Rigorous Structural Analysis Report

WPRI / WNAC-TV - WPRI-TV Tower Site

Owner: Nexstar Broadcasting, Inc. - - Site

Rehoboth, Massachusetts

June 16, 2017

MEI PROJECT ID: MA00868G-17V0

MALOUF ENGINEERING INTL., INC.

STRUCTURAL CONSULTANTS

17950 PRESTON ROAD, SUITE 720 ▪ DALLAS, TEXAS 75252 ▪ TEL. 972-783-2578 FAX 972-783-2583

www.maloufengineering.com

TIA AISC PROFESSIONAL MEMBER ACEC MEMBER

MALOUF ENGINEERING INTL., INC.

STRUCTURAL CONSULTANTS

June 16, 2017

Mr. William (Bill) Hague
WPRI / WNAC-TV
East Providence, Rhode Island 02914

RIGOROUS STRUCTURAL ANALYSIS

Structure/Make/Model:	893 ft **Guyed Tower**		Kline Iron & Steel Co. / Not Known	
Client/Site Name/#:	**WPRI / WNAC-TV**		**WPRI-TV Tower**	
Owner/Site Name/#:	Nexstar Broadcasting, Inc.			
MEI Project ID:	**MA00868G-17V0**			
Location:	195 Homestead Ave. Rehoboth, Massachusetts, 02769		Bristol County FCC #1021703	
	LAT	41-52-36.0 N	LON	71-16-55.0 W

EXECUTIVE SUMMARY:

Malouf Engineering Int'l (MEI), as requested, has performed a rigorous structural analysis of the above mentioned structure to assess the impact of the changed condition as noted in Table 1.

Based on the stress analysis performed, the existing structure **is NOT in conformance** with the Int'l Building Code (IBC) / ANSI/TIA-**222-G** Standard for the loading considered under the criteria listed and referenced in the report sections – tower rated at 235.1% - Legs.

The installation of the proposed changed condition as noted in Table 1 is NOT structurally acceptable.
Please note that the tower is overstressed with the current appurtenances configuration when evaluated for ANSI/TIA-222-G Standard conformance. The new proposed loading is significant and does contribute to the member overstress. *Due to the strengthening of this tower being not feasible and would be quite extensive in order to meet the new TIA-222-G standard requirements, a replacement tower is recommended.*

MEI appreciates the opportunity of providing our continuing professional services to you. If you have any questions or need further assistance on this or other projects please contact us.

Respectfully submitted,

MALOUF ENGINEERING INT'L, INC.

Analysis performed by:

Helder Lopez, PE
Sr. Project Engineer

Reviewed & Approved by:

COMMONWEALTH OF MASSACHUSETTS
E. MARK MALOUF
STRUCTURAL
No. 36943
REGISTERED PROFESSIONAL ENGINEER

E. Mark Malouf, PE
Massachusetts #36943
972-783-2578 ext. 106
mmalouf@maloufengineering.com

6/16/2017

TABLE OF CONTENTS

1. INTRODUCTION & SCOPE

A rigorous structural analysis was performed by Malouf Engineering Int'l (MEI), as requested and authorized by Mr. William (Bill) Hague, WPRI / WNAC-TV, to determine the acceptance of the proposed changed conditions in conformance with the IBC / ANSI/TIA-222-G Standard, "*Structural Standard for Antenna Supporting Structures and Antennas*".

The scope of this independent analysis is to determine the overall stability and the adequacy of structural members, foundations, and member connections, as available and stated. This analysis considers the structure to have been properly installed and maintained with no structural defects. Installation procedures and related loading are not within the scope of this analysis and should be performed and evaluated by a competent person of the erection contractor.

The different report sections detail the applicable information used in this evaluation, relating to the tower data, the appurtenances configuration and the wind and ice loading considered.

2. SOURCE OF DATA

The following information has been used in this evaluation as source data that accurately represent the existing structure and the related appurtenances:

	Source	Information	Reference
STRUCTURE			
Tower	MEI Records	MEI previous structural analysis	MEI MA00868G-07V0 dated 08/28/07
	WPRI / WNAC-TV / Mr. William Hague	Original Design Drawings	Kline Contract # 4987-1 Sheet FZ Dated 1961
Foundation	WPRI / WNAC-TV / Mr. William Hague	Foundation Design Drawings	Kline Contract # 4987-1 Dated 1961 & 1991
Material Grade	Available from supplied documents noted above-refer to Appendix		
CURRENT APPURTENANCES			
	MEI Records	Previous Structural Evaluation	MEI ID: MA00868G-14V0 Dated 08/13/2014
	WPRI / WNAC-TV / Mr. William Hague	E-mail Instructions	E-mail Dated 05/19/2017
CHANGED CONDITION			
	WPRI / WNAC-TV / Mr. William Hague	E-mail Instructions	E-mail Dated 05/24/2017

Background Information:

Based on available information, the following is known regarding this structure:

DESIGNER / FABRICATOR	Kline Iron & Steel Co. / Not Known
ORIGINAL DESIGN CRITERIA	TIA/EIA-222 Unknown
PRIOR STRUCTURAL MODIFICATIONS	Modifications as per Kline drawings dated 1991 and Structural Systems Technology, Inc. job #02-143 dated July 2002.

3. ANALYSIS CRITERIA

The structural analysis performed used the following criteria:

CODE / STANDARD	MABC / 2009 Int'l Building Code / ANSI/TIA-222-G-2 Standard	
LOADING CASES	*Full Wind*:	110 Mph (3-Sec Gust) - with No Radial Ice
	Iced Case:	50 Mph + 3/4" Radial Ice
	Service:	60 Mph
	Seismic:	S_s = 0.237 / S_1 = 0.061 / Site Class: D – Stiff Soil
STRUCTURE CRITERIA	*Risk Category (Structural Class)*: 2	
	Exposure Category: 'B' – *Topographic Category:* 1	

Appurtenances Configuration

The following appurtenances configuration is denoted by the *summation of Tables 1 & 2*:

Table 1: Changed Condition Appurtenances Configuration

Elev (ft)	Tenant	Ants Qty	Appurtenance Model / Description	Mount Description	Lines Qty	Line size & Location
873-800	WPRI-TV	1	THV-12A7/CP-R 04 DTV Antenna	Side Mounted	1	3 1/8" – (FZ)
Current Appurtenances To Be Removed						
869-866		1	External Platform			
319		1	Dipole Whip Antenna	Side Arm Mount	1	1 1/4" – (FZ)

Table 2: Other Current and Reserved/Future Appurtenances

Elev (ft)	Tenant	Ants Qty	Appurtenance Model / Description	Mount Description	Lines Qty	Line size & Location
893 Base		1	RCA TF-12BHP TV Antenna w/ Beacon		1	3 1/8" – (FZ)
					1	1 5/8" – (FZ)
893					1	1 1/2" Rigid Conduit – (FZ)
843		3	O.B. Light(s)			
834		1	ENG Antenna	Standoff Mount	1	1 5/8" – (FZ)
					1	7/8" – (FZ)
713		3	O.B. Light(s)			
578		1	Beacon			
448		3	O.B. Light(s)			
293		1	Beacon			
278		1	8 ft. Dia. Dish (w/ Radome)	Dish Pipe Mount	1	EW63" – (FZ)
273		1	6 ft. Dia. Dish (w/ Radome)	Dish Pipe Mount	1	7/8" – (FZ)
153		3	O.B. Light(s)			

Notes:
1. All elevations are measured from tower base.
2. Please note appurtenances not listed above are to be removed/not present as per data supplied.
3. (I) = Internal; (E) = External; (FZ) = Within Face Zone; (OFZ) = Outside Face Zone - as per TIA-222-G.
4. The above appurtenances represent MEI's understanding of the appurtenances configuration. If different than above, the analysis is invalid. Please contact MEI if any discrepancies are found.

4. ANALYSIS PROCEDURE

The subject structure is analyzed for feasibility of the installation of the proposed changed condition previously noted. The data records furnished were reviewed and a computer stress analysis was performed in accordance with the TIA-222 Standard provisions and with the agreed scope of work terms and the results of this analysis are reported.

Analysis Program

The computer program used to model the structure is a rigorous Finite Element Analysis program, tnxTower (ver. 7.07), a commercially available program by Tower Numerics Inc. The latticed structures members are modeled using beam/truss and cable members and the pole members using tubular beam elements. The structural parameters and geometry of the members are included in the model. The dead and temperature loads and the wind loads are internally calculated by the program for the different wind directions and then applied as external loads on the structure. Any applicable exemptions, as per Section 15.6 of the TIA-222-G Standard for existing structures originally designed in accordance with a previous revision of the TIA-222 Standard, have been taken.

Assumptions

This engineering study is based on the theoretical capacity of the members and is not a condition assessment of the structure. This analysis is based on information supplied, and therefore, its results are based on and as accurate as that supplied data. MEI has made no independent determination, nor is it required to, of its accuracy. The following assumptions were made for this structural stress analysis:

- This existing tower is assumed, for the purpose of this analysis, to have been properly maintained and to be in good condition with no structural defects and with no deterioration to its member capacities ('as-new' condition).
- The tower member sizes and configuration are considered accurate as supplied. The material grade is as per data supplied and/or as assumed and as stated.
- The appurtenances configuration is as supplied and/or as stated in the report. It is assumed to be complete and accurate. All antennas, mounts, coax and waveguides are assumed to be properly installed and supported as per manufacturer requirements.
- Some assumptions are made regarding antennas and mounts sizes and their projected areas based on best interpretation of data supplied and of best knowledge of antenna type & industry practice.
- Mounts/Platforms are considered adequate to support the loading. No actual analysis of the platform/mount itself is performed, with the analysis being limited to analyzing the structure.
- The soil parameters are as per data supplied or as assumed and stated in the calculations. Refer to the Appendix. If no data is available, the foundation system is assumed to support the structure with its new reactions.
- All welds and connections are assumed to develop at least the member capacity, unless determined otherwise and explicitly stated in this report.
- All guy cable assemblies, as applicable, are assumed to develop the rated breaking strength of the wire.
- All prior structural modifications, if any, are assumed to be as per data supplied/available, and to have been properly installed and to be fully effective.

If any of the above assumptions are not valid or have been made in error, this analysis results may be invalided, MEI should be contacted to review any contradictory information to determine its effect.

5. ANALYSIS RESULTS

The results of the structural stress analysis based on data available and with the previous listed criteria, indicated the following:

Note: The Wind loading controls over the Seismic loading as per TIA Section 2.7.

Table 3: Stress Analysis Results

Component Type	Maximum Stress Ratio	Controlling Elev. (ft) / Component	Pass/Fail	Comment
GUYS	102.8%	893	**Acceptable**	
	107.1%	778	**Fail**	
LEGS	196.5%	853 - 823	**Fail**	
	190.7%	823 - 793	**Fail**	
	134.2%	793 - 763	**Fail**	
	133.6%	763 - 733	**Fail**	
	207.4%	733 - 703	**Fail**	
	144.9%	703 - 673	**Fail**	
	154.8%	673 - 643	**Fail**	
	177.7%	643 - 628	**Fail**	
	235.1%	**628 - 598**	**Fail**	
	220.2%	598 - 568	**Fail**	
	144.0%	568 - 538	**Fail**	
	123.2%	538 - 508	**Fail**	
	116.7%	448 - 418	**Fail**	
	100.3%	388 - 358	**Acceptable**	
	101.6%	358 - 328	**Acceptable**	
	100.1%	178 - 148	**Acceptable**	
	107.0%	118 - 88	**Fail**	
DIAGONALS	102.3%	793 - 763	**Acceptable**	
HORIZONTALS	31.4%	673 - 643	**Pass**	
GIRTS	49.2%	888.5 - 870.5	**Pass**	
PULL-OFF	25.1%	793 - 763	**Pass**	
BASE FDN	>150%	Bearing	**Fail**	Overturning Moment
GUY ANCHORS	86.3%	Shear	**Pass**	

Table 4: Serviceability Requirements

	Maximum Value	TIA Requirement (10dB)	Pass/Fail	Comment
TWIST/SWAY	0.4571 Deg.	1.175 Deg.	**Pass**	6ft Dia. Dish w/ Radome) Elev. 273ft
	0.4632 Deg.	0.80625 Deg.	**Pass**	8ft Dia. Dish w/ Radome) Elev. 278ft
	1.3116 Deg.	4 Deg. from Vert. or Horiz. Axis	**Pass**	
HORIZONTAL DISPLACEMENT	12.628 In./ 0.11% of Ht.	3.0% of Height	**Pass**	

Notes:

1. The Maximum Stress Ratio is the percentage that the maximum load in the member is relative to the allowable load as determined by Code requirements.
2. Refer to the Appendix 1 for more details on the member loads.
3. A maximum stress ratio between 100% and 105% may be considered as *Acceptable* according to industry standard practice.

6. FINDINGS & RECOMMENDATIONS

- Based on the rigorous stress analysis results, the subject structure is **rated at 235.1%** of its support capacity (controlling component: Legs) with the proposed changed condition considered. Please refer to Table 3 and to Appendix 1 for more details of the analysis results.
- Based on the stress analysis performed, the existing structure **is NOT in conformance** with the IBC / ANSI/TIA **222-G** Standard for the loading considered under the criteria listed and referenced in the report sections.
- ***The installation of the proposed changed condition as noted in Table 1 is NOT structurally acceptable***.
- This tower is well above its maximum support capacity for the appurtenances and loading criteria considered.
- Please note that the tower is overstressed with the current appurtenances configuration when evaluated for ANSI/TIA-222-G Standard conformance. The new proposed loading is significant and does contribute to the member overstress.
- *Due to the strengthening of this tower being not feasible and would be quite extensive in order to meet the new TIA-222-G standard requirements, a replacement tower is recommended.*

7. REPORT DISCLAIMER

The engineering services rendered by **M**alouf **E**ngineering **I**nternational, Inc. *('MEI') in connection with this Structural Analysis are limited to a computer analysis of the tower structure, size and capacity of its members. MEI does not analyze the fabrication, including welding and connection capacities, except as included in this Report.*

The analysis performed and the conclusions contained herein are based on the assumption that the tower has been properly installed and maintained, including, but not limited to the following:

1. Proper alignment and plumbness.
2. Correct guy tensions, as applicable.
3. Correct bolt tightness or slip jacking of sleeved connections.
4. No significant deterioration or damage to any structural component.

Furthermore, the information and conclusions contained in this Report were determined by application of the current "state-of-the-art" engineering and analysis procedures and formulae. MALOUF ENGINEERING INTERNATIONAL, INC. assumes no obligation to revise any of the information or conclusions contained in this Report in the event that such engineering and analysis procedures and formulae are hereafter modified or revised. In addition, under no circumstances will MALOUF ENGINEERING INTERNATIONAL, INC. have any obligation or responsibility whatsoever for or on account of consequential or incidental damages sustained by any person, firm or organization as a result of any information or conclusions contained in the Report, and the maximum liability of MALOUF ENGINEERING INTERNATIONAL, INC., if any, pursuant to this Report shall be limited to the total funds actually received by MALOUF ENGINEERING INTERNATIONAL, INC. for preparation of this Report.

Customer has requested MALOUF ENGINEERING INTERNATIONAL, INC. to prepare and submit to Customer an engineering analysis with respect to the Subject Tower and has further requested MALOUF ENGINEERING INTERNATIONAL, INC. to make appropriate recommendations regarding suggested structural modifications and changes to the Subject Tower. In making such request of MALOUF ENGINEERING INTERNATIONAL, INC., Customer has informed MALOUF ENGINEERING INTERNATIONAL, INC. that Customer will make a determination as to whether or not to implement any of the changes or modifications which may be suggested by MALOUF ENGINEERING INTERNATIONAL, INC. and that Customer will have any such changes or modifications made by riggers, erectors and other subcontractors of Customer's choice. MALOUF ENGINEERING INTERNATIONAL, INC. shall have the right to rely upon the accuracy of the information supplied by the customer and shall not be held responsible for the Customer's misrepresentation or omission of relevant fact whether intentional or otherwise.

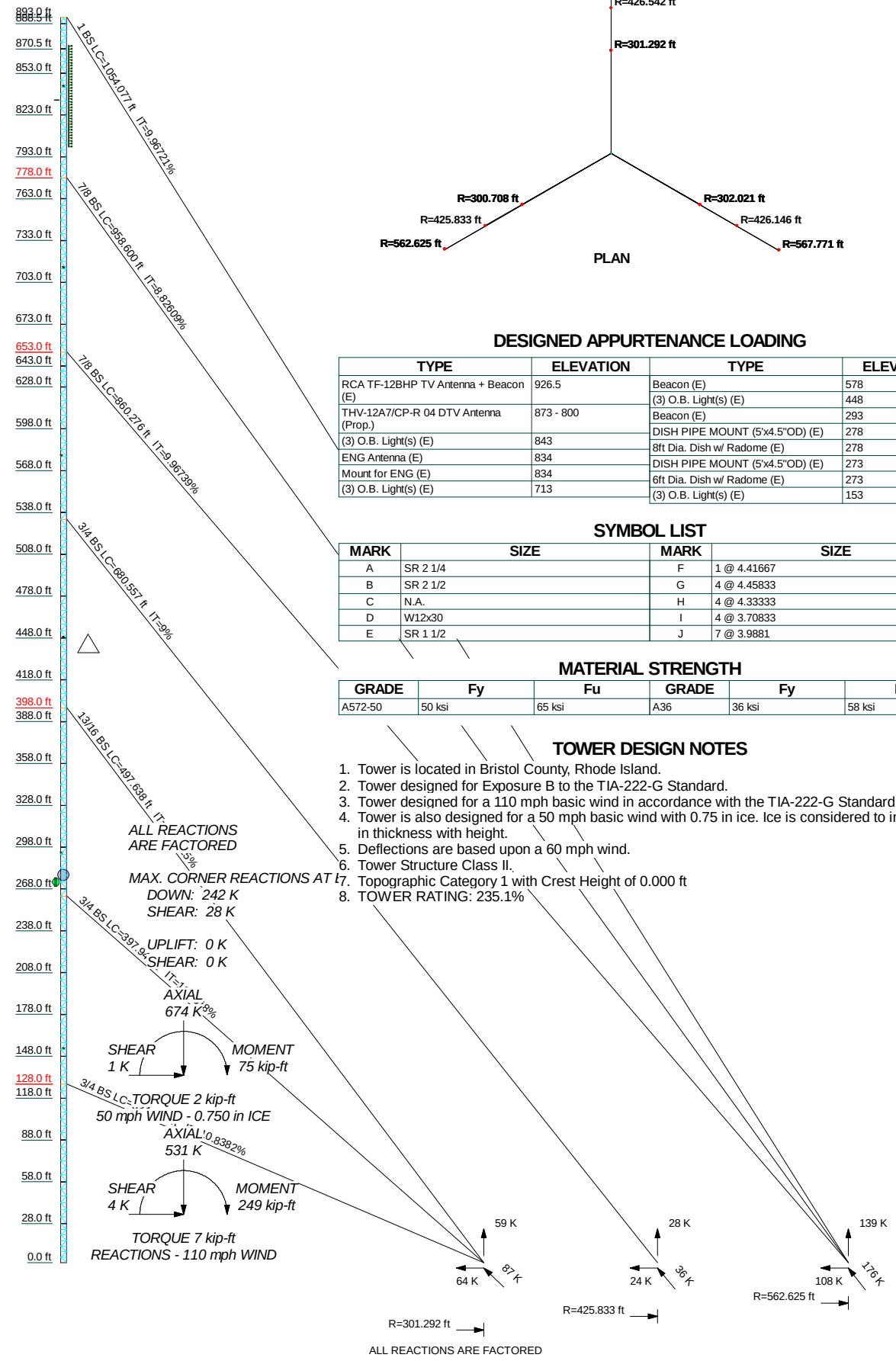
Customer hereby agrees and acknowledges that MALOUF ENGINEERING INTERNATIONAL, INC. shall have no liability whatsoever to Customer or to others for any work or services performed by any persons other than MALOUF ENGINEERING INTERNATIONAL, INC. in connection with the implementation of services including but not limited to any services rendered for Customer or for others by riggers, erectors or other subcontractors. Customer acknowledges and agrees that any riggers, erectors or subcontractors retained or employed by Customer shall be solely responsible to Customer and to others for the quality of work performed by them and that MALOUF ENGINEERING INTERNATIONAL, INC. shall have no liability or responsibility whatsoever as a result of any negligence or breach of contract by any such rigger, erector or subcontractor and that Customer and rigger, erector, or subcontractor will provide MALOUF ENGINEERING INTERNATIONAL, INC. with a Certificate of Insurance naming MALOUF ENGINEERING INTERNATIONAL, INC. as additional insured.

APPENDIX 1 - ANALYSIS PRINTOUT & GRAPHICS

Section		T1	A
Legs	SR 3 1/2	T2	A
Leg Grade	A572-50	T3	B
Diagonals	L2 1/2x3x3/8	T4	SR 2 1/4
Diagonal Grade	A36	T5	SR 2 1/4
Top Girts	L2 1/2x2 1/2x5/16	T6	B
Bottom Girts	L2 1/2x2 1/2x5/16	T7	A
Horizontals	L2 1/2x2 1/2x5/16	T8	N.A.
Top Guy Pull-Offs	N.A.	T9	N.A.
Face Width (ft)	4.5	T10	SR 2 1/2
# Panels @ (ft)	120 @ 4.97222	T11	I
Weight (K)	93.5	T12	42 @ 4.97222

Section		T13	D
Legs	SR 3 1/4	T14	SR 2 3/4
Leg Grade	A572-50	T15	SR 2 3/4
Diagonals	SR 1 1/2	T16	SR 2 3/4
Diagonal Grade	A572-50	T17	SR 3
Top Girts	SR 1 1/8	T18	SR 3
Bottom Girts	SR 1 1/8	T19	SR 3
Horizontals	SR 1 1/4	T20	SR 3
Top Guy Pull-Offs	N.A.	T21	SR 3
Face Width (ft)	4.5	T22	SR 3
# Panels @ (ft)	120 @ 4.97222	T23	SR 3
Weight (K)	93.5	T24	SR 3

Section		T25	E
Legs	SR 3 1/4	T26	SR 3 1/4
Leg Grade	A572-50	T27	SR 3 1/4
Diagonals	SR 1 1/2	T28	SR 3 1/4
Diagonal Grade	A572-50	T29	SR 3 1/4
Top Girts	SR 1 1/8	T30	SR 3 1/4
Bottom Girts	SR 1 1/8	T31	SR 3 1/2
Horizontals	SR 1 1/4	T32	SR 3 1/2
Top Guy Pull-Offs	N.A.		
Face Width (ft)	4.5		
# Panels @ (ft)	120 @ 4.97222		
Weight (K)	93.5		



DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
RCA TF-12BHP TV Antenna + Beacon (E)	926.5	Beacon (E)	578
THV-12A7/CP-R 04 DTV Antenna (Prop.)	873 - 800	(3) O.B. Light(s) (E)	448
(3) O.B. Light(s) (E)	843	Beacon (E)	293
ENG Antenna (E)	834	DISH PIPE MOUNT (5'x4.5"OD) (E)	278
Mount for ENG (E)	834	8ft Dia. Dish w/ Radome (E)	278
(3) O.B. Light(s) (E)	713	DISH PIPE MOUNT (5'x4.5"OD) (E)	273
		6ft Dia. Dish w/ Radome (E)	273
		(3) O.B. Light(s) (E)	153

SYMBOL LIST

MARK	SIZE	MARK	SIZE
A	SR 2 1/4	F	1 @ 4.41667
B	SR 2 1/2	G	4 @ 4.45833
C	N.A.	H	4 @ 4.33333
D	W12x30	I	4 @ 3.70833
E	SR 1 1/2	J	7 @ 3.9881

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-50	50 ksi	65 ksi	A36	36 ksi	58 ksi

TOWER DESIGN NOTES

1. Tower is located in Bristol County, Rhode Island.
2. Tower designed for Exposure B to the TIA-222-G Standard.
3. Tower designed for a 110 mph basic wind in accordance with the TIA-222-G Standard.
4. Tower is also designed for a 50 mph basic wind with 0.75 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Structure Class II.
7. Topographic Category 1 with Crest Height of 0.000 ft
8. TOWER RATING: 235.1%

MALOUF ENGINEERING INTL., INC. STRUCTURAL CONSULTANTS
maloufengineering.com

MALOUF ENGINEERING INT'L. INC.
17950 PRESTON RD. SUITE 720
DALLAS, TEXAS - 75252
Phone: (972) 783-2578
FAX: (972) 783-2583

Job: **893 ft. GT / WPRI-WNAC TV SITE**			
Project: ***MA00868G-17V0***			
Client: WPRI / WNAC-TV	Drawn by: HLopez		App'd:
Code: TIA-222-G	Date: 06/16/17		Scale: NTS
Path: C:\MEIProjects\17files\GT\MA00868G-17V0\MA00868G-17V0.eri			Dwg No. E-1

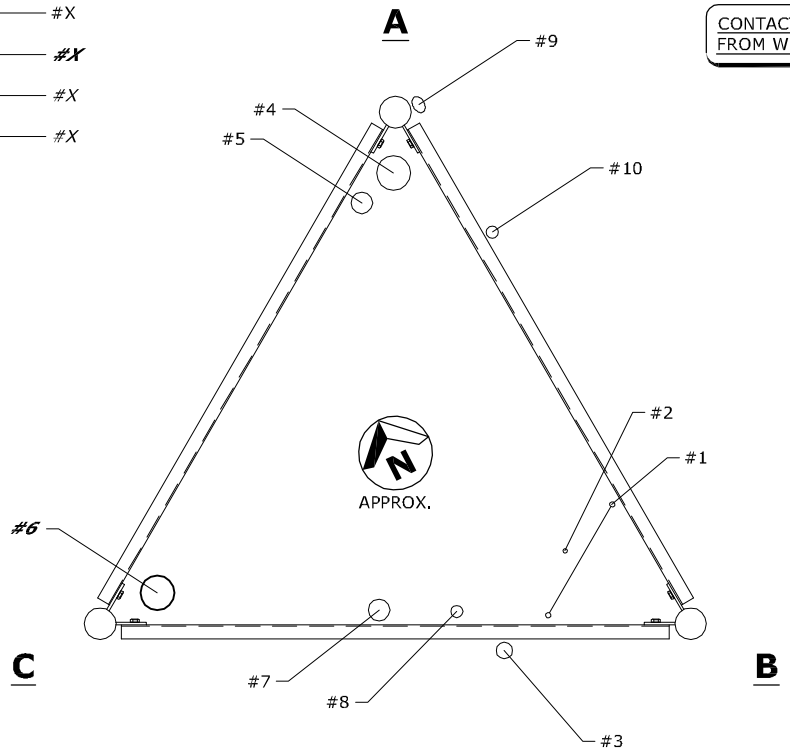
No.	QTY.	DESCRIPTION	ELEV.	TENANT
1	1	Climbing Ladder	893'	E
2	1	Safety Line 3/8	870'	E
3	1	1 1/2" Rigid Conduit	893'	E
4	1	3 1/8	893'	WPRI-TV / E
5	1	1 5/8	893'	WPRI-TV / E
6	1	3 1/8	800'	WPRI-TV / P
7	1	1 5/8	834'	E
8	1	7/8	834'	E
9	1	EW63	278'	E
10	1	7/8	273'	E

THE STRUCTURE **DOES NOT MEET THE MINIMUM TIA-222-G STANDARD CODE STRUCTURAL REQUIREMENTS**
(REFER TO ANALYSIS REPORT FOR DETAILS)

CONTACT MEI IF LINE LAYOUT IS DIFFERENT FROM WHAT IS SHOWN BELOW.

LEGEND:

E = EXISTING #X
P = PROPOSED #X
F = FUTURE #X
R = REMOVE #X
TO RELOCATE



101 PLAN: SCHEMATIC Tx-LINE LAYOUT

SCALE: NOT TO SCALE

NOTES:
1. Tx LINE LAYOUT IS SCHEMATIC ONLY, BASED UPON LIMITED DATA AVAILABLE IN MEI RECORDS AND DATA PROVIDED.
2. NEW BRACKET SUPPORT SPECIFICATION BY OTHERS.

JUN 16, 2017

MALOUF ENGINEERING INTERNATIONAL, INC.
STRUCTURAL CONSULTANTS
17950 PRESTON ROAD SUITE 720
DALLAS, TEXAS 75252-5635
972-783-2578 (fax: 2583)
www.maloufengineering.com

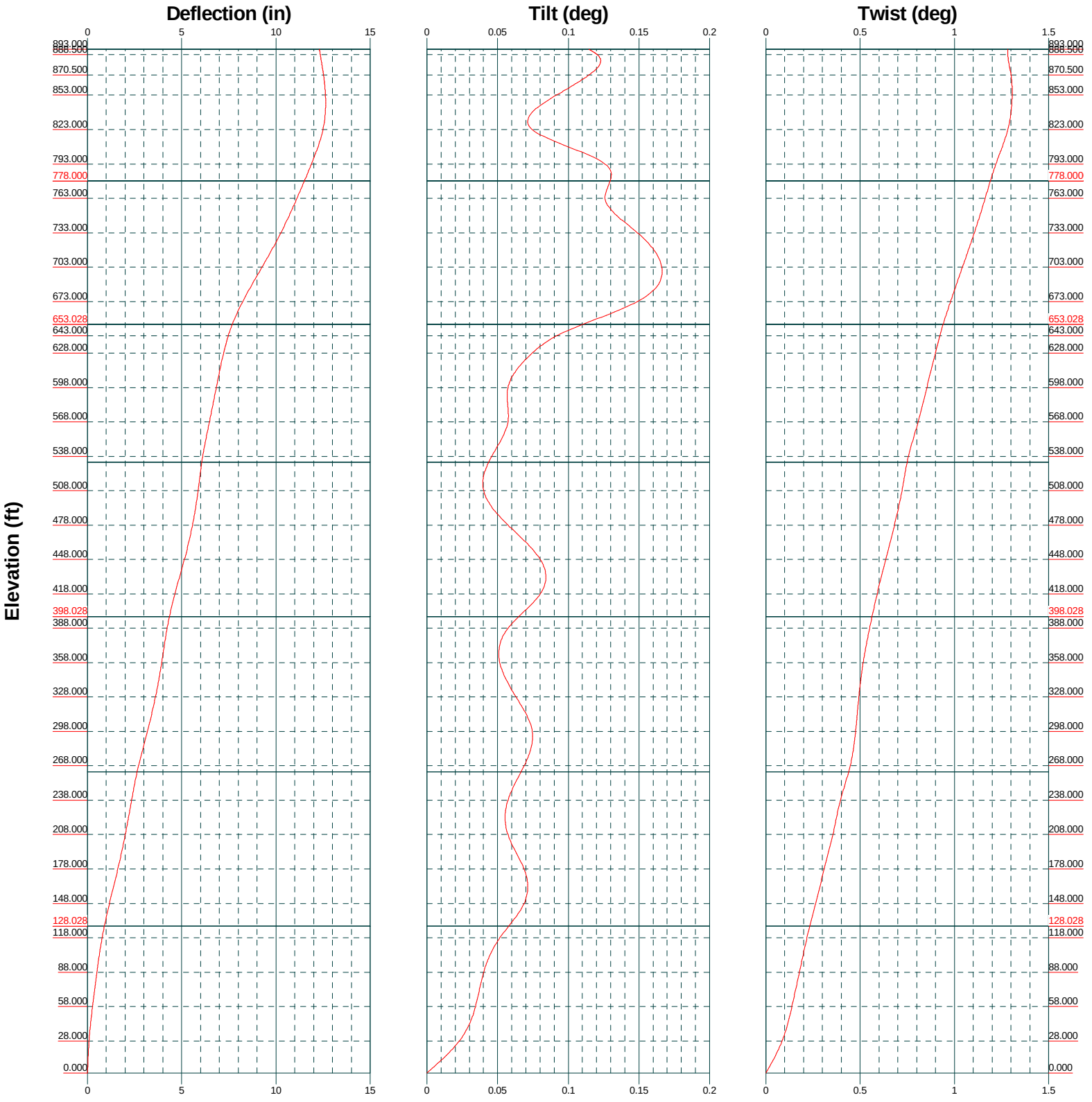
893 FT. GT / WPRI-WNAC TV SITE

TOWER TxLINE LAYOUT

MEI PROJECT ID	SHEET NUMBER	REV.
MA00868G-17V0	**L01**	0

TIA-222-G - Service - 60 mph

Maximum Values



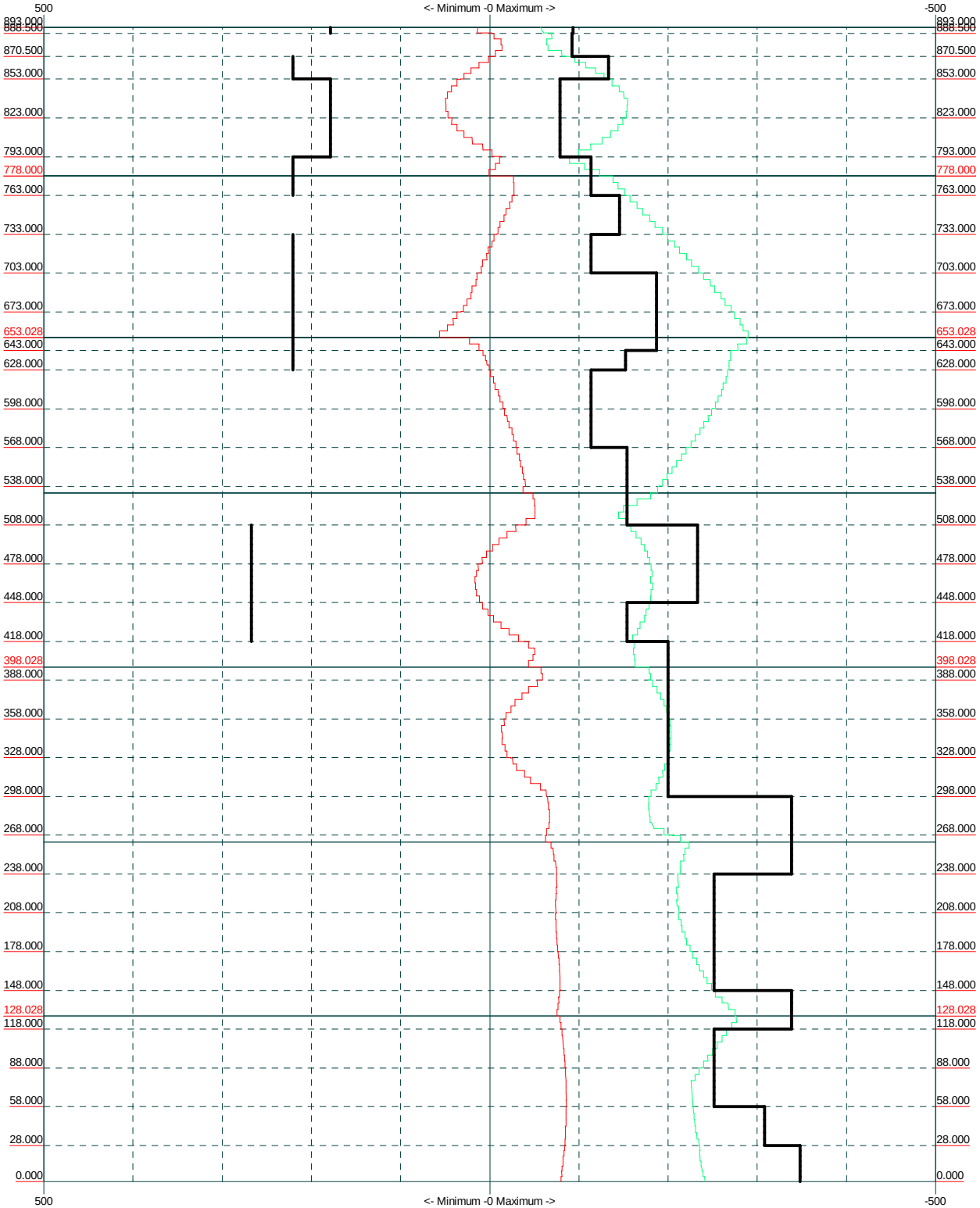
MALOUF ENGINEERING INTL., INC.
STRUCTURAL CONSULTANTS
maloufengineering.com

MALOUF ENGINEERING INT'L. INC.
17950 PRESTON RD. SUITE 720
DALLAS, TEXAS - 75252
Phone: (972) 783-2578
FAX: (972) 783-2583

Job: ***893 ft. GT / WPRI-WNAC TV SITE***			
Project: ***MA00868G-17V0***			
Client: WPRI / WNAC-TV	Drawn by: HLopez	App'd:	
Code: TIA-222-G	Date: 06/16/17	Scale: NTS	
Path: C:\MEIProjects\17files\GT\MA00868G-17V0\MA00868G-17V0.eri		Dwg No. E-5	

TIA-222-G - 110 mph/50 mph 0.750 in Ice Exposure B

Leg Capacity ——— **Leg Compression (K)**



MALOUF ENGINEERING INTL., INC.
STRUCTURAL CONSULTANTS
maloufengineering.com

MALOUF ENGINEERING INT'L. INC.
17950 PRESTON RD. SUITE 720
DALLAS, TEXAS - 75252
Phone: (972) 783-2578
FAX: (972) 783-2583

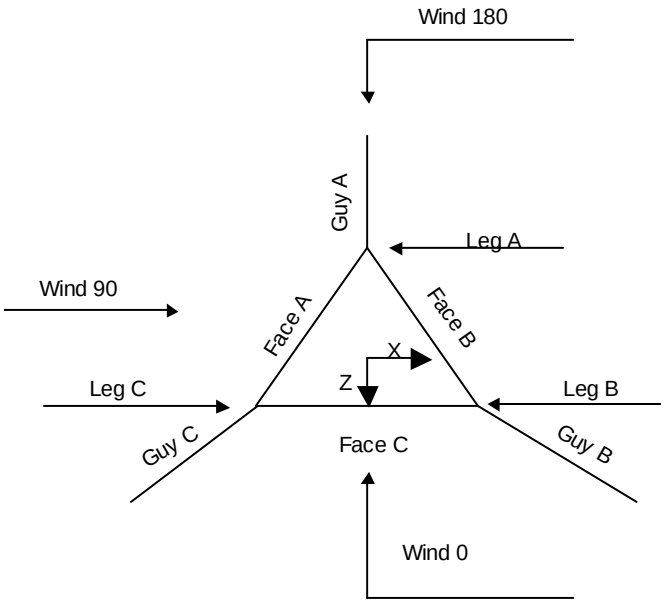
Job: ***893 ft. GT / WPRI-WNAC TV SITE***			
Project: ***MA00868G-17V0***			
Client: WPRI / WNAC-TV	Drawn by: HLopez	App'd:	
Code: TIA-222-G	Date: 06/16/17	Scale: NTS	
Path: C:\MEIProjects\17files\GT\MA00868G-17V0\MA00868G-17V0.en		Dwg No. E-3	

MALOUF ENGINEERING INT'L. INC.
17950 PRESTON RD. SUITE 720
DALLAS, TEXAS - 75252
Phone: (972) 783-2578
FAX: (972) 783-2583

Tower Input Data

The main tower is a 3x guyed tower with an overall height of 893.000 ft above the ground line.
The base of the tower is set at an elevation of 0.000 ft above the ground line.
The face width of the tower is 4.500 ft at the top and 4.500 ft at the base.
This tower is designed using the TIA-222-G standard.
The following design criteria apply:

Tower is located in Bristol County, Rhode Island.
Basic wind speed of 110 mph.
Structure Class II.
Exposure Category B.
Topographic Category 1.
Crest Height 0.000 ft.
Nominal ice thickness of 0.750 in.
Ice thickness is considered to increase with height.
Ice density of 56 pcf.
A wind speed of 50 mph is used in combination with ice.
Temperature drop of 60 °F.
Deflections calculated using a wind speed of 60 mph.
Pressures are calculated at each section.
Safety factor used in guy design is 1.
Stress ratio used in tower member design is 1.
Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.



Corner & Starmount Guyed Tower

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	*Face or Leg*	*Placement ft*	*#*	*# Per Row*
Misc. Weight (E)	A	893.000 - 0.000	1	1
Climbing Ladder (E)	C	893.000 - 0.000	1	1
Safety Line 3/8 (E)	C	870.000 - 0.000	1	1
1 1/2" Rigid Conduit (E)	C	893.000 - 0.000	1	1
3 1/8 (WPRI-TV / E)	A	893.000 - 0.000	1	1
1 5/8 (WPRI-TV / E)	A	893.000 - 0.000	1	1
3 1/8 (WPRI-TV / P)	A	800.000 - 0.000	1	1
1 5/8 (E)	C	834.000 - 0.000	1	1
7/8 (E)	C	834.000 - 0.000	1	1
EW63 (E)	B	278.000 - 0.000	1	1
7/8 (E)	B	273.000 - 0.000	1	1

Discrete Tower Loads

Description	*Face or Leg*	*Offset Type*	*Placement* *ft*
RCA TF-12BHP TV Antenna + Beacon (E)	A	None	926.500
THV-12A7/CP-R 04 DTV Antenna (Prop.)	B	From Face	873.000 - 800.000
(3) O.B. Light(s) (E)	A	None	843.000
ENG Antenna (E)	C	From Leg	834.000
Mount for ENG (E)	C	From Leg	834.000
(3) O.B. Light(s) (E)	A	None	713.000
Beacon (E)	A	From Face	578.000
(3) O.B. Light(s) (E)	A	None	448.000
Beacon (E)	A	From Face	293.000
DISH PIPE MOUNT (5'x4.5"OD) (E)	A	From Leg	278.000
DISH PIPE MOUNT (5'x4.5"OD) (E)	C	From Leg	273.000
(3) O.B. Light(s) (E)	A	None	153.000

Dishes

Description	*Face or Leg*	*Dish Type*	*Offset Type*	*Elevation* *ft*	*Outside Diameter* *ft*
8ft Dia. Dish w/ Radome (E)	A	Paraboloid w/Radome	From Leg	278.000	8.375
6ft Dia. Dish w/ Radome (E)	C	Paraboloid w/Radome	From Leg	273.000	6.358

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
926.500	RCA TF-12BHP TV Antenna + Beacon	53	12.312	0.1125	1.2831	84792
893.000	Guy	53	12.312	0.1125	1.2831	84792
873.000	THV-12A7/CP-R 04 DTV Antenna	53	12.503	0.1165	1.3003	64650
867.786	THV-12A7/CP-R 04 DTV Antenna	53	12.549	0.1123	1.3050	42123
862.571	THV-12A7/CP-R 04 DTV Antenna	53	12.586	0.1067	1.3076	32596
857.357	THV-12A7/CP-R 04 DTV Antenna	53	12.614	0.0987	1.3087	26622
852.143	THV-12A7/CP-R 04 DTV Antenna	53	12.630	0.0872	1.3085	23018
846.929	THV-12A7/CP-R 04 DTV Antenna	53	12.633	0.0718	1.3072	21389
843.000	(3) O.B. Light(s)	53	12.625	0.0588	1.3056	20418
841.714	THV-12A7/CP-R 04 DTV Antenna	53	12.621	0.0544	1.3049	20120
836.500	THV-12A7/CP-R 04 DTV Antenna	57	12.605	0.0393	1.3012	18991
834.000	ENG Antenna	57	12.594	0.0411	1.2989	18492
831.286	THV-12A7/CP-R 04 DTV Antenna	57	12.578	0.0476	1.2961	17979
826.071	THV-12A7/CP-R 04 DTV Antenna	57	12.532	0.0630	1.2893	17102
820.857	THV-12A7/CP-R 04 DTV Antenna	57	12.467	0.0778	1.2807	17822
815.643	THV-12A7/CP-R 04 DTV Antenna	57	12.384	0.0911	1.2705	21231
810.429	THV-12A7/CP-R 04 DTV Antenna	57	12.286	0.1027	1.2591	26509
805.214	THV-12A7/CP-R 04 DTV Antenna	57	12.175	0.1123	1.2471	35279
800.000	THV-12A7/CP-R 04 DTV Antenna	57	12.056	0.1198	1.2349	52720
778.000	Guy	57	11.507	0.1278	1.1913	187509
713.000	(3) O.B. Light(s)	57	9.611	0.1620	1.0627	97273
653.028	Guy	57	7.684	0.1100	0.9385	27590
578.000	Beacon	57	6.592	0.0588	0.8227	287006
532.944	Guy	61	6.069	0.0454	0.7505	74780
448.000	(3) O.B. Light(s)	57	5.145	0.0793	0.6373	70717
398.028	Guy	57	4.346	0.0644	0.5631	66908
293.000	Beacon	57	3.097	0.0745	0.4720	139148
278.000	8ft Dia. Dish w/ Radome	57	2.855	0.0717 (10 dB) 0.80625	0.4576 (10 dB) 0.80625	101109
273.000	6ft Dia. Dish w/ Radome	57	2.778	0.0702 (10 dB) 1.175	0.4517 (10 dB) 1.175	72122
262.944	Guy	57	2.634	0.0660	0.4377	66419
153.000	(3) O.B. Light(s)	55	1.240	0.0696	0.2718	248723
128.028	Guy	55	0.895	0.0578	0.2345	90122

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
T1	893 - 888.5	Leg	2 1/4	1	-71.327	93.488	76.3	Pass
T2	888.5 - 870.5	Leg	2 1/4	16	-87.354	92.345	94.6	Pass
T3	870.5 - 853	Leg	2 1/2	48	-132.819	133.159	99.7	Pass
T4	853 - 823	Leg	2 1/4	78	-154.467	78.591	196.5	Fail
T5	823 - 793	Leg	2 1/4	120	-149.878	78.591	190.7	Fail
T6	793 - 763	Leg	2 1/2	161	-152.213	113.443	134.2	Fail
T7	763 - 733	Leg	2 1/4	203	-194.584	145.661	133.6	Fail
T8	733 - 703	Leg	2 1/2	245	-235.308	113.443	207.4	Fail
T9	703 - 673	Leg	2 1/2	287	-270.909	186.995	144.9	Fail
T10	673 - 643	Leg	2 1/2	329	-289.489	186.995	154.8	Fail
T11	643 - 628	Leg	2 1/2	371	-270.892	152.477	177.7	Fail
T12	628 - 598	Leg	2 1/2	401	-266.759	113.443	235.1	Fail
T13	598 - 568	Leg	2 1/2	443	-249.782	113.443	220.2	Fail
T14	568 - 538	Leg	2 3/4	485	-221.905	154.095	144.0	Fail
T15	538 - 508	Leg	2 3/4	527	-189.782	154.095	123.2	Fail
T16	508 - 478	Leg	2 3/4	568	-179.309	232.902	77.0	Pass
T17	478 - 448	Leg	2 3/4	610	-182.607	232.902	78.4	Pass
T18	448 - 418	Leg	2 3/4	652	-179.778	154.095	116.7	Fail
T19	418 - 388	Leg	3	694	-180.373	200.248	90.1	Pass
T20	388 - 358	Leg	3	736	-200.912	200.248	100.3	Accep.
T21	358 - 328	Leg	3	778	-203.373	200.248	101.6	Accep.
T22	328 - 298	Leg	3	820	-200.093	200.248	99.9	Pass
T23	298 - 268	Leg	3 1/4	863	-204.982	338.265	60.6	Pass
T24	268 - 238	Leg	3 1/4	905	-223.562	338.265	66.1	Pass
T25	238 - 208	Leg	3 1/4	947	-213.140	251.665	84.7	Pass
T26	208 - 178	Leg	3 1/4	989	-226.569	251.665	90.0	Pass
T27	178 - 148	Leg	3 1/4	1032	-251.869	251.665	100.1	Accep.
T28	148 - 118	Leg	3 1/4	1074	-276.704	338.265	81.8	Pass
T29	118 - 88	Leg	3 1/4	1116	-269.321	251.665	107.0	Fail
T30	88 - 58	Leg	3 1/4	1158	-237.805	251.665	94.5	Pass
T31	58 - 28	Leg	3 1/2	1199	-235.185	308.164	76.3	Pass
T32	28 - 0	Leg	3 1/2	1241	-241.304	347.895	69.4	Pass
T1	893 - 888.5	Diagonal	2 1/4	13	-22.114	123.845	17.9	Pass
T2	888.5 - 870.5	Diagonal	1 1/2	44	-16.977	21.590	78.6	Pass
T3	870.5 - 853	Diagonal	1 1/2	74	-14.004	22.414	62.5	Pass
T4	853 - 823	Diagonal	1 1/2	116	-6.814	19.263	35.4	Pass
T5	823 - 793	Diagonal	1 1/2	128	-18.430	19.263	95.7	Pass
T6	793 - 763	Diagonal	1 1/2	188	-19.890	19.451	102.3	Accep.
T7	763 - 733	Diagonal	1 1/2	212	-8.553	36.705	23.3	Pass
T8	733 - 703	Diagonal	1 1/2	254	-11.336	19.451	58.3	Pass
T9	703 - 673	Diagonal	1 1/2	296	-14.206	19.451	73.0	Pass
T10	673 - 643	Diagonal	1 1/2	350	-14.963	19.451	76.9	Pass
T11	643 - 628	Diagonal	1 1/2	399	-9.819	25.727	38.2	Pass
T12	628 - 598	Diagonal	1 1/2	435	-10.199	19.451	52.4	Pass
T13	598 - 568	Diagonal	1 1/2	481	-9.030	19.451	46.4	Pass
T14	568 - 538	Diagonal	1 1/2	494	-7.277	19.641	37.0	Pass
T15	538 - 508	Diagonal	1 1/2	561	-13.182	19.641	67.1	Pass
T16	508 - 478	Diagonal	1 1/2	607	-10.765	37.255	28.9	Pass
T17	478 - 448	Diagonal	1 1/2	649	-6.847	37.255	18.4	Pass
T18	448 - 418	Diagonal	1 1/2	662	-10.470	19.641	53.3	Pass
T19	418 - 388	Diagonal	1 1/2	716	-12.803	19.834	64.5	Pass
T20	388 - 358	Diagonal	1 1/2	777	-10.048	19.834	50.7	Pass
T21	358 - 328	Diagonal	1 1/2	788	-5.775	19.834	29.1	Pass
T22	328 - 298	Diagonal	1 1/2	830	-10.077	19.834	50.8	Pass
T23	298 - 268	Diagonal	1 1/2	873	-17.282	37.807	45.7	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
T24	268 - 238	Diagonal	1 1/2	944	-16.994	37.807	45.0	Pass
T25	238 - 208	Diagonal	1 1/2	985	-6.496	20.030	32.4	Pass
T26	208 - 178	Diagonal	1 1/2	999	-6.576	20.030	32.8	Pass
T27	178 - 148	Diagonal	1 1/2	1041	-7.910	20.030	39.5	Pass
T28	148 - 118	Diagonal	1 1/2	1081	-8.259	37.807	21.8	Pass
T29	118 - 88	Diagonal	1 1/2	1147	-7.834	20.030	39.1	Pass
T30	88 - 58	Diagonal	L2 1/2x3x3/8	1195	-6.695	36.197	18.5	Pass
T31	58 - 28	Diagonal	L2 1/2x3x3/8	1220	-6.112	36.390	16.8	Pass
T32	28 - 0	Diagonal	L2 1/2x3x3/8	1262	-6.703	40.424	16.6	Pass
T2	888.5 - 870.5	Horizontal	1 1/4	28	-1.400	15.796	8.9	Pass
T3	870.5 - 853	Horizontal	1 1/4	58	-2.220	15.950	13.9	Pass
T4	853 - 823	Horizontal	1 1/4	95	-2.675	15.796	16.9	Pass
T5	823 - 793	Horizontal	1 1/4	130	-2.584	15.796	16.4	Pass
T6	793 - 763	Horizontal	1 1/4	172	-2.617	15.950	16.4	Pass
T7	763 - 733	Horizontal	1 1/4	220	-3.354	15.796	21.2	Pass
T8	733 - 703	Horizontal	1 1/4	262	-4.060	15.950	25.5	Pass
T9	703 - 673	Horizontal	1 1/4	298	-4.689	15.950	29.4	Pass
T10	673 - 643	Horizontal	1 1/4	340	-5.014	15.950	31.4	Pass
T11	643 - 628	Horizontal	1 1/4	388	-4.679	15.950	29.3	Pass
T12	628 - 598	Horizontal	1 1/4	413	-4.617	15.950	28.9	Pass
T13	598 - 568	Horizontal	1 1/4	461	-4.306	15.950	27.0	Pass
T14	568 - 538	Horizontal	1 1/4	497	-3.814	16.106	23.7	Pass
T15	538 - 508	Horizontal	1 1/4	539	-3.264	16.106	20.3	Pass
T16	508 - 478	Horizontal	1 1/4	582	-3.106	16.106	19.3	Pass
T17	478 - 448	Horizontal	1 1/4	622	-3.163	16.106	19.6	Pass
T18	448 - 418	Horizontal	1 1/4	666	-3.092	16.106	19.2	Pass
T19	418 - 388	Horizontal	1 1/4	708	-3.124	16.264	19.2	Pass
T20	388 - 358	Horizontal	1 1/4	750	-3.475	16.264	21.4	Pass
T21	358 - 328	Horizontal	1 1/4	792	-3.523	16.264	21.7	Pass
T22	328 - 298	Horizontal	1 1/4	833	-3.455	16.264	21.2	Pass
T23	298 - 268	Horizontal	1 1/4	880	-3.384	16.425	20.6	Pass
T24	268 - 238	Horizontal	1 1/4	916	-3.872	16.425	23.6	Pass
T25	238 - 208	Horizontal	1 1/4	958	-3.674	16.425	22.4	Pass
T26	208 - 178	Horizontal	1 1/4	1006	-3.894	16.425	23.7	Pass
T27	178 - 148	Horizontal	1 1/4	1042	-4.313	16.425	26.3	Pass
T28	148 - 118	Horizontal	1 1/4	1085	-4.793	16.425	29.2	Pass
T29	118 - 88	Horizontal	1 1/4	1126	-4.603	16.425	28.0	Pass
T30	88 - 58	Horizontal	L2 1/2x2 1/2x5/16	1168	-4.069	32.907	12.4	Pass
T31	58 - 28	Horizontal	L2 1/2x2 1/2x5/16	1210	-4.062	33.025	12.3	Pass
T32	28 - 0	Horizontal	L2 1/2x2 1/2x5/16	1253	-4.180	33.025	12.7	Pass
T2	888.5 - 870.5	Top Girt	1 1/8	20	-3.264	6.633	49.2	Pass
T3	870.5 - 853	Top Girt	1 1/8	50	-0.933	6.697	13.9	Pass
T4	853 - 823	Top Girt	1 1/8	81	-0.376	6.633	5.7	Pass
T5	823 - 793	Top Girt	1 1/8	122	-1.267	6.633	19.1	Pass
T6	793 - 763	Top Girt	1 1/8	164	-1.896	6.697	28.3	Pass
T7	763 - 733	Top Girt	1 1/8	206	-0.937	6.633	14.1	Pass
T8	733 - 703	Top Girt	1 1/8	248	-0.917	6.697	13.7	Pass
T9	703 - 673	Top Girt	1 1/8	290	-0.998	6.697	14.9	Pass
T10	673 - 643	Top Girt	1 1/8	332	-1.152	6.697	17.2	Pass
T11	643 - 628	Top Girt	1 1/8	375	-0.726	6.697	10.8	Pass
T12	628 - 598	Top Girt	1 1/8	405	-0.657	6.697	9.8	Pass
T13	598 - 568	Top Girt	1 1/8	447	-0.668	6.697	10.0	Pass
T14	568 - 538	Top Girt	1 1/8	489	-0.435	6.763	6.4	Pass
T15	538 - 508	Top Girt	1 1/8	530	-0.210	6.763	3.1	Pass
T16	508 - 478	Top Girt	1 1/8	573	-0.204	6.763	3.0	Pass
T17	478 - 448	Top Girt	1 1/8	614	-0.097	6.763	1.4	Pass
T18	448 - 418	Top Girt	1 1/8	656	-0.456	6.763	6.7	Pass
T19	418 - 388	Top Girt	1 1/8	698	-0.507	6.829	7.4	Pass
T20	388 - 358	Top Girt	1 1/8	741	0.539	44.731	1.2	Pass
T21	358 - 328	Top Girt	1 1/8	781	0.491	44.731	1.1	Pass
T22	328 - 298	Top Girt	1 1/8	824	-0.215	6.829	3.1	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	øP$_{allow}$ K	% Capacity	Pass Fail
T23	298 - 268	Top Girt	1 1/8	866	-0.217	6.897	3.2	Pass
T24	268 - 238	Top Girt	1 1/8	909	-0.206	6.897	3.0	Pass
T25	238 - 208	Top Girt	1 1/8	950	0.607	44.731	1.4	Pass
T26	208 - 178	Top Girt	1 1/8	993	0.647	44.731	1.4	Pass
T27	178 - 148	Top Girt	1 1/8	1035	0.716	44.731	1.6	Pass
T28	148 - 118	Top Girt	1 1/8	1077	0.748	44.731	1.7	Pass
T29	118 - 88	Top Girt	1 1/8	1117	0.733	44.731	1.6	Pass
T30	88 - 58	Top Girt	L2 1/2x2 1/2x5/16	1159	0.813	47.304	1.7	Pass
T31	58 - 28	Top Girt	L2 1/2x2 1/2x5/16	1203	0.738	47.304	1.6	Pass
T32	28 - 0	Top Girt	L2 1/2x2 1/2x5/16	1245	-1.298	26.981	4.8	Pass
T1	893 - 888.5	Bottom Girt	1 1/8	8	4.472	44.731	10.0	Pass
T2	888.5 - 870.5	Bottom Girt	1 1/8	23	-1.475	6.633	22.2	Pass
T3	870.5 - 853	Bottom Girt	1 1/8	53	-0.912	6.697	13.6	Pass
T4	853 - 823	Bottom Girt	1 1/8	83	-0.402	6.633	6.1	Pass
T5	823 - 793	Bottom Girt	1 1/8	125	-1.726	6.633	26.0	Pass
T6	793 - 763	Bottom Girt	1 1/8	168	-0.693	6.697	10.3	Pass
T7	763 - 733	Bottom Girt	1 1/8	209	-0.830	6.633	12.5	Pass
T8	733 - 703	Bottom Girt	1 1/8	251	-0.811	6.697	12.1	Pass
T9	703 - 673	Bottom Girt	1 1/8	293	-1.083	6.697	16.2	Pass
T10	673 - 643	Bottom Girt	1 1/8	334	-0.707	6.697	10.6	Pass
T11	643 - 628	Bottom Girt	1 1/8	376	-0.665	6.697	9.9	Pass
T12	628 - 598	Bottom Girt	1 1/8	406	-0.754	6.697	11.3	Pass
T13	598 - 568	Bottom Girt	1 1/8	448	-0.466	6.697	7.0	Pass
T14	568 - 538	Bottom Girt	1 1/8	491	-0.285	6.763	4.2	Pass
T15	538 - 508	Bottom Girt	1 1/8	532	-0.642	6.763	9.5	Pass
T16	508 - 478	Bottom Girt	1 1/8	574	-0.446	6.763	6.6	Pass
T17	478 - 448	Bottom Girt	1 1/8	616	-0.208	6.763	3.1	Pass
T18	448 - 418	Bottom Girt	1 1/8	659	-0.208	6.763	3.1	Pass
T19	418 - 388	Bottom Girt	1 1/8	700	-0.337	6.829	4.9	Pass
T20	388 - 358	Bottom Girt	1 1/8	742	-0.132	6.829	1.9	Pass
T21	358 - 328	Bottom Girt	1 1/8	786	0.521	44.731	1.2	Pass
T22	328 - 298	Bottom Girt	1 1/8	827	0.631	44.731	1.4	Pass
T23	298 - 268	Bottom Girt	1 1/8	870	1.023	44.731	2.3	Pass
T24	268 - 238	Bottom Girt	1 1/8	910	0.742	44.731	1.7	Pass
T25	238 - 208	Bottom Girt	1 1/8	952	0.680	44.731	1.5	Pass
T26	208 - 178	Bottom Girt	1 1/8	996	0.655	44.731	1.5	Pass
T27	178 - 148	Bottom Girt	1 1/8	1038	0.751	44.731	1.7	Pass
T28	148 - 118	Bottom Girt	1 1/8	1078	0.675	44.731	1.5	Pass
T29	118 - 88	Bottom Girt	1 1/8	1120	0.636	44.731	1.4	Pass
T30	88 - 58	Bottom Girt	L2 1/2x2 1/2x5/16	1163	0.753	47.304	1.6	Pass
T31	58 - 28	Bottom Girt	L2 1/2x2 1/2x5/16	1206	-1.346	26.981	5.0	Pass
T32	28 - 0	Bottom Girt	L2 1/2x2 1/2x5/16	1247	16.513	47.304	34.9	Pass
T1	893 - 888.5	Guy A@893	1	1290	74.930	73.200	102.4	Accep.
T6	793 - 763	Guy A@778	7/8	1293	59.050	55.200	107.0	Fail
T10	673 - 643	Guy A@653.028	7/8	1296	49.402	55.200	89.5	Pass
T15	538 - 508	Guy A@532.944	3/4	1299	37.007	40.800	90.7	Pass
T19	418 - 388	Guy A@398.028	13/16	1302	42.243	48.000	88.0	Pass
T24	268 - 238	Guy A@262.944	3/4	1305	32.997	40.800	80.9	Pass
T28	148 - 118	Guy A@128.028	3/4	1308	16.844	40.800	41.3	Pass
T1	893 - 888.5	Guy B@893	1	1289	74.585	73.200	101.9	Accep.
T6	793 - 763	Guy B@778	7/8	1292	58.796	55.200	106.5	Fail
T10	673 - 643	Guy B@653.028	7/8	1295	49.209	55.200	89.1	Pass
T15	538 - 508	Guy B@532.944	3/4	1298	37.036	40.800	90.8	Pass
T19	418 - 388	Guy B@398.028	13/16	1301	41.811	48.000	87.1	Pass
T24	268 - 238	Guy B@262.944	3/4	1304	31.651	40.800	77.6	Pass
T28	148 - 118	Guy B@128.028	3/4	1307	16.744	40.800	41.0	Pass
T1	893 - 888.5	Guy C@893	1	1288	75.263	73.200	102.8	Accep.
T6	793 - 763	Guy C@778	7/8	1291	59.108	55.200	107.1	Fail
T10	673 - 643	Guy C@653.028	7/8	1294	49.458	55.200	89.6	Pass
T15	538 - 508	Guy C@532.944	3/4	1297	37.088	40.800	90.9	Pass
T19	418 - 388	Guy C@398.028	13/16	1300	42.186	48.000	87.9	Pass

MALOUF ENGINEERING INT'L. INC.
17950 PRESTON RD. SUITE 720
DALLAS, TEXAS - 75252
Phone: (972) 783-2578
FAX: (972) 783-2583

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
T24	268 - 238	Guy C@262.944	3/4	1303	32.637	40.800	80.0	Pass
T28	148 - 118	Guy C@128.028	3/4	1306	16.808	40.800	41.2	Pass
T1	893 - 888.5	Top Guy Pull-Off@893	W12x30	5	23.867	321.384	13.7	Pass
T6	793 - 763	Top Guy Pull-Off@778	1 1/2	185	19.985	79.522	25.1	Pass
T10	673 - 643	Top Guy Pull-Off@653.028	1 1/2	347	18.512	79.522	23.3	Pass
T15	538 - 508	Top Guy Pull-Off@532.944	1 1/2	564	13.452	79.522	16.9	Pass
T19	418 - 388	Top Guy Pull-Off@398.028	1 1/2	713	15.498	79.522	19.5	Pass
T24	268 - 238	Top Guy Pull-Off@262.944	1 1/2	942	15.396	79.522	19.4	Pass
T28	148 - 118	Top Guy Pull-Off@128.028	1 1/2	1092	9.764	79.522	12.3	Pass

Summary		
Leg (T12)	235.1	Fail ✗
Diagonal (T6)	102.3	Acccep.
Horizontal (T10)	31.4	Pass
Top Girt (T2)	49.2	Pass
Bottom Girt (T32)	34.9	Pass
Guy A (T6)	107.0	Fail ✗
Guy B (T6)	106.5	Fail ✗
Guy C (T6)	107.1	Fail ✗
Top Guy Pull-Off (T6)	25.1	Pass
RATING =	**235.1**	**Fail ✗**

APPENDIX 2 – SOURCE / CHANGED CONDITION

From: Hague, William <WHague@wpri.com>
Sent: Wednesday, May 24, 2017 2:58 PM
To: mmalouf@maloufengineering.com
Subject: WPRI loads side mount

Flag Status: Flagged

Loads for a side mounted THV-12A7/CP-R O4:

Length = 72.8 ft.
CaAc = 181.5 sq. ft.
W = 3000 lbs.
…

From: Hague, William [mailto:WHague@wpri.com]
Sent: Friday, May 19, 2017 2:22 PM
To: mmalouf@maloufengineering.com
Subject: WPRI Tower

Hi Mark
…
The tower elevation from that report.

Top mount antenna
One ENG antenna
One 8ft and 6ft dish
3 1/8 rigid line- feed hybrid
1 5/8 flex- feed hybrid
One hybrid combiner just below base of antenna
7/8 flex- eng-control
1 5/8 flex eng rf
Ew-63- 8ft dish
7/8 flex 6ft dish
Electrical conduit- lights

Page 13 of tower inspection shows line layout on tower

All issues in this report have been fixed in 2014- tower painted-wires greased and P&T

Removed from this print
Platform @ 866
Dipole @ 319

The lighting is not correct, I enclosed a tower map from SST dwg# 02-143-001. This show the correct location of the OB (yes 4 of them) and the 3 beacons. I just re-lamped the tower and verified this

Need to add the following items to see if the tower can take the load.
Additional 3 1/8 run from the base and a dielectric THV series antenna side mount.

William Hague
Director of Engineering & Operations
WPRI-TV
25 Catamore Blvd.
East providence, RI 02914
401-438-7200 Main
401-228-1750 Office
401-639-7740 Cell
401-438-2571 Fax
whague@wpri.com