	64.15	0.00	3,618.9	0.0	1962.38	2095.62	4,058.00
7	75.0	32.70	11.639	16.14	0.00	0.17	2.70	0.80	1.00	0.00	16.24	63.88	0.00	3,559.7	0.0	1948.36	2139.76	4,088.12
8	90.0	33.75	21.896	32.28	0.00	0.18	2.65	0.80	1.00	0.00	31.59	127.22	0.00	6,242.5	0.0	3848.91	4399.49	8,248.40
9	103.3	34.57	5.694	6.19	0.00	0.14	2.82	0.80	1.00	0.00	7.27	42.36	0.00	1,692.0	0.0	965.73	1499.78	2,465.51
10	113.3	35.13	10.749	12.38	0.00	0.14	2.80	0.80	1.00	0.00	14.04	84.58	0.00	3,317.1	0.0	1876.31	3043.14	4,919.45
11	130.0	35.98	20.633	15.02	0.00	0.17	2.69	0.80	1.00	0.00	24.01	126.91	0.00	4,812.4	0.0	3163.23	4792.19	7,955.41
12	150.0	36.89	15.082	11.69	0.00	0.16	2.73	0.80	1.00	0.00	18.40	104.65	0.00	3,824.2	0.0	2519.72	4055.26	6,574.98
13	170.0	37.70	9.382	11.69	0.00	0.17	2.71	0.80	1.00	0.00	13.83	62.55	0.00	1,894.7	0.0	1920.59	2386.16	4,306.74
14	187.5	38.35	6.701	5.94	0.00	0.16	2.73	0.80	1.00	0.00	8.74	34.08	0.00	988.1	0.0	1242.98	1295.50	2,538.49
														53,716.0	**0.0**			**67,967.16**

Section Forces

Structure:	CT01879-S-SBA	**Code:**	EIA/TIA-222-G	5/5/2017	
Site Name:	Clinton 4 CT	**Exposure:**	D		
Height:	195.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	0.85 **Topography:** 1	**Struct Class:**	II	Page: 8	



Tower Engineering Solutions

Load Case: 1.2D + 1.6W 90° Wind — 1.2D + 1.6W 105 mph Wind at 90° From Face

Wind Load Factor: 1.60
Dead Load Factor: 1.20
Ice Dead Load Factor: 0.00
Wind Importance Factor: 1.00
Ice Importance Factor: 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1	5.0	24.71	15.825	14.40	0.00	0.13	2.85	0.85	1.00	0.00	19.34	64.15	0.00	4,181.6	0.0	1849.50	1623.55	3,473.05
2	15.0	24.72	15.237	14.40	0.00	0.13	2.83	0.85	1.00	0.00	18.86	64.15	0.00	4,119.4	0.0	1796.50	1623.91	3,420.41
3	30.0	27.88	28.213	41.18	0.00	0.17	2.72	0.85	1.00	0.00	41.54	128.31	0.00	7,857.8	0.0	4280.13	3663.91	7,944.04
4	45.0	29.92	13.208	20.59	0.00	0.17	2.69	0.85	1.00	0.00	20.10	64.15	0.00	3,833.8	0.0	2198.34	1965.80	4,164.14
5	55.0	30.98	12.642	20.59	0.00	0.18	2.67	0.85	1.00	0.00	19.69	64.15	0.00	3,773.9	0.0	2211.64	2035.62	4,247.26
6	65.0	31.90	12.188	16.14	0.00	0.16	2.72	0.85	1.00	0.00	17.23	64.15	0.00	3,618.9	0.0	2034.33	2095.62	4,129.95
7	75.0	32.70	11.639	16.14	0.00	0.17	2.70	0.85	1.00	0.00	16.82	63.88	0.00	3,559.7	0.0	2018.18	2139.76	4,157.94
8	90.0	33.75	21.896	32.28	0.00	0.18	2.65	0.85	1.00	0.00	32.69	127.22	0.00	6,242.5	0.0	3982.29	4399.49	8,381.78
9	103.3	34.57	5.694	6.19	0.00	0.14	2.82	0.85	1.00	0.00	7.56	42.36	0.00	1,692.0	0.0	1003.54	1499.78	2,503.32
10	113.3	35.13	10.749	12.38	0.00	0.14	2.80	0.85	1.00	0.00	14.58	84.58	0.00	3,317.1	0.0	1948.14	3043.14	4,991.28
11	130.0	35.98	20.633	15.02	0.00	0.17	2.69	0.85	1.00	0.00	25.04	126.91	0.00	4,812.4	0.0	3299.17	4792.19	8,091.35
12	150.0	36.89	15.082	11.69	0.00	0.16	2.73	0.85	1.00	0.00	19.15	104.65	0.00	3,824.2	0.0	2623.00	4055.26	6,678.26
13	170.0	37.70	9.382	11.69	0.00	0.17	2.71	0.85	1.00	0.00	14.30	62.55	0.00	1,894.7	0.0	1985.73	2386.16	4,371.89
14	187.5	38.35	6.701	5.94	0.00	0.16	2.73	0.85	1.00	0.00	9.07	34.08	0.00	988.1	0.0	1290.64	1295.50	2,586.14
														53,716.0	**0.0**			**69,140.80**

Load Case: 0.9D + 1.6W Normal Wind — 0.9D + 1.6W 105 mph Wind at Normal To Face

Wind Load Factor: 1.60
Dead Load Factor: 0.90
Ice Dead Load Factor: 0.00
Wind Importance Factor: 1.00
Ice Importance Factor: 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1	5.0	24.71	15.825	14.40	0.00	0.13	2.85	1.00	1.00	0.00	21.71	64.15	0.00	3,136.2	0.0	2076.52	1623.55	3,700.06
2	15.0	24.72	15.237	14.40	0.00	0.13	2.83	1.00	1.00	0.00	21.15	64.15	0.00	3,089.5	0.0	2014.20	1623.91	3,638.11
3	30.0	27.88	28.213	41.18	0.00	0.17	2.72	1.00	1.00	0.00	45.77	128.31	0.00	5,893.3	0.0	4716.14	3663.91	8,380.05
4	45.0	29.92	13.208	20.59	0.00	0.17	2.69	1.00	1.00	0.00	22.08	64.15	0.00	2,875.3	0.0	2415.06	1965.80	4,380.86
5	55.0	30.98	12.642	20.59	0.00	0.18	2.67	1.00	1.00	0.00	21.58	64.15	0.00	2,830.4	0.0	2424.68	2035.62	4,460.30
6	65.0	31.90	12.188	16.14	0.00	0.16	2.72	1.00	1.00	0.00	19.06	64.15	0.00	2,714.1	0.0	2250.18	2095.62	4,345.80
7	75.0	32.70	11.639	16.14	0.00	0.17	2.70	1.00	1.00	0.00	18.57	63.88	0.00	2,669.8	0.0	2227.64	2139.76	4,367.40
8	90.0	33.75	21.896	32.28	0.00	0.18	2.65	1.00	1.00	0.00	35.97	127.22	0.00	4,681.9	0.0	4382.41	4399.49	8,781.90
9	103.3	34.57	5.694	6.19	0.00	0.14	2.82	1.00	1.00	0.00	8.41	42.36	0.00	1,269.0	0.0	1116.97	1499.78	2,616.76
10	113.3	35.13	10.749	12.38	0.00	0.14	2.80	1.00	1.00	0.00	16.19	84.58	0.00	2,487.8	0.0	2163.65	3043.14	5,206.79
11	130.0	35.98	20.633	15.02	0.00	0.17	2.69	1.00	1.00	0.00	28.13	126.91	0.00	3,609.3	0.0	3706.98	4792.19	8,499.16
12	150.0	36.89	15.082	11.69	0.00	0.16	2.73	1.00	1.00	0.00	21.41	104.65	0.00	2,868.2	0.0	2932.84	4055.26	6,988.10
13	170.0	37.70	9.382	11.69	0.00	0.17	2.71	1.00	1.00	0.00	15.71	62.55	0.00	1,421.0	0.0	2181.16	2386.16	4,567.32
14	187.5	38.35	6.701	5.94	0.00	0.16	2.73	1.00	1.00	0.00	10.08	34.08	0.00	741.1	0.0	1433.61	1295.50	2,729.11
														40,287.0	**0.0**			**72,661.72**

Section Forces

Structure:	CT01879-S-SBA	**Code:**	EIA/TIA-222-G	5/5/2017	
Site Name:	Clinton 4 CT	**Exposure:**	D		
Height:	195.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	0.85 **Topography:** 1	**Struct Class:**	II	Page: 9	

Tower Engineering Solutions

Load Case: 0.9D + 1.6W 60° Wind — 0.9D + 1.6W 105 mph Wind at 60° From Face

Wind Load Factor: 1.60 — **Wind Importance Factor:** 1.00

Dead Load Factor: 0.90

Ice Dead Load Factor: 0.00 — **Ice Importance Factor:** 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1	5.0	24.71	15.825	14.40	0.00	0.13	2.85	0.80	1.00	0.00	18.55	64.15	0.00	3,136.2	0.0	1773.83	1623.55	3,397.37
2	15.0	24.72	15.237	14.40	0.00	0.13	2.83	0.80	1.00	0.00	18.10	64.15	0.00	3,089.5	0.0	1723.94	1623.91	3,347.85
3	30.0	27.88	28.213	41.18	0.00	0.17	2.72	0.80	1.00	0.00	40.13	128.31	0.00	5,893.3	0.0	4134.79	3663.91	7,798.70
4	45.0	29.92	13.208	20.59	0.00	0.17	2.69	0.80	1.00	0.00	19.44	64.15	0.00	2,875.3	0.0	2126.10	1965.80	4,091.90
5	55.0	30.98	12.642	20.59	0.00	0.18	2.67	0.80	1.00	0.00	19.05	64.15	0.00	2,830.4	0.0	2140.62	2035.62	4,176.24
6	65.0	31.90	12.188	16.14	0.00	0.16	2.72	0.80	1.00	0.00	16.62	64.15	0.00	2,714.1	0.0	1962.38	2095.62	4,058.00
7	75.0	32.70	11.639	16.14	0.00	0.17	2.70	0.80	1.00	0.00	16.24	63.88	0.00	2,669.8	0.0	1948.36	2139.76	4,088.12
8	90.0	33.75	21.896	32.28	0.00	0.18	2.65	0.80	1.00	0.00	31.59	127.22	0.00	4,681.9	0.0	3848.91	4399.49	8,248.40
9	103.3	34.57	5.694	6.19	0.00	0.14	2.82	0.80	1.00	0.00	7.27	42.36	0.00	1,269.0	0.0	965.73	1499.78	2,465.51
10	113.3	35.13	10.749	12.38	0.00	0.14	2.80	0.80	1.00	0.00	14.04	84.58	0.00	2,487.8	0.0	1876.31	3043.14	4,919.45
11	130.0	35.98	20.633	15.02	0.00	0.17	2.69	0.80	1.00	0.00	24.01	126.91	0.00	3,609.3	0.0	3163.23	4792.19	7,955.41
12	150.0	36.89	15.082	11.69	0.00	0.16	2.73	0.80	1.00	0.00	18.40	104.65	0.00	2,868.2	0.0	2519.72	4055.26	6,574.98
13	170.0	37.70	9.382	11.69	0.00	0.17	2.71	0.80	1.00	0.00	13.83	62.55	0.00	1,421.0	0.0	1920.59	2386.16	4,306.74
14	187.5	38.35	6.701	5.94	0.00	0.16	2.73	0.80	1.00	0.00	8.74	34.08	0.00	741.1	0.0	1242.98	1295.50	2,538.49
														40,287.0	**0.0**			**67,967.16**

Load Case: 0.9D + 1.6W 90° Wind — 0.9D + 1.6W 105 mph Wind at 90° From Face

Wind Load Factor: 1.60 — **Wind Importance Factor:** 1.00

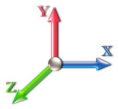
Dead Load Factor: 0.90

Ice Dead Load Factor: 0.00 — **Ice Importance Factor:** 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1	5.0	24.71	15.825	14.40	0.00	0.13	2.85	0.85	1.00	0.00	19.34	64.15	0.00	3,136.2	0.0	1849.50	1623.55	3,473.05
2	15.0	24.72	15.237	14.40	0.00	0.13	2.83	0.85	1.00	0.00	18.86	64.15	0.00	3,089.5	0.0	1796.50	1623.91	3,420.41
3	30.0	27.88	28.213	41.18	0.00	0.17	2.72	0.85	1.00	0.00	41.54	128.31	0.00	5,893.3	0.0	4280.13	3663.91	7,944.04
4	45.0	29.92	13.208	20.59	0.00	0.17	2.69	0.85	1.00	0.00	20.10	64.15	0.00	2,875.3	0.0	2198.34	1965.80	4,164.14
5	55.0	30.98	12.642	20.59	0.00	0.18	2.67	0.85	1.00	0.00	19.69	64.15	0.00	2,830.4	0.0	2211.64	2035.62	4,247.26
6	65.0	31.90	12.188	16.14	0.00	0.16	2.72	0.85	1.00	0.00	17.23	64.15	0.00	2,714.1	0.0	2034.33	2095.62	4,129.95
7	75.0	32.70	11.639	16.14	0.00	0.17	2.70	0.85	1.00	0.00	16.82	63.88	0.00	2,669.8	0.0	2018.18	2139.76	4,157.94
8	90.0	33.75	21.896	32.28	0.00	0.18	2.65	0.85	1.00	0.00	32.69	127.22	0.00	4,681.9	0.0	3982.29	4399.49	8,381.78
9	103.3	34.57	5.694	6.19	0.00	0.14	2.82	0.85	1.00	0.00	7.56	42.36	0.00	1,269.0	0.0	1003.54	1499.78	2,503.32
10	113.3	35.13	10.749	12.38	0.00	0.14	2.80	0.85	1.00	0.00	14.58	84.58	0.00	2,487.8	0.0	1948.14	3043.14	4,991.28
11	130.0	35.98	20.633	15.02	0.00	0.17	2.69	0.85	1.00	0.00	25.04	126.91	0.00	3,609.3	0.0	3299.17	4792.19	8,091.35
12	150.0	36.89	15.082	11.69	0.00	0.16	2.73	0.85	1.00	0.00	19.15	104.65	0.00	2,868.2	0.0	2623.00	4055.26	6,678.26
13	170.0	37.70	9.382	11.69	0.00	0.17	2.71	0.85	1.00	0.00	14.30	62.55	0.00	1,421.0	0.0	1985.73	2386.16	4,371.89
14	187.5	38.35	6.701	5.94	0.00	0.16	2.73	0.85	1.00	0.00	9.07	34.08	0.00	741.1	0.0	1290.64	1295.50	2,586.14
														40,287.0	**0.0**			**69,140.80**

Section Forces

Structure:	CT01879-S-SBA	**Code:**	EIA/TIA-222-G	5/5/2017	
Site Name:	Clinton 4 CT	**Exposure:**	D		
Height:	195.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	0.85 **Topography:** 1	**Struct Class:**	II	Page: 10	



Tower Engineering Solutions

Load Case: 1.2D + 1.0Di + 1.0Wi Normal Wind — 1.2D + 1.0Di + 1.0Wi 50 mph Wind at Normal From Face

Wind Load Factor: 1.00
Dead Load Factor: 1.20
Ice Dead Load Factor: 1.00
Wind Importance Factor: 1.00
Ice Importance Factor: 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1	5.0	5.60	15.825	28.67	14.27	0.19	2.63	1.00	1.00	1.24	32.25	101.09	18.63	7,846.0	3664.4	403.92	501.08	905.00
2	15.0	5.60	15.237	29.92	15.52	0.20	2.59	1.00	1.00	1.39	32.43	103.74	20.79	8,202.1	4082.7	400.49	519.84	920.33
3	30.0	6.32	28.213	73.08	31.90	0.24	2.47	1.00	1.00	1.49	70.76	217.74	34.67	16,907.	9049.7	940.68	1192.16	2,132.83
4	45.0	6.78	13.208	36.50	15.91	0.25	2.43	1.00	1.00	1.55	34.57	110.10	18.05	8,478.3	4644.5	485.23	647.44	1,132.67
5	55.0	7.03	12.642	36.38	15.79	0.26	2.41	1.00	1.00	1.58	34.02	110.73	18.42	8,465.9	4692.1	488.69	673.96	1,162.64
6	65.0	7.23	12.188	31.71	15.57	0.25	2.44	1.00	1.00	1.61	30.74	111.26	18.73	8,179.3	4560.5	460.69	700.63	1,161.33
7	75.0	7.41	11.639	31.49	15.35	0.26	2.41	1.00	1.00	1.63	30.14	111.45	17.64	8,113.1	4553.3	457.28	711.24	1,168.52
8	90.0	7.65	21.896	68.89	36.62	0.30	2.29	1.00	1.00	1.66	63.18	223.56	33.17	15,504.	9262.1	942.58	1444.78	2,387.36
9	103.3	7.84	5.694	17.86	11.66	0.26	2.40	1.00	1.00	1.68	16.20	73.48	11.21	4,450.1	2758.1	258.91	492.81	751.72
10	113.3	7.97	10.749	35.05	22.67	0.28	2.36	1.00	1.00	1.70	31.50	146.05	22.62	8,788.5	5471.4	503.32	993.65	1,496.97
11	130.0	8.16	20.633	46.96	31.94	0.32	2.25	1.00	1.00	1.72	49.02	219.99	34.41	13,590.	8778.1	765.47	1518.65	2,284.12
12	150.0	8.36	15.082	45.08	33.39	0.35	2.17	1.00	1.00	1.75	42.86	179.04	32.14	10,904.	7080.0	661.39	1304.89	1,966.28
13	170.0	8.55	9.382	43.21	31.52	0.40	2.07	1.00	1.00	1.77	36.86	110.62	24.15	6,656.3	4761.7	553.21	870.12	1,423.34
14	187.5	8.70	6.701	28.97	23.03	0.43	2.00	1.00	1.00	1.78	25.56	57.23	13.98	3,830.0	2841.9	378.36	436.30	814.66
														129,916.2	**76200.3**			**19,707.77**

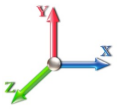
Load Case: 1.2D + 1.0Di + 1.0Wi 60° Wind — 1.2D + 1.0Di + 1.0Wi 50 mph Wind at 60° From Face

Wind Load Factor: 1.00
Dead Load Factor: 1.20
Ice Dead Load Factor: 1.00
Wind Importance Factor: 1.00
Ice Importance Factor: 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1	5.0	5.60	15.825	28.67	14.27	0.19	2.63	0.80	1.00	1.24	29.08	101.09	18.63	7,846.0	3664.4	364.28	501.08	865.36
2	15.0	5.60	15.237	29.92	15.52	0.20	2.59	0.80	1.00	1.39	29.39	103.74	20.79	8,202.1	4082.7	362.86	519.84	882.70
3	30.0	6.32	28.213	73.08	31.90	0.24	2.47	0.80	1.00	1.49	65.11	217.74	34.67	16,907.	9049.7	865.66	1192.16	2,057.82
4	45.0	6.78	13.208	36.50	15.91	0.25	2.43	0.80	1.00	1.55	31.93	110.10	18.05	8,478.3	4644.5	448.16	647.44	1,095.59
5	55.0	7.03	12.642	36.38	15.79	0.26	2.41	0.80	1.00	1.58	31.50	110.73	18.42	8,465.9	4692.1	452.37	673.96	1,126.33
6	65.0	7.23	12.188	31.71	15.57	0.25	2.44	0.80	1.00	1.61	28.30	111.26	18.73	8,179.3	4560.5	424.16	700.63	1,124.79
7	75.0	7.41	11.639	31.49	15.35	0.26	2.41	0.80	1.00	1.63	27.81	111.45	17.64	8,113.1	4553.3	421.96	711.24	1,133.20
8	90.0	7.65	21.896	68.89	36.62	0.30	2.29	0.80	1.00	1.66	58.80	223.56	33.17	15,504.	9262.1	877.25	1444.78	2,322.03
9	103.3	7.84	5.694	17.86	11.66	0.26	2.40	0.80	1.00	1.68	15.06	73.48	11.21	4,450.1	2758.1	240.71	492.81	733.52
10	113.3	7.97	10.749	35.05	22.67	0.28	2.36	0.80	1.00	1.70	29.35	146.05	22.62	8,788.5	5471.4	468.97	993.65	1,462.62
11	130.0	8.16	20.633	46.96	31.94	0.32	2.25	0.80	1.00	1.72	44.89	219.99	34.41	13,590.	8778.1	701.03	1518.65	2,219.68
12	150.0	8.36	15.082	45.08	33.39	0.35	2.17	0.80	1.00	1.75	39.84	179.04	32.14	10,904.	7080.0	614.85	1304.89	1,919.73
13	170.0	8.55	9.382	43.21	31.52	0.40	2.07	0.80	1.00	1.77	34.98	110.62	24.15	6,656.3	4761.7	525.05	870.12	1,395.18
14	187.5	8.70	6.701	28.97	23.03	0.43	2.00	0.80	1.00	1.78	24.22	57.23	13.98	3,830.0	2841.9	358.52	436.30	794.82
														129,916.2	**76200.3**			**19,133.36**

Section Forces

Structure:	CT01879-S-SBA	**Code:**	EIA/TIA-222-G	5/5/2017	
Site Name:	Clinton 4 CT	**Exposure:**	D		
Height:	195.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	0.85 **Topography:** 1	**Struct Class:**	II	Page: 11	



Tower Engineering Solutions

Load Case: 1.2D + 1.0Di + 1.0Wi 90° Wind — 1.2D + 1.0Di + 1.0Wi 50 mph Wind at 90° From Face

Wind Load Factor: 1.00 — **Wind Importance Factor:** 1.00

Dead Load Factor: 1.20

Ice Dead Load Factor: 1.00 — **Ice Importance Factor:** 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1	5.0	5.60	15.825	28.67	14.27	0.19	2.63	0.85	1.00	1.24	29.87	101.09	18.63	7,846.0	3664.4	374.19	501.08	875.27
2	15.0	5.60	15.237	29.92	15.52	0.20	2.59	0.85	1.00	1.39	30.15	103.74	20.79	8,202.1	4082.7	372.27	519.84	892.11
3	30.0	6.32	28.213	73.08	31.90	0.24	2.47	0.85	1.00	1.49	66.52	217.74	34.67	16,907.	9049.7	884.42	1192.16	2,076.57
4	45.0	6.78	13.208	36.50	15.91	0.25	2.43	0.85	1.00	1.55	32.59	110.10	18.05	8,478.3	4644.5	457.42	647.44	1,104.86
5	55.0	7.03	12.642	36.38	15.79	0.26	2.41	0.85	1.00	1.58	32.13	110.73	18.42	8,465.9	4692.1	461.45	673.96	1,135.41
6	65.0	7.23	12.188	31.71	15.57	0.25	2.44	0.85	1.00	1.61	28.91	111.26	18.73	8,179.3	4560.5	433.29	700.63	1,133.92
7	75.0	7.41	11.639	31.49	15.35	0.26	2.41	0.85	1.00	1.63	28.39	111.45	17.64	8,113.1	4553.3	430.79	711.24	1,142.03
8	90.0	7.65	21.896	68.89	36.62	0.30	2.29	0.85	1.00	1.66	59.89	223.56	33.17	15,504.	9262.1	893.58	1444.78	2,338.36
9	103.3	7.84	5.694	17.86	11.66	0.26	2.40	0.85	1.00	1.68	15.35	73.48	11.21	4,450.1	2758.1	245.26	492.81	738.07
10	113.3	7.97	10.749	35.05	22.67	0.28	2.36	0.85	1.00	1.70	29.89	146.05	22.62	8,788.5	5471.4	477.56	993.65	1,471.21
11	130.0	8.16	20.633	46.96	31.94	0.32	2.25	0.85	1.00	1.72	45.92	219.99	34.41	13,590.	8778.1	717.14	1518.65	2,235.79
12	150.0	8.36	15.082	45.08	33.39	0.35	2.17	0.85	1.00	1.75	40.60	179.04	32.14	10,904.	7080.0	626.48	1304.89	1,931.37
13	170.0	8.55	9.382	43.21	31.52	0.40	2.07	0.85	1.00	1.77	35.45	110.62	24.15	6,656.3	4761.7	532.09	870.12	1,402.22
14	187.5	8.70	6.701	28.97	23.03	0.43	2.00	0.85	1.00	1.78	24.55	57.23	13.98	3,830.0	2841.9	363.48	436.30	799.78
														129,916.2	**76200.3**			**19,276.96**

Load Case: 1.0D + 1.0W Normal Wind — 1.0D + 1.0W 60 mph Wind at Normal To Face

Wind Load Factor: 1.00 — **Wind Importance Factor:** 1.00

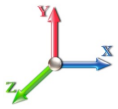
Dead Load Factor: 1.00

Ice Dead Load Factor: 0.00 — **Ice Importance Factor:** 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1	5.0	8.07	15.825	14.40	0.00	0.13	2.85	1.00	1.00	0.00	23.14	64.15	0.00	3,484.6	0.0	451.66	331.34	783.00
2	15.0	8.07	15.237	14.40	0.00	0.13	2.83	1.00	1.00	0.00	22.56	64.15	0.00	3,432.8	0.0	438.59	331.41	770.00
3	30.0	9.10	28.213	41.18	0.00	0.17	2.72	1.00	1.00	0.00	45.77	128.31	0.00	6,548.1	0.0	962.48	747.74	1,710.21
4	45.0	9.77	13.208	20.59	0.00	0.17	2.69	1.00	1.00	0.00	22.08	64.15	0.00	3,194.8	0.0	492.87	401.18	894.05
5	55.0	10.12	12.642	20.59	0.00	0.18	2.67	1.00	1.00	0.00	21.58	64.15	0.00	3,144.9	0.0	494.83	415.43	910.27
6	65.0	10.41	12.188	16.14	0.00	0.16	2.72	1.00	1.00	0.00	19.66	64.15	0.00	3,015.7	0.0	473.62	427.68	901.30
7	75.0	10.68	11.639	16.14	0.00	0.17	2.70	1.00	1.00	0.00	19.10	63.88	0.00	2,966.4	0.0	467.77	436.69	904.46
8	90.0	11.02	21.896	32.28	0.00	0.18	2.65	1.00	1.00	0.00	36.89	127.22	0.00	5,202.1	0.0	917.05	897.86	1,814.91
9	103.3	11.29	5.694	6.19	0.00	0.14	2.82	1.00	1.00	0.00	9.16	42.36	0.00	1,410.0	0.0	248.27	306.08	554.35
10	113.3	11.47	10.749	12.38	0.00	0.14	2.80	1.00	1.00	0.00	17.67	84.58	0.00	2,764.3	0.0	481.97	621.05	1,103.02
11	130.0	11.75	20.633	15.02	0.00	0.17	2.69	1.00	1.00	0.00	29.20	126.91	0.00	4,010.3	0.0	785.20	954.30	1,739.50
12	150.0	12.05	15.082	11.69	0.00	0.16	2.73	1.00	1.00	0.00	21.73	104.65	0.00	3,186.8	0.0	607.33	815.25	1,422.58
13	170.0	12.31	9.382	11.69	0.00	0.17	2.71	1.00	1.00	0.00	16.04	62.55	0.00	1,578.9	0.0	454.51	486.97	941.48
14	187.5	12.52	6.701	5.94	0.00	0.16	2.73	1.00	1.00	0.00	10.08	34.08	0.00	823.5	0.0	292.57	264.39	556.96
														44,763.3	**0.0**			**15,006.10**

Section Forces

Structure:	CT01879-S-SBA	**Code:**	EIA/TIA-222-G	5/5/2017	
Site Name:	Clinton 4 CT	**Exposure:**	D		
Height:	195.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	0.85 **Topography:** 1	**Struct Class:**	II	Page: 12	



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Load Case: 1.0D + 1.0W 60° Wind — 1.0D + 1.0W 60 mph Wind at 60° From Face

Wind Load Factor: 1.00 — **Wind Importance Factor:** 1.00

Dead Load Factor: 1.00

Ice Dead Load Factor: 0.00 — **Ice Importance Factor:** 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1	5.0	8.07	15.825	14.40	0.00	0.13	2.85	0.80	1.00	0.00	19.98	64.15	0.00	3,484.6	0.0	389.89	331.34	721.23
2	15.0	8.07	15.237	14.40	0.00	0.13	2.83	0.80	1.00	0.00	19.52	64.15	0.00	3,432.8	0.0	379.36	331.41	710.77
3	30.0	9.10	28.213	41.18	0.00	0.17	2.72	0.80	1.00	0.00	40.13	128.31	0.00	6,548.1	0.0	843.83	747.74	1,591.57
4	45.0	9.77	13.208	20.59	0.00	0.17	2.69	0.80	1.00	0.00	19.44	64.15	0.00	3,194.8	0.0	433.90	401.18	835.08
5	55.0	10.12	12.642	20.59	0.00	0.18	2.67	0.80	1.00	0.00	19.05	64.15	0.00	3,144.9	0.0	436.86	415.43	852.29
6	65.0	10.41	12.188	16.14	0.00	0.16	2.72	0.80	1.00	0.00	17.22	64.15	0.00	3,015.7	0.0	414.89	427.68	842.57
7	75.0	10.68	11.639	16.14	0.00	0.17	2.70	0.80	1.00	0.00	16.78	63.88	0.00	2,966.4	0.0	410.78	436.69	847.46
8	90.0	11.02	21.896	32.28	0.00	0.18	2.65	0.80	1.00	0.00	32.51	127.22	0.00	5,202.1	0.0	808.17	897.86	1,706.03
9	103.3	11.29	5.694	6.19	0.00	0.14	2.82	0.80	1.00	0.00	8.02	42.36	0.00	1,410.0	0.0	217.41	306.08	523.49
10	113.3	11.47	10.749	12.38	0.00	0.14	2.80	0.80	1.00	0.00	15.52	84.58	0.00	2,764.3	0.0	423.33	621.05	1,044.37
11	130.0	11.75	20.633	15.02	0.00	0.17	2.69	0.80	1.00	0.00	25.07	126.91	0.00	4,010.3	0.0	674.23	954.30	1,628.53
12	150.0	12.05	15.082	11.69	0.00	0.16	2.73	0.80	1.00	0.00	18.71	104.65	0.00	3,186.8	0.0	523.02	815.25	1,338.27
13	170.0	12.31	9.382	11.69	0.00	0.17	2.71	0.80	1.00	0.00	14.16	62.55	0.00	1,578.9	0.0	401.33	486.97	888.30
14	187.5	12.52	6.701	5.94	0.00	0.16	2.73	0.80	1.00	0.00	8.74	34.08	0.00	823.5	0.0	253.67	264.39	518.06
														44,763.3	**0.0**			**14,048.03**

Load Case: 1.0D + 1.0W 90° Wind — 1.0D + 1.0W 60 mph Wind at 90° From Face

Wind Load Factor: 1.00 — **Wind Importance Factor:** 1.00

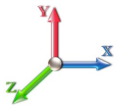
Dead Load Factor: 1.00

Ice Dead Load Factor: 0.00 — **Ice Importance Factor:** 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1	5.0	8.07	15.825	14.40	0.00	0.13	2.85	0.85	1.00	0.00	20.77	64.15	0.00	3,484.6	0.0	405.33	331.34	736.67
2	15.0	8.07	15.237	14.40	0.00	0.13	2.83	0.85	1.00	0.00	20.28	64.15	0.00	3,432.8	0.0	394.17	331.41	725.58
3	30.0	9.10	28.213	41.18	0.00	0.17	2.72	0.85	1.00	0.00	41.54	128.31	0.00	6,548.1	0.0	873.50	747.74	1,621.23
4	45.0	9.77	13.208	20.59	0.00	0.17	2.69	0.85	1.00	0.00	20.10	64.15	0.00	3,194.8	0.0	448.64	401.18	849.82
5	55.0	10.12	12.642	20.59	0.00	0.18	2.67	0.85	1.00	0.00	19.69	64.15	0.00	3,144.9	0.0	451.35	415.43	866.79
6	65.0	10.41	12.188	16.14	0.00	0.16	2.72	0.85	1.00	0.00	17.83	64.15	0.00	3,015.7	0.0	429.57	427.68	857.25
7	75.0	10.68	11.639	16.14	0.00	0.17	2.70	0.85	1.00	0.00	17.36	63.88	0.00	2,966.4	0.0	425.03	436.69	861.71
8	90.0	11.02	21.896	32.28	0.00	0.18	2.65	0.85	1.00	0.00	33.60	127.22	0.00	5,202.1	0.0	835.39	897.86	1,733.25
9	103.3	11.29	5.694	6.19	0.00	0.14	2.82	0.85	1.00	0.00	8.31	42.36	0.00	1,410.0	0.0	225.12	306.08	531.20
10	113.3	11.47	10.749	12.38	0.00	0.14	2.80	0.85	1.00	0.00	16.06	84.58	0.00	2,764.3	0.0	437.99	621.05	1,059.03
11	130.0	11.75	20.633	15.02	0.00	0.17	2.69	0.85	1.00	0.00	26.10	126.91	0.00	4,010.3	0.0	701.97	954.30	1,656.28
12	150.0	12.05	15.082	11.69	0.00	0.16	2.73	0.85	1.00	0.00	19.47	104.65	0.00	3,186.8	0.0	544.10	815.25	1,359.35
13	170.0	12.31	9.382	11.69	0.00	0.17	2.71	0.85	1.00	0.00	14.63	62.55	0.00	1,578.9	0.0	414.63	486.97	901.60
14	187.5	12.52	6.701	5.94	0.00	0.16	2.73	0.85	1.00	0.00	9.07	34.08	0.00	823.5	0.0	263.40	264.39	527.78
														44,763.3	**0.0**			**14,287.55**

Force/Stress Compression Summary

Structure:	CT01879-S-SBA	**Code:**	EIA/TIA-222-G	5/5/2017	
Site Name:	Clinton 4 CT	**Exposure:**	D		
Height:	195.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	0.85 **Topography:** 1	**Struct Class:**	II	Page: 13	



Tower Engineering Solutions

LEG MEMBERS

Sect	Top Elev	Member	Force (kips)	Load Case	Len (ft)	Bracing % X	Y	Z	KL/R	Fy (ksi)	Mem Cap (kips)	Leg Use %	Controls
1	10	PX - 8" DIA PIPE	-495.14	1.2D + 1.6W Normal Wind	9.64	100	100	100	40.20	50.00	510.21	97.0	Member X
2	20	PX - 8" DIA PIPE	-470.57	1.2D + 1.6W Normal Wind	9.64	100	100	100	40.20	50.00	510.21	92.0	Member X
3	40	MOD - 8"PST+5x5x3/8L	-442.63	1.2D + 1.6W Normal Wind	9.62	100	100	100	43.01	50.00	472.01	93.0	Member X
4	50	MOD - 8"PST+5x5x3/8L	-388.10	1.2D + 1.6W Normal Wind	9.64	100	100	100	43.13	50.00	471.68	82.0	Member X
5	60	MOD - 8"PST+5x5x3/8L	-360.13	1.2D + 1.6W Normal Wind	9.64	100	100	100	43.13	50.00	471.68	76.0	Member X
6	70	MOD - 6"PX+L4x4x3/8	-332.81	1.2D + 1.6W Normal Wind	9.64	100	100	100	56.38	50.00	401.71	82.0	Member X
7	80	MOD - 6"PX+L4x4x3/8	-304.74	1.2D + 1.6W Normal Wind	9.64	100	100	100	56.38	50.00	401.71	75.0	Member X
8	100	MOD - 6"PST+4x4x3/8L	-281.18	1.2D + 1.6W Normal Wind	6.43	100	100	100	37.83	50.00	342.05	82.0	Member X
9	106.6	PX - 5" DIA PIPE	-225.21	1.2D + 1.6W Normal Wind	6.31	100	100	100	41.12	50.00	242.97	92.0	Member X
10	120	PX - 5" DIA PIPE	-207.55	1.2D + 1.6W Normal Wind	6.49	100	100	100	42.31	50.00	241.21	86.0	Member X
11	140	PX - 4" DIA PIPE	-178.03	1.2D + 1.6W Normal Wind	0.38	50	50	50	1.52	50.00	198.42	89.0	Member X
12	160	PX - 3" DIA PIPE	-110.14	1.2D + 1.6W Normal Wind	4.82	100	100	100	50.74	50.00	112.58	97.0	Member X
13	180	PST - 3" DIA PIPE	-52.89	1.2D + 1.6W Normal Wind	4.91	100	100	100	50.84	50.00	83.07	63.0	Member X
14	195	PST - 2" DIA PIPE	-15.44	1.2D + 1.6W Normal Wind	5.00	100	100	100	76.24	50.00	31.48	49.0	Member X

HORIZONTAL MEMBERS

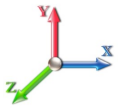
Sect	Top Elev	Member	Force (kips)	Load Case	Len (ft)	Bracing % X	Y	Z	KL/R	Fy (ksi)	Mem Cap (kips)	Num Bolts	Num Holes	Shear Cap (kips)	Bear Cap (kips)	Use %	Controls
1	10										0.00	0	0				
2	20										0.00	0	0				
3	40										0.00	0	0				
4	50										0.00	0	0				
5	60										0.00	0	0				
6	70										0.00	0	0				
7	80										0.00	0	0				
8	100										0.00	0	0				
9	106.										0.00	0	0				
10	120										0.00	0	0				
11	140										0.00	0	0				
12	160										0.00	0	0				
13	180	SAE - 1.75X1.75X0.187[illegible]	-0.63	1.2D + 1.6W 60° Wind	5.00	100	100	100	174.93	36.00	4.58	1	1	15.19	9.79	13	Member Z
14	195	SAE - 1.75X1.75X0.187[illegible]	-0.55	1.2D + 1.6W 60° Wind	5.00	100	100	100	174.93	36.00	4.58	1	1	15.19	9.79	12	Member Z

DIAGONAL MEMBERS

Sect	Top Elev	Member	Force (kips)	Load Case	Len (ft)	Bracing % X	Y	Z	KL/R	Fy (ksi)	Mem Cap (kips)	Num Bolts	Num Holes	Shear Cap (kips)	Bear Cap (kips)	Use %	Controls
1	10	SAE - 4X4X0.375	-16.2	1.2D + 1.6W 90° Wind	24.46	48	48	48	178.77	36.00	20.22	1	1	21.86	20.2	80	Member Z
2	20	SAE - 4X4X0.375	-17.7	1.2D + 1.6W 90° Wind	23.57	48	48	48	172.32	36.00	21.76	1	1	21.86	21.5	82	Bolt Bear
3	40	SAE - 4X4X0.375	-16.6	1.2D + 1.6W 90° Wind	21.75	48	48	48	159.02	36.00	25.55	1	1	21.86	21.5	77	Bolt Bear
4	50	SAE - 4X4X0.375	-15.5	1.2D + 1.6W 90° Wind	20.84	48	48	48	152.33	36.00	27.85	1	1	21.86	21.5	71	Bolt Bear
5	60	SAE - 4X4X0.375	-15.6	1.2D + 1.6W 90° Wind	19.99	48	48	48	146.12	36.00	30.26	1	1	21.86	21.5	72	Bolt Bear
6	70	SAE - 4X4X0.375	-14.0	1.2D + 1.6W 90° Wind	19.09	48	48	48	139.53	36.00	33.19	1	1	21.86	21.5	65	Bolt Bear
7	80	SAE - 4X4X0.375	-14.5	1.2D + 1.6W 90° Wind	18.26	48	48	48	133.50	36.00	36.26	1	1	21.86	21.5	67	Bolt Bear
8	100	SAE - 3X3X0.375	-12.3	1.2D + 1.6W 90° Wind	15.99	48	48	48	156.87	36.00	19.37	1	1	21.86	21.5	63	Member Z
9	106.	SAE - 2.5X2.5X0.375	-11.0	1.2D + 1.6W 90° Wind	14.13	48	48	48	167.11	36.00	14.00	1	1	15.19	19.5	78	Member Z
10	120	SAE - 2.5X2.5X0.375	-11.7	1.2D + 1.6W 90° Wind	13.08	48	48	48	154.70	36.00	16.33	1	1	15.19	19.5	77	Bolt Shear
11	140	SAE - 2.5X2.5X0.375	-10.8	1.2D + 1.6W 90° Wind	11.35	49	49	49	137.02	36.00	20.82	1	1	15.19	19.5	71	Bolt Shear
12	160	SAE - 2.5X2.5X0.375	-8.38	1.2D + 1.6W 90° Wind	9.96	49	49	49	120.29	36.00	26.17	1	1	15.19	19.5	55	Bolt Shear
13	180	SAE - 1.75X1.75X0.187[illegible]	-4.37	1.2D + 1.6W 90° Wind	8.32	49	49	49	142.62	36.00	6.89	1	1	15.19	9.79	63	Member Z

Force/Stress Compression Summary

Structure:	CT01879-S-SBA	**Code:**	EIA/TIA-222-G	5/5/2017	
Site Name:	Clinton 4 CT	**Exposure:**	D		
Height:	195.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	0.85 **Topography:** 1	**Struct Class:**	II	Page: 14	



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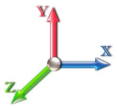
DIAGONAL MEMBERS

Sect	Top Elev	Member	Force (kips)	Load Case	Len (ft)	Bracing % X	Y	Z	KL/R	Fy (ksi)	Mem Cap (kips)	Num Bolts	Num Holes	Shear Cap (kips)	Bear Cap (kips)	Use %	Controls
14	195	SAE - 1.75X1.75X0.187	3.05	1.2D + 1.6W Normal Wind	7.07	50	50	50	123.69	36.00	8.98	1	1	15.19	9.79	34	Member Z

Force/Stress Tension Summary

Structure:	CT01879-S-SBA	**Code:**	EIA/TIA-222-G	5/5/2017	
Site Name:	Clinton 4 CT	**Exposure:**	D		
Height:	195.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	0.85 **Topography:** 1	**Struct Class:**	II	Page: 15	



Tower Engineering Solutions

LEG MEMBERS

Sect	Top Elev	Member	Force (kips)	Load Case	Fy (ksi)	Mem Cap (kips)	Leg Use %	Controls
1	10	PX - 8" DIA PIPE	450.28	0.9D + 1.6W 60° Wind	50	574.20	78.00	Member
2	20	PX - 8" DIA PIPE	415.85	0.9D + 1.6W 60° Wind	50	574.20	72.00	Member
3	40	MOD - 8"PST+5x5x3/8L	405.72	0.9D + 1.6W 60° Wind	50	540.39	75.00	Member
4	50	MOD - 8"PST+5x5x3/8L	358.55	0.9D + 1.6W 60° Wind	50	540.39	66.00	Member
5	60	MOD - 8"PST+5x5x3/8L	320.44	0.9D + 1.6W 60° Wind	50	540.39	59.00	Member
6	70	MOD - 6"PX+L4x4x3/8	310.04	0.9D + 1.6W 60° Wind	50	506.83	61.00	Member
7	80	MOD - 6"PX+L4x4x3/8	269.48	1.2D + 1.6W 60° Wind	50	506.83	53.00	Member
8	100	MOD - 6"PST+4x4x3/8L	259.00	1.2D + 1.6W 60° Wind	50	379.79	68.00	Member
9	106.67	PX - 5" DIA PIPE	209.35	1.2D + 1.6W 60° Wind	50	274.95	76.00	Member
10	120	PX - 5" DIA PIPE	185.77	0.9D + 1.6W 60° Wind	50	274.95	67.00	Member
11	140	PX - 4" DIA PIPE	159.22	0.9D + 1.6W 60° Wind	50	198.45	80.00	Member
12	160	PX - 3" DIA PIPE	104.19	0.9D + 1.6W 60° Wind	50	135.90	76.00	Member
13	180	PST - 3" DIA PIPE	50.21	1.2D + 1.6W 60° Wind	50	100.35	50.00	Member
14	195	PST - 2" DIA PIPE	12.29	1.2D + 1.6W 60° Wind	50	48.15	25.00	Member

HORIZONTAL MEMBERS

Sect	Top Elev	Member	Force (kips)	Load Case	Fy (ksi)	Mem Cap (kips)	Num Bolts	Num Holes	Shear Cap (kips)	Bear Cap (kips)	B.S. Cap (kips)	Use %	Controls
1	10	-			36	0.00	0	0					
2	20	-			36	0.00	0	0					
3	40	-			36	0.00	0	0					
4	50	-			36	0.00	0	0					
5	60	-			36	0.00	0	0					
6	70	-			36	0.00	0	0					
7	80	-			36	0.00	0	0					
8	100	-			36	0.00	0	0					
9	106.67	-			36	0.00	0	0					
10	120	-			36	0.00	0	0					
11	140	-			36	0.00	0	0					
12	160	-			36	0.00	0	0					
13	180	SAE - 1.75X1.75X0.1875	0.54	1.2D + 1.6W 90° Wind	36	15.64	1	1	15.19	9.79	7.50	7	Blck Shear
14	195	SAE - 1.75X1.75X0.1875	0.58	1.2D + 1.6W 90° Wind	36	15.64	1	1	15.19	9.79	7.50	7	Blck Shear

DIAGONAL MEMBERS

Sect	Top Elev	Member	Force (kips)	Load Case	Fy (ksi)	Mem Cap (kips)	Num Bolts	Num Holes	Shear Cap (kips)	Bear Cap (kips)	B.S. Cap (kips)	Use %	Controls
1	10	SAE - 4X4X0.375	15.61	1.2D + 1.6W 90° Wind	36	82.60	1	1	21.86	20.24	24.55	77	Bolt Bear
2	20	SAE - 4X4X0.375	17.34	1.2D + 1.6W 90° Wind	36	82.60	1	1	21.86	21.53	24.93	80	Bolt Bear
3	40	SAE - 4X4X0.375	16.21	1.2D + 1.6W 90° Wind	36	82.60	1	1	21.86	21.53	24.93	75	Bolt Bear
4	50	SAE - 4X4X0.375	15.24	1.2D + 1.6W 90° Wind	36	82.60	1	1	21.86	21.53	24.93	70	Bolt Bear
5	60	SAE - 4X4X0.375	15.21	1.2D + 1.6W 90° Wind	36	82.60	1	1	21.86	21.53	24.93	70	Bolt Bear
6	70	SAE - 4X4X0.375	13.83	1.2D + 1.6W 90° Wind	36	82.60	1	1	21.86	21.53	24.93	64	Bolt Bear
7	80	SAE - 4X4X0.375	13.97	1.2D + 1.6W 90° Wind	36	82.60	1	1	21.86	21.53	24.93	64	Bolt Bear
8	100	SAE - 3X3X0.375	12.19	1.2D + 1.6W 90° Wind	36	58.13	1	1	21.86	21.53	20.85	58	Blck Shear
9	106.67	SAE - 2.5X2.5X0.375	10.90	1.2D + 1.6W 90° Wind	36	47.27	1	1	15.19	19.58	19.07	71	Bolt Shear
10	120	SAE - 2.5X2.5X0.375	11.47	1.2D + 1.6W 90° Wind	36	47.27	1	1	15.19	19.58	19.07	75	Bolt Shear
11	140	SAE - 2.5X2.5X0.375	10.44	1.2D + 1.6W 90° Wind	36	47.27	1	1	15.19	19.58	19.07	68	Bolt Shear
12	160	SAE - 2.5X2.5X0.375	8.47	1.2D + 1.6W 90° Wind	36	47.27	1	1	15.19	19.58	19.07	55	Bolt Shear
13	180	SAE - 1.75X1.75X0.1875	4.45	1.2D + 1.6W 90° Wind	36	15.64	1	1	15.19	9.79	7.50	59	Blck Shear
14	195	SAE - 1.75X1.75X0.1875	2.85	1.2D + 1.6W 60° Wind	36	15.64	1	1	15.19	9.79	7.50	38	Blck Shear

Force/Stress Tension Summary

Structure:	CT01879-S-SBA	**Code:**	EIA/TIA-222-G	5/5/2017	
Site Name:	Clinton 4 CT	**Exposure:**	D		
Height:	195.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	0.85 **Topography:** 1	**Struct Class:**	II	Page: 16	

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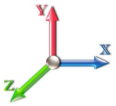
DIAGONAL MEMBERS

Sect	Top Elev	Member	Force (kips)	Load Case	Fy (ksi)	Mem Cap (kips)	Num Bolts	Num Holes	Shear Cap (kips)	Bear Cap (kips)	B.S. Cap (kips)	Use %	Controls

Support Forces Summary

Structure:	CT01879-S-SBA	**Code:**	EIA/TIA-222-G	5/5/2017	
Site Name:	Clinton 4 CT	**Exposure:**	D		
Height:	195.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	0.85 **Topography:** 1	**Struct Class:**	II	Page: 17	



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Load Case	Node	FX (kips)	FY (kips)	FZ (kips)	(-) = Uplift (+) = Down
1.2D + 1.6W Normal Wind	1	0.00	507.40	-54.65	
	1a	19.07	-221.02	-18.12	
	1b	-19.07	-221.02	-18.12	
1.2D + 1.6W 60° Wind	1	-5.78	254.38	-26.64	
	1a	-25.85	253.92	8.50	
	1b	-43.02	-442.93	-24.96	
1.2D + 1.6W 90° Wind	1	-6.84	21.90	-1.23	
	1a	-41.24	428.50	20.13	
	1b	-39.28	-385.04	-18.90	
0.9D + 1.6W Normal Wind	1	0.00	501.35	-54.30	
	1a	19.36	-226.16	-18.29	
	1b	-19.36	-226.16	-18.29	
0.9D + 1.6W 60° Wind	1	-5.79	248.62	-26.29	
	1a	-25.55	248.21	8.32	
	1b	-43.31	-447.81	-25.13	
0.9D + 1.6W 90° Wind	1	-6.85	16.43	-0.88	
	1a	-40.94	422.59	19.95	
	1b	-39.58	-389.99	-19.07	
1.2D + 1.0Di + 1.0Wi Normal Wind	1	0.00	174.63	-12.67	
	1a	5.91	-9.22	-5.19	
	1b	-5.91	-9.22	-5.19	
1.2D + 1.0Di + 1.0Wi 60° Wind	1	-1.52	112.94	-5.78	
	1a	-5.73	112.55	1.61	
	1b	-12.38	-69.30	-7.17	
1.2D + 1.0Di + 1.0Wi 90° Wind	1	-1.77	52.26	0.91	
	1a	-9.63	156.29	4.59	
	1b	-11.23	-52.36	-5.50	
1.0D + 1.0W Normal Wind	1	0.00	115.63	-11.98	
	1a	3.07	-30.58	-3.22	
	1b	-3.07	-30.58	-3.22	
1.0D + 1.0W 60° Wind	1	-1.20	64.88	-6.30	
	1a	-6.03	64.69	2.15	
	1b	-7.91	-75.10	-4.59	
1.0D + 1.0W 90° Wind	1	-1.41	18.24	-1.15	
	1a	-9.14	99.71	4.51	
	1b	-7.16	-63.49	-3.36	

Max Reactions

Leg			Overturning		
Max Uplift:	-447.81	(kips)	Moment:	9672.64	(ft-kips)
Max Down:	507.40	(kips)	Total Down:	65.36	(kips)
Max Shear:	54.65	(kips)	Total Shear:	90.89	(kips)

Analysis Summary

Structure:	CT01879-S-SBA		**Code:**	EIA/TIA-222-G	5/5/2017
Site Name:	Clinton 4 CT		**Exposure:**	D	
Height:	195.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	0.85	**Topography:** 1	**Struct Class:**	II	Page: 18

Tower Engineering Solutions

Max Reactions

Leg			Overturning		
Max Uplift:	-447.81	(kips)	Moment:	9672.64	(ft-kips)
Max Down:	507.40	(kips)	Total Down:	65.36	(kips)
Max Shear:	54.65	(kips)	Total Shear:	90.89	(kips)

Anchor Bolts

Bolt Size (in.):	1.50	Number Bolts:	8
Yield Strength (Ksi):	105.00	Tensile Strength (Ksi):	125.00
Detail Type:	C		

Interaction Ratio: 0.49

Max Usages

Max Leg: 97.0% (1.2D + 1.6W Normal Wind - Sect 1)
Max Diag: 82.0% (1.2D + 1.6W 90° Wind - Sect 2)
Max Horiz: 13.0% (1.2D + 1.6W 60° Wind - Sect 13)

Max Deflection, Twist and Sway

Load Case	Elevation (ft)	Deflection (ft)	Twist (deg)	Sway (deg)
0.9D + 1.6W 105 mph Wind at 60° From Face	79.63	0.3359	0.0081	0.5203
	100.38	0.5298	0.0203	0.6573
	140.38	1.0817	0.0779	1.2251
	150.00	1.2547	0.1053	1.1253
	160.38	1.4652	0.1525	1.5036
	180.00	1.9056	0.3061	1.4129
	185.00	2.0242	0.4173	1.2252
	190.00	2.1480	0.4362	1.5239
	195.00	2.2718	0.4295	1.4223
0.9D + 1.6W 105 mph Wind at 90° From Face	79.63	0.3393	-0.0169	0.5124
	100.38	0.5349	-0.0176	0.6461
	140.38	1.0903	0.0636	1.1990
	150.00	1.2654	0.0644	1.1253
	160.38	1.4768	0.0752	1.4901
	180.00	1.9209	0.0760	1.4477
	185.00	2.0400	0.0295	0.7389
	190.00	2.1640	0.0753	1.6194
	195.00	2.2887	0.0754	1.4279
0.9D + 1.6W 105 mph Wind at Normal To Face	79.63	0.3508	0.0161	0.5757
	100.38	0.5525	0.0251	0.7271
	140.38	1.1239	0.0241	1.3333
	150.00	1.3039	0.0235	1.1705
	160.38	1.5212	-0.0243	1.5681
	180.00	1.9778	-0.0319	1.4136
	185.00	2.1015	0.0213	2.0966
	190.00	2.2295	-0.0326	1.4805
	195.00	2.3578	-0.0323	1.5662

1.0D + 1.0W 60 mph Wind at 60° From Face	79.63	0.0675	-0.0027	0.1036
	100.38	0.1062	-0.0027	0.1310
	140.38	0.2161	0.0112	0.2461
	150.00	0.2506	0.0108	0.2242
	160.38	0.2923	0.0133	0.3008
	180.00	0.3799	0.0128	0.2777
	185.00	0.4035	0.0097	0.2401
	190.00	0.4279	0.0106	0.3023
	195.00	0.4525	0.0101	0.2823
1.0D + 1.0W 60 mph Wind at 90° From Face	79.63	0.0681	-0.0039	0.1026
	100.38	0.1072	-0.0044	0.1291
	140.38	0.2178	-0.0132	0.2379
	150.00	0.2527	0.0101	0.2238
	160.38	0.2947	0.0111	0.2955
	180.00	0.3828	0.0101	0.2874
	185.00	0.4064	0.0017	0.1425
	190.00	0.4310	0.0080	0.3221
	195.00	0.4558	0.0076	0.2833
1.0D + 1.0W 60 mph Wind at Normal To Face	79.63	0.0706	0.0030	0.1146
	100.38	0.1109	0.0046	0.1452
	140.38	0.2250	0.0038	0.2623
	150.00	0.2606	-0.0036	0.2322
	160.38	0.3039	-0.0070	0.3088
	180.00	0.3946	-0.0081	0.2815
	185.00	0.4194	0.0016	0.4210
	190.00	0.4445	-0.0073	0.2945
	195.00	0.4700	-0.0071	0.3104
1.2D + 1.0Di + 1.0Wi 50 mph Wind at 60° From Face	79.63	0.0871	-0.0042	0.1341
	100.38	0.1374	-0.0046	0.1699
	140.38	0.2806	0.0146	0.3175
	150.00	0.3247	0.0141	0.2882
	160.38	0.3784	0.0172	0.3865
	180.00	0.4904	0.0209	0.3578
	185.00	0.5203	0.0268	0.3145
	190.00	0.5519	0.0260	0.3933
	195.00	0.5836	0.0243	0.3624
1.2D + 1.0Di + 1.0Wi 50 mph Wind at 90° From Face	79.63	0.0870	-0.0060	0.1309
	100.38	0.1367	-0.0071	0.1641
	140.38	0.2773	-0.0166	0.3006
	150.00	0.3208	0.0127	0.2816
	160.38	0.3736	0.0138	0.3713
	180.00	0.4839	0.0125	0.3654
	185.00	0.5135	0.0081	0.1322
	190.00	0.5443	0.0099	0.4159
	195.00	0.5753	0.0094	0.3549
1.2D + 1.0Di + 1.0Wi 50 mph Wind at Normal From Face	79.63	0.0874	0.0025	0.1430
	100.38	0.1381	0.0038	0.1823
	140.38	0.2818	-0.0037	0.3234
	150.00	0.3264	-0.0043	0.2877
	160.38	0.3801	-0.0084	0.3791
	180.00	0.4929	-0.0098	0.3520
	185.00	0.5234	0.0014	0.5747
	190.00	0.5551	-0.0088	0.3680
	195.00	0.5869	-0.0086	0.3926
1.2D + 1.6W 105 mph Wind at 60° From Face	79.63	0.3364	0.0081	0.5210
	100.38	0.5306	0.0203	0.6584
	140.38	1.0836	0.0781	1.2283
	150.00	1.2570	0.1055	1.1280
	160.38	1.4680	0.1527	1.5079
	180.00	1.9094	0.3066	1.4161
	185.00	2.0284	0.4181	1.2288
	190.00	2.1525	0.4370	1.5276
	195.00	2.2766	0.4303	1.4263

1.2D + 1.6W 105 mph Wind at 90° From Face	79.63	0.3397	-0.0170	0.5132
	100.38	0.5357	-0.0177	0.6472
	140.38	1.0921	0.0637	1.2016
	150.00	1.2677	0.0645	1.1278
	160.38	1.4795	0.0754	1.4937
	180.00	1.9247	0.0762	1.4513
	185.00	2.0441	0.0294	0.7425
	190.00	2.1685	0.0754	1.6231
	195.00	2.2935	0.0756	1.4318
1.2D + 1.6W 105 mph Wind at Normal To Face	79.63	0.3513	0.0161	0.5764
	100.38	0.5533	0.0251	0.7284
	140.38	1.1259	0.0241	1.3361
	150.00	1.3063	0.0235	1.1732
	160.38	1.5242	-0.0245	1.5719
	180.00	1.9819	-0.0321	1.4176
	185.00	2.1060	0.0213	2.1009
	190.00	2.2342	-0.0328	1.4847
	195.00	2.3629	-0.0326	1.5699

Pier Foundation For Self Supporting Tower

			Date: 5/5/2017
Customer Name:	**SBA Communications Corp**	**EIA/TIA Standard:**	EIA-222-G
Site Name:		**Structure Height (Ft.):**	195
Site Number:	CT01879-S-SBA	**Engineer Name:**	Rama K.
Engr. Number:	32039	**Engineer Login ID:**	

Foundation Info Obtained from: Drawings/Calculations

Structure Type: Self Supporting Tower

Analysis or Design? Analysis

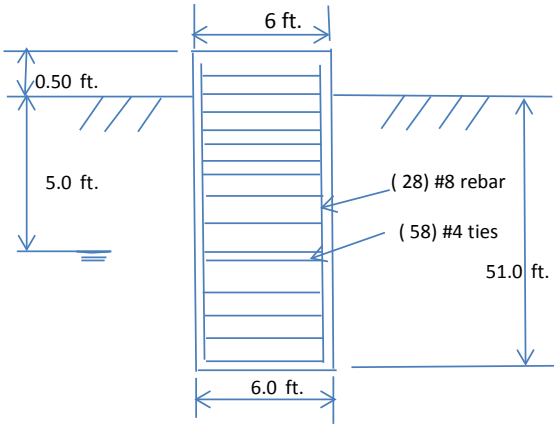
Acceptable overstress (5.0%

Base Reactions (Factored):

Axial Load (Kips):	507.4	Shear Force (Kips):	54.7
Uplift Force (Kips):	447.8	Moment (Kips-ft):	0.0

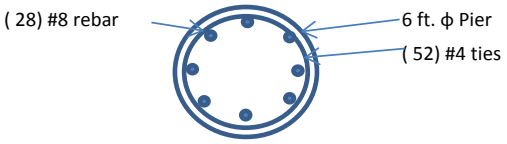
Foundation Geometries:

Diameter of Pier (ft.):	6.0	Depth of Base B. G. S. :	51.0	ft.
Pier Height A. G. (ft.):	0.50			



Material Properties and Reabr Info:

Concrete Strength (psi):	3000	Steel Elastic Modulus:	29000	ksi
Vertical bar yield (ksi)	60	Tie steel yield strength:	60	ksi
Vertical Rebar Size #:	8	Tie / Stirrup Size #:	4	
Qty. of Vertical Rebars:	28	Tie Spacing:	12.0	in.
Concrete Cover (in.):	3	Concrete unit weight:	0.0	pcf



SST Pier Foundation

Soil Design Parameters:

Water Table B.G.S. (ft):	5.0	Unit weight of water:	62.4	psf
Ratio of Uplift/Axial Skin Friction:	1.0	Pullout failure Angle:	32	(°)

Skin Frictions are to be obtained from: Calculations

Please Enter Ultimate End Bearing Pressure (psf): 10000

Kc = 1.15 For Sand — Kt = 0.7 For Sand and Silt

Kc = 1.0 Silt/Clay — Kt = 0.85 For Clay

Friction δ Between Pier & Soil = 0.95

Depth of Layers (ft) Top	Bottom	γ_{soil} (pcf)	ϕ (°)	Cohesion (psf)			Soil Types	Ultimate Uplift Skin Friction (psf)	Ultimate Axial Skin Friction (psf)	Kc	Kt	α
0.0	2.5	100	28	0	0	0	Sand	43.8	72.0	1.15	0.70	
2.5	55.0	120	30	0	730	10000	Sand	765.8	1258.2	1.15	0.70	
55.0	60.0	120	30	0	730	10000	Sand	832.0	1366.8	1.15	0.70	

Soil weight Increase Factor for bouyant soils (1.0 to 1.15): 1.1

Foundation Analysis and Design:

Uplift Strength Reduction Factor:	0.75	Soil Bearing Strength Reduction Factor:	0.75	
Total Dry Soil Volume from Conical Failure (cu. Ft.):	17282	Dry Soil Weight from Conical Failure:	1901	Kips
Total Buoyant Soil Volume from Conical Failure (cu. Ft.):	52261	Buoyant Soil Weight from Conical Failure (Ki	3951	Kips
Total Dry Concrete Volume (cu. Ft.):	156	Total Dry Concrete Weight:	0.00	Kips
Total Buoyant Concrete Volume (cu. Ft.):	1301	Total Buoyant Concrete Weight:	-81.16	Kips
Total Effective Concrete Weight (Kips):	-81.2	Total Effective Soil Weight:	5852	Kips
Total Effective Vertical Load on Base (Kips):	312			

Check Soil Capacities:

					Usage	
Calculated Foundation Allowable Axail Capacity (Kips):	1262.1	>	Design Factored Axial Load (Kips):	312	0.25	OK!
Calculated Foundation Uplift Capacity (Kips):	453.61	>	Design Factored Uplift Load (Kips):	448	0.99	OK!

Check the capacities of Reinforceing Concrete:

Strength reduction factor (Flexure and axial tension):	0.90	Strength reduction factor (Shear):	0.75	
Strength reduction factor (Axial compresion):	0.65	Wind Load Factor on Concrete Design:	1.00	

Reinforcing Concrete Pier:					Usage	
Vertical Steel Rebar Area (sq. in./each):	0.79		Tie / Stirrup Area (sq. in./each):	0.20		
Calculated Moment Capacity (Mn,Kips-Ft):	1972	>	Design Factored Moment (Mu, K-Ft):	275.6	0.14	OK!
Calculated Shear Capacity (Kips):	312.1	>	Design Factored Shear (Kips):	79.7	0.26	OK!
Calculated Tension Capacity (Tn, Kips):	1194.5	>	Design Factored Tension (Tu Kips):	447.8	0.37	OK!
Calculated Compression Capacity (Pn, Kips):	5369	>	Design Factored Axial Load (Pu Kips):	507.4	0.09	OK!
Moment & Tension Strength Combination:	0.14	OK!	Max. Allowable Tie/Stirrup Spacing:	12.00	in.	
Pier Reinforcement Ratio:	0.005	Reinforcement Ratio is satisfied per ACI				

MODIFICATION AND DESIGN DRAWINGS FOR AN EXISTING 195' SABRE SELF SUPPORTING TOWER

PROPOSED CARRIER: AT&T

SITE: CT01879-S-SBA / CLINTON 4 CT

COORDINATES (LATITUDE: 41.275205°, LONGITUDE: -72.497711°)

CONSTRUCTION CLASS

TES HAS DETERMINED THIS AS A CLASS **IV** CONSTRUCTION PROJECT PER ANSI/ASSE A10.48

COMPLETE FABRICATION DRAWINGS FOR ALL MATERIALS REQUIRED FOR THIS PROJECT ARE AVAILABLE FROM TOWER ENGINEERING SOLUTIONS (TES). PLEASE CONTACT TES FOR MORE INFORMATION.

SHEET	SHEET TITLE	REV
T-1	TITLE SHEET	1
BOM	BILL OF MATERIALS	1
GN-1	GENERAL NOTES	0
A-1	TOWER PROFILE	1
A-2	DIAGONAL REPLACEMENT DETAILS	1
A-3	L 5" X 5" X 3/8" ANGLE LEG REINFORCEMENT	1
A-3A	DIAGONAL REPLACEMENT DETAILS	0
A-4	L 4" X 4" X 3/8" ANGLE LEG REINFORCEMENT	1
A-4A	L 4" X 4" X 3/8" ANGLE LEG REINFORCEMENT	1
A-4B	DIAGONAL REPLACEMENT DETAILS	0
A-5	DIAGONAL REPLACEMENT DETAILS	0
A-6	MID-BAY HORIZONTAL ASSEMBLY- 3 BAYS (4.50" O.D PIPE LEG)	0
A-7	DIAGONAL REPLACEMENT DETAILS	0
A-8	FLANGE REINFORCEMENT ASSEMBLY	1

NOTE:

1. THE MODIFICATION DRAWINGS ARE BASED ON THE **TES** PROJECT NO. **31606**, DATED **03/15/17**.

TES
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BOCA RATON, FL 33487
(800)-487-SITE

TES JOB NO:
32039

CUSTOMER SITE NO:
CT01879-S-SBA

CUSTOMER SITE NAME:
CLINTON 4 CT

46 MEADOW ROAD
CLINTON, CT 06413

STATE OF CONNECTICUT
HAMMING YOU
28931
LICENSED
PROFESSIONAL ENGINEER
7/10/17

DRAWN BY: CHLE | CHECKED BY: RAM/SR

REV.	DESCRIPTION	BY	DATE
0	FIRST ISSUE	CHLE	05/12/17
1	REVISED	CHLE	07/10/17

SHEET TITLE:

TITLE SHEET

SHEET NUMBER: T-1

REV #: 1

BILL OF MATERIALS

QUANTITY REQUIRED	QUANTITY PROVIDED	PART NUMBER	DESCRIPTION	LENGTH	SHEET LIST	PIECE WEIGHT	WEIGHT (lb)	NOTES
			MATERIAL & HARDWARE					
33	35	---	SPACER/SHIM FOR 3/4" DIA BOLT (3/8" THICK)	---	A-2, A-3A, A-4B	---	---	GALVANIZED
33	35	---	BOLT 3/4" X 2 1/2" A325	---	A-2, A-3A	---	---	(1) HHN & LKW-EA GALVANIZED
132	139	---	BOLT 3/4" X 2" A325 △1	---	A-2, A-3A	---	---	(1) HHN & LKW-EA GALVANIZED
12	12	D-1	L 4" X 4" X 3/8" X 26'-0" A36	---	A-2, F-2	258.3	3100	GALVANIZED (FINAL CUT LENGTH TO BE DETERMINED IN FIELD)
6	6	AL-1	L 5" X 5" X 3/8" X 20'-0" A529-50	---	A-3, F-1	269.6	1618	GALVANIZED
36	36	D-2	L 4" X 4" X 3/8" X 23'-6" A36	---	A-3A, F-2	233.5	8406	GALVANIZED (FINAL CUT LENGTH TO BE DETERMINED IN FIELD)
6	6	AL-2	L 4" X 4" X 3/8" X 20'-0" A529-50	---	A-4, A-4A, F-1	198.7	1192	GALVANIZED (FINAL CUT LENGTH TO BE DETERMINED IN FIELD)
18	18	D-3	L 3" X 3" X 3/8" X 17'-0" A36	---	A-4B, F-2	124.1	2234	GALVANIZED (FINAL CUT LENGTH TO BE DETERMINED IN FIELD)
21	23	---	SPACER/SHIM FOR 5/8" DIA BOLT (3/8" THICK)	---	A-5, A-7	---	---	GALVANIZED
75	79	---	BOLT 5/8" X 2" A325	---	A-5, A-7	---	---	(1) HHN & LKW-EA GALVANIZED
84	89	---	BOLT 5/8" X 1 3/4" A325	---	A-5, A-6, A-7	---	---	(1) HHN & LKW-EA GALVANIZED
18	18	D-4	L 2 1/2" X 2 1/2" X 3/8" X 15'-0" A36	---	A-5, F-2	89.8	1616	GALVANIZED (FINAL CUT LENGTH TO BE DETERMINED IN FIELD)
9	10	---	BOLT 5/8" X 2 1/4" A325 W/HHN & LW	---	A-6	---	---	(1) HHN & LKW-EA GALVANIZED
18	19	MS02-625-4625-700	RU-BOLT 5/8" X 4 5/8" I.W. X 7" I.L. A36 OR EQUIV	---	A-6, RBC-1	1.6	30	(2) HHN & LKW-EA GALVANIZED
9	9	MH-18-300CP1	PL 3/8" X 3" X 2'-0 1/4" A36	---	A-6,MH-CP	7.88	71	GALVANIZED
18	18	MH-15E	L 2 1/2" X 2 1/2" X 1/4" X 7'-6" A36	---	A-6, MH-1	31.38	565	GALVANIZED
9	9	HBR425-450W	PL 1/2" X 4 3/4" X 7" A36 WELDMENT BRACKET	---	A-6, BR-1	9.96	90	GALVANIZED
24	24	D-5	L 2 1/2" X 2 1/2" X 3/8" X 11'-6" A36	---	A-7, F-2	68.8	1651	GALVANIZED
24	24	FP-1	PL 1/2" X 1'-0 1/2" X 4'-6" A572-50 △1	---	A-8, F-2	73.9	1774	GALVANIZED
4	4	---	LANCO /HENRY 287 WHITE ACRYLIC ELASTOMERIC COATING AND SEALER (OR EQUIV) (GALLONS) △1	---	A-1	---	---	PROVIDED BY CONTRACTOR

NOTE: ALL F SHEETS ARE NOT INCLUDED IN THIS DRAWING PACKET.
CONTACT TES FOR THE F SHEETS.

NOTE: ALL MATERIALS, WHICH WEREN'T LISTED IN THE BOM, ARE ASSUMED TO BE PROVIDED BY THE CONTRACTOR.

TOTAL WEIGHT (lb) = 22,346

PAGE 1 OF 1

TES
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(800)-487-SITE

TES JOB NO:
32039

CUSTOMER SITE NO:
CT01879-S-SBA
CUSTOMER SITE NAME:
CLINTON 4 CT
46 MEADOW ROAD
CLINTON, CT 06413

DRAWN BY: CHLE | CHECKED BY: RAM/SR

REV.	DESCRIPTION	BY	DATE
△0	FIRST ISSUE	CHLE	05/12/17
△1	REVISED	CHLE	07/10/17
△			
△			
△			

SHEET TITLE:
BILL OF MATERIALS

SHEET NUMBER: BOM
REV #: 1

GENERAL NOTES

1. ALL WORK SHALL COMPLY WITH THE ANSI/TIA-222-G, ANSI/ASSE A10.48, AND 2016 CONNECTICUT STATE BUILDING CODES AND OSHA SAFETY REGULATIONS.
2. ALL WORK INDICATED ON THE DRAWINGS SHALL BE PERFORMED BY QUALIFIED CONTRACTORS EXPERIENCED IN TELECOMMUNICATIONS TOWER, POLE AND FOUNDATION CONSTRUCTION.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DESIGN AND FABRICATION OF ALL MISCELLANEOUS PARTS (SUCH AS SHIMS), TEMPORARY SUPPORTS, AND GUYINGS, ETC., PER TIA-1019-A, TO COMPLETE THE ASSEMBLY AS SHOWN IN THE DRAWINGS.
4. CONTRACTOR SHALL PROCEED WITH THE INSTALLATION WORK CAREFULLY SO THE WORK WILL NOT DAMAGE ANY EXISTING CABLE, EQUIPMENT OR THE STRUCTURE.
5. THE USE OF GAS TORCH OR WELDER, ARE NOT ALLOWED ON ANY TOWER STRUCTURE WITHOUT THE CONSENT OF THE TOWER OWNER.
6. GENERALLY THE CONTRACTOR IS RESPONSIBLE TO CONDUCT AN ONSITE VISIT SURVEY OF THE JOB SITE AFTER AWARD, AND REPORT ANY ISSUES WITH THE SITE TO **TES** BEFORE PROCEEDING CONSTRUCTION.

FABRICATION

1. ALL STEEL SHALL MEET OR EXCEED THE MINIMUM STRENGTH AS SPECIFIED IN THE DRAWINGS. IF YIELD STRENGTH WAS NOT NOTED IN THE DRAWINGS, CONTRACTORS SHALL CONTACT TES FOR DIRECTION.
2. ALL FIELD CUT EDGES SHALL BE GROUND SMOOTH. ALL FIELD CUT AND DRILLED SURFACES SHALL BE REPAIRED WITH A MINIMUM OF TWO COATS OF ZRC GALVILITE COLD GALVANIZING COMPOUND PER ASTM A780 AND MANUFACTURER'S RECOMMENDATIONS.

WELDING

1. ALL WELDING SHALL BE PERFORMED BY AWS CERTIFIED WELDERS AND IN ACCORDANCE WITH THE LATEST EDITION OF THE AWS WELDING CODE D1.1. ALL ELECTRODES TO BE LOW HYDROGEN, MATCHING FILLER METAL, PER AWS D1.1, UNO. (E70XX UNLESS NOTED OTHERWISE).
2. PRIOR TO FIELD WELDING GALVANIZED MATERIAL, CONTRACTOR SHALL GRIND OFF GALVANIZING APPROX. 0.5" BEYOND THE PROPOSED FIELD WELD SURFACES.
3. ALL WELDS SHALL BE INSPECTED VISUALLY. A MINIMUM OF 25% OF WELDS SHALL BE INSPECTED WITH DYE PENETRANT OR MAGNETIC PARTICLE TO MEET THE ACCEPTANCE CRITERIA OF AWS D1.1. 100% OF WELDS SHALL BE INSPECTED IF DEFECTS ARE FOUND.
4. WELD INSPECTIONS SHALL BE PERFORMED BY AN AWS CERTIFIED WELD INSPECTOR.
5. AFTER INSPECTION, ALL FIELD WELDED SURFACES SHALL BE REPAIRED WITH A MINIMUM OF TWO COATS OF ZRC GALVILITE COLD GALVANIZING COMPOUND PER ASTM A780 AND MANUFACTURER'S RECOMMENDATIONS.

BOLTED ASSEMBLIES AND TIGHTENING OF CONNECTIONS

1. ALL HIGH STRENGTH BOLTS SHALL CONFORM TO THE PROVISIONS OF THE SPECIFICATIONS FOR STRUCTURAL JOINTS USING A325 OR A490 BOLTS AS APPROVED BY THE RCSC.
2. FLANGE BOLTS SHALL BE TIGHTENED BY THE AISC "TURN-OF-THE-NUT" METHOD. THE FOLLOWING TABLE SHOULD BE USED FOR THE "TURN-OF-THE-NUT" TIGHTENING.
3. SPLICE BOLTS AND ALL OTHER BOLTS IN BEARING TYPE CONNECTIONS SHALL BE TIGHTENED TO A SNUG-TIGHT CONDITION.
4. THE SNUG-TIGHT CONDITION IS DEFINED AS THE TIGHTNESS ATTAINED BY EITHER A FEW IMPACTS OF AN IMPACT WRENCH OR THE FULL EFFORT OF AN IRONWORKER WITH AN ORDINARY SPUD WRENCH TO BRING THE CONNECTED PLIES INTO FIRM CONTACT.
5. HB HOLLO-BOLT SHALL BE INSTALLED PER ICC ESR-3330 INSTRUCTIONS.

VERIFICATION AND INSPECTION

1. IF APPLICABLE, VERIFICATION INSPECTION TO BE PERFORMED SHALL BE IN ACCORDANCE TO IBC-2012 SECTION 1705 - TABLE 1705.2.2 FOR STEEL CONSTRUCTION AND TABLE 1705.3 FOR CONCRETE CONSTRUCTION.

TABLE 8.2 NUT ROTATION FROM SNUG-TIGHT CONDITION FOR TURN-OF-NUT PRETENSIONING [a,b]

BOLT LENGTH [c]	DISPOSITION OF OUTER FACE OF BOLTED PARTS		
	BOTH FACES NORMAL TO BOLT AXIS	ONE FACE NORMAL TO BOLT AXIS, OTHER SLOPED NOT MORE THAN 1:20 [d]	BOTH FACES SLOPED NOT MORE THAN 1:20 FROM NORMAL TO BOLT AXIS [d]
NOT MORE THAN $4d_b$	1/3 TURN	1/2 TURN	2/3 TURN
MORE THAN $4d_b$ BUT NOT MORE THAN $8d_b$	1/2 TURN	2/3 TURN	5/6 TURN
MORE THAN $8d_b$ BUT NOT MORE THAN $12d_b$	2/3 TURN	5/6 TURN	1 TURN

[a] NUT ROTATION IS RELATIVE TO BOLT REGARDLESS OF THE ELEMENT (NUT OR BOLT) BEING TURNED. FOR REQUIRED NUT ROTATIONS OF 1/2 TURN AND LESS, THE TOLERANCE IS PLUS OR MINUS 30 DEGREES; FOR REQUIRED NUT ROTATIONS OF 2/3 TURN AND MORE, THE TOLERANCE IS PLUS OR MINUS 45 DEGREES.

[b] APPLICABLE ONLY TO JOINTS IN WHICH ALL MATERIAL WITHIN THE GRIP IS STEEL.

[c] WHEN THE BOLT LENGTH EXCEEDS $12d_b$, THE REQUIRED NUT ROTATION SHALL BE DETERMINED BY ACTUAL TESTING IN A SUITABLE TENSION CALIBRATOR THAT SIMULATES THE CONDITIONS OF SOLIDLY FITTING STEEL.

[d] BEVELED WASHER NOT USED.

SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A325 OR A490 BOLTS, JUNE 30, 2004
RESEARCH COUNCIL ON STRUCTURAL CONNECTIONS

INSTALLATION TORQUE REQUIRED FOR HOLLO BOLTS AND AJAX BOLTS:

1. HB12 HOLLO BOLT: 59 FT-LBS
2. HB16 HOLLO BOLT: 140 FT-LBS
3. HB20 HOLLO BOLT: 221 FT-LBS
4. M20 AJAX BOLT: 280 FT-LBS.

FIELD HOT WORK PLAN NOTES:

FOLLOWING GUIDELINES SHALL BE COMPLIED WITH:

1. CONTRACTOR'S RESPONSIBILITY TO COMPLETE A HOT WORK PLAN IF AWARDED PER CUSTOMER SPECIFICATIONS GUIDELINES FOR WELDING, CUTTING & SPARK PRODUCING WORK.
2. HAVE A FIRE PLAN APPROVED BY THE CUSTOMER AND THEIR SAFETY MANAGEMENT DEPT.
3. CONTRACTOR MUST OBTAIN THE CONTACT INFO OF THE LOCAL FIRE DEPARTMENT AND THE 911 ADDRESS OF THE TOWER SITE BEFORE CONSTRUCTION.
4. CONTRACTOR SHALL MAKE SURE THAT CELL PHONE COVERAGE IS AVAILABLE IN THE TOWER SITE. IF CELL COVERAGE IS NOT AVAILABLE, AN IMMEDIATE AVAILABLE MEANS OF DIRECT COMMUNICATION WITH THE FIRE DEPARTMENT SHALL BE DETERMINED PRIOR TO CONSTRUCTION START.
5. ALL CONSTRUCTION SHALL BE PERFORMED UNDER WIND SPEED LESS THAN 10 MPH ON THE GROUND LEVEL. IF WIND SPEED INCREASE, CONTRACTOR MUST DETERMINE IF CONSTRUCTION SHALL BE DISCONTINUED.
6. FIRE SUPPRESSION EQUIPMENT MUST BE MADE AVAILABLE ON SITE AND READY TO USE.
7. CONTRACTOR SHALL ASSIGN A FIRE WATCHER TO PERFORM FIRE-FIGHTING DUTIES.
8. ALL WELDERS SHALL BE AWS OR STATE CERTIFIED. THEY MUST ALSO BE EXPERIENCED IN WELDING ON GALVANIZED MATERIALS.
9. IF IT IS POSSIBLE, ALL EXISTING COAX NEAR WELDING AREA SHALL BE TEMPORARILY MOVED AWAY FROM THE WELDING AREA BEFORE WELDING THE PLATES.
10. PLEASE REPORT ANY FIELD ISSUE TO TES @ 972-483-0607.

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SBA

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(800)-487-SITE

TES JOB NO: 32039

CUSTOMER SITE NO: CT01879-S-SBA

CUSTOMER SITE NAME: CLINTON 4 CT

46 MEADOW ROAD
CLINTON, CT 06413

DRAWN BY: CHLE | CHECKED BY: RAM/SR

REV.	DESCRIPTION	BY	DATE
0	FIRST ISSUE	CHLE	05/12/17

SHEET TITLE: GENERAL NOTES

SHEET NUMBER: GN-1 | REV #: 0

NOTES:

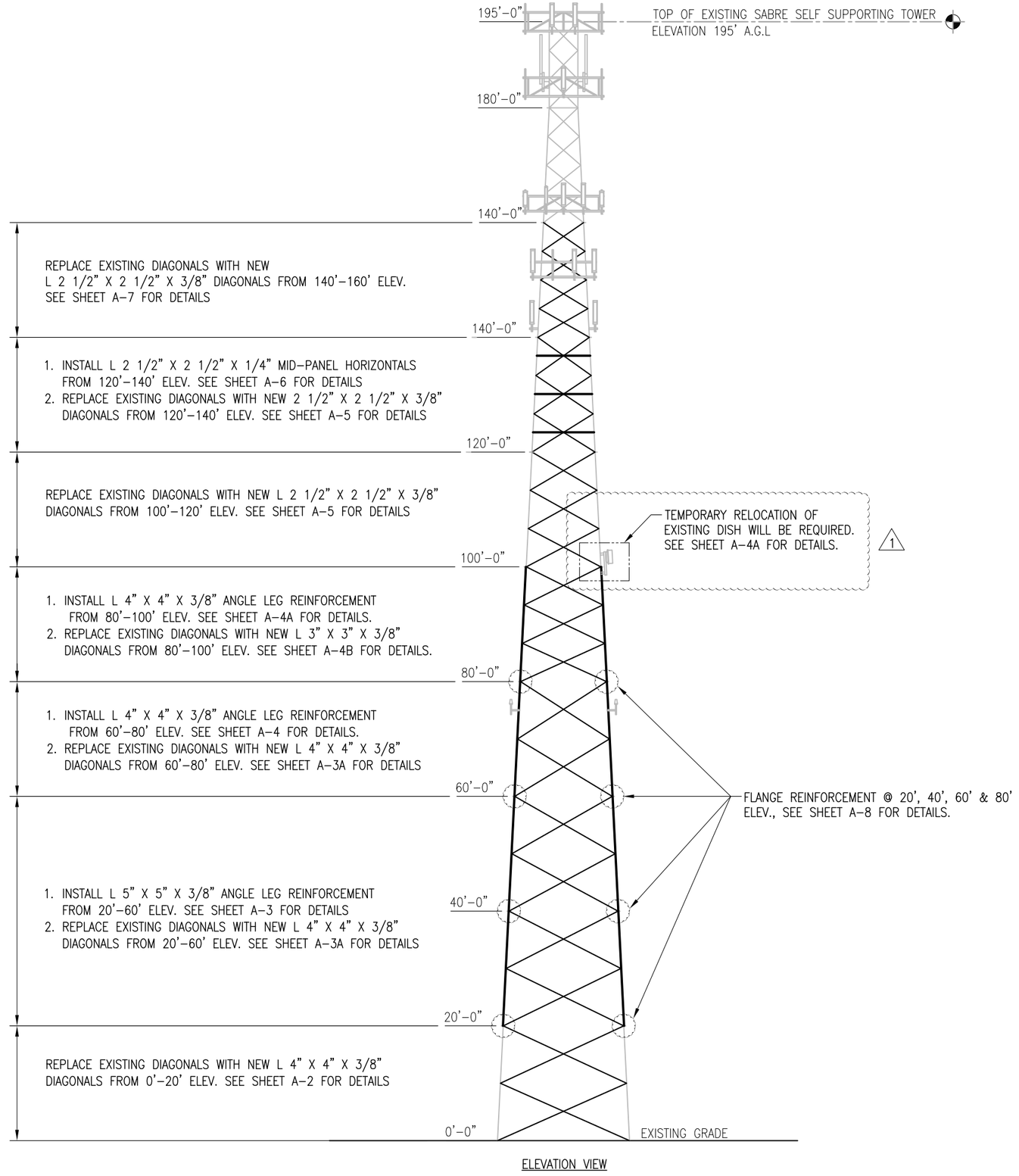
1. TEMPORARILY RELOCATE ANY EXISTING COAX ATTACHED TO THE LEGS AND/OR ANY OTHER MEMBERS WHERE OBSTRUCTION WITH THE PROPOSED MODIFICATION MAY OCCUR.
2. TEMPORARILY RELOCATE EXISTING EQUIPMENT AROUND FOUNDATION MAY BE REQUIRED DURING THE CONSTRUCTION
3. TEMPORARY BRACING SHALL BE PROVIDED WHILE REPLACING MEMBERS. ONLY ONE MEMBER CAN BE REMOVED AT A TIME.
4. SEE SHEET GN-1 FOR HOT WORK PLAN NOTES.

DISH PHOTO @ ±102' ELEV.

TOWER BASE/FOUNDATION PHOTO

SELF-SUPPORT FOUNDATION COATING NOTES:

FOR CONCRETE FOUNDATIONS GC TO APPLY PROTECTIVE SEALANT (LANCO/HENRY 287 WHITE ACRYLIC ELASTOMERIC COATING AND SEALER OR EQUIV). FOLLOW ALL COATING MANUFACTURER RECOMMENDATIONS PRIOR TO AND DURING THE APPLICATION OF THE COATING.



ELEVATION VIEW

TES
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PH: (972) 483-0607

SBA
5900 BROKEN SOUND PARKWAY, NW
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(800)-487-SITE

TES JOB NO:
32039

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DRAWN BY: CHLE | CHECKED BY: RAM/SR

REV.	DESCRIPTION	BY	DATE
0	FIRST ISSUE	CHLE	05/12/17
1	REVISED	CHLE	07/10/17

SHEET TITLE:

TOWER PROFILE

SHEET NUMBER: A-1

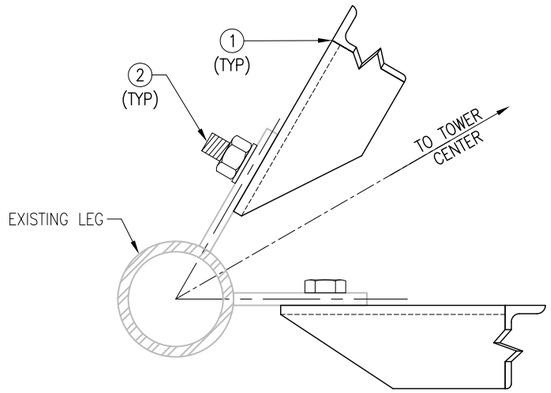
REV #: 1

NOTES:

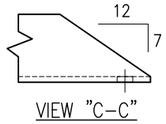
1. SEE SHEET A–1 FOR LOCATION OF REQUIRED SECTION MODIFICATIONS.
2. TEMPORARILY RELOCATE ANY EXISTING COAX ATTACHED TO THE LEGS AND/OR ANY OTHER MEMBERS WHERE OBSTRUCTION WITH THE PROPOSED MODIFICATION MAY OCCUR.
3. WHEN FIELD CUTTING AND DRILLING ANGLES, USE SAME GAGE LINES AND EDGE DISTANCES AS INDICATED ON SHOP CUT AND DRILLED ENDS,
4. APPLY (2) COATS OF ZINC RICH GALVANIZING COMPOUND AS PER THE MANUFACTURER'S SPECIFICATIONS TO ALL FIELD CUT AND DRILLED AREAS.
5. TEMPORARY BRACING SHALL BE PROVIDED WHILE REPLACING MEMBERS. ONLY ONE MEMBER CAN BE REMOVED AT A TIME..

SAFETY NOTES:

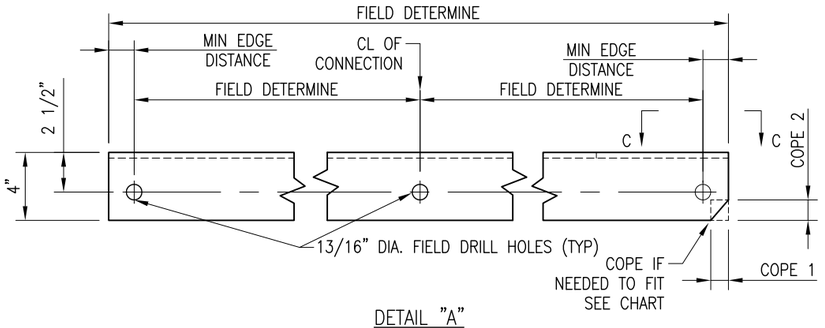
REMOVAL OF EXISTING DIAGONALS MUST BE DONE CAREFULLY WITH SAFETY IN MIND. DIAGONAL MEMBERS CAN ONLY BE REMOVED ONE AT A TIME AND IMMEDIATELY REPLACED WITH THE NEW MEMBER. NO MORE THEN ONE MEMBER SHOULD REMOVED AT ANY TIME. IF REQUIRED TEMPORARY BRACING SHOULD BE INSTALLED FOR SAFETY.REPLACEMENT OF THE DIAGONALS SHALL BE PERFORMED AT A TIME WHEN THE WIND VELOCITY IS LESS THAN 10 MPH AT GROUND LEVEL AND WITH NO ICE ON THE STRUCTURE.



SECTION "A–A"

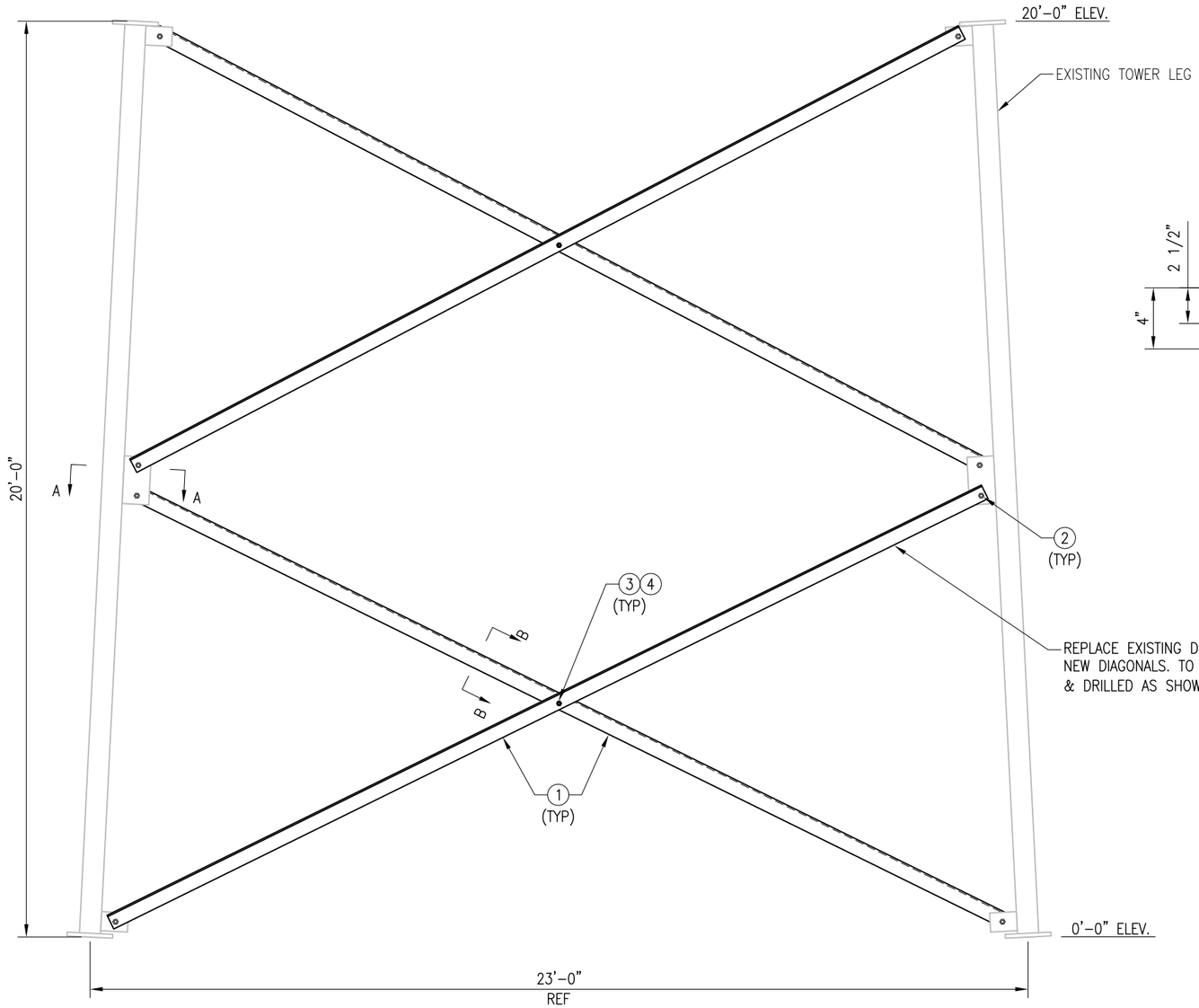


VIEW "C–C"



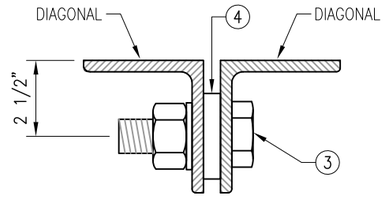
DETAIL "A"

BOLT DIA	MIN EDGE DISTANCE	COPE LENGTH 1	COPE LENGTH 2
1/2"	7/8"	5/8"	1 1/4"
5/8"	1 1/8"	13/16"	1 3/16"
3/4"	1 3/8"	1"	1 1/8"
7/8"	1 1/2"	1 1/16"	1 1/16"
1"	1 3/4"	1 1/4"	1"



NOTE:
TOWER SHOWN IS ONLY REPRESENTATIVE.

ELEVATION VIEW



SECTION "B–B"

ITEM NO.	QTY.	PART NO.	DESCRIPTION
4	6	---	SPACER/SHIM FOR 3/4" DIA BOLT (3/8" THICK)
3	6	---	BOLT 3/4" X 2 1/2" A325
2	24	---	BOLT 3/4" X 2" A325
1	12	D–1	L 4" X 4" X 3/8" X 26'–0" A36

1

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TES JOB NO:
32039

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CT01879–S–SBA
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DRAWN BY: CHLE | CHECKED BY: RAM/SR

REV.	DESCRIPTION	BY	DATE
0	FIRST ISSUE	CHLE	05/12/17
1	REVISED	CHLE	07/10/17

SHEET TITLE:

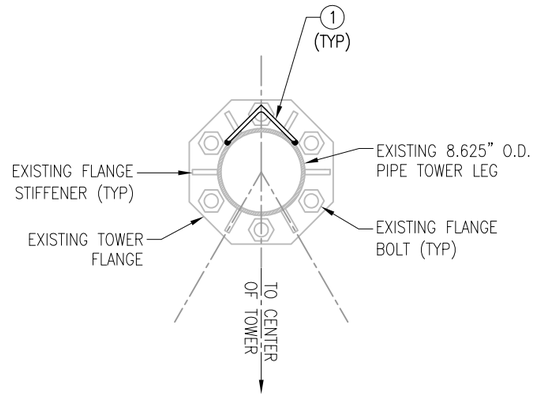
DIAGONAL REPLACEMENT DETAILS

SHEET NUMBER: A–2

REV #: 1

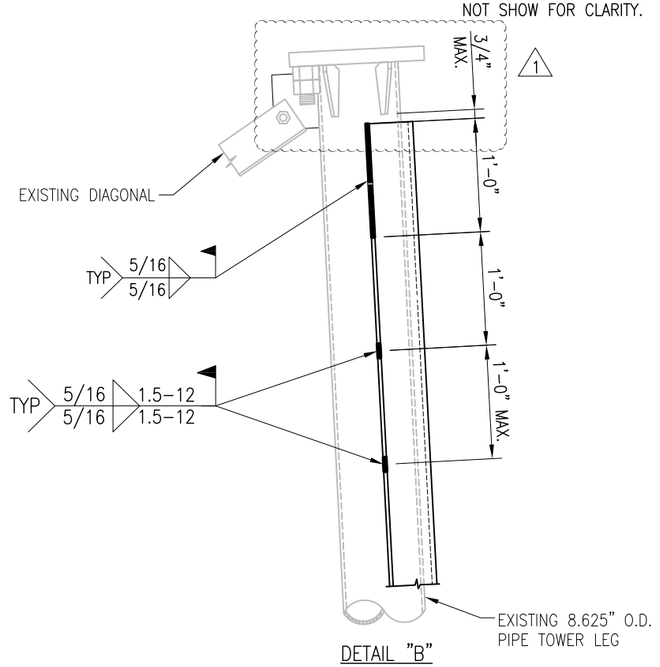
NOTES:

1. SEE SHEET A-1 FOR LOCATION OF REQUIRED SECTION MODIFICATIONS.
2. TEMPORARILY RELOCATE ANY EXISTING COAX ATTACHED TO THE LEGS AND/OR ANY OTHER MEMBERS WHERE OBSTRUCTION WITH THE PROPOSED MODIFICATION MAY OCCUR.
3. APPLY (2) COATS OF ZINC RICH GALVANIZING COMPOUND AS PER THE MANUFACTURER'S SPECIFICATIONS TO ALL FIELD CUT AND DRILLED AREAS.
4. CONTRACTOR TO VERIFY PROPER FITMENT OF LEG AND FLANGE REINFORCEMENTS PRIOR TO INSTALLATION OF MODIFICATIONS.
5. SEE SHEET GN-1 FOR "FIELD HOT WORK PLAN NOTES".

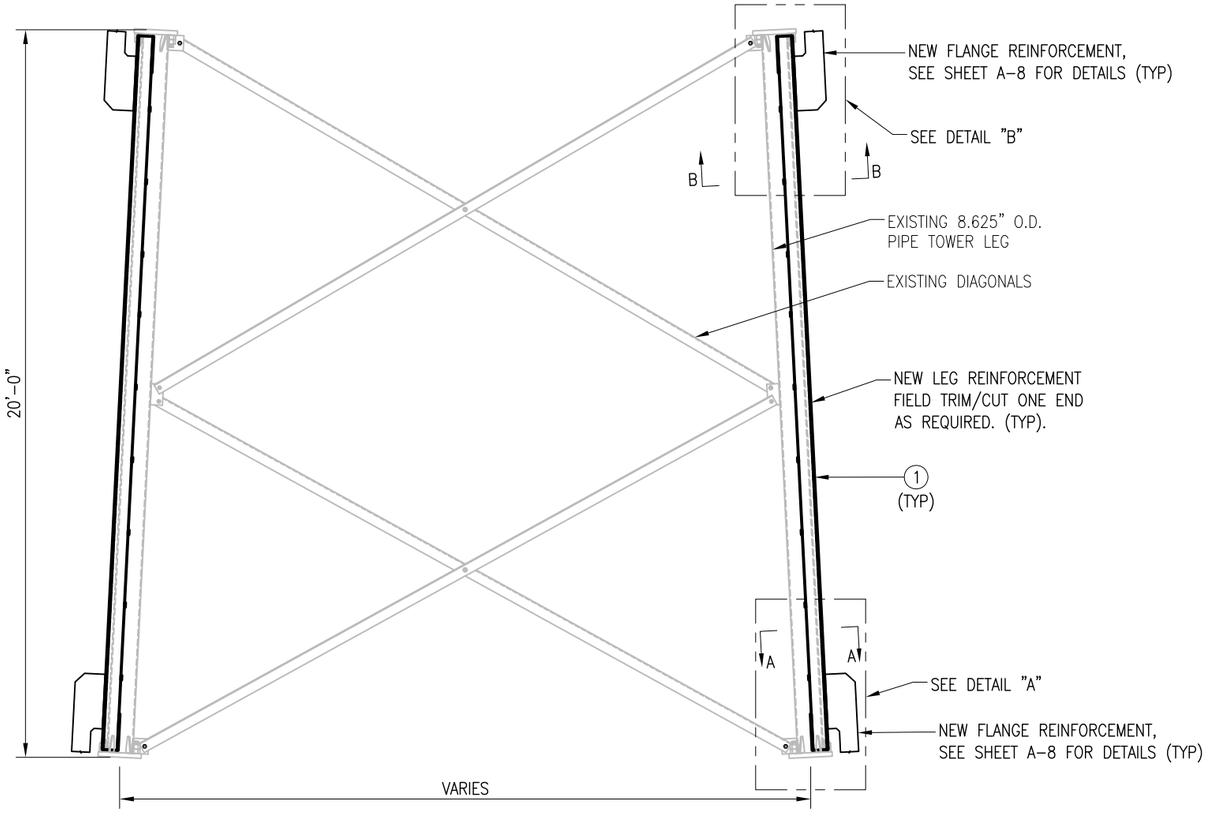


SECTION "A-A"
SECTION "B-B"

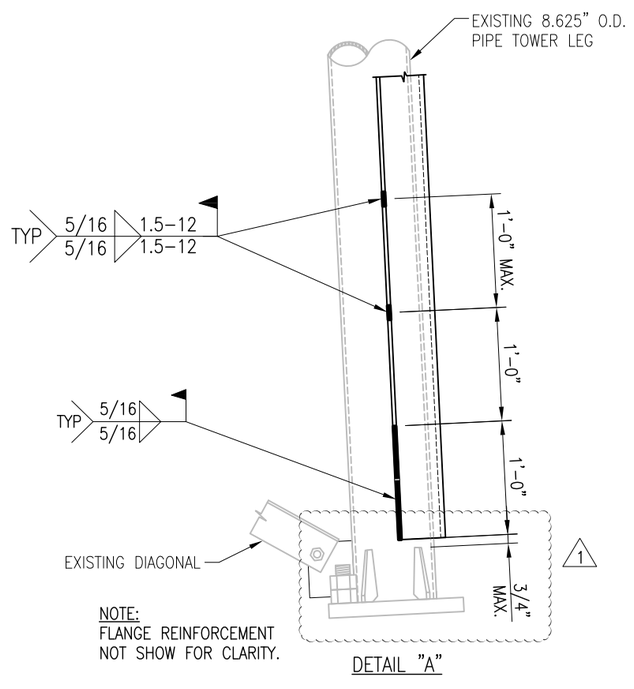
NOTE:
FLANGE REINFORCEMENT NOT SHOW FOR CLARITY.



DETAIL "B"



ELEVATION VIEW



NOTE:
FLANGE REINFORCEMENT NOT SHOW FOR CLARITY.

DETAIL "A"

NOTE:
TOWER SHOWN IS ONLY REPRESENTATIVE.

ITEM NO.	QTY.	PART NO.	DESCRIPTION
1	3	AL-1	L 5" X 5" X 3/8" X 20'-0" A529-50

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TES JOB NO: 32039

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CUSTOMER SITE NAME: CLINTON 4 CT

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REV.	DESCRIPTION	BY	DATE
0	FIRST ISSUE	CHLE	05/12/17
1	REVISED	CHLE	07/10/17

SHEET TITLE:
L 5" X 5" X 3/8" ANGLE LEG REINFORCEMENT

SHEET NUMBER: A-3

REV #: 1

NOTES:

1. SEE SHEET A–1 FOR LOCATION OF REQUIRED SECTION MODIFICATIONS.
2. TEMPORARILY RELOCATE ANY EXISTING COAX ATTACHED TO THE LEGS AND/OR ANY OTHER MEMBERS WHERE OBSTRUCTION WITH THE PROPOSED MODIFICATION MAY OCCUR.
3. WHEN FIELD CUTTING AND DRILLING ANGLES, USE SAME GAGE LINES AND EDGE DISTANCES AS INDICATED ON SHOP CUT AND DRILLED ENDS,
4. APPLY (2) COATS OF ZINC RICH GALVANIZING COMPOUND AS PER THE MANUFACTURER'S SPECIFICATIONS TO ALL FIELD CUT AND DRILLED AREAS.
5. TEMPORARY BRACING SHALL BE PROVIDED WHILE REPLACING MEMBERS. ONLY ONE MEMBER CAN BE REMOVED AT A TIME..

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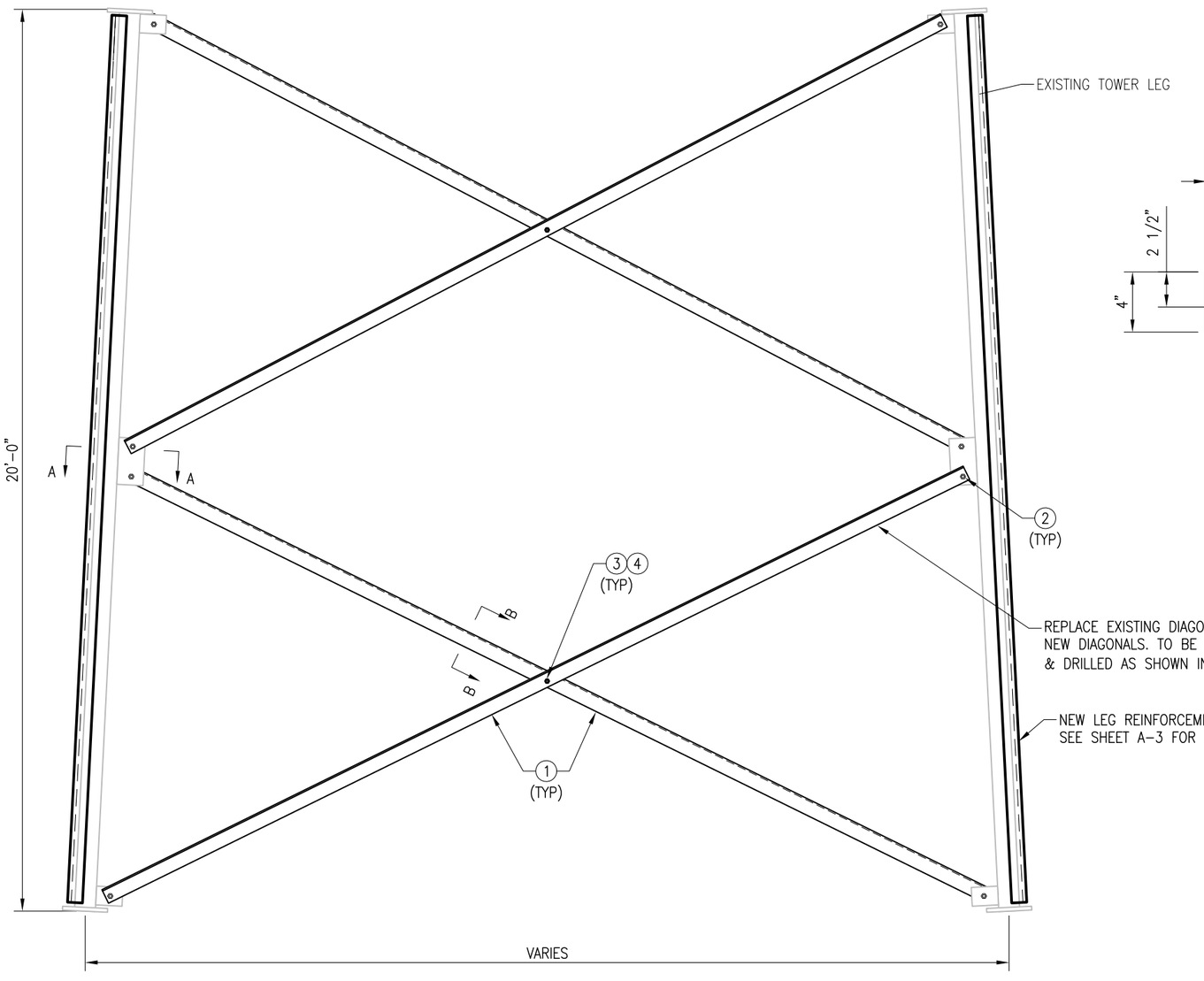

NOTE:
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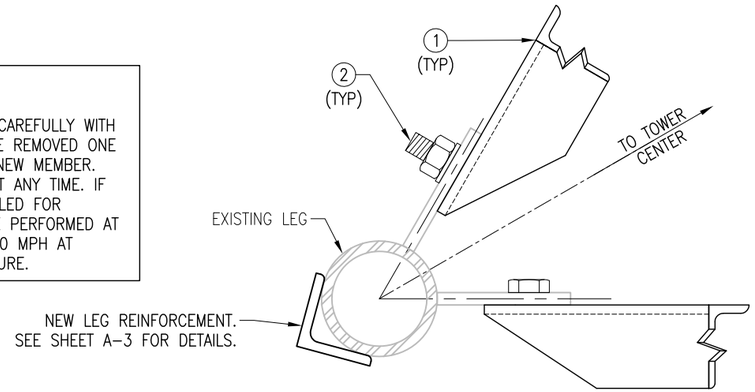
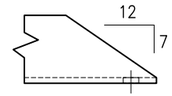
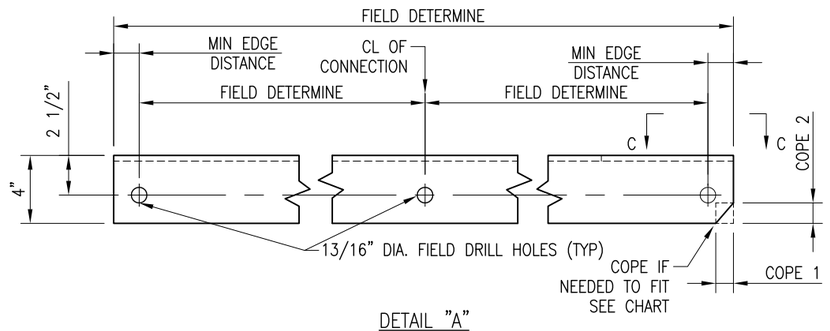
ELEVATION VIEW



SECTION "A–A"

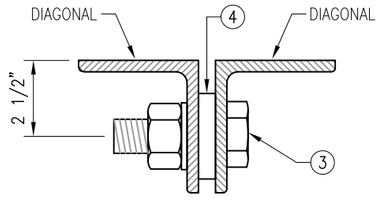


VIEW "C–C"



DETAIL "A"

BOLT DIA	MIN EDGE DISTANCE	COPE LENGTH 1	COPE LENGTH 2
1/2"	7/8"	5/8"	1 1/4"
5/8"	1 1/8"	13/16"	1 3/16"
3/4"	1 3/8"	1"	1 1/8"
7/8"	1 1/2"	1 1/16"	1 1/16"
1"	1 3/4"	1 1/4"	1"



SECTION "B–B"

ITEM NO.	QTY.	PART NO.	DESCRIPTION
4	6	---	SPACER/SHIM FOR 3/4" DIA BOLT (3/8" THICK)
3	6	---	BOLT 3/4" X 2 1/2" A325
2	24	---	BOLT 3/4" X 2" A325
1	12	D–2	L 4" X 4" X 3/8" X 23'–6" A36

Tower Engineering Solutions
8445 FREEPORT PARKWAY, SUITE 375
IRVING, TX 75063
PH: (972) 483–0607

5900 BROKEN SOUND PARKWAY, NW
BOCA RATON, FL 33487
(800)–487–SITE

TES JOB NO: 32039

CUSTOMER SITE NO: CT01879–S–SBA

CUSTOMER SITE NAME: CLINTON 4 CT

46 MEADOW ROAD
CLINTON, CT 06413

DRAWN BY: CHLE | CHECKED BY: RAM/SR

REV.	DESCRIPTION	BY	DATE
0	FIRST ISSUE	CHLE	05/12/17

SHEET TITLE:

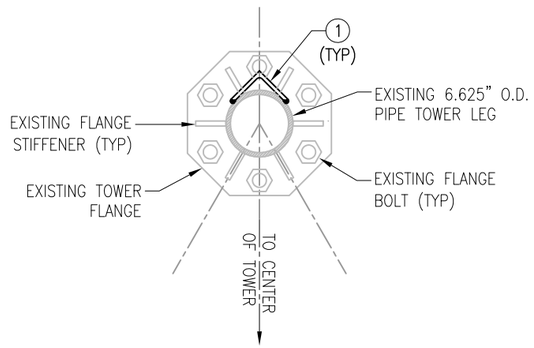
DIAGONAL REPLACEMENT DETAILS

SHEET NUMBER: A–3A

REV #: 0

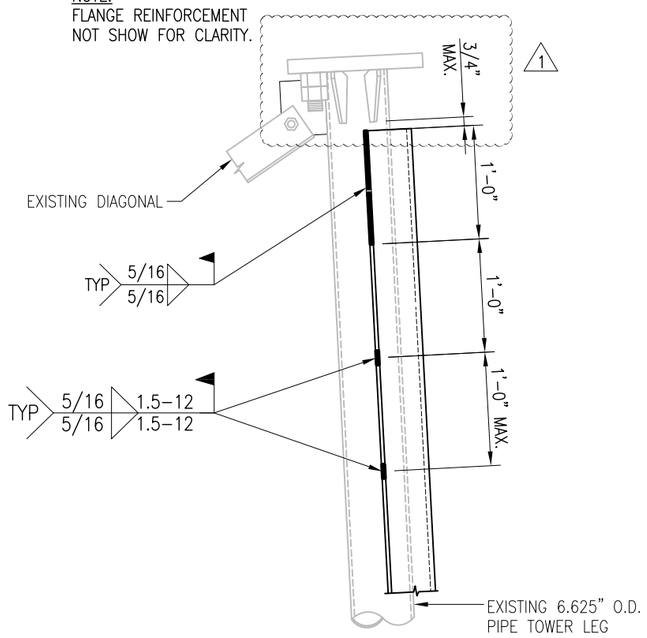
NOTES:

1. SEE SHEET A-1 FOR LOCATION OF REQUIRED SECTION MODIFICATIONS.
2. TEMPORARILY RELOCATE ANY EXISTING COAX ATTACHED TO THE LEGS AND/OR ANY OTHER MEMBERS WHERE OBSTRUCTION WITH THE PROPOSED MODIFICATION MAY OCCUR.
3. APPLY (2) COATS OF ZINC RICH GALVANIZING COMPOUND AS PER THE MANUFACTURER'S SPECIFICATIONS TO ALL FIELD CUT AND DRILLED AREAS.
4. CONTRACTOR TO VERIFY PROPER FITMENT OF LEG AND FLANGE REINFORCEMENTS PRIOR TO INSTALLATION OF MODIFICATIONS.
5. SEE SHEET GN-1 FOR "FIELD HOT WORK PLAN NOTES".

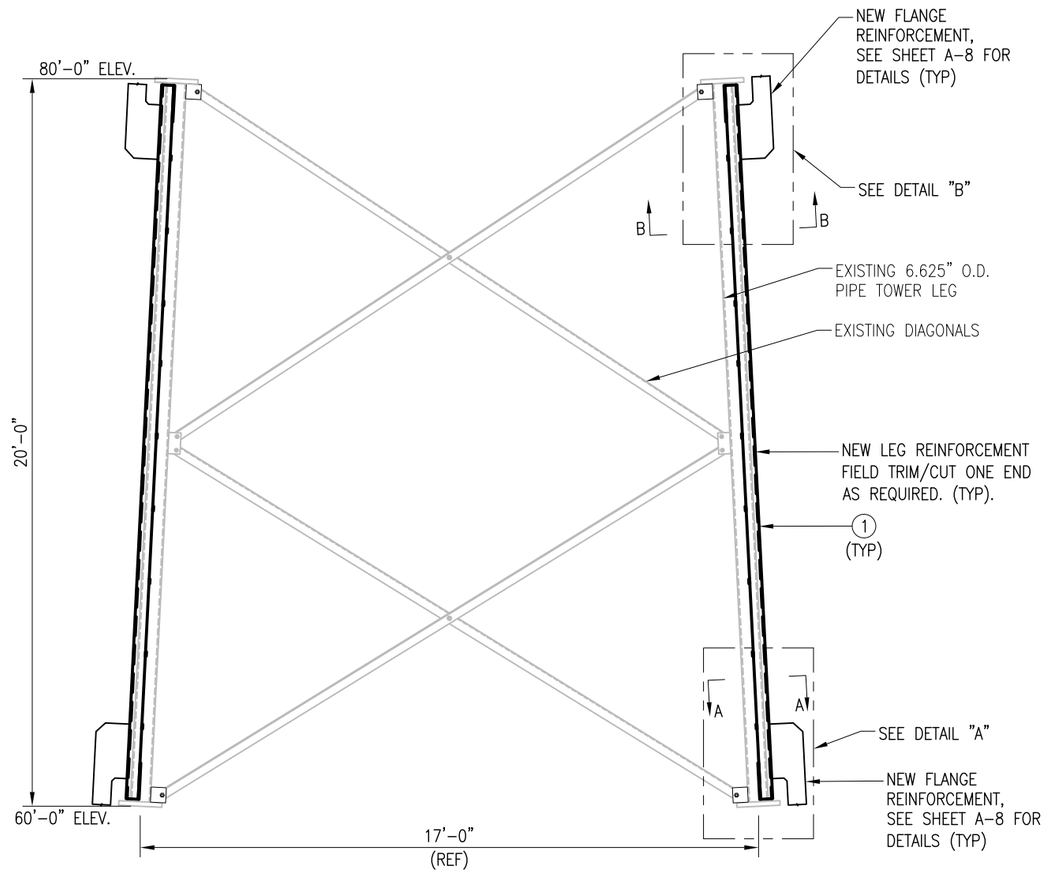


SECTION "A-A"
SECTION "B-B"

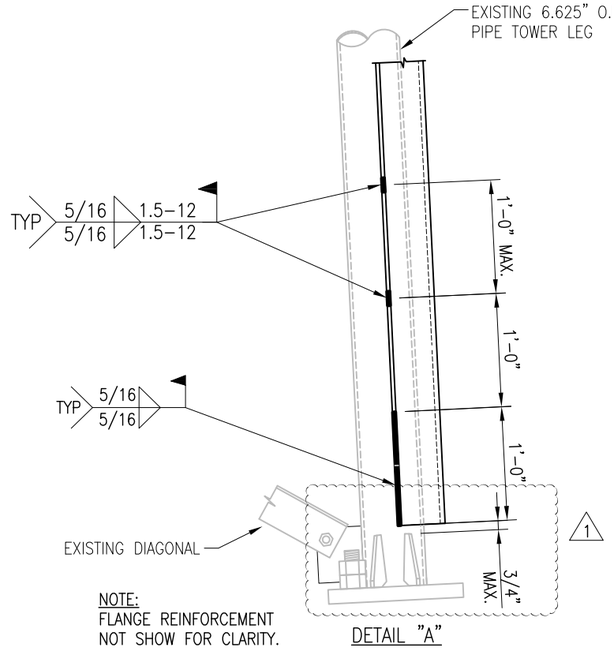
NOTE:
FLANGE REINFORCEMENT NOT SHOW FOR CLARITY.



DETAIL "B"



ELEVATION VIEW



NOTE:
FLANGE REINFORCEMENT NOT SHOW FOR CLARITY.

DETAIL "A"

ITEM NO.	QTY.	PART NO.	DESCRIPTION
1	3	AL-2	L 4" X 4" X 3/8" X 20'-0" A529-50

TES
Tower Engineering Solutions
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IRVING, TX 75063
PH: (972) 483-0607

SBA
5900 BROKEN SOUND PARKWAY, NW
BOCA RATON, FL 33487
(800)-487-SITE

TES JOB NO: 32039

CUSTOMER SITE NO: CT01879-S-SBA

CUSTOMER SITE NAME: CLINTON 4 CT

46 MEADOW ROAD
CLINTON, CT 06413

DRAWN BY: CHLE | CHECKED BY: RAM/SR

REV.	DESCRIPTION	BY	DATE
0	FIRST ISSUE	CHLE	05/12/17
1	REVISED	CHLE	07/10/17

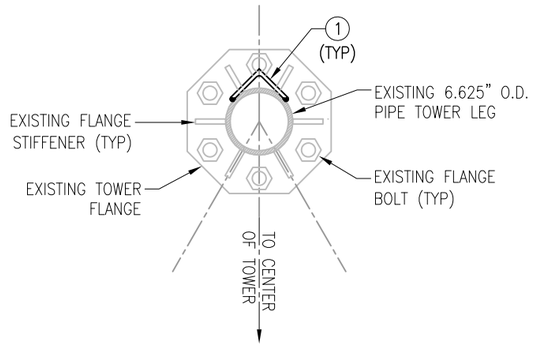
SHEET TITLE:

L 4" X 4" X 3/8" ANGLE LEG REINFORCEMENT

SHEET NUMBER: A-4 | REV #: 1

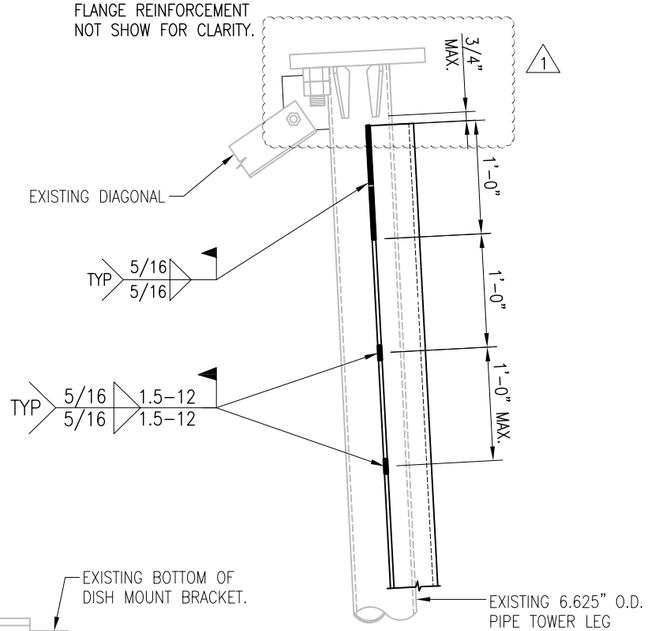
NOTES:

1. SEE SHEET A-1 FOR LOCATION OF REQUIRED SECTION MODIFICATIONS.
2. TEMPORARILY RELOCATE ANY EXISTING COAX ATTACHED TO THE LEGS AND/OR ANY OTHER MEMBERS WHERE OBSTRUCTION WITH THE PROPOSED MODIFICATION MAY OCCUR.
3. APPLY (2) COATS OF ZINC RICH GALVANIZING COMPOUND AS PER THE MANUFACTURER'S SPECIFICATIONS TO ALL FIELD CUT AND DRILLED AREAS.
4. CONTRACTOR TO VERIFY PROPER FITMENT OF LEG AND FLANGE REINFORCEMENTS PRIOR TO INSTALLATION OF MODIFICATIONS.
5. SEE SHEET GN-1 FOR "FIELD HOT WORK PLAN NOTES".

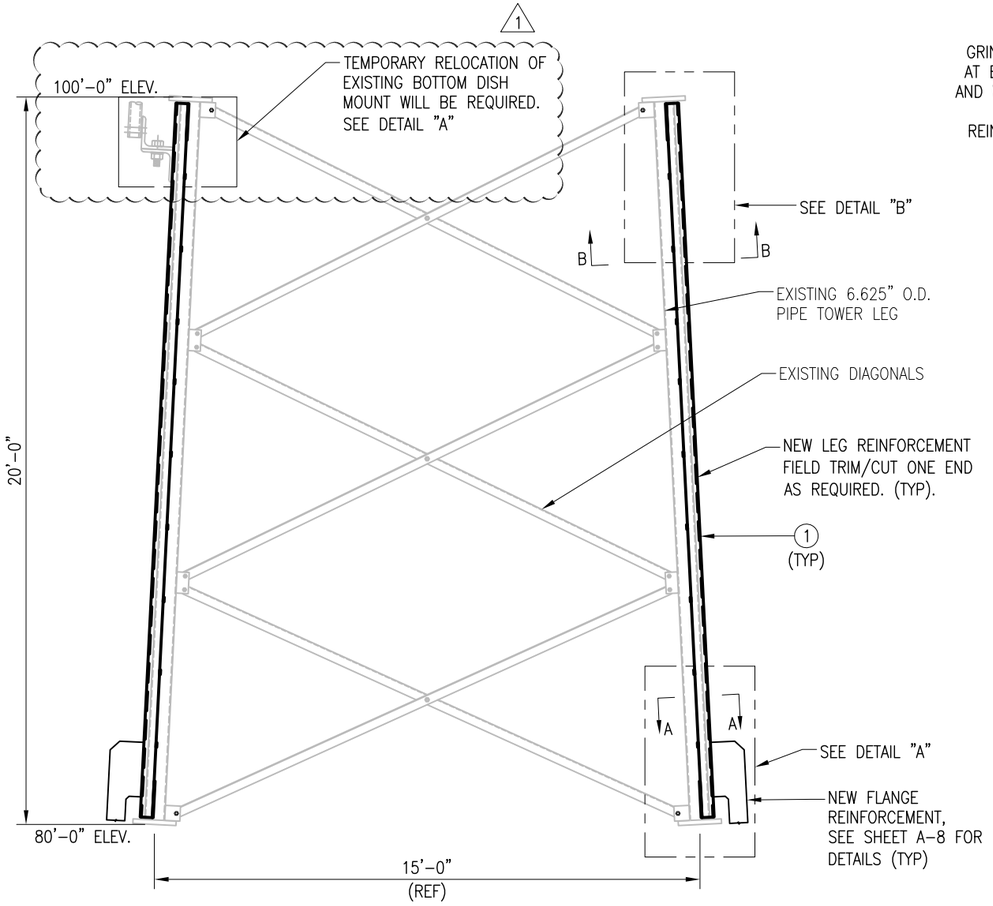


SECTION "A-A"
SECTION "B-B"

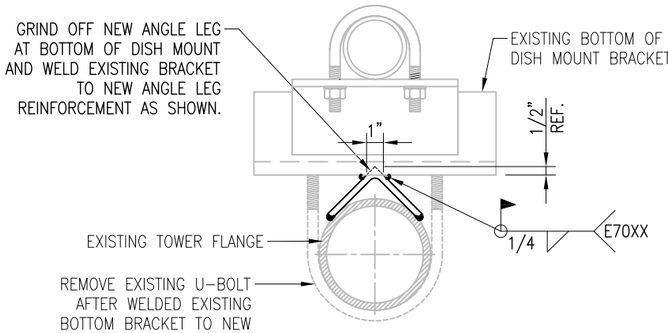
NOTE:
FLANGE REINFORCEMENT
NOT SHOW FOR CLARITY.



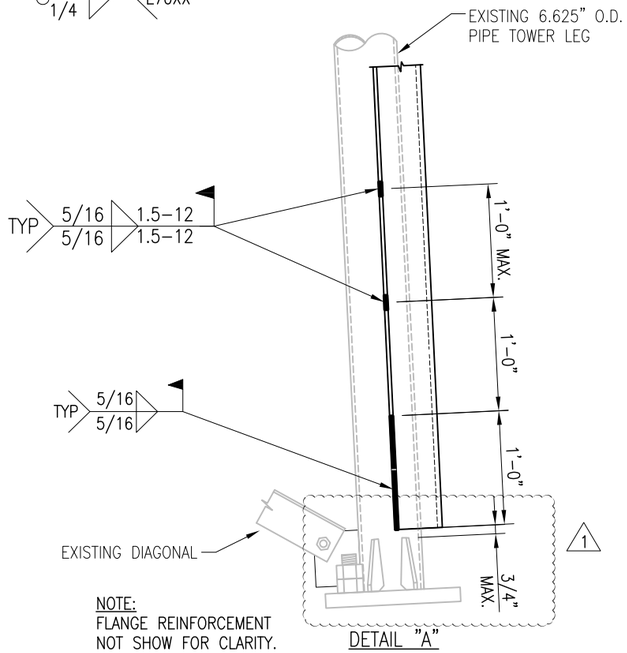
DETAIL "B"



ELEVATION VIEW



DETAIL "A"



NOTE:
FLANGE REINFORCEMENT
NOT SHOW FOR CLARITY.

DETAIL "A"

ITEM NO.	QTY.	PART NO.	DESCRIPTION
1	3	AL-2	L 4" X 4" X 3/8" X 20'-0" A529-50

TES
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8445 FREEPORT PARKWAY, SUITE 375
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PH: (972) 483-0607

SBA
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BOCA RATON, FL 33487
(800)-487-SITE

TES JOB NO: 32039

CUSTOMER SITE NO: CT01879-S-SBA

CUSTOMER SITE NAME: CLINTON 4 CT

46 MEADOW ROAD
CLINTON, CT 06413

DRAWN BY: CHLE | CHECKED BY: RAM/SR

REV.	DESCRIPTION	BY	DATE
0	FIRST ISSUE	CHLE	05/12/17
1	REVISED	CHLE	07/10/17

SHEET TITLE:
L 4" X 4" X 3/8"
ANGLE LEG
REINFORCEMENT

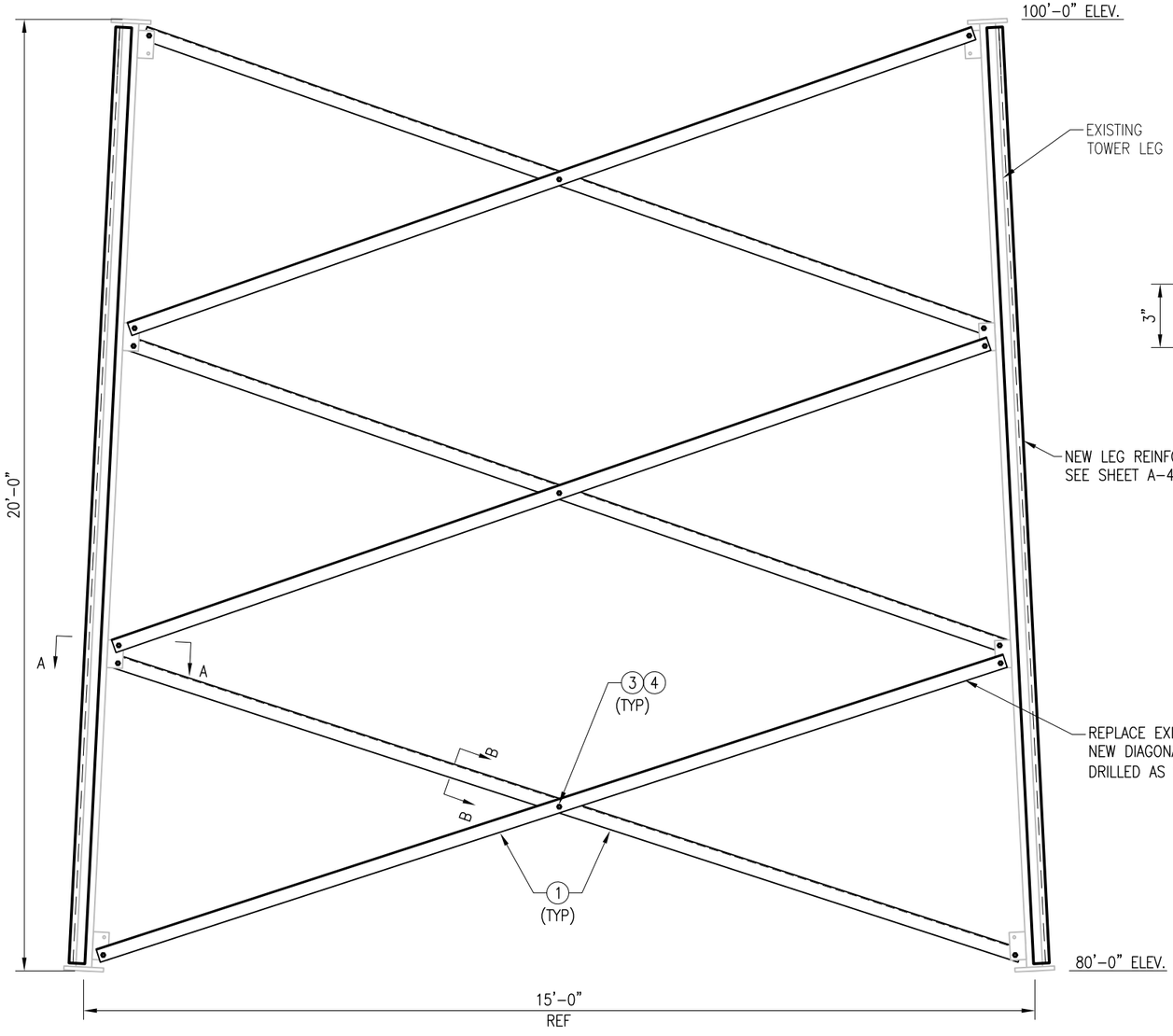
SHEET NUMBER: A-4A | REV #: 1

NOTES:

1. SEE SHEET A–1 FOR LOCATION OF REQUIRED SECTION MODIFICATIONS.
2. TEMPORARILY RELOCATE ANY EXISTING COAX ATTACHED TO THE LEGS AND/OR ANY OTHER MEMBERS WHERE OBSTRUCTION WITH THE PROPOSED MODIFICATION MAY OCCUR.
3. WHEN FIELD CUTTING AND DRILLING ANGLES, USE SAME GAGE LINES AND EDGE DISTANCES AS INDICATED ON SHOP CUT AND DRILLED ENDS,
4. APPLY (2) COATS OF ZINC RICH GALVANIZING COMPOUND AS PER THE MANUFACTURER'S SPECIFICATIONS TO ALL FIELD CUT AND DRILLED AREAS.
5. TEMPORARY BRACING SHALL BE PROVIDED WHILE REPLACING MEMBERS. ONLY ONE MEMBER CAN BE REMOVED AT A TIME..

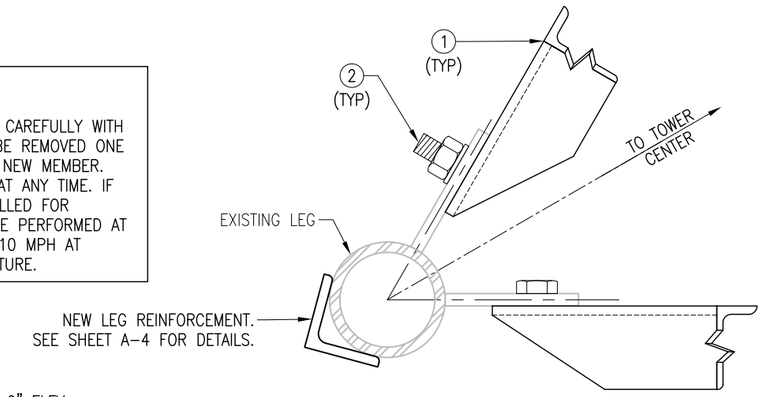
SAFETY NOTES:

REMOVAL OF EXISTING DIAGONALS MUST BE DONE CAREFULLY WITH SAFETY IN MIND. DIAGONAL MEMBERS CAN ONLY BE REMOVED ONE AT A TIME AND IMMEDIATELY REPLACED WITH THE NEW MEMBER. NO MORE THEN ONE MEMBER SHOULD REMOVED AT ANY TIME. IF REQUIRED TEMPORARY BRACING SHOULD BE INSTALLED FOR SAFETY.REPLACEMENT OF THE DIAGONALS SHALL BE PERFORMED AT A TIME WHEN THE WIND VELOCITY IS LESS THAN 10 MPH AT GROUND LEVEL AND WITH NO ICE ON THE STRUCTURE.

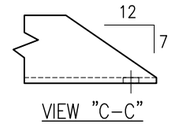


NOTE:
TOWER SHOWN IS ONLY REPRESENTATIVE.

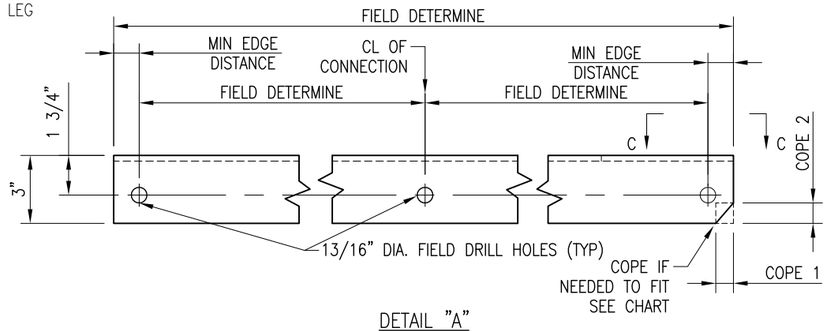
ELEVATION VIEW



SECTION "A–A"

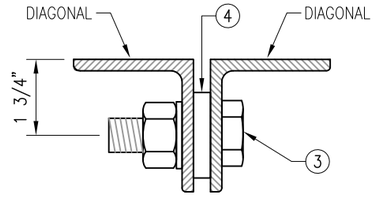


VIEW "C–C"



DETAIL "A"

BOLT DIA	MIN EDGE DISTANCE	COPE LENGTH 1	COPE LENGTH 2
1/2"	7/8"	5/8"	1"
5/8"	1 1/8"	13/16"	15/16"
3/4"	1 3/8"	1"	7/8"
7/8"	1 1/2"	1 1/16"	13/16"
1"	1 3/4"	1 1/4"	3/4"



SECTION "B–B"

ITEM NO.	QTY.	PART NO.	DESCRIPTION
4	9	---	SPACER/SHIM FOR 3/4" DIA BOLT (3/8" THICK)
3	9	---	BOLT 3/4" X 2 1/2" A325
2	36	---	BOLT 3/4" X 2" A325
1	18	D–3	L 3" X 3" X 3/8" X 17'–0" A36

TES
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8445 FREEPORT PARKWAY, SUITE 375
IRVING, TX 75063
PH: (972) 483–0607

SBA
5900 BROKEN SOUND PARKWAY, NW
BOCA RATON, FL 33487
(800)–487–SITE

TES JOB NO: 32039

CUSTOMER SITE NO: CT01879–S–SBA

CUSTOMER SITE NAME: CLINTON 4 CT

46 MEADOW ROAD
CLINTON, CT 06413

DRAWN BY: CHLE | CHECKED BY: RAM/SR

REV.	DESCRIPTION	BY	DATE
0	FIRST ISSUE	CHLE	05/12/17
1			

SHEET TITLE:

DIAGONAL REPLACEMENT DETAILS

SHEET NUMBER: A–4B

REV #: 0

NOTES:

1. SEE SHEET A–1 FOR LOCATION OF REQUIRED SECTION MODIFICATIONS.
2. TEMPORARILY RELOCATE ANY EXISTING COAX ATTACHED TO THE LEGS AND/OR ANY OTHER MEMBERS WHERE OBSTRUCTION WITH THE PROPOSED MODIFICATION MAY OCCUR.
3. WHEN FIELD CUTTING AND DRILLING ANGLES, USE SAME GAGE LINES AND EDGE DISTANCES AS INDICATED ON SHOP CUT AND DRILLED ENDS,
4. APPLY (2) COATS OF ZINC RICH GALVANIZING COMPOUND AS PER THE MANUFACTURER'S SPECIFICATIONS TO ALL FIELD CUT AND DRILLED AREAS.
5. TEMPORARY BRACING SHALL BE PROVIDED WHILE REPLACING MEMBERS. ONLY ONE MEMBER CAN BE REMOVED AT A TIME..

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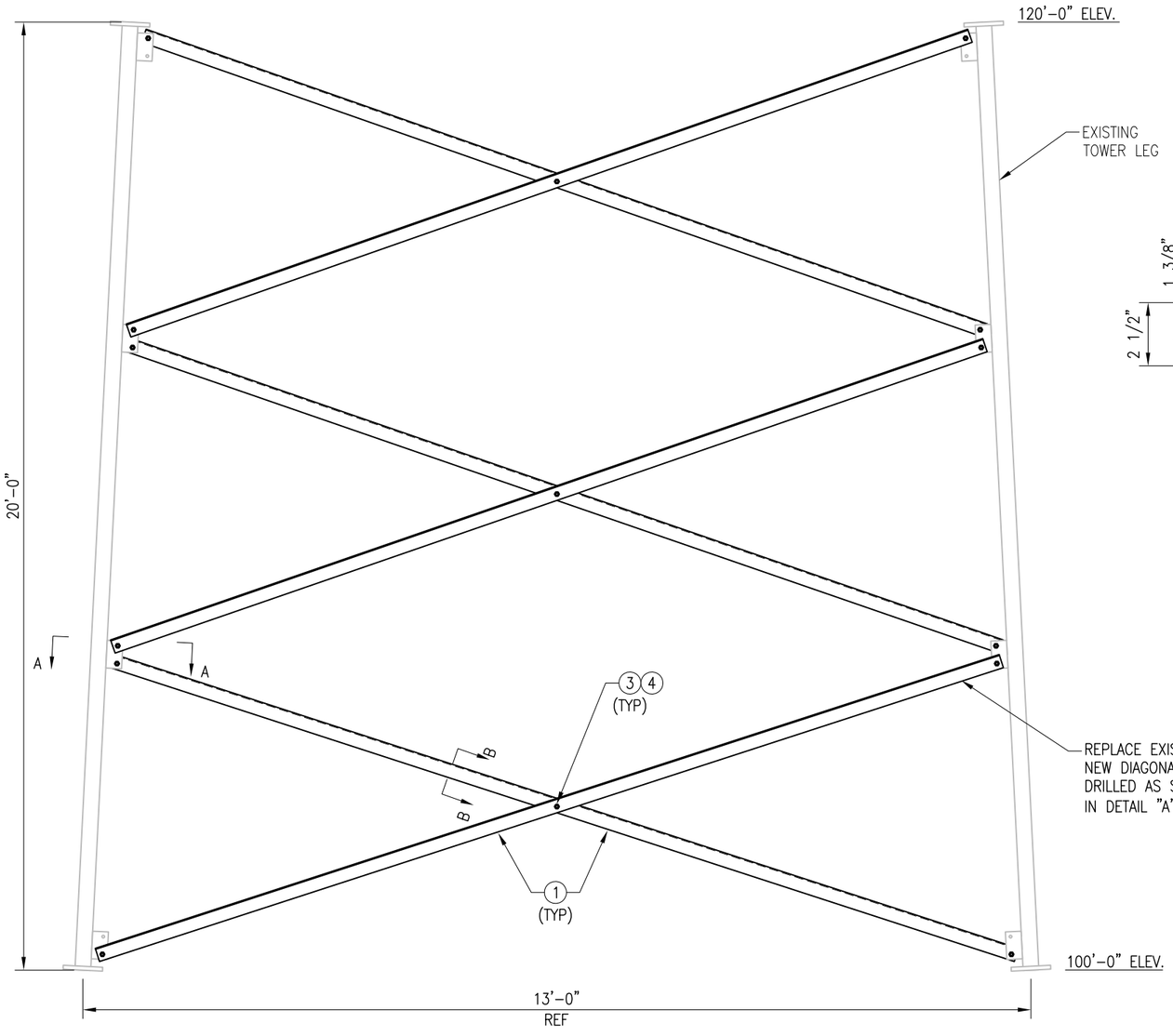
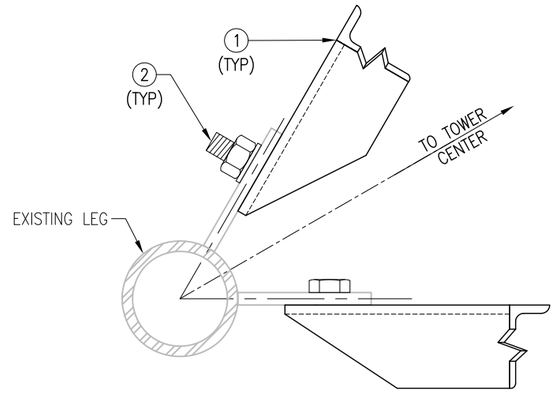
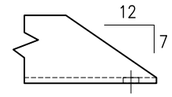


ELEVATION VIEW

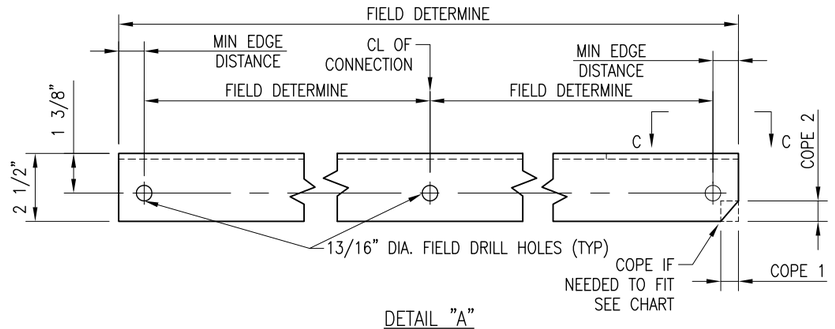
NOTE:
TOWER SHOWN IS ONLY REPRESENTATIVE.



SECTION "A–A"

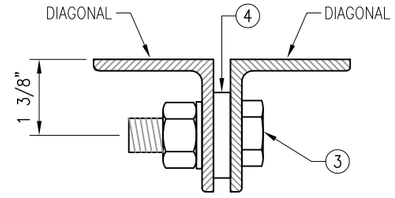


VIEW "C–C"



DETAIL "A"

BOLT DIA	MIN EDGE DISTANCE	COPE LENGTH 1	COPE LENGTH 2
1/2"	7/8"	5/8"	7/8"
5/8"	1 1/8"	13/16"	13/16"
3/4"	1 3/8"	1"	3/4"
7/8"	1 1/2"	1 1/16"	11/16"
1"	1 3/4"	1 1/4"	5/8"



SECTION "B–B"

ITEM NO.	QTY.	PART NO.	DESCRIPTION
4	9	---	SPACER/SHIM FOR 5/8" DIA BOLT (3/8" THICK)
3	9	---	BOLT 5/8" X 2" A325
2	36	---	BOLT 5/8" X 1 3/4" A325
1	18	D–4	L 2 1/2" X 2 1/2" X 3/8" X 15'–0" A36

TES
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8445 FREEPORT PARKWAY, SUITE 375
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PH: (972) 483–0607

SBA
5900 BROKEN SOUND PARKWAY, NW
BOCA RATON, FL 33487
(800)–487–SITE

TES JOB NO: 32039

CUSTOMER SITE NO: CT01879–S–SBA

CUSTOMER SITE NAME: CLINTON 4 CT

46 MEADOW ROAD
CLINTON, CT 06413

DRAWN BY: CHLE | CHECKED BY: RAM/SR

REV.	DESCRIPTION	BY	DATE
0	FIRST ISSUE	CHLE	05/12/17

SHEET TITLE:

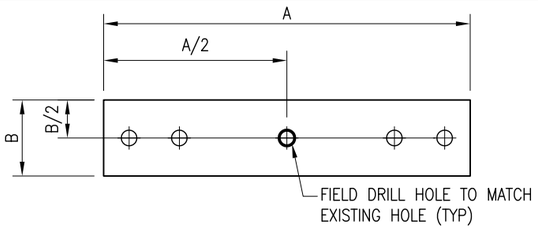
DIAGONAL REPLACEMENT DETAILS

SHEET NUMBER: A–5

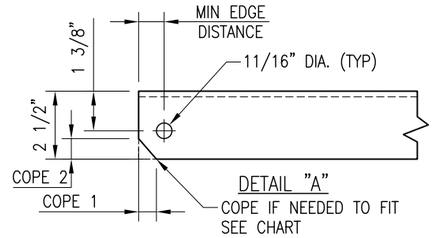
REV #: 0

NOTES:

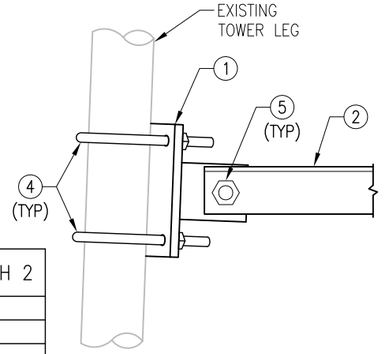
1. SEE SHEET A-1 FOR LOCATION OF REQUIRED SECTION MODIFICATIONS.
2. TEMPORARILY RELOCATE ANY EXISTING COAX ATTACHED TO THE LEGS AND/OR ANY OTHER MEMBERS WHERE OBSTRUCTION WITH THE PROPOSED MODIFICATION MAY OCCUR.
3. WHEN FIELD CUTTING AND DRILLING ANGLES, USE SAME GAGE LINES AND EDGE DISTANCES AS INDICATED ON SHOP CUT AND DRILLED ENDS,
4. APPLY (2) COATS OF ZINC RICH GALVANIZING COMPOUND AS PER THE MANUFACTURER'S SPECIFICATIONS TO ALL FIELD CUT AND DRILLED AREAS.
5. TEMPORARY BRACING SHALL BE PROVIDED WHILE REPLACING MEMBERS. ONLY ONE MEMBER CAN BE REMOVED AT A TIME..



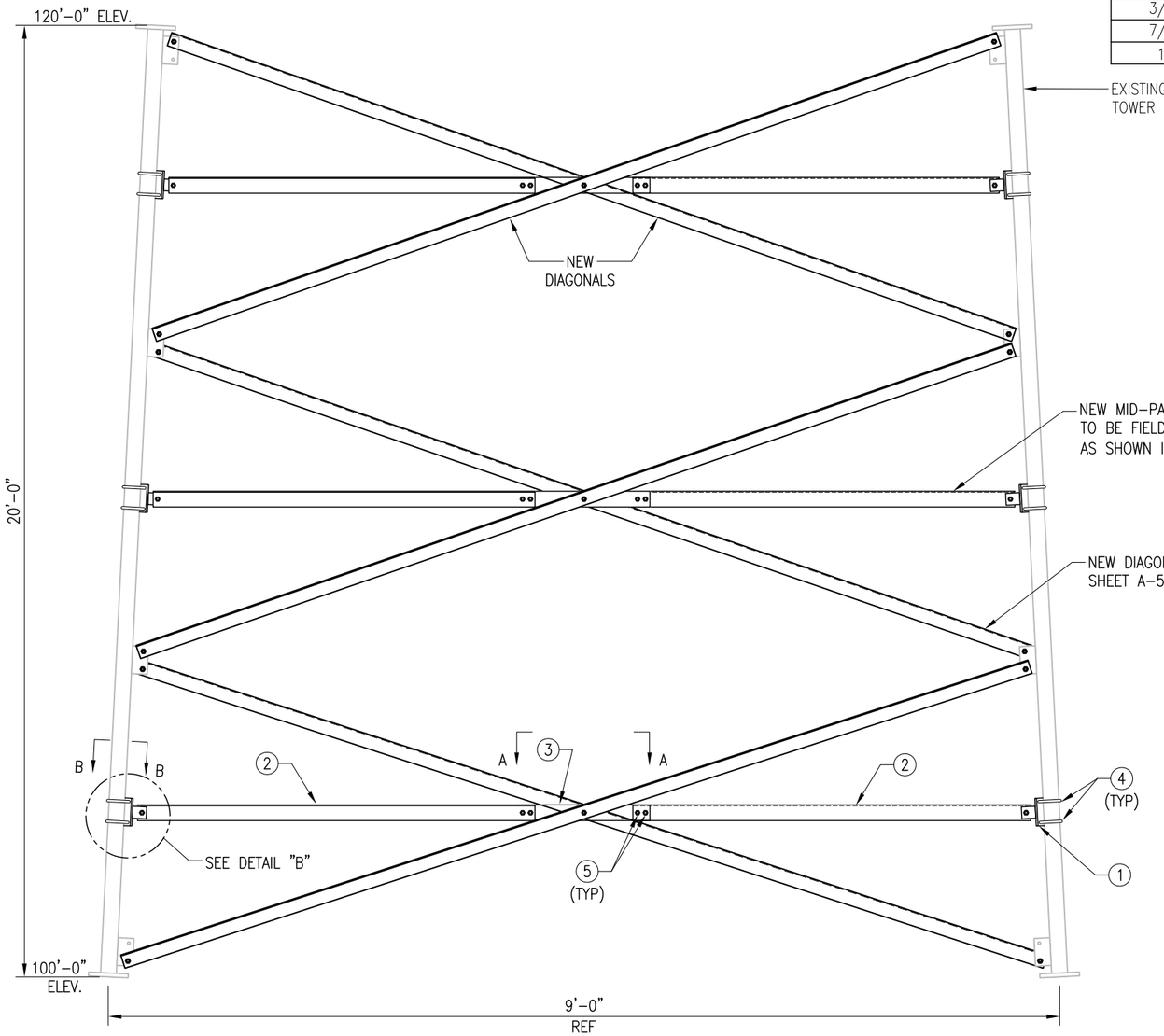
CONNECTION PLATE DETAIL



BOLT DIA	MIN EDGE DISTANCE	COPE LENGTH 1	COPE LENGTH 2
1/2"	7/8"	5/8"	7/8"
5/8"	1 1/8"	13/16"	13/16"
3/4"	1 3/8"	1"	3/4"
7/8"	1 1/2"	1 1/16"	11/16"
1"	1 3/4"	1 1/4"	5/8"

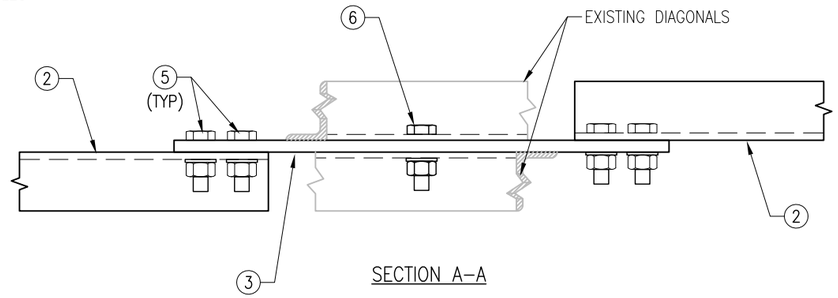


DETAIL "B"

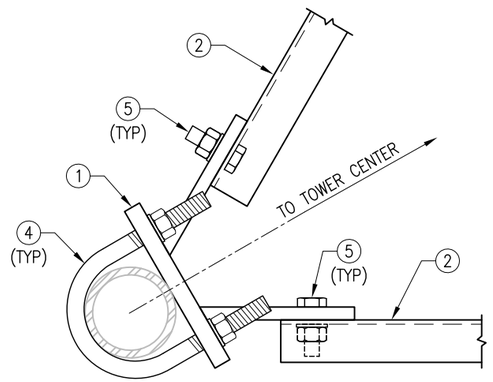


ELEVATION VIEW

NOTE:
TOWER SHOWN IS ONLY REPRESENTATIVE.



SECTION A-A



SECTION "B-B"

ITEM NO.	QTY.	PART NO.	DESCRIPTION
6	9	---	BOLT 5/8" X 2 1/4" A325 W/HHN & LW
5	54	---	BOLT 5/8" X 2" A325 W/HHN & LW
4	18	MS02-625-4625-700	RU-BOLT 5/8" X 4 5/8" I.W. X 7" I.L. A36 OR EQUIV
3	9	MH-18-300CP1	PL 3/8" X 3" X 2'-0 1/4" A36
2	18	MH-15E	L 2 1/2" X 2 1/2" X 1/4" X 7'-6" A36
1	9	HBR425-450W	PL 1/2" X 4 3/4" X 7" A36 WELDMENT BRACKET

TES
Tower Engineering Solutions
8445 FREEPORT PARKWAY, SUITE 375
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SBA
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BOCA RATON, FL 33487
(800)-487-SITE

TES JOB NO:
32039

CUSTOMER SITE NO:
CT01879-S-SBA
CUSTOMER SITE NAME:
CLINTON 4 CT
46 MEADOW ROAD
CLINTON, CT 06413

DRAWN BY: CHLE | CHECKED BY: RAM/SR

REV.	DESCRIPTION	BY	DATE
0	FIRST ISSUE	CHLE	05/12/17

SHEET TITLE:
MID-BAY HORIZONTAL ASSEMBLY- 3 BAYS (4.50" O.D PIPE LEG)

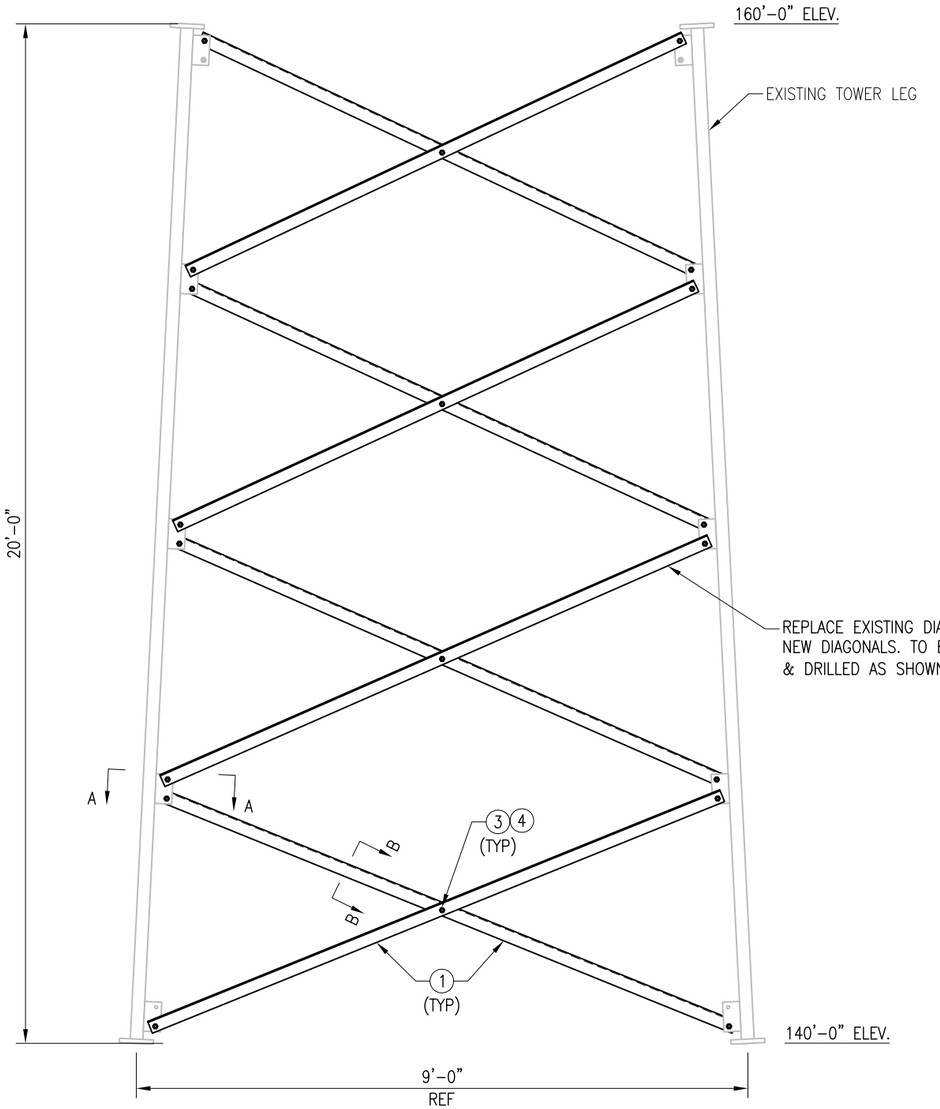
SHEET NUMBER: A-6
REV #: 0

NOTES:

1. SEE SHEET A-1 FOR LOCATION OF REQUIRED SECTION MODIFICATIONS.
2. TEMPORARILY RELOCATE ANY EXISTING COAX ATTACHED TO THE LEGS AND/OR ANY OTHER MEMBERS WHERE OBSTRUCTION WITH THE PROPOSED MODIFICATION MAY OCCUR.
3. WHEN FIELD CUTTING AND DRILLING ANGLES, USE SAME GAGE LINES AND EDGE DISTANCES AS INDICATED ON SHOP CUT AND DRILLED ENDS,
4. APPLY (2) COATS OF ZINC RICH GALVANIZING COMPOUND AS PER THE MANUFACTURER'S SPECIFICATIONS TO ALL FIELD CUT AND DRILLED AREAS.
5. TEMPORARY BRACING SHALL BE PROVIDED WHILE REPLACING MEMBERS. ONLY ONE MEMBER CAN BE REMOVED AT A TIME..

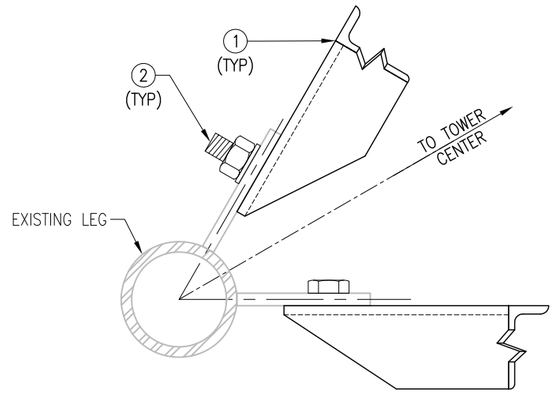
SAFETY NOTES:

REMOVAL OF EXISTING DIAGONALS MUST BE DONE CAREFULLY WITH SAFETY IN MIND. DIAGONAL MEMBERS CAN ONLY BE REMOVED ONE AT A TIME AND IMMEDIATELY REPLACED WITH THE NEW MEMBER. NO MORE THEN ONE MEMBER SHOULD REMOVED AT ANY TIME. IF REQUIRED TEMPORARY BRACING SHOULD BE INSTALLED FOR SAFETY.REPLACEMENT OF THE DIAGONALS SHALL BE PERFORMED AT A TIME WHEN THE WIND VELOCITY IS LESS THAN 10 MPH AT GROUND LEVEL AND WITH NO ICE ON THE STRUCTURE.

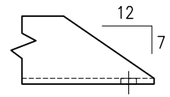


ELEVATION VIEW

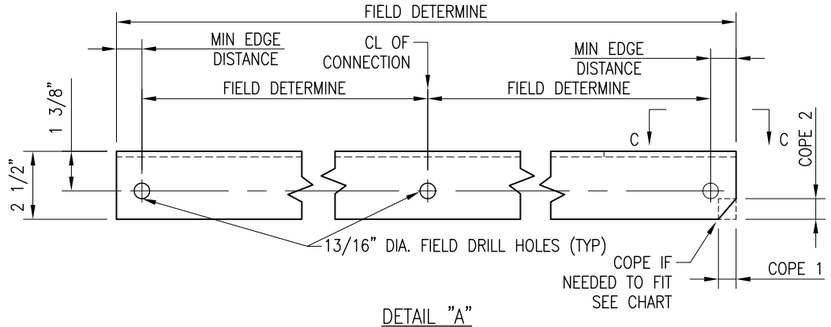
NOTE:
TOWER SHOWN IS ONLY REPRESENTATIVE.



SECTION "A-A"

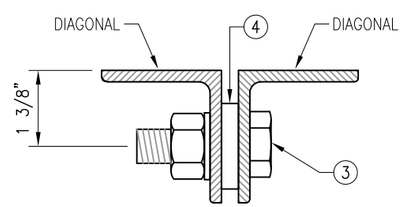


VIEW "C-C"



DETAIL "A"

BOLT DIA	MIN EDGE DISTANCE	COPE LENGTH 1	COPE LENGTH 2
1/2"	7/8"	5/8"	7/8"
5/8"	1 1/8"	13/16"	13/16"
3/4"	1 3/8"	1"	3/4"
7/8"	1 1/2"	1 1/16"	11/16"
1"	1 3/4"	1 1/4"	5/8"



SECTION "B-B"

ITEM NO.	QTY.	PART NO.	DESCRIPTION
4	12	---	SPACER/SHIM FOR 5/8" DIA BOLT (3/8" THICK)
3	12	---	BOLT 5/8" X 2" A325
2	48	---	BOLT 5/8" X 1 3/4" A325
1	24	D-5	L 2 1/2" X 2 1/2" X 3/8" X 11'-6" A36

TES
Tower Engineering Solutions
8445 FREEPORT PARKWAY, SUITE 375
IRVING, TX 75063
PH: (972) 483-0607

SBA
5900 BROKEN SOUND PARKWAY, NW
BOCA RATON, FL 33487
(800)-487-SITE

TES JOB NO:
32039

CUSTOMER SITE NO:
CT01879-S-SBA
CUSTOMER SITE NAME:
CLINTON 4 CT
46 MEADOW ROAD
CLINTON, CT 06413

DRAWN BY: CHLE | CHECKED BY: RAM/SR

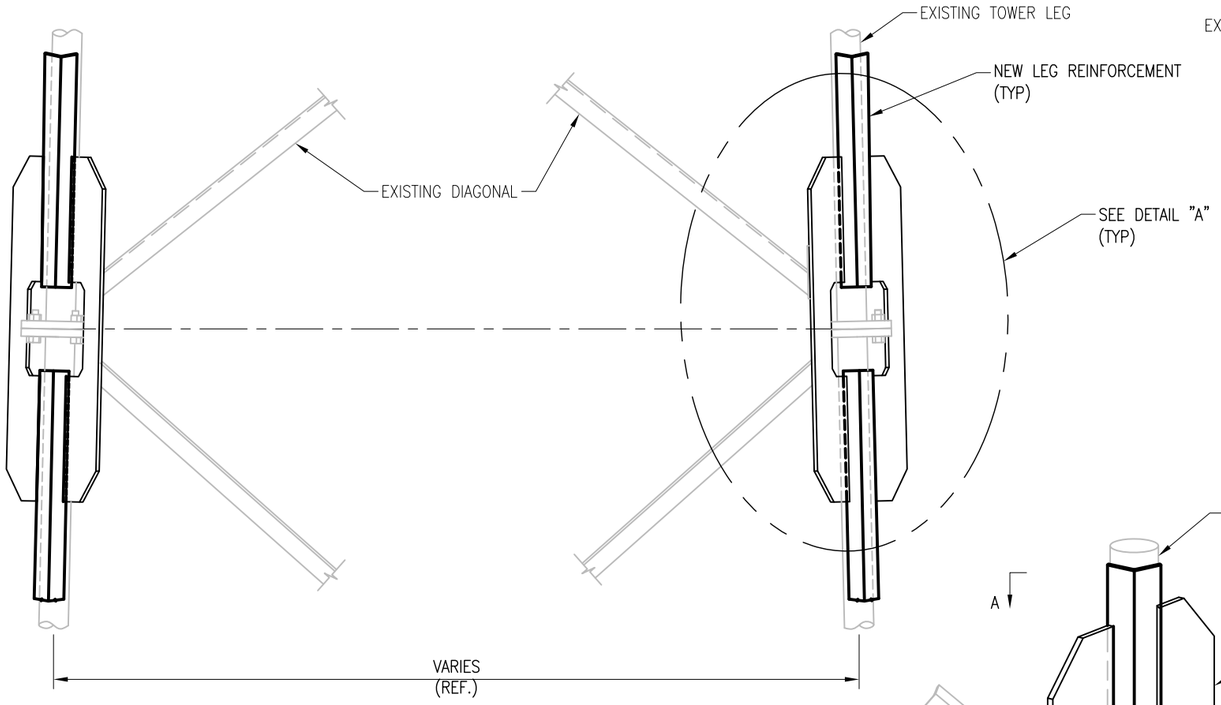
REV.	DESCRIPTION	BY	DATE
0	FIRST ISSUE	CHLE	05/12/17

SHEET TITLE:
DIAGONAL REPLACEMENT DETAILS

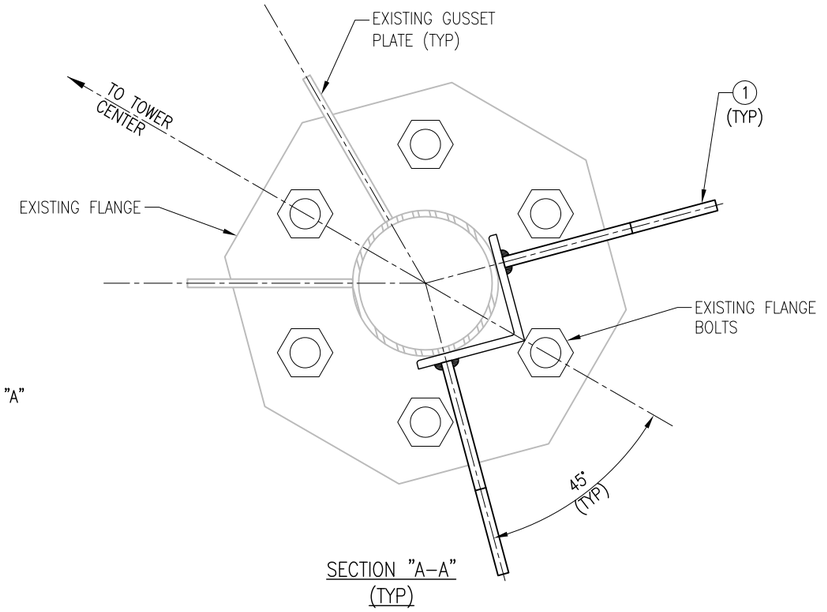
SHEET NUMBER: A-7
REV #: 0

INSTALLATION NOTES:

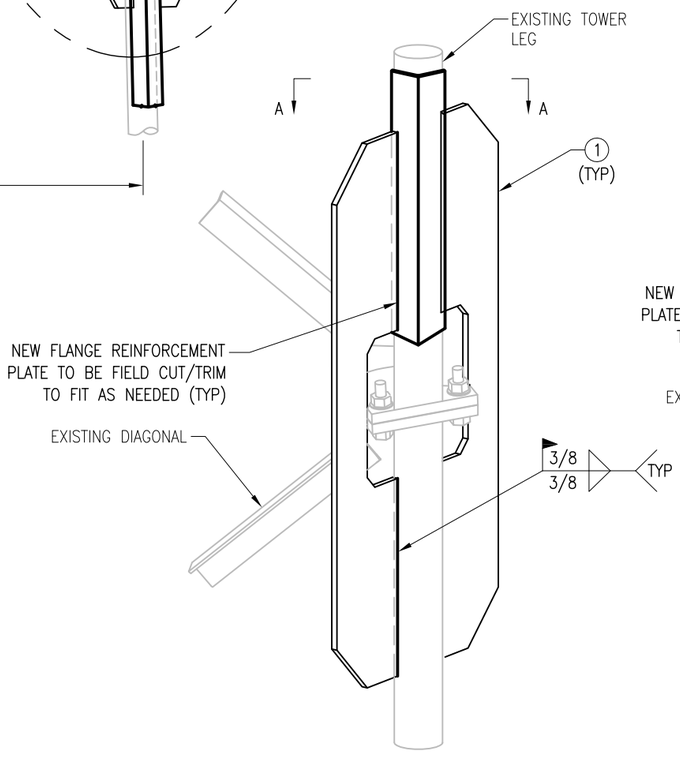
1. SEE SHEET A-1 FOR LOCATION OF REQUIRED SECTION MODIFICATION.
2. APPLY (2) COATS OF ZINC RICH GALVANIZING COMPOUND PER MANUFACTURER'S SPECIFICATIONS TO ALL FIELD CUT, WELDED AND EXPOSED AREAS.
3. WELD TYPE: E70XX



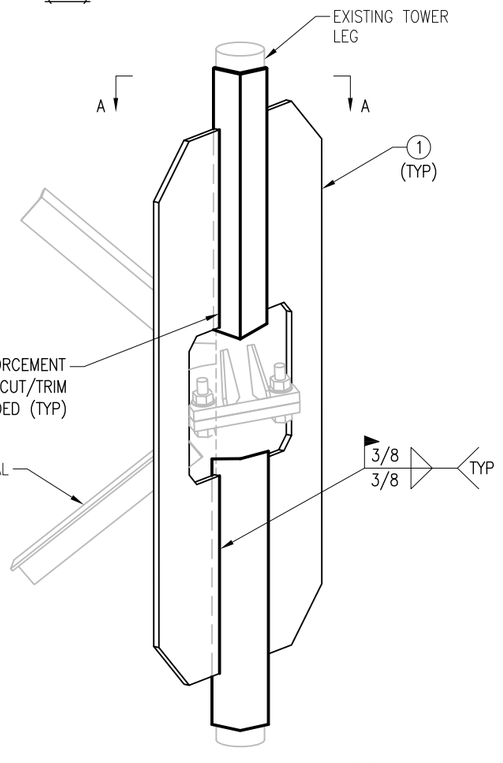
ELEVATION VIEW
(@ 20', 40', 60' AND 80' ELEV.)



SECTION "A-A"
(TYP)



DETAIL "A"
(@ 20'-0" ELEV.)



DETAIL "A"
(@ 40', 60, & 80' ELEV.)

1

ITEM NO.	QTY.	PART NO.	DESCRIPTION (PER ELEVATION ABOVE)
1	6	FP-1	PL 1/2" X 1'-0 1/2" X 4'-6" A572-50

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DRAWN BY: CHLE | CHECKED BY: RAM/SR

REV.	DESCRIPTION	BY	DATE
0	FIRST ISSUE	CHLE	05/12/17
1	REVISED	CHLE	07/07/17

SHEET TITLE:
FLANGE REINFORCEMENT ASSEMBLY

SHEET NUMBER: A-8
REV #: 1